CANCER OUTCOMES RESEARCH STUDIES

CN1: TREATMENT STRATEGIES FOR STAGE IB CERVICAL CANCER: A COST-EFFECTIVENESS ANALYSIS
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OBJECTIVES: To assess the cost-effectiveness of two common strategies and alternative triage strategy for patients with stage IB cervical cancer. METHODS: A Markov state transition model was constructed to compare three strategies: (1) radical hysterectomy followed by tailored adjuvant therapy (RH+TA); (2) primary chemoradiation (pCCRT); (3) Triage strategy, in which patients without risk in preoperative MRI undergo primary surgery and those with any risk factors in MRI undergo primary CCRT. All relevant literature was identified to extract the probability data. Direct medical costs were estimated from Korean National Health Insurance database. Strategies were compared using incremental cost per year of life saved (YLS). RESULTS: RH+TA strategy was the least expensive strategy. Although pCCRT strategy had similar outcomes, pCCRT strategy was more expensive than RH+TA ($10,945 vs. $7,257). A sensitivity analysis showed that RH+TA is cost-effective than pCCRT when the percentage of patients who require no adjuvant therapy after radical hysterectomy exceeds 30%. Triage strategy was more expensive and more effective, with an incremental cost-effectiveness ratio (ICER) of $39,271 per year of life saved (YLS) compared to RH+TA. Results are relatively sensitive to variation in how the rate of patients who require adjuvant therapy after surgery decrease in MRI-based strategy. CONCLUSIONS: RH+TA is cost-effective than pCCRT in Stage IB cervical cancer. Given the current high rates of adjuvant therapy after primary radical surgery in Stage IB cervical cancer, MRI-based strategy has potential to be cost-effective when compared to RH+TA at high test performance and at the lower range of test costs.

CN2: COST-EFFECTIVENESS ANALYSIS OF COMPUTED TOMOGRAPHIC COLONOGRAPHY VERSUS DOUBLE CONTRAST BARIUM ENEMA FOR INVESTIGATION OF PATIENTS WITH SYMPTOMS OF COLORECTAL CANCER: ECONOMIC EVALUATION ALONGSIDE THE SIGGAR TRIAL
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OBJECTIVES: To assess costs and cost effectiveness of CTC compared with BE in patients with symptomatic colorectal cancers from the UK NHS perspective. METHODS: A Markov model with Monte Carlo simulation was developed to assess the costs, life years and quality adjusted life years associated with CTC vs. BE in patients with symptoms suggestive of bowel cancer. The initial diagnostic findings, follow up investigations for suspected colonic lesions, confirmed diagnoses, and the costs and utilities associated with each state, were derived from the literature. Outcomes were compared using incremental cost per quality adjusted life year (QALY) gained. Probabilistic sensitivity analysis was conducted across key input variables. RESULTS: The mean life time costs required to reach a diagnosis were £658 and £718 for BE and CTC trial arms respectively leading to a mean difference of £61 for each patient having a diagnostic test. The (discounted) life years obtained were 9.943 and 9.975, and (discounted) QALYs were 8.900 and 8.938 for BE and CTC respectively leading to 0.032 life years, 0.038 QALYs advantaged for CTC. The incremental costs per life year gained was £1,856 (£1,133 without discounting), and per QALYs gained at £1,598 (£969 without discounting) for CTC compared with BE. The probabilistic sensitivity analysis produced that the probability of CTC being cost effective was 75% at a willingness-to-pay value of £20,000 for a QALY gained. CONCLUSIONS: This analysis showed that CTC was clearly cost effective over BE. Therefore CTC should be recommended in place of BE as one of the primary diagnostic methods for patients referred with symptoms suggestive of colorectal cancer.

CN3: BUDGET IMPACT ANALYSIS OF CRIZOTINIB TREATMENT IN ALK+ NON-SMALL-CELL LUNG CANCER PATIENTS IN THAILAND
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OBJECTIVES: To access the potential to be cost-effective when compared to RH+TA at high test performance and at the lower range of test costs.
OBJECTIVES: Crizotinib, a first-in-class compound that specifically inhibits a tumor-specific protein called anaplastic lymphoma kinase (ALK) of non-small-cell lung cancer (NSCLC) is currently not reimbursable to all Thai patients. This budget impact analysis was aimed at examining the financial impact if crizotinib was subsidized for all identified ALK+ NSCLC patients in Thailand. METHODS: A 3-year budget impact model is designed to capture differences in outcomes related to the overall direct costs incurred from receiving crizotinib versus other standard therapies for 1st, 2nd and 3rd lines of care. Local incidence of NSCLC and ALK+ rate were estimated from the national registry data and Chiang Mai University (CMU) Hospital data. The government procurement database was the reference for the drug cost. Other specific medical costs came from CMU Hospital. Cost attributable to prerequisite diagnostic testing was also incorporated into the model and testing strategies were created according to standard practice. RESULTS: An estimated 5,377 new cases were diagnosed as advanced NSCLC annually and referred for further testing prior to receiving therapy. The net budget impact was estimated under two scenarios. In the first scenario where crizotinib was subsidized with no restriction, the average net budgetary impact in the 3-year period was 576 million baht (US$18 million) from the average 414 patients receiving crizotinib yearly. The second scenario in which crizotinib was restrictively used as 2nd or 3rd line, the average 3-year financial difference was 284 million baht (US$8.9 million) from the average 214 patients receiving crizotinib yearly. Univariate sensitivity analysis showed that crizotinib acquisition cost and prevalence of ALK+ were the leading parameters influencing the results of the first and second scenarios, respectively. CONCLUSIONS: This model captured the clinical and economic values of crizotinib for ALK+ NSCLC patients in Thailand. Nevertheless, humanistic value should be taken into account and still needs to be explored.

CN4: STUDY ON THE DIRECT MEDICAL COST OF MALIGNANT NEOPLASMS INPATIENTS WITH URBAN BASIC HEALTH INSURANCE SCHEME IN CHINA

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OBJECTIVES: By estimating the direct medical cost of malignant neoplasms inpatients with urban basic health insurance scheme (UBHIS) in 2011 in China, we try to provide evidence for the government to manage the illness more effectively. METHODS: A nationwide, cross-sectional sampling of malignant neoplasms inpatients with UBHIS was extracted from the China Health Insurance Research Association claim database. A retrospective analysis was adopted and all results were extrapolated to the whole country according to the scale of the population, economics and other factors in the sample cities. RESULTS: The visits of malignant neoplasms inpatients, accounted for 7.64% of total visits, were 2.92 million. The rank of main malignant neoplasms inpatients were lung cancer, breast cancer, gastric cancer, rectum cancer, colon cancer and liver cancer, which accounted for 54.09% in all malignant neoplasms inpatients. The hospitalization expenses of malignant neoplasms inpatients was 42.61 billion yuan, as the top costs, which accounted for 13.59% in all hospitalization expenses; the proportion of the above six kinds of cancer costs was 52.00% (22.16 billion yuan) in all hospitalization expenses of malignant neoplasms inpatients. The average hospitalization expenses of each visit was 14,594 yuan (14,513 yuan in 2010), the average hospitalization expenses of every day was 914 yuan (increasing by 8.7% from 2010). The composition of hospitalization expenses: drugs 53.85%, diagnosis and treatments 39.00%, medical consumables 7.15%. Reimbursement by UBHIS was 69.34% (66.44% in 2010), about 29.55 billion yuan. CONCLUSIONS: Cancer brought large disease burden in China, particularly, six kinds of cancer mentioned above have much hospitalization expenses. The reimbursement by UBHIS added 3% from 2010 to 2011, reducing the economic burden of malignant neoplasms inpatients. However, for the poor, the personal burden is still a problem. China has launched supplemental insurance for catastrophic health expenditure, relieving the burden of disease constantly.

DIABETES OUTCOMES RESEARCH STUDIES

DB1: IMPACT OF GLP-1RA ON HEART RATE, BLOOD PRESSURE AND HYPERTENSION AMONG TYPE 2 DIABETES: A SYSTEMATIC REVIEW AND NETWORK META-ANALYSIS

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OBJECTIVES: To synthesis current evidence of the impact of Glucagon-like peptide-1 receptor agonists (GLP-1 RA) on heart rate, blood pressure and hypertension. METHODS: Meta-analysis of available RCTs comparing GLP-1 RA with placebo and other active anti-diabetic drugs among patients with type 2 diabetes. Weighted mean differences between trial arms for changes in heart rate and blood pressure, and odds ratio of hypertension, after a minimum of 8-week follow-up. RESULTS: 42 trials with
DB2: Efficacy and Safety of Human Insulin versus Animal Insulin Among Patients with Diabetes in China: A Meta-analysis

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OBJECTIVES: There have been controversies on the efficacy and safety of human insulin compared to animal insulin. The aim of this study was to compare the efficacy and safety between human and animal insulin among Chinese patients. METHODS: A systematic literature search with key terms for identifying studies on human and animal insulin among Chinese population was performed using MEDLINE, China National Knowledge Infrastructure, Chinese Scientific Journals Database, Wan Fang database and Chinese Biological Medical Database. For each clinical outcome, meta-analysis was conducted when enough number of studies (≥3) meet inclusion criteria. RESULTS: A total of 597 publications were retrieved and 21 studies were identified for inclusion, including 7 randomized controlled trials (RCT), 5 non-randomized controlled trials (NRCT), and 9 studies where patients switched from animal insulin to human insulin (SW). Compared with animal insulin, human insulin was associated with significantly less daily dose, with MD(U/d) [CI] of -9.67 [-12.35, -6.99] for RCT, -9.19 [-10.01, -8.36] for NRCT, and -10.06 [-14.79, -5.33] for SW, as well as lower incidence of hypoglycemia, with RR of 0.29 [0.15, 0.56] for RCT, 0.66 [0.51, 0.86] for NRCT and 0.27 [0.11, 0.67] for SW. In the analyses of RCTs, human insulin also had lower of local swelling and induration (RR: 0.09 [0.02, 0.39]) while the incidence difference of allergy was not statistically significant (RR: 0.19 [0.03, 1.09]). In addition, patients had significantly larger decrease of HbA1c when switching from animal insulin to human insulin with MD of -2.42% [-3.83, -1]. CONCLUSIONS: Results from this meta-analysis suggest that human insulin may show more benefit on efficacy and safety among Chinese patients with diabetes compared to animal insulin. More detailed prospective studies are warranted to further explore this comparison.

DB3: Treatment Profile and Insulin Dose as a Factor Impacting Glycaemia Control Among Premix Insulin Users with T2DM in China

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OBJECTIVES: In China, approximately 70% of insulin users utilize premix formulations. This study was to evaluate premix use in China and the associated glycaemic outcomes in patients with Type 2 Diabetes Mellitus (T2DM). METHODS: Using the Adelphi™ T2DM Disease Specific Programme, we examined 279 patients aged ≥18years with T2DM receiving premix insulin. To examine the association between insulin dose and glycaemic control, we analyzed 140 patients whose dose was maintained for at least 3month longer than their HbA1c tests, without any insulin secretagogue use, and total daily insulin dose ≥ 0.2 units/kg according to the premix initial dose recommendation of the Chinese Diabetes Prevention and Treatment Guideline. A multivariate logistic regression adjusting for potential confounders was applied to assess the association. RESULTS: Among 279 premix users, the mean (±SD) age was 58.3±11.8 years and 46.6% were male. The median (1st - 3rd quartile) time since diabetes diagnosis was 3 (2 - 6) years. Premix BID was used by most patients (76.7%), followed by premix QD (17.2%) and premix TID (6.1%). The median total daily insulin dose was 0.37 (0.18 - 0.53) units/kg. As recorded from the most recent HbA1c result, 36.0% of patients were in glycaemic control (HbA1c <7%). A total of 140 patients were included in the analysis to
examine the association between insulin dose and glycaemic control. The logistic regression revealed that for those patients taking total daily insulin of at least 0.2 units/kg, the odds of being in better glycaemic control increased by a factor of 1.31 for each additional 0.1 unit/kg of insulin therapy utilized [95% CI was (1.03, 1.67), p=0.029]. CONCLUSIONS: This study indicates that under-dosing of premix insulin may be a factor contributing to sub-optimal glycaemic control among patients with T2DM in China. More detailed prospective studies are warranted to further explore this relationship.

DB4: CLINICAL CHARACTERISTICS AMONG HYPERTENSION PATIENTS WITH DISLIPIDEMIA IN SHANGHAI, CHINA

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OBJECTIVES: To evaluate the clinical characteristics among hypertension patients with dislipidemia in Shanghai, China. METHODS: The information of hypertensive patients who had detected their serum LDL-C was extracted from the Electronic Health Record (eHR) system in Minhang district, Shanghai. According to the LDL-C criteria of Chinese guidelines on prevention and treatment of dyslipidemia in adults (2007), LDL-C level was categorized into three subgroups: acceptable, <3.37 mmol/L; borderline, 3.37-4.12 mmol/L; and high ≥ 4.12 mmol/L. Patients with either borderline or high LDL-C level were considered as dislipidemia. Information on demographics, life-style, medical records, as well as cardiovascular events was collected. Hypertension was identified by ICD-10 code in the database. RESULTS: A total of 6765 hypertensive patients with available LDL-C measurement were analyzed. Among these patients, 57.4% were females, 29.4% had dislipidemia. Mean age was 68.2 years old for hypertension patients with dislipidemia and 67.0 years old for those without dyslipidemia. The proportion of females in the two groups were 68.6% vs. 52.6%; smoking 13.3% vs. 19.5%; and drinking 16.1% vs. 22.3%; respectively. Moreover, hypertension patients with dislipidemia had slightly higher obesity (17.0% vs. 16.1%), grade 3 hypertension (21.0% vs. 19.1%), fasting blood glucose (36.8% vs. 30.9%) and cardiovascular events rate (9.3% vs. 8.4%). CONCLUSIONS: Hypertension patients with dislipidemia had more risk factors for cardiovascular disease than patients without dislipidemia.

DRUG USE STUDIES

DU1: TREATMENTS PRIOR TO AND POST PERCUTANEOUS CORONARY INTERVENTION (PCI) IN CHINA

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OBJECTIVES: Patients undergoing percutaneous coronary intervention (PCI) represent a group of patients with a high-risk of cardiovascular events. Limited information exists in the literature on patient characteristics and drug treatments before and after PCI in China. The primary objective of this research was to assess the use of lipid-lowering and antiplatelet therapy prior to and post PCI. METHODS: We conducted a retrospective, observational study on all patients who underwent PCI at a large urban hospital in Shanghai, China from 05/2010 to 06/2011. Patient clinical and demographic characteristics were assessed; drug treatments, including statin and antiplatelet therapy, were compared prior to and post PCI. RESULTS: A total of 565 patients (80.5% male) had PCI during the study period and were included in the analysis. Both the mean and median age was 65 years old (range 35 to 90). At baseline, 71.7% had angina, 66.0% had hypertension, 31.0% had diabetes, 20.4% had hyperlipidemic pancreatitis, 14.3% had a history of myocardial infarction, and 13.8% had chronic kidney disease. 55.0% of patients were active smokers or previously smoked and PCI was not the first time for 10.6% of patients. Prior to the current PCI, the majority of patients were on aspirin (95.8%) and clopidogrel (99.8%), very few were on cilostazol (3.2%) and tirofiban (2.0%), and 70.6% of patients were on statins. The majority of patients (79.8%) received one stent with 20.2% of patients receiving two or more stents. Post PCI, the proportion of patients on statins increased significantly to 98.8% (p < 0.0001); there was little change in the proportion of patients on the other four drugs. CONCLUSIONS: Patients who underwent PCI had significant prior comorbidities and risk factors of cardiovascular diseases. There was a significant increase in the proportion of patients on statins after PCI.

DU2: EXAMPLE OF ANALYSIS UTILIZING REAL WORLD DATA: MEDICAL COST REDUCTION OF COMBINATION DRUGS

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OBJECTIVES: This research aims to have a trial calculation on the medical cost reduction for the patient group prescribed the combination drug of ARB and calcium antagonist (a Combination Drug Group) against the patient group prescribed the combination use of ARB and calcium antagonist (a Combined Application Group). METHODS: We used the data of Japan Medical Data Center (JMDC), which provides health insurance claims data with linked health check-up data of 1.7 million members from health insurance societies in Japan. Since the data is not based on randomized controlled trial, we adjusted confounding factors using propensity score analysis. Through the examination, we found that the propensity score can be modeled by logistic regression including following four variables: age, square of age, log of medical cost before index time and square of log of medical cost before index time. RESULTS: As a result of our research, we estimated the adjusted average of medical cost for Combination Drug Group is lower by 900 yen per a month than that for Combined Application Group, which represents 1.7% of adjusted average monthly medical cost for Combined Application Group, 52,100 yen. CONCLUSIONS: Our research utilizing the real world data concluded that the combination drug of ARB and calcium antagonist can have a reductive, though limited, impact on the medical cost. Considering the general tendency that the medication cost itself of combination drug is higher than that of the combined use of drugs, we conclude that the result shows meaningful example of real world data analysis.

DU3: TRENDS OF HYPNOTIC MEDICATION USE IN A 2000-BED MEDICAL CENTER IN TAIWAN
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OBJECTIVES: Although the evidence showed the risks of using sedative benzodiazepine (BZD) and long-terms use of non-BZD hypnotics (i.e., Z-drugs) among the elderly, it is still unavoidable to use these medications for the elderly to solve their insomnia problems. This study aimed to describe the utilization of hypnotic medications for outpatients in a 2000-bed medication center in Taiwan. METHODS: We conducted a secondary data analysis using China Medical University Hospital (CMUH) in-house databases. From 2007 to 2013, those outpatients ever prescribed with, estazolam, lorazepam, diazepam, alprazolam, zolpidem and zopiclone were of interest. The prescription prevalence rates of these drugs, its average number of defined daily dose (DDD), prescriber specialties and demographic characteristics of patients were examined using descriptive analyses. RESULTS: Those elder patients were prescribed with 133 ± 158 DDD of Z-drugs in CMUH in 2007. 7.6% of them used Z-drugs exceed 365DDD within one year. In 2009, more than 40% of all 15,815 prescriptions with BZD and Z-drug hypnotics were prescribed for patients aged 65 year or more. Of them, 44% of alprazolam, 51.1% of diazepam, 46% of estazolam, 41% of zolpidem, and 46% of zopiclone were prescribed for the elderly patients, respectively. In 2011, 40% of zolpidem users and 32% of zopiclone users were elderly. The top three prescribing specialists for Z-drugs were neurologist, cardiologist and psychiatrists in (accounted for 63.01% and 46.96% for zolpidem and zopiclone, respectively). Of 12,982 patients being prescribed with 53,330 BZD and Z-drug prescriptions in 2013, 76.9% were aged 65 year or more. The Z-drugs were still more common than BZD as a whole. CONCLUSIONS: While the elderly accounted for small proportion of medical care users, relatively larger proportions were prescribed with BZD and Z-drug hypnotics to manage their insomnia problems in CMUH across seven years. Further outcome assessments for such usage are necessary.

DU4: STATIN MEDICATION USE AND THE DEVELOPMENT OF PROLIFERATIVE DIABETIC RETINOPATHY AMONG PATIENTS WITH TYPE 2 DIABETES, HYPERTENSION, AND HYPERLIPIDEMIA
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The progression from Non-Proliferative Diabetic Retinopathy (NPDR) to Proliferative Diabetic Retinopathy (PDR) is associated with a decline in best-corrected visual acuity and related health care utilization. Few studies have systematically assessed the effect of pharmacological regimens in delaying the progression of PDR. Many patients are also on chronic medication regimens which may also have temporal effects on the risk of disease progression. OBJECTIVES: Examine how patients’ chronic medication utilization potentially influences their PDR progression among NPDR patients with type-2 diabetes, hypertension and hyperlipidemia in the United States. METHODS: This retrospective cohort study was conducted using a claims database of all beneficiaries had any ophthalmic care and were enrolled in a large managed-care network from 2001 to 2012. Utilization of distinct oral hypoglycemic agents, blood pressure lowering agents and lipid lowering agents were measured by the total cumulative dosage of medication (g) within a three year moving window. A multivariate Cox regression analysis with medication use as a time-varying covariate assessed the association between medication use and progression to PDR. RESULTS: A total of 10,845 NPDR patients with all of these three conditions were eligible for this study, and 837(7.72%) of them developed PDR during the follow up period. Increased use of Statins was associated with a significant decreased hazard of developing PDR.
HEALTH SERVICES RESEARCH STUDIES

HS1: CLINICAL OUTCOMES ASSOCIATED WITH THE USE OF GUIDELINE RECOMMENDED CARE IN PATIENTS POST DISCHARGE FROM CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

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OBJECTIVES: To evaluate the impact of the use of guideline recommended care on the risk of subsequent moderate to severe COPD exacerbation requiring hospitalization or emergency department (ED) visit following discharge from COPD in a privately insured population in Texas. METHODS: Retrospective population-based cohort study design using Blue Cross Blue Shield of Texas (BCBSTX) enrollment and claims data (years 2008 to 2011) was employed. All COPD-related hospitalizations and ED visits were extracted. Patients were identified as adherence to guideline recommended care if within 30 days of discharge, had at least one claim of prescription fills for any maintenance medications and had at least one follow up visit with a primary care physician or pulmonologist. The presence of a subsequent COPD-related exacerbation requiring hospitalization or an ED visit was assessed for one year post-discharge and compared between cohorts who receive and did not receive guideline recommended care using a probit regression model with instrumental variables. RESULTS: One-fourth (29%) of the patients with COPD-related hospitalizations/ED visits were identified as recipients of the guideline recommended care. Receiving guideline recommended care was associated with a reduction of 4.4 percentage points in the probability of having subsequent COPD exacerbation requiring hospital admission/ED visits (p-value = 0.837). Analysis focusing on the follow up visit alone shows that having follow up visits were significantly associated (p-value = 0.018) with a reduction in the probability (32.8 percentage points) of having subsequent COPD exacerbation requiring hospital admission/ED visits, while the use of maintenance medication was associated with an increase in the probability (19.5 percentage points) of having subsequent COPD exacerbation requiring hospital admission/ED visits (p-value = 0.337). CONCLUSIONS: The use of guideline recommended care, especially in the use of follow up care, was significantly associated with the reduction in the probability of having subsequent COPD exacerbation requiring hospital admission/ED.

HS2: MEDICATION ADHERENCE AS A VALUE MESSAGE: A RARITY IN EVALUATION ASSESSMENTS SUBMITTED TO MAJOR HTA BODIES


OBJECTIVES: Poor or non-adherence causes medical and psychosocial complications for patients and represents a considerable financial burden for health care systems worldwide. Medication adherence problems have not been routinely highly valued by health technology assessment (HTA) bodies in their evaluation assessments. In this study we assess the extent to which leading HTA bodies consider the value of medication adherence in their reimbursement decision making. METHODS: Evaluation of published assessments made from 2010 to 2013 in five leading HTA bodies (Canadian Agency for Drugs and Technologies in Health (CADTH), the French National Authority for Health (HAS), England’s National Institute of Health and Care Excellence (NICE), the Australian Pharmaceutical Benefits Advisory Committee (PBAC) and the Scottish Medicines Consortium (SMC)) were reviewed for asthma, hypertension, diabetes, multiple sclerosis, psychological disorders and alcohol dependence. The primary outcome measure was to identify the number of assessments in which HTA bodies have considered adherence as a value message. RESULTS: A total of 405 evaluation assessments were submitted to HTA bodies for the above stated indications and timeframe. Out of these assessments, adherence was discussed in 65 (16.1%) of the assessments. However, adherence was not considered valuable for reimbursement decision making by HTA bodies in 19 of these 65 assessments. In the remaining 46 assessments, adherence was considered as a value message while making reimbursement decisions by the HTA bodies but it did not impact the final reimbursement decision in 79% of the...
instances. CONCLUSIONS: Leading HTA bodies have not considered medication adherence as a key metric in their reimbursement decision making.

HS3: HAD THE INDIVIDUAL MEDICAL BURDEN OF BASIC HEALTH INSURANCE PARTICIPANTS REALLY BEEN ALLEVIATED IN 2009-2012?

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OBJECTIVES: To analyze the out-of-pocket medical expenses of Basic Health Insurance participants between 2009 and 2012, and determine whether the individual medical burden has been alleviated really in the healthcare reform from 2009

METHODS: This study used the data from the National Sample Survey on Medical Service Utilization of Basic Medical Insurance participants in 2009-2012. This survey involved about 375 thousands in-patients with BMI from about 70 cities all over the country. All the actual claim data of medical expenses and medical care utilization from 2009 to 2012 were collected. Descriptive analysis was applied to the data and the related payment policies of BMI were reviewed.

RESULTS: 1) The total medical expenses burden of the BMI in-patients is keeping a high speed growth between 2009 and 2012, increased from about US$33 billion to about US$64.5 billion (increased 25% per year). 2) The inpatient expenses presented a left skewed distribution. Over 55% of the expense burden came from 20% cases spending above US$3200. 3) The out-of-pocket rates of urban employee and residents were about 29% and 49% respectively, and both of them presented a U-type pattern. The inpatients spending below US$800 or above US$3200 had a higher burden. 4) The individual medical burden presented an increase tendency with the increase of the hospital level.

CONCLUSIONS: Generally, health insurance eased the economic burden of inpatients and made out-of-pocket expense acceptable. But the individual burden for those inpatients with expenses above US$3200 had not been alleviated enough. New measures should be pursued to make further reduce, such as raising the reimbursement ceiling and providing new supplementary health insurance for severe illness. The increase speed of total medical burden should be controlled by lean formula management. The patients with commonly encountered illness should be guided to basic-level hospitals and supervision on medical service utilization should also be strengthened to control the irrational medical cost.

HS4: QUALITATIVE ASSESSMENT OF THE QUALITY OF PHARMACEUTICAL CARE SERVICES IN THE PROVINCE OF KHYBER PAKHTUNKHWA, PAKISTAN: HOSPITAL PHARMACISTS’ VIEWS

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OBJECTIVES: To evaluate the perception of hospital pharmacists regarding quality of pharmaceutical care services in Khyber Pakhtunkhwa, Pakistan.

METHODS: Qualitative assessment was implemented. A semi-structured interview guide was developed and face to face interviews were conducted. Hospital pharmacists was interviewed saturation point was reached at 13 in Khyber Pakhtunkhwa province of Pakistan from December to February 2014. The interviews were conducted at the hospital pharmacy, arrangements for the time and place of interview were made during initial contacts. Written consent was obtained from the participants prior to the interview.

RESULTS: Among the respondents interviewed, nine were male and four female hospital pharmacist aged between 25 and 50 years. Thematic content analysis yielded 5 major themes: (a) Patients reporting (b) Lack of patient counseling (c) Lack of participation in health awareness programs, (d) Pharmacists reducing the prescribing errors, (e) Insufficient number of pharmacists.

CONCLUSIONS: Findings revealed that hospital pharmacist in Pakistan are not actively participating in provision of pharmaceutical care services. They are facing significant hurdles for their actively participation in patient care, major obstacles is the unavailability of sufficient number of pharmacist, lack of appropriate time for patient counseling and poor relationship between pharmacists and other health care providers. Moreover there is a need to explore the concept of pharmaceutical care among the other healthcare providers and general public.

MENTAL HEALTH OUTCOMES RESEARCH STUDIES

MH1: EFFICACY AND SAFETY OF PALIPERIDONE PALMITATE IN THE TREATMENT OF SCHIZOPHRENIA: A META-ANALYSIS

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OBJECTIVES: Paliperidone palmitate long-acting injectable (PP-LAI) is a new once-monthly atypical antipsychotic for the treatment of schizophrenia. This article is to evaluate the efficacy and safety of PP-LAI in the treatment of schizophrenia. METHODS: Published clinical studies concerning PP-LAI for schizophrenia were searched systematically and assessed by Jadad items. RevMan 5.2 software was used for data analysis and for calculating the combined outcomes of clinical trials and their 95% Confidence Intervals (CI). Furthermore, sensitive analysis and publication bias test were conducted to assess the stability of results from Meta-analysis. RESULTS: 12 clinical randomized controlled trials including 39 analytic sets were selected for Meta-analysis. According to Jadad items, the qualities of including researches were high in which the rules of random grouping and balancing baseline characteristics between groups were conducted rigorously. The incidence of effective cases in PP-LAI group was 1.7 (95%CI: 1.50-1.91) times higher than that in placebo group (Z=8.55, P<0.01) and equaled to the rate in risperidone group (RR=1, 95%CI: 0.88-1.13). Compared with the control group of placebo (RR=1.01, 95%CI: 0.97-1.05) and risperidone (RR=1.07, 95%CI: 0.98-1.16), PP-LAI seemed to be well tolerated, with the same incidence of adverse events. The stability of the present Meta-analysis was accepted without any statistical significance found by sensitive analysis and publication bias test. CONCLUSIONS: Paliperidone palmitate has certain efficacy and safety in the treatment of schizophrenia.

MH2: CURRENT IMPACT OF DEMENTIA ON THE CAREGIVER IN CHINA

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OBJECTIVES: Dementia is an irreversible brain disease that results in progressive cognitive impairment and, eventually, inability to carry out the simplest tasks of daily living. Currently there exists no cure for this disease. Patients suffering dementia require plenty of care, mainly provided by the families. The objective of this study was to assess the time required from the patients’ caregivers according to the patient’s health state, and the consequences for the active population in current China. METHODS: The current Chinese demographic structure was put in balance with the need of caregiving time needed by the dementia population. Demographic data, proportion of diagnosed and/or treated patients were provided the China Alzheimer’s project Memory360. A Markov model was developed to estimate the average caregiver’s time needed per patient per day over 5 years, separately for treated and not treated patients. RESULTS: Current demographic situation in China is rather favourable with 70% of the population aged between 15 and 59 years (compared to 60% in Europe or United States and 65% in Japan). There are approximately 6 active persons for one elderly. It was demonstrated that over five years, untreated patient with dementia requires around 9.3 hours per day compared to 6.7 hours per day for a treated patient. It was estimated that there were 10 million patients with dementia in China, with only 21.3% among them receiving treatment. More than 87 million hours per day are needed to take care of Chinese patients with dementia for around 910 million working people. CONCLUSIONS: In the current situation of China, it is estimated that in average one worker over ten will spend one hour per day providing care to a patient affected by dementia. Taking into account the rapidly aging population, this burden is likely to increase considerably in the future.

MH3: FACTORS ASSOCIATED WITH RELOCATING TO NURSING HOMES AMONG COMMUNITY-DWELLING OLDER PERSONS WITH DEMENTIA

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OBJECTIVES: This study examined factors of relocating to nursing homes among community-dwelling older persons with dementia METHODS: This retrospective study used data from The Aging, Demographics, and Memory Study (ADAMS) to assess dementia severity and service use from 2002 to 2004 in the United States. This study examined psychotropic medication use among 279 older people diagnosed with dementia and used logistic regressions to identify factors associated with nursing home relocation among older persons with dementia. RESULTS: Among older persons with dementia (weighted sample =177,843), 9.2 % of persons with dementia (weighted sample=16,272) took any antipsychotic medications; 69.7% were female and 68.8% were white. The average age was 85 years. Their physical functions were measured by the number activities of daily living (avg. 2.92) and number of instrumental activity of daily living (avg. 3.6). The most frequent diagnoses were Alzheimer’s disease (78.8%) and vascular dementia (23.2%). I used the Neuropsychiatry Inventory (NPI) for behavior problems (delusions, hallucinations, agitation/aggression, depression, apathy, elation, anxiety, disinhibition, irritability/lability, and aberrant motor behavior). I evaluated severity of dementia using the Clinical Dementia Rating Scale (CDR). I found that older persons with dementia are significantly more likely to relocate to the nursing home in 2 years if they were severely demented (OR=1.3, p<.05), or were on antipsychotic medications (OR =1.0 p<.05), or were getting older (OR=0.01, p<.05). But, those who were...
living with caregiver (OR=1.8, p<.01), or were Hispanic (OR= -1.4 p<.01) were significantly less likely to move to nursing homes. Alzheimer patients were significantly more likely to relocate to nursing home compared to vascular dementia patients (OR= -1.4, p<.05). **CONCLUSIONS:** Community-dwelling older persons with dementia are more likely to move to nursing home within 2 years if they had to be medicated for their behavior problems and were on antipsychotic medications and, the dementia is more advanced

**MH4: CLINICAL AND ECONOMIC OUTCOMES OF MEMANTINE USED IN MODERATE OR SEVERE DEMENTIA PATIENTS IN CHINA: RESULTS FROM A HEALTH ECONOMIC MODEL**


**OBJECTIVES:** In China, memantine is only reimbursed for severe dementia, while approved for moderately severe to severe dementia. The present model assesses the clinical and economic outcomes of extending national recommendations for memantine to moderate dementia. **METHODS:** A Markov model was developed to simulate transition between health states associated with dementia. Three alternative strategies - no treatment, memantine prescribed from moderate to severe, and memantine prescribed in severe only - were compared over a five-year time horizon for a cohort of 1,000 patients with moderate dementia. The proportions of severe, dependent or aggressive patients, and caregivers' time, were estimated as clinical outcomes. Total costs were estimated and compared as economic outcomes. Deterministic sensitivity analyses were conducted to test the robustness of model assumptions and parameters estimates. Data inputs were taken from multiple sources, including clinical trials and a Delphi panel. The model adopted societal perspective with only direct costs considered. **RESULTS:** After five years, the cohort of patients administered memantine from the moderate stage had developed the lowest proportions of severe (45%), dependent (52%) and aggressive (7%) patients, and necessitated less caregiver's time (6.7 hours/day). In the cohort of patients administered memantine in the severe stage only, these estimates were higher (54%, 61%, 8% and 8.35 hours/day, respectively). There were higher in patients not treated (64%, 77%, 13% and 9.26 hours/day). Starting from the third year, memantine started in moderate stage incurred the lowest costs. By year five, total costs were RMB 182.5, 197.0 and 200.0 million for memantine from moderate, memantine in severe only and no treatment respectively. The sensitivity analysis produced comparable results. **CONCLUSIONS:** Over five years, memantine consistently demonstrated higher clinical benefit when administered in moderate to severe patients as compared to restricted to severe and showed increasing cost-savings after 2 years mainly due to the avoided hospitalisations.

**RESEARCH PODIUM PRESENTATIONS - SESSION II**

**CARDIOVASCULAR DISEASE OUTCOMES RESEARCH STUDIES**

**CV1: COMPARISON OF ORAL VERSUS INTRAVENOUS NSAIDS FOR THE TREATMENT OF PATENT DUCTUS ARTERIOSUS IN PRETERM AND/OR LOW BIRTH WEIGHT INFANTS: A SYSTEMATIC REVIEW AND META-ANALYSIS**

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**OBJECTIVES:** Intravenous Indomethacin and Ibuprofen are treatment of choice for pharmacologic closure of patent ductus arteriosus (PDA) in preterm infants according to inhibitory effect on cyclooxygenase. However, unavailability of the intravenous formulations in many countries leads to off-label use of oral NSAIDs for PDA closure. This study therefore aimed to determine the effectiveness and safety of oral NSAIDs compared to their intravenous formulations for PDA closure in preterm and/or low birth weight infants. **METHODS:** Randomized or quasi-randomized (RCTs) and observational studies comparing oral NSAIDs to intravenous Indomethacin or Ibuprofen with reported result of closure rate were identified. Fixed and random effect models were used for meta-analyses. Heterogeneity test including I2 were performed to assess the appropriateness of pooling the data. **RESULTS:** Fourteen studies comparing the effectiveness and safety of oral NSAIDs (Indomethacin, Ibuprofen and Sulindac) with intravenous NSAIDs (Indomethacin and Ibuprofen) were recruited. For the primary outcome (closure rate), no statistically significant difference between oral Ibuprofen and intravenous NSAIDs group [five RCTs of oral Ibuprofen versus Intravenous Ibuprofen group; RR = 1.12 (95% CI 0.990, 1.240, I2 23.1%)] and [four RCTs of oral Ibuprofen versus Intravenous Indomethacin group; RR = 1.035 (95% CI 0.755, 1.418, I2 12.7%)]. Results from the observational studies were also similar to those of RCTs. Two observational studies comparing oral Indomethacin and intravenous Indomethacin revealed no statistically significant difference (RR = 0.927 [95% CI 0.704, 1.22, I2 0.0%]). There was no significant difference in adverse outcome between oral and intravenous NSAIDs treatment groups. **CONCLUSIONS:** No statistically significant difference in the
effectiveness of oral Ibuprofen and oral Indomethacin compared to the intravenous NSAIDs with similar adverse outcome were observed. Oral formulations of Indomethacin and Ibuprofen might be considered as an alternative pharmacologic closure in PDA treatment for the NICU settings where intravenous NSAIDs is unavailable.

**CV2: MANAGEMENT OF ISCHAEMIC STROKE PATIENTS ENROLLED IN THE JAPAN STROKE DATABANK (JSD)**

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**OBJECTIVES:** To evaluate the management of ischaemic stroke (IS) patients enrolled in the Japan Stroke Databank (JSD) from 2000 to 2007. **METHODS:** JSD is an observational registry of patients who experienced a stroke event, collecting patient information provided by over 80 Japanese hospital departments. Data included demographics, time to admission, medical history, stroke type diagnosis, imaging, treatment, Japan Stroke Scale (JSS), NIH Stroke Scale (NIHSS) and the modified Rankin Scale (m-RS). Logistic regression model was used to identify predictors of m-RS 0-1 at discharge. **RESULTS:** Of the 47,782 stroke patients, when excluding for transient ischemic attack (TIA) cases, 15,282 (32%) were ischaemic stroke cases with NIHSS evaluation at hospitalization and at discharge and with m-RS assessment at discharge. Average age was 69.7 years (±10.6) and 64% were males. Patients who were admitted to hospital at a later time window from onset had a lower m-RS score (±1) at admission (12%, 13%, 15% and 17% for patients admitted at 0-3, 3-4.5, 4.5-8 and 8-24 hours, respectively). However, patients admitted at later time-windows had worse disability at discharge (within patients admitted with m-RS 0-1, 53% vs. 48% had m-RS 0 at discharge depending if admitted before or after 3 hours after onset). 57% of patients arrived after 3 hours and only 5.8% received thrombolytic treatment (2.1% received alteplase and the remaining received urokinase). Non-significant severity at baseline and alteplase with edaravone lowered the odds of severity at discharge. **CONCLUSIONS:** This study demonstrates that despite the availabilities of therapies for acute ischemic stroke there is still a high unmet need to reduce severity at discharge for these patients as only 5.8% of patients receive thrombolytic therapy.

**CV3: ECONOMIC EVALUATION OF CHANGE IN REIMBURSEMENT CRITERIA FOR LIPID-LOWERING DRUGS IN TAIWAN**

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**OBJECTIVES:** As the international guidance for lipid control has evolved, the National Health Insurance Administration (NHIA) in Taiwan was requested to modify the current reimbursement criteria for initiation of lipid-lowering treatment. The study aims to evaluate the cost-effectiveness and the budget impact of the newly proposed reimbursement criteria on lipid-lowering drug from the NHIA’s viewpoint with a focus on the change of statins usage. **METHODS:** In the new criteria, the cut-off points of low-density lipoprotein cholesterol (LDL-C) and total cholesterol for initiating lipid-lowering therapy for patients having diabetes or previous heart diseases (high risk group) have been lowered. A Markov decision model was constructed to examine the cost-effectiveness of the new criteria compared with the original ones. The efficacy of statins on coronary heart diseases (CHD) and stroke was obtained from the literature. The numbers of subjects who may be affected by these criteria changes and the LDL-C specific disease transition probabilities were obtained from a population-based survey conducted by the Taiwan Health Promotion Administration (HPA). Medical costs were derived from the NH data. Both costs and health outcomes were discounted at 3%. The corresponding financial impact on NH expenditure was also estimated. **RESULTS:** If the new criteria are applied, the number of subjects who fulfill the reimbursement criteria in the high risk group will be almost twice as many as before. This would lead to an great increase in the NH expenditures for statins and monitoring costs, however, this could be offset by the treatment cost saved from the averted CHD and stroke cases. Therefore, the new criteria are a dominant strategy compared with the original criteria. **CONCLUSIONS:** Although the newly proposed reimbursement criteria would lead to an increase in drug expenditure of NHIA, it is expected to be a cost-saving strategy after taking into account the health benefit on preventing CHD and stroke.

**CV4: DOES THE CURRENT RECOMMENDED TARGET LDL GOAL IMPROVE SURVIVAL FOR ACUTE CORONARY SYNDROME PATIENTS IN HONG KONG?**
OBJECTIVES: The current study primarily aimed to assess the current prescribing pattern of lipid-lowering agents and the percentage of LDL-C goal attainment in myocardial infarction (MI) patients in local practice, and to evaluate clinical outcomes of patients stratified by prescription of statins and by LDL-C level attained after discharge. METHODS: We retrospectively reviewed 696 hospitalized patients in the local ACS registry of Prince of Wales Hospital during 1 January 2008 to 31 December 2009 with data retrieved using computerized clinical records of all patients. RESULTS: Among the 402 MI patients included, 104 (25.9%) were not prescribed with statins at discharge. Percutaneous coronary intervention (PCI) performed or planned during hospitalization (OR: 0.324, p=0.001) and latest LDL-C level before discharge (OR: 0.221 for an increment of 1 mmol/L, p=0.009) were significant independent predictors of the absence of statin prescriptions at discharge. A significantly lower all-cause mortality rate (14.4% vs 51.7%, p<0.001), fewer total hospitalizations (p<0.001) and fewer hospitalizations due to cardiovascular problems (p<0.001) were observed in patients discharged with statins. LDL-C goal attainment of < 100 mg/dL (2.6 mmol/L) resulted in a significant reduction in mortality (10.8% vs 24.2%, p=0.001), but not for goal attainment of < 70 mg/dL (1.8 mmol/L). Significant difference in survival existed only when LDL-C cut-off values were above 92 mg/dL (2.4 mmol/L). CONCLUSIONS: This study revealed a J-curve phenomenon in ACS patients of Hong Kong. Further research should be conducted to assess the necessity of aggressive LDL-C reduction to < 70 mg/dL (1.8 mmol/L).

HEALTH CARE REIMBURSEMENT STUDIES

HC1: IMPACT EVALUATION OF PROVIDER PAYMENT REFORM UNDER THE NEW RURAL COOPERATIVE MEDICAL SCHEME IN GANSU PROVINCE, CHINA

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OBJECTIVES: The New Cooperative Medical Scheme (NCMS) which aims to reduce the risk of catastrophic health spending for rural residents has substantially improved health care access and utilization in China. However, cost containment and provider incentive remains a huge challenge, which has been particularly acute in poorer rural areas, such as the North-west. Over the past years, several counties in Gansu province have introduced a variety of provider payment reforms, shifting from the traditional Fee-for-Service to case-based, global budget and/or per-diem methods. This study provides the first impact evaluation of these reforms. METHODS: Using a quasi-experimental design, we collected NCMS claims data from 2008 to 2013 in three counties. A difference-in-difference analysis is performed to take advantage of the variation in provider payment methods implemented at different years across the counties. We also control for patients’ age, gender and diagnosis as well as demographic factor of each county in estimating the effects of payment reform on cost (measured by inpatient healthcare expenditure) and quality (measured by readmission rate). In addition to the quantitative analysis, we conduct key informant interviews with policymakers, hospital administrators, and medical professionals to better understand the design and implementation issues involved in the reform process. RESULTS: Preliminary data analysis indicates that in one county, the provider payment reform is associated with 9.8% drop in total health care expenditure per admission. Length of stay fell by 4.9% as a result too. However, other factors such as changes in the demand-side reimbursement rate may also influence the outcomes. Differences in local infrastructure and technical capacity have led to the same payment method implemented differently at the county level. CONCLUSIONS: Provider payment reform in rural China can be an effective way to control health expenditure. However, more technical guidance on designing the right payment is needed for future reforms.

HC2: HEALTH CARE UTILIZATION AND COST COMPARISON BETWEEN ADHERENT HYPERTENSION PATIENTS TREATED BY SINGLE EXFORGE HCT AND AMLODIPINE/VALSARTAN/HYDROCHLOROTHIAZIDE FREE COMBINATION

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OBJECTIVES: Single pill combinations (SPC) are associated with improved adherence and persistence in hypertensive (HTN) populations. High adherence and persistence can provide medical benefit for patients and reduce the total health care utilization and costs. This study investigated if Exforge HCT is associated with reduced health care utilization and costs during the 12 months follow up period in adult hypertensive (HTN) patients adherent to treatment. METHODS: A retrospective cohort study was conducted including adult (18 yrs. or older) HTN patients covered by commercial and Medicare Supplemental insurance in...
China spent approximately $150 billion US dollars on prescription drugs in 2010, accounting for 47% of its annual health expenditures, which has attracted worldwide attention. To investigate the causes of rising drug spending in China, we decomposed drug expenditures to document reasons for this event.

OBJECTIVES: The selection of more innovative/more expensive drugs over older/less expensive therapies dominated drug expenditure growth. Inpatient admission patterns and clinical prescription behavior should be a focus of drug spending controls. Health providers, insurance agencies, and pharmaceutical companies should work together to develop drug therapy guidelines to ensure the best use of resources. To explore underlying cause of drug spending soaring, six therapeutic categories were calculated using three and six factor exponential analysis and index-theoretical methodology. In three-factor analysis, drug expenditure was decomposed into quantity effect, price effect and therapeutic choice. To further explore underlying cause of drug spending soaring, six-factor exponential methodology was applied to measure the change and contribution of each dominant.

RESULTS: Using exponential-based decomposition analysis to elucidate important factors driving prescription drugs expenditure growth (which increased 183% during five years), we found that quantity effect and therapeutic choice increased by 71% and 45% respectively and price effect increased by 6% only. Six-factor analysis revealed that 2010 inpatient admission volumes increased 76% and this was the most critical spending driver. Therapeutic mix and drug mix within the therapeutic choice was the second most important factor (36%) and the third (14%) factor among these factors. In contrast, pure unit price was a negative factor (declined 10%) with respect to drug expenditures.

CONCLUSIONS: The selection of more innovative/more expensive drugs over older/less expensive therapies dominated drug expenditure growth. Inpatient admission patterns and clinical prescription behavior should be a focus of drug spending controls. Health providers, insurance agencies, and pharmaceutical companies should work together to develop drug therapy guidelines to ensure the best use of resources.
and policy makers can use these data to systematically intervene in health care service improvements instead of solely focusing on drug price regulations.

INFECTION DISEASE OUTCOMES RESEARCH STUDIES

IN1: COMPARATIVE SAFETY AND EFFICACY OF FOCUSED ULTRASOUND FOR CERVICAL ECTOPY: A META ANALYSES WITH 16180 PATIENTS

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BACKGROUND Sexually transmitted infections (STIs) are serious public health problems and lead to tremendous burden of health and economy worldwide (account for 17% of economic loss caused by diseases in developing countries). Cervical ectopy is a common risk factor of STIs (including HIV and human papilloma virus infections), especially in developing countries. OBJECTIVES: To assess the comparative safety and effectiveness of focused ultrasound (FU) and microwave (MW) for cervical ectopy. METHODS: We searched Chinese Biomedical Literature database (CBM), the Chinese Scientific Journals database (VIP), the China Academic Journals Full-text database (CNKI), MEDLINE, EMBASE, and Cochrane Library to July 31, 2013. Randomized controlled trials (RCTs) or clinical controlled trials (CCTs) were included. Two reviewers independently screened for eligible studies, extracted data and assessed risk of bias. We assessed the quality of included studies using criteria from Cochrane Handbook 5.0. Statistical analysis was performed by RevMan 5.02, a random-effect model was used in this meta-analysis. Funnel plots and Egger’s regression analyses were used to evaluate the publication bias. We used GRADE to summarize the results. RESULTS: We included 26 RCTs (n=10058) and 13 CCTs (n=6122) both with high risk of bias. Meta-analyses indicated: compared with MW: FU reduced the risk of vaginal bleed (RCTs: RR=0.12, 95%CI [0.05-0.29]; CCTs: RR=0.15, 95%CI [0.09-0.25]) and vaginal discharge (RCTs: RR=0.30, 95%CI [0.19-0.47]; CCTs: RR=0.45, 95%CI [0.25-0.82]); increased cure rate (RCTs: RR=1.07, 95%CI [1.02-1.13]; CCTs: RR=1.16, 95%CI [1.01-1.32]) and total effective rate (RCTs: RR=1.04, 95%CI [1.02-1.07]; CCTs: RR=1.07, 95%CI [0.96-1.20]); decreased recurrence rate (RCTs: RR=0.06, 95%CI [0.01-0.45]; CCTs: RR=0.11, 95%CI [0.02-0.67]). Egger’s regression analyses and funnel plots suggested likely publication bias in the safety studies. All safety and effective indicators were very low quality. CONCLUSIONS: FU and MW are common physical therapies for cervical ectopy. But the available evidence suggested that FU is more safe and effectiveness than MW for treating cervical ectopy and preventing STIs. However, potential publication bias and low quality evidence will reduce the reliability of our results. More careful designed studies are needed to provide further clarification.

IN2: EFFECT OF VACCINATION AGE ON COST-EFFECTIVENESS OF HUMAN PAPILLOMAVIRUS VACCINATION AGAINST CERVICAL CANCER IN CHINA

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OBJECTIVES: The cost-effectiveness (CE) of human papillomavirus (HPV) vaccination in women pre-sexual debut has been demonstrated in many countries. The aim of this study is to estimate the CE of a 3-dose bivalent HPV vaccination at ages 12 to 55 year in both rural and urban settings in China. METHODS: A previously published Markov cohort model was adapted to the Chinese setting, simulating the natural history of HPV infection and including the effect of screening and HPV vaccination over the lifetime of a 100,000 female cohort for ages 12 to 55 in rural and urban China. Transition probabilities and utilities were obtained from published literature. Cost data were estimated by Delphi panel using healthcare payers’ perspective. Vaccine cost was assumed Hong Kong listed price. Vaccine efficacy (VE) was based on the PATRICIA trial data assuming VE irrespective of HPV type at all ages on incident HPV. Costs and outcomes were discounted at 3%. Cervical cancer (CC) cases and incremental cost-effectiveness ratio (ICER) for vaccination and screening compared with screening alone were estimated for each vaccination age. Reduced VE in women post-sexual debut were investigated in scenario analyses. RESULTS: With 70% vaccination coverage, a reduction of CC cases varying from 585 to 33 in rural and 691 to 32 in urban were estimated at ages 12 to 55, respectively. Vaccination remains CE up to age 23 in rural and age 25 in urban, as the discounted ICERs were lower than the current threshold (3×national GDP 2013/capita=20,292USD, 125,723RMB). Scenario analyses with lower VE post-sexual debut confirmed the results with age 20 in rural and 21 in urban to remain CE. CONCLUSIONS: HPV vaccination program in girls before age 23 in rural and 25 in urban setting was shown to be cost-effective strategies for the prevention of CC in China.

IN3: COST-EFFECTIVENESS ANALYSIS OF CASPOFUNGIN COMPARED TO CONVENTIONAL AMPHOTERICIN B (C-AMB) FOR EMPIRICAL ANTIFUNGAL THERAPY IN FEBRILE NEUTROPENIC PATIENTS IN THAILAND

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OBJECTIVES:
To evaluate the cost-effectiveness of caspofungin versus C-AmB for empirical antifungal therapy in patients with neutropenic fever from health care provider perspective in Thailand.

METHODS: A decision-analytic model was used to project costs and outcomes of caspofungin versus C-AmB from treatment initiation until hospital discharge. Since there has not been a head-to-head comparative trial, an indirect treatment comparison was developed based on clinical trials that used the same 5-end point composite outcomes, including resolution of fever, resolution of baseline infection, absence of breakthrough infection, survival and no premature discontinuation. Patients were stratified by the presence or absence of baseline infection. Discontinuation because of nephrotoxicity or other adverse events were included in the model. Efficacy and safety data were based on Walsh 2004 (Scenario I) and Walsh 1999 (Scenario II). Life expectancy, quality of life, medical resource utilization and disease-related costs were obtained from the literatures and expert opinion. Drug prices were those published by Ministry of Public Health. All costs were expressed in THB 2013 values.

RESULTS: Treatment with caspofungin increased life expectancy (LY) by 0.87 and 0.58 years, and resulted in additional 0.63 and 0.41 quality-adjusted life years (QALYS) when compared to C-AmB in Scenario I and II, respectively. In the base-case, use of caspofungin was cost saving in both scenarios. The results showed that caspofungin is cost-saving as long as the cost of treating nephrotoxicity is higher than 316,830 and 299,762 THB for the respective scenarios. The incremental cost-effectiveness ratio (ICER) increases if the cost of treating nephrotoxicity or the relative rate of nephrotoxicity decreases. Probabilistic sensitivity analysis supported the robustness of these findings.

CONCLUSIONS: This is the first cost-effectiveness of caspofungin as empirical treatment in Thailand. Caspofungin is more effective and less costly compared to C-AmB, and the use of caspofungin is anticipated to have both budgetary and health benefits.

IN4: IMPACT OF MATERNAL EDUCATION ON CHILD IMMUNIZATION PROPENSITY IN CHINA

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OBJECTIVES: To estimate the effects of maternal education and other associated factors on the immunization propensity for children and adolescents in China. METHODS: A longitudinal survey (China Health and Nutritional Survey) between 1991 and 2006 were used to analyze the relationship between the immunization receipt status and the potential determinants, including children’ characteristics, the household’ characteristics and the community level influences. The recommended immunization schedule for persons aged 0 through 18 in China is similar to that from Centers for Disease Control and Prevention in the U.S. Descriptive statistics were reported for the sample from 9 provinces of China in each wave of surveys. Econometric models were constructed with an indicator for immunization propensity as the dependent variable (i.e., any immunization received by your children during the past 12 months). Independent variables include children’s age, gender, whether preventive healthcare services covered by insurance, their parents’ education level, the household income, transportation time to the usual clinic, medicines availability at the clinic in the community.

RESULTS: The average immunization propensity is 0.69 (7,668 of 11,114) with a mean value of 0.57 for flu vaccine propensity. The upward trend over time in household income and percentage of residents in urban area indicate the rapid economic development and the urbanization in China from 2000 to 2006. Logit, probit, and longitudinal linear random effects regression analyses showed that maternal education level positively affects the immunization propensity for children aged ≤ 6 (p<0.01), and for children aged 7-18 (p<0.1). Other factor, such as the medical insurance, whether the individual resides in urban area and the needed medicines availability at the clinic, also had a significant impact on the immunization propensity for children and adolescents (p<0.05). CONCLUSIONS: Maternal education positively affects children’s immunization propensity, particularly for those children below 6 years of age.

QALY-RELATED STUDIES

QA1: COMPARISON OF THE PREFERENCE-BASED EQ-5D AND SF-6D HEALTH INDICES IN MULTIETHNIC ASIAN PATIENTS WITH END-STAGE RENAL DISEASE (ESRD)

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OBJECTIVES: The purpose of this study was to compare the performance of the EuroQol 5-dimension (EQ-5D-5L) and the
Short Form 6-dimension (SF-6D) instruments in assessing Asian patients with end-stage renal disease (ESRD) in Singapore. METHODS: In a cross-sectional study, we interviewed ESRD patients who were dialyzed or followed up at the National University Hospital using a battery of questionnaires including the EQ-5D-5L, the kidney disease quality of life instrument (KDQOL-36), and questions assessing dialysis history and socio-demographic characteristics. We reviewed patients' medical records for their clinical information. We assessed the construct validity of the EQ-5D-5L and SF-6D index scores and compared their ability to distinguish between patients in differing health status and the magnitude of between-group difference they quantified. RESULTS: One hundred and fifty ESRD patients on dialysis (mean age: 60.1 years; female: 48.7%) participated in the study. Both EQ-5D-5L and SF-6D demonstrated good known-groups construct validity; the EQ-5D-5L was more sensitive to differences in clinical outcomes and the SF-6D was more sensitive to differences in KDQOL scales. The intraclass correlation coefficient between the measures was 0.36. The differences in (both actual and derived) EQ-5D index score for patients in better and worse health status were greater than those in SF-6D index score. CONCLUSIONS: Both EQ-5D-5L and SF-6D are valid instruments for assessing ESRD patients. However, the two preference-based health index scores cannot be used interchangeably and it appears that EQ-5D-5L would lead to more favorable cost-effectiveness results than SF-6D if they are used in economic evaluations of interventions for ESRD.

QA2: AN ANALYSIS OF NEW HEALTH TECHNOLOGIES AND REIMBURSEMENT PRICING STRUCTURES IN TAIWAN

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OBJECTIVES: HTA in Taiwan was established in December 2007 to inform decision making on drug approvals and reimbursement prices. Drug categories were established based on the therapeutic value and the innovative nature of new drugs, and various pricing structures were adopted. Price adjustments based on demonstrative improvements in clinical efficacy and safety are also able to be applied. These adjustments can take into account clinical and pharmacoeconomic data specifically relevant to Taiwan. The aim of this study was to investigate the reimbursements of new health technologies assessed by the NIHTA with respect to drug categorisation, pricing structures and applied price adjustments. METHODS: NIHTA assessment reports from 2011 to February 2014 were reviewed, and approval and pricing decisions by the NHIA were evaluated. RESULTS: Of the 52 assessments included in this analysis, 37 were approved for use on the National Health Insurance (NHI) in Taiwan. Of these, 57% were determined as having a comparable therapeutic value to the current best competitor, 38% were deemed to show moderate improvements and 5% were considered breakthrough innovations. In most instances (73%), drugs were priced based on existing therapies. Of the approved health technologies, 9 (24%) were eligible for additional price adjustments. These were spread across multiple disease areas and reflected improved clinical and safety outcomes, dosing convenience and the availability of local clinical and economic data. The incidence of price adjustments has increased in recent years, which is particularly evident with respect to high quality pharmacoeconomic data. CONCLUSIONS: The majority of drugs approved by the NHIA offer similar clinical benefit to current competitors and are priced based on existing therapies. Alternative methods involved calculating drug prices based on international reference countries, although manufacturers seem to be increasingly seeking available price adjustments to achieve a higher price for their product.

QA3: COST-EFFECTIVENESS OF THROMBOLYSIS WITHIN 4.5 HOURS OF ACUTE ISCHEMIC STROKE IN CHINA

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OBJECTIVES: Previous economic studies conducted in developed countries showed intravenous tissue-type plasminogen activator (tPA) is cost-effective for acute ischemic stroke. This study aims to determine the cost-effectiveness of tPA treatment in China setting. METHODS: A combination of a decision tree and a Markov model was developed to determine the cost-effectiveness of tPA treatment versus no tPA treatment within 4.5 hours after stroke onset. Outcomes and costs data were derived from the Thrombolysis Implementation and Monitor of acute Ischemic Stroke in China (TIMS-China) study. Efficacy data were derived from a pooled analysis of ECASS, ATLANTIS, NINDS, and EPITHET trials. Costs and quality-adjusted life-years (QALYs) were compared both in short term (2 years) and in long term (30 years). One-way and probabilistic sensitivity analyses were performed to test the robustness of the results. RESULTS: Comparing to no tPA treatment, tPA treatment within 4.5 hours has a gain of 0.101 QALYs at an additional cost of CNY 9,520 (US$ 1,460), yielding an incremental cost-effectiveness ratio (ICER) of CNY 94,300 (US$ 14,500) per QALY gained after 2 years, and a lifetime gain of 0.422 QALYs at an additional cost of CNY 6,530 (US$ 1,000), yielding an ICER of CNY 15,500 (US$ 2,380) per QALY gained. Probabilistic sensitivity analysis shows...
that tPA treatment is cost-effective in 98.7% of the simulations at a willingness-to-pay threshold of CNY 105,000 (US$ 16,200) per QALY. CONCLUSIONS: :Intravenous tPA treatment within 4.5 hours is highly cost-effective for acute ischemic stroke in China setting.

QA4: COST-UTILITY OF BEVACIZUMAB WITH PC REGIMEN IN NON-SMALL CELL LUNG CANCER TREATMENT

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OBJECTIVES: Lung cancer, especially non-small cell lung cancer (NSCLC), is one of the most leading causes of mortality not only in the world but also in Vietnam. Bevacizumab – a targeted therapy agent- has been recommended to use in combination with chemotherapy as the first-line treatment of advanced NSCLC. However, the high cost of bevacizumab may reduce the availability of bevacizumab, especially in Vietnam. Therefore, this analysis was conducted to analyze the cost-effectiveness of bevacizumab in the combination with paclitaxel and carboplatin (BCP) versus paclitaxel and carboplatin regimen (PC) in Vietnamese setting. METHODS: A Markov model has been developed with 3 stages (stable, progressive and death). The model has a cycle length of 1 year with the life-time horizon. The population of 1000 patients was included in the model. The transition rates have been retrieved from randomized clinical trials, the prices of drugs and medical services have been averaged from the price-lists of some major hospitals in Vietnam in 2013. The sensitivity analysis has been conducted. RESULTS: The cost of BCP and PC regimen for NSCLC treatment accounts for 4,691,452,387 VND and 1,792,656,298 VND with the QALY of 7.88 and 5.62, respectively. The CER of BCP regimen for NSCLC treatment accounts for 595,533,261 VND, which is around 2 times higher than that of PC regimen. The ICER of BCP regimen versus PC regimen accounts for around 1.3 billion VND, which is about 17 times higher than the willingness-to-pay of Vietnam (74 million VND). One-way sensitive analysis showed bevacizumab price as the most affecting factor on its cost-effectiveness. CONCLUSIONS: Due to the high cost of drug, the combination of bevacizumab in the PC regimen in treatment of NSCLC is considered not cost-effective in Vietnam. To enhance the cost-effectiveness of bevacizumab, supporting policies from manufacturer, healthcare providers and government should be established.

RESPIRATORY-RELATED DISORDERS OUTCOMES RESEARCH STUDIES

RR1: ASTHMA GUIDELINE KNOWLEDGE, ADHERENCE AND COST OF TREATING ASTHMA AT EMERGENCY DEPARTMENT

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OBJECTIVES: To evaluate physician’s knowledge and adherence to asthma guideline adherence (GINA 2011) at emergency department of Hospital Pulau Pinang, Malaysia and to calculate cost of adhered and non-adhered prescriptions METHODS: A cross-sectional survey was conducted to evaluate knowledge of GINA, 2011 asthma guideline at emergency department of Hospital Pulau Pinang, Malaysia. A total of 810 patient prescriptions of 27 doctors (30 prescriptions per doctor) were viewed to assess doctor’s guideline adherence. Patients’ prescriptions were categorised in terms of asthma severity as mild, moderate and severe. Prescriptions were labelled as adhered or non-adhered in terms of doctor treatment according to patient asthma severity as recommended by CPG (GINA 2011). Cost of adhered and non-adhered was calculated according to asthma severity. RESULTS: Twenty two (81.5%) doctor’s had adequate GINA, 2011 asthma guideline knowledge (Mean 16.7, SD ± 1.5). Six hundred and twenty eight (77.5%) patients received guideline (GINA 2011) adhered pharmacotherapy. Six hundred and seventy eight (83.7%) patients asthma were classified as mild asthma, 128 (15.8%) patients were classified as moderate asthma and 4 (0.5%) patients were classified as severe asthma. Pearson correlation indicated no statistical significant association between asthma guideline adherence and asthma guideline knowledge score (p=0.27).Univariate analysis indicate that patients with age group 25-35 years and with hypertension as co-morbidity received significantly better pharmacotherapy (p=0.04, p=0.03 respectively). Total cost of 628 adhered prescriptions was RM 5792.87 whereas cost of 182 non-adhered prescriptions was RM 1759.09. Cost of single mild asthma adhered prescription (RM 9.18) was less as compared to non adhered mild asthma prescription (RM 10.39). CONCLUSIONS: Emergency doctor’s had adequate GINA, 2011 asthma guideline knowledge. Majority of patients received GINA, 2011 asthma guideline adhered pharmacotherapy. Cost effective medication can significantly reduce socioeconomic burden related to asthma.

RR2: RESOURCE UTILIZATION PATTERN AND COST OF TUBERCULOSIS TREATMENT IN PENANG, MALAYSIA
RESULTS: The study period, 226 patients completed the treatment. However, complete costing data were available for 212 patients. The most highly utilized resource was chest X-rays followed by sputum smear examination and non-specific laboratory tests. Only a smaller proportion of the patients were hospitalized. The total cost of treating a smear positive PTB patient was USD 727.24. The amount paid by the patient constituted 55.3% (USD 401.50) of the total average cost of TB treatment. In multiple linear regression analysis, prolonged treatment duration (i.e., >6 months) was the only predictor of higher provider sector cost, whereby higher patient sector cost were determined by greater household income and persistent cough at the end of the intensive phase of the treatment. CONCLUSIONS: The average provider sector cost was 1.45 times higher (USD 325.35 versus USD 225.00) than the budget allocated by the Ministry of Health for the treatment of a TB case in Malaysia. The expenses borne by the patients and their families accounted for 5.71% of their annual family income, hence not catastrophic.

RR3: AWARENESS AND PREVENTION OF CHRONIC DISEASES IN JAPAN

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OBJECTIVES: Chronic diseases are common and costly to society, but often preventable. This study focuses on better understanding awareness and prevention of chronic diseases in Japan. METHODS: This study included data for the 2012 Japan (N=30,000) National Health and Wellness Survey, a cross-sectional, Internet-based survey of adults (18+ years) who provide information on their comorbidities, and healthcare behaviors. Awareness of chronic diseases were assessed using the following question: “Which of the following conditions are you aware of (COPD, depression, diabetes, hypertension, dyslipidemia and osteoporosis)?”. Prevention was assessed with the following question: “Which conditions do you take measures to prevent (heart attack/heart problems/stroke/mini-stroke, diabetes, osteoporosis)?”. Risk groups of COPD, depression, diabetes, hypertension, dyslipidemia and osteoporosis were calculated. Results were weighted/projected to represent the total population based on the Census Bureau. RESULTS: In Japan, 19.8%, 79.1%, 78.4%, 77.6%, 63.2%, 71.0% report awareness of COPD, depression, diabetes, hypertension, dyslipidemia, and osteoporosis, respectively. Within the risk groups only 25.1%, 82.7%, 87.0%, 82.4%, 81.9%, 81.1% report awareness of COPD, depression, diabetes, hypertension, dyslipidemia, and osteoporosis, respectively. Overall, 4.4% of respondents were taking steps to prevent heart problems, 7.7% were taking steps to prevent diabetes and 5.7% were taking steps to prevent osteoporosis. Among the COPD risk group, 36.5% quit smoking and 41.8% of the depression risk group spoke to a healthcare provider in the past six months. Within the diabetes risk groups 46.8% were taking steps to prevent diabetes. Only 6.5% of hypertension and 7.7% of dyslipidemia risk respondents were taking steps to prevent heart problems. In the osteoporosis risk group only 15.5% where taking steps to prevent osteoporosis. CONCLUSIONS: Data suggests a need for education programs to build awareness of chronic diseases in Japan. Due to the lack of knowledge of chronic diseases in Japan, prevention is limited especially amongst the at risk groups.

RR4: COST-UTILITY ANALYSIS OF VARENICLINE VERSUS EXISTING SMOKING CESSATION STRATEGIES IN KOREA

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OBJECTIVES: The purpose of this study was to examine cost-effectiveness of varenicline, a pharmacotherapy developed to support smoking cessation, versus currently available alternatives. METHODS: Two analytic decision tree models were used to simulate effectiveness of varenicline versus bupropion and varenicline versus nicotine replacement therapy (NRT). A 30-year Markov model with health states “Smoker”, “Quitter” and “Dead” was used for a hypothetical cohort of Korean smokers who are over 30 years old and willing to quit smoking. The population entered in the model received three months of therapy. Utility values of smokers and quitters incorporated in the model were collected from local data. Transition probabilities were from clinical trials and local statistical data, and cost data were obtained from Korean health insurance reimbursement price list and
local market price for non-reimbursement products. The model used a 5% discount rate for costs and effectiveness. Sensitivity analyses were conducted on various parameters such as the time to reach mortality rate of ex-smokers compared to that of non-smokers, time horizon and discount rate. RESULTS: The effectiveness of varenicline compared with bupropion and NRT was greater while it was more costly than both. The incremental effectiveness of varenicline versus bupropion and NRT was similar at 77,965 QALYs. The incremental cost of varenicline versus bupropion was 826 billion KRW and 1,428 billion KRW with NRT. The ICER of varenicline comparing to bupropion and NRT were estimated at 10.6 million KRW per QALY and 19 million KRW per QALY, respectively. Sensitivity analyses were quite robust for all parameters but it was most sensitive to time horizon. CONCLUSIONS: Varenicline treatment for smoking cessation can be considered as cost-effective compared with existing therapies in Korea. The ICER becomes lower when morbidity rates of smoking related diseases are reflected.

**RESEARCH POSTER PRESENTATIONS - SESSION I**

**RESEARCH ON METHODS - Clinical Outcomes Methods**

**PRM1: HISTOCULTURE DRUG RESPONSE ASSAY IN COLORECTAL CANCER**

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OBJECTIVES: Anti-cancer chemotherapeutic pharmaceutical agents have some toxic effects to normal cells. Therefore, the main factors to increase therapeutic effects are to destroy cancer cells specifically and appropriate dosage of anti-cancerous agents. Cancer cells are have been studied in many ways by using cell culture technologies in developed countries. We aimed to determine the chemosensitivity of colorectal cancer cases.

METHODS: From February 2013 through February 2014, Histoculture drug response assay data were obtained from 6 colorectal cancer surgical specimens held in State Central Hospital. Cultures and culture media were prepared by R. Hoffmans methods. We examined chemosensitivities of the tissue to carboplatin, irinotecan, doxorubicin, 5-fluorouracil and oxalaplatin. Cutoff inhibition rates were determined with each drug for colorectal cancer and were used to calculate predictabilities for chemosensitivity responses. We also prepared double samples from the culture and made histologic and cytologic analysis.

RESULTS: The evaluability of the histoculture drug response assay was at 83.3%. Predictability including true-positive and true-negative rates of 83.3% and 100% was observed. CONCLUSIONS: Cancer cells deaths are dependent from dosages of the candidate medications and it shows it is possible to use drug sensitivity methods in oncologic clinical practice.

**PRM2: ROLE OF CORTICOSTEROIDS USE IN ARDS: COMPARISON OF SYSTEMATIC REVIEW AND META-ANALYSIS**

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OBJECTIVES: Various studies exploring the routine use of corticosteroids for management of acute respiratory distress syndrome have had controversial results. The aim of this study was to evaluate and compare randomized, controlled trials with observational studies (comparing historical controls) determining the efficacy and safety of steroids in management of Acute Respiratory Distress Syndrome in adult population.

METHODS: English language, randomized control trial and observational studies were searched using different databases like the Cochrane Central Register of Controlled Trials, Cochrane database of systematic reviews, PUBMED, SCOPUS, SCIENCE DIRECT (Key terms: corticosteroids, methylprednisolone, hydrocortisone, dexamethasone AND acute lung injury, adult respiratory distress syndrome, acute respiratory distress syndrome, ARDS, respiratory failure, septic shock; years: inception to February 2014).

RESULTS: A total of 8 randomized control trial and 5 observational studies using variable dose and duration of steroids met the inclusion criteria. The Mantel-Hanzel odds ratio of corticosteroids decreasing mortality in patients of randomized, controlled trial was 0.822; 95% CI 0.480 to 1.408 whereas in observational studies was 0.552; 95% CI 0.134 to 2.278. The odds of corticosteroids associated infectious complications in patients of randomized, controlled trial was 1.118; 95% CI 0.557 to 2.247 whereas in observational studies was 1.662; 95% CI 0.981 to 2.816.

CONCLUSIONS: A definitive role of corticosteroids in ARDS has not been established. However, current data
from studies shows the result favouring use of corticosteroids in ARDS by decreasing the mortality associated. However, use of steroids is associated with a slight risk of increased infectious complications.

**PRM3: ACUTE RESPIRATORY DISTRESS SYNDROME: TREATMENT PATTERN AND OUTCOME ANALYSIS**

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**OBJECTIVES:** Acute respiratory distress syndrome (ARDS) is an acute hypoxemic respiratory failure. It is the most severe form of acute lung injury. The treatment of ARDS is generally supportive and there is ambiguity in the role of glucocorticoids in the treatment of ARDS. This study aimed at analyzing treatment pattern and outcome of patients in ARDS. **METHODS:** A retrospective observational study was conducted in a tertiary care teaching hospital. All the patients diagnosed with ARDS confirmed by chest X-ray and arterial blood gas during 2011 were included. Cases were identified and collected from the medical records division using ICD code J86. **RESULTS:** A total of 150 patients diagnosed with ARDS were included in the study. Mean age of the study population was 43.37 ± 16.15 years. Majority of them were males, 60.7% of the population. Analyzing the treatment pattern, 98.6% were given antibiotics for their underlying conditions along with supportive therapies, 48.6% of patients received glucocorticoid therapy and was found to be beneficial. Outcome analysis revealed 50.7% of patients recovered and 45.3% expired. Higher mortality (56.4%) was observed in the group who did not receive glucocorticoid therapy compared to the group which received glucocorticoid therapy (41.7%). **CONCLUSIONS:** The overall mortality rate was found to be high in ARDS patients in this study and use of glucocorticoids showed beneficial effects.

**PRM4: DRUGS IN CONSTRAINT COUNTRIES OF SUB SAHARAN AFRICA**

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**OBJECTIVES:** Being from the very land and a son of the same soil. Africa is the world's second-largest also the most poorest most underdeveloped continent. With great struggles and constraints in provision of essential drugs and program initiatives, its hard to make proper intervention in urgent essential needs of remedies required on a daily basis especially in the wider scope of village population on health priorities. **METHODS:** In 2007, Africa's dialysis population constituted only 4.5% of the world's dialysis population, with a prevalence of 74 per million population (pmp), compared to a global average of 250 pmp. In almost half the African countries, no dialysis patients are reported. The prevalence of peritoneal dialysis (PD) was 2.2 pmp, compared to a global prevalence of 27 pmp, with the bulk of African PD patients (85%) residing in South Africa. In North African countries, which serve 93% of the **RESULTS:** African dialysis population, the contribution of PD to dialysis is only 0% – 3%. Cost is a major factor affecting the provision of dialysis treatment and many countries are forced to ration dialysis therapy. Rural setting, difficult transportation, low electrification rates, limited access to improved sanitation and improved water sources, unsuitable living circumstances, and the limited number of nephrologists are obstacles to the provision of PD in many countries **CONCLUSIONS:** The potential for successful regular PD programs in tropical countries has now been well established. Cost is a major prohibitive factor but the role of domestic manufacture in facilitating widespread use of PD is evidenced by the South African example. Education and training are direly needed and these are areas where international societies can be of great help.

**PRM5: IS CHINESE SYNDROME NECESSARY IN THE EFFECTIVENESS EVALUATION OF CHINESE HERBAL FORMULAS?**

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**OBJECTIVES:** Though Chinese herbal medicine had been proved effective in clinical practice, due to the lack of suitable outcomes, the current randomised controlled trial studies (RCT) mostly stated that Chinese herbal formulas uneffective , thus the effectiveness are rarely confirmed publicly. In this study we applied Chinese syndromes in the effectiveness evaluation of Chinese herbal formulas and to assess their suitability and necessity. **METHODS:** In an finished RCT research, angina patients with Phlegm and Blood stasis syndrome were randomized into experimental group (Chinese herbal formulas combined with
western basic therapy) and placebo group respectively. An Chinese questionnaire TCM-SAQ, Seattle Angina Questionnaire(SAQ), and SF-12 were applied as patients reported outcomes to evaluate the effectiveness. And the results shows that there is no statistical difference in SF-12 and SAQ between two groups after 8 weeks' treatment, while there is significant difference shown in the syndrome domain of TCM-SAQ. On the basis of this results, the deviation value of all the domains in each questionnaire from the baseline to after 8 weeks' treatment were calculated. And then the Pearson correlation of the deviation value among the domains in TCM-SAQ with domains in SAQ and SF-12 were analysed. RESULTS: The correlation between angina domain in TCM-SAQ with each domain in SAQ and SF-12 is from 0.045 to 0.237 (p<0.01), (physical limitation domain is 0.450 to 0.779 (p<0.01), sleep quality domain is 0.342 to 0.555(p<0.01), Chinese syndrome domain is 0.477 to 0.688 (p<0.01), worry of disease domain is 0.439 to 0.709 (p<0.01), treatment satisfaction domain is 0.298 to 0.689 (p<0.01). For Chinese syndrome domain the correlation with domains in SAQ and SF-12 were all higher than 0.4 and lower than 0.7. CONCLUSIONS: As an patients reported outcome, Chinese syndrome can reflect the effectiveness of Chinese herbal formulas. And it is in some degree suitable and necessary in the effectiveness evaluation of Chinese herbal formulas.

PRM6: WITHDRAWN

PRM7: A NOVEL BROADLY APPLICABLE RISK SCORE FOR PREDICTING MORTALITY OF PATIENTS WITH CIRCULATORY SYSTEM DISEASES WITHIN HOSPITALIZATION DURATION

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OBJECTIVES: The common comorbidity indexes was developed about two decades ago and were not appropriate for inpatients risk adjustment nowadays. Our objective was to develop a risk stratification model that broadly predicts mortality risks in hospitalized patients with circulatory system diseases. METHODS: The risk score model was generated by using inpatient summary report of electronic medical record dataset from 2006 to 2010 among 50 tertiary hospitals in Beijing, and validated by same dataset of 65 tertiary hospitals in the whole country in 2012. The patient diagnosis as identified by using the International Classification of Diseases, 10th Revision. Risk score was developed with individual major diagnostic codes. Receiver operating characteristic (ROC) analysis was used to evaluated the predictive effect of risk score, and the Charlson Comorbidity Index (CCI) was used to compare with the risk score in validation data sets. RESULTS: The diagnosis code of total 4,216,375 patients were used to generate the risk scores which comprise 293 items out of more than 4,000 categories and ranged from 96 to 1. In the validation data set, the ROC was 0.845 compared with the CCI ROC of 0.748 among myocardial infarction inpatients, and in coronary artery bypass grafting(CABG) inpatients the ROC was 0.729 to CCI ROC of 0.626, in percutaneous coronary intervention(PCI) inpatients the ROC was 0.847 and 0.648 respectively. The ROC of novel risk score was improved 12.7, 16.4 and 30.1 percent among inpatients with circulatory system disease. CONCLUSIONS: This study generated a broadly applicable tool for risk adjustment that predicts circulatory system diseases inpatient mortality with more reliability than current risk indexes. This risk index will allow comorbidity-adjusted outcomes broadly in surgery, hospitalization and drug efficacy evaluation.

RESEARCH ON METHODS - Cost Methods

PRM8: DISEASE BURDEN OF MULTIPLE MYELOMA IN CHINA

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OBJECTIVES: Multiple myeloma (MM) is known as an incurable cancer of plasma cells, which incurs significant burden on patients. There are estimated 27,000 MM patients in China in 2013, and the incidence is 1–4 per 100,000 people per year. However, the disease burden of MM in China has not been well studied. Using Guangzhou claim data, this article estimated the economic burden on patients with MM from a societal perspective. METHODS: 2009-2011 databases of Urban Employee Basic Medical Insurance and Urban Residents Basic Medical Insurance were used to estimate the direct medical cost of MM and the determinants of medical cost. The direct medical costs of bortezomib-based therapies and regular chemotherapies were compared. Disability Adjusted Life Year (DALY) was used to estimate the indirect cost. RESULTS: For a patients with MM conditions in Guangzhou, the direct cost was RMB 8.45 million in 2009, 8.52 million in 2010, and 13.90 million in 2011, while the indirect cost was RMB 12.18 million, 13.11 million, and 19.46 million, respectively. Moreover, the MM medical cost was higher with age, increasing reimbursement rate and length of stay. The average hospitalization expenditure for bortezomib-based therapies and regular chemotherapies were RMB 59,945.84±38,335.12 and 16,465.62±19,695.13 (P<0.001). The out-of-pocket (OOP) cost for per treatment cycle were significantly higher for patients treated with bortezomib-based therapy (RMB 43,773.57±12,415.07) than for those treated with regular chemotherapies (RMB 3,720.74±6,060.65). CONCLUSIONS: MM
conditions have serious economic burdens, and was significantly increased overtime in China. MM patients would pay over 12 times more OOP cost for the use of bortizomib-based therapy than for the use of commonly-used chemotherapies.

**PRM9: HEALTH CARE USE AND ORAL MEDICATION PATTERNS FOR TYPE 2 DIABETES PATIENTS IN CHINA: THE ROLE OF TRADITIONAL CHINESE MEDICINES**

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**OBJECTIVES:** To investigate the healthcare utilization and cost, focusing on the use of oral anti-diabetic drugs (OADs) for type 2 diabetes patients in China. **METHODS:** A large scale, prospective, and observational study was conducted in 5 cities of China. Subjects on any OAD were enrolled. The data was collected from longitudinal interviews and diary following-up with the enrolled patients. Primary data information included socio-demographic characteristics, healthcare and medication utilization and costs, laboratory assessments, and quality of life. The baseline interview and 4 times of following-up were conducted within 12 months. HbA1c, fasting blood-glucose and blood lipids were assessed. Multivariable regression and propensity score matching methods were used to control for confounding factors in the study. **RESULTS:** 2886 patients enrolled at baseline, 2322 of them completed the full study. The average age of enrolled patients at baseline was 61.71 (sd=11.27) years. The number of OADs per patient was 1.66 (sd=0.80) with a median of 2. The mostly used 4 OADs are: Metformin (44.01%), Acarbose (28.64%), Xiaoke Pill (a traditional Chinese medicine, 20.54%) and Gliclazide (18.26%). On average, a patient spent CNY 8,867.56 (sd=17,642.51) on healthcare annually, where OADs cost CNY 2,645.82 (sd=3,123.30). When controlling for other confounding variables via statistical models, further analysis finds that patients on Xiaoke Pill as the major regimen ended up with a reduction in total healthcare cost by CNY 2,151 (p<0.01), where OADs cost was reduced by about CNY 626 (p<0.01). **CONCLUSIONS:** Type 2 Diabetes patients in China bear a heavy economic burden. Among OADs, traditional Chinese medicine Xiaoke Pill appears to be a quite cost effective treatment regimen for diabetic patients in China. Future analysis is warranted to investigate mechanisms and conditions through which oral Chinese OADs may be cost effective for some diabetic patients in China.

**PRM10: HEALTH ECONOMICS METHODOLOGIES INVOLVING PARKINSON'S DISEASE TREATMENT IN CHINA**

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**OBJECTIVES:** To describe the methodologies used in health economics (HE) studies on Parkinson’s disease (PD) in China. **METHODS:** A structured literature review was conducted to describe the methodology used to generate HE evidence for PD treatment in China. The review was conducted in both English and Mandarin languages using four databases: PubMed, Cochrane, WAN FANG and VIP, for articles published between 2000 and 2013. Study selection was limited to Chinese population based in China and those which reported cost-effectiveness ratio (CER) or incremental cost-effectiveness ratio (ICER) of PD pharmacotherapy. **RESULTS:** Six studies were selected, all in mandarin. The studies were conducted using different study designs including cohort, randomised controlled trials (RCT) and retrospective observation. None of the studies utilised any HE modelling. Cost-effectiveness comparisons were made between levodopa monotherapy with or without benserazide against other adjuvant PD pharmacotherapies. Two studies were conducted based on health system perspectives, 2 studies on societal perspectives and the remaining 2 studies did not report any. Cost components calculated differed between studies. Only 2 studies investigated the cost-effectiveness of PD treatment using both direct and indirect costs. The effectiveness outcomes were mostly determined using either Unified Parkinson’s disease Rating Scale (UPDRS), followed by Parkinson’s disease Questionnaire (PDQ) or Visual Analogue Quality of Life (VAS-QOL) scale. Only one study reported ICER value whereas the remaining studies only reported CER. All studies conducted primary data collection for the purpose of the cost-effectiveness analysis. The time horizon for each studies ranged from 2-3 months in the RCTs, and 1-24 months in the observational studies. No discounting was reported in any of the articles. Only one article reported sensitivity analysis. **CONCLUSIONS:** All HE studies published were piggy-backed to clinical studies and none utilised HE modelling. None of the HE studies completely fulfilled the standard HE reporting criteria.

**RESEARCH ON METHODS - Databases & Management Methods**

**PRM11: ASSESSMENT OF NEED, DEVELOPMENT AND IMPLEMENTATION OF SUPPORTIVE MANAGEMENT DATABASE FOR THE TREATMENT OF POISONING CASES IN A TERTIARY CARE HOSPITAL**
OBJECTIVES: The main purpose of the present study was to assess the physicians need for the development of a supportive management database for the treatment of poisoning cases and to implement such a database in the hospital setup based on the need of the physicians. METHODS: A prospective, observational study was conducted in the emergency department of Kasturba Hospital, Manipal. The study was approved by the Institutional Ethics Committee of Kasturba Hospital, Manipal. A 12 item questionnaire was developed, validated and given to 42 physicians who treated acute poisoning cases to assess their need for the development and implementation of a supportive management database. Material for the database was prepared after conducting an electronic literature search of various existing databases. RESULTS: The 12 item questionnaire was given to seven experts for content validation. Out of twelve items, one item was excluded from the final questionnaire as it did not meet the required value. All 42 (100%) of the physicians believed that a supportive management database for poisoning cases in the hospital setup would be really helpful. Over 300 articles were referred in the preparation of the material for the database. CONCLUSIONS: Clinical pharmacists together with physicians who treat poisoning cases must work hand in hand in developing institutional guidelines for the management of poisoning. Development of such guidelines could reduce the complications and mortality which are associated with poisoning cases.

PRM12: EVIDENCE FOR VALIDITY OF A NATIONAL PHYSICIAN AND PATIENT-REPORTED SURVEY IN CHINA AND UNITED KINGDOM: THE DISEASE SPECIFIC PROGRAMME


OBJECTIVES: Traditional large scale epidemiological surveys used to inform public health decision-making have limitations, notably the cost and time to administer them and the timeliness of the data, sometimes subject to 5 or more years between updates. This analysis aimed to validate a newer survey methodology by comparing output with that from two large scale health surveys. METHODS: Data were drawn from the Adelphi Diabetes Disease Specific Programme (DSP), a cross-sectional survey of physicians and their patients conducted in China (2012) and United Kingdom (UK) (2013). Detailed records for 1662 patients were provided by 200 physicians in China. In the UK, 125 physicians provided records for 1237 patients. Clinical and demographic characteristics of the samples were compared with independent representative national data sources: a 2007/08 Chinese epidemiology study (46,239 patients) and the Health Survey for England 2011 (HSFE), administered to 10,000 individuals. Variables common to both datasets were compared and tested for significant differences. RESULTS: Systolic blood pressure (SBP) and low-density lipoprotein (LDL) values from the China DSP were statistically non-different from the national survey. There were differences between fasting plasma glucose (137.8 vs. 158.6); age (56.6 vs. 55.8); male body mass index (BMI) (24.1 vs. 25.2) and high-density lipoprotein. Comparing the UK DSP with the HSFE, all variables (age, gender, smoking status, age at diagnosis (61.5 vs. 63.9), insulin-treated, BMI (31.6 vs. 32.3), total cholesterol, HBA1C% (7.768 vs. 7.981), and SBP were non-different. Weeks since diagnosis differed - 358 DSP vs. 504 HSFE. CONCLUSIONS: Results demonstrate that the DSP methodology enables up-to-date representative sampling of treated adult patients in Western and Asian populations for national disease burden quantification, and treatment pattern and outcomes assessment. A limitation is that sampled patients are more recently diagnosed, but there are otherwise only minor differences in clinical and demographic characteristics.

PRM13: REAL WORLD EVIDENCE IN MAINLAND CHINA: EXPERIENCE WITH THE USE OF HEALTH CARE CLAIMS DATA


OBJECTIVES: The China public health insurance system now covers 95% of the population due to efforts to establish universal coverage under three primary government programs (Urban Employee Basic Medical Insurance, Urban Resident Basic Medical Insurance, and New Rural Cooperative Medical Scheme). Data from these insurance programs are combined to create the China Health Insurance Association (CHIRA) database; the only national claims database in China. Use of these data allow research to examine patients, settings, patterns and outcomes that may differ from that of RCTs; advancing China’s population-
based research and enhancing the opportunity to apply real world evidence (RWE) in local decision making. The use of claims data is relatively uncommon in China. This work explores the current and potential use of local claims data as a source of information for RWE in China. METHODS: The experience of the use of the China Health Insurance Association (CHIRA) data is explored. The advantages and limitations of the CHIRA data are described. RESULTS: Although there have been abstract disclosures in scientific conferences, a search in PubMed (January 8, 2014) found no manuscripts published that presented analyses using CHIRA data. It uses ICD-10 codes and collects cross-sectional data annually from inpatient claims records from sample cities. Advantages include the availability of demographics, institution, diagnoses, medications, service use, hospital stay, insurance type and service cost information for a large, diverse local population. Limitations include the lack of longitudinal patient records, incomplete data, the lack of outpatient data and standardized billing codes, and limited access for research purposes. CONCLUSIONS: At present claims data in China are relatively difficult to access and to use. However the use of claims data for health services research is expected to increase in line with planned enhancements to data availability and quality, and the increasing needs for RWE by decision makers.

PRM14: MANAGING CONGENITAL AND PEDIATRIC CARDIAC SURGERY DATA BASE: THE IMPACT ON CLINICAL PRACTICE AND QUALITY OF CARE

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OBJECTIVES: To develop a functional and validated database for quality assurance and improving patient outcomes and establishing institutional integrity METHODS: The Cardiothoracic surgery division at the Aga Khan University Hospital maintains a computerized database of all the patients undergoing cardiac surgery since July 2006. For this study, data of 1236 patients operated between July 2006 and Dec 2013 was analyzed. Major measures of outcomes included in-hospital and 30 day mortality and morbidity outcomes like reopening, sepsis prolong ventilation, arrhythmias low cardiac output syndrome. RESULTS: Out of a total of 1236 heart surgeries, the most common open heart surgeries were VSD 27%, TOF 24% were, and 13% were ASD. In closed heart 51% were Modified BT shunts, 17% were PDA. The overall 30-day mortality in open heart was 7.0%, and in closed heart it was 7.3%. Post-surgery more common complication in open heart surgery was prolong ventilation which was 39%, arrhythmias 14%, reopenings 11% and sepsis 5%. Total morbidity was 29% while in closed heart most common complication was prolong ventilation which was 31%, total morbidity was 21%. Readmissions after 30 day of discharge were 8.4% mainly for respiratory infection. Followed with 14% lost to follow-ups 85% patients were alive, 0.6% were died at 30 day patients follow up. Changes depend on database: VSD: on table extubation or extubation with 4 hours – minimal morbidity and early discharges. ASD: on table extubation CONCLUSIONS: Updated and stringently maintained database helped to identify deficiencies, strength and trends of the Pediatric and Congenital Cardiac surgery program at our hospital and also to design strategies for continuing improvement in patient care. Also provides scientific evidence for comparing results with other institutions of the region and world.

PRM15: DEVELOPMENT OF A LONGITUDINAL NATIONAL FOOTBALL LEAGUE INJURY AND INJURY IMPACTS (L-NFL-III) DATABASE

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OBJECTIVES: Injuries in sports, including professional American football, are a major public health problem affecting millions of young and adult athletes around the world each year. While most injuries are minor, some end seasons, careers, and may even result in long-term disability. No outcomes databases exist that focus on injuries in the National Football League (NFL). We sought to develop a database that’s longitudinal and includes key injury impact outcomes. METHODS: Four years of data including information on any player that played 1+ regular season games between 2010 and 2013 were adapted from NFL.com, ESPN.com, TSN.com and several other reputable online sources. Five different and unique data types, all capable of being merged with one another and used in longitudinal analyses, were stored as SAS datasets: Player Background (e.g., age, weight, position), Games Played, NFL Injury Report, Injured Reserve List, and Schedule and Conditions (e.g., field surface, weather conditions, referee). Data from the NFL Injury Report and Injured Reserve List contain every significant injury to NFL players during the 4-year period including concussions, knees, ankles, hamstrings, etc. Injury Impacts include games missed due to injuries as well as season- and career-ending injuries. RESULTS: Data on 3,193 unique NFL players are included in the database. About 7,700 player-seasons are captured that cover nearly 91,000 player-games. About 18,500 Injury Reports are recorded on these players resulting in more than 6,000 missed games. In addition, almost all 959 Injured Reserve List injuries are season-ending and significantly raise the risk of ending a player’s career. CONCLUSIONS: The L-NFL-III database can be a...
useful tool for epidemiological and outcomes research related to injuries in the NFL. In 4-year longitudinal analyses, this database was successful in identifying a large number of missed games due to injuries, as well other critical outcomes including season- and career-ending injuries.

**PRM16: HEALTH CARE DATABASES APPLIED TO ANTIDEPRESSANTS USE IN ASIA-PACIFIC**


**OBJECTIVES:** Healthcare databases represent an optimal tool for conducting large retrospective epidemiological studies and are largely used in Europe and the US. This study is the second phase of an earlier study which qualitatively describes databases in Asia Pacific. In this phase, we focused on several countries that have large healthcare databases used for administrative functions namely South Korea, Taiwan, Australia, Japan, and Singapore. We assessed the use of databases in studies relevant to health economics and outcomes research (HEOR) on the use of antidepressants. **METHODS:** A literature search was conducted to include English language articles in PubMed to identify database analysis studies from 2000-2013. We identified the number of studies from these countries using the databases as well as their topics of focus. These included studies on prescription patterns, resource use and cost of disease. **RESULTS:** From the countries included in the study, Taiwan had the highest number of studies published on HEOR and the use of antidepressants. There were few or no studies from Japan, South Korea, Australia and Singapore. The topics ranged from the use of antidepressants, prevalence, use among adolescents, and factors associated with persistence or early attrition to treatment. Some studies documented the clinical or economic impact of continuous treatment. **CONCLUSIONS:** Viewed in the context of the earlier study on availability of accessibility of databases, it appears that Taiwan has a high degree of usage based on the number of publications found in our second phase. This may be due to some advantages in terms of database accessibility, transparency of processes and representativeness of the population. As such, for the purpose of research and improving understanding of disease, the authors feel that the Taiwan database is a good example especially for countries still developing their database capabilities.

**RESEARCH ON METHODS - Modeling Methods**

**PRM17: BUILD MODEL WITH ASIA PACIFIC REGION IN MIND: MODELING INR CONTROL IN A COST-EFFECTIVENESS MODEL FOR STROKE PREVENTION IN ATRIAL FIBRILLATION PATIENTS**

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**OBJECTIVES:** Patients, physician behaviors, and health systems differ across regions. Models without features to account for heterogeneity can’t be readily adapted in AP region. Warfarin, the standard care for stroke prevention in atrial fibrillation patients, requires routine monitoring of International Normalized Ratio (INR). Below or above the target range (2.0-3.0) increases ischemic or hemorrhagic events, respectively. Time in therapeutic range (TTR) determines therapeutic effectiveness. INR monitoring and increased hemorrhagic risk created barriers for broad effective warfarin use in AP region. The mean TTR in US was 66.7%. In contrast, the estimate was 36% in China. All existing anticoagulant models, mostly Markov-based, have no explicit INR modeling. To allow for effectiveness projections for warfarin in AP settings, our model incorporated an INR module. **METHODS:** We adopted a microsimulation approach to accommodate the patient heterogeneity and the strong association between a patient’s history and future outcomes. An INR control module was built in three steps: a) estimated event rates within target INR range, b) probabilistically chose an INR range for a patient at each cycle based on the simulated population’s TTR distribution, and c) projected event rates at the chosen INR range by incorporating the relative risks of INR control effect on events. Inputs were derived from the RE-LY trial, published literature and expert opinion. **RESULTS:** We performed internal validation by projecting 2-year clinical events using the RE-LY-like TTR distribution (22.2% INR<2.0, 64.4% 2.0≤INR≤3.0, 13.4% INR>3.0), achieving events rates similar to those observed in RE-LY. Applying a China-like TTR distribution (59% INR<2.0, 36% 2.0≤INR≤3.0, 5% INR>3.0) increased ischemic event rates while reducing hemorrhagic event rates. **CONCLUSIONS:** Explicitly modeling INR control produced realistic projections which allowed adaptation of our anticoagulant model to AP settings. Proactively incorporating flexible model structure to accommodate heterogeneity was an efficient approach to improve model generalizability.
PRM18: STRATEGIES TO OVERCOME HURDLES IN HTA APPRAISALS AMID LIMITATIONS RESULTING FROM SINGLE-ARM TRIAL DATA

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OBJECTIVES: The purpose of this study was to evaluate the barriers that arise in constructing strong pharmaco-economic (PE) submission based on evidence from single-arm clinical trials, and to evaluate strategies to overcome them. METHODS: A set of therapeutics were selected based on the following criteria: oncology indication with a PE submission for health technology assessment (HTA) review, utilising single-arm trial data. HTA appraisals in five major markets were considered – GBR, CAN, SCT, GER, and FRA. Modelling approaches used in each appraisal were enumerated, and HTA body comments on each employed strategy were collected. Each identified modelling strategy was evaluated for its likelihood in overcoming a negative appraisal across the selected major markets. RESULTS: The PE model barriers associated with single-arm trial data included: lack of direct comparison with comparator, reliance on surrogate endpoints, and lack of long-term follow-up. The techniques employed to address these drawbacks included: comparison with historical control, comparison with self-control, comparison with non-responder control, comparison with placebo-arm of a published trial, correlation of surrogate endpoints to hard outcomes, survival extrapolation methodology (including parametric extrapolation and cumulative survival approach). These methods were most successful in FRA and CAN, where positive HTA appraisals were awarded 7/8 and 2/2 times, respectively; and were least successful in GBR and SCT, where positive HTA appraisals were awarded 1/4 and 2/8 times, respectively. CONCLUSIONS: Manufacturers may face difficulties when modelling a product’s economic benefit based on data from a single-arm trial. While securing a positive HTA appraisal for such PE submissions remains difficult, there exist strategies that can help to overcome identified barriers, which have led to success in major HTA markets – most notably FRA and CAN.

PRM19: USING TRANSMISSION DYNAMIC MODEL TO DETERMINE VACCINATION COVERAGE RATE BASED ON ECONOMIC BURDEN OF INFECTIOUS DISEASE: AN EXAMPLE OF PNEUMOCOCCUS VACCINE

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OBJECTIVES: Vaccination would lead to reduce the incidence and mortality of an infectious disease and then increase the years of life and productivity for entire society. But, determination of vaccination coverage rate is usually not taken its economic burden into account. This study aims to use a transmission dynamic model (TDM) based on a susceptible-infectious-recovered (SIR) model, a system of differential equations, to find optimal vaccination coverage rate based on the economic burden of an infectious disease. METHODS: Vaccination for pneumococcus diseases was used as an example to demonstrate the main purpose. 23-valent pneumococcal polysaccharide vaccines (PPV23) and 13-valent pneumococcal conjugate vaccines (PCV13) have been shown their cost-effectiveness in elderly and children, respectively. Scenarios analysis of PPV23 to the elderly aged 65+ years and PCV13 to children 5 years and under was applied to assess the optimal vaccination coverage rate based on the economic burden. All epidemiological parameters were derived from the Taiwan’s National Health Insurance Research Database, all cost parameter were derived from the Taiwan’s Ministry of the Interior and the vaccine efficacy was obtained from the literatures. Various vaccination coverage rate, the vaccine efficacy and all epidemiological parameters were all substituted into to TDM and all differential equations were solved using the fourth-order Runge–Kutta method implemented in R Statistical Software. RESULTS: If the he coverage rate of PPV23 for the elderly and PCV23 for the children both reach to 50%, the economic burden due to pneumococcus disease will be minimized approximately. CONCLUSIONS: This study provided an alternative perspective from the economic burden of diseases to obtain a vaccination coverage rate using the TDM. This will provide valuable information for vaccination policy decision makers.

PRM20: UPFRONT OVERALL SURVIVAL MODELLING IN COMPARISON TO REAL WORLD DATA: LENALIDOMIDE FOR THE TREATMENT OF MULTIPLE MYELOMA PATIENTS IN SOUTH KOREA


OBJECTIVES: Decision makers are frequently faced with the question of how realistic are cost-effectiveness models. Overall survival (OS) is a desired clinical trial and health technology assessment endpoint but frequently unrealistic or elusive at the point of new drugs financing decision. We aim to compare the overall survival from lenalidomide treatment in relapsed/refractory multiple myeloma (nMM) patients estimated from modelling clinical trial data in a cost-effectiveness analysis (CEA) and compare it with real-world data (RWD) from South Korea. METHODS: In this CEA of lenalidomide-plus-dexamethasone OS
outcomes were indirectly estimated using a quantitative relationship between time-to-progression/progression-free-survival derived with a censored normal weighted Tobit regression model with data from a literature review of 153 studies containing 230 treatment arms and 22,696 MM patients. Real world data was from a retrospective analysis of 110 heavily pre-treated patients from 20 hospitals. These patients were treated with lenalidomide-plus-dexamethasone in the Korean patient access program between 2008 and 2012. RESULTS: The RWD was available for a heavily pre-treated population with 76.3% of patients with >2 previous treatments. For this population, estimated median time to progression (TTP) was 7 and 7.4 months in RWD and MM009/010 clinical trials, respectively. Corresponding predicted Tobit model upfront OS estimates, corrected for baseline characteristics, were 21.3 and 22.2 months. In the RWD data from South-Korea the reported median OS was 21 months. Median OS was also 21.0 months in the equivalent population of the two large, multicenter MM009/010 randomized phase III trials. CONCLUSIONS: This study provides evidence that overall survival of Lenalidomide-plus-dexamethasone treatment in relapsed/refractory multiple myeloma estimated in a cost-effectiveness analysis is remarkably similar to the outcomes observed in real-world patients and points to the value of such upfront estimates to decision makers in the absence of mature overall survival data.

**PRM21: COMPARING THE EVENT PREDICTION CAPABILITY OF THE UKPD68 AND HONG KONG DIABETES RISK EQUATIONS WITHIN A TYPE 2 DIABETES SIMULATION MODEL**

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**OBJECTIVES:** There is concern over the ability of cardiovascular risk equations to reliably predict event incidence across contrasting populations, specifically when considering ethnic variation. The UKPD68 and Hong Kong (HK) risk equations have been extensively validated, and are derived from UK and Chinese populations, respectively. The objective of this study was to compare the predicted incremental event incidence for different diabetes treatments in a Chinese population, when using the UKPD68 and HK risk equations within an established diabetes model. METHODS: Treatment with SGLT2 inhibitor or sulfonylurea (SU), combined with metformin, was modelled in a cohort of 1,000 patients over variable time horizons. Baseline clinical inputs and treatment effects utilised in the model were obtained from published literature. Treatment effects were applied to the following modifiable risk factors: HbA1c, blood pressure, cholesterol and eGFR. Chinese life tables were employed to model all-cause mortality. Incidence of both CHD and stroke events were compared. RESULTS: Modelled treatment effects corresponded to one predictive risk factor contained in each of the HK equations, compared to four in each of the UKPD68 equations. When comparing treatment with SGLT2 inhibitor to SU using the UKPD68 equations, the incremental incidence of stroke and CHD was 0.14% and 0.10% at 5 years, and 0.74% and 2.55% at 20 years, respectively. When using the HK equations, incremental incidences were -0.08% and 0.10% at 5 years and -0.27% and -0.18% at 20 years, respectively. CONCLUSIONS: Cost-effectiveness analyses require accurate estimates of the incremental benefit associated with comparator treatments. The UKPD68 and HK equations did not predict consistent incremental event incidences, potentially due to the inclusion of different clinical variables as estimators of risk. This highlights the importance of understanding the effects of specific risk factors upon the estimation of event incidence, especially with respect to different populations.

**PRM22: ECONOMIC EVALUATION OF DIABETES CARE INTERVENTIONS IN CHINA: A SYSTEM SCIENCE APPROACH**

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**OBJECTIVES:** Despite the existence of many cost-effective medical and public health interventions in prevention and treatment of diabetes, prevalence and cost of diabetes are growing in China as well as the rest of world. In order to integrate and allocate health system resources to control diabetes successfully, it is necessary to develop dynamic economic evaluation for patient-centered diabetes care from a system perspective. METHODS: Based on system dynamic (SD) modeling, this study develops a framework to depict the structure and feedback loops that generate nonlinear relationship between cause and effect in diabetes management. It also uses multichannel datasets in China to validate the model and simulate the costs and effectiveness of different diabetes management interventions and the impact of health insurance policies. Specifically, the framework illustrates a patient’s decision making process in physical activities and medication choices and their related cost, clinical outcome, and quality of life over time. It also illustrates how an individual’s budget constraint, time constraints and health insurance policy influence their behaviors. The key stock and flow variables in the model are, direct and indirect costs of care, real and perceived risk of diabetes complication, quality of life (QoL), financial burdens, and exercise time. RESULTS: AND CONCLUSIONS: The study provides insights on how to evaluate cost and effectiveness of type 2 diabetes interventions under the complex scenarios.
of multi-drug taking, switching drug, and lifestyle changing simultaneously. It suggests that systemic dynamic simulations on cost-effectiveness analysis based on real world data can be a new vehicle for economic analysis along with RTC trails for decision making. The study also builds up a foundation to identify key factors and obstacles in changing patient behavior and providing efficient interventions.

PRM23: SINGLE-ARM STUDIES TO SUPPORT DRUG REIMBURSEMENT IN AUSTRALIA

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OBJECTIVES: Comparative effectiveness, safety and pharmacoeconomic data are required by many health technology assessment agencies to evaluate the relative benefits and costs of drugs seeking public reimbursement. Generally, direct head-to-head trials are considered the best evidence, whilst non-randomised evidence including comparisons of single-arm studies is considered weaker. In Australia, Public Summary Documents (PSDs) report the Pharmaceutical Benefits Advisory Committee's (PBAC) decision-making processes for government reimbursement of medicines. PSDs were reviewed to explore the extent to which single-arm studies have been used as primary evidence for comparative benefits, their success and PBAC's main concerns with this approach, in Australia. METHODS: All PSDs published between July 2005 and December 2013 where the primary evidence was reported to be single-arm study(s) were reviewed. Information on the comparator(s), data source(s), clinical claim, economic analysis, PBAC concerns and recommendations were analysed. RESULTS: Thirteen product submissions met the inclusion criteria. Two were for modifications of formulations already reimbursed based on comparative evidence, and were excluded. In another nine submissions, a single arm of a comparative trial was compared with external sources, due to the trial comparator not being relevant to the clinical setting. Of the 11 submissions included for review, nine used published data to estimate the comparator's effectiveness and safety. One of these submission also used data from a local observational study. Three presented no comparator data. Ten submissions claimed superior efficacy and/or safety over the comparator. Six of the 11 products were recommended for reimbursement, of which five claimed superiority. Of the five products not recommended, four claimed superiority. Factors associated with a positive recommendation were high clinical need or evidence of effectiveness in other indications. CONCLUSIONS: While presenting methodological challenges, single arm studies can be used to demonstrate robust evidence of superior effectiveness and support recommendations for public reimbursement of drugs in Australia.

PRM24: A SINGLE MODEL FOR DETERMINING SOCIOECONOMIC STATUS IN HEALTH STUDIES; A CRUCIAL STEP TO MAKE THE RESULTS MORE COMPARABLE

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OBJECTIVES: Socioeconomic status (SES) is a multidimensional theoretical construct that covers a variety of social and financial circumstances. The selection of indicators and their ranking for individual's classification are of the challenging issues in socioeconomic studies. Also integrating different indicators in determining SES is usually complex and multidimensional. The aim of this study was to develop a model for measuring SES independent of time and place of study. METHODS: In order to identify proper indicators for determining the SES of individuals, a widespread search was conducted on Pubmed, Embase and Google Scholar. The relevant indicators were selected based on literature review and concept-focused group. Also, experts’ opinions considered for scoring these indicators. These indicators were weighted by Stepwise Adoption of Weights and were used to develop a model for measuring SES. RESULTS: Five indicators were selected for determining SES of individuals. These indicators include income, occupation, education, home status and family size. A model for income classification based on city poverty line (CPL) was established. The experts' opinions were integrated in order to reach a degree of consensus on the given scores to different occupation groups. A model for home status ranking based on national minimum wage (NMW) was introduced. A single model was developed to score homeowners and tenants at the same time. CONCLUSIONS: Four important findings emerged from this study. These include: The average weight and the percentage of the impact of each socioeconomic indicator on the socioeconomic status of individuals are suggested. A model based on CPL is introduced for income classification. A model based on NMW is developed for rent ranking. A single model is accomplished for comparing homeowners and tenants. These findings may help researchers to apply a single model for determining SES, by which the results of various studies could be compared more directly; particularly in middle-income countries.
RESEARCH ON METHODS - Patient-Reported Outcomes Studies

PRM25: THE RELIABILITY AND VALIDITY OF THE CHINESE VERSION OF THE EIGHT-ITEM MORISKY MEDICATION ADHERENCE SCALE

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OBJECTIVES: The aim of this study was to translate and construct the Chinese version of the eight-item Morisky Medication Adherence Scale (MMAS-8) among Taiwanese patients with hypertension. METHODS: 604 outpatients with established chronic hypertension at a regional hospital in eastern Taiwan were enrolled. Using a cross-sectional study, blood pressure (BP) was measured for and structured questionnaires were answered by all participants. Standard forward and backward translation, proofreading and joint discussion procedures were used to translate the MMAS-8. Internal consistency was assessed using Cronbach’s coefficient, construct validity using factor analyses, and concurrent validity using correlation analysis. All data were analyzed using SPSS 20.0 statistical analysis software. RESULTS: The mean of MMAS-8 scores was 2.6. Adherence and poor adherence of patients accounted for 57.5% and 42.5%, respectively. Cronbach’s α was found to be 0.83 (0.81-0.85) with 95% CI. Factor analysis was found R2 (46%), and all factor loadings of the MMAS-8 was greater than 0.30. Adherence was positively correlated with attitude (r=0.24, p=0.00), subjective norm (r=0.33, p=0.00), perceived behavior control (r=0.51, p=0.00), and intention (r=0.49, p=0.00). Adherence was positively correlated with the SBP (r=0.11, p=0.01), DBP (r=0.16, p=0.00) and the MAP (r=0.15, p=0.00). When SBP and DBP were considered independently, adherence was significantly different between good and poor controls of SBP and DBP. The two groups were positively correlated with SBP control (r=0.09, p=0.02) and DBP control (r=0.10, p=0.01). CONCLUSIONS: the Chinese version of the MMAS-8 is a reliable and valid measure of medication adherence in Taiwanese patients with hypertension.

PRM26: HBA1C CONTROL PREDICTIVE VALIDITY OF FOUR SELF-REPORTED MEASURES OF ANTIDIABETES MEDICATION ADHERENCE

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OBJECTIVES: The aim of this study was to assess the predictive validity of four self-reported measures of adherence on glycemic control measured with HbA1c. METHODS: A survey conducted to assess factors associated with adherence to non-insulin antidiabetes drugs in the Canadian province of Quebec serves as the background for the present study. Participants completed an on-line questionnaire in which adherence to their treatment was assessed using four self-report instruments: the 4-item and 8-item Morisky Medication Adherence Scales (MMAS-4/8), an adaptation of a 5-item scale previously developed to be used with HIV patients and a 5-point Likert single item scale developed by our team. A sample of those who completed the questionnaire was then asked between 3 and 6 months later to measure their Hba1c. We plotted a receiver operating characteristics (ROC) curve for each adherence measure and glycemic control (HbA1c ≤7% - >7%). The predictive performance of each instrument was assessed using the area under the ROC curve (AUC). AUC ranges from 0 to 1, with 0.5 indicating a no better than chance prediction. RESULTS: A total of 117 participants were studied. Non-stratified analyses yielded an AUC of 0.515 (95% CI: 0.423-0.606) for the MMAS-4, 0.532 (0.431-0.633) for the MMAS-8, 0.541 (0.452-0.629) for the HIV-adapted scale, and 0.524 (0.441-0.607) for our scale. CONCLUSIONS: Overall all 4 self-reported measures of adherence exhibited a poor validity at predicting glycemic control.

PRM27: CONSTRUCT VALIDITY OF SF-6D HEALTH STATE UTILITY VALUES IN AN EMPLOYED POPULATION

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A valid utility-based self-report measure is essential for evaluating health changes in employees. Health utility values permit cost utility analysis to be performed, an analytical technique rarely utilised in economic evaluations of workplace health promotion. There is no validated health utility measure in working populations. OBJECTIVES: To investigate the construct validity of SF-6D health utility instrument in a public service workforce. METHODS: The SF-12v2 Health Survey was administered to 3409 randomly selected public service employees in Australia in 2010. SF-12 scores were converted to SF-6D health utility values using Brazier’s algorithm. Associations with health, socio-demographic and work characteristics were explored using Spearman correlations. Linear regression was performed to identify correlates. Ceiling effects were analysed. For comparative purposes, normative SF-36v1 data from a general employed population were obtained from Release 11 of the Household, Income and Labour Dynamics in Australia (HILDA) survey (n=11234). RESULTS: Mean (SE) health utility was higher in males 0.794 (0.004, 0.836), non-smokers 0.764 (0.003), no chronic diseases 0.791 (0.003), and in better health states. Other demographic features were not associated with health utility. In the workplace, better health utility was associated with higher educational level, higher income, and greater length of service. None of the workplace factors was associated with better health utility in the general population. CONCLUSIONS: The SF-6D health utility instrument has high construct validity for the public service population.
n=927) than females 0.773 (0.003, n=2387). Health utility was negatively correlated with psychological distress (K10) (r= -0.69 females, r=-0.69 males), comorbidity count (r= -0.35 females, r=-0.28 males), and effort-reward imbalance (ERI) (r= -0.36 females, r= -0.33 males). SF-6D was independent of age, BMI and annual salary. Lower SF-6D was significantly associated (p<0.05) with higher comorbidities, K10, ERI, education (in females), absenteeism, and lower physical activity (in females). The Australian normative mean (SE) SF-6D was 0.792 (0.002, n=4955) for males and 0.775 (0.003, n=4639) for females. Correlates and associations were similar in the normative sample, which showed an additional significant inverse association with age and positive association with salary in the general employed. CONCLUSIONS: SF-6D health utilities differentiated between and associated as expected with key health, social and economic factors. These results validate the suitability of SF-6D to measure perceived health states in an employed population.

PRM28: A COMPARISON OF THREE LANGUAGE VERSIONS OF THE EQ-5D-5L DIMENSION SCALES IN SINGAPORE

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OBJECTIVES: To investigate the comparability of the English, Chinese and Malay versions of the 5 EQ-5D-5L dimension scales in Singapore. METHODS: A cross-sectional survey was conducted among visitors to a public primary care institution in Singapore. Participants were interviewed face-to-face in a language they preferred to measure the severity of the EQ-5D-5L response labels (‘no’, ‘slight’, ‘moderate’, ‘severe’, and ‘unable to (do)/extreme’ for each dimension scale) they perceived, using a 0-100 numeric rating scale. Participants were also asked to describe 25 dimension-specific health scenarios (5 for each dimension), each using one of the EQ-5D-5L response labels. Differences in label ratings and selection between participants speaking different languages were assessed using regression analysis. The individual-level rank order of label ratings was examined to assess violation of scale ordinality. RESULTS: : Severity of the EQ-5D-5L response labels perceived by Chinese-speaking (n=256) and English-speaking participants (n=257) was similar. Malay-speaking participants (n=230) perceived the ‘slight’ labels as more severe (adjusted differences in severity score: 10.5 to 14.5) but the ‘unable to (do)/extreme’ labels as less severe than English-speaking participants (adjusted differences in severity score: -13.3 to -11.0) (p < 0.001 for all). While no major violation of ordinality was observed among English- and Chinese-speaking participants, a noticeable proportion of Malay-speaking participants rated ‘slight’ as more severe than ‘moderate’ (up to 29.6%) and ‘severe’ as more severe than ‘unable to (do)/extreme’ (up to 33.9%). In label selection exercise, Chinese-speaking participants tended to use less severe labels than English-speaking participants; Malay-speaking participants tended to use ‘no’ and ‘unable to (do)/extreme’. CONCLUSIONS: : Differences in perception and usage of response labels exist among Singaporeans using different language versions of the EQ-5D-5L dimension scales. Future studies are needed to investigate whether the differences affect the cross-cultural measurement equivalence of the instrument and, if so, how to alleviate the differences.

PRM29: VALIDATION OF RUSSIAN VERSION OF HEALTH UTILITY INDEX QUESTIONNAIRE IN CHILDREN WITH CYSTIC FIBROSIS

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OBJECTIVES: Quality of life is an important parameter in the evaluation of quality and outcome of health care and treatment, especially in patients with chronic disorders. The aim of this study was to assess the validity and reliability of Russian version of health utility index questionnaire (HUI) in children with cystic fibrosis (CF). METHODS: 65 CF children 6-17 years were interviewed using HUI version 15Q, children over 12 years responded on their own (self assessment), health status of children younger 12 years was obtained from parents (proxy assessment). In addition all parents were interviewed using PedsQl questionnaire. Version translated into Russian language and has been adopted. QOL assessment was carried out on systems HUI 2 and 3. Single-attribute utility scores and multi-attribute utility scores evaluated corresponding to each system, ranges from 0 to 1. Forced expiratory volume in 1 s in percentage of predicted (FEV1%) was included as measure of health status. Patients were interviewed twice with a difference of 3 months. RESULTS: Reliability was calculated using Chronbach’s α which ranges from 0.71 to 0.80 in HUI 2 system and 0.71 to 0.77 in HUI 3 system. Significant difference between patients with FEV1 >80% and <80% were revealed in such utilities like: Mobility, Ambulation, Emotions, Pain (p<0.05). Correlations of HUI system attributes including Sensation (r=0.48), Self-care (r=0.32), Cognition (r=0.24) and Dexterity (r=0.38) with PedsQl scale were obtained. Mean value of several utilities significantly increased in 3 month: Sensation, Emotions, Cognition and Pain (p<0.05). CONCLUSIONS: Russian version of HUI questionnaire is a reliable and valid instrument for measuring the health-related quality of life in children with CF.
PRM30: WITHDRAWN

PRM31: A SURVEY OF KNOWLEDGE AND ATTITUDE OF MENOPAUSE AMONG POST-MENOPAUSAL WOMEN IN PAKISTAN

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OBJECTIVES: Menopause is a nettlesome phase of women life. A prior knowledge of menopausal changes will not only help women to cope up with this change but it will also increase their quality of life. Current study aims to analyze knowledge and attitudes of postmenopausal women towards menopause. METHODS: A cross-sectional survey was conducted from November, 2011 to September, 2012 among representative sample of women aged 45-60 years belonging to three major cities of Punjab, Pakistan. A team of five trained researchers distributed questionnaire to participants via convenience sampling after obtaining consent. Total of 1000 participants were approached (200 via each researcher). 783 completed the questionnaire making response rate of study as 78%. RESULTS: 78% and 22% respondents have natural menopause and surgically induced menopause respectively. The mean knowledge and attitude score of participants was 45.13 ± 9.23 and 52.32 ± 11.21 respectively. 48% of the participants had poor, 35% had moderate and 17% had good knowledge regarding awareness, sign and symptoms and causes of menopause. Majority (69.12 %) of participants had positive attitude towards menopause except use of HRT therapy. 51.7 % patients had good socioeconomic status and had good knowledge compared to 49.3 % of participants with poor socioeconomic status (p=0.031). A higher education level (p=0.041), good socio-economic status (p=0.012), and surgically induced menopause (0.032) were the demographic factors that showed statistically significant association with higher knowledge and positive attitude towards menopause. CONCLUSIONS: The knowledge of menopausal women regarding signs, symptoms, causes and treatments of menopause was poor in two cities (Faisalabad, Lahore) as compared to Islamabad. It might be due to good socioeconomic status and higher education level of participants residing in Islamabad. Health care professionals and authorities should take initiatives to aware menopausal women regarding menopause so that they can cope up better with this phase of life.

RESEARCH ON METHODS - Statistical Methods

PRM32: ASSESSING STATISTICAL METHODS FOR CAUSAL INFERENCE IN OBSERVATIONAL DATA

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OBJECTIVES: In observational studies, subjects are assigned to treatment groups without the benefits of randomization, resulting in potential bias in the estimation of the treatment effect. We assess the performance of 5 different statistical methods used for bias correction and causal inference under different conditions – multivariate regression (MR), propensity score matching (PSM), propensity score stratification (PSST), doubly robust estimation (DR) and inverse probability treatment weighting (IPTW). METHODS: We simulated the outcomes of two hypothetical treatments having three continuous covariates that are correlated with the treatments and with each other. We varied the sample size, noise levels, and tested the methods under conditions of model misspecification. To evaluate performance of the methods, we used two measures: correct identification of a statistically significant treatment effect (p < 0.05) and the root-mean-squared error for the treatment effect. RESULTS: For the correct-specified models, IPTW performed well relative to other methods, particularly at small sample sizes. At low noise levels and large samples sizes, all methods reliably identified a treatment effect. PSM lagged in performance for small sample sizes, and DR showed relatively weak performance under most conditions, especially under model misspecification and high noise levels. For misspecified models, the relative order of performance was similar to that of the correct-specified models. The results at high noise level were poor even for large sample sizes. CONCLUSIONS: MR is an unintentionally popular choice for its ease of use and the belief that covariates may adjust well for treatment effects. Our results indicate that if covariates are correlated with each other or with the treatments, one should take great care in using MR unless the sample size is large. For small sample sizes, IPTW is often the best choice even for misspecified models. PSM is a reasonable choice under low noise levels and substantial sample sizes.

RESEARCH ON METHODS - Study Design
PRM33: SQAROS – STANDARDIZED QUESTIONNAIRE TO ASSESS THE RELIABILITY OF OBSERVATIONAL STUDIES

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OBJECTIVES: Health technology assessment (HTA) in accordance with evidence-based medicine (EBM) is the gold standard for determining the appropriateness of therapy funding from public funds. There is problem of getting reliable results in studies evaluating the actual effectiveness of a drug. Data on the effectiveness of health technologies are provided by the observational studies, but their credibility is low due to the lack of distinctive methodological features of randomized controlled trials. Thus, appraisal of the quality of observational studies becomes important. METHODS: To find the most up-to-date information on the scales for the appraisal of observational studies, systematic review in Medline using the following query: “(observational studies OR cohort studies OR case-control studies OR cross-sectional studies OR follow-up studies) AND (tool OR scale) AND (quality OR validity)” was conducted. Search time frame: till December 2013. RESULTS: In the review more than 100 various scales or questionnaires were found. We identified critical methodological domain, the characteristics of which determines the quality of non-randomized studies including patients selection, the impact of confounding factors, presentation of the final results or the flow rate of patients in the study. Then we developed the basic format of a questionnaire assessing the quality of observational studies, consisting of 17 questions grouped in six domains: protocol, population, intervention, end-points, results and publication. The last domain is a new part in terms of existing questionnaires – evaluates the homogeneity of the reported results and statistical methods, which are extremely important in preparing health technology assessment reports. At the moment the validation of developed scale is in progress – the results of evaluation will be presented at the conference. CONCLUSIONS: Improving standards of quality assessment of observational studies using the developed questionnaire, SQAROS, will help to obtain from these trials valuable scientific data on the effectiveness of health technologies.

PRM34: HOW WELL THE PRAGMATIC RANDOMIZED CONTROLS IN JOINT REPLACEMENT FIELD: RESULTS FROM PRECIS, CONSORT AND IOM TOOLS’ ASSESSMENT

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OBJECTIVES: Evidence from real world are important for patients care. Pragmatic randomized control trial (PRCT) as one of the research methods of Comparative Effectiveness Research (CER) is used in many medical fields recently. This study aims to assess design and reporting qualities of PRCTs published in joint replacement fields. METHODS: We searched the Medline, Embase, CENTRAL to February 2014 and the reference lists of retrieved studies to identify the full-report pragmatic randomized trials in English that compared Total Hip Replacement (THR) or Total Knee Replacement (TKR) with a conventional treatment. Three reviewers independently assess the quality of PRCTs by using the pragmatic-explanatory continuum indicator summary (PRECIS) tool. CONSORT statement guidelines and the six CER defining characteristics of the Institute of Medicine (IOM). RESULTS: We screened 55 potentially eligible abstracts and identified 6 full-text PRCTs of joint replacement fields. Finally 3 trials with 4,152 patients were assessed. Three reviewers scored the 3 trials based on PRECIS tool (39.5 vs 44 vs 36); CONSORT statement guidelines (36.5 vs 39 vs 37.5); IOM defining characteristics of CER (26.5 vs 29 vs 29). All 3 trials reported the clinical, economic and patient-centered outcomes. The Knee Arthroplasty Trial with 10 years’ follow-up was scored the highest and considered to be more closer to the real world than other two trials as it was conducted in 2352 patients from 34 UK centers and 116 surgeons in the study could adjusted their treatments based on individual patients’ characteristics. CONCLUSIONS: PRCT is different from standard RCT in many aspects. The number of PRCT in joint replacement field is limited and the quality need to be improved. PRECIS, CONSORT guidelines are useful for researchers in designing and reporting the PRCT.

RESEARCH ON METHODS - Conceptual Papers

PRM35: USE OF THE GRACE CHECKLIST FOR RATING THE QUALITY OF OBSERVATIONAL COMPARATIVE EFFECTIVENESS RESEARCH

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OBJECTIVES: To determine the best algorithm for using the GRACE checklist to rate the quality of observational comparative effectiveness research (CER) studies. METHODS: An 11-item checklist about data and methods was developed through literature review and consultation with experts. The checklist was applied to 88 articles by 113 raters from 5 continents, and their feedback helped shape questions and user guidance. Positive and negative predictive values (PPV and NPV, respectively) were
calculated based on a volunteer rater’s assessment of a published article compared to a “gold standard” as determined through an article’s inclusion in a systematic review or through expert assessment. Multivariate regression analysis and Classification and Regression Trees (CART) analysis will be conducted based on data collected from 22 volunteer raters’ assessment of 28 articles of comparative effectiveness using a revised version of the checklist. RESULTS: Checklist items pertaining to data have relatively strong NPV, meaning the checklist is effective in identifying CER articles of insufficient quality. The single best performing item was the validity of the primary outcome, which achieved NPV and PPV ≥ 0.67 in four rounds of testing. Question items pertaining to whether the primary outcome was measured objectively and adequately recorded also achieved high NPV (≥ 0.67 in 4 and 5 rounds of testing, respectively). Other indicators of quality include the use of concurrent comparators (NPV ≥ 0.67 in 5 rounds of testing). CONCLUSIONS: Univariate analyses have demonstrated the usefulness of the checklist items to screen out articles of insufficient quality for decision support. Results of multivariate analyses as used to develop 1) a parsimonious model to identify which checklist items can best be used as a quick screening tool and 2) a regression tree that maximizes the NPV of the checklist will be presented.

PRM36: THE DECISION CRITERIA FOR ASSESSING COST-EFFECTIVENESS OF A HEALTH CARE TECHNOLOGY UNDER BUDGET CONSTRAINT

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OBJECTIVES: To develop multiple decision criteria for assessing cost-effectiveness of a new healthcare technology under the budget constraint often experienced in government managing the national health insurance system. METHODS: Let Lk, L0, Bmax, and N be, respectively, the ICER of a new technology compared to its comparator, the cost-effectiveness threshold for acceptance of any new technology on reimbursement decision, maximal increment of the government budget caused by the new technology, and the population-size targeted for the new technology. Based on those parameters, the mathematical relations among them were theoretically developed, formulated and graphically represented on the 2-dimensional plane of incremental cost and effectiveness. RESULTS: The single-threshold decision making defined in pharmacoeconomics is that the ICER, Lk, of a new technology can be accepted if and only if Lk is smaller than the pre-defined ICER threshold, L0. We proved, however, this conventional decision should be changed into more complex one that a new technology having the ICER smaller than L0 should not be accepted if the incremental effectiveness of the new technology is greater than the amount of Bmax divided by N times Lk. On the contrary, although the new technology cannot be accepted (i.e., Lk > L0) under the conventional single-threshold approach, it should be accepted if the incremental effectiveness of the new technology is smaller than the amount of Bmax divided by N times Lk. CONCLUSIONS: Our approach offers multiple decision criteria for assessing a new healthcare technology with respect to the cost-effectiveness and its acceptability under the budget constraint. The theory which links single-ICER decision with budget impact has a potential to improve value-based decision making in government based on price-volume consideration of a new technology.

PRM37: METHODS FOR EVALUATION OF MEDICAL DEVICES

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Purpose: Evaluation of medical devices faces different challenges to that of the pharmaceutical drugs i.e., the approaches for cost-effectiveness modelling of pharmaceutical drugs are not suitable for evaluation of devices. For example, the value of a device goes beyond the health benefits (i.e QALYs) to the patient as it might include other aspects such as increased efficiency, patient dignity, etc. Similarly, traditional cost modelling techniques are not suitable for evaluation of devices. The costs are not evenly spread across time and depend on implementation strategies (i.e. parameters such as volume, scale, etc) and there is a need for a modelling framework that can output time profile of costs by stakeholder. Furthermore, the cost-effectiveness depends on the service setting (i.e. parameters such as volume and scale of deployment). Method: This presentation describes the lessons learnt while evaluating the cost-effectiveness of diagnostic tests and devices. The details of the different projects are as follows a) Financial modelling of telemonitoring for HF and COPD, b) Cost effectiveness of Cardiac Magnetic Resonance imaging for ischaemic cardiomyopathy, c) Cost-effectiveness of Telemonitoring technologies for congestive heart failure Result: A brief description of the context that makes HTA of medical devices of interest and characteristics of the devices that make them different from pharmaceutical drugs is detailed. An overview of current approaches of evaluating devices at different HTA bodies is provided. A taxonomy to represent the value of medical devices along with methods for incorporating patients’ preferences with examples of specific case studies. Finally, a financial modelling framework for evaluating devices that provides time profile of costs by stakeholder . Conclusion: Cost-effectiveness evaluation of medical devices is quite different to
that of pharmaceutical drugs. An overview of current methods for evaluation of devices and the issues involved are described along with a tentative framework proposal for cost-effectiveness modelling of devices

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**PRM38: ETHICAL CONSIDERATION ON METHODS OF HEALTH RESEARCH**

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Methods of a survey research in health have recently been included in an ethical review board in Thailand. A main goal of ethical consideration in health research is to protect the right and well-being of research participants, i.e., patients, villagers and residents and to ensure the right and freedom of the research participants to incorporate in a provision of research information. The objective of this paper is to discuss loopholes of research methods in health and the discussions derived in part from a review board. A careful procedure of research methodology indicates the quality of research findings and provides a clue to the answer whether the results of research could be able for policy practices. Methods ensure how health researchers are able to conduct the proper activities in seeking more truly research information from the participants. And the ethical review is to be certain how the personal information of the participants should be kept carefully. Loopholes in methods of health research were definitely lowering the quality of research products. Importantly, an application of research became questionable. Many loopholes were found in various steps of methodological application, including, setting an inclusion criteria, conducting an interview, utilizing research tool and more on stating research objectives and making a research title. The inclusion criteria of the research participants was specifically not inclusive, an interview usually held in haste-y environments and improper mechanism for field research. Research tools applied were not carefully constructed and culturally inappropriate to the research subjects. Presenting a research protocol showed several inadequate training in methodological practices.

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**PRM39: WX-III-287-19 A POSSIBLE THROMBOXANE ANTAGONIST IN BOVINE CORONARY ARTERIES**

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Endothelium-dependent hyperpolarizations and relaxation of vascular smooth muscle induced by acetylcholine and bradykinin are mediated by endothelium-derived hyperpolarizing factors (EDHFs). Arachidonic acid is metabolized by cytochrome-P450 (CYP450) to four regiosomeric epoxyeicosatrienoic acids (EETs) that function as EDHFs. 5,6-, 8,9-, 11,12- and 14,15-EET are equipotent in relaxing bovine coronary arteries (BCAs). The miconazole analog, WX-III-287-19 was synthesized and compared to EETs in causing relaxations of BCAs. EETs vascular relaxation responses were recorded using isometric tension recording. BCA metabolism of 20-H-11,12-EE8ZE was analyzed by mass spectrometry. In U-46619-preconstricted arterial rings, WX-III-287-19 caused concentration-dependent relaxation with maximal relaxation ranging from 95-100%; however, relaxations by 5,6-8,9-11,12 and 14,15 EETs were less than WX-III-287-19. Preincubation of arteries with the EET antagonist,14,15-EEZE (10-5 M) did not inhibit relaxation to WX-III-287-19, but inhibited relaxation to 5,6-8,9-11,12 and 14,15 EETs. Preincubation with the iberiotoxin (10-5 M) only partially inhibited the relaxation induced by WX-III-287-19 whereas high K+ (60 mM) significantly inhibited relaxation to WX-III-287-19. In whole cell-attached patches of isolated bovine coronary arterial smooth muscle cells, WX-III-287-19 did not alter activation of large-conductance, calcium-activated K+ channels. In U-46619-preconstricted rabbit aortic rings, WX-III-287-19 caused relaxation; however, relaxations were not observed in arteries preconstricted with either high K+ (60 mM) and phenylephrine (10-5 M). These results indicate that WX-III-287-19 is a potent coronary vasorelaxant and may act as a thromboxane receptor antagonist.

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**PRM40: THE IMPORTANCE AND USE OF DRUG UTILIZATION REVIEW AND PHARMACOECONOMICS**

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During the development of society and the economy, the rapid growth of health care costs has become a burden on the worldwide health protection system. The problem of aging populations and a changing disease spectrum as well as the progress and change in health care technology, therefore, the health care costs increased. The major problem of many countries is how to use drug utilization review (DUR) and pharmacoeconomic evaluation to improve and optimize the configuration of medical and health resources. This paper presents the importance of drug utilization review and pharmacoeconomic evaluation and discusses the application of them in new drug research and development, drug pricing, the selection of NRDL, and promoting
rational drug use. The quality of drug utilization review and pharmacoeconomic evaluation is critical. Furthermore, this paper analyzes problems and challenges of drug utilization review and pharmacoeconomic evaluation. Government departments, medical institutions, pharmaceutical companies, and research institutes should use them to solve their problems. Key words: Drug utilization review, Pharmacoeconomic evaluation, Pharmacoeconomics

CANCER

CANCER - Clinical Outcomes Studies

PCN1: PREVALENCE OF FEBRILE NEUTROPENIA IN BREAST CANCER PATIENTS RECEIVED ADJUVANT PACLITAXEL TREATMENT

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OBJECTIVES: to review prevalence and risk factors of febrile neutropenia in breast cancer patients received adjuvant paclitaxel treatment. METHODS: retrospective chart review of 18 breast cancer patients received 146 cycles of adjuvant paclitaxel for prevention of breast cancer recurrence during 2011 at Phramongkutklao hospital, Bangkok, Thailand. RESULTS: Average age of patient in this study was 54.6 +/- 10.5 years old. Paclitaxel were given to patients in 7 dosage regimens. The most common dosage regimen (62/146, 42.5%) was weekly paclitaxel 12 cycles post doxorubicin and cyclophosphamide (AC) regimen. There were 3 febrile neutropenia cases out of 18 patients who recieved 154 cycles of adjuvant paclitaxel treatment. Prevalence of febrile neutropenia in this study was 2.05%. Prevalence of neutropenia in this study was 7.5% (11 cases out of 146 treatment cycles). Dosage regimen of paclitaxel (>100 mg/m2/cycle) associated with neutropenia was found to be associated with neutropenia. Other common adverse events found in this study were peripheral neuropathy in 9 cases (50%), nausea/vomiting 7 cases (29%) and muscle weakness 6 cases (25%). CONCLUSIONS: Neutropenia from higher dose (>100 mg/m2) of paclitaxel was common and trend to be associated with febrile neutropenia in breast cancer patients treated with this drug. Closely monitoring and supportive therapy is needed in the patients receiving higher paclitaxel dose to prevent febrile neutropenia during adjuvant paclitaxel treatment.

PCN2: PROSTATE CANCER OVERALL SURVIVAL: MULTILEVEL ANALYSIS OF A POPULATION-BASED CANCER REGISTRY DATA


OBJECTIVES: Few studies have looked at the independent contribution that individual-level and contextual factors make to prostate cancer (PCa) survival. The aim is to investigate individual and contextual factors contributing to overall PCa survival in Florida. METHODS: A random sample of 6453 cases diagnosed with prostate cancer between 10/1/2001 and 12/31/2007 in the Florida Cancer Data System provided data on: individual demographics and clinical information. Census 2000 was linked to patient data. Comorbidity was computed following Elixhauser Index. Estimated survival probability curve was generated using the Kaplan-Meier estimator. Wei, Lin and Weissfeld (WLW) survival model was adopted for the multivariate analysis. The observation times were censored at June 30, 2012 for patients who were alive at end of study. RESULTS: Range of observation period was 5 to 3925 days, where 1100 patients (17.05%) died. Older diagnosis age was associated with shorter time-to-death. Overall death rate for African American patients was 14.3% higher than that of Caucasian patients, although this relationship was not significant (p = 0.2305). Uninsured patients had a 66.7% higher mortality rate than that of patients holding private insurance (p = 0.0351). Current smokers had a 62.4% higher mortality rate than that of non-current smokers (p < 0.0001). Higher hazard of overall mortality was associated with being diagnosed with advanced stage compared to localized stage (HR = 1.89, p < 0.0001) and having undifferentiated or unknown tumor compared to well-moderately differentiated tumor (p = 0.0172). Having poorly differentiated tumor was related to higher death rate immediately after diagnosis, but this disadvantageous effect gradually vanished over time. Fourteen comorbidity conditions were significantly associated with shorter time-to-death. CONCLUSIONS: Effective control of comorbidity in PCa patients should help improve life expectancy and lead to prolonged survival. Further research is needed to understand mechanisms in which individual and contextual factors impact PCa survival.
PCN3: BEVACIZUMAB FOR METASTATIC COLORECTAL CANCER: A LITERATURE REVIEW ON META-ANALYSES AND COST-EFFECTIVENESS ANALYSES

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OBJECTIVES: Bevacizumab is a humanized monoclonal antibody that produces angiogenesis inhibition by inhibiting vascular endothelial growth factor A (VEGF-A). Bevacizumab was approved for combination use with standard chemotherapy for metastatic colon cancer. This research aims to conduct a systematic review on meta-analysis and cost-effectiveness analysis on standard chemotherapy plus bevacizumab for patients with metastatic colorectal cancer (mCRC) to explore the efficacy, safety and cost-effectiveness on the addition of bevacizumab. METHODS: A systematic literature search on both meta-analysis and cost-effectiveness analysis of chemotherapy plus bevacizumab on databases was carried out in several databases, such as MEDLINE, PubMed, CNKI chemotherapy. Articles were included based on specific inclusion and exclusion criteria. RESULTS: Six included analyses indicate that chemotherapy plus bevacizumab significantly prolonged progression-free survival (PFS) and overall survival (OS). The risk of hypertension, bleeding and proteinuria are significantly increased, whereas there are no significant differences on gastric perforation, thrombosis. Eleven cost-effectiveness analysis demonstrate that the addition of bevacizumab lead to higher medical cost and healthcare cost. In most countries involved in this review, chemotherapy plus bevacizumab is not cost-effective comparing with standard chemotherapy. However, the medical and healthcare cost of using bevacizumab is lower than cetuximab. CONCLUSIONS: The addition of bevacizumab significantly increases survival benefits and slightly leads to more adverse events. Due to higher cost of bevacizumab, it is not cost-effective therapy for mCRC patients. According to the potential considerable differences on economic status, epidemiology, clinical effectiveness, the generalizability of included meta-analyses and cost-effectiveness analyses need to be taken into account. Analyses based on China local data should be processed in the future.

PCN4: SEQUENTIAL COMBINATION OF CHEMOTHERAPY WITH EGFR-TKI AS THE FIRST-LINE TREATMENT FOR UNSELECTED PATIENTS WITH ADVANCED NON-SMALL CELL LUNG CANCER: SYSTEMATIC REVIEW OF RANDOMIZED CONTROLLED TRIALS

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OBJECTIVES: This study assessed whether sequential treatment of chemotherapy with epidermal growth factor receptor-tyrosine kinase inhibitor (EGFR-TKI) versus chemotherapy alone as the first-line therapy improved treatment outcomes in patients with advanced non-small cell lung cancer (NSCLC) who do not receive EGFR gene testing in the resource-limited care setting. METHODS: We searched seven databases up to November 30th, 2013. Randomized controlled trials (RCTs) were included. Pre-specified outcomes included progression-free survival (PFS), overall survival (OS), objective response rate (ORR), quality of life (QoL) and adverse events. Two investigators independently selected studies, assessed the risk of bias, and collected data. RESULTS: Four trials involving 1,274 patients were eligible for inclusion. If treated unselectively, sequential therapy significantly increased PFS (hazard ratio[HR] 0.59, 95% CI 0.49-0.71), OS (HR 0.85, 95% CI 0.75-0.97), and ORR (risk ratio[RR] 2.03, 95% CI 1.46-2.84) in NSCLC patients. However, the benefits appeared to be achieved in patients with EGFR M+ NSCLC (PFS: HR 0.25, 95% CI 0.16-0.39; OS: HR 0.48, 95% CI 0.27-0.85; and ORR: RR 5.74, 95% CI 2.86-11.50), but not in patients with EGFR-WT NSCLC (PFS: HR 0.97, 95% 0.69-1.36; OS: HR 0.77, 95% 0.53-1.11; and ORR: RR 0.74, 95% 0.41-1.34). Sequential therapy caused more skin rash (5.19% vs. 0.63%; RR 7.36, 95% CI 2.79-19.44). Nevertheless, there was no statistically significant difference between groups in other adverse events. CONCLUSIONS: Although sequential use of chemotherapy and EGFR-TKI as first line therapy seemed to improve effects in NSCLC patients who did not receive gene testing, the apparent benefits were primarily attributable to the improvement in patients who had EGFR M+ cancer. Due to the limited power of study, the sequential therapy does not appear to improve treatment outcomes in patients with EGFR-WT cancer. Randomized trials that specifically address the effect of sequential therapy in advanced NSCLC patients are warranted.

PCN5: A SYSTEMATIC LITERATURE REVIEW ON RISK FACTORS FOR CERVICAL CANCER IN CHINESE POPULATION

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OBJECTIVES: In China, the annual number of cervical cancer (CC) cases is expected to increase between 42,000 and 187,000 in 2050. Previous meta-analysis reported gestational history and sexual behaviour as the main risk factors for CC in China. This
study aims at updating these findings with a comprehensive systematic literature review. METHODS: The systematic literature review retrieved citations from MEDLINE, MEDLINE-IN-PROCESS and EMBASE, and three Chinese databases, CNKI, Wanfang Data and CQVIP, using PICOS framework. The target population was Chinese adolescent or adult females. All observational studies irrespective of intervention or comparator reporting risk factors for CC were included. Search terms included those related to CC, risk factor and Chinese population. The search was not restricted in terms of time span or language. The abstracts and selected manuscripts were assessed (content and quality) by two independent reviewers. RESULTS: 1,737 citations were identified and screened and approximately 100 publications were included for data synthesis. All studies were conducted at regional level, but not country level. Main risk factors reported as statistically associated to CC were: 1) socio-demographics: age and education level; 2) life-style behaviour: dietary consumption, smoking status and personal hygiene; 3) sexual behaviour: number of partners (self and partner), number of marriages, age at sexual debut, age at first marriage; 4) gestational factors: age at first pregnancy, total number of pregnancies, contraceptive method; 5) screening and disease history: cervical screening, gynaecological diseases, family disease history and other diseases. Large heterogeneity exists between the studies in the definition used for these risk factors. CONCLUSIONS: This systematic review provided an up-to-date insight of risk factors for developing CC in China. Due to heterogeneity, further evaluation is needed to allow combining risk factors. A statistical analysis is warranted to assess the contribution of each risk factor to the overall risk.

CANCER - Cost Studies

PCN6: BUDGET IMPACT MODEL OF SUNITINIB AS FIRST LINE TREATMENT OF METASTATIC RENAL CELL CARCINOMA IN CHINA

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OBJECTIVES: Sunitinib is an oral multi-targeted tyrosine kinase inhibitor approved globally for the first- and second-line treatment of metastatic renal cell carcinoma (mRCC). The purpose of this study was to assess the budget impact of using sunitinib as first-line therapy in urban Chinese patients from a Chinese payer perspective. METHODS: A user friendly budget impact model was constructed to compare the overall budget impact with and without sunitinib incorporated in the formulary. An up to 3-year time horizon with 6 weekly cycle treatment was used to estimate the overall budget impact for mRCC patients from a third-party payer perspective. The analysis was conducted with the following 3 comparators based on China treatment pattern included in the model: sunitinib, INF-a, and sorafenib. Epidemiology data, drug costs, adverse events information, and health care resources associated with the treatments and adverse events (AE) were obtained from the literature. Costs were expressed in 2013 prices. The analysis used Shanghai population as the base case. Budgetary impact for other large cities in China can be estimated by substituting the various city populations. RESULTS: In Shanghai, patients eligible for first line treatment were estimated at 892. If Sunitinib is added into the formulary with the current retail price, the estimated net budgetary impact for 3 years total is RMB82,369,048.84. This is equivalent to about RMB0.10 budget impact per member per month (PMPM) with significantly improved clinical efficacy. A sensitivity analysis indicated that the increased budget impact is a direct result of patients on Sunitinib treatment experienced superior Mean progression free survival time over competitors. CONCLUSIONS: The results suggested that the addition of Sunitinib in the formulary as first-line therapy for mRCC in urban China would improve patient clinical outcomes with moderate impact on the overall payer budget.

PCN7: HEALTH CARE RESOURCE USE AMONG ADVANCED GASTRIC CANCER PATIENTS IN TAIWAN AND SOUTH KOREA

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OBJECTIVES: To assess healthcare resource use associated with the treatment of metastatic and/or locally recurrent, unresectable gastric cancer (MGC), including cancer of the stomach and gastro-oesophageal junction, in Taiwan and South Korea. METHODS: Physicians, randomly selected from a panel of oncologists and study referrals, supplied de-identified
information via an online chart abstraction instrument, for ≤10 randomly selected patients with MGC. Patients were required to have received platinum/fluoropyrimidine first-line therapy, followed by second-line therapy or best supportive care (BSC) only. Data were analysed using summary statistics. RESULTS: Data were collected (2/2013–7/2013) for 122 patients from 37 physicians in Taiwan, and for 198 patients from 30 physicians in South Korea. Key demographics in Taiwan and South Korea, respectively, included: men (62.3%; 73.7%); mean age (59.8 years; 61.3 years). Following first-line treatment, patients in Taiwan and South Korea, respectively, received: second line (64.8%; 80.3%); BSC alone (35.2%; 19.7%); third line (13.1%; 23.2%). Inpatient hospitalisation rates (≥1 stay) in Taiwan and South Korea, respectively, were: overall, i.e. including periods of no line of treatment (82.8%, [101/122]; 48.5%, [96/198]); first line (63.1%, [77/122]; 35.9%, [71/198]); second line (53.2%, [42/79]; 30.2%, [48/159]); BSC alone (39.5%, [17/43]; 33.3%, [13/39]); third line (68.8%, [11/16]; 23.9%, [11/46]). In both countries, inpatient hospitalisations were of similar mean length (Taiwan, 8.6 days [SD 10.0]; South Korea, 8.7 days [SD 9.8]). Most common reasons for inpatient hospitalisation were chemotherapy infusions (Taiwan, 59.8%; South Korea, 67.9%) and disease symptom management (Taiwan, 30.4%; South Korea, 20.3%). Overall, antiemetics and analgesics were the most common supportive-care agents; endoscopy was the most common procedure. CONCLUSIONS: In both countries, >60% of patients with MGC received second-line treatment; post-first-line treatments were more common in South Korea than Taiwan. The healthcare resource burden of MGC is considerable in both countries, as hospitalisation is common, particularly in Taiwan.

PCN8: HOSPITAL COSTS ASSOCIATED WITH PLATINUM-BASED DOUBLETS IN THE FIRST-LINE SETTING FOR ADVANCED NON-SQUAMOUS NON-SMALL CELL LUNG CANCER IN CHINA: A RETROSPECTIVE COHORT STUDY

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OBJECTIVES: To compare the allocation of hospital costs per treatment cycle (HCTC) associated with first-line chemotherapy for advanced non-squamous non-small cell lung cancer (AdvNS-NSCLC) in Chinese patients. METHODS: Patients receiving first-line chemotherapy for AdvNS-NSCLC from 2010 to 2012 were retrospectively identified from two tertiary care hospitals in Hunan province, China. Propensity score matched treatment groups for pemetrexed-platinum versus other doublets were created for head-to-head comparisons on the allocation of HCTC using Wilcoxon signed rank test. Multiple linear regression analyses were performed to assess the impact of the studied doublets on log10 scale of HCTC for supportive care, including non-chemotherapy drugs and non-drug care, by comparing vinorelbine-platinum in patients stratified by tumor response and hematological adverse events. RESULTS: 447 patients were included to create propensity score matched treatment groups for pemetrexed-platinum versus docetaxel-platinum (61 pairs), paclitaxel-platinum (39 pairs), gemcitabine-platinum (93 pairs), and vinorelbine-platinum (73 pairs), respectively. Total HCTC was significantly greater with pemetrexed-platinum than other platinum doublets (median difference ranged from RMB 1,692 to RMB 7,400, p ≤ 0.001, 1 RMB = 0.16 US$). Pemetrexed-platinum was associated with significantly higher HCTC for non-platinum cytotoxic agent (median difference ranged from RMB 4,636 to RMB 7,332, p ≤ 0.001) but significantly lower HCTC for non-chemotherapy drugs (median difference ranging from –RMB 1,551 to –RMB 2,502, p ranged from 0.001 to 0.012). There were no significant differences for platinum drugs or non-drug care. Pemetrexed-platinum was ranked lowest for the log10 scale of HCTC for supportive care in all patients (coefficient -0.174, p=0.015) and also in patients with any hematological adverse events (coefficient -0.199, p=0.013), neutropenia (coefficient -0.426, p=0.021) or leukopenia (coefficient -0.406, p=0.001). CONCLUSIONS: Among first-line Chinese AdvNS-NSCLC patients, non-platinum cytotoxic drug HCTC was significantly higher with pemetrexed-platinum. This was partially offset by significantly lower HCTC for non-chemotherapy drugs than other platinum-based doublets.

PCN9: ECONOMIC BURDEN OF FEBRILE NEUTROPENIA IN SOLID TUMOR AND LYMPHOMA PATIENTS: AN OBSERVATIONAL STUDY IN SINGAPORE

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OBJECTIVES: The primary objective of this study was to describe the economic burden on solid tumor and lymphoma patients who received inpatient management of chemotherapy-induced febrile neutropenia (FN). The secondary objective was to identify any clinical factors associated with the economic burden. METHODS: This was a single-center observational study conducted at the largest cancer center in Singapore. All of the adult cancer cases diagnosed with solid tumors or lymphoma and hospitalized due to FN from 2009 to 2012 were studied. All of the primary outcomes were the total hospital cost (uncensored) and the out-of-
PCN10: COST-EFFECTIVENESS ANALYSIS OF THE ORIGINAL DRUG ARGLABIN

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OBJECTIVES: The problem of treatment of breast cancer is one of the most important and most difficult in modern oncology. Breast cancer is currently tops the list of cancers in women. Domestic herbal preparation "Arglabin" was synthesized by Scientific-Production Center "Phytochemistry" (Kazakhstan) as a drug with anticancer and immunomodulatory activity for the complex therapy of malignant tumors. Purpose of the study was to evaluate the clinical and cost-effectiveness of the original drug "Arglabin" in patients with disseminated breast cancer in clinical practice. METHODS: We compared the cost-effectiveness of standard scheme of treatment of breast cancer with CMF (cyclophosphamide + methotrexate + fluorouracil) vs CMF with Arglabin as additional agent to standard treatment through performing a cost-effectiveness analysis (CEA) and cost of illness (COI). Effectiveness estimates were based on results of clinical studies and on information from the list of medical and economic charges of Republic of Kazakhstan (2009 y) and the retail price of pharmacies in Karaganda. Data sources: PubMed, the Cochrane library, Internet search was performed to analyze the results of clinical studies of treatment patients with breast cancer. RESULTS: One-year survival rate was higher by 21.8% in patients receiving chemotherapy with "Arglabin" compared with patients receiving chemotherapy alone. Indicator "cost-effectiveness" for the scheme with Arglabin was 281.8 (the cost of one course of treatment was 281,8 $ on one survivor patient). Indicator "cost-effectiveness" for the standard scheme CMF was 367,5 (the cost of one course of treatment is 367,58 on one survivor patient). CONCLUSIONS: The study was identified efficiency and economic benefit of therapy with "Arglabin". Arglabin is effective and safety as additional agent to standard treatment and the implementation of this drug to standard therapy of breast cancer will improve the outcomes and reduce the costs.

PCN11: TREATMENT COSTS FOR BREAST CANCER IN JAPAN: LARGE CLAIM DATABASE ANALYSIS

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OBJECTIVES: Number of expensive anti-cancer drugs is increasing. It is important to assess cost-effectiveness of such high-cost drugs, however cost data, which is applicable to economic evaluation, are not accumulated enough in Japan. Therefore we analyzed large claim database to obtain treatment costs for breast cancer. METHODS: We used JMDC (Japan Medical Data Center) claims database, in which claim data of approximately 1.5 million insured people are collected from January 2005 to September 2013. We analyzed treatment costs of (a) adjuvant chemotherapy, (b) hormone therapy and (c) chemotherapy for metastasis. Breast cancer was defined by disease name including claim date (C50 of ICD-10). Since no ICD-10 code directly indicates metastatic breast cancer, combination of codes such as C780 (metastasis to lung), C787 (to liver) and C793 (to brain) was used to extract metastatic patients. We calculated monthly average costs and total costs for treatment period. RESULTS: Approximately 400 patients receiving adjuvant chemotherapy were identified. Use of taxane (+ JPY 450,000 [USD 4,500, USD1 = JPY100]), trastuzumab (+ JPY 2.2 million [USD 22,000]) and hormone therapy (+ JPY 300,000 [USD 3,000]) significantly influenced on the treatment costs per patient. Most frequently administered regimens were DC (D: Docetaxel, C: Cyclophosphamide), FEC+D (F: 5-FU, E: Epirubicine) EC+D, and FEC. Costs of hormone therapy for metastatic breast cancer was averagely about JPY 110,000 [USD 1,100] per month. Tamoxifen was most widely used drug, followed by letrozole, anastrozole and exermestan. Average costs of chemotherapy was JPY 180,000 [USD 1,800] per month for patients without receiving molecular targeting therapy. It increased to JPY 360,000 [USD 3,600] per month if molecular targeting drugs were used to extract metastatic patients. It increased to JPY 360,000 [USD 3,600] per month if molecular targeting therapy. It increased to JPY 360,000 [USD 3,600] per month if molecular targeting therapy. It increased to JPY 360,000 [USD 3,600] per month if molecular targeting therapy. It increased to JPY 360,000 [USD 3,600] per month if molecular targeting therapy.
were used. **CONCLUSIONS:** We can estimate treatment costs of breast cancer from the large Japanese claim database. These data are useful when cost-effectiveness analysis is performed.

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**PCN12: ANNUAL HEALTH INSURANCE COST OF BREAST CANCER TREATMENT IN HUNGARY**


**OBJECTIVES:** Organised, nationwide screening for breast cancer with mammography in the age group 45-65 years with 2 years screening interval started in Hungary in January 2002. The aim of this study is to analyze the health insurance expenditures of breast cancer treatment. **METHODS:** The data derive from the financial database of the National Health Insurance Fund Administration (NHIFA) covering the 2010 year. The analysis of health insurance costs included outpatient costs of mammography screening, hospital costs of breast surgery, the cost of kemo- and radiotherapy. **RESULTS:** The total annual health insurance cost of the National Health Insurance Fund Administration is estimated 12.09 billion Hungarian Forint (HUF) or 58.09 million dollar (USD). Most of them (61.0 %) related to the cost of chemotherapy (7.38 billion HUF or 35.46 million USD). The next largest cost item (20.9 %) is the cost of radiotherapy (2.53 billion HUF or 12.16 million USD). Surgical treatment (1.14 billion HUF or 5.47 million USD) of breast cancer and cost of mammography screening (1.04 billion HUF or 5.00 million USD) represents both similar volume (9.4 and 8.6 % respectively) **CONCLUSIONS:** The costs related to breast cancer screening and treatment showed an increasing trend in the past years. The most important cost item is the cost of chemotherapy.

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**PCN13: ANALYSING THE EFFECTS OF A DISINVESTMENT DECISION IN BREAST CANCER SCREENING PROGRAMMES IN ASIA-PACIFIC COUNTRIES: A MODELLING APPROACH**

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**OBJECTIVES:** Disinvestment decisions are made when existing health technologies do not fulfil criteria such as efficacy, effectiveness or safety. Breast cancer screening (BCS) using mammography is widely implemented; yet many studies show that a significant percentage of women are overdiagnosed and overtreated. The objective of this study is to analyse the effects of a BCS disinvestment decision in Asia-Pacific countries, and to explain any differences between countries. **METHODS:** A mathematical model was developed to analyse population outcomes and costs associated with breast cancer (BC) from 2014 to 2050 in Australia and Korea. Population outcomes were measured as number of women diagnosed with BC, number of women overdiagnosed and number of deaths associated with BC. The model allowed the analysis of these outcomes with and without a BCS programme in place, as a proxy to evaluate the effects of disinvestment. **RESULTS:** Results varied between countries, particularly depending on ethnicity and level of participation in the BCS programme. The model predicted a significant increase in the number of deaths associated with BC in Korea; a disinvestment decision, however, would not have a large impact on the number of deaths, due to currently high levels of overdiagnosis, and overall costs would be significantly reduced. A disinvestment decision in Australia would dramatically reduce the number of overdiagnosed women, although mortality due to BC would be higher. **CONCLUSIONS:** This analysis has shown that the cost-effectiveness of BCS programmes should be evaluated over the long-term in order to take into account the consequence of overdiagnosis. Disinvestment decisions are complex and must be made locally, taking into consideration specific characteristics of the population under study.

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**PCN15: WITHDRAWN**

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**PCN16: COST-EFFECTIVENESS ANALYSIS OF 1-YEAR ADJUVANT TRASTUZUMAB THERAPY OF EARLY-STAGE HER2-POSITIVE BREAST CANCER**

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**OBJECTIVES:** Trastuzumab, a monoclonal antibody, has been widely used in treatment of HER2-positive breast cancer because of its proved effectiveness and safety. However because of the high price, the cost-effectiveness of trastuzumab should be evaluated especially in such low-income country as Vietnam. This is also the aim of this study. **METHODS:** A Markov model has been constructed with 5 health states (disease-free survival, local recurrence, regional recurrence, metastatic, death) with 1-
OBJECTIVES: To evaluate the cost-effectiveness of nodal staging surgery before chemoradiotherapy (CRT) for locally advanced cervical cancer (LACC) in the era of PET/CT. METHODS: A modified Markov model was constructed to evaluate cost effectiveness of para-aortic staging surgery before definite CRT when no uptake is recorded in para-aortic lymph nodes (PALN) on PET-CT. Survival and rates of complications were estimated based on the published literatures. Cost data was obtained from Korean National Health Insurance database. Strategies were compared using an incremental cost-effectiveness ratio (ICER). Sensitivity analyses were performed including an estimate for performance of PET/CT, postoperative complication rate, and varying survival rates according to radiation field. RESULTS: We compared two strategies: Strategy 1) pelvic CRT for all patients or Strategy 2) nodal staging surgery, then extended-field CRT when PALN metastasis is found; otherwise, pelvic CRT. ICER for strategy 2 compared to strategy 1 was $19,505 per quality-adjusted life year (QALY). Nodal staging surgery was cost-effective at the $50,000 willingness-to-pay threshold as long as generous survival reduction (>17%) is found in patients who underwent only pelvic CRT despite occult PALN metastasis. The model was insensitive to change in performance of PET/CT and postoperative complication rates. CONCLUSIONS: Nodal staging surgery before definite CRT is potentially cost-effective in

PCN17: COST EFFECTIVENESS ANALYSIS OF ANTIDEPRESSANTS ON BREAST CANCER PATIENTS: A MARKOV MODELING STUDY

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OBJECTIVES: With the developing of new technology for genetic test, the accuracy of predicting the risk that a patient may diagnose with breast cancer in future was increased dramatically. But considering that after diagnosis with breast cancer, those women has doubled prevalence of diagnosed with depression compared with general female population, and the anxiety patient suffered after realized taking specific mutations, which high likely led to breast cancer, before really diagnosed with breast cancer. There is no doubt that depression is a serious issue for patient with high risk of developed breast cancer. Moreover, the drug interaction between antidepressants and tamoxifen reduces the effect of tamoxifen, and complicates the decision-making. This cost-effectiveness study tries to use Markov model to investigate the best strategy that gives to high-risk breast cancer patients after genetic test and diagnosed with breast cancer. METHODS: A cost-effectiveness study using Markov model will be conducted from a third payer perspective. Both time and different antidepressants from desipramine, fluoxetine, paroxetine, mianserin, melatonin to escitalopram will be included in this study as different exposure. Life-long quality of life will be calculated as outcome. In order to investigate the extent of accuracy, one way sensitivity analyses and probabilistic sensitivity analysis will be conducted. RESULTS: Mianserin, melatonin does not interfere with tamoxifen treatment, under that situation, these medication have the best outcome. The time period from diagnosed with breast cancer till 1 year is the best timing to give antidepressants, which may significantly change the outcome. CONCLUSIONS: Even though, sometimes patients with breast cancer may not realize they already threaten by depression, the antidepressant still significantly important to breast cancer population to prevent the progression of depression with better outcome.

PCN18: COST-EFFECTIVENESS OF PARA-AORTIC LYMPHADENECTOMY BEFORE CHEMORADIOThERAPY IN LOCALLy ADVANCED CERVICAL CANCER

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OBJECTIVES: To evaluate the cost-effectiveness of nodal staging surgery before chemoradiotherapy (CRT) for locally advanced cervical cancer (LACC) in the era of PET/CT. METHODS: A modified Markov model was constructed to evaluate cost effectiveness of para-aortic staging surgery before definite CRT when no uptake is recorded in para-aortic lymph nodes (PALN) on PET-CT. Survival and rates of complications were estimated based on the published literatures. Cost data was obtained from Korean National Health Insurance database. Strategies were compared using an incremental cost-effectiveness ratio (ICER). Sensitivity analyses were performed including an estimate for performance of PET/CT, postoperative complication rate, and varying survival rates according to radiation field. RESULTS: We compared two strategies: Strategy 1) pelvic CRT for all patients or Strategy 2) nodal staging surgery, then extended-field CRT when PALN metastasis is found; otherwise, pelvic CRT. ICER for strategy 2 compared to strategy 1 was $19,505 per quality-adjusted life year (QALY). Nodal staging surgery was cost-effective at the $50,000 willingness-to-pay threshold as long as generous survival reduction (>17%) is found in patients who underwent only pelvic CRT despite occult PALN metastasis. The model was insensitive to change in performance of PET/CT and postoperative complication rates. CONCLUSIONS: Nodal staging surgery before definite CRT is potentially cost-effective in
Korea when PET/CT shows no evidence of para-aortic lymph node metastasis. Prospective trials are warranted to transfer these results into guidelines.

**PCN19: COST-EFFECTIVENESS OF FIRST-LINE THERAPY FOR ADVANCED NON-SMALL CELL LUNG CANCER (NSCLC)**

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**OBJECTIVES:** To assess the cost-effectiveness of Afatinib vs. comparators in the first-line treatment for patients with non-small cell lung cancer (NSCLC) harbouring epidermal growth factor receptor (EGFR) mutations. **METHODS:** A cost-effectiveness model was applied to assess the costs and effects of afatinib. Data related to medical resource use, efficacy of the drugs and health related quality-of-life status came from the clinical studies and supported by the results of a Network Meta-Analysis (NMA). Direct cost data was obtained from the Bureau of National Health Insurance (BNHI) and NHI claims data released by the Collaboration Center of Health Information Application. Outcomes included life-years, quality-adjusted life years (QALYs), medical costs and incremental cost-effectiveness ratios (ICERs). The single-payer (BNHI) perspective is assumed and costs are expressed in New Taiwan dollars (NT$). The discount rate of costs and effects is 5%. **RESULTS:** Treatment with afatinib in the 1st line setting extends time in progression-free survival (PFS). Compared to gefitinib, patients treated with afatinib in the 1st line setting have an increase of 0.05 quality-adjusted life-years (QALYs) and the additional cost is NT$21,350.59, yielding an ICER of NT$457,768.67 per QALY gained. Compared to erlotinib, patients treated with afatinib have an increase of 0.02 QALYs with less cost of NT$56,216. **CONCLUSIONS:** The results provide decision makers with information about the cost-effectiveness of taking afatinib as first-line therapy for advanced stage NSCLC by direct comparison of two EGFR-TKIs and cisplatin/pemetrexed. From the perspective of the single payer, the afatinib could be a cost-effectiveness strategy compared with erlotinib and gefitinib for the 1st line treatment of advanced NSCLC.

**PCN20: COST-EFFECTIVENESS OF LENALIDOMIDE-PLUS-DEXAMETHASONE IN MULTIPLE MYELOMA PATIENTS WHO HAVE RECEIVED AT LEAST ONE PRIOR THERAPY: A SOUTH KOREAN PERSPECTIVE**

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**OBJECTIVES:** In this study a comprehensive assessment of the cost-effectiveness of lenalidomide-plus-dexamethasone compared to dexamethasone, as second-line or greater than second-line therapy in relapsed/refractory multiple myeloma (rrMM) patients was performed, from the perspective of the South Korean National Health System. **METHODS:** A Markov-type model was designed to assess the long-term costs and effectiveness of lenalidomide-plus-dexamethasone and dexamethasone, using patient-level data from the MM-009/MM-010 randomized controlled trials. Due to potential crossover-induced bias by subsequent therapies, overall survival (OS) was estimated using a quantitative relationship between progression-free-survival and OS (censored normal weighted Tobit regression model, based on 153 MM studies containing 230 treatment arms). Only direct costs were considered (drugs, adverse events and disease monitoring). Effectiveness was measured in life years (LY) and quality-adjusted life years (QALY). Costs were converted to United-States dollars (1USD=1,071.33WON). Annual discount rates were set at 5% for costs and effectiveness. Probabilistic sensitivity analysis (PSA) was conducted with Monte Carlo simulations. **RESULTS:** For the patient population with one previous therapy lenalidomide-plus-dexamethasone is estimated to add substantial benefits to dexamethasone, with expected gains of 1.83QALY and 2.50LY, offset by a mean incremental cost of $55,387. Corresponding incremental cost-effectiveness ratios are estimated at $30,195/QALY and $22,148/LY. PSA revealed a >95% probability of lenalidomide-plus-dexamethasone being cost-effective in comparison to dexamethasone at a $40,000 threshold. These results are robust against sensitivity analyses in turns of patient sub-populations and different crossover correction techniques (simulated treatment comparison; rank preserving structural failure time models). **CONCLUSIONS:** Lenalidomide-plus-dexamethasone can be regarded a valuable treatment option for second or greater line therapy in rrMM patients.

**PCN21: ECONOMIC EVALUATION OF PRIMARY PROPHYLAXIS USING FILGRASTIM VERSUS PEGFILGRASTIM IN PATIENTS WITH SOLID TUMOR CANCER: A SYSTEMATIC LITERATURE REVIEW**

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OBJECTIVES: Evidence suggests that primary prophylaxis with filgrastim (Neupogen®, administered daily for 10-11 days per chemotherapy cycle) or pegfilgrastim (Neulasta®, administered once per chemotherapy cycle) is equally effective. Patients often receive shorter (<7 days) courses of filgrastim in clinical practice. Using filgrastim for fewer days may reduce costs, but it has been associated with an increased hospitalization risk. Economic evaluations (EEs) may be used to guide decisions in resource allocation. The objective of this review is to identify and characterize the EEs of primary prophylaxis with filgrastim versus pegfilgrastim in patients with solid tumor cancer receiving myelosuppressive chemotherapy.

METHODS: We performed a systematic literature search of the EMBASE, MEDLINE, Cochrane Library, Google Scholar, ABI/Inform, and the Web of Science using such search terms “filgrastim,” “pegfilgrastim,” “cost analysis,” and “economic evaluation.” Studies were limited to primary research in patients with solid tumor cancer, specifically, studies comparing filgrastim with pegfilgrastim and resulting in full manuscripts. Identified studies were evaluated by the Drummond checklist and characterized by study perspectives, time horizon, data sources, and funding.

RESULTS: Six studies fulfilled the inclusion criteria. Most studies modeled hypothetical cohorts of women aged 30-80 years with breast cancer (Stages I-III) from a payer’s perspective. The median Drummond score was 9 of 10 (range, 8-9). Methodological and reporting variations were common. Key assumptions were made about FN-related deaths during chemotherapy, hospitalization, and outpatient management, chemotherapy costs, and data sources. All six studies were funded by the drug manufacturer. Pegfilgrastim was found to be cost-saving compared to 11-day filgrastim. However, when compared to 6-day filgrastim, the choice of intervention depends on the decision-maker’s willingness-to-pay.

CONCLUSIONS: Variations in methodology, reporting, and assumptions made comparisons between studies difficult and may explain in part the observed results reported in EEs. Studies independent of industry sponsor are needed to make conclusive interpretations.

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**PCN22: HEALTH ECONOMIC EVALUATION OF GUANGDONG RURAL TERTIARY BREAST CANCER SCREENING AND DIAGNOSIS SYSTEM**

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OBJECTIVES: Cost-effectiveness analysis and cost-utility analysis were adopted to evaluate the tertiary breast cancer screening and diagnosis system in Guangdong province. METHODS: Using data from Guangdong project to evaluate the validity and reliability of screening strategies. The intervention group received tertiary screening and diagnosis system, while control group received routine screening. The actual cost, detection rate and cost-effectiveness ratio were calculated. The Markov simulation model was constructed based on the natural history of breast cancer with TreeAge Pro 2011. The model was running over thirty years (each cycle represents one year). The sensitivity analysis was performed for incidence of breast cancer and health state utility. RESULTS: The intervention group involved 26224 females while the control group involved 24282. The detection rate of breast cancer (1/10 million) was 91.54 and 28.86. The percentage of early stage breast cancer was 45.83% and 28.57%, respectively. The highest detection rate was found in women aged from 45 to 65. In order to detection one case of breast cancer, the number need to invite for screening program was 1595. Cost-effectiveness analysis was 6152.37yuan per detection rate of breast cancer (1/10 million). During the following 30 years, comparing to the control group, the tertary breast cancer screening and diagnosis system for 100 thousand women will reduce 61 cases of breast cancer, and save 557.00 LYs, 649.05 QALYs. With the discount rate of 3%, Cost-utility analysis was 8142.33yuan per life year saved, 6987.57yuan per QALY saved and 74348.84yuan per breast cancer prevented. One-way sensitivity analysis showed that parameters had no significant effect on the model. CONCLUSIONS: Compared to control group, the screening strategy of intervention group improved both the detection rate of breast cancer and the percentage of early stage breast cancer. The tertiary breast cancer screening and diagnosis system is a preferable option for breast cancer screening.

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**PCN23: COST-EFFECTIVENESS OF POST-ThERAPY PET AND TELEPHONE INTERVIEW IN THE CLINICAL FOLLOW-up OF PATIENTS TREATED WITH LOCALLY ADVANCED CERVICAL CANCER**

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OBJECTIVES: Our previous research indicated that post-therapy PET scanning may obviate the need for hospital-based follow-up in patients with locally advanced cervical cancer who achieved a complete metabolic response (CMR). In these patients, asymptomatic recurrences were rarely discovered through examination in the clinic. The aim of this research is to evaluate the
cost-effectiveness of applying different follow-up strategies in Australia. **METHODS:** A decision analytical model was constructed to evaluate cost per quality-adjusted life-year (QALY) and life-years gained (LYG) by comparing two follow-up strategies: 1) Routine hospital-based follow-up and 2) Alternative follow-up involving post-therapy PET and nurse-led telephone interview. A model was built using data from a prospective institutional registry study of 105 consecutive women underwent definitive chemoradiation therapy. Based on published institutional data, it was estimated that patients who had a complete metabolic response identified by PET, would have 5-year overall-survival of 93% and 1.5% recurrence rate, while those without CMR would have a 5-year overall-survival of only 36%. The impact of uncertainty was evaluated using probabilistic sensitivity analysis. **RESULTS:** Costs for Alternative follow-up was estimated to be $25,657 compared with $19,982 for Routine follow-up. Alternative follow-up is not cost-saving; this is because the cost of PET screening and additional treatment performed on those without CMR is more than offset by the cost of intensive hospital-based visits avoided. Preliminary modeling suggest that the Alternative follow-up is likely to be cost-effective compared with Routine follow-up with an ICER of $4,094/QALYs gained, given the survival benefit associated with better targeted salvage therapy and that this result is robust to a range of survival gain estimates and other parameters. **CONCLUSIONS:** Performing PET scan to evaluate patient's risk of recurrence is an appealing prospect. This study demonstrated that the alternative follow-up with post-therapy PET is likely to be cost-effective when compared to the current practice.

**PCN24: A COST-UTILITY ANALYSIS OF CERVICAL CANCER SCREENING AND HUMAN PAPILLOMA VIRUS VACCINATION IN THE PHILIPPINES**

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**OBJECTIVES:** To evaluate the health and economic benefits of different screening and vaccination strategies against cervical cancer in the Philippines. **METHODS:** A cost-utility analysis was conducted using an existing semi-Markov model to evaluate different screening (i.e. Pap smear, visual acetic acid) and vaccination strategies against HPV infection implemented alone or as part of a combination strategy at different coverage scenarios. From a health system perspective, the researchers ran the model using country-specific epidemiologic, cost and clinical parameters. Sensitivity analysis was performed for vaccine efficacy, duration of protection and costs of vaccination, screening and treatment. **RESULTS:** Across all coverage scenarios, VIA has been shown to be a dominant and cost-saving strategy with ICERs ranging from -Php 191,099 to Php 61,058.73 per QALY gained. Due to its high cost in the Philippines, Pap smear was found to be not cost-effective. At a cost of Php 2,400 per vaccinated girl, vaccination was found to be cost-effective at a threshold of 1 GDP per capita with the most favorable assumption of providing lifelong immunity against high-risk oncogenic HPV types 16/18. The highest incremental QALY gain was achieved with 80% coverage of the combined strategy of VIA at 35 to 45 years old done every five years following vaccination at 11 years of age with an ICER of Php 33,126. HPV vaccination becomes less cost-effective when vaccine protection lasts for less than 15 years. **CONCLUSIONS:** High VIA coverage targeting women aged 35-45 years old at five-year intervals is the most efficient and cost-saving strategy in reducing cervical cancer burden in the Philippines. Adding a vaccination program among 11-year old girls at a cost of Php 2,400 per vaccinated child is potentially cost-effective with the most favourable assumption that the vaccines provide lifelong immunity against HPV 16/18.

**PCN25: MEASURING THE TREND OF USE OF TARGETED THERAPY AND ECONOMIC EVALUATION OF GEFITINIB FOR ADVANCED NON-SMALL CELL LUNG CANCER (NSCLC) IN SINGAPORE**

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**OBJECTIVES:** Cancer therapy has been revolutionized by the introduction of targeted therapy. Tremendous growth of its utilization was observed in Singapore over the past decade. Despite high treatment cost, most of the targeted therapies were not funded by Singapore’s unique healthcare financing system. Hence, this study aims to determine the trends of use of targeted therapy in National Cancer Centre Singapore from 2007-2011. In addition, treatment response and economic evaluation of Gefitinib as a first line therapy for advanced NSCLC will be conducted to aid decision making. **METHODS:** In this retrospective study, number of patients and annual consumption costs for each targeted therapy were determined. A total of 124 chemo naive patients were identified to examine treatment response and resources used for Gefitinib. These were reviewed via electronic databases and medical reports. A Markov model was developed by using patient level data and utility values from literature. Cost utility analysis was performed from healthcare provider’s perspective with inclusion of direct medical costs (2012 Singapore dollars) and discount rate of 3%. **RESULTS:** Dominant trends were observed in utilization of Trastuzumab (35%), Gefitinib
Cisplatin plus pemetrexed (Cis/Pem) is a more costly chemotherapy regimen than carboplatin plus paclitaxel (Carb/Pac), but with the reports about its higher efficacy and less toxicity. Thus, this study aimed to assess the cost-utility of these two chemotherapy regimens in advanced non-squamous non-small cell lung cancer (NSCLC) in Thailand. METHODS: Economic study was conducted along a prospective cohort study in Maharaj Nakorn Chiang Mai hospital located in the north of Thailand. Patients aged 18 or above, diagnosed with non-squamous NSCLC with stage IIIB and IV, had performance status (ECOG) 0-1, and were treated either Cis/Pem or Carb/Pac was enrolled during January 2012 to June 2013. Direct and indirect costs were collected considering the societal perspective. Effectiveness was measured in terms on time days to disease progression. The incremental cost per quality-adjusted time to disease progression was calculated. A series of sensitivity analyses were also performed. RESULTS: Of the total 54 patients, 36 received Carb/Pac and the remaining received Cis/Pem. Median time to disease progression was 119.94 days and 100.17 days for patients who received Cis/Pem and Carb/Pac respectively. Cis/Pem regimen had a higher total cost of 463,678 Bath per case while gained 15.95 quality adjusted day to progression compared with Carb/Pac regimen. The resulted in 29,078.92 Baht per quality adjusted time day to progression per patient. CONCLUSIONS: Our findings suggested that Cis/Pem regimen gains slightly more effectiveness than
PCN28: ABRAXANE VERSUS TAXOL FOR PATIENTS WITH ADVANCED BREAST CANCER: A PROSPECTIVE TIME AND MOTION ANALYSIS FROM A CHINESE HEALTH CARE PERSPECTIVE


OBJECTIVES: Abraxane® and Taxol® are both effective agents for the treatment of advanced stage breast cancer. However, each agent possesses unique drug delivery characteristics with the former not requiring premedication and having a considerably shorter recommended infusion time (i.e. 30 min vs. 2 - 4 hours). To measure the overall efficiency and cost saving potential associated with Abraxane® relative to Taxol®, a time and motion study was undertaken in breast cancer patients treated in China. METHODS: Baseline data collection included patient and disease characteristics. Time and resource use data were then collected from breast patients being treated with Abraxane® (n=12) or Taxol®(n=15) in one of three cancer clinics located in Jiangsu, Shanghai and Beijing. Resource use and time impact on clinical staff were quantified using unit cost estimates. This included costs for drug preparation, administration, materials and supplies, premedication, patient chair time, labor costs and all acute adverse drug reactions. All costs were reported in $U.S. (1$U.S. = 6.1 RMB). RESULTS: Approximately 9 of 12 (75%) patients received Abraxane® as on a weekly schedule compared to 6 of 15 (40%) with Taxol®. There were 5 (33.3%) acute adverse drug reactions with Taxol®, 3 of which required a physician visit and the initiation of supportive interventions. In contrast, there was only one minor event with Abraxane® (8.3%), which was easily managed with a temporary stoppage of the infusion. From the time and motion study, the mean total time for Abraxane® and Taxol®delivery was 84 and 282 minutes (p < 0.001), with the associated costs being $59 and $254 respectively per dose (p < 0.001). CONCLUSIONS: To our knowledge, this is first such study in breast cancer patients undertaken in China. Abraxane® was associated with fewer acute adverse drug reactions and significant reductions in health care resources, physician/nurse time and overall drug delivery costs compared to Taxol®.

CANCER - Patient-Reported Outcomes & Patient Preference Studies

PCN29: ATTITUDE ASSESSMENT OF THE HUMAN PAPILLOMA VIRUS (HPV) IN HUNGARY


OBJECTIVES: The aim of the study was to explore knowledge on HPV, and to learn about women's attitudes to vaccination in Hungary. METHODS: A quantitative cross-sectional study was performed among the mothers of girl students in a public educational institution of Nagyatád town by a self-edited questionnaire. Women with an address in the city of Nagyatád and each having a 9-14-year-old daughter were chosen for the study. 247 questionnaire were distributed and 186 were returned for evaluation. The study was performed in 2012. RESULTS: 84.4% of the women knew the meaning of the acronym of HPV. Women living in marriage or cohabitation (χ2=5,966, p=0,015), and with income above average (χ2=5,643, p=0,018) were significantly better informed on HPV than single mothers. Only 26.9% of the women knew the role of the virus played in lip and oral cavity cancer, and 38.7% of them described the possibility of the infection in men. As a conclusion, 17.2% of 186 women gave correct answers on HPV. Significantly increased awareness proved to be for 38- years old or older women of higher level education, or in intellectual work (p<0.05). CONCLUSIONS: Despite Nagyatád women provided greater awareness on HPV causing cervical cancer compared to data in the literature, their overall knowledge on HPV is modest. In the future, a wide range of information should be provided for them.

PCN30: WITHDRAWN

PCN31: UNDERSTANDING THE RATIONALE FOR RESPONSES TO A TIME-TRADE-OFF ASSESSMENT AND WILLINGNESS-TO-PAY IN LUNG CANCER IN THAILAND

Carb/Pac regimen with rising additional cost incurred. However, in cancer treatment, selection the appropriate treatment to individual patients might need to consider other issues such as quality of life. Beyond only healthcare resources.

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**ISPOR 6th Asia-Pacific Conference**

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COMPARATIVE ANALYSIS OF PAIN INTENSITY IN HOSPICE CARE AT HOME AND IN HOSPITALS

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OBJECTIVES: Many challenges are experienced in the care of cancer patients like how to reach the painless condition and how to improve the quality of life. The intensity of pain, the distress caused by the pain and the pain's experience are affected by many factors and these factors should be considered during the multidisciplinary care. We supposed that in case of hospice patients the circumstances, the place of the care and family support are such significant factors. Our aim was to compare hospice patients cared by home-hospice service and hospice department regarding pain and functional capability in Hungary.

METHODS: A quantitative cross-sectional study was performed in 2011-2012 using an anonymous questionnaire. Our
OBJECTIVES: The objectives of the study were to assess the quality of life (QOL) among patients with esophageal/cardiac precursor lesion or cancer at different stages, and evaluate changes in QOL during follow-up after primary treatment. METHODS: We enrolled 220 patients with esophageal or cardiac lesion between September 2007 and January 2010. They were followed up with the EuroQol-5 dimension (EQ-5D) for QOL before primary treatment and at 1, 6 and 12 months after primary treatment. We calculated QOL scores (in terms of EQ-5D scores) based on the five-item descriptive system of health states of the EQ-5D and the UK preference weighting system. RESULTS: In total, 74 patients with precancerous lesion, 88 with early stage cancer, and 58 with advanced cancer participated in our survey. Prior to clinical treatment, the average EQ-5D score of patients with advanced cancer was 0.81±0.17 (mean ± standard deviation), significantly lower than that of patients with early stage cancer (0.87±0.09) or precancerous lesion (0.90±0.05) (P<0.01). For precursor lesion, the score declined in the first month (P<0.001), and gradually increased to a higher level at 12 months than before treatment (P=0.023). It showed a similar trend for early cancer (P<0.05), though it was not statistically recovered even at 12 months (0.85±0.15 versus 0.87±0.09, P=0.226). Regarding advanced cancer, the score showed a consistent decline, reached the lowest at 6 month, and finally rebounced to a similar level compared to that before treatment (0.80±0.13 versus 0.81±0.17, P=0.624). CONCLUSIONS: Our results indicate that patients with precursor lesion or early stage esophageal or cardiac cancer have better QOL than do those with advanced cancer. Early detection and treatment improve QOL in the long run, despite QOL compromise in the immediate time. Particular attention and extra care should be given in the early period of treatment for patients.

**PCN35: MAPPING THE FUNCTIONAL ASSESSMENT OF CANCER THERAPY – BREAST (FACT-B) TO THE 5-LEVEL EUROQOL GROUP’S 5-DIMENTION QUESTIONNAIRE (EQ-5D) INDEX IN A MULTI-ETHNIC ASIAN BREAST CANCER PATIENTS**

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OBJECTIVES: To develop an algorithm mapping the Functional Assessment of Cancer Therapy – Breast (FACT-B), to the 5-level EuroQol Group’s 5-dimension questionnaire (EQ-5D-5L) index. METHODS: A baseline survey of 238 self-administered breast cancer patients in Singapore was conducted. Regression models using ordinary least square, Tobit and censored least absolute deviation were fitted to predict the EQ-5D-5L index based on the five subscale (physical, social/family, emotional, functional well-beings, additional concerns for breast cancer) scores of the FACT-B. Data from a follow-up survey of these patients were used to validate the results. RESULTS: A model that maps the physical, emotional, function well-being subscales and the breast cancer concerns of the FACT-B to the EQ-5D-5L index was derived. The social/family well-being subscale was not associated to the EQ-5D-5L index. Although theoretic assumptions may not hold, ordinary least square showed better goodness-of-fit measures than other regression methods. The mean predicted EQ-5D-5L index within each performance status level deviated from the observed mean. However, the magnitudes of the deviations were smaller than the minimally important difference in EQ-5D for cancer patients. CONCLUSIONS: The mapping algorithm converts the FACT-B to the EQ-5D-5L index, which is essential in health economic evaluation. This enables oncologists and clinical researchers to obtain a quantitative utility summary of a patient’s health status when only the FACT-B is assessed.
PCN36: HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH CERVICAL CANCER IN INDONESIA

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OBJECTIVES: Report of health-related quality of life (HRQOL) among cervical cancer patients in Indonesia is very rare. This study aimed to examine the HRQOL of cervical cancer patients in Indonesia using EQ-5D-3L. METHODS: A cross-sectional survey was conducted in 87 cervical cancer patients admitted to Dr. Sardjito Hospital, a referral hospital in Yogyakarta Province-Indonesia, between June to December 2013. Data on HRQOL was collected using EQ-5D-3L (Indonesian version). As no Indonesian-EQ-5D-3L value set exists, Malaysian value set was used to calculate utility among these patients. RESULTS: About 14%, 51%, 31% and 5% of patients were in stage I to IV, respectively. The most frequently reported problems were pain/discomfort (67.82%) and anxiety/depression (57.47%). The mean of EQ-5D VAS score was 75.83 (SD=17.03). The mean utility value was 0.830 (SD=0.182), 0.751 (SD=0.188), 0.704 (SD=0.205), and 0.766 (SD=0.131) for patients with stage I to IV, respectively. Based on the stage of cervical cancer, the proportion of patients reporting problems in each dimension tended to increase from stage I to stage IV while the EQ-5D VAS score tended to decrease from stage I to stage IV. The utility value also tended to decrease from stage I to stage III, however it rather increased for patients with stage IV. CONCLUSIONS: Cervical cancer significantly affects patient’s HRQOL. Effort should be made to improve the quality of life of cervical cancer patients especially in term of pain/discomfort and anxiety/depression reduction.

PCN37: INSURANCE COVERAGE POLICIES FOR COMPANION DIAGNOSTICS IN BREAST CANCER

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OBJECTIVES: Personalized medicine along with successful delivery of novel diagnostics has potential to revolutionize the patient care. However, the major challenge includes reimbursement system, specifically in obtaining coverage, appropriate coding, and value-based payment for diagnostics. To determine the coverage policies, extent of the tests covered and evidence basis for the coverage decisions by U.S. payers for genomic tests in breast cancer. METHODS: We reviewed the coverage policies for genomic tests in breast cancer, coverage extent, and evidence for coverage decisions. An online search of top US insurers was conducted in January 2014 to identify the coverage policies for genomic tests. In addition to FDA approval, the coverage policy and assessments were also reviewed. RESULTS: In this search of insurance companies, 22 coverage policies for genomic testing were identified. Coverage determinations were made for 5 unique tests for disease diagnosis, prognosis and risk assessment in the 22 policies analyzed. For genomic tests in Breast Cancer, one of the 5 tests was approved by the FDA and covered by only one insurer that issued a coverage decision on it. Coverage policies specific to disease-related genomic tests varied across the insurance companies that were evaluated. The Oncotype Dx is covered by all insurers to assess breast cancer recurrence risk, but considered investigational. Only 2 diagnostic tests were covered by atleast one insurer, however one of the tests was reviewed and covered by all insurers. Humana covered two tests; Mammaprint and Oncotype DX. The Mammaprint test for breast cancer risk recurrence had discordant coverage policies among tests reviewed by more than one insurer. CONCLUSIONS: Although some insurers are willing to provide coverage based on limited evidence of clinical utility, insurance coverage for genomic testing is low and variable. This is likely due to few studies published that demonstrate clinical utility and availability of alternative screening methods.

PCN38: ECONOMIC IMPACT OF GENETIC DIAGNOSTIC TEST FOR BREAST CANCER - HEALTH TECHNOLOGY ASSESSMENT IN SLOVAK HEALTH CARE ENVIRONMENT

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OBJECTIVES: To explore the effects of genetic testing of patients with breast cancer by Oncotype DX for decision of further therapy and their prognosis. METHODS: Health economy model, using Cost-Utility Analysis (CUA), complemented by Budget-Impact Analysis (BIA) on public health insurance coverage in Slovakia. Markov Model (life time horizon) for BC patient management was developed, comparing diagnosis by Oncotype DX and standard diagnostic methods. Outcomes observed were decreased by number of women with chemotherapy (CT) and increased by proportion of women with hormonal treatment alone (HT) and their Recurrence Score (RS, observed from test) in horizon of 10 years. Payer perspective and direct healthcare costs only, associated with breast cancer diagnoses patient management were considered in CUA and BIA for diagnosis.
subgroups. Discount rate of 5% was used for costs as well as outcomes. Sensitivity analysis for major complications was implemented.

**RESULTS:** CUA for Oncotype DX vs. standard care associated with decreased proportion of CT and increased proportion of HT with cost per QALY 12 889 € and cost per LY 11 019 €. Net costs (BIA) associated with Oncotype DX for cohort of patients 1 200 are 3.92 mil. €.

**CONCLUSIONS:** Oncotype DX is considered cost-effective in terms of diagnoses and followed treatment of breast cancer patients. Oncologists are able to differentiate between a low or intermediate RS and a high RS using standard prognostic criteria. Provision of the actual RS changed the treatment recommendations in nearly 40% of cases, suggesting that the RS may reduce chemotherapy use.

**PCN39:** THE DIFFERENCES BETWEEN CANCER DRUG APPROVALS IN JAPAN AND THE USA

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**OBJECTIVES:** Cancer is amongst the leading causes of death globally and was responsible for a total of 8.2 million deaths worldwide in 2012. The aim of this study was to investigate the similarities and differences between the approval of new molecular entities and biologics for the treatment of cancers in Japan and the USA. **METHODS:** Drugs approved from 2004 to 2013 were identified through publically available reports on the USA Food and Drug Administration (FDA) and the Japanese Pharmaceuticals and Medical Devices Agency (PMDA) websites. Relevant drugs were defined as related to the treatment of neoplasms, according to the World Health Organisation International Classification of Diseases Version 2010. **RESULTS:** The FDA approved a total of 55 cancer drugs between 2004 and 2013 compared to 45 by the PMDA, of which 24 drugs were approved by both organisations. Although less than half of currently FDA-approved cancer drugs are approved by the PMDA, 87.5% of drugs approved by the FDA between 2004 and 2007 have subsequently been approved by the PMDA with an average delay of 2.95 years. Of the total number of drugs for all indications, 21% of FDA-approved drugs and 16% of PMDA-approved drugs were indicated for oncology. Although the proportion of drugs focused on breast cancer, lymphoma and bone marrow disorders were similar between the two organisations; the FDA had a higher proportion of drugs in indicated for leukemias and prostate cancer, whilst the PMDA had a larger focus on colorectal cancer drugs. **CONCLUSIONS:** From the analysis presented here, there are clear differences between cancer drug approval in Japan and the USA with regards to time-to-approval of new drugs, as well as the specific treatment areas for which new drugs have been submitted.

**PCN40:** CHANGE IN PERCENTAGE OF LEFT VENTRICULAR EJECTION FRACTION IN BREAST CANCER PATIENTS RECEIVED TRASTUZUMAB TREATMENT

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**OBJECTIVES:** to review prevalence and risk factors of trastuzumab's cardiotoxic effects in breast cancer patients. **METHODS:** retrospective chart review of 20 cases received trastuzumab for breast cancer treatment at Phramongkutklao hospital during 2010-2011. **RESULTS:** Average age of patients in this study was 58.2 +/- 9.3 years old. The most common stage of breast cancer were stage III (11/20, 55%). Average cycle per patients was 21.3 +/- 10.1. There were 12 patients (60%) completed 1 year course of treatment, 7 patients still receiving the treatment and 1 patient had to discontinue treatment before completion. There were 13 patients (65%) had declining in percentage of left ventricular ejection fraction after trastuzumab treatment, 6 (46%) patients had less than 10% declining of left ventricular ejection fraction, equal to number of patients with 11-20% declining of left ventricular ejection fraction (6 out of 12, 50%). In this study, we found 1 patients who had to discontinue treatment due to over 20% declining of ejection fraction. Due to the small number of cases, we did not found any statistical significant for the risk factors associated with the declining in ejection fraction among patients received trastuzumab treatment in this study. **CONCLUSIONS:** Cardiotoxic in term of declining in percentage of left ventricular ejection fraction was not uncommon among breast cancer treated with trastuzumab. Closely monitoring patients with schedule echocardiogram is warranted for safety use of this drug.

**PCN41:** CANCER TREATMENT IN CHINA: HOW ARE POLICY AND PRACTICE IN TIER 1 VERSUS TIER 2/3 CITIES IMPACTING PATIENT ACCESS TO HIGH-COST THERAPIES

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**OBJECTIVES:** The Chinese oncology market is increasingly important to multinational and local pharmaceutical companies.
However, access to high-cost medicines is fragmented within China. This study explored current prescribing and reimbursement of high-cost, targeted therapies and differences between Tier 1 and Tier 2/3 cities. **METHODS:** Some 76 oncologists from different tier cities were surveyed regarding their current and expected future prescribing for gastric cancer (GC) and hepatocellular carcinoma (HCC). In addition, payers who influence reimbursement at national and/or regional levels were interviewed. **RESULTS:** Chemotherapy still dominates GC and HCC treatment in China, with limited use of high-cost targeted therapies; reimbursement is considered the greatest barrier to accessing targeted therapies. Almost 60% of HCC patients do not receive sorafenib due to cost/reimbursement-related reasons. Patient assistance programs and private insurance schemes, along with government initiatives such as negotiation for selective provincial formularies inclusion and “disastrous diseases” coverage will help break this barrier. Patient share of high-cost GC and HCC therapies is expected to double over the next three years. We also found disparity in access to cancer therapies between different tier cities. More patients in Tier 1 cities have urban resident basic medical insurance than in Tier 2/3 cities (34% versus 24%). In Tier 1 cities, relatively more patients receive targeted therapy (23% versus 16%), compared with Tier 2/3 cities. Another compounding factor is that the cost of these therapies is lower in Tier 1 cities than in Tier 2/3 cities (trastuzumab costs $1800 per cycle in Shanghai versus $2500 in Shijiazhuang). **CONCLUSIONS:** There is huge opportunity for high-cost cancer therapies in China; however, uneven reimbursement between cities means local market access strategies are required to maximize patient share.

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**PCN42: IN VITRO DRUG RELEASE AND EX VIVO PERMEATION STUDY OF PREPARED MOUTH DISSOLVING TABLETS OF FLUCONAZOLE THROUGH PORCINE BUCCAL MUCOSA**

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**OBJECTIVES:** Aim of the study was concerned with formulation and evaluation of mouth dissolving tablets. Fluconazole is a broad spectrum triazole derivative useful in treatment of oropharyngeal and esophageal candidiasis, but it is poorly water soluble drug, for that an attempt was made to form complex with β-Cyclodextrin to make it water soluble and then deliver via buccal mucosa. **METHODS:** The tablets were prepared by wet granulation method using permeation enhancer and solubilizing agent β-Cyclodextrin and other excipients using 32 factorial designs. The amount of drug in each tablet was 50 mg and average weight of each tablet was found to be 230 mg. The prepared tablets were evaluated and compared in vitro dissolution study in three different solvents such as hydrochloric acid pH 1.5, artificial saliva pH 6.7 and saline phosphate buffer solution pH 7.4 respectively. And drug release from the in vitro dissolution study. **RESULTS:** The result reveals that prepared formulation F6 shown maximum value. The ex vivo permeation studies of Fluconazole drug through porcine buccal mucous membrane were performed and the results shown that F6 formulation was the best formulation among the prepared mouth dissolving tablets. **CONCLUSIONS:** Thus, the prepared (F6 formulation) mouth dissolving tablets had both local and systemic action and may be used for treating oropharyngeal and esophageal candidiasis (oral candidiasis) mainly as ulcer, burning sensation of buccal cavity particularly in premature infants, geriatric bed ridden patients, and patients with weak immune system caused by cancer treatment or diseases such as AIDS.

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**PCN43: WITHDRAWN**

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**PCN44: TIME TO REIMBURSEMENT FOR ONCOLOGY AGENTS FROM EMA MARKETING AUTHORIZATION TO AIFA APPROVAL AS “C(nn)” CLASS versus. AIFA APPROVAL AS “A” OR “H” CLASS**

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**OBJECTIVES:** The purpose of this study was to evaluate the reduction in average market entry timelines for oncology agents in Italy if approved by AIFA as “C(nn)” class (non-negotiated class under the 189/2012 law) as compared to “A” (fully reimbursed) / “H” (hospital reimbursement). **METHODS:** For the purpose of this study, only the approval of the agents’ first indications were taken into consideration. Included in this study were C(nn) oncology agents approved between May 27, 2013 and February 27, 2014 (afibercept, pertuzumab, bosutinib, enzalutamide, vismodegib, pomalidomide, regorafenib, dabrafenib, afatinib, radium Ra223 dichloride, trastuzumab emtansine) and class “A” / “H” agents approved between May 27, 2010 and December 2, 2013 (everolimus®, denosumab, pazopanib, cabazitaxel, denosumab, abiraterone, vemurafenib, vandetanib, axitinib). The average time to approval was calculated as the average difference between the date of issue of EMA marketing authorization and the determination date (“determina”) in the Italian “Gazzetta Ufficiale”. **RESULTS:** The average time to reimbursement for oncology agents from EMA marketing authorization to AIFA approval as “C(nn)” class was estimated as 111.3±39.9 days.
the average time to reimbursement as either “A” or “H” class was estimated as 428.3±109.0 days (n=9). This represents a significantly faster approval process (unpaired t-test, p<0.01), where on average, the C(nn) approval process is faster by 317 days. CONCLUSIONS: This study shows that time to reimbursement for oncology agents from EMA marketing authorization to AIFA approval is significantly expedited through the use of “C(nn)” classification, reducing market entry timelines by nearly a full year (317 days) compared to the regular “A” or “H” class approval process. Pharmaceutical companies seeking expeditious market entry into Italy for a newly approved oncology therapy targeting an area of high unmet need should therefore consider applying for C(nn) class.

PCN45: COVERAGE DECISION FRAMEWORK IN ASIA PACIFIC: A CASE STUDY OF TARGETED CANCER MEDICINES IN THE TREATMENT OF BREAST CANCER

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OBJECTIVES: To optimize access to cancer therapy in Asia Pacific (AP) nowadays became challenging due to budget constraints. Different decisions were made due to individual context, healthcare system and evidence required to support the decision. This study reviewed coverage decisions made by government in AP using targeted cancer medicines as a case study. METHODS: We selected 6 targeted cancer medicines recommended for breast cancer treatment based on the 2013 national comprehensive cancer network guidelines. Eight AP countries with different health coverage system were included to highlight the differences of health coverage system on decisions: four reimbursement countries [Australia (AUS), South Korea (KE), Taiwan (TW) and Japan (JP)] and four partial reimbursement countries [Malaysia (MY), Thailand (TH),China (CN) and Hong Kong (HK)]. We identified data from multiple sources including “Pubmed”, government websites, payers and companies from inception till Jan 2014. We compared health coverage features, oncology coverage list and evidence requirement for decision making. Based on HTA approach, six possible supporting factors were compared. They included burden of disease, clinical effectiveness, economic evaluation (EE), budget impact analysis (BIA), public health impact, ethical concern and availability of alternative treatments. RESULTS: Efficacy and safety data were used as decision factors in all countries. AUS, KE, TW and TH considered both EE and BIA. AUS, KE and TH required local HTA evidence Of six medicines, trastuzumab is now covered in most countries: AUS, MY, TW and KE. However, limited information is publicly available on evidence used in coverage decision in most countries except AUS where all factors except public health impact and ethical issue consideration are documented. CONCLUSIONS: Coverage decisions are affected by health care system and HTA evidence. Limited public documents related to coverage decisions are available. HTA system may lead to the development of explicit decision framework criteria for coverage decisions.

PCN46: THE INCIDENCE, PREVALENCE, AND SURVIVAL OF MALIGNANT MELANOMA IN TAIWAN

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OBJECTIVES: To understand the incidence, prevalence, and survival probability in the whole population in Taiwan. METHODS: This study utilized the 2005 to 2011 National Health Insurance (NHI) Research Database to study the disease. Inclusion criterion was that patients had at least two outpatient visits or one inpatient stay for melanoma (ICD9 code: 172). Patients’ medical orders for outpatient visits and inpatient stay were linked. Their overall survival data were presented as product-limit survival probabilities. RESULTS: There were 240 to 290 new cases annually between 2006 and 2011. The raw incidence rate was about 1.1 to 1.26 per 100,000 persons,. The age adjusted incidence rate was around 1.5 per 100,000 persons. This was much lower than that the overall incidence in the US (21.1 per 100,000 per year). But it was similar to that of Asia-Pacific islanders in the US. The proportion of death between 2006 and 2011 were 28.8% and 21.9% among males and females respectively. This was different from the US population, whose 5 year survival was 91.3%. The population composition of the US was different from that in Taiwan and thus cannot be compared directly. About 29% of Taiwan patients were farmers. The mortality of farmers (36.5%) was slightly higher than that of non-farmers (22.4%). After controlling for age and sex, the hazard ratio of farmer vs. non-farmers was 1.136. Their age of diagnosis was much higher than the non-farmers: 82% and 34% for farmers and non-farmers diagnosed at age 65 and above, respectively. CONCLUSIONS: Malignant melanoma is found to be a rare but deadly disease in Taiwan. One reason for low survival probability was that farmers delayed the diagnosis to old age. It is suggested to screen farmers in early age.
OBJECTIVES: The Food and Drug Administration (FDA) have approved 28 oncologics across 37 indications on the basis of pivotal Phase II data lacking an active comparator (Macauly, ISPOR Toronto 2014). Approval was typically granted for indications with therapeutic alternative where a response rate ≥10% was demonstrated. This research aims to define the circumstances under which oncologics can obtain both regulatory approval and public reimbursement in Australia on this basis. METHODS: Public Summary Documents (PSDs) were extracted for any oncologic indication appraised by the FDA on pivotal Phase II data. 7 oncology indications (nilotinib in chronic myelogenous leukemia, dasatinib in acute lymphoblastic leukaemia (ALL), imatinib in ALL, dermatofibrosarcoma protuberans, myelodysplastic syndrome/ myeloproliferative disease and hypereosinophilic syndrome and/or chronic eosinophilic leukemia, and aggressive mastocytosis) have been granted TGA and PBAC approval on pivotal Phase II data. 2 were TGA approved but PBAC rejected (bevacizumab and cetuximab), 3 were submitted to PBAC on Phase III data, and no PSDs were extractable for the remaining 26 indications. In 7/7 approved indications, PBAC recognized active comparator alternatives. In 4/7, the rarity of these indications was cited as a key mitigating factor. For 2/7, overall survival (OS) data was presented that indicated potentially substantial OS benefits. In 1/7, a cost-minimisation argument was accepted against a recently approved comparator. Of the PBAC-rejected drugs, cetuximab raised key concerns over a lack of OS data, while significant trial comparability issues were expressed with bevacizumab. All PBAC-approved submissions included economic modelling on a cost/benefit, not cost/QALY, approach. CONCLUSIONS: PBAC can recommend the reimbursement of oncologics that offer potentially substantial clinical benefits based on an indirect comparison of single arms trials with acceptable cost-effectiveness as demonstrated on a cost-benefit metric.

OBJECTIVES: Organised, nationwide screening for breast cancer with mammography in the age group 45-65 years with 2 years screening interval started in Hungary in January 2002. According to the Hungarian guideline on mammography screening, an accredited mammography screening centre should perform 10000 examinations annually. The aim of this study is to analyze the quality control indicators of this screening programme. METHODS: The data derive from the financial database of the National Health Insurance Fund Administration (NHIFA) covering the period 2002-2010 year. We analysed 3 selected years: 2002, 2005 and 2010. The main indicator was the number of mammography screening examinations performed by the mammography screening centres. RESULTS: The annual number of mammography examinations was 323537 in 2002, 247045 in 2005 and 242601 in 2010. The number of accredited mammography screening centres were 51 (2002), 41 (2005) and 40 (2010). The average number of mammography examinations were 6344 (2002), 6025 (2005) and 6065 (2010) per year. In 2002, 14 mammography centres performed 10000 examinations in a range from 10314 to 25940. In 2005 only 4 mammography centres achieved more than 10000 examinations per year (range: 10294-17845). In 2010 again only 4 mammography centres achieved more than 10000 examinations per year (range: 10239-19259). CONCLUSIONS: Only a few number of mammography centres met the recommendation of the Hungarian mammography screening guideline and reached the target (10000 mammography examinations annually). Most of the mammography centres are not able to comply with professional guideline.
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OBJECTIVES: To examine the association between incretin-based therapies and the risk of pancreatitis. METHODS: We searched Medline, Embase, CENTRAL and ClinicalTrials.gov to identify randomized controlled trials (RCTs), non-randomized clinical trials, cohort studies, and case-control studies of adults with type 2 diabetes mellitus that compared glucagon-like peptide-1 (GLP-1) receptor agonists or dipeptidyl peptidase-4 (DPP-4) inhibitors against placebo or active anti-diabetic medications. Trained reviewers, working in pairs, independently screened for eligible studies, assessed risk of bias, and extracted data. RESULTS: We included 59 studies (n=348,624), consisting of 55 RCTs (n=33,350) and 4 observational studies (n= 315,274). Pooled estimates of 55 RCTs (at low or moderate risk of bias involving 37 pancreatitis events, raw event rate 0.11%) did not suggest increased risk of pancreatitis between incretin agents versus control (Peto OR 1.11, 95% CI 0.57 to 2.17). Estimates by type of incretin agents suggested similar results (GLP-1 agonists vs. control: OR 1.05, 95% CI 0.37 to 2.94; DPP-4 inhibitors vs. control: OR 1.06, 95% CI 0.46 to 2.45). Three retrospective cohort studies (moderate to high risk of bias involving 1466 pancreatitis events, raw event rate 0.47%) also did not suggest increased risk of pancreatitis associated with either exenatide (adjusted OR 0.93, 95% CI 0.63 to 1.36 in one study, adjusted hazard ratio (HR) 0.9, 95% CI 0.6 to 1.5 in another) or sitagliptin (adjusted HR 1.0, 95% CI 0.7 to 1.3). However, a matched case-control study with moderate risk of bias suggested that the use of either sitagliptin or exenatide was associated with increased odds of acute pancreatitis (adjusted OR 2.07, 95% CI, 1.36 to 3.13). CONCLUSIONS: The available evidence suggests that the risk of pancreatitis in patients using incretin agents is very low, and does not support for the hypothesis that incretins increase the risk of pancreatitis.

PDB2: EVALUATING THE EFFECTS OF ANTI-THYROID DRUGS AND THYROIDECTOMY IN PATIENTS RECEIVING RADIOACTIVE IODINE THERAPY FOR GRAVES’ HYPERthyroidISM - A RETROSPECTIVE STUDY FROM A UNIVERSITY TEACHING HOSPITAL IN SOUTH WEST, NIGERIA

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OBJECTIVES: This study evaluated the effect of anti-thyroid drugs and thyroidectomy on response of hyperthyroidism to fixed doses of Radioactive Iodine Therapy (RAI) and the incidence of hypothyroidism at 6months post RAI therapy METHODS: A retrospective review of the medical records of 42 hyperthyroid patients treated with radioiodine to evaluate response rate of hyperthyroidism to two fixed dose regimens of 370 MBq (10 mCi) and 555 MBq (15 mCi) RAI therapy was carried out. The impacts of thyroidectomy and ant-thyroid drug pre-treatment were documented. The treatment goal is to cure hyperthyroidism by rendering the patient either euthyroid or hypothyroid, within 6months of single dose of 370 MBq (10 mCi) or 555 MBq (15 mCi) RAI therapy. Statistical analysis was with SPSS version 15.0 and the level of statistical significance was taken as P < 0.05 RESULTS: The response (i.e. hypothyroid and euthyroid) at 6months post RAI for both doses of radioiodine was 71.4%, and after re-treatment of 7 patients who were earlier hyperthyroid after 6months, the response rate soared to 95.2%. The incidence of hypothyroidism (TSH > 6.1 mIU/L) was 47.6% with patients who had received 370 MBq (10 mCi) and 38.1% with those that received 555 MBq (15 mCi) radioiodine therapy. The use of anti-thyroid drugs (carbimazole or methimazole only) as pre-treatment increased response to RAI; Propylthiouracil however blocked response to RAI therapy in one patient Thyroidectomy, either total or subtotal, increased the response to RAI treatment CONCLUSIONS: Radioactive iodine is highly effective for the treatment of Graves’ hyperthyroidism, with a very high cure rate. Pretreatment with some anti-thyroid drugs protects against worsening of thyrotoxicosis after radioiodine and increases response to RAI therapy. Thyroidectomy increases the response to RAI treatment. However, the incidence of hypothyroidism should be anticipated and well prepared for as part of the treatment protocol

PDB3: PREMIXED INSULIN LISPRO VERSUS INSULIN GLARGINE IN TYPE 2 DIABETES: A META-ANALYSIS

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OBJECTIVES: To systematically review the effectiveness and safety of premixed insulin lispro and insulin glargine in type 2 diabetes. METHODS: Such databases as PubMed, EMBASE, The Cochrane Library, ClinicalTrials.gov, CBM, CNKI and WanFang were searched for relevant studies from inception to October, 2013. Two reviewers independently screened studies according to exclusion and inclusion criteria, extracted data and assessed the methodological quality. Then, meta-analysis was performed using RevMan 5.2 software. RESULTS: 13 RCTs involving 4267 patients were included. The results of meta-analysis showed that, compared to insulin glargine, premixed insulin lispro effectively improved HbA1c levels [WMD=-0.18. 95%CI(-0.33 to -0.02), P=0.03(parallel trials), WMD=-0.38,95%CI(-0.52,-0.24), P<0.00001 (cross-over trials)]. However, insulin glargine
PDB4: EFFICACY OF ADD – ON VILDAGLIPTIN THERAPY TO METFORMIN FOR TYPE II DIABETES MELLITUS PATIENTS IN SOUTH INDIAN RESOURCE LIMITED SETTINGS – PILOT STUDY

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OBJECTIVES: Prevalence of diabetes mellitus is increasing globally in most developed and developing countries and Dipeptidyl peptidase-4 inhibitors (Gliptins) are recently introduced class of drugs for type 2 diabetes mellitus which shows good glycemic control. It is a prospective interventional pilot study aimed to determine the efficacy of add-on vildagliptin therapy to metformin in type 2 diabetes mellitus patients for a period of 6 months in south Indian resource limited settings METHODS: A total of 185 patients were enrolled into the study. The study subjects were assigned into three groups based on their existing treatment (initiated within one month) i.e., group I (vildagliptin and metformin), group II (vildagliptin alone) and group III (metformin alone). They were also assessed for baseline demographic characteristics. Medication adherence was measured to ensure that patients are complies with the treatment. The clinical endpoint was estimated by using various variables like quality of life and other clinical endpoints such as RBS, PPBS after three months of specific treatment through direct interview and by referring the medical case records. RESULTS: The results show that there is no significant difference in individual groups in terms of demographic characteristics (P >0.01). And all the present study subjects are found to have more than 90 % of medication adherence. We observed high level of significant improvement in group I (93.18±3.76) subjects whereas low level of improvement in group III subjects (90.4±4.13) after the relevant treatment (P = 0.003). Group I subjects are also found to have good glycaemic control (RBS, FBS and PPBS) than any other treatment groups P<0.01. CONCLUSIONS: Add on vildagliptin therapy to metformin might improve the quality of life of type 2 diabetes mellitus patients and might be useful to bring the glycemc levels under control in type 2 diabetic patients in South Indian resource limited settings.

PDB5: DIAGNOSTIC TESTS OF BLOOD GLUCOSE: A SYSTEMATIC REVIEW

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OBJECTIVES: To evaluate the accuracy of different blood glucose determination methods, and provide a theoretical basis for governments to determine the mainstream glucose detection methods. METHODS: The MEDLINE, EMBASE, EBM REVIEWS, CBM, CNKI, Wanfang, Google academic search et al were were retrieved for literatures collection, literature quality evaluation was implemented by using QUADAS criteria, meta-analysis was carried out using Stata11.0 and heterogeneity test and sensitivity analysis was implemented.RESULTS: 20 studies were included, which contained a total of 2681 cases of patients. Meta analysis showed that values measured by the dry chemical method were significantly higher than glucose oxidase method, and no significant differences was found with the hexokinase method, no significant differences was yet found between the electrode method with enzyme method, the MD (95%CI) were 0.31 (0.09, 0.53), -0.51 (-0.14, 1.17) and -0.13, (-0.27, 0.02) respectively. Sensitivity analysis of the model, the sample source, research population, equipment and countries was carried out and conclusion was found no change between the methods. CONCLUSIONS: there was significant difference between different blood glucose detection methods; application of dry chemical measurement results should be cautious, we recommend using the glucose oxidase or diagnosis hexokinase method.

PDB6: EFFECTIVENESS OF HERBOTRIM AND MUNIPRABHA IN THE MANAGEMENT OF HYPOTHYROIDISM

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OBJECTIVES: Hypothyroidism is treated by replacement therapy of levothyroxine in allopathic system of medicine needs to be taken through out life time. In Ayurveda an ethnic system of Indian medicine has a remedy based on the drugs of natural origin.
which shows improved thyroid function. In this study the patients are treated for Hypothyroidism with combination of two proprietary medicines (Herbotrim and Muniprabha) of Muniyal Ayurveda Pharmacy, Manipal. METHODS: Thirty cases Hypothyroidism are selected from Inpatients and Out patients of Muniyal Ayurveda Hospital, Manipal after obtaining the consent of the patients. The study was approved by institutional ethics committee. The study design consisted of observation before and after treatment with Herbotrim 2-0-2 (2 BID) with water and Muniprabha 1-1-1 (1TID) with water, tablets along with concomitant medicines for a period of 3 months. The subjective Obesity, Brady cardia, Somnolence, Slow mention and objective criteria of assessment were T3, T4, TSH, Hb% and cholesterol. RESULTS: The Mean palmsa T3 (mcg/dl) levels were 33.4 to 105.4, T4 (mcg/dl) levels were 2.38 to 11.36 and TSH (micro IU/ml) levels were 109.4 to 6.63. The hemoglobin (g%) levels were increased from 10.05 to 12.24 and serum cholesterol (mg%) levels were dropped from 280 to 158.9. CONCLUSIONS: Considerable improvement was observed in both subjective and objective criteria of assessment. There was decrease in subjective criteria like – Obesity, Brady cardia, Somnolence, Slow mention, etc. There was increase in T3 and T4, and nd Hb%. The decrease in TSH and cholesterol with Herbotrim and Muniprabha in Hypothyroidism patients.

PDB7: DESIGN & METHODS FOR STUDY OF PREVALENCE, RISK FACTORS AND ECONOMIC BURDEN OF INSULIN INJECTION-RELATED LIPOHYPERTROPHY IN CHINA

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OBJECTIVES: To evaluate the prevalence of insulin injection-related lipohypertrophy (LH), a common complication of insulin therapy, associated risk factors, and to characterize the clinical and economic burdens of LH. Secondary objectives will investigate the relationship between LH and HbA1c, total daily insulin dose, injection education, and reimbursement status among diabetic patients in China. METHODS: A descriptive, non-interventional, cross-sectional study was conducted among 400 diabetic patients from outpatient endocrinology departments in 4 cities, with and without insulin pen needle reimbursement. Eligible subjects were: ages 18-80, BMI ≥18.5 kg/m2, using insulin by pen injection currently and for ≥ one year continuously, with the ability to comprehend study procedures. Enrolled subjects 1) completed a questionnaire for socio-demographics, medical history, self-reported disease management as well as health resource utilization and work productivity, 2) underwent a structured physical examination, and 3) had Hba1c evaluated. The prevalence of LH was described by percentage and 95% confidence interval. Logistic regression and log-linear analysis were applied to determine risk factors and the relationship between LH, Hba1c and insulin dose. Differences in insulin consumption and general health resource utilization were calculated between those with and without LH, and those with or without pen needle reimbursement. RESULTS: Results expected: 1) Prevalence of insulin injection-related lipohypertrophy among patients in China using pen devices. 2) Risk factors for LH including socio-demographic characteristics, economic issues, and insulin injection-related factors. 3) Relationship between LH and Hba1c, hypoglycemia, and total daily insulin dose. 4) Economic burden of LH in the Chinese diabetes population. CONCLUSIONS: Given the potential implications of LH for the diabetic population and for the Chinese health care system, we hope to bring awareness of the true magnitude of this condition.

PDB8: STUDIES ON CLINICAL EFFECTIVENESS OF COMBINED CLASSICAL AYURVEDIC FORMULATIONS IN TYPE 2 DIABETES MELLITUS

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OBJECTIVES: Traditional medicines are valuable in management of chronic diseases like DM type 2. The Ayurvedic classical formulation Khadira kramuka kashaya(KKK) and Shilajatu(SHJ) are found to be clinically effective in DM type 2. In this study, the clinical effect of the combination of formulations was studied. METHODS: The combined formulation (KKK+SHJ) was administered to 30 patients whose base line data on blood sugar, HbA1C were recorded for 45 days. Apart from this, the patients feedback on urination frequency and quantity, Neuropathic symptoms, exhaustion, polydipsia, polyphagia, glycosuria and perspiration as per Ayurveda QOL were carried out once in 15 days. RESULTS: The Mean for 30 patients FBS, PPBS (mg/dl) and Hba1C on day1, day 15, day 30 and day 45 were given in order. QOL data on day 1 and day 45 were given. The mean for 30 patients on FBS (mg/dl) on day1, day 15, day 45 - 136.2, 132.4, 30 129.5, 127.8; On PPBS (mg/dl) day1, day 15, day – 224.36, 223.62, 220.41, 218.83; HbA1C (%) on day1, day 15, day 45 – 7.84, 7.82, 7.79, 7.73. Overall assessment of
Ayurveda QOL showed mild to moderate efficacy. **CONCLUSIONS:** The classical combination of KKK and SHJ was found to be clinically effective along with improvement in QOL Ayurveda parameters.

**PDB9: IMPACT OF ETHNICITY ON THE EFFICACY AND SAFETY OUTCOMES OF ANTI-DIABETES DRUGS – CASE STUDY OF LIRAGLUTIDE IN ASIAN AND NON-ASIAN POPULATIONS**

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**OBJECTIVES:** Fuelled by dietary changes, increased sedentary lifestyles, and greater urbanisation in the Asia-Pacific region, there has been an increase in the number of people suffering from diabetes. Understanding the impact of ethnicity on the efficacy and safety of anti-diabetes drugs is necessary to optimise drug development strategies and shorten the time lag between drug approval in the West and in Asia. The purpose of this study was to examine the role of ethnicity on treatment outcomes in diabetes clinical trials, using liraglutide as an example. **METHODS:** Targeted searches were performed in PubMed and clinicaltrials.gov to identify relevant studies. To be included in our analysis the study had to: be a completed double-blind phase 3 clinical trial of liraglutide; include patients with type 2 diabetes and report ΔHbA1c as an outcome. The included studies were divided by population ethnicity, followed by subsequent extraction of relevant baseline characteristics and outcomes. **RESULTS:** Nine Asian and eight non-Asian studies satisfied all inclusion criteria. Asian study populations tended to have a lower body mass index than their non-Asian comparators, which was reflected by the lower treatment dosages. Moreover, there was a trend towards longer duration of disease in Asians, although not statistically significant (p=0.5636). Substantial heterogeneity was observed between the clinical trial designs, including variable treatment durations, choice of comparator drugs, and the use of mono- or combination therapy. As a result, it was not possible to compare the clinical outcomes between Asian and non-Asian populations. **CONCLUSIONS:** Clear differences between Asian and non-Asian studies highlight the need for improved standardisation of clinical trial designs to enable the investigation of the impact of ethnicity on efficacy and safety results from clinical trials. Further research into other drugs and disease areas is required to more fully understand this topic.

**PDB10: THE LONG-TERM OUTCOMES OF BARIATRIC SURGERY ON PATIENTS WITH TYPE 2 DIABETES MELLITUS: A SYSTEMATIC REVIEW AND META-ANALYSES**

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**OBJECTIVES:** Bariatric surgery has been recommended as an effective treatment for overweight or obese patients with type 2 diabetes mellitus. The long-term follow up of such patients, however, has been limited. We performed a systematic review and meta-analyses to evaluate the long-term effect of bariatric surgery on patients with type 2 diabetes. **METHODS:** We searched PubMed, EMbase, and Cochrane Central Register of Controlled Trials up to September 2013. Trained reviewers, working in pairs, independently screened for eligible studies and extracted data. We pooled the data by using random-effects meta-analysis; qualitative description was applied for the data not available for pooling. We conducted pre-specified subgroup analyses. **RESULTS:** We included 25 studies (n=23,628), consisting of 8 cohort studies with 17407 patients (moderate or high risk of bias) and 17 non-controlled follow up studies with 6221 patients (high risk of bias). At baseline, the mean age of 48.5 years (69% were female), mean body mass index (BMI) was 45 kg/m2, 67% of patients received oral antidiabetic drug prior to surgery. 2.6% of patients (130/4950) died in the surgical group. Improvement on cardiovascular complications, nephropathy and quality of life was observed. BMI (-13.13 kg/m2[-17.66, -9.07]), Fasting Plasma Glucose (-59.74 mg/dl [-74.59, -44.89]), and hemoglobin A1c (-1.83% [-2.4, -1.25]) declined significantly postoperatively. 67.1% of patients were in remission; diabetes was improved or resolved in 89.2% of patients. Subgroup analysis for alternative surgical procedures, length of follow up and the methods of data collection suggested no significant different. **CONCLUSIONS:** Bariatric surgery should be considered as a long-lasting and effective treatment for patients with type 2 diabetes. However, our results are based on a small number studies with low quality, additional carefully designed studies on mortality, cardiovascular events and adverse events may provide further clarification.

**PDB11: THE IMPACT OF DIABETES ON MORTALITY IN INPATIENTS FROM MEDICAL DEPARTMENT OF A CHINESE TERTIARY HOSPITAL**
OBJECTIVES: To explore the impact of diabetes on mortality in inpatients from Medical Department in a Chinese tertiary hospital. METHODS: The data source was based on the electronic medical records (EMRs) database of West China Hospital. We collected diabetic and non-diabetic patients, in a ratio of 1:3, who were hospitalized from January 2009 to December 2012. The non-diabetic patients were chosen immediately after a diabetic patient was selected based on sequential unique hospitalized ID. Patients from medical department were chosen for analysis. We collected information regarding patient demographics, diagnoses, prescriptions, laboratory tests and healthcare resource utilization use. The ascertainment of diabetes and common co-morbidities (e.g., COPD) was based on ICD-10 code. Using in-hospital mortality as an outcome, we conducted multivariable logistic regression to explore the association of diabetes with mortality, after controlling for the influence of common co-morbidities of diabetes—which were considered important confounders - age, gender, smoking and alcohol use. RESULTS: The retrospective analysis included a total of 32,052 patients with diabetes and 66,087 patients without. The median ages were 66(IQR 56-74) and 52(IQR 39-65) in diabetic and non-diabetic group, respectively. And thus 19,659(61%) and 35,214(53%) were males, respectively. Multivariable logistic regression showed that patients with diabetes had an increased risk of mortality (adjusted odds ratio, AOR:1.17; 95%CI:1.03-1.34) after adjusting for common co-morbid conditions, including ischemic heart disease (AOR:1.56; 95%CI:1.32-1.85), chronic obstructive pulmonary disease (AOR:1.84; 95%CI:1.55-2.19), kidney failure (AOR:4.75; 95%CI:4.07-5.55), hepatic fibrosis and cirrhosis (AOR:4.02; 95%CI:3.21-5.04), malignances (AOR:3.03; 95%CI:2.65-3.46) and depressive episode (AOR:1.82; 95%CI:0.92-3.58). CONCLUSIONS: Diabetes appears to be independently associated with increased risk of death in hospitalized patients in the medical departments. Nonetheless, this finding may be limited due to the control patient selection method (not randomly selected). Thus, the resulting association of diabetes and other co-morbid conditions with in-hospital death may be of limited generalizability.

PDB12: HYDROXYETHYL STARCH AND HOSPITALIZED MORTALITY IN ICU PATIENTS WITH DIABETES: DATABASE STUDY FROM A CHINESE TERTIARY HOSPITAL


OBJECTIVES: To explore whether HES is independently associated with hospitalized mortality in ICU patients with diabetes from a Chinese tertiary hospital. METHODS: The retrospective cohort was from the electronic medical records (EMRs) database of West China Hospital from December 2010 to December 2012, which consisted of inpatients who were ever admitted in ICU department and had a discharge diagnosis of diabetes. Demographic characteristics, diagnoses, prescriptions, and laboratory tests were extracted. Ischemic heart diseases (IHD) and chronic renal failure (CRF) were extracted from discharging diagnoses according to ICD-10. High blood glucose was defined as the blood glucose higher than 7.8 mmol/L according to ENDO society when the patient was first admitted to hospital. Acute kidney injury (AKI) during hospitalization was defined as at least 1.5 fold increase of serum creatinine from baseline, according to KDIGO AKI guideline. Outcome variable was the mortality during the hospitalization. Multivariate logistic regression model was used to explore the association of use of HES with mortality, adjusting for age, gender and above factors. RESULTS: A total of 1,036 ICU patients with diabetes were identified in the database with a median age of 65(IQR 56-74) years old. Among 150 (14.5%) patients who died during hospitalization, 102(68.0%) patients have used HES, and 105 (70.0%) patients were males. Multivariate logistic regression suggested that patients who ever used HES were associated with higher risk of mortality (adjusted odds ratio, AOR:1.60; 95%CI:1.04-2.45) even after adjusting for IHD (AOR:1.64; 95%CI:0.98-2.74), CRF (AOR:4.28; 95%CI:2.35-7.79), high blood glucose (AOR:2.85; 95%CI:1.83-4.45), AKI during hospitalization (AOR:4.30; 95%CI:2.79-6.62). CONCLUSIONS: Use of HES may be independently associated with higher risk of death in ICU patients with diabetes. However, further studies are required to demonstrate the causation of HES and hospitalized mortality.

DIABETES/ENDOCRINE DISORDERS - Cost Studies

PDB13: BUDGET IMPACT ANALYSIS OF BIPHASIC INSULIN ASPART IN THE TREATMENT OF TYPE 2 DIABETES MELLITUS IN MALAYSIA: A PUBLIC PAYER PERSPECTIVE

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OBJECTIVES: Budget impact analysis (BIA) is a useful tool for reimbursement decision-makers in health technology assessments by authorities across different countries. This study aimed to evaluate the financial impact from the Ministry of Health (MOH) perspective of different adoption rates of Biphasic Insulin Aspart (BIAsp) versus Biphasic Human Insulin (BHI) in treating type 2 diabetes mellitus.

METHODS: An Excel based 5-year budget impact model was built to estimate insulin treated patients by public providers using local prevalence data. The published demographic, efficacy and adverse event data for ASEAN subgroup analyses of A1chieve study was applied. Both insulin acquisition costs and other medical costs for complications e.g. major hypoglycaemia, myocardial infarction, stroke, end-stage renal disease, blindness and amputation were included at a discount rate of 3%. The incidence rates of these complications were derived from the established UKPDS equations. The adoption rates were assumed and projected from the 2013 utilisation volume data of BIAsp and BHI by public providers. Sensitivity analyses were conducted. RESULTS: The adoption rates of BIAsp were assumed to increase from 1.8% in 2013 to 4.5% or 6.9% in 2018 for base case and upside scenario, respectively. Compared to the base case, upside scenario of wider BIAsp adoption was associated with an increased insulin cost up to RM 8.2M which was offset by avoided complication costs resulting in an overall net budget saving of approximately RM 5.5M over 5 years, primarily driven by estimated reduction in major hypoglycaemia events for patients treated with BIAsp. CONCLUSIONS: The higher and wider adoption of BIAsp would likely be associated with cost savings in Malaysia from the MOH perspective attributed to its superiority in H1Ac reduction and lower major hypoglycaemia risk in comparison to BHI. More cost saving would be concluded if productivity loss is included from a societal perspective.

PDB14: BUDGET IMPACT ANALYSIS OF U100 INSULIN IN EGYPTIAN DIABETIC PATIENTS

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OBJECTIVES: To estimate the budget impact of switching to U100 insulin (100 units [U]/ml) in Egyptian diabetic patients over a time horizon of 5 years. METHODS: Pharmacy and medical budget impacts were estimated over the first 5 years of U100 insulin use in diabetic patients from the Egyptian healthcare system's perspective. Local epidemiology data were used to estimate target population size. Pre-U100 insulin entry treatment option included U40 insulin (40 units [U]/ml). Pre- and post-U100 insulin entry market shares were estimated based on market research and assumptions. Direct medical costs were derived from the Ministry of Health tender list. All costs were reported in Egyptian pounds of the financial year 2014. Deterministic sensitivity analysis was conducted. RESULTS: In a hypothetical 85,294,388-member plan, 1,234,380 patients were expected to be candidates for U100 insulin treatment in type I and type II diabetes. The total budget impact after 5 years post-U100 insulin was EGP -0.049 per member per month [PMPM] (pharmacy budget: EGP -0.047 PMPM; medical budget: EGP -0.002 PMPM), assuming 53.59% of the target population would switch to U100 insulin. Sensitivity analyses determined that the cost of U40 insulin and U100 insulin had the potential to impact the base case analysis. CONCLUSIONS: The total budget for diabetes following U100 insulin use were cost-saving in comparison to U40 insulin. Conversion to U100 insulin would result in lower overall treatment costs in patients with diabetes from the healthcare system's perspective. An intensive information campaign providing detailed advice for patients, physicians and pharmacists is essential for the prevention of medication errors and reduction of overall costs.

PDB15: BUDGET IMPACT ANALYSIS OF WIDER ADOPTION OF BIPHASIC INSULIN ASPART (BIASP) IN THE TREATMENT OF TYPE 2 DIABETES MELLITUS (T2DM): A PERSPECTIVE OF PATIENTS TREATED BY PUBLIC PROVIDERS IN SINGAPORE


OBJECTIVES: Economic evaluations of BIAsp have been published in the context of different countries. This study aimed to evaluate the financial impact from a perspective of patients treated by public providers of different adoption rates of Biphasic Insulin Aspart (BIAsp; NovoMix 30 FlexPen®) versus Biphasic Human Insulin (BHI; Mixtard Penfill®) in treating T2DM. METHODS: An Excel based 5-year budget impact model was built to estimate insulin treated patients by public providers using the local prevalence data. The published demographic, efficacy and adverse event data for ASEAN subgroup analyses of A1chieve study was applied. Both insulin acquisition costs and medical costs for major hypoglycaemia and other complications were applied with a 3% discount rate to the estimated corresponding incidence rates derived from the UKPDS equations. The projected adoption rates were based on the 2013 utilisation volume data. Other local specific considerations e.g. subsidized selling prices and co-payments were included in the analyses for an assumed size of eligible patients. Sensitivity analyses were conducted. RESULTS: The adoption rates of BIAsp were assumed to increase from 23.6% in 2013 to 30% or 36.5% in 2018 for
base case and upside scenario, respectively. In comparison to base case scenario, increases in adoption rate of BIAsp were associated with a cumulative increase up to slightly greater than SS 2.02M in insulin acquisition cost but a potential cumulative net saving up to approximately SS0.92M in overall total costs over 5 years, attributing to subsidized selling price of BIAsp assuming it is included standard drug list and its significantly lower major hypoglycaemia risk, respectively. Cost savings were predicted for other complications. CONCLUSIONS: The wider adoption of BIAsp was predicted to result in net cost savings from patient perspective in Singapore. More cost saving would be estimated in analyses with reduced productivity loss from a societal perspective.

PDB16: HEALTH CARE UTILIZATIONS AND COSTS OF INSULIN PATIENT-DRIVEN TITRATION VERSUS PHYSICIAN-DRIVEN TITRATION: EVIDENCE BASED ON A CLINICAL TRIAL OF BIPHASIC INSULIN ASPART 30 TWICE DAILY IN PEOPLE WITH TYPE 2 DIABETES IN CHINA

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OBJECTIVES: Patient-driven titration has been proven as efficacious and safe as physician-driven titration of Biphasic Insulin Aspart 30 (BIAsp 30) in people with type 2 diabetes (T2DM) in the 20-week trial (ClinicalTrials.gov identifier: NCT01618214). This study was to further compare titration-related healthcare utilizations and costs associated with BIAsp 30 self-driven versus physician-driven titration in China based on this trial. METHODS: 344 eligible premixed/self-mixed human insulin users with T2DM were randomly assigned to BIAsp 30 twice daily either with self-driven or physician-driven titration. Mean number of self-measured plasma glucose (SMPG), clinical visits and phone contacts with health care practitioners (HCPs) due to insulin-titration were recorded in the trial and used to evaluate healthcare utilization. Costs were calculated from a societal perspective, including: 1) direct medical costs, multiplying utilizations in the trial and unit cost reported in the literature; 2) direct non-medical costs as transportation fees from previous studies; and 3) indirect costs estimated by human capital approach. RESULTS: During the 20-week trial period, healthcare utilization associated with self-driven titration was lower than that with physician-driven titration (mean number of SMPG was 147.15 versus 151.31 (P=0.5178), outpatient visits was 5.69 versus 8.86 (P=0.001), calls was 5.94 versus 5.98 (P=0.1956), and there were no titration-related hospitalizations in both groups). Average total titration-related costs were CNY 424.93 lower in self-driven group than in physician-driven group (total cost was CNY 1654.14 versus CNY 2079.07; direct medical cost was CNY 1151.31 versus CNY 1329.06; transportation cost was CNY 360.61 versus CNY 537.88; and indirect cost was CNY 142.22 versus CNY 212.13). CONCLUSIONS: Self-driven titration of BIAsp 30 was associated with less healthcare utilization and lower costs compared to physician-driven titration in people with T2DM in China. The new evidence suggests that a more patient-focused approach towards diabetes management may be cost-saving and improve overall efficiency.

PDB17: ECONOMIC BURDEN OF TYPE 2 DIABETES MELLITUS FOR COSTA RICA

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OBJECTIVES: To perform a partial economic evaluation of Type 2 Diabetes Mellitus (DM2) as well as its micro and macrovascular complications from the institutional point of view. (Social Security Costarican Register (CCSR)), for the year 2013. METHODS: A partial economic evaluation evaluation analysis was used to analyse the average annual cost for DM2 in costarrican patients. The analysis pays special attention related to the sickness (cardiovascular, renal, microvascular, ophthalmic complications and acute events). Costarrican literature was reviews to obtain costs for DM2 as for its complications, also clinical practice guides for the use of resources were used and finally, this information was validated with specialist physicians from Costa Rica. Only direct medical costs were used, such as: medications, laboratory and additional studies, medical consults, hospitalizations and material; these were obtained from the Cost Model 2013 of the CCSR such as the Statistical Annual Yearbook. To prove the strength of the analysis, deterministic and probabilistic sensitivity tests were performed. RESULTS: The average annual cost for DM2 for the year 2013 in Costa Rica was USD 1,466.17. The macro and microvascular complications related to DM2 were more expensive in 2013 for Costa Rica were the following: USD $105,865.80 for haemodialysis during the first year, USD $21,600.40 for chronic cardiac failure during the first year, USD $15,414.40 for acute myocardial infarction and USD $15,025.39 for amputation. An average, hospitalizations represented a 27% of the
resources used for treatment of complications. The sensitivity analysis proved the strength of the costs. CONCLUSIONS: Despise the lack of information in the literature, this article is the first approximation of costs on DM2 and its complications in Costa Rica for the year 2013.

PDB18: MEDICAL EXPENDITURE FOR PEOPLE WITH DIABETES IN URBAN EMPLOYEE BASIC MEDICAL INSURANCE FOR HEBEI PROVINCIAL INSTITUTES

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OBJECTIVES: To explore medical expenditure and its impact for people with diabetes covered by Urban Employee Basic Medical Insurance for Hebei Provincial Institutes (UEBMIHPI). METHODS: People diagnosed with “diabetes” were identified from UEBMIHPI claims database during Dec 30th, 2010 and Dec 25th, 2011. The Sum_All Medical method was used for expenditure estimation. Descriptive analyses were conducted using EXCEL 2010. RESULTS: During Dec 30th, 2010 and Dec 25th, 2011, the UEBMIHPI database recorded claims data of 110256 patients, including 7944 with diabetes (7.21% of all patients), among which 7421 had outpatient records (7.24% of all outpatients) and 2964 had inpatient records (12.16% of all inpatients). 63.28% were male and 79.51% were 50 years of age or older. Mean number of outpatient visits was 14.04 for people with diabetes, in comparison with 4.12 for outpatient with other diseases. Outpatient treatment cost was CNY 9332.52/person and CNY 724.99/visit, of which 30.59% were out-of-pocket money. For those who had used inpatient services, annual inpatient admissions were 1.67 times/person and the cost was CNY 23494.63/person and CNY 14109.20/hospital stay. Over 60% hospitalizations happened in tertiary hospitals. People with diabetes consumed 21.59% (CNY 139 million) of total medical expenditure. Only CNY 21 million (15.42%) was spent on anti-glycaemic treatments, the cost of OAD, insulin, insulin pump and Chinese traditional drugs accounted for 52.27%, 40.75%, 2.62% and 4.36% respectively. People with diabetes who received diagnoses or treatments for diabetic complications consumed more healthcare resources (physician visit, medical expenditure/person and medical expenditure/visit) than others. CONCLUSIONS: As one of the major chronic diseases, diabetes consumed great healthcare resources in Hebei. Majority of direct medical expenditures were spent on treating diabetes-related diseases. Perhaps to reduce risks of diabetes complications by promoting early diagnosis, early treatment, rational drug utilization and disease control is the way to save healthcare and social resources.

PDB19: ECONOMIC IMPLICATIONS OF CHRONIC RENAL DISEASE WITH AND WITHOUT CO-MORBID DIABETES IN CHINA, POST-2005


OBJECTIVES: To collate published evidence evaluating economic implications of chronic renal disease (CRD) with and without co-morbid diabetes mellitus in China (post-2005). METHODS: A systematic search of electronic databases (Embase® and MEDLINE®) was conducted from January 2005 to March 2014 to identify economic studies in English evaluating CRD with and without co-morbid diabetes mellitus in China. RESULTS: Five studies (all cost of illness, CRD [n=3] and CRD with co-morbid diabetes [n=2]) of 134 citations retrieved, met pre-defined inclusion criteria. In 2012, total cost/patient for stage-3/4 CRD was Chinese Yuan (CYN) 34205 with 97.75% being direct cost, while for stage-5 CRD the corresponding values were CYN 128231 and 82.3%, respectively (Wu 2013). In the study by Zhang and colleagues, patients undergoing haemodialysis (HD) incurred 16% higher costs relative to those undergoing peritoneal dialysis (PD) in 2010 (p=0.01). Further, patients with comorbid diabetes incurred higher total costs compared to their CRD alone counterparts (p=0.03) (Zhang 2012). Among patients with CRD in northwest China observed between March 2007 and February 2008, the first, second, and third year renal transplant (RT)/HD costs were CYN201674/CYN94136, CYN71746/CYN87765, and CYN66851/CYN86987, respectively indicating higher efficacy and lower costs of RT than HD from second year onwards (Xiaoming 2012). These findings were consistent with those reported in another study; in 2011 the direct cost of diabetes-associated renal failure with HD/PD was CYN 2761.17/CYN 470764.77 and RT was CYN 218508.075 (Zheng 2012). Among diabetic patients with comorbid CRD, direct cost in 2007 was CYN 1308.07 million, while corresponding cost projected in 2030 increased two-fold to CYN 2351.60 million (Wang 2009). CONCLUSIONS: CRD consumes a large portion of healthcare expenditures (with direct medical cost being main cost driver) and is projected to exert heavy burden on health budget in future as well. Additionally, patients with comorbid diabetes incurred higher costs relative to their CRD alone counterparts.
PDB20: EXAMPLE OF ANALYSIS UTILIZING REAL WORLD DATA: MEDICAL COST REDUCTION BY ADVISING UNTREATED-DIABETES PATIENTS TO VISIT DOCTORS

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OBJECTIVES: We define patients who have not consulted doctors to treat their diabetes, while they have learned their blood-sugar levels are high through health check-up, as untreated-diabetes patients. Our research objective is to calculate using real world data how much lower the medical cost would be if the untreated-diabetes patients visit doctors in response to suggestions to do, which represents the cost reduction of cost-effectiveness analysis. METHODS: We used the data of Japan Medical Data Center (JMDC), which provides health insurance claims data with linked health check-up data of 1.7 million members from health insurance societies in Japan. RESULTS: It is estimated there are 71 untreated-diabetes patients in a virtual (yet supposed-to-be typical according to the JMDC data) health insurance society with 10,000 members. And 16% of them would visit doctors within 3 months, while remaining 84% would leave their conditions as they are for averagely 40 months knowing that their blood-sugar levels are high. It is necessary to advise untreated-diabetes patients to visit doctors for treatment. Such advices should be able to start their diabetes treatment in early stages and prevent them from future complicating diseases. According to our calculation, the medical cost after its diagnosis would increase by 1.1% without aging factors by leaving their untreated-diabetes conditions for one month. CONCLUSIONS: If the virtual health insurance society had all the existing 71 untreated-diabetes patients visit doctors right now, their monthly medical cost would be 0.37 million yen lower against the amount they had to pay in the future (averagely in 20 months) if they continue to avoid visiting, which represents 37 yen a month per member, and all the patients with high blood-sugar levels visit doctors retrospectively, its monthly medical cost would have been 4.12 million yen lower now, which represents 412 yen a month per member.

PDB21: CLINICAL EFFICACY AND COSTS OF INSULIN ANALOGUE COMPARED TO HUMAN INSULIN IN PATIENTS WITH DIABETES: RESULTS FROM A TERTIARY HOSPITAL IN BEIJING

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OBJECTIVES: This study aims to compare clinical efficacy and costs between insulin analogue and human insulin in treatment of patients with diabetes in a tertiary hospital in Beijing. METHODS: Data were extracted from inpatient electronic patient records in HIS system in a tertiary hospital in Beijing during the period between Aug 2011 and Nov 2013. Inclusion criteria: main admitting diagnoses were type I diabetes or type II diabetes; insulin analogue or human insulin were used during hospital stay. Exclusion criteria: combination use of insulin analogue and human insulin. Fasting blood-glucose (FPG) before breakfast was used as efficacy index while total inpatient expenditure was used as cost index. Unfortunately, HbA1c level was unavailable to this study. Student-t test and Chi-square test were conducted using SPSS 20.0. RESULTS: Insulin analogue (n=50) and human insulin (n=49) cohort had comparable male (68% vs 49%, P=0.055), age (50 vs 57, P=0.008), and baseline clinical characteristics (length of stay 10 vs 11, P=0.133; baseline FPG 8.73mmol/L vs 8.44mmol/L, P=0.630). At the point of discharge, FPG before breakfast was dropped to 6.39mmol/L vs 7.13mmol/L (P=0.025) in insulin analogue and human insulin cohort, respectively. The total medical costs were CNY 11,305 vs CNY 10,693 (P=0.577), and total drug costs were CNY 5,198 vs CNY 4,199 (P=0.186), in insulin analogue and human insulin cohort, respectively. CONCLUSIONS: Insulin analogue treated patients experienced significantly greater reductions in FPG before breakfast compared to human insulin treated patients, while total inpatient expenditure and drug costs showed no significant difference between the two cohorts. Should data permits, HbA1c data should be included in further analysis in the future.

PDB22: PHARMACOECONOMICS EVALUATION OF CLINICAL PHARMACY SERVICE FOR DIABETIC INPATIENTS

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OBJECTIVES: To evaluate the cost, cost-effectiveness and cost-benefit of clinical pharmacy service for diabetic patients on view of hospital. METHODS: A prospective study was conducted at a provincial hospital in Sichuan, China. Inpatients with a diagnosis of diabetes were enrolled in the study during 2010.03 - 2011.06. Patients were divided into intervention group(121) and control group(122) randomly when admitted. Intervention group equipped a clinical pharmacist providing clinical pharmacy services during therapy, the control group took routinely pharmacy service. The times of avoiding medicine errors were counted as effectiveness, the saving of patients’ expense was calculated as benefit. The cost was calculated by routine/clinical pharmacy
service spending. Cost-effectiveness and cost-benefit analysis were conducted. **RESULTS:** The average length of stay was 13.82 days in intervention group and 14.79 days in control group (P<0.05). Average 337 minutes (5.6 hours) was spent in daily clinical pharmacy services in intervention group. The cost of routine pharmacy service in control group was 729.05$ (daily salary* average stay length of patients), while clinical pharmacy services cost in intervention group was estimated as 1175.82$ (routine pharmacy service cost+ training cost+ clinical pharmacy services cost), 446.77$ more than routine (theoretically, didn’t actually happen). The average percentage of avoiding medicine errors was 64.19% in intervention groups and 3.54% in control group (total suggestion times for adjusting drug schemes / total medical orders), accordingly the cost-effectiveness of avoiding medicines errors (C/E) in intervention group was 18.32 while 209.95 in control group. The average admission expense was 1703.80$ in intervention group and 1959.50$ in control group (P<0.05), so average saving expense of patients under clinical pharmacy intervention was 255.69$. Comparing with the extra possible input of providing clinical pharmacy service, the net benefit was $191.08$. **CONCLUSIONS:** Clinical pharmacy service do play a significant role in avoiding medicine errors and reducing patient expenses, if didn’t consider the time and labor cost of clinical pharmacist.

**PDB23: EVALUATING THE LONG-TERM COST-EFFECTIVENESS OF LIRAGLUTIDE 1.2 MG AND EXENATIDE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS**

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**OBJECTIVES:** To evaluate the long-term economic and health outcomes associated with once daily liraglutide 1.2 mg, the most frequently prescribed dosage in China, versus twice daily exenatide 10 μg prescribed according to National Institute for Health and Clinical Excellence recommendations in clinical practice in patients with Type 2 Diabetes Mellitus (T2DM). **METHODS:** A published and validated computer simulation model (CORE Diabetes Model) was used to make the projection of 30-year long-term economic and health outcomes. Simulated cohorts and treatment effects were derived from results of a retrospective chart audit with a median follow-up of 48 weeks including 256 patients receiving liraglutide and 148 receiving exenatide. Treatment costs were derived from drug retail prices in Chinese market. The diabetes management and complication costs were obtained from Chinese published data. Projections were made from a societal perspective with an annual discounting rate of 3%. One-way sensitivity analyses were performed. **RESULTS:** Long term projections demonstrated that compared with exenatide, liraglutide 1.2 mg was associated with lower cumulative incidences of diabetes complications and improved long term health outcomes for patients with T2DM. Compared with exenatide, the cumulative incidences of eye disease, renal disease, stroke event, and myocardial infarction event with liraglutide were reduced by 1.657%, 1.45%, 0.639% and 1.392% respectively. Liraglutide 1.2 mg was associated with improvements in life expectancy of 0.109 years and 0.092 quality-adjusted life years (QALYs) versus exenatide. The costs of complications were reduced by 1,769 CNY (111,567 vs 113,336), resulting in a total direct medical cost saving of 7,626 CNY. These results indicated that liraglutide 1.2 mg was cost saving approach in comparison with exenatide. Sensitivity analyses demonstrated the robustness of results. **CONCLUSIONS:** The treatment of liraglutide 1.2 mg improved patient health and economic outcomes versus exenatide, and was a dominant treatment approach for T2DM patients in clinical practice.

**PDB24: LONG-TERM COST-EFFECTIVENESS OF BIPHASIC HUMAN INSULIN 30 IN PEOPLE WITH TYPE 2 DIABETES WITH INADEQUATE GLYCAEMIC CONTROL ON ORAL ANTIDIABETIC DRUGS IN CHINA**

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**OBJECTIVES:** To evaluate long-term cost-effectiveness of switching to biphasic human insulin 30 [Isophane Protamine Biosynthetic Human Insulin Injection (pre-mixed30R)] in people with type 2 diabetes (T2DM) poorly controlled with oral antidiabetic drugs (OAD) in China. **METHODS:** The validated IMS CORE Diabetes Model (V8.5) was used to project long-term life years, quality-adjusted life years (QALYs) and costs over 30 years. Patients’ baseline demographics and treatment effects were based on the published 8-week observational study in China. HbA1c deceased from 10.18% to 7.57% after initiating biphasic human insulin 30 (±metformin) for people uncontrolled with sulfonylureas and metformin, and hypoglycaemic events was 0.80 per patient-year during the study period. Treatment costs were calculated by multiplying retail prices in China and dosage used in the trial. Management and complication costs were obtained from published data in 2011 and inflated to 2012 with consumer price index. An annual discounting rate of 3% was used for both costs and health outcomes. One-way sensitivity analyses were conducted. **RESULTS:** It was projected switching to biphasic human insulin 30 improved life expectancy by 0.655 years (13.113...
vs. 12.458) and quality-adjusted life-years by 0.609QALYs (9.270 vs. 8.661) per patient. Biphasic human insulin 30 decreased cumulative incidence of most diabetes-related complications, and was associated with decreased management and complication costs of -6787 RMB (147066 vs. 153853). Although offset by higher direct treatment cost (54671 vs. 54366), switching to biphasic human insulin 30 was projected to lower total direct medical cost of -6482 RMB lower (201737 vs. 208219). Sensitivity analyses demonstrate robustness of result. CONCLUSIONS: Initiating biphasic human insulin 30 for OAD failures was projected to improve life expectancy and reduce lifetime direct medical costs. Switching to biphasic human insulin 30 was a cost-saving treatment option for people with T2DM insufficiently controlled with OADs in China.

**PDB25: ECONOMIC EVALUATION OF INSULIN ANALOGS VERSUS HUMAN INSULIN FOR DIABETES: A SYSTEMATIC REVIEW**

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OBJECTIVES: Systematically review published literatures comparing the cost-effectiveness of insulin analogs versus human insulin [NPH], by which provide evidence for relevant health decision-making and clinical treatment METHODS: Search literatures about the economic evaluation of insulin analogs versus human insulin in Chinese and English literature database. Basic information, data sources and results of included studies were analyzed and reviewed. RESULTS: Twenty seven studies in 16 published papers carried out in Canada, USA, European, Australia and China were included in the review. The results in the studies were significantly inconsistent, which was perhaps mainly due to the different data source, model selection, time horizon and hypothesis. However, the public health institutes in Canada, UK, Germany and Australia had reported highly suspiciousness on the cost-effectiveness of insulin analogs for diabetes patients, especially for type II diabetes. CONCLUSIONS: In lack of powerful evidence, it has not reached an agreement about the cost-effectiveness of insulin analogs and human insulin for diabetes. In countries like Canada, UK, Germany and Australia, the reimbursement policies on insulin analogs were recommended with cautious. As China is a developing country, diabetes patients should select appropriate regimes even more cautiously according to local healthcare system, personal disease characteristics and affordability. Future studies, comparing the cost-effectiveness of insulin analogs with human insulin, should be conducted with longer time horizon and be based on updated and more reliable clinical data.

**PDB26: PHARMACOECONOMIC EVALUATION STUDY ON PREOPERATIVE TREATMENT OF ACROMEGALY WITH SOMATOSTATIN ANALOGUES IN SHANGHAI**

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OBJECTIVES: To carry on a pharmacoeconomic evaluation study on preoperative treatment of acromegaly patients with somatostatin analogues (lanreotide and octreotide) in Shanghai. METHODS: Through a retrospective clinical study with cost minimization analysis (CMA) from a perspective of health service providers, to collect 89 acromegaly patients' medical records in a sampling hospital from January 1, 2009 through June 30, 2013, then comparing the clinical effectiveness (the overall cure rate based on IGF-I values returned into normal range after 3 months of post-operation) and the direct medical costs including drug cost, medical consultation fees, and costs for diagnostic procedures, hospitalization, treatment costs for adverse drug reactions (ADRs) and other costs arising from medical intervention among the sole surgical treatment group (35 cases), the group of preoperative treatment with lanreotide (36 cases), and the group of preoperative treatment with octreotide (18 cases). RESULTS: Based on the good compatibility of tumor size, postoperative average length of stay in hospital, biochemical indicators (IGF-I, GH) among the three groups, there was no statistical difference in the clinical effectiveness (x² = 2.81, P = 0.250). As to the total medical costs per case, both octreotide group and lanreotide group were higher than the sole operation group with a statistical significant (F = 21.05, P =0.000), and the lanreotide group (70521 ± 25677 Yuan) was lower than the octreotide group (80283 ± 21486 Yuan) with the Median non-parametric test (P = 0.037). The sensitivity analysis showed that the cost advantage of lanreotide reflected in prolonging the length of the preoperative treatment. CONCLUSIONS: According to the data of direct medical costs from the sampling hospital in Shanghai, lanreotide has more cost advantage comparing with octreotide.

**PDB27: COST MINIMIZATION ANALYSIS OF CLINICAL OPTION SCENARIOS FOR METFORMIN AND ACARBOSE IN TREATMENT OF TYPE 2 DIABETES: BASED ON DIRECT AND INDIRECT TREATMENT COMPARISON RESULTS**
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OBJECTIVES: Metformin is the first-line oral hypoglycemic agent for type 2 diabetes mellitus (T2DM) per international guideline with proven efficacy, safety and cost-effectiveness. However, little information exists comparing it with acarbose. This study aims to ascertain both the effectiveness and cost-effectiveness of these two extensively-adopted agents in treatment of T2DM. METHODS: Randomised Controlled Trials comparing metformin and acarbose with placebo and sulfonylureas were systematically reviewed from Chinese (CNKI) and English (PubMed) literatures. Meta-analysis and Bucher-method-based indirect comparisons were conducted to compare the hypoglycemic-effects of metformin and acarbose directly and indirectly by using common comparators. The weighted-mean-difference and 95%CIs were calculated. Cost-minimization analysis was performed from the perspective of medical insurance. Common clinical scenarios were set according to clinical practices and physicians’ prescribing behaviors in China, which could mirror real-life cost data. RESULTS: The direct comparison (8 trials) indicated treatment difference between metformin and acarbose for reduction of HbA1c was -0.06% (95% CI, -0.32 to 0.20). In the indirect comparisons (67 trials), using placebo and sulphonylureas as common comparators, metformin achieved significant HbA1c reduction than acarbose, by -0.38% (95% CI, -0.736 to -0.024) and -0.34% (95% CI, -0.651 to -0.029) respectively. Cost-minimization analysis was conducted on the assumption that these two agents had same hypoglycemic effects. In the first two scenarios, acarbose was assumed to titrate from 50mg/day up to 150 mg/day (weight<60kg) or 300mg/day (weight>=60kg) as usual max-dose, and the annual-costs were ¥2,656.36 and ¥5,208.84. In the last two scenarios, metformin was assumed to titrate from 500mg/day up to 1500mg/day or 2000mg/day, while the annual-costs were ¥1,568.04 and ¥2,070.28. Metformin would achieve cost-savings by 22.06% to 69.90% than acarbose, and sensitive analysis demonstrated its robustness. CONCLUSIONS: Findings from this study are consistent with previous studies of metformin in other countries. Metformin has significant hypoglycemic-effects and low costs in China.

PDB28: COST MINIMIZATION ANALYSIS OF U100 INSULIN AND U40 INSULIN IN EGYPTIAN DIABETIC PATIENTS

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OBJECTIVES: The complications for the use of both concentrations U100 insulin (100 units [U]/ml) and U40 insulin (40 units [U]/ml) were not studied in Egypt. The objective of the study was a cost minimization analysis of the two available concentrations for U100 insulin and U40 insulin from the healthcare system’s perspective. METHODS: A decision analysis model of patients with diabetes was constructed. Prevalence rate of diabetes in Egypt and complication rates of both the use of U100 insulin and U40 insulin were obtained from international published sources. Direct medical costs were derived from the Ministry of Health tender list. All costs were reported in Egyptian pounds of the financial year 2014. Deterministic sensitivity analysis was conducted. RESULTS: Total expected costs for U100 insulin and U40 insulin were LE 262,218,165 and LE 345,582,844 respectively. In the base case, the use of U100 insulin displayed a cost advantage over U40 insulin for the treatment of diabetic patients with a minimal percent of complications. The model resulted in total savings of LE 83,364,678 in favor of Insulin 100 units. Sensitivity analyses determined that the cost of U100 insulin and U40 insulin had the potential to impact the base case model. CONCLUSIONS: This cost-minimization study illustrates that Conversion to U100 insulin would result in lower overall treatment costs in patients with diabetes from the healthcare system’s perspective. An intensive information campaign providing detailed advice for patients, physicians and pharmacists is essential for the prevention of medication errors and reduction of overall costs.

PDB29: COST UTILITY OF DIABETES DRUGS USING HBA1C AS A DIRECT PREDICTOR FOR QUALITY OF LIFE, DIABETES COMPLICATIONS AND MORTALITY

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OBJECTIVES: Cost utility analyses (CUA) of diabetes treatments have traditionally been performed using HbA1c as a surrogate endpoint for diabetes complications and mortality. This study introduces a novel approach to CUA modelling of diabetes whereby blood sugar control as measured by HbA1c is used to directly predict quality of life utilities, diabetes complications and mortality. METHODS: A microsimulation model was constructed which followed people with newly diagnosed diabetes over a period of 10 years. HbA1c level determined when a person was assumed to undergo escalation in diabetic treatment (from monotherapy with non-insulin hypoglycaemics to dual therapy to triple therapy and insulin). Information on efficacy and toxicity
of therapies were derived from clinical trial data. Health care utilisation and costs were sourced from Australian government websites. Risk equations using change in HbA1c as a predictor for complications, quality-adjusted life years (QALYs) and death were derived from published data from large Australian diabetes cohorts. Probabilistic sensitivity analyses were undertaken. Two classes of drugs were investigated as alternatives to sulphonylurea when given in combination with metformin: DPP-IV inhibitors (sitagliptin, vildaglaptin, saxagliptin, linaglaptin, alorglaptin) and SGLT-2 inhibitors (canagliflozin, dapagliflozin). RESULTS: In general, the results for the CUA were similar between the two drug classes compared to sulphonylureas, with ICERs ranging from AU$40K/QALY to AU$50K/QALY. The proportion of diabetes complications dropped by 3-4%, insulin treatment was delayed on average of 2-3 years and a drop of 1-2% in mortality was observed. CONCLUSIONS: This model illustrates a new way of assessing the cost utility of diabetes medications. Furthermore, it shows that both DPP-IV and SGLT-2 inhibitors represent cost-effective alternatives to sulphonylurea in combination with metformin.

**PDB30: ANTI-DIABETIC DRUG UTILIZATION AND DYNAMIC TRENDS IN A TERTIARY HOSPITAL IN BEIJING (2008-2012)**

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OBJECTIVES: In China, the age-standardized prevalence of diabetes is 9.7% (92.4 million adults). The rapidly-growing economic burden caused by diabetes renders the anti-diabetic drug utilization research more important than ever. This study intends to assess the utilization and its dynamic trends of anti-diabetic drugs in a tertiary hospital in Beijing, China. METHODS: Data were extracted from pharmacy department of a tertiary hospital in Beijing between 2008 and 2012. Descriptive analysis was conducted using SPSS 20. By applying the Anatomical-Therapeutic-Chemical methodology (ATC) and Defined Daily Dose system (DDD) recommended by WHO, the collected data were used to calculate the number DDD per 1000 inhabitants per day (DDD/1000/day). Annual average growth rate (AAGR) was calculated to demonstrate dynamic trends in utilizations over time. RESULTS: There are three major findings: 1) By pooling the five year data together, we found the top three drug categories were sulphonylureas (3032.87 DDD/1000/day), human insulin (2677.48 DDD/1000/day) and biguanides (1830.52 DDD/1000/day), accounting for 30.95%, 27.32% and 18.68% of the total DDDs, respectively. 2) In each category, the rankings in utilization according to DDD were gliclazide, glimepiride, gliquidone for sulphonylureas, and Novolin 30R, Novolin R, humulin for human insulin, and metformin for biguanides. 3) Drug utilizations increased rapidly from 1647.13 DDD/1000/day in 2008 to 9798.86 DDD/1000/day in 2012, possibly driven by increasing prevalence, new treatments, and so forth.

**DIABETES/ENDOCRINE DISORDERS - Patient-Reported Outcomes & Patient Preference Studies**

**PDB31: DEMOGRAPHICS AND HEALTH OUTCOMES ASSOCIATED WITH ADHERENCE AND NON-ADHERENCE AMONG TYPE2 DIABETICS IN CHINA**

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OBJECTIVES: Adherence to treatment is an important predictor of health status. This study investigated medication adherence among respondents with type 2 diabetes (T2D) in China. METHODS: This study included data from the 2013 China (N=19,987) National Health and Wellness Survey (NHWS), a cross-sectional survey of self-reported demographics, health outcomes, and behaviors among urban (mainly Tier I and II cities) adults (≥18 years). Respondents diagnosed with T2D and taking a prescription medication for T2D were analyzed (n=510). Adherence was measured using the 8-item Morisky Medication Adherence Scale (MMAS). Adherence was classified as scoring between 0-2 on the MMAS. Characteristics of non-adherent and adherent respondents were reported descriptively. Multivariable regressions, adjusting for demographics and health behaviors were performed to explore differences on health status (SF-36v2), resource utilization in the past six months and productivity loss (Work Productivity and Activity Impairment questionnaire) between adherent (n=184) and non-adherent respondent groups (n=326). RESULTS: Respondents who were non-adherent to diabetes medications tended to be younger, employed and had regular consumption of alcohol when compared to respondents who were adherent. Controlling for covariates, respondents who
were adherent to their medications had higher mental component summary and health utility scores compared to non-adherent respondents (p<0.05). Among the employed sample, non-adherent respondents reported greater absenteeism (13.1% vs. 7.7%), greater presenteeism (39.8% vs. 30.9%), and greater overall work impairment (44.8% vs. 33.7%) compared to adherent respondents. Non-adherent vs. adherent respondents reported more activity impairment (38.8% vs. 33.7%). Physician visits in the past six months was higher among those who were not adherent (6.0 vs. 4.6), but there was no significant difference in hospitalization and ER visits among the two groups. CONCLUSIONS: A greater number of T2D respondents were not adherent to their diabetes medication. Not surprisingly, health outcomes were worse among adults not adhering to their medications.

PDB32: A PROSPECTIVE, CROSS-SECTIONAL STUDY ON COST AND ADHERENCE OF ANTIDIABETIC PRESCRIPTIONS AT A TERTIARY CARE TEACHING HOSPITAL IN SOUTH INDIA

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OBJECTIVES: To study prescription pattern, calculate the cost of antidiabetic drugs and to evaluate the adherence to treatment guidelines in diabetic patients attending the medicine outpatient department in a tertiary care teaching hospital. METHODS: A prospective observational study was carried out for a period of 5 months. The diabetic patients who visited the medicine outdoor department were included. Demographic data and complete prescription details were recorded in the structured case record form. Cost of the drug therapy was calculated from the patient's bills. Indian Council for Medical research guidelines-2005 for diabetes management was used to evaluate the adherence. RESULTS: A total of 250 patients were enrolled in the study with mean age 57.91 ± 9.37. Out of 250 patients 126 (50.4%) were male and rest were female. A total of 1,391 drugs were prescribed, with mean of 5.56 ± 2.52 drugs and out of which 539 drugs were antidiabetics with mean of 2.18 ± 0.96. In monotherapy, metformin was frequently 218 (40.45%) prescribed. Glimepiride and metformin was the most frequently prescribed in 119 (76.28%) out of 156 antidiabetic drug combinations. Most commonly used drugs other than antidiabetics were aspirin 146 (18.9%) and atorvastatin 119 (15.41%). Mean cost of therapy for a month for a diabetic patient was 354.60 ± 305.71 INR. Majority 209 (83.6%) of prescriptions was in accordance to guidelines. CONCLUSIONS: Metformin was the most frequently prescribed drug in the diabetes patient. Metformin and glimepiride being the most frequent combination used. Majority of the prescriptions followed standard guidelines. The cost of prescription can be reduced by choosing the most economic drugs (generic) without changing its quality.

PDB33: WITHDRAWN

PDB34: MEDICATION COUNSELING BEYOND INSTITUTIONAL: IMPACT OF PHARMacist-LED HOME MEDICATION REVIEW IN TYPE 2 DIABETES PATIENTS

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OBJECTIVES: To evaluate the impact of home medication review programme (HMR) towards Type 2 Diabetes patients from public primary centre in Penang, Malaysia. METHODS: A prospective randomised control study was conducted at Primary Clinic in Bukit Minyak, Penang. Eligible Type 2 diabetes patients with HbA1c > 6.5% and taking ≥ 3 medications who stayed at their own house were recruited and randomly allocated into control and intervention group by coin tossing. Control group patients received usual care from the clinic whereas intervention group patients received additional 2 visits at their home by pharmacist. During both visits, education on quality use of medications and life-style modifications were performed. Blood pressure monitoring, point of care for sugar and total cholesterol levels were conducted in each visit. Patients adherence and knowledge were assessed using validated questionnaire. Pill count was conducted and excessive medications were collected to calculate the costing component. Primary outcomes were medication adherence and level of knowledge. Secondary outcomes included HbA1c, FBS and total cholesterol changes as well as patients' satisfactions towards HMR and direct cost saving from the programme. RESULTS: A total of 150 patients were recruited and randomly assigned in two groups (n=75 each group). Fifty patients in the intervention group completed the study. After 2 home visits there were significant improvements in the adherence score for the intervention group (mean score=6.90, SD=0.94) compared to the control group (mean score=4.05, SD=1.51). There was a significant improvement in knowledge score after HMR programme, intervention group (mean score=10.04, SD=1.75) and the control group (mean score=5.45, SD=1.89). A direct cost analysis of the medication wasted reveals that HMR can help to save RM 2805.50 (USD 855.34) throughout the eight months period. CONCLUSIONS: Pharmacist-led HMR have improved patients’ adherence and knowledge as well as helping the policy makers to save money on excessive medication wastage.
PDB35: DOES DIABETES HAVE AN IMPACT ON HEALTH-STATE UTILITY? A STUDY OF ASIANS IN SINGAPORE

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OBJECTIVES: To compare the time trade-off (TTO) values of EQ-5D-3L health states elicited from Asians with and without type 2 diabetes mellitus (T2DM) and T2DM patients with and without complications in Singapore. METHODS: The TTO values of 10 EQ-5D-3L health states were elicited from a consecutive sample of T2DM patients and a general Singaporean population sample using an identical valuation protocol. In face-to-face interviews, T2DM patients and members of the general population were asked to value 5 and 10 health states, respectively. The difference in TTO values between the two samples and between T2DM patients with and without complications was examined using multiple linear regression models. RESULTS: A total of 109 T2DM patients and 46 persons without T2DM provided data for this study. All 10 health states considered, the mean TTO value was 0.04 for T2DM patients and -0.02 for the general population sample, with the difference (95% confidence interval [95%CI]) being -0.06 (-0.16, 0.03). The general population sample had systematically lower TTO values for mild health states, with the difference being -0.15 (95%CI: -0.24, -0.06); while the two samples had similar mean TTO values for severe health states, with the difference being 0.001 (95%CI: -0.11, 0.11). T2DM patients with complications had systematically higher TTO values than those without complications, with the difference being -0.10 (95%CI: -0.23, 0.03). CONCLUSIONS: It appears that diabetes and its complications affect patients’ valuation of health states. As a result, the EQ-5D-3L health-state values based on the general population may underestimate the utility of health interventions for T2DM.

PDB36: WITHDRAWN

PDB37: PATIENT-REPORTED MEDICAL EXPENDITURES FOR INSULIN-TREATED DIABETES PATIENTS IN EASTERN, CENTRAL AND WESTERN REGIONS OF CHINA

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OBJECTIVES: The study aimed to investigate the utilization and expenditures of medical resources, including outpatient visits, hospitalizations, and productivity loss for insulin-treated diabetes patients. METHODS: A survey based on self-designed questionnaire was conducted in 7 third-grade class-A hospitals among eastern, central and western regions of China from July to September of 2012, with inclusion criteria of type 1 and type 2 diabetes patients treated with insulin. Diabetes duration and glycemic control for included patients, frequency and expenditures of outpatient visit and hospitalization, and time spending of outpatient visit were collected. Descriptive analysis of the data was performed by SPSS 19.0. RESULTS: 602 eligible respondents (95.0% type 2 diabetes, 48.2% male) were included, with mean age of 62.15±13.06 years, mean diabetes duration of 10.62±8.23 years, mean fasting plasma glucose of 8.05±2.89 mmol/L; mean haemoglobin A1c of 7.24±2.10%. Average frequency of outpatient visit was 14.37 times per year, and average cost per outpatient visit was 696.70 CNY. 36.3% of patients were hospitalized because of diabetes and its complications in the previous year, with the frequency of 1.36 times per year and average cost of 11461.51 CNY, resulted in annual hospitalization cost of 15587.65 CNY per inpatient. Total annual medical expenditure was estimated to be 11985.33 CNY per patient, including 10011.58 CNY for outpatient visits and 1973.75 CNY for hospitalizations. In addition, an average of 5.05 hours, including the traffic time, was spent for outpatient visit, and 3.37 more hours were needed for rural patients as compared to urban patients (8.11 hours vs 4.74 hours). CONCLUSIONS: In China, Diabetes consumed a great deal of medical resources and imposed a heavy burden on patients treated with insulin, especially when hospitalization needed. More attentions should be paid on diabetes prevention and management to reduce medical resource utilization and burden of diabetes.

PDB38: ASSESSMENT OF DISEASE STATE KNOWLEDGE IN DIABETIC PATIENTS OF QUETTA CITY, PAKISTAN

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OBJECTIVES: The present study aimed to assess disease knowledge of the diabetic patients in Quetta city, Pakistan. METHODS: A questionnaire based, cross-sectional observational study was carried out. All residence of the area (age
OBJECTIVES: The present study was design to compare the knowledge regarding diabetes between the diabetic patients and healthy population in Quetta city, Pakistan. METHODS: A questionnaire based, cross-sectional observational study was carried out. All the registered diabetes patients (DP) of Bolan Medical Complex hospital and Sandman Provisional hospital were targeted and for healthy individual (HP), all residence of the area (age 18 and above) were targeted. The study was conducted from July to October 2013. The questionnaire comprised of two parts. The first part was consist of demographic characteristics. The second part were consist of 15 question related to diabetes basic knowledge. Descriptive statistics were applied to summarize the data. RESULTS: A total of 457 registered diabetes patients were approached, and 408 patients were agreed and participated in the study. Majority of the patients (n=285, 69.9%) belonged to age group 41-60 years with almost equal in gender distribution. One hundred and sixty nine (41.4%) had primary level education and majority (n=225, 55.1%) had family history of diabetes. Majority of the respondents had knowledge about disease (98.5%) and its nature (68.4%). Only 280 patients knew about symptoms. 217 (49.3%) patients said obesity can cause diabetes, 49.3% said consumption of sweets and high calories food, 44.8% said alcohol or smoking are major reasons of having diabetes. Seventy percent of the respondents considered it as heredity in nature. Three hundred and twenty five (67.8%) considered mental stress and high blood pressure being risk factor. Majority (69.1%) considered it as treatable disease, while 64% said it require lifelong treatment. Although majority (n=344, 71.7%) of the respondents considered glucose monitoring is necessary, yet only few said regular walk or exercise are important for diabetes control. Only 38.4% considered the uncontrolled diabetes can cause complications and 34.2% believed that uncontrolled diabetes can cause death. CONCLUSIONS: The study concluded that although the general populations have knowledge about the diabetes but they lack vital information regarding its treatment, management and severity of the disease.

PDB39: ASSESSMENT OF KNOWLEDGE REGARDING DIABETES: A COMPARATIVE ANALYSIS OF DIABETES PATIENTS AND HEALTHY POPULATION OF QUETTA CITY, PAKISTAN

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OBJECTIVES: The present study was conducted to evaluate the knowledge regarding diabetic in healthy population of Quetta city, Pakistan. METHODS: A questionnaire based, cross-sectional observational study was carried out. All residence of the area (age 18 and above) were targeted. The study was conducted from July to October 2013. The questionnaire comprised of two parts. The first part was consist of demographic characteristics. The second part were consist of 15 question related to diabetes basic knowledge. Descriptive statistics were applied to summarize the data. Mann-Whitney test was used to compare the study groups. RESULTS: Out of 1248 participants 623 (408:DP, 215:HI) were males with mean age of 36.9±9.9 (38.6±9.5:HP, 32.7±9.4) years, majority 462 (352:DP, 110:HI) had primary level of education, 551 (358:HP, 193:HI) were employed. Six hundred and fifty six (431:DP, 225:HI) were males with mean age of 36.9±9.9 (38.6±9.5:HP, 32.7±9.4) years, majority 462 (352:DP, 110:HI) had primary level of education, 551 (358:HP, 193:HI) were employed. Six hundred and fifty six (431:DP, 225:HI) having family history of diabetes. The mean diabetes knowledge score was 8.2±2.1, (8.5±2.7:HP, and 8.1±2.6:HI). There is no significance different was found between the diabetes knowledge score of both the groups (i.e. diabetes patients and healthy individuals), p < 0.05. CONCLUSIONS: Results of the present study show that there is no significance difference between the two groups i.e. diabetes patients and healthy individuals regarding the knowledge regarding diabetes. It is important to educate both patients and healthy individuals for management and prevention of the disease.

PDB40: ASSESSMENT OF DIABETES KNOWLEDGE IN HEALTHY POPULATION OF QUETTA CITY, PAKISTAN

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OBJECTIVES: The present study was conducted to evaluate the knowledge regarding diabetic in healthy population of Quetta city, Pakistan. METHODS: A questionnaire based, cross-sectional observational study was carried out. All residence of the area were targeted from July to October 2013. The questionnaire comprised of two parts. The first part was consist of demographic characteristics. The second part were consist of 15 question related to diabetes basic knowledge. Descriptive statistics were applied to summarize the data. RESULTS: A total of 1000 general people were approached and 840 respondents were agreed and participated in the study. Majority of the respondents (72.0%) belonged to age group 18-40 years with almost equal in gender distribution. Majority (51.3%) had family history of diabetes. Majority (96.7%) had knowledge about disease and its nature (64.0%), and knew about symptoms (62.5%). Fifty four percent said obesity and (46.7%) said alcohol or smoking are major causes for diabetes. Seventy eight percent considered diabetes is as heredity. Fifty percent of participants considered mental stress and high blood pressure being risk factors for diabetes. Fifty Eight percent considered it as treatable disease, while 45.6% said it require lifelong treatment. Sixty eight percent said regular walk or exercise are important for diabetes control, 83.3% believed that diet control is important in diabetes prevention, majority (76.7%) considered the uncontrolled diabetes can cause complications and (43.3%) believed that uncontrolled diabetes can cause death. Although majority (56.9%) of the
respondents considered glucose monitoring is necessary, yet only few said regular walk or exercise are important for diabetes control. Only 17.1% considered the uncontrolled diabetes can cause complications and 31.4% believed that uncontrolled diabetes can cause death. **CONCLUSIONS:** The study concluded that although the general populations have knowledge about the diabetes but they lack vital information regarding its treatment, management and severity of the disease.

**DIABETES/ENDOCRINE DISORDERS - Health Care Use & Policy Studies**

**PDB41: THE EXPANDING ROLE OF THE PATIENT VOICE IN MEDICAL DECISION MAKING IN ASIA**

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**OBJECTIVES:** Self-reported indices of healthcare related attitudes and behaviors, health status, and work productivity are compared between Chinese and Japanese diabetics to illustrate the various kinds of information that can only come from the patient that is pertinent to the medical decision making process. **METHODS:** Data were obtained from the 2012 Japan (N=30,000) National Health and Wellness Survey (NHWS) and 2013 China (N=19,987) NHWS, administered on-line to representative adult samples (18+ years). Generalized linear models and Tukey’s HSD procedure were used to estimate differences between respondents without diabetes (Japan n=25,338; China n = 16,816), respondents with Type 2 diabetes without complications (Japan n=929; China n=408), and respondents with Type 2 diabetes with complications (Japan n = 125; China n = 184). Respondent age, sex, and BMI served as covariates in all models. The SF-36 and the WPAI were used to measure health status and utilities and work productivity respectively. **RESULTS:** The relationship between the patient reported outcomes of mental and physical health status, level of depression, health utilities, work productivity, activity impairment, days missed from work and level of diabetic condition was consistent. Diabetic complications were associated with greater levels of health/activity/work impairment and lower health utilities (p < .0001 for all comparisons). Chinese respondents reported greater levels of impairment and lower health utilities relative to Japanese respondents (p < .0001 for all comparisons). **CONCLUSIONS:** The patient voice varies across countries, cultures, and conditions. Treating the whole patient versus treating only the presenting disease requires a shift in how healthcare is delivered and medical decisions are made. Patients can provide reliable and valid information regarding their health and wellness status through the use of validated methods and tools. Amplifying the patient voice and integrating it with clinical expertise may be the best way maximize the positive outcomes for the patient.

**PDB42: THE IMPACT OF DRUG PRICE CONTROL POLICY FOR DIABETES MEDICATION: A LONGITUDINAL ANALYSIS IN TAIWAN**

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**OBJECTIVES:** Medication costs accounted for 25% of total medical expenses in Taiwan. Reduction in price of drug is the major policy to control the medication costs. Diabetes drugs is a major factor contributing to high and rapidly growing prescription medication costs. This study was to examine the determinants for diabetes drug expenditures inflation in Taiwan's National Health Insurance (NHI). **METHODS:** This retrospective and longitudinal used NHI claim data to quantify the different factors driving to increases in diabetes medication costs from 2000 to 2010. Changes in diabetes drug spending are decomposed to eight components: (1) the growth of user population; (2) the growth of number of prescription per user; (3) the growth of number of drug item of per prescription of established drugs; (4) the growth of number of drug item of per prescription of new entrant drugs; (5) the growth of Defined Daily Dose (DDD) of established drugs of average drug item per prescription; (6) the growth of DDD of new entrant drugs of average drug item per prescription; (7) change of average price of established drugs per prescription; (8) change of average price of new entrant drugs per prescription; (9) change in therapeutic and strength mix. **RESULTS:** Changes in user population, number of drug item of per prescription, and therapeutic and strength mix caused diabetes spending to increase. The drug price and DDD caused diabetes spending to decrease. Over half of drug spending growth was accounted for user population. The rest of spending growth was from the change in drug treatment intensity. The results also reveal the care pattern change to more drug item with low-dose therapy. **CONCLUSIONS:** The results suggest that use drug pricing policy to lower drug spending is limited. The policy makers should consider put more effort to manage treatment intensity in diabetes medication.

**PDB43: PHYSICIANS AS DOUBLE AGENTS IN A UNIVERSAL HEALTH CARE SYSTEM: EVIDENCE FROM GENERIC PHARMACEUTICAL ADOPTION IN TAIWAN**

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OBJECTIVES: Physicians’ generic pharmaceutical adoption are responsible for patients, insurance payers, and their own interests. This study examines this double agency problem for physicians by using Taiwanese data, because physicians can both prescribe and dispense drugs in Taiwan. The universal health care system in Taiwan also causes the problem to be a public concern. METHODS: This study begins with a theoretical model of physicians’ prescription behavior that includes both the patients’ and physicians’ utilities, and government’s share of patients’ medical expenditure. To empirically estimate this model by using the Taiwanese data, a panel framework is structured by adopting visit-physician-drug as a unit of observation. Empirical results were obtained after controlling the physicians’, patients’, and hospitals’ characteristics; and time-, location-, and drug-fixed effects. The physicians’ unobserved, time-invariant heterogeneity was also controlled by applying Chamberlain’s correlated random effects probit model. RESULTS: The empirical results show that a larger price difference between brand-name and generic drugs increases physicians’ likelihood for prescribing generic prescriptions. However, for physicians in hospitals, this effect decreases as the payer’s cost share percentage increases. These results indicate that physicians’ prescriptions decision internalize patients’ utility but not the payer’s cost. This study also demonstrates that physicians who are more responsive to profits prescribed more generic drugs, including owners of hospitals and clinics, and physicians in clinics and private institutions. However, this effect decreases as the number of competitors in the drug market increases. CONCLUSIONS: The reported findings suggest that physicians’ double agent role in a universal health care system is responsible for part of the pharmaceutical expenditure in Taiwan, where brand-name drugs were probably prescribed more than necessary. Taiwanese government is advised to encourage generic prescriptions by providing incentives for physicians, increasing the patients’ share of their medication cost, and increasing patients’ and physicians’ access to the information on generic drugs.

PDB44: LOYALTY TO A PHARMACY IS ASSOCIATED WITH A BETTER QUALITY OF ANTIDIABETES DRUG USE

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OBJECTIVES: Among individuals newly treated with oral antidiabetes drugs (AD), to assess the effect of pharmacy loyalty on compliance with AD and on the use of guidelines-recommended medications: 1) ACE inhibitor (ACEi) or angiotensin receptor blocker (ARB); 2) lipid-lowering drug. METHODS: Using Quebec administrative databases we carried out a cohort study of individuals aged ≥18 years who had started an OAD between 2000 and 2006 and for whom we had at least 3 years of follow-up after OAD initiation. Individuals who had filled all their prescriptions in the same pharmacy during the 2nd year after OAD initiation were considered loyal. Compliance with OAD (Medication Possession Ratio ≥ 80%) and use of an ACEi/ARB and of a lipid-lowering drug were measured in the 3rd year. Outcomes were assessed using multivariate logistic regressions. RESULTS: Among 97,927 eligible individuals, 64% were loyal to their pharmacy, 64% were compliant with their AD, 64% used an ACEi/ARB and 60% used a lipid-lowering drug. Loyal individuals were more likely to be compliant with their AD (Odds ratio: 1.26; 95% CI: 1.22-1.30), to use an ACEi/ARB (1.17; 1.14-1.21) and to use a lipid-lowering drug (1.15; 1.12-1.18). CONCLUSIONS: Pharmacy loyalty is associated with a better quality of AD use. It is likely due to the fact that pharmacists can better play their role in optimizing their clients’ drug use for patients loyal to their pharmacy as they can then rely on recorded drug use information that is comprehensive.

PDB45: CONTENT ANALYSIS AND EFFECTIVENESS OF INTERVENTIONS TO ENHANCE ORAL ANTIDIABETIC DRUG (OAD) ADHERENCE IN ADULTS WITH TYPE 2 DIABETES: A SYSTEMATIC REVIEW AND META-ANALYSIS

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OBJECTIVES: OAD adherence interventions are available but their pooled effectiveness has not yet been estimated. Also, in order to develop effective interventions, it is important to explore the behavior change techniques (BCTs) employed and their contribution to pooled effectiveness. This paper aimed to estimate the pooled effectiveness of OAD adherence-enhancing interventions and identify BCTs applied that had a modifying effect on the pooled estimate of effectiveness. METHODS: We performed a systematic review and meta-analysis of RCTs conducted to evaluate the effectiveness of adherence-enhancing interventions targeting adults receiving OADs. Articles were searched using PubMed, Embase, Psych-Info, the Cochrane Library, CINAHL PLUS, Current Contents Connect and Web of science, and included articles references and relevant review articles. Two authors independently selected eligible articles and coded study details including BCTs applied in intervention and
control groups. Each intervention’s effectiveness (effect size) was estimated using Hedges’s g. Pooled effectiveness and its heterogeneity (Higgins I2) were estimated using a random effect model. For BCTs applied in intervention but not in control groups, we assessed their modifying effect on the pooled effectiveness by comparing interventions in which a specific BCT was applied with those in which it was not. RESULTS: A total of 10 studies were included. Globally, the pooled effectiveness (g) was 0.21 (95%CI=−0.05−0.47; I2=82%). Out of eight BCTs analysed, cope with side-effects (P=0.003) and general intention formation (P=0.006) had a modifying effect on the pooled effectiveness. The pooled effectiveness of interventions, in which cope with side-effects was applied, was moderate (g=0.64; 95%CI=0.31−0.96; I2=56%). CONCLUSIONS: Globally, effectiveness of interventions offered in intervention groups was almost equivalent to that of those offered in control groups. However, interventions that include helping people to cope with side-effects, when this was not done for control patients, are particularly effective in improving adherence to OAD.

PDB46: DECOMPOSING GROWTH OF DIABETES DRUG EXPENDITURE IN KOREA

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OBJECTIVES: Pharmaceutical expenditure is determined by both price and volume. Volume control is important despite that public policies to control drug expenditure in Korea have focused on price control. In this study, we decomposed growth of diabetes drug expenditure in Korea. METHODS: The study used National Health Insurance Service (NHIS) claims data on diabetes drugs for 10 years between January 1, 2003 and December 31, 2012. We included new or incrementally modified diabetes drugs for which listing prices were negotiated between firms and NHIS and their generic counterparts. Drug expenditure was decomposed into price and volume. Volume is further decomposed into the proportion of monthly volume for each drug in its therapeutic class (composition mix), the proportion of sum of quantity used in new and existing drugs (therapeutic mix) for a given therapeutic group, and the total volume used for new and existing drugs (total volume). We generated Fisher’s Ideal Index to calculate contribution of each component of total drug expenditure to its growth. RESULTS: The price of diabetes drugs as a whole decreased total drug expenditure since 2006, whereas growth of volume explained most of the growth of total pharmaceutical expenditure during 2006 and 2010. Particularly between 2011 and 2012 when price decreased 12% due to nationally implemented price cut for almost all listed drugs, the volume still increased 5%. Further decomposition of volume showed that the change in the proportion of volume of new diabetes drugs in total volume minimally contributed to growth in total diabetes drug expenditure. CONCLUSIONS: Our results showed that growth in quantity (volume) index explained most of the growth in total pharmaceutical expenditure for diabetes drugs, whereas price index overall decreased for the same time period. These results imply that volume control is more critical for policy measured related to drug expenditure control.

PDB47: ESTIMATED ECONOMIC BURDEN OF INSULIN INJECTION-RELATED LIPOHYPERTROPHY IN CHINESE PATIENTS WITH DIABETES

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OBJECTIVES: Lipohypertrophy (LH) is a relatively common complication of injecting insulin. It is reported to impair insulin absorption, and may increase total daily dose (TDD) of insulin and associated costs. The economic burden of LH is unknown in China. This study aims to evaluate the effects of LH on TDD of insulin and explore potential health economic implications for China. METHODS: The following data were extracted from literature review and the IMS Health Report (Diabetes China 2013): (i) insulin-injecting diabetes population in China1, (ii) prevalence of LH among insulin-injecting Chinese patients2, (iii) TDD of insulin among patients with LH (estimated from a recent Spanish study3), (iv) average unit cost of insulin in China1. Cost of excess insulin use was calculated per annum. All monetary values were converted to 2013 RMB, with a RMB-USD exchange rate of 6.14:1. RESULTS: There are approximately 8.4 million insulin injectors in China, mostly type 2 diabetes (T2D)1. The prevalence of LH in China was previously reported to be 31%2. In the Spanish study, patients with T2D and LH used 21 IU/day more insulin3; we estimated 15 IU/day excess usage vs non-LH injectors in China. The average insulin price in China is 0.215 RMB per IU1. The estimated cost of excess insulin use due to LH is approximately 3,065,233,500 RMB ($498,991,500 USD) per year. CONCLUSIONS: LH may represent a significant, addressable, economic burden in China due to excess insulin consumption. Taking steps to reduce LH may reduce healthcare costs in China. Additional studies should be conducted on LH prevalence, glycemic control (HbA1c, hyper- and hypoglycemia) and health resource utilization patterns specifically among the Chinese insulin-injecting population to validate and extend these findings. 1.IMS Health Report, Diabetes- China December 2013 2.De Coninck C, et al. J Diabetes. 2010;2:168-79. 3.Blanco M, et al. Diab Metab 2013;39:445-53
**PDB48: APPLICATION OF MEDICINES SCORING SYSTEM (MEDSS) : POTENTIAL SAVINGS THROUGH DRUG FORMULARY REVIEW OF SULPHONYLUREAS**

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**OBJECTIVES:** Sulphonylureas available in Malaysia include glibenclamide, gliclazide, glimepiride and glipizide providing varying degree of benefits and risks. In this study we review and compare overall utility values of sulphonylureas using medicines scoring system (MedSS). **METHODS:** MedSS, a previously developed scoring framework based on multicriteria decision analysis (MCDA) that systematizes evaluation of drug attributes was used. An expert panel of 3 endocrinologists, 1 family physician and 5 pharmacists were formed. A group of medicine reviewers assisted in evidences search and reviews. Through expert panel discussions, drug attributes were identified and weighted. Based on evidences, attribute scores were allocated and added up to provide total utility score (TUS). Cost savings was calculated based on 25% reduction in utilization of drug with the lowest TUS. **RESULTS:** Attributes identified and selected for analysis were efficacy (clinical efficacy, clinical endpoints), safety (interactions, side-effects, hypoglycaemia, documentation, cardiovascular effects, combination with insulin and use in special population), patients’ acceptability (formulation, dose frequency, weight change) and cost. The average weights assigned by panel members for efficacy, safety, patients acceptability and cost were 23.89%, 43.89%, 20.33%, and 11.89%, respectively. Gliclazide scored consistently high for both efficacy and safety attributes resulting in TUS of 68.5 and 67.4 for gliclazide modified release and gliclazide respectively. Safety concerns lowered the TUS for glibenclamide to 56.8. Potential direct savings on drug costs was estimated to be over RM3 million per year resulting from reduction in glibenclamide utilization from 30% to 5%. **CONCLUSIONS:** MedSS successfully organized the attributes and utilities of the drugs compared, distinguishing gliclazide as the superior alternative. Providing patients with access to drugs of higher TUS could additionally results in indirect savings beyond drug costs. Moreover, benefits of clinicians’ involvement are twofold: better acceptance of any changes to the formulary list leads to improved prescribing pattern that could also positively impact drug expenditures.

**GASTROINTESTINAL DISORDERS**

**GASTROINTESTINAL DISORDERS - Clinical Outcomes Studies**

**PG1: PHARMACOLOGICAL REGIMENS FOR ERADICATION OF HELICOBACTER PYLORI: AN OVERVIEW OF SYSTEMATIC REVIEWS AND NETWORK META-ANALYSIS**

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**OBJECTIVES:** Half of the world’s population is estimated to be infected with Helicobacter pylori (H. pylori), a bacterium shown to be linked with a series of gastrointestinal diseases. A growing number of systematic reviews have been published comparing the effectiveness of treatment regimens in the eradication of H. pylori, but have not reached a consistent conclusion. This study provides an overview of systematic reviews of pharmacological therapies for the eradication of H. pylori. **METHODS:** We searched major electronic databases from 2002 to 2013. Studies were considered eligible if they included RCTs comparing different pharmacological regimens for treatment of patients diagnosed as H. pylori infected and pooled the eradication rates in a meta-analysis. A modified version of ‘A Measurement Tool to Assess Systematic Reviews’ (AMSTAR) was used to assess the methodological quality. Where appropriate, network meta-analysis of proton pump inhibitors (PPI) or antibiotics within treatment regimens was conducted. **RESULTS:** 24 systematic reviews with pairwise meta-analysis were included. In triple therapy, more recently published studies tend to suggest new generation PPIs (esomeprazole and rabeprazole) achieve greater eradication rates than the older generation (omeprazole, pantoprazole and lansoprazole); furthermore, moxifloxacin and levofloxacin were both associated with greater effectiveness and lower risk of adverse events than clarithromycin. When comparing triple and bismuth based therapy, the relative effectiveness appeared to be dependent on the antibiotics within the triple therapy. A network meta-analysis based on the data from the systematic reviews was able to provide ranking of relative effectiveness of individual PPIs. **CONCLUSIONS:** Current clinical guidelines do not distinguish between individual PPIs or antibiotics. However, our analysis of the recent evidence suggests that the new generation of PPIs and use of moxifloxacin or levofloxacin in triple therapy were associated with greater effectiveness of H. pylori eradication.
PG1: TC-325 IN THE MANAGEMENT OF UPPER AND LOWER GI BLEEDING: A TWO-YEAR EXPERIENCE AT A SINGLE INSTITUTION

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OBJECTIVES: TC-325 is a novel endoscopic hemostatic powder, recently adapted for gastrointestinal (GI) bleeding. However, data on its use, effectiveness, safety, and indications are very limited. To describe a single-centre experience with TC-325 use in a variety of pathologies from the upper and lower GI tract focusing on hemostasis, residency time of the powder on the lesion, and safety. METHODS: Retrospective chart review of all patients identified through a dedicated endoscopic database as having received TC-325 therapy between July 2011 and July 2013. Primary endpoints include initial hemostasis and early rebleeding (≤72 hours). Data on residency time of the product, delayed rebleeding, transfusion and intensive care requirements, need for angioembolization, radiation therapy, and emergent surgery, routine second-look endoscopy and complications associated with TC-325 were also recorded. RESULTS: Overall there were 67 treatments using TC-325 in 60 patients. Their mean age was 68.1 years ± 13.5, with a male predominance of 65%. There were 21 treatments for non-malignant non variceal upper GI bleeding, 19 for malignant upper GI bleeding, 11 for lower, and 16 for intra-procedural bleeding/prophylaxis therapy. Initial hemostasis was achieved in 66 cases (98.5%), with 6 cases (9.5%) of early rebleeding and 9 cases (14.3%) of delayed rebleeding. No serious adverse events were noted. Remnants of TC-325 powder were not identified even when second-look endoscopy was performed within 24 hours. CONCLUSIONS: To our knowledge this is the largest retrospective observational study looking at TC-325 in variety of pathologies in the upper and lower GI tract. Initial hemostasis was excellent; subsequent rebleeding rates varied according to etiology and appearance of lesions. The residency time of the powder was short-lived with complete elimination from the GI tract within 24 hours of use based on a few observations. No serious adverse events were noted.

PG2: CHEWING A GUM: EFFECT ON SALIVATION, PASSING OUT OF FLATUS, BOWEL MOVEMENT AND GASTRIC MOTILITY AMONG FILIPINO ELDERLY

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OBJECTIVES: This study aims to determine the effectiveness of chewing a gum on salivation, passing out of flatus, bowel movement and gastric motility among Filipino elderly. METHODS: The study utilized a quasi-experimental design. A non-probability purposive sampling was utilized in subjects (n=20) selection with inclusion criteria being: (a) Filipino elderly aged 60 years old and above (b) able to chew (c) not taking any laxatives (d) willing to participate. Purposive sampling method was used, divided the respondents into: experimental and control group. Experimental group consisted of 10 subjects while control group 10 subjects. Study was conducted consecutively three days. Lunch was served with a 10 minutes post-lunch rest. The experimental group was given three pellets of chewing gum followed by a rest period of ten minutes-time allotted for masseter muscle to relax. Respondent's physiologic changes such as salivation, passing of flatus and bowel movement were monitored, data documented. Second phase of gum chewing performed and same process followed. RESULTS: Data revealed that outcome of each elderly in relation to the three physiological processes varies. Salivation yielded a p-value of 0.045 (p value <0.05), passage of flatus obtained a p-value of 0.001 (p value <0.05) and bowel movement has p-value of 0.0429 (p value <0.05), which means there is significant difference between the chewing gum and the non-chewing gum in terms of these three variables. CONCLUSIONS: Chewing a gum is an effective intervention in enhancing gastric motility among elderly.

PG3: PREGNANCY OUTCOMES IN WOMEN WITH INFLAMMATORY BOWEL SYNDROME FOLLOWING EXPOSURE TO THIOPURINES AND ANTI-TUMOR NECROSIS FACTOR DRUGS: A META-ANALYSIS AND SYSTEMATIC REVIEW

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OBJECTIVES: Besides the great concern about safe choices during pregnancy in inflammatory bowel disease (IBD) patients, several current trials have indicated the harmful effect of flare-up periods in pregnant women with IBD on their newborns more than continuing maintenance therapy. Therefore, an effective medical treatment is of great importance and necessary during pregnancy. Our aim was to perform a meta-analysis on the outcomes of thiopurines use and a systematic review of anti-TNF drugs use during pregnancy in women with IBD. METHODS: All cohort studies in which evaluated the pregnancy outcomes of thiopurines and/or anti-TNF drugs during pregnancy in IBD women up to 2013 July were collected and analyzed. In the meta-analysis a total of 312 pregnant women with IBD that used thiopurines were compared to 1149 controls to evaluate the drug
effect on different pregnancy outcomes including prematurity, low birth weight, congenital abnormalities, spontaneous abortion and neonatal adverse outcomes. **RESULTS:** Results of statistical analysis demonstrated that, congenital abnormalities were increased significantly in thiopurine exposed group in comparison to control group that did not receive any medicines for IBD treatment. The summary OR was 2.95 with 95% CI = 1.03 to 8.43 (P = 0.04). We have observed no significant differences in occurrence of other adverse pregnancy outcomes between compared groups. The results of cohorts that evaluated the safety of anti-TNF drugs during pregnancy demonstrated no increase in occurrence of adverse pregnancy outcomes in compare to controls except for the significant decrease in gestational age of newborns of drug exposed mothers in one trial. **CONCLUSIONS:** In conclusion due to the limited existing evidence, benefit-risk ratio should be considered in prescribing or continuing medicinal therapy during pregnancy.

**GASTROINTESTINAL DISORDERS - Cost Studies**

**PGi5: ECONOMIC EVALUATION OF VIRAL LOAD TEST (VLT) IN RESPONSE GUIDED TREATMENT (RGT) FOR CHRONIC HEPATITIS C (CHC)**

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**OBJECTIVES:** To assess the health effectiveness, cost and cost-effectiveness of different Viral Load Test (VLT) in Response Guided Treatment of peg-interferon alpha-2a plus ribavirin for chronic hepatitis C. **METHODS:** Decision tree of COBAS test and domestic test were developed on the basis of Response Guided Treatment (RGT), and short term test efficacy, treatment response and long term outcomes of SVR or Non SVR were derived from literatures. **RESULTS:** The long term result of COBAS test plus standard treatment was 30.57LYs and 19.11QALYs, the while total cost was 70,287.91CNY. 30.34LYs and 18.89QALYs were acquired by domestic test while the total cost was 74,151.83CNY. Relatively, 0.23 QALYs (0.23LYs) were prolonged and 3.864CNY was saved per CHC patient via COBAS test compared with domestic one, which also denoted COBAS test to be a less costly and more effective / dominant measure. In addition, sensitivity analysis showed the result was not sensitive to main indicators, including test price, week-4 and week-12 treatment response rate, week-4 and week-12 false negative rate of domestic test, SVR rate of 24-week treatment for cEVR, and proportion of non-EVR in RNA positive in 12th week. **CONCLUSIONS:** Compared with domestic HCV RNA test, for the short term treatment course, COBAS test can identify RVR & EVR more accurately, make more appropriate decisions of course period and have more patients achieve SVR. And in long term perspective, COBAS test plus appropriate course of treatment can prolong patient’s life year, improve patient’s life quality as well as decrease total medical expense due to less disease progress.

**GASTROINTESTINAL DISORDERS - Health Care Use & Policy Studies**

**PGi6: DRUG UTILIZATION REVIEW OF ACID SUPPRESSANTS (DURABLE) – AN AUDIT TO ASSESS THE UTILIZATION OF PROTON PUMP INHIBITORS AND HISTAMINE H2-RECEPTOR ANTAGONISTS IN CANADIAN HOSPITALS**

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**OBJECTIVES:** Inappropriate utilization of proton pump inhibitors (PPI) and H2-receptor antagonists (H2RA) in inpatients is prevalent, but poorly defined. We undertook a rigorous national audit to allow the standardization of grading system for appropriate use. **METHODS:** Medical and demographic data were collected for all in-patients receiving a PPI or H2RA. Regimens reviewed included intravenous bolus PPI or H2RA (IVb), intravenous high dose continuous infusion PPI or H2RA (IVci = bolus followed by ci), and oral PPI or H2RA (PO); and were categorized as Endorsed or Not Endorsed [N-E]. Multivariate modeling was performed to assess predictors of E and N-E use. **RESULTS:** Over 6 months, 1720 patients (age: 64.0±16.7 y, 43% women) receiving 2890 drug regimens were included from 21 Canadian institutions. 28% were taking a PPI and 7% an H2RA before admission. 95% of in-hospital drug regimens used a PPI and only 5% a H2RA. 32% of drug regimens were endorsed. Proportions for E and N-E uses were 28.0 [25.5,30.7] and 72.0 [69.3-74.5], 18.2 [15.1-21.7] and 81.8 [78.3-84.9], and 42.9 [40.0, 45.8] and 57.1 [52.2, 60.0] for IVb, IVci, and PO respectively. The most common indication was upper GI bleeding (70% of IVci, 79% N-E; 18% of IVb, 69% N-E; 25% of PO regimens, 77% N-E). Stress ulcer prophylaxis was the prescribing indication in 8% of IVb (94% N-E), and 6% of oral (88% N-E). Independent predictors of E were suspicion of UGIB (for IVci and PO regimens), time of drug administration (for IVci and IVb), and sex (for IVci). **CONCLUSIONS:** Existing consensus recommendations provided no guidance as to appropriateness of use in up to 40% of regimens. Endorsed use was
noted in only 28% of IVb, 18% of IVci, and 43% of PO regimens. These data will help guide future guideline recommendations to optimize in-hospital prescribing of acid suppressants.

INDIVIDUAL'S HEALTH

INDIVIDUAL'S HEALTH - Clinical Outcomes Studies

**PIH1: ADVERSE DRUG EVENTS: HOW INFORMATION TECHNOLOGY WILL MEET THE CHALLENGES OF PHARMACOVIGILANCE**

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**OBJECTIVES:** Polypharmacy has been associated with functional decline and adverse outcomes in vulnerable population and with an increased risk of Adverse Drug Events (ADE), particularly in fragile patients such as the elderly with complex medical conditions. Aim of this observational study was to describe and evaluate ADE in patients with polypharmacy by a digital health service that prevents Drug-Drug Interactions (DDI) using the social security number (SSN).

**METHODS:** A cohort of 369 patients was identified through a closed loop, fully automated system that records and updates all the drugs taken during therapy cycle/s by specifically designed software interfaces loaded on Information and Communication Technology programs of the network. The tool was designed to support General Physicians in clinical decisions, providing them information about prescribed drugs/over the counter (OTC)/herbs, detailing dosage, comorbidity, number of packages and pills per package, prescription/purchase date.

**RESULTS:** About 30% of patients shown 1 comorbidity and 11.8% 2 or more. Cardiovascular diseases (22.7%) represented the most frequent comorbidity, followed by musculoskeletal pathology (13.6%), diabetes (8.6%), cancer (5.1%), and depression (4.8%). The Charlson Comorbidity Index was 0 in 65.2%, 1 in 25.7%, 2 in 7.0% and 3 to 4 in 2.1%. A total of 67 patients (mean age 72 years; 52.2% women) had at least 1 DDI. About 50% (N = 33) had up to 2 DDIs, 25% from 3 to 7 DDIs and 25% ≥8 (from 9–74 DDIs per person). A total of 501 DDIs were identified: the severity was low in 35.5%, moderate in 59.7% and high in 4.8%. The top 10 drugs involved in DDI were: acetylsalicylic acid (ASA), hydrochlorothiazide, ibuprofen, diclofenac, digoxin, nebivolol, pantoprazole, ramipril, furosemide and nimesulide.

**CONCLUSIONS:** ICT technologies are useful to timely identify DDIs of clinical relevance and the drugs most frequently involved.

**PIH2: MODELING TO PREDICT SEVERE MATERNAL MORBIDITY BASED ON 33993 DELIVERIES OF REGISTERED STUDY IN CHINA**

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**OBJECTIVES:** To set a model to predict the Severe Maternal Morbidity (SMM) and specify the risk factors based on a registered study in Sichuan province, China.

**METHODS:** Overall 33993 deliveries of 8 hospitals in Sichuan province of China were consecutively collected between January 1, 2009, and December 31, 2010 in our database. The forward and backward stepwise regression methods were adapted respectively to screen independent risk factors of SMM, and a logistic model was set to predict the SMM by STATA 12.0. The areas under receiver operator characteristic (ROC) curve and agreement rate were used to evaluate the prediction model.

**RESULTS:** Three kinds of unexpected surgeries, transfusion, hysterectomy, ICU care, Multiple Organ Dysfunction Syndrome (MODS) were chosen as the outcomes of SMM by literature review and expert consensus. The rate of SMM was 2.30% in 33993 deliveries. All specified and substantially significant risk factors were divided in four aspects. Social characteristics included the hometown location of pregnant women. Pre-delivery characteristics were gestational weeks, multiparity, abnormal pregnancy history, PPH history and smoking. The coexisted diseases and complications of pregnancy were gestational hypertension, preeclampsia and eclampsia, other gestational hypertension diseases, placenta previa, placenta increta, hematological disease, cardiac disease and gynecological diseases. The delivery characteristics contained styles of onset labor, midwifery, episiotomy, macrosomia, fetal death, premature rupture of membrane, uterotonic treatment. The areas under ROC curve and agreement rate were 0.87 and 98.05% respectively. **CONCLUSIONS:** SMM can reflect the severe degree of maternal outcomes indirectly, but also illustrate potential maternal health in a country or area by providing information to influence the delivery of health services and health policy. Our model specified dozens of risk factors and had considerably higher value of ROC area and agreement rate. We will perform the prospective research to predict and prevent the SMM in future.
PIH3: THE EFFICACY OF OXIMES IN ACUTE ORGANOPHOSPHORUS POISONING; AN UPDATED SYSTEMATIC REVIEW AND META-ANALYSIS

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Abstract OBJECTIVES: The present study is a meta-analysis of clinical studies conducted to evaluate the efficacy of oximes in the treatment of organophosphorus (OP) intoxicated patients. METHODS: PubMed, Scopus, Google Scholar, and clinicaltrials.gov were searched for studies investigated the effects of oximes in the treatment of OP poisoning. Mortality, intermediate syndrome, intensive care unit (ICU) admission rate, and intubation rate were the key outcomes of interest. Data were searched in the time period of 1966 through December 2013. RESULTS: Ten studies (nine clinical trials and one historical cohort) that met our criteria were included in the analysis. Pooling of data showed that relative risk (RR) of need for intubation in OP poisoning for eight included trials comparing oximes to placebo was 1.27 with 95% CI= 0.73 to 2.23 (P= 0.4). RR of only one observational study was 1.57 (95% CI= 0.79 to 3.2, P>0.05). The summary of RR for mortality rate in 9 studies was 0.38 (95% CI= 0.65 to 2.97, P= 0.41) and for one observational study was 1.33 (95% CI= 0.54 to 3.29, P>0.05). The RR for ICU admission rate in OP poisoning for three trials comparing oximes to placebo was 2.12 with 95% CI= 0.89 to 5.03 (P= 0.09). For only one observational study, RR was 0.81 (95% CI= 0.49 to 1.25, P>0.05). For intermediate syndrome, while the RR of only one trial comparing oximes with placebo was 1.89 (95% CI= 1.27 to 2.91, P<0.05) while for only one observational study, it was 1.43 (95% CI= 0.7 to 2.96, P>0.05). CONCLUSIONS: According to these data, oximes beneficence in OP poisoning is unclear and if administered, great caution must be exercised because of increase in ICU admission rate and incidence of intermediate syndrome. Keywords: Organophosphorus, oxime, poisoning, meta-analysis

PIH4: EFFECT OF VITAMIN E ON THE VAGINAL ATROPHY OF POSTMENOPAUSAL WOMEN

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OBJECTIVES: Vaginal atrophy is a silent epidemic that affects up to 50%-60% of postmenopausal women. Local, low-dose estrogen preparations are considered first-line pharmacologic treatment. For women concerned about hormone use a number of over-the-counter (OTC) vaginal moisturizer and lubricant products are considered first-line nonhormonal treatments. It has been reported that vitamin E vaginal gel improved the symptoms of vovlovaginal atrophy However, oral vitamin E has never been well tested in a randomized clinical trial for efficacy against vaginal atrophy. Therefore the objective of this study is to assess the effect of vitamin E on the vaginal maturation index (VMI) of post menopausal women. METHODS: Participants in this phase-controlled randomized cross over trial were 60 menopausal women who 4-12 months passed from their menopause. After randomization the women were given medication blister pack cards that contained an 8-week supply of study medication (400IU vitamin E or placebo daily). Following 1-week no treatment , baseline period, the first group received one vitamin E soft gel daily (400IU dl-Alpha-tocopheryl acetate) while the second group received placebo for four weeks. In order to eliminate the carry over effect of cross over trial, one week washout was considered. Then the medication was reversed for each group and the study was continuing for another four weeks. Vaginal maturation index of the women before any intervention and after the first and second stage of treatment was evaluated. RESULTS: The study groups were homogeneous regarding age, BMI, time since menopause, educational and job status. No statistically significant differences were observed in the percentage of superficial, intermediate and parabasal cells within the groups at baseline and after the first and second stage of treatment. CONCLUSIONS: Based on our trial treatment with vitamin E for 4 weeks has no effect on the maturation of the vaginal epithelium in postmenopausal women.

PIH5: EFFICACY OF ATROPINE ALONE AND WITH GLYCOPYRROLATE COMBINATION IN ORGANOPHOSPHATE POISONING

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OBJECTIVES: To assess and compare the efficacy of atropine and atropine with glycopyrrolate combination in organophosphate poisoning. METHODS: A retrospective study was conducted in a tertiary care teaching hospital of South India. Data was collected retrospectively from medical record section from 2012 to 2013 in a suitable designed case record form. Data was analysed by using SPSS 20.0 with chi-square and one way anova. RESULTS: Total of 199 cases of organophosphate poisoning was documented out of which 135(67.8%) were males and 64(32.2%) were females. The average age in this group of patients was found to be 34.22 + 14.26. The average pre-hospitalization period was 1.58 + 2.07 days. Among them majority of the cases were suicidal (94.5%). A total of 159 patients received only atropine as treatment with an average hospital stay of
12.66 (SD= 11.88) days and a mean of 8.71(SD= 10.03) days duration in ICU. Whereas the other 40 patients received both atropine and glycopyrrolate as treatment with an average stay of 15.68 (SD=12.76) days and a mean of 12.12 (SD=10.40) days duration in ICU. Amongst the 159 patients who received only atropine 40.9% received ventilation and for the other 40 who received atropine and glycopyrrolate only 60% received ventilation. Out of the 159 patients who received only atropine 7.6% underwent tracheostomy and 25.8% were found to have intermediate syndrome, whereas for patients who received both atropine and glycopyrrolate 15.4% underwent tracheostomy and 35% were found to have intermediate syndrome. **CONCLUSIONS:** Efficacy of two regimens reveals that atropine was found to be more effective when given alone when compared with atropine and glycopyrrolate combination in OP poisoning.

**PIH6: WITHDRAWN**

**PIH7: THE EFFECTIVENESS OF FIRST TRIMESTER COMBINED SCREENING ON REDUCING THE RATE OF INVASIVE GENETIC PROCEDURES IN A CITY BASED POPULATION OF HUNGARY 2010-2013**

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**OBJECTIVES:** To assess the effectiveness of combined biochemical and ultrasound screening for chromosomal abnormalities in the first trimester of pregnancy on reducing the rate of invasive genetic procedures in a city based population on Hungary. **METHODS:** Previously women aged 35 years or more had access to chorionic villus sampling (CVS) or amniocentesis (AC). A private prenatal diagnostic center offered a population based screening protocol irrespective of maternal age. Invasive testing was performed for women having a combined risk for fetal aneuploidy> 1:250. Total number of 4611 singleton and twin pregnancies in the gestational age of 11+0 and 13+6 weeks were enrolled between November 2010 and August 2013. Maternal serum level of pregnancy associated protein-A (PAPP-A) and free-beta human chorionic gonadotropin (free β-hCG) were determined by KRYPTOR (Brahms-Thermofisher Gmbh, Germany). **RESULTS:** The screening rate in this city based population was 60%. 277 (6,3%) women had a positive first trimester screening result. There were 16 fetuses with Down’s syndrome and 14 fetuses with other chromosomal abnormalities diagnosed. The sensitivity and specificity were 100% and 95%, the false positive rate was 4,5% and the false negative rate was 0%. The positive predictive value of the test was 11%, the negative predictive value was 100%. The number of pregnancies in which an invasive test was performed decreased from 518 in 2005 to 295 in 2013, or by 44%. The proportion of women aged less than 35 years increased, while the rate of women over 35 decreased in this invasive group. **CONCLUSIONS:** It is possible to change the pattern of invasive prenatal procedures and reduce the proportion of women having CVS or amnio. Efficient information is needed to increase the screening rate, especially in a self-financed system, where the public health insurance does not cover this type of nationwide screening.

**PIH8: BURDEN OF DISEASE IN ASIAN COUNTRIES AND THE USE OF DISABILITY-ADJUSTED LIFE-YEARS AND QUALITY-ADJUSTED LIFE-YEARS**

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**OBJECTIVES:** Disability-adjusted Life-years (DALYs) and Quality-adjusted Life-years (QALYs) are two measurements commonly used in healthcare evaluations; however the specific disease areas where they are most applicable are not fully defined. The objective of this study was to review the use of DALYs and QALYs in trials taking place in China and Thailand and review the relationship with disease burden. **METHODS:** PubMed was searched for studies published after 01/01/2004 reporting DALYs and QALYs for communicable and non-communicable diseases in China and Thailand. Data on disease burden were obtained from the World Health Organisation’s (WHO) ‘Mortality and Burden of Disease Estimates for WHO Member States in 2004’ database. **RESULTS:** 117 studies were included for China; 79 reported QALYs and 38 reported DALYs. 34 studies were included for Thailand (QALYs: 28; DALYs: 6). Of trials reporting QALYs, 74.7% of Chinese and 78.6% of Thai trials focussed on non-communicable disease; the most commonly investigated disease was cancer. Of trials reporting DALYs, 44.7% of Chinese and 16.7% of Thai trials focussed on non-communicable diseases. In terms of the disease burden, communicable/non-communicable diseases account for 24.6%/75.4% and 33.7%/66.3% of the burden in China and Thailand respectively. Leading causes of disease burden were cerebrovascular disease (7.7%) and HIV (12.0%) in China and Thailand respectively. **CONCLUSIONS:** A dual burden of disease was observed in Asian countries in terms of non-communicable/communicable diseases. The QALY was the preferred measure for non-communicable diseases in China and
Thailand. While the DALY is used equally in communicable and non-communicable diseases in China, it is used predominantly for non-communicable diseases in Thailand. This presents a challenge to healthcare managers; while it is clear that QALY is used mostly for non-communicable diseases, the most appropriate use of the DALY is unclear. Further research into the characteristics of diseases within these categories is required.

PIH9: WITHDRAWN

INDIVIDUAL’S HEALTH - Cost Studies

PIH10: USING HORMONAL CONTRACEPTION REDUCE UNINTENDED PREGNANCY IN CHINA

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OBJECTIVES: The potential high-unintended pregnancy rates have resulted in great productivity loss in China. Several contraceptive methods have been introduced by both the providers and the woman themselves to reduce the unintended pregnancy rates. A cost-benefit analysis on various hormonal contraceptive methods was performed in order to provide references for contraception selection in China. METHODS: A decision-tree model was used to compare contraception costs and effects among different contraceptive methods. All women were classified into three contraception profiles (continuation, discontinuation and switch, discontinuation and drop-out). Outcomes included no pregnancy, pregnancy with no birth and birth. All the probabilities, medical and medication data in this model were derived from the literature and interviews. RESULTS: A comparison of total estimated yearly and cumulative costs indicated that contraceptive implants, transdermal contraceptive, extended-cycle OC, vaginal ring, and IUD were less costly, less than $281733.7 in a three-year study period. While transdermal contraceptive, extended-cycle OC and vaginal ring were not available in the Chinese market, contraceptive implants and IUD were the only two choices in China with lowest cumulative costs. The further cost-benefit analysis also demonstrated contraceptive implants as good value for money. Using contraceptive implants were proved to have the lowest cost of pregnancy from failure of $839.9, with a total cost of $26814.9, and a benefit-cost ratio of 2.2, far over 1.0. Sensitivity analysis by tornado diagrams showed that cost of pregnancies, age and proportion of discontinuation and switch might have the greatest impact on the costs and failure risks of contraceptive implants. CONCLUSIONS: In order to reduce the unintended pregnancy rates, the implementation of hormonal contraception may lead to a benefit in terms of both costs and effects. And among all the hormonal contraception in the Chinese market, contraceptive implants tend to generate greater economic benefits. Note: 1US dollar=6.46 Chinese yuan

PIH11: DISEASE BURDEN OF UNINTENDED PREGNANCY IN CHINA

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OBJECTIVES: China is a big country with a large population. Reproductive health education is not sufficient for women of childbearing age, which leads to high unintended pregnancy (UP) rate. These represent a significant cost to the health care system. This study analyzes the epidemiology and productivity loss of unintended pregnancy in China. METHODS: The study reviewed published scientific articles and policy documents related to unintended pregnancy in China. We retrieved literature from Wanfang and PubMed databases, and searched policy documents in websites of National Bureau of Statistics and National Center for Women and Children’s health, China CDC. RESULTS: Almost 10% of fertile women have UP in China each year. There are four different results of UP, including miscarriage, elective abortion, ectopic pregnancy and delivery. There are two methods of elective abortion, including operation abortion and drug abortion. The costs of operation and drug abortion are about US $131.58 and $100.62 in early pregnancy respectively, and $154.80 and $464.40 in the second trimester respectively. Drug abortion costs are much more in the second trimester because of complications. The incidence of ectopic pregnancy is about 4.4%, and there are three therapeutic methods. The costs of laparoscopic operation and open abdominal surgery are more than drug conservative treatment. The costs are between $309.60 and $1393.19. Delivery has three possibilities. Vaginal delivery accounted for 52.6%, and cesarean section accounted for 46.2%. The incidence of premature birth is about 6.36%. Vaginal delivery and cesarean section will cost about $387.00 and $619.20 respectively. The costs of premature birth range from $928.80 to $1547.99, and the costs will be increased with high likelihood of neonatal weight. CONCLUSIONS: UP poses a heavy economic burden in China, but the economic burden could be reduced if fertile women receive more reproductive health education, get appropriate treatment and have periodical prenatal examination.
PIH12: AN UPDATE OF COST-EFFECTIVENESS OF ROTAVIRUS VACCINATION IN INDONESIA: TAKING A BIRTH-DOSE VACCINATION STRATEGY INTO ACCOUNT

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OBJECTIVES: Rotavirus infection was reported as the major cause of severe diarrhea in children under 5-years-old in Indonesia. A low cost rotavirus vaccine to protect infants from birth has been developed for developing countries, such as Indonesia. This study aims to update our initial analysis on the cost-effectiveness of rotavirus vaccination in Indonesia, taking a birth-dose vaccination strategy explicitly into account. METHODS: An age-structured cohort model was developed for the 2013 Indonesia birth cohort. Applying different rotavirus vaccine efficacies for formula-fed and breastfed infants, we compared two vaccination strategies: (i) three-dose schedule at 2, 3 and 4 months of age, and (ii) three-dose schedule at 0, 1, and 2 months of age. We applied a 5-year-time-horizon with 1 monthly analytical cycles for children less than 1 year of age and annually thereafter. Also, we used Monte Carlo simulations to examine the economic acceptability and affordability of the rotavirus vaccination. RESULTS: Rotavirus vaccination would reduce rotavirus-diarrhea cases in children under 5-years-old by 475,806 and 489,259 cases for the first and second strategies, respectively. Considering a market price of US$ 5 per dose, the Indonesian government would require budgets of US$ 65.0 million and US$ 65.3 million for the first and second strategies, respectively. The incremental cost-effectiveness ratios were US$ 150 and US$ 146 for the first and second strategies, respectively, which were much lower than the 2013 Indonesian Gross Domestic Product (GDP) per capita of US$ 4,790 CONCLUSIONS: The implementation of a birth-dose rotavirus vaccination strategy in Indonesia would be more cost-effective than a later vaccination schedule. The mortality rate and vaccine price were the most influential parameters impacting the cost-effectiveness results.

PIH13: THE PHARMACOECONOMICS REVIEW OF 7-VALENT PNEUMOCOCCAL CONJUGATE VACCINATION IN ASIAN-PACIFIC REGION

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OBJECTIVES: Since 2000, when the PCV7 (7-valent Pneumococcal Conjugate Vaccine) gradually went public, lots of cost-effectiveness evaluations on it have been done in Euro-American countries. In contrast, there is little economic review on PCV7 in Asian-Pacific region. This review comprehensively evaluated the cost and benefit of introducing PCV7 into the national immunization plan (evaluation include with and without the herd effect) of the Asia-Pacific region, to serve as a policy reference for the Asian-Pacific regions in their immunization plans. METHODS: All articles were identified from PubMed and Embase database between January 1st, 2002 and June 30th, 2013 in Korea, Hong Kong, Malaysia, Singapore, Australia and Japan. The following keywords were used: cost, cost-effectiveness, pneumococcal diseases and pneumococcal conjugate vaccine. Results were collected in terms of different assumptions, such as incidence ratios, vaccine uptake rate, and duration of protection and so on. Costs included both direct and indirect cost. RESULTS: The clinical benefits and cost effective results varied from country to country. For illnesses avoided, the results varied between 4,030 and 30,040 per year. In terms of deaths avoided, the number of events varied between 14.2 and 643 per year. Studies that considered herd effects reported much more favorable cost-effectiveness than those that did not, with the ICERs US$5,929/LYG in Hong Kong, US$10,261/LYG in Malaysia, US$43,275/QALY in Singapore from social perspective. CONCLUSIONS: With respect to the WHO’s classification that an intervention is cost-effective if ICER is between 1 And 3 times of GDP, universal PCV7 vaccination would be considered cost-effective in Hong Kong, Malaysia and Singapore.

PIH14: WITHDRAWN

INDIVIDUAL’S HEALTH - Patient-Reported Outcomes & Patient Preference Studies

PIH15: PARTIAL REIMBURSEMENT OF ANTIVIRAL AGENTS FOR HBV: IMPACT ON ANTIVIRAL UTILIZATION AND COMPLIANCE

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OBJECTIVES: To determine the impact of partial reimbursement on antivirals which was first implemented in July 1, 2011 on
antiviral utilization and compliance for CHB patients in Beijing. METHODS: Two separate cohorts were enrolled. These consisted 14,163 CHB outpatients who were referred to Beijing You'an Hospital during Jan 1, 2010 to Dec 30, 2010 and 16,228 between Jul 1, 2011 and Jun 30, 2012. Follow-up ended on Jun 30, 2011 and Dec 31, 2012, respectively. Demographic characteristics, routine biochemical and virological detection results, and antiviral prescription information were collected from electronic database. Antiviral utilization, medication possession ratio (MPR) and persistence rate were compared between patients with medical insurance (PMI) and paid out-of-pocket (PPO). Questionnaire survey was given to randomly sample 307 outpatients to confirm the validity of the electronic database. RESULTS: A total of 13,364 outpatients from each cohort were enrolled after propensity score matching. The antiviral utilization rate for PMI increased from 57.4 to 75.9% (P<0.001) after the reimbursement policy and the rate among PPO increased from 54.9 to 56.7% (P=0.028). A 5% increase (83.4%±24.3 vs. 88.7%±19.4, P<0.0001) in MPR was observed among PMI after reimbursement and an increase of under 2% was observed among PPO (83.7±24.2 vs. 85.2±23.1, P=0.0055). About 71% of the patients had more than 80% MPR in each cohort before reimbursement. This increased to 79.3% (P<0.0001) and 73.0% (P=0.0228) for PMI and PPO, respectively. PMI had a higher 6-, 12-, 15-month persistence rate than PPO, especially for outpatients receiving ETV and ADV. The questionnaire with 100% respond rate showed that more than 90% outpatients only took antiviral medicine at You’an Hospital, suggesting the validity of the electronic database. CONCLUSIONS: The new reimbursement policy showed a positive impact on antivirals utilization as well as compliance for insured CHB patients, especially for patients receiving ETV and ADV.

PIH16: JOINT MODELING OF PRIMARY AND SECONDARY NON-ADHERENCE OUTCOMES

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OBJECTIVES: Medication non-adherence to chronic therapies may severely impact effectiveness of treatment. Non-adherence may occur at different stages in a patient’s treatment journey. It may occur at the very beginning of therapy if a patient receives the initial prescription but does not redeem it at a pharmacy (primary non-adherence), or it may happen after the patient fills a prescription at a pharmacy but fails to follow the instructions or fails to refill the prescription (secondary non-adherence). METHODS: The purpose of this study is to demonstrate that both primary and secondary non-adherences can be jointly described by a hurdle model, which has the interpretation as a two-part model. The first part is a binary outcome model, and the second part is a truncated count model (Poisson or negative binomial). The hurdle model is an example of the finite mixture models which can be fitted by SAS’s new procedure `FMM. RESULTS: Data in this retrospective cohort study of medication non-adherence was obtained from blind computerized pharmacy records of a national retail pharmacy chain. Primary non-adherence was defined as a binary outcome representing failure to fill a new prescription within 30 days after the medication was prescribed to the patient and secondary non-adherence was defined as a number of refills obtained by a patient within a 12 month follow up period. Various measured patient, prescription, and prescribing physician characteristics were included in the model. Hurdle model results indicate that important predictors are missing from the single-component models, but exist in the joint model of primary and secondary non-adherence. CONCLUSIONS: The authors conclude that a hurdle modeling approach enables the taking of simple, well-understood models primary (logistic regression) and secondary non-adherence (count regression) and combine them in a way that provides a better description of the data than a single-component models provide separately.

PIH17: A QUALITATIVE ASSESSMENT OF DOCTORS PERCEPTION TOWARDS THE QUALITY OF PHARMACEUTICAL CARE SERVICES IN KHYBER PAKHTUNKHWA, PAKISTAN

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OBJECTIVES: The main objective of this study is to explore the perception of doctors regarding quality of pharmaceutical care services in Khyber Pakhtunkhwa, Pakistan. METHODS: A qualitative study design was adopted. A semi-structured interview guide was developed, through snowball sampling technique face to face interviews were conducted until saturation point has reached till 15th doctors. Doctors from public and private hospitals in Khyber Pakhtunkhwa, Pakistan were interviewed from December to February 2014. The interviews were conducted at the doctor’s work-place. Written consent was obtained from the participants prior to the interview. RESULTS: Among the respondents interviewed, nine were male and six female doctors. Thematic content analysis yielded 4 major themes: (a) Collaboration of doctors and pharmacists, (b) Lack of provision of patient counseling, (c) Separation of prescribing & counseling services, (d) Patient compliance through pharmaceutical care. CONCLUSIONS: The findings demonstrated that implementation of pharmaceutical care provision would benefit the doctors and patient. Doctors were willing to collaborate with pharmacist because it will facilitate the doctors as due to time limit...
they are unable to do proper patient counseling. They have also showed positive response towards implementation of pharmacy practice which would definitely improve the patient compliance.

**PIH18: REFERENCE VALUE OF BLOOD SERUM ALKALINE PHOSPHATASE IN MONGOLIAN ADULT**

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**OBJECTIVES:** To determine the reference value of blood serum alkaline phosphatase of adult according to related age, sex, season and region. **METHODS:** In the research, totally 3742 people were conducted. The research was implemented and supported by central laboratory of Biomedical school, HSUM, "Mobio" laboratory of Korea and "Mega" laboratory. The research of serum alkaline phosphatase was made by the kinetic method which is confirmed by IFCC and used the liquid reagent of Roche Hospitex diagnostics and Human firm. The research result was statistically analyzed with standard programming the SPSS statistic. **RESULTS:** The mean value of blood serum alkaline phosphatase activity of adult with confidence interval \( P = 0.95 \), the mean value was for the male 81.78±0.48, \((n=1597)\) U/L and for female 76.99±0.41 \((n=2145)\) U/L. While determining the Interval for reference value of blood serum alkaline phosphatase, interval was for male 51.08-112.47 U/L and for female 39.77-114.21 U/L. Blood serum alkaline phosphatase activity of adult Mongolian have dependence of sex (\(p<0.0001\)) and it was high for male. Also, serum alkaline phosphatase activity is varying (\(p<0.0001\), \(r=0.102\)) depending on age. There is no dependence of activity of serum (\(p=0.43\)) appeared by region. **CONCLUSIONS:** Mean value of serum alkaline phosphatase activity is for people 70.50±0.63 U/L and minimum limit of reference value is 40.09-116.72 U/L. The activity of serum alkaline phosphatase has deference from age and sex with confidence interval \(p=0.0001\). For male high, for female low, weak direct dependence from age \((r=0.102)\) and strong direct dependence from sex were discovered.

**PIH19: ASSESSMENT OF UTILITIES IN JAPAN: DATA AVAILABILITY AND METHODOLOGY**

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**OBJECTIVES:** Utility data are essential for cost-effectiveness analyses, especially with the introduction of HTA in Japan in 2016. Given a paucity of information regarding the availability of data and related research methodologies used in Japan, this study aims to present a comprehensive literature review regarding utility assessment in Japan. **METHODS:** Medline (English) and Ichushi (Japanese) were searched to understand where the utilities were derived. Search terms included Utility OR health state preference OR QALY OR utility OR utility assessment OR utility measurement OR utility measurement tool OR utility measurement tools OR utility measurement study OR utility measurement studies. Articles were required to detail the methods for utility development or selection, and needed to be based in Japan. They were also required to focus on the assessment of utilities or be part of a cost-effectiveness analysis. **RESULTS:** A total of 246 manuscripts were found after removing duplicates. From these, 137 were included in the full text review and 99 were selected for analysis. The number of studies increased from 1 manuscript in 2000 to a total of 16 in 2012 and 6 in 2013. 70 articles were cost-effectiveness analysis. 50 articles cited utility values from previous or overseas studies. Among original utility measurement studies EQ-5D and TTO were the most frequently used methods. Different utility measurement tools yielded different results and there was little consistency in the ranking of utilities derived via various elicitation methods. While the most commonly studied population was patients, similar results were reported between patients and medical professionals. Caregivers tended to give higher utility scores. **CONCLUSIONS:** Despite an increasing trend of research on utility assessment in Japan, many studies still cite values from previous or overseas studies. The original studies focusing on utility measurement used various elicitation methods, revealing the impact of study population on utility values.

**PIH20: IMPACT OF DEMOGRAPHICS ON HEALTH PREFERENCES IN CHINA: AN EXPLORATORY ANALYSIS OF CHINA EQ-5D-5L VALUATION STUDY**

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**OBJECTIVES:** To identify demographic factors that affect health preference elicited using the composite time trade-off (cTTO) technique in the China EQ-5D-5L Valuation Study. **METHODS:** In the China EQ-5D-5L Valuation Study, cTTO uses the
traditional TTO for states better than dead and the lead time TTO for states worse than dead. A total of 86 EQ-5D-5L health states were grouped into 10 blocks with 10 health states in each group where one very mild state (i.e. only one level 2 is presented) and the worst state 55555 are included in every block. Demographics such as age, gender, employment status, health insurance, the attitude toward living is better than being dead (LBTD), and belief in afterlife were collected. Health preference was examined using mean, the number of states valued at 1 (non-trader), 0 (equal to being dead), -1 (potential censoring), the number of positive and negative scores, the difference between highest and lowest values, the very mild state had the highest value, and 55555 had the lowest value. Both univariate descriptive analyses and generalized linear models were used to explore the impact of demographics on health preferences. RESULTS: A total of 1296 participants recruited from Beijing, Chengdu, Guiyang, Nanjing and Shenyang were interviewed between December 2012 and January 2013 in this study. Both univariate and multivariate regression analyses revealed that the participants from Beijing were more likely to give positive TTO scores and had larger difference between the highest and lowest scores. Participants who agreed with LBTD tended to give positive scores compared with those who did not. Similarly, participants with health insurance or employed tended to give positive scores. CONCLUSIONS: We found that a few demographic indicators had significant impact on health preference. The impact needs to be adequately recognized in cost effectiveness analysis in China.

PIH21: VALUING HEALTH IN THE UAE: AN INVESTIGATION OF THE FEASIBILITY AND CULTURAL APPROPRIATENESS OF USING THE TTO AND DCE METHODS TO GENERATE HEALTH STATE VALUES

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OBJECTIVES: EQ-5D-5L is a widely-used measure of patient-reported health. Its use in economic evaluation requires a ‘value set’: numerical summaries of how good or bad each health state is. No EQ-5D-5L value sets are currently available in the Middle East. Our study is, to our knowledge, the first to investigate the potential for using standard health state valuation methods in this region. To test the feasibility of eliciting EQ-5D-5L values from a sample of the UAE general public using the EuroQol Group’s standardised protocol; and to investigate any cultural issues relating to the use of the methods amongst Emirati nationals. METHODS: Values were elicited using face-to-face computer-assisted personal interviews, following the standardised protocol for valuing EQ-5D-5L. Adult members of the Emirati general public were recruited in public places Respondents each completed 10 time trade-off (TTO) tasks and seven discrete choice experiment (DCE) tasks. In addition, they answered debriefing questions about their experience of completing the valuation tasks. Descriptive analyses were used to assess the face validity of the data. RESULTS: Two-hundred individuals were interviewed in December 2013. The face validity of the data appear to be reasonably high, with higher (lower) values elicited for mild (severe) health states. In the TTO tasks, mean values ranged from 0.812 for the mildest state (2111) to 0.194 for the worst state (55555). Health states were rarely valued as being worse than dead (6.1% of all observations). In a rationality check included in the DCE tasks, 99.5% of the respondents chose the dominant state (55221) over the dominated state (55554). CONCLUSIONS: Analysis is currently underway - final conclusions will be available by the time of the AP ISPOR meeting. We will discuss whether the standard methods are suitable for use in the UAE (and other countries with predominantly Muslim populations), or if some adaption of the methods is required.

PIH22: THE VALUATION OF EQ-5D-5L HEALTH STATES IN KOREA

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OBJECTIVES: This study aimed to estimate Korean preference weights for EQ-5D-5L based on values elicited from representative sample applying EuroQol standard protocol. METHODS: Of 1,085 general populations were recruited using multi-stage quota sampling method in Korea. Each respondent valued 10 health states using the composite time trade-off and 7 health states using discrete choice experiment in computer-assisted face-to-face interview. A range of prediction model was explored, the most appropriate model was determined in terms of goodness of fit, logical consistency and parsimony. RESULTS: Model with dummy variables of the level of severity associated with each dimension, an intercept associated with any move away from full health, and a term that picked up whether any dimension in the state was at 4th or 5th severe level was best predicted the utilities for observed health states. The model was selected as the final model because all
coefficients were statistically significant and logically consistent and it was parsimonious. The final model had a mean absolute error of 0.027 and none out of 86 exceeded 0.1 of absolute error. CONCLUSIONS: The final model in this paper appeared to predict the utilities of the states, which was valuated directly. This could be used interpolate quality weights of all EQ-5D-5L health states.

**PIH23: WHAT REALLY MATTERS? A MULTI-VIEW PERSPECTIVE OF ONE PATIENT’S HOSPITAL EXPERIENCE**

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**OBJECTIVES:** To identify what mattered to a patient and family member (healthcare recipients) during the patient’s hospital experience and to examine the healthcare provider’s awareness of what mattered to the recipients. METHODS: A qualitative descriptive investigation was undertaken using semi-structured interviews designed to compare multiple perceptions of one patient’s hospital experience. Interviews were undertaken with the patient (post-surgical procedure), family member, and healthcare providers whom the patient identified as impacting the hospital experience. Interviews were audio recorded and transcribed. A definition of hospital experience was sought from each participant. Additional phrases as presented by the patient and family member were coded and grouped into categories and then salient themes. Phrases as presented by the healthcare providers were coded, and then allocated to the previously identified themes. RESULTS: One patient, his wife and seven healthcare providers (doctors (2), registered nurses (4) and a patient care orderly (1)) were interviewed. Definitions of what constitutes ‘hospital experience’ differ between the participants. Recipients of care include pre and post hospital admission periods, whereas providers limit hospital experience to admission. Three salient themes emerged from recipient data suggesting; medication management, physical comfort and emotional security are what mattered. Awareness of the significance of these factors differed between the providers and was theme dependent. CONCLUSIONS: Hospital experience as a term is poorly defined, and definitions differ between recipients and providers of care. Healthcare providers are not always aware of what matters to the patient and family during their hospital admission.

**PIH24: THE STUDY OF SATISFACTION AND REASONS FOR ACUPUNCTURE THERAPY AT SIRINDHORN NATIONAL MEDICAL REHABILITATION CENTRE**

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**OBJECTIVES:** Acupuncture is a widely popular alternative medicine. This study aimed to assess satisfaction and reasons for acupuncture therapy among patients receiving acupuncture at Sirindhorn National Medical Rehabilitation Centre (SNMRC) in Nonthaburi province, Thailand. METHODS: This cross-sectional study included randomly selected 177 patients attending acupuncture clinic at SNMRC during November 2012 to January 2013. The study instrument was a newly developed and validated questionnaire comprising 3 parts: general patient information (7 items), reasons (5 items) and satisfaction for acupuncture therapy (6 items; each item was graded into 5 levels ranging from 1 [lowest] to 5 [highest]). The patients completed the questionnaire by either self-administration or interview with the investigators. RESULTS: The patients recruited were aged between 31 to 90 years (mean [SD]: 64.27 [12.03]), with 69.5% being female. 113 Patients self-administered the questionnaire while 64 patients preferred to be interviewed, with no significant difference between the results of the two groups. The patients reported choosing acupuncture for osteoarthritis (35.6%), myopathy (27.7%) and neuropathy (19.2%), and most of them received acupuncture 4 times per month. Their most commonly reported reasons for acupuncture therapy were ‘being recommended/supported by physicians or other people’ (42.9%) and ‘the belief that it is the best treatment approach’ (29.4%). The majority of patients (42.2%) rated high satisfaction (4 points) for acupuncture therapy at SNMRC. The aspect with the highest satisfaction was cleanliness of the acupuncture room (mean [SD]: 4.46 [0.62]) while the lowest satisfaction was for the waiting time for acupuncture physicians (mean [SD]: 3.96 [0.88]). CONCLUSIONS: This study demonstrated that the level of patient satisfaction for acupuncture therapy at SNMRC was high; however, it would possibly be improved if the patients’ waiting time could be shortened.

**PIH25: ASSESSING FACTORS ASSOCIATED WITH YOUTH SUBSTANCE ABUSE IN THE US USING A STRUCTURAL EQUATION MODEL**

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**ISPOR 6TH ASIA-PACIFIC CONFERENCE**

6-9 September 2014, Beijing International Convention Center, Beijing, China
OBJECTIVES: To assess factors associated with youth substance abuse (SA) using a U.S. representative sample. METHODS: A cross-sectional study using the 2012 US National Survey on Drug Use and Health (NSDUH) database was performed on youth population 12 to 17 years old (n=14,600). A structural equation model was applied to investigate factors that influenced the youth SA, the dependent latent variable, described using indicators including tobacco, alcohol and marijuana use. Six independent latent factors were youth tolerant attitude towards SA, perceived risk of SA, pressure from social norm, risk-prone behavior, adverse school environment of SA, and family support (e.g. parental care and concern). RESULTS: The model fitness showed the internal structure of the model was acceptable (RMSEA=0.064; CFI=0.937). The observed indicators were sufficiently explained by its respective latent variables (e.g. 67% to 72% of variances for indicators of school environment were explained). All independent latent variables were statistically significantly associated with SA (P<0.01). The perceived risk of SA, pressure from social norm and family support were negatively associated with SA. On the other hand, youth with tolerant attitude toward SA, risk-prone behavior and adverse school environment were positively associated with SA. CONCLUSIONS: Findings suggested that effective prevention of youth SA can be made from increasing the awareness of the risk of SA, improving school environment and enhancing family support. In particular, we should target the youth population with risk-prone behavior and tolerant attitude towards SA.

PIH26: SPONTANEOUS REPORTING OF ADVERSE DRUG REACTIONS IN GERIATRIC PATIENTS IN INDIA

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OBJECTIVES: In India, spontaneous reporting of adverse drug reactions (ADRs) by healthcare professionals was initiated in 2010. The drug safety issues for geriatric population are critical due to age-related physiological changes, pharmacodynamics and pharmacokinetics changes. Our objective was to assess the spontaneous reports of adverse drug reactions, observed in geriatric patients (over 65 years of age) in India during the period from 1 July 2011 to 31 June 2013. METHODS: The spontaneous reports of 4357 elderly patients (≥65 years) were retrieved at national pharmacovigilance centre from the database containing all ADR reports from 90 ADR Monitoring Centres (AMCs) in India under Pharmacovigilance Programme of India (PvPI) for the period of two years. These reports were analysed for various characteristics of patients, drugs and ADRs using a search and analysis tool. RESULTS: Of the 4357 geriatric Individual Case Safety Reports (ICSRs), more ADRs were reported from the male (57.77%) than the female patients (41.38%). The ADRs from 1120 (25.71%) patients of the total geriatric patients were found to be serious of which 8 (0.71%) were fatal. Cisplatin, carboplatin, cyclophosphamide, acetylsalicylic acid and insulin were the common drugs prescribed to the elderly patients and the commonest ADRs reported were vomiting, diarrhea and constipation. The ADRs in geriatric population mostly affected Gastro-intestinal system and Skin & appendages system CONCLUSIONS: This study from spontaneous reporting indicates the common ADRs in the geriatric patients in India which will help healthcare professionals in better understanding of the drug safety issues in elderly

PIH27: THE PATIENT VOICE IN CHINA: STATUS QUAEOTIONIS

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OBJECTIVES: The objective of this study was to assess the strength of the voice of the oncology patient in China and whether this was in sync with the Chinese cancer incidence. Moreover we wanted to understand what the proportion was of patient reported outcomes (PRO) based publications in China compared to publications based on other data sources. Moreover we also wanted to understand what the main types of PROs collected in China are. METHODS: Published Literature was reviewed based on a PubMed search. Publications needed to include the words ‘oncology’, ‘China/Chinese’, patients, and / or Quality of Life. Publications needed to be submitted between January 2012 and December 2013. The results - in terms of amount of publications - were benchmarked against other countries including India, USA, Russia, Mexico, Japan, Korea, Germany, France, Brazil, Turkey, United Kingdom, Italy, Spain, Australia, and Belgium. Moreover the results were compared to the age standardized incidence rates (ASIR) for cancer within these countries. RESULTS: China comes in 4th place with a ratio of 0.35 (Publications / ASIR) after USA (0.81), UK (0.77), and Japan (0.46). Belgium, Mexico and Russia score worst. The 3 key topics concerning Chinese oncology patients are Survival (16%), (HR)QoL (16%), tumor staging (12%). 8% of publications covered the mental status of patients, another 7% concerned the functional assessment of the patient. Articles with PROs concerning work impact (e.g. WPAI) are rare (<1%). CONCLUSIONS: Although China has the highest number of inhabitants of the world as well as the highest absolute number of oncology patients, this does not completely reflect in the Chinese patients based publications. Further research is required to understand how important PROs are for Chinese physicians in their treatment decisions as well as for payers in their reimbursement/market access decisions and how this is most likely to evolve.
INDIVIDUAL’S HEALTH - Health Care Use & Policy Studies

PIH28: WILL NURSES HAVE BETTER OUTCOMES THAN NON-MEDICAL WORKING WOMEN WHEN HOSPITALIZED FOR FEMALE GENITAL DISEASES?

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OBJECTIVES: Genital problems and associated health concerns are commonly seen in women of childbearing age. Patients may require to receive hospital-based procedures or surgery. This study thus aimed to examine will nurses have better outcomes than non-medical working women areas when hospitalized for female genital diseases. METHODS: This retrospective population-based cross-sectional study analyzed data coming from Taiwan’s National Health Insurance Research Database (NHIRD) in 2010. The occupation were determined using the registry for medical personnel and registry for beneficiaries within NHIRD, which can classify research samples into nurses and working women in non-medical areas. A total of 882 nurses aged 20 to 65 years were compared with 12,213 non-medical working women with similar socioeconomic status. Multivariate generalized estimating equation models were analyzed to test the hypotheses. We also used weighted propensity scores to adjust for selection bias. The primary outcomes were whether or not patients received hospital-based invasive procedures or surgery, total hospitalization cost, length of hospital stay (LOS), and 7-day and 14-day readmission association with genital diseases. RESULTS: Nurses were less likely to undergo hospital-based surgery for genital diseases (OR 0.60; 95% CI: 0.44, 0.81), and they incurred lower total hospitalization cost (β=-0.12; 95% CI: -0.18, -0.06) than non-medical working women after adjusting for demographic and clinical factors (eg, age, insurable wage, major diagnosis, Charlson comorbidity index, and physician and institutional characteristics). However, the likelihood of receiving hospital-based invasive procedures, longer LOS, and readmission did not differ between the two groups. CONCLUSIONS: A probability of undergoing hospitalization surgery for female genital diseases and incurring total hospitalization cost was lower among nurses than among non-medical working women. These findings suggest that medical knowledge, familiarity with healthcare system and care experience may have been contributory factors.

PIH29: HEALTH RELATED QUALITY OF LIFE AND MEDICATION USE AMONG YOUNG COLLEGE STUDENTS DURING MENSTRUAL CYCLE

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OBJECTIVES: Many studies have reported the reduction in Health Related Quality of Life among young girls before, during and after menstrual bleeding. And many of these girls also resort to medications like NSAIDs to alleviate the pain during the same. The present study was aimed to study the difference in health related quality of life among young NSAID users and non-users. METHODS: In this cross sectional study a pilot tested questionnaire was used to collect information regarding college students (n=496) with age between 18-25 years. Information such as demographics, socio-economics, medication use and pain severity was collected. For health related quality of life measurement both descriptive and visual analogue score of EQ 5D 5L questionnaire ware used. The data collected was analyzed using SPSS 16.0.0. The test of significance was done by using Mann-Whitney U test. RESULTS: Mean age of the surveyed population was found to be 20.46±2.81 with 12.88±2.372 years as the average age of commencement of menstrual cycle. The BMI was found to be 19.89±4.88. 77.4% of students reported having some sort of pain before, during and after the menstrual bleeding. The average EQ 5D VAS score was found to be 69.05±18.62. Mann-Whitney U test has shown significant difference (p=0.001) among the medication users for alleviation of pain whereas there was no significant difference (p=0.72) among self-medication and prescription drug users. CONCLUSIONS: Even though the population studied was quite young there was a difference in health related quality of life among medication users and non-users.

PIH30: ASSESSMENT OF KAP AMONG HOSPITAL PHARMACISTS

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OBJECTIVES: To assess the knowledge, attitude & perception (KAP) relating to pharmaceuticals containing non-Halal ingredients among pharmacists working in various hospitals of Malaysia. METHODS: This was a cross-sectional study, carried out in January 2013—March 2013 period, using a structured, self-administered questionnaires. Study settings included various
government hospitals in Malaysia. Data was collected by distributing questionnaires through respective chief pharmacists. Study was conducted on a sample of 135. Inclusion criteria was a registered pharmacist working in a government hospital. Descriptive statistics (mean, standard deviation, frequency, percentage, median, inter quartile range) was applied to summarize the data, non-parametric tests were applied. Chi-square Test and Fisher’s Exact Test was applied to assess the association between demographic characteristics and knowledge, attitude and perception scores. RESULTS: Results revealed that the hospital pharmacist had a good knowledge and positive attitude & perception about Halal pharmaceuticals. Mean knowledge score out of maximum possible 9 score was 8.01 ±1.48, mean attitude score out of maximum possible 45 score was 33.21± 5.66 while mean perception score out of maximum possible 60 score was 51.19 ±6.49. Mean overall KAP score out of maximum possible 114 was 92. 40 ± 11.20. There was a significant, positive, and weak correlation (0.1-0.29) between knowledge and perception (r=.271, p=.001), knowledge and attitude (r=.252, p=.003) & moderate correlation (0.3-0.7) between attitude and perception (r=.542, p<.001). CONCLUSIONS: It is concluded from the results that better knowledge the respondents have on Halal pharmaceuticals, better their perception & attitude is towards Halal pharmaceuticals. P value of .05 or less was taken as statistically significant.

PIH31: CONSTRUCT A CPOE DECISION SUPPORTING AND MONITORING SYSTEM TO DECREASE PIMS USED IN HOSPITALIZED ELDERLY PATIENTS

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OBJECTIVES: Base on 2012 AGS Beers criteria, construct a CPOE decision supporting and monitoring system to decrease potentially improper medication(PIM) used in hospitalized elderly patients, further enhance patient safety and reduce medical cost. METHODS: We use Hyperion search PIMs in hospitalized patients from 2010 to 2011, investigate the relationship between PIM and the physician prescriptions, patients’ characteristics, such as age, gender, diagnosis, et al. We’ll construct a CPOE decision supporting and monitoring system to help physician prescribe appropriately, on the other hand to monitored the suitability of the medications by clinical pharmacist. We use chi-square test to examine PIM incidence before and after these two system intervention. Logist regression to analyzed the relationship between PIM and relative risk factors. Patients’ characteristics such as gender, age, and drug category are analyzed by descriptive statistics and chi-square test. RESULTS: After the decision supporting system implementation, Beers Criteria related improper medication prescription rate were decreased (6.42% and 5.47%). The relationship between PIMs and gender, age, prescription division, before and after decision supporting system was implemented were no significant difference. Except Hematological Oncology, PIM prescriptions rate were significantly decrease in all different department after the plan was intervention. The major PIM prescription items were Metoclopramide Inj, Lorazepam tab, Amiodarone tab., Doxazosin tab., Spironolactone tab. PIM decision supporting system initiative suggests alternative agents for PIMs in CPOE system. There were 71.4% accepted the suggestions. Otherwise, accepted pharmacists’ suggestions and adjust PIM were 92.5%. CONCLUSIONS: Drug decision-supporting system and pharmacists’ interventions for reduce PIM in elderly patients is important. The decision supporting system can decrease PIM prescriptions. The efficacy of Beers criteria medication guidelines and the decision-supporting system applied to the elderly outpatient should be confirmed by further studies.

PIH32: ASSESSING THE IMPACT OF PHARMACIST MALDISTRIBUTION ON SELF-REPORTED HEALTH IN RURAL AND URBAN COUNTIES IN THE US

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OBJECTIVES: To assess the impact of pharmacist maldistribution on self-reported health in rural and urban counties in the US. METHODS: Licensed pharmacists and the urban/rural county indicator were extracted from 2011 Area Health Resource File. We merged 2009-12 Behavioral Risk Factor Surveillance System data to extract individual-level variables including: impaired physical/mental healthy days (within last 30 days), general health status (excellent to poor), age, gender, ethnicity, employment, education, insurance and marital status. Multinomial logistic model was used to estimate the relative risk of pharmacists per 10,000 population and urban/rural county residence on the general health status, controlling for individual-level predictors. To dissect the distinctive impact of pharmacist supply on physical and mental health, seemingly unrelated regression model was employed, controlling for the same predictors. RESULTS: 1,489,522 county-level observations were obtained. Nationwide, rural pharmacist supply was 35% less than in urban counties. From the MLM, residing in a rural county, relative to urban, had 1.44 times greater the risk to report poor health; increasing one pharmacist per 10,000 population reduced the risk of...
reporting poor health by 3%, relative to excellent (p<0.001). From the SUR, residing in rural county increased impaired physical healthy days by 0.398, and by 0.177 for impaired mental healthy days; increasing one pharmacist per 10,000 population reduced the impaired physical healthy days by 0.037, and by 0.018 for impaired mental healthy days (p<0.001). CONCLUSIONS: The pharmacist maldistribution exacerbates the intra-country health disparities between urban/rural counties. Findings suggested the impact was greater on physical health compared with mental health.

PIH33: PERSISTENCE IN HEALTH EXPENDITURES BY THE ELDERLY IN TAIWAN: PREDICTING THE TOP 10% USERS

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OBJECTIVES: The National Health Insurance system in Taiwan has implemented a capitation program recently and its payment formulas were based on prior-year expenditures. This study seeks to determine the extent of health expenditure persistence over a 2-year period and the percentages of decedents who were high users in the year of death. METHODS: This study analyzed National Health Insurance Data for a national sample of elders 65 years and older from Taiwan’s National Health Interview Survey, 2005. High users were defined as the top 10% users and the proportion of their aggregated health expenditures to total health expenditures was determined. A transition probability matrix and logit models were estimated to predict expenditure persistence over a 2-year period. RESULTS: The top 10% users accounted for 55% of total health expenditures. Of the top 10% users in 2005, 39% retained this position in 2006. But expenditure persistence was the highest among the bottom 50% users, with 77% retained their position over 2 years. The percentage of decedents who were top 10% users was 54% in the year of death and 31% in the year preceding death. Prior expenditures and comorbidity burdens were the strongest predictors of persistence. CONCLUSIONS: Taiwan’s National Health Insurance capitation payment formulas based on prior expenditures do not reflect the fluctuation in expenditure persistence among the highest users so that cost percentile ranks should also be considered for payment adjustments.

PIH34: COMMUNITY PHARMACISTS ATTITUDE AND PERCEIVED NEED TOWARDS THE PROVISION OF PHARMACEUTICAL CARE SERVICES: A QUALITATIVE APPROACH

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OBJECTIVES: The main objective of this study is to assess the perception of community pharmacist regarding quality of pharmaceutical care services in Khyber Pakhtunkhwa, Pakistan. METHODS: A qualitative study design was adopted, for identification of community pharmacists snowball sampling technique was used. A semi-structured interview guide was developed and face to face interviews were conducted until point of saturation has reached. Twelve community pharmacists were interviewed from December to February 2014 from different cities of Khyber Pakhtunkhwa, Pakistan. The interviews were conducted at the community pharmacy. Written consent was obtained from the participants prior to the interview. RESULTS: Among the respondents interviewed. Thematic content analysis yielded 4 major themes: (a) Lack of documentation, (b) Improper patient counseling, (c) Unavailability of pharmaceutical care guidelines, (d) Lack of collaboration with other health care providers. CONCLUSIONS: This study concludes that community pharmacies are not very much involved in provision of pharmaceutical care to patients. Documentation and patient counseling is also very poor due to lack of enough time and no financial encouragement. There is also no effective professional relationship of community pharmacists with other health care providers.

PIH35: NURSES’ PERCEPTION TOWARDS THE BENEFITS OF PHARMACEUTICAL CARE SERVICES IN TERTIARY health care SETTINGS PAKISTAN: A QUALITATIVE INSIGHT

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OBJECTIVES: To explore the perception of nurses regarding quality of pharmaceutical care services in Khyber Pakhtunkhwa, Pakistan. METHODS: Qualitative methodology was adopted for which a semi-structured interview guide was developed and face to face interviews were conducted. The participants were eighteen nurses who were interviewed in tertiary healthcare settings in Khyber Pakhtunkhwa province of Pakistan from January to February 2014. The interviews conducted were based on saturation point. Written consent was obtained from the participants prior to the interview. RESULTS: Thematic content analysis
yielded 5 major themes: (a) Incognizance of pharmaceutical care, (b) Collaboration of nurses & pharmacists, (c) Improper distribution system, (d) Lack of provision of patient counseling, (e) Pharmacists reducing the prescribing errors. **CONCLUSIONS:** The findings suggest nurses are unaware of the term pharmaceutical care, so there is a need to arrange pharmaceutical care awareness programs for healthcare providers as well as patients. Moreover nurses in Pakistan have positive perception towards pharmacist involvement in direct patient care. According to majority of nurses, pharmacist can reduce their workload and can help them in improvement of their knowledge regarding drugs.

**PIH36: AN ECOLOGICAL ANALYSIS ON NATIONAL TRENDS AND CORRELATION BETWEEN PUBLIC FUNDING FOR PNEUMOCOCCAL VACCINATION AND PNEUMONIA DISEASE BURDEN IN THE JAPANESE ELDERLY POPULATION, 2005-2012**

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**OBJECTIVES:** To analyze the national trends and correlation between public funding for pneumococcal vaccination and pneumonia disease burden in the Japanese elderly population over 65. **METHODS:** Three vaccination funding indicators were developed. They are percentage of municipalities offering subsidies; percentage of elderly population covered by subsidies; average subsidies per elderly person. From the national statistics, two disease burden indicators were age-adjusted all-cause pneumonia mortality rate and hospitalization rate. All-cause pneumonia is defined by the ICD-10 code (J12-18). The standard age distribution is the 1985 national population of Japan. National trends and the correlation coefficients between the funding and disease burden indicators were examined. The Pearson correlation coefficient performed by SAS. **RESULTS:** The percentages of municipalities offering vaccination subsidies and coverage of elderly population increased from 0.6% and 0.22% in 2005 to 38.1% and 22.3% in 2012 respectively. The estimated average subsidies per elderly person increased too from 7 JPY in 2005 to 900 JPY in 2012. Conversely the age-adjusted all-cause pneumonia mortality rate decreased from 319 in 2005 to 273 in 2012 per 100,000 in the elderly population. Similarly the hospitalization rate decreased from 98 per 100,000 in 2005, to 91 and 86, in 2008 and 2011 respectively in elderly population. The correlation coefficients of the three vaccination funding indicators with age-adjusted all-cause pneumonia mortality rate were -0.24, -0.31 and -0.27 respectively, and hospitalization rate -0.09, -0.16 and -0.19 respectively during 2005-2012. **CONCLUSIONS:** Pneumococcal vaccination has played an effective role in reducing the pneumonia burden in elderly population in Japan from 2005 to 2012. For vaccination to be fully protective, adequate public funding is necessary to promote and improve vaccination uptake in the target population. Further strengthening public funding policies and resources would be an effective way to reduce future national healthcare burden and expenditure due to pneumococcal diseases.

**PIH37: COMPARATIVE STUDY ON HEALTH RELATED QUALITY OF LIFE OF FARMERS AND WORKERS**

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**OBJECTIVES:** To compare the health related quality of life (HRQOL) between farmers and workers and to study the factors influencing the differences. **METHODS:** We conducted a survey in Zhejiang province by multi-stage cluster sampling, and applied EQ-5D questionnaire to assess the HRQOL by the face-to-face interview. Chi-square test and one-way ANOVA were used to identify the main affecting factors influencing HRQOL of farmers and workers. **RESULTS:** Quality of life was differed by farmers and workers. The mean of EQ-5D index and EQ-VAS scores for farmers were 0.99 and 83.59 and for workers were 0.95 and 81.11 respectively. Male, age (16 to 20 years old and over 51), low education (≤ 6 y), low-income (< CNY ¥ 1000) and workers had negative influence on the results. The main problems of health status of farmers and workers focused on the dimensions of Pain/Discomfort and Anxiety/Depression separately. **CONCLUSIONS:** To improve the HRQOL, it is important to pay an attention to people's mental health, in particularly to those such as men, low income, divorced or widowed people.

**RESEARCH POSTER PRESENTATIONS - SESSION II**

**CARDIOVASCULAR DISORDERS**

**CARDIOVASCULAR DISORDERS - Clinical Outcomes Studies**
**PCV1: INCIDENCE AND RISK OF CARDIOTOXICITY INDUCED BY SUNITINIB IN PATIENTS WITH RENAL CELL CARCINOMA: A POPULATION-BASED CASE-CONTROL STUDY IN CHINESE POPULATION**

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**OBJECTIVES:** This study aimed to evaluate the incidence and risk of cardiotoxicity induced by sunitinib for patients with renal cell carcinoma. **METHODS:** This was a population-based case–control study that analyzed data obtained from the Taiwan National Health Insurance Research Database between 1 January 2000 and 31 December 2010. All patients with renal cell carcinoma treated with sunitinib for the first time were included as the study cohort. Cases were identified as subjects, who were aged ≥18 years and had a first-time diagnosis of cardiovascular events induced by sunitinib in outpatient and inpatient settings, and matched to randomly selected controls by age, sex, and index date. Hazard ratios (HRs) were used to quantify the risk of cardiovascular events by conditional logistic regression. **RESULTS:** Overall, 187 patients with the diagnosis of Renal Cell Carcinoma (RCC) were retrieved from the database. A total of 17 patients treated with sunitinib as a case group and 170 patients did not treated with sunitinib as a control group. We found no significant difference in incidence of cardiotoxicity between the sunitinib cases and controls in the variables of diabetes, dyslipidemia and chronic periodontitis during 4-years follow-up. However the crude (HR=3.71, 95% CI:1.30-10.5) and adjusted hazard ratio analysis (HR= 4.19 , 95% CI:1.28-13.72) showed a statistical significant risk of hypertensive disease associated with sunitinib. **CONCLUSIONS:** Treatment with sunitinib for RCC may lead to hypertensive disease in Chinese population. For other cardiotoxicity, we need further analysis by using this large claim database beyond 2010.

**PCV2: DRUG THERAPY PROBLEMS IN PATIENTS ON ANTIHYPERTENSIVES WITH ANTIDIABETIC DRUGS IN TWO TERTIARY HEALTH INSTITUTIONS IN NIGER DELTA REGION, NIGERIA**

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**BACKGROUND:** Drug therapy problems (DTPs), with the associated risks inherent in antihypertensive and antidiabetic therapy require utmost attention. **OBJECTIVES:** To assess the DTPs observed in the management of hypertension and diabetes mellitus (DM) in two tertiary health facilities in Niger Delta region of Nigeria. **METHODS:** In a retrospective study, 531 randomly selected case notes of hypertensive and/or diabetic patients who attended the health facilities in 2011 and 2012 were evaluated for DTPs using Beer’s/STOPP/START criteria and selected guidelines in elderly and the general patients respectively. Data collected were analyzed with the aid of Statistical Package for Social Sciences version 20.0 and GraphPad Instat version 3.10 for windows (GraphPad Software, San Diego California USA) and presented using descriptive statistics. **RESULTS:** The mean patients’ age was 55.70±12.23 years with the elderly patients constituting 70.2% of the population studied. Overall, average numbers of drugs prescribed per prescription in the first-month and the fourth–month period of drug therapy considered were 4.91±1.96 and 4.92±1.70 (p=0.05) with associated mean DTPs values of 1.54±1.08 and 1.46±1.20 (p=0.05) respectively. Using Beer’s/STOPP/START criteria, 21.5% and 22.8% of all DTPs at therapy initiation and last clinic visit were identified in the old patients. Unnecessary drug therapy was the most observed DTP in the first month (23.6%) and last fourth-month (29.4%) period of therapy in all the patients and was closely followed by wrong drug therapy (23.4%, 22.9%), need for additional drug therapy (20.9%, 17.4%), non-adherence to drug therapy (15.4%, 13.8%), and drug interactions (12.9%, 9.6%). Other DTPs observed, though to lesser extents were dosage too low (1.5 %, 5.2 %), adverse drug reaction (1.4 %, 1.3 %) and dosage too high (0.9 %, 0.4 %) respectively. **CONCLUSIONS:** There was high incidence of DTPs in the hypertensive and/or diabetic patients. Unnecessary drug therapy and wrong drug therapy were the most frequently observed DTPs.

**PCV3: WITHDRAWN**

**PCV4: HEALTH CARE UTILIZATION AND COSTS AFTER WARFARIN DISCONTINUATION AMONG PATIENTS WITH NON-VALVULAR ATRIAL FIBRILLATION**

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**OBJECTIVES:** While discontinuation of warfarin therapy for stroke prevention is common in patients with atrial fibrillation, little is
known about health outcomes associated with warfarin discontinuation. This study compared health care utilization/costs between patients with non-valvular atrial fibrillation who were persistent with warfarin therapy (WP patients) and those who discontinued warfarin therapy (WD patients) in the US usual clinical practice setting. METHODS: A retrospective observational study was conducted among patients (≥18 years of age) with non-valvular AF who were on warfarin in the US MarketScan Database (01/2008-06/2012). Warfarin discontinuation was identified by a gap >45 days in warfarin prescriptions within one year of warfarin initiation. A propensity score method was used to match WP patients and WD patients to produce compatible index dates. Patients’ follow-up started from the discontinuation date for WD patients and after the same duration of warfarin therapy for matched WP patients. Patients were followed for up to one year to determine the annualized number and costs of health care utilization. To adjust for patient characteristics, multivariate analyses were conducted. RESULTS: 27,000 matched patients were included for the analysis. Mean follow-up duration was 264 days for WD and 339 days for WP groups. Compared with WP patients, WD patients were more likely to be hospitalized (Mean: 0.51 vs. 0.37, P<0.001) and to visit ER (Mean: 1.14 vs. 1.01, P<0.001). The total annualized costs in WD group was significantly higher than WP group ($24,701.2 vs. $19,836.3, P<0.001). Hospitalization accounted for 34.57% of total costs. After adjusting for patient characteristics, the patterns of differences between the two groups remain the same. CONCLUSIONS: Warfarin discontinuation is associated with higher number of hospitalizations and ER visits and higher total health care costs than warfarin persistence. Future studies should examine strategies to improve patient persistence with anticoagulants and lower total health care costs.

PCV5: UPDATING CHARACTERISTICS OF TYPE 2 DIABETES MELLITUS PATIENTS IN CHINA: SURVEYS IN YEAR 2008 AND 2011-12

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OBJECTIVES: To update the characteristics of Chinese Type 2 Diabetes Mellitus (T2DM) patients and describe their blood glucose control. METHODS: Adelphi Disease Specific Programme (DSP), a cross-sectional study, collected comprehensive data on Chinese T2DM patients in two waves: Wave I [W1] in year 2008 and Wave 2 [W2] in 2011-12. The patients aged ≥18 years were diagnosed and managed by qualified internists, diabetologists or endocrinologist in 9 major cities. Chi-square test and Student t test were used for testing the differences between waves. RESULTS: In contrast with W1 (n=1648), W2 patients (n=2059) were younger (mean: 56.3 vs. 57.7 years, P<0.001), more physically active (83% active or very active vs. 18%, P<0.001), had fewer comorbidities and complications (macrovascular diseases: 10.8% vs. 19.2%; peripheral vascular diseases: 0.8% vs. 4.0%; dyslipidemia: 22.4% vs. 42.2%; impaired vision: 2.3% vs. 5.6%; neuropathy: 1.4% vs. 7.0%; nephropathy: 1.7% vs. 4.7%, all Ps<0.0001), and started anti-diabetic medication (ADM) earlier (40 days of trying to manage lifestyle alone prior to initiating ADM vs. 64 days, P<0.001). The insulin users, more patients in W2 than W1 were on basal insulin (28.2% vs. 12.1%, P<0.05), and fewer on biphasic insulin/mixtures (51.1% vs. 59.4%, P<0.05). Of the non-insulin ADM users, biguanides and sulfonylureas were the most commonly used agents. 2.4% and 4.2% of the patients were on GLP-1 inhibitors and DPP-4 in W2. W1 and W2 had the same mean of HbA1C% (7.4%). 36.6% of all the patients had HbA1C% <7%. CONCLUSIONS: The data may suggest that diabetes awareness increased, and clinical diagnosis and medical intervention were initiated earlier for T2DM from 2008 to 2011-12 in China. More insulin users were treated with basal insulin and some started GLP-1 inhibitors and DPP-4. However, blood glucose control for preventing further development of complications remained to be improved.

PCV6: CLINICAL CHARACTERISTICS AMONG HYPERTENSION PATIENTS WITH DIABETES IN SHANGHAI, CHINA

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OBJECTIVES: To evaluate the clinical characteristics among hypertension patients with diabetes in Shanghai, China. METHODS: Data from a population-based database in Minhang area including 180,806 hypertensive patients were examined. All hypertension cases were collected through 12 community health centers and then enrolled in the electronic Health Records (eHR) system. Information on demographics, lifestyle, medical records, as well as cardiovascular events was collected. Hypertension and diabetes were identified by ICD-10 code in the database. RESULTS: Over all, 21.6% hypertension patients had diabetes, the mean age was 67 years old, 54.5% was female, 17.0% were current smokers and 19.7% was current drinkers, 17.3% had obesity, 11.3% had grade 3 hypertension, 29.8% had dyslipidemia (high LDL-C) and 8.4% had cardiovascular events. The mean age was 69 years old for patients with diabetes. Among hypertension patients with diabetes,
56.7% was female, 14.6% current smoker, 16.4% drinking, 21.6% obesity, 13.2% grade 3 hypertension, 31.3% dislipidemia and 11.4% had cardiovascular events. CONCLUSIONS: Overall, a substantial proportion of hypertension patients had other cardiovascular risk factor, including diabetes, smoking, drinking, obesity and high LDL-C.

**PCV7: NURSING DIAGNOSIS AND SOME PHYSIOLOGICAL SIGNS AND THEIR CHANGES DURING THE ARTERIAL HYPERTENSION**

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**OBJECTIVES:** Define the relation between nursing diagnosis and some physiological (hemodynamic) changes during arterial hypertension. **METHODS:** Descriptive study We prepared questionnaire about 5 steps of nursing activities for completing by nurses, who work in the district hospitals and family health centers and we collected information from this. We used SPSS17 program for analyzing results of survey. Collection of patients chart information made in April 2011, collection of nursing notes made in September 2011. **RESULTS:** 1. Nurses provide just the nursing assessment stage by defining complains, and symptoms and nursing planning, implementation stage, but not complete sufficiently the nursing activities by nursing diagnosis, reassessment and conclusion after nursing procedure. 2. During the study collected from the nursing chart and nurses notes we defined that nurses diagnosed in 57.4% of patients with arterial hypertension edema, in 43.3% dyspnoea, in 14.6% chest pain, in 5.9% palpitation, in 1.4% cough, in 1.5% bleeding from nose, in 1.5% confusion, 1.5% restricted movement. It shows that nurses mostly diagnosed some hemodynamic changes during the hypertension, but not diagnosed main criteria of hypertension. **CONCLUSIONS:** 1. It is understandable that, nursing diagnosis based on subjective and objective methods of patients’ assessment. Assessment made by nurses with bachelor degree is different from assessment made by ordinary nurses (P<0.05). 2. Assessment made by asking questions, physical examination of patients with arterial hypertension mostly defined symptoms of functional dysfunction of cardiovascular system like dyspnoea, edema, chest pain, peripheral cyanosis, hypertrophy left ventricular, and these symptoms can be theoretical and methodological aspects of nursing diagnosis. 3. Symptoms, first and secondary risk factors of arterial hypertension defined by laboratory investigations, asking questions, physical examination (increased level of blood sugar, cholesterol, triglycerides, decreased level of LDLP, increased systolic and diastolic blood pressure). These findings can be theoretical and methodological aspects for nursing diagnosis.

**PCV8: EFFECTIVENESS OF CARDIAC RESYNCHRONIZATION THERAPY IN PATIENTS WITH MILD-MODERATE HEART FAILURE: A SYSTEMATIC REVIEW AND BAYESIAN APPROACH NETWORK META-ANALYSIS**

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**OBJECTIVES:** To evaluate the relative effectiveness of cardiac resynchronization therapy (CRT) versus implantable cardiac defibrillator (ICD) or optimal medical treatment (OMT) in mild-moderate heart failure patients with New York Heart Association (NYHA) Class I and II. **METHODS:** Randomized controlled trials of CRT, ICD and OMT in mild-moderate heart failure patients were identified from MEDLINE, EMBASE and COCHRANE database. All abstracts were identified for the search terms ‘mild-moderate heart failure’, ‘CRT’, ‘ICD’, ‘OMT’ and ‘NYHA class I or II’. Abstracts were reviewed, and studies containing information on effectiveness profile were obtained for further review. Results were pooled and analyzed by a Bayesian random-effect model. The model used to analyze the relative effectiveness of all-cause mortality and left ventricular ejection fraction (LVEF). **RESULTS:** 11 studies were identified with a total of 6,865 patients. CRT was associated with a significant reduction of the all-cause mortality compared with ICD alone (odds ratio 0.81, 95% credible interval 0.60 to 1.14) or OMT alone (odds ratio 0.59, 95% Crl 0.39 to 0.95), CRT also had a substantial improvement of LVEF compared with ICD treatment (mean difference 3.96, 95% Crl 0.88 to 7.08). The probability determined from the Bayesian analysis that CRT was the best treatment option was 87.2% (7.7% for ICD and 0.9% for OMT respectively). **CONCLUSIONS:** This Bayesian network meta-analysis suggests that CRT could improve the prognosis in patients with mild-moderate heart failure.

**PCV9: A COMPARISON OF PREFERENCES FOR THE BENEFITS AND RISKS OF STATINS AMONG KOREAN PHYSICIANS AND PATIENTS USING A DISCRETE-CHOICE EXPERIMENT**

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OBJECTIVES: The safety of statins had been a controversial issue. Cerivastatin was withdrawn due to fatal rhabdomyolysis, and the high dose of simvastatin was reported to cause liver failure. This study aims to compare the preferences on the benefits and risks of statins between the patients and physicians. METHODS: Discrete choice experiments (DCE) were conducted to measure preferences on the benefits and risks of statins. Two benefit parameters were defined as low-density lipoprotein cholesterol reduction (LDL) and myocardial infarction reduction (MI). And two risk attributes contained liver failure (Liv) and fatal rhabdomyolysis (Rha). The questionnaires for the DCE were designed to satisfy orthogonality, level balance and minimum overlap. 287 subjects (patients 205, physician 82) were participated and repeatedly evaluated a choice set including two hypothetical statins with different level of each attributes. The survey was performed by face-to-face method among Korean patients who take anti-hypertensive or cholesterol-lowering drug, and hospital physicians who treat cardiovascular disease. The data were analyzed by conditional logit (SAS 9.3 software). RESULTS: The physicians elicited the preferences for LDL [Mean(±SD):40.14% (±0.06)], MI 30.09%(±0.21), Liv 20.16%(±0.45) and Rha 9.55%(±0.29). While the patients estimated 38.88%(±0.15), 36.32%(±0.33), 11.55%(±0.35), 13.25%(±0.14) respectively. Regarding the willingness to accept risk in exchange for benefit of statins, the physicians accepted risk twice than patients when the statin reduced the MI from 25% to 40% but caused the average hepatotoxicity from 1% to 5%. CONCLUSIONS: Preference for the benefits of statins outweighs those of the risks in all respondents. However physicians consider greater importance of the Liv than the Rha while patients are opposite. Physicians and patients need try to narrow the perception gap regarding the risk of statins before starting treatment. Acknowledge This was supported by the grant (13182MFDS703) form Mistry of Food and Drug Safety.

PCV10: ASSOCIATION OF COLCHICINE WITH PRIMARY AND SECONDARY CARDIOVASCULAR EVENTS IN PERITONEAL DIALYSIS PATIENTS: A PROPENSITY SCORE ANALYSIS

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OBJECTIVES: In peritoneal dialysis (PD) patients, remarkably high risk of cardiovascular (CV) mortality may be explained by atherosclerosis and inflammation. Colchicine has been illustrated to suppress inflammatory mediators via prevention of cholesterol crystal-induced neutrophil, and reduces atherosclerosis progression. This study aimed to explore benefit of colchicine use on primary and secondary CV events, CV mortality, and all-causes mortality in PD patients. METHODS: Subjects were first-ever PD patients for ≥3 months, and ≥18 years old from January 2007 to October 2013 in a retrospective cohort of the PD registry of Nakornping Hospital, Chiang Mai, Thailand. Users of colchicine for ≥3 months were compared to non-users. CV events were the composite incidence of acute myocardial infarction or unstable angina, hospitalization from heart failure, and cerebrovascular events. Logistic regression of potential-confounders at PD initiation was performed to determine propensity scores (PS), probability of prescribing colchicine. PS and covariates were controlled in multivariable Cox hazard regression models to investigate association of colchicine and CV events. RESULTS: Of 366 subjects, 57 (15.6%) received colchicine, 75 (20.5%) had history of CV events. Follow-up was shorter in the non-users, 19.1 months median (range 3.05-70.0) vs. 26.5 (3.2-71.3). CV events occurred in 7 (12.3%) in the users and 82 (26.5%) in the non-users. Both groups did not differ on entry Charlson co-morbidity index, estimated glomerular filtration rate, serum uric acid levels. Adjusted hazard ratio (HR) of CV events was lower in colchicine users for primary CV events (adjHR 0.28; 95% CI, 0.09-0.90, p=0.033), and secondary CV events (adjHR 0.29; 95% CI, 0.08-0.99, p=0.049). Moreover, colchicine users had fewer CV mortality and all-causes mortality, although statistical significance was not found. CONCLUSIONS: Colchicine appeared to associate with reducing risk of primary and secondary CV events, and demonstrated trends toward lower CV mortality and all-causes mortality in PD patients.
stage 3 (n = 98), 4 (n = 76) and 5 (n = 126) in CKD Resource Center of Hospital University Science Malaysia, Kelantan, Malaysia. **RESULTS:** The mean age of all patients was 58.86 ± 13.47 years and there was preponderance of male subjects (69%). The prevalence of hypertension was 91.3%; almost universal among the sufferers of stage 3, 4 and 5 of CKD (87.8%, 94.7% and 92.1%, respectively). In CKD stage 5, mean systolic blood pressure was considerably higher than in stage 4 and 3 (p = 0.009). The percentage of patients with systolic BP < 130 mm Hg and diastolic BP < 80 mm Hg was 30.3% and 49.0%, respectively. Only 24.3% of the total patients had BP < 130/80 mm Hg despite using multiple antihypertensive medications. The proportion of patients consuming antihypertensive drugs was as: angiotensin-converting enzyme inhibitors (ACE-Is) (25%), angiotensin receptor blockers (ARBs) (14.3%), combined ACE-Is and ARBs (2.7%), calcium channel blockers (66.3%), β-blockers (40.7%), diuretics (60%) and α-blockers (14.3%). There was significantly lower percentage of patients on ACE-Is and ARBs in stage 5 than in stage 4 and 3 CKD patients. Proteinuria was present in 71.7% of the patients and there was significant difference proteinuria between stage 3, 4 and 5 (55.1 vs 59.2 vs 92.1, p = 0.000). **CONCLUSIONS:** Underutilization of some classes of anti-hypertensive medications is apparent. Higher percentage of proteinuria in CKD stage 5 patients may be attributed to the underuse of ACE-Is and ARBs in stage 5. The study further indicated the need of employing instructive efforts to get valuable outcomes of antihypertensive treatment in CKD sufferers.

**PCV12: LONG TERM FOLLOW UP OF PRIMARY AND SECONDARY PREVENTION IMPLANTABLE CARDIOVERTER DEFIBRILLATOR PATIENTS: “REAL-WORLD” DATA FROM THE ISLAND OF CRETE**

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**OBJECTIVES:** The beneficial effects of implantable cardioverter defibrillators (ICDs) in primary and secondary prevention patients are well established. However, data on potential differences between both groups in mortality and ICD therapy rates during long-term follow-up are scarce. The aim of the study was to assess differences in mortality and ICD therapy between secondary and primary prevention ICD recipients. **METHODS:** All patients treated with an ICD, regardless of the underlying cardiac pathology, at the island of Crete were included in the current analysis. The study population was grouped by the type of prevention (secondary or primary) for sudden cardiac death. The primary endpoint was all-cause mortality. The secondary endpoint was the occurrence of device therapy (appropriate or inappropriate). **RESULTS:** A total of 854 (88.6% men) ICD recipients were included. Of these, 623 (73%) patients received an ICD for primary prevention of sudden cardiac death and 231 (27%) patients for secondary prevention. During a mean follow-up of 12.4 +/- 7.8 years, 177 (20.7%) patients died. The incidence of mortality was 35.5% for secondary prevention patients and 15.2% for primary prevention patients (p < 0.001). Ventricular arrhythmia triggered appropriate therapy in 91 (39.4%) secondary prevention patients. Accordingly, the number of primary prevention patients that received appropriate therapy was 126 (20.2%). A comparable risk for inappropriate shocks was observed. **CONCLUSIONS:** During long-term follow-up, primary prevention patients exhibited a lower risk all-cause mortality. Both groups showed similar occurrence of inappropriate shocks but secondary prevention patients showed a higher rate of appropriate therapy.

**PCV13: EFFECTIVENESS OF CATHETER-BASED RENAL DENERVATION FOR TREATMENT RESISTANT HYPERTENSION – RESULTS OF A SYSTEMATIC REVIEW AND META-ANALYSIS**

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**OBJECTIVES:** Catheter-based renal denervation (RDN) is a promising therapy option for patients with treatment resistant hypertension (TR-HTN). The RDN evidence base currently consists of several studies with limited sample size and variations in design, follow-up duration and catheter, so uncertainty may exist regarding overall therapy effectiveness. The objective of this analysis is to conduct a systematic review and direct meta-analysis of relevant RDN studies to provide a more powerful estimate of the true effect size to inform clinical decisions and economic evaluations. **METHODS:** RDN publications were identified through MEDLINE, EMBASE and Cochrane databases and manual searching (June 2013). Pre-specified inclusion criteria identified all studies (regardless of catheter used) enrolling TR-HTN patients (SBP ≥ 160 mmHg despite >3 anti-hypertensive drugs including a diuretic). Results were presented as weighted mean decrease (WMD) in office-based SBP over 6 months. **RESULTS:** A total of 57 trials were identified (1 RCT, 11 case control, 16 single arm, 29 case series), yielding 28 studies (n=896) for meta-analyses. All were open label and reported significant reductions in systolic and diastolic blood pressure. The
PCV14: A RETROSPECTIVE COST-EFFECTIVENESS ANALYSIS OF S-AMLODIPINE IN CHINA

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OBJECTIVES: The paper is to compare the difference between S-Amlodipine and racemic amlodipine by using respective cost-effectiveness analysis. METHODS: the authors use two head-to-head multi-center, RCT studies’ clinical efficacy data, Levamldiping Besylate tablets (Shiweida® 2.5 mg/day) was selected as test group and Amlodipine Besylate tablet (Norvasc® 5mg/day) as a control group. The blood pressure and cost of drug were compared in short-term (8 weeks) and long-term (6 months) therapeutic regimes. RESULTS: After 4-8 weeks treatment, there was no statistical significant difference in efficacy rate between S-Amlodipine group (110 cases) and racemic Norvasc group (104 cases) 84.91% vs. 77.45%. The cost of reducing 1 mmHg systolic pressure and diastolic pressure in S-Amlodipine group was 8.1 Yuan (RMB) and 10.5Yuan (RMB), and Norvasc group was 16.9Yuan (RMB) and 21.7Yuan (RMB), respectively. The cost of Norvasc is 100% higher than that of S-Amlodipine. In the results of 6-month long-term treatment, The cost of reducing 1 mmHg systolic pressure and diastolic pressure in S-Amlodipine group (124 cases) was 31Yuan (RMB) and 43Yuan (RMB), and 50Yuan (RMB) and 75Yuan (RMB) in Norvasc group (104 cases), respectively. The cost of Norvasc is 1.62-1.79 times higher than that of S-Amlodipine. Meanwhile, the study shows that the cost of reducing 1mm Hg diastolic blood pressure is much higher than that of reducing 1mm Hg systolic blood pressure. The adverse reaction of S-Amlodipine group (4.6%) is significantly lower than Norvasc group (10.3%). The sensitivity analysis based on average price and medium price of two-cluster products in China, the S-Amlodipine has more economic value. CONCLUSIONS: The domestic product of S-Amlodipine is more cost-effectiveness than the original Norvasc product. At present, the market volume and value of S-Amlodipine in total CCB market is about 30 percent. The authors suggest to do further postmarketing clinical trial and parallel prospective pharmacoeconomic evaluation to collect more strong basis of evidence.

PCV15: STUDY OF MEDICATION ADHERENCE IN DIABETES MELLITUS PATIENTS WITH HYPERTENSION

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OBJECTIVES: The current investigation is aimed to understand the impact of medication adherence on reasons for non-adherence and adherence and control of disease, in diabetes mellitus (DM) with hypertension (HTN) patients Morisky medication adherence scale (MMAS). METHODS: In this prospective observational study, the inclusion criteria for patients to be enrolled are condition of DM with HTN comorbidity and patients taking same medication since last two months. Patients with DM along with more than two comorbidities were excluded from the study. The demographic details (patient name, age, sex, occupation, patient income, address, social history, family history, physical activities) and MMAS, blood pressure, fasting blood sugar (FBS) and post lunch blood sugar (PLBS) levels were collected from the enrolled patients. Reasons for non-adherence were recorded from low adherence patients. RESULTS: During the study total 300 patients were reviewed of which only 128 (42.66%) patients were enrolled into study among them 63 (49.3%) were male and 65 (50.7%) were female. According to MMAS, patients with high adherence were 39 (30.4%), medium adherence was 30 (23.4%), and low adherence was 59 (46%). The reasons for lack of adherence in low adherence patients are low socioeconomic status (18%), lack of knowledge about impact of non-adherence on medication (16%), followed by patients negligence (12%) and others (13%). However the results of all the therapeutic outcomes in the study like average blood pressure (mmHg), average FBS (mg/dl) and average PLBS (mg/dl) in high adherence, medium adherence and low adherence patients showed variation based on degree of adherence. CONCLUSIONS: The adequate adherence of medication is the prior therapeutic option to control DM with HTN patients.

PCV16: EFFICACY OF AYURVEDIC FORMULATION IN THE MANAGEMENT OF ESSENTIAL HYPERTENSION
Calcium channel blockers are drugs of first choice in the treatment of hypertension. The aim of this study was to analyze the consumption of calcium channel blockers in Serbia in the period from 2008 to 2012. METHODS: The data about the use of drugs were taken from the Agency for Drugs and Medical Devices of the Serbia. RESULTS: The most frequently used drug from this group with direct cardiac effects the most frequently used drugs were verapamil and diltiazem. The consumption of verapamil in the observed years was uneven. At the end of 2012, consumption of this drug was reduced by 50%. In Serbia, in the observed period the consumption of calcium channel blockers has been uneven. In 2011 and 2012, the consumption of calcium channel blockers marks a positive trend. This research was supported by Provincial Secretariat for Science and Technological Development, Autonomous Province of Vojvodina project No 114-451-2458/2011 and by Ministry of Science, Republic of Serbia, project no 41012.
**PCV19: USE OF BETAL BLOCKING AGENTS IN SERBIA IN THE PERIOD FROM 2008 TO 2012 YEAR**

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**OBJECTIVES:** Beta blocking agents are drugs of first choice in the treatment of hypertension. The aim of this study was to analyze the consumption of beta blocking agents in Serbia in the period from 2008 to 2012 year. **METHODS:** The data about the use of drugs were taken from the Agency for Drugs and Medical Devices of the Serbia. **RESULTS:** During the observed period in Serbia the consumption of selective beta blocking agents were dominant. The most frequently used drug from this group was metoprolol. During this five years the consumption of metoprolol is in steadily decreased. In 2008, it was 33.32 DDD/1000 inh/day, at the end of 2012, year the consumption was 22.09 DDD/1000 inh/day. On the second place in drug consumption in the same group of drugs was atenolol, but only in 2008. From 2009-2012, atenolol records a decline in consumption and bisoprolol takes the second place in drug consumption in that period. At the beginning of 2008. consumption of this drug was small, gradually grew and reached its maximum in 2012, and it ranged 20.64 DDD/1000 inh/day. From the unselective beta blocking agents the most frequently used was propranolol and his consumption in the observed years was constant. **CONCLUSIONS:** In Serbia, in the observed period the consumption of beta blocking agents been mostly constant. From all drugs in group of beta blocking agents the most frequently used are metoprolol, atenolol, bisoprolol and nebivolol. This research was supported by Provincial Secretariat for Science and Technological Development, Autonomous Province of Vojvodina project No 114-451-3551/2013-01 and by Ministry of Science, Republic of Serbia, project no 41012.

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**PCV20: PREVALENCE OF SEVERE TREATMENT RESISTANT HYPERTENSION AND ELIGIBILITY FOR CATHETER-BASED RENAL DENERVATION IN AUSTRALIA – A PRELIMINARY ANALYSIS**

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**OBJECTIVES:** Catheter-based renal denervation (RDN) has emerged as a new therapy option for patients with treatment resistant hypertension (TR-HTN). However, inconsistency in the definition and prevalence estimates of TR-HTN has the potential to cause confusion with regards to: (1) identifying patients who may be eligible for RDN; (2) therapeutic options before consideration for RDN; and (3) estimates of potential budget impact. The objective of this analysis is to provide an evidence-based estimate of the prevalence of severe TR-HTN to determine the RDN eligible patient population in Australia. **METHODS:** Based on published consensus guidelines criteria, severe treatment HTN was defined as SBP ≥ 160 mmHg despite receiving 3 or more anti-HTN drugs including a diuretic. Published prevalence of Australians with treated HTN was combined with evidence extracted from the literature regarding HTN severity, medication usage and clinical trial exclusion rate to estimate the number of RDN eligible patients in Australia. **RESULTS:** In the most recent published national assessment, the gross prevalence of HTN in Australia was estimated as 34%, with a treatment rate of 53%. The current analysis estimated the prevalence of severe TR-HTN amongst treated HTN to be 3.5%. When exclusion criteria for RDN were applied, the eligible population was estimated at 1.1% of those receiving treatment for HTN. **CONCLUSIONS:** RDN eligible patients represent a small and discrete subset of all patients receiving HTN treatment and, when the consequences in this high risk population are considered, would represent a moderate impact on government health budgets. In addition, applying standardised and clinically based RDN selection criteria may lead to increased scrutiny and improved clinical management in the broader pool of HTN patients – some of whom may achieve a sufficient reduction in SBP without the need for RDN.

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**PCV21: THE RELATIONSHIP BETWEEN MASKED HYPERTENSION AND OBESITY**

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**OBJECTIVES:** Masked hypertension is associated with an increased risk for cardiovascular conditions. The aim of the study was to evaluate the relationship obesity parameters, including body weight, waist circumference, body mass index. **METHODS:** The study group consisted of 118 consecutive patients with masked hypertension and 115 healthy control subjects. After a complete medical history and laboratory examination, patients’ height, weight, waist circumference heart rate, and office blood pressure were recorded. All subjects underwent ambulatory blood pressure monitoring. Masked hypertension is defined as normal office blood pressure measurement and high ambulatory blood pressure level. **RESULTS:** Baseline characteristics in patients and controls were similar. Waist circumference (93.5±12.4 vs. 87.5±8.5, P<0.001), weight (79.7±11.4

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vs. 68.3±9.9, P<0.001), body mass index (29.9±3.7 vs. 25.1±4.6, P<0.001) in masked hypertensive subjects was significantly higher than controls. **CONCLUSIONS:** This study demonstrated that anthropometric indices such as waist circumference, body mass index were higher in masked hypertensive patients. It can be suggested that predefining obesity might be helpful in early detection of masked hypertension.

**PCV22:** **BODY MASS INDEX (BMI) AS A PREDICTOR OF OUTCOME AFTER CORONARY ARTERY BYPASS GRAFTING: AN ASIAN PERSPECTIVE**

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**OBJECTIVES:** There is considerable literature from developed nations on the effect of body mass index (BMI) on outcomes following cardiac surgery. Increased BMI is associated with an increased postoperative morbidity. World health organization (WHO) has suggested modified scale for Asians to categorize BMI. We have studied the effect of BMI on our population, using modified scale, as predictor of outcome after coronary artery bypass grafting (CABG). **METHODS:** 1019 charts of first time isolated elective CABG patients was retrospectively reviewed from January 2006 to December 2008. We excluded patients undergoing urgent, emergency and off pump procedures. Data was analyzed on SPSS17. Logistic regression was applied to explore whether increased BMI is a predictor of in-hospital complications after CABG. **RESULTS:** Retrospective analysis of 1019 first time isolated elective CABG patients was performed. Out of them, 163 (16.0%) patients had normal BMI (18.5 to 22.9 (kg/m2) while 856 (84.0%) had increased BMI (≥ 23.0 (kg/m2). Operative profile shows that (888 (87.9%)) patients had three vessels coronary artery disease and (970 (95.2%)) got IMA grafts. Their 30-days mortality was 0.8%. The data showed patients with higher BMI tended to have increased postoperative complications. However multivariate analysis revealed age (adj OR: 1.04; 95%C.I: 1.02, 1.06), hospital stay (adj OR: 1.07; 95% C.I: 1.04, 1.10), perfusion time (adj OR: 1.48; 95%C.I: 1.05, 2.10) and renal failure (adj OR: 1.63; 95% C.I: 1.02, 2.59) as significantly associated with in hospital complications, while increased BMI remained insignificant at P value of ≤0.05. Model was adequately fit at P=0.749 by Hosmer and Lemeshow test. **CONCLUSIONS:** This study concludes that increased BMI in itself is not a predictor of increased mortality and morbidity. Post-operative complications in first time isolated elective CABG patients is, in fact, associated with increasing age, hospital stay, perfusion time and renal failure.

**PCV23:** **AWARENESS OF HYPERLIPIDEMIA AMONG UNIVERSITY STUDENTS AND STAFF MEMBER**

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**OBJECTIVES:** To evaluate the awareness of hyperlipidemia among university students and university staff members and to identify respondent variables that affect hyperlipidemia knowledge level. **METHODS:** A survey was conducted to evaluate the awareness of hyperlipidemia among university students and faculty members. A validated questionnaire was used to assess knowledge of factors that are responsible for hyperlipidemia, knowledge of food that was responsible for hyperlipidemia and the knowledge regarding hyperlipidemia medicine. Respondents variables were associated with their knowledge level and were evaluated through SPSS version 20. **RESULTS:** Of the 205 respondents, 91 (44.2%) were male and 114 (55.8%) were females with a mean age of 26.8 years (SD 0.6). One hundred and thirty (63.6%) of respondents were students whereas 75 (36.4%) respondents were university staff members. Almost half (49.5%) of respondents BMI was normal (18.5-22.5) followed by pre-obese (25.7%) and obese (12.1%). One hundred and forty three (69.4%) of respondents had adequate knowledge of factors responsible for hyperlipidemia. 190 (92.2%) had adequate knowledge of food responsible for hyperlipidemia, however only 7 (3.4%) respondents had adequate knowledge of hyperlipidemia medicine (HMG CoA reductase inhibitors). Respondent gender (p 0.004), education level (p 0.016) and occupation (p 0.001) had a statistically significant association with factors responsible for hyperlipidemia. Respondent's race (p 0.012) had a significant association with knowledge of food responsible for hyperlipidemia. Similarly, patient gender (p 0.046) and occupation (p 0.041) had significant association with knowledge of hyperlipidemia medicine. **CONCLUSIONS:** Awareness of hyperlipidemia was adequate among university students and staff members however awareness of hyperlipidemia medicine was inadequate. Regular seminars and workshops can help create awareness among different aspect of hyperlipidemia.

**PCV24:** WITHDRAWN
PCV25: BUDGET IMPACT OF LEFT ATRIAL APPENDAGE OCCCLUSION IN PATIENTS WITH ATRIAL FIBRILLATION CONTRAINDICATED TO ANTICOAGULATION

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OBJECTIVES: Stroke is a leading public health problem in terms of mortality and economic burden in Korea. Anticoagulants are the mainstay for ischemic stroke prevention in atrial fibrillation (AF), but many patients have contraindications to these drugs. A number of catheter-based left atrial appendage occlusion (LAAO) devices devised to eliminate the major cause of thromboembolism in AF patients have been commercialized in Europe but are not yet available in Korea. The purpose of this study is to perform a budget impact analysis of LAAO in patients with AF contraindicated to anticoagulation. Such analysis could help decision makers assign greater priority to stroke prevention in Korea. METHODS: A budget impact model (BIM) was developed based on the number of ischemic strokes and deaths prevented by LAAO. LAAO was compared to no stroke prevention since AF patients contraindicated to anticoagulation have no other alternatives. Sensitivity analyses on clinical and cost inputs were performed. RESULTS: LAAO demonstrated a benefit in terms of ischemic strokes and mortality avoided. The BIM was most sensitive to the patients’ baseline stroke risk factors, the treatment effect of LAAO, the cost of stroke management and the cost of the LAAO procedure. For instance, in high stroke risk patients with CHADS2VASc score ≥ 6 one stroke can be avoided within five years by LAAO performed in just three patients. LAAO can become cost saving after three years post LAAO procedure assuming that the cost of LAAO procedure is approximately $15,000,000, the total cost of stroke defined as direct and indirect cost in the first year is approximately $31,000,000 and the total cost in each subsequent year is approximately $12,500,000. CONCLUSIONS: This analysis highlights that LAAO can be a cost saving stroke prevention therapy in anticoagulation intolerant AF patients in medium to long term post LAAO procedure.

PCV26: MEDICAL COSTS OF CARDIOVASCULAR DISEASES IN TAIWAN

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OBJECTIVES: To examine the medical costs during the first and the 2nd year following the onset of cardiovascular diseases, i.e. myocardial infarction (MI), angina, stroke, coronary heart failure (CHF), or peripheral arterial disease (PAD). METHODS: The National Health Insurance Research Database (NHIRD), a nationwide population-based claims database, was used in the study. Patients who hospitalized with the principal diagnosis code of 410 for MI, 413 for angina, 430-434 for stroke, or 428 for CHF, or who had outpatient visits with the principal diagnosis of 443.9 for PAD during 2005-2009 were identified as study subjects. The initial date of the hospitalization/outpatient visit with the diagnosis code associated with each disease was defined as the index date. Patients who had outpatient visits or hospitalization with diagnoses of MI, angina, stroke, CHF and PAD within five years before the index date were excluded, except for patients who had outpatient visits within two weeks prior to the index date. Patients who withdrew from the health insurance program during the first and the 2nd year after the index date were also excluded. The generalized linear model was used to estimate medical costs associated with cardiovascular diseases within 1st year and 2nd year after the index date. All costs were inflated to 2011 dollars by using the medical care component of the Consumer Price Index. RESULTS: The 1st year average total medical costs associated with MI, angina, stroke, CHF, and PAD were NT$293,995, NT$60,305, NT$141,086, NT$113,100, and NT$6,556, respectively. The 2nd year average total medical costs associated with MI, angina and stroke were NT$63,365, NT$33,469 and NT$52,513, respectively. CONCLUSIONS: Medical costs associated with cardiovascular diseases were substantial to the National Health Insurance program in Taiwan. These results indicate potential benefits from interventions aimed at preventing the risk factors of cardiovascular diseases such as hypertension, hyperlipidemia, and hyperglycemia.

PCV27: EXAMPLE OF ANALYSIS UTILIZING REAL WORLD DATA: MEDICAL COST REDUCTION BY ADVISING UNTREATED-HYPERTENSION PATIENTS TO VISIT DOCTORS

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OBJECTIVES: We define patients who have not consulted doctors to treat their hypertension, while they have learned their blood pressure levels are high through health check-up, as untreated-hypertension patients. Our research objective is to calculate using real world data how much lower the medical cost would be if the untreated-hypertension patients visit doctors in response to suggestions to do, which represents the cost reduction of cost-effectiveness analysis. METHODS: We used the
data of Japan Medical Data Center (JMDC), which provides health insurance claims data with linked health check-up data of 1.7 million members from health insurance societies in Japan. RESULTS: It is estimated there are around 705 untreated-hypertension patients in a virtual (yet supposed-to-be typical according to the JMDC data) health insurance society with 10,000 members. They would leave their conditions as they are for an average of 6 years knowing that their blood-pressure levels are high. It is necessary to advise untreated-hypertension patients to visit doctors for treatment. Such advice should be able to start their hypertension treatment in early stages and prevent them from future complicating diseases. According to our calculation, the medical cost after taking antihypertensive would increase by 11% without aging factors by leaving their untreated-hypertension conditions for one year. CONCLUSIONS: If the virtual health insurance society had all the existing patients with mid-level (160/100 or higher) high blood pressures visit doctors right now, their monthly medical cost would be 0.71 million yen lower against the amount they had to pay in the future (averagely in 3 years) if they continue to avoid visiting, which represents 71 yen a month per member, and had all the existing patients with mid-level high blood pressures visit doctors retrospectively, its monthly medical cost would have been 0.52 million yen lower now. This amount represents 52 yen a month per member.

PCV28: ANTITHROMBOTIC THERAPY AND DIRECT MEDICAL COSTS IN PATIENTS WITH ACUTE CORONARY SYNDROME IN SHANGHAI, CHINA

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OBJECTIVES: Acute coronary syndrome (ACS) is a leading cause of morbidity and mortality worldwide. This study aims to describe treatment patterns and disease burden for patients with ACS in Shanghai, China. METHODS: A retrospective descriptive cohort study was conducted. Data were obtained from electronic medical records of seven major Shanghai medical centers. Patients who had at least one primary diagnosis of ACS between January 2006 and July 2012 were included in the study. Patient ACS-related antithrombotic medication use, laboratory tests, key comorbidities, healthcare utilization and direct medical costs were examined. Log-linear regression was conducted to explore the factors associated with total direct medical cost. RESULTS: A total of 6,601 patients were included with mean age of 69.7 (±SD12.5), 73% male and 10% mortality rate. 18.2% of studied patients had diabetes as a comorbidity, 21.2% had hypertension, and 8.6% had hyperlipidemia. 6,466 (98.0%) of patients had been hospitalized for ACS with mean 14.0 (±16.4) days per hospitalization. There were 1,022 patients (15.5%) presented to emergency department. Of those, 93.5% received any antithrombotic therapy, including 92.8% with antiplatelet agents and 20.8% with anticoagulants. The ACS-related direct medical costs were RMB19,421 (±24,741) per hospitalization with medication of RMB6,798 and lab tests of RMB1,355, and RMB2,894 (±7,060) per outpatient visit with medication of RMB624 and lab tests of RMB464. The higher direct medical cost was associated significantly (p<0.01) with aging, being male, antiplatelet and anticoagulant uses, diabetes, stroke, hyperlipidemia, hypertension, and chronic kidney diseases. CONCLUSIONS: Antithrombotic therapeutic treatments were commonly used among ACS patients in Shanghai, China. ACS poses significant disease burden to the healthcare system and patients. The higher treatment cost for patients with ACS involves antithrombotic use and key comorbidities.

PCV29: HOW LIKELY WARFARIN PHARMACOGENETIC TEST TO BE COST-EFFECTIVE IN THAILAND: A THRESHOLD ANALYSIS

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OBJECTIVES: Our economic evaluation of warfarin pharmacogenetic (PGx) test revealed that the test was not cost-effective in Thailand, based on input parameters derived from a meta-analysis of Caucasians-dominant studies for the relative risk (RR) of major bleeding in variant genotypes of CYP2C9 [2.19, 95%CI (1.33-3.60)] and VKORC1 [1.08, 95%CI (0.55-2.10)]. Considering this limitation and the high prevalence of VKORC1 variant genotype in Thailand, this study aimed to determine the threshold value of the RR of major bleeding for VKORC1 variant genotypes leading PGx test to be cost-effective. METHODS: We conducted a literature search for local and international publications investigating the relationship of VKORC1 genotype and the risk of major bleeding in warfarin users. Additionally, interviews with local key cardiologists were undertaken. A threshold analysis was performed for patients aged 45 years old using the previously constructed decision analytic model. The model was populated from the societal perspective. Input data were obtained from literature review, meta-analysis, and electronic hospital
CORONARY SYNDROME IN THAILAND

with clopidogrel

recommended by the World Health Organization of CNY 105,000 (US$ 16,200) per QALY.

aspirin alone, clopidogrel

multivariable probabilistic sensitivity analyses were performed to test the robustness of the findings.

Markov model was created to determine the

study sought to estimate the cost

minor stroke was shown to reduce the

OBJECTIVES:

Health and Family Planning Commission, Beijing, China

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OBJECTIVES: Rivaroxaban is a new oral anticoagulant subsidised on the Australian Pharmaceutical Benefits Scheme (PBS) for prevention of stroke or systemic embolism in patients with non-valvular atrial fibrillation or undergoing hip and knee replacement. Recent randomized controlled trials (RCTs) have demonstrated its efficacy and safety in treating patients with acute coronary syndrome (ACS). The aim of this study was to assess the long-term cost-effectiveness of treating patients with ACS with rivaroxaban for a 12 month period and modelling the lifetime costs and benefits from a third party payer perspective.

METHODS: A two-part decision model was constructed to compare treatment with rivaroxaban or current treatment for patients with ACS. The first part was a decision-tree model comprising four health states (no event, non-fatal MI, non-fatal stroke, death) adopted to simulate treatment outcomes based on the event rates reported in the RCTs) health care costs (PBS, hospital cost weights) and quality of life weights (from published literature) for 12 months. Beyond 1-year, treatment outcomes were estimated via a Markov model, with lifetime costs, and quality adjusted life years (QALYs) estimated for both arms and an Incremental cost-effectiveness ratio (ICER) estimated. A series of sensitivity analyses were performed to test the robustness of the result. RESULTS: One-year treatment with rivaroxaban was associated with both incremental cost and QALY (AUD 30688 vs. 30101, 17.51 vs. 17.39 for rivaroxaban and placebo respectively) over lifetime horizon in the baseline analysis. The ICER for rivaroxaban comparing to placebo was AUD 4896 per QALY gained. The probabilistic sensitivity analysis varying the event transition probability also showed consistent results. CONCLUSIONS: Based on clinical and health economic evidence, treating ACS patients with rivaroxaban for 12 months was associated with an ICER of AUD 4896/QALY, which is below the Willingness-to-pay per QALY threshold in Australia inferred from published literature.

STROKE

OBJECTIVES: Treatment with the combination of clopidogrel and aspirin taken soon after a transient ischemic attack (TIA) or minor stroke was shown to reduce the 90-day risk of stroke in a large trial in China, but the cost-effectiveness is unknown. This study sought to estimate the cost-effectiveness of clopidogrel-aspirin regimen for acute TIA or minor stroke. METHODS: A Markov model was created to determine the cost-effectiveness of treatment of acute TIA or minor stroke patients with clopidogrel-aspirin compared with aspirin alone. Inputs for the model were obtained from clinical trial data, claims databases, and the published literature. The main outcome measure was cost per quality-adjusted life-years (QALYs) gained. One-way and multivariable probabilistic sensitivity analyses were performed to test the robustness of the findings. RESULTS: Compared to aspirin alone, clopidogrel-aspirin resulted in a lifetime gain of 0.037 QALYs at an additional cost of CNY 1250 (US$ 192), yielding an incremental cost-effectiveness ratio of CNY 33,800 (US$ 5200) per QALY gained. Probabilistic sensitivity analysis showed that clopidogrel-aspirin therapy was more cost-effective in 95.7% of the simulations at a willingness-to-pay threshold recommended by the World Health Organization of CNY 105,000 (US$ 16,200) per QALY. CONCLUSIONS: Early 90-day clopidogrel-aspirin regimen for acute TIA or minor stroke is highly cost-effective in China. If clopidogrel were generic, treatment with clopidogrel-aspirin would have been cost saving.

EFFECTIVENESS OF TREATING ACUTE CORONARY SYNDROME PATIENTS WITH RIVAROXBAN IN AUSTRALIA

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OBJECTIVES: Rivaroxaban is a new oral anticoagulant subsidised on the Australian Pharmaceutical Benefits Scheme (PBS) for prevention of stroke or systemic embolism in patients with non-valvular atrial fibrillation or undergoing hip and knee replacement. Recent randomized controlled trials (RCTs) have demonstrated its efficacy and safety in treating patients with acute coronary syndrome (ACS). The aim of this study was to assess the long-term cost-effectiveness of treating patients with ACS with rivaroxaban for a 12 month period and modelling the lifetime costs and benefits from a third party payer perspective. METHODS: A two-part decision model was constructed to compare treatment with rivaroxaban or current treatment for patients with ACS. The first part was a decision-tree model comprising four health states (no event, non-fatal MI, non-fatal stroke, death) adopted to simulate treatment outcomes based on the event rates reported in the RCTs) health care costs (PBS, hospital cost weights) and quality of life weights (from published literature) for 12 months. Beyond 1-year, treatment outcomes were estimated via a Markov model, with lifetime costs, and quality adjusted life years (QALYs) estimated for both arms and an Incremental cost-effectiveness ratio (ICER) estimated. A series of sensitivity analyses were performed to test the robustness of the result. RESULTS: One-year treatment with rivaroxaban was associated with both incremental cost and QALY (AUD 30688 vs. 30101, 17.51 vs. 17.39 for rivaroxaban and placebo respectively) over lifetime horizon in the baseline analysis. The ICER for rivaroxaban comparing to placebo was AUD 4896 per QALY gained. The probabilistic sensitivity analysis varying the event transition probability also showed consistent results. CONCLUSIONS: Based on clinical and health economic evidence, treating ACS patients with rivaroxaban for 12 months was associated with an ICER of AUD 4896/QALY, which is below the Willingness-to-pay per QALY threshold in Australia inferred from published literature.

EFFECTIVENESS OF CLOPIDOGREL-ASPIRIN VERSUS ASPIRIN ALONE FOR ACUTE TIA AND MINOR STROKE

OBJECTIVES: Early 90-day risk of stroke in a large trial in China, but the cost-effectiveness is unknown. This study sought to estimate the cost-effectiveness of clopidogrel-aspirin regimen for acute TIA or minor stroke. METHODS: A Markov model was created to determine the cost-effectiveness of treatment of acute TIA or minor stroke patients with clopidogrel-aspirin compared with aspirin alone. Inputs for the model were obtained from clinical trial data, claims databases, and the published literature. The main outcome measure was cost per quality-adjusted life-years (QALYs) gained. One-way and multivariable probabilistic sensitivity analyses were performed to test the robustness of the findings. RESULTS: Compared to aspirin alone, clopidogrel-aspirin resulted in a lifetime gain of 0.037 QALYs at an additional cost of CNY 1250 (US$ 192), yielding an incremental cost-effectiveness ratio of CNY 33,800 (US$ 5200) per QALY gained. Probabilistic sensitivity analysis showed that clopidogrel-aspirin therapy was more cost-effective in 95.7% of the simulations at a willingness-to-pay threshold recommended by the World Health Organization of CNY 105,000 (US$ 16,200) per QALY. CONCLUSIONS: Early 90-day clopidogrel-aspirin regimen for acute TIA or minor stroke is highly cost-effective in China. If clopidogrel were generic, treatment with clopidogrel-aspirin would have been cost saving.

EFFECTIVENESS ANALYSIS OF FONDAPARINUX versus ENOXAPARIN IN NON-ST ELEVATION ACUTE CORONARY SYNDROME IN THAILAND

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OBJECTIVES: Non-ST elevation acute coronary syndrome (NSTE-ACS) imposes significant health and economic burden to Thai society. Anticoagulants are recommended as standard therapy by various clinical practice guidelines. With the advent of a new anticoagulant, therefore, this study aimed to determine the cost-effectiveness of fondaparinux versus enoxaparin in the treatment of NSTE-ACS in Thailand. METHODS: A two-part construct model composing of a one-year decision tree and a Markov model was developed to capture short and long-term costs and outcomes with the perspective of provider and society. Effectiveness data were derived from OASIS-5 trial while bleeding rates were derived from the Thai Acute Coronary Syndrome Registry (TACSR), the largest cohort study ever conducted in Thailand. Costs data were based on a Thai database and presented in the year of 2013. Both costs and outcomes were discounted with 3% annually. A series of sensitivity analyses were performed. RESULTS: The cost-effectiveness results showed that compared with enoxaparin, fondaparinux yielded cost saving (lower cost with greater effectiveness in both societal and provider perspectives). Total cost of major bleeding with revascularization had a great impact on amount of cost saved both in societal and provider perspectives. With a threshold of 160,000 THB (4,857.32 USD), fondaparinux showed above 95% being cost-effective compared with enoxaparin. CONCLUSIONS: Fondaparinux might be considered as another cost-effective alternative compared to enoxaparin in the era of limited healthcare resources in Thailand.

PCV33: COST-EFFECTIVENESS OF SINGLE-PILL COMBINATION THERAPY OF AMLODIPINE/ATORVASTATIN COMPARED WITH CONCURRENT TWO-PILL THERAPY IN PATIENTS WITH HYPERTENSION

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OBJECTIVES: Single-pill combination therapy may be more effective compared with two pill approach in hypertensive patients requiring concomitant statin therapy. We investigated the cost-effectiveness of single-pill amlodipine/atorvastatin (SP) therapy compared with two-pill co-administration(TP) therapy for prevention of cardiovascular disease (CVD) with consideration to adherence in patients with hypertension using simulation model. METHODS: Cohort simulation was performed with 1000 hypertensive patients at an increased risk of CVD or with concomitant dyslipidemia. The efficacy was defined as the number of CVD prevention, which depends on differences in patients’ adherence to each alternative. ‘Adherence’ was defined as compliance to medication over 80% on proportional day covered (PDC) and ‘non-adherence’ for the remaining. The number of cardiovascular event differences in adherence level were searched through systematic review. The annual costs of medicine were included according to the adherence levels of each alternative. Average cost-effectiveness ratio (ACER) was calculated as the cost per CVD event prevented in the cohort. All costs were described in 1,000 Korean won(KRW). RESULTS: The number of CVD prevention in SP approach was higher than in TP approach by approximately 4cases. Total annual medication cost with SP approach was 209,719–225,164 KRW which was lesser than the cost in TP approach, 261,893–281,993KRW. ACERs in SP approach were lower than those in TP approach (214~231KRW vs 268~298KRW per prevented CVD event, respectively). SP approach reduced medication cost by around 20% per cardiovascular prevention case than TP approach. CONCLUSIONS: SP approach is cost effective compared with TP approach in hypertensive patients at risk of cardiovascular event or those with concomitant dyslipidemia for CVD prevention.

PCV34: THE INTEGRATED CARE PATHWAY FOR MANAGING POST STROKE (ICAPPS) PATIENTS IN THE COMMUNITY: A COST – EFFECTIVENESS ANALYSIS

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INTRODUCTION: The iCaPPS was designed to deliver comprehensive post stroke care for stroke survivors in communities with limited access to specialised stroke care services. Rehabilitation intervention and regular screening for post stroke complications were additional features of iCaPPS compared with conventional care practices. OBJECTIVES: A cost effectiveness analysis study was done to ascertain impact of iCaPPS on quality of life compared with current conventional monitoring based in public healthcentres. METHODS: A cluster randomised controlled trial on 151 post stroke patients from 10 selected public healthcentres in Peninsular Malaysia was done to evaluate quality of life (QoL) of patients managed with iCaPPS (n=86) vs
conventional care (n=65) for 6 months. Costs from provider and patient perspective were calculated. QoL was evaluated using EQ-5D health state utility scores. Cost per quality adjusted life year (QALY) gained and incremental cost effectiveness ratio (ICER) were determined. Differences within groups were determined using Mann-Whitney tests. RESULTS: Total costs for 6 months treatment with iCaPPS was RM790.34, while conventional care cost RM527.22. QALY for iCaPPS patients was 0.55 (0.1, 0.65) compared to conventional care 0.32 (0, 0.73) (z=-0.21, p=0.84). Cost per QALY gained for iCaPPS was RM1436.98, conventional care was RM1647.56. The ICER was RM1144.00, equivalent to 3.7% of per capita GDP. DISCUSSION: Managing post stroke patients using the iCaPPS protocol cost 1.5 times more than conventional care although QALY scores improved. CONCLUSIONS: The management of post stroke patients in the community using iCaPPS protocol is cost effective compared to current conventional care in public healthcentres.

PCV35: MARKOV MODEL-BASED ECONOMIC EVALUATION OF COMBINATION THERAPY WITH EZETIMIBE AND STATIN MONOTHERAPY

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OBJECTIVES: To compare the cost and effectiveness of combination therapy with ezetimibe vs. doubling of statin dose for high risk patients who failed to reach target LDL cholesterol (LDL-C) levels on their current statin dose. METHODS: A previously developed Markov model was utilized to evaluate cost and number of cardiovascular events of a high risk cohort in a certain time (3,5,10 years) in the future. The lipid-lowering effects of the addition of ezetimibe (10mg) on top of statins (simvastatin 40mg, atorvastatin 20mg, rosuvastatin 10mg) (E+S, E+A, E+R) vs. doubling of existing statin dose (simvastatin 80mg, atorvastatin 40mg, rosuvastatin 20mg) (2S, 2A, 2R) were estimated from the medicine specification of ezetimibe and researches published. 635 patients were in the high risk cohort who failed to reach target LDL cholesterol (LDL-C) levels on their current statin dose. Patient profile data were generated based on the DYSIS study in China. Data about cost of different cardiovascular events was from published research. Prices of statins and ezetimibe were from NDRC. All costs were calculated in RMB. RESULTS: In 3,5,10 years after 6-week treatment, combination therapy with ezetimibe could reduce number of non-fatal CHD events, non-fatal stroke and CVD deaths more than doubling of existing statin dose. In 10 years, E+S can reduce non-fatal CHD events by 16.78% than 2S; E+R can reduce non-fatal stroke and CVD deaths by 8.75%, 11.36% than 2R. In 10 years overall medical expense of combination therapy with ezetimibe is less than doubling of existing statin dose. CONCLUSIONS: Adding ezetimibe to statin (simvastatin, atorvastatin, rosuvastatin) among high risk patients who were not at LDL-C goal could be a cost-effective treatment strategy when compared to doubling of statin dose.

PCV36: THE COST-EFFECTIVENESS OF FOUR CHINESE PATENT MEDICINE IN THE TREATMENT OF ANGINA PECTORIS IN CHINA

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OBJECTIVES: Coronary heart disease (CHD) remains the leading cause of death in China, requiring long-term treatment. Angina pectoris is the most common symptom of CHD. Because of fewer side effects and its application in multiple pathological link in CHD, Chinese patent medicine continue to increase its importance in the long-term treatment of angina pectoris. This study aimed to estimate the cost-effectiveness of Suxiao jiuxin pill, Shexiang baoxin pill, Tongxinluo capsule and Compound Danshen dropping pill in the treatment of angina pectoris, to provide reference for reasonable clinical prescription. METHODS: A decision-analytic model was developed to estimate the cost-effectiveness of Suxiao jiuxin pill, Shexiang baoxin pill, Tongxinluo capsule and Compound Danshen dropping pill from the perspective of the whole society with a time horizon of 4 weeks. In the model, outcome on effectiveness was based on quantitative synthetic of Meta analysis. And cost data was mainly based on the published data and in combination with China’s practical situation. Uncertainty was investigated with probabilistic sensitivity analysis, and the expected value of efficient, period of treatment, drug prices and average daily dose were also calculated. RESULTS: The effective rates of Suxiao jiuxin pill, Shexiang baoxin pill, Tongxinluo capsule and Compound Danshen dropping pill were 89.67%, 87.11%, 85.13%, 83.71%, respectively; total costs were $62.31, $64.21, $100.29, $70.08, respectively. Sensitivity analysis suggested the robustness of the results. CONCLUSIONS: Results of the model indicate that Suxiao jiuxin pill appears to be the most cost-effective. The availability of more high-quality clinical data would allow a better adaptation of the model. Future research could be focused on this.

PCV37: COMPARATIVE COST-EFFECTIVENESS OF CT PERFUSION FOR SELECTING STROKE PATIENTS FOR THROMBOLYSIS

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**PCV38: A COST-UTILITY ANALYSIS OF CALCIUM CHANNEL BLOCKERS (CCBS) COMPARED WITH ANGIOTENSIN II RECEPTOR BLOCKERS (ARBs) IN PREVENTING STROKE AND MYOCARDIAL INFARCTION AMONG HYPERTENSION PATIENTS IN THE TAIWAN**

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**OBJECTIVES:** Hypertension is a major risk factor for stroke and myocardial infarction (MI), which imposes a substantial burden on patients, caregivers, and society. Despite the high financial burden, limited studies have examined the cost-effectiveness of hypertension treatments in Taiwan. This cost utility analysis was conducted to determine the costs and quality-adjusted life years (QALYs) associated with amlodipine (CCB) and valsartan (ARB) in preventing stroke and MI among Taiwanese hypertension patients. **METHODS:** A Markov model was developed, consisting of six states including alive without stroke/MI, MI, post-MI, stroke, post-stroke, and death. We estimated the costs and QALYS of amlodipine and valsartan in a five-year time period. Effectiveness data were based on a published meta-analysis. Costs of drugs, direct medical costs of hypertension management, stroke/MI treatment, and follow-up management were included. All costs inputs were based on either published literature or an expert survey. Utility data were retrieved from published literature. Discounting rate used for both costs and QALYs was 3% and currency reported in 2014 US dollar (US$1 = 30 Taiwanese dollar). Third-party payer perspective was applied. **RESULTS:** Based on the hypothetical cohort of 10,000 hypertension patients, total costs for amlodipine and valsartan users were US$7,969,402 and US$13,169,296 respectively. Total QALYs was 30,648.5 for amlodipine users and 30,520.8 for valsartan users. Compared to valsartan, amlodipine had an incremental cost of US$5,199,894 with 127.7 QALYs gained. Results remained consistent from various sensitivity analyses. **CONCLUSIONS:** For hypertension patients in Taiwan, amlodipine is a cost-saving treatment with better outcomes in preventing stroke and MI in comparison with valsartan. It lowers the acute care costs associated with stroke and MI as well as costs of follow-up disease management.

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**PCV39: DOES BLOOD LIPID SCREENING IS COST-EFFECTIVENESS AMONG CHINESE ADULTS AGED 45 AND ABOVE?**

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**OBJECTIVES:** Dyslipidemia is a common chronic disease in China, which is a main risk factor for cardiovascular and cerebrovascular diseases. Blood lipid screening is a positive method for prevention of dyslipidemia, but the cost-effectiveness of blood lipid screening versus no screening for the primary prevention of hyperlipidemia and its complication. **METHODS:** A Markov model was designed according to dyslipidemia clinical development and pathway for the cost-effectiveness analysis. Markov model simulated the long term effects of screening and no screening strategies. The model assumed the starting age of 45 and a 30-year time horizon. Costs were calculated in terms of direct medical costs and costs of drug treatment. A lifetime horizon was assumed. A discount rate of 3% was used. Sensitivity analysis was conducted to test the model's robustness. **RESULTS:** The results of our comparative economic evaluation show that CTP were more cost effective than CT for thrombolysis both in China and abroad.
OBJECTIVES: The model results showed that the per capita cumulative costs and utilities in no screening group were CNY65343 and 12.58 QALYs, and CNY 64337 and 12.9 QALYs in screening group. Comparing with the no screening group, the screening had lower costs and higher utility. The results of One-way sensitivity analysis showed that the transition probability from dyslipidemia (no screening) to complications, the transition probability from dyslipidemia (screening detected) to complications and the cost of drug intervention had obvious impacts on the model results. CONCLUSIONS: Based on this Markov model, blood lipid screening is likely to be cost-effective compared with no screening for the primary prevention of dyslipidemia and its complication among Chinese aged 45 and above.

PCV40: ECONOMIC EVALUATION OF CATHETER-BASED RENAL DENERVATION FOR PATIENTS WITH RESISTANT HYPERTENSION IN KOREA

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OBJECTIVES: To determine the cost-effectiveness of catheter-based renal denervation (RDN) for resistant hypertension over a lifetime from the National Health Insurance perspective in Korea. METHODS: We adopted a Markov state-transition model with a monthly cycle that has been developed and validated recently to assess clinical and economic impact of replacing ‘standard of care (SOC) alone’ with ‘SOC plus RDN.’ The model was calibrated to predict the cost-effectiveness of RDN in Korean health care setting by best utilizing Korea-specific data for key model parameters. Our analysis was based on the Symplicity HTN-2 trial for the changes in systolic blood pressure (SBP) at 6 months after RDN treatment. The model incorporates 7 clinical endpoints associated with hypertension: hypertension (referring to no event), angina pectoris, myocardial infarction, stroke, heart failure, end-stage renal diseases, and cardiovascular and non-cardiovascular death (absorbing state). A total of 34 health states were defined reflecting all possible health states associated with the clinical endpoints based on the natural history of diseases. RESULTS: According to the base-case analysis, each subject receiving SOC plus RDN to treat resistant hypertension gained 0.37 QALYs and 7.21 million Korean won (KRW. one US dollar = 1,100 KRW) more than a subject with SOC alone. The incremental cost-utility ratio (ICUR) was 19.69 million KRW per QALY gained. The results of sensitivity analyses showed that the relative cost-effectiveness was most sensitive to the SBP lowering effect of RDN. Other variables had only minimal impact on results, supporting the robustness of the results. CONCLUSIONS: ‘SOC plus RDN’ appears to be a cost-effective treatment option for patients with resistant hypertension in Korea based on the WHO recommendation that a treatment is very cost-effective if the treatment’s ICUR is lower than the gross domestic product (GDP) per capita. The per-capita GDP in Korea in 2012 was 26 million KRW.

PCV41: COST EFFECTIVENESS OF CATHETER-BASED RENAL DENERVATION FOR TREATMENT RESISTANT HYPERTENSION – AN AUSTRALIAN PAYER PERSPECTIVE

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OBJECTIVES: Catheter-based renal denervation (RDN) is an effective and durable therapy option for patients with treatment resistant hypertension (TR-HTN). Based on results of the Symplicity HTN-2 trial (NCT00888433), Geisler et al. (2012) developed a Markov model to quantify the cost effectiveness of RDN plus standard of care (SOC) vs SOC alone in the US healthcare setting. The objective of this analysis is to assess the cost-effectiveness of RDN in patients with TR-HTN from the Australian payer perspective. METHODS: Geisler methods were largely retained but life tables, resource use, costs and discount rates were revised to reflect Australian parameters. Importantly, the treatment effect of RDN was based on a meta-analysis of all studies (regardless of catheter used) enrolling TR-HTN patients (SBP ≥ 160 mmHg despite >3 anti-hypertensive drugs including a diuretic). The model consisted of 30 health states and employed multivariate risk equations from large-scale cohort studies to calculate transition probabilities of events and event mortality. Discounted (5%) costs and outcomes were calculated over a lifetime horizon. RESULTS: The weighted mean decrease in office-based SBP over 6 months was -28.1 mmHg (95% CI: -24.5 to -31.6). The RDN procedure cost ($10,724.22) was partially offset by lower event costs primarily through a reduced incidence of stroke (-0.0559) and MI (-0.0524). RDN was associated with higher incremental costs ($5,951.04) and additional QALYs (0.4296) resulting in an incremental cost per QALY of $13,852. Sensitivity analyses demonstrated reliability of the base
case results across a wide range of assumptions. **CONCLUSIONS:** Consideration of both clinical and economic evaluations may be necessary to inform reimbursement decision making. Based upon this analysis, RDN is a cost effective treatment option for patients with rHTN in Australia. However, this conclusion is dependent upon the magnitude of SBP reduction with RDN and assumptions related to long term patient outcomes.

**PCV42: A COST UTILITY ANALYSIS OF AMLODIPINE COMPARED WITH ANGIOTENSIN II RECEPTOR BLOCKERS IN PREVENTING STROKE AND MYOCARDIAL INFARCTION AMONG HYPERTENSION PATIENTS IN THE PHILIPPINES**

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**OBJECTIVES:** Hypertension represents a major health problem, affecting more than 21% of adults in the Philippines. Amlodipine, a calcium channel blocker, is considered to have better tolerance and effectiveness than other classes of antihypertensive treatments. Limited studies have examined the cost-effectiveness of Amlodipine in the Philippines. The purpose of this study was to compare the costs and effectiveness associated with Amlodipine and Angiotensin II Receptor Blockers (Valsartan) in preventing stroke and myocardial infarction (MI) among Filipino hypertension patients. **METHODS:** A Markov model was developed using effectiveness, rate of stroke and MI, survival and utility data from published literature. Costs of drugs, direct medical costs of hypertension management, stroke/MI treatment, and follow-up management were included. Costs were based on a survey on experts in the Philippines except costs of MI treatments, which was retrieved from the literature. Total costs and QALYs in a five-year time horizon were calculated and compared between Amlodipine and Valsartan. The modeling was conducted with 10,000 hypertension patients in the Amlodipine and Valsartan arms respectively. Discounting rate used for costs and QALYs was 3%. Third-party payer perspective was adopted. **RESULTS:** In the base case analysis, Amlodipine was more effective with 30,648.5 QALYs versus Valsartan group’s QALYs which were 30,520.8 (net gain was 127.8 QALYs). Amlodipine was less costly with PHP766,083,016 while Valsartan group’s costs were PHP2,076,035,008 (costs saved were PHP1,309,951,992). Total cost was more sensitive than total QALYs to the sensitivity tests. Changing discount rate and cohort age had greater effect on the total cost and QALYs than changing the other parameters. However, Amlodipine remained dominant in the different scenarios of sensitivity analyses. **CONCLUSIONS:** This modeling analysis suggests that Amlodipine achieved overall cost saving and better outcomes when compared with ARBs (Valsartan) for hypertension patients in the Philippines.

**PCV43: SETTING UP THE RIGHT SCENARIOS FOR COST-EFFECTIVENESS ANALYSIS: AN EXAMPLE WITH ANTICOAGULANTS FOR STROKE PREVENTION IN ATRIAL FIBRILLATION PATIENTS IN CHINA**

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**OBJECTIVES:** Warfarin, the standard oral anticoagulant for stroke prevention in patients with atrial fibrillation (AF), is associated with frequent international normalized ratio (INR) monitoring and increased hemorrhagic risk. About 50% of European and American AF patients received warfarin nevertheless. Dabigatran, a novel oral anticoagulant, had been compared to warfarin to demonstrate its cost-effectiveness in developed countries. However, these economic evaluations couldn’t be applied to China setting. Despite treatment guidelines, warfarin use was conservative in China accounting for only 2.7% AF patients. More than half of the patients (56%) received aspirin, and still another 33% did not receive any prophylaxis therapy. In this study, we aimed to evaluate the cost-effectiveness of dabigatran in China settings and highlight the importance of setting up the right analysis scenarios. **METHODS:** An individual-level simulation model was developed to project the clinical events and outcomes under different treatment pathways over a patient’s remaining lifetime. Three scenarios were evaluated. First, aspirin, warfarin, and dabigatran were eligible first-line options over no treatment. Second, due to reluctance in warfarin use, only aspirin and dabigatran were considered. Third, reluctance in warfarin use together with contraindication to aspirin left dabigatran the only option. Efficacy/safety data were derived from RE-LY trial and published meta-analyses and literature. China-specific data were from published studies and expert inputs. **RESULTS:** In scenario 1, warfarin was cost-saving comparing to no-treatment and the ICER for dabigatran versus warfarin was CNY 367,425.7/QALY. Aspirin was dominated. In scenario 2, aspirin was cost-saving comparing to no-treatment and the ICER for dabigatran versus aspirin was CNY 253,592.3/QALY. In scenario 3, the ICER for dabigatran versus no-treatment was CNY 854,362.2/QALY. Given a WTP of CNY 115,261/QALY, conclusions on dabigatran’s cost-effectiveness varied in three scenarios. **CONCLUSIONS:** The cost-effectiveness of an intervention is not absolute. Country heterogeneity demands careful considerations when setting up the scenarios for analyses.
PCV44: ASSOCIATION BETWEEN BASELINE SOCIO-DEMOGRAPHIC AND CLINICAL CHARACTERISTICS AND TOTAL ANNUAL COST OF PATIENTS SUBJECTED TO CRMDS IMPLANTATION

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OBJECTIVES: To study the association between baseline socio-demographic and clinical characteristics and total annual follow up cost of unselected patients subjected CRMDS implantation in a real-world setting. METHODS: A single-centre, prospective study was conducted for one year's period. In total, 464 consecutive patients were recruited (370 were subjected to PM implantation initial or replacement and 94 to ICD implantation initial or replacement). The baseline collected data encompasses: socio-demographic characteristics, measurements of anthropometric and clinical characteristics; medical history, medications used before the enrolment in the study and QoL assessed by the EUROQOL EQ-5D Questionnaire. Resource data were assessed at 6 and 12 months after the procedure of implantation. Then, the components of cost were calculated using the bottom-up approach. RESULTS: The generalized linear model indicated that among the variables considered, only age, history of hypertension and hypercholesterolaemia are significantly associated with the total annual social cost of patients subjected to PM implantation. The predicted mean total annual costs (95% CI) adjusted for the factors mentioned above were €2.256 (€2.018–€2.534) for the overall sample of PM patients, and €2.171 (€1.888–€2.505) and €2.409 (€2.063–€2.778) in patients with initial PM implantation and those subjected to PM replacement, respectively. In addition, the history of hypertension and hypercholesterolaemia as well as the baseline QoL were significantly associated with the total annual cost of patients subjected to ICD implantation. The predicted mean total annual costs (95% CI) adjusted for the factors mentioned above were €3.318 (€2.771–€3.967) for the overall sample of ICD patients, and 3.528 (€2.901–€4.156) and €2.044 (€1.329–€3.029) in patients with initial ICD implantation and those subjected to ICD replacement, respectively. CONCLUSIONS: Age, history of hypertension and hypercholesterolaemia for the patients were subjected to PM implantation and moreover the quality of life for the patients were subjected to ICD are significantly associated with the total annual social cost.

CARDIOVASCULAR DISORDERS - Patient-Reported Outcomes & Patient Preference Studies

PCV45: AN EVALUATION OF MEDICATION ADHERENCE IN HYPERTENSIVE PATIENTS USING THE THEORY OF PLANNED BEHAVIOR

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OBJECTIVES: Uncontrolled blood pressure (BP) attributed to medication non-adherence may increase the risk of complications and death. Predicting hypertensive patients’ medication adherence, therefore, is an important factor. The theory of planned behavior (TPB) proposes that the hypertensive patient’s attitude, subjective norm, and perceived behavioral control predict intention to perform behavior, leading to prediction of medication adherence. METHODS: 604 outpatients with established chronic hypertension from a regional hospital in eastern Taiwan were enrolled in this study. Using a cross-sectional study, BP was measured and structured questionnaires were delivered to all participants. Descriptive statistics were calculated for all measures as appropriate. To assess differences among the adherence and poor adherence groups by demographic, TPB variables and BP, Chi-Square test and Fisher’s exact test for categorical variables or analysis of variance tests for continuous variables were performed. The medication adherence, TPB variables and BP were analyzed using correlation coefficient. All data were analyzed using SPSS 20.0 statistical analysis software. RESULTS: The mean of adherence scores was 2.6 (sd =2.4). Adherence and poor adherence of patients accounted for 57.5% and 42.5%, respectively. Intention was positively correlated with attitude (r= 0.23, p=0.00), subjective norm (r= 0.27, p=0.00), and perceived behavior control (r= 0.53, p=0.00). Adherence was positively correlated with intention (r= 0.49, p=0.00). When SBP and DBP were considered separately, adherence was significantly different between the good and poor controls of SBP and DBP. The two adherence groups were positively correlated with SBP control (r= 0.09, p=0.02) and DBP control (r= 0.10, p= 0.01). CONCLUSIONS: Hypertensive patients’ attitudes, subjective norms, and perceived behavioral controls predict intentions, leading to prediction of medication adherence. Medication adherence has significant impact on the SBP and the DBP control. These results suggest that application of TPB is useful to predict medication adherence in Taiwanese patients.

PCV46: DOSE TITRATION, PERSISTENCE, AND ADHERENCE TO STATIN THERAPY AMONG PATIENTS WITH HIGH-RISK VASCULAR DISEASE IN JAPAN
OBJECTIVES: To document dose titration, persistence, and adherence among patients with high-risk vascular disease (HRVD) receiving statin therapy in an employed Japanese population. METHODS: A retrospective analysis was conducted using the Japan Medical Data Center (JMDC) database, which contained inpatient, outpatient, and pharmacy claims of 800,000 lives from 2006–2011. HRVD was identified based on diagnoses for cerebrovascular disease, peripheral artery disease, coronary artery disease with diabetes, and history of acute coronary syndrome (ACS) (with an ACS claim >30–≤365 days after ACS-related hospitalization) between 1/1/2008–12/31/2009. Patients were required to have insurance coverage for ≥12 months before and ≥24 months after first HRVD claim. Patients receiving statin therapy were selected to assess dose titration, persistence, and adherence. Persistence (therapy duration) was defined as number of days between the first and last available medication. Adherence was assessed using the medication possession ratio (MPR), defined as the number of days with statin therapy on hand divided by duration of statin therapy. RESULTS: A total of 3,417 patients met the inclusion criteria. The most common statins received were atorvastatin (32.43%), rosuvastatin (22.21%), and pravastatin (20.00%). At initiation, mean(SD) dose (mg/day) was 9.00(3.66) for atorvastatin, 2.97(1.50) for rosuvastatin, and 9.12(3.09) for pravastatin. The percentage of patients with dose titration was low (range: 1.02% for simvastatin to 5.01% for rosuvastatin). Mean(SD) persistence ranged from 460.77(270.26) days for fluvastatin to 540.08(247.51) days for atorvastatin. Mean(SD) MPR ranged from 0.90(0.16) for rosuvastatin to 0.95(0.11) for fluvastatin. When MPR was alternatively measured over the entire 24 month follow-up period, mean(SD) MPR ranged from 0.79(0.27) for rosuvastatin to 0.80(0.26) for fluvastatin. CONCLUSIONS: Statin titration among Japanese patients with HRVD was rare, and most patients remained on the lowest dosage available during follow-up. Although statin adherence was good, these findings raise potential concerns about under-treatment/under-management of HRVD in Japan.

PCV47: DISCONTINUATION/INTERRUPTION OF WARFARIN THERAPY IN PATIENTS WITH NON-VALVULAR ATRIAL FIBRILLATION


OBJECTIVES: The purpose of this study was to assess patterns and predictors of warfarin persistence, discontinuation, and interruption among patients with non-valvular atrial fibrillation (NVAF). METHODS: This study used the MarketScan Database and included patients ≥18 years of age with NVAF who were initiated on warfarin and followed for 365 days. Persistence was defined as warfarin therapy without a gap >45 days between warfarin prescriptions. Interruption was defined as a gap in warfarin therapy >45 days and ≤90 days and discontinuation was defined as >90 days without warfarin therapy. Factors associated with warfarin interruption/discontinuation were determined using a Cox proportional hazards regression model. Sensitivity analyses were conducted to assess robustness of results by shifting prescription gaps by 7, 14, and 30 days. RESULTS: A total of 3,417 patients met the inclusion criteria. The most common warfarin therapy ≥45 days and ≤90 days and discontinuation was defined as >90 days without warfarin therapy. Factors associated with interruption/discontinuation were determined using a Cox proportional hazards regression model. Sensitivity analyses were conducted to assess robustness of results by shifting prescription gaps by 7, 14, and 30 days. CONCLUSIONS: Statin titration among Japanese patients with HRVD was rare, and most patients remained on the lowest dosage available during follow-up. Although statin adherence was good, these findings raise potential concerns about under-treatment/under-management of HRVD in Japan.

PCV48: PHARMACEUTICAL CARE PATIENTS OF CHRONIC DISEASES WITH POLYPHARMACY AND COST SAVING

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OBJECTIVES: The polypharmacy were incidence increase risk of drug-drug interactions, especial suffers from elderly and
chronic disease such as age greater than 60 years old, chronic kidney dysfunction, cardiovascular disease and cancers are significant. To evaluate the cost-effectiveness of consultations by pharmacists based within primary care polypharmacy in chronic disease. METHODS: In order to avoid duplication and waste treatment drugs, the plan is to be implemented with Pharmaceutical Care System and to search medication information at Department of National Health Insurance Virtual Private Cloud (VPC). We were identifying potential duplicate medication from patients with polypharmacy, and to evaluated pharmacist consultations on health service use outcome. The study subjects were identified based on inappropriate prescriptions of duplicate medications, drug-drug interactions, or over-dosage. Chi-square test was used for pharmacist consultations on health service and cost-effectiveness of data analysis. RESULTS: A total of 68 patients on health service with pharmacist consultations were included in this study. The total direct medical costs for 24 patients were NT$3,4480 dollars and improved polypharmacy related adverse reaction. CONCLUSIONS: To develop pharmacist consultations on health service is helpful of increase communication and interaction with the professional skills of pharmacists and physicians to achieve consensus professional and is likely to save costs.

PCV49: EFFECT OF PHARMACEUTICAL CARE ON THE QUALITY OF LIFE IN THE PATIENTS OF CORONARY ARTERY DISEASE

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OBJECTIVES: To determine the quality of life of the patients who underwent angioplasty patients. METHODS: This was an open labeled, randomized control trial conducted at Kasturba Hospital, Manipal, Karnataka, India. Patients admitted in the cardiology wards with unstable angina and myocardial infarction and underwent angioplasty procedure, were randomized into control group where, standard care is provided and Intervention group where, Pharmaceutical care was provided with tailor made counseling about diseases, drugs, diet and lifestyle modifications. Quality of Life assessment was done with EQ 5D 5L and MacNew Questionnaires by interview method at 3 months, 6 months, 9 months and at 12 months. RESULTS: 213 participants were randomized into control group (n= 105) and intervention group (n=108). Socio-demographic characteristics at baseline are similar between two groups. At baseline, Global Scores of MacNew questionnaire of both the groups have similar scores (3.03 ± 1.29 & 2.89 ±1.12). At 12 months, scores of 2.32 ±0.91 and 5.47 ± 1.45 were observed for control and intervention group respectively. EQ utility values at base line were 0.46 ± 0.17 and 0.47 ± 0.16. At 12 months, utility values were 0.11 ± 0.20 and 0.68 ± 0.23 observed for control and intervention group respectively. EQ Visual analog scores at base line were 59.57 ± 14.51 and 61.01 ± 13.34. At 12 months, scores of 73.38 ± 5.19 and 85.13 ± 4.62 was observed for control and interventional groups respectively. Domains of the both questionnaire are evaluated and there was a significant change in the intervention group specifically, physical, emotional and social domains. Quality adjusted life years were 0.7114 and 0.8582 for control and intervention groups respectively. CONCLUSIONS: Pharmaceutical care significantly improves the quality of life of the patients who underwent angioplasty procedure.

PCV50: HIGH BMI AND BELLY FAT CORRELATE WITH PREVALENCE OF HYPERTENSION AND DIABETES: A CROSS SECTIONAL STUDY IN SEDENTARY URBAN POPULATIAON OF DELHI

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OBJECTIVES: Obesity is reported to be underlying cause of metabolic syndrome and associated with hypertension and diabetes. A BMI (body mass index) of more than 30 places individuals in obese category. Majority of urban Indian population is categorized being overweight (BMI greater than 25). A sedentary lifestyle and lack of exercise in Indian cities causes belly fat accumulation which is reported to be a risk factor for metabolic diseases.METHODS: In this study, we have categorized middle class Indian population (test subjects >500) residing in metropolitan Delhi area into different age groups (11-20, 21-30, 31-40, 41-50, 51-60 and 60 and above) and recorded BMI and degree of belly fat present (no excess belly fat, small, medium and high). Our data shows that age groups 11-20 and 21-30 show normal BMI and lower cases of accumulated belly fat whereas there is a significant increase (50%) in BMI and presence of belly fat in age group 31-40 and above. We also recorded presence of obesity related metabolic disorders such as diabetes and hypertension in the above mentioned age groups.RESULTS: Test subjects in all age groups with BMI >25 (over-weight and obese) recorded presence of related disorders (39.40% in over-weight and 67.34% in obese classes). Most prevalent diseases with higher BMI were hypertension, diabetes, and joint pain in decreasing order.CONCLUSIONS: The sudden increase in obesity related factors is a matter of concern in the age group of 30
and above. We conclude that decrease in physical activity and sedentary lifestyle is the cause of belly fat accumulation and onset of obesity which results in metabolic diseases such as hypertension and diabetes. This information is most relevant for social awareness about obesity in middle class Indian population and through this study, it has been possible to alert the test subjects about risk of associated disorders.

**PCV51: MENTAL COMPONENT OF THE QUALITY OF LIFE INCREASED ACCORDING TO THE LEVEL OF OBESITY**

**OBJECTIVES:** Obesity was said to be one of the important risks for mortality. Inconsistent findings have been reported in the association between obesity and quality of life. The study provides a finding in the question using a cross-sectional survey conducted in China. **METHODS:** A total of 1,281 hypertensive residents in China aged 35 years or older were included in the analysis. The short-form 36 (SF-36) was used to measure the quality of life. It consisted of physical and mental domains. The highest score was 100 and 0 for the lowest in each domain. Level of obesity was classified using body mass index (BMI), namely, lean (<18.5), normal (18.5-24), overweight (24-28), obese (over 28) according to the Chinese classification. Means of physical and mental domains were calculated for the degree of obesity, adjusted for age, gender, marital status, education level, and exercise habits. Difference in quality of life among the levels of obesity was tested by the analysis of variance. **RESULTS:** There were lean (n=34), normal (n=531), overweight (n=521), obese (195) subjects with hypertension. Men occupied 53% and 37% for aged 60 years or older. Significant risk factors lowering the quality of life were women, elderly, low education and exercise. Adjusted mean (±standard error) of physical domain was 64±3.3 (lean), 70±1.2 (normal), 71±1.2 (overweight), 71±1.6 (obese), where the p-value was 0.17. Whereas, the adjusted mean of mental domain was 69±3.3 (lean), 72±1.1 (normal), 76±1.2 (overweight), 76±1.6 (obese), where the p-value was 0.018. **CONCLUSIONS:** A significant increase in the mental component of quality of life was found according to the level of obesity; however no trend was observed in the physical component.

**CARDIOVASCULAR DISORDERS - Health Care Use & Policy Studies**

**PCV52: TREATMENT AND MONITORING OF VENOUS THROMBOEMBOLISM (VTE) AMONG HOSPITALIZED PATIENTS IN CHINA**

**OBJECTIVES:** Despite increasing prevalence of venous thromboembolism (VTE) in China, real-world use of anticoagulants in clinical practice is not well understood. This study aims to assess treatment pattern and anticoagulant monitoring among hospitalized VTE patients in China. **METHODS:** Hospitalizations with a diagnosis of VTE (including deep vein thrombosis (DVT) or pulmonary embolism (PE)) between January 1st, 2010 and June 30th, 2013 were identified from a large electronic medical record database containing 100% inpatient records from two tertiary hospitals in two major cities. Analyses were performed to describe anticoagulant treatment among all VTE-related hospitalizations and international normalized ratio (INR) monitoring among hospitalizations where warfarin was used. Multivariate regressions were performed to assess factors associated with oral anticoagulant use, including type of VTE, patient demographics, comorbidities, insurance status, VTE diagnosis type, admission condition, ordering department, and surgical procedure. **RESULTS:** Among a total of 1,047 VTE-related hospitalizations, mean age at hospitalization was 62.4 years, 54.1% of hospitalizations occurred to men, and 77.1% were DVT-related hospitalizations. About 46.3% hospitalizations used heparin only, 35.0% used warfarin (with or without heparin), 0.8% used rivaroxaban, and 18.0% did not use any anticoagulant. Among hospitalizations where warfarin was used, 90.8% received at least one INR test before discharge; among hospitalizations with INR results available, 30.0% had the last INR during hospitalization within target therapeutic range (2 to 3). Diagnosis of PE (vs. DVT), female, cardiovascular as ordering department, having surgical procedures, comorbidity of chronic pulmonary disorder, and VTE as primary diagnosis were significantly associated with higher oral anticoagulant use (all P < 0.05). **CONCLUSIONS:** In China, use of innovative oral anticoagulants is limited among hospitalized VTE patients. Under-monitoring and suboptimal care may be an issue for hospitalized patients treated with warfarin. These findings reveal gaps in clinical practice and unmet needs among hospitalized patients with VTE in China.

**PCV53: DRUG UTILIZATION RESEARCH IN GERIATRIC PATIENTS WITH CHRONIC ISCHEMIC HEART DISEASE**
OBJECTIVES: Study potentially inappropriate drug use of geriatrics and medications, which were used for the 65 years and older in-patients, with chronic ischemic heart disease, of some tertiary level hospitals. METHODS: The retrospective study involved 65 and over aged 438 in-patients randomly collected records, who were treated at I, II and III state hospitals, in 2010-2012, with Chronic ischemic heart disease/CIHD. RESULTS: The 2nd and 3rd hospitals commonly use aspirin as an anti-platelet agent whereas the 1st state hospital uses dipyridamole, clopidogrel with aspirin. To improve coronary circulation and decrease the heart pain the 2nd (55%) and 3rd (64%) state hospitals use nitrates, but the 1st state hospital had no evidence of using this group medication for the patients with CIHD. 1st state hospital regularly uses beta-blockers (61%) for decreasing cardiac oxygen demand and improves heart microcirculation. The angiotensin converting enzyme and diuretic group medications were more used in 1st and 3rd state hospitals. 1365 medications were used (n=149) and 331 (24.2%) of them was potentially inappropriate medications and related to the 1st group of Beers criteria. In the 2nd state hospital:1007 medications: 204 (20%) - potentially inappropriate medications and 194 (19%) - 1st group drugs of Beers criteria; the 3rd state hospital - 1162 medications:151 (13%) – potentially inappropriate medications. CONCLUSIONS: The 30.1%-48.5% of the total medications, prescribed for CIHD, in the tertiary hospitals, were agreed with CIHD therapeutic and diagnosis guidelines. 50% of the total medications used for CIHD, were accompanied diagnoses and other drugs.

OBJECTIVES: Lipid control is crucial in patients undergoing percutaneous coronary intervention (PCI). Lipid guidelines recommend that all patients with coronary heart disease should have low density lipoproteins cholesterol (LDL-C) goals to be < 100 mg/dl with the ideal therapeutic option < 70 mg/dl. The primary objective of this research was to evaluate the success rate of lipid control during the six months after PCI. METHODS: We conducted a retrospective, observational study on all patients who underwent PCI at a large urban hospital in Shanghai, China from 5/2010 to 6/2011. Patients who had lipid measures at 30-day or 180-day follow-ups were included in the analysis. Percentages of patients that achieved LDL-C treatment goals of < 100 and < 70 were assessed, respectively. Statin use was also reported. RESULTS: A total of 119 patients (82.4% male) were included in this analysis. The mean age was 64 years (range 40 to 90). Overall, 69.8% of patients had angina, 63.9% hypertension, 29.4% diabetes, 22.7 % previous myocardial infarction, 16.0% hyperlipidemic pancreatitis, and 9.2% chronic kidney disease. 52.9% of patients were active smokers or previously smoked and PCI was not the first time for 10.9% of patients. After PCI, all but one patient at 30-day follow-up, and all patients at 180-day follow-up, reported use of statins. The proportion of patients meeting minimum LDL-C goal (<100) decreased slightly from 69.1% at 30-day follow-up to 67.9% at 180-day follow-up; the percentage of patients meeting ideal LDL-C goal (<70) decreased substantially from 30.9% to 23.9% among all patients, and from 43.4% to 32.1% (p<0.05) among male aged 60 years or older. CONCLUSIONS: Despite statin treatment, at least 30% of patients were not at the recommended goal of LDL-C < 100 mg/dl six months post PCI and only one quarter of these high risk patients were at the optimal goal of < 70 mg/dl.

OBJECTIVES: This study aimed to explore the relationship between the dietary patterns and blood pressure (BP) in Taiwanese females. METHODS: Cross-sectional study by surveying 269 Taiwanese females, 40 years of age or older, was conducted, using structured questionnaires, and BP and physiological parameters measurements. Descriptive statistics were performed for all measures as appropriate. To assess differences among the vegan, semi-vegetarian, and meat-eater groups by demographic, BP and health behavior data, Chi-Square test and Fisher’s exact test for categorical variables, or analysis of variance tests and independent t-test for continuous variables were performed. The relationship between BP and dietary patterns was assessed using a multiple linear regression (MLR) model. All data were analyzed using SPSS 20.0 statistical analysis software. RESULTS: Among the total participants, 65 (24.2%), 105 (39.0%), and 99 (36.8%) were the vegan, semi-vegetarian, and meat-eater groups. Significant difference was found among these groups according to age, race, educational, employment, stress and waist-hip ratio. Based on BP, the systolic blood pressure (SBP) and diastolic blood pressure (DBP) were significantly different among the three groups. When SBP and DBP were considered independently, waist-hip ratio was significantly different between the good and poor controls in both SBP and DBP. Therefore, BP was predicted as a function of the three groups.
considering for waist-hip ratio. The R2 for the MLR model was 0.02, indicating that 2% of the variance in SBP and DBP were accounted for by the independent variables. The three groups were observed to be a significant predictor of SBP (β=0.14, p=.02) and DBP (β=0.15, p=.02). CONCLUSIONS: The dietary pattern is a predictor for the SBP and DBP outcome in Taiwanese females.

PCV56: EFFECTS OF THE PAY-FOR-PERFORMANCE PROGRAM ON HEALTH OUTCOMES OF DIABETIC PATIENTS

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OBJECTIVES: A number of studies have examined the impacts of pay-for-performance programs on quality of care, but little is known about long-term effects of these programs on the health care outcomes. This study aimed at examine the effects of the pay-for-performance program for type 2 diabetes patients on diabetes-related complications under the National Health Insurance in Taiwan. METHODS: A longitudinal cohort study with 5-year follow-up was used to evaluate the effects of the pay-for-performance program on diabetes-related complications. Research materials came from claims files of the Longitudinal Health Insurance Database (LHID) 2005 released by the National Health Research Institute in Taiwan. Patients newly diagnosed as diabetes in 2004-2006 were included in the study. Patients who joined the pay-for-performance program and received the comprehensive care over 12 months during 2004 to 2010 were categorized as the case group. Patients who never joined the pay-for-performance program during follow-up period were categorized as control group. Since patients who enrolled in the pay-for-performance program or not is not randomization, we applied the propensity score matching (PSM) to increase the comparativeness between these two groups. The outcomes were the incidences of cardiovascular diseases. RESULTS: Patients in the case group experienced cardiovascular event significantly later than control group. The marginal hazard ratios of different propensity score method ranged from 0.60 to 0.63. Patients in the case group also had significant lower risks of heart failure, myocardial infarction and stroke between than patients in the control group. CONCLUSIONS: The pay-for-performance program may have reduced the incidence of cardiovascular events among patients newly diagnosed with diabetes who participated in the program for over 12 months.

PCV57: A RETROSPECTIVE, LONGITUDINAL STUDY TO INVESTIGATE THE CHANGE OF LDL-C LEVEL AND PHARMACEUTICAL INTERVENTION BY USING JAPANESE health care CHECKUP DATABASE

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OBJECTIVES: To investigate the LDL-c levels and pharmaceutical interventions in Japanese subjects under real life settings based on longitudinal data from a Japanese healthcare checkup database developed by MinaCare Co. Ltd. METHODS: Data of those subjects with annual health checkup from 2010 to 2012 were extracted from MinaCare database (cutoff November 2013). From these data, 11830 subjects with 3 years of parameter values (LDL-c, etc.) were used to assess their longitudinal changes and the self-reported use of medications. The reliability of MinaCare database has been evaluated in a separate investigation to be presented at ISPOR 19th Annual International Meeting. The final report of this investigation will be based on the latest of the periodically updated database at reporting. RESULTS: At baseline (2010), 11.9% (1410/11830) of the subjects reported LDL-c≥160 mg/dL (target level for low risk hyperlipidemia population). Despite these high LDL-c values, 95.4% (1345/1410) of these subjects answered "untreated by anti-hyperlipidemia drug" (including one non-respondent). Among these 1345 subjects, 1257(93.5%) answered "untreated" again in 2011; and among these "untreated", the proportions of subjects with LDL-c<140 (diagnostic level for hyperlipidemia), 160<LDL-c≤180 and LDL-c>180 in 2011 were 13.5%(n=170), 32.9%(n=413) and 22.9%(n=228), respectively. In contrast, among those who answered "treated" in 2011, the proportion with LDL-c<140 was dramatically higher (69.8%, n=60). Additionally, among those who answered "untreated" in 2011, the proportion answering "untreated" in 2012 (i.e. "untreated" in 3-consecutive years) was 94.1% (n=1183); among these subjects, the proportions of subjects with LDL-c<140, 160<LDL-c≤180 and LDL-c>180 in 2012 were 16.5%(n=195), 29.8%(n=352) and 25.0%(n=296), respectively. CONCLUSIONS: Our investigation showed that >90% of subjects self-reported no treatment with anti-hyperlipidemia drugs, despite LDL-c levels above 160 mg/dL. Many reported themselves untreated for 3 years. These results revealed a potentially critical gap between healthcare checkup results and subject’s behavior to access medical treatment, suggesting more effective interventions to modify behavior is required.

PCV58: POLICY EVALUATION OF ANTI-HYPERTENSIVE DRUGS IN MUMBAI, INDIA
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OBJECTIVES: 1) Survey to evaluate the effectiveness of Drug Price Control Order (DPCO) 2013: a healthcare policy devised by Government of India, and 2) To analyze the cost minimization benefits of the anti-hypertensive drugs falling under Drug Price Control Order (DPCO) 2013 to the patients receiving palliative treatment. METHODS: Three sets of structured questionnaires were designed which captured the patient’s gender, prescription trends for hypertensive patients in Mumbai, India. The survey through questionnaires, targeted 20 General Practitioners, 75 Retail Pharmacies and 25 patients. RESULTS: 1. Out of the total prescriptions received by Retail Pharmacies; Amlodipine accounted for 42%, Telmisartan: 27%, Atenolol: 20% and Ramipril: 10%. The same trend was followed by the General Practitioners. Amlodipine and Atenolol account for 63% of all prescriptions when considered together. These fall under Drug Price Control Order (DPCO) 2013 and their selling price is Government capped and is therefore low. Telmisartan and Ramipril which do not fall under Drug Price Control Order (DPCO) 2013 account for 37% when considered together. 2. Gender study of patient established the fact that more males (70%) are prone to hypertension than females (30%). 3. The average cost per dose of generics surveyed (Amlodipine, Atenolol) which fall under DPCO 2013 is 0.02USD (1.175INR) whereas that of generics (Telmisartan and Ramipril) which do not fall under DPCO 2013 is 0.1USD (6.3INR).

CONCLUSIONS: 1. Amlodipine and Atenolol which fall under Drug Price Control Order (DPCO) 2013 are majorly prescribed as compared to Telmisartan and Ramipril which do not fall under Drug Price Control Order (DPCO) 2013. 2. The drugs which fall under DPCO 2013 are 5 times less expensive than those that do not fall under DPCO 2013. Thus, the initiative taken by Government of India by devising this policy has made it economically viable for patients with palliative hypertension to meet their daily requirement of drugs.

MENTAL HEALTH

MENTAL HEALTH - Clinical Outcomes Studies

PMH1: EFFICACY AND SAFETY OF FIVE NEW ANTIDEPRESSION DRUGS A NETWORK META ANALYSIS

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OBJECTIVES: To estimate the effectiveness and adverse effect rate of five antidepressant drugs: fluoxetine, venlafaxine, maprotiline, mirtazapine and bupropion; and to systematically review those common used new antidepressant drugs' efficacy and safety in China. METHODS: we retrieve clinical research paper through Chinese Journal Full Text Database (1994-2014.2), Chinese Biomedical Literature Database (1978-2014.2), Chinese Technology Journal Full-text Database (1989-2014.2), Wanfang Data of Medical Information Mirror System (1997-2014.2), Digital Journal Full Text Database (1997-2014.2), Cochrane Library (2014), EMBASE (1974-2014.2), ISI database(1974-2014.2). We screen these papers according to the inclusion and exclusion criteria and assess the quality of these included researches. Network Meta analysis method is used to combine the RCT results. WinBUGS and R software are used as tool for statistical analysis to systematically assess OR values and quality rank of these five drugs. RESULTS: 89 clinical trials, 7007 patients with depression, 180 arms are totally included. Network Meta-analysis shows that fluoxetine improves effectiveness more obviously than venlafaxine and mirtazapine. OR venlafaxine-fluoxetine =0.6741[95%CI:0.5313, 0.8307]. OR fluoxetine - mirtazapine =1.5887 [95%CI:1.2369, 2.0220], P<0.05. In terms of adverse effects, maprotiline leads to the least adverse effects rate. OR bupropion-maprotiline =8.6945[95%CI:2.1496,26.4462], OR maprotiline-venlafaxine=0.2086 [95%CI: 0.0627, 0.4958], OR maprotiline-fluoxetine =0.2109[95%CI:0.0607, 0.5422], OR maprotiline - mirtazapine=0.2521 [95%CI:0.0773,0.6173], P<0.05. Based on bayesian theory, network meta-analysis also ranks these five interventions. Results show that fluoxetine, bupropion and maprotiline have better effectiveness; but maprotiline, fluoxetine, mirtazapine have less adverse effects rate. CONCLUSIONS: Fluoxetine, as a new antidepressant drug, has higher clinical efficiency and lower adverse effects rate. Although maprotiline has a high grade of recommendation, we have few researches integrated into the model, further prospective studies are needed for strong evidence to support analogous research.

PMH2: MINIMUM CLINICALLY IMPORTANT DIFFERENCE IN THE GLOBAL ASSESSMENT FUNCTIONING IN PATIENTS WITH SCHIZOPHRENIA

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OBJECTIVES: Minimum Clinically Important Difference (MCID) can aid to assess the quality of improvement in functioning assessed by the Global Assessment Functioning (GAF). This scale, ranging between 0 and 100, subjectively rates the social,
occupational, and psychological functioning of adults. The objective of this study was to generate MCID for GAF, based on a longitudinal cohort of patients with schizophrenia. **METHODS:** Two methods exist to assess MCID in scales such as GAF: the anchor-based approach (comparison of the change in CDSS score and Clinical Global Impression (CGI) within- and between-patients), and the distribution-based approach (comparison between the change in PRO scores and some measure of variability, including standard error measurement approach, standard deviation approach and effect size). Both methods were implemented in a longitudinal cohort of patients with schizophrenia. **RESULTS:** 1208 patients with schizophrenia were included in the study, and followed for 2 years. Mean GAF score at baseline was 51.34 (SD: 16.06) ranging from 11 to 98. MCID values retrieved from the anchor-based approaches were 2.92 and 3.8, for within- and between-patient methods, respectively, when using CGI as external criterion. MCID values retrieved from the distribution-based approaches were 9.43, 11.70 and 3.20 when conducting the analysis using standard error measurement approach, standard deviation approach and effect size, respectively. **CONCLUSIONS:** As in many MCID analyses, although the objective is to provide a unique threshold value, the different methods produce a variety of MCID values. MCID values retrieved in the present study are very disparate, ranging from 2.92 to 11.70. As anchor-based measure are generally preferred to distribution-based measures, we suggest using 4 as the MCID for GAF, reflecting the smallest difference that clinicians would deem important. MCID estimates may help clinicians and researchers design future studies and interpret treatment effect.

**PMH3: BURDEN ASSOCIATED WITH AGITATION IN SCHIZOPHRENIA**

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**OBJECTIVES:** Clinical management of agitated patients with schizophrenia is a common objective in inpatient units and other settings. Being defined as a state characterized by motor restlessness, excitement, and mental tension, agitated patients may become a threat to others, act out violently, and also lead to suicidal thoughts and behaviors. The purpose of this study is to describe the agitated schizophrenia population. **METHODS:** We worked on data from a large longitudinal cohort of patients with schizophrenia, including a battery of questionnaires every 6 months for up to 24 months. Patients with a positive and negative syndrome scale (PANSS) Excited Component higher than 14 and a score of 4 or higher on at least one item, were identified as agitated at baseline. As five assessments were performed over 2 years, pathways of agitated patients were explored. Bivariate analyses were conducted to compare agitated patients with others in terms of severity of symptoms (PANSS), quality of life (EQ-5D), functioning (Global Assessment of Functioning, GAF), side effects, depression (Calgary Depression Scale for Schizophrenia, CDSS) and resource use. **RESULTS:** 5% of patients were identified as agitated at baseline. This rate was very stable at 6, 12, 18 and 24 months. Agitated patients were found to have more severe symptoms (PANSS 95.15 vs. 55.23 p<0.0001), lower functioning (GAF: 39.9 vs. 51.99 p<0.0001), and more severe side effects (AIMS: 4.15 vs. 2.66 p=0.07). For each type of resource, service use was consistently higher for agitated patients when compared to others. No difference was found in terms of quality of life or depression level. **CONCLUSIONS:** Our study suggests that agitated patients with schizophrenia form a stable population overtime with a high clinical burden. Research on management of agitation is of key importance in schizophrenia.

**PMH4: COMPARATIVE EFFECTIVENESS IN TERMS OF TREATMENT DISCONTINUATION OF ORODISPERSABLE versus STANDARD ORAL OLANZAPINE TABLETS IN NON-ADHERENT PATIENTS: RESULTS FROM A 1-YEAR EUROPEAN OUTPATIENT OBSERVATIONAL STUDY**

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**OBJECTIVES:** Medication non-adherence is common in the treatment of patients with severe mental illness. Different formulations have been developed in an effort to improve medication adherence. The aim of this study is to explore whether there is a differential impact on treatment discontinuation between two different formulations of olanzapine: orodispersible (OD) or standard oral tablets (SOT) for the treatment of non-adherent patients with schizophrenia or bipolar disorder. **METHODS:** This post-hoc analysis included 266 non-adherent patients diagnosed either with schizophrenia or bipolar disorder from an observational study (n=927) that measured the proportion of patients who discontinued treatment for any reason with olanzapine OD or SOT formulations over a 1-year period. Non-adherence was defined as having a baseline rating from 0 to 4 in the Medication Adherence Rating Scale (MARS). Treatment discontinuation was defined as discontinuing or adding a new antipsychotic to the index medication. A Kaplan Meier estimation of time to medication discontinuation was
calculated. A Cox regression model adjusting for covariates was fitted to study the effect of baseline treatment on time to discontinuation. RESULTS: Patients treated with OD (n=177) vs. SOT (n=89) were more severe as measured by the Clinical Global Impression scale (CGI) (4.63 [SD 1.03] vs. 4.0 [SD 1.16], p < 0.0001) at baseline. During the 1-year follow up period the Kaplan Meier graph showed that patients treated with OD were less likely to discontinue treatment (11% vs. 27%, p<0.01). The Cox regression showed that patients taking OD had a significantly lower risk of discontinuing their baseline medication compared to patients taking SOT (hazard ratio: 0.35; 95% CI: 0.15-0.80). CONCLUSIONS: Treatment discontinuation was low with both olanzapine formulations; however the use of the orodispensible formulation in non-adherent patients with schizophrenia or bipolar disorder was associated with a significantly lower treatment discontinuation rate over a 1-year period.

PMH5: MINIMUM CLINICALLY IMPORTANT DIFFERENCE IN THE CALGARY DEPRESSION SCALE FOR SCHIZOPHRENIA

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OBJECTIVES: No Minimum Clinically Important Difference (MCID) for the Calgary Depression Scale for Schizophrenia (CDSS) has been reported yet. This scale, ranging from 0 to 27, assesses the level of depression in schizophrenia. The objective of this study was to generate a MCID for the CDSS, based on a longitudinal cohort of patients with schizophrenia. METHODS: Two methods exist to assess MCID in scales such as CDSS: the anchor-based approach (comparison of the change in CDSS score and Clinical Global Impression (CGI) within- and between-patients), and the distribution-based approach (comparison between the change in PRO scores and some measure of variability, including standard error measurement approach, standard deviation approach and effect size). Both methods were implemented in a longitudinal cohort of patients with schizophrenia. RESULTS: 1208 patients with schizophrenia were included in the study, and followed for up to 2 years. The mean CDSS score at baseline was 2.88 (SD: 3.57), ranging from 0 to 22. MCID values obtained from the anchor-based approaches were 0.89 and 1.26, for within- and between-patient methods, respectively, when using CGI as external criterion. MCID values obtained from the distribution-based approaches were 1.47, 1.70 and 0.71 when conducting the analysis using standard error measurement approach, standard deviation approach and effect size, respectively. CONCLUSIONS: As in many MCID analyses, although the objective is to provide a unique threshold value, the different methods produce a variety of MCID values. Nevertheless all MCID values retrieved in the present study were of the same order of magnitude. We therefore suggest using 1.3 as the MCID for CDSS, reflecting the smallest difference that clinicians would deem important. MCID estimates may help clinicians and researchers design future studies and interpret treatment effect.

PMH6: EVOLUTION OF DEPRESSIVE STATUS IN PATIENTS WITH SCHIZOPHRENIA: AN ANALYSIS OF PATIENT TRAJECTORIES

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OBJECTIVES: The majority of studies on depression among patients with depression reports means or percentages which obscure changes in depressive status over time. Trajectory description analysis may provide a more nuanced picture of the evolution of depressive status of patients. The objective of this study was to identify, in a large sample of patients with schizophrenia, distinct groups of patients with different trajectories of depressive symptoms. METHODS: We used data from a longitudinal observational cohort of 1208 patients with schizophrenia. Patients answered the Calgary Depression Scale for Schizophrenia (CDSS) questionnaire every 6 months for up to 2 years. Several cut-points were used, to distinguish patients with and without depression. Depression rates were calculated at each visit, independently, and depending on the patient’s previous status. RESULTS: Rates of depression at the baseline visit were 39.7% and 20.2%, when considering cut-points of 3 and 6, respectively. Among the 477 and 243 patients considered as depressive at baseline, 41.8% and 59.6% changed status after 6 months when considering cut-points of 3 and of 6, respectively. Similarly, among the 724 and 958 patients considered as non-depressive at baseline, 18.2% and 9.9% changed status after 6 months. These results were relatively stable over time, when considering each pair of successive visits. Additional analyses also showed that functioning level and quality of life paralleled these trajectories over time. CONCLUSIONS: Trajectory analysis allowed us to detect different groups of patients, with specific characteristics and different trajectories. Our larger sample size allowed identifying levels of various characteristics at baseline and over time as being associated with each trajectory.
PMH7: EVOLUTION OF PRESENCE OF PREDOMINANT NEGATIVE SYMPTOMS IN PATIENTS WITH SCHIZOPHRENIA

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OBJECTIVES: Patients with schizophrenia often remain symptomatic with predominant negative symptoms (PNS) despite receiving antipsychotic therapy. Several definitions of PNS are published in the literature. The purpose of this study is to compare evolution of patients with and without PNS over time, and to explore the predictive status of PNS in terms of quality of life, depression and resource use, considering several definitions. METHODS: Fifteen definitions of PNS were retrieved from literature, out of which 3 were applied in a longitudinal cohort of patients with schizophrenia (N=1208). Clinical characteristics, depression, functioning, medication, quality of life and resource utilization were assessed at baseline and at 6 months, and compared between subgroups of patients (with/out PNS at baseline and at 6 months). Reasons of PNS status change were described for each definition. Regression models were used to explore the predictive status of PNS in terms of quality of life, depression and resource use. RESULTS: According to the 3 definitions used, severity of positive symptom significantly increased in patients with PNS at baseline but not at 6 months. Negative symptoms decreased to a lesser extent. Patient functioning, depression, medication, quality of life and resource utilization evolution were not consistent across definitions. According to all the definitions, PNS status at baseline was associated with change from baseline in terms of depression, quality of life, number of GP visits and number of hospitalization days, when adjustments were taken into account. CONCLUSIONS: Our study suggests that PNS status at a specific time point is associated with depression, quality of life and resource utilization evolution at 6 months. Results also show that patients with PNS at a specific time point not showing PNS 6 months later are not associated with better outcomes. This confirms that schizophrenic patients with PNS form a severe population, and required further analyses.

PMH8: FUNCTIONAL IMPAIRMENT AND COGNITIVE DYSFUNCTION IN DEPRESSED PATIENTS IN SOUTH-KOREA: RESULTS OF PERFORM-K

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OBJECTIVES: PERFORM-K (ePidEmiological Research on Functioning Outcomes Related to Major depressive disorder (MDD) in South-Korea) is a cross-sectional observational study conducted in South-Korea, with similar selection criteria and assessment to the PERFORM study in Europe. The main objective of the study is to describe the functioning of patients with MDD, the impact of functional dysfunction and the factors associated with functional impairment. METHODS: 343 outpatients were recruited by psychiatrists. Inclusion criteria were: DSM-IV-TR diagnosis of MDD, 19 to 65 years antidepressant monotherapy (initiation or first switch). Depression severity was evaluated with MADRS (Montgomery–Åsberg Depression Rating Scale) by psychiatrists and PHQ-9 (Patient Health Questionnaire 9-item) by patients. Functioning was measured by SDS (Sheehan Disability Scale), work productivity by WPAI (Work Productivity and Activity Impairment Questionnaire) and cognitive dysfunction by PDQ-D (Perceived Deficit Questionnaire-Depression). Descriptive analyses from functioning and activity questionnaires were complemented with multivariate ANCOVA. RESULTS: The 312 analyzable patients had a mean age of 45.2 years. 74.0% were women, 41.7% were employed and 22.8% had their treatment switched when visiting their psychiatrists. Mean MADRS and PHQ-9 scores were respectively 28.9 and 16.0 respectively. Overall functioning was impaired (mean SDS=16.7), as was overall activity (57.9% impairment on WPAI-4); 25.1% of the patients reported a PDQ-D score ≥ 44. In multivariate analyses, overall functional impairment (SDS) was associated with greater depression severity (p=0.022), greater patient-reported cognitive dysfunction (p=0.001), presence of sick leave in previous 12-months (p=0.004), younger age (p=0.011) and region (p = 0.004). Overall activity impairment (WPAI-4) was associated with greater depressive severity (p=0.043), greater cognitive dysfunction (p=0.001) and younger age (p=0.001). CONCLUSIONS: Functional impairment in MDD is not only associated with the severity of depression, but also with cognitive function, previous sick leave, age and region. This is consistent with findings from PERFORM in Europe.

PMH9: PREVALENCE OF MAJOR DEPRESSIVE DISORDER IN CHINA

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OBJECTIVES: To review literatures that reported prevalence/incidence related to Major Depressive Disorder (MDD) in China. METHODS: A structured literature review on published articles in both English and Mandarin language was conducted. Search engines used for literature review were PUBMED, Cochrane Library, Wan Fang and VIP database. The review included primary studies or meta-analyses of prevalence or incidence studies of MDD published between 2000 and 2013 on Chinese population based in China only (including Hong-Kong and Macau). Four reviewers (two for each language) reviewed and extracted all relevant information from the selected articles. RESULTS: One meta-analysis and 7 studies not included in the meta-analysis were identified. In the meta-analysis, the nationwide point prevalence of MDD was estimated to be 1.6% (95% CI: 1.2-1.9), 12-month prevalence to be 2.3% (95% CI: 1.8-5.5) and lifetime prevalence to be 3.3% (95% CI: 2.4-4.1). Point prevalence was higher in rural compared to urban areas. The other studies conducted across different regions reported point prevalence ranging from 3.6% to 9.4%, 12-month prevalence from 3.8% to 8.4% and lifetime prevalence of 6.5% to 10%. A hospital-based study reported higher estimates (point prevalence of 7.5% and lifetime prevalence of 10%), possibly reflective of higher prevalence of MDD in patients with physical comorbidity or patients seeking help at hospitals. 11.0% to 16.3% of patients with MDD were reported to have attempted suicide within 1 year, more frequently among patients from rural compared to urban area. About 27-28% of patient who committed suicide had history of MDD. CONCLUSIONS: The prevalence of MDD in China reported was variable between regions. The possible reason for this difference could be due to geographical and methodological differences. However, the reported prevalence was lower compared to that in western countries. Overall, the burden of MDD in China remains high due to its large population size.

MENTAL HEALTH - Cost Studies

PMH10: GLOBAL ECONOMIC BURDEN OF SCHIZOPHRENIA: A SYSTEMATIC REVIEW

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OBJECTIVES: Schizophrenia is one of the most devastating mental illnesses. Despite low prevalence, health and economic consequences related to schizophrenia have been significant. Economic burden studies have been used to measure the magnitude of the burden of this under-diagnosed and under-treated disabling condition to the society. To understand how previous studies on estimating economic burden of schizophrenia have been conducted, the present systematic review focuses on the methodology undertaken by these studies. METHODS: Pubmed, EMBASE and PsycINFO were searched for publications from inception to October 2013. Inclusion criteria were: (i) article measuring cost of schizophrenia; (ii) article reporting economic burden; (iii) information on the primary cost data was available; and (iv) article in English. Data from all eligible articles were extracted using a standardised data collection form. Costs were converted to 2013 USD. RESULTS: Forty studies were included covering 24 countries – 12 countries (50%) in Europe. Almost half of the studies (55%) were conducted at selected institutions while 35% at the national level. Prevalence-based approach was adopted in 95% studies, while only 5% used incidence-based estimation. Costs were determined using bottom-up (45%), top-down (33%) or combination of both (23%). Electronic databases (68%) and patient/family/healthcare provider (60%) were the main data sources used. The total annual direct medical costs reported in the national studies varied from USD 30 to 29,316 million and direct non-medical costs from USD 32 to 12,029 million. Indirect costs ranged from USD 63 to 41,767 million per year, contributing to 49-89% of the total annual costs associated with schizophrenia. CONCLUSIONS: Schizophrenia imposes a substantial economic burden on society mainly driven by high indirect costs. The cost estimates varied due to methodology differences and costs included. The information of disease burden associated with schizophrenia is crucial to enable informed decision-making in allocating healthcare resources.

PMH11: BURDEN OF ILLNESS OF DEMENTIA IN CHINA

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OBJECTIVES: Due to the rapidly aging population, dementia is becoming a great concern in China. Moreover, dementia is associated with an important economic burden. The objective of this study was to provide an estimation of the economic burden of dementia in China with and without an adequate treatment. METHODS: A Markov model was developed to simulate transition between a mutually exclusive set of health states associated with dementia. Average annual economic burden was estimated between patients treated from moderate to severe and patients not treated, over a five-year time horizon. The resource
categories taken into account in the model were treatment, hospitalisations, nursing-home care, biological analyses, imaging, scales and professional caregiver costs. Transition probabilities were estimated from clinical trials. The resource utilisation and unit costs were provided by a Delphi panel. According to the China Alzheimer’s project, there are 10 million dementia patients currently in the country and it is estimated that only 21.3% of them take medicine. RESULTS: Over the five year, each untreated dementia patient cost on average 40,006 RMB per year, and each treated patient cost 36,503 RMB per year. Given current dementia patients of 10 million in China, and a treated probability of 21.3%, the annual total costs resulted in an economic burden of 392.6 billion RMB per year for dementia patients in China. Because of the demographic evolution of the Chinese population, the number of dementia patients is expected to increase. Increasing the proportion of treated patients might be a way to limit the raise of the burden, as the treatment help to reduce the average annual healthcare costs. CONCLUSIONS: Burden of dementia in China is likely to grow since the expanding ageing population. Adequate disease management using available treatment may be an efficient solution to limit costs.

PMH12: ECONOMIC BURDEN OF DEMENTIA IN SINGAPORE: PRELIMINARY RESULTS

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OBJECTIVES: With a rapidly ageing population, dementia has become a major public health problem worldwide. Around 28,000 Singaporeans aged 60 and above have dementia, and the number is projected to hit 80,000 by 2030, imposing a potentially significant economic burden on individuals and society which has yet to be quantified. Therefore we sought to assess the annual economic burden of dementia in Singapore and to identify the main cost components. METHODS: In this cross-sectional study approved by the SingHealth Centralised Institutional Review Board, consecutive patients seen at the dementia clinic of National Neuroscience Institute (NNI) between August 2013 and December 2014 were recruited. Singapore residents meeting the National Institute of Neurological Disorders and Stroke criteria for the diagnosis of dementia with follow-up of at least 6 months at NNI were included. Caregivers of eligible patients were interviewed with a financial burden questionnaire to collect direct and indirect costs related to dementia over the past 12 months from a societal perspective. RESULTS: Of 60 patients aged 54-91 years (median: 74) recruited, 90% were Chinese, 42% were men, and 38% had Young Onset Dementia (YOD) (defined as dementia onset before age 65). Annual total cost of dementia was SGD28341 per patient (i.e. $793 million for the country), with direct cost constituting 23% and indirect cost constituting 77%. The main cost components for direct medical cost, direct non-medical cost, and indirect cost were pharmacotherapy (52%), home care (45%), and productivity loss (72%), respectively. As expected, the indirect cost of YOD patients was significantly higher than non-YOD patients. CONCLUSIONS: Dementia imposes a considerable economic burden in Singapore. As productivity loss accounts for a large share of the burden especially in YOD group, programs to improve early diagnosis, raise public awareness about the disease, reduce stigma and provide better support to caregivers are urgently needed.

PMH13: ECONOMIC BURDEN OF SCHIZOPHRENIA IN CHINA: BASED ON MEDICAL INSURANCE DATABASE FROM GUANGZHOU CITY

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OBJECTIVES: As reported by Chinese Center for Disease Control and Prevention in 2009, there have been more than 10 million patients with schizophrenia in China, with the incidence of about 7.81‰. This article is to evaluate the economic burden of schizophrenia in Chinese city based on societal perspective and to detect its impact factors. METHODS: 2010-2012 databases of Urban Employee Basic Medical Insurance and Urban Residents Basic Medical Insurance, as well as disability adjusted life year (DALY), were used to estimate direct cost and indirect cost caused by schizophrenia in Guangzhou, which is a large city in China with a population of over 8.5 million and the per capita GDP of approximately US$16,000. RESULTS: During 2010-2012, direct costs of schizophrenia in Guangzhou city were RMB 95.69 million, 168.62 million, and 197.70 million (US$ 14.72 million, 25.94 million, and 30.42 million); indirect costs of schizophrenia were RMB 1,096.68 million, 1,201.89 million, and 1,375.08 million (US$ 168.72 million, 184.91 million, and 211.55 million). The ratio of direct economic loss to indirect economic loss was 1 to 8.5. Direct cost and indirect cost caused by schizophrenia in Guangzhou city were increasing in recent years. Medical costs of inpatients and people with Urban Employee Basic Medical Insurance mainly consisted of the direct economic burden of this disease. CONCLUSIONS: Serious economic burden has been caused by schizophrenia and increased sharply in China. Indirect cost of schizophrenia is largely more than its direct cost.
OBJECTIVES: Ziprasidone is increasingly used for the treatment of schizophrenia and bipolar disorder. The purpose of this study is to compare healthcare costs and utilization associated with use of ziprasidone and olanzapine. METHODS: Schizophrenia and bipolar disorder patients who initiated use of ziprasidone or olanzapine between 01/2007 and 12/2010 were identified in the IMS LifeLink™ Health Plan Claims Database. Claims were summarized into treatment episodes, and one-year costs and utilization after the initiation of episodes were analyzed. OLS regressions, general liner models, and two-part models were used to compare various types of costs associated with the use of ziprasidone and olanzapine. Logistic regressions, Poisson regressions, and Hurdle models were used to compare the numbers of emergency room visits and hospitalizations associated with each drug. Lastly, we used various statistical methods to test the sensitivity of our estimates. RESULTS: We identified 7,138 (46.93%) ziprasidone episodes and 8,072 (53.07%) olanzapine episodes, and found that patients using ziprasidone were significantly younger (41.50 vs. 45.38) and were significantly less likely to be male (29.81% vs. 44.21%). At baseline, ziprasidone group and olanzapine group differed in total costs and several other components of costs. Benchmark analyses show that use of ziprasidone, when compared to olanzapine, was associated with significantly higher medication costs ($232, p<0.01) and outpatient costs ($501, p<0.05), but decreased ER costs (-$73, p<0.05). Ziprasidone was also associated with significantly fewer ER visits (0.266, p<0.001) and hospitalizations (1.117, p<0.001). Sensitivity analyses suggest these results were robust. CONCLUSIONS: While ziprasidone is associated with higher medication costs and outpatient costs, it reduces patients’ utilization of ER and inpatient services.

OBJECTIVES: The aim of our study is to calculate the annual health insurance treatment cost of Alzheimer dementia disease in Hungary. METHODS: The data derive from the financial database of the Hungarian National Health Insurance Fund Administration (NHIFA), the only health care financing agency in Hungary. We analyzed the health insurance treatment cost and the number of patients for the year 2010. The following cost categories were included into the study: outpatient care, in-patient care, CT-MRI, PET, home care, transportation, general practitioner, drugs and medical devices. RESULTS: The Hungarian National Health Insurance Fund Administration spent 4.426 billion Hungarian Forint (HUF) (21.266 million USD) for the treatment of Alzheimer patients. The annual average expenditure per patient was 72881 HUF (350 USD) while the average expenditure per one inhabitant was 442 HUF (2.1 USD). Major cost drivers were acute inpatient care (45.8 % of total health insurance costs), chronic inpatient care (28.1 %) and pharmaceuticals (10.4 %). The number of patients with Alzheimer disease was 60.6 per 100000 populations. We found the highest patient number in outpatient care budget (60735 patients), general practitioners (60234 patients) and pharmaceuticals (37724 patients). CONCLUSIONS: Alzheimer dementia disease represents a significant burden for the health insurance system. Hospital care (both acute and chronic) is the major cost driver for Alzheimer disease in Hungary.

OBJECTIVES: To study the treatment pattern and cost of illness in bipolar disorder patients in tertiary care hospital in South India METHODS: A retrospective study was conducted in a tertiary care teaching hospital of South India. Data were collected retrospectively from medical record section from 2012 to 2013 in suitable designed case record form. Data were analysed by using SPSS 20.0. RESULTS: Total of 100 cases of bipolar disorder was followed during the study period. Among them 66 were males and 34 were females. The mean age of the study population was found to be 46.2±13.3 years. Among the social history 13 people were alcoholic and 60% of the study population had a family history of known psychiatric disorder. The mean duration of illness of the study population was found to be21.8±9.8years. Among the study population 34 patients were diagnosed with mania and 46 patients diagnosed with depression. Mood examination revealed that 38 patients were happy followed by 22
patients were irritable. Affective examinations showed maximum were euphoric. Insight examination showed Grade 1 predominance. The different treatment pattern revealed that all of them were prescribed with mood stabilizer followed by anti-psychotic (93) and hypnotics (86). The average hospitalization cost of the patient was found to be 7477.83 + 5989.67 Rupees with median hospital stay of 7(5) days. The average treatment cost constitutes total 50% of the hospitalization cost. CONCLUSIONS: Mood stabilizers and anti-psychotics were the main treatment strategies among the bipolar patients and drug cost consumes 50% of the total cost of hospitalization. Pharmacoeconomic studies play important role in estimating the total healthcare burden in bipolar disorders.

PMH17: HEALTH INSURANCE COST OF ANXIETY IN HUNGARY: A COST OF ILLNESS STUDY

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OBJECTIVES: The aim of our study is to calculate the annual health insurance treatment cost of anxiety in Hungary. METHODS: The data derive from the financial database of the Hungarian National Health Insurance Fund Administration (NHIFA), the only health care financing agency in Hungary. We analyzed the health insurance treatment cost and the number of patients for the year 2010. The following cost categories were included into the study: out-patient care, in-patient care, CT-MRI, PET, home care, transportation, general practitioner, drugs and medical devices. RESULTS: The Hungarian National Health Insurance Fund Administration spent 13.535 billion Hungarian Forint (HUF) (65.026 million USD) for the treatment of anxiety patients. The annual average expenditure per patient was 13323 HUF (64 USD) while the average expenditure per one inhabitant was 1352 HUF (6.5 USD). Major cost drivers were general practitioners of primary care (43.8 % of total health insurance costs), pharmaceuticals (32.2 %) and outpatient care (12.4 %). The number of patients with anxiety disease was 1014 per 100000 populations. We found the highest patient number in general practitioners of primary care (1015938 patients), pharmaceuticals (774096 patients) and outpatient care (521760 patients). CONCLUSIONS: Anxiety represents a significant burden for the health insurance system. General practitioners of primary care and pharmaceutical reimbursement are the major cost drivers for anxiety disease in Hungary.

PMH18: DISEASE MANAGEMENT, RESOURCE UTILISATION AND ASSOCIATED COST FOR MODERATE AND SEVERE DEMENTIA PATIENTS IN CHINA: RESULTS FROM A DELPHI PANEL

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OBJECTIVES: Resulting from the scarcity of literature on dementia in China, a Delphi panel was used to obtain information on disease management, resource utilisation and associated costs for patients with moderate or severe dementia in China. The panel results were used as input data for a health economic model comparing different alternative strategies for treatment of dementia. METHODS: The Delphi panel method was used to leverage expertise of physicians involved in the treatment of dementia (Round-1 interviews with eight interviewees) and hospital administrators (Round-2 interviews with two interviewees). Final Delphi meeting gathered six experts from previous interviewees to reach a consensus. Round-1 interviews collected information of establishing a diagnosis for dementia, dementia disease management and the distribution of patients by severity, dependence and aggressiveness. Round-2 interviews were based on results of Round-1 interviews to collect data on relevant costs. Interviews were done individually without sharing information from other interviewees. Results from two rounds were integrated and shared in the final Delphi discussion. A consensus was reached to obtain the final value or range of values of interest. RESULTS: Distribution of independent/non-aggressive, independent/aggressive, dependent/non-aggressive, and dependent/aggressive moderate dementia patients was 70%, 15%, 10% and 5% at time of first diagnosis. Unit costs and resources utilisation, collected for each health state for a cycle of 6-months, showed that severe dependent/aggressive dementia patients required the most time from caregivers (15 hours/day). Moderate dependent/aggressive patients had the highest probability (90%) to be hospitalised. The average stay of hospitalisation was two months. Moderate and severe patients had the same probability of nursing home utilisation (0%, 20%, 80% and 20% for each health state). CONCLUSIONS: Delphi panel may be a useful approach to collect data for diseases when they are not published in the literature or when automated healthcare databases are not available or accessible.
**PMH19: COST AND RESOURCE USE OF MANAGING MAJOR DEPRESSIVE DISORDER (MDD) IN CHINA**

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**OBJECTIVES:** To review studies that investigated the costs and resource use of managing major depressive disorder (MDD) in China. **METHODS:** A structured literature review on published articles in both English and Mandarin languages was conducted. Literature search was conducted using PubMed, Cochrane, Wan Fang, and VIP databases. Articles published between 2000 to 2013 were selected. The inclusion criteria included studies conducted in China, and studies that reported direct and indirect costs in MDD management, including factors that affected these costs, as well as resources used in managing MDD. Four reviewers (two for each language) independently selected and reviewed the articles. Direct cost included costs of MDD treatment (e.g., medication, investigation, hospitalisation, nursing care, etc.); whereas indirect costs included caregiver cost, productivity loss, and mortality (suicide). **RESULTS:** A total of 24 articles in Mandarin and English were selected and reviewed. Based on the review, direct cost for MDD reported ranged from RMB 1,000 to RMB 6,000, whereas indirect cost reported ranged from RMB 2,000 to RMB 51,000. Loss of productivity, when evaluated, accounted for more than 75% of indirect costs. Serotonin norepinephrine reuptake inhibitor (SNRI) incurred the highest direct medical cost compared to selective serotonin reuptake inhibitor (SSRI), followed by tricyclic antidepressants (TCA). The treatment costs for MDD had increased gradually over the years. Some of the common factors affecting the cost of MDD management included treatment duration, payment methods, types of drug prescribed, comorbidity, disease severity and marital status. Studies had shown that most patients first seek treatment in general clinic or hospitals (76%) and only a small percentage of patients (23.7%) was first treated by mental health specialists. **CONCLUSIONS:** The reported cost of managing MDD in China was high. Most patients first seek treatment in general medical clinics or hospitals instead of mental health specialists.

**PMH20: WITHDRAWN**

**PMH21: COMPARATIVE PHARMACOECONOMICS STUDIES OF TREATMENT FOR MAJOR DEPRESSIVE DISORDER IN CHINA**


**OBJECTIVES:** Various pharmacotherapy options are available for major depressive disorder (MDD) in China. However, the cost-effectiveness (CE) evaluations for these treatments are not systematically reported in English literature. A structured literature review was conducted to identify the health economics data of available treatment options in China. **METHODS:** A structured literature review on published articles in both English and Mandarin languages was conducted. Literature search was conducted using PubMed, Cochrane, WAN FANG, and VIP databases. Articles published between 2000 and 2013 were selected. The inclusion criteria included studies on Chinese population based in China only, as well as studies that reported cost-effectiveness ratio (CER) or incremental cost effectiveness ratio (ICER) of MDD pharmacotherapy. Four reviewers (two for each language) independently selected, reviewed and extracted information from the articles. **RESULTS:** 17 English & 63 Mandarin articles were identified. None of the English articles and 23 Mandarin articles fulfilled the inclusion criteria. 17 of the 23 Mandarin articles analysed the CER or ICER of the serotonin norepinephrine reuptake inhibitor (SNRI), Venlafaxine compared with other anti-depressants such as selective serotonin reuptake inhibitor (SSRI), tricyclic (TCA) or tetracyclic (TeCA) antidepressants. The remaining 6 articles analysed the CE of other anti-depressants not involving SNRI. The review showed conflicting outcomes due to heterogeneous study methodology. Ten out of 23 articles reported TCA/TeCA treatment to be most cost-effective treatment whereas six articles were in favour of SSRI and four articles favoured SNRI. **CONCLUSIONS:** TCA/TeCA had comparable effectiveness compared to SNRI or SSRI. Despite the lower treatment cost with TCA/TeCA use, these treatments had higher AE rates compared to SNRI or SSRI, which were not taken into account during cost evaluation. This review identified several methodological issues and despite the calculation of ICER or CER, further studies are required to compare evidence on cost-effective anti-depressant treatment.

**PMH22: ECONOMIC EVALUATION OF ALZHEIMER**

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OBJECTIVES: The Alzheimer diseases (AD) steadily increase with age in the early population. Considering that all over the world holds the fastest aging population. According to the Alzheimer’s Association, cost spending is projected to be $2000 billion in 2050. The purpose of this study is to observe the cost effectiveness analysis (CEA) for the Alzheimer Drug. METHODS: The report was reviewed through report of ministry of welfare in Korea and clinical report data of paper about the Alzheimer drug inhibitors which are Aricept, Exelon and Reminyl. This analysis was used by CEA. RESULTS: In Korea, the patients increased 84,000 in 2005 and 262,000 in 2010. The patients increase 3.1 fold more increase. The total medical expenses $0.13 billion in 2005 and $0.81 billion in 2010. The total medical expense was 6.1 more increase. The per capita cost of treatment of Alzheimer diseases (AD) spends about 1.5$ in 2005 and 3.1$ in 2010. The per capita cost of treatment is 2 times greater. Also, The medical fee of Aricept is $2, Exelon is $1.8 and Reminyl $1.3 in Korea. The best drug of cost effectiveness is Reminyl and then Aricept. However, Exelon rejected within the cost effectiveness analysis, when anyone has a limited cost. CONCLUSIONS: This revision strived to reduce the per capita cost of treatment of AD. Most of all, it is critical not to delay care in Alzheimer patients in order to avoid increased direct medical costs. Therefore, in Alzheimer care, it is most critical to adequately check the symptom early discovery through the appropriate management techniques.

PMH23: FUTURE IMPACT OF DEMENTIA ON THE CAREGIVER IN CHINA

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OBJECTIVES: Elderly dementia results in progressive cognitive impairment and, eventually, the inability to living independently. The objective of this study was to assess the time required to provide care to patients with dementia according to their health state, and the consequences for the active population in China in 2050. METHODS: The Chinese demographic forecasts for 2050 were put in balance with the need of estimated caregiving time needed by the dementia population. Demographic data, proportions of diagnosed and/or treated patients were provided by the China Alzheimer’s project Memory360. A Markov model was developed to estimate the average caregiver’s time needed per patient per day over 5 years, separately for treated and not treated patients. RESULTS: The proportion of economically active population aged between 15 and 59 in China in 2050 is estimated at 50% compared to the currently observed 70%. There will be approximately two workers for one elderly. It was found that untreated patient will require around 9.3 hours per day compared to 6.7 hours per day required by a treated patient. It was estimated that there will be 21.6 million patients with dementia in China with only 21.3% among them receiving treatment. More than 188 million hours per day will be needed to take care of Chinese dementia patients for around 690 million working people. CONCLUSIONS: In the future, the situation in China will be dramatic due to the increase in the proportion of elderly and simultaneous reduction by around one fourth of the proportion of adults younger than 60. It was estimated that in average more than one worker over four will spend one hour per day providing care to a patient with dementia. Increasing the proportion of treated patients may be a way to control costs and reduce burden on the society.

MENTAL HEALTH - Patient-Reported Outcomes & Patient Preference Studies

PMH24: WITHDRAWN

PMH25: PREDICTORS OF ADHERENCE TO ANTIDEPRESSANT MEDICATIONS IN SAUDI ARABIA

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OBJECTIVES: The aim of this study was to explore patients’ adherence to antidepressant medication and predictors are associated with adherence, among patients diagnosed with depression in a psychiatric hospital in Riyadh, Saudi Arabia. METHODS: Non experimental cross-sectional design used to measure adherence to antidepressants among depressed patients and predictors are associated with adherence, patients were recruit from outpatient clinic at AL-Amal hospital in Riyadh (psychiatric hospital) between August 2013 and January 2014. RESULTS: A total of 403 patients meet the inclusion criteria and were participated in this study. Two hundred three representing 50.37% of the total study sample, were female, while the remaining 200 (49.6 %) were male, with average 39 years. 52.9% of the patients report low adherence to antidepressant medication with a statically significant different between low adherence and high adherence scor in female gender, younger age, patients with shorter duration of illness and have less number of visit to outpatient clinic. CONCLUSIONS: Low adherence is a common health problem among depressed patients in Saudi Arabia, this study has improve understanding of adherence predictors to antidepressant and their association, this understanding should help care giver and stakeholder to improve
depressed patient management and clinical outcome by addressing medications taking behavior using a systematic approach based in this finding.

**PMH26: GENERAL BELIEFS ABOUT MEDICINES AMONG DEPRESSED PATIENTS IN SAUDI ARABIA**

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**OBJECTIVES:** The aim of this study was to explore patients’ general and specific beliefs about medicines among depressed patients and effect on adherence and other clinical outcome in Saudi Arabia. **METHODS:** A cross-sectional design used to measure patients’ general and specific beliefs among depressed patients, using BMQ general and specific scales. Patients were recruit from outpatient clinic at AL-Amal hospital in Riyadh (psychiatric hospital). **RESULTS:** A total of 403 patients meet the inclusion criteria and were participated in this study. Two hundred three representing 50.37 % of the total study sample, were female, while the remaining 200 (49.6 %) were male, with average 39 years. 52.9% of patients report low adherence to antidepressant medication. Both low and high adherence group scored high in the necessity beliefs (18.02 (SD 3.91)-18.32 (SD3.9)) respectively with no statistically different. Contrariwise patients with high adherence had significantly lower level of concerns belief about antidepressants medication and less harmful belief also the same finding with general overuse belief. **CONCLUSIONS:** General patients beliefs either general overuse or general harm about medication influence patients taking medication behavior and have negative correlation with adherence to medication on other hand only specific concerns belief to antidepressant have a positive correlation with adherence to antidepressant this finding will help psychiatric to improve adherence and clinical outcome by addressing medications taking behavior using a systematic approach based in this finding.

**PMH27: EXAMINING OPIOID-DEPENDENT CHRONIC PAIN PATIENTS EXPERIENCES ON BUPRENORPHINE MAINTENANCE THERAPY IN THE TEXAS WORKERS COMPENSATION SYSTEM: PILOT STUDY - PART 2**

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**OBJECTIVES:** The objective of this pilot study was to examine opioid analgesic (OA) use and patient reported outcomes (PRO) among opioid-dependent chronic nonmalignant pain (CNMP) patients placed on buprenorphine therapy in the Functional Restoration and Pain Management (FRPM) program. **METHODS:** A retrospective cohort analysis of administrative claims, medical records and responses to PRO questionnaires was conducted among Texas Workers Compensation (TWC) beneficiaries enrolled in the FRPM program. Prescription utilization patterns, pain severity and self-report PROs were assessed during a 3-month observation period. PRO measures included the Visual Analogue Scale (VAS) for pain assessment, McGill Pain Questionnaire (MPQ), Beck Anxiety Inventory (BAI), and Beck Depression Inventory-II (BDI-II). Eligible patients were ≥18 years of age, opioid dependent, had a history of chronic pain medications, receiving buprenorphine therapy, and continuously enrolled in TWC benefit during the 3-month period. **RESULTS:** The mean age of eligible study participants (N=19) was 49.0 years ±7.6. A majority of patients were male (58%), white (63%), had a depression comorbidity (79%) and chronic pain lumbar diagnosis (47%). Overall, patients enrolled in the study showed a significant reduction in OA medication utilization (p<0.01) at months 1 and 2-3 compared to baseline. For the PRO measures, a significant reduction in patient VAS pain scores was observed between baseline and month 1 (p=0.03), no increases in pain scores were observed at months 2-3. Significant decreases in MPQ-A (p<0.04) and BDI-II (p<0.01) scores were observed between baseline and months 1 and 2-3. No differences for BAI scores were observed. **CONCLUSIONS:** Though a pilot study, the results suggest that opioid dependent patients receiving buprenorphine therapy in the FRPM program has the potential of improving health outcomes of patients with chronic pain, while reducing their use of controlled medications. A larger follow-up study is needed to validate and expand on these preliminary findings.

**PMH28: WITHDRAWN**

**PMH29: IMPORTANCE OF REMISSION IN PATIENTS WITH MAJOR DEPRESSIVE DISORDER IN KOREA FOR IMPROVING HEALTH-RELATED QUALITY OF LIFE AND ECONOMIC BURDEN**

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OBJECTIVES: The purpose of this study was to assess health-related quality of life (HRQoL) and economic burden among outpatients with major depressive disorder (MDD) in regards to achieving remission. METHODS: This was a nationwide cross-sectional study. A total of 811 MDD patients over 18 years old were enrolled and each patient was allotted to one of three groups (1: 1: 1 ratio) as follow: new visit group (n=287), remitted group (n=235), and non-remitted group (n=289). The 17-item Hamilton Depression Rating Scale (HAM-D) was used to assign patients to either remitted or non-remitted group. HRQoL was assessed with EuroQuol 5D (EQ-5D index score), EuroQuol Visual Analog Scale (EQ-VAS), and Quality of Life Enjoyment and Satisfaction Questionnaire Short Form (Q-LES-Q-SF). To investigate the economic burden of MDD patients, the total monthly costs (USD) were evaluated by sum of direct medical costs, direct non-medical costs (transportation and supplementary therapy), and indirect costs collected via patients interview. Indirect costs were measured by absenteeism and presenteeism utilizing the Korean version of World Health Organization Health and Work Performance Questionnaire (HPQ).

RESULTS: Non-remitted group showed statistically significant impairment of HRQoL as revealed by the results of EQ-5D index score, EQ-VAS, and Q-LES-Q-SF compared to remitted group (0.57±0.23 vs. 0.77±0.10, 50.9±20.34 vs. 72.5±16.59, 0.41±0.14 vs. 0.58±0.16, respectively, p<0.0001). Regarding direct medical costs, the non-remitted group incurred the highest costs compared to other groups (p<0.0286). As of the indirect costs, remitted group demonstrated significant improvement in productivity when compared with other groups (p<0.0001). Total monthly costs were the highest in non-remitted group (1187±857.8) compared to remitted group (766±684.5) and new visit group (1063±773.1), (p<0.0001). CONCLUSIONS: Non-remitted MDD patients suffer from both lower HRQoL and higher economic burden compared with remitted group and new visit group. These results suggest the importance of achieving remission in Korean MDD patients.

PMH30: PREVALENCE AND PREDICTORS OF CLINICALLY UNDIAGNOSED COGNITIVE IMPAIRMENT AMONG OLDER RESIDENTS OF NURSING HOMES IN ASSOCIATION WITH HRQOL

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OBJECTIVES: To determine the prevalence and predictors of cognitive impairment among older residents of nursing homes in the state of Penang, Malaysia. METHODS: This multi-centred cross-sectional study was conducted in two phases over a six-month period at four non-governmental nursing facilities in Penang, Malaysia. Older residents (≥65 years old) who were taking at least one medication and had not been previously diagnosed with dementia were included. Demographic and clinical data were collected through direct interviews and the review of medical records. Cognitive screening was performed using the Mini-Cog at baseline. Health Related Quality of Life (HRQoL) was assessed at baseline and after a three-month interval using the EuroQol (EQ-5D) and EQ Visual Analogue Scale (VAS).

RESULTS: The study included 211 residents with mean (SD) age of 77.7 (7.0) years and majority female residents, 128 (60.7%). Mini-Cog identified 129 (61%) residents with cognitive impairment. The three most common co-morbidities among the sample population were hypertension (71.1%), diabetes mellitus (27.1%) and cerebral vascular disease (12.3%). Logistic regression analysis showed that longer formal education of more than six years (OR = 2.81, p = 0.007, 95% CI [0.167-0.757]) and inability to self-administer medications (OR = 3.29, p < 0.001, 95% CI [0.156-0.594]) significantly predicted cognitive impairment based on Mini-Cog score ≤ 2. However, Mini-Cog was not significantly associated with changes in HRQoL at three months follow-up. CONCLUSIONS: We found a high prevalence of possible cognitive impairment among nursing home residents who had not been previously diagnosed, especially those who were unable to self-administer their medications. The length of formal education can be deceptive. Therefore, more vigilant screening should be performed for early detection and proper intervention of dementia although HRQoL is not affected by poor scoring in Mini-Cog.

MENTAL HEALTH - Health Care Use & Policy Studies

PMH31: WITHDRAWN

PMH32: PATTERN OF ANTIDEPRESSANT UTILIZATION AND COST IN IRAN FROM 2007-2011 IN COMPARISON TO EUROPEAN AND EAST ASIAN COUNTRIES AND LITERATURE REVIEW

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OBJECTIVES: To assess the prescribing and usage pattern of antidepressant medications and the impact of their cost from 2007 to 2011 in Iran and to compare the results to other countries. METHODS: A cross-sectional study was carried out on
physicians’ prescription data based on the claims that the pharmacies submitted electronically to the insurers during 5 years from 2007 to 2011. Data related to dispensing of antidepressant were obtained from the official databank of national regulatory authority. Drugs were classified according to the Anatomic Therapeutic Chemical (ATC-2012edition) System. A systematic approach was also used to compare national results of the current study to similar results of other countries. RESULTS: : More than 425 million prescriptions were reviewed. The total price of antidepressant prescription and dispensation was about 40 million and 210 million US$ respectively. The most frequently prescribed medicines were nortriptyline, fluoxetine, and citalopram, which were accounted for 63% of all prescriptions. 87 articles were retrieved from various databases and other sources after excluding the duplicated articles. 17 articles were screened by titles and abstracts. After excluding the non relevant studies, there were 6 articles remained which were eligible for full text assessment. CONCLUSIONS: : In compliance with the global trend, there was a growing tendency obviously observed towards prescribing SSRIs in Iran. In the face of rising burden of depression, on the one hand and the rising cost of medication and lack of funding resources on the other hand, we need to adopt strategies for promoting rational antidepressant medications use. These finding has important value for priority setting in planning and implementation of strategies for promoting rational drug use.

PMH33: OUTPATIENT TREATMENT OF ADOLESCENTS WITH ANTIDEPRESSANTS IN JAPAN

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OBJECTIVES: To examine antidepressant prescription patterns in Japanese children and adolescents. METHODS: We conducted a cross-sectional survey during October 2013 on outpatients, aged 19 or less, in 34 private mental clinics. Patients who were prescribed at least one antidepressant were analyzed in this report. Data on gender, age, principal psychiatric diagnosis (based on ICD-10), and types and doses of psychotropic drugs were extracted. RESULTS: The samples consisted of 137 males and 170 females. The average age (standard deviation) was 16.2 years (2.5). The mean length of psychiatric treatment was 23.6 months (23.3). The most frequent diagnostic category was neurotic disorders (F4; n=113), followed by mood disorders (F3; n=73), disorders of psychological development (F8; n=67), behavioral and emotional disorders (F9; n=22), schizophrenic spectrum disorders (F2; n=18), and other diagnoses (n=14). Among the 19 antidepressants available in Japan, the prescription rate of fluvoxamine (42.3%; n=130) was the highest, followed by sertraline (17.6%), duloxetine (10.4%), escitalopram (9.8%), trazodone (6.5%), and paroxetine (5.5%). Tricyclic or tetracyclic antidepressants (TCAs) were prescribed in 35 patients (11.4%). Two or more antidepressants were prescribed concurrently in 27 (8.8%) of the 307 patients. Antipsychotics/hypnotics were concurrently prescribed in 126 (41.0%). Mood stabilizers were co-prescribed in 35 (11.4%). Antipsychotics were concurrently prescribed in 134 (43.6%), with a median dose of 100mg/d chlorpromazine equivalent. CONCLUSIONS: In Japan, although augmentation of antidepressant treatment seemed relatively popular with antipsychotics in adolescent patients, antipsychotic doses might be relatively low.

PMH34: EVALUATION OF FACTORS AFFECTING SALES OF PRESCRIPTION

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OBJECTIVES: : Many factors including patient, physician, medicine promotion and price affect prescribing of a medicine. The present study is aimed at showing the parameters that affect prescription writing and determine the effect of each of them on prescription process in Iran. METHODS: In order to investigate the effect of price, advertisement, gender, and age on the sales and prescribing process of three medicines, namely fluvoxamine, clopidogrel and latanoprost, pooling data method in econometrics (Panel data) was used. RESULTS: : We found that advertisement and medicine insurance coverage had significant positive effects on prescription of all three medicines whilst negative relationship were seen between increasing price and the frequency of prescription of a medicine. Besides, we found out that advertisement has a direct effect on raising the demand and prescription of the medicines CONCLUSIONS: : Pharmaceutical companies need special attention to the index of physicians like age and sex in planning for sales and marketing of its products.

PMH35: PUBLIC BELIEFS AND ATTITUDES ABOUT SCHIZOPHRENIA, MAJOR DEPRESSION AND PSYCHOTROPIC MEDICATION IN TUNISIA

OBJECTIVES: Stigmatization associated with mental illnesses could prevent schizophrenic and people with major depression to access to healthcare. Stigma often varies depending on social contexts. A survey in this subject was conducted first in Germany, then in France and finally in Tunisia. The objective of current study is to describe public beliefs and attitudes about schizophrenia, major depression and psychotropic drugs in Tunisia. METHODS: Three questionnaires were administered face-to-face to a representative sample of 1038 Tunisian people. 415 persons answered a questionnaire on schizophrenia, 418 on major depression and 205 about psychotropic drugs. They were asked to address a validated questionnaire. RESULTS: All 1038 questionnaires were fully completed. 38.8% (resp. 26.8%) of people reported being not comfortable in presence of a schizophrenic patient (resp. major depression), while 33.7% (resp. 58.1%) reported they did. More than 89.9% (resp. 90.2%) felt the need to help people suffering from schizophrenia (resp. major depression), although 58.6% (resp. 43.3%) think that such patients are strange, and 29.6% (resp. 16.0%) think they are dangerous. 47.81% agree with the fact that psychotropic treatment helps people to better support the concerns of everyday life and 17.0% agree with taking these medicines if the person suffers constantly of light mood swings. CONCLUSIONS: Survey results suggest that stigmatization around schizophrenia and major depression is present in Tunisia; there is a great public willingness to help mental disease patients as demonstrated by our study. To conclude, raising public awareness in mental health could reduce the enormous burden in terms of social functioning in families and societies from one side. On the other side, this stigmatization contributes to marginalize patients, exclude them from health care management and affects their disease severity.

PMH36: THE USE OF INTEGRATED CONCEPT MAPPING TO DEVELOP THE DEMENTIA CARE MODEL BY COMMUNITY PARTICIPATION


OBJECTIVES: The purpose of this study is to develop the dementia care model by using integrated concept mapping and community participation. METHODS: Six healthcare professionals (1 psychogeriatrician, 1 family physician, 1 residency, 1 pharmacist, 1 nurse, and 1 physical therapist) and seven non-healthcare professionals (3 village headmen, 2 village health volunteers, and 2 patients’ relatives) participated the first meeting conducted by Trochim’s concept mapping to generate the ideas then sort and rate the ideas for the feasibility and the importance. Later all participants except the psychogeriatrician took part in the second meeting conducted by Novak’s concept mapping to name the clusters of ideas then re-organised the ideas and added the details to make the complete model by the IHMC CmapTools computer programme. Multidimensional scaling and hierarchical cluster analysis including quadrant analysis were applied by SPSS software. RESULTS: Total 48 ideas of the procedure in the care of dementia patient with the Behavioural and Psychological Symptoms of Dementia (BPSD) were generated by 12 stakeholders. Trochim’s concept mapping produced 8 clusters. These eight clusters were labelled as ‘Standards of Care for Dementia’, ‘Efficient Accessibility System and Continual Care’, ‘Monitoring and Evaluation’, ‘How to Communicate with Dementia Patients’, ‘Guideline for Family in Dementia Management’, ‘Love and Experience Sharing in Dementia Caring Group’, ‘Building Generous Communities for Dementia Patients’, and ‘Information Delivery, Surveillance, and Cooperation’. Twenty ideas which were highly important and highly feasible were selected. Finally, the comprehensive model which has 4 components and organised as the procedure in the dementia care with the hospital and community involvement was designed. CONCLUSIONS: The dementia care model originated by hospital staffs who facilitate the community to understand and support the family caregivers for the care of dementia patients in the rural area with no nursing home. Integrated concept mapping helps to design the appropriate model for the real practice.

MUSCULAR-SKELETAL DISORDERS

MUSCULAR-SKELETAL DISORDERS - Clinical Outcomes Studies

PMS1: OUTCOMES IN SEVERE OSTEOPOROTIC WOMEN IN KOREA USING SEQUENTIAL TREATMENT

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OBJECTIVES: Clinical management of osteoporosis often involves different pharmacologic therapies in a sequential manner. Real-world outcomes based on sequential treatment in Korea are lacking. Our purpose was to estimate outcomes (fractures, life
years (LYs), and quality-adjusted life years (QALYs)) for post-menopausal osteoporotic (PMO) women using teriparatide followed by alendronate versus only alendronate. METHODS: A validated model of osteoporosis was used to estimate base-case outcomes in a cohort of 1,000 severe PMO women (aged 65-90; bone mineral density (BMD) T-score of -2.5 standard deviations below young adult mean; 2 prevalent fractures) with 2 years of teriparatide followed by 3 years of alendronate (TPTD2+ALN3) compared to 5 years’ alendronate (ALN5). A lifetime horizon was used; 100% therapy persistence was assumed. Efficacy values for fracture risk reduction and health utilities were obtained from the literature. Fracture incidence rates were estimated from Korean national insurance data (HIRA 2012). Sensitivity analyses were conducted on length of treatments and patient risk profiles. RESULTS: In the base case, compared to ALN5 the TPTD2+ALN3 cohort had fewer fractures (-174; 4329 vs. 4502), more LYs (+32; 8409 vs. 8377), and more QALYs (+74; 5252 vs. 5178). In sensitivity analysis using worse BMD T-score of -3.0, the TPTD2+ALN3 cohort had 198 fewer fractures, and 43 and 92 more LYs and QALYs, respectively, versus ALN5. Assuming longer treatments of 7 years of alendronate (ALN7) only and TPTD2+ALN5, the results showed 185 fewer fractures, 38 more LYs and 83 more QALYs in the TPTD2+ALN5 cohort. In the more severe population using a BMD T-score of -3.0, TPTD2+ALN5 vs. ALN7 yielded improved outcomes in terms of fewer fractures (-224), and more LYs (+48) and QALYs (+104) for the sequential TPTD2+ALN5 cohort. CONCLUSIONS: Teriparatide followed by alendronate may lead to improved outcomes when compared to alendronate only in severe PMO women in Korea.

PMS2: THE EFFECT OF DIETARY SELENIUM INTAKE IN THE GENE EXPRESSION OF P38, P65, AND CASPASE-3 IN FLUOROSIS PATIENTS

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OBJECTIVES: Excessive fluoride ingestion causes a disease known as Fluorosis. Selenium supplementation could antagonize the bovine fluorosis. So we want to investigate how the dietary selenium supplementation to influence the gene expression of p38, p65, and caspase-3 in fluorosis patients. METHODS: Ziyang County of Ankang City has higher environmental selenium level, while fluorosis patients who live in have the habit of tea drinking, especially in Haoping Town. Hanbin district of Ankang City has lower environmental selenium level was choose as selenium internal control. The fluorosis patients from different environmental selenium level area and the healthy volunteer were divided into three groups: “High Se + F group” (n=20), “High F group” (n=20) and “Control group” (n=20). p38, NF-kB p65 and caspase-3 mRNA level were examined by RT-PCR. β-actin served as determining control The concentration of fluoride in serum and urine, the content of Se in hair were also determined. RESULTS: The concentration of fluoride in “High F group” and “High Se + F group” in serum and urine was higher than that in “Control group” (urine 3.2731±0.26, 3.2744±0.31 and 0.7923±0.14, respectively; serum: 0.3996±0.03, 0.3888±0.09, 0.0922±0.01, respectively). The mean for total Se concentration in hair was different: 2.5005±0.27 in “High Se + F group”, 1.2749±0.09, 1.0574±0.13, respectively, versus “Control group” (urine 3.2731±0.26, 3.2744±0.31 and 0.7923±0.14, respectively; serum: 0.3996±0.03, 0.3888±0.09, 0.0922±0.01, respectively). The concentration of fluoride in “High F group” and “High Se + F group” in serum and urine was higher than that in “Control group” (urine 3.2731±0.26, 3.2744±0.31 and 0.7923±0.14, respectively; serum: 0.3996±0.03, 0.3888±0.09, 0.0922±0.01, respectively). The mRNAs level of p38, NF-kB p65 and caspase-3 was significantly high in “High F group” than that in “High Se + F group” and “Control group” (p38:5.0009±0.65, 1.2749±0.09, 1.0574±0.13, respectively; NF-kB p65: 3.5248±0.47, 1.9845±0.14, 1.9976±0.15, respectively; caspase-3:2.2936±0.23, 1.2841±0.19, 1.3590±0.18, respectively). CONCLUSIONS: These results suggest that dietary high selenium intake help people who suffering fluorosis lessen damage by reduce the gene expression of p38, then reduce NF-kB p65 gene expression and at last lower the gene expression of caspase-3.

PMS3: A COMPARATIVE CLINICAL EVALUATION OF TRAYODASHANGA GUGGULU AND MUSTADIYAPANA YOGA BASTI IN GRIDHRASI

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OBJECTIVES: Gridhrasi(Sciatica Syndrome), Lumbar disc lesions are responsible for the disorder and observed about 25% loss of work, affects social and economic position of the individual and family. The Alopahy treatment involves symptomatic treatments medicines by analgesics for prolonged time associated with more serious and irreversible reaction. Here we have tested a traditional approach as per principles of Ayurveda. METHODS: The study was conducted in the OPD and IPD of MIAMS, Manipal with 3 trial groups A-TRAYODASHANGAGUGGULU, B-MUSTADIYAPANAYOGABASTI and C-Combined TRAYODASHANGAGUGGULU and MUSTADIYAPANA yoga basti for the period of 10 weeks in 30 diagnosed gridhrasi patients irrespective of their sex and age group18-60. RESULTS: In group A-TRAYODASHANGAGUGGULU, 50.00% of patients were assessed under...
improved category, 10.00% each were assessed under marked improvement and moderate improvement category and 30.00% showed Unchanged. Nobody included under complete relief category. In group B-Mustadiyapan yoga basti, 90.00% of patients were assessed under improved category, 10.00% were showed Unchanged. Nobody included under complete relief, marked improvement or moderate improvement category. In group C-combined therapy of Trayodashangaguggulu and Mustadiyapana yoga basti, 50.00% of patients were assessed under moderate improvement category, 40.00% were assessed under improved category and 10.00% were showed marked improvement category. Nobody included under complete relief or unchanged category

CONCLUSIONS: Study concluded all the 3 groups are effective treatment in Gridhrasi and combined therapy Trayodashangaguggulu and Mustadiyapan yoga basti was more effective and showed highly significant results in clinical symptoms of Gridhrasi and also provided highly significant result in improving Greenough& Fraser scoring method, SLR test (Straight leg raising test), Sugar baker & Barofsky clinical mobility scale and Oswestry disability assessment questionnaire.

PMS4: THE EFFECTS OF GALLIUM CHLORIDE ON APOPTOSIS OSTEoporosis MODEL OF RATS CAUSED BY TRETINOIN ACID

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OBJECTIVES: Cell apoptosis is one of the pathogenesis of osteoporosis. Among a lot of medicine, only gallium salts can promote bone formation. The aim of this study is to investigate the effect of gallium chloride on apoptosis in osteoporosis rats which caused by tretinoin acid. METHODS: 67 sprague-Dawley (SD) female rats, three months of age, were divided into two groups. 49 rats of model group were treated with tretinoic acid for 85mg/ (kg-d) by gavage while 18 rats of normal group were treated with distilled water for same amount . All rats were administrated for 15 days. After the model has been duplicated successfully, the model group rats were divided into three groups: 18 rats of osteoporosis group were treated with tretinoic acid for 85mg/ ( kg-d) by gavage, 19 rats of gallium chloride treatment group were administered with gallium chloride 25 mg/ (kg-d) by gavage, 12 rats of estrogen treatment group were give estradiol benzoate (0.2 µg/kg, 3 times per week) by intraperitoneal injection. After treatment for 30days, the rats were killed. The content of MDA in serum was detected by TBA method. The apoptosis of osteocyte was detected by agarose gel electrophoresis. RESULTS: The apoptosis ratio of osteocyte in osteoporosis group rats was increased than the other three groups while the contents and molecular weight of DNA were decreased. The contents of MDA in osteoporosis group rats are significantly increased than the other groups. The content of DNA in gallium chloride treatment group rats was higher than that of the osteoporosis group rats. CONCLUSIONS: Gallium chloride can increase the DNA content of bone, through decreasing lipid peroxidation to suppress apoptosis of osteocyte.

PMS5: THE RESEARCH OF EFFECTS OF IGURATIMOD(T-614) ON THE APOPTOSIS OF PERIPHERAL BLOOD MONONUCLEAR CELL AND TH1 IN RHEUMATOID ARTHRITIS

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OBJECTIVES: To observe the effect of Iguratimod (T-614) on peripheral blood mononuclear cells (PBMCs),Th1 cells and the expression level of IL-8 of rheumatoid arthritis (RA) patients, and to explore the possible mechanism of T-614 in treating RA. METHODS: 6 patients were diagnosed with RA referred to Department of Rheumatology, The Fifth Hospital of Xi’an. They were evaluated by the score of VAS, DAS28 and the response rates of ACR20/70, respectively. PBMC were prepared from 6 patients in active stage of RA, and treated with T-614 at different concentration (lower dose: 100ug/ml; Higher dose: 1mg/ml) for 1h and 24h. Flow cytometry (FCM) were performed to examine the apoptosis of PBMC and the level of IFN-γ secretion by T cells. RESULTS: We found that: We found that: 1) Iguratimod effectively induced apoptosis in PBMCs in 1h treatment, T-614 100ug/ml was 19.3±2.8% and 1mg/ml 26.4±3.1%,(P<0.05); 2) Compared with control, Iguratimod effectively inhibit CD3+ T cell secretion at 24h, T-641 (1mg/ml) 1.33±0.12% and control (without T-614) 2.91±0.13% P<0.05). 3) Levels of IL-8 in the supernatant of T-614 treated group and control group were tested by ELISA, Iguratimod effectively inhibit IL-8 production and there were significant differences (P<0.05). CONCLUSIONS: The results suggest that T-614 induced PBMC apoptosis and decreasing CD3+ T cell IFN-γ production and secretion of IL-8 in peripheral blood might be the possible mechanism of the effective of T-614 in treatment of RA.
PMS6: ENCUMBERANCE TO THE TREATMENT OF OSTEOPOROSIS: PHYSICIANS AND PATIENT PERCEPTION

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OBJECTIVES: The objective of this pilot study was to assess the barriers to the treatment of Osteoporosis in post-menopausal women, from both a physician and patient perspective. METHODS: An open-ended structured survey was conducted for Physicians and patients across suburban areas of Mumbai. Questionnaires were designed to have questions on incidence of fractures, assessment methods for treatment, treatment regimen, for physicians, and history of fractures and compliance to treatment for patients, identified thorough review of the literature. Descriptive statistics were performed. RESULTS: As Reported by the Physicians, 85% of the post-menopausal women had vitamin D deficiency. High Incidence of Bone Fracture (hip) were common among 70% of Patients, Preferred Regimen was Calcium Supplement (Dietary, Oral dose 500mg twice daily), Multivitamins and/or Bisphosphonates with Vitamin D (70mg/5,600U tablet Once weekly). Obstacle to treatment were Unavailability of Dual energy X-ray absorptiometry (DEXA) Technology which is Gold standard for diagnosing osteoporosis was perceived by 80% of physicians to be a barrier for Proper diagnosis. Patients advised for DEXA scan were Non-Compliant due to Cost of Diagnosis. Time and Cost of Diagnosing and Patient Reluctance were reported by Physicians. Major Reason for Non-Compliance were Cost of Therapy as Bisphosphonates are costly compared to vitamin D and calcium as it being not included under DPCO along with Poor Patient Counselling. CONCLUSIONS: The survey gives preliminary evidences that Post-Menopausal Women were Vitamin D deficient. Unavailability of DEXA for diagnosis was perceived to be a major barrier for treatment. Increased cost of therapy and non-compliance could be undertaken by Government initiative to consider Bisphosphonates under DPCO and Provide DEXA machines in Hospitals for Free scan. Pharmacist can bridge the gap for poor Patient Counselling by educating the patient about importance of Adherence to Treatment and Occasional DEXA scan to be done for better monitoring of Bone loss/Recovery during Regimen.

PMS7: METABOLIC DISORDERS, OSTEOPOROSIS AND FRACTURE RISK IN ASIA: A SYSTEMATIC REVIEW

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OBJECTIVES: The prevalence of both lifestyle-related metabolic disorders and osteoporosis is increasing in Asia. The aim of this systematic review was to summarise all published studies within Asia on the association between disorders of glucose and fat metabolism (type 2 diabetes, hyperglycemia, hypercholesterolemia, hyperlipidemia, dyslipidemia, metabolic syndrome (MetS) and atherosclerosis) and risk of fracture and osteoporosis. The relationship between metabolic disorders and bone mineral density (BMD) was also examined. METHODS: EMBASE (including MEDLINE) and the Cochrane Library were searched. Only studies conducted within Asia (including East, South-East and South Asia and the Middle-East), which reported multivariate analysis with a sample size ≥200 subjects, were included. RESULTS: A total of 33 studies were included, of which 32 were assessed as adequate and one high quality based on SIGN criteria. All seven studies examining diabetes and fracture found that subjects with diabetes had a higher risk of fracture compared with subjects without diabetes (risk estimate range: 1.26 to 4.73). In contrast, no association was found between diabetes and BMD, although a high degree of heterogeneity was observed. Two studies found that subjects with atherosclerosis had higher risk of fracture compared with subjects without diabetes (risk estimate range: 1.10 to 2.52). Included studies consistently reported that MetS is likely associated with osteoporosis or decreased BMD in men but not women. There was limited evidence investigating lipid metabolism and hyperglycemia and risk of fracture or bone loss. CONCLUSIONS: These findings suggest that diabetes is a risk factor for fracture in Asian populations. Atherosclerosis may also be associated with increased fractures in Asian populations, and MetS associated with bone loss in Asian men. The extent of causality in these observations is yet to be determined, with further prospective cohort studies needed. Nevertheless, these findings highlight the importance of properly managing patients with these risk factors to minimise the risk of fractures.

MUSCULAR-SKELETAL DISORDERS - Cost Studies

PMS8: ESTIMATING THE IMPACT OF EXPANDING ACCESS TO CELECOXIB FOR OSTEOARTHRITIS PATIENTS IN CHINA

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OBJECTIVES: Currently in China, celecoxib is prescribed to patients with gastrointestinal bleeding or perforation history. The aim of this study was to model the effect of expanding access to all osteoarthritis (OA) patients in China. METHODS: We
created a one-year budget impact model from a payer perspective comparing two scenarios. The first scenario (A) restricts the use of celecoxib to only patients with gastrointestinal bleeding or perforation history while the second scenario (B) does not restrict usage. In (A), patients were prescribed either diclofenac or celecoxib, but those prescribed celecoxib were only dispensed celecoxib if they had gastrointestinal bleeding or perforation history. Those prescribed celecoxib but not fitting the criteria were dispensed diclofenac. In (B), all prescriptions were dispensed as written. For both scenarios, celecoxib and diclofenac prescriptions were written 16.2% and 8% of the time, respectively. Patients with gastrointestinal bleeding or perforation history made up 5.58% of the OA population. Celecoxib was associated with a 20% copay while diclofenac did not have a copay. The base case scenario assumes 13,333 patients. RESULTS: Going from (A) to (B), the total cost of celecoxib increased ₹2,679,866 (94.42%) while the total cost of diclofenac decreased ₹1,817,170 (65.66%). The incremental total cost of drugs increased ₹862,697 (29.48%). The impact on a payer’s plans for the year was only due to drug costs since the cost to administer prior authorization was not considered. The per member per month increased ₹0.07 from ₹0.24 to ₹0.32. CONCLUSIONS: The expanded access scenario (B) resulted in slightly higher drug costs to the payer, which may be acceptable under most thresholds. Patient outcomes should also be considered to fully understand the impact of removing the gastrointestinal bleeding and perforation history stipulation.

PMS9: PRESCRIBING PATTERN AND COST ANALYSIS ON (DMARD’S) DISEASE MODIFYING ANTI RHEUMATOID DRUGS IN RHEUMATOID ARTHRITIS PATIENTS OF A TERTIARY CARE TEACHING HOSPITAL IN SOUTH INDIA – A CROSS SECTIONAL STUDY

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OBJECTIVES: To study the current prescription pattern and to analyze the cost of the treatment prescribed to RA patients referred to orthopedics OPD in a tertiary care teaching hospital of South India. METHODS: The study protocol was approved by the institutional ethics committee. Patients attending Orthopedic OPD for existing RA disease were recruited as per inclusion criteria. Written informed consent was sought. Total 100 consecutive rheumatoid arthritis patients (fulfilling the American College of Rheumatology Criteria 1987) were recruited during study period. Study Design: Cross-sectional study. Study Duration: 06 Months (From July 1st to December 31st 2014) Study Site: Department of Orthopedics, Government Medical College and Hospital, Anantapuram, Andhra Pradesh, India. RESULTS: Majority of patients (67%) in the study population were on combination of two DMARDs. Most frequently prescribed two DMARDs combination was methotrexate and hydroxychloroquine (64%). Average total cost per prescription was found to be 763.39₹, while average hospital and out of pocket expense were 281.12₹ and 482.88₹ respectively. CONCLUSIONS: The drug use pattern in RA was found to be DMARDs based and majority of the cost was borne by the patient. The total increase in cost was due to administration of drugs to treat the adverse drug reaction. Prospective studies in a larger number of patients are needed to assess the utility of prescription audit and cost analysis of drugs used in RA.

PMS10: THE COSTS OF MAJOR AND MINOR CYCLING ACCIDENTS IN TASMANIA, AUSTRALIA

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OBJECTIVES: To estimate the societal costs of cycling accidents in Tasmania, Australia. METHODS: Between July 2011 and March 2012, 136 regular cyclists completed a telephone-based questionnaire. Information collected included demographics, cycling habits and details of major (requiring medical treatment or days off work) and minor (not requiring medical treatment or whole days off work) cycling accidents. The societal costs of accidents in 2011 Australian Dollars ($) were estimated from self-reported medical resource consumption and lost work and leisure time, combined with published medical resource unit costs and salary data. RESULTS: Participants reported 59 major accidents in 5 years preceding the interview, and 27 minor accidents in the previous 12 months. The mean total costs per major accident were $12,158, including direct medical costs $2,228, direct non-medical costs $372, lost work and leisure time valued at $290. The total annual costs to society of major cycling accidents in Tasmania were estimated at $4,123,445. CONCLUSIONS: Costs resulting from both minor and major cycling accidents are substantial. The costs of improvements to cycling infrastructure/safety may be offset by reduced costs to society of cycling accidents.
**PMS11: CALCULATING INDIRECT COSTS – DIFFERENCES CAUSED BY VARIOUS APPROACHES TO UNIT COSTS. RESULTS OF MOVE TO WORK STUDY (M2W)**

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**INTRODUCTION:** Leaving aside the difference in valuation of indirect costs of disease between various methods of estimating (human capital, friction cost method), the result of estimation of indirect costs may vary significantly in relation to other methodological decisions, such as the unit costs of work. **OBJECTIVES:** To show the variability of results obtained using various methods of indirect cost calculation illustrated with data from M2W study. **METHODS:** We have analyzed data on presenteeism and absenteeism measured with WPAI (Work Productivity and Activity Impairment) questionnaire from an observational, cross-sectional M2W study of patients with rheumatoid arthritis (RA), Crohn’s disease (CD) and psoriasis (Ps) in productive age in Poland (N=814, 464 and 822, respectively). We estimated indirect costs of presenteeism and absenteeism of employed patients, using human capital method. We compared two methods of estimating unit costs of lost productivity recommended in the literature: the reflection of the productivity loss on GDP and market value of unit of work time. The loss of productivity was estimated as GDP per worker per hour at 51.04 PLN and was then multiplied by 0.65 to correct for the output elasticity of labor. The value of an hour of loss of productivity defined as the market value of work time was estimated using average hourly gross income in Poland (21.98 PLN). **RESULTS:** Mean rate of overall productivity loss (presenteeism and absenteeism) for RA was 43%, for CD equaled 36% and for Ps 35%. Total annual costs of productivity lost due to RA, CD and Ps using work market value equaled 1.03, 0.05 and 5.25 billion PLN respectively. Costs of lost productivity estimated using GDP amounted to 1.56, 0.08 and 7.92 billion PLN. **CONCLUSIONS:** Depending on the theoretical assumptions for what constitutes the unit cost of productivity loss the results of indirect costs analysis show great variability.

**PMS12: THE ECONOMIC COST OF RHEUMATOID ARTHRITIS IN TAIWAN**

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**OBJECTIVES:** Rheumatoid arthritis (RA) is an autoimmune disease that results in a chronic, systemic inflammatory disorder. It can be a disabling and painful condition, which can lead to substantial loss of functioning and mobility if not adequately treated. The aim of this study was to estimate the economic cost of RA patients and their family in Taiwan. **METHODS:** We estimated cost of RA from the societal perspective. Data sourced both from the Taiwan’s National Health Insurance Research Database (NHIRD) in 2010 and a face-to-face interview survey to the patients with RA. We identified all patients by both the primary diagnosis code ICD-9-CM 714.0 and the catastrophic illness certificate from NHI claim data. In addition, Patients were recruited from rheumatology outpatient clinics at two medical centers and one regional hospital from March 2010 to June 2011. Direct medical costs, direct nonmedical costs, and productivity loss due to job loss and sick leave of patients with RA were estimated. **RESULTS:** The mean annual per patient total medical costs were NT$177,084. Drug expense represented more than half of the Medical costs. The mean annual direct nonmedical costs were NT$11,195 per patient. Annual productivity loss due to job loss and sick leave were around NT$299,635 per patient. **CONCLUSIONS:** In this study, the indirect cost of RA is higher than the direct cost of RA in Taiwan. This result may represent that the government should make efforts not only to improve the treatment and care of RA patients but also to create a supportive and well social welfare environment for RA patients and their family.

**PMS13: ECONOMIC BURDEN OF CHILDHOOD INJURY: A REVIEW**

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**OBJECTIVES:** This study aims to summarize the results of the available evidence on economic burden of childhood injury in the world. **METHODS:** We summarized Chinese literatures from CNKI and searched English studies from Pub-Med. “Children”, “Injury” and “burden” as the initial search words identified in English. We selected articles with injury burden referring to economic burden and collected the major results of literatures on study design, methods of calculating economic burden. **RESULTS:** We searched 34 literatures in Chinese and identified 33 articles in English, according to the inclusion criteria, 11 Chinese and 9 English articles were collected. We found that the result of each study was different in study design, criteria of injury, children’s gender and age, injury types and the areas and periods of studies, especially the method to calculate the economic burden of childhood injury. Researchers in China usually include only direct cost and sometimes indirect cost.
when calculating the economic burden, while scholars abroad usually cover direct, indirect cost of injury and sometimes intangible cost which calculating the cost of QALYs. **CONCLUSIONS:** We got different results affected by types of injuries, characteristics of population, regions of children and their social and economic situations. It’s necessary to build a unified way to calculate economic burden of children injury.

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**PMS14: HEALTHCARE RESOURCE REQUIREMENTS AND COSTS DURING THE RECOVERY PHASE OF FASCIECTOMY FOR THE TREATMENT OF DUPUYTREN’S CONTRACTURE: CLINICIAN SURVEY**


**OBJECTIVES:** The average inpatient procedural cost for fasciectomy in Australia is $3,079.57; however this does not capture the true cost of the surgery to the healthcare system or to society in total. This study sought to determine the extent and cost of healthcare resource use and productivity loss post-surgical fasciectomy for the treatment of Dupuytren’s contracture (DC) inclusive of medical consultations, allied healthcare services, and loss of work hours in Australia. **METHODS:** A survey of Australian clinicians was performed to inform the estimation of healthcare resource use and productivity loss during the recovery phase. The survey was sent to 89 hand, orthopaedic and plastic surgeons responsible for the treatment of DC across Australia, with 19 completed surveys receiving a response rate of 21%. Local unit costs were applied to these estimates of resource use and productivity loss. **RESULTS:** Results from the clinician survey indicated on average the following number of visits to healthcare professionals were required: 3.2 surgeon, 3.8 physiotherapy, 5.6 occupational therapy, 0.4 home nurse and 0.4 general practitioner visits. Based on this data the resource requirements associated with fasciectomy during the recovery phase were estimated to be $862.18. Loss of productivity informed by the survey suggests 85% of patients in the workforce required time off work for an average of 15.6 days. Based on labour force participation rates by age and gender the average productivity loss was estimated to be 6.1 days at a mean cost of $1,147.18 per patient treated. When considering both the direct healthcare costs and productivity costs, it was estimated a total of $2009.36 was incurred per patient during the recovery phase following fasciectomy. **CONCLUSIONS:** Fasciectomy for DC is associated with considerable rehabilitation, follow-up and loss of productivity costs which account for a sizable proportion (39%) of total fasciectomy costs.

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**PMS15: COST-EFFECTIVENESS ANALYSES OF SCREENING AND TREATMENT STRATEGIES FOR POSTMENOPAUSAL OSTEOPOROSIS IN CHINESE WOMEN**

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**OBJECTIVES:** The aim of the study was to determine the cost effectiveness of osteoporosis screening strategies in Chinese postmenopausal women. **METHODS:** A Markov model including first and second order Monte Carlo simulation was constructed using a lifetime horizon, from which cost effectiveness of osteoporosis screening strategies from age 65 were compared to that of no screening from the Chinese healthcare perspective. The screening strategies were 1) Osteoporosis Self-Assessment Tool (OST) followed by dual-energy X-ray absorptiometry (DEXA), 2) quantitative ultrasound (QUS), and 3) DEXA. Patients were assumed to receive alendronate if osteoporosis was detected or they experienced an osteoporosis related fracture, and were rescreened every 5 years if osteoporosis was not detected. First order Monte-Carlo using trackers was used to record fracture history. Probabilistic sensitivity analysis was performed to account for parameter uncertainties. Input parameters, including age-specific osteoporosis prevalence, fracture probabilities and costs and mortality probabilities were retrieved from published Chinese data where available. Costs were presented in 2013 USD. Both costs and effectiveness were discounted at 3% annually. A willingness-to-pay (WTP) threshold of 20,000 USD/quality adjusted life year (QALY) gained was used according to the China Guidelines for Pharmacoeconomic Evaluations. **RESULTS:** All screening strategies were more effective than no screening, but were more costly. Compared to no screening, the incremental cost-effectiveness ratio (ICER) for screening with OST followed by DEXA from age 65 was $21,107/QALY gained. ICER for QUS screening was $9,756/QALY gained. ICER for DEXA screening was $8,627/QALY gained. Compared to DEXA alone, OST followed by DEXA and QUS screenings were dominated. Given a WTP threshold of $20,000/QALY gained, screening with DEXA alone had a probability of 56% being cost effective. **CONCLUSIONS:** Based on incremental cost-effectiveness analysis, DEXA screening alone every 5 years from the age of 65 is recommended for osteoporosis screening in a Chinese setting.

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**PMS16: COST-EFFECTIVENESS OF DENOSUMAB VS. BRAND OR GENERIC ZOLEDRONIC ACID IN PATIENTS WITH BREAST CANCER IN KAZAKHSTAN**
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OBJECTIVES: Denosumab is recommended for preventing skeletal-related events (SREs) in adults with bone metastases from breast cancer (BC). Since recently generic zoledronic acid (ZA) became available, the aim of present study was to access the cost-effectiveness of denosumab vs. brand or generic ZA in the prevention of SREs in Kazakhstani patients with BC. METHODS: An excel-based Markov model was constructed with 4-week model cycles to analyse the cost-effectiveness of the treatments from the perspective of Ministry of Health with a 10-year time horizon for BC cohort. Direct costs (in 2014 tenge) included costs of drug, adverse event and SRE (pathologic fracture, surgery to bone, radiation to bone, spinal cord compression) treatment. A discount rate of 3% per year was applied for all costs. Effectiveness was appraised based on the number of SREs. The health states were defined according to SRE occurrence, SRE history and death. The model assumed that a maximum of 1 SRE could occur in each cycle. Transition probabilities were derived from the relevant phase III trials. Results were present in the incremental total cost per SRE avoided. One-way sensitivity analyses were performed to examine the robustness of the model. RESULTS: Over 10-year period, denosumab incurred 1044 tenge lower costs than brand ZA, 568558 tenge higher costs than generic ZA, 1.28 fewer SREs per BC patient. The estimated incremental total direct costs per SRE avoided with the use of denosumab were -816 tenge (instead of brand ZA) and 444186 tenge (instead of generic ZA). Results were robust to one-way sensitivity analyses. CONCLUSIONS: With assumption that brand and generic ZAs are equally effective in the prevention of SREs in BC patients, denosumab seems to be cost-effective alternative for brand ZA, and costly alternative for generic ZA from a perspective of Ministry of Health of Republic of Kazakhstan.

PMS17: COST-EFFECTIVENESS OF DENOSUMAB VS. BRAND OR GENERIC ZOLEDRONIC ACID IN PATIENTS WITH PROSTATE CANCER IN KAZAKHSTAN

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OBJECTIVES: A phase III clinical trial demonstrated the advantage of denosumab over zoledronic acid (ZA) in delaying the first on-study and subsequent skeletal-related events (SREs) in patients with prostate cancer (PC). Recently, generic ZA became available. The purpose of this study was to examine the cost-effectiveness of denosumab vs. brand or generic ZA in the prevention of SREs in Kazakhstani patients with PC. METHODS: An excel-based Markov model was constructed with 4-week model cycles to analyse the cost-effectiveness of the treatments from the perspective of Ministry of Health with a 10-year time horizon for PC cohort. Direct costs (in 2014 tenge) included costs of drug, adverse event and SRE (pathologic fracture, surgery to bone, radiation to bone, spinal cord compression) treatment. A discount rate of 3% per year was applied. Effectiveness was appraised based on the number of SREs. The health states were defined according to SRE occurrence, SRE history and death. The model assumed that a maximum of 1 SRE could occur in each cycle. Transition probabilities were derived from the relevant phase III trials. Results were present in the incremental total cost per SRE avoided. One-way sensitivity analyses were performed to examine the robustness of the model. RESULTS: Over 10-year period, denosumab incurred 103091 tenge higher costs than brand ZA, 677133 tenge higher costs than generic ZA, 0.58 fewer SREs per PC patient; The estimated incremental total direct costs per SRE avoided with the use of denosumab were 177743 tenge (instead of brand ZA) and 1167470 tenge (instead of generic ZA). Results were robust to one-way sensitivity analyses. CONCLUSIONS: With assumption that brand and generic ZAs are equally effective, denosumab seems to be superior alternative for brand ZA (insignificant difference in costs), and costly alternative for generic ZA from a perspective of Ministry of Health of Republic of Kazakhstan.

PMS18: COST UTILITY ANALYSIS OF INFliximab FOR THE TREATMENT OF SEVERE RHEUMATOID ARTHRITIS IN THAILAND


OBJECTIVES: To evaluate the cost-utility of Infliximab plus methotrexate (MTX) compared with MTX alone, in severe rheumatoid arthritis (RA) patients who were intolerant or inadequately responded to conventional DMARDs including MTX which is available in the national list of essential medicine (NLEM) in Thailand. METHODS: A Markov model consisting of Markov states defined by the disease activity score 28 (DAS28) was developed to reflect the clinical assessment in the treatment of RA in Thailand. Markov states for remission (DAS < 2.6), low disease activity (DAS 2.6-3.2), moderate disease activity (DAS 3.2-5.1), high disease activity (DAS ≥ 5.1), and dead were defined. With a cycle length of 6 months, transition probabilities were estimated based on ACR response in the clinical trial which was assumed to directly represent changes in disease severity.
DAS28 was assumed to be a clinically appropriate proxy for utility estimation (EQ5D). Both direct and indirect costs including patient's income loss were calculated under societal perspective. Data source of resource use are mainly based on estimation by experts. Cost and outcomes were discounted at 3%. One-way and probabilistic sensitivity analysis were conducted to test the robustness of the results. RESULTS: Infliximab plus MTX had an ICER of 131,867 baht per QALY gained compared to MTX alone. This falls into the range of acceptable ICER within 1-3 times of GDP per capita in Thailand (120,000 – 360,000 baht per QALY gained). The probability of cost-effective for Infliximab was presented at 8%, 50%, and 70% at the willingness-to-pay of 120,000 baht, 240,000 baht, and 360,000 baht per QALY gained respectively. CONCLUSIONS: This model suggests, with its underlying assumption, that Infliximab plus MTX seems to be more cost-effective treatment than MTX alone for Thai patients with severe RA that cannot be controlled by conventional DMARDs.

PMS19: ESTIMATING HEALTH CARE RESOURCE UTILIZATION OF PATIENTS WITH RHEUMATOID ARTHRITIS IN TAIWAN USING A NATIONAL CLAIMS DATABASE

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OBJECTIVES: Rheumatoid arthritis (RA) is a chronic autoimmune disease characterized by inflammation and destruction of the joints often resulting in a significant impact on quality of life. There are limited studies estimating the resource utilization of RA patients using real-world data in Taiwan. This study aimed to estimate the direct health care utilization in Taiwanese RA patients. METHODS: We performed a retrospective database analysis using 2011 data from the National Health Insurance Research Database (NHIRD) in Taiwan, a claims-based database covering over 99% of the population. We estimated the annual incremental health care utilization of RA patients compared with a control cohort matched 1:4 on demographics and clinical covariates. Health care resources were evaluated for the following categories: surgeries, medications, ward use, medical materials and devices (MMDs), and lab tests. The percentage of patients partaking in a health care utilization category was calculated as the number of patients with the specific claim divided by the total number of patients in the cohort. RESULTS: The total number of RA patients was 41,269. Females made up 78% of the cohort and the mean age was 59.4 years (SD=15.5). The average history of RA was 5.6 years (SD=2.7). When comparing RA to non-RA patients, drug utilization had some of the largest differences. RA patients had used traditional disease-modifying antirheumatic drugs (TDMARDs), biologic DMARDs (BDMARDs), NSAIDs, and steroids at a rate of 70.8%, 13.2%, 64.8% and 52.8% respectively. For surgeries, lab tests, and MMDs, the highest incremental differences were cataract surgeries, immunology examination, and orthopedic replacements. CONCLUSIONS: Direct health care utilization of RA was substantial in Taiwan. The NHIRD provides a comprehensive resource for estimating the incremental resource utilization of RA versus non-RA patients. This study provides a key piece of information to estimate the burden of the RA illness in Taiwan.

MUSCULAR-SKELETAL DISORDERS - Patient-Reported Outcomes & Patient Preference Studies

PMS20: ASSESSMENT OF MEDICATION ADHERENCE IN RHEUMATOID ARTHRITIS PATIENTS IN A TERTIARY CARE HOSPITAL

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OBJECTIVES: To assess the medication adherence rates and quality of life in Rheumatoid Arthritis (RA) patients. METHODS: RA patients admitted in the general medicine ward of a tertiary care hospital in Karnataka, India, during August to December 2013 were enrolled in the study. Demographic data of these patients was collected from patients' medical records, outpatient data and by interviews. Patients (age≥18 years) with RA, irrespective of sex, fulfilling the 2010 ACR/EULAR Classification Criteria, were enrolled in the study. Patient's assessment of adherence to medication was analyzed by using Medication Adherence Report Scale (MARS) and physical function using the Kannada version of the Stanford Improved Health Assessment Questionnaire (KA-HAQ) was collected. RESULTS: The mean age of 72 RA patients was 46.90 ± 12.88 years and disease durations was 4.27 ± 5.53 years. 86% of the patients were females. Among patients, 15 (21.43%) received methotrexate alone and 28 (40%) received a combination therapy of methotrexate and hydroxychloroquine. The mean KA-HAQ score of RA patients measured by KA-HAQ was 2.70 ± 1.01. Scores on MARS ranged from 26 to 41 with a mean score of 38.65 ± 3.5. The Cronbach's alpha for the MARS was 0.6 and KA-HAQ was 0.92. Using the mean cut-point 44% of 68 patients who completed the MARS were adherent and remaining 64% were not adherent. CONCLUSIONS: In our study we found that 64% of
the patients were not adherent to the medications which lead to decreased quality of life RA patients. Adherence to the medications is the optimal management for RA.

PMS21: A KINEMATIC COMPARISON OF OVERGROUND AND TREADMILL WALKING

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OBJECTIVES: Purpose of the study was to determine kinematic difference between overground and treadmill walking. METHODS: A total of 30 healthy men, 30 healthy female aged 19-23 participated in the study. Inclusion criteria in the study were that participants no low back and lower extremity pain, no traumatic injury and foot deformities. Participants walked at their preferred velocity on overground. The treadmill velocity was adjusted average velocity obtained in overground walking. Walking in two conditions was captured by high speed camera and analyzed by motion analyses software. RESULTS: In comparison between treadmill and overground walking was significantly different. Maximum hip flexion angle (P<0.017), maximum knee flexion (0.033)maximum ankle dorsiflexion (P<0.028) and maximum ankle plantarflexion (P<0.044) were significantly different in the two conditions. In the male, maximum hip flexion (P<0.020), maximum knee flexion (P<0.019), maximum ankle dorsiflexion (P<0.018) were significantly different in the two conditions. For female, maximum hip flexion (P<0.015), maximum ankle dorsiflexion (P<0.045), maximum plantarflexion (P<0.021) were significantly different in the two conditions. Overground walking male of knee extension was associated with body mass (r=0.433, p<0.05), hip flexion was associated with body height (r=-0.469, p<0.05). Overground walking female of knee flexion was associated with body mass during (r=0.469, p<0.05), ankle dorsiflexion was associated with height (r=-0.443, p<0.05). Treadmill walking in female, hip extension (r=-0.542, p<0.05), knee flexion (r=-0.342, p<0.05), ankle dorsiflexion (r=-0.469, p<0.05) was associated with body mass.Hip extension was associated with height (r=-0.542, p<0.05). CONCLUSIONS: The study revealed significantly kinematic difference between overground and treadmill walking.

PMS22: RELATIONSHIP BETWEEN HIP MUSCLE STRENGTH AND KINEMATICS OF THE KNEE JOINT

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RELATIONSHIP BETWEEN HIP MUSCLE STRENGTH AND KINEMATICS OF THE KNEE

OBJECTIVES: Patellofemoral pain syndrome is a common problem experienced by active adults and adolescents. Ascending stairs is one of the most painful activities of daily living in person with patellofemoral pain syndrome. However, its etiology has remained vague and is controversial. Nevertheless previous studies were reported from either the viewpoint of kinematics of the knee joint or hip muscle weakness, and is unclear whether hip and knee muscle weakness affect on knee medial displacement during physical activities. the this study was to determine relationship between hip muscle strength and kinematics of the knee joint. METHODS: Forty healthy subjects participated in this study. The knee medial displacement was measured during a functional tests using two high speed cameras. Images of videos were processed using motion analysis software. Peak isometric muscle strengths of the following muscles were measured hip abductors, hip adductors, hip external rotators, hip internal rotators, knee extensors and knee flexors. Hip and knee muscle strengths were measured using a hand held dynamometer as isometric muscle strength referring to Katoh’s method. RESULTS: Muscle strength of hip external rotators was associated with knee medial displacement during both single leg squatting (r= - 0.519, P< 0.001) and dropping (r= -0.520, P< 0.001). CONCLUSIONS: The present results suggest that hip muscles’ strength, particularly hip external rotators’ strength are closely associated with knee medial displacement.

PMS23: CLINICAL RESEARCH FOR THE EFFECTIVENESS AND ECONOMIC VALUE OF QINXITONG IN THE PATIENTS WITH RA IN CHINA

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OBJECTIVES: To observe the clinical efficacy and economic value of Qin Xi-tong(QXT) during the long-term treatment for
patients of RA. METHODS: Caulis Sinomenii(CS) has been recognized as an effective medicinal plant for arthritis. The Fifth Hospital of Xi'an developed water extract from CS to a novel kind of drug naming QXT. RA was diagnosed in 200 patients referred to Department of Rheumatology. All the patients were classified according to their different areas. They were respectively evaluated by the score of VAS, DAS28 and the response rates of ACR20/70. We also follow up the patients for the usage rate, treatment compliance and satisfaction of QXT. We count the cost of patients and the income of self-made Chinese traditional medicine in our hospital to measure the economic value of QXT. RESULTS: We found that: 1) There were 140 out of 200 patients who were from 14 provinces of China with RA using QXT.2. Percentage of the satisfaction and compliance with the treatment of QXT+MTX group were higher than MTX group, satisfaction rates (94.2% vs. 67.1%, X2=11.7, P<0.01), compliance rates (91.4% vs. 62.9%, X2=16.2, P<0.01), respectively. 3)statistical result of year 2 showed: Compared with pretherapy, QXT+MTX group scored significantly lower of VAS, while achieving higher level of ACR20 and ACR70.4)QXT was safe and well tolerated in this trial, difference of adverse events was not statistically significant. 5)The statistics showed the mean cost for QXT only occupied 9.2%(78/856)of patient's expenses for the treatment of RA. CONCLUSIONS: It is the first time to study the economic value of QXT in a randomized clinical trial for 2 years. QXT+MTX could contribute to the higher clinical remission rates of patients with RA. It is worth noting that Chinese patients with RA was much better satisfied and complying with QXT which is actually consistent with our clinical practice.

PMS24: CARE NEEDS FOR RHEUMATOID ARTHRITIS FROM PATIENT PERSPECTIVES: A QUALITATIVE STUDY FROM SINGAPORE GENERAL HOSPITAL

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OBJECTIVES: This study aims to identify the care needs for rheumatoid arthritis (RA) from patient perspectives. METHODS: One-on-one in-depth interviews were conducted with selected patients with RA in March 2014 in Singapore General Hospital as part of a larger ongoing study. The interviews were performed by a trained sociologist following an interview guide allowing free probes. Each Interview lasted for 20-60 minutes. 16 interviews were audio-recorded and transcribed with written consent from the patients. Notes were taken for the three unrecorded interviews. The transcripts and notes were analysed using NVivo 10 to identify major areas of patient-reported care needs. RESULTS: 19 patients (11 Chinese, 2 Malays, and 6 Indians; 17 females; age: 25-67 years; median educational level: higher secondary school) with 1-38 years of RA were interviewed. 15 had accepted that they would need lifelong RA medication; three were still testing if they could live without medication through self-experimentation; and one was in denial of the diagnosis. In addition to medical treatment, three other areas of care needs were identified: first, the need for knowledge about RA and its self-management (n=17); second, the need for peer support to learn "how other people live with RA" (n=11); and third, the need for psycho-emotional support to manage the emotional problems accompanying RA diagnosis (n=9). These needs were most acute upon diagnosis and became less important once the patient had established new normality of life after having RA (e.g., avoiding things one cannot do due to RA without feeling bad, taking RA medication without feeling being hassled). CONCLUSIONS: The results of this study suggest that RA patients' care needs are multidimensional and time sensitive. A multi-pronged approach including drug therapy, and patient education, support, and counselling is needed from start of treatment to help patients form the new normality of their lives.

PMS25: SUITABILITY RESEARCH ON THE EVALUATION OF EQ-5D AND SF-6D SCALE FOR THE QUALITY OF LIFE IN PATIENTS WITH OSTEOARTHRITIS

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OBJECTIVES: As the universal scales, EQ-5D and SF-6D have been widely used in the evaluation of the quality of life(QOL) of patients with many kinds of disease including Osteoarthritis. But as to which scale is much more suitable for the Osteoarthritis patients evaluation, there is scarcely any research so far. The current study aimed to compare the correlation of the EQ-5D, SF-6D with AIMS2-2F scale, the specificity scale of QOL evaluation, then to determine the suitability of two scale for the QOL of patients with Osteoarthritis. METHODS: From April to December in 2012, 100 patients with Osteoarthritis were enrolled with consent at Orthopedic Clinic in the First Affiliated Hospital of Chinese Medical University. They filled out the EQ-5D, SF-6D, and AIMS2 2F scales successively by themselves. SPSS19.0 analysis software was used to deal with the collected data, parts of the lack data were eliminated automatically. Cronbach alpha coefficient evaluated the internal consistency of scales. Pearson, Speaman and Kendall's tau-b correlation coefficient analysis were used to test the reliability between EQ-5D, SF-6D and AIMS2-2F score data. On the scale of the response and the factors affecting the QOL, we use multiple stepwise regression analysis, significant test of bilateral boundary value point. RESULTS: 77 sets of valid survey scale were analysi EQ-5D, SF-6D, and
AIMS2-2F scales all had good internal consistency showing good reliability with the crowns Bach coefficient were all higher than 0.6. During the various dimensions of EQ-5D scale, Anxiety, Pain, Daily life and Self care showed the higher sensitivity on AIMS2-2F scale. Followed by Ability to act. As to SF-6D scale, Psychological health, Vitality, and Social function showed higher sensitivity on AIMS2-2F scale. And followed by Role constraints, Pain and Physical function. CONCLUSIONS: The dimensions excluding Ability of act all had the higher sensitivity on AIMS2-2F scale, which means overall sensitivity was better than SF-6D. Therefore, EQ-5D is more suitable for the evaluation of the QOL of patients with osteoarthritis. But the Psychological health dimension of SF-6D showed strong sensitivity, which prompts us Psychological problems are the important factors influencing the Osteoarthritis patients life quality.

**PMS26: EXPLORING THE WILLINGNESS-TO-PAY FOR BIOLOGIC TREATMENTS IN IMMUNOLOGY DISEASES IN CHINA**


OBJECTIVES: Biologic treatments have improved outcome for immunology diseases in the last decades globally. However, biologic penetration in China is lower compared to developed countries. This study aims to explore the willingness-to-pay (WTP) for biologics in immunology diseases in China by understanding decisions driving physicians’ prescribing behavior and patients’ payment. METHODS: Primary market research was done by interviewing 160 physicians with biologic experience, 200 patients consisting of patients who have not received any biologic treatments before (bio-naïve), and patients with biologic experience (bio-experienced) from large hospitals (tier 3A) in Tier 1 and 2 cities. Patients were recruited with a diverse set of affordability as measured by household incomes. RESULTS: The results show that patients rely on physicians for treatment recommendation. For rheumatoid arthritis, ankylosing spondylitis, and psoriasis, the top four factors driving physician’s recommendation are drug cost, patients’ ability-to-pay, safety of treatment and efficacy of treatment. For Ulcerative Colitis (UC) and Crohn’s Disease (CD), the top four factors were safety, efficacy, patients’ affordability followed by drug cost. The difference in pattern for UC and CD is likely attributed to the more severe nature of these diseases. Other factors such as injection frequency and mode of administration ranked lower for all indicators. CONCLUSIONS: Patients interview results show that ≈60% of bio-naïve patients were rejected biologic treatment due to cost; ≈30% of bio-experienced patients stopped biologic treatments due to cost. This confirms that affordability considerations do limit the potential benefit that biologic treatments can provide. Interestingly, ≈30% of bio-experienced patients have stopped biologic treatment as it was perceived that treatment course was completed. This could be attributed to how physicians perceive biologics to be used. While affordability limits biologic penetration in auto-immune diseases in China, there are other considerations e.g. the severity of diseases and physician perception of treatment paradigm.

**PMS27: EXPLORING THE WILLINGNESS-TO-PAY FOR INNOVATIVE TREATMENTS FOR IMMUNOLOGY AND ONCOLOGY IN CHINA**


OBJECTIVES: Use of innovative medicines in oncology and immunology is relatively lower in China compared to developed countries. This study aims to explore the willingness-to-pay (WTP) for these two therapeutic areas by understanding decisions driving physicians’ prescribing behavior and patients’ payment in immune diseases (rheumatoid arthritis, ankylosing spondylitis, and psoriasis) and oncology (prostate cancer). METHODS: For immunology, primary market research was done by interviewing 160 physicians with biologic experience, 200 patients consisting of patients who have not received any biologic treatments before (bio-naïve), and patients with biologic experience (bio-experienced). For oncology, 50 physicians and 40 patients were recruited. All physicians and patients were recruited from large hospitals (tier 3A) from Tier 1, 2 cities. Patients were recruited to represent a diverse set of affordability. RESULTS: The results show that patients rely on physicians for treatment recommendation. For rheumatoid arthritis, ankylosing spondylitis, and psoriasis, the top four factors driving physician’s recommendation are drug cost, patients’ ability-to-pay, safety of treatment and efficacy of treatment. For Ulcerative Colitis (UC) and Crohn’s Disease (CD), the top four factors were safety, efficacy, patients’ affordability followed by drug cost. The difference in pattern for UC and CD is likely attributed to the more severe nature of these diseases. Other factors such as injection frequency and mode of administration ranked lower for all indicators. For oncology, the top factors driving physician prescription are efficacy (overall survival, progression-free survival) followed by safety and tolerability. Patient affordability and drug cost are ranked much lower. Similarly, from patients interview results, efficacy was rated more important than cost as a factor driving
MUSCULAR-SKELETAL DISORDERS - Health Care Use & Policy Studies

PMS28: STAKEHOLDER EVIDENCE REQUIREMENTS AND PRICE EXPECTATIONS FOR BIOSIMILARS IN THREE ASIAN MARKETS

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OBJECTIVES: Between 2011 and 2015, 32 biologics valued at more than $55 billion are expected to lose patent protection across the world (Datamonitor 2011). The biologics patent cliff has presented a huge opportunity for biosimilar manufacturers. In the context of this growing biosimilars market, this research aimed to investigate the regulatory environments and the evidence (clinical, economic and humanistic) requirements to support reimbursement and prescription of biosimilar drugs in three Asian markets (Japan, South Korea and China). METHODS: We conducted secondary research to review the macroeconomic factors impacting biosimilar entry (regulatory policy, intellectual property protection etc.) Payer/physician guidance and positions on biosimilar use across markets and diseases were also reviewed. Following this, primary research was conducted with a mix of payers and physician stakeholders to understand: The therapy areas that payers/physicians consider most attractive for biosimilars; Payer/physician value drivers and evidence requirements (bioequivalence, comparative data etc.) across therapy areas that would support public reimbursement and prescription Expectations around price differentials vs. branded biologics and the implications these differentials have on access and utilization of biosimilars. RESULTS: Evidence requirements vary by market, with Japan and S.Korea being fairly consistent while China having lower thresholds. Evidence requirements also tend to vary by therapy area and complexity of the biologic. Overall, efficacy/safety data and price are key value drivers for biosimilar reimbursement and uptake. In the absence of comparative data vs. the branded biologic, concerns around safety/efficacy may impact uptake but the promise of significant budget savings supports positive reimbursement/access decisions. CONCLUSIONS: The access environments for biosimilars in the developed markets of Japan and S.Korea can be expected to be similar to other developed markets across the world. However, China is likely to be more favourable than the developed markets when it comes to access and uptake of biosimilars.

PMS29: WITHDRAWN

PMS30: CLOSING THE GAP: REDUCED DELAY TO DRUG MARKETING APPROVAL BETWEEN THE WEST AND ASIA

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OBJECTIVES: Historically, there has been a delay between the marketing approval of drugs in Western countries and other markets worldwide. However, the pharmaceutical market in Asia is rapidly expanding (a projected increase in global market share of 7% from 2000–2016). The objective of this analysis was to investigate patterns of drug approvals in Western and Asian countries. METHODS: National English-language drug regulatory authority websites were searched for drug approval dates in key Western (United States and European Union) and Asian countries (Japan, Hong Kong, Indonesia and Singapore) in type 2 diabetes mellitus (T2DM) and rheumatoid arthritis (RA). For drugs with ≥1 approval in each region, we analysed how the delay in average approval date between the West and Asia changed over time. RESULTS: At least 1 West and 1 Asian approval was recorded for 21 drugs (T2DM n=12, RA n=9), out of the 31 included. The delay between approval in the West and Asia was found to decrease between 2000 and 2014 in both T2DM and RA, and there was an overall strong negative correlation between the date of first approval and the delay (p<0.0001; Spearman Rank correlation). Despite the delay for RA drugs (mainly biologics) being over double that of the T2DM (all small molecules) in 2000 (8.6 vs 3.6 years), by 2009 the delay for drugs in both indications was less than 2 years, due to a greater rate of decrease in delay for RA. CONCLUSIONS: Whilst the current analysis has limitations, it is clear that the delay in date of approval of T2DM and RA drugs in Western and APAC countries has decreased dramatically over the past decade. This may have an impact on the future marketing strategies of pharmaceutical companies. Further analysis would be needed to ascertain if this same trend is observed in other emerging markets.
PMS31: HEALTH LITERACY AND HEALTH CARE UTILIZATION AMONG ADULTS WITH OSTEOPOROSIS

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OBJECTIVES: Every year, osteoporosis accounts for two million fragility fractures leading to disability, decreased quality of life and increased health care cost. Health literacy poses a challenge in delivering effective healthcare services. Impact of health literacy on health care utilization in the osteoporotic patients is unknown. We describe(1) healthcare utilization for osteoporosis patients in the USA(2) their prescription drug expenses, and(3) examine any effects that health literacy may have on the above factors. METHODS: This cross-sectional analysis used Medical Expenditure Panel Survey(MEPS) survey data from 2005 - 2008 and patients were identified using ICD-9 codes (733.xx) for osteoporosis. Patients' health literacy levels(HLL) were determined by using the health literacy scores(HLS), rated using the 2003 National Assessment of Adult Literacy to levels from basic or below basic(BBHLL<226) to above basic (ABHLL≥226) (range 0–500). The outcome variables were visits and costs as a function of HLL adjusted for other covariates. Adjusted logistic regression analyses determined factors that might influence HLL in osteoporotic patients. RESULTS: Majority of the total of 915 (20,486,934 weighted) individuals (mean age, 67.4; SD±11.7) were women (92%), Caucasians (91%) and on bisphosphonates (78%). The estimated national mean of HLS was 220.3(SD±27.5). Average annual visits and visits expenditure were 13.9 and $1,587 respectively. Individuals with ABHLL incurred less annual visits (13.4 vs 14.3) but paid more per visit ($130vs.$103) compared to those with BBHLL. Self-perceived health status( SPHS) was rated 2.35 times greater by ABHLL than those with BBHLL (OR:2.352,CI:1.43,-3.87). Patients with polypharmacy(>4 drugs) were 1.87 times less likely to have ABHLL(P<0.0001) than those with BBHLL. CONCLUSIONS: Osteoporosis patients with ABHLL incurred less annual visits but paid more per visit. While increasing HLL may not decrease visits or expenditure per visit, it may decrease drug expenses, polypharmacy and improve SPHS, all associated with better health care outcomes.

PMS32: THE IMPACT OF PSYCHOLOGICAL TREATMENT OF RHEUMATIC PATIENTS WITH MENTAL HEALTH

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OBJECTIVES: To investigate the mental health of rheumatic diseases patients and explore the effect of psychotherapy for the mental health status in rheumatism inpatients. METHODS: 1. To compare the mental health status in rheumatism inpatients with normal by SCL-90 score. 2. 66 inpatients with rheumatism were recruited in the study and randomly divided into study group (n=33) and control group (n=33). The patients in the study group accepted psychotherapy and pharmacotherapy, and control group only accepted pharmacotherapy. 3. Six weeks later, the effect of psychotherapy to rheumatism inpatients were assessed by comparing the score of SCL-90 between the two groups.RE SULTS: 1. The SCL-90 score significantly increased in rheumatism inpatients group compared with normal group: rheumatism inpatients group (152.8±35.9) and normal group (129.9±38.7), (P<0.05). 2. Six weeks later, the SCL-90 sore of study group was lower than that of control group. 3. The SCL-90 score significantly reduced after psychological treatment. CONCLUSIONS: The mental health status of rheumatism patients can not be ignored, because the patients have varying degrees of mental psychotic symptoms. The psychotherapy can improve the mental health status in rheumatism patients and can help the recovery of the patients.

RESPIRATORY-RELATED DISORDERS

RESPIRATORY-RELATED DISORDERS - Clinical Outcomes Studies

PRS1: THE EFFECTIVENESS AND SAFETY OF FEBUXOSTAT : AN EXPERIENCE IN MEDICAL CENTER IN TAIWAN

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OBJECTIVES: The aim of this study was to assess the effectiveness and safety of febuxostat for chronic gout. METHODS: We retrospectively review patients with diagnosis of gout (ICD-9 250) concomitant with febuxostat during Jun 2012 to Dec 2013 in Changhua Christian Hospital. Patients with prescription of febuxostat less than 30 days were excluded. We collect the data of patient age, sex and analyzed the progression of renal function (eGFR) and uric acid. Prescribed Daily Dose (PDD) of febuxostat was calculated. Hospital-based spontaneous reporting systems databases were survey for the febuxostat adverse reaction reporting. RESULTS: A total of 151 patients were included with mean age 68.3±14.4 years. There were 40 female and 111 male ( F:M ; 1:2.8).The average duration of prescription was 148.±88.5 days. Prescribed Daily Dose (PDD) of febuxostat was 44mg. The uric acid was decrease from 9.1±1.9 to 6.6±2.7mg/dL. The eGFR was increased from 33.5±23.5 to 34.9±25.1
ml/min/1.73m2. 86.7% (131) of patients with eGFR < 60 ml/min/1.73m2 at the baseline. In subgroup analysis, 42 patients with the duration of prescription 31-90 days (average 55.8±15.6 days), 59 patients with 91-180 days (average 127.6±25.6 days), 50 patients with > 181 days (average 249.6±68.77 days), the uric acid derement was 2.3±2.8 mg/dL, 2.6±2.9 mg/dL and 2.8±2.1 mg/dL respectively. A total of 6 cases reported as mild adverse reaction, 4 cases reported as skin reaction. Other reactions reported was chills and insomnia. The incidence of ADR was 3.97%. (6/151)

**CONCLUSIONS:** Febuxostat is an effective urate-lowering agent. We found a trend that the longer Febuxostat use, the more uric acid decline. The safety of febuxostat was well tolerated since the adverse reaction reported was mild. The total 6 cases adverse reaction reported were occurred in eGFR <60 ml/min/1.73m2. Therefore, we need to closed monitor adverse reaction in CKD patients.

**PRS2: INHALED ANTICHOLINERGICS AND RISK FOR ACUTE URINARY RETENTION: A CASE-CROSSOVER AND CASE-TIME-CONTROL STUDY**

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**OBJECTIVES:** Recent nested case-control studies have raised concerns of the risk for acute urinary retention (AUR) among patients receiving tiotropium, a long-acting inhaled anticholinergic. In this study, we examined the effect of inhaled anticholinergics on the occurrence of AUR using self-controlled methods, case-crossover and case-time-control designs, which adjust for all time-invariant confounders and reduce threat of control-selection bias. **METHODS:** Patients aged ≥45 years with chronic obstructive pulmonary disease (COPD) were included from the IMS LifeLink Health Plan Claims Databases. Cases with AUR in both inpatient and outpatient settings during 2006-2009 were identified. In the case-time-control approach, ten controls were randomly selected for each case after matching age, gender, geographic location, to control for the secular trend of medication use. Exposure to tiotropium, ipratropium, and medications with significant anticholinergic effects was determined in the 30-day period prior to the event and in a 30-day reference period which was 180 days prior. Multivariate conditional logistic regression was used to evaluate the association between anticholinergic exposure and AUR, with sensitivity analyses and subgroup analyses based on age, gender and related comorbidities. **RESULTS:** A total of 6,008 cases and 60,080 controls were identified. The mean age was 74 years and ~78% were male. In the case-crossover analysis, adjusted odds ratio (OR) of AUR was 1.34 (95% CI 1.13-1.60) for tiotropium and 1.19 (1.00-1.41) for ipratropium. In the case-time-control analysis, the risk of AUR OR was 1.24 (1.03-1.50) for tiotropium and 1.26 (1.05-1.51) for ipratropium. The AUR risk related to tiotropium and ipratropium was similar among patients aged >75 years, males, and those with benign prostate hyperplasia, prostate cancer, and diabetes. **CONCLUSIONS:** Our results support current evidence that use of inhaled anticholinergics is associated with higher risk for AUR (odds increased by 20-35%) in COPD patients. Providers should be aware of the potential risk for AUR when making treatment decisions.

**PRS3: COUGH AS A KEY SYMPTOM IN ASTHMA, ALLERGIC RHINITIS, COPD AND RHINOSINUSITIS AND ITS IMPACT IN ASIA**

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**OBJECTIVES:** Respiratory diseases represent significant impact on healthcare resources. A cross-sectional, observational study, Asia-Pacific Burden of Respiratory Diseases (APBORD), was conducted to examine burden of disease in adults with respiratory diseases across 6 countries - India, Korea, Malaysia, Singapore, Taiwan, and Thailand. We examined the extent to which cough is a presenting symptom and reason for medical visits for participants with Asthma, Allergic Rhinitis (AR), COPD or Rhinosinusitis. **METHODS:** Participants aged ≥18 years, presenting to a physician with primary diagnosis of Asthma, AR, COPD or Rhinosinusitis were enrolled. Participants completed a survey which contained questions related to demographics, respiratory symptoms, healthcare resource use and quality of life. **RESULTS:** A total of 13,902 participants were screened, of which 7,030 were eligible and 5,250 enrolled. The highest percentage of participants receiving care for a respiratory disorder had primary diagnosis of AR 14.0%, (95%CI: 13.4%, 14.6%), followed by Asthma 13.5% (12.9%, 14.1%), Rhinosinusitis 5.4% (4.6%, 5.3%) and COPD 4.9%, (5.0%, 5.7%). Cough or coughing up phlegm was reported as symptom by more than half the participants. Cough or coughing up phlegm was reported as the main reason for medical visit by more than 20% of participants. Among all
symptoms reported, cough was most frequently reported by participants with a primary diagnosis of COPD (73%), followed by Asthma (61%), Rhinosinusitis (59%), and AR (47%). In addition, cough was the most frequently reported main reason for seeking medical care among participants with a primary diagnosis of COPD (43%), for Asthma (33%), for Rhinosinusitis (13%), and for AR (11%). CONCLUSIONS: Cough is a prominent symptom and major driver of medical care for patients with Asthma, Allergic Rhinitis, COPD or Rhinosinusitis. These data suggest that patients presenting with cough should be investigated comprehensively for any underlying more serious respiratory disorders to help with appropriate disease management.

PRS4: POLLEN MORPHOLOGY AND TOTAL PROTEIN OF TARAXACUM OFFICINALE AND ASTER ALPINUS

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OBJECTIVES: The aerobone allergenic content of the atmosphere varies according to climate, geography and vegetation. Furthermore, in the last few years, experimental data on pollen and subpollen-particles structure, the pathogenetic role of pollen and the interaction between pollen and air pollutants, gave new insights into the mechanisms of respiratory allergic diseases. We aim to evaluate Pollen morphology and total protein of Taraxacum officinale and Aster alpinus. To determine the Pollen morphology and total protein of Taraxacum officinale and Aster alpinus. METHODS: The Research is been done under the Biochemistry and Laboratory Department of Biomedicine School, HSUM with the help of Laboratory of School of Health Technology. Pollen morphology of Taraxacum officinale and Aster alpinus was investigated by light and microscopy. And total proteins was detected by Lowry method. RESULTS: In Taraxacum pollen grain size (polar- equatorial diameter) ranged from 29.5±0.77 (24.7-34.6) µm to 25.1±0.76 (21.4-30.4) µm. And total proteins content 0.4mg/ml. Pollen grain of Aster alpinus size ranged from 34.4±2.4 (22.7-38.5) µm to 22.7±0.88 (19.6-26.09) µm. Total proteins was contents 0.9mg/ml. Both pollen walls are echinated, exine coated circular and yellow oil droplets. CONCLUSIONS: Findings from the pollen grains comparison of morphologic parameters demonstrated that the Aster alpinus pollen was larger than Taraxacum pollen.

PRS5: A METHOD TO INVESTIGATE SEASONAL VARIATION IN HOSPITALIZATION FOR COPD IN A MIDWESTERN US STATE

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OBJECTIVES: To investigate the impact of seasonal variation on daily number of COPD hospital admissions using 6 years of hospital discharge data from the Iowa Hospital Association. METHODS: Inpatient admissions from 2006 to 2011 for persons 30 years of age or older were included if there was a principal ICD-9-CM diagnosis of COPD (491.xx; 492.xx; 496.xx). Generalized linear models extending Poisson regression and Negative Binomial model (to account for overdispersion) were fitted. Admission date was converted into an angle called θ and treated as a continuous variable with a circular distribution. Sinθ and cosθ together were proposed to be used as the covariates representing seasonal effect. Subgroup analyses of age and sex were applied. RESULTS: 34,563 inpatient admissions for COPD were identified. Admissions for COPD showed a strong seasonal pattern (P<0.0001). The number of hospital admissions reached its maximum on Feb.21 and its minimum on Aug. 23. The distribution is symmetric around the year. There were no differences of maximum and minimum dates between male, female and the overall population. However, for patients older than 65 years of age, the number of hospital admissions reached its maximum on Feb.25 and its minimum on Aug. 27. For patients 30-65 years of age, its maximum was on Feb.11; its minimum was on Aug.12. The peaks were two weeks earlier than patients older than 65 years of age. CONCLUSIONS: The present findings support the conclusion that COPD hospitalization is higher in the winter. However, the busy period tends to be in late winter from Jan.7 until Apr.7, suggesting that it may be arbitrary to simply define winter as December to February when studying seasonal effect of COPD in the Midwest. The analytic method and the outcome of this study may help to allocate health-care resources efficiently based on seasonal hospitalization trend.

PRS6: WITHDRAWN

PRS7: FACTORS AFFECTING THE OUT-COME IN HOSPITAL ACQUIRED PNEUMONIA

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OBJECTIVES: To analyze the risk factors associated with the outcome of hospital acquired pneumonia (HAP). METHODS: A prospective observational study, carried out in a tertiary care teaching hospital. HAP patients who fulfill the inclusion criteria were identified and enrolled into the study after taking informed consent. Patients were followed from the day of diagnosis of HAP till the day of discharge/death. The patient data like demography, social habits, co-morbid diseases, interventions (mechanical ventilation), severity assessment (APACHE II score) and clinical outcome (discharge or death) were recorded in the case record forms. Univariate and Multivariate analysis were used to determine the association of the studied risk factors with clinical outcome. RESULTS: Total of 505 patients were enrolled in the study. Among 505 HAP patients, 417 were improved and discharged; remaining 88 patients were expired. The mean age of study patient population was 55.1±16.2 years and 38.4% patients were more than 60 years of age. The majority of patients were males n=338 (66.9%). 230 (45.5%) patients were ventilated during their stay in the hospital. Twelve variables (age>60 years, sex, mechanical ventilation, APACHE-II>20, cardiac, pulmonary, renal, immunosuppression, diabetes mellitus, liver insufficiency, smoking and alcohol intake) were analyzed for possible association with the clinical outcome of HAP in Univariate analysis. Variables with statistical significance during the Univariate analysis were entered into the multivariate analysis. The following five variables were found statistically significant independent predictors of outcome (mortality) in these patient population in multivariate analysis using logistic regression: mechanical ventilation (OR: 9.81; Cl:4.98-19.35; p<0.001), immunosuppression (OR:4.31; Cl:1.65-11.27 ; p<0.003), liver insufficiency (OR:3.69; Cl:1.43-9.55; p<0.007), APACHE II>20 (OR:2.72; Cl:1.56-4.76 ; p<0.001) and male sex (OR:2.27; Cl: 1.71-4.38; p<0.015). CONCLUSIONS: HAP has contributed significantly to mortality (17.4%). Mechanical ventilation, immunosuppression, Liver insufficiency, APACHE II score >20 and male sex were found to be independent predictors of mortality in HAP patients.

PRS8: ANALYSIS OF FACTORS CAUSING CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN EASTERN REGION OF CHINA

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OBJECTIVES: Chronic Obstructive Pulmonary Disease (COPD) has become increasingly a major public health problem. This study aimed to evaluate the risk factors for COPD based on data from several cities in eastern region of China. METHODS: Data were extracted from China Health Statistics for five most representative cities and provinces (Liaoning, Beijing, Tianjing, Shanghai and Guangdong) in the eastern region of China where rates of COPD were available. Descriptive statistics and multiple regression models were used to examine risk factors for COPD including gender, average family expenditure on cigarette, industrial dust, industrial emission of sulfur dioxide, average family income and average family expenditure on vegetables. RESULTS: The total sample size was 150. Descriptive statistics indicated strong correlations between the dependent variable rate of COPD and independent variables - average family expenditure on cigarette, industrial emission of sulfur dioxide, industrial dust and average family expenditure on vegetables. Furthermore, multiple regression models showed that average family expenditure on cigarette, industrial emission of sulfur dioxide, industrial dust and average family expenditure on vegetables were the significant parameters that affected the rate of COPD. CONCLUSIONS: Our analyses showed that, in the eastern region of China, cigarette smoking, sulfur dioxide emission, industrial dust and family expenditure on vegetables were independent risk factors associated with the occurrence of COPD. To lessen the occurrence of COPD, people should quit smoking and modify dietary habit, while government authorities should enforce controlling for sulfur dioxide and industrial dust emissions.

RESPIRATORY-RELATED DISORDERS - Cost Studies

PRS9: INCIDENCE-BASED COST OF ASTHMA IN VIETNAM

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OBJECTIVES: Nowadays, health-care costs of asthma are under pressure in all countries due to high prevalence, incidence and the chronic nature of disease. Hence, the aim of the study is to evaluate the lifetime cost of asthma for every new case and the incidence-based economic burden of asthma in Vietnam. METHODS: A Markov model with 5 states, including mild, intermittent, moderate and severe, has been built. The model has a cycle length of 1 year with the time horizon of life time. The population of 1000 new cases has been included in the model. The transition rates between states have been retrieved from relevant epidemiological studies, clinical trials and experts’ opinions. The treatment costs of asthma have been totaled for the life-time horizon using discount rate of 3%. The study has been conducted based on the perspective of insurance companies,
therefore only direct medical costs have been evaluated. The prices of drugs and medical services have been averaged from the price-lists in 2013 of some major hospitals in Vietnam. **RESULTS:** The incidence-based cost of every new case of asthma in Vietnam accounts for 70,019,897 VND, in which costs for drugs and medical services account for 60.55% and 39.45%, respectively. The cost for diagnosing and management of asthma within life-time per capita is 51,459,674 VND, which is around 2.77 times higher than for the costs of asthma exacerbations treatment (18,560,224 VND). With nearly 231,260 new cases of asthma annually, Vietnam has the incidence-based economic burden of asthma within lifetime horizon of around 16,193 billion VND. **CONCLUSIONS:** Understanding the economic impact of asthma on society is fundamental to plan and implement relevant medical policies. The high incidence-based economic burden of asthma of around 16,193 billion VND should be considered to conduct the healthcare policies in Vietnam.

**PRS10: ECONOMIC BURDEN OF PEDIATRIC ATOPIC DERMATITIS IN ASIA-PACIFIC: A REVIEW OF THE LITERATURE**

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**OBJECTIVES:** Atopic dermatitis (AD) is a chronic skin disease typically presenting in infancy. A literature review was conducted to identify pediatric AD cost estimates in Asia-Pacific (AP) countries. **METHODS:** An electronic literature search was conducted in PubMed, Google scholar, and Asian electronic reference databases to identify studies reporting on pediatric AD cost estimates in AP countries. Open text search terms were used to maximize the sensitivity of the search strategy. These searches were supplemented by manual reviews of bibliographies of the articles reporting cost estimates and discussions with AD experts. Costs were inflated and converted to 2013 US dollars. **RESULTS:** Annual AD costs per patient were identified in Australia (cross-sectional survey of 48 parents of AD children; age 4 months-15 years; total costs for all, mild, moderate, and severe cases: $2,745; $925; $3,301; $4,907, respectively), South Korea (cross-sectional survey of 196 parents of AD patients; age <12 years; visiting an allergy clinic; total: $3,522; direct: $1,253), Indonesia (model-based; age 0-6; urban; total: $743; direct: $740), Malaysia (model-based; age 0-6; urban; total: $576; direct: $398), Philippines (model-based; age 0-6; urban; total: $371; direct: $363), Singapore (model-based; age 0-6; urban; total: $1,097; direct: $957), and Thailand (model and chart review of 3,502 AD children; age 0-5; direct costs: all, mild, moderate, and severe AD: $199, $124 $415, $968, respectively). **CONCLUSIONS:** The economics of pediatric AD in AP has not been extensively studied. Based on available evidence, annual pediatric AD costs are generally high. Variations in cost estimates are due to between-study differences in country of analysis, types of costs included, severity of AD, and costing methodology. Further evaluations of the AD costs and the cost-effectiveness of pediatric AD prevention strategies in AP countries are warranted.

**PRS11: BURDEN OF ATOPIC DERMATITIS IN INDONESIA, MALAYSIA, AND SINGAPORE: ESTIMATES FROM A MATHEMATICAL MODEL**

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**OBJECTIVES:** Children with a family history of atopic disease receiving cow’s milk formula (CMF) are at high risk of atopic dermatitis (AD). Modeling techniques were used to estimate the economic impact of AD among urban high-risk children in Malaysia, Indonesia, and Singapore. **METHODS:** A cohort Markov model was developed to simulate the cumulative incidence and costs of AD in 3 cohorts (one per country) of urban, high-risk infants partially of completely fed with CMF in early infancy (months 0-4). AD incidence was from the GINI study, the largest/longest prospective experimental study of infant formula and AD in this population. AD treatment patterns and resource use assumptions were derived from expert opinion (n=8). Costing of resource use was based on the respective countries’ prices. Key modeled outcomes included the overall and annual direct/indirect costs of AD (converted to 2013 US$) from diagnosis to age 6. Multivariate probabilistic sensitivity analysis was used to generate 95% confidence intervals (CI) around study outcomes. **RESULTS:** The 6-year cumulative risk of AD was 38% (95% CI: 22%, 57%). The mean overall estimated AD costs/child developing AD was $2,492 (95% CI: $1,887, $3,509) in Malaysia, $3,217 (95% CI: $2,339, $4,717) in Indonesia, and $4,753 (95% CI: $3,438, $6,961) in Singapore. Expressed on an annual basis, the cost of AD per child developing AD was $576 (95% CI: $501, $650) in Malaysia, $743 (95% CI: $605, $876) in Indonesia, and $1,097 (95% CI: $900, $1,303) in Singapore. Most of these costs were direct costs for physician visits and pharmacologic treatments. **CONCLUSIONS:** By age 6, the total cumulative AD-related costs among high-risk urban infants who are fed with CMF in early infancy are estimated to range from $2,492 to $4,473. Annual AD costs range from $576 to $1,097. Cost-effective AD prevention strategies should be considered to reduce this burden.
**PRS12:** COMPARISON OF HEALTH CARE UTILIZATION AND COSTS FOR PATIENTS WITH ASTHMA BY SEVERITY AND HEALTH INSURANCE IN THAILAND: USING GENERALIZED LINEAR REGRESSION MODEL

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**OBJECTIVES:** Asthma is a major healthcare problem. Understanding current patterns of healthcare utilization and cost by severity and health insurance; however, they may not be applicable to Thailand. This study aimed to compare healthcare utilization and cost by asthma severity and type of health insurance in Thailand.

**METHODS:** A retrospective study using an electronic database was conducted in patients with asthma who visited a University-affiliated hospital during 2009-2011. The outcomes were healthcare utilization and costs of in-patient and out-patient care. We compared outcomes between groups based on a proxy of severity (high vs. non-high risk of emergency department visit) and type of health insurance. Multivariable generalized linear regression model with log link function was used to determine the difference of average healthcare cost, while multivariable negative binomial regression model was used to determine difference of the number of hospitalization among groups of severity and health insurance. Costs were converted to US$ using 30.59 Thai-baht per $1US. **RESULTS:** Among 1,982 patients included, the average age was 40.3±24.0 years with 60.7% male. A total of 1,936 patients were non-high risk patients, while 46 patients were high-risk patients.

There were 1,293 patients under universal coverage schemes (UCS), 264 patients under social security schemes, and 626 patients under civil servant medical benefit schemes (CSMBS). The average annual cost/patient was $598±871. In adjusted analyses, the healthcare cost of high-risk patients was $67 higher than that of non-high risk patients (95% confidence interval (CI): $64–$69). The cost of patients under CSMBS was $109 (95% CI: $105–$113) higher than that of patients under UCS. **CONCLUSIONS:** The healthcare costs in a cohort of patients with asthma were substantial and were higher in high-risk patients and patients under CSMBS.

**PRS13:** MISSING DATA ANALYSIS IN LONGITUDINAL STUDIES: FINDINGS FROM A QUALITY OF LIFE STUDY IN MALAYSIAN TUBERCULOSIS PATIENTS

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**OBJECTIVES:** This study aims to propose an appropriate statistical method to analyse the longitudinal health-related quality of life (HRQoL) data. **METHODS:** This was a longitudinal HRQoL study conducted among new smear positive pulmonary tuberculosis (PTB) patients diagnosed at the chest clinic of Penang General Hospital between March 2010 and February 2011. Eligible patients (i.e., literate and 18 years and above) were asked to self-complete the SF-36v2 questionnaire (either in Malay, Mandarin, Tamil or English) at the start of the treatment, after the intensive phase and at the end of the treatment. The mean physical component summary (PCS) and mental component summary (MCS) scores, ranging from 47–53, were considered equivalent to the general population norms.

Repeated measures ANOVA (with single imputations) and linear mixed model were used to analyse the data. **RESULTS:** A total of 216 patients completed the questionnaire at the start of their treatment. Out of these, 177 and 153 completed the questionnaire at the second and third follow-ups, respectively. Throughout the treatment, the mean PCS and MCS scores for the patients were less than 47. In repeated measures ANOVA analysis, level of education, diabetes, being alcoholic and cough with sputum were the significant predictors of PCS, whereas none of the covariates explained a significant variance in the MCS scores. In linear mixed model, ethnicity, marital status, being a smoker, productive cough and ≥ 3 TB-related symptoms were the significant predictors of PCS. Similarly, covariates such as ethnicity, hypertension, being a smoker, monthly income ≥ 1000 MYR and ≥ 3 TB-related symptoms significantly explained variance in the MCS scores. **CONCLUSIONS:** The study’s findings indicated compromised health among the study participants even at the end of treatment. According to different findings obtained from both methods and the limited assumption in applying repeated measures ANOVA, linear mixed model was preferred to analyse this data.

**PRS14:** HEALTH CARE UTILIZATION AND COST OF MANAGEMENT IN PATIENTS WITH STEVENS-JOHNSON SYNDROME AND TOXIC EPIDERMAL NECROLYSIS IN THAILAND

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**OBJECTIVES:** Several previous studies compared healthcare utilization and cost by asthma severity and type of health insurance; however, they may not be applicable to Thailand. This study aims to compare healthcare utilization and cost by severity and type of health insurance in Thailand. **METHODS:** A retrospective study using an electronic database was conducted in patients with asthma who visited a University-affiliated hospital during 2009-2011. The outcomes were healthcare utilization and costs of in-patient and out-patient care. We compared outcomes between groups based on a proxy of severity (high vs. non-high risk of emergency department visit) and type of health insurance. Multivariable generalized linear regression model with log link function was used to determine the difference of average healthcare cost, while multivariable negative binomial regression model was used to determine difference of the number of hospitalization among groups of severity and health insurance. Costs were converted to US$ using 30.59 Thai-baht per $1US. **RESULTS:** Among 1,982 patients included, the average age was 40.3±24.0 years with 60.7% male. A total of 1,936 patients were non-high risk patients, while 46 patients were high-risk patients. There were 1,293 patients under universal coverage schemes (UCS), 264 patients under social security schemes, and 626 patients under civil servant medical benefit schemes (CSMBS). The average annual cost/patient was $598±871. In adjusted analyses, the healthcare cost of high-risk patients was $67 higher than that of non-high risk patients (95% confidence interval (CI): $64–$69). The cost of patients under CSMBS was $109 (95% CI: $105–$113) higher than that of patients under UCS. **CONCLUSIONS:** The healthcare costs in a cohort of patients with asthma were substantial and were higher in high-risk patients and patients under CSMBS.
**PR515: COST-BENEFIT ANALYSIS OF BACTERIAL LYSATES FOR CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN CHINA**

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**OBJECTIVES:** Bacterial lysates reduce acute exacerbations for patients with chronic obstructive pulmonary disease. The purpose of this study was to conduct a cost-benefit analysis of bacterial lysates from a payer perspective through the results from a Meta analysis and a Delphi panel survey in China. **METHODS:** A cost-benefit analysis was to project the 12-month health benefits and costs associated with immunostimulation treatments. Acute exacerbations were served as a measure of effectiveness. Treatment effectiveness data were derived from the meta-analysis. Costs were obtained from a Delphi panel survey of treating acute exacerbation for chronic obstructive pulmonary disease in China. One-way sensitivity analysis was used to explore each parameter's impacts on the uncertainty of the results. **RESULTS:** The group receiving routine care only was dominated by the group with bacterial lysates plus routine care. Sensitivity analysis proved the robustness of the results. For a COPD patient, compared to the routine care as control group, the alternative treatment with bacterial lysates could reduce 1.9 exacerbations in 12 months (WMD, -1.865; 95% CI, -2.128 to -1.603; P<0.00001). The projected 12-month cost savings of a patient receiving bacterial lysates plus routine care was CNY14,476. The cost of patients receiving bacterial lysates plus routine care was significantly lower than those receiving routine care only. **CONCLUSIONS:** For patients with COPD, treatments with bacterial lysates can improve patient outcomes and reduce costs.

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**PR516: MODELING THE COST-EFFECTIVENESS OF 100% WHEY-BASED PARTIALLY HYDROLYZED versus. COW’S MILK INFANT FORMULA IN THE PREVENTION OF ATOPIC DERMATITIS IN SINGAPORE**

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**OBJECTIVES:** To assess, from a societal perspective, the cost-effectiveness of 100% whey-based partially hydrolyzed infant formula (pHF-W) compared to standard cow's milk formula (CMF) as an early, short-term nutritional intervention to prevent atopic dermatitis (AD) in high-risk Singaporean infants. **METHODS:** A Markov model was developed to simulate, from birth through age 6, the incidence of AD and its ensuing burden in cohorts of high-risk infants fed with pHF-W or CMF during for the first 4 months of life. Epidemiologic and clinical data were from the German Infant Nutritional Intervention (GINI) trial. AD risk Singaporean infants.

**RESULTS:**

- **Preventive effectiveness:** 30% effectiveness of pHF-W compared to CMF for reducing AD incidence.
- **Cost-effectiveness:** Cost-effectiveness ratio for pHF-W vs. CMF was $2,536±4,713.
- **Sensitivity analysis:** Sensitivity analysis proved the robustness of the results.

**CONCLUSIONS:** The cost-effectiveness ratio for pHF-W vs. CMF in high-risk Singaporean infants was $2,536±4,713. Conclusively, pHF-W reduces the incidence of AD compared to CMF and is a cost-effective intervention in high-risk Singaporean infants.
treatment patterns and outcomes were based on expert opinion. Key modeled outcomes included reduction in AD risk, time spent after an AD diagnosis, days with AD symptoms, quality-adjusted life years (QALYs), and direct/indirect costs (in 2013 Singapore $). A 3% annual discount rate was used. Multivariate probabilistic sensitivity analysis was used to generate 95% probabilistic confidence intervals (CI) around the modeled outcomes. RESULTS: Feeding high-risk infants pHF-W instead of CMF resulted in reductions of (i) 14-percentage points (95% CI: 3%, 24%) in the 6-year risk of AD, (ii) 8.25 months (95% CI: 5.00, 11.61) in the time spent post-AD diagnosis, and (ii) 14.6 days (95% CI: 8.9, 20.3) with AD symptoms; and in an increase of 0.022 QALYs (95% CI: 0.008, 0.074). Estimated AD-related discounted cost (all per child) when feeding high-risk infants with pHF-W vs. CMF were $1,316 (95% CI: $858, $2028) and $2,055 (95% CI: $1,443, $2,820), respectively, for a net difference favoring pHF-W of $739 (95% CI: $1,138, $326). The mean overall and annualized (undiscounted) cost of AD per child developing AD was $5,814 and $1,392, respectively. CONCLUSIONS: This mathematical model suggests that the burden of AD in childhood is high and that feeding high-risk infants with pHF-W instead of CMF should reduce this burden.

**PRS17: COST-EFFECTIVENESS OF THE TREATMENT OF RESPIRATORY DISEASES OF XIYANPING INJECTION: A SYSTEMATIC REVIEW**

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OBJECTIVES: To systematically review the economic evaluations of the Xiyanping injection to treat respiratory diseases. METHODS: Database as PubMed, ISI Web of knowledge, The Cochrane Library, CBM, WanFang Data, CNKI and VIP were electronically searched from inception to February 28st, 2014. Two reviewers independently screened studies according to inclusion and exclusion criteria and extracted data. Then, descriptive analysis was performed for included studies. A 10-item quality checklist modified was used to appraise the quality of studies. RESULTS: 6 economic evaluations and cost studies were included of which 4 studies’ quality were low, 1 was high and 1 was medium. All studies adequately documented effectiveness of interventions. However, the costs of interventions were not well reported in 2 studies. Studies inadequately conducted sensitivity analysis and discounting. The disease of 6 studies including bronchitis (2studies), upper respiratory tract infection, herpangina, hand-foot-and-mouth disease and viral pneumonia. The studies result showed that cost-effectiveness of Xiyanping injection is poor than Tanreqing injection and have more adverse reaction in 2 studies and It is poor than Yanhuning injection, but less adverse reaction in 2 studies. Xiyanping injection is better than anti-viral medicine in 2 studies. 1 study indicated that Xiyanping is more cost-effectiveness by atomized than intravenous drip. CONCLUSIONS: Xiyanping injection is not better than other proprietary Chinese medicine for the treatment of respiratory diseases in cost-effectiveness analysis, however it is better than anti-viral medicine, and less adverse reaction. The quality of included studies is weaken the conclusion. There remains a strong need to improve the quality of reporting.

**PRS18: EVALUATION OF COST EFFECTIVENESS OF OM-85 IN CHINA**

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OBJECTIVES: To demonstrate the health economic impact of OM-85, a bacterial lysates based immunostimulant, for its approved indications in China. METHODS: A cost effectiveness decision tree model was constructed. The model compared OM-85 with the best supportive care therapy for the treatment of chronic bronchitis and rhinosinusitis in Chinese population. Clinical efficacy and adverse events (AE) data were included in the model based on a thorough literature review. All localized direct treatment costs, including drug cost, AE costs, and medical treatment costs for underlying diseases were included from Chinese payer perspective for both OM-85 and best supportive care group. A Key Opinion Leaders (KOL) survey was conducted to validate the local treatment costs. A total of 20 senior physicians specialized in respiratory, ENT, allergy, and immunology fields were selected from tertiary hospitals in Beijing, Shanghai, Guangzhou, Hangzhou, Chongqing, Chengdu and Wuhan to form an representative geographic sample. All physicians were requested to complete a questionnaire which included the clinical management of acute exacerbation of chronic bronchitis and rhinosinusitis in China, the management of OM-85 related AEs, and the attitude towards the clinical efficacy and effects of OM-85. Incremental cost effectiveness ratio (ICER) was calculated based on the above efficacy and cost information. RESULTS: The results indicate that, when compared with best supportive care therapy, OM-85 is a dominant therapy (with better clinical efficacy and lower overall costs) in Chinese population for the clinical management of chronic bronchitis and rhinosinusitis One way sensitivity analyses were performed and the ICER result was demonstrated to be robust. CONCLUSIONS: Based on its clinical efficacy in preventing acute exacerbations of chronic bronchitis and rhinosinusitis, OM-85, when compared with standard care therapy, proved to be a dominant therapy.
FACTORS CONTRIBUTING TO QUALITY OF LIFE IN COPD IN SOUTH KOREA

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OBJECTIVES: The purpose of this study is to assess health status of Korean adults with COPD using EQ5D and the association between health status and disease severity using spirometry as a lung function measure. METHODS: A stratified multistage clustered probability design was used to select a nationally representative sample. From the Fourth and Fifth Korea National Health and Nutrition Examination Survey, 20,261 adults over the age of 40 years were selected. These subjects completed the utility measure, EQ-5D-3L and were separated into four severity groups according to FEV1 percent of predicted normal using the GOLD clinical guideline. Population sampling weights were applied to adjust for the over-sampling of the minority groups. Regression analysis was conducted using EQ-5D as the dependent variable to estimate the association between COPD and EQ-5D index score with SAS Ver. 9.3 program. RESULTS: Among 20,261 adults, 2,087 COPD patients were selected based on GOLD criteria (a ratio of FEV1 to FVC of less than 0.7). The mean utility of COPD patients was 0.906(SE 0.004) compared to 0.922(SE 0.001) in the non-COPD control group. Utility was significantly reduced due to COPD(p=0.0001). Within each GOLD stage, the variation (SE) was wide [Stage I(n=858): 0.906(0.006); Stage II(n=1,091): 0.912(0.005); Stage III(n=119): 0.857(0.018); Stage IV(n=13): 0.780(0.071)]. EQ-5D was not significantly different by 4-stage disease severity but showed a trend of deterioration in Stage III and IV. In the post-hoc analysis, COPD patients were divided into two-stage groups [group 1: Stage I and II; group 2: Stage III and IV]. In this analysis, 2-stage severity had a negative association with utility(p=0.0009). CONCLUSIONS: The results demonstrate that COPD impairs utility and shows a relationship between utility and COPD disease severity in Korea.
OBJECTIVES: The burden of COPD is increasing in Korea. Health-related quality of life among COPD patients should be considered. Few national strategies to prevent and manage COPD have been intervened. In this study, we investigate the factors associated with COPD patients' quality of life. METHODS: Data of Korean National Health and Nutrition Examination Survey (KNHANES) 2007-2012 were used. Multivariate regression analysis was employed. Demographic variables (e.g. sex, age), socioeconomic status (SES) variables including education, insurance type, comorbidities (e.g. hypertension, diabetes, depressive disorder, cancer), severity of COPD, smoking were considered as independent variables. RESULTS: We found that female (beta=-0.0387, p<0.0001), age (beta=-0.0021, p<0.0001), Medical aid beneficiaries (beta=-0.1001, p<0.0001) showed a significantly lower score of EQ5D index. Mild (beta=0.2001, p<0.0001), moderate (beta=0.1982, p<0.0001), severe (beta=0.1765, p<0.0001) had significantly higher scores compared to that of very severe stage (GOLD IV). Education level also an important factor. Lower level of education (graduation from middle school or less) showed a negative association with EQ5D index score. Depression among comorbidities significantly worsened the quality of life of COPD patients (beta=-0.7420, p<0.0001). Smoking status (current smoker, ex-smoker, non-smoker) did not show a significant difference. CONCLUSIONS: Socio-economic status of COPD patients including sex, age, educational level and insurance type, were important factors related to the health-related quality of life. After controlling these factors, severe and depressive COPD patients reported their quality of life was significantly worsened. Strategies for COPD prevention and management should be developed and implemented. Improvement of health-related quality of life in COPD can be considered as an index of goals to achieve.

PRS22: HEALTH-RELATED QUALITY OF LIFE FOR PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN SOUTH KOREA

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OBJECTIVES: COPD is known as a disease with irreversible progress but preventable and manageable. In Korea, COPD was ranked 12 with 242 DALYs (per 100,000) following diabetes (970 DALYs), cerebrovascular diseases (937 DALYs) and asthma (709 DALYs). Health-related quality of life in COPD patients has not been investigated in Korea. METHODS: Data of Korean National Health and Nutrition Examination Survey (KNHANES) 2007-2012 were used. According to the GOLD criteria, we classified COPD patients into I-IV grades. EQ-5D index score were analysed by the severity of COPD and Comorbidities. Wilcoxon rank-sum test were used to compare quality of life in COPD patients with that of the general population. SAS 9.3 version was used for analysis. RESULTS: Utility score for the general population was 0.929±0.1320 while COPD patients were scored 0.9042±0.1478 showing a significant difference (p<0.0001). Comorbidities demonstrated a significant impact on the quality of life among COPD patients. Patients with hypertension (0.8863±0.1574), diabetes (0.882831±0.169179), cancer (0.8675±0.1691), and depression (0.8089±0.1784) showed a significantly lower utility score that those without comorbidities (p<0.0001, p=0.0042, p=0.0687, respectively). According to the severity, mild (0.905754±0.140629) and moderate (0.9090±0.1465) COPD patients had a similar EQ5D index score. However, severe (0.8722±0.1724) and very severe (0.6816±0.2705) stages showed a significantly lower quality of life. We also found that diagnosed rate among COPD patients was only 2.96%. CONCLUSIONS: As severity of COPD has shown a great impact on quality of life, preventable strategy and management should be developed. Especially early diagnosis and early detection will be the first step to take for COPD management in South Korea. To do so, interdisciplinary approach should be made.

RESPIRATORY-RELATED DISORDERS - Health Care Use & Policy Studies

PRS23: PERCEPTION PATTERN ANALYSIS OF SELF-MEDICATION PRACTICES AMONG PEOPLE IN SOUTHERN DISTRICT OF KARNATAKA, INDIA

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OBJECTIVES: To determine the pattern of self-medication among the people of region and to evaluate the factors associated with self-medication. METHODS: The data for this study was collected by the survey method in community pharmacies. This was done by directly approaching the consumer for self-medication during the study period for their own use or as messengers for others. The structured research instrument was a simplified questionnaire, which sought information on demographic background and self-medication practices. The elicited data include demography, use of drug without doctor's prescription, type
of drug used, reasons for self-medication, factors that influenced the choice of drug and source of drug. **RESULTS:** People of all socio-demographic categories practice self-medication. A total of 76.8% of the respondents indulged in self-medication practices. Of which, 33.0% used the medication inappropriately. The most frequently self-diagnosed illnesses or symptoms of illnesses were: GI illnesses, cough/cold and headache/fever. Of these illnesses, more than 35% were less than 24 hours duration and nearly 80% less than seven days duration of illness. The reasons given by respondents for self-diagnosis and self-medication were non-seriousness of the illnesses, for emergency use and prior experience about the illness with similar symptoms (39.7%) and even advice of non-physician health professional (33.5%). Whatever the duration of illnesses and reasons for self-diagnosis, nearly 65% requested drugs by mentioning the names of the drugs and more than one-fifth by telling the symptoms of their illnesses. Requests for analgesics/antipyretics were very high (60%) followed by antimicrobial drugs (40%) for all reported illness. Drug requested mostly in other conditions include cold/cough suppressants, Gastro Intestinal drugs and very low for ORS. **CONCLUSIONS:** The level of inappropriate drug use denotes self-medication as an unhealthy option, and it therefore, should be discouraged.

**PRS24: DURATION OF TREATMENT IN PULMONARY TUBERCULOSIS: ARE INTERNATIONAL GUIDELINES ON THE MANAGEMENT OF TUBERCULOSIS MISSING SOMETHING?**

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**OBJECTIVES:** The study aimed to document the duration of tuberculosis (TB) treatment, and its relationship with the characteristics of the patients. **METHODS:** This prospective follow-up cohort study was conducted at the chest clinic of Penang General Hospital between March 2010 and February 2011. Medical records and TB notification forms of all new smear positive pulmonary tuberculosis (PTB) patients, who were diagnosed during the study period, were reviewed to obtain socio-demographic and clinical data. Based on the standard guidelines, the normal benchmarks of treatment duration for the intensive- and continuation phase of TB treatment were taken as 2 and 4 months, respectively. A patient in whom the clinicians decided to extend the intensive phase (IP) for ≥ 2 weeks was categorized as a case of prolonged IP. The same criterion applied for the continuation phase (CP) of the treatment. **RESULTS:** Out of the total 336 patients, 261 completed the IP of the treatment. Subsequently, 226 completed the CP. The average duration of TB treatment (n = 226) was 8.19 (SD 1.65) months. 49.4% (129 out of 261) patients completed the IP in 2 months, whereby only 37.6% patients (85 out of 226) completed the CP of the treatment in 4 months. In multiple logistic regression analysis, being a smoker, body mass index less than normal and a history of ≥ 4 weeks cough were the predictors of longer duration of the IP, while diabetes mellitus and presence of lung cavities were the only predictors of longer duration of the CP of the treatment. **CONCLUSIONS:** The average duration of treatment in new smear positive PTB patients was longer than the targets set by World Health Organization. There is lacking a uniform international criterion to evaluate how well National Tuberculosis Program of Malaysia has performed in terms of managing duration of treatment in PTB patients.

**PRS25: THE EFFECT OF BACTERIAL LYSATES ON PATIENTS WITH RECURRENT RESPIRATORY TRACT INFECTIONS: A META-ANALYSIS**

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**OBJECTIVES:** The use of bacterial lysates as an immuno-modulator to boost immunological response in patients with Recurrent Respiratory Tract Infections and its effects on the attack frequency of respiratory infection have been widely debated. We aimed to conduct our meta-analysis on the effect of bacterial lysates plus routine care versus routine care only on the attack frequency of respiratory infection in patients with Recurrent Respiratory Tract Infections. **METHODS:** We performed a systematic review of articles published from Jan 1, 2000 to Nov 10, 2013 by searching PubMed, Embase, Cochrane Central Register of Controlled Trials, and Wanfang and China National Knowledge Infrastructure. We included all randomised trials that compared outcomes between patients with Recurrent Respiratory Tract Infections receiving bacterial lysates plus routine care with those receiving routine care only. Eligible studies, determined by consensus with predefined criteria, were reviewed and data were extracted onto a standard form. We combined data to assess the primary outcome of attack frequency of respiratory infection using the DerSimonian and Laird random effects model. **RESULTS:** Our search identified 128 reports, of which twelve studies met our inclusion criteria and were included in our meta-analysis. Analysis of the 12 randomised trials (959 patients) that reported an outcome on the attack frequency of respiratory infection showed that patients assigned to bacterial lysates plus routine care had a 2.942 reduction in respiratory tract infections compared to those assigned to routine care only (Weighted
CONCLUSIONS: Bacterial lysates are associated with a decreased risk of respiratory tract infections in patients with Recurrent Respiratory Tract Infections. Further studies are needed to identify the causes of respiratory tract infections and to assess whether the attack frequency of respiratory infection differs with varying treatments of bacterial lysates.

**PRS26: SMOKING CESSATION TREATMENT PATTERNS AND CHARACTERISTICS OF PATIENTS WITH COPD WHO ARE ATTEMPTING TO QUIT IN URBAN CHINA**

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OBJECTIVES: Tobacco smoke is a strong risk factor for chronic obstructive pulmonary disease (COPD), and over 300 million people are estimated to smoke in China. This study examined characteristics and treatment patterns of COPD-diagnosed patients attempting to quit smoking in urban China. METHODS: National Health and Wellness Survey (NHWS) 2010 and 2012 China data were analyzed. NHWS is a mixed-methodology, internet-based, nationwide survey of adults (18+ years) stratified by gender and age to represent the demographic composition of urban China. Inclusion criteria comprised self-reported diagnosis with COPD and current smokers “trying to quit” or non-smokers “in the process of quitting.” Sociodemographics, health behaviors, Charlson comorbidity index (CCI) scores (indicating degree of mortality risk), and smoking treatment utilization patterns were assessed. Descriptive statistics included percentages/frequencies for categorical variables and means/standard deviations for continuous variables. RESULTS: Among 1,421 respondents diagnosed with COPD, 35.5% (n=505) were smokers, among which 43.8% (n=221) were currently attempting to quit. Quit attempters were on average 41.1 years old (SD=13.1), male (76.5%), employed (86.9%), 34.8% were overweight/obese, and they had been diagnosed with COPD an average 6.9 years (SD=7.7), with 25.3% reporting moderate/severe COPD. Mean CCI was 2.53, 57.5% drank alcohol regularly, and 30.3% exercised frequently. Many reported smoking as the main cause of their COPD (57.5%), followed by illnesses/conditions (53.8%) and pollutants/airborne irritants (44.3%). Current smoking was reported by 82.8%, with 14.9% smoking daily. Smoking cessation prescription use was reported by 12.7% (n=28), among whom varenicline tartrate was used by 57.1% (n=16) for an average 20.9 months. Prescription medications were commonly received from urban/city (50%) or county (35.7%) hospitals. CONCLUSIONS: Among COPD patients attempting to quit smoking in urban China, few utilized prescription cessation treatments. Given the significant unmet need among the high proportion of smokers with COPD, effective smoking cessation programs are needed.

**PRS27: ACCESS TO ASTHMA MEDICINES IN TEHRAN; IRAN**

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OBJECTIVES: Asthma is a chronic disease afflicting more than 300 million people throughout the world. Our aim was to examine the availability, pricing and affordability of asthma medicines in Tehran. METHODS: We followed the methodological recommendations developed of the World Health Organization and Health Action International on measuring medicine prices, availability, affordability and price components. Data was collected from a random selection of 30 public sector facilities and 90 private sector retail pharmacies in 22 districts of Tehran in September 2012. RESULTS: Inhaled Corticosteroids was found in over 25% of the pharmacies. The availability of oral corticosteroids and short acting beta agonists was poor in all districts of Tehran. Locally manufactured most commonly prescribed medicines (beta-agonist and corticosteroid sprays) were affordable as the of cost of one month utilization was about 0.3 of one day (equivalent to one day) earning for the unskilled worker for the insured (uninsured). However the availability of the asthma medicines were limited and ranged from less than 5% (for the imported sprays) to about a third (for the locally manufactured sprays) of the outlets. CONCLUSIONS: The poor availability of inhalers at public facilities affects those patients who depend on these facilities for treatment and medications. In relation with imported asthma medicines, results indicate access to asthma medicine has been reduced in most medicines, perhaps due to the international sanctions that affected the country in 2012. Further interventions are required to improve access to asthma medicines at the times of financial hardship and international sanctions affecting the ability of the importers and producers to provide medicines.

**PRS28: ECONOMIC IMPACT OF LEVALBUTEROL VERSUS ALBUTEROL IN LOW-INCOME POPULATION**

Mean Difference -2.942, 95% CI -3.600, -2.284). CONCLUSIONS: Bacterial lysates are associated with a decreased risk of respiratory tract infections in patients with Recurrent Respiratory Tract Infections. Further studies are needed to identify the causes of respiratory tract infections and to assess whether the attack frequency of respiratory infection differs with varying treatments of bacterial lysates.
OBJECTIVES: Short-acting β2-agonists - albuterol and levalbuterol - are widely prescribed to prevent asthma exacerbations. However, there are significant cost differences between the two medications. The objective of this study is, therefore, to examine the economic impact of levalbuterol versus albuterol on total health care expenditure in a high-risk, low income asthma population. METHODS: A retrospective cohort study was conducted among asthmatic patients aged 2-64 years old who received levalbuterol or albuterol in the South Carolina Medicaid database between January 2001 and December 2012. Expenditures were inflated to 2011 dollars using the gross domestic product deflator, and adjusted using generalized linear models with a gamma distribution and log-link function. Propensity score matching was performed to minimize the possible bias related to unbalanced groups. RESULTS: A total of 9,370 asthma patients were included in the cohort (levalbuterol: 1,652; albuterol: 7,718). The annual spending on levalbuterol was approximately 5 times more than albuterol ($272.6 vs. $56.0, p<.001). After adjustment for age, sex, race, year of index date, length of asthma, and proportions of days covered by asthma control medications, levalbuterol group demonstrated lower asthma-related expenditures on emergency department ($101.3 vs. $143.1, p<.001), hospital ($40.8 vs. $85.0, p<.001), outpatient facility ($77.6 vs. $109.1, p<.001) visits, and total health care ($386.3 vs. $488.1, p<.001). However, there were no statistically significant differences between levalbuterol and albuterol on total health care expenditures (levalbuterol: $4041.7 vs. albuterol: $3903.1, p=.41). This nonsignificant difference remained when using the propensity score matching method. CONCLUSIONS: More than 300 million people suffer from asthma worldwide. The use of levalbuterol was associated with lower asthma-related costs on ED visits, hospitalizations or outpatient facilities. These cost savings, however, failed to offset the high cost of acquiring levalbuterol, suggesting that levalbuterol did not generate greater economic impact than albuterol on low-income asthma population.

PRS29: HEALTHCARE DEMAND FOR HAJJ PILGRIMS WITHIN THE CROWD AND CONGESTION IN MAKKAH

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OBJECTIVES: To study the health economics issues related to congestion during Hajj season in Makkah which investigate type of health problems facing by the Malaysian pilgrims in Makkah and to identify healthcare services required by them. METHODS: A cross sectional research was designed and set of questionnaire and FGD were applied as a measuring tool respectively for quantitative and qualitative analysis. A total of 379 Malaysian pilgrims were randomly selected in Makkah. RESULTS: Respiratory diseases are the major health problem facing by the Malaysian pilgrims within the congestion in Makkah, especially during the stoning session in Mina. Intensive healthcare services such as health personnel and quality medicare are required in order to reduce health problem related to crowd among Malaysian pilgrims in Makkah. CONCLUSIONS: Hajj is the fifth of the five pillars of Islam. Every physically and financially affordable Muslim must undertake the Hajj once in their lifetime. The sudden surge of the large population of human congestion in close proximity in Makkah would create numerous hazardous factors involving health impact and promotes increased of communicable diseases such as respiratory tract infections in the holy land. Therefore, high demand for healthcare services that is efficient and effective is crucially required by the pilgrims during the hajj. This research provides fundamental input to the health care provider and also benefited hajj management authority to increase their management quality in the future years. Therefore, the health economics context is very important to ensure that scarce resources and funds are used in the most appropriate and efficient manner.

SENSORY SYSTEMS DISORDERS

SENSORY SYSTEMS DISORDERS - Clinical Outcomes Studies

PSS1: COMPARING THE EFFICACY OF ANTI-VASCULAR ENDOThELIA GROWTH FACTOR DRUGS FOR TREATMENT OF AGE-RELATED MACULAR DEGENERATION: A CLINICAL LITERATURE REVIEW AND META-ANALYSIS

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OBJECTIVES: Review and compare the efficacy of four anti-VEGF (vascular endothelia growth factor) drugs for treatment of neovascular age-related macular degeneration (AMD). METHODS: PubMed and clinicaltrials.gov databases were searched to identify studies of four anti-VEGF drugs: ranibizumab, bevacizumab, aflibercept, and pegaptanib. Eight randomized controlled trials were selected. Fixed-effects model was used to pool the data to determine Mantel-Haenszel adjusted relative risk. The primary outcome was relative risk (RR) of losing 15 or more letters of visual acuity at one year follow-up. The secondary outcome was RR of gaining 15 or more letters of visual acuity at one year follow-up. RESULTS: Ranibizumab 0.3 mg or ranibizumab 0.5 mg significantly reduced the risk of losing 15 or more letters of visual acuity compared to sham (RR: 0.15 and...
OBJECTIVES: Psoriasis treatment in pregnant women requires weighing the risks and benefits to both mother and fetus. Little is known about how psoriasis is treated during pregnancy. This study sought to identify the medications most commonly prescribed in this situation. METHODS: The Truven 2003-2007 MarketScan™ Medicaid Database was used. Pregnant women with psoriasis were identified by inpatient and outpatient records. The investigators created an algorithm to identify eligible pregnant women and approximated their gestational periods using this claims database to identify drug use during pregnancies. The prevalence of drug use was determined by the proportion of prescriptions. The top 10 most popular prescriptions as well as methotrexate were identified based on the proportion overall and by trimester of pregnancy. Use of topical corticosteroids were revealed by drug potency. RESULTS: Based on the algorithm created by the investigators, 974 pregnant women with psoriasis were identified, and 386 (39.6%) of them filled psoriasis drugs and saw a physician for psoriasis before pregnancy. The most common medications prescribed most patients were topical corticosteroids (n=122, 31.6%). Of those patients given topical corticosteroids, the majority were low to mid-potency (64.8%). The second most common drug type (n=41, 10.4%) used was “other” products such as topical vitamin-D analogues and pimecrolimus. This was followed by biologics (n=2, 0.5%) and other systemic treatments (n=2, 0.5%). Two patients received methotrexate during their pregnancy- one of which received it for the entire gestational period. CONCLUSIONS: This study revealed the prevalence of psoriasis medications used in pregnant women with psoriasis, which could provide information in how risks and benefits of psoriasis treatment in pregnant women were weighed. In general, dermatologist prescribing patterns were in line with treatment recommendations for pregnant women. However, there were some treatments prescribed that were not suitable for pregnant women. Care should be to ensure safe treatments for pregnant women.

SENSORY SYSTEMS DISORDERS - Cost Studies

PSS3: THE ECONOMIC BURDEN AND THEIR PREDICTORS IN PRESCHOOL CHILDREN WITH DENTAL CARRIES IN URBAN BEIJING

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OBJECTIVES: Dental caries is associated with poor quality of life and higher healthcare cost. This study aimed to assess the cost of treatment of dental caries of preschool children (3 to 6 years old) and to characterize predictors of these costs. METHODS: 194 preschool children were selected by random sampling from six kindergartens in urban Beijing. Oral health examinations of these children were performed in Stomatological Hospital of Peking University and questionnaires were distributed to all tested preschool children’s parents. All information of children’s dietary and oral hygiene habits, demographic characters, clinical, parents’oral “knowledge, attitudes, and practices” and costs were collected for the analysis. We used generalized estimating equations to examine potential predictors of the costs. RESULTS: Among 194 dental caries children (mean age = (4.4±1.1) years;50% female), the average cost of treatment was RMB718.6 yuan (median: ¥ 400, IQR: ¥ 150- ¥ 1000). The multiple linear regressions showed that the treatment cost of children with 5 ~ 8 dental caries had 24.2% higher costs than those with 1 ~ 5 dental caries;(P<0.05). The treatment cost of children with more than 8 dental caries had 47.8% higher costs than those with 1 ~ 5 dental caries;(P<0.05). CONCLUSIONS: Preschool children with dental caries is associated with high treatment costs and the number of cavities play an important role in determination of costs. Therefore, preschool children should pay attention to oral hygiene and form good habits to prevent dental caries.
OBJECTIVES: To determine monthly cost and cost effectiveness of bilateral prostaglandin/ prostamide therapy for lowering intraocular pressure (IOP) in patients with glaucoma or ocular hypertension. Drops in five new 2.5-mL bottles were counted and then averaged for each drug. Average retail price was determined by surveys of pharmacies. Drop count, average retail price, average wholesale price, and IOP reduction data were used to compute annual cost, and cost effectiveness (annual cost-per-mm Hg of IOP reduction) of the three drugs. RESULTS: Drops per 2.5-mL bottle averaged 113
for bimatoprost 0.03% (w/v), 84 for latanoprost 0.005% (w/v), and 83 for travoprost 0.004% (w/v). Average retail cost (2005) per bottle was INR.3,080 for bimatoprost 0.03% (w/v), INR.2,715 for latanoprost 0.005% (w/v), and INR.2,920 for travoprost 0.004% (w/v). The monthly retail cost of bilateral therapy was INR.1,668 for bimatoprost 0.03% (w/v), INR.1,970 for latanoprost 0.005% (w/v), and INR.2,167 for travoprost 0.004% (w/v). Cost effectiveness ranges were INR.2,508 to INR.2,860 per mm Hg reduction in IOP per year for bimatoprost, 0.03% (w/v), INR.2,948 to INR.3,960 per mm Hg for latanoprost 0.005% (w/v), and INR.3,256 to INR.3,696 per mm Hg for travoprost 0.004% (w/v). CONCLUSIONS: Bimatoprost 0.03% (w/v) had the lowest monthly and annual costs and the greatest cost effectiveness for lowering IOP compared with latanoprost 0.005% (w/v) and travoprost 0.004% (w/v).

**PSS7: A LITERATURE REVIEW ON COST-EFFECTIVENESS OF TREATMENTS FOR WET AGE-RELATED MACULARE DEGENERATION**

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**OBJECTIVES:** To compare the cost-effectiveness for different therapies to Wet Age-Related Maculare Degeneration (wAMD) **METHODS:** Literature Review: Several Database, such as Pubmed, Web of Science, Elsevier, Medline were searched using 16 codes. We applied inclusion criteria to screen the literature. Randomized controlled trials (RCTs), Controlled Clinical Trials (CCTs), and Controlled Before-and-After studies were selected. This study focus on three commonly interventions to wAMD: Best Supportive Case (BSC), PhotoDynamic Therapy (PDT), and Ranibizumab therapy. Cost-effectiveness analysis (CEA), cost-utility analysis (CUA), and incremental analysis were conducted. **RESULTS:** Compare with BSC and PDT, Ranibizumab therapy was more effective in wAMD treatment in different countries. From social perspective, Ranibizumab therapy was also more cost-effectiveness than BAC and PDT either in 5 years or in 10 years. However, from third-payer perspective, incremental cost-effectiveness ratio (ICER) between Ranibizumab and BSC, Ranibizumab and PDT, varied in different countries. Frequency and duration of Ranibizumab usage may be key determinants of ICER. **CONCLUSIONS:** Ranibizumab therapy have better clinical effect than BSC and PDT in wAMD treatment. Ranibizumab is also more cost-effectiveness than BSC and PDT from social perspective in long term. It may be related to the highly indirect cost of wAMD. However, from third-payer perspective, Ranibizumab may be good cost-effectiveness. Price and quantity of Ranibizumab in therapy influenced its cost-effectiveness. More research based on varied price and different drug usage in Ranibizumab therapy should be conducted before it was paid.

**PSS8: ECONOMIC EVALUATION OF BEVACIZUMAB VERSUS RANIBIZUMAB IN NEOVASCULAR AGE-RELATED MACULAR DEGENERATION IN CHINA**

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**OBJECTIVES:** To evaluate the cost-effectiveness of the off-label used bevacizumab versus ranibizumab for patients with neovascular age-related macular degeneration (AMD) in China. **METHODS:** Two different Markov models were used separately to compare cost per quality-adjusted life year (QALY) of four strategies defined by drug (bevacizumab or ranibizumab) and dosing regimen (monthly or as needed) in patients with neovascular AMD in China’s health care system. The VA Range model defines the health states using visual acuity (VA), while the VA Change model defines the health states according to the degree of VA changes from the time when entering the model. Both models used a life time horizon with a cycle length of 3 months. Clinical data used in the models primarily came from the Comparison of AMD Treatment Trial (CATT), while the costs came from the financial department of a tertiary hospital in Beijing. **RESULTS:** In the base-case analyses, the bevacizumab as needed strategy had slightly lower QALYs (17,479 QALYs and 15,917 QALYs in the VA Range model and the VA Change model, respectively) but at much lower costs (CN¥88,341 and CN¥79,967 in the VA Range model and the VA Change model, respectively) compared with the other three strategies. In probabilistic sensitivity analyses in both models, the probabilities of bevacizumab strategies being more cost-effective than ranibizumab strategies exceeded 99% if the willingness-to-pay (WTP) threshold for a QALY was less than CN¥120,000. When the threshold was less than CN¥90,000 per QALY, bevacizumab as needed was the most cost-effective alternative. **CONCLUSIONS:** The bevacizumab as needed strategy was the most cost-effective strategy compared with the ranibizumab strategies in treating patients with neovascular AMD. If the WTP threshold is below CN¥90,000 per QALY in China. This much cheaper treatment can substantially reduce the burden to the Chinese aging society.
**PSS9: COST UTILITY ANALYSIS OF USTEKINUMAB FOR THE TREATMENT OF MODERATE TO SEVERE CHRONIC PLAQUE PSORIASIS IN THAILAND**

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**OBJECTIVES:** To evaluate the cost-utility of ustekinumab versus infliximab and etanercept, the only biologic agents available for psoriasis in Thailand, among adults with moderate-to-severe plaque psoriasis who fail to respond to systemic therapies and meet criteria based on the biologic guideline for psoriasis in Thailand. **METHODS:** The published ‘York psoriasis model’ was modified based on the current treatment algorithm and criteria of biologics use in Thai psoriasis guideline. Short-term trial efficacy data (PASI response) from a published network meta-analysis of RCT was used to model the response of patients to initial treatment. Beyond the initial period, the model extrapolated results up to 10 years with annual risk of treatment withdrawal. The DLQI scores from ustekinumab trials were transposed into utility gain (EQ5D) and applied to PASI response level regardless of the treatment received. Both direct medical cost and non-medical cost including biologic acquisition, monitoring lab tests, outpatient visit, and traveling expense were calculated. The amount of resource consumption was estimated by experts’ opinions and literatures. Cost and outcomes were discounted at 3%. One-way and probabilistic sensitivity analysis was conducted to assess the model robustness. **RESULTS:** Over the 10-year time horizon, ustekinumab showed the lowest mean annual cost of 507,502 baht followed by etanercept (582,881 baht) and infliximab (585,462 baht) respectively. The mean QALY gain of ustekinumab was higher than etanercept (0.1448 vs. 0.1392) but lower than infliximab (0.1448 vs. 0.1564). Considering the cost-utility ratio, ustekinumab was dominant compared to etanercept and infliximab showed the ICER of 6,719,775 baht/QALY compared to ustekinumab. The probability of cost-effective at threshold of 120,000 baht/QALY remained in favor of ustekinumab at 72.60% and presented at 13.60% for both etanercept and infliximab. **CONCLUSIONS:** Ustekinumab seems to be more cost-effective than etanercept and infliximab for patients with moderate-to-severe plaque psoriasis following biologic treatment guideline for psoriasis in Thailand.

**SENSORY SYSTEMS DISORDERS - Patient-Reported Outcomes & Patient Preference Studies**

**PSS10: ADHERENCE, PREDICTING FACTORS AND SATISFACTION OF PATIENTS ON GLAUCOMA THERAPY: FINDINGS FROM A CROSS-SECTIONAL STUDY IN KOREA**

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**OBJECTIVES:** The aim of the study was to identify adherence and predicting factors for non-adherence and to assess the association of adherence with patient satisfaction of glaucoma therapy. **METHODS:** The study population included 1,046 glaucoma outpatients with less than two years of drug use recruited at 15 eye clinics from March to November 2013. All patients completed a self-administered questionnaire asking about their daily use of glaucoma medications to estimate adherence and patients’ baseline characteristics to examine predicting factors for non-adherence. Adherence was defined as patients administering the drug for ≥90% of prescribed days. Patient satisfaction was also measured using the 14-item Treatment Satisfaction Questionnaire for Medication (TSQM) questionnaire which provided scores on four sub-scales: medication effectiveness, side effects, convenience and global satisfaction. The scores on TSQM are ranged 0 to 100 where higher scores indicate better satisfaction. **RESULTS:** Of 1,046 patients, 71.1% showed to be adherent to their glaucoma therapy while 28.9% accounting for 298 number of patients remained non-adherent. The predicting factors for non-adherence were found to be patients age <65 years, and employed (p<0.05). Non-adherent patients showed less satisfactory to treatment than adherent patients as displayed by relatively lower scores in all sub-scales on TSQM. In the scores on the TSQM, the largest difference between non-adherent and adherent patients was observed on medication effectiveness (26.07±12.21 vs. 59.21±14.27, p=0.001) and the smallest difference was detected in side effects (89.53±18.00 vs. 90.50±16.46, p=0.405). **CONCLUSIONS:** About one third of the study population were non-adherent, and age and employment status were shown to influence non-adherence. Patient satisfaction was significantly associated with adherence given the lower scores on TSQM in non-adherent patients. Thus, these findings should be taken into account in decision making process for glaucoma treatment.

**PSS11: WITHDRAWN**
PSS12: UTILITY VALUES AMONG MYOPIC PATIENTS IN MAINLAND CHINA

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OBJECTIVES: To elicit utility values of adult myopic patients in mainland China. METHODS: A valid sample of 442 myopia patients (spherical equivalent at least −0.5 D) aged 17–44 years, who were scheduled to undergo refractive surgery, were recruited. Information on time trade-off (TTO, years of life willing to sacrifice for treatment of myopia) and standard gamble (SG) for blindness (risk of blindness from therapy, willing to sacrifice for treatment of myopia) utility values, socio-demographic and clinical data were obtained. RESULTS: The mean utility values based on TTO and SG were 0.96±0.05 (95% confidence interval (CI) 0.95–0.96, median 0.98) and 0.93±0.09 (95% CI 0.92–0.94, median 0.97), respectively. Myopic patients using contact lenses had significantly higher TTO utility values than those wearing glasses (P<0.001). There was no significant difference in the TTO and SG utility values by age, gender, occupation, educational levels, residence, reasons for refractive surgery, severities and duration of myopia (P>0.05). CONCLUSIONS: The TTO and SG produce similar mean utility values, but there is poor agreement between results for individuals from the two methods. Utility values associated with myopic patients obtained in this study or reported in the literature appear to be higher than those obtained for other ophthalmic conditions.

PSS13: PRESCRIBING PATTERNS AND EXPENDITURES FOR OTITIS MEDIA-RELATED ANTIBIOTICS FOR CHILDREN IN THE TEXAS MEDICAID PROGRAM

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OBJECTIVES: To determine the prescribing patterns and expenditures for otitis media (OM)-related antibiotics in the Texas Medicaid pediatric population, and identify the demographic and antibiotic-related factors associated with expensive prescriptions for OM-related antibiotics. METHODS: This retrospective study used Texas Medicaid outpatient medical and prescription claims data for children younger than 13 years old with a diagnosis of OM (ICD-9: 381.0-382.0) and claims for OM-related antibiotics from January 2008 to December 2011. OM-related antibiotics were selected based on the guidelines proposed by the American Academy of Pediatrics and the American Academy of Family Physicians in 2004, and were classified into three categories: cephalosporins, macrolides and penicillins (amoxicillin, amoxicillin-clavulanate). The total number (proportion) of prescriptions and costs were compared across selected antibiotics and categories. Generalized linear model was used to evaluate potential factors associated with expensive prescriptions. RESULTS: 335,638 children with a mean age of 3.9 (SD=3.2) years were included. The majority were boys (52.1%), younger than 3 years old (55.0%), Hispanic (55.0%), enrolled in fee-for-service program (83.1%) and from an urban region (60.1%). OM-related antibiotic prescription claims decreased from 137,557 in 2008 ($5,281,040) to 65,697 in 2011 ($2,010,391). The mean cost per prescription decreased significantly from $38.39 in 2008 to $30.60 in 2011 (p<0.01). The most frequently used category of OM-related antibiotics was penicillins (215,654 claims). Amoxicillin was the most frequently prescribed OM-related antibiotic (48.2%), followed by cefdinir (21.0%). However, the total outpatient prescription cost was highest for cefdinir ($5,736,640), followed by amoxicillin-clavulanate ($2,798,234), amoxicillin ($1,914,929), azithromycin ($1,298,427), cefuroxime ($49,191), clarithromycin ($42,959), cefpodoxime ($19,685) and ceftriaxone ($5,792). Higher age, Asian race/ethnicity, female gender, fee-for-service program enrollment, Texas region, acute OM, amoxicillin-clavulanate, and cephalosporins were significant predictors (p<0.01) of high cost prescriptions. CONCLUSIONS: Prescription claims and expenditures for selected OM-related antibiotics declined between 2008 and 2011 in the Texas Medicaid pediatric population.

SYSTEMIC DISORDERS/CONDITIONS

SYSTEMIC DISORDERS/CONDITIONS - Clinical Outcomes Studies

PSY1: SECOND GENERATION AZOLES FOR PROPHYLAXIS AGAINST INVASIVE FUNGAL INFECTION: IS VORICONAZOLE EQUIVALENT TO POSACONAZOLE IN HAEMATOLOGY PATIENTS?

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OBJECTIVES: No randomised controlled trial has compared voriconazole and posaconazole directly for prophylaxis against invasive fungal infections (IFI) in high risk haematology patients. We performed a systematic review and indirect comparison of voriconazole versus posaconazole using itraconazole/fluconazole as the common comparator. METHODS: Systematic review of
full body of evidence including randomised controlled trials and non-randomised studies. Adjusted indirect meta-analysis was performed using Bucher method. Non-randomised studies provide evidence for direct comparison between voriconazole and posaconazole. **RESULTS:** A total of 4 RCTs and 4 non-randomised studies that evaluated voriconazole or posaconazole were included. In these studies, two risk groups were identified on the basis of disease type – the haemopoetic stem cell transplant (HSCT) at risk of GVHD population, and acute myelogenous leukaemia or myelodysplastic syndrome (AML/MDS) population. The indirect estimates of risk differences (RD) were not statistically significantly different from 0.0; therefore indicating that voriconazole is not worse than posaconazole in terms of the incidence of proven or probable IFI [RD (95% CI): 0.00 (-0.06, 0.06) in HSCT/GVHD; 0.04 (-0.06, 0.14) in AML/MDS] and all-cause mortality rates [RD (95% CI): -0.00 (-0.07, 0.06) in HSCT/GVHD; 0.03 (-0.09, 0.16) in AML/MDS]. Results should be interpreted with caution due to heterogeneity between the risk levels of patient populations. However, the robustness of the indirect comparisons can be supported by the four direct non-randomised studies which consistently demonstrated similar efficacy of voriconazole and posaconazole and superior efficacy of voriconazole over itraconazole and fluconazole based on the incidence of breakthrough IFI. **CONCLUSIONS:** The clinical evidence presented in the direct and indirect comparisons consistently demonstrate that there are no statistically significant differences between voriconazole and posaconazole in terms of efficacy outcomes. Voriconazole offers an alternative option to posaconazole, which is the only therapy currently reimbursed on the Australian Pharmaceutical Benefits Schedule for prophylaxis of IFI.

**PSY2: INTERCHANGEABILITY STUDY OF MULTISOURCE PARACETAMOL 500MG TABLETS, PRODUCED IN MONGOLIA**

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**OBJECTIVES:** To define interchangeability of locally produced Paracetamol (Acetaminophen INN), 500mg tablets. **METHODS:** For this purpose Paracetamol 500mg tablets produced by 7 local manufacturers were tested. As a comparator product was used Panadol 500mg, produced by GlaxoSmithKline. Bioequivalence testing was done according to the WHO guideline, Multisource (generic) pharmaceutical products: guidelines on registration requirements to establish interchangeability, WHO Technical Report Series, No.937, 2006. Based on Biopharmaceutics Classification System Paracetamol tablets bioequivalency testing was done in vitro through determination of dissolution. **RESULTS:** In each media of pH 1.2, 4.5 and 6.8 were tested 12 unit samples. All samples were dissolved in three media in not less than 85% of the labelled amount of the paracetamol in 15 minutes. According to the questionnaire, all manufacturers producing Paracetamol tablets answered that the formulation of dosage form was considered the attribute of active pharmaceutical ingredient and excipients and used machinery’s specification. As criteria for choosing the formulation, manufacturers were used pharmacopoeial monograph, stability study data and dissolution results. Mongolian manufacturer’s Paracetamol formulations do not contain excipients such as sodium bicarbonate, which is fastening the drug absorption. Three manufacturers use Povidone as a binder, same like comparator product. Most formulations contain Talc and Magnesium stearate as a lubricant mix, when comparator contains Stearic acid and Talc. All formulations contain starch and cellulose, their derivatives. **CONCLUSIONS:** Paracetamol 500mg tablets produced by all 7 local manufacturers: LM1, LM2, LM3, LM4, LM5, LM6 and LM7 have dissolution more than 85% in 15 minutes in each of three media. Therefore the dissolution profile comparison with an f2 test is unnecessary [4]. Samples: LM1, LM2, LM3, LM4, LM5, LM6 and LM7 are bioequivalent and could be interchangeable with comparator pharmaceutical product.

**PSY3: CLINICAL EFFICACY OF THE POLYHERBAL AYURVEDIC MEDICINE IN THE MANAGEMENT OF OVERWEIGHT**

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**OBJECTIVES:** The metabolic disorder begins with signs of overweight. If un attended it leads to metabolic syndrome with Hypertension and Diabetes. The polyherbal formulation based on Ayurvedic principles used in this study in the management of overweight. The polyherbal formulation consists of Triphala, Guduchi and Mandor basma (TGMB). **METHODS:** Study design is randomised single blind comparative method. Total number of patients in both arms were 40 (20 each) were administered. The control group were administrated Guggulu and treatment group received TGMB for 45 days. The parameters observed include monitoring of BMI, Lipid Profile, Blood sugars.

**RESULTS:** Before treatment (BT) Average BMI of control(C)/treatment(T) group was 28.1 /28; After treatment (AT) C 26.59/T 26.79; The total cholesterol* BT were C183.54 / T 179.93 : AT C 177.1/ T 174.4; Triglycerides* BT C 138.3/ T 129.6: AT C119.9 / T 116.1; HDL* BT C 44.17/ T 40.87: AT C 45.04/ T 41.13 and Blood sugar* BT was 28.1/28; After treatment (AT), C 26.59/T 26.79; The total cholestrol* BT were C183.54 / T 179.93 : AT C 177.1/ T 174.4;

**CONCLUSIONS:** The results indicate the marginal efficacy of control group over...
treatment group, in reducing the BMI and clinical parameters. However the TGMB was enriched with phytomedicines and mineral than Guggulu.

**PSY4: PRESCRIBING PATTERNS AND TREATMENT OUTCOMES IN NORTH INDIAN FEMALE PATIENTS WITH CHRONIC LOW BACK PAIN**

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**OBJECTIVES:** This observational study was designed to determine the prescribing pattern, improvement of pain intensity, and disability in female patients with CLBP. **METHODS:** In this prospective observational study, female patients suffering from back pain for >12 weeks were enrolled from a public tertiary care hospital in north India. Patients with failed back surgery syndrome and other concurrent pain conditions were excluded. Data regarding drugs prescribed, pain score assessed by visual analogue scale (VAS) and disability assessed by Oswestry low back pain disability questionnaire (ODQ) collected at baseline, 3, 6 and 12 months. Effectiveness of pharmacotherapy assessed as improvement in pain score and disability at 3, 6 and 12 months of follow-up. One way repeated measures anova model used to assess the change in pain and disability scores. **RESULTS:** Total 131 female patients of mean age 46.2(11.2) years with BMI 22.5(5.73) were included in the study. At baseline, duration of CLBP found to be 24 (12-60) months. At the baseline patients on mono therapy 27%, Dual 45% and, multiple 28%. Overall prescribed drugs are, Pregabalin (82%), Amiriptyline (64%), Duloxetine (59%), Tramadol (42%), Nortriptyline (36%), topical analgesics (75%), Calcium&vitamin supplements (35%), Physical exercises and posture advices (75%). During the period of follow-up switching of therapy occurred for reasons like low effectiveness and reduced pain intensity etc. When compared to baseline, there is a significant (P< 0.05) reduction in pain score (70 (50-90) vs 40 (25-50)) and disability (51(42-62) vs 22 (16-32)) observed at the end of 12 months of follow-up. Over the period of follow-ups, we found the significant improvement in pain (P< 0.01) and disability (P< 0.023). **CONCLUSIONS:** Our study findings concluded that pharmacological treatment, posture and physical exercises could be helpful in managing pain and improving of disability in CLBP patients.

**SYSTEMIC DISORDERS/CONDITIONS - Cost Studies**

**PSY5: HEALTH ECONOMIC EVALUATION COMPARING IV IRON FERRIC CARBOXYMALTOSE, IRON SUCROSE AND BLOOD TRANSFUSION FOR TREATMENT OF PATIENTS WITH IRON DEFICIENCY ANEMIA (IDA) IN SINGAPORE**

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**OBJECTIVES:** Iron deficiency (ID) and iron deficiency anaemia (IDA) are serious co-morbidities that arise in several clinical situations and have significant health impacts. It amplifies underlying chronic conditions increasing the risk of hospitalisations, cost of the disease management and increase risk of mortality. Oral iron is mostly the first line treatment for iron deficiency, however it sometimes cannot be tolerated due to its side effects, responds relatively slowly, or cannot be used in certain chronic conditions. Intravenous iron demonstrated the trends to reduce transfusion needs, lower mortality risk, and shorter hospital stay. [1] [2] [3] The objective of the study was to estimate the direct healthcare costs of available intravenous iron in Singapore; ferric carboxymaltose (FCM), iron sucrose (IS) and blood transfusion for patients with IDA in Singapore. The assessment was made from the third party perspective represented by the Department of Medicine, National University Hospital Singapore. **METHODS:** A cost-minimisation analysis compared 1000mg FCM (1 visit, 15 minutes per visit) versus IS (5 visits, 60 minutes per visit) versus the current practice of 2 units of blood transfusion followed by oral administration for 3-6 months. The cost was based on the average daily hospitalisation costs from the institution. **RESULTS:** The utilisation of FCM increased administration efficiency and optimised healthcare resources by reducing the number of consultation visits, time to administer 1000mg of iron, and the average amount required to correct IDA. Administering the most cost-efficient option was estimated to save the healthcare system SGD1022 per patient (FCM vs blood transfusion). **CONCLUSIONS:** A single dose of 1,000mg FCM is more cost-efficient than IS, blood transfusion only, and blood transfusion combined with oral iron for the treatment of IDA in Singapore.

**PSY6: COST EFFECTIVENESS OF PROPOFOL VERSES THIOPENTAL IN ICU WARDS**

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**OBJECTIVES:** To study the cost effectiveness of Propofol and Thiopental Sodium in ICU wards as Induction Anesthetic. while performing major surgery, anesthesia administration needs an induction agent. The propofol and thiopental sodium are alternative as induction anesthetic agents. The efficacy and safety of both agents are considered almost equal. However propofol costs 248 INR (approx 4 $) whereas Thiopental is 68INR(approx 1.2 $). The variation in the price indicates that thiopental is a natural choice due to price advantage. However propofol is more popular choice of anesthesia as it is vigorously marketed, in order to establish the value of thiopental the following study was carried out. METHODS: the study was approved by Human ethics committe, KMC hospital, Manipal. The patients who were going on anesthesia procedure were included in the study. However the choice of the anesthetic to be used is at the discretion of the anesthesiologist. 43 patients, (propofol 34 and thiopental 19) were included in the study. The patients were administered EQ-5D and the quality of life was computed manually. Additional data on socioeconomic status was also collected in order to calculate the cost effectiveness studies. RESULTS: The data collected was compiled and the cost effectiveness of Propofol (N=32) vs Thiopental (N=19) was calculated using EQ-5d 5L croowalk index calculator. The EQ 5D score for Propofol was 0.228 ±0.298 and for thiopental was 0.299±0.211. the ICER was calculated using, “The average cost effectiveness = Net Cost/ Net Health Benefit” and it was found to be -2535.21. CONCLUSIONS: it is found that thiopental is cost effective than propofol as ICER for the treatment is more than 2535.

**SYSTEMIC DISORDERS/CONDITIONS - Patient-Reported Outcomes & Patient Preference Studies**

**PSY7: UNDERSTANDING THE JAPANESE GENERAL PUBLIC’S RATIONALE FOR TRADES IN A TIME-TRADE-OFF ASSESSMENT FOR SYSTEMIC LUPUS ERYTHEMATOSUS**

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**OBJECTIVES:** There is a growing need to evaluate utilities for disorders within the Asian region to be used in cost-effectiveness analyses. However, there has been some concern about the legitimacy of direct utility elicitation among Asian subjects. To understand the thinking of subjects responding to a time-trade-off assessment, subjects were asked to describe what they considered when making their trade. Understanding their rationale will provide insights into the values of respondents. METHODS: Utility and demographic data were collected from 101 subjects from the general public in Tokyo. Subjects responded to six hypothetical systemic lupus erythematosus health states, described by six levels of severity, and provided their valuation of their utility through a visual analog scale and time-trade-off. One health state was randomly selected (excluding the anchor state) for each respondent to provide their rationale for their trade. RESULTS: Respondents were comprised of 54 men and 47 women. Subjects provided a range of responses from concerns of family burden to self-preservation (“Prefer to live as long as possible”) and needing to finish personal commitments and “Dignity / Pride” by not wanting to ask others for any assistance. “Unable to bear symptoms / Prefer to die” was the most frequently provided response (~30%) followed by “Burden on family / others” (~20%). Subjects who responded to the mild health state had a tendency to respond “Able to tolerate symptoms” over other reasons when assessing their trade. Younger subjects were more likely to respond with “Hope for a cure”. CONCLUSIONS: Our study found that subjects were able to provide valid utility estimates from the time-trade-off. The rationale for trade-offs provide insights into how responses are formulated within an Asian country. Additional research will need to be conducted to compare these results to other Asian and Western countries.

**PSY8: PREVALENCE OF NEUROPATHIC PAIN IN KOREAN PATIENTS SCHEDULED FOR LUMBAR SPINE SURGERY AND THEIR HEALTH RELATED QUALITY OF LIFE: NATIONWIDE, MULTICENTER, PROSPECTIVE, CROSS-SECTIONAL, OBSERVATIONAL STUDY**

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**OBJECTIVES:** The objectives of this study were to investigate the prevalence of neuropathic pain (NP) among patients scheduled for lumbar spinal surgery and the relationship between health-related quality of life (HRQoL) and NP. This study also aimed to identify the risk factors related to NP and compare the clinical outcomes and impact on the HRQoL after surgical treatment between patients with and without NP. METHODS: This study was a nationwide, multicentered, cross-sectional, observational study. It was conducted from September 2011 to May 2013, and included a total of 1,109 patients who were scheduled for lumbar spinal surgery from 44 spinal centers (both orthopaedics and neurosurgeons). Patients were diagnosed of
having NP if the Leeds Assessment of Neuropathic Symptoms and Signs (LANSS) pain scale criteria was ≥12 points. The patients were investigated to assess the differences in their clinical outcomes after 3 months of the surgery and were followed up with regards to pain and HRQoL to explore the risk factors affecting NP. **RESULTS:** Of 1,109 recruited patients, 404 (36.4%) suffered from NP (mean age 62.1 years; 37.9% male) with mean LANSS score of 17.4±4.1, while 705 (63.6%) had nociceptive pain with mean LANSS score of 6.0±3.5. Female and longer symptom duration were identified as risk factors for NP (OR 1.291 and 1.003, respectively, p<0.05). At baseline, patients with NP showed lower HRQoL and more severe pain compared to nociceptive pain patients. However, 3 months after surgical treatment, NP group showed greater improvement in pain (p=0.087) and HRQoL (p=0.029) as compared to nociceptive pain group. **CONCLUSIONS:** There was a high prevalence of NP in Korean patients scheduled for lumbar spine surgery, and these patients suffered greater pain and lower HRQoL than nociceptive pain patients. The more remarkable improvement NP patients showed after treatment highlights the importance of appropriate diagnosis and treatment of NP.

**SYSTEMIC DISORDERS/CONDITIONS - Health Care Use & Policy Studies**

**PSY9: PRICING AND MARKET ACCESS OF ORPHAN DRUGS IN ASIA: A COMPARATIVE STUDY ACROSS GROWTH MARKETS**

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**OBJECTIVES:** With the majority of the world's population and considerably high GDP growth rates, Asia represents a significant opportunity for commercialization of orphan drugs (OD) for rare diseases. However, despite some countries implementing policy to facilitate this process, funding for ODs remains challenging due to conflicting priorities with coverage of essential medicines. We aimed to understand the current coverage policies for ODs in China, Taiwan, Singapore and South Korea, and evaluate the impact they have on pricing and market access. **METHODS:** We conducted secondary research of government legislation in each country to identify specific policy and decision making criteria for coverage of ODs and rare diseases. We also selected 8 ODs and scored them based on a pre-defined set of access drivers (incidence of the disease, severity of the condition, therapeutic alternatives, level of innovation, affordability, etc.). Finally, we analyzed the scores to identify any correlation with the pricing and reimbursement status of these drugs in each market, and considered the influence of any identified policies on the results. **RESULTS:** National legislation for OD coverage was identified in Taiwan, Singapore and South Korea; however, the degree to which policy influences coverage varies considerably between countries. Additionally, in the absence of national legislation in China, provincial policies do exist, albeit infrequently and with considerable disparity. Scores for access drivers were minimally correlated with pricing and reimbursement status, however, high scores were not necessarily indicative of positive coverage; rather, affordability is the primary driver for access. **CONCLUSIONS:** Our results demonstrate that, although there is considerable market opportunity supported by variable legislation to facilitate OD coverage, pricing and market access remains challenging and is not necessarily related to individual product value. Therefore, pharmaceutical companies seeking access for ODs should consider selective programs, designed to improve affordability and patient access.

**PSY10: THE SOCIOECONOMIC COSTS OF THE UNDERTREATMENT OF PAIN**

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**OBJECTIVES:** To investigate the scale and socioeconomic cost of untreated/uncontrolled chronic pain. **METHODS:** We performed a systematic literature search in PubMed to identify studies reporting the economic cost of pain globally and in Asia Pacific. **RESULTS:** Prevalence estimates for chronic pain among adults range from 2-40% in the US and 12-30% in Europe, with similar rates reported in Hong Kong (10.8%) and Singapore (8.7%). Chronic pain is costly not only because it requires medical treatment and complicates treatment for other conditions, but because it undermines the ability to lead a productive working and social life, placing a substantial burden on individuals, employers, healthcare systems and societies in general. Despite the personal and socioeconomic impact of chronic pain, a large proportion of patients remain untreated. A third of chronic pain patients in a European survey were currently not treated, while around half of patients with cancer pain are undertreated. Poor availability of medications due to cost, licensing, prescribing regulations, lack of training for healthcare workers and cultural factors are causes of undertreatment, especially in the developing world. The majority of countries in Asia have limited or very limited availability of medicines for moderate to severe pain and no national palliative care policies. The costs associated with chronic pain in terms of direct healthcare and indirect costs are huge, estimated at $560-635 billion.
annually in the US and as much as €300 billion in Europe, and representing 3-10% of gross domestic product. Chronic pain therefore represents an economic burden at least as great as priority health conditions such as heart disease, cancer and diabetes. CONCLUSIONS: A strategic approach is required to counter the unacceptable burden of uncontrolled chronic pain at the national and international level, alongside further research and education into effective treatment, management and prevention of pain.

PSY11: STUDY OF TECHNICAL CONDITIONS FOR IMPROVEMENT OF ANGIOGRAPHIC IMAGE QUALITY

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OBJECTIVES: The purpose of this study was to explore the quality of angiography equipment in diagnosis and treatment used in Mongolia, compare the use of angiography in Mongolia to international standards, type and number of angiography examinations, radiologist and patient’s health safety from the effects of X-rays, and the study the benefits of the quality control tests of X-rays and how they affect image quality and other factors. METHODS: By experimental method, used an ionization chamber and test object for x-ray image quality to assess angiographic image quality based on The Mongolian National Standard MNS 5391:2004. A total of 5 angiographies were studied. Measurement acceptance of kV assurance, linearity, repetition of kV,mA,mAs, image resolution were not higher 5% from reference values. RESULTS: Standard derivation of kV assurance was moderate (St.derivation< 1.2%). The repetitions of kV,mA,mAs were in normal range (derivation coefficient<0.01 ). Image resolution was acceptable (1.4-3.1 lp/mm) CONCLUSIONS: Review of this study I observed following problems such as we use and installed the oldest equipments from other countries, those were worked over than 10 years; spare parts were not manufactured; not installed software for measurement and process of patients and angiographic staff x-ray doses; not having optional units for evaluating and fixing image quality; quality control performance is made by Nuclear Energy Agency of Mongolia just one time a year; not acceptance of image processing, delivering and printing system. Therefore, more important things are in this field are development and renovation of equipments.

RESEARCH POSTER PRESENTATIONS - SESSION III

HEALTH CARE USE & POLICY STUDIES

HEALTH CARE USE & POLICY STUDIES - Consumer Role in Health Care

PHP1: FACTORS AFFECTING THE SELECTION OF SORE THROAT LOZENGE OF DRUGSTORE'S CUSTOMER AT NAKORNPATHOM MUNICIPALITY, NAKORNPATHOM PROVINCE, THAILAND


OBJECTIVES: The aim of this research was finding the factors affect the decision of customers in drug stores for selecting the sore throat lozenges. METHODS: Survey research had been conducted since October to November 2012. The data had been collected by using questionnaires from 410 buyers age over 15 years who request the sore throat lozenges in drugstores for themselves. RESULTS: Most of respondents were women(71.46%), aged 15-25 years old(30.49%), hold bachelor degree(40.73%), students(25.12%), no monthly income(27.80%) and had no income (27.80%). Most of them used to buy modern medicine types of sore throat lozenges (68.78%) more than traditional medicine type(21.22%). Their objectives were for reducing sore throat (36.35%) follow by reducing throat irritation (23.97%), reducing cough(19.95%) and expectorant(9.98%) respectively. Most of them would buy the modern medicine in the next time (69.27%). The level of decision making using available factor and information factor were in high level, the price factor and product factor were in medium level. The relationship between gender and gender and former using on selecting the types of sore throat lozenges were statistical significance of 0.05 levels. The factors influenced the selection of sore throat lozenges were 1) Place factor (=4.02±1.81) especially selecting from availability and convenience was in the high level, 2) Information factor (=3.60±0.33) especially selecting by using their information and receiving the information from health professions were in the high level, receiving the information from the various medias and the intimate persons were in the medium level. 3) Price factor (=3.44±0.18) especially selecting from appropriateness to severity was in the high level. 4) Product factor (=3.18±0.50) especially selecting from taste
was in the high level ( =4.02±1.81). **CONCLUSIONS:** The results could be applied by community pharmacists in advising the customers for sore throat lozenges selection and the manufacturers or marketing managers in producing and distributing their products.

**PHP2: ASSESING THE IMPACT OF PATENT LOSS ON OVERALL REVENUES AND STOCKS PRICE OF PHARMACEUTICAL COMPANIES**

**Furnback W, Wang BC,Alliance Life Sciences, Somerset, NJ, USA**

**OBJECTIVES:** With the pre-tax R&D cost of bringing a biopharmaceutical product to market estimated at $1.2 billion, revenues from blockbuster drugs may need to cover the development cost of multiple drugs. We analyzed four major blockbuster products that lost patent between 2011 and 2012. Then, we retrieved sales data for the drug, total revenue, and stock price for the company from Q1 2011 to Q4 2013. Sales data was from IMS Health via drugs.com. Total company revenue per quarter was provided by Charles Schwab & Co. and historical stock data was taken from Yahoo! Finance. **RESULTS:** During the time the drugs were under patent, they made up an average of 16.8% of total revenues per quarter. Total sales for the four drugs were down an average of 78.8% by Q4 2013 while total revenues for the companies were only down on average 11.9%. Stock prices over the same period increased an average of 72.5%. During the time the product had patent protection, the stock prices of those four companies increased at an average of 3.7% per quarter, as opposed to the 5.8% increase per quarter when the patent expired. During patent protection, average company revenue grew at an average of 1.52% per quarter; when the patent expired, revenue declined at an average of 1.9%. **CONCLUSIONS:** Overall these blockbuster drugs do not seem to significantly decrease revenues and do not influence stock prices when their patent protection is up. Large pharmaceuticals may reinvest profits to bolster their pipelines and find replacements for these large-revenue drugs. Investors seem to appropriately price in patent expiration into stock prices long before the actual event.

**HEALTH CARE USE & POLICY STUDIES - Diagnosis Related Group**

**PHP3: THE PERFORMANCE- VOLUME LIMIT DECREASED THE DRG BASED ACUTE CARE HOSPITAL FINANCING IN HUNGARY**

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‘University of Pécs, Pécs, Hungary, ‘University of Pécs, Zalaegerszeg, Hungary, ‘Széchenyi István University, Győr, Hungary

**OBJECTIVES:** Diagnosis related groups (DRG) like financing method was introduced in Hungary in 1993 for acute care hospital reimbursement. Due to the increased activity of the hospitals, an upper ceiling, the so called performance volume limit (PVL) was introduced in acute care hospital financing in 2004. The aim of our study was to analyze the effect of performance volume limit on DRG based hospital financing on the example of a Hungarian tertiary teaching hospital, the Clinical Centre of the University of Pécs. **METHODS:** Data derived from the financial database of the National Health Insurance Fund Administration, the only health care financing agency in Hungary. We analyzed the proportion of hospital activity over the performance volume limit ceiling. We calculated the proportion of hospital activity over that ceiling measured by DRG cost-weights. The period 2004-2013 was involved into the study. **RESULTS:** The annual number of patients varied between 72671 (2007) and 82509 (2009) at the Clinical Centre of the University of Pécs. During the same period the annual performance volume limit for DRG costweights varied between 97784 and 116970. However due to the regulation of the upper ceiling of hospitals’ activity, 3.0 % (2007) to 14.9 % (2009) of that activity has not been reimbursed to the Clinical Centre. The average loss of reimbursement due to performance volume limit was 7.2 % of annual revenues between 2004-2013. **CONCLUSIONS:** The introduction of performance volume limit into the DRG based hospital financing resulted in a partial loss of hospitals’ revenues. Despite of in PVL regulation, the Clinical Centre of the University of Pécs did not reduced its output, thus the annual number of patients did not declined in this hospital.

**HEALTH CARE USE & POLICY STUDIES - Disease Management**

**PHP4: CO-ADMINISTRATION OF TURMERIC POTENTIATES PREVENTIVE EFFECT OF BLACK SEEDS IN METABOLIC SYNDROME**

**Gilani A, Amin F, Mehmood MH,**

The Aga Khan University, Karachi, Pakistan
OBJECTIVES: The metabolic syndrome (MS), a combination of metabolic abnormalities including obesity, diabetes, dyslipidemia and hypertension is associated with an increased risk of coronary heart disease and stroke. Complementary medicines including herbs like Turmeric and Black seeds (Nigella sativa) can be used to prevent or as an adjuvant to control MS with fewer side-effects, better acceptability and cost effectiveness. This study determines if the co-administration of Turmeric potentiates the beneficial effects of black seeds on MS in rats. METHODS: Black seeds and Turmeric alone and in combination at different dosages were administered to fructose-fed rats. Blood pressure, fasting sugar and lipid profile were measured before and after 3 and 6 weeks of treatment. Serum insulin and endothelial function were determined at 6 weeks of intervention. RESULTS: Black seeds at the dose of 0.6 g/kg prevented hypertension at week 3 of intervention, while at 6 weeks it prevented hypertension, hyperglycemia, dyslipidemia and endothelial dysfunction. Turmeric at 3 g/kg dose prevented dyslipidemia but not hypertension. The combination of 0.3 g/kg Black seeds and 1.5 g/kg Turmeric prevented hypertension and hypertriglyceridemia at week 3 but provided a wide coverage at 6 weeks including in hypertension, hyperglycemia, dyslipidemia, hyperinsulinemia and endothelial dysfunction. CONCLUSIONS: This study showed that co-administration of Turmeric and Black seeds resulted in enhanced efficacy in correcting metabolic syndrome when compared with each component used alone, while the reduced dose of individual component when used in combination is likely to reduce the side-effects.

PHP5: PHARMACOLOGICAL BASIS FOR THE MEDICINAL USE OF ALMONDS IN CARDIOVASCULAR DISORDERS

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OBJECTIVES: Though almonds are shown to be effective in cardiovascular disorders (CVDs), but there is limited information on the possible mode of action. This study aimed at exploring, in multiple rat models, the pharmacological basis for the medicinal use of almonds in CVDs. METHODS: Tyloxapol, high-fat diet (HFD) and fructose models were used. Group 1 in each study was normal control and group 2 and 3 were diseased groups. Almonds were given for four weeks to group 3 of each study, after which blood was collected for biochemical estimations. Liver from rats of tyloxapol study and thoracic aorta from rats of HFD study were isolated for enzyme assays and vascular reactivity. RESULTS: Almonds supplementation significantly (p < 0.05) prevented hyperlipidemia in all the three rat models. In tyloxapol-induced hyperlipidemia model, almond supplementation inhibited HMG-CoA activity. It also improved lipid profile and prevented HFD-induced increase in serum biomarkers of liver dysfunction (amino-transferases) and endothelial dysfunction (uric acid, phosphorus, alkaline phosphatase and gamma glutamyl transferase) as well as restored endothelial reactivity. Almonds also demoted the HFD-induced inhibition of endothelial nitric oxide synthase enzyme, thereby, promoting serum nitric oxide release. In the fiber-free while flour with fructose model, improvement in serum HDL was observed, in addition to improvement in other markers of lipid abnormality. CONCLUSIONS: Almond supplementation demonstrated cardio-protection and antisydipidemic effect mediated through multiple pathways including inhibition of cholesterol synthesis and restoration of hepatic and endothelial function, while the use of multiple animal models aided in gaining insights on some of the possible mechanism of actions.

HEALTH CARE USE & POLICY STUDIES - Drug/Device/Diagnostic Use & Policy

PHP6: PHARMACEUTICAL PRICING AND MARKET COMPETITION: AN EMPIRICAL STUDY BASED ON ANTI-INFECTIVE DRUGS IN TIANJIN, CHINA

Zhao MY, Wu J, Ma FF, Tianjin University, Tianjin, China

OBJECTIVES: To explore the impact of market competition on pharmaceutical pricing, and to further investigate the determinants of pharmaceutical price in Chinese pharmaceutical market. METHODS: Anti-infective pharmaceutical data were extracted from inpatient claims in Tianjin Urban Employee Basic Medical Insurance (UEBMI) database from 2006 to 2010. Based on product-quarter data, a quasi-hedonic regression model was used to estimate the impact of market competition, which is defined by generic competition (the number of manufacturers within the same generic market) and therapeutic competition (the number of molecules in the ATC3 therapeutic category). The inputs to our model were specific attributes of the products and manufacturers, with the exception of competition variables. Defined daily dose (DDD) was used as the standard quantity unit and the price per DDD was used as the price unit. RESULTS: Our results indicated that pharmaceutical prices were inversely related to the number of generic competitors, but positively related to the number of therapeutic competitors. The prices of patent drugs and the off-patent drugs from original manufacturer were significantly higher than the prices of generic drugs. We also found the positive relationship between DDD and price, and the negative relationship between pack size and

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price which implied that manufacturers compete on volume discounts on large pack size. In addition, product age was inversely related to product price. In terms of manufacturers’ attributes, the results suggested that the prices of products imported by the foreign manufacturers and produced by joint-venture firms were higher than those of products from local manufacturers, and the prices of products from domestic 100 top-selling manufacturers were lower than those of products from non-top 100 local manufacturers. CONCLUSIONS: Generic market competition still plays an important role in determination of regulated pharmaceutical prices in China. The drug attributes, manufacturers’ attributes and market competition are jointly determined pharmaceutical price.

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**PHP7: PRICE COMPARISON BETWEEN THE ESSENTIAL AND NON-ESSENTIAL ANTI-INFECTIVE MEDICINES AMONG NATIONAL REIMBURSEMENT DRUG LIST IN CHINA**

Ma FF, Wu J, Zhao MY, Tianjin University, Tianjin, China

OBJECTIVES: To compare the price changes of the essential and the non-essential anti-infective medicines in Tianjin, China using index method. METHODS: Data were extracted from inpatient claims in Urban Employee Basic Medical Insurance database of Tianjin, China, from 2006 to 2010. Price indices were measured by Fisher and chained Fisher index formulas by quarter. The quantity weight unit was defined daily dose (DDD) and the price unit was the price per DDD. Price indices were calculated both at molecule level (defined by active ingredient) and product level (defined by molecule, strength, preparation, and manufacturer). RESULTS: The data contained 41 molecules and 786 products among the essential anti-infective medicines, and 81 molecules and 636 products among the non-essential anti-infective medicines. For the essential anti-infective medicines, the price index decreased to 0.90 (in chained Fisher index at molecule level) from 2006 Q1 to 2010 Q4, and the price index for the non-essential anti-infective medicines decreased to 0.73 (in chained Fisher index at molecule level) during the same period. For the essential and non-essential anti-infective medicines, the results of chained Fisher and unchained counterparts were similar (10% vs. 10% for the essential and 24% vs. 27% for the non-essential at molecule level). The price indices at molecule level decreased slower than the counterparts at product level (10% vs. 24% for the essential and 27% vs. 30% for the non-essential in chained Fisher index). CONCLUSIONS: The price of the essential and non-essential anti-infective medicines among national reimbursement drug list had decreased in Tianjin, China, but the price of the essential anti-infective medicines decreased slower than the non-essential anti-infective medicines.

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**PHP8: IMPACT OF DRUG POLICY ON IMPROVING ACCESS TO MEDICINES IN DELHI**

Bhoi N, IPE Global, DFID supported Health Sector Reforms Programme, Bhubaneshwar, India

OBJECTIVES: To assess the impact of drug policy on improving access to essential medicines in Delhi METHODS: The quantity of drugs procured from the Essential Drugs List (EDL) and outside the EDL; money spent on these; changes in stock out days for the key drugs. The implementation strategy includes elements of drug policy like use of EDL & STG, improved procurement system, training on drugs management & rational use of drugs. Retrospective data collected from stock registers. The data for two years before (1993-1994, 1994-1995) and two years after (2000-2001, 2001-2002) the drug policy was assessed. Data collected from two large public sector hospitals in Delhi that serve a large section of the population through convenient purposive sampling method. RESULTS: After the implementation of the drug policy, the availability of drugs increased by 25% in the large and 98% in the medium hospital. The drugs procured from the EDL increased from 62% to 78% in the large and 74% to 87% in the medium hospital. Of the total expenditure, the money spent on essential drugs increased from 73% to 85% in the large and 87% to 93% in the medium hospital, whereas money spent on nonessential drugs decreased from 27% to 15% in the large and 13% to 7% in the medium hospital. The average number of stock out days for key drugs decreased from 33 to 16 days in the large and from 143 days to 33 days in the medium hospital. The utilization pattern of health services by patients increased by 8% in the large and by 35% in the medium hospital. CONCLUSIONS: The implementation of the drug policy in the state of Delhi increased availability of essential drugs. This kind of intervention can serve as a model for improving access to medicines by implementing an effective drug.

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**PHP9: THE IMPACT ON DRUG PRICE AND PATIENT SELECTION OF NATIONAL ESSENTIAL DRUG SYSTEM: EVIDENCE FROM INPATIENT RECORDS FROM INSURANCE REIMBURSEMENT DATA**

Du N, Xu J, Southwest University of Finance and Economics, chengdu, China
OBJECTIVES: This study estimates the effect of national essential drug system on drug price and patient selection of pilot grass-root medical institution. METHODS: This study employs DID (difference-in-difference) method to investigate the effect of Essential Drug Regime Reform (EDRR) on drug price and patient selection of public grass-root medical institutions. Our sample comes from a Chinese city's Urban Employee Basic Medical Insurance Reimbursement Dataset for inpatient care from 2009-2010. The full sample has 53416 observations including 2896 unique pharmaceutical firm-level products from 210 grass-root medical institutions. The dependent variable is the average price of each product in each month from each medical institution. The key independent variables are dummy variables indicating the pilot institutions (TREAT), the releasing time of Essential Drug Regime (EDR) and interaction of them (TREAT*EDR). RESULTS: The results show that after the implementation of EDR, drug price on the pilot institutions decreased significantly by 37 percent (relative to control institution). Especially, essential drugs fell by 43.3 percent relative to control institution. This policy has no significant effect on non-essential drugs. After the implementation of the national essential drug system inpatient expenditures of the pilot medical institutions increased by 20.67%, length of stays increased by about three days, relative to the non-pilot medical institutions. After all, there is no change in patient co-payment rate. We found that patients more severe (diagnosed with more than one diseases) chose to go to the pilot medical institution increased by 7%. CONCLUSIONS: The national essential drug system has significant effect on drug price, especially the essential drug, and the patients more severe preferred to go to the grass-root medical institution rather than level-2 and level-3 hospitals.

PHP10: AN ANALYSIS OF DETERMINANTS OF NEW AND BLAND-NAME DRUGS PRESCRIPTION BEHAVIOR AMONG JAPANESE PHYSICIANS
Ma X, Kakihara H, Kyoto University, Kyoto, Japan

OBJECTIVES: Japanese government has promoted the use of generic drugs as means to decrease the burden to patients as well as to improve the situation of public finance sustainability. However, the proportion of generic prescriptions out of the total prescriptions written is lower compared to other developed countries. We thus examine the determinants of prescription of new and brand name drugs to understand what discourages Japanese physicians from prescribing generic drugs. METHODS: Using data from an original survey of 300 physicians conducted in September 2012. These surveys are analyzed with regard to the potential influence of the following factors: physicians’ information seeking behavior regarding drugs, principal-agent relationship, risk and time preferences and physician characteristics. The analysis uses an ordered logistic regression model. RESULTS: Our major findings are summarized as follows. First, it can be said that the proportion of new drug prescriptions to all prescriptions rises as physicians’ intensity in information seeking behavior increases, but it is not significantly affected by principle-agent relationship or risk or time preferences. Second, the proportion of brand name drug prescriptions is positively associated with increased consideration of drug safety but negatively associated with that of drugs costs, pointing toward the hypothesis that the principal-agent relationship is an important factor. Third, time preference significantly determines the prescription of brand name drugs whereas risk preference does not. In particular, the more preferred is current consumption over future consumption, the greater proportion of brand name drugs is prescribed. Neither risk nor time preferences significantly affects the proportion of prescription of new drugs. Finally, the impact of each determinant on prescription behavior differs between internal medicine physicians and physicians in other areas of specialization. CONCLUSIONS: Our empirical results suggest a limitation of uniform policies across physicians such as provision of financial incentives as means to the promotion of generic drug use.

PHP11: REVIEW ON MEDICINES PRICES AND AVAILABILITY IN INDONESIA: 2004 TO 2012
Siahaan S, Handayani RS, National Institute of Health Research and Development (NIHRD), Jakarta Pusat, Indonesia

OBJECTIVES: In 2014 Indonesia started National Health Insurance (NHI). This study aimed to search the existing evidence base on access to medicine issues to recommend policy options and model of medicines prices to be used in the era of NHI. METHODS: NIHRD conducted study at 2012 by reviewing several surveys results of access to medicines from 2004-2012 and organising several discussion forums about access to medicines. The participants were key persons from government, private sectors, NGOs and other related stakeholders. RESULTS: Indonesia medicines prices surveys using WHO-HAI method in 2004, 2010 and 2012 showed access to medicines problems still had similar patterns i.e. several district health offices bought medicines with higher prices than national standard prices and several public hospitals sold several medicines with higher prices than private sectors. Most medicines prices (>90%) were still higher than international reference price. The Median Price Ratios (MPRs) of medicines for public sector in Indonesia were 1.74 (2004) and 1.52 (2012), while in Malaysia was 1.09 (2004) and in Thailand was 1.46 (2006), but in Philippine was 2.06 (2009). The availability of medicines in public sectors was consistent lower
than in private sectors. Study (2007) showed the availability of several essential and generic medicines in several public health facilities were enough for <3 months. Study (2011) showed availability of FDC medicines for tuberculosis and ACT for malaria in endemic areas were inadequate (50%-70%). Discussion forums summarized main points: Medicines prices can be controlled by full time pharmacist if they serve rational drug use to patients. NHI has ability to control medicines prices, etc. CONCLUSIONS: Pharmacy should not “mark-up” medicines prices, but charge pharmacist services fee to patients. The government should set up MPRs of medicines in the list of NHI formulary no more than 1.50 and assure its availability, and NHI should implement pharmacoeconomics for new medicines.

PHP12: REVIEW OF REFERENCE PRICING EFFECTS ON PHARMACEUTICALS

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OBJECTIVES: Reference pricing has been popular used in many countries as a reimbursement policy to contain raising pharmaceutical expenditures since Germany first introduced in 1989. China is under discussion concerning implementation of reference pricing for innovative drug pricing. This study is designed to overview the effects of reference pricing on health care helps to provide reference evidence to estimate the potential role of reference pricing for policy strategy making, and deliver the suggestion on benefit/risk analysis when adopting reference pricing in China. METHODS: We systematic reviewed published review studies or literatures based on empirical outcome effects analysis of reference pricing and present the common assess conclusion or views on the effect of reference pricing across all experiences, selected research covered different countries and backgrounds have little coverage to keep the references outcomes diversity and little overlap. RESULTS: Results shows that reference pricing could decreases drug prices include in system and original and generic drug price reductions are different according to pharmaceutical markets power. Reference pricing increases drug use of priced below or at the reference price. Reference pricing could save drug expenditures limited in the short-run but no sufficient evidence showed on the long-term expenditures reduction. Besides, no adverse effect was clearly found on patient access pharmaceutical services by reference pricing. CONCLUSIONS: Evidences indicates that reference pricing seems to be effective for governments to contain pharmaceutical expenditures and more research is need on the long-term effects and impact on different healthcare systems of reference pricing.

PHP13: WITHDRAWN

PHP14: QUESTIONNAIRE ANALYSIS ON PHARMACISTS ROLE AND DRUG REIMBURSEMENT LIST ADJUSTMENT MECHANISM UNDER THE CURRENT CHINA HEALTH INSURANCE SYSTEM

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OBJECTIVES: To study how to adjust the roles of pharmacists under the currently health insurance system; and how to perfect the mechanism for drug reimbursement list adjustment under China. current social health insurance system METHODS: China Pharmaceutical Industry Research and Development Association formulated the Questionnaire on the Roles of Pharmacists and the Health Insurance System. Survey was conducted to pharmacists and experts in relevant fields from early April 2013. By the middle of May, 152 questionnaires were returned, in which 141 ones were considered effective for the statistics. RESULTS: As to the pharmacist system, 95% respondents agree to popularize the pharmacist system comprehensively in the hospitals. Respondents believe that pharmacists shall be entitled to the rights of verifying prescriptions, examining medication cost information, dispensing high quality drugs with preference, and participating in RDL adjustment. The majority of respondents (81.6%) agree to link the medical institutions and medical insurance agencies on line, which can better take advantage of pharmacistsrole. As to the RDL adjustment cycle, most respondents (78.7%) believe that current 4-year cycle is not reasonable, and more people (46.8%) think 2 years may be better. The respondents think that major problems in current RDL adjustment mechanism lie in the lack of evaluation standards and procedures transparency. More people (61.0%) agree that the pharmacoeconomics evaluation shall be an essential basis for RDL adjustment decisions process. The survey results also show that at present, the system design for pharmacoeconomics application is not mature, and relevant capacity building and legislative guarantee are urgently required. CONCLUSIONS: It has been a commonly recognition to improve the pharmacist system and strengthen the rights of pharmacist in prescription examination and drug dispensing. Evidence-based researches on how to shorten adjustment cycle, establish a transparent and open decision-making process, and attach importance to the pharmacoeconomics are major issues needing improvements in the present RDL adjustment mechanism.
**PHP15: HOW DO ORGANIZATIONAL ARRANGEMENTS OF THE PHARMACEUTICAL SUPPLY SYSTEM AFFECT AVAILABILITY TO ESSENTIAL MEDICINES IN RURAL CHINA?**

**Zuo G**, Shandong University, Jinan, China

**OBJECTIVES:** The manifold reasons lead to lack of availability to essential medicines, but higher price induced by pharmaceutical patent and organizational arrangements of pharmaceutical supply system is main barrier. Since 2009, Chinese government has constructed essential medicines policy of centralized purchasing, uniform distribution and “zero-mark-up” (i.e. no-profit) sale to supply essential medicines, all but generic drugs. This study aims to develop a theoretical methodology to examine the impact of organizational arrangements on availability to essential medicines. **METHODS:** We present a theoretical framework based on organizational economics to identify organizational boundary and inter-organization relationship of pharmaceutical supply system in order to define the stakeholders’ function and to find competition and cooperation relationship between them. We collect evidence from nine township hospitals at three counties of Shandong Province with different economic and geographical environment from July to August 2011. Organizational arrangements are identified by document review, interviews and focus group discussions with stakeholders. Availability to essential medicines is measured as allocated rate and timeliness arrival rate of national essential medicines by questionnaire and online transaction records. **RESULTS:** The mean allocated rate of national essential medicines was 51.47% because organizational boundary between stakeholders was so vague that the stakeholders’ function was not clear and pharmaceutical manufacturers didn’t receive the demand information of township hospitals. Timeliness arrival rate of national essential medicines within three days was from 33.77% to 71.45% because of unfair competition between pharmaceutical distribution companies and cooperation failure between pharmaceutical manufacturers and pharmaceutical suppliers. **CONCLUSIONS:** Successful pharmaceutical supply system of essential medicines needs to clearly define the function and to coordinate competition and cooperation relationship between pharmaceutical manufacturers, distribution companies and township hospitals. **Keywords:** essential medicine; availability; organizational arrangement

**PHP16: CLASSIFICATION OF DRUGS BRINGING FROM ABROAD IN TURKEY ACCORDING TO THEIR ATC CODES**

**Tuna E**, Atikeler K, Caliskan Z,Hacettepe University, Ankara, Turkey

**OBJECTIVES:** There have been several strict cost containment measures, as reference pricing system and global budget, being applied in Turkish health care system especially for drugs. As a result of these measures; most of the drugs being marketed in Turkey have the lowest price in Europe. In this regard, several drugs including the drugs being used in critical diseases such as cancer, orphan diseases etc, have been withdrawn from the market or even they wouldn’t be able to enter the market. Therefore, Turkish government brings these drugs from abroad by paying much more money compared to the current or the future prices (the price if the drug would have licenced or being reimbursed) of those drugs in Turkey. The aim of this study is to analyze the list of these drugs according to their ATC groups. **METHODS:** The list of Social Security Institution (SSI) on drugs bringing from abroad (Annex 4 C) have been analyzed in assistance with RxMediaPharma® Program. **RESULTS:** In total, there are 662 drugs being listed in the latest Annex 4-C list. Among this list; the most frequently listed ATC group is L (antineoplastic and immunomodulating agents) by 22%, second is A (alimentary tract and metabolism) by 13.3%, third is C (cardiovascular system) by 12.5%, fourth and fifth are: N (nervous system) by 12% and J (antiinfectives for systemic use) by 6.35% relatively. **CONCLUSIONS:** Strict cost containment measures being applied in Turkey causes shortages of several drugs especially the ones being used in diseases with high mortality rates like cancer. In this situation, despite government has brought these medicines from abroad, as this procedure takes some time, patients may have trouble in reaching these drugs on time and SSI pays much more for these drugs compared to their probable prices in Turkey.

**PHP17: PRICING AND REIMBURSEMENT POLICY UPDATES IN ASIA**


**OBJECTIVES:** Pharmacoeconomics and outcomes research (PEOR) has emerged as a key decision-making tool to optimize patient care and add value to healthcare services. Considering the strategic importance of Asian markets and economic constraints in the pharmaceutical sector, an understanding of current pricing strategies become vital for market authorization holders as well as payers. **METHODS:** An assessment of healthcare policies, pricing systems, and reforms impacting reimbursement and market access environment was undertaken across major Asian markets (Japan, China, South Korea, and...
India). Information sources included online portals of regulatory agencies and relevant keyword searches. **RESULTS:** Health policy decisions over recent years have indicated varying levels of priorities and interests within Asia. Japan continues to increase healthcare investments and attempts are being made to expedite drug approval process. Despite a robust pricing mechanism, Japanese pharmacoeconomic guidelines are yet to be implemented. Public health expenditure in China has witnessed almost 50% growth since 2004. Chinese pharmacoeconomic guidelines are now in practice and pricing norms have gained more structure with the introduction of external referencing and price negotiations with drug companies. In South Korea, pharmacoeconomic guidelines are well-established and the current focus is on cost-containment measures like profit controls and price cuts. Pharmacoeconomics in India is still in its nascent stage but the 2013 Drugs (Prices Control) Order (DPCO) included radical changes focussing on market-based pricing. Furthermore, the introduction of price negotiation mechanisms is also being considered by the Department of Pharmaceuticals (DoP) in India. **CONCLUSIONS:** The focus on PEOR by reimbursement agencies in the West has compelled their Asian counterparts to revisit pricing policies. Japan has started drafting pharmacoeconomic guidelines, while Chinese and South Korean governments have implemented new mechanisms to manage drug prices. In India, the DoP has encouraged revisions in the DPCO and further reforms in pricing mechanisms are expected in the near future.

**PHP18: PROVINCIAL HOSPITAL TENDERING IN CHINA: EVALUATING THE IMPACT ON PRICE**

**OBJECTIVES:** In China, maximum retail prices of reimbursed medicines are controlled at the national level by the National Development and Reform Commission (NDRC). At the provincial level, different tendering processes are used to procure medicines, often resulting in disparity between provinces and a significantly lower final price than the MRP. The objective of this research is to understand the different provincial tendering models and evaluate the resultant effect on medicine prices. **METHODS:** We conducted secondary research of both national and provincial government websites to identify the different tendering models used across China. Provincial tender results were analyzed to understand the final price variation between provinces, relative to the MRP. Finally, primary research was conducted with payers in provinces with well-established tendering models - including Anhui, Beijing, Fujian, Hebei and Shanghai - to understand the individual nuances. **RESULTS:** Tendering models exist on a continuum between “price focused” and “quality focused” processes. The former includes both the Anhui and Fujian models, and represents those where cost is the main determinant of outcomes. The latter includes the more developed Shanghai model which encompasses a more holistic approach with consideration for the quality, patent status and degree of innovation of a medicine. Analysis of published tender results shows a significant variation between the resultant prices in different provinces, with as much as 50% difference between the tender price and MRP set by the NDRC. Price erosion is greatest for generic medicines and those where a larger degree of competition exists, indicating that market forces ultimately have the greatest effect on tendering outcomes. **CONCLUSIONS:** Our results demonstrate the large degree of variation between tendering processes in China. Although “price focused” models typically result in high downwards pricing pressure, “quality focused” models are more receptive of innovative medicines, thus, achieving price premiums is possible.

**PHP19: RECENT REGULATORY REFORMS TO ENSURE PATIENT SAFETY IN CLINICAL RESEARCH IN INDIA**

**Objectives:** To study the Regulatory reforms and its impact on Clinical Trials in India. The present study involves the lacunae in conducting Clinical Trials and presents the Regulatory reforms in India. **Methods:** India is an emerging destination for Clinical Research because of its genetic pool, availability of patients for enrolment, infrastructure and talented pool of physicians. In order to ensure patient safety in Clinical Trials several regulatory reforms have been implemented by the ministry of health and family welfare, Govt. of India. These include constitution of ethics committee’s, audio video recording of the consent, audit and inspections of the sites, registration of ethics committee’s etc. Compensation policy for deaths during the clinical trials have been framed. In order to ensure patient safety, National Pharmacovigilance Programme of India ( PvPI) have been launched in the country for the safety monitoring of drugs as a post marketing surveillance. PvPI is working in coordination with the WHO Uppsala Monitoring Centre. The presentation will discuss the salient regulatory reforms for patient’s safety in clinical research in India. **Results:** In order to ensure the safety of patients, the reporting culture of the Adverse Drug Reactions have been improved. There is a pool of 70000 ADR’S in the PvPI database and number of ADR Centres have been increased to 150 in various parts of the country. With the implementation of new Regulatory reforms, there is transparency in the system. Culture of
Reporting ADR’S by the physicians have also increased. The Ethical Review Boards have been properly strengthened, Serious Adverse Drug Reactions are being reported to the regulatory agency and compensations are being paid in the Clinical Trials. **CONCLUSIONS:** It is concluded that the new Regulatory Reforms will ensure the safety of the patients during the Clinical Trials.

**PHP20:** DRUG UTILIZATION PATTERN FOR THE TREATMENT OF SEPTIC SHOCK IN THE ICU: A COMPARISON BETWEEN SURVIVORS AND NON-SURVIVORS IN A TERTIARY CARE TEACHING INSTITUTE

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**OBJECTIVES:** To describe the drug utilization pattern in the treatment of patients with septic shock in the ICU. **METHODS:** Setting: 7-bed mixed medical/surgical intensive care unit (ICU) of a tertiary care teaching hospital. A retrospective cohort study of patients with septic shock, who were treated in the ICU between January 2012 and December, 2013. The ICU database was used to identify the patients. The patient demographics and characteristics were recorded. In addition, the number and type of prescribed medications, type of infection, and culture results were determined. The main outcomes were the type of medication classes utilized and their comparison between the survivors & non-survivors. **RESULTS:** During the study period, 109 cases were identified. Upon presentation, the mean Acute Physiology and Chronic Health Evaluation II (APACHE II) score was 22.5 (SD ±7.8), 93 (85.3 %) patients had leucocytosis, and 84 (77.0 %) had positive cultures. The mean number of medications prescribed per patient was 11.7 (SD ±4.7). The most commonly prescribed medication classes were proton pump inhibitors, carbapenems, BL/BLI combinations and vasopressors prescribed in 101 (92.6 %), 75 (68.8 %), 64 (58.7 %), and 91 (83.4 %) patients, respectively. Antifungals and blood products were prescribed in 45 (41.2 %) and 77 (70.6 %) patients, respectively. Medication usage were higher in non-survivors, compared to survivors (12.6 ± 2.4 versus 9.7±4.1), and in patients with positive cultures (13.5±1.9 versus 9.3±3.6) compared to patients with negative cultures. **CONCLUSIONS:** In patients with severe sepsis and septic shock, multiple medications were prescribed, and the use of medications was higher in the non-survivors in comparison to the survivors.

**PHP21:** WITHDRAWN

**PHP22:** USE OF MEDICATIONS IN THE EVENT OF JOB LOSS

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**OBJECTIVES:** Job loss has been shown to negatively affect displaced workers’ health. But it remains unclear how job loss affects medication use and spending on prescription drugs. The purpose of this study was to examine the impact of job loss on the use of medications as measured by out-of-pocket payment for the last prescription. **METHODS:** A quasi-experimental design was used to study workers who did and did not experience involuntary job displacement. The data was drawn from four waves of the Medical Expenditure Panel Survey (MEPS), taken in 2008, 2009, 2010, and 2011. Involuntary job loss was defined as job separation due to “job ended” or “business dissolved or sold”. Our analysis was limited to adults who participated in all five rounds of interviews. **RESULTS:** While the average out-of-pocket payment for the last prescription remained unchanged for those remained employed (around $23.10), the spending for those lost job increased by $2.82 ($19.41 vs. $22.23). Compared with those who remained employed, those who experienced involuntary job separation were significantly more likely to report zero expense on prescription drugs (odds ratio 1.37, 95% confidence interval (CI) 0.1.11-1.71). Among those with non-zero drug expenses, job loss was associated with 12.8% increase in the out-of-pocket payment for the last prescription while controlling for personal characteristics and the prescription payment before the job loss. **CONCLUSIONS:** The findings from this study indicates that impacts of job loss may vary based on the health status of workers. Job loss may discourage workers from initiating drug treatment. For those already on medications, job loss is linked with an increase in drug expenses. It is unclear the increase is caused by the worse health status after job loss or the use of medications to replace other more costly medical care.

**PHP23:** THE DYNAMICS OF PRICES AND QUANTITIES OF NEW DRUGS UNDER TAIWAN’S NATIONAL HEALTH INSURANCE PROGRAM

Liu Y, Hsieh C, National Cheng Kung University, Tainan, Taiwan, °Duke University, Durham, NC, USA

**OBJECTIVES:** Technological change in medicine has been a major cause of rising health care expenditures in many countries.
The adoption of new drugs plays an important role in accounting for the growth of spending on prescription drugs. This paper uses the prescription drug market in Taiwan as an example to investigate the evolution of prices and quantities of new drugs. **METHODS:** A new drug is defined in our study as one that was included in the NHI formulary after 1996. The study sample includes new molecules, new formulations, combinations, and indications till 2006. We run a cross-sectional equation for the launch price of new NMEs, and a panel regression for price ratio of current price versus the launch prices. Furthermore, we run a panel regression model for both sales and market share of new drugs. **RESULTS:** The preliminary results show that the degree of competition in a therapeutic market is weakly associated with the launch price, but negatively associated with the price ratio. The pioneer product can maintain a relatively higher price ratio in a longer period, but the price ratio of new drugs for chronic diseases decreases more than that for acute diseases. The competition of therapeutic market increases the sales, but decreases the market share of new drugs. The pioneer product has a positive impact on the sales and market shares of new drugs. The sales of new drugs for chronic diseases are higher than that for acute diseases, but the growth of market share of new drugs for chronic diseases is lower than that for acute diseases. **CONCLUSIONS:** The competition in the therapeutic market does not affect the regulated prices at the time of entry, but decreases the price ratios over time. The characteristics of new drugs are the major factors affecting market expansion and market substitution of new drugs.

**PHP24: POTENTIAL PRESCRIBER MAPPING IN RURAL LOCATION OF SOUTH INDIA**

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**OBJECTIVES:** As the majority of the Indian population still residing in India it is not only imperative to the pharmaceutical companies marketing medicines to foray in to the rural market. But there is very less understanding of the actual potential and preferences of the rural health care practitioners. Hence in this study an attempt is made to understand the prescriber potential and to also to know the preferences of health care practitioners towards the company representative visits. **METHODS:** A questionnaire based survey was designed to study the prescriber potential in 211 villages of Belgaum district of Karnataka State in India. The survey included semi structured questionnaire aimed at 191 physicians and 75 chemists. The data form the questionnaire was coded transferred to SPSS software to analyze. The data is summarized by descriptive statistics. **RESULTS:** It was also found that most 44% of the doctors are in age group of 20 to 30 and only 11% doctors are well experienced. 40% of the doctors consult average 35 patients daily. In Belgaum rural area 65% doctors preferred amoxicillin in case of bacterial infection and also 31% cefixime. The prescriber interviews also revealed the interest of prescribers towards updating their knowledge by Continuous Medical Education (CME) and also doctors are interested for tele-marketing calls to know the scientific information. Stockiest of Belgaum visits about 66% of the retail shops, hence product availability is not a problem. **CONCLUSIONS:** In India, there is a potential in rural market form the selected category like anti-infective, antipyretic, pain management and cough therapy products.

**PHP25: A QUALITATIVE EXPLORATION OF MALAYSIAN DOCTORS' PERCEPTIONS TOWARDS COMPLEMENTARY AND ALTERNATIVE MEDICINES (CAM)**

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**OBJECTIVES:** The study aims to assess doctors’ perceptions towards Complementary and Alternative Medicines (CAM) in their medical practice, factors that affect the referral of CAM and suggestions to improve CAM in medical practice. **METHODS:** A qualitative research approach was adopted to gain a better understanding of the current perceptions and practice held by doctors’ within their medical professions. In order to gain a wide perspective of the issue, eleven doctors were purposively selected who were working in academics, hospitals and in the community health clinics. Participants were interviewed using a semi-structured interview guide. A saturation point was reached after the 10th interview, and no new information emerged with the subsequent interviews. All interviews were transcribed verbatim and analyzed by means of a standard content analysis framework. **RESULTS:** The doctors expressed a range of views on CAM that can be divided into two major themes: doctors’ knowledge and understanding towards CAM and doctors’ viewpoint on CAM in their professional practice. A key factor which affected doctor’s perspectives on CAM was the lack of scientific evidences. The attitudes on CAM were basically shaped based on their personal CAM use rather than knowledge gained during an academic course. Lack of knowledge on CAM was also attributing to the doctors’ reluctance in CAM discussion with their patients. Though addition of CAM courses into the medical
curriculum was proposed by some of the doctors; the practical implication was criticized as some found medical curriculum heavily packed with the biomedical courses. **CONCLUSIONS:** Majority of the doctors in this study were skeptical and uncertain about CAM due to lack of scientific evidence. Doctor-patient communication on CAM can only be improved when doctors’ knowledge on CAM can be improved by providing necessary training on CAM.

**HEALTH CARE USE & POLICY STUDIES - Equity and Access**

**PHP26:** HEALTH IMPLICATIONS OF THE MTM ELIGIBILITY CRITERIA IN THE AFFORDABLE CARE ACT ACROSS RACIAL AND ETHNIC GROUPS

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**OBJECTIVES:** Non-Hispanic Blacks and Hispanics are less likely than non-Hispanic Whites to be eligible for U.S. Medicare medication therapy management (MTM) services. The objectives for this study were to determine (1) racial/ethnic disparities in meeting MTM eligibility criteria as stipulated in the Patient Protection and Affordable Care Act (PPACA); and (2) whether there would be greater disparities in health/economic outcomes among MTM-ineligible than MTM-eligible groups (if so, the PPACA MTM eligibility criteria may aggravate existing disparities in these outcomes). **METHODS:** Medicare Current Beneficiaries Survey (2007-2008) was analyzed. PPACA MTM eligibility was compared between Whites and minorities using logistic regression. Various other regression models were used for other study outcomes (measures for health status, health services utilization/costs and medication utilization patterns). To determine difference in disparities across MTM eligibility categories, interaction terms were included between dummy variables for race/ethnicity and MTM eligibility and were interpreted on the multiplicative term and using marginal effects. **RESULTS:** The sample consisted of 12,966 Medicare beneficiaries (weighted to 51,635,149). Blacks and Hispanics were less likely than Whites to meet PPACA MTM eligibility criteria (adjusted odds ratio [OR]=0.66 [P<0.05] for Blacks, and OR=0.62 [P<0.05] for Hispanics). Racial and ethnic disparities in self-perceived health status (SPHS), activities of daily living (ADLs), and instrumental ADLs were greater among the MTM-ineligible than the MTM-eligible populations (e.g., for SPHS, difference in marginal effects between Whites and Blacks=27.25 [P<0.01] across MTM eligibility categories, and between Whites and Hispanics=20.62 [P=0.03]). Disparities were smaller in number of chronic conditions and number and costs of physician visits among MTM-ineligible compared to MTM-eligible populations. No other variables exhibited significant interaction effects. **CONCLUSIONS:** The PPACA MTM eligibility criteria is not an ideal alternative in resolving disparity issues associated with Medicare MTM eligibility criteria. MTM eligibility criteria which reduce rather than aggravate disparities have yet to be identified/devised.

**PHP27:** WITHDRAWN

**PHP28:** PATIENTS AND DOCTORS WORKING TOGETHER TO IMPROVE HEALTH SERVICE: DIFFICULTIES AND CHALLENGES IN BETWEEN IN CHINA

Jia P, Zhang L, **Mao X**, Zhang M, Sichuan University, Chengdu, China

**OBJECTIVES:** To conduct a survey of the possible factors that cause the tension between patients and doctors. **METHODS:** The survey including 16 items (8 for patients and 8 for doctors) was conducted in one of the Level A hospitals in southwest region of China for a total of 853 questionnaires with 580 for patients and 273 for doctors respectively. Microsoft Excel 2007 was used to perform data extraction and analysis. **RESULTS:** The survey yielded to 822 questionnaires with a 96.37% response rate. Most of the patients (93.19%) want doctors to seek their opinions when providing the treatment. While 61.48% doctors indicated it was difficult to share decision-making with patients. Account for 60.47% patients would like to obtain information from doctors. Whereas, 52.75% of doctors expressed that it was difficult to provide patient with high quality and reliable evidence or information. Twenty percent of the patients didn’t fully satisfied with the existing treatment, while 63% doctors indicated that it was difficult to meet patients’ desire. The reasons for the difficulty in communication were mainly about: short communication time (50.48%) and improper communication method (37.07%). Only 14.61% of doctors expressed that they had enough time to communicate with patients. **CONCLUSIONS:** Lack of ‘communication openness’ was identified as a major factor which hindered the shared decision-making. A successful bidirectional way to encourage shared decision-making to alleviate the current tense relationship for both sides is needed.
**PHP29: DRUG ACCESS IS IMPROVED BY THE ESSENTIAL DRUG SYSTEM AND “LOW-PRICED DRUG” POLICY IN CHINA**

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**INTRODUCTION:** (1) Since 2009 China had implemented national essential drug system, and issued first and second edition of NEDL (National Essential Drugs List) respectively in 2009 and 2013, which respectively covered 307 drugs and 520 drugs. (2) With development of Chinese healthcare reform, planning low-priced drug policy and adjusted essential drug system will impact on drug access. **OBJECTIVES:** To describe Chinese policies’ development for promoting drug access, analyze the policies’ impact and potential lacks. **METHODS:** Through collecting relevant policies from national departments and 31 provinces, apply descriptive statistics and comparison to summarize these policies’ impact. **RESULTS:** (1) On May 2013 China NHFPC had released the second edition of NEDL, which increased to 520 drugs and allowed all provinces to implement after appropriate addition. Until the end of February 2014, nine provinces in China had supplemented average 251 drugs (average 121 western medicines and 130 TCM) on the basis of 520 drugs. The most was 535 in Xinjiang and the least is 57 in Gansu. (2) Meanwhile, China NDRC was planning to introduce low-priced drug list covering 890 drugs, the price control of which will be released if average daily cost is less than 3 RMB for western drugs or 5 RMB for TCM. (3) On February 27, 2014 Guangdong province had released “low-priced drugs list of non-essential drugs” including 1103 drugs, then plus essential drugs in the province, relatively cheap drugs that patients could afford are theoretically up to 1902. **CONCLUSIONS:** (1) These two policies had provided quantitatively safeguard for patients access to relatively cheap drugs close to 2,000. (2) Chinese “parallel development” policy for TCM and Western Medicine will be insisted on for a long term. (3) It needs more scientific mechanism designed to avoid the lacks of “double envelop”tendering and distortion of doctors’ income.

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**PHP30: WITHDRAWN**

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**HEALTH CARE USE & POLICY STUDIES - Formulary Development**

**PHP31: DRUG ACCESS THROUGH SHARING PUBLIC AND INDIVIDUAL RESPONSIBILITIES IN THE PUBLIC HEALTHCARE SYSTEM OF SINGAPORE**

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**OBJECTIVES:** Singapore ranks 6th in world’s health systems by WHO, yet spends proportionally less on health than any other high-income countries. We aimed to investigate how drugs are accessed and financed through the public healthcare system in Singapore **METHODS:** Secondary research was conducted to identify and review relevant policy documents, published guidelines and reports on healthcare financing and drug access in the public healthcare setting. Relevant information was extracted and analysed independently by 2 reviewers with verification by a third reviewer. **RESULTS:** The MOH maintains a Standard Drug List (SDL) which is divided into two parts, SDL 1 and SDL 2. Drugs included in SDL 1 follow closely WHO’s Essential Drug List while SDL 2 was introduced later to subsidise some expensive drugs. There are currently about 570 drug preparations listed in SDL. Subsidised patients pay S$1.40 per item for drugs in SDL 1 and 50% of the cost for drugs in SDL 2 by out-of-pocket or through their own or family members’ Medisave accounts. Non-subsidised patients pay the full cost of drugs in SDL. All patients pay the full cost for drugs not included in SDL. MediShield a state-run opt-out medical insurance scheme designed to cover medical expense including medications that Medisave alone would not be sufficient to cover. For those who cannot afford the subsidised charges, despite Medisave and MediShield coverage, Medifund is an endowment fund set up as a safety net to help needy Singaporeans. In 2010, Medication Assistance Fund (MAF) was launched to help eligible patients pay for selected expensive non-SDL drugs. MAF is means tested with up to 75% subsidy involving case-by-case evaluation for patients’ eligibility. **CONCLUSIONS:** The drug formulary and access schemes reflect the philosophy of shared responsibilities of public and individuals toward health in the public healthcare delivery in Singapore

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**HEALTH CARE USE & POLICY STUDIES - Health Care Costs & Management**

**PHP32: EVALUATION OF THE ECONOMIC IMPACT OF SPECIALIST OUTPATIENT CLINIC PHARMACY INTERVENTIONS IN A TERTIARY INSTITUTION, SINGAPORE**

Lim SH, Chen LL, Tee FM, Ngan AM, Kong MC, Singapore General Hospital, Singapore, Singapore
OBJECTIVES: To evaluate the economic impact of Specialist Outpatient Clinic (SOC) Pharmacy interventions

METHODS: A retrospective study in Singapore General Hospital (SGH) SOC Pharmacy on the interventions made with physicians, between Aug 2012 and Oct 2012. Each intervention was analysed and assigned with an Estimated Cost of Avoidance (ECA) level, consented to by 3 pharmacists with varying clinical experience from 2 years to 15 years. The ECA level ranges from 1 to 8, with 1 having the least economic impact and 7 having the greatest economic impact. An ECA level of 8 has no economic impact as it signify non-acceptance of interventions by physicians. Subsequently, the economic impact per month is calculated by the total number of interventions in each ECA level, multiplied by the respective cost of avoidance, pre-determined for each ECA level based on national / institution standards, in Singapore Dollars.

RESULTS: The economic impact of SOC Pharmacy interventions is estimated to be ~ SGD 900,000 over 3 months, with an average of ~ SGD 300,000 per month. With an average of 23000 prescriptions per month, it is estimated that our SOC Pharmacy interventions saves ~ SGD 13 per prescription. Unlike traditional, direct methods to estimate the economic impact of pharmacy interventions, our results highlighted a great portion of cost savings to both institutions and patients, which are often neglected. CONCLUSIONS: Interventions performed by Pharmacy staff have a great impact on cost savings to institution and also patients.

PHP33: ESTIMATING THE COSTS OF SPECIALIST OUT-PATIENT SERVICES IN A PUBLIC HOSPITAL

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OBJECTIVES: Healthcare services in Malaysia are widely available and accessible at a minimal cost. However, in pursuing with the healthcare reform, policy-makers and hospital managers need to know the unit cost for the purpose of planning and efficiency of providing the services. This study estimated the cost of out-patient services in a public hospital

METHODS: The study was conducted in a 341 bedded hospital that provide secondary level care to 24,486 in-patients and 127,389 specialist out-patients in 2010. The costs were estimated using a step-down approach where the costs were allocated to the different cost-centres. Capital costs were annualised cost of capital item with life expectancy of more than 1 year and recurrent cost were all inputs consumed within a year. Total costs were then allocated to the in-patient and out-patient services based on historical financial data with a ratio of 1:4. This was then followed by a stepwise approach of allocating the ancillary department cost centres to the clinical department cost centres. The unit cost per patient visit was calculated based on the number of visits for each department. Base year of 2010 was used to calculate the cost and patients visits. Costs were calculated from the perspective of the hospital.

RESULTS: The cost per visit to the out-patient department averaged at MYR 96.83 (USD 29.34). The cost per visit to the medical department and surgical department was MYR 138.66 (USD 42.02) and 273.39 (USD 82.84) respectively.

CONCLUSIONS: The findings provide an estimate of the costs for out-patient visit. At the current minimal fee of MYR 5.00 (USD 1.5), the Ministry of Health is subsidising more than 95.0% of the healthcare cost for each patient. These estimates provide the policy-makers with an understanding of the cost data should they need to establish a cost basis for payment rates.

PHP34: HOW THE IMPLEMENTATION OF DRUG ZERO MARKUP POLICY WILL AFFECT HEALTH CARE EXPENDITURE IN HOSPITALS: OBSERVATION AND PREDICTION BASED ON ZHEJIANG MODEL

Liu S, Xu H, CUI X, Qian Y, Sanofi China, Shanghai, China

OBJECTIVES: With the roll-out of public hospital reform in China, several provinces have started to implement the zero markup pilots in both municipal- and county-levels. As the pioneer, Zhejiang is the first pilot province that has zero markup policy fully implemented in all levels. The aim of this study is to investigate the outcomes of Zhejiang zero markup policy and thus to predict effect of the policy on health expenditure.

METHODS: Official documents of public hospital reform and relevant reports were revised for the detail of how the loss of hospitals resulted from the removal of markup was subsidized. Statistical comparison on expenses variety and physician behavior between Zhejiang and other cases in China was used.

RESULTS: Documents released by Zhejiang Government indicated the removal of drug markup should be subsidized through increasing service charge and governmental financial support. After 6 months of implementation, it was reported that drug expenditure in sample hospitals had decreased by 7.78%, with the percentage of drug expenditure out of total out-patient and in-patient expense reducing by 6.67% and 8.7% respectively. Overall diagnostic income increased by 425.31%, whereas incomes generated by care fee, surgery fee and treatment fee increased by 138.77%, 45.75% and 43.65% respectively. Patients visiting were also observed increased with a decrease in average amount per prescription.

CONCLUSIONS: Switch of a significant proportion of health care expenditure from drug expenses to service charge indicated changes in the structure of hospital’s income, through which the value of healthcare labor market was manifested and the non-profit nature of public hospitals was restored. However, hospitals may have incentives to increase the number of services they provide to patients, especially when local governmental subsidy is
not in place timely. It is predicted that such circumstance may frequently occur during rolling out the policy as local governments across the country differ in their financial capacity. As a result, the user charge of patient will still account for a significant proportion of total healthcare expenditure.

**PHP35: COMPREHENSIVE HEALTH INSURANCE SCHME AND HEALTH CARE UTILIZATION: A CASE STUDY AMONG INSURED HOUSEHOLDS IN KERALA, INDIA**

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**BACKGROUND:** Financial burden due to health care costs are high in India and a small percentage of the population are protected through any health insurance program. To protect people from high economic cost of illness, and reduces inequality in health care access government of Kerala introduced a comprehensive health insurance scheme. **OBJECTIVES:** This study tries 1. To explore the factors affecting the enrollment in Comprehensive Health Insurance Scheme, 2. To find out the health care utilization pattern among insured and associated factors. **METHODS:** Exploratory Case study, both quantitative and qualitative Methods used to track the objectives of the study. An interview conducted on 150 insured households. In-depth interviews conducted on 10 kudumbasree (women support groups) groups and 10 key informants’ interviews were also done. **RESULTS:** In addition to education and health risk, awareness about the scheme is high especially among females. About 97.4% of respondents were from poor families and, 40.7% don’t have any permanent income. APL family (above poverty line) registration is negligible (2.6%) only. Around 91.3% don’t have any other form of health insurance coverage. 42% respondents utilized the scheme and 34.0% of households have had history of chronic diseases. Majority of respondents (97.3%) registered through kudumbasree group. All respondents reported that coverage is not enough and out patients care should be included. Qualitative interviews revealed that many eligible members were excluded, and delay in settling of claims, provider choice is limited .Women empowerment in health related matters and enrollment is appreciable through Kudumbasree groups. **CONCLUSIONS:** Access to health care and access to medicine is increased. Concerted effort is needed for the successful implementation and sustainability of the scheme.

**PHP36: THE IMPACT OF THE INCOME PER CAPITA IN CHINESE FAMILY ON MEDICAL EXPENDITURE**

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**OBJECTIVES:** In this paper, we use the panel data of China Health and Nutrition Survey (CHNS) in 2000, 2004 and 2006 to study the impact of the income per capita on the medical spending. **METHODS:** Our analysis can be chiefly divided into two respects, the wealth effect of income and the depreciation effect of health capital. We use the theoretical model of Grossman’s health capital theory to analysis the relationship between income and medical expenditure. Then we use the 2 part model to empirical research the wealth effect and the depreciation effect of income separately. We also use instrumental variable to solve the endogenous problem. **RESULTS:** According to the study, the depreciation effect of health capital brought by the relatively lower income is not significant, but the income levels have significantly positive wealth effect on medical spending. The low-income people are inferior in terms of wealth and have heavier medical burden than high-income people. **CONCLUSIONS:** This result indicates that the low-income people may face shortage of health capital input, especially in poor rural area. Thus, the government should increase the low-income people’s medical input and improve their medical security system.

**PHP37: EVALUATION OF A MULTIDISCIPLINARY HOME-BASED MEDICATION REVIEW PROGRAM FOR ELDERLY SINGAPOREANS**

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**OBJECTIVES:** (i) To determine the prevalence of drug-related problems (DRPs) among patients referred to a multidisciplinary home-based medication review (HBMR) program for elderly Singaporeans. (ii) To evaluate the effectiveness of the program in resolving DRPs and reducing health service utilization (HSU). **METHODS:** A retrospective case series was conducted at an academic medical centre in Singapore. Patients referred to the HBMR program between March 2011 and December 2012 were included. Home visits were conducted by a multidisciplinary team of pharmacists and care coordinators. DRPs identified were categorised and their outcomes (resolved/ unresolved) recorded by the pharmacist. HSU behaviour, consisting of hospital admissions and emergency visits, was evaluated 6 months before and after the home visit. Summary statistics were used to
OBJECTIVES: To compare poison severity score with incidence of intermediate syndrome, ventilation and outcome in organophosphate poisoning. METHODS: A retrospective study was conducted in a tertiary care teaching hospital of South India. Data was collected retrospectively from medical record section from 2012 to 2013 in a suitable designed case record form. Data was analysed by using SPSS 20.0 with chi-square and one way anova. RESULTS: Total of 199 cases of organophosphate poisoning was documented out of which 135(67.8%) were males and 64(32.2%) were females. The average age in this group of patients was found to be 34.22 + 14.26. There was a reduction in mean (SD) hospital admissions (2.1 (1.5) vs 1.2 (1.5), p = 0.017) and emergency visits (2.1 (1.6) vs 1.2 (1.5), p = 0.005) post HBMR. Subgroup analysis of 62 patients with repeated admissions found a reduction in mean (SD) cost of hospitalisation post HBMR (SGD 17,423.69 (17,110.01) vs SGD 12,924.15 (14,564.49), p = 0.045). CONCLUSIONS: DRPs are prevalent among elderly Singaporeans. A HBMR program is useful in identifying and resolving DRPs, as well as reducing HSU.

PHP38: EVALUATION OF ADVERSE DRUG REACTION (ADR) MONITORING AND REPORTING SYSTEM IN CHINA

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OBJECTIVES: As a part of safety regulation, ADR monitoring plays an important role in the post-market surveillance. The purpose of this study was to evaluate China’s ADR monitoring system and to provide insights for improving the system. METHODS: ADR data (2008-2012) were collected from reviewing the National ADR Information Bulletin, Pharmacovigilance Express, Annual Report of National ADR Monitoring, and an on-site data extraction from the National Center for ADR Monitoring. Effectiveness assessment was made based on both internal (e.g., quality of ADR reports, information processing efficiency, and risk control actions) and external indicators (e.g., ADR reporting rate and serious ADR control). RESULTS: During 2008 to 2012, the number of ADR reports increased from 602,000 to 1,200,000, of which serious ADR reports accounted for 13.3% to 20.0%. Reports from medical institutions declined from 85.7% in 2008 to 74.8% in 2012, while reports from pharmaceutical manufacturers and sellers increased from 10.4% to 24.4%. For the scope of monitoring, 34 provincial and 333 municipal ADR monitoring centers had established by 2012. The new ADR Monitoring Network System began running in 2011 and the number of network users rapidly increased from 34,000 to 150,000. For information processing efficiency, the average time lag between ADR occurrence and reporting was 23.6 days for overall and 20 days for serious cases. Regarding risk control actions, 33 National ADR Information Bulletin and 38 Pharmacovigilance Express were issued during 2009 to 2012. Sales restricting or suspending were executed 4 times, along with 27 drug label modifications and 6 drug recalls. CONCLUSIONS: China’s ADR monitoring system have achieved a progress in recent years and functioned well to some extent. Efforts are needed to remove the barriers in ADR reporting and enhance risk control actions. More research on evaluating ADR monitoring system is also warranted.

PHP39: CORRELATION BETWEEN POISON SEVERITY ASSESSMENT AND OUTCOME IN ORGANOPHOSPHATE POISONING IN TERTIARY CARE HOSPITAL

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OBJECTIVES: To compare poison severity score with incidence of intermediate syndrome, ventilation and outcome in organophosphate poisoning. METHODS: A retrospective study was conducted in a tertiary care teaching hospital of South India. The team reviewed 1353 medications in total and identified 525 DRPs, corresponding to a mean (SD) of 4.9 (2.4) DRPs per patient. Of these, 34 (6.7%) and 174 (34.1%) DRPs were resolved with and without physician involvement respectively. The most common DRPs identified were failure to receive drug (n= 163, 31.0%) and untreated indication (n= 140, 26.7%). There was a reduction in mean (SD) hospital admissions (2.1 (1.5) vs 1.2 (1.5), p = 0.017) and emergency visits (2.1 (1.6) vs 1.2 (1.5), p = 0.005) post HBMR. Subgroup analysis of 62 patients with repeated admissions found a reduction in mean (SD) cost of hospitalisation post HBMR (SGD 17,423.69 (17,110.01) vs SGD 12,924.15 (14,564.49), p = 0.045). CONCLUSIONS: DRPs are prevalent among elderly Singaporeans. A HBMR program is useful in identifying and resolving DRPs, as well as reducing HSU.
PHP40: DETECTION AND EVALUATION OF THE MEDICATION ERRORS IN DIFFERENT HOSPITALS IN PROVINCE OF THE PUNJAB, PAKISTAN

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OBJECTIVES: The study was conducted to detect and evaluate the medication errors in different hospitals in province of the Punjab, Pakistan. METHODS: A retrospective study was designed involving different hospitals namely: Shaukat Khamn Memorial Cancer Hospital Lahore, Mayo Teaching Hospital Lahore, Allied Teaching Hospital Faisalabad, District Head Quarter Hospital Sargodha, and District Head Quarter Hospital Gujrat of province of the Punjab, Pakistan. Medication errors were detected from the records of the patients on period from October to December 2010. Errors were categorized into Dispensing Error, Administration Error. Descriptive statistics were used to describe demographic and disease characteristics of the patients. Percentages and frequencies were used to present the data. RESULTS: A total of 5972 (SKMCHL), 7950 (ATHF), 8249 (DHQS) and 6325 (DHQG) were registered. A sample of 4500 prescription from each of the hospital was taken for the study. A total of 50 (1.1%) of errors were detected form the record of Shaukat Khamn Memorial Cancer Hospital Lahore, in which administration errors were the highest (n=18). For Mayo Teaching Hospital Lahore there were 169 total errors were detected, in which prescription errors were the highest (n=60). For Allied Teaching Hospital Faisalabad there were 186 total errors were detected, in which administration errors were the highest (n=68). For District Head Quarter Hospital Sargodha there were 252 total errors were detected, in which administration errors were the highest (n=92), and District Head Quarter Hospital Gujrat there were 266 total errors were detected, in which administration errors were the highest (n=96). CONCLUSIONS: There were minimum numbers of medication errors observed in different hospitals, but the frequency of medication errors in private hospitals were lower then governmental hospitals. The roles of Pharmacists are needed to be enhanced so that these minimal errors should also be avoided.

PHP41: SURVEY FINDINGS ON EVALUATION OF TRAUMATOLOGIST’S WORKLOAD IN MONGOLIA

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OBJECTIVES: We aimed to study the workload of traumatologist’s and analyze legal documents and materials relevant to medical professionals’ workload and labor standards. METHODS: The research model of cross sectional study was utilized. In order to study the workload of doctors working at Trauma center, we used organization based observation and questionnaires to (1) define core job structure by observation, (2) to evaluate by questionnaires with indicators of “Job evaluation”. RESULTS: Data was collected through 8 hours of observation and assessment of documents: It was used to evaluate traumatologists’s workload in accordance with chronometrage method. In general, 385 minutes, which is after the deduction of 60 minutes of lunch break and short time breaks from 480 minutes of doctors’ daily working hours, should be used for work. However, the average daily working time for study participants was 454.8 minutes, which is 69.8 minutes more than the expected time. The daily workload by time is seen doctors use 75.4% of their time for health care services, 21.9% for filling initial formats, 5.4% for PH care services; and 4.2% for pre-service. Moreover, 3.7% of time was spent for downtime that was not caused by waiting for next client or nurses. CONCLUSIONS: 1. Traumatologists’s spend 71.7% of their working hours for provision of health care services and 15.6% for PH care service. It indicates a shortage of time for conducting sufficient PH activities which is the main duty in the workplace. 2. Many types of initial formats are requested at the primary health care settings and spending 21.9% of working hours affects to decrease in time for PH care and services.

PHP42: EVALUATING THE IMPACT OF DRUG DISPENSING SYSTEMS ON THE SAFETY AND EFFICACY IN A SINGAPORE OUTPATIENT PHARMACY

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OBJECTIVES: Automation of pharmacy processes can help to reduce medication errors as well as improve the efficacy of the medication picking, packing and labeling process. Since June 2012, two drug dispensing systems (DDS) began operations in the Singapore General Hospital Specialist Outpatient Clinic Pharmacy. This study sought to evaluate the impact of the DDS on safety and efficacy in the pharmacy. METHODS: The primary outcome of this study was the safety of the prescription filling process measured in terms of percentage prevented dispensing incidents contributed by DDS or manual picking of medications. The secondary outcome was the efficacy of the medication picking, packing and labeling process measured in terms of picking...
efficiency of each full time equivalent (FTE) when assigned to either the DDS or manual picking stations. Data pertaining to the primary and secondary outcomes between January and December 2013 were collected and analyzed. RESULTS: The median percentage prevented dispensing incidents per month committed by manual picking (0.27) was significantly higher (p < 0.05) than the DDS (0.00). DDS had greater picking efficiency with each FTE in the DDS having an average of 6175 picks per month which was significantly higher (p < 0.05) than each FTE in the manual picking stations which had an average of 4867 picks per month. CONCLUSIONS: In summary, installation of DDS in an outpatient pharmacy improved safety of the prescription filling process by automating the medication picking, packing and labeling process thus minimizing human errors. The efficacy of the medication picking, packing and labeling process was also improved by the DDS as there were continuous efforts to boost their productivity as well as being more reliable and able to handle fluctuations in patient load better.

PHP43: ASSOCIATION OF SEVERITY ASSESSMENT TOOL WITH THE OUTCOME OF ORGANOPHOSPHORUS POISONING IN TERTIARY CARE TEACHING HOSPITAL

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OBJECTIVES: The present study aimed to identify the relationship with severity of organophosphorus (OP) poisoning with its outcome. METHODS: A prospective, observational study was carried in a total of 250 OP poisoning patients reported to emergency ward of a tertiary care teaching hospital admitted during 2009 to 2013. The patient’s demographical, clinical characteristics and severity were assessed at admission. The severity of poisoning was compared with its outcome. RESULTS: The results showed that majority of OP poisoned patients were in the age group of 21-30 years, and males (65%) predominated over females. Clinical Severity assessment of OP poisoning was done by using GCS (Glasgow coma scale) and PSS (Poison severity scale). Majority of the patients fall under moderate to severe poisoning. The Initial severity of poisoning compared with the outcome of OP poisoning cases. Initial severity of poisoning was statistically significant with incidence of intermediate syndrome (p<0.05), need for the ventilation (p<0.05), complications associated with the poisoning (p<0.05) and percentage of mortality. It also helps in predicting the total hospitalization days and also to estimate the total hospital cost. CONCLUSIONS: Severity of poisoning is good predictor for assessing the outcome of the patients and it is statistically significant with outcome of poisoning. It can be a useful tool in predicting prognosis and outcome in OP poisoning.

PHP44: QUALITY OF HOSPITAL FOOD AND ITS SAFETY ASSESSMENT

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OBJECTIVES: The objective of this study is to assess the quality of Mongolian hospitals’ food and its safety. METHODS: Observation, questionnaire, measurement and documentation methods were used to collect data from 50 health organizations of all 3 levels at urban and rural areas of Mongolia. RESULTS: 41.2 percent of therapeutic diets existing in the hospitals have insufficient kitchen equipment, 12 percent lack availability of raw materials, 27% have deficient budget for food supply. Those insufficiencies cause the shortage of therapeutic diets ranges, their ingredients, nutrition and structure. Range of therapeutic diets varies depending on level of health organizations. There are no professional nutritionists at Primary level hospitals and 75 percent of their cooks are not trained sufficiently. 45.5% of secondary and tertiary level hospitals have professional nutritionists, and the rest of the hospitals employ physicians, pediatrics and food technologists. CONCLUSIONS: 1. The food inspection and regulation is weak because of the lack of qualified, nutritionists approved by the Minister (2007). 2. Therapeutic food costs are estimated at the same rate and its budget are limited.

PHP45: WITHDRAWN

PHP46: COST ANALYSIS OF PHARMACEUTICAL SERVICE IN HOSPITAL: A CASE STUDY IN A TERTIARY HOSPITAL IN SICHUAN, CHINA

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OBJECTIVES: To measure the cost of pharmaceutical service for outpatients and inpatients in a class A tertiary hospital in Sichuan, China, provide evidence for the measures of public hospital compensation after implementing drug sale with no markup. METHODS: the method of item cost accounting was used in term of prescription/order and medicines individually. Cost items were identified based on literature review and field investigation in hospital. Data was collected from related departments in sample hospital and analyzed using a series of pre-set statistic charts and formulas. RESULTS: The cost of pharmaceutical service in hospital included cost of drug dispensing, drug storage, which composed by manpower cost and material cost. In 2010, total 998014 prescriptions(outpatients) and 4266155 orders(inpatients) were dispensed, 5704696(outpatient) and 12304914(inpatients) medicines were sold in sample hospital. For drug dispensing cost, the total manpower cost was 13040.63$ for outpatients and 22392.61$ for inpatients, on average 0.16$/prescription or 0.028$/medicine for outpatients, and 0.063$/order or 0.022$/medicine for inpatients; the total material cost was 109163.87$ for outpatients and 31020.99$ for inpatients, on average 0.11$/prescription or 0.020$/medicine for outpatients, and 0.009$/order, or 0.003$/medicine for inpatients. For drug storage cost, the total manpower cost was 8212.09$, on average 0.0053/medicine, the total material cost was 15287.82$, on average 0.0008$/medicine. In sum, the total cost of pharmaceutical service in sample hospital was 58933.15$ in 2010, including 35433.24$ dispensing cost and 23499.91$ storage cost, on average 0.30$/prescription for outpatients and 0.09$ for inpatients, or 0.055$/medicine for outpatients and 0.031$/ for inpatients. Manpower cost composed 61.3% of pharmaceutical service cost for outpatients and 87.7% for inpatients. Sensitive analysis showed the salary level of hospital staff and professional was the key factor influenced the pharmaceutical service cost. CONCLUSIONS: Manpower cost was the main component of pharmaceutical service cost, measure should be taken to make up the insufficient of this part after implementing drug sale with no markup.

PHP47: INCIDENCE OF DRUG RELATED PROBLEM ADMISSIONS & EMERGENCY DEPARTMENT VISITS IN A SECONDARY CARE HOSPITAL IN SOUTH INDIA

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OBJECTIVES: To determine the incidence and types of emergency department (ED) visits and admissions due to drug related problems (DRPs) in a secondary care hospital, to assess the severity and preventability of these drug related admissions or visits, and to identify the drugs and patient groups that are most commonly involved. METHODS: Patients (n= 450) were selected randomly from patients presented to the ED during the study period (three month). Patient was eligible to be included if either visited ED or admitted due to DRPs. RESULTS: During the study period, 450 patients presented to ED were randomly selected with a mean age of 47.8 ± 27.7 years. One hundred and twenty of them were females (30%) and 280 were male patients (70%). Of these 450 patients, 38 (8.4%) were ED visits and 412 (91.6%) were ED admissions. Twenty five (5.6%) patients were exposed to ED due to non-drug related problems (NDRPs). About eighty- four percent (n= 32) of the DRP group were exposed to hospital admission while only 15.7% (n = 6) were ED visits. CONCLUSIONS: Most DRPs attributed to hospital admissions or visits were avoidable. Direct patient contact with pharmacist and physician was beneficial in providing a safe and effective therapy. The study addresses the proper use of medications to ensure the best outcomes of pharmacological interventions.

PHP48: UNDERSTANDING THE NEED AND VALUE OF SURROGATE ENDPOINTS FOR HEALTHCARE DECISION MAKING IN ASIA PACIFIC


OBJECTIVES: Given the increasing cost and complexity of executing clinical trials and deriving statistically significant clinical endpoints, payers and decision makers are increasingly looking towards surrogate endpoints for guidance in decision-making. Examples include progression free survival as a surrogate for overall survival for oncology products and blood pressure as a surrogate for a variety of cardiovascular endpoints. The purpose of this research is to evaluate the need for surrogate endpoints in healthcare decision-making in Asia. METHODS: A literature review and several telephone interviews were conducted with payers and clinicians to evaluate the current landscape of surrogate endpoints and their use in clinical decision-making in Asia. Pharmacoeconomic and regulatory guidelines were evaluated from China, South Korea, and Japan, to determine if there was any explicit statement regarding the acceptability of surrogates, the cost-effectiveness of their use, or other types of health economic modelling used to convert surrogates to hard endpoints. RESULTS: The majority of guidelines in markets evaluated mention the use of surrogate endpoints in some capacity; however, no guidelines contained an explicit statement about the acceptability of a surrogate endpoint in lieu of an established clinical endpoint. Payers acknowledge the importance of surrogate
endpoints, but note that there needs to be further research into the potential impact of substituting these endpoints in pharmacoeconomic and regulatory decision-making. **CONCLUSIONS:** The application and acceptance of surrogate endpoints in Asia is still in its infancy, which is analogous to the use of these endpoints in Europe and the United States. Further research is necessary to establish statistically significant surrogate endpoints, which would help ensure that advantageous clinical products are brought to market in a timelier manner and reduce the overall cost of clinical trials to healthcare systems.

**PHP49:** INVESTIGATING THE KNOWLEDGE OF PHARMACISTS ABOUT COSMETICS PRODUCTS IN PHARMACIES OF TEHRAN (IRAN)

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**OBJECTIVES:** This study aims to investigate the knowledge of pharmacists working in the pharmacies of Tehran about healthy beauty products. **METHODS:** For this reason, the survey of this study was completed by 200 pharmacists (105 males and 95 females) employed in the pharmacies of Tehran. The most important part of this study was preparing a valid, general and applied questionnaire. Ordinary Multivariate Linear Regression and Multivariate Ridge Regression Tests were used for data analysis besides descriptive indicators. **RESULTS:** The knowledge of pharmacists about properly usage of sunscreen cares, or suitable type of sunscreens was about 69.90%. In addition, results obtained from average responses to the questions of this study- about 31%- showed that the response to such items were very unsuitable. It was indicated that the knowledge level of pharmacists in the field of depilatories was very weak. **CONCLUSIONS:** Results of this study indicates this fact that the awareness of pharmacists about sunscreen cares was in average level. For depilatories, averagely 30% of pharmacists had acceptable knowledge and it wasn’t desirable. It was considered that there is only a significant relation between age of pharmacists and their knowledge about that. Increase in their age, will caused decrease in their knowledge to two products, sunscreen care and depilatory Products. We can conclude that having full and accurate knowledge of pharmacists about these products and promoting their scientific knowledge, is the first and most important step that causes properly usage of such products as well as preventing the side effects from abuse of such products and for highly consumed products such as sunscreen cares and depilatories.

**PHP50:** IMPLEMENTATION AND ASSESSMENT OF PERIODIC SAFETY UPDATE REPORTING SYSTEM AT TERTIARY CARE TEACHING HOSPITAL, KARNATAKA, INDIA: A DRUG CONTROLLER GENERAL OF INDIA INITIATIVE

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**OBJECTIVES:** To implement the PSUR system in all wards of hospital. Reporting of PSURs for all the running newly launched drugs since 2011 in hospital periodically to DCG(I), New Delhi and assessment of the PSUR system functioning in the hospital. **METHODS:** Prospective observational study. Drug safety reporting either manual or through online portal. Preparation and submission of PSURs as per Schedule Y of drugs and Cosmetics act, India. **RESULTS:** To implement the DCG(I) initiative PSUR program, one PSUR committee, one drug safety review panel and one Delphi panel for PSUR system assessment has been constituted. Drug safety reporting and assessment tools are prepared and validated. A manual reporting system of drug safety has been set up and one link on hospital intranet website will be very soon available for online drug safety reporting through each ward and departments of hospital. Necessary training on drug safety reporting is provided to all health care professionals. Online hospital information services are in use to track the prescription of these drugs to the in-patients and then, these patients are extensively followed for any drug related problem during their hospital stay. All the associated drug safety reports routed through wards to PSUR work station. The collected reports are assessed and coded using various scales, tools and softwares, e.g. Naranjo Scale, Hartwig severity scale and MedDRA coding software etc. PSUR system functioning in the hospital is assessed at regular time intervals through tool which is prepared and validated using Delphi technique. So far, since its inception two PSURs has been successfully submitted to DCG(I) at six months regular interval and third one is ready to report for next phase. **CONCLUSIONS:** The present pioneering hospital based PSUR setup will create an environment for healthy safety reporting and helps the regulatory authorities for safety related decisions.

**PHP51:** WITHDRAWN
OBJECTIVES: To study assessment and control the quality and the safety of hospitals in Mongolia. METHODS: The research has been conducted by cross-sectional study by collecting information according to the quantitative and qualitative method. RESULTS: In order to increase the quality and safety at the primary level hospitals the activity of special supporting (80.6%) and quality team control (66.7%) has been implemented, though, insufficient financing (33.3%) and professionals in quality control (19.4%) as well as special supporting activity has not been implemented (91.7%). The special supporting activity (87.0%) has been implemented (p<0.05) in the secondary level hospitals to increase the quality and safety, though, financing is insufficient (39.1%). The quality is conceptual idea, even though, this is a value that always could be felt and existed. The supporting activity (87.0%) and quality team (68.4%) are implemented (p<0.05) to develop the quality in the tertiary level hospitals, however, other activities that develop quality are not implemented. The participants in the study answered about the challenging issues are high at all hospital levels, such as long queue to receive health service (54.5%-76.5%), overload in the hospital (67.6%-81.8%) and referral between hospitals (45.5%-72.2%) as well as hospital professionals are susceptible to illness (31.3%-52.2%). CONCLUSIONS: Policy on quality and other related strategic documents are established 60-70% in the hospitals. Determination of health care and “determination of specialized health care standard through the diagnosis of the care” are insufficient at all level.

OBJECTIVES: The purpose of the study was identifying the main problems of improving health care quality, organizational safety and human resource. METHODS: - · Questionnaire with 15 questions to study human resource potency· - Financial statement balance of 2007 and 2012. · - Questionnaire with 12 questions to study medical equipments potency· Observational lists of internal and external environment safety of the hospitals RESULTS: · Totally 214 medical professionals were participated in the research: medical doctors 85 (39%), nurses 73(34%), administration staff 16 (7%), and other staff 40 (19%). · In 2007-2012 hospitals’ funding were increased up to 80%, whereas the number of birth increased up to 121%, number of surgeries increased up to 26% and number of inpatient clients up to 19%. It’s important to confirm the work position for medical equipment specialists and engineers according to the demands of medical equipment. CONCLUSIONS: It is concluded that there is increasing need of consideration on the number of nurses, doctors and other health professionals. The result showed that it is urgent to run policy to assess the employees’ skills and supporting, appraising system should be open for everybody. Therefore 25% of the employees don't recognize the organization mission, security policy and the decision making system is highly relevant to money. Amount of funding has improved but it still inadequate. Funding is still inadequate even it has improved between 2007-2012. Domestic and foreign training is not enough for medical equipment specialists and engineers. Medical equipment technician’s skills are not adequate. Medical professionals’ knowledge about external and internal environment security are ineffective. Hospitals external conditions got worse to 27% and internal safety conditions worsen to 20%. Therefore there is a need to organize trainings for administrative staffs and workers.

OBJECTIVES: To describe and analyze specific aspects of pharmacoeconomic research and application in 10 Asian countries in recent years from 2003 to 2013. METHODS: Our study concentrated on 10 Asian countries, including China, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand and Vietnam. Literature was collected and reviewed systematically from United States National Library of Medicine- PubMed. Grey literature was also taken into account. After screening, a total of 288 pharmacoeconomic research articles and 38 pharmacoeconomic application studies were included. This review followed the Cochrane systematic review guidelines and PRISMA flow diagram. Publication was analyzed by regions, economic evaluation techniques used, drug groups analyzed. The status of these pharmacoeconomic studies was
OBJECTIVES: There is an increasing in the number of pharmacoeconomic studies in Asian countries in the later period (2008-2013) compared with the first five years considered (2003-2007). Most pharmacoeconomic studies were carried out in Japan (26%), China (22%), Thailand (15%), Taiwan (12%) and South Korea (10%). Cost-effectiveness analysis and cost-utility analysis were the most popular economic evaluation techniques used in 84% of total studies published. Antifungivatives for systemic use, antineoplastic and immunomodulating agents, nervous system and cardiovascular system drug groups were mostly researched and accounted for 41.79%, 19.78%, 10.45% and 8.21%, respectively. Status of pharmacoeconomics applications varied among countries. CONCLUSIONS: The number of pharmacoeconomic studies in Asia increased from 2008 onwards. The studies were mostly carried out in 5 specific countries (85% total) and concentrated to 4 specific drug groups. Types of pharmacoeconomics applications and research foci differ considerably amongst Asian countries.

PHP55: AN ANALYSIS OF PRICING PREMIUMS GRANTED THROUGH SUBMITTING LOCAL RCT AND PHARMACOECONOMICS DATA IN TAIWAN

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OBJECTIVES: The purpose of this study was to understand the drivers of the pricing premiums granted for submitting local RCT and / or local pharmacoeconomics (PE) data during the Taiwanese reimbursement assessment process. METHODS: The 11 products that submitted local RCT and / or local PE data in their reimbursement submission to the NHIA between January 2012 and March 2014 were analysed in this study. RESULTS: Of the 6 products that submitted local RCT data, 3 received the maximum 10% pricing premium for submitting these data. Abatacept was not granted any premium for not being a new molecule and benidipine hydrochloride was not granted any premium since its price comparator was an existing product that was already priced based on local data. Sorafenib has yet to receive a decision for the premium granted. Of the 7 products that submitted local PE data, 5 received a premium, 2 received a 1% and 5% premium respectively for submitting data with high uncertainty, 1 received a 2% premium for using inappropriate comparator dosage in the analysis, and 2 received a 5% premium for submitting data that were well accepted by the NHIA. 2 products did not receive any premium, as their data were considered to be incomplete or inappropriate. All of the submissions highlighted the product’s cost-effectiveness against the comparator. CONCLUSIONS: A 10% pricing premium through local RCT data is likely achievable as long as the product with local RCT data is a new molecule whose comparator has not been priced based on its local data. On the other hand, achieving the maximum 10% pricing premium for submitting local PE data seems difficult to achieve; as of now, a 5% premium seems to be the maximum achievable. A premium as low as 1-2% is likely if there is any uncertainty in the data.


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OBJECTIVES: In Taiwan, the Second-Generation National Health Insurance (2G-NHI) Act was implemented since Jan. 1st, 2013. Thereafter, listing and reimbursement of new products are 2-stage assessments performed by the Expert Advisory Committee (EAC) and Pharmaceutical Benefits Reimbursement Scheme (PBRS) of National Health Insurance Administration (NHIA). EAC primarily evaluates clinical comparative effectiveness and safety of new products, and assessments are rated as Category 1 (substantial improvement), 2A (moderate improvement) or 2B (similar) compared to current standard therapy which are also used for pricing comparators. PBRS further appraises the EAC’s suggestions and make final reimbursement recommendations. The objective of this study was to analyze the trends of the PBRS appraisals from Jan. 2013 to Feb. 2014 since implementation of the 2G-NHI Act. METHODS: A total of 33 new drugs underwent EAC assessments and PBRS appraisals were reviewed for their Categories. Further analysis was conducted to understand the trends based on the therapeutic indications and comparators. RESULTS: There were 21 new drugs granted reimbursement recommendations from PBRS joint meeting. Approximately 57% of them were rated as Category 2B, 38% as Category 2A, and only 5% as Category 1. A new trend revealed that Category 2B new drugs were easier to be listed and reimbursed. The only Category 1 new product is an orphan drug in western countries used to mobilize haematopoietic stem cells for autologous transplantation purpose. Almost all Category 2A new drugs fulfilled the unmet medical needs for infection control, tocolytic therapy in preterm labor, or new mechanism for cardiovascular disease. CONCLUSIONS: Category 2B new drugs with less financial impact to NH system seem easier to reach listing and reimbursement goal in the 2-stage assessments. Reasonable budget impact and cost-effectiveness
analysis are as important as robust comparative effectiveness data for PBRS appraisals. There is a need for long-term observation and further analysis.

**PHP57: AN ANALYSIS OF THE KEY VALUE DRIVERS FOR HTA ASSESSMENTS IN TAIWAN**

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**OBJECTIVES:** The purpose of this study was to identify the main value drivers behind the innovation category designations (1, 2A, 2B) assigned during the Taiwanese reimbursement process. **METHODS:** All products assessed for reimbursement from January 2012 to March 2014 by the National Health Insurance Administration (NHIA) were considered in this analysis. The details of the assessments have been extracted from the NHIA meeting minutes and Center for Drug Evaluation (CDE) reports. **RESULTS:** Category 1 designations are given to drugs that show "substantial clinical improvement", Category 2A designations to drugs that exhibit "moderate improvement", and Category 2B designations to drugs that provide similar clinical value to comparators. Since 2012, 94 of 113 products received positive decisions from the NHIA. 19 received Category 2A (26%), 51 received Category 2B (71%), while 2 received Category 1 (3%). Most Category 2B drugs were considered as alternative therapeutic options with similar efficacy (94%) to an existing product; others were considered to provide better clinical value but a larger budget impact or higher price (6%). Most Category 2A drugs were considered to provide additional efficacy, safety, or convenience over the comparator (53%). Of the 2 Category 1 products, plerixafor was rewarded for its curative potential in hematologic malignancies, as well as its potential reduction of hospitalisation costs; azacitidine was rewarded for being a first-in-class therapy for Myelodysplastic Syndrome. 22 of 94 products did not receive any category, as they were indication expansions. 17 of 113 assessed products received negative decisions due to their significant budget impact (59%) or lack of clinical benefit (41%). 2 out of 113 decisions are pending. **CONCLUSIONS:** Both clinical and economic considerations heavily drive the assessment outcomes in Taiwan. In order to achieve a positive assessment outcome in Taiwan, a product needs to provide a combination of favourable clinical and economic data.

**PHP58: FROM REGULATORY APPROVAL TO SUBSIDISED PATIENT ACCESS IN THE ASIA-PACIFIC REGION: A COMPARISON OF SYSTEMS ACROSS AUSTRALIA, CHINA, JAPAN, KOREA, NEW ZEALAND, TAIWAN AND THAILAND**

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**OBJECTIVES:** Pharmaceuticals can be marketed when regulatory approval has been obtained. However other barriers may need to be cleared before patients can gain access to subsidised medicines. In the Asia-Pacific region these subsidised systems are often government programmes and range from national tax funded schemes (Australian Pharmaceutical Benefits Schedule) through to coverage of a specific population (Thailand Social Security Scheme for office workers). Navigating these systems can be as simple as submitting a pricing application or as complex as a full scale societal health technology assessments. The aim of this study is to compare the processes and timings between regulatory approval and subsidised access to medicines across the Asia-Pacific region. **METHODS:** Reimbursement guidelines from seven different jurisdictions in the Asia-Pacific region were reviewed. Differences in processes and time from regulatory approval to subsidised access were captured between Australia, China, Japan, Korea, New Zealand, Taiwan and Thailand. **RESULTS:** Only Australia and Taiwan allows evaluation of reimbursement in parallel with regulatory evaluation. Parallel processing has been discussed in Korea and Taiwan but has not been implemented. The time between regulatory approval and subsidised access differs across jurisdictions. In general additional processes such as health economic evaluation, pricing negotiation, budget approval and administration prolong time to subsidised access well beyond 6 months post regulatory approval. Japan is unique as a reimbursement price should be published within 60 days after regulatory approval. **CONCLUSIONS:** While most jurisdictions in the Asia-Pacific region differ in terms of regulatory and access approval processes all but one of the jurisdictions included in this study require a regulatory approval letter before reimbursement can be sought. Parallel processing can shorten time for patients to access new medicines however other factors such as health economic evaluation, pricing negotiation, budget approval and administration are also important.

**PHP59: A COMPARISON OF ASIAN AND GLOBAL PHARMACEUTICAL PRICES USING AN EKS METHOD**

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OBJECTIVES: The study aimed to determine the differences between Asian and Global Pharmaceutical prices. METHODS: The indices were developed using the Fisher Elteto, Koves, Szulc (EKS) method. The EKS method is widely used by the Organisation for Economic Co-operation and Development (OECD) but has not yet been applied to pharmaceutical prices. IMS MIDAS data was used to estimate prices and sales volumes. In order to construct the indices, the products needed to be defined as like. The definition of like in this study was based on molecules which are deemed to deliver equivalent health outcomes. The price indices were developed for countries in World Health Organisation (WHO) regions. The analysis compares prices across 56 countries over the period from 2005 to 2011 and included 42 molecules which were sold in each country for the period. The countries were organised into the WHO regions. In total, around 1,000,000 unique national, product brands were accessed for the analysis. RESULTS: Pharmaceutical price indices vary substantially between regions. The Asian regions recorded the lowest prices. The indices were as follows: South-East Asian Region D 0.21; South-East Asian Region B 0.31; European Region B 0.37; Western Pacific Region A; 0.44 European Region A 0.45; African Region E 0.46; European Region C 0.49; Western Pacific Region B 0.51; Eastern Mediterranean Region D; 0.54; Region of the Americas D 0.87; Region of the Americas B 0.90; Eastern Mediterranean Region B 1.11. CONCLUSIONS: This is the largest exercise ever undertaken in comparing international pharmaceutical prices. It also employs a more robust method than previous studies. The analysis shows Asian region pharmaceutical prices are the lowest in the world.

PHP60: PRINCIPLES OF EXTERNAL PRICE REFERENCING SYSTEM – A REVIEW

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OBJECTIVES: Review existing literature to understand the prevalent external price referencing (EPR) systems and to audit for directionality of the current mechanisms against the components defined in WHO/HAI (World Health Organization/Health Action International) project on EPR. METHODS: English publications between October 2000 and March 2013 investigating EPR systems were identified through EBM Reviews – Cochrane Database of Systematic Reviews, NHS Economic Evaluation Database; Embase; and MEDLINE searches. Publications on EPR systems were analyzed in three relevant groups. Qualitative analysis was done to audit the directionality. RESULTS: 101 out of 598 articles were found to be relevant and were placed and allocated into three relevant focus groups - 43 general, 44 individual country, and 14 disease specific reference pricing articles. Regional distribution of publications was as follows: 49 RE (Region Europe), 12 Americas, and 15 Asia-Africa-Oceania. Number of publications over years was ranging from 3 to 10 with a significant peak in 2011 at 21. 52 articles were found to have directionality against the components defined in WHO/HAI project, and the use of several approaches for setting the price was commonly discussed. Use of EPR was discussed for both patented and generic drugs. Publications showed directionality towards use of several approaches for EPR and were directing the use of EPR for both patented and generic drugs. With regards to type of price level used, ex-manufacturer price was the dominant option. The formula to derive the target price was directing towards average price. CONCLUSIONS: There is a growing trend towards increase in number of publications on EPR with lead from RE. A number of discussions around the components raised on WHO/HAI Project indicate that it is a useful tool to lay out options for ERP. Growing number of publications will provide more robust evidence for commonly used options of each component.

PHP61: ECONOMIC IMPACT OF NEW RURAL COOPERATIVE MEDICAL SCHEME IN CHINA

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OBJECTIVES: In 2003, China introduced a heavily subsidized voluntary health insurance program, the New Rural Cooperative Medical Scheme (NRCMS). This paper evaluates the effectiveness of the NRCMS by assessing its impact on health care utilization and out-of-pocket health expenditure. METHODS: We employ propensity score matching (PSM) with single difference and double difference based on data from China Health and Nutrition Survey (CHNS) from 1991 to 2009. To check the robustness of our results, we also use a bounding approach to test how strongly an invariant unobserved variable influences the selection process. For the out-of-pocket payments (OOP), a two-part model is used to correct for the large number of zero values and the skewness of the data. RESULTS: We find no evidence of an increase in the utilization of formal medical care and preventive services. There is a large, positive effect on the utilization of village clinics, and large, negative effects in town hospitals, county hospitals and city hospitals. For the two-part model of out-of-pocket (OOP) payments, we find a small, positive impact on the probability of positive OOP payments and a small, negative impact on the actual level of OOP payments. All the
effects on the incidence of catastrophic medical payments based on different thresholds are insignificant. CONCLUSIONS: The results indicate that the NRCMS did not increase the overall utilization but directs people from high-level to low-level medical facilities. The substitution effect among different levels of facilities may be due to more generous reimbursement in low-level facilities. In addition, there is no reduction on the out-of-pocket medical payments or the incidence of catastrophic health payments. Therefore, the impact of NRCMS on increasing utilization and reducing financial risk is found to be limited. The lack of effectiveness may be attributed to a relatively low premium and shallow benefit coverage.

PHP62: REGULATORY APPROVAL TO PATIENT ACCESS, AN EVALUATION OF EU5 AND US NATIONAL TIMING DIFFERENCES

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OBJECTIVES: To examine the time between regulatory approval and launch/pricing and reimbursement (P&R) approval in the EU5 and US. METHODS: New molecular entities, formulations and combinations approved by the EMA between January 2009 and December 2013 were included in the analysis. FDA approval dates were retrieved and launch dates were gathered as follows: USA: Date wholesale acquisition cost was effective; UK/Germany: Product availability/introduction; France: P&R decision (Agrément collectivités/date published in Journal Officiel); Italy: First P&R Decree publication on Official Gazette; Spain: Date of commercialization; and Time comparison for general medicines vs. orphan and oncology indications was made including shifts over time. RESULTS: Time from approval to launch in the US averaged 39 days (17 days for oncology and 14 days for orphan drugs). Across the EU5, Germany was fastest while Italy was slowest (16 vs. 66 weeks). Other factors considered included: UK reimbursement decisions by SMC and NICE often lengthened time to access; Germany: Time to market has increased by ~8 weeks since the 2011 introduction of AMNOG; Italy and France have special license programs which can shorten time to market for products addressing unique needs or populations; and In Spain commercialization of orphan and oncology drugs takes longer than general medications. CONCLUSIONS: Average time to market in the US vs. EU5 countries is considerably different. In the EU5, the German and UK launch on average were within 4 to 6 months of authorization; Italy was greater than a year. Launch times for orphan and oncology drugs also differ based on priorities set within health systems. Differences in country and product type have led to different market access timelines and regulatory changes will only increase these disparities.

PHP63: EFFECTS OF DRUG COST SHARING POLICY ON THE DRUG USE, FINANCIAL RISKS AND MORAL HAZARD FOR THE HEALTH INSURANCE BENEFICIARIES

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OBJECTIVES: To describe policies of drug cost sharing in health insurance schemes and how the authors have assessed the effects where available. METHODS: A systematic review was conducted in 2009 and updated in 2013. RESULTS: Totally 28 studies were included. 1) Some insurance schemes introduced a new drug cost sharing program, the increase rates of total number of prescriptions were smaller compared with the non cost-sharing group; At the same time, prescription drug cost sharing also decreased use of essential drugs or adherence to medications which induced adverse effects on vulnerable population such as the poor, the elderly and patients with chronic diseases. Average prescription cost increase rate was lower in the cost sharing group than the non cost-sharing group. 2) For Different Tiers of Prescription Copayment System, there were some positive effects showing that the consumption of generic drugs increased in both single-tired and three-tiered groups, especially higher proportion in the three-tiered system. Higher levels of prescription drug cost sharing actually decrease inappropriate drug use with a relatively inelastic price elasticity of demand. For the patients with chronic diseases such as heart failure or diabetes, lower adherence of medication followed by higher copayment would increase risk of hospitalization. Different levels of copayment could control moral hazard of the patients with decreased rates of switching to a relatively more expensive drug and an increased rate of switching to drugs of equal or lesser cost. 3) Increasing cost sharing level was followed by decreasing the utilization of prescription drugs and increasing in out of pocket especially for the vulnerable population. CONCLUSIONS: To increase or decrease the level of cost sharing could change the beneficiaries’ behavior, the vulnerable population were more sensitive than the general. Different levels of cost sharing method seem as one of the successful tools to control moral hazard.
**PHP64: AN ANALYSIS OF THE DRIVERS OF PRICING PREMIUMS GRANTED TO INNOVATIVE PRODUCTS IN JAPAN**

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**OBJECTIVES:** The objective of this study was to identify key value drivers to achieve pricing premiums through the similar efficacy comparator pricing method for innovative products in Japan. **METHODS:** We analysed all products that were priced by the Central Social Insurance Medical Council (Chuikyo) using the similar efficacy comparator pricing method (I) from January 2010 to March 2014. Where relevant, the pricing premium and premium criteria met within each category were analysed in detail. **RESULTS:** Of 102 products assessed, 36 products (35%) were granted pricing premiums, which ranged from 5-50%. The most common premium category was utility (69%), followed by paediatric use (19%) and marketability (17%). Four products fell into two categories and were granted both pricing premiums. Of the seven orphan drugs assessed, six gained a 10% marketability (I) premium, while one achieved marketability (II) with only a 5% premium, as the orphan indication was not its main indication. Paediatric-use premiums ranged from 5-10%, with higher premiums dependent on unmet need and availability of similar therapies. 5-15% utility (II) premiums were achieved by products with improved MOA, efficacy, safety or therapeutic method. Only two products, fingolimod and telaprevir, were designated as utility (I) innovations, which qualified them for pricing premiums of 35-60%. Fingolimod was the first oral therapy approved to treat relapsing forms of multiple sclerosis. Its novel MOA, improved administration and efficacy, as well as an orphan indication, secured fingolimod a 50% pricing premium. Similarly, telaprevir was also valued by Chuikyo for its novel MOA and significant clinical improvement over the standard of care, resulting in a 40% pricing premium. **CONCLUSIONS:** Clinical benefit and unmet need are the main value drivers for premium pricing in Japan. To achieve >20% pricing premium, a product needs to meet at least two utility premium criteria to be categorized to utility (I).

**PHP65: CHINA CRITICAL ILLNESS INSURANCE POLICY - THE RECENT DEVELOPMENTS AND PROSPECTS**

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**OBJECTIVES:** China has a complex system to provide basic medical insurance (BMI) for over 95% population. However 35% of the total medical expense is out-of-pocket. To relieve people’s burden, China implemented critical illness insurance from 2012. Critical illness insurance is based on BMI and aims to provide further protection for urban and rural unemployed residents. The article aims to summarize the plans of critical illness insurance from 24 provinces, to conclude the developments and prospects. **METHODS:** The 24 plans were published from October 2012 to December 2013. The participants of the insurance are urban and (or) rural residents. All plans determined that the payment amount will be segmented calculated. Besides, commercial companies are responsible to provide insurance. Thus the article summarizes and compares the financing level, deductible and cap lines. **RESULTS:** 18 provinces determined the financing level: 11 provinces were from 10 CNY to 60 CNY per capita annually; the rest equaled 5% to 10% of BMI premium. 22 provinces determined deductible: 15 provinces calculated deductible based on urban per capita disposable income (or rural per capita net income). 7 provinces determined cap line: 4 provinces were from 200 000 CNY to 400 000 CNY and the rest were no cap. **CONCLUSIONS:** 1. In all related provinces, the financing level is relatively low, while segmented calculation and the cap line lead to high payment. The main challenge is how to balance the income and expenditure of the insurance. 2. Since the central government did not define what critical illness insurance can reimburse, some provincial governments strictly control the range. In some other provincial governments, like Anhui, the range of the insurance is too wide. However, considering the insurer is commercial companies, the gaming between companies and governments will continue.

**PHP66: WHY IT IS DIFFICULT FOR EUROPEAN TO UNDERSTAND THE CHINESE MARKET ACCESS PROCESS?**

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**OBJECTIVES:** China is the third largest pharmaceutical market in the world. The aim of this study was to describe Chinese reimbursement process, assess current policies and provide the authors’ view of Europeans difficulties to understand the Chinese market access. **METHODS:** A review was done using the latest-released official documents published by January 2014, to collect information regarding Chinese healthcare reimbursement pathways with the perspective of market access. Information was analysed based on authors’ expertise, summarising the general pathway, and comparing with European routine. **RESULTS:** Three stakeholders participate in Chinese market access process: Ministry of Health (MoH) (supporting introduction of new healthcare technologies), National Development and Reform Commission (referencing prices based on
technical information), and Bureau of Human Resources and Social Security (representing budget holders; focusing on cost containment). Differences between Chinese process and European routine result in European hardly understanding Chinese market access process: 1>in China, key opinion leaders introduce the dossier whereas in Europe, companies introduce the dossier. 2>in China, completely new healthcare technologies need real life pilot studies (RLPS) pre-requisitely to address the feasibility and impact of introduction, whereas in Europe, RLPS studies are requested after a granted market access. 3>in China, reimbursements start from regional level as pilot in 3 regions before becoming national whereas in Europe they start from national before regional contact. 4>in China, the three stakeholders negotiate internally reimbursements, prices and access conditions, whereas in Europe, companies negotiate with payers. 5>Chinese MoH has an envelope for direct funding of healthcare technologies through procurement, whereas no comparable envelope held by similar stakeholders in Europe. CONCLUSIONS: Chinese market access is difficult for European to understand because of fundamental differences in the paradigm sustaining pricing and reimbursement (P&R). Clarifying the rational for the differences in paradigm is a prerequisite for European understanding of the P&R in China.

PHP67: DEVELOPING A PATIENT CENTRED MODEL FOR CLINICIANS TO INDIVIDUALISE COST EFFECTIVE TREATMENT

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OBJECTIVES: The objective of this study was to develop a patient centred model which can be used by clinicians for each patient. METHODS: Two hypothetical, but realistic, treatments were selected to demonstrate the value of this model, a “modern atypical drug” and a “typical drug”. The “modern atypical drug” is more expensive, results in faster return to work, less days in hospital and fewer repeat visits than the “typical drug”. The computer based model provides default differences on all of these variables, however, the end user can over write these to allow the cost off-sets to be individualised to each patient they are treating. RESULTS: While the “modern atypical drug” is more expensive on a per day basis ($4.00 vs $0.30), days of treatment can be shorter, hospital stay and doctor visits reduced and days off work lower, making it a less expensive treatment option overall. In the base case, the medication cost of the “modern atypical drug” was $108 more expensive over the year of treatment ($4 per day x 30 days versus $0.30 per day x 40 days). Shorter length of stay (3 versus 10 days at $50 per day) resulted in $350 in savings. Modest savings were gained from fewer doctor visits. Substantial savings would be expected from fewer days off work (14 versus 45 days off work at $100 per day) with around $3,100 saved. Overall savings were $3,432. This model could be adjusted to reflect the expected outcome for each patient. CONCLUSIONS: This is exercise demonstrates a novel model design which allows doctors to assess individual patients to determine whether or not they should be considered for more expensive treatments. It is well suited to health care environments in the region.

PHP68: WHAT ARE THE KEY DRIVING FACTORS BEHIND RSA DECISIONS IN AUSTRALIA?

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OBJECTIVES: Risk sharing agreements (RSA) are sometimes used to offset the risk associated with any uncertainties which may surround a drug at the time of launch. They can offer payers and manufactures the flexibility to manage some of the perceived risks associated with, but not limited to, high therapy costs, discretionary use within an unapproved patient population, or lack of data at the time of product assessment. Given the frequent implementation of RSAs in Australia, the aim of this study was to assess the trends which drive risk sharing agreements with the Pharmaceutical Benefits Advisory Committee (PBAC) within a four month period in 2013. METHODS: All PBAC decisions from August to November 2013 were surveyed by looking at the general RSA structures outlined in the PBAC guidelines. The following data were extracted from each appraisal: assessment outcome (positive or negative), RSA consensus (yes or no), RSA type (rebate and recovery, price volume, data provision, shared deeds), therapeutic area, product price, product incremental cost-effectiveness ratio, market size, structure of trial, trial outcomes, and the availability of alternative therapies. RESULTS: The analysis revealed that 44% of PBAC decisions incorporated some form of an RSA, and 91% of products with RSAs received a positive PBAC decision. The majority of RSAs were rebate recovery or price volume arrangements, where the PBAC was concerned with the product’s use in a larger-than-specified population. CONCLUSIONS: The results of this study indicate the PBAC readily enters into RSAs when doubt exists surrounding the potential cost or efficacy of a drug. Accurately identifying areas of product risk and proposing an RSA to address it can lead to a favourable decision from the PBAC.

PHP69: WITHDRAWN
**PHP70: CORRELATION OF RECENT HTA DECISIONS BETWEEN TAIWAN AND KOREA: IMPLICATION FOR LAUNCH STRATEGIES**

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**OBJECTIVES:** The objective of this study was to compare the Health Technology Assessment (HTA) timing and decisions for recently launched products in South Korea and Taiwan, and to provide insight into launch strategies in these markets. **METHODS:** We analysed all products that were assessed for reimbursement by the Health Insurance Review & Assessment Service (HIRA) in Korea and by the National Health Insurance Administration (NHIA) and the Centre for Drug Evaluation (CDE) in Taiwan from January 2012 to March 2014. Where relevant, the details of the assessments have been extracted from the NHIA meeting minutes, CDE reports and HIRA reports. **RESULTS:** Since January 2012, 17 products were assessed by the reimbursement authorities in both Korea and Taiwan. 12 products received the same reimbursement decisions from both countries, while five products had divergent results. Of 12 products that received the same decisions, seven products were first assessed and reimbursed by Korea and then also reimbursed in Taiwan later, while only three products were first assessed and reimbursed by Taiwan and later followed by Korea. The other two products were assessed at the same time in both countries. Of five products that received different reimbursement decisions, two products were first assessed by Korea and Taiwan respectively, while the other product was assessed at the same time in both countries. Though the sample size is limited, these data suggest a possible positive influence of Korean HTA decisions on those in Taiwan. The average time difference between the Korea and Taiwan HTA assessments was 7.7 months, while Taiwan HTA assessments, on average, lagged behind Korea by 2.6 months. **CONCLUSIONS:** In general, Taiwan HTA assessments lag behind Korea by 2-3 months. This may result from a proactive launching strategy from manufactures, as HTA decisions made in Korea may have a positive influence on those in Taiwan.

**HEALTH CARE USE & POLICY STUDIES - Health Care Research & Education**

**PHP71: A CRITICAL REVIEW OF CHINESE PHARMACOECONOMICS STUDIES IN THE LAST FIVE YEARS**

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**OBJECTIVES:** More and more papers about pharmacoeconomics and outcome research were published in China. The aim of this study was to evaluate the quality of Chinese pharmacoeconomics study and outcome research through analyze papers published in the peer-reviewed literature in Chinese over the last five years. **METHODS:** We conducted full-text paper searches in public databases from 2009 to 2013 in China. A search strategy and inclusion criteria were set up to identify the articles to be included. The search identified 820 studies, of which 411 were included. Then papers were evaluated through a framework which was based on Pharmacoeconomics guideline. **RESULTS:** Our results showed that a large number of published studies were of suboptimal quality. Most of pharmacoeconomics and outcome research were conduct by doctors (33.6%) and pharmacists (54%) in China. Prospective studies (65.9%) were the most common study design, while most data were derived from the clinical trials; Only 8% of them included articles clearly stated the study perspective; More than half studies (56.2%) only computed drug expenditure in cost estimation; 2.2% of articles conducted discounting; 63.5% of studies performed the incremental analysis, however, most studies presented the cost-effectiveness ratios as incremental cost-effectiveness ratio; Sensitive analysis were reported by 71.3% of the included studies, nonetheless, the choice of variables for sensitivity analysis wasn’t justified; A few studies (7.3%) presented the transferability of the results. **CONCLUSIONS:** The above data signify that the quality of pharmacoeconomic evaluations needs improvement. There were just few studies which had well-designed schemes, high-qualified data and suitable methodology, partly owing to the doctors and pharmacists’ lack of pharmacoeconomics expertise and knowledge. It implied China should improve the training of pharmacoeconomics and outcome research training in doctors and pharmacists. Moreover, a further study of the new technology on pharmacoeconomy should not be neglected.

**PHP72: APPLICATION OF THE METHODS OF EVIDENCE BASED MEDICINE FOR THE ANALYSIS OF EUROPEAN HEALTH SYSTEMS AND HEALTH POLICY APPROACHES**

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**OBJECTIVES:** Evidence based medicine has been used for about two decades as methodology for obtaining, evaluating and presenting information on health related topics. The present study investigated the question of the appearance of the ideas of evidence based medicine in documents describing the functioning of European health care systems. **METHODS:** The
documents available in the European Observatory on Health Systems and Policies database were considered to reliably represent the health system of European countries. Structured text analysis was carried out according to previously described methodology. All evaluation steps were carried out in parallel by two researchers (K.M. and Sz.L.). Two studies carried our previously on related topics were used to relate the results obtained in the present study with data of the literature. RESULTS: The cumulative length of the documents was 6449 pages; there was no document without mentioning the idea of evidence based medicine. Among the altogether 413 mentioning of evidence based medicine, we were able to categorise 208 representations of the idea into one of the following four topics: 1. resources of health care, 2. health technology assessment, 3. organisation of health care and 4. environment of health care within the society. Evidence based medicine was mentioned 57 in connection with the resources of health care, whereas 31 mentioning were related to health technology assessment. Organisation of health care was mentioned together with evidence based medicine at 56 occasions, whereas the idea of evidence based medicine was related to the social environment of health care in 64 instances. CONCLUSIONS: The results of the present data collection indicate that the methodology of evidence based medicine has already been widely used within the documents describing health systems and policies in Europe. However, there were considerably differences in the extent and depth of applying evidence based medicine methodology.

PHP73: PHARMACOECONOMICS AND ITS APPLICATIONS – EMERGING ROLE IN INDIA
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OBJECTIVES: Pharmacoeconomics is the application of economics to assess pharmaceutical and health care products that helps evaluate economic, clinical and humanistic outcomes of health care products and interventions. It gives health care decision makers, providers and patients with valuable information for optimal use and allocation of limited healthcare resources. In India, the awareness of pharmacoeconomics is relatively low among policy makers, academia and industry. As India’s pharmaceutical market changes and evolves, the study of pharmacoeconomics and associated research is expected to gain momentum. METHODS: Secondary research was conducted using PubMed. Several search terms like “pharmacoeconomics”, “cost minimization”, “cost benefit”, “cost utility”, and “cost effectiveness” analysis were used. These terms were also used in different combinations, e.g., “Cost Minimization Analysis and Pharmacoeconomics and India”, “Cost Benefit Analysis and Pharmacoeconomics and India”, to extract relevant studies. No search term or time restrictions were applied while extracting studies. RESULTS: Overall, a total of 228 studies were extracted using the search terms. “Pharmacoeconomics and India” yielded 192 results out of which only five studies were relevant to pharmacoeconomics in India. Search terms “Cost Minimization Analysis and India and Pharmacoeconomics” gave only two results. Fifteen results were obtained for the term “Cost Benefit Analysis and Pharmacoeconomics and India” out of which four studies were relevant to the objective. “Cost Utility Analysis and Pharmacoeconomics and India” resulted in four results out of which two were repetitions of results from “cost minimization analysis”. “Cost effectiveness analysis and pharmacoeconomics and India” resulted in 15 results; 10 in last 10 years and only 2 were relevant. CONCLUSIONS: As seen from the results, not much pharmacoeconomic research has been conducted in India suggesting the dearth of literature in this area in India. As the Indian pharmaceutical market evolves and policies change, greater amount and rigorous pharmacoeconomics research may be needed.

PHP74: FOSTERING PATIENT SAFETY CULTURE IN HOSPITAL TO IMPROVE HEALTH SERVICE: HOSPITAL SURVEY ON PATIENT SAFETY CULTURE
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OBJECTIVES: To explore the attitudes and perceptions of patient safety culture for health care workers in China by using a modified Hospital Survey on Patient Safety Culture (HSPSC) questionnaire. METHODS: The survey measuring 10 dimensions of patient safety culture with 36 items was conducted from 32 hospitals in 15 cities all across China. We computed descriptive statistics and Chi-Square test was performed to explore the differences on the perception of patient safety culture in groups of different work units, positions and qualification levels. SPSS 17.0 was used to perform data extraction and analysis. RESULTS: A total of 1500 questionnaires were distributed of which 1160 were responded validly (response rate 77%). Seven hundred and twenty two (66%) of the respondents were nurses, 386 (33%) were surgical clinicians and 343 (30%) were internal medicine clinicians. The positive response rate for the 10 patient safety culture dimensions ranged from 45% to 88%, the mean positive response rate was 65%. The lowest positive response rate of dimension was “Staffing” (45%), while the highest positive response rate of dimension was “Organization Learning-Continuous Improvement” (88%). The positive response rate of two dimensions of nurse was lower than that of physicians (“Overall Perceptions of Patient Safety” and “Communication Openness” P < 0.05). Furthermore, the positive response rate of physicians with high qualification (chief physicians) on two...
dimensions (“Overall Perception of Patient safety” and “Feedback & Communication About Errors” P < 0.05) was higher than those having a low qualification level (residents). CONCLUSIONS: The results show that amongst the health care workers surveyed in China there was a positive attitude towards the patient safety culture within their organizations.

PHP75: RESEARCH ON HEALTH SERVICES NEED AND UTILIZATION OF THE RURAL ELDERLY LEFT AT HOME IN SHAANXI PROVINCE, CHINA

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OBJECTIVES: Based on the survey data of Shaanxi Province in 2012, this paper analyzed the situation of health services need and utilization of the rural elderly left at home (RELAH), and discussed their influencing factors. METHODS: 1) Four-steps modeling method. Based on this method, we built four regression models which were the logistic regression models of two-week out-patient rate and hospitalization rate last year, and the linear regression models of the logarithmic out-patient expenses and the logarithmic in-patient expenses. 2) Logistic regression analysis. It was used to analyze the influencing factors of health services need and utilization of the RELAH. 3) Chi-square test. We used it to make comparison analysis on health services need and utilization between the RELAH and the normal rural elderly. RESULTS: 1) The health status of the RELAH are poorer, many of their health services demands haven’t been got released compared with the normal rural elderly, and the features of health services of the rural oldest old left at home are high need but low utilization. 2) The influencing factors of health services need of the RELAH mainly include education, occupation, income level, age and whether living together with their grandchildren. 3) The influencing factors of health services utilization of the RELAH mainly include marriage, income level, age, accessibility to health services, living together with their grandchildren, being required hospitalization last year, suffering from chronic diseases and the types of medical institutions for treatments. CONCLUSIONS: Combined with research results, we give some suggestions. Firstly, perfect the compensation mechanism of medical institutions to reduce patients’ medical expenses. Secondly, make the land expropriation reasonably, and avoid farmers suffering from the jobless situation. Thirdly, develop the family doctor system actively. Fourthly, develop the county economy, reduce the families’ numbers of the RELAH and ensure them have families’ accompanying when ill.

PHP76: HEARING THE PATIENT’S VOICE IN HEALTH CARE: A SURVEY ANALYSIS OF PATIENTS’ PERCEPTIONS OF DIFFICULTIES IN SHARED CLINICAL DECISION-MAKING

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OBJECTIVES: To explore the factors which affect shared decision-making and develop strategies to get patients actively involved in clinical decision-making. METHODS: The survey was conducted in one of the Third-grade hospitals in southwest part of China for a total of 565 patients involved. SPSS 17.0 was used to perform data extraction and analysis. RESULTS: The survey yielded to 600 questionnaires with a 94% response rate. There were 68% patients who had some knowledge of the disease. Most of the patients (92.94%) have a positive attitude to participate in clinical decision making and 95% patients hope to know the medical information of treatment. Account for 60.24% patients would like to obtain information from doctors. While, only 46.21% patients can achieve the goals. Meanwhile, There were 79.2 % patients who are satisfied with the current treatment plan. The patients’ biggest concerns were: treatment effect, cost and doctors’ skills. The biggest difficulties that patients worried about were: long-time waiting in out-patient departments (50.47%) and limited time to communicate with doctors (37.08%). CONCLUSIONS: As more and more patients would like to involve in shared decision-making, doctors need to provide patients with more choices and help them make a right decision in their treatment. A successful bidirectional way between and patients will obtain patients’ trust and cooperation.

PHP77: ASSESSMENT OF RURAL HEALTH PURCHASING ARRANGEMENTS IN CHINA

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OBJECTIVES: Strategic purchasing aims at maximizing health system performance and takes the health preference of people as basis to decide which interventions should be purchased, how and from whom they can buy them. At present China, the purchasing arrangements are not perfect and several issues should be resolved urgently. Moreover, the limited research findings have not proposed effective solutions. Therefore this research project is considerably necessary and significant. The objectives of this study is to describe the purchasing arrangements in current China, analyze the factors which block the system
performance, and propose what roles are purchasers expected to play in progress towards universal health coverage (UHC) from the perspective of strategic purchasing. **METHODS:** This study applies the model of multiple principal-agent relationship to the examination of relationships among the performers within the new rural cooperative medical scheme (NCMS) in China. We obtain information from case study and qualitative study by interviewing key people. Three provinces including Qinghai, Henan and Shandong have been chosen as our study sites with purposive sampling. In addition, provincial and county level leaders will also be interviewed. We critically assess the actual purchasing performance by comparing it with ideal strategic purchasing mechanism, recognize hindering factors which influences the system's performance, and finally propose suggestions for policy making. **RESULTS:** The results indicate that the accessibility, efficiency, and quality of primary health services in present China are low. Practice of strategic purchasing is limited and the purchasers could not fully represent community’s preference. Meanwhile, purchasers are lack of control on healthcare providers and stewardship of government is not adequate. **CONCLUSIONS:** Enhancement of strategic purchasing mechanism needs to better coordinate principle-agent relationships between different actors, create appropriate incentives by adopting mixed provider payment methods and contracting with providers. Key words: Strategic purchasing; multiple principal-agent model; financing; people preference

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**PHP78:** ASSESSING THE EFFECTIVENESS AND COST-EFFECTIVENESS OF AUDIT AND FEEDBACK ON PHYSICIAN’S PRESCRIBING INDICATORS

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**OBJECTIVES:** Improving and promoting rational drug use is a great interest. We aimed to assess the effectiveness and cost-effectiveness of prescribing audit and feedback intervention in improving physician prescribing. **METHODS:** A four-arm randomized trial with economic evaluation conducted in Tehran. Three interventions (routine feedback, revised feedback, and printed educational material) and a no intervention control arm compared. Physicians working in outpatient practices were randomly allocated to one of the four arms using stratified randomized sampling. The interventions were developed based on a review of literature, physician interviews, current experiences in Iran and with theoretical insights from the Theory of Planned Behavior. Effects of the interventions on improving antibiotics and corticosteroids prescribing assessed in regression analyses. Cost data assessed from a health care provider's perspective and incremental cost-effectiveness ratios calculated. **RESULTS:** Comparing the new-design feedback arm and the no intervention arm, we observed significant reductions in the proportion of prescriptions including Dexamethasone injectable (1.64 difference in percentage change; p value: 0.006) and Cefixime (0.99 difference in percentage change; p value: 0.01). We also observed significant reductions in the printed educational material arm's proportion of prescriptions including Cefixime (0.93 difference in percentage change; p value: 0.04) as compared with the no intervention arm. ICER values corresponding to Dexamethasone injectable and Cefixime were 0.41 and 1.03 US$ per unit reduction in the number of prescriptions respectively. **CONCLUSIONS:** According to the results of this study, we recommend that a careful attention to the format, design and the way the messages are conveyed in feedback forms is an important indicator of audit and feedback's potential success in improving prescribing behavior. Considering the incremental cost-effectiveness ratio, the cost-effectiveness of new-design feedback intervention arm has been proved.

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**PHP79:** TRAINING HIGH-LEVEL LOCAL RESEARCHERS TO IMPROVE THE QUALITY OF CLINICAL STUDIES IN DEVELOPING COUNTRIES: CHALLENGE AND STRATEGY

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**OBJECTIVES:** Analyzing all randomized controlled trials (RCTs) published in The Lancet in 2013 to discuss the influence factors on the publication of high-quality clinical studies. **METHODS:** We included all RCTs published in The Lancet in 2013. The information about the research topic and the number of included participants, the first author's region and type of research institution, and the participants’ region were collected, and analyzed their proportions. **RESULTS:** 110 eligible RCTs with 734,085 participants were included. The top three topics of the RCTs were infectious diseases 22 (20.0%), cardiology and vascular medicine 17 (15.5%), oncology 12 (10.9%), but the top three number of participants were 210,350 (28.7%) in obstetrics and gynaecology, 198,471 (27.0%) in oncology, and 154,637 (21.1%) in infectious diseases. The proportion of RCTs which enrolled participants from developed countries is 86.4%, only 13.6% ones enrolled participants in developing countries. The first authors from the developed and developing countries were 87.3% and 12.7% respectively, which was the same as participants. 52.7% RCTs were done by universities, only 25.2% and 13.6% were conducted by hospitals and research institutions respectively. **CONCLUSIONS:** Developing countries have a most heavy burden of diseases but serious shortage of high-level clinical researchers. Using results from developed countries to guide the prevention and treatment of even the same diseases in
the developing countries may not proper due to various local conditions. We appeal to promote the cooperation between the universities and hospitals in the developed and developing countries. The localization of the training material should be encouraged to train more high-level local clinical researchers and produce more high-quality clinical evidences for the developing countries through joint-program.

**PHP80: WITHDRAWN**

**HEALTH CARE USE & POLICY STUDIES - Health Technology Assessment Programs**

**PHP81: DO HTA PROCESSES CORRELATE WITH REIMBURSEMENT RECOMMENDATIONS?**

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**OBJECTIVES**: The objective of this study was to compare the Health Technology Assessment (HTA) reimbursement recommendations from 6 HTA agencies using a HTA process taxonomy. **METHODS**: Using a previously published categorisation process, six HTA agencies were assigned to one of three distinct taxonomic groups based on processes for conducting therapeutic value (TV), economic value (EV) or appraisal activities: A - TV with independent appraisal; C - TV, EV and appraisal combined; I - appraisal independent of TV and EV. Agencies were classified as: A - the Health Care Insurance Board (CVZ) in the Netherlands and the French National Authority for Health (HAS); C - the National Authority of Medicines and Health Products (INFARMED) in Portugal and the Scottish Medicines Consortium (SMC); I - the Agency for Health Technology Assessment (AHTAPol) in Poland and the National Institute of Care and Health Excellence (NICE) in England. Reimbursement recommendations were collected for medicines granted centralised European marketing approval from January 2007 to December 2009 and which were reviewed by at least two target HTA agencies. Jurisdictional economic and demographic data were collected to further refine the taxonomy. **RESULTS**: 71 products with 271 HTA recommendations were categorised by taxonomy to reveal congruence of 86% (n=49) for A, 63% (n=19) for I, and 44% (n=25) for C. Congruence between dissimilar taxonomies ranged from 47% to 96% and suggest the reimbursement recommendations by these is likely to be influenced by factors other than process taxonomy. **CONCLUSIONS**: This study identified the greatest level of congruence for HTA recommendations from the A taxonomy agencies. Other factors likely play a role in the divergences of reimbursement recommendations among dissimilar taxonomies, which could be better understood by refining the HTA taxonomy characteristics.

**PHP82: THE DA VINCI SURGICAL SYSTEM: A RAPID REVIEW OF THE CLINICAL AND ECONOMIC EVIDENCE**

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**OBJECTIVES**: Da Vinci Surgical System (DVSS) is the most widely studied surgical robot in recently years, which is developed to assist surgeons performing surgical procedures. However, DVSS is associated with high capital and operating costs. Given its limitations, a review of clinical and economic evidence is necessary for decision-makers. We conducted a rapid review to evaluate the clinical and cost-effectiveness of DVSS compared with open procedures and laparoscopic procedures, in order to provide the evidence for health decision makers. **METHODS**: A comprehensive search of electronic databases (EMBASE, PubMed, Cochrane Library, Web of Science, CINAHL, CNKI, VIP, CBM and Wangfang) and HTA websites were completed to October 9, 2013. Two trained reviews independently screened for eligible studies, extracted data and assessed quality. Qualitative description was used to report the outcomes. **RESULTS**: After an initial screen of 272 studies, 18 studies (n=45,516) were selected for meeting inclusion criteria: 3 studies with 32,499 patients were healthy technology assessments and 15 studies with 13,017 patients were systematic reviews. The clinical and cost-effectiveness of DVSS was varied between diseases. Overall, DVSS was shown to be associated with a reduction in operative time, length of hospital stay, blood loss, and transfusion rate compared with open and laparoscopic surgery on prostatectomy, nephrectomy, and hysterectomy colorectal surgery. DVSS was more expensive than open and laparoscopic surgery for the cost of acquiring, operating, and maintaining the robotic techniques. Most economic studies showed no significant difference was found in cost-effectiveness of DVSS comparing with comparators. **CONCLUSIONS**: DVSS may have an impact on several clinical outcomes. However, the evidence was limited to systematic review and healthy technology assessments. Furthermore, the cost of DVSS is higher than open and laparoscopic surgery. Taking all of this evidence together, decisions about the robot-assisted surgery need to be made carefully.
**PHP83: THE PERFORMANCE OF THE PRAGMATIC STRATEGY TO BRING IN PHARMACOECONOMIC EVIDENCE FOR DRUGS REIMBURSEMENT DECISIONS IN TAIWAN**

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**OBJECTIVES:** Local pharmacoeconomic evidence was seldom included in the manufacturers’ new drugs submission in Taiwan before. A series of pragmatic strategies were employed to encourage the presentation of local cost-effectiveness analysis (CEA) evidence in the dossiers. This study aims at examining the performance of these strategies. **METHODS:** An incentive of mark-up for conducting local CEA studies has been announced since 2010 to encourage the pharmaceutical manufacturers to submit CEA evidence for new drugs reimbursement application. The National Institute of Health Technology Assessment (NIHTA) has started to use a self-developed checklist to assess the quality of the local CEA evidence presented in the dossiers. The appraisal committee would then decide the extent of mark-up based on the assessment results. Three epochs were defined as (1) before mark-up epoch: 2008-2009 (No Mark-up Epoch), (2) mark-up without checklist epoch: 2010-the mid-2012 (No Checklist Epoch), and (3) mark-up with checklist epoch (Checklist Epoch): mid-2012 till 2013. The number and the quality of local CEA evidence identified from the dossiers submitted by the manufacturers in the three epochs were compared. **RESULTS:** In the No Mark-up epoch, none local CEA evidence has been presented in the dossiers. However, 5 and 7 local CEA studies have been identified from the dossiers in the Mark-up epoch and the Checklist epoch, respectively. None out of the 5 local CEA studies has received the mark-up, nevertheless, 6 out of the 7 local CEA studies have receive 1% to 5% mark-up for the reimbursement price. **CONCLUSIONS:** The pragmatic strategy seems an effective approach to encourage the manufacturers to present local CEA evidence in the dossiers, which could improve the quality of decision making. In addition, the capacity of conducting local CEA studies has been gradually established.

**PHP84: BENCHMARKING THE IMPACT OF HTA ON NEW MEDICINES DEVELOPMENT AND COVERAGE DECISION MAKING**

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**OBJECTIVES:** To evaluate the impact of HTA on the development and market access of new pharmaceutical products in Australia, Canada, England, France, Germany, Italy, Spain and the USA. **METHODS:** An annual benchmarking study was developed in collaboration with 9 multinational pharmaceutical companies to establish appropriate developmental performance metrics to identify if scientific advice was received, when it was received, from whom and the outcome and specific HTA requirements included into the development process. In addition data were also collected across 8 jurisdictions (Australia, Canada, England, France, Germany, Italy, Spain and the USA) to identify what evidence was submitted, the time it took and what additional evidence was requested. Data on 19 projects that entered phase III and 30 products achieving first world approval from 2009-2012 were analysed. **RESULTS:** For the phase III projects, 63% received HTA scientific advice, of which 61% occurred during phase II, with company-sponsored advisory boards the being most frequent provider. The main HTA-related requirements included in development were patient-reported outcomes (84%), HTA-acceptable endpoints (74%), and cost-effectiveness analysis (74%). For licensed products, the median time from regulatory submission to reimbursement decision varied from 639 days (Australia) to 846 days (Italy). Additional comparators for local HTA submission were requested by all jurisdictions except USA. England and France showed the highest percentage of products being reimbursed as per the regulatory label (50% and 55% respectively). **CONCLUSIONS:** Companies are actively taking scientific advice and incorporating HTA requirements into their development process, although they are still challenged by divergence in HTA process and decision making across jurisdictions. Benchmarking HTA processes at the product level supports companies in driving excellence in risk management and strategic planning.

**PHP85: COMPARISON OF ECONOMIC EVALUATION GUIDELINES BETWEEN JAPAN AND OTHER ASIAN COUNTRIES**

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**OBJECTIVES:** The special committee of cost-effectiveness at the Japanese health ministry advisory panel was established in
2012 and the need for economic evaluation guidelines was proposed. The research team funded by the Japanese Ministry of Health, Labour and Welfare published the guidelines for economic evaluation of healthcare technologies in 2013. We compared the Japanese guidelines to existing guidelines in other Asian countries and to the NICE guidelines (United Kingdom). METHODS: We searched for and reviewed the Japanese research report and guidelines published in China, Taiwan, Thailand and South Korea up to February 2014. Similarities and differences between Japanese guidelines and those from other Asian countries as well as NICE guidelines were identified. RESULTS: Pharmacoeconomic evaluations are mandatory in the UK, South Korea and Thailand, recommended in Taiwan, and optional in China. In Japan, economic evaluations are currently not formally considered in pricing and reimbursement decisions. Japanese guidelines are relatively open, leaving much room for decision from analysts. Guidelines from different countries were broadly consistent in terms of preferred analytical technique (cost-effectiveness analysis), need of systematic reviews of evidence and consideration of effectiveness data as well as efficacy; but varied in terms of primary perspective for estimating costs (third-party payer in Japan), preferred outcome measure (no systematic use of QALYs in Japan, other measures, such as laboratory values, also accepted), preferred methods to derive utility values (generic instruments with scoring algorithm developed in Japan), and sensitivity analysis methods (probabilistic sensitivity analysis “when possible”). CONCLUSIONS: This comparative exercise provides an overview of economic evaluation guidelines adopted by 5 Asian countries and UK. The recommendations differed in some aspects, but Japanese guidelines are relatively open, which should facilitate adaptations of models between countries. One of the hurdles for adapting models is likely to be the variability in approaches recommended to obtain utilities.

**PHP86: WITHDRAWN**

**PHP87: HEALTH TECHNOLOGY ASSESSMENT IN JAPAN: HISTORY, CURRENT SITUATION, AND THE WAY FORWARD**

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OBJECTIVES: A rapid growth of health technology assessment (HTA) activities among researchers and physicians in Japan is observed since the mid-1980s. However, Japan lags behind Europe, Australia, and several Asian countries in implementing national HTA regulations. Although it is generally accepted that low healthcare costs and good health prevail in Japan, population aging, rising costs of medical technologies and slow economic growth rates necessitate rethinking the current HTA regulations. This study aims to evaluate the history and current situation of the Japanese HTA system, and what Japan needs to do in order to successfully implement national HTA regulations. METHODS: Past and current Japanese HTA regulation are assessed by analysing both English and Japanese publications and legal documents, as well as comparing these with the systems in other Asia-Pacific countries: Australia, South Korea, Taiwan, Thailand. RESULTS: There are historical, social, and biological reasons why Japan has been successful at maintaining the world’s longest life expectancy and the lowest infant mortality at relatively low cost despite the lack of a comprehensive HTA system. However, implementation of HTA regulation would be a key lever in the health system in line with the new economic policy introduced by Prime Minister Abe in 2012. Looking at the legal and organisational structures, implementation and performance of Asia-Pacific HTA systems, a comprehensive HTA system for Japan is proposed. CONCLUSIONS: HTA systems have been rapidly developing in the Asia-Pacific over the last decade. Facing the current pressures on the health system, the question is not whether Japan should introduce a comprehensive HTA system but what measures she should adopt. The experience of other Asia-Pacific countries in implementing national HTA systems can help inform the development of an innovative national HTA system in Japan that could play a central role in the future of Japanese health care.

**HEALTH CARE USE & POLICY STUDIES - Population Health**

**PHP88: WHAT IS THE STATUS OF HEALTH RELATED QUALITY OF LIFE AMONG MEDICAL REPRESENTATIVES IN INDIA?**

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OBJECTIVES: As medical representative’s job involves travelling, waiting, stress due to targets and extended work hours in the field, their health related quality of life may be compromised. There are no studies reporting health related quality of life, an exploratory study was done to understand factors influencing health related quality of life. METHODS: In this exploratory study...
a pilot tested questionnaire was used to collect information regarding medical representatives' characteristics, demographics, work and life habits. For health related quality of life measurement both descriptive and visual analogue score of EQ 5D 5L questionnaire were used. The data collected was analyzed using SPSS 16.0.0. The test of significance was done by using Kruskal-Wallis test. RESULTS: This is a part of large group study which is underway to record health related quality of life among medical representatives, the results presented here are of 150 medical representatives. Mean age of the population studied was 27.58±4.6, 25% having more than 4 family dependents and 53 % were science graduates. 59.3% worked for more than 8 hours per day. 45.3% were not involved in doing any physical activity. Mean BMI was 23.52±3.45 and VAS score was 84.46±12.59. There was significant difference of VAS score among the groups involved in doing and not doing any physical activity (p<0.001). CONCLUSIONS: Even though the population studied was young, involvement in physical activity makes a difference in their health related quality of life.

HEALTH CARE USE & POLICY STUDIES - Prescribing Behavior & Treatment Guidelines

PHP89: THE IMPACT OF UNFAMILIARITY IN PALLIATIVE CARE UNDER PHARMACOTHERAPEUTIC ASPECT

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OBJECTIVES: The perception and the knowledge of healthcare at the end of life is the fundamental key to prevent an aggressive and useless therapy to patients at this stage of life and even more, which may cause more suffering to patients and burden the healthcare expenditures. This study aims to point out the possible impact of unawareness in palliative care under the pharmacotherapeutic aspect to help subsidize the development of improvement programs in this new medical area. METHODS: This study was conducted in 2013, in a mid-sized public and teaching general hospital, located in Sao Paulo, Brazil. It was based on direct critical assessment of medical prescription sheets of 15 patients classified as terminally ill and should receive palliative care. RESULTS: Approximately half of the patients were admitted to the intensive care unit, 66% were medical patients and 33% are surgical, almost of them all were adult patients (93.3%). All of them received non-opioid analgesics and antipyretics; 80% received antacids and anticoagulants drugs; 66.6% received hypoglycemic drugs; 53.3% received antimicrobial and antihypertensive drugs; 46.6% received vasoactive drugs; 40% received opioids, cardiotonic drugs and statin therapy. And 33% patients received antplatelet drugs and blood products; 26.6% received muscle relaxant drugs, and only 20% received corticosteroids. CONCLUSIONS: As we found only few prescriptions asking for opioids and benzodiazepines, but there were more frequently to vasoactive drugs, we can say that many therapeutic resources are still wrongly applied to patients classified as terminals. And as well as they receiving untimely and costly treatments, unfortunately these efforts do not bring true compatible with their benefit needs, just is physical pain relief and anxiety reduction. Thus, it is essential to promote efforts to disseminate and clarify what is palliative care and how to provide more rational and humane care to these patients.

PHP90: STUDY OF ANTIBIOTIC PRESCRIPTION PATTERN AND ANTIBIOTIC SENSITIVITY IN SURGERY PATIENT IN TERTIARY CARE HOSPITAL

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OBJECTIVES: Primary Objective: – To study prescription pattern of antibiotics as prophylactic and in post surgery infection. Secondary objective: – To determine antibiotic sensitivity pattern in bacterial isolate METHODS: The study was a prospective study for a period of four month from Jan-May 2013, Prescriptions and patient records files are reviewed and analyzed. Prescription pattern and antibiotic sensitivity was also evaluated. RESULTS: Total 154 patients were included in our study from these 59% were male (n=91) and 41% were female (n=63). Total 19 different antibiotics were prescribe in general surgery in which Amikacin (n=106, 69%), ceftriaxone (n=104, 67%) and metronidazole (n=72, 47%) are most commonly prescribed antibiotics. Most of the patient had undergone hernioplasty surgery (n=33, 22%) followed by Incision & Drainage (n=23 15%), debridement (n=21, 14%), Appendicectomy (n=16, 10%). Pus swab culture (44%) are done most frequently followed by wound culture (n=13, 24%), urine culture (n=9, 17%) in culture and sensitivity test. Most common isolate were klebsiella sp. (n=12, 31%), followed by S. aureas(n=9, 21), E. coli (n=8, 19% which are resistant to ampicillin, amoxicillin, carbenicillin, ceftriaxone, cefuroxime, ceftazidime and cefotaxime and sensitive to levofloxacine, gatifloxacine and amikacin. CONCLUSIONS: There was high tendency to prescribe the 3rd generation cephalosporins. Physicians prescribed ceftriaxone antibiotic as prophylaxis for hernioplasty, appendectomy and Lap. Cholecystectomy. Most of the patients admitted to surgery unit had received antibiotic without regard to Culture Sensitivity report and standard guidelines. E. coli isolates were found to be 100% resistant to all
penicillins, 3rd generation cephalosporins, cotrimoxazole and amoxiclav and Klebsella species were found to be 100% resistant to ampicillin.

**PHP91: CURRENT STATUS AND DEFICIENCY OF HEMOSTASIS IN SURGERY: A SYSTEMATIC LITERATURE REVIEW, INCLUDING CHINESE LITERATURE**

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**OBJECTIVES:** Perioperative bleeding sometimes results in severe consequence. An understanding of hemostasis approaches is crucial in managing the operations. This review aims to show the development of hemostasis in surgery around the world including China. **METHODS:** Literature in PUBMED was searched between 2009 and 2014; search terms included hemostasis and surgery; filters included human, English and clinical trials. A similar search was done in Chinese CNKI database. Searching results were carefully reviewed and studies compatible with our inclusion criteria were then selected. **RESULTS:** From an initial search which yielded 99 references in PUBMED and 50 references in CNKI, 54 articles in PUBMED and 16 articles in CNKI were included in the review. Operations in 11 subjects were involved in these articles. We found that conventional hemostasis (classic technique of tying and knots, resorbable ligature) was gradually replaced by novel techniques such as bipolar tissue sealant device, ultrasound scalpel, hemoplast, blue-violet light emitting diode irradiation, Ankaferd Blood Stopper, etc. Fibrin sealant, collagen hemostat and chitosan gel had important roles to be supplement. Certain drugs (tranexamic acid, Fibrinogen concentrate, hemocoagulase, etc) used perioperatively could be efficient too. On the other hand, some new techniques (vascular clips) failed to show significant benefits in some subjects (thyroid surgery). Furthermore, some techniques (bipolar coagulation) might affect the postoperative function of certain organs (ovary). While some techniques (harmonic scalpel) could save the whole cost in hospital, most could not. Information in China was similar with the world. **CONCLUSIONS:** Some of the novel hemostasis approaches in surgery could decrease blood loss perioperatively as well as reduce operative time, hospital stay, the rate of complications and the whole cost. However, some shortcomings still exist and more correlative researches should be performed in the future.

**PHP92: IMPACT OF PHARMACOEOCONOMICS GUIDELINES ON THE INTERNATIONAL PUBLICATIONS IN CHINA**

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**OBJECTIVES:** Pharmacoeconomics is a newly developed discipline in China. Economic assessment is increasingly used as supportive evidence driving pricing and reimbursement decisions. Nevertheless, guidelines are necessary to homogenise their practice and promote their use. Among the different guidelines that have been published, two published in 2006 and in 2011 significantly support the implementation of pharmacoeconomics in China. Since multinational pharmaceutical companies are increasingly present in the Chinese market, this tends to increase the spread of such publications. This paper aims to quantify the impact of the introduction of guidelines as incentives to publish international articles in China. **METHODS:** A literature review was undertaken using the Pubmed database. Keywords used in the search strategy were: ‘China’, ‘Pharmacoeconomics’, ‘Economic Evaluation’, ‘Cost-Effectiveness’, ‘Cost of Illness’, ‘Cost-Benefit’, ‘Cost-Utility’, ‘Cost-Minimization’ and ‘Budget Impact’. We used a timeframe of ten years before the first pharmacoeconomic guideline to present. This corresponds to 01/01/1996 to 14/03/2014. In order to take into consideration only international publications, only English papers were selected. A final screening was performed to select the articles directly related to pharmacoeconomics and only in China. **RESULTS:** 272 articles were found with the primary search strategy and 99 were selected using the final criteria. On average, 1 paper was published every year until 2006 while 8 were published between 2006 and 2010, and 16 after 2010. The publications’ pace increases exponentially from 2011 to finally reach 19 publications in 2013. In the first ten weeks of 2014, 9 articles are already particularly intense, which can be interpreted as real trend. **CONCLUSIONS:** This study reveals a correlation between pharmacoeconomic guidelines and volume of publications. Even if the place of this new discipline remains minor because of the initial level of submission, significant efforts are undertaken to submit and use pharmacoeconomic studies as fully-fledged, leading to pricing and reimbursement decisions.

**HEALTH CARE USE & POLICY STUDIES - Quality of Care**
**PHP93: AN ANALYSIS OF QUALITY OF CARE IN THE RESPIRATORY CARE CENTER BASED ON SERVICES PROVIDED BY PHYSICIANS WITH DIFFERENT RESPONSIBILITIES AND SPECIALTIES**

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**OBJECTIVES:** It has been shown in literatures that full-time intensivists improve the quality of patient care and reduce medical resource utilization. The study compares the quality of care in Respiratory Care Center (RCC) staffed by full-time intensivists (no outpatient clinics), part-time responsible chest physicians (with duties in outpatient, inpatient, and RCC) and full-time responsible chest physicians (with at most 3 half-day outpatient clinics per week besides WCC) and predicts risk factors for mortality and weaning rates in RCC patients. **METHODS:** Retrospective data were collected and analyzed from all RCC patients in a medical center cared for by full-time intensivists from 2004 to 2005, part-time responsible chest physicians from 2008 to 2009, and full-time responsible chest physicians from 2011 to 2012 to determine whether there were differences in the quality of care and predict risk factors for mortality and weaning in RCC patients. **RESULTS:** There were 2,757 patients in the study with an average age of 69 years, APACHE II scores of 16.68, mortality of 23.90%, weaning rates of 50.68% and complication rate of 40.74%. Patients cared for by the full-time intensivists had a shorter RCC and ventilator days, lower expenses and RCC transfer rates (p <0.001), and higher weaning and complication rates (p <0.05) than those cared for by the part-time and full-time responsible chest physicians. Risk factors for mortality variables including APACHE II, transfer to the ICU, RCC length of stays, and albumin level. APACHE II, types of physicians staffed, transfer to the ICU, RCC length of stays, and Creatinine were the risk factors affecting weaning rates in the RCC patients. **CONCLUSIONS:** There were differences in the overall use of healthcare resources and weaning rates among the patients cared for by full-time intensivists, part-time responsible chest physicians, and full-time responsible chest physicians but no difference in adjusting mortality.

**PHP94: CRITICAL EVALUATION OF LABELING REQUIREMENTS OF NUTRACEUTICAL BRANDS**

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**TITLE:** CRITICAL EVALUATION OF LABELING REQUIREMENTS OF NUTRACEUTICAL BRANDS

**AUTHORS:** Babre M, Pise A, Pise S, Mate D

**OBJECTIVES:** This study focuses on the regulations made by government of India for Nutraceuticals labeling requirements and the need of change in the monitoring system in the same our objectives for the study were- 1. To understand labeling regulations of Nutraceuticals in India. 2. To study labels of selected Nutraceutical products from healthcare market. **METHODS:** For objective first we have studied the regulations made by FDA of India regarding Nutraceuticals labeling requirement, for which we have used secondary data collection method. For second objective we have collected 30 samples randomly from Nutraceutical segments from local Pharmacies and studied the labels carefully. **RESULTS:** The follow-up by Nutraceuticals manufacturer to labeling regulations found very moderate in our study. We found that regulations about list of ingredients, nutritional value, declaration regarding veg non-veg, declaration regarding food additives and other crucial parts of label are poorly followed by Nutraceutical Manufacturer in India. **CONCLUSIONS:** As we have studied the regulations regarding labeling of Nutraceuticals, we found that these regulations are sufficient and appropriate. Again through this research work we come to make this conclusion that Nutraceutical manufacturer/importer in India are not that much serious regarding labeling which is threatening in some aspects so they used to make mistakes in labeling knowingly or unknowingly.

**HEALTH CARE USE & POLICY STUDIES - Regulation of Health Care Sector**

**PHP95: DEVELOPING A DRUG PRICE REFERENCE INDEX IN THE PHILIPPINES**

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**OBJECTIVES:** To develop a method of setting a Drug Price Reference Index (DPRI) in the Philippines to ensure good value for money in the procurement and reimbursement of essential medicines. **METHODS:** A database of prevailing drug procurement prices was created from actual purchase orders submitted in 2012 by government procuring entities in the Philippines. The database includes information on the unit cost, volumes of procurement, source/supplier/manufacturer, brand, mode of procurement and location of the hospital for each formulation and strength of all drugs in the National Formulary. Univariate regression analyses were performed for commonly sourced essential drugs exploring possible determinants of drug costs, which include quantities procured and hospital bed capacity. Further cost-comparisons were made for other potential determinants such as mode of procurement, supplier/manufacturer and distance of distribution. **RESULTS:** Price data was analyzed for 20
OBJECTIVES: This study aims to review released policies with regards to biosimilar products in China, and further understand the external environment that shapes the biosimilar market. METHODS: A literature review on laws, regulations and policies released by key government stakeholders and other additional documents was performed to fully capture the policy environment for biosimilars in China. RESULTS: Multiple policies have been issued at central government level to encourage the development of biologics industry in China. Nevertheless, rather than in favor of accelerating market access for biologics, those policies are more R&D and manufacturing quality control focused. There is no clear regulatory pathway for biosimilars in China to date. Due to the lack of clear standard for biosimilars to prove their bioequivalence to the originators, biosimilars are treated as new drugs at each stage of market access, resulting in a delay of getting approval in China market. Currently, local biosimilar developers are actively building their capabilities in innovative biologics such as monoclonal antibodies, while MNC players are continuing to bring in new molecules. As original products’ patent expiry peak period is coming, biosimilars, whose prices are relatively affordable, have potential huge opportunities to grow. On the other side, the fierce competition among biosimilars with the same reference biologics and upcoming MNC’s next generation antibody therapies are also putting a threat to biosimilar market as a whole. CONCLUSIONS: If pathways cannot be tailor-made for biosimilars in the future, thus hinders the fast launch of biosimilar products in China, population may not be able to enjoy more cost effective treatments and government may also lose the chance to benefit from the saving of the total healthcare expenditure.

PHP97: CURRENT SITUATION OF HEALTHCARE ORGANIZATIONS’ WASTE MANAGEMENT

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OBJECTIVES: There are challenges to assess the current situation of healthcare organizations’ waste management by the level and to formulate methods for further improvement. Thus, purpose of this assessment study was to formulate reference about methods to improve current situation of healthcare organizations’ waste management. METHODS: Study was done by the descriptive method among 39 healthcare organizations using study forms, as questionnaires, checklist and tests. RESULTS: In Ulaanbaatar waste disposal company is 100% responsible for hazardous waste of health care organizations, but 50% of domestic waste are taken care by hospitals themselves. However, in rural areas 48.7-64% of hospitals and 57.1% of healthcare centers are responsible for both their domestic and hazardous waste. 50% of hospitals drain the liquid waste into main sewage and liquid waste from laboratory are drained into central sewage after disinfection. Waste management team works in 66.7% of hospitals, indicating information asymmetry on reasonable prices of drugs. CONCLUSIONS: Legal documents about waste management of healthcare organizations are approved; most secondary and tertiary level healthcare organizations have workers responsible for waste. They have developed plans to improve the “Waste management” and installed waste registration system. Despite setting up the temporary storages at hospitals and healthcare centers, they still need improvement. Although any equipment with mercury has been prohibited to use in healthcare organizations, 50% of hospitals are still using and it has been difficult to collect, transport and dispose mercury containing waste.

PHP98: COMPARISON ON THE CONCEPT OF MARKET ACCESS OF CHINA AND WESTERN COUNTRIES

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OBJECTIVES: This study is designed to review and to compare the concept and content of market access in both western and...
**PHP99: WITHDRAWN**

**HEALTH CARE USE & POLICY STUDIES - Risk Sharing/Performance-Based Agreements**

**PHP100: EVIDENCES AND CRITERIA RELATED TO THE HOSPITAL SERVICE QUALITY AND SAFETY**

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**OBJECTIVES:** Even the Ministry of Health is taking its attention to improve quality and safety of medical services, developing and implementing relevant policy and directions, quantity of complaints and occupational mistakes coming from citizens for medical services are still not going down. Therefore it is very necessary for every health organizations to analyze the situation. **METHODS:** To study processes for evidences and requirements of quality, information is collected by quantitate method and the cross sectional survey form was used. **RESULTS:** On the service standard surveys taken from medical staffs, 56.6% in I level hospitals, 50.0% in II level hospitals and 73.3% in III level hospitals are replied as they follow certain standards for their services. But respondents replied as 47.4% of the standards for medical services, which is the most percent, are not incompatible for wards. When summarizing the results, we can say it is not clear what service standards the medical staffs follow or they do not have customized service standards. Moreover, basing on the result, medical staffs have no common awareness what standards they must follow for their services, except awareness of treatment and diagnosis; there is insufficient information about service standards. **CONCLUSIONS:** One third of organizations attended in surveys operates their operations without the organization’s service standards. Service standards of an organization are developed by Medical directors, Quality department and Professional council. Service standards of organizations are not approved, there is no any control to implement service standards, or the service standards are inappropriate and no unfavorable environment to implement service standards. Even the control on “Common operation standards”’s implementation is good, no unfavorable environment to implement the standard. Moreover registration of mistakes related to “Common operation standards” is insufficient, measures and warnings to improve the low indication of mistakes are not taken well.

**PHP101: PRIORITY SETTING OF NEW MEDICAL INTERVENTIONS IN TAIWAN: A MULTICRITERIA DECISION ANALYSIS**

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**OBJECTIVES:** Priority setting in the allocation of new medical interventions is increasingly based on formulated values. Before drafting the new medical service items and fee schedule, the National Health Insurance Act of Taiwan identifies four prioritizing rules -human health, medical ethics, cost-effectiveness, and the finances of the Insurance respectively to compliance with. Our study objectives are to compare the policy makers’ actual value preferences with these four official formulated principles and to guide the Ministry of Health and Welfare in Taiwan in the priority setting of new medical interventions. **METHODS:** We used a multicriteria decision analytical framework. In total 65 respondents participated in a discrete choice experiment to weigh their relative importance of six selected policy criteria for priority setting. Regression analysis was used to rank order a set of new
OBJECTIVES: Conditional reimbursement approval for pharmaceuticals, for example, risk-sharing arrangement (RSA) involving price-volume agreement or various post-launch monitoring requirements, is becoming a standard practice in Australia, especially for novel treatments with high ICER and/or potentially significant budget impact. Uptake of RSAs is relatively slow in other jurisdictions. Efficient implementation of an RSA requires active involvement from all stakeholders, in particular, drug manufacturers and the decision makers. This study reports the findings from a survey of pricing and reimbursement experts in Australia to gain insight into their attitude/opinions of RSAs from their own personal experience. METHODS: Senior-level health economists and consultants were targeted. The survey included questions about responder’s demographics, the number and type of RSAs they have personally been involved with, and their experience and opinions about RSAs. A general overview of RSAs is also provided to better contextualise the survey findings. RESULTS: Ten experts participated on an anonymous basis. They in total have been involved in 403 submissions, and 56 RSAs of various types. Capped cost agreements were most frequently employed (>70% of all RSAs). ‘Hidden price’ is also frequently agreed. Respondents generally had positive attitude towards RSA (mean of 3 using a 1-5 scale) mainly because it can potentially benefit timeline and address global pricing issues. Concerns were however raised about the fact that the ‘risk’ is entirely borne by the industry in many cases and RSA has now become an integral element in the PBAC’s decision making process. CONCLUSIONS: RSA is generally well perceived among industry experts in Australia, whilst an increasing role of PBAC in defining clauses in the agreement is seen as a hurdle against productive involvement from the industry. The Australian model of RSA may offer a useful template for other jurisdictions.
PHP104: RISK SHARING AGREEMENT CONSIDERATIONS FOR PHARMACEUTICALS IN CHINA MARKET

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OBJECTIVES: This study is designed to review current ‘risk-sharing’ schemes worldwide and in China, and further examine what kind of situations where ‘risk-sharing’ schemes should be considered. METHODS: A literature review was undertaken to identify existing schemes in developed countries. A review of released policies in China was also conducted to understand China’s current rules of practice. Cases studies were established for detailing agreement structure and potential impact on payers and industry. RESULTS: Risk-sharing schemes are introduced to the market in the context of fast growing healthcare cost and uncertain drug values. Nearly almost all of China’s scheme practices are financial-based agreements and don’t integrate drug’s real world performance. Unlike mature market, risk-sharing agreement in China is more often applied to established products rather than newly-entered innovative drugs. A typical successful agreement in China has several must-have factors, including discounted drug price, purchase/free drug package and charity program. When considering a sustainable win-win risk-sharing scheme, a company must be very determined and assess its product carefully to decide whether the disease is in a high priority and there are currently few effective treatments; where policies can be leveraged and opportunities can be created for negotiation; whether strong lobbying message and product value proposition can be developed to meet the interests of the stakeholders; whether proposed scheme (price and additional service) can substantially lower health service cost as well as to enhance reimbursement; whether management team can ensure well-functioning operational capabilities for legal, administrative and delivery support. CONCLUSIONS: With more innovative drugs being introduced to China market; ‘risk-sharing’ schemes will become more popular as national reimbursement drug list cannot immediately cover the increasing cost. Global experience also suggests there is a trend that ‘risk-sharing’ agreement will be more often considered as a market access strategy for new products in the future.

HEALTH CARE USE & POLICY STUDIES - Conceptual Papers

PHP105: MODEL BASED MEDICINE: A NEXT FRONTIER IN HEALTH CARE

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In the last three decades, evidence-based medicine (EBM) has been the driving force in shaping guidelines and clinical decision making in screening, prevention and treatment of diseases. Evidence review, evidence grading and meta-analysis of trials are standardized and routinely conducted. However, recent technological developments have significant impacts on future directions of EBM. With recent advances in health information technology, electronic medical records (EMRs), proteomics and genomics, clinical evidence has become increasingly abundant and diverse. At the same time, the inputs into medical decision making have also become increasingly complex. Model Based Medicine (MBM) has recently emerged as a framework to address the above challenges. MBM is the use of large-scale integrated physiology and pathology-driven mathematical models to translate and to synthesize existing evidence and medical knowledge into a unified framework, which will then be used to support clinical decision making at individual patient level. MBM not only incorporates all available evidence and most up-to-date understanding of diseases but also account for uncertainties in data and gaps in knowledge. MBM serves as an interface between evidence and physicians, allowing rapid extraction of quantitative, robust and already synthesized information for customized clinical decision making. The decisions can be optimized not only based on the therapeutic efficacy of health interventions, current health status of patients but also patient’s health behavior (e.g. past likelihood to comply with treatment recommendations) and preferences. Based on our recent experience at Archimedes, I will present several case studies to illustrate the power of MBM in leveraging data from EHR and other data sources to support decision making at both population and individual level. I will also speak about the scientific and technical challenges faced by MBM and our strategy in addressing these challenges, including developments of standardized and automatic tools for data integration and synthesis, model calibration and validation, uncertainty quantification and optimal design for model-physician interface.

PHP106: THE COVERAGE WITH CLINICAL EVIDENCE-INFORMED DECISIONS (CCEDS): A NEW HEALTH CARE PAYMENT MODEL IN CHINA

He J, Liu G, Health economics association of Guangdong province, guangzhou, China

OBJECTIVES: The traditional payment methods like fee-for-service and capitation were applied to public health in China, the
former lead to a problem that health insurance cost rising rapidly, while the latter could result in insufficient funds for covering the cost of services needed. This study aim to suggest a new payment model, based on the coverage with clinical evidence-informed decisions (CCEDs), for overcoming the imperfections and making sustained improvement in the medical insurance policy. METHODS: This new health care payment model CCEDs is a single, risk-adjusted, prospective (or retrospective) payment model, used as a tool to bring a new rationale to payment decisions across inpatients and outpatients diagnosed with a specific condition. CCEDs make payment decisions on the basis of the following issues: the resources required to provide care as recommended according to the clinical practice guidelines; the provider performance on measures of clinical process, treatment variation, outcomes of care and reimbursement; the expert advice in specific health care field. RESULTS: This new model CCEDs designed to bring down medical costs and enhance the quality of care, CCEDs also come with opportunities to limit both underuse and overuse, eliminate risk selection problems, lower administrative cost, enhance transparency of results may earning patients trust, increase both patient outcomes and patient satisfaction. Incentives of CCEDs could encourage collaborative teamwork, and promote clinical integration between providers across disparate settings. But, meanwhile encroachment of the market could undermine the professional discretion in the long-term. CONCLUSION: A new payment model, based on coverage with clinical evidence-informed decisions, might provide new options to get high-quality treatment and low medical cost for patients.

PHP107: CHALLENGES AND OPPORTUNITIES IN THE MALAYSIAN health care SYSTEM

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INTRODUCTION: Malaysia is a multicultural society with a population of over 28 million and classified as an upper middle-income country by the World Bank. Malaysia inherited a healthcare system at independence from British colonial rule and provides universal and low cost access to the healthcare needs of all citizens. Improvements in health indices such as reduction in mortality rate and increase in life expectancy using a relatively small amount of GDP (~4%) being spent on health services shows that Malaysians have benefited from a well-developed health care system. CHALLENGES: Demographic and disease pattern transition, increasing cost of healthcare together with increasing demand towards better health outcomes pose challenges in sustaining the system. Historical-based healthcare financing has also created inequity in access and allocative inefficiency. Equity access issues such as uneven human resource distribution and limitations in secondary access to consult specialists remain a problem despite generally improved access to facilities for rural population. Urbanization however has created vertical inequity and strains to existing public health facilities. The inadequate availability of public health facilities and manpower has led to a proliferation of private health facilities. Unethical prescribers’ behaviour, queue jumping and dependence on profit-oriented private healthcare providers further complicate the issues. OPPORTUNITIES: Restructuring of the financial system by introducing national health insurance or co-payment can reduce moral hazards associated with the universal low cost system. Strategizing budget allocation in building facilities, implementing interventions and preventive programmes based on recent transition in health are important measures to be considered. Quality use of medicines concept implementation could improve the procurement, supply and distribution system as well as skills, awareness and knowledge of prescribers and patients. Access and efficiency of the healthcare system could also be improved through this concept. Practices and facilities sharing nationally and internationally, with neighbouring countries, would also improve access.

PHP108: COLLABORATIVE APPROACH IN ACCESSING HOMOGENEOUS MEDICAL DATA IN GRID-BASED ENVIRONMENT (ENHANCING DISEASES CLASSIFICATION)

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OBJECTIVES: The proposed initiative presents the collaborative approach in classification of preliminary characteristics of diseases using sample clinical data that allows the integration of parallel processing in homogeneous grid-based environment. The research focuses on three objectives mainly: To provide collaborative classification in homogeneous resources. To conduct parallel processing in extraction of preliminary characteristics using electronic medical records (EMR) data. To perform characterization for disease features in grid-based neural network classification. METHODS: The study conducted on Globus (Grid) clustering network and interconnected with homogeneous resources as test bed. The integration of homogeneous sample diseases databases for execution of computational application were submitted to the GRAM service to the local scheduling system. The result for time and threads computation was computed on the test bed for homogeneous resources in grid platform with Feed-Forward Neural Networks. PRELIMINARY RESULTS: In the training phase, the diversity of clinical data features such as age, gender, race/ethnicity were imported as input to the Globus nodes with the aid of Globus automated scheduling for
diseases' characteristics classification. The coordination of resources aims to address the issue of optimization in distributed grid resources. The evaluation of outcome includes response time and co-allocation of multiple resources to meet complex clustering of diseases' characteristics using neural networks classification.

PHP109: WITHDRAWN

PHP110: ARCHIMEDES: A LARGE SCALE SIMULATION SYSTEM FOR HEALTH CARE RESEARCH AND ITS APPLICATIONS FOR ASIAN COUNTRIES
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The Archimedes Model is a carefully validated, clinically realistic, simulation model of diseases and healthcare. By using advanced methods of mathematics, computing, and data systems, the Model enables researchers and decision makers to make better informed decisions. The Archimedes Model includes a wide range of diseases/conditions (diabetes, cardiovascular diseases, COPD, obesity, cancers) and detailed descriptions of healthcare delivery systems, interventions, tests, and treatments and patient and physician behaviors. The Model has been used by many organizations (e.g. governments, pharmaceutical companies, insurance companies, disease organizations) across the globe to help answer a wide variety of questions related to clinical trials, policy setting, performance measurement, and health economics and outcomes research. The Model has been adapted to a wide range of settings including US, UK, France, Italy, Sweden, Norway, Poland, Japan, Brazil, and California. We will highlight a number of projects that were supported by EU and Japan, in which the Model was used to guide decision making around management of diabetes. We will also discuss the potential applications of adapting the Archimedes Model to other Asian countries (e.g. India or China) beyond Japan.

PHP111: ‘SERIOUS ILLNESS INSURANCE’ IN CHINA: IMPACT OF NOVEL PUBLIC-PRIVATE PAYMENT MODELS ON ACCESS TO HEALTHCARE AND DRUGS
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OBJECTIVES: In mainland China, a large gap in the funding of catastrophic illnesses has existed for the past decade. In 2012, ‘serious illness insurance’ was proposed by the Government that involves using a portion of funds from the public insurance and additional financial support from the government to cover major illnesses. Commercial health insurers collaborate with local authorities to provide this coverage through various models in different cities and regions. This research seeks to understand current models in different regions and to evaluate the implications for healthcare coverage and access to drugs. METHODS: We conducted extensive literature review to understand the current landscape of the serious illness insurance. Primary research with a mix of stakeholders including private health insurers and regulatory authorities was also conducted in different provinces/ cities to further evaluate the regulatory framework, disease-specific coverage, funding pathways and implications for access to drugs. RESULTS: Numerous models that vary with regards to design, funding and implementation are being piloted across provinces/ cities. Our research findings suggested that limited experience of the private insurers and uncertainty around profitability places significant challenges on the future development of ‘serious illness insurance’. However, implementation of these insurance schemes has positively impacted healthcare coverage and access to drugs. CONCLUSIONS: Our results demonstrate the large degree of variation among models of ‘serious illness insurance’ in different regions. This new public-private partnership will likely continue to positively impact patient access to healthcare and medicines, increase provincial coverage and also boost the growth of the private insurance market.

PHP112: WITHDRAWN

PHP113: BEST POSSIBLE HEALTH OUTCOMES AT DIFFERENT SOCIOECONOMIC LEVELS OF COMMUNITY: THE BETTER CARE PLAN
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Study Objectives: Proposal of an ideal model for obtaining the best possible health outcomes at different socioeconomic levels of community/population in India. Conclusion: Various social inequities viz. race; ethnicity, religions and economic status affect operationalization of health decisions as well as health outcomes invariably. These all inequities define socioeconomic levels of any community. Assessing health equity needs comparing health and its social inequities/determinants within different levels. It is attainable call to standardize the process of healthcare decision making; to obtain best possible health outcomes. Hereby, we propose an ideal model; a “Better Care Plan” which would help in opting best possible health outcomes at different socioeconomic levels. Foremost, we require to understand the mindset of people on healthcare needs. We found that one requires clear communication; mutual collaboration between clinician, patient and other healthcare professionals; professionally competent and compassionate staff and their services; continuity of care and professional excellence required mostly for chronic ailment. In next step “better care plan” undertakes evaluation of the impediment issues that might rise at various points related to patient, staff and system. Diverse quality dimensions proposed by different studies and models would be aimed to standardize the process of healthcare decision making. The six areas of “Better Care Plan” involves focus on patient; rationale; efficiency; opportune, safety and potency; which would help to obtain optimal healthcare outcomes at different socioeconomic levels. Privatization; where private organizations are committed to serve people with government schemes; is one of the important issue which needs improvement. Basic implementations such as community services through home medication reviews, awareness programs will be helpful with “Better Care Plan”.

INFECTION

INFECTION - Clinical Outcomes Studies

**PIN1: IMPACT OF CIGARETTE AND ALCOHOL USE ON ADVERSE DRUG REACTIONS OF HAART THERAPY AMONG HIV/AIDS PATIENTS**

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**OBJECTIVES:** The aim of the current study is to explore and to observe the impact of cigarette smoking and alcohol use on adverse drug reactions occurrence of antiretroviral drugs among HIV/AIDS patients

**METHODS:** Retrospective analysis of all patients diagnosed with HIV infection and on HAART therapy from Jan 2007 to Dec 2012 was conducted at infections disease department of Hospital Pulau Pinang, Malaysia. Patient socio-demographic details along with clinical features were recorded and the susceptible ADRs were observed during the study period. Data was descriptively analyzed by using statistical package for social sciences (SPSS 20).

**RESULTS:** Out of 743 patients that underwent HAART therapy, 314 (42.2%) patients had experienced adverse drug reactions. Out of total included patients 571 (76.8%) were male and 172 (23.1%) were female. Among the patients, 512 (68.9%) were smokers and 340 (45.8%) patients were alcohol users. A total number of 425 (57.2%) adverse drug reactions were recorded of which 269 (63.2%) were reported among smokers and 162 (38.1%) were reported among alcohol users. Univariate analysis indicates a statistical significant relationship between the smoker (p-value =0.009, 95% CI=1.111 – 2.079, Odd ratio= 1.520) and alcohol users (p-value=0.008, 95% CI=1.106 – 1.994, Odd ratio=1.485) with the occurrence of adverse drug reactions on HAART in HIV patients

**CONCLUSIONS:** The study indicates the incidence of adverse drug reactions is significant in smokers and alcohol users on HAART therapy. Patient counselling on avoiding smoking and alcohol consumption can reduce ADRs in patients on HAART therapy.

**PIN2: ADVERSE DRUG REACTIONS OF HAART THERAPY AMONG HIV/AIDS PATIENTS TREATED AT INFECTION DISEASE CLINIC**

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**OBJECTIVES:** Current study is aimed to explore and to observe adverse drug reactions occurrence of antiretroviral drugs among HIV/AIDS patients

**METHODS:** An observational retrospective study of all patients diagnosed of HIV infection and on HAART therapy from Jan 2007 to Dec 2012 was conducted at infectious disease department of Hospital Pulau Pinang, Malaysia. Patient socio-demographic details along with clinical features were recorded. The reported ADRs were assessed for causality by using Noranjo's algorithm scale. Data was descriptively analyzed by using statistical package for social sciences (SPSS 20).

**RESULTS:** Out of 743 patients that underwent HAART therapy, 571 (76.8%) were male and 172 (23.1%) were female patients. Overall 314 (42.2%) patients had experienced adverse drug reactions. A total number of 425 (57.2%) adverse drug reactions were reported among which 311 (73.1%) occurred in males and 114 (26.8%) in female patients. Lipodystrophy
151 (35.5%) was the most common ADR reported; in male 126 (29.6%) and 25 (5.8%) female patients were recorded. Lipodystrophy was followed by skin rashes 80 (18.8%) that included 56 (13.1%) male and 24 (5.7%) female patients. Anaemia was reported 74 (17.4%), of which 49 (11.5%) observed in male and 25 (5.8%) female patients. A statistical significant relationship on Chi-square test was observed between the gender and the occurrence of adverse drug reactions (p-value =0.002). However on univariate analysis the relationship between ADRs with gender resulted in insignificant value (p-value=0.267, 95% CI= 0.862 – 1.712, Odd ratio= 1.215) **CONCLUSIONS:** The study indicates the incidence of adverse drug reactions is higher in male than in female patients. However, a multicenter study with a large sample size may provide us with better understanding of this relationship.

**PIN3: WITHDRAWN**

**PIN4: IMPACT OF HEPATITIS B ON HUMAN IMMUNODEFICIENCY VIRUS PATIENTS IN MALAYSIA: A RETROSPECTIVE STUDY**

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**OBJECTIVES:** To assess the prevalence and clinical outcomes of Hepatitis B (HBV) patients co-infected with Human Immunodeficiency Syndrome (HIV) in a tertiary care hospital **METHODS:** A retrospective cross-sectional study was performed, of HBV positive HIV infected patients following HAART therapy from 2007 to 2012 in Infectious disease Unit, Hospital Palau Pinang (HPP), Malaysia. The demographic and clinical data of the patients was collected retrospectively. The collected data was analyzed with SPSS software (Version 20) to measure the correlation of variables and their infection rates. **RESULTS:** A total of 664 HIV infected patients including 495 (74.5%) males and 169 (25.5%) females with mean age of 40 ± 10.35 years were included in present study. Of these, 86 (13%) were co-infected with HBV. The main race involved in current study was Chinese 455(68.5%) followed by Indians 88(13.3%), Malay 83(12.5%) and minorities 38(5.7%). The route of transmission was mainly male heterosexual contact 464(69.9%) followed by homosexual 47(7.1%) and Intra-Venous Drug Users (IVDU) 48(7.2%). The mean CD4 count, ALT and AST levels in HBV-HIV co-infected patients were 385 ± 148.55, 51.48 ± 39.42, 105.581 ± 38.37 respectively. The co-infection is significantly associated with gender (p = 0.05), and IVDU (p = 0.01). The co-morbidities seen in the present study were Pulmonary Tuberculosis (17.9%), Pneumocystis pneumonia (15.4%), Hyperlipidemia (4.1%), Dyslipidemia (4.1%), Anemia (5.1%), Ischemic Heart Disease (1.8%), Diabetes Mellitus (8.7%), Hypertension (6.9%), Asthma (1.5%), Oral Candidiasis (5.6%), Syphilis (4.2%), Liver Cirrhosis (0.6%), Cerebral Toxoplasmosis (1.8%), Virological Failure (0.6%). **CONCLUSIONS:** The overall prevalence of HBV among HIV patients were about 13% in which 74.5% was males while 25.5 % females. Raised levels of liver enzymes and lowered CD4 counts were seen in the co-infected patients. There was a significant correlation between co-infection with HBV among HIV patients depending on different variables.

**PINS: CHRONIC HEPATITIS C PREVALENCE AND ITS CORRELATION WITH CD4 CELLS AND LIVER ENZYMES AMONG HIV POSITIVE PATIENTS: A MALAYSIAN SCENARIO**

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**OBJECTIVES:** To evaluate the occurrence and clinical outcomes of Hepatitis C (HCV) patients co-infected with Human Immunodeficiency Syndrome (HIV) in a tertiary care hospital **METHODS:** A retrospective study of the patients with clinical histories of HIV co-infection with HCV following HAART therapy in Infectious disease Unit at Hospital Palau Pinang (HPP), Malaysia from the year 2007 to 2012. The clinical and demographic data was collected from patient’s records. In present study we analyzed the collected data by using SPSS software (Version 20) to determine the correlation of variables and measure their infection rates in a particular population. **RESULTS:** The study involves a total of 708 HIV infected patients with the mean age of 40 ± 10.17 years together with 541(76.4%) males and 167(23.6%) females. There were 130(18.4%) patients co-infected with HCV. The assigned population in current study was Chinese 427(60.3%) followed by Indians 96(13.6%), Malay 151(21.3%) and minorities 34 (4.8%). There were three main modes of transmission including male heterosexual contact 506(71.5%), homosexual contact 47(6.6%) and intravenous drug users (IVDU) 114(16.1%). The mean CD4 count, ALT and AST levels in HBV-HIV co-infected patients were 374 ± 150.65, 64 ± 76.15, 129 ± 61.06 respectively. The calculated result shows the
significant association of several factors like sex (p = <0.001), IVDU (p = <0.001) with co-infection of HIV-HCV. The co-morbidities observed in the current study were Pulmonary Tuberculosis (23.6%), Pneumocystis pneumonia (14.4%), Hyperlipidemia (4.4%), Dyslipidemia (3.2%), Anemia (4.5%), Ischemic Heart Disease (2.5%), Diabetes Mellitus (8.2%), Hypertension (6.5%), Asthma (1.4%), Oral Candidiasis (5.2%), Syphilis (3.1%), Liver Cirrhosis (1.1%), Cerebral Toxoplasmosis (2.3%), Virological Failure (1.1%). CONCLUSIONS: The incidence rate of HCV among HIV individuals were about 18.4% including 76.4% males and 23.6% females. There was a significant correlation between HCV among HIV-positive patients depending on various variables like gender, age, exposure to risk factors. (p< 0.001).

PIN6: EFFECTIVENESS OF HAND HYGIENE PROMOTION IN RELATION TO LEVEL OF INVESTMENT: A SYSTEMATIC REVIEW

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OBJECTIVES: Hand-hygiene amongst healthcare workers is amongst the most effective measures to reduce healthcare-associated infections, but compliance is often poor and little is known about the relative effectiveness of interventions to improve it. This study aimed to evaluate the effectiveness of hand-hygiene promotion interventions and to study the association between levels of investment in interventions and improved compliance. METHODS: A search strategy was developed and electronic databases searched for studies published before March 2014. Studies failing to meet the Cochrane Effective Practice and Organisation of Care Group (EPOC) inclusion criteria were rejected. Where studies had not used appropriate analytical methods, we re-analysed primary data. Information on resources required for interventions was extracted, and graded into three levels. Random effects meta-analysis was performed on studies considered sufficiently homogeneous with regard to interventions, participants and outcome measures. RESULTS: Of 3,725 studies retrieved, 125 met inclusion criteria; 35 of these met EPOC criteria (6 randomised controlled trials (RCTs), 25 interrupted time-series (ITS), 2 controlled trials, and 2 controlled before-and-after studies). In four RCTs, hand-hygiene compliance was the primary outcome. Meta-analysis of these showed the intervention was associated with improved compliance (pooled odds ratio [OR], 1.39; 95%CI, 1.15-1.67, I²= 80.00%). Of the 13 ITS studies, 12 showed significant stepwise increases in hand-hygiene compliance. All but three of these also showed a post-intervention trend for increasing hand-hygiene compliance. Grouping studies by the level of investment, 22 were graded as resource-intensive while 11 and 2 studies had medium or low levels of investment, respectively. We found no evidence of a relationship between the level of investment and effect size. CONCLUSIONS: Hand hygiene promotion has a positive impact on hand hygiene compliance, but evidence that increased investment in hand hygiene leads to larger improvements is lacking. Reporting on resources used for interventions was, however, poor.

PIN7: BURDEN OF VARICELLA IN ASIA-PACIFIC COUNTRIES: A SYSTEMATIC REVIEW AND CRITICAL ANALYSIS

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OBJECTIVES: Varicella is a common, vaccine-preventable illness but its impact on public health in Asia-Pacific countries has received little attention. This study aimed to review the epidemiology and economic burden of varicella in Asia-Pacific countries. METHODS: A systematic literature review was conducted using PubMed and government web sites. Outcomes included epidemiology of varicella (incidence, mortality, and complication), vaccination policy and coverage, and varicella-related healthcare resource utilization and costs. Critical analyses of study quality and data gaps were performed. RESULTS: Published data were identified from thirteen countries including Australia, China, India, Japan, Korea, Malaysia, New Zealand, Pakistan, Philippines, Singapore, Sri Lanka, Taiwan, and Thailand. Of these countries either recommend vaccination for only high-risk individuals or have no recommendations. The annual incidence of varicella in the general populations ranged from 13.7 to 76 per 100,000 in Asia-Pacific countries with universal vaccination, and from 100 to 512 per 100,000 in Asia-Pacific countries without universal vaccination. Studies in China, Japan, and South Korea showed varicella incidence peaking in spring and winter. Limited publication has reported varicella-related mortality in the Asia-Pacific region. Majority of the studies assessing healthcare resource utilization focused on inpatient care. The most frequent complications among hospitalized patients were skin and respiratory complications. Hospitalization rates associated with varicella reported in Australia and Taiwan were 0.11 and 60 per 1,000 cases, respectively. Medical costs associated with varicella were estimated in China, Japan, Singapore, Taiwan, and Australia. CONCLUSIONS: Epidemiology and economic burden of varicella in Asia-Pacific countries have not been extensively studied. Given limited varicella vaccination policy in this region, gaps in evidence need to be addressed to inform policy makers about the public health impact of varicella.
**PIN8: INFLUENZA VACCINATION IN JAPAN AMONG THE GENERAL POPULATION AND HIGH-RISK GROUPS**

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**OBJECTIVES:** Influenza vaccination rates have not been high enough in Japan. This study investigated current influenza vaccination rates among the general Japan population and rates among high-risk adults. **METHODS:** This study included data from the 2011-2012 Japan (Ns= 30,000) National Health and Wellness Surveys(NHWS) a cross-sectional, Internet-bases survey. The NHWS included a nationwide sample of adults (18+ years) which included items on vaccination history as well as high-risk group status as defined by the World Health Organization(WHO). Vaccination rates and characteristics of vaccinees were reported descriptively. Logistic regressions were conducted to predict vaccination behavior from sociodemographics and risk-related variables. **RESULTS:** 17.17% of adults in Japan reported being vaccinated for influenza in 2012(compared with 19.17% in 2011). Even among patients in high-risk groups(CHD, chronic lung conditions etc.), vaccination rates were low, ranging from 24.83%(caregivers) to 42.86%(patients with immunodeficiencies). The most common reason for non-vaccination was the belief that it was not important(45.3%); other common reasons included believing that the vaccine is not effective (13.0%) and that prior infection leads to future resistance(12.3%). Respondents who were vaccinated were more likely to be female (OR=1.006), older(OR=1.212), university educated(OR=1.225), and employed(OR=1.242) with higher incomes(¥5MM or more) (OR=1.128) when compared to those who did not receive the vaccine. Those vaccinated also exercised more on average(OR=1.006), and feared needles less(OR=0.869). The strongest predictors of vaccination were having an immunodeficiency (OR=3.613), heart disease (OR=2.571), chronic lung(OR=2.025), chronic liver(OR=1.625), chronic renal condition(OR=1.608) or chronic metabolic conditions (OR=1.532) (all p<.05). **CONCLUSIONS:** Overall vaccination rates were low in Japan with no increase in vaccination rates from the prior year. All WHO-recommended vaccination groups had rates less than 50% and a large gap remains between these recommendations and vaccination behavior. In 2011, the influenza vaccination rates among adults in the United States were 36.2%, almost twice the vaccination rate in Japan.

**PIN9: HEALTH CARE-ASSOCIATED INFECTION PREVALENCE AMONG GRADE A TERTIARY HOSPITALS IN CHINA: A META-ANALYSIS**

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**OBJECTIVES:** To assess the prevalence of health-care-associated infection (HAI) in 2012 among grade A hospitals in China. **METHODS:** Literature searches were conducted from PubMed, EMBASE, Cochrane Library, CNKI, cqvip, WANGFANG, and SinoMed from Jan. 2012 to Mar. 2014. Literature searches were conducted and data was extracted by two independent reviewers, separately. Meta-analyses were conducted by R3.0.3 with random effect models. **RESULTS:** Fifty studies with 91,763 patients met the inclusion criteria and were included. The overall prevalence rate of HAI among all studies was 3.4% (95% CI: 3.1%-3.8%). Among the 50 studies, 25 were performed in Grade A tertiary hospitals and the rest 25 in grade A level 2 hospitals. The 25 studies performed in Grade A tertiary hospitals including 26,700 participants reported the pooled HAI prevalence as 3.5% (95% CI: 3.0%-4.1%). The aggregated HAI prevalence of the other 25 studies with 65,063 patients in grade A level 2 hospitals was 3.2% (95% CI: 2.7%-3.8%), which was not significantly different from that in Grade A tertiary hospitals (P=0.32). In the analyses of different infection sites, 18 studies targeting at lower respiratory infection (19,035 participants) revealed the highest combined constituent ratio as 46.6% (95% CI: 40.1%-52.3%). The pooled constituent ratio of 17 studies targeting at urinary system infection (19,949 participants) was 16.1% (95% CI: 11.5%-22.1%) and that of 19 studies targeting at upper respiratory infection (20,924 participants) was 15.2% (95% CI: 11.2%-20.2%). In the analyses of antibiotics using, 18 studies were identified (19,090 participants) in grade A tertiary hospitals and revealed pooled antibiotics using ratio as 42.96% (95% CI: 38.3%-47.8%). **CONCLUSIONS:** The aggregated prevalence rate of HAI was 3.4% across all general hospitals. The pooled prevalence rate among grade A tertiary hospitals and grade A level 2 hospitals showed no significant difference. Among all infection sites, lower respiratory infection accounts for the highest proportion.

**PIN10: INFLUENZA VACCINATION IN CHINA AMONG THE URBAN POPULATION AND HIGH-RISK GROUPS**

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**OBJECTIVES:** This study investigated current influenza vaccination rates among the urban Chinese population and high-risk adults. **METHODS:** This study included data from the 2013 China (N= 19,987) National Health and Wellness Surveys (NHWS),
a cross-sectional, Internet-based survey. The NHWS includes a sample of urban (Tier I and II cities) adults (≥18 years) which included items on vaccination history and high-risk status defined by the World Health Organization (WHO). Vaccination rates and characteristics of vaccinees were reported descriptively. Logistic regressions were conducted to predict vaccination behavior from sociodemographics and risk-related variables. RESULTS: Only 13.69% of adults in urban China reported being vaccinated for influenza in 2013. Among patients in high-risk groups (coronary heart disease [CHD], chronic lung conditions etc.), vaccination rates were low for most groups, ranging from 5.7% (≥65 years) to 57.69% (chronic neurological conditions). The most common reason for non-vaccination was belief that it was not needed (17.8%); other common reasons for non-vaccination included believing that the group is not effective (12.9%) and not getting a vaccine before (9%). Respondents who were vaccinated were less likely to be older (OR = 0.982), currently married (OR = 0.792) and university educated (OR = 0.748), and more likely to be female (OR = 1.403), a current smoker (OR = 1.387) exercised more on average (OR = 1.023), consumed alcohol regularly (OR = 2.299), feared needles more (OR = 1.111), and had higher incomes (RMB 6,000 or more) (OR = 1.62) compared with those not vaccinated. The strongest predictors of vaccination were having CHD (OR = 2.161), chronic lung (OR = 2.069), chronic liver (OR = 1.891), chronic metabolic condition (OR = 1.835), or chronic renal conditions (OR = 1.758)(all p < .05). CONCLUSIONS: Overall vaccination rates were low in China. Most WHO-recommended vaccination groups had rates less than 20% and a large gap remains between these recommendations and vaccination behavior. In 2011, the influenza vaccination rates among adults in the United States were 36.2%, almost three times the vaccination rate in urban China.

PIN11: HOSPITAL QUALITY OF INFECTION CONTROL

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OBJECTIVES: Infection control and its Prevention system were established and its role, responsibility and right were clarified in Mongolia in May 4, 2010 by the decree of Minister of Health “Strengthening infection control system of Healthcare organizations and intensifying preventive actions of Hospital infections”. The Goal of this study is to implement a guideline for evaluation and development of Infection control and its Prevention activities of all levels of healthcare organizations. METHODS: 1. Method of cross sectional study was used in research of current condition of Infection control Department activities. 2. Disinfection quality and safety was studied by Retrospective and Description method. 3. Knowledge of disinfection and hand washing of medical staff are studied by descriptive and cross-sectional study. RESULTS: Assessment of current condition for activity of Infection control Department in national level was conducted among 6 tertiary level hospitals, 8 secondary level hospitals and 28 primary level hospitals. CONCLUSIONS: 1. Infection control for department and teams at healthcare organizations work with proper structure of management and members, and their activities vary according to its level. 2. The healthcare organization’s hygiene standards and conditions are different, especially disinfectants and equipment are inadequate. Medical staff’s ability to hand disinfection is reduced according to its level. 3. Sterilizing quality is good enough, but its initial test and monitoring by technical methods are insufficient in primary health facilities. 4. 80.4% of medical staff attended infection control training and have adequate knowledge of hospital infections.

PIN12: A RETROSPECTIVE COHORT STUDY OF RISK FACTORS FOR DEATH AMONG HUMMAN IMMUNODEFICIENCY VIRUS INFECTED ADULT PATIENTS

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OBJECTIVES: Globally, human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) reduces life expectancy by several years. Mortality is high among non-treated patients. However, the predictors of mortality have not been adequately studied. Hence, the main objective of the study was to determine predictors of mortality among HIV positive adults who are not on antiretroviral treatment, in a South Indian hospital. METHODS: A facility-based retrospective cohort study was conducted and data were collected from 150 patients who were registered but not on treatment from December 2011 to December 2013. Multiple logistic regression analysis was applied to identify the risk factors for mortality among HIV patients. RESULTS: A total of 40 patients were died during the follow-up period. Patients with age between 39-59 years (OR 0.49, 95% CI 0.28-0.84), baseline World Health Organization (WHO) staging III and IV (OR 0.09, 95% CI 0.04-0.20 and OR 0.11, 95% CI 0.04-0.27), patients with opportunistic infections (OR 4.93, 95% CI 2.87-8.84), were found to have less risk for mortality compared to their counterparts. Patients with low BMI (OR 2.05, 95% CI 1.21-3.49), CD4 count >200 cells/µl (OR 3.88, 95% CI 2.27-6.65) were found to have more risk. CONCLUSIONS: Age group 18-38, patients without opportunistic infections, baseline WHO staging stage I and II, low BMI, CD4 >200 cells/µl were all significant predictors of mortality. Therefore, patients with the aforementioned predictors should be followed closely and frequently.
INFECTION - Cost Studies

PIN13: WITHDRAWN

PIN14: CLINICAL OUTCOMES AND HOSPITAL COSTS ASSOCIATED WITH EMPIRICAL TREATMENT OF HOSPITAL-ACQUIRED PNEUMONIA WITH VANCOMYCIN OR LINEZOLID IN A CHINESE TERTIARY CARE HOSPITAL: A RETROSPECTIVE COHORT STUDY

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OBJECTIVES: To compare clinical outcomes and hospital costs in patients receiving empirical treatment of hospital-acquired pneumonia (HAP) with vancomycin or linezolid in Chinese patients. METHODS: Patients receiving empirical treatment with vancomycin or linezolid for HAP from 2008 to 2012 in a tertiary hospital in Shanghai were identified and linked with hospital administration databases for retrospective data extraction. Best matching pairs identified by propensity score methods for the two antibiotics were compared on HAP-related clinical response, in-hospital mortality, and allocation of hospital costs. The comparisons on clinical outcomes were confirmed by multiple logistic regression analyses with adjusting unbalanced baseline variables between matched pairs. RESULTS: 60 propensity score matched pairs for the two antibiotics were identified. Empirical treatment with vancomycin or linezolid had comparable responses at the end of treatment (clinical cure: 30.0% vs. 31.7%, p=0.847; treatment failure: 55.0% vs. 45.0%, p=0.289). However, vancomycin was associated with significantly lower in-hospital mortality than linezolid (3.3% vs. 18.3%, p=0.013). Comparable risk of treatment failure between the two antibiotics (odds ratio (OR) 1.139, p=0.308) and lower risk of in-hospital mortality associated with vancomycin (OR 0.186, p=0.055) were confirmed after adjustment of unbalanced baseline variables between matched pairs. Vancomycin was associated with lower total hospital costs than linezolid (RMB 113,160 vs. RMB 133,825, p=0.076; 1 RMB = 0.16 US dollars) likely because of significantly lower acquisition cost of vancomycin (median RMB 2,880 vs. RMB 8,194, p<0.001) and other hospital costs unrelated to drugs, medical examinations, and medical supplies (median RMB 27,686 vs. RMB 44,826, p=0.006). CONCLUSIONS: Empirical treatment with vancomycin and linezolid for HAP had comparable treatment response but in-hospital mortality associated with vancomycin was lower in Chinese patients. Significantly lower antibiotic acquisition cost and other hospital costs unrelated to drugs, exams, and supplies likely made substantial contribution to the reduced hospital costs associated with vancomycin.

PIN15: SURVEY OF TREATMENT COSTS TO HEPATITIS C IN CHINA

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OBJECTIVES: Incidence of hepatitis C viral infection (HCV) is increasing in China and HCV represents considerable disease burden to the country. As there is no published data on treatment costs to HCV in China, this study reports key findings from a recent survey to examine treatment costs in the country. METHODS: A cross sectional survey was conducted in 2012 among 29 hospitals across China. Data were collected from patients who visited either outpatient or inpatient settings, including patient demographics, coverage of health insurance, and costs to treat HCV related visits. Results were analyzed by descriptive statistics. RESULTS: A total of 1,116 patients participated into this survey. Males (52.6%) were slightly more than females. The average age was 45.5 years old and 49.9 years old for outpatient and inpatient cases, respectively. Patients who were in their productive age groups (30 to 49 years old) are the majority (48.7%). While most of the inpatient cases had health insurance coverage, 49.6% of the outpatient cases were out of pocket. Medium cost for an HCV related hospital admission was 8,212 RMB (or 1,369 USD); of which medications, both western and traditional medicines, cost 61.1%. This study found that more advanced the disease progress, higher costs to the condition: for chronic HCV, cirrhosis, and hepatocellular carcinoma, the medium costs were 8,111 RMB (1,351 USD), 8,399 RMB (1,399 USD), and 14,425 RMB (2,404 USD), respectively. CONCLUSIONS: Key findings suggest that (1) a better disease management strategy help to improve the national economy in long term; (2) the needs for an early and successful treatment to these patients to reduce the finance burden; and
(3) an improvement of health policy, especially on health insurance, would result in better treatment and disease management to HCV in China.

PIN16: DIRECT COSTS OF TREATMENT OF SKIN DRUG REACTIONS INDUCED BY ANTIBIOTICS IN PERSPECTIVE OF PUBLIC PAYER AND SERVICE PROVIDER

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OBJECTIVES: The aim was to analyze the direct costs of treatment of skin drug reactions induced by antibiotics in perspective of public payer (National Health Fund) and service provider. METHODS: We analyzed retrospectively data from 164 patients hospitalized in the Department of Dermatology, Military Medical Institute in Warsaw (from 2002 to 2012) due to skin drug reactions. The analysis was based on data derived from the patients’ medical charts and cost data provided by the hospital accounting department. The hospitalization costs by National Health Fund (NHF) were calculated based on the prices for medical services established by the NHF on the basis of a contract with the Military Institute of Medicine (2012 year). RESULTS: In the study group the most common cause of cutaneous drug reactions were antibiotics (45 %) including beta-lactamase antibiotics, antibiotics with beta-lactamase inhibitor, clindamycins, fluoroquinolons. The total cost of hospitalisation, based on the scores, assigned by the National Health Fund was 177 629 euro. The average cost per patient was 2368 euro. The total costs of hospitalisation in the analysed period, incurred by the Military Institute of Medicine and calculated according to the internal pricelist for the year 2012 for the analysed study group amounted to 178 514 euro. The average hospitalisation costs per patient was 2380 euro. CONCLUSIONS: Our analysis demonstrates that therapies of drug-induced, adverse skin reactions induced by antibiotics generate considerable costs, both for the payer and the service provider. The costs, which are incurred by either party, are comparable, providing evidence that the pricing of procedures, proposed by the public payer in Poland and valid since 2012, has been adequate to the expenses, borne by the service provider.

PIN17: ECONOMIC EVALUATION ON HEPATITIS B VACCINATION STRATEGIES FOR PREVENTING MOTHER-TO-CHILD TRANSMISSION IN CHINA

Lei L, HU M, Sichuan University, Chengdu, China

OBJECTIVES: Through analyzing the main immunization strategies for preventing mother-to-child transmission of HBV in China, figure out the optimized strategy which fit the current situation of China based on constructed Decision Tree-Markov model and cost-benefit analyses. METHODS: The multilevel decision tree-markov model was constructed by TreeAge Pro Software 2011, which could simulate the prognosis of HBV disease after various immunization strategies for preventing mother-to-child transmission of HBV; In this model, extracted parameters were needed, including vaccine inoculation rate, protective rate of various immunization protocol, the prognosis of disease and its probabilities, the financial burden of various disease condition, from important published researches by literature review; then evaluated each immunization strategy by cost-benefit analyses, and examined the stability of test results, the parameters which influence the results greatly through sensitivity analysis and threshold analysis. RESULTS: Currently there were 8 immunization strategies for preventing mother-to-child transmission of HBV in China. The cost of each immunization strategy varied from 8162.8 RMB(1316.6US$) to 14840.4 RMB(2393.6US$), which included the vaccine inoculation and infection and therapy cost if immunization failed. The benefit of each strategy, which was assessed by the avoiding financial burden by immunization, varied from 30801.9 RMB (8193.8US$) to 73801.0 RMB (11903.4US$). The BCR of each strategies varied from 3.7 to 19.3. The sensitive factors were vaccination接种率, vaccination inoculation rate, protective rate of various immunization protocol, the prognosis of disease and its probabilities, the financial burden of various disease condition, from important published researches by literature review; then evaluated each immunization strategy by cost-benefit analyses, and examined the stability of test results, the parameters which influence the results greatly through sensitivity analysis and threshold analysis. CONCLUSIONS: Comparatively, the optimized strategy in China was giving the newborns of HBsAg positive mother an 001IU HBIG IM injection within 24 hrs after birth, then 3 shots 10 μg Hepatitis B Vaccine in accordance with 0-1-6 procedure (BCR=19.3). The decision tree-markov model has good applicability and reliability for quantitative economic evaluation and optimization of hepatitis B vaccination strategies for preventing mother-to-child transmission.

PIN18: COST-EFFECTIVENESS OF ANTIVIRAL THERAPY FOR CHRONIC HEPATITIS B: A SYSTEMATIC REVIEW

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Lei L, HU M, Sichuan University, Chengdu, China

OBJECTIVES: Through analyzing the main immunization strategies for preventing mother-to-child transmission of HBV in China, figure out the optimized strategy which fit the current situation of China based on constructed Decision Tree-Markov model and cost-benefit analyses. METHODS: The multilevel decision tree-markov model was constructed by TreeAge Pro Software 2011, which could simulate the prognosis of HBV disease after various immunization strategies for preventing mother-to-child transmission of HBV; In this model, extracted parameters were needed, including vaccine inoculation rate, protective rate of various immunization protocol, the prognosis of disease and its probabilities, the financial burden of various disease condition, from important published researches by literature review; then evaluated each immunization strategy by cost-benefit analyses, and examined the stability of test results, the parameters which influence the results greatly through sensitivity analysis and threshold analysis. RESULTS: Currently there were 8 immunization strategies for preventing mother-to-child transmission of HBV in China. The cost of each immunization strategy varied from 8162.8 RMB(1316.6US$) to 14840.4 RMB(2393.6US$), which included the vaccine inoculation and infection and therapy cost if immunization failed. The benefit of each strategy, which was assessed by the avoiding financial burden by immunization, varied from 30801.9 RMB (8193.8US$) to 73801.0 RMB (11903.4US$). The BCR of each strategies varied from 3.7 to 19.3. The sensitive factors were vaccination protection rate, vaccine inoculation rate, the costs of HBV infection every year. CONCLUSIONS: Comparatively, the optimized strategy in China was giving the newborns of HBsAg positive mother an 001IU HBIG IM injection within 24 hrs after birth, then 3 shots 10 μg Hepatitis B Vaccine in accordance with 0-1-6 procedure (BCR=19.3). The decision tree-markov model has good applicability and reliability for quantitative economic evaluation and optimization of hepatitis B vaccination strategies for preventing mother-to-child transmission.

PIN18: COST-EFFECTIVENESS OF ANTIVIRAL THERAPY FOR CHRONIC HEPATITIS B: A SYSTEMATIC REVIEW

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OBJECTIVES: Through analyzing the main immunization strategies for preventing mother-to-child transmission of HBV in China, figure out the optimized strategy which fit the current situation of China based on constructed Decision Tree-Markov model and cost-benefit analyses. METHODS: The multilevel decision tree-markov model was constructed by TreeAge Pro Software 2011, which could simulate the prognosis of HBV disease after various immunization strategies for preventing mother-to-child transmission of HBV; In this model, extracted parameters were needed, including vaccine inoculation rate, protective rate of various immunization protocol, the prognosis of disease and its probabilities, the financial burden of various disease condition, from important published researches by literature review; then evaluated each immunization strategy by cost-benefit analyses, and examined the stability of test results, the parameters which influence the results greatly through sensitivity analysis and threshold analysis. RESULTS: Currently there were 8 immunization strategies for preventing mother-to-child transmission of HBV in China. The cost of each immunization strategy varied from 8162.8 RMB(1316.6US$) to 14840.4 RMB(2393.6US$), which included the vaccine inoculation and infection and therapy cost if immunization failed. The benefit of each strategy, which was assessed by the avoiding financial burden by immunization, varied from 30801.9 RMB (8193.8US$) to 73801.0 RMB (11903.4US$). The BCR of each strategies varied from 3.7 to 19.3. The sensitive factors were vaccination protection rate, vaccine inoculation rate, the costs of HBV infection every year. CONCLUSIONS: Comparatively, the optimized strategy in China was giving the newborns of HBsAg positive mother an 001IU HBIG IM injection within 24 hrs after birth, then 3 shots 10 μg Hepatitis B Vaccine in accordance with 0-1-6 procedure (BCR=19.3). The decision tree-markov model has good applicability and reliability for quantitative economic evaluation and optimization of hepatitis B vaccination strategies for preventing mother-to-child transmission.
OBJECTIVES: To evaluate published cost-effectiveness analyses (CEA) assessing nucleos(t)ide analogues (NAs), interferon, and pegylated interferon for chronic hepatitis B (CHB). METHODS: Main medical databases in both English and Chinese were searched up to October 2012 to identify eligible studies for data extraction. The base case incremental cost-effectiveness ratio (ICER) per quality-adjusted life year (QALY) was adjusted to 2011 local currency value and presented by the ratio to 2011 gross domestic product per capita (GDPPC). Simple linear regression analyses took adjusted ICER per QALY as dependent variable to assess the cost-effectiveness of antiviral therapy when compared to lamivudine. RESULTS: 81 studies published in English and 18 studies published in Chinese were identified. When compared to no treatment, all NAs were associated with an ICER per QALY of less than 1 GDPPC in high or middle-income countries. When compared to lamivudine, entecavir was associated with an ICER per QALY of less than 1 GDPPC in high or middle-income countries. Simple linear regression analyses observed significantly reduced ICER per QALY associated with entecavir (coefficient -1.450, P=0.018) but significantly increased ICER per QALY associated with interferon (coefficient 5.583, P<0.001) or adefovir (coefficient 2.354, P<0.001) when compared to lamivudine. Telbivudine, tenofovir and pegylated interferon did not have significant impact on ICER per QALY when lamivudine was the reference. One study published in Chinese was considered high quality and reported the lowest ICER per QALY associated with entecavir when compared to no treatment in patients with positive or negative hepatitis B e antigen (HBeAg). CONCLUSIONS: When compared to no treatment, NAs were highly cost-effective for CHB in high or middle-income countries. When compared to lamivudine, entecavir was the most cost-effective treatment among NAs. Entecavir was also the most cost-effective NA when compared to no treatment in Chinese patients with CHB, irrespective of their HBeAg status.

PIN19: COST-EFFECTIVENESS OF INFANT VACCINATION WITH 13-VALENT VERSUS 10-VALENT PNEUMOCOCCAL CONJUGATE VACCINE IN KOREA

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OBJECTIVES: The Pneumococcal disease is a major cause of morbidity and mortality in pediatrics, and it leads to serious health as well as economic burden on the national health care system. In Korea, both 13-valent and 10-valent pneumococcal conjugate vaccines are currently used for the prevention of pneumococcal infections for Pediatrics. This study aims to evaluate the long-term economic and clinical impact of PCV-13 versus PCV-10 vaccination in prevention of IPD, pneumonia and acute otitis media (AOM) from health care system perspective. METHODS: A Markov cohort model with a 10-year time horizon was used to estimate the effect of infant vaccination with PCV-13 versus PCV-10. Using this model, we considered disease incidence and serotype coverage and health care utilization to compare costs and clinical impact of PCV-13 versus PCV-10 on IPD, inpatient and outpatient pneumonia, and AOM, among vaccinated children (direct effect) and the entire population with indirect(herd effects). Patients were entered in the model by age groups: ages 0-2 years, 2-4 years, 5-17 years, 18-34 years, 35-49 years, 50-64 years, 65+ years. Only 0-2 year cohort was vaccinated. The local epidemiology and cost data were used to achieve national specificity. Direct/Indirect effectiveness of PCV-13 and PCV-10 were calculated based on PCV-7 efficacy data, using assumptions regarding serotype coverage and PCV-10 and PCV-13 protection against additional serotypes. RESULTS: In the analysis, PCV-13 vaccination has caused significant decline in all PD cases. It was estimated to prevent 19,918 cases of IPD, 3,796,657 cases of pneumonia, and 53,310,807 cases of AOM in 10-year cohort. Also the incremental cost per LYG was estimated at 10,043,048 won for the PCV-13 vaccination program compared to PCV-10 vaccination. CONCLUSIONS: PCV-13 vaccination program provided economic and clinical impact on overall PD prevention and cost-effective compared with PCV-10 vaccination.

PIN20: COST-EFFECTIVENESS OF MATERNAL IMMUNISATION FOR PERTUSSIS IN NEW ZEALAND


OBJECTIVES: Despite routine vaccination, pertussis remains an important public health problem with an increase in annual incidences worldwide in recent years. Since infants too young to be protected by vaccination remain at risk of severe pertussis-related morbidity, New Zealand Authorities recommended and funded maternal immunisation against pertussis in 2013. In this study, we evaluated the cost-effectiveness of adding a maternal immunisation program to routine vaccination prior to 2013 in New Zealand. METHODS: A decision-tree model was adapted from the literature. A cohort of infants below 1 year of age (corresponding to the birth cohort in New Zealand) and a cohort with their mothers are followed. Data on pertussis morbidity and costs were gathered for infants and their mothers. Health benefits (in quality-adjusted life-years [QALYs]) and costs were estimated. Incremental cost-effectiveness ratio was calculated from a payer's perspective. The robustness of results was determined through scenario analysis (years of low, high and average incidence) and sensitivity analysis. RESULTS: In the...
base-case analysis (average incidence 2009-2012, 20% coverage, 1:100 underreporting), maternal immunisation was found to reduce the incidence of pertussis among infants (62 infant cases prevented) and was estimated to have a cost-effectiveness ratio of NZD 527.17/QALY from a payer's perspective. During a high incidence year maternal immunisation was dominant. During a low incidence year maternal immunisation was estimated to have a cost-effectiveness ratio below NZD 32,577.42/QALY. In the scenario analysis, the cost-effectiveness of maternal immunisation remained below that ratio and even dominant in most cases. CONCLUSIONS: This study estimated that the addition of maternal immunisation to the New Zealand national immunisation program was a cost-effective or even cost-saving decision. DISCLAIMER: This is a cost-effectiveness study only. There is currently no pertussis immunisation indication/label for pregnancy in New Zealand and any immunisation should be consistent with local product labelling.

PIN21: THE COST-EFFECTIVENESS ANALYSIS OF TWO PEGYLATED INTERFERON ALFA TREATMENT FOR CHRONIC HCV INFECTION IN CHINA

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OBJECTIVES: Hepatitis C virus (HCV) is currently affecting more than 43 million persons in China, but the high cost of the standard drug therapy with pegylated interferon (PEG-IFN) inhibits many HCV infected patients to obtain appropriate treatment. A newly developed domestic low-price PEG-IFN (Peginterferonalpha-2b (40kD, Y shape) is expected to benefit the patients greatly with an equally effective treatment at substantially lower cost. This study provides the first scientific analysis to report the cost-effectiveness of this new drug treatment which is expected to be soon available for HCV infected patients in China. METHODS: Data was obtained from a multicenter, open and randomized, effective drug controlled phase 3 clinical trial. 242 eligible patients were randomized into the treatment group (PEG-IFNa-2b (40kD, Y shape) combined with RBV) and the control group (PEG-IFNa-2a combined with RBV). The effectiveness measure was sustained viral response (SVR). Costs, which were measured by direct medical costs, were obtained from medical records. An incremental cost-effectiveness ratio was calculated and probabilistic sensitivity analysis was conducted based on bootstrapping method. RESULTS: The SVR rate of PEG-IFNa-2b (40kD, Y shape) cohort and PEG-IFNa-2a cohort were 85.44% and 79.52% (p=0.2419) respectively. In the meantime, patients receiving PEG-IFNa-2b (40kD, Y shape) incurred significantly less costs compared to the PEG-IFNa-2a treated control group (CNY 29930.74 vs. 36743.90, P<0.01). CONCLUSIONS: Compared to PEG-IFNa-2a treatment, PEG-IFNa-2b (40kD, Y shape) treatment is equally effective at substantially lower costs. Sensitivity analysis conducted with bootstrapping method indicates a great possibility that PEG-IFNa-2b (40kD, Y shape) treatment is a cost-saving therapy.

PIN22: COST-EFFECTIVENESS OF POSACONAZOLE VERSUS FLUCONAZOLE OR ITRACONAZOLE IN THE PROPHYLAXIS OF INVASIVE FUNGAL INFECTIONS AMONG NEUTROPENIC PATIENTS IN THAILAND

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OBJECTIVES: This study evaluated cost-effectiveness of posaconazole versus standard azole therapy (SAT; fluconazole or itraconazole) for prevention of invasive fungal infection (IFI) in neutropenic patients from the Thai health care system perspective. METHODS: A decision-analytic model was developed based on data from clinical trials. The surviving patients in the decision tree were extrapolated to a lifetime horizon using Markov model in which mortality risk was specific to underlying disease. The rates of IFI, IFI-related mortality, overall mortality and treatment duration were obtained from published literature. The probability of IFI-related death of posaconazole was assumed to be equal to SAT for Scenario I (45%), and was lower than SAT for Scenario II (36% vs. 48%) as obtained from clinical trial. Data of IFI-related costs and health care resource utilization were obtained from local studies and expert opinion. Drug prices were those published by Ministry of Public Health. All costs were expressed in THB 2013 values. Future costs and outcomes were discounted at 3%. The model outcomes included costs, IFI avoided, life years saved (LYS) and incremental cost-effectiveness ratio (ICER) of posaconazole versus SAT. RESULTS: In comparison with fluconazole/itraconazole, posaconazole was associated with fewer IFIs per patient (0.05 vs. 0.11) during 100-day follow-up. Over a lifetime horizon, prophylaxis with posaconazole resulted in lower discounted costs and a benefit of 0.06 and 0.07 in terms of discounted LYS for Scenario I and II, respectively. The probabilistic sensitivity analyses showed that there are 95.9% and 96.4% probabilities that posaconazole is cost-effective relative to fluconazole/itraconazole at the recommended threshold of 160,000 THB/LYS for such comparisons. CONCLUSIONS: This analysis suggested that posaconazole is the
dominant treatment strategy (more effective and less costly) for the prevention of IFI in patients with prolonged neutropenia in Thailand. Posaconazole prophylaxis may substantial diminish for the economic burden of IFI.

**PIN23: THE COST-EFFECTIVENESS OF COMBINED VECTOR-CONTROL AND VACCINATION STRATEGIES ON PREVENTION OF DENGUE FEVER: A DYNAMIC MODEL-BASED ANALYSIS**

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**OBJECTIVES:** Dengue fever is a vector-borne disease prevalent in tropical and subtropical regions. It is an important public health problem with a considerable and often under-valued disease burden in terms of frequency, cost and quality-of-life.

Previous analyses have documented the cost-effectiveness of vaccination as well as a range of vector-control interventions. However, such analyses do not evaluate the cost-effectiveness of combined vaccination and vector control interventions. We seek to demonstrate the public health and economic value of interventions compared with the next best alternative embracing both vaccination as well as vector-control interventions. **METHODS:** Using a previously published dynamic compartmental model (Knerer 2013) able to consider dengue fever transmission, we assessed the impact of different vector-control, vaccination and mixed strategies. We then combined the results with economic data to estimate the relative cost-effectiveness of dengue vector-control and vaccination strategies in different age-groups in Thailand. We estimated the expected costs and outcomes of individuals with dengue fever (vaccinated or not). Costs included direct medical costs such as the costs of vaccination, costs of hospitalisation, as well as the indirect costs of lost productivity. The health burden of dengue fever was assessed in relation to disability-adjusted life-years (DALYs) lost. **RESULTS:** We found vaccination to be a cost-effective single intervention, both with imperfect efficacy (30.2%) as well as under more optimistic scenarios (70%). Cost-effectiveness ratios for vector-control strategies ranged from being cost-effective and even cost saving to cost ineffective with incremental cost-effectiveness ratios in excess of WHO guidelines. In combination, control interventions and vaccination exhibited a marked impact on dengue fever transmission and proved to be a cost-effective strategy as well as delivering the potential for cost-savings. **CONCLUSIONS:** By providing a high level of disease control, the implementation of a vaccination program in combination with vector-control strategies appears to be cost-effective and often cost-saving.

**PIN24: COST-EFFECTIVENESS OF HEPATITIS A VACCINATION IN INDONESIA**

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**OBJECTIVES:** This study aims to assess the cost-effectiveness of hepatitis A vaccination in Indonesia, including an explicit comparison between one-dose and two-dose vaccines. **METHODS:** An age-structured cohort model based on a decision tree was developed for the 2012 Indonesia birth cohort. Using the model, we made a comparison on the use of two-dose and one-dose vaccines. The model involves a 70-year time horizon with 1-month cycles for children less than 2 years old and annually thereafter. Monte Carlo simulations were used to examine the economic acceptability and affordability of the hepatitis A vaccination. **RESULTS:** With the vaccine price of US$ 4.49 per dose, the implementation of the hepatitis A vaccine from the societal perspective would yield incremental-cost-effectiveness-ratios (ICERs) at US$ 9,194 and US$ 4,577 for the two-dose and one-dose vaccine schedules, respectively. Considering the 2012 gross-domestic-product (GDP) per capita in Indonesia of US$ 3,557, the results indicate that hepatitis A vaccination would be a cost-effective intervention, both for the two-dose and one-dose vaccine schedules. Vaccination would be 100% affordable at budgets of US$ 89,918,000 and US$ 46,778,000 for the implementation of the two-dose and one-dose vaccine schedules, respectively. **CONCLUSIONS:** The implementation of hepatitis A vaccination in Indonesia would be a cost-effective health intervention under the market vaccine prices. Given the budget limitations, the use of a one-dose-vaccine schedule would be more realistic to be applied than a two-dose schedule. The discount rate, vaccine price, vaccine efficacy and mortality rate were the most influential parameters impacting the ICERs.

**PIN25: HOW CAN A MULTILEVEL PROMOTION OF BREASTFEEDING REDUCE THE REQUIRED BUDGET FOR ROTAVIRUS VACCINATION IN INDONESIA?**

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**OBJECTIVES:** Breast milk is considered to give protection against rotavirus infection since it contains anti-rotavirus maternal antibodies and other nonspecific inhibitors. Multilevel promotion of breastfeeding is a complex intervention that modifies
behavioral determinants through multiple levels of health promotion. This intervention can prolong the duration and increase the prevalence of exclusive breastfeeding. This study aims to investigate the effect of multilevel promotion of breastfeeding on reducing the required budget for rotavirus vaccination in Indonesia. METHODS: We developed an age-structured cohort model within a 5-year-time-horizon for the 2013 Indonesia birth cohort. We compared two situations: (i) baseline, reflecting the current situation for the population of under-5-years-old, and (ii) the current situation with an additional multilevel promotion of breastfeeding. We used Monte Carlo simulations to examine the economic acceptability and affordability of the rotavirus vaccination. RESULTS: Vaccination coupled with multilevel promotion of breastfeeding could reduce rotavirus-diarrhea by 493,235 cases. At a vaccine price of US$ 5.0 per dose, multilevel promotion of breastfeeding could reduce the required budget for the implementation of three-dose rotavirus vaccination by US$ 50,000, compared to the current absence of specific promotion. CONCLUSIONS: Multilevel promotion of breastfeeding could potentially reduce the required budget for rotavirus vaccination. Mortality rate and vaccine price were the most influential parameters on the sensitivity analyses.

PIN26: COST-UTILITY ANALYSIS OF 10- AND 13-VALENT PNEUMOCOCCAL CONJUGATE VACCINES IN THE PHILIPPINES

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OBJECTIVES: The objective of this study is to evaluate the costs-effectiveness of introducing pneumococcal conjugate vaccine as part of the childhood immunization program in the Philippines. METHODS: A cost-utility analysis was conducted using a lifetime horizon. A Markov simulation model was used to examine the comparative cost-effectiveness of PCV10 and PCV13 against the current scenario of no vaccination. A health system perspective was employed to explore different funding schemes, which include full or partial vaccination coverage subsidized by the government and self-paid vaccination in the private sector. An annual discount rate of 3.5% for future costs and outcomes was applied. Results were presented as incremental cost-effectiveness ratios (ICERs) per QALY gained. Sensitivity analysis was performed to determine the impact of parameter uncertainty. RESULTS: With universal vaccination by the government at a cost per dose of Php 624 for PCV10 and Php 700 for PCV13, the ICER for PCV10 and PCV13 were Php 68,086 and Php 67,631 per QALY gained, respectively, compared to no vaccination. Partial vaccination of 25% and 50% of the birth cohort yielded considerably higher ICER values that are still below the country ceiling threshold of Php 170,000 per QALY gained, because of the loss of herd protection. The analysis also found that with a partial vaccination strategy of the government, having at least 10% of the target cohort self-pay a higher market price of Php 2,056 for PCV10 and Php 3,545 for PCV13 would make vaccination cost-ineffective, because of the high out-of-pocket costs. CONCLUSIONS: The inclusion of PCV in the national immunization program with either universal or partial coverage would be a cost-effective intervention in the Philippines compared to no vaccination. However, the affordability and sustainability of PCV implementation over the long term should be considered by decision makers.

PIN27: COST-UTILITY ANALYSIS OF OPTIMAL DOSING OF OSELTAMIVIR UNDER PANDEMIC INFLUENZA USING A NOVEL APPROACH: LINKING HEALTH ECONOMICS AND TRANSMISSION DYNAMIC MODELS

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OBJECTIVES: Some recent pharmacological evaluations support that higher exposures of oseltamivir may further reduce duration of influenza viral shedding and symptoms. This study investigated the economic impact of oseltamivir standard (75 mg BID) and high (150 mg BID) dose treatment and its potential in supporting pandemic influenza planning decisions in the US. METHODS: A health economic (HE) decision analytic model was linked to a pharmacokinetic/pharmacodynamics (PK/PD) - transmission dynamic model which simulated the infected population in an influenza outbreak under different scenarios. A cost-utility analysis, under the US societal perspective, was conducted; comparing oseltamivir 150mg versus approved 75mg BID, and no treatment, three levels of uptake (25%, 50%, and 80%), for a strain with comparable virulence to typical seasonal-influenza. Model parameters such as probabilities, costs (2013 USD), lengths of stay, and utilities were derived from published studies. In the HE model, an infected patient was either treated with oseltamivir in the outpatient setting or admitted into the hospital, leading to no complications, pneumonia, sepsis, and acute respiratory distress syndrome. Total costs, quality-adjusted life years (QALYs), and incremental cost-effectiveness ratios (ICERs) were determined over one-year time horizon. Sensitivity analyses were undertaken. RESULTS: Under low virulence and low transmissibility scenarios, in comparison with no treatment,
the use of 75mg BID oseltamivir showed cost-saving of USD 31-33 million million and 395-452 QALY gained for 25% and 80% uptake, respectively. Compared to no treatment, oseltamivir 150 mg BID saved USD 21-32 million and 418-456 QALY gained for 25% and 80% uptake. The results were sensitive to the proportion of inpatient presentation at ED and utility during influenza. CONCLUSIONS: Results clearly demonstrate that both 75 mg BID standard and 150 mg BID high dose oseltamivir therapy are cost saving. The findings corroborate antiviral therapy as being a valuable component of pandemic influenza planning decisions in the US.

**PIN28: META-ANALYSIS OF XUEBIJING JOINT ULINASTATIN TREATING SEPSIS**

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OBJECTIVES: To compare the efficacy of Xuebijing injection and ulinastatin injection for the treatment of inflammation and sepsis by evaluating plasma tumor necrosis factor (TNF-α), interleukin-6, procalcitonin (PCT), the average length of stay and the average duration of mechanical ventilation. METHODS: Literatures from January 2004 to August 2013 were retrieved from the online databases such as CNKI, CQVIP and Wanfang Data. The documents and data, selected according to the inclusion and exclusion criteria, were analyzed by RevMan5.0 Meta-analysis software. RESULTS: Four randomized controlled clinical trials were included, with 181 patients in the experimental group (Xuebijing +Ulinastatin +based treatment) and 181 patients in the control group (Ulinastatin + basic treatment). Meta-analysis showed that the tumor necrosis factor TNF-α levels [WMD = -5.16, 95% CI (-11.07, 0.76)] of experimental group and the control group were not statistically different, but the interleukin IL-6 levels[WMD=5.82,95%CI (-112.12, -3.52)] , the procalcitonin PCT [WMD=-0.53,95%CI (-0.88, -0.19) ] levels, the average length of stay [WMD = -3.63,95 % CI (-4.68, -2.58)] and the average duration of mechanical ventilation [WMD = -3.77,95% CI (-4.70, -2.83)] of the experimental group and the control group were statistically different. CONCLUSIONS: Current results indicated that the application of Xuebijing injection for the treatment of sepsis provided a lower level of interleukin IL-6 and procalcitonin PCT, a shorter length of stay and duration of mechanical ventilation.

**INFECTION - Patient-Reported Outcomes & Patient Preference Studies**

**PIN29: EFFECT OF HEALTH EDUCATION PROGRAM ON KNOWLEDGE, ATTITUDE, PRACTICE AND HEALTH RELATED QUALITY OF LIFE IN HEPATITIS-B PATIENTS**

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OBJECTIVES: This study was conducted to evaluate the effect of a pharmacist initiated health education programme for improving Hepatitis-B patients’ disease state knowledge, attitude, practice and health related quality of life in Quetta city, Pakistan. METHODS: The study was conducted as non-clinical randomization control trial. It was divided into four phases: pre-interventional assessment, training of hospital pharmacists, development and implementation of the intervention program and post-interventional analysis. The pre-interventional phase analysed the Hepatitis-B (HB) patients’ knowledge, attitude and practice and current status of Health Related Quality of Life (HRQoL). RESULTS: Three hundred and ninety HB patients were targeted for the study. The pre-interventional analysis revealed poor knowledge (mean score 8.48 ±2.7 out of 20), negative attitude (mean scores 3.87±1.2 out of 7) and bad practice (mean scores 2.37±1.0 out of 8). The HB patients also had poor Health Related Quality of Life (mean score of 37.22±30.0 out of 100). The post-interventional data were available from 126 patients of interventional group and 151 patients of control group, giving a response rate of 64.6% and 77.4% respectively. No significant association was observed among demographics variables. However, knowledge, attitude and practice, and HRQoL scores were significantly associated (p<0.001) when compared between interventional and control group after the completion of the intervention. There was an increase in mean knowledge score (15.46±2.2), attitude score (5.05±1.1), practice (5.98±1.1) Health Related Quality of Life (48.16±25.2). The inter-group difference among pre- and post- interventional groups reported a significant difference (p<0.001) when knowledge, attitude and practice and HRQoL were compared. CONCLUSIONS: The educational intervention significantly increase in the HB patients’ knowledge, attitude and practice, and HRQoL. Therefore, the role of pharmacists in patient education must be formalized and acknowledged as an official part of the healthcare system.

**PIN30: ASSESSMENT OF QUALITY OF LIFE IN HUMAN IMMUNODEFICIENCY VIRUS POSITIVE PATIENTS WITH ADVERSE REACTIONS TO ANTIRETROVIRAL THERAPY IN TERTIARY CARE HOSPITAL**

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OBJECTIVES: The main aims of the study was to estimate the health related quality of life (HRQOL) between Adverse drug reaction (ADR) and Non ADR retroviral patients who are on anti retroviral therapy. METHODS: A prospective spontaneous, reporting study was conducted over a period of 6 months by clinical pharmacist. Each reported ADR was assessed for its causality and severity by using Naranjo’s scale and Hartwig et al scale. The management of reported ADRs and the treatment given for ADR are determined. Health related quality of life is assessed by giving a 35 item MOS HIV Questionnaire to each individual retroviral patients who are on Highly active antiretroviral therapy (HAART) for at least 45 days by calculating the HRQOL score. RESULTS: A Total of 46 ADRs (N=100) were identified out of which 30 are males and 16 are females. The assessment by Naranjo scale showed that out of 46 ADRs, 8 ADRs were probable, 35 ADRs were possible and 3 ADRs were unlikely. Severity assessment by hartwig et al scale showed that 32 ADRs come under mild level, 14 ADRs come under moderate level and none come under severe level. The health related quality of life between ADR patients and Non ADR absent patients were found to be 100.1±27.9 and 109±15.0. Among males, difference was observed in mean of HRQOL between ADR patients (99±27.92) and non ADR patients (107.16±14.08). Same difference were observed in mean of HRQOL among females which was 102.18±28.68 in ADR Patients and 113.69±15.95 in ADR absent patients. CONCLUSIONS: There is a need for a greater awareness among the healthcare professionals, regarding prevention or minimization of occurrence of ADRs by more frequent interventions by physicians, thus improving medication adherence which leads to maximization of HRQOL in HIV patients.

PIN31: SOCIAL ASPECTS OF HCV TREATMENT IN KAZAKHSTAN

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OBJECTIVES: Multiple treatments are available for chronic hepatitis C virus (HCV) infection. Ethical, clinical, economic, and social barriers often prevent these patients from receiving the effective antiviral treatments now available. These barriers to care have received little attention in the literature, and yet, knowledge of the ethical and social justice aspects of HCV treatment can enhance the quality of care. This study systematically reviewed evidence on the social and lifestyle determinants of achieving viral eradication with antiviral therapy. METHODS: A search of Medline, Embase, and Cochrane databases (between 2004 and January 2014) was conducted for primary articles/conference abstracts examining social and lifestyle factors. Analyzed the main ethical arguments are often presented to restrict patients’ access to HCV treatment: the balance of risk/benefit, justice, compliance, cost-effectiveness and discrimination. RESULTS: Clinical and individual level barriers to HCV treatment are well evidenced. These include patient and provider concerns regarding co-morbidities, adherence, and side effect management. Social factors affecting treatment access are less well evidenced. In attempting to map these, key barriers fall into the following domains: social stigma, housing, criminalisation, health care systems, and gender. Key facilitating factors to treatment access include: combination intervention approaches encompassing social as well as biomedical interventions and integrated delivery of multidisciplinary care. No trial evaluated effectiveness of treatment on long-term clinical outcomes. CONCLUSIONS: Successful treatment of HCV infection has undeniable long-term benefits with respect to reducing morbidity and mortality. Perhaps the most challenging issue is not whether there will be medical tools to effectively manage and treat HCV infection, but rather whether the economic resources and societal commitment will be adequate to embark on an ambitious agenda to eliminate this global public health problem. Combination intervention approaches need to encompass systemic changes in policy and health care delivery. Future research needs to better delineate social factors affecting treatment access.

INFECTION - Health Care Use & Policy Studies

PIN32: AN ANALYSIS OF THE UTILIZATION OF CEPHALOSPORINS FROM 2007 TO 2011 IN GUANGDONG PROVINCE OF CHINA

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OBJECTIVES: To analyze the relationship between the change of drug mix for Cephalosporins and their cost increases in order to provide a reference for future research and government policy making on cost of antacids and anti-ulcer medications. METHODS: Build a foundation based on drug DDD unit, analyze the index analysis system of the influence of drug mix of Cephalosporins on drug cost on different levels. RESULTS: The total procurement costs of Cephalosporins for Guangdong province and the purchases of DDD increased by 158% and 120% respectively in 2007-2011. At the same time, the price level declined significantly, the price index calculated by Laspeyres index decreased by 12%. CONCLUSIONS: The
amount of drug utilization is the most important factor that caused cost increase, the decline of price inhibits the Cephalosporins drug price growth to a certain extent. Technological innovation is the motivating factor to cause the Cephalosporins drug price to increase. There is a link between the level index of administration route and the rationality of drug use. The competition among different manufacturers is an important factor that affects the total expenditure of Cephalosporins.

**PIN33: THE DIFFERENCES BETWEEN INFECTIOUS & PARASITIC DRUG APPROVALS IN JAPAN AND THE USA**

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**OBJECTIVES:** Infectious and parasitic diseases encompass some of the most deadly diseases including HIV, the sixth leading cause of death worldwide. The aim of this study was to investigate the similarities and differences between the approval of new drugs for the treatment of infectious and parasitic diseases in Japan and the USA. **METHODS:** Drugs approved from 2004 to 2013 were identified through publicly available reports on the USA Food and Drug Administration (FDA) and the Japanese Pharmaceuticals and Medical Devices Agency (PMDA) websites. Relevant drugs were defined as related to the treatment of infectious and parasitic diseases, according to the World Health Organisation International Classification of Diseases Version 2010. **RESULTS:** The FDA and PMDA approved similar numbers of drugs indicated for infectious and parasitic diseases at 31 and 33 drugs, respectively. Eight HIV drugs were approved by each organisation, of which 5 were approved by both; each of these drugs was approved by the PMDA in the same or following year after FDA approval. With the exception of HIV and malarial drugs, the indications of drugs varied considerably between the FDA and PMDA. Following HIV, the most common infectious and parasitic drug groups for the FDA were hepatitis (20%), mycoses (17%) and bacterial (13%) whereas the PMDA had high incidences of drugs indicated for influenza (24%) and viral infections (excluding HIV and hepatitis) (18%). **CONCLUSIONS:** From the analysis presented here, it is clear that there are striking differences between infectious and parasitic disease drug approvals in Japan and the USA. Given the concern in Japan over the emergence of new influenza strains with pandemic potential, this is a great focus, constituting approximately a quarter of all infectious and parasitic disease drugs for the PMDA compared to no submissions to the FDA.

**PIN34: POPULATION ACCESS TO ROTAVIRUS VACCINATION IN INDUSTRIALIZED COUNTRIES: LESSONS LEARNT FROM CURRENT EXPERIENCE**

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**OBJECTIVES:** In most European countries, there are usually four steps before population access to a vaccination programme: vaccine marketing authorization by the European Commission, transposition of this agreement by national drug agencies, then recommendation and policy-decision steps on funding and implementation. During the recommendation step, specific to vaccines, health technology assessment is often performed. Using rotavirus vaccination as an illustrative case, this study aims at better understanding the picture of population access, and identifying lessons learnt from current experience. **METHODS:** An extensive systematic review of national universal rotavirus vaccination policies was conducted in 20 industrialized countries (17 European & 3 major non-European). After key categories in vaccine evaluations were identified, comparative quantitative and qualitative analyses were conducted. **RESULTS:** At mid-March 2014, out of the 20 countries considered, 13 decided to include rotavirus vaccination in their childhood national vaccination programme, 2 decided not to include it, while rotavirus decision-making process has not started or is underway in the remaining five countries. Published evaluations and/or advices on rotavirus vaccination were available in 16 countries. Quantitative analyses revealed that most of the countries did not take all categories into consideration, and some countries even assessed only two or three. ‘Burden of disease’ and ‘assessment of vaccine efficacy/safety’ were always taken into account, while ‘acceptability’ and ‘implementation’ were less addressed. Qualitative analyses pointed out many differences in content and outcomes. **CONCLUSIONS:** Rotavirus vaccination policies across industrialised countries were found to be disparate, leading to unequal population access. Comparative analyses suggest there are different interpretations of the available evidence. This raises the need of a common decision integrated framework, using structured and systematic approach. This approach is not intended to substitute to authorities, but it could contribute to provide reproducible and structured interpretation of evidence, pave the way of the legitimacy of rotavirus vaccination programme.

**PIN35: SPENDING ON HIV AND AIDS IN INDONESIA: THE ROLE OF GOVERNMENT AND OTHER PUBLIC SOURCE OF FUND TO MAINTAIN QUALITY AND EQUITY**
OBJECTIVES: This study is aiming at 1) tracking expenditure on HIVAIDS, 2) how the government contributed to one of the MDG priority programs in Indonesia and its sustainability for future financing since Indonesia is one country with growing number of new HIVAIDS infections. METHODS: Cross sectional data from 2006-2012 was used to capture spending for HIVAIDS interventions, followed by policy discussion RESULTS: Total spending for HIVAIDS interventions increased from USD 56.5 million in 2006 to USD 87 million in 2012. The government contribution has slightly increased (26.6% in 2006 and 42.36% in 2012). We found that 75% in 2011 and 70% in 2012 of the spending were related to health. Government contribution for HIVAIDS as compared to total health expenditure was very limited, amounted to 0.29%, 0.27% and 0.26% in 2009, 2010 and 2011 respectively. In contrast, for priority programs such as HIVAIDS, external partner contribution has been substantial. There has been a discussion to integrate financing to the publicly funded program such as universal coverage that has just started recently. Further analysis on Opportunitistic Infection and STDs service provision for most at risk population was done to assess potential inclusion to the benefit package. Separation of the cost components to balance the role of the government and other sources was also assessed. Unit cost of the STDs treatment is USD 24 excluding equipment and drug. However, another country's experience showing that the interventions are integrated in the universal coverage using different scheme or top-up. CONCLUSIONS: It should be carefully assessed the integration of HIVAIDS treatment to the universal coverage scheme. Stigma reduction and different price for private clinics need to be explored to support quality and equity. To ensure sustainability of the program government should play a central role to maintain the program, involving NGOs to engage MARP and PLHIV.

NEUROLOGICAL DISORDERS

NEUROLOGICAL DISORDERS - Clinical Outcomes Studies

PND1: IVACAFTOR FOR PATIENTS WITH CYSTIC FIBROSIS: CLINICAL EFFICACY AND COST-EFFECTIVENESS

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OBJECTIVES: This review aims to appraise the clinical and cost effectiveness of ivacaftor for oral administration for the treatment of cystic fibrosis (CF) in patients age six years and elder who have at least one G551D mutation in the CFTR (cystic fibrosis transmembrane conductance regulator) gene. METHODS: A limited literature search was conducted of key resources, and titles and abstracts of the retrieved publications were reviewed. Full-text publications were evaluated for final article selection according to predetermined criteria (population, intervention, comparator, outcomes, and study designs). RESULTS: A review of the clinical efficacy of ivacaftor, its comparative clinical efficacy compared with dornase alfa, and a review of the cost-effectiveness of ivacaftor will help to inform decisions about the treatment of patients with CF. Four studies were presented as evidence of the benefit of ivacaftor in CF. Two pivotal trials STRIVE and ENVISION, one open label extension study, PERSIST, for patients in STRIVE and ENVISION and a final study in different patient group, DISCOVER, in patients who are homozygous for the F508del mutation. The percent predicted forced expiratory volume in 1 second (FEV1) was the primary outcome measure for the two phase III clinical trials. The review group noted the absence of long term efficacy data particularly in relation to the benefit of ivacaftor in maintaining percent predicted FEV1 and reducing pulmonary exacerbations and the resultant impact on survival rates. The analysis for this extrapolation is based on a number of prediction models that have been published. The disease progression model predicts that the median survival for a patient treated with ivacaftor will be 29.2 years longer as a consequence of taking the drug. CONCLUSIONS: Whilst ivacaftor may represent an innovation for the treatment of patients with cystic fibrosis there are significant uncertainties, including the absence of long term health outcome data.

NEUROLOGICAL DISORDERS - Cost Studies

PND2: ECONOMIC BURDEN OF DRUG USE IN PATIENTS WITH ALZHEIMER'S DISEASE AT PHRAMONGKUTKLAO HOSPITAL AND MEDICAL COLLEGE, THAILAND: A 5-YEAR TREND ANALYSIS

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OBJECTIVES: To determine the trend of drug utilization for Alzheimer’s disease during 2009 and 2013. METHODS: Prescription data of outpatients with Alzheimer’s disease in 2009 – 2013 was extracted from the medical care
database of the hospital. Quantities and costs of the prescribed drugs were examined using defined daily dose (DDD) for comparisons. RESULTS: Number of patients was rather the same number every year ranging from 1,507 to 1,631 patients. For donepezil and memantine, number of DDD per year was increased every year ranging from 7.3–10.0 % to 1.6-14.7% compared to the previous year, respectively. The increasing trends were not found in prescribing of rivastigmine, except for the dramatically increase (34.0%) in 2013. Galantamine was prescribed less in 2010 and 2013 accounted for -9.2 and -18.2%, respectively. Cost of drug use in Alzheimer’s disease was $3,211,269 in 2009 and $3,228,454 in 2013 with an increasingly trend. CONCLUSIONS: The overall drug use in Alzheimer’s disease seems to be a heavy burden of the hospital every year. The rational drug use should be confirmed to make sure to guarantee appropriate use of drug without overusage.

PND3: BEST PRACTICES AND KEY CHALLENGES IN COST-EFFECTIVENESS MODELLING OF MULTIPLE SCLEROSIS THERAPIES

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OBJECTIVES: The purpose of this study was to review cost-effectiveness models in multiple sclerosis (MS) to identify accepted methods, key challenges, and best practices. METHODS: We searched MEDLINE, Embase, the Health Economics Evaluation Database (HEED), the Cochrane library, and recent HTA agencies’ (NICE and SMC) decisions for studies published prior to March 7, 2014. Following duplicate removal, 100 studies were identified. Studies were excluded if they did not estimate cost-effectiveness in MS, were duplicates, or weren’t published in English, resulting in a total of 26 studies sourced. A data extraction form was developed to capture information about model characteristics, patient natural history progression, utility estimates, and the author’s comments on the modelling methods. RESULTS: All studies were published after 2000, with most focused on first-line USA and EU patient populations. The majority of models utilised a cohort Markov model approach, with health states defined by patient expanded disability status scale (EDSS) scores. Health states included either individual or aggregate EDSS scores (0-9.5) for relapsing-remitting MS (RRMS) and secondary progressive MS (SPMS), as well as a death state. Transition probabilities were sourced from trial data for low score EDSS states, while transitions for higher score EDSS states were sourced from a longitudinal study of Canadian MS patients, due to insufficient clinical trial data for patients with advanced disease. Key challenges identified in recent HTA decisions include modelling EDSS score improvement early in disease natural history, patients’ initial distributions across EDSS states, extended benefits of therapy, and patient treatment adherence. CONCLUSIONS: Established modelling best practice in MS utilises a cohort Markov model approach with health states simulating patient populations via EDSS scores in RRMS and SPMS. Future studies and HTA submissions should focus on more accurately reflecting patient natural history in the early stages of disease.

PND4: TREATMENT REASONS, RESOURCE USE AND COSTS OF HOSPITALISATIONS IN PEOPLE WITH PARKINSON’S: RESULTS FROM A LARGE RCT

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OBJECTIVES: Reasons for hospitalisations in people with Parkinson’s Disease (PD) are broad ranging and costly, however detailed analysis of hospitalisations in a large, representative group of PD patients is lacking. This study aimed to explore the reasons for, resource use and associated cost of hospital treatment in participants in the PD MED trial. METHODS: We retrospectively reviewed hospitalisation data from 2,074 patients with PD who were recruited into the PD MED trial from Nov 2000 to Dec 2009 and followed up for ten years. PD MED is a large-scale, “real-life” randomised controlled trial comparing the effectiveness and cost-effectiveness of PD medications. Patients’ demographic characteristics, disease severity, reasons and duration of hospitalisation were analysed. Reasons for hospitalisations were coded based on the International Classification of Disease (ICD-10). RESULTS: Of 2,074 patients, at randomisation, median age was 72 years (IQR 66-77), mean duration with diagnosed PD was 2.8 years (median 2, IQR 1-3) and median Hoehn &Yahr score was 2 (IQR 1.5–2.5). Until Oct 2011, 29% (597/2074) of patients had a total of 941 hospitalisation records. Mean length of stay was 21days (median 9, IQR 3–24). Hospitalisation reasons were classified into 11 categories of PD related conditions and 15 PD unrelated categories. 64.1% of the hospitalisation records can be associated with PD. Main reasons for hospitalisation were: infections including pneumonia and urinary tract infection (18.4%), falls and fractures and other injuries (15.3%), cardiovascular and circulatory disorders (8.7%), central nervous system and disorders of sense organs (8.2%), gastrointestinal disorders (8.0%), and mental health disorders (6.9%). CONCLUSIONS: PD related conditions have a significant and broad ranging specialty impact on hospitalisation rates.
and associated healthcare costs are substantial. This paper provides economic justification for investing in interventions that manage infection and prevent falls in people with PD.

NEUROLOGICAL DISORDERS - Patient-Reported Outcomes & Patient Preference Studies

PND5: ALZHEIMER'S DISEASE CAREGIVER BURDEN IN JAPAN AND THE 5 E.U

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OBJECTIVES: Alzheimer's disease (AD) is a chronic and progressive disease that is a significant burden on caregivers. Research indicates AD caregiver burden on health status; but there is limited research on caregiver burden in Japan. The objectives of this study were to examine Japan AD caregiver burden vs. Japan non-caregivers and 5E.U. AD caregivers. METHODS: Data were obtained from the 2012 Japan (N=30,000) National Health and Wellness Survey (NHWS) and 2013 5E.U. (UK, Germany, France, Italy, Spain; N=62,000) NHWS, administered online to a representative adult sample (18+ years). Respondents reported on health status (SF-36v2), activity impairment, healthcare utilization in the past six months and caregiver responsibilities. Multivariable regressions, adjusting for demographics and health history variables to explore differences between Japan AD caregivers (n=714) vs. Japan non-caregivers (n=27,702) and 5E.U. AD caregivers (n=1,239). RESULTS: Japan AD caregivers were older and reported more depression symptoms than Japan non-caregivers (p<0.05). Japan AD vs. 5E.U. AD caregivers were older and more educated (p<0.05). After adjustments, Japan AD caregivers had lower health status (p<0.001), higher healthcare utilization, and greater activity impairment (p<0.001) than Japan non-caregivers. Japan AD vs. 5E.U. AD caregivers had better mental (45.7 vs. 43.8, p<0.001) and physical (51.0 vs. 50.0, p=0.021) health status, marginally less activity impairment (24.5% vs. 27.1%, p=0.070), but more healthcare provider visits (7.6 vs. 5.4, p<0.001) and hospitalizations (p<0.001). Japan AD caregivers vs. 5E.U. caregivers were less likely to make treatment decisions and manage finances for AD relative (p<0.001), were marginally less involved in helping with daily activities (transportation, meals, shopping, p=0.054), but no difference was found on bathing/grooming involvement. CONCLUSIONS: Japan AD caregivers report more burden including more depression symptoms than Japan non-caregivers. Japan AD caregivers report greater healthcare utilization than 5E.U. AD caregivers, but report better health status, and less involvement in treatment and finance decisions.

PND6: THE IMPACT OF MULTIPLE SCLEROSIS SEVERITY ON QUALITY OF LIFE, STRESS, DEPRESSION AND SOCIAL SUPPORT NEEDS

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OBJECTIVES: Multiple Sclerosis (MS) is a chronic disease which results in increasing disability over time. The Australian Multiple Sclerosis Longitudinal Study (AMSLS) is an ongoing study that collects information on around 3,100 volunteers with MS from all States and Territories in Australia. The WHO quality of life assessment instrument (WHOQOL-100) was collected as well as the following Patient Reported Outcome (PRO) measures; MS Self-Efficacy Scale, Perceived Stress Scale, Geriatric Depression Scale – short version (GDP-5), Social Support Scale, Therapeutic Self-Care Scale, and the Depression Anxiety and Stress Scale (DASS). In this analysis, we quantified the difference in utility, stress, depression and social support needs between disease severities in subjects with MS. METHODS: Data from the WHOQOL-100 were collected in 2008. The utility score was calculated by mapping five questions from the WHOQOL-100 to the EQ-5D descriptive system as described by Al-Ruzzeh et al (2008). The UK TTO value set (utility weights) were applied to each of the levels in each dimension. Disease severity was based on the self reported Disease Steps Scale. RESULTS: A total sample of 2139 subjects provided evaluable data; a response rate of approximately 70%. Overall average QOL as measured by the WHOQOL-100 was 13.7 (95%CI: 13.5 to 13.8) out of a maximum value of 20, ranging from 11.8 (95%CI: 11.4 to 12.2) in severe disease to 15.2 (95%CI: 15.0 to 15.4) when mild. The utility score for all people with MS was 0.65 (95%CI: 0.64 to 0.67). The utility decreased with increasing disease severity with values of 0.80 (95%CI: 0.78 to 0.81), 0.60 (95%CI: 0.58 to 0.61) and 0.42 (95%CI: 0.39 to 0.46) for mild, moderate and severe disease, respectively. The other instruments on the whole followed this trend. CONCLUSIONS: Higher disease severity in subjects with MS is associated with lower utility and QOL and worse outcomes in general.

NEUROLOGICAL DISORDERS - Health Care Use & Policy Studies
PND7: IMPACT OF COPAYMENT REDUCTION OR EXEMPTION PROGRAMME ON GENERIC DRUG UTILISATION: THE SPECIFIED DISEASE TREATMENT RESEARCH PROGRAMME IN JAPAN

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OBJECTIVES: In Japan, the Specified Disease Treatment Research Programme provides copayment reduction or exemption for patients with 56 designated rare and intractable diseases/syndromes according to disease severity and patients’ income levels. The objective of this study is to examine the impact of the Specified Disease Treatment Research Programme on generic drug utilisation under the fee-for-service payment system. METHODS: We extracted and analysed claims data with indication for Parkinson’s disease, which is subject to the Specified Disease Treatment Research Programme, from the Social Health Insurance claims data processed from February to April 2011. Extracted data were analysed in terms of patients’ age and income levels, types of public subsidy, prescribed places (clinic/hospital or pharmacy) and pharmacologic classes. RESULTS: During the three months, cumulative total number of 72,145 patients in Social Health Insurance programme were prescribed drugs for Parkinson’s disease, of which 10,013 were entitled to the Specified Disease Treatment Research Programme. Overall average generic utilisation rate is 15.46% on a volume basis. Average generic utilisation rate for those entitled to the Specified Disease Treatment Research Programme is 4.04%, whilst for patients eligible for medical assistance programme is 21.75%. Generic utilisation is fewer in the elderly than in the younger generation. CONCLUSIONS: Our study finds low generic utilization rate for patients with Parkinson’s disease entitled to the Specified Disease Treatment Research Programme. This might be suggesting that without mandatory clinical guidelines nor guidance for generic substitution, the Specified Disease Treatment Research Programme has been promoted branded prescribing under the fee-for-service system. Additional studies with other designated rare and intractable diseases/syndromes are expected to generalise the study result.

PND8: ACETYL-L-CARNITINE FOR THE TREATMENT OF PERIPHERAL NEUROPATHIC PAIN: A SYSTEMATIC REVIEW AND META-ANALYSIS

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OBJECTIVES: Acetyl-L-carnitine (ALC), as a constructive component in fatty acid metabolism, is considered a potential agent for peripheral neuropathic pain (PNP). We aimed to assess the efficacy and safety of ALC for the treatment of patients with PNP. METHODS: We searched PubMed up to March 2014 for randomized controlled trials (RCTs) comparing ALC with placebo or other active medications in diabetic and non-diabetic PNP patients. Two reviewers independently screened for eligible studies, assessed risk of bias, and extracted data. Mean difference (MD) and 95% confidence interval (CI) were used for pooling continuous data. RESULTS: Four RCTs compared ALC with placebo and reported in 3 articles (n = 523) were included. Compared with placebo, ALC significantly reduced Visual Analogue Scale (VAS) of PNP patients (MD, 1.28; 95% CI, 0.93-1.64, P < 0.00001). In the subgroup analysis, the efficacy of ALC on VAS was similar in different administration route (intramuscular-only subgroup: MD, 1.19; 95% CI, 0.34-2.04, P = 0.006; oral only subgroup: pooled MD, 1.15; 95% CI, 0.33-1.96, P = 0.006), and ALC appeared more effective in diabetic PNP patients than non-diabetic PNP patients (diabetic subgroup: MD, 1.47; 95% CI, 1.06-1.87, P < 0.00001; non-diabetic subgroup: MD, 0.71; 95% CI, -0.01-1.43, P = 0.05). No severe adverse events related to ALC were reported. The common adverse events were pain, headache, paraesthesia, hyperesthesia, retching, biliary colic and gastrointestinal disorders. The rates of total adverse events were similar in ALC and control group. CONCLUSIONS: ALC could reduce VAS in PNP patients with acceptable safety. However, further trials with larger population and longer follow-up are required to confirm these findings.

PND9: AGE AND GENDER DISTRIBUTION OF OUTPATIENT CARE PHYSIOTHERAPY SERVICES FOR CEREBRAL PALSY AND OTHER PARALYTIC SYNDROMES IN HUNGARY

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OBJECTIVES: The aim of our study is to assess the utilization of out-patient care physiotherapy services related to cerebral palsy and other paralytic syndromes according to age and gender. METHODS: The data come from the financial data base of the National Health Insurance Fund Administration involving the year of 2009. The activity list was provided by the rulebook on the application of the activity code list in out-patient care. The Cerebral Palsy and other paralytic syndromes are listed in the International Classification of Diseases (ICD) with code of G80-G83. The number of cases in physiotherapy activities were determined per 10000 persons by age and gender in outpatient care, 2009. RESULTS: Diseases of the nervous system account for 1331675 cases in the annual number of the physiotherapy-related activities (32318413 cases) showing an approximately
4.12% prevalence. The prevalence of the Cerebral Palsy and other paralytic syndromes were 31.56% in the group of diseases of the nervous system. The average number of cases of physiotherapy activities per 10000 persons accounted for 433 cases in 2009. The average number of cases per 10000 persons for males and females were 508 cases for males and 364 cases for females. The high number of physiotherapy treatment is provided for both gender in the youngest age group and 60-74 age groups in male and 70-84 age groups in female.

CONCLUSIONS: The cerebral palsy and other paralytic syndromes at the diseases of the nervous system show high prevalence, indicating the importance of prevention.

PND10: ASSESSMENT OF OUTPATIENT PHYSIOTHERAPY SERVICES IN DISEASES OF THE NERVOUS SYSTEM IN HUNGARY

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OBJECTIVES: The purpose of our study is to assess the frequency related to Diseases of the nervous system within outpatient care and determine the total health care expenses of them in Hungary in 2009. METHODS: Data were derived from the nationwide database of Hungarian National Health Insurance Fund Administration (NHIFA), based on official reports of outpatient care institutes. The 151 different types of treatment codes are listed in the chapter of the Guidelines of NHIFA for ‘Physiotherapists, massage-therapists, conductors and other physiotherapy practices’. The diseases of the nervous system are listed in the International Classification of Diseases (ICD) with code of G00-G99. RESULTS: Diseases of the nervous system account for 1,331,675 cases in the annual number of the physiotherapy-related activities (323,184,133 cases) showing an approximately 4.12% prevalence. The following top-10 medical procedure were responsible for 48.48% (645,562) of total activities: individual training (7.79%), passive motion therapy on multiple limbs (6.24%), selective nerve stimulation therapy (5.89%), muscle strengthening exercise (5.82%), training for circulation improvement (4.6%), parts of the body per individual physiotherapy (4.19%), ergotherapy (3.78%), exercise to prevention of cardiovascular complications (3.68%), Hand massage (3.53%), electrotherapy - facial nerve (2.96%). The total financial cost of all of the physiotherapeutic treatments provided in diseases of the nervous system was 388 million Hungarian Forint (1.25 million Euro) health insurance subsidy in 2009. CONCLUSIONS: The 20 most frequent treatments accounts for 71.72% (955,073) of total services. The passive procedures are more common than the active in the 20 most commonly used activities list. Our results could be extremely useful for economic evaluation of the health care system and in the financial planning of the treatments of the studied diseases of the nervous system.

PND11: REVERSAL OF CHRONIC FATIGUE INDUCED ALTERATIONS BY SESAMOL IN MICE: EVIDENCE FOR INVOLVEMENT OF OXIDATIVE STRESS AND INFLAMMATORY PATHWAY

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OBJECTIVES: A wide body of literature suggest in vivo neuroprotective, antioxidant, anti-inflammatory and anti-ageing properties of Sesamol. This study was aimed to elucidate the protective effect of sesamol in experimental model of chronic fatigue syndrome (CFS). METHODS: Firstly, Sesamol was tested for its antidepressant potential in mouse models using forced swim test (FST) and tail suspension test (TST). Later, Sesamol was examined in mouse model of chronic stress fatigue induced by forced swimming for 15 days. Brain biochemical [superoxide dismutase (SOD), glutathione-S-transferase (GST), glutathione (GSH), lipid peroxidation and nitrite levels] and plasma cytokines [tumour necrosis factor α (TNF-α) and interleukin 6 (IL-6)] levels were assessed to correlate the possible mechanism of action associated with fatigue symptoms. Further, adrenal ascorbic acid measurement was done to correlate corticosterone levels. RESULTS: Mice administered with sesamol showed significant decrease in immobility time in acute FST and TST. Sesamol significantly attenuated progression of CFS in experimental model as compared to control. Sesamol also corrected the other cognitive deficits (locomotor activity, motor activity, memory retention, hyperalgesia) associated with CFS. Furthermore, it rectified the diminished levels of antioxidant enzymes such as SOD, GST and GSH in brain and altered levels of proinflammatory cytokines (TNF-α and IL-6). CONCLUSIONS: This finding suggests that anti-fatigue activity of sesamol against chronic induced fatigue in mice. The present outcome offers a therapeutic application of sesamol against CFS and also offers the scope for its development against neuropsychiatric disorders.
URINARY/KIDNEY DISORDERS - Clinical Outcomes Studies

PUK1: TADALAFIL IN BENIGN PROSTATIC HYPERPLASIA: PROTOCOL FOR THE SYSTEMATIC REVIEW OF ADVERSE EVENTS

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OBJECTIVES: Benign prostatic hyperplasia (BPH) is an age related disorder, however its symptoms begin to appear in some men as early as age 40 years. As per estimates every second person has BPH by the age of 60 and 90% of individuals develop BPH by 85 years. Tadalafil is a selective PDE5 enzyme inhibitor approved to treat men with BPH. The aim is to systematically review the medical literature for randomized control trial and identify the adverse events (AE) associated with tadalafil use in BPH. METHODS: All published randomized controlled trials (RCTs) comparing tadalafil with a placebo or active interventions for the treatment of BPH with or without any co-morbidity (such as but not limited to erectile dysfunction) were sought from PubMed, EMBASE, Cochrane Library, and Google Scholar. Abstracts, titles and then the full-text manuscripts of all selected articles will be retrieved and assessed by two independent reviewers against the eligibility criteria. Disagreements over study inclusion will be resolved through discussion. A pre-designed data extraction form will be used by two reviewers for the extraction of AE and other study findings. Cochrane risk of bias assessment checklist will be used for the risk of bias assessment. An Excel spreadsheet will be used to extract data from the selected articles. Descriptive and quantitative data synthesis will be done for AE reported in all the studies. Meta-analysis will be performed using RevMan (v5.0). RESULTS: Though there are several studies assessing tadalafil use in erectile dysfunction, a systematic review/meta-analysis of the evidence reporting its AE profile when used for the treatment of BPH is lacking. This systematic review registered with PROSPERO (registration number: CRD42014007248) aims to provide the evidence for the AE associate with tadalafil use in BPH indication. CONCLUSIONS: Tadalafil use in BPH has now been increasing over the years. The data from published RCTs will help to identify the AE associated with its use.

PUK2: PREVALENCE AND ASSOCIATED COMPLICATION OF ACUTE KIDNEY INJURY AMONG DENGUE PATIENTS

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OBJECTIVES: Dengue fever is a mosquito borne infectious disease that is mainly prevalent in tropical and subtropical zones of the world. One of the potential complications of dengue fever is acute kidney injury (AKI). Current study aims to assess the incidence and risk factors for AKI among dengue patients. METHODS: A retrospective review of medical records of dengue infected patients enrolled from May 2005 to December 2013 was conducted at a tertiary care hospital in Kelantan. RESULTS: Total 124 patient records (male: 63, female: 61) with mean age of 29.57± 15.09 were reviewed retrospectively. Out of 124 patients, 104 (83.9%) suffered with classical DF, 19 (15.3%) with dengue hemorrhagic fever (DHF) while only 1 (0.8%) with dengue shock syndrome (DSS). The prevalence of AKI among dengue patients was found to be 7.2 % (9 patients). On the basis of Acute Kidney Injury Network (AKIN) criteria, 2 (22%) had stage 1 AKI while remaining 7 (78%) had stage 2 AKI. For the purpose of analysis of risk factors for AKI, patients were categorized into group I (with AKI) and group II (without AKI). Mann Whitney U test was used to compare differences between groups. A higher serum creatinine (112.39 vs. 56.87; p=0.001), bilirubin (70.81 vs. 48.73; p=0.038), urea (104.50 vs. 58.08; p=0.001), WBC (92.25 vs. 59.90; p=0.013) and Hb (90.91 vs. 60.04; p=0.021) levels were observed among AKI dengue patients. Though the duration of hospital stay of group I was more than group II, but this difference was statistically insignificant (I=77.33, II=61.34; p= 0.192). CONCLUSIONS: AKI is a least studied and poorly understood complication of dengue fever. Such patients are at verge of developing DHS/DSS resulting in complicated clinical course and increased mortality. A cautious diagnosis and timely management should be the first and foremost step for management of such patients.

PUK3: EPIDEMIOLOGY OF END STAGE RENAL DISEASE PATIENTS ON HEMODIALYSIS FOR HOSPITAL READMISSIONS

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OBJECTIVES: The study aims to determine the different epidemiological factors responsible for the cause of hospital readmissions in chronic hemodialysis (HD) patients. METHODS: Reviewed data of 170 patients with 124 male and 46 female
patients receiving maintenance HD twice weekly schedule on a Mon/Thu, Tue/Fri, Wed/Sat with prevalent adult’s HD patients on period from 1st Jan to Dec 31, 2010 or continued until close at death, modality change, deviation from HD schedule not during a hospital stay, loss to follow-up. Eligible patients were actively recruited who were on chronic HD fulfilling the inclusion criteria. 

ICD-9-CM diagnosis codes were used. RESULTS: A total of 170 patients with End-stage renal disease (ESRD) on chronic HD included the study cohort. The mean age was 52.4±11.6 years; 27% were women with a mean year of patients on hemodialysis of 3.2±2.6. Hypertension 29.3% and hypertension with diabetes 26.4% were the leading cause of ESRD and least cause of renal failure was seen with polycystic kidney disease, Glomerulonephritis, Interstitial nephritis, and others. Hospital readmission was commonly for cardiovascular complications 62% to infections 31% and other 7%. IHD, Stroke and Congestive heart failure lead to readmission and with infection of AV fistula 66% were more commonly seen compared to Catheterization. CONCLUSIONS: Hypertension is the leading cause for ESRD and cardiovascular complications were associated with elevated hospital readmission in addition to infection. AV fistula is the other common source of infection leading to readmission.

PUK4: WITHDRAWN

PUK5: ACTIVATION OF ENDOGENOUS ANTI-INFLAMMATORY MEDIATOR CYCLIC AMP CONFERS PROTECTION IN MURINE ACUTE PYELONEPHRITIS INDUCED BY UROPATHOGENIC E COLI

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OBJECTIVES: To investigate the effect of forskolin, on susceptibility/severity of acute pyelonephritis and innate immune responses to pathogen using an established experimental model of ascending urinary tract infection and primary cell cultures (i.e. renal tubular epithelial cells, monocytes/macrophages). METHODS: Forskolin is produced by the Indian Coleus plant (Coleus forskohilii), which is commonly used to raise levels of cyclic AMP (cAMP) in the study and research of cell physiology. Forskolin (250mg/kg) was given before the induction of infection by i.p. injection. Kidney infection was assessed in forskolin or control reagent treated mice at 6, 24, 48h after bladder inoculation of UPEC (J96). Bacteria load in kidneys was analyzed by the agar plate assay. Tissue damage was assessed by histopathology. Leukocytes infiltration was analysed by immunochemical staining, tissue MPO activity assay and flow cytometry. Renal synthesis of cytokines/chemokines was analysed by RT-PCR. RESULTS: Administration of forskolin significantly reduced bacteria load in kidneys and renal tissue damage at both 6 and 24h time points by 10 folds, this was associated with reduced intrarenal production of pro-inflammatory cytokines and chemokines (e.g. TNF-α, IL-1β, KC, MCP-1) and attenuated intrarenal infiltration and accumulation of leukocytes (i.e. CD45+, Gr-1+, F4/80+) as well as intrarenal myeloperoxidase (MPO) activity. In vitro, forskolin inhibited LPS or UPEC mediated pro-inflammatory cytokine and chemokine production by primary renal tubular epithelial cells and monocytes/macrophages. CONCLUSIONS: These findings demonstrate that administration of forskolin is beneficial for controlling the development of UPEC mediated acute pyelonephritis in mice. The protective effect of forskolin (via cAMP activation) in this experimental acute pyelonephritis can be explained at least in part by limiting excessive inflammatory responses through acting on both renal parenchymal and inflammatory cells.

PUK6: C5A RECEPTOR ANTAGONIST PROTECTS MICE FROM UROPATHOGENIC ESCHERICHIA COLI-INDUCED KIDNEY INFECTION

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OBJECTIVES: To determine if blocking C5aR could effectively protect mice from UPEC induced kidney infection. METHODS: A well-established mouse model of ascending UTI leading to kidney infection was employed. C5aR antagonist (C5aRa, W54011) (250mg/kg) was given before the induction of infection by i.p. injection. Kidney infection was assessed in C5aRa or control reagent treated mice at 6, 24, 72h after bladder inoculation of UPEC. Bacteria load in kidneys was analysed by the agar plate assay. Tissue damage was assessed by histopathology. Leukocytes infiltration was analysed by immunochemical staining, tissue MPO activity assay and flow cytometry. Renal synthesis of cytokines/chemokines was analysed by RT-PCR. RESULTS: Compared to control reagent treated mice, C5aRa treated mice, either from B6 or BALB/c background, exhibited significantly lower rates of kidney infection (B6: 37.5% vs 100% [n=16], BALB/c: 26% vs 87% [n=15]), reduced kidney tissue damage and gene expression of KC, IL-6 and TNF-α in kidney tissues. The reduction of kidney infection and tissue...
damage resulting from C5aR blockade was more profound at 48h and 72h post infection. C5aR blockade led to a small reduction of neutrophil infiltration at 6h, but had no apparent effect on late time point. CONCLUSIONS: C5aR blockade effectively protected mice from UPEC-induced kidney infection suggesting that C5aR signal is a critical pathogenic factor in UTIs, thus representing a promising target for treating or preventing human UTIs.

**URINARY/KIDNEY DISORDERS - Cost Studies**

**PUK7: BUDGET IMPACT ANALYSIS OF PERITONEAL DIALYSIS versus. CONVENTIONAL IN-CENTER HEMODIALYSIS IN MALAYSIA**


**OBJECTIVES:** The increasing prevalence of patients with end-stage renal disease in Malaysia is driving up the costs of dialysis care dramatically. Several studies have projected significant cost savings by increasing the proportion of patients on peritoneal dialysis (PD). This study investigates the five-year healthcare budget impact of variable distribution of adult patients treated with PD and in-center hemodialysis (ICHD) on government funding in Malaysia. **METHODS:** An Excel®-based budget impact model was constructed to assess dialysis-associated costs when changing dialysis modalities between PD and ICHD. The model incorporates the current modality distribution and accounts for Malaysian government dialysis payments and EPO costs. Epidemiological data, including dialysis prevalence, incidence, mortality, and transplant rate from Malaysian renal registry reports, were used to estimate the dialysis patient population for the next five years. The baseline scenario assumed a stable distribution of PD (8%) and ICHD (92%) over five years. Alternative scenarios included the prevalence of PD increased by 2.5%, 5.0%, and 7.5% or decreased 1% yearly over five years. All four scenarios were accompanied with commensurate changes in ICHD. **RESULTS:** Under the current best available cost information, an increase in the prevalent PD population from 8% in 2014 to 18%, 28%, or 38% in 2018 is predicted to result in five-year cumulative savings for the Malaysian government of RM13.9 million, RM27.9 million, and RM41.96 million, respectively. If the prevalent PD population were to decrease from 8% in 2014 to 4.0% by 2018, the total expenditure for dialysis treatments would increase by RM5.6 million over the next five years. **CONCLUSIONS:** Under the best available cost information associated with PD and HD paid by the Malaysian government, increasing the proportion of patients on PD could result in reduction in dialysis-associated costs in the future.

**PUK8: FINANCIAL IMPLICATIONS TO TAIWAN HEALTH SYSTEM FROM CHANGING THE DIALYSIS MODALITY MIX**

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**OBJECTIVES:** In 2012, 0.3% of Taiwan end-stage renal disease (ESRD) patients accounted for 6.64% of National Health Insurance (NHI) dialysis spending. We investigated the five-year financial impact of changing the distribution of patients undergoing peritoneal dialysis (PD) and in-center hemodialysis (ICHD) in Taiwan. **METHODS:** An Excel®-based budget impact model was constructed to assess dialysis-associated costs. The model incorporates Taiwan current modality distribution and accounts for ESRD outpatient and inpatient total healthcare cost. Epidemiological data of ESRD patients from 2000 to 2011 was acquired from Taiwan Renal Data System by Taiwan Society of Nephrology. The transplant rate was provided by experts in the field. These data were used to estimate dialysis population for the next five years. Dialysis costs were obtained by National Health Research Institutes (NHRI) Databases for 2008. The baseline scenario assumed a stable distribution of PD (10%) and ICHD (90%) over five years. Four scenarios, including the prevalence of PD increasing by 2%, 3%, and 5% or decreasing by 1.0% each year for five years, were analyzed. **RESULTS:** Under the current best available cost information, an increase in the prevalent PD population from 10% in 2014 to 18%, 22%, or 30% in 2018 is predicted to result in five-year cumulative savings for NHI dialysis budget by NT$2,199 million (0.67%), NT$3,299 million (1.0%), and NT$5,498 million (1.67%), respectively. If the prevalent PD population were to decrease from 10% in 2013 to 6.0% by 2017, the total payment for dialysis patients would increase by NT$1,100 million (0.33%) over the next five years. **CONCLUSIONS:** Under the best available cost information associated with PD and HD in Taiwan, incentives to increase the proportion of patients on PD could help reduce the total healthcare costs associated with dialysis patients.

**PUK9: DIRECT MEDICAL COSTS FOR INPATIENT TREATMENT OF CHRONIC RENAL FAILURE IN GUANGZHOU, CHINA**

**OBJECTIVES:** This study aims to investigate the direct medical costs for inpatient services of chronic renal failure in Guangzhou, China and to explore its determinants. **METHODS:** Direct inpatient services costs data were drawn from the reimbursement database in Guangzhou City, which covers the entire Urban Employee Basic Medical Insurance and Urban Resident Basic Medical Insurance enrollees of Guangzhou City. The records of patients who were admitted to hospitals between January 2010 and December 2012 with a diagnosis of chronic renal failure were all included. Descriptive and regression analyses (through the extended estimating equations approach) were conducted to study the determinants of direct hospital costs. **RESULTS:** A total of 3,524 hospitalisation records were identified. The mean (standard deviation, SD) age of patients was 60 (18) years old and the majority were male (54%). Patients were more likely to receive inpatient treatments at tertiary hospitals (83%), followed by secondaries (16%) and primary hospitals (1%). The mean (SD) of direct hospital costs per visit was 16,440 (22,677) RMB, among which the medication costs account for 38% whereas the out-of-pocket expenses (OOP) account for 25% of total direct hospital costs. The mean (SD) length of stay was 15 (12) days. Key regression analysis results suggest that age, the type of basic medical insurance schemes, hospital levels, length of stay, and whether the patient had received kidney transplant were all significantly associated with the total direct inpatient services costs (all P<0.05). Gender was insignificantly associated with the total costs (P>0.10). **CONCLUSIONS:** Both demand and supply side factors were significantly associated with the direct inpatient services costs of chronic renal failure. The establishment of urban basic medical insurance schemes has reduced the financial burden for the insured urban population.

**PUK10: HEALTH AND ECONOMIC IMPACT OF COMBINATION THERAPY VS. MONOTHERAPY FOR TREATMENT OF BENIGN PROSTATIC HYPERPLASIA IN HONG KONG**

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**OBJECTIVES:** Alpha-blockers (AB) or 5-alpha reductase inhibitor (5ARI) monotherapy is standard benign prostatic hyperplasia (BPH) treatment. Recently, combination therapy with multiple agents e.g. AB (e.g. tamsulosin) plus 5ARI (e.g. dutasteride), has gained acceptance due to improved clinical outcomes. However, its cost-effectiveness remains unclear. The study aims to examine health and economic impact of combination therapy versus 5ARI monotherapy in a hypothetical cohort of patients treated in the public sector of Hong Kong (HK). **METHODS:** A Markov model was developed to project the overall cost-savings of combination therapy in a hypothetical cohort of 1,000 treated in the public healthcare sector of HK. The model was built according to the HK-specific treatment practice. Model parameters including probabilities, costs (2014 HKD), lengths of stay, and utilities were derived from previous literatures. Efficacy data was adopted from the 4-year Combination of Avodart and Tamsulosin (CombAT) trial. The study was performed from a public payer perspective. Projected economic and clinical outcomes over 4 years include drug cost, cost of BPH treatment, number of acute urinary retention (AUR) and transurethral resection of the prostate (TURP). Both 1-way and multivariate probabilistic sensitivity analyses were undertaken to evaluate robustness of results. **RESULTS:** Compared to tamsulosin, combination therapy could prevent 28 AURs (77.8% reduction) and 69 TURPs (79.3% reduction) over 4 years. Compared to tamsulosin, combination therapy can lead to cost reduction of HKD1,574,079 (USD202,690), HKD3,221,084 (USD414,780), and HKD5,911 (USD26,100) due to reduced episodes of AUR, TURP and need of medical intervention, respectively and additionally a delay in patients’ progression to AUR and TURP. The incremental cost per capita is HKD1,045 (USD134) over 4 years. The results are sensitive to drug cost, drug efficacy and probability of BPH patients experiencing TURP. **CONCLUSIONS:** Combination therapy could lead to reduction in the number of AUR and TURP and the associated cost.

**PUK11: COST-EFFECTIVENESS OF PERCENT FREE PSA FOR PROSTATE CANCER DETECTION IN CHINESE MEN WITH A TOTAL PSA OF 4.0-10.0 NG/ML**

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**OBJECTIVES:** The prevalence of prostate cancer in the Chinese population with abnormal prostate-specific antigen (PSA) levels of 4.0-10.0 ng/ml is low. The diagnosis can only rely on transrectal ultrasound-guided prostate biopsies (TRUS-Bx) which may cause major complications. We assess the cost-effectiveness of two diagnostic strategies for prostate cancer detection in Chinese men with abnormal PSA levels of 4.0-10.0 ng/ml and normal digital rectal examination of prostate (DRE). **METHODS:** Using a decision tree model, we performed a cost-effectiveness analysis to compare the two strategies: 1) direct prostate biopsies (TRUS-Bx) and 2) percent free PSA testing prior to TRUS-Bx. A systematic review of 855 patients with...
PSA levels of 4.0-10.0 ng/ml and normal DRE enrolled in a single medical institute from Jan 2002 to December 2005 was conducted. The outcome measures were the incremental cost-effectiveness ratio, and costs were calculated through activity-accumulation costing based on National Insurance Scheme Bill Size. A one-way sensitivity analysis was undertaken. The effectiveness was measured by means of the number of detected cases and actual cases (detected cases minus lost cases). A threshold analysis is used to illustrate the value of a given variable of which the two strategies have equal outcomes or costs. RESULTS: The strategy of percent free PSA with TRUS-Bx was dominant and found to be the most cost-effective. The incremental cost-effectiveness ratio for free PSA + TRUS-Bx compared with TRUS-Bx was USD 3,871.58. Strategy 2 (TRUS-Bx) would be more cost-effective if the cost of percent free PSA increased to USD 36.78 or if prostate cancer prevalence increased to 42%. CONCLUSIONS: The use of percent free PSA prior to TRUS-Bx is the most cost-effective diagnostic strategy and will become more cost-effective as prostate cancer prevalence increases in the ageing population and the free PSA test costs down.

PUK12: WITHDRAWN

PUK13: ECONOMIC EVALUATION OF THE TREATMENTS FOR HYPERPHOSPHATEMIA AMONG PATIENTS WITH CHRONIC KIDNEY DISEASE: A REVIEW

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OBJECTIVES: The aim of this study was to synthesize the evidence on cost-effectiveness of treatment for hyperphosphatemia in chronic kidney disease Patients. METHODS: Using “hyperphosphatemia”, “chronic kidney disease”, “cost” and “economic evaluation” as the keywords for searching in PUBMED. Among 70 articles, we selected eight related articles for review. RESULTS: First, researches in this area are more concentrated in developed countries, such as UK, Canada and US. Then, in most countries, they use Markov model based on on the clinical cohort. Two articles mentioned that Lanthanum carbonate is associated with considerable clinical benefits and good value for money in CKD (€6900/QALY gained, UK). One paper point that Lanthanum carbonate is a cost-effective strategy compared with Sevelamer in the treatment of ESRD patients with hyperphosphatemia who were previously treated with calcium-based binders (for completor population was considered, the ICERs of LC versus sevelamer were $15,285/QALY and $9,337/LYS). There are five literature suggests, sevelamer is a cost-effective drug for the treatment of hyperphosphatemia in patients with CKD (2.70 QALYs, £25,916 /QALYs, UK; 18 life-years, Canada) CONCLUSIONS: We get different results from the existing international studies which couldn’t inform design makers in China. So, it’s necessary for us to carry out the research in the Chinese setting in the future.

URINARY/KIDNEY DISORDERS - Patient-Reported Outcomes & Patient Preference Studies

PUK14: PATIENT REPORTED OUTCOMES(PROS) IN PATIENTS WITH LOWER URINARY TRACK SYMPTOM(LUTS)/BENIGN PROSTATIC HYPERPLASIA(BPH) ACCOMPANIED WITH OVERACTIVE BLADDER(OAB) IN KOREA

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OBJECTIVES: Among LUTS/BPH patients, OAB symptoms are most troublesome. This study investigated the PROs with regards to their symptoms and health-related quality of life (HRQoL) and explored the related factors in LUTS/BPH patients with OAB. METHODS: This nationwide-observational study was conducted in 30 urology centers in Korea during December 2011 to June 2012. BPH patients aged over 50 years with LUTS (≥8 in international prostatic symptom score, IPSS), OAB (≥6 in IPSS item 2,4,7) and without previous treatment experience were enrolled. Patients were surveyed with several validated questionnaires to assess their severity of LUTS/IPSS: greater symptoms with higher score), general HRQoL (Euroqol-5 Dimension, EQ-5D: lower HRQOL with lower score) and disease specific quality of life (BPH-Questionnaire Korea1, BPH-Q K1: worse HRQoL with higher score, 8 domains). To identify the associated factors on PROs, age, comorbidities and clinical characteristics were included in the analysis. RESULTS: 749 LUTS/BPH with OAB patients (mean age: 63.5±8.14) were surveyed. The mean IPSS was 20.1±6.55 (0-35), and the score was relatively higher in patients with constipation (p<0.02). Regarding general HRQoL, mean EQ-5D was graded as 0.75±0.14 (0-1). Co-morbidities such as disc, arthritis, diabetes, anxiety and higher residual volume of post voiding were shown to have a negative impact on general HRQoL (P<0.05, respectively). The mean BPH-Q K1 was rated 71.72±27.48 (0-175) in total, and of the 8 domains the highest score was recorded in “sexual
function. Patients' disease related HRQoL was significantly affected by comorbid anxiety (P=0.001). **CONCLUSIONS:** This study showed the negative impact of LUTS/BPH with OAB on patients' symptoms and HRQoL. Compared to previous studies reporting PROs of BPH itself (IPSS: 15.1, EQ-5D: 0.83), BPH patients accompanied with OAB in our study showed worse outcomes. This implicates that in addition to influential comorbidities, OAB symptoms in BPH should be taken into consideration when making treatment decisions in these patients.

**PUK15: A COMPARISON OF PATIENT-REPORTED AND LABORATORY OUTCOMES BETWEEN HEMODIALYSIS AND PERITONEAL DIALYSIS PATIENTS IN A MULTI-ETHNIC ASIAN POPULATION**

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**OBJECTIVES:** End-stage renal disease (ESRD) affects patient-reported outcomes (PRO), including health-related quality of life (HRQoL) and psychological distress. HRQoL in dialysis patients measures the physical, social or emotional well-being that is affected by ESRD and/or its treatment, and has been increasingly used as an outcome measure in interventional studies. Psychological distress is a subset of HRQoL that specifically evaluates the impact on mental health. In addition, social support and patients’ perception of illness have been shown to predict all-cause mortality in ESRD patients. However, local data comparing PRO and social support in hemodialysis (HD) vs. peritoneal dialysis (PD) patients are lacking. Hence, the objective of this cross-sectional, observational study was to evaluate and compare patient-reported and laboratory outcomes in our multi-ethnic HD and PD patients. **METHODS:** Eligible chronic dialysis patients from National University Hospital were recruited. PRO measures include Kidney Disease Quality of Life Short Form, EuroQoL-5 Dimensions and Kessler Psychological Distress Scale. Social support was assessed using Family Functioning Measure. Relevant sociodemographic information and medication list/laboratory parameters were captured using a pre-tested health services utilization questionnaire, and clinic notes/electronic medical records respectively. All data were analysed and compared between HD and PD patients using Stata version 10. **RESULTS:** A total of 113 patients were recruited (HD: n=81, PD: n=32). There were no significant differences in HRQoL, social support, level of distress and most laboratory parameters between HD and PD patients. However, HD patients had significantly higher serum albumin levels (38.2±3.6 g/L vs. 32.5±4.5 g/L, p<0.001) while PD patients had significantly higher serum corrected calcium levels (2.41±0.2 mmol/L vs. 2.27±0.2 mmol/L, p=0.004) and number of medications (10.1±3.1 vs. 8.8±2.9, p=0.039). **CONCLUSIONS:** Barring cost and patient-specific factors, HD and PD are likely equivalent therapeutic options for ESRD patients in Singapore. However, the findings need to be confirmed in a larger study.

**PUK16: TRANSLATION AND VALIDATION OF KIDNEY DISEASE AND QUALITY OF LIFE (KDQOL-SFTM 1.2) INSTRUMENT TO MEASURE HEALTH RELATED QUALITY OF LIFE OF INDIAN PATIENTS WITH KIDNEY DISEASE**


**OBJECTIVES:** Objective of the present study was to translate and validate the Kidney Disease Quality of Life- Short form 1.2 (KDQOL-SFTM1.2) questionnaire in Hindi language for use in Indian Hindi speaking patients with kidney stone. **METHODS:** Forward and backward translations were performed. Intermediate version of Hindi questionnaire was developed and was used for pilot study (n=20). Modified final version after pilot study was used for validation study. **RESULTS:** Questionnaire was administered to patients (n=99) with kidney stone twice with an interval of four weeks. Cronbach alpha for total score was 0.71. For individual domains i.e. for the domain symptoms and kidney disease alpha value of 0.99 was gained, for the domain burden of kidney disease it was 0.79, for the domain effect of kidney disease on daily life it was 0.82, for the domain pain it was 0.99, for the domain physical functioning it was 0.91 and for the domain sexual function it was 0.99. No significant (p<0.05) difference was observed in total score in test-retest analysis. **CONCLUSIONS:** Translated Hindi Version of KDQOL-SFTM1.2 showed good internal consistency, test-retest reliability and linguistic validity.

**URINARY/KIDNEY DISORDERS - Health Care Use & Policy Studies**

**PUK17: WITHDRAWN**