Bibliography of Medication Compliance

Interventions to enhance medication compliance

Publications sorted by author name

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Peer-reviewed papers

   Keywords: *Behavior Therapy/ *Disease Management/ Drug Therapy: *psychology/ Health Care Surveys/ Humans/ Motivation/ *Patient Compliance/ Patient Education/ Self Medication/ Software/ United States
   Abstract: Consider new approaches to medication compliance. Why? Because roughly half of all prescriptions are taken incorrectly--if at all--and an estimated 20% aren't even filled. Experts say the problem is costing the health care system billions per year, and it must clearly be affecting outcomes as well. For these reasons, researchers are coming up with new ways to boost medication compliance, including the notion of applying behavioral theory to the problem. Check out some new solutions that are in the pipeline.

   Keywords: Asthma: diagnosis: *prevention & control: therapy/ *Clinical Competence/ Family Practice: *education: *standards/ Female/ *Guideline Adherence/ Health Knowledge, Attitudes, Practice/ Humans/ Internship and Residency: *standards: statistics & numerical data/ Male/ Physician's Practice Patterns/ Pilot Projects/ Practice Guidelines/ *Quality Assurance, Health Care/ Research Support, Non-U.S. Gov't/ Severity of Illness Index/ South Carolina/ United States
   Abstract: OBJECTIVES: This study primarily determined the effect of an educational and system intervention on residents' documentation of the severity classification of asthma. Secondarily, the study assessed the effect of classification on pharmacologic treatment, as outlined by national asthma treatment guidelines. METHODS: We reviewed the charts of all patients with asthma seen by the residents in the Center for Family Medicine (CFM) between October 1, 1998, and March 31, 1999. Data gathered from each chart included, but was not limited to, disease severity classification and medication regimen. Between July 1999 and October 1999, efforts at increasing residents' knowledge of asthma severity classification were made via formal and informal teaching. A post-intervention chart review was performed on all patients with asthma seen by the residents in the CFM between October 1, 1999, and March 31, 2000. RESULTS: A total of 8.5% of 198 and 51% of 271 patient visits were classified with respect to asthma severity in the pre- and post-intervention periods, respectively. Classified patients were treated appropriately 100% of the time in the pre-intervention period and 76% of the time in the post-intervention period. CONCLUSIONS: A comprehensive protocol significantly improved compliance with national asthma treatment guidelines with respect to severity classification but not pharmacologic treatment.

   Keywords: Adolescent/ Adult/ Aged/ Aged, 80 and over/ Antidepressive Agents,
Abstract: Medication non-adherence is a major obstacle in the treatment of affective disorders. The primary objective of this study was to evaluate two different interventions to improve adherence to antidepressant drugs. Secondary objectives included response to treatment, relation between adherence and response, patient satisfaction and tolerability. A randomized controlled design was used to assess the effect of a patient educational compliance enhancing programme (CP) and therapeutic drug monitoring in 1031 major depressed patients treated with sertraline for 24 weeks and managed by their general practitioner. Adherence was measured by questioning, measurable serum levels of sertraline and desmethylsertraline, appointments kept and a composite index including all three methods. Treatment adherence was found in 37-70% of patients, depending on the method used. Neither of the interventions resulted in a significant increase in adherence rate. However, significantly more patients in the CP group had responded at week 24 compared to patients in the control group. Overall, significantly more adherent patients responded to treatment compared to non-adherent patients, regardless of method used to determine adherence. This large study demonstrates that treatment response increases when using an educational compliance programme and that a strong relationship between treatment adherence and response exists.


Abstract: Dyslipidemias are a modifiable risk factor for coronary heart disease. The benefits of cholesterol reduction drug therapies are limited by poor patient compliance with drug regimens. OBJECTIVES: To determine the impact of a community pharmacist pilot disease-management program on patient compliance with lipid-lowering drug therapy and on serum cholesterol levels. METHODS: One hundred forty-nine patients who were nonadherent to prescribed hypolipidemic drug regimens were recruited for this six-month prospective study. Each subject served as their own control. Pharmacists educated these patients on lipid disorders, the benefit of medication compliance and lifestyle modifications that reduce the risk for coronary heart disease. Pharmacists followed up participants by telephone at two-month intervals. Drug renewal rates were monitored throughout the study and plasma lipid levels were measured at study outset and study end. RESULTS: Pharmacist intervention and patient-education programs significantly increased medication compliance, as shown by a 15.3% increase (P<0.05) in the number of compliant patients and an 11 day (P<0.001) reduction in the average number of days to
prescription renewal. Concurrently, levels of total cholesterol, triglycerides and low-density lipoprotein (LDL) cholesterol, were reduced by 6%, 16.2%, and 8.5% (P<0.001, 0.01, 0.01), respectively. High density lipoprotein (HDL) cholesterol remained relatively unchanged (+0.7%) so that the LDL to HDL ratio was improved by 17.2% overall (P<0.01). Almost all of the patients (99.2%) were satisfied with the program and expressed a willingness to pay an average $34.50 per 30 min consultation for the pharmacist services offered. CONCLUSION: Pharmacists can contribute significantly to disease management of dyslipidemic individuals.

Keywords: Adult/ Aged/ Aged, 80 and over/ Calcium: blood: metabolism/ Dietary Services/ Health Knowledge, Attitudes, Practice/ Humans/ Medical Records/ Middle Aged/ Parathyroid Hormone: metabolism/ Patient Compliance/ *Patient Education/ Patient Participation/ Phosphates: *blood: metabolism/ *Renal Dialysis/ Teaching Materials/ Vitamin D: metabolism
Abstract: OBJECTIVE: To determine the effect of a dietetic educational intervention on phosphate and calcium levels of hemodialysis patients. DESIGN: Parallel-group randomized controlled trial. SETTING: Teaching hospital hemodialysis unit in London, England. PATIENTS: Fifty-six stable adult hemodialysis patients with hyperphosphatemia. INTERVENTION: An educational intervention and one-to-one teaching session given by a renal dietitian, attempting to improve patients' knowledge of phosphate management and their compliance with diet and medication. OUTCOME MEASUREMENT: Patients’ serum phosphate, calcium, and calcium x phosphate products in the 3 months after the intervention, compared with those before the intervention. Results were also compared with a control group that had not undergone the intervention. RESULTS: In the intervention group, serum phosphate was significantly reduced after the education session, as compared with the results previously. In the control group, there was no significant change in serum phosphate level. The improved results were sustained over a period of 3 months. Serum calcium increased in the intervention group, but this result was not significant. There was an improvement in the calcium-phosphate product in the intervention group, but again this was not significant. CONCLUSION: Dietetic educational intervention can favorably alter patients’ serum phosphate levels, with potential impact on morbidity and mortality.

Keywords: Antidepressive Agents: economics: *therapeutic use/ Cohort Studies/ Comparative Study/ Depression: *drug therapy/ *Disease Management/ Female/ Health Services Research/ Humans/ *Insurance, Pharmaceutical Services/ Longitudinal Studies/ Male/ Middle Aged/ Patient Compliance: *statistics & numerical data/ Patient Education: organization & administration/ Program Evaluation/ Quality Assurance, Health Care/ Recurrence/ Research Support, Non-U.S. Gov't/ Treatment Outcome/ United States
Abstract: OBJECTIVES: To evaluate the impact of telephone counseling and educational materials on medication adherence and persistency among members with newly diagnosed depression enrolled in a pharmacy benefit management-sponsored disease management program. STUDY DESIGN: Longitudinal cohort observation. METHODS: The study population comprised 505 members with a new or recurrent episode of depression who consented and enrolled in a depression disease management program. After written consent was obtained, program participants received up to 4 telephone-counseling calls and 5 educational mailings focused on the importance of medication compliance, barriers to medication compliance, quality of life, symptoms, and satisfaction with the program. A control group of 3744 members was selected from client companies that opted not to offer the depression program. Measures of medication adherence, persistency with prescription drug therapy, and patient refill timeliness were computed for both groups and compared. RESULTS: Patients enrolled in the depression disease management program were significantly more likely to adhere to their medication regimen during acute (89.0% vs 67.7%, P < .001) and continuation treatment phases (81.1% vs 57.6%, P < .001). In addition, members enrolled in the program were significantly more likely to continue their therapy after 7 months (77.8% vs 49.5%, P < .001) and refilled their prescriptions on a more timely basis (0 vs 18 days, P < .001). CONCLUSIONS: A pharmacy benefit management-sponsored health management depression program succeeded in encouraging patients with new or recurrent depression to stay on antidepressant medication and to reach treatment goals outlined by best practice guidelines.


Abstract: Accurately assessing nonadherence is a necessary first step toward improving adherence to highly active antiretroviral therapy (HAART). Patient self report is the most practical method for assessing adherence in clinical settings, but may produce unreliable and invalid results unless optimally performed. A computer-assisted, self-administered interview (CASI) may improve the disclosure of medication nonadherence by providing a neutral and seemingly private interview. One hundred and ten patients completed a computer program which assessed their understanding of and adherence to HIV medications and produced a report for their providers. Eleven providers of these patients completed a questionnaire describing their patients' medication regimens and estimating adherence. Patients completed a written exit survey and providers completed an exit interview to assess the acceptability of our CASI-based assessment. More than half of patients (54%) made at least one error in reporting their medication regimen. Providers tended to overestimate their patients' adherence and correctly classified only 24% of nonadherent patients at the 80% adherence level. Computerized HIV medication adherence assessment is feasible and
acceptable to patients and providers. Clinical tools that can accurately and efficiently detect important medication errors and nonadherence, and alert providers to these problems, will help ensure the health of HIV-seropositive patients.


generated consumer product information does not improve drug adherence in primary care.

Abstract: OBJECTIVE: To delineate factors associated with discontinued use of the multiple sclerosis (MS) medication Avonex (interferon beta-1a--Biogen) as part of an effort to develop an intervention to promote treatment persistency. DESIGN: In-depth telephone interviews followed by a 12-page written questionnaire delivered by mail. SETTING: United States. PARTICIPANTS: Of 946 patients with MS who were contacted, 531 (56%) completed questionnaires; 79% of respondents were currently using Avonex for treatment of MS. MAIN OUTCOME MEASURE: Discontinuation of Avonex treatment, with analysis based on the theoretical framework of the Transtheoretical Model of Change. RESULTS: Four key variables (pros of Avonex use, cons of Avonex use, highest level of education completed, and level of disability) accurately identified 82% of patients who discontinued Avonex use, while also correctly identifying 81% of patients who stayed on the drug. CONCLUSION: Constructs from the Transtheoretical Model of Change were effective in differentiating patients who had discontinued their Avonex treatment versus patients who continued treatment. This behavioral model likely would be an effective framework for a medication persistency intervention.

Abstract: We hypothesized that an educational intervention based on a readiness model would lead to improved health outcomes among patients with asthma. Within a randomized control design in an urban Latino and African-American community we conducted an intensive three-month pediatric intervention. A Family Coordinator provided patient education based on a readiness-to-learn model, and facilitated improved interactions between the patient and the doctor. Family education addressed the most basic learning needs of patients with asthma by improving their perception of asthma symptom persistence using asthma diaries and peak flow measures. The physician intervention focused clinicians’ attention on patients’ diary records and peak
flow measures, and encouraged physicians to use stepped action plans. Patients were also tested for allergic sensitization and provided strategies to reduce contact with allergens and other asthma triggers. The results showed significant improvements by intervention group families on measures of knowledge, health belief, self-efficacy, self-regulatory skill, and adherence; decreases in symptom persistence and activity restriction; and increased prescription of anti-inflammatory medication by the physicians of the intervention group families.

Keywords: Anti-HIV Agents: *therapeutic use/ Attitude of Health Personnel/ Connecticut/ Female/ Focus Groups/ *HIV Infections: drug therapy: psychology/ Health Knowledge, Attitudes, Practice/ Health Promotion: *organization & administration/ Humans/ Male/ Needs Assessment/ Nursing Methodology Research/ Organizational Objectives/ Outcome and Process Assessment (Health Care)/ Patient Compliance: *psychology/ Patient Education: organization & administration/ Program Evaluation/ Questionnaires/ Research Support, Non-U.S. Gov't/ Self Efficacy/ *Social Support
Abstract: Since the advent of medical treatments for HIV, the promotion of adherence to these difficult treatment regimens has proven critical to disease management. Three Connecticut state-funded HIV medication adherence programs were evaluated.1 The purpose of this process evaluation was to explore and compare the goals and modality of each adherence program, assess client and staff satisfaction, and provide recommendations for the improvement of these programs. Focus group interviews with clients and individual interviews with staff were conducted at each of the programs. Interviews were transcribed, coded and analyzed with a code and retrieve method of theme identification. Focus group themes included the importance of social support on medication adherence and the "lifesaving" effect the program has had. The staff expressed that although complete adherence should be the long-term objective, more intermediate objectives should be considered (e.g., behavioral changes to increase clients' ability, self-esteem, and self-efficacy to take medications).

Keywords: Adult/ Aged/ Aged, 80 and over/ Antihypertensive Agents: therapeutic use/ *Decision Support Systems, Clinical/ Female/ Health Behavior/ Humans/ Hypertension: diagnosis: drug therapy: *prevention & control/ Male/ Middle Aged/ North Carolina/ *Patient Compliance/ *Patient Education/ Primary Health Care: *methods/ Research Support, U.S. Gov't, Non-P.H.S./ United States/ United States Department of Veterans Affairs/ *Veterans
Abstract: BACKGROUND: Among the 60 million Americans with hypertension, only approximately 31% have their blood pressure (BP) under control (<140/90 mm Hg). Despite the damaging impact of hypertension and the availability of evidence-based target values for BP, interventions to improve BP control have had limited success.
OBJECTIVES: A randomized controlled health services intervention trial with a split-plot
design is being conducted to improve BP control. This 4-year trial evaluates both a patient and a provider intervention in a primary care setting among diagnosed hypertensive veterans. METHODS: In a cluster-randomization, 30 primary care providers in the Durham VAMC Primary Care Clinic were randomly assigned to receive the provider intervention or control. The provider intervention is a patient-specific electronically generated hypertension decision support system (DSS) delivering guideline-based recommendations to the provider at each patient’s visit, designed to improve guideline-concordant therapy. For these providers, a sample of their hypertensive patients (n=588) was randomly assigned to receive a telephone-administered patient intervention or usual care. The patient intervention incorporates patients' need assessments and involves tailored behavioral and education modules to promote medication adherence and improve specific health behaviors. All modules are delivered over the telephone bi-monthly for 24 months. In this trial, the primary outcome is the proportion of patients who achieve a BP $\leq 140/90$ mm Hg at each outpatient clinic visit over 24 months. CONCLUSION: Despite the known risk of poor BP control, a majority of adults still do not have their BP controlled. This study is an important step in testing the effectiveness of a patient and provider intervention to improve BP control among veterans in the primary care setting.


Abstract: OBJECTIVE: Adherence to asthma medication regimens is problematic in general practice. We developed and evaluated a communication training for general practitioners (GPs) to help them address medication adherence during routine consultations. This paper describes the development of the training and evaluation results of a pilot study. METHODS: The training was based on behavior change counseling (BCC), a technique derived from motivational interviewing. We developed a five phases BCC consultation model. Participating GPs answered questions at baseline (T0), directly after (T1) and 4-10 months after (T2) the training that assessed their attitudes and confidence regarding adherence communication. They completed evaluation forms at T1 and T2. RESULTS: The 19 participating GPs were positive about the course and the feasibility of BCC in GP consultations. Also, after the training, their attitudes and confidence had improved ($p<0.05$) and all reported to use BCC skills at least sometimes 4-10 months after the training. CONCLUSION: These positive effects provide us with some hope that the training positively influenced the GP's communication behavior. PRACTICE IMPLICATIONS: If further data on physician behavior and patient outcomes justify implementation of the training, it would then be worthwhile to also involve practice nurses.

15. Brook, O.; van Hout, H.; Nieuwenhuyse, H., and Heerdink, E. Impact of coaching by community pharmacists on drug attitude of depressive primary care patients and

Keywords: Adult/ Antidepressive Agents: therapeutic use/ Attitude/ Community Pharmacy Services/ Comparative Study/ Depressive Disorder: drug therapy: *psychology/ Female/ Follow-Up Studies/ Health Services Research/ Humans/ Male/ Middle Aged/ Patient Compliance/ Patient Education/ Patient Satisfaction/ Personality Inventory: statistics & numerical data/ *Pharmacists/ *Primary Health Care/ Referral and Consultation/ Treatment Outcome

Abstract: OBJECTIVE: To investigate whether an intervention by Dutch community pharmacists improves the drug attitude of depressive patients, who are prescribed a nontricyclic antidepressant by their general practitioner (GP). METHOD: A randomized controlled trial with a 3-month follow-up was conducted among consecutive general practice patients who go to 19 pharmacists for antidepressants. The trial consisted of a control group (n=79) that received usual care and an intervention group (n=69) that received three drug coaching contacts at the pharmacy and a 25-min take-home video on the background of depression and the effects of medication. OUTCOME MEASURE: Drug attitude (DAI). RESULTS: At the baseline measurement there were no significant differences between the intervention and control group on any demographic and health status variables or on clinical symptoms. At the 3-month follow-up intervention patients had a better drug attitude (P=0.03) than their controls and evaluated the coaching of their pharmacist as more positive. They also felt the video to be useful. It had changed their ideas about medication. CONCLUSIONS: Coaching by community pharmacists is an effective way to improve drug attitude of depressive primary care patients and it is acceptable to them.


Keywords: Antidepressive Agents: *therapeutic use/ Depression: *drug therapy: psychology/ Electronics: instrumentation/ Follow-Up Studies/ Humans/ *Patient Compliance/ *Patient Education/ Pharmaceutical Services: *organization & administration/ *Primary Health Care

Abstract: The effects on adherence and depressive symptoms of a community pharmacy-based coaching program, including a take-home videotape, were evaluated in a randomized controlled trial in the Netherlands. A total of 147 depressed primary care patients who had a new antidepressant prescription were included in the study. Adherence was measured with an electronic pill container and was also derived from pharmacy medication records; the latter method was associated with an overestimation of adherence of only 5 percent. Intention-to-treat analyses showed no intervention effect on adherence (73 percent compared with 76 percent), whereas analyses of patients who received the intervention (per protocol) showed improved adherence (73 percent compared with 90 percent). Neither analysis showed effects on depressive symptoms.


Keywords: Adult/ Antidepressive Agents: *therapeutic use/ Boston/ *Counseling/ Depressive Disorder: *drug therapy/ Dysthymic Disorder: *drug therapy/ Female/ Health Knowledge, Attitudes, Practice/ Humans/ Male/ Middle Aged/ Outcome and Process Assessment (Health Care)/ *Patient Care Team/ Patient Compliance: statistics & numerical data/ Patient Education/ *Pharmacists/ Primary Health Care: *methods/ Referral and Consultation/ Research Support, U.S. Gov't, P.H.S.
Abstract: The objective of this article is to provide a detailed description of interactions between patients with depression and pharmacists. Analysis was conducted on patients from the intervention arm (n=268) of an randomized controlled trial that evaluated the impact of a clinical pharmacist on the outcomes for depressed primary care patients from nine metropolitan Boston practices. The main outcome measure was the amount of intervention time spent with patients, physicians, and other activities. Details of the behavioral intervention and a categorization of the activities are offered. Pharmacists reported 978 encounters with 268 patients in 6 months. Eighty percent of patient encounters occurred by telephone. Initial encounters took 45 min if in person and 13.3 min if by telephone. Subsequent encounters followed a similar pattern. Follow-up visits occurred 2.3 times per patient. Physician contact took considerably less time. In total, the pharmacist intervention took 70.3 min per patient over 6 months; 42.2% of encounters involved an activity related to non-antidepressant medication and 85% of encounters involved general support. Other activities (education, advocating antidepressants, and motivating adherence) occurred in at least 50% of encounters. Pharmacists repeated intervention activities in the same category approximately two to three times. Interventions to improve the care of depression in primary care patients must anticipate encountering intense needs for information, personal support, and help negotiating the healthcare system. Research that identifies relationships between the components (active ingredients) of an intervention and the outcomes of care will benefit future intervention strategies and contribute to improved and efficient care.

Keywords: Adult/ *Ambulatory Care/ Antipsychotic Agents: *therapeutic use/ Attitude of
Abstract: OBJECTIVE: To evaluate the efficacy of compliance therapy when delivered to outpatients with schizophrenia or schizoaffective disorder. METHOD: Thirty patients with schizophrenia or schizoaffective disorder (DSM-IV criteria) were recruited from urban psychiatric outpatient clinics in an open trial of compliance therapy. Compliance therapy is a cognitive/psychoeducational approach consisting of 4 to 6 sessions lasting 30 to 60 minutes each. The primary outcome was electronically measured antipsychotic medication adherence. Adherence data were analyzed for effects during an initial treatment period (month -1 to month +1) and a subsequent 5-month follow-up period. Secondary outcome measures included clinician and patient ratings of adherence, symptoms, insight, and attitudes to medication treatment. Data were collected from August 2001 to January 2004. RESULTS: Compliance therapy was not associated with improvements in antipsychotic medication adherence. Patient ratings of adherence improved during the month -1 to month +1 period, but not in the subsequent 5-month follow-up. A diagnosis of schizoaffective disorder was associated with poorer adherence than was a diagnosis of schizophrenia during the month -1 to month +1 period. A higher degree of insight at baseline (end of month -1) was associated with greater adherence in the 5-month follow-up period. Symptoms, insight, and attitudes to medication treatment did not change significantly during the study. CONCLUSION: In this uncontrolled trial, outpatients with schizophrenia or schizoaffective disorder did not benefit from compliance therapy.


Abstract: OBJECTIVE: Patient nonadherence to psychiatric medication is a key cause of relapse but clinicians do not appear to possess specific adherence skills. We sought to demonstrate that a brief training program on medication adherence strategies could improve the adherence skills, attitudes and knowledge of mental health clinicians.

METHODS: Twenty-three Tasmanian mental health workers were provided a 3 day training workshop on strategies to enhance patient adherence to medications (Medication Alliance). Pre- and post-training measures were taken of clinician knowledge about adherence strategies, ability to identify predictors of nonadherence, attitudes toward working with nonadherent patients, and optimism about treatment outcomes for patients. Videotapes of clinicians demonstrating key adherence therapy skills were also collected before and after training and blind-rated by two experienced...
therapists. RESULTS: A series of paired samples t-tests indicated significant improvements in skills, knowledge and attitudes. CONCLUSIONS: Compared with similar studies in the UK, Medication Alliance was found to be an effective and efficient training program. However, there is a need for further research to assess maintenance of training effects over time and patient outcomes.

Abstract: The development of a multidisciplinary inpatient medication education program is described. A multidisciplinary group designed and implemented a medication education program with defined roles for both nurses and pharmacists. Nurses provided medication education to patients during each medication administration using specially designed assessment and teaching tools. The nursing staff submitted requests for pharmacist consultations for patients with complex medication regimens, who were admitted because of a drug-related problem or who required additional teaching as determined through the medication education assessment form. A complex medication regimen was defined as the administration of oral medication more than five different times per day, the start of at least 5 new medications that would be continued at discharge, or the prescribing of at least 10 medications to be taken daily that would be continued at discharge. Pharmacists provided education for 19% of admitted patients during a six-month period. As a result of pharmacists' interactions with prescribers and nurses, the number of medications was reduced in 12% of these patients, and the number of medication administrations each day was reduced in 19% of patients. In addition, for 33% of patients, pharmacists contacted the prescriber to make recommendations beyond the scope of the medication education program that optimized and simplified the patient's drug regimen. The development of a structured medication education program allowed patients to receive medication education throughout their hospitalization from both nurses and pharmacists. Pharmacists provided education for patients at highest risk for noncompliance or poor outcomes. Full implementation of a medication education program involving staff pharmacists is planned.

Abstract: PURPOSE: The impact of pharmacist interventions on the care and outcomes of patients with depression in a primary care setting was evaluated.

METHODS: Patients diagnosed with a new episode of depression and started on antidepressant medications were randomized to enhanced care (EC) or usual care (UC) for one year. EC consisted of a pharmacist collaborating with primary care providers to facilitate patient education, the initiation and adjustment of antidepressant dosages, the monitoring of patient adherence to the regimen, the management of adverse reactions, and the prevention of relapse. The patients in the UC group served as controls. Outcomes were measured by the Hopkins Symptom Checklist, Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, criteria for major depression, health-related quality of life, medication adherence, patient satisfaction, and use of depression-related health care services. An intent-to-treat analysis was used.

RESULTS: Seventy-four patients were randomized to EC or UC. At baseline, the EC group included more patients diagnosed with major depression than did the UC group (p = 0.04). All analyses were adjusted for this difference. In both groups, mean scores significantly improved from baseline for symptoms of depression and quality of life at three months and were maintained for one year. There were no statistically significant differences between treatment groups in depression symptoms, quality of life, medication adherence, provider visits, or patient satisfaction. CONCLUSION: Frequent telephone contacts and interventions by pharmacists and UC in a primary care setting resulted in similar rates of adherence to antidepressant regimens and improvements in the outcomes of depression at one year.


Abstract: The adherence and disease-control outcomes associated with the use of an Internet-based store-and-forward video home telehealth system to manage asthma in children were studied. Pediatric patients with persistent asthma were provided with home computers and Internet access and monitored biweekly over the Internet. All patients were seen in the pediatric clinic at 0, 2, 6, 12, and 24 weeks. Half of the patients received asthma education in person and half via an interactive Web site. Adherence measures were assessed by therapeutic and diagnostic monitoring. Therapeutic monitoring included digital videos of patients using their controller medication inhaler. Diagnostic monitoring included an asthma symptom diary and a video of peak flow meter use. Videos were submitted electronically twice a week by using in-home telemonitoring with store-and-forward technology. Feedback was provided electronically to each patient. Disease control was assessed by examining quality of life, utilization of services, rescue-therapy use, symptom control, satisfaction
with home telemonitoring, and retention of asthma knowledge. Patients were randomly assigned to an asthma education group (Internet versus office), and the data were analyzed by comparing results for study days 0-90 and 91-180. Ten children participated. A total of 321 videos of inhaler use and 309 videos of peak flow meter use were submitted. Inhaler technique scores improved significantly in the second study period. Submission of diagnostic monitoring videos and asthma diary entries decreased significantly. Peak flow values as a percentage of personal best values increased significantly. Overall, there was no change in quality of life reported by patients. However, the caregivers in the virtual-education group reported an increase in the patients’ quality-of-life survey scores. Emergency department visits and hospital admissions for asthma were avoided. Rescue therapy was infrequent. A high rate of satisfaction with home telemonitoring was reported. Internet-based, store-and-forward video assessment of children’s use of asthma medications and monitoring tools in their homes appeared effective and well accepted.


Keywords: Adolescent/ Adult/ Anti-Asthmatic Agents: therapeutic use/ Asthma: *drug therapy/ Child/ Child, Preschool/ Emergency Service, Hospital: utilization/ Female/ Health Knowledge, Attitudes, Practice/ Humans/ Male/ Metered Dose Inhalers: utilization/ Middle Aged/ Parents: *education/ *Patient Care Planning/ Patient Compliance/ Patient Education: *methods/ Patient Readmission/ Taiwan

Abstract: BACKGROUND: It is often difficult to predict the timing and frequency of asthma attacks. In addition to interrupting the daily life of both the affected child and his/her family, asthma can also pose sudden danger to a child. Based on clinical observations, many asthma-affected children and their parents must constantly adjust themselves to the uncertainty of the disease, which leads to increased stress on the family. The use of care maps has demonstrated increased efficiency and effectiveness in the care of asthma patients from a variety of settings. OBJECTIVE: We designed this study to construct and evaluate a care map for asthmatic children in Taiwan. Specific attention was placed on comparing the study and control subjects by parental knowledge of asthma, medication used for asthma, hospital readmission, and health care resource usage. SUBJECTS AND METHODS: The care map was constructed by in-depth interviews with eight sets of parents of children with asthma. Forty-four parents of 42 asthma children were randomized into two groups in the Allergic Clinic of the Chang Gung Children's Hospital. The experimental group of 22 parents received individual instruction and training sessions in addition to the regular care provided to the control group of 22 parents. RESULTS: Forty-two children with asthma were surveyed in this study. To examine the reliability and validity of a care map for children with asthma, a quantitative survey was conducted with 42 outpatient parents with asthmatic children. There was less emergency room attending rate in experimental group (6/month; p<0.05) The understanding of the disease was much improved in parents of experimental group (13.85+/-.1.04 vs. 10.91+/-.2.14; p<0.01). Furthermore, parents acquired a more positive attitude to asthma, and almost all of the control group had irregular follow-ups by a physician and had irregular use of medication.
CONCLUSION: This study emphasizes that a care map in children with asthma (CACM) can be used to educate parents in how to provide the best treatment plan for their children. This study also shows how a CACM can help parents train their children in the best behaviors during asthma attacks. Empathetic assessment and elimination of cultural barriers, a well-designed educational program, and a mutually developed treatment plan could significantly improve the quality of life for families and specific asthma outcomes.

Keywords: Administration, Inhalation/ Asthma: *drug therapy/ Child/ Child, Preschool/ Female/ Forced Expiratory Volume: drug effects/ Glucocorticoids: *administration & dosage: pharmacology/ Humans/ Male/ *Parents/ *Patient Compliance/ *Patient Education/ Prospective Studies/ Research Support, Non-U.S. Gov't/ Self Care/ Single-Blind Method
Abstract: This study describes a self-treatment program for parents of children with asthma. The aim was to prevent asthma exacerbations by learning to recognize prodromal signs and acting upon them by increasing inhaled corticosteroids (ICS). The study questions were: (1) can we teach parents and children to recognize prodromal signs? (2) are instructions to increase inhalation medication followed? (3) will frequency and severity of asthma attacks diminish subsequently? Due to physicians' changed attitude towards prescription of ICS, fewer children could be recruited who were "ICS-naive" than expected. Twenty-nine children of the age of 4-11 years with moderate asthma, participated in a one year prospective randomised study. Structured information was given to all patients on asthma, symptoms and medication. The experimental group received additional information on recognizing prodromal signs and doubling ICS during one week. Only in 25% of the patients who recognized prodromal signs the dose of ICS was doubled (as prescribed), in 75% inadequately or not at all. Recognition of prodromal signs was poor as well as compliance to increase as-needed medication. No significant decrease of asthma symptoms occurred in the experimental group. Clinical implications are important for self-treatment instructions: an individually tailored and multi-component program should be offered by health care providers in order to help the patient to recognize early alarm symptoms, comply to self-treatment instructions and to make adaptations for continuous self-regulation.

Keywords: Adult/ Aged/ Anticoagulants: administration & dosage: *therapeutic use/ Enoxaparin: administration & dosage: *therapeutic use/ Female/ Follow-Up Studies/ Heparin: therapeutic use/ Humans/ Male/ Middle Aged/ Outpatients/ Patient Compliance/ Patient Education/ Prospective Studies/ Self Care/ Thromboembolism: *prevention & control/ Treatment Outcome
Abstract: The need for prophylaxis against venous thromboembolic disease following lower-extremity joint replacement is well documented and accepted. Although low molecular weight heparin is approved for inpatient and extended prophylaxis beyond
the hospital environment, orthopedic surgeons must determine the duration of injectable low molecular weight heparin based on the period of venous thromboembolic disease risk and on patient compliance with self-administration of medication at home. Lack of confidence in patients' ability to self-administer injections may contribute to hesitancy in prescribing injectable prophylaxis. This observational study evaluated the effectiveness of a self-injection education program. Findings demonstrate that when properly instructed, patients safely and efficaciously self-administer low molecular weight heparin at home. With shorter hospital stays, self-administration of low molecular weight heparin may optimize the clinical outcomes of orthopedic patients.


Keywords: Administration, Topical/ Adult/ Child, Preschool/ Comparative Study/ Dermatitis, Atopic: drug therapy: *nursing: psychology/ Dermatologic Agents: administration & dosage/ Emollients/ Female/ Follow-Up Studies/ Health Education: methods/ Health Knowledge, Attitudes, Practice/ Humans/ Infant, Newborn/ Male/ Ointments/ Parents: *psychology/ Patient Acceptance of Health Care: *statistics & numerical data/ Patient Compliance/ Treatment Outcome

Abstract: BACKGROUND: The failure of patients to take medicines in a way that leads to clinical benefit is a major challenge. A consensus has emerged that, on average, compliance sufficient to obtain therapeutic objectives occurs about half the time, with noncompliance contributing to therapeutic failure in the other half. These figures refer to simple oral regimens. There has been little work assessing compliance/concordance with complex treatment regimens for atopic eczema. Asthma schools led by specialist nurses have been shown to improve knowledge, use of therapies and clinical outcome. OBJECTIVES: To determine the effect of education and demonstration of topical therapies by specialist dermatology nurses on therapy utilization and severity of atopic eczema. METHODS: Fifty-one children with atopic eczema attending a paediatric dermatology clinic were followed for up to 1 year. At each visit the parent's knowledge about atopic eczema and its treatment and therapy utilization was recorded. The severity of the eczema was recorded using the six area, six sign atopic dermatitis severity score (SASSAD) and parental assessment of itch, sleep disturbance and irritability. At the first visit a specialist dermatology nurse explained and demonstrated how to use all of the topical treatments. This education was repeated at subsequent visits depending on the knowledge of the parent. RESULTS: At baseline less than 5% of parents had received/recalled receiving any explanation of the causes of eczema or demonstration of how to apply topical treatments. The eczema was poorly controlled in all children (mean SASSAD 42.9). Of the children, 24% were not being treated with any emollient cream/ointment; the mean use was 54 g weekly. Of the children, 25% were being inappropriately treated with potent or very potent topical steroids. Following repeated education and demonstration of topical therapies by a specialist dermatology nurse, there was an 89% reduction in the severity of the eczema. The main change in therapy utilization was an 800% increase in the use of emollients (to 426 g weekly of emollient cream/ointment) and no overall increase in the use of topical steroids,
accounting for potency and quantity used. CONCLUSIONS: This study reinforces the importance of specialist dermatology nurses in the management of atopic eczema. It also confirms the opinion of patients, patient support groups, dermatologists and best practice guidelines that the most important intervention in the management of atopic eczema is to spend time to listen and explain its causes and demonstrate how to apply topical therapies.


Keywords: Adolescent/ Child/ Chronic Disease/ *Drug Therapy/ Education, Pharmacy/ Evidence-Based Medicine: methods/ Great Britain/ Humans/ *Pediatrics/ *Physician's Practice Patterns/ Polypharmacy/ Research Support, Non-U.S. Gov't

Abstract: BACKGROUND: It is estimated that 200 million prescriptions for children and adolescents were issued in the UK during 2002. Therefore, it is important for the National Service Framework for Children (NSFC) to include advice on managing medicines effectively for children. This literature review was performed at the request of the NSFC Medicines External Working Group in order to provide underpinning evidence in the development of advice on managing medicines. METHODS: Databases, websites and conference abstracts were searched systematically to identify information on managing medicines in children in 2003. This article reported the results on medication review, concordance, enhanced medicines access through community pharmacy services and the use of medicines in schools. RESULTS AND CONCLUSIONS: Although there is little evidence specific to paediatrics, the objectives and rationale of medication review could be expected to apply to chronic diseases in children. Issues such as polypharmacy, wastage, repeat prescriptions and medication problems could be similar. The benefits seen in adults may also occur in children, and medication review may possibly have a role in the management of medicines in children. There is an obvious role for pharmacists in ensuring the safety of over-the-counter medications and provision of information and education to parents, carers and adolescents. Evaluation and provision of necessary education and training to community pharmacists is needed, even in the most basic paediatric issues such as sugar-free medications. The evidence suggests that treatment compliance and adherence are generally lower in children than in adults, particularly in adolescents as they approach independence. Those with learning disabilities and infants are likely to be at risk of non-compliance, although little work has been done in these populations. Children and adolescents need appropriate parental and professional support in taking control of their medication and treatment. The management of medicines in school would appear to be far from ideal. Further research into school-based medicines education and outreach clinics would also be beneficial.


Keywords: Aged/ Female/ Humans/ Male/ *Mentors/ Middle Aged/ Myocardial Ischemia: *psychology: therapy/ Patient Compliance/ Research Support, Non-U.S.
Gov't/ Socioeconomic Factors/ Treatment Outcome

Abstract: OBJECTIVE: to examine the effects and feasibility of educating and empowering older people with ischaemic heart disease using trained senior lay health mentors. DESIGN: randomised controlled trial with blinded evaluation. SETTING: Falkirk and District Royal Infirmary. Participants: inpatients and outpatients aged 60 or over attending secondary care with a diagnosis of angina or acute myocardial infarction. Three-hundred and nineteen entered and 289 completed exit assessments. The intervention group took part in mentoring groups for 1 year, meeting monthly for 2 hours, each led by two trained lay health mentors in addition to standard care. MAIN OUTCOME MEASURES: primary outcome measures were changes in coronary risk factors, medication usage and actual use of secondary care health services. Secondary outcomes were total and cardiovascular events; changes in medication compliance, non-medical support requirement, health status and psychological functioning, and social inclusion. RESULTS: there were significant improvements in a reported current exercise score (mean +0.33, +0.02 to +0.52), in the average time spent walking per week by 72 minutes (+1 to +137 minutes), and in the SF36 Physical Functioning Score (+6.1, +2.4 to +9.5). There was a 1.0% reduction in total fat (95% CI -3.0% to -0.6%) and a 0.6% reduction in saturated fat (95% CI -1.5% to -0.03%). The intervention group showed reduced outpatient attendance for coronary heart disease (-0.25 appointments, -0.61 to -0.08). Attendance rates were high. Socio-economic grouping did not affect participation. CONCLUSIONS: Lay Health Mentoring is feasible, practical and inclusive, positively influencing diet, physical activity, and health resource utilisation in older subjects with ischaemic heart disease without causing harm.


Keywords: Adolescent/ Adult/ Aged/ Asthma: epidemiology: *therapy/ Comparative Study/ Female/ Follow-Up Studies/ Forced Expiratory Volume: physiology/ Health Knowledge, Attitudes, Practice/ Humans/ Male/ Middle Aged/ Morbidity/ Patient Compliance/ *Patient Education/ Prospective Studies/ Quality of Life/ Research Support, Non-U.S. Gov't/ *Self Care

Abstract: OBJECTIVE: to assess the effects of an educational program in asthmatic patients, following treatment readjustment. METHODS: moderate to severe asthmatic adults underwent a run-in period (up to 45 days) in order to optimize their treatment. Patients were then randomized to an educational or control group over a one-year period. Education consisted of five individual sessions covering: pathophysiology of asthma, role of medication and side-effects, asthma triggers and their avoidance, detection of an asthma flare-up, and self-management plan based on symptoms and peak-flow monitoring. MAIN OUTCOME CRITERION: symptom-free days over the study period (SFD). RESULTS: a total of 72 patients were enrolled (36 in the "education group" and 36 in the "control group"), 54 of whom completed the study. Mean SFD was comparable in the two groups (88% in the education group and 89% in the control group, respectively). When the analysis was restricted to the education group, those patients who complied perfectly with the action plan (n = 5) exhibited a higher SFD, compared to the others (97% vs. 87%, p = 0.009). CONCLUSION: both education and
control groups showed high and comparable percentages of SFD. Compliance with self-management plans appears to be an important determining factor in educational programs.


Keywords: Attitude to Health/ Diabetes Mellitus, Type 2: psychology: *therapy/ Diabetic Angiopathies: psychology: *therapy/ Humans/ Patient Education/ Professional-Patient Relations/ Self Care: *methods

Abstract: Research suggests that people with diabetes are poorly compliant with dietary and exercise recommendations, and that primary non-compliance with medication is common. Local research has shown that patients' beliefs about diabetes suggest little understanding of the seriousness of the disease in terms of increased mortality. Portsmouth Primary Care Trust, in collaboration with Portsmouth Hospitals NHS Trust, is developing a range of structured self management programmes to assist in helping people be clearer about how they can make changes that will reduce their risk of diabetes complications and cardiovascular disease. These programmes are delivered to groups of patients, rather than on a single patient basis.


Keywords: Female/ Humans/ Hypothyroidism: *drug therapy/ Male/ Middle Aged/ *Pamphlets/ Patient Compliance/ Patient Education: *methods/ Research Support, Non-U.S. Gov't/ Teaching Materials/ Thyroxine: *therapeutic use

Abstract: BACKGROUND: Non-adherence with medication prescribed for chronic disease is ubiquitous and undermines the benefits of effective therapy. AIM: To evaluate the influence of an educational booklet on thyroxine adherence and health in patients with primary hypothyroidism. DESIGN OF STUDY: Unblinded randomised clinical trial of individual patients (by stratified permuted blocks) to receive an 'educational booklet' or 'usual care'. SETTING: Three general practices in the northwest of England serving 497 adults with primary hypothyroidism (prevalence 1.5%). METHOD: A total of 332 adults who had been prescribed thyroxine for hypothyroidism were allocated to either a group that was posted a hypothyroid booklet addressing lay health beliefs or to a group that received usual care. Outcomes were mean within-subject change over 3 months in thyroid stimulating hormone (TSH), the SF-36 domains of vitality and general health, and a hypothyroid symptoms index. All results were concealed until the end of the trial. RESULTS: A total of 332 randomised patients were analysed by 'intention to treat' (TSH available for 330 patients). Groups were comparable at baseline, although 'undetectable TSH' was higher in the intervention than the control group (20% versus 13%). Mean change in TSH was -0.11 mIU/L (intervention) and -0.12 mIU/L (control). An absolute difference of 0.01 mIU/L (95% confidence interval [CI] -0.93 to 0.94 mIU/L). Analysis adjusted (ANCOVA) for baseline TSH produced a difference of -0.12 mIU/L (95% CI = -1.97 to 1.95). Changes in SF-36 and hypothyroid index were minimal. Trial participants were younger than non-participants and more likely to have a previous TSH in the normal range. CONCLUSION: Brief intervention with an educational booklet has no influence on
thyroxine adherence or health in patients with primary hypothyroidism. These findings do not support the routine distribution of health educational materials to improve medication adherence.


Abstract: A psycho-educational programme was developed using the health belief model and the individual's cognitive model of the disorder and treatment. The participants were 51 rural inpatients admitted to a tertiary psychiatric centre. Twenty-four inpatients (13 men, 11 women) were discharged using discharge planning by videoconference involving the general practitioner, case manager and a family member. Patients then received six sessions of the psycho-educational programme. A control group of 27 inpatients (16 men, 11 women) were discharged with conventional discharge summaries to general practitioners and case managers and did not receive the psycho-educational programme. More patients in the control group than in the telemedicine group were readmitted to hospital over a 12-month period. Significantly more patients in the control group reported medication side-effects than those in the telemedicine group. Patients in the telemedicine group reported greater treatment adherence and compliance than those in the control group. When compared with the control group, the telemedicine group reported significantly more satisfaction with their treatment and discharge planning.


Abstract: OBJECTIVE: To evaluate the impact of patient notification of impending formulary changes on formulary adherence. METHODS: This pilot program in a large, Midwest-based health insurer utilized a randomized controlled trial research design. A list of 30 chronic-use medications that were to change formulary status were selected for the pilot. A review of adjudicated pharmacy claims records was performed to identify patients receiving one or more of the formulary change medications on the list. Members of 112 individual health plans of this large health insurer, all of whom were subject to the same drug formulary, were randomized to either the intervention (letter) or control arm. Patients in the intervention arm were sent a targeted communication that described the patient's formulary change medication(s) and provided therapeutic option(s) for the formulary change medication(s). Pharmacy claims for patients in both arms were examined at 110 days after the date of the mailing to determine if there was a switch to a formulary alternative. Multivariate regression modeling was performed to adjust for baseline differences between the arms. RESULTS: A total of 7,247 unique
formulary change medication regimens were identified (3,817 in the control arm and 3,430 in the letter arm) for 6,518 subjects (3,387 in the control arm and 3,131 in the letter arm). A higher proportion of formulary change medication regimens in the intervention arm were switched to a formulary alternative compared with the control arm (19.2% vs. 12.0%, P<0.001). After adjustment for baseline differences, regression modeling indicated that subjects in the intervention arm were 1.33 times more likely to switch to a formulary alternative (P<0.001). CONCLUSION: A letter-based, formulary change notification program is a pragmatic and effective strategy to increase drug formulary adherence. Such a program does not restrict access to medications but, rather, provides education and personalized information that may allow patients to participate more actively in their pharmacotherapy decision making.


Abstract: This report describes a pilot study of a nursing intervention to increase adherence to combination therapy. The intervention was based on motivational interviewing (MI). Participants completed a baseline assessment using the computer-administered self-interview with audio (ACASI) data collection method and then were randomly assigned to the MI intervention or control condition. Nurse counselors met with participants in the MI intervention group for three adherence sessions. Two months following baseline, participants completed a follow-up assessment. Mean scores on ratings of missed medications were lower for participants in the intervention group than those in the control group. Although there were no significant differences in the number of medications missed during the past 4 days, participants in the MI group reported being more likely to follow the medication regimen as prescribed by their health care provider. The pilot study provided useful information about the acceptability of ACASI and the adequacy of intervention procedures. The results of this pilot study show promise for the use of MI as an intervention to promote adherence to antiretroviral medications.

Abstract: BACKGROUND: The literature on patient adherence to treatment includes hundreds of empirical studies. A comprehensive examination of the findings requires the organization and quantification that is possible with meta-analysis. OBJECTIVES: The goals of this research are retrieval, compilation, and averaging of adherence rates in all published empirical studies from 1948 to 1998; assessment of variation according to sample characteristics, time period of publication, measurement method, disease, and regimen; and examination of the effects on adherence of patient demographic characteristics. METHODS: We calculated a meta-analysis of 569 studies reporting adherence to medical treatment prescribed by a nonpsychiatrist physician, and 164 studies providing correlations between adherence and patients' age, gender, education, and income/socioeconomic status; group comparison and multiple regression analysis of moderators. RESULTS: The average nonadherence rate is 24.8%. Controlling for intercorrelations among moderator variables, adherence is significantly higher in more recent and smaller studies and in those involving medication regimens and adult samples. The use of physical tests and self-report have respectively significant and borderline negative effects on the level of adherence, and disease severity and use of the medical record have no significant effects. Adherence is highest in HIV disease, arthritis, gastrointestinal disorders, and cancer, and lowest in pulmonary disease, diabetes, and sleep. Demographic effects on adherence are small and moderated by sample, regimen, and measurement variables. CONCLUSIONS: This review offers insights into the literature on patient adherence, providing direction for future research. A focus on reliability and validity of adherence measurement and systematic study of substantive and methodologic moderators are recommended for future research on patient adherence.

Keywords: Anti-Asthmatic Agents: *therapeutic use/ Asthma: *drug therapy: nursing/ Child/ Humans/ *Patient Compliance/ *Patient Education/ Pediatric Nursing
Abstract: Asthma, the most common chronic disease in childhood, continues to be associated with high rates of morbidity and mortality, despite improved treatment protocols. Lack of adherence to individual treatment plans has been implicated in these poor outcomes. The purpose of this article is to assist the nurse in identifying obstacles that might limit adherence to treatment, and offer practical suggestions for promoting adherence in pediatric patients. The reasons that children and children's families fail to adhere to individual treatment plans include financial barriers, misconceptions about asthma, cultural influences, and mistaken health beliefs. In addition, family education about asthma management can be inadequate. An efficiently run asthma program, which includes family education, easy telephone access to the provider, prompt attention during exacerbations, and frequent follow-up, can improve adherence. By eliminating barriers to adherence and maintaining open communication and consistent positive support, nurses can help children with asthma attain and maintain the highest quality of life.
Keywords: Adaptation, Psychological/ Adult/ Antimanic Agents: *therapeutic use/ Bipolar Disorder: diagnosis: *psychology: *therapy/ Educational Measurement/ Female/ Follow-Up Studies/ Humans/ Lithium Carbonate: *therapeutic use/ Male/ Middle Aged/ Nursing Evaluation Research/ Patient Compliance: *psychology: statistics & numerical data/ Patient Education: *organization & administration/ Psychiatric Nursing: methods/ *Quality of Life/ Questionnaires/ Self Administration: psychology: statistics & numerical data/ Treatment Outcome/ Turkey
Abstract: The purpose of this study was to show the effects of education on medication compliance, symptom level and quality of life of outpatients who were being treated with lithium for bipolar disorder. The study was performed comparing a total of 26 patients (14 study and 12 control) who were a patient group in lithium therapy. In the study one group was given a short education program about the disorder and lithium therapy in three sessions. Data were collected from both groups using a medication knowledge form, Brief Symptom Inventory, and WHO Quality of Life Scale before and after the intervention. At the end of 3 months whereas there was no difference seen in the scores of the control group; the study group had an increase in medication knowledge, a decrease in symptom level, an increase in quality of life, and a beginning of more regular medication use. Findings that were obtained show the importance of education about the disorder and medication in increasing the adaptation to society of patients who have bipolar disorder.

Keywords: Antihypertensive Agents: *administration & dosage/ Counseling/ Humans/ Hypertension: *drug therapy/ *Patient Compliance/ Patient-Centered Care
Abstract: BACKGROUND: Lack of adherence to blood pressure-lowering medication is a major reason for poor control of hypertension worldwide. Interventions to improve adherence to antihypertensive medication have been evaluated in randomized trials, but it is unclear which interventions are effective. OBJECTIVES: To determine the effectiveness of interventions aimed at increasing adherence to blood pressure-lowering medication in adults. SEARCH STRATEGY: The authors' performed an all-language search of all articles in the Cochrane Controlled Trials Register, MEDLINE, EMBASE, and CINAHL in April 2002. SELECTION CRITERIA: The authors selected randomized clinical trials (RCTs) of interventions to increase adherence to blood pressure-lowering medication in adults with essential hypertension, with adherence to medication and blood pressure control as outcomes. DATA COLLECTION AND ANALYSIS: Two authors extracted data independently and in duplicate and assessed each study according to the criteria outlined by the Cochrane Collaboration Handbook. PRIMARY RESULTS: The authors included 38 studies testing 58 different interventions and containing data on 15,519 patients. The studies were conducted in nine countries between 1975 and 2000. The duration of follow-up ranged from two to 60 months. Due to heterogeneity between studies in terms of interventions and the methods used to measure adherence, results were not pooled. Simplifying dosing regimens increased adherence in seven out of nine studies (relative increase in adherence, 8 to 19.6
percent). Motivational strategies were successful in 10 of 24 studies, with generally small increases in adherence, up to 23 percent. Complex interventions involving more than one technique increased adherence in eight out of 18 studies, ranging from 5 to 41 percent. Patient education alone seemed largely unsuccessful. REVIEWERS' CONCLUSIONS: Reducing the number of daily doses appears to be effective in increasing adherence to blood pressure-lowering medication and should be tried as a first-line strategy, although there is less evidence of an effect on blood pressure reduction. Some motivational strategies and complex interventions appear promising, but more evidence is needed from RCTs.

40. Dunbar, P. J.; Madigan, D.; Grohskopf, L. A.; Revere, D.; Woodward, J.; Minstrell, J.; Frick, P. A.; Simoni, J. M., and Hooton, T. M. A two-way messaging system to enhance antiretroviral adherence. J Am Med Inform Assoc. 2003 Jan-2003 Feb 28; 10(1):11-5. Keywords: Adult/ Anti-HIV Agents: therapeutic use/ *Antiretroviral Therapy, Highly Active/ Feasibility Studies/ Female/ HIV Infections: *drug therapy/ Humans/ Male/ *Patient Compliance/ Patient Education/ *Reminder Systems: instrumentation/ Abstract: Failure to adhere to complex antiretroviral regimens can lead to resistance and treatment failure among HIV-positive persons. In this study of the feasibility of an automated two-way messaging system to improve adherence, participants received multiple short daily messages designed to remind, educate, encourage adherence, and solicit responses concerning side effects and self-reported adherence. Twenty-five participants remained in the study for a median of 208 days, receiving 17,440 messages and replying to 14,677 (84%). Participants reported missing one or more doses on 36% of 743 queries and reported medication side effects on 26% of 729 queries. Participants expressed high satisfaction with the messaging system and reported that it helped with medication adherence. The study suggests that it is feasible to use an automated wireless two-way messaging system to communicate with HIV-positive patients over an extended period of time.

41. Elliott, R. A.; Barber, N., and Horne, R. Cost-effectiveness of adherence-enhancing interventions: a quality assessment of the evidence. Ann Pharmacother. 2005 Mar; 39(3):508-15. Keywords: Clinical Trials/ Cost-Benefit Analysis/ Decision Making/ Humans/ *Patient Compliance/ Patient Education: economics: methods/ Professional Role/ *Quality Assurance, Health Care/ Treatment Outcome Abstract: OBJECTIVE: To determine whether the current cost-effectiveness evidence on adherence-enhancing interventions (AEIs) was of sufficient quality to aid in decision-making regarding medication adherence policies. DATA SOURCES: A computerized search of Embase, MEDLINE, Cinahl, Econlit, NHSEED, Psychlit, EPIC, and Cochrane databases (1980-April 2004) was performed. English-language human subject articles were identified using the key words compliance, adherence, concordance, patient assistance, therapeutic alliance, costs, economics, efficiency, resource use/utilization, cost-of-illness, cost-effectiveness, cost-minimization, cost-utility, and cost-benefit. STUDY SELECTION AND DATA EXTRACTION: Studies that appeared to assess the cost-effectiveness of medication AEIs were included. Methodologic rigor was
assessed using 15 minimum quality criteria. DATA SYNTHESIS: We found 45 comparative studies in 43 publications. Asthma (14 studies) and psychiatric illness (12 studies) were most commonly investigated. In 33 studies, interventions were educational, 18 had multiple components, and 23 did not appear to be linked to proven reasons for nonadherence. Reporting of adherence and outcome results was often unclear. Cost data were poorer quality than outcome data, using average or estimated costs and omitting some cost elements. Nine studies carried out incremental economic analysis. No study met all quality criteria. CONCLUSIONS: We were not able to make definitive conclusions about the cost-effectiveness of AEIs due to the heterogeneity of the studies found and incomplete reporting of results. Important policy decisions need to be made about nonadherence; however, they are currently being made in a vacuum of adequate information. AEIs must be based on reasons for nonadherence and be evaluated using accepted clinical and economic quality criteria.


Nursing: organization & administration/ Organizational Innovation/ Patient Education/ Program Development/ State Medicine: organization & administration/ Time Factors

Abstract: Switching patients from intravenous 5-FU/LV to oral capecitabine (Xeloda) for the treatment of metastatic colorectal cancer is associated with a reduction in the need for hospitalisations to manage 5-FU-associated delivery and complications, with resulting healthcare savings. However, implementing oral therapy with capecitabine within a cancer centre in the UK has required a considerable change in attitude within healthcare services. The resulting need for patients to take an active role in their treatment, and the co-ordination and monitoring of such a service at home has raised issues for chemotherapy services. To enhance patient involvement and compliance with medication a patient guide was developed to educate, and support individuals and enable them to understand the rationale for treatment and when to seek help. In addition, patients are encouraged to monitor and record symptoms in a diary. This change in service focus has required an investment in time educating and informing patients, community health workers and hospital practitioners. This change has been co-ordinated through the chemotherapy outpatient clinic. Effective communication between hospital and home has been important in implementing oral chemotherapy. While the initial challenge of monitoring and educating patients receiving capecitabine has been met, the Primary Care team and cancer centre need to continue to assess side effects and patient compliance in order to improve knowledge of capecitabine among healthcare professionals and ensure safe practice.


Keywords: Australia: ethnology/ Bosnia-Herzegovina: ethnology/ *Communication Barriers/ Croatia: ethnology/ Drug Utilization Review: *methods/ Female/ Humans/ Male/ Middle Aged/ Patient Compliance: statistics & numerical data/ Patient Education: *methods: statistics & numerical data/ *Pharmacists/ *Prescriptions, Drug: statistics & numerical data/ Research Support, Non-U.S. Gov't/ Yugoslavia: ethnology

Abstract: AIM: The objective of this prospective study was to conduct medication management reviews (MMR) in people from a non-English speaking background (NESB) (Bosnian/Serbian/Croatian, from former Yugoslavia, currently residing in Australia) in their native language in order to identify medication-related problems (needs analysis) and implement appropriate therapeutic interventions, in collaboration with their general practitioners (GPs). METHODS: Twenty-five participants entered the study. Each was interviewed and medication-related issues were identified by the health care team. RESULTS: Various interventions (over 150 for the whole group, an average of 6 per participant), based on actual and potential medication-related problems, were designed to improve the use of medicines. The MMRs introduced effective changes into the participants’ health care. Psychological (e.g., feeling depressed) and sociological factors (e.g., costs of medicines, not understanding labels written in English) were identified as having significant impacts on medication management. CONCLUSIONS: These data confirmed there are avoidable medication-related problems in people from a NESB. GPs and pharmacists working in health care teams with a trained interpreter could greatly improve medication use through regular review and a team approach to problem identification and solving.

Abstract: OBJECTIVES: To evaluate the results of pharmaceutical intervention in a programme to monitor the drug therapy of type-2 diabetics; and to assess the improvement of the indicators, glycosylated haemoglobin, basal glycaemia, lipid profile, albumin/creatinine, blood pressure, BMI, medication-related problems and adherence.

DESIGN: Randomised clinical trial. SETTING: 14 local pharmacies in the province of Pontevedra (Galicia), Spain. SUBJECTS: 126 type-2 diabetics, over 18 years old and who joined voluntarily a monitoring programme, distributed 50-50 into intervention and control groups. VARIABLES: The main variable was HbA1c. Other variables were: clinical indicators of metabolic control (mean basal glycaemia, lipid profile), blood pressure, BMI, medication-related problems, understanding of the illness and its complications, adherence to medical treatment and to changes in life-style, and incidence of complications.

METHODS: Introduction and randomisation of patients. Recording of the initial status of the research variables, study and assessment stage, pharmaceutical interventions to detect and resolve any passing medication-related problems and educational activities. Referral to family doctor if his/her intervention required. Follow-up lasted 12 months with monthly scheduled visits and on-demand visits, after which the variables were assessed once more. The stages of study, evaluation, intervention and education did not occur in the control group.

DISCUSSION: The study will enable the role of the chemist in achieving the objectives of controlling type-2 diabetes patients to be achieved through educational intervention and assistance in drug therapy monitoring.


Abstract: Sodium oxybate, also known as gamma-hydroxybutyric acid (GHB), was discovered in 1960 and has been described both as a therapeutic agent with high medical value and, more recently, a substance of abuse. The naturally occurring form of this drug is found in various body tissues but has been studied most extensively in the CNS where its possible function as a neurotransmitter continues to be studied. Sodium oxybate has been approved in different countries for such varied uses as general anaesthesia, the treatment of alcohol withdrawal and addiction, and, most recently, cataplexy associated with narcolepsy. During the 1980s, easy access to GHB-
containing products led to various unapproved uses, including weight loss, bodybuilding and the treatment of sleeplessness, sometimes with serious long-term effects. The availability of these unapproved and unregulated forms of the drug led to GHB and its analogues being popularised as substances of abuse and subsequent notoriety as agents used in drug-facilitated sexual assault, or 'date rape', eventually leading to the prohibition of GHB sales in the US. Legal efforts to control the sale and distribution of GHB and its analogues nearly prevented the clinical development of sodium oxybate for narcolepsy in the US. However, following extensive discussions with a variety of interested parties, a satisfactory solution was devised, including legislative action and the development of the Xyrem Risk Management Program. Amendments to the US Controlled Substances Act made GHB a schedule I drug, but also contained provisions that allow US FDA-approved products to be placed under schedule III. This unique, bifurcated schedule for sodium oxybate/GHB allowed the clinical development of sodium oxybate to proceed and, in July 2002, it was approved by the FDA as an orphan drug for the treatment of cataplexy in patients with narcolepsy as Xyrem(sodium oxybate) oral solution. To promote the safe use of sodium oxybate, as well as alleviate concerns over possible diversion and abuse following product approval, a proprietary restricted drug distribution system was created, called the Xyrem Success Program. Components of the programme include a centralised distribution and dispensing system, a physician and patient registry, compulsory educational materials for patients and physicians, a specially trained pharmacy staff, a method for tracking prescription shipments, and an initial post-marketing surveillance programme. The system has created a unique opportunity to provide both physician and patient education and ongoing patient counselling, promoting greater drug safety and enhanced patient compliance.


Abstract: Patients' knowledge of their HIV condition and its treatment, which has been recognized as a factor that influences adherence to antiretroviral therapy, can be improved through educational programs. This prospective, randomized, controlled trial compared an experimental group that participated in an educational program and a control group with standard care. The study evaluated the impact of an educational intervention on adherence to antiretroviral therapy, patients' knowledge, quality of life, and therapeutic response in patients treated with highly active antiretroviral therapy. Three hundred twenty-six patients were analyzed at inclusion. A higher level of adherence was associated with patients who were older, had higher incomes, and did not smoke. CD4 cell count and plasma viral load were correlated with adherence at entry. The educational intervention had an impact on adherence and knowledge in the experimental group at 6 months, which was maintained at 12 and 18 months. A delayed increase in adherence was observed in the control group at 12 months. No significant impact on quality of life was observed over time. The patients' health status improved in 56% of the experimental group subjects and 50% of the control subjects. However, no significant impact was shown on CD4 cell count and plasma viral load. This study shows that an educational intervention improves adherence to antiretroviral regimens and health status and suggests that it should be initiated early in therapy.


Abstract: OBJECTIVE: To improve medication adherence by reducing self-reported adherence barriers, and to identify medication discrepancies by comparing physician-prescribed and patient-reported medical regimens. DESIGN: Prospective, randomized, controlled trial. SETTING AND PARTICIPANTS: A single academically affiliated community health center. Eligible patients had type 2 diabetes, had undergone laboratory testing in the year preceding the study, and had visited the clinic in the 6 months preceding the study. INTERVENTION: A pharmacist administered detailed questionnaires, provided tailored education regarding medication use and help with appointment referrals, and created a summary of adherence barriers and medication discrepancies that was entered into the medical record and electronically forwarded to the primary care provider. MEASUREMENTS: Changes in self-reported adherence rates and barriers were compared 3 months after the initial interview. Intervention patients with medication discrepancies at baseline were assessed for resolution of discrepancies at 3 months. RESULTS: Rates of self-reported medication adherence were very high and did not improve further at 3 months (6.9 of 7 d, with all
medicines taken as prescribed; p = 0.3). Medical regimen discrepancies were identified in 44% of intervention patients, involving 45 doses of medicines. At 3-month follow-up, 60% of discrepancies were resolved by corrections in the medical record, while only 7% reflected corrections by patients. CONCLUSIONS: In this community cohort, patients reported few adherence barriers and very high medication adherence rates. Our patient-tailored intervention did not further reduce these barriers or improve self-reported adherence. The high prevalence of medication discrepancies appeared to mostly reflect inaccuracies in the medical record rather than patient errors.


Keywords: Adult/ Antipsychotic Agents: *therapeutic use/ Cluster Analysis/ Community Health Nursing: *education/ *Education, Nursing, Continuing/ Humans/ Inservice Training/ London/ *Patient Compliance/ Research Support, Non-U.S. Gov't/ Schizophrenia: drug therapy: *nursing/ Single-Blind Method/ Treatment Outcome Abstract: BACKGROUND: Non-compliance attenuates the efficacy of treatments for physical and mental disorders. AIMS: To assess the effectiveness of a medication management training package for community mental health nurses (CMHNs) in improving compliance and clinical outcomes in patients with schizophrenia. METHOD: Pragmatic randomised controlled trial. Sixty CMHNs in geographical clusters were assigned randomly to medication management training or treatment as usual. Each CMHN identified two patients on their case-load who were assessed at baseline and again after 6 months by a research worker. The primary efficacy outcome of interest was psychopathology, measured using the Positive and Negative Syndrome Scale (PANSS). RESULTS: Nurses who had received medication management training produced a significantly greater reduction in patients’ overall psychopathology compared with treatment as usual at the end of the 6-month study period (change in PANSS total scores: medication management -16.62, treatment as usual 1.17; difference -17.79; 95% CI -24.12 to -11.45; P<0.001). CONCLUSIONS: Medication management training for CMHNs is effective in improving clinical outcomes in patients with schizophrenia.


Keywords: *Antipsychotic Agents/ Cognitive Therapy: methods/ Humans/ *Patient Compliance/ Patient Education: methods/ Schizophrenia: *drug therapy: nursing/ Schizophrenic Psychology Abstract: Non-compliance with antipsychotic medication is observed in around 50% of people with schizophrenia and is a major preventable cause of psychiatric morbidity. A number of factors influence patient’s decisions about taking medication and include awareness of illness, beliefs about treatment and side-effects of medication. A variety of interventions targeted at improving compliance have been tested. Education increases patients’ understanding of their illness and treatment but does not improve
compliance. However, interventions, such as compliance therapy, based on cognitive-behavioural techniques appear to be effective in enhancing compliance and preventing relapse.


Keywords: *Aged: psychology/ Australia/ Community Health Nursing: *standards/ Cross-Sectional Studies/ Drug Therapy: nursing: psychology: *standards/ Female/ Follow-Up Studies/ Geriatric Assessment/ Home Care Services: *standards/ Humans/ Male/ Needs Assessment/ Nurse's Role/ Nursing Assessment/ Nursing Evaluation Research/ Patient Education: standards/ Quality Assurance, Health Care: *organization & administration/ Referral and Consultation/ Research Support, Non-U.S. Gov't/ Self Administration: nursing: *standards

Abstract: Although considerable research and development work has been undertaken on the role of General Practitioners (GPs) and pharmacists in medication management, monitoring and referral, there is limited research into a role in medication management for community nurses. One hundred and thirteen older people living at home and receiving community nursing care were assessed for their knowledge of, and ability to manage their medication regimen. From these data, a nurse-initiated intervention was developed that included nursing interventions and referral pathways to GPs for people who might benefit from a GP and/or pharmacist medication review. A subgroup of 24 participants with diminished knowledge of medications or ability to manage their regime (considered to be at risk of drug-related problems) who were followed up, demonstrated an increase in knowledge, some alteration in compliance aids and with no statistically significant change in medication regime complexity. This paper details an approach to medication review and intervention suitable for community nurses that includes referral pathways within the medication team.


Abstract: The number of "physician extenders" (nurse practitioners and physician assistants) caring for patients with chronic hepatitis C is rising rapidly. Their growing role in the management of these patients promises greater efficiency in the delivery of care and more provider interaction with patients. This may yield benefits in terms of patient education and support, management of medication side effects, and patient adherence to treatment regimens. This article reviews the role of physician extenders in
the management of patients with hepatitis C and outlines strategies for maximizing their contribution to the care of these patients.

54. Gupta, U.; Sharma, S.; Sheth, P. D.; Jha, J., and Chaudhury, R. R. Improving medicine usage through patient information leaflets in India. Trop Doct. 2005 Jul; 35(3):164-6. Keywords: Adult/ Female/ Humans/ India/ *Information Dissemination/ Male/ Patient Acceptance of Health Care/ Patient Compliance/ *Patient Education/ *Pharmaceutical Preparations/ Prospective Studies/ Research Support, Non-U.S. Gov't Abstract: The impact of patient information leaflets (PILs) was measured in an outpatient department of a large tertiary care public health facility in India. Patients were allocated to control (114) or intervention group (118). Patients in the intervention group received PILs. The primary indicators [mean +/- standard deviation (SD)] improved significantly in the intervention group compared with the control group (15.7 +/- 7.3 versus 12.2 +/- 5.4). A three-fold (P < 0.01) increase in the awareness of the supplementary scores was observed in the intervention group (9.5 +/- 5.2 versus 3.3 +/- 2.7) compared with the control group (3.5 +/- 2.8 versus 3.5 +/- 2.8). Confounding variables, viz. age, sex, literacy level, did not influence the patients' knowledge. When the number of drugs prescribed increased, the patient's knowledge decreased significantly (P < 0.0001). PILs provided to the patients by the pharmacist significantly improved knowledge about medication, and improved compliance at home.

55. Hartigan, K. Patient education: the cornerstone of successful oral chemotherapy treatment. Clin J Oncol Nurs. 2003 Nov-2003 Dec 31; 7(6 Suppl):21-4. Keywords: Administration, Oral/ Antineoplastic Agents: *administration & dosage/ Drug Information Services/ Humans/ Internet/ Needs Assessment/ Neoplasms: *nursing: psychology/ Nurse's Role/ Oncologic Nursing: *methods/ Patient Care Planning/ Patient Compliance: psychology/ Patient Education: *methods/ Reminder Systems/ Self Administration: methods: psychology/ Teaching Materials Abstract: Because patients with cancer self-administer oral chemotherapy, they typically do not receive the same amount of teaching and monitoring as patients receiving i.v. chemotherapy. Patient education is vital to promote patient safety, optimal dosing, and adherence to the treatment plan. Oncology nurses need to tailor their patient education efforts to the individual needs of each patient and use resources such as medication information sheets to reinforce teaching. This article reviews the process of teaching patients about oral chemotherapy and discusses the unique patient education challenges associated with orally administered chemotherapy.

56. Haynes, R. B.; McDonald, H.; Garg, A. X., and Montague, P. Interventions for helping patients to follow prescriptions for medications. Cochrane Database Syst Rev. 2002; (2):CD000011. Keywords: *Drug Therapy/ Humans/ *Patient Compliance/ Patient Education/ Randomized Controlled Trials/ Self Administration Abstract: BACKGROUND: People who are prescribed self-administered medications typically take less than half the prescribed doses. Efforts to assist patients with adherence to medications might improve the benefits and efficiency of health care, but also might increase its adverse effects. OBJECTIVES: To update a review
summarising the results of randomised controlled trials (RCTs) of interventions to help patients follow prescriptions for medications for medical problems, focusing on trials that measured both adherence and clinical outcomes. SEARCH STRATEGY: Computerised searches to August 2001 in MEDLINE, CINAHL, The Cochrane Library, International Pharmaceutical Abstracts (IPA) PsychInfo, and Sociofile; bibliographies in articles on patient adherence; articles in the reviewers' personal collections; and contact with authors of original and review articles on the topic. SELECTION CRITERIA: Articles were selected if they reported an unconfounded RCT of an intervention to improve adherence with prescribed medications, measuring both medication adherence and treatment outcome, with at least 80% follow-up of each group studied and, for long-term treatments, at least six months follow-up for studies with positive initial findings. DATA COLLECTION AND ANALYSIS: Information on study design features, interventions and controls, and results were extracted by one reviewer and confirmed by at least one other reviewer. The studies were too disparate to warrant meta-analysis. MAIN RESULTS: For short-term treatments, one of three interventions reported in three RCTs showed an effect on both adherence and clinical outcome. Eighteen of 36 interventions for long-term treatments reported in 30 RCTs were associated with improvements in adherence, but only 16 interventions led to improvements in treatment outcomes. Almost all of the interventions that were effective for long-term care were complex, including combinations of more convenient care, information, reminders, self-monitoring, reinforcement, counselling, family therapy, and other forms of additional supervision or attention by a health care provider (physician, nurse, pharmacist or other). Even the most effective interventions did not lead to large improvements in adherence and treatment outcomes. Two studies showed that telling patients about adverse effects of treatment did not affect their adherence.

REVIEWER'S CONCLUSIONS: The full benefits of medications cannot be realised at currently achievable levels of adherence. Current methods of improving adherence for chronic health problems are mostly complex and not very effective. Innovations to assist patients to follow medication prescriptions are needed.


Keywords: Diabetes Mellitus, Type 2: prevention & control/ *Drug Therapy/ Female/ Humans/ Hypertension: prevention & control/ Male/ Middle Aged/ *Patient Compliance/ Patient Dropouts/ *Patient Education/ Reminder Systems/ Research Support, Non-U.S. Gov't/ *Self Administration

Abstract: Low adherence to prescribed medical regimens is a ubiquitous problem. Typical adherence rates are about 50% for medications and are much lower for lifestyle prescriptions and other more behaviorally demanding regimens. In addition, many patients with medical problems do not seek care or drop out of care prematurely. Although accurate measures of low adherence are lacking for many regimens, simple measures, such as directly asking patients and watching for appointment nonattendance and treatment nonresponse, will detect most problems. For short-term regimens (< or =2 weeks), adherence to medications is readily achieved by giving clear instructions. On the other hand, improving adherence to long-term regimens requires combinations of information about the regimen, counseling about the
importance of adherence and how to organize medication taking, reminders about appointments and adherence, rewards and recognition for the patient's efforts to follow the regimen, and enlisting social support from family and friends. Successful interventions for long-term regimens are all labor-intensive but ultimately can be cost-effective.


Abstract: AIMS AND OBJECTIVES: The aim of the larger study was to ascertain the medication practices of registered and enrolled nurses in rural and remote areas of Queensland after the introduction of the Health (Drugs and Poisons) Regulation. This paper reports on the findings of the role of registered nurses and their confidence in the ability to provide information on medications in a way that the client understands; the frequency of the provision of information to clients prior to discharge; and the frequency of Indigenous Health Workers or interpreters for people without English as a first language. BACKGROUND: Queensland employs approximately 17% of the Australian registered nurse workforce. In 1996 Queensland changed the Health (Drugs and Poisons) Regulation to allow specific registered nurses, who had undertaken approved postgraduate education and training programmes, to become endorsed for an expanded medication practice role. In particular, it allowed endorsed nurses to administer and supply (but not prescribe) drugs listed in a drug formulary to certain clients using protocols. It was not clear, however, whether the changes to the Regulation reflected the scope of practice, thereby providing adequate legal protection for the nurse. DESIGN: During 2001-02 an exploration of the medication practices of rural and remote area nurses was conducted by the use of a cross-sectional postal survey. Phase 1 of the study used a facility audit to ascertain facility medication practices and phase 2 of the study used a postal survey to ascertain nurses’ medication practices.

METHOD: All nurses employed in rural and remote health facilities in Queensland were eligible to participate in the study. The nurse registering authority’s (the Queensland Nursing Council) register was used to generate a non-proportional stratified random sample. Of the 1999 questionnaires sent, there were 668 respondents. Of these, 520 were registered nurses. RESULTS: The data indicated that there was a difference between endorsed and unendorsed registered nurses' medication practice. In particular, it was apparent that endorsed registered nurses were more likely to believe they could explain the side-effects of medication to clients in a way the patient understood; provided medication education to clients on discharge; and used Indigenous Health Workers or interpreters to explain medications to those clients for whom English was not a first language. However, it was apparent that <50% of all Registered Nurses were providing client medication education or using Indigenous Health Workers or interpreters. CONCLUSION: It is apparent that the changes to the
Regulation have ensured that Registered Nurses who have undergone postgraduate education to enhance their medication practice are more likely to provide client education and consumer medication information. However, the results suggest that the majority of registered nurses in Queensland, whilst believing they have sufficient knowledge of pharmacology to provide client education, often do not provide appropriate medication advice to clients, particularly on discharge from the acute setting. RELEVANCE TO CLINICAL PRACTICE: It is well recognized that the provision of medication education to clients has several benefits to both the client and the health care system. The lack of client medication education indicated in this study compromises patient's safety as well as their compliance with their medication regime.


Keywords: Ambulatory Care/ Antineoplastic Agents: *adverse effects: therapeutic use/ Drug Monitoring: *methods/ Female/ Humans/ Male/ Neoplasms: drug therapy/ Patient Care: *standards/ Patient Compliance/ Patient Education/ Pharmaceutical Services/ *Pharmacists/ *Professional Role/ Questionnaires/ Research Support, Non-U.S. Gov't/ Self Administration

Abstract: OBJECTIVES: To present an adverse effect monitoring tool with theoretical, practical, and data-supported explanation and justification for use in pharmacy practice for the purpose of building patient-pharmacist partnerships and improving medication-management outcomes. DESIGN: Randomized pretest-posttest experimental design. SETTING: Ambulatory patients in three multidisciplinary cancer clinics. PATIENTS: 74 patients who were beginning chemotherapy. INTERVENTIONS: A calendar for daily adverse drug event tracking by ambulatory patients was adapted from The WriteTrack: Personal Health Tracker and provided to those assigned to the intervention group, who were asked to record symptoms and possible adverse drug events during their first two chemotherapy cycles. Patient reports of self-monitoring activities were gathered through posttests (n = 74) and semistructured interviews (n = 7). MAIN OUTCOME MEASURES: Self-reported use and perceived usefulness of the tool. RESULTS: A total of 88.4% of the experimental group (38 of 43 individuals) reported using the monitoring tool to keep written track of adverse effects, while 38.7% of the control group (12 of 31 individuals) reported keeping some form of written record of their experiences. A total of 65.8% of those in the intervention group found patterns in their adverse effects, 47.4% indicated they took the calendar to the clinic to help them recall events, and 26.3% reported using the calendar at the clinic to show their health care team what was happening. Experimental group subjects most often shared the adverse effect monitoring information with nurses alone (23.7%). Patients using the diary indicated that it had a high degree of utility and value and that they would use it again and recommend it to other patients with cancer. CONCLUSION: A system for adverse effect monitoring by patients in the context of cancer drug management was acceptable and useful, and pharmacists could incorporate this tool into their daily practice with minimal effort, time, and expense. Patients' self-documented symptoms and adverse effects can be valuable data when used to help tailor medication regimens to improve clinical status while satisfying patients' personal priorities.

Keywords: Aged/ Behavior Therapy/ Benzhydryl Compounds: *therapeutic use/ Cresols: *therapeutic use/ Female/ Humans/ Intervention Studies/ Life Style/ Male/ Middle Aged/ Muscarinic Antagonists: *therapeutic use/ *Patient Compliance/ *Patient Education/ Phenylpropanolamine: *therapeutic use/ Research Support, Non-U.S. Gov't/ Urinary Incontinence: *drug therapy: *psychology

Abstract: OBJECTIVE: To assess a standardized and simple educational intervention in overactive bladder (OAB) patients to improve compliance with anticholinergic medication, increase the use of concomitant behavioral treatments, and improve patients' perception of bladder symptoms. MATERIALS AND METHODS: This is a 16-week open-label randomized trial of tolterodine combined with an education intervention for the experimental group versus tolterodine alone (no intervention) for the control group. The setting was in family medicine and urology clinics in Ontario. The participants were male and female adults with OAB symptoms. Both groups received tolterodine prescriptions. The intervention patients received printed information and an explanation about OAB, medication use, and behavioral treatments (kegel exercise, bladder stretching, fluid regulation). The primary outcomes were medication compliance and persistence at 16 weeks. Secondary outcomes were use of behavioral treatments and self-reported severity of symptoms. RESULTS: More patients in the intervention group (experimental) purchased their prescriptions (p<0.05). Compliance rate was greater for the intervention group (39%), versus the control group (31%) at 16 weeks although the difference was not significant (p>0.05). Significantly more patients started and/or continued non-drug treatments in the intervention group (82%) compared to the control group (53%) (p<0.05). Furthermore, more patients in this group reported improvement in severity of bladder symptoms (p<0.05). CONCLUSIONS: The simple education intervention resulted in a greater, but not significant, increase in compliance with medication compared to the control group. It also resulted in a significantly increased use of behavior modification therapies and better self-perception of treatment outcome.


Keywords: Adaptation, Psychological/ Adolescent/ Adult/ Aged/ Asthma: *prevention & control: psychology/ Family Practice: *methods: standards/ Female/ Follow-Up Studies/ Health Status/ Humans/ Male/ Middle Aged/ Needs Assessment/ Netherlands/ Outcome Assessment (Health Care)/ Patient Education: *methods: standards/ Physician Assistants: *organization & administration/ Program Evaluation/ Pulmonary Disease, Chronic Obstructive: *prevention & control: psychology/ Quality of Life/ Questionnaires/ Self Efficacy

Abstract: In this study a randomised controlled trial was carried out to investigate the effectiveness of an education programme for patients with asthma or chronic obstructive pulmonary disease (COPD). All asthma and COPD patients using
medication and experiencing pulmonary symptoms were randomly assigned to the intervention (n=139) or usual-care group (n=137). The intervention consisted of taylor-made education conducted by a general practice assistant and focussing on a patients' technical skills and coping with the disease. Measurements took place at baseline, and after 1 and 2 years of follow-up. After 1 and 2 years the inhalation technique was significantly better in the intervention group compared to the usual-care group. No significant differences were observed regarding disease symptoms, health related quality of life, compliance, smoking cessation, self-efficacy, and coping. The results only support the implementation of the intervention regarding the technical skills (inhalation technique). However, given the importance of improvement of patients' coping and the need for more efficient care, we recommend further exploration of the possibilities of a more structured and intensive education programme.

62. Higgins, N.; Livingston, G., and Katona, C. Concordance therapy: an intervention to help older people take antidepressants. J Affect Disord. 2004 Sep; 81(3):287-91. Keywords: Aged/ Aging: *psychology/ Antidepressive Agents: administration & dosage: *therapeutic use/ Depressive Disorder: *drug therapy/ Female/ Health Services for the Aged/ Humans/ Intervention Studies/ Male/ *Patient Compliance/ Patient Education/ Quality of Life/ Research Support, Non-U.S. Gov't Abstract: BACKGROUND: Older people often do not adhere fully to antidepressant medication. Compliance Therapy improves adherence with antipsychotic medication. OBJECTIVE: To adapt Compliance Therapy for use in older depressed patients, to pilot this 'Concordance Therapy' for feasibility and acceptability and to gain preliminary indications of its efficacy. METHODS: Randomised controlled trial (RCT). SETTING: Psychiatric services for older people in North London and Essex. PARTICIPANTS: A total of 19 older depressed patients. Intervention: 10 patients received Concordance Therapy over 3-4 sessions. CONTROL: 9 patients received treatment as usual. MAIN OUTCOME MEASURE: medication adherence at 1 month. Secondary outcome measures: medication adherence at 3 months; depression severity, beliefs about medication, quality of life at 1 and 3 months; patient feedback about the therapy. RESULTS: The therapy was acceptable to patients. Intervention patients were more likely to take antidepressants, had a higher quality of life, had less depressive symptomatology and were less likely to be cases of depression at 1 month. Beliefs around antidepressants at 1 month were more positive in the intervention group but this was not the case for medication in general. LIMITATIONS: As a pilot, patient numbers were small and the findings did not reach statistical significance. Three patients (1 intervention, 2 control) were in hospital and therefore offered medication at follow-up. CONCLUSION: Concordance Therapy for older people prescribed antidepressants is acceptable and feasible and shows sufficient promise of efficacy to justify an adequately powered RCT.

63. Higgins, N. and Regan, C. A systematic review of the effectiveness of interventions to help older people adhere to medication regimes. Age Ageing. 2004 May; 33(3):224-9. Keywords: Aged/ Drug Therapy: *psychology/ Geriatrics: *methods/ Health Services for the Aged/ Hospitalization/ House Calls/ Humans/ Intervention Studies/ Middle Aged/ Patient Compliance: *psychology/ Patient Education/ Randomized Controlled Trials/
Treatment Outcome

Abstract: BACKGROUND: Non-adherence is a common cause of treatment failure. The causes and context of non-adherence may differ amongst older people and reviews of interventions to improve adherence have tended to focus on the younger adult population. OBJECTIVE: To conduct a systematic review of interventions to aid adherence to medication for older people over the age of 65. METHOD: Relevant papers identified by searching the Cochrane Database of Systematic Reviews and the Database of Abstracts of Review of Effectiveness (Cochrane Library), Medline 1966-October 2002, Embase 1980-October 2002, Best Evidence, PsychINFO 1887-October 2002 and CINAHL 1982-October 2002. These were then hand-searched. The papers that fitted our inclusion criteria were selected. Two independent reviewers using an established tool assessed the studies for methodological quality. A non-statistical narrative approach was then taken to analyse the studies due to the heterogeneity of the outcome measures. RESULTS: 7 studies were identified. They used a variety of approaches involving external cognitive supports and/or educational interventions. Most studies were of poor methodological quality. Statistically significant effects, where present, tended to have small effects clinically. CONCLUSIONS: Currently there is no strong evidence to support the use of any one intervention type. Future research should use combinations of approaches, as there is some evidence that these are more likely to be successful.


Keywords: Adolescent/ Adult/ Aged/ Antidepressive Agents: *therapeutic use/ Clinical Pharmacy Information Systems/ Depressive Disorder: *drug therapy/ Female/ Florida/ Follow-Up Studies/ Health Benefit Plans, Employee: standards/ Health Maintenance Organizations: *organization & administration/ Health Services Research/ Humans/ Independent Practice Associations: *organization & administration/ Male/ Middle Aged/ Patient Compliance: *statistics & numerical data/ *Patient Education/ Program Development/ Prospective Studies/ Research Support, Non-U.S. Gov't/ Self Administration: statistics & numerical data/ United States

Abstract: OBJECTIVE: To evaluate the impact of mail-based physician and member educational interventions on patient adherence to antidepressant medications. STUDY DESIGN: The randomized controlled prospective design included patients followed for 6 months after filling a new prescription for an antidepressant. A pharmacy claims database was used to identify patients and track medication adherence. PATIENTS AND METHODS: Patients receiving a new prescription for an antidepressant and their prescribers were included. Prescribers were randomly assigned to the intervention and control groups. Patient assignment was linked to their physician's assignment. The control group received no intervention. The educational intervention consisted of monthly letters to patients and prescribers regarding the Health Plan Employer Data and Information Set (HEDIS) standards or educational information regarding the importance of medication adherence. The primary outcome was adherence as measured by the medication possession ratio and measurement as specified by HEDIS. The Student's t-test, the chi2 test, and a logistic regression model were used to
compare groups and the variables that affect adherence. Other secondary measurements of adherence were performed. RESULTS: A total of 9564 patients were included. Patients in the intervention group demonstrated greater adherence compared with the control group at 90 and 180 days (P < .05). After adjusting for variables, the intervention variable stood alone in its significant impact on adherence (P <.01; confidence interval, 1.003-1.197). Adherence in the total population was significantly higher for selective serotonin reuptake inhibitors than for other agents (P < .001).

CONCLUSION: A monthly mail-based educational intervention program regarding antidepressant medications can positively influence patient adherence to therapy.


Keywords: *Aftercare/ Aged/ Aged, 80 and over/ Attitude of Health Personnel/ Drug Utilization Review: *statistics & numerical data/ Emergency Treatment: *utilization/ England/ Family Practice/ Home Care Services/ House Calls: *utilization/ Humans/ Patient Compliance/ Patient Education/ Patient Readmission: *statistics & numerical data/ Pharmacies/ *Pharmacists/ Prognosis/ Quality of Life/ Research Support, Non-U.S. Gov't/ Self Administration: *statistics & numerical data

Abstract: OBJECTIVE: To determine whether home based medication review by pharmacists affects hospital readmission rates among older people. DESIGN: Randomised controlled trial. SETTING: Home based medication review after discharge from acute or community hospitals in Norfolk and Suffolk. PARTICIPANTS: 872 patients aged over 80 recruited during an emergency admission (any cause) if returning to own home or warden controlled accommodation and taking two or more drugs daily on discharge. INTERVENTION: Two home visits by a pharmacist within two weeks and eight weeks of discharge to educate patients and carers about their drugs, remove out of date drugs, inform general practitioners of drug reactions or interactions, and inform the local pharmacist if a compliance aid is needed. Control arm received usual care. MAIN OUTCOME MEASURE: Total emergency readmissions to hospital at six months. Secondary outcomes included death and quality of life measured with the EQ-5D.

RESULTS: By six months 178 readmissions had occurred in the control group and 234 in the intervention group (rate ratio = 1.30, 95% confidence interval 1.07 to 1.58; P = 0.009, Poisson model). 49 deaths occurred in the intervention group compared with 63 in the control group (hazard ratio = 0.75, 0.52 to 1.10; P = 0.14). EQ-5D scores decreased (worsened) by a mean of 0.14 in the control group and 0.13 in the intervention group (difference = 0.01, -0.05 to 0.06; P = 0.84, t test). CONCLUSIONS: The intervention was associated with a significantly higher rate of hospital admissions and did not significantly improve quality of life or reduce deaths. Further research is needed to explain this counterintuitive finding and to identify more effective methods of medication review.

Abstract: OBJECTIVE: To assess the effectiveness of mailed hypertension educational materials. DESIGN: Prospective, randomized, controlled single-blind trial. SETTING: Primary care practice-based research network in which 9 clinics located in Portland, Oregon participated. PARTICIPANTS: Patients with mildly uncontrolled hypertension as defined as a last blood pressure of 140 to 159/90 to 99 mmHg from query of an electronic medical record database. INTERVENTIONS: Patients randomized to intervention were mailed 2 educational packets approximately 3 months apart. The first mailer included a letter from each patient's primary care provider. The mailer included a booklet providing an overview of hypertension and lifestyle modification and a refrigerator magnet noting target blood pressure. The second mailing also included a letter from the patient's primary care provider, a second educational booklet focused on medication compliance and home blood pressure monitoring, and a blood pressure logbook. The control group consisted of similar patients receiving usual care for hypertension. MEASUREMENTS AND MAIN RESULTS: Patients from each group were randomly selected for invitation to participate in a study visit to measure blood pressure and complete a survey (intervention n= 162; control n= 150). No significant difference was found in mean blood pressure between intervention and control patients (135/77 mmHg vs 137/77 mmHg; P=.229). Patients in the intervention arm scored higher on a hypertension knowledge quiz (7.48 +/- 1.6 vs 7.06 +/- 1.6; P=.019), and reported higher satisfaction with several aspects of their care. No significant difference was seen in the prevalence of home blood pressure monitoring ownership or use. CONCLUSIONS: In patients with mildly uncontrolled hypertension, educational mailers did not yield a significant decrease in blood pressure. However, significant improvement in patient knowledge, frequency of home monitoring, and satisfaction with care were demonstrated.


Abstract: For patients to manage their medication regimens at home, adequate preparation is required prior to hospital discharge. Self-administered medication programs are a strategy for improving medication knowledge and regimen adherence. The purpose of this study was to evaluate the effectiveness of a self-administered cardiac medication program on patients knowledge of and adherence to their medication regimen. Patient and nurse satisfaction with the self-administered medication program were assessed. A comparison group, repeated measures design
was used in which patients received nurse-administered medications (n = 172) or self-administered medications (n = 178). Data were collected at admission, discharge, and 2, 6, and 16 weeks post-discharge. Outcome variables were medication knowledge, medication adherence, and program satisfaction. Patients in the self-administered medication group had significantly higher medication knowledge scores over time compared to those in the nurse-administered medication group. There was no statistically significant difference between groups on medication adherence. The self-administered medication group reported significantly higher levels of satisfaction and had significantly fewer medication errors and medication-related problems compared to the nurse-administered medication group.

   Keywords: *Comprehension/ Drug Information Services: *standards/ Educational Status/ Health Care Surveys/ Humans/ *Pamphlets/ Patient Education: *standards/ *Pharmacies/ Teaching Materials: *standards/ United States
   Abstract: Pharmacy literature commonly used to inform patients about medication side-effects and complications was examined for readability. Forty-five (45) informational sheets were obtained from nine national and regional pharmacies. According to the McLaughlin's SMOG (Simple Measure of Gobbledegook) formula, the reading level of the informational sheets ranged from grade 8-14 (8 = 8th grade level and 14 = collegiate level), with a mean reading level of 12. The sampled pharmacy educational materials may be too difficult for most Americans to read and comprehend. The pharmacist may assist in increasing patient compliance by offering education in a form that is understandable, which increases the likelihood of adherence to desired health behaviors.

   Keywords: Adult/ Aged/ Attitude of Health Personnel/ Attitude to Health/ Drug Information Services/ Drug Therapy: psychology/ Female/ Focus Groups/ Humans/ Male/ Middle Aged/ Patient Compliance: *psychology/ Patient Education/ Patient Participation/ *Professional-Patient Relations/ Research Support, Non-U.S. Gov't/ Skin Diseases: psychology: *therapy/ Sweden
   Abstract: Adherence to long-term therapy for chronic illness is on average 50%. However, regarding adherence to dermatological treatment the existing literature is limited. The aim of the study was to acquire an understanding of issues associated with adherence to dermatological therapy. Focus group interviews were used in two types of fora: patients with chronic dermatological diseases and health care providers, including doctors, nurses and pharmacists working in dermatological care. Results reveal the providers' view of a suboptimal rate of adherence. According to both providers and patients, factors affecting adherence were patients' expectations and experiences of therapeutic effect, possibilities for the patient to take active part in treatment decisions, as well as mode of administration and type of medication. Suggested strategies for
improvement are individualized patient education, continuous treatment support with assessment of medication-taking behaviour and enhanced communication skills among the providers.

Keywords: Attention Deficit Disorder with Hyperactivity: epidemiology: *rehabilitation/ Child/ *Computer-Assisted Instruction/ Double-Blind Method/ Female/ Follow-Up Studies/ Humans/ Male/ Memory Disorders: epidemiology: *therapy/ Research Support, Non-U.S. Gov't/ Software/ Teaching: *methods
Abstract: OBJECTIVE: Deficits in executive functioning, including working memory (WM) deficits, have been suggested to be important in attention-deficit/hyperactivity disorder (ADHD). During 2002 to 2003, the authors conducted a multicenter, randomized, controlled, double-blind trial to investigate the effect of improving WM by computerized, systematic practice of WM tasks. METHOD: Included in the trial were 53 children with ADHD (9 girls; 15 of 53 inattentive subtype), aged 7 to 12 years, without stimulant medication. The compliance criterion (>20 days of training) was met by 44 subjects, 42 of whom were also evaluated at follow-up 3 months later. Participants were randomly assigned to use either the treatment computer program for training WM or a comparison program. The main outcome measure was the span-board task, a visuospatial WM task that was not part of the training program. RESULTS: For the span-board task, there was a significant treatment effect both post-intervention and at follow-up. In addition, there were significant effects for secondary outcome tasks measuring verbal WM, response inhibition, and complex reasoning. Parent ratings showed significant reduction in symptoms of inattention and hyperactivity/impulsivity, both post-intervention and at follow-up. CONCLUSIONS: This study shows that WM can be improved by training in children with ADHD. This training also improved response inhibition and reasoning and resulted in a reduction of the parent-rated inattentive symptoms of ADHD.

Abstract: OBJECTIVE: To explore the experiences and training needs of service providers in relation to medication management for Aboriginal people with mental
health disorders. DESIGN: Survey. SETTING: Aboriginal and mainstream health and human service organisations in metropolitan, rural and remote South Australia. SUBJECTS: Aboriginal health workers, nurses, mental health workers, substance misuse workers, managers, liaison officers, social workers, police, pharmacists, general practitioners, community workers, counsellors, paramedics, educators, family support workers and others. RESULTS: The major health service issues for Aboriginal people with mental health disorders and their carers are related to access to, and availability and appropriateness of services. Quality use of medications by Aboriginal clients is influenced by drug and alcohol misuse, cost, compliance, feelings about the value of medicines, sharing of medications and unwanted side-effects. Many workers providing services to Aboriginal people with mental health disorders lack adequate training and/or resources on mental health and safe medication management; yet, are required to provide advice or assistance on these matters. CONCLUSIONS: The survey provides new, reliable evidence relevant to mental health services and medication management for South Australian Aboriginal people. It highlights the major issues impacting on quality of care and service provision, demonstrates the wide range of health and allied workers providing medication advice and assistance to Aboriginal people, and reveals workforce development needs.

72. Kozuki, Y.; Poupore, E., and Schepp, K. Visual feedback therapy to enhance medication adherence in psychosis. Arch Psychiatr Nurs. 2005 Apr; 19(2):70-80. Keywords: Adult/ Antipsychotic Agents: therapeutic use/ *Audiovisual Aids/ Behavior Therapy: methods/ Counseling: methods/ Drug Monitoring: instrumentation: *methods: nursing/ Drug Therapy, Computer-Assisted: instrumentation: *methods/ Factor Analysis, Statistical/ Feasibility Studies/ *Feedback, Psychological/ Female/ Health Behavior/ Health Knowledge, Attitudes, Practice/ Humans/ Male/ Middle Aged/ Nursing Evaluation Research/ Patient Compliance: *psychology/ Patient Education: methods/ Pilot Projects/ Psychiatric Nursing: methods/ *Psychotic Disorders: drug therapy: psychology/ Questionnaires/ Research Support, Non-U.S. Gov't/ Social Support Abstract: Adherence to antipsychotic medications is key to enhancing maximum responses to medication and to decreasing relapse rates among those with psychotic disorders. Visual feedback therapy used electronic monitoring to provide visual feedback of daily medication-taking behaviors, combined with supportive counseling and education components. Twenty-three participants with DSM-IV diagnoses of psychotic disorders were recruited from community and inpatient settings. No statistical significance was found for intervention weekly for 1 month, followed by monthly for 2 months, although a majority of participants either maintained or increased adherence rates at 1 month. Additional findings included associations between low insight and low adherence and descriptive data on medication adherence behaviors.

Abstract: BACKGROUND: Tight blood glucose control has been correlated with a reduction in diabetes complications. Adherence to antidiabetic medications is crucial to achieving blood glucose control. OBJECTIVE: To assess the relationship between good glucose control [glycosylated hemoglobin (HbA1c) levels] and adherence to prescribed treatment in patients on a stable medication regimen for type 2 diabetes. METHODS: The Morisky survey, a 4-item questionnaire that predicts patient medication-taking behavior, was used to assess adherence in 301 patients. The relationship of HbA1c to Morisky score was evaluated, controlling for other variables related to patient demographics and clinical characteristics. Data were analyzed using a general linear model on log (HbA1c). RESULTS: Unadjusted mean HbA1c values (capped at 14.0%) for patients with Morisky scores of 0 or 1, 2, 3, and 4 were 8.92%, 8.67%, 7.74%, and 7.60%, respectively. Of all patients, 13.0%, 14.0%, 24.3%, and 48.8% had scores of 0 or 1, 2, 3, and 4, respectively. Good adherence (Morisky score > or = 3) was associated with a 10% lower total HbA1c (p = 0.0003) adjusted for all other factors in the model. Duration of diabetes (5-10 y) and presence of diabetes complications were also significantly associated with HbA1c (p = 0.026 and 0.002, respectively). Adherence was poor in 27% of patients. CONCLUSIONS: This study found that patients with a higher score on the Morisky scale had a lower associated HbA1c measurement. The Morisky score may be an efficient tool for identifying patients with poor medication-taking behavior who can then be targeted for directed adherence counseling services.


Keywords: Age Factors/ Aged/ Community Pharmacy Services: organization & administration/ Drug Administration Schedule/ Drug Industry: methods: organization & administration/ Drug Packaging/ Drug Utilization Review/ Humans/ *Patient Compliance/ Patient Education: organization & administration/ Pharmacies: organization & administration: utilization/ Pharmacists: *utilization/ Reminder Systems/ Research Support, Non-U.S. Gov't/ Self Administration

Abstract: OBJECTIVES: To identify the effectiveness of adherence interventions reported in the literature, to identify interventions being conducted and/or sponsored by large chain pharmacies and pharmaceutical manufacturers, and to seek input from a panel of pharmacists who address adherence issues on a daily basis as to the steps that should be taken to advance a national initiative to increase awareness of the importance of and opportunities associated with medication adherence and persistence. MAIN OUTCOME MEASURE: Effectiveness of the adherence interventions reported in the literature. METHODS: First, a literature search was conducted using MEDLINE, International Pharmaceutical Abstracts, CINAHL, and PsycINFO. Keywords were medication or drug and compliance or adherence or persistence and control group. Second, pharmaceutical manufacturers and chain
pharmacies were surveyed. Third, an advisory panel reacted to the research findings and formulated a series of action steps that could support or be part of a national initiative to increase adherence. RESULTS: Reported adherence-related interventions were grouped into five categories—adherence aids, refill or follow-up reminders, regimen simplification, written and oral education, and comprehensive management. Median adherence increases ranged from 6% to 25% for these categories. Interviews with 10 chain pharmacies revealed that adherence is an important issue. Most chains have some form of adherence program in place, but current initiatives are product-focused rather than patient-focused. Interviews with 15 manufacturers revealed that they currently use a variety of adherence interventions and want to partner with pharmacies to implement and assess the initiatives. The advisory panel developed a series of action items for implementing a national adherence initiative. CONCLUSION: Comprehensive interventions can improve adherence and are mutually beneficial for patients, pharmacies, and manufacturers. Pharmacists must be able to assess patients' adherence, identify the reasons for nonadherence, and develop patient-specific interventions. Studies have shown that the most successful interventions have some follow-up component and address the underlying reason(s) for nonadherence. Pharmacies and pharmaceutical manufacturers have tried various adherence interventions, such as patient education and refill reminders. There is a growing sense that a national adherence initiative is needed to coordinate pharmacists' efforts to address this public health problem, and the American Pharmacists Association is well positioned to take a leadership role in such efforts.

Keywords: Adolescent/ Adult/ Aged/ Anti-Obesity Agents: therapeutic use/ Body Mass Index/ Clinical Competence/ *Evidence-Based Medicine/ Exercise: physiology/ Female/ Great Britain/ Health Promotion/ Humans/ Life Style/ Longitudinal Studies/ Male/ Middle Aged/ Models, Organizational/ Needs Assessment/ Obesity: epidemiology: *therapy/ *Outcome and Process Assessment (Health Care)/ Patient Compliance/ *Primary Health Care/ Research Support, Non-U.S. Gov't
Notes: CORPORATE NAME: Counterweight Project Team.
Abstract: BACKGROUND/AIMS: Obesity has become a global epidemic, and a major preventable cause of morbidity and mortality. Management strategies and treatment protocols are however poorly developed and evaluated. The aim of the Counterweight Programme is to develop an evidence-based model for the management of obesity in primary care. METHODS: The Counterweight Programme is based on the theoretical model of Evidence-Based Quality Assessment aimed at improving the management of obese adults (18-75 years) in primary care. The model consists of four phases: (1) practice audit and needs assessment, (2) practice support and training, (3) practice nurse-led patient intervention, and (4) evaluation. Patient intervention consisted of screening and treatment pathways incorporating evidence-based approaches, including patient-centred goal setting, prescribed eating plans, a group programme, physical activity and behavioural approaches, anti-obesity medication and weight maintenance strategies. Weight Management Advisers who are specialist obesity dietitians facilitated programme implementation. Eighty practices were recruited of
which 18 practices were randomized to act as controls and receive deferred intervention 2 years after the initial audit. RESULTS: By February 2004, 58 of the 62 (93.5%) intervention practices had been trained to run the intervention programme, 47 (75.8%) practices were active in implementing the model and 1256 patients had been recruited (74% female, 26% male, mean age 50.6 years, SD 14). At baseline, 75% of patients had at one or more co-morbidity, and the mean body mass index (BMI) was 36.9 kg/m(2) (SD 5.4). Of the 1256 patients recruited, 91% received one of the core lifestyle interventions in the first 12 months. For all patients followed up at 12 months, 34% achieved a clinical meaningful weight loss of 5% or more. A total of 51% of patients were classed as compliant in that they attended the required level of appointments in 3, 6, and 12 months. For fully compliant patients, weight loss improved with 43% achieving a weight loss of 5% or more at 12 months. CONCLUSION: The Counterweight Programme is an evidence-based weight management model which is feasible to implement in primary care.

Keywords: Aerosols/ Aged/ Comparative Study/ English Abstract/ Humans/ Male/ Middle Aged/ *Patient Compliance/ Patient Education: *methods/ Pulmonary Disease, Chronic Obstructive: *drug therapy
Abstract: OBJECTIVES: To determine whether the use of written information alone improved inhalation technique with pressurized canister inhalers in patients with chronic obstructive pulmonary disease (COPD). To compare the effectiveness of written information versus verbal explanation provided by nursing personnel on the use of inhalers. DESIGN: Interventional study. SETTING: Urban health center.
PARTICIPANTS: 120 patients with COPD treated with pressurized canister inhalers.
INTERVENTIONS: The participants were divided randomly into three groups of 40 patients each. In one group no intervention was used, in the second group verbal explanations were provided, and in the third group written information was provided.
MAIN MEASURES: We recorded percentage compliance with 5 criteria for the correct use of inhalers at the start of the study and 3 months after the intervention in all groups.
RESULTS: Initially, performance of the inhalation technique by patients with COPD was poor (mean compliance 40%). Performance improved significantly in both intervention groups, with no significant difference between them. Final mean compliance was 74% in the written information group and 82% in the verbal information group.
CONCLUSIONS: The use of written information about the use of inhalers for patients with COPD significantly improved utilization to a degree similar to that obtained with verbal explanations.

Keywords: Adult/ Aged/ Antipsychotic Agents: *administration & dosage: *therapeutic use/ Comorbidity/ Female/ *Guideline Adherence/ Humans/ Male/ Medical Records: statistics & numerical data/ Middle Aged/ *Patient Compliance/ *Practice Guidelines/
Abstract: Very little is known about patient, provider, and facility characteristics that may affect the likelihood that a schizophrenia patient who receives an antipsychotic medication is dosed according to treatment recommendations. In this study, prescription drug records for schizophrenia patients were collected from the Department of Veterans Affairs, and indicators were constructed describing whether the average daily dose was outside of the range recommended by the schizophrenia Patient Outcomes Research Team (PORT). Generalized estimation equations were used to identify patient, facility, and provider characteristics that are associated with adherence to PORT recommendations. We found that the majority (62.1%) of patients were dosed within the PORT-recommended dosing range. Patients who were older, were female, had comorbid psychiatric disorders, or were prescribed conventional antipsychotics were less likely to adhere to PORT recommendations. Provider and facility characteristics were generally not significantly associated with adherence. When patients were dosed outside of the recommendations, patients treated at facilities with more emphasis on mental health and research and education were more likely to be dosed above the recommendations.


Keywords: Adult/ Anti-Retroviral Agents: *therapeutic use/ Australia/ Female/ HIV Infections: *drug therapy/ Humans/ Male/ Middle Aged/ Patient Compliance: *statistics & numerical data/ Research Support, Non-U.S. Gov't

Notes: CORPORATE NAME: Melbourne Adherence Group.

Abstract: Maintaining greater than 95% adherence to antiretroviral medication is necessary in order to have the greatest therapeutic impact on HIV infection. Furthermore, evidence suggests that adherence rates of between 70% and 89% are significantly associated with viral rebound and the development of drug resistance. Adherence rates at and above the 95% level are difficult for patients to achieve and maintain. Our aim was to determine if an adherence intervention could improve adherence among patients attending an ambulatory care clinic at a large public hospital. The intervention was delivered by a multidisciplinary team of health care professionals and consisted of education coupled with the provision of devices designed to assist patient memory and adherence. A crucial component of the intervention consisted of the identification of patient specific barriers to adherence and the development of strategies to circumvent these problems. Adherence was assessed using patient self-report over the past 4, 7, and 28 days and by calculation of the Morisky score. The study was conducted as a randomised controlled trial using the stepped wedge design with a total of 68 subjects randomised to receive the intervention over a 20-week period. Adherence before and after the intervention formed the analysis. There was a significant decrease in the number of missed doses over the past 4 (1.9 to 1.0, p < 0.001), 7 (3.0 to 1.8, p < 0.001) and 28 (7.4 to 4.2, p < 0.001)
days and a decrease in the Morisky score, indicating an improvement in medication taking behaviour (1.3 to 0.5 p < 0.001).


Abstract: The aim of this study is to evaluate the medication knowledge achieved by conventional verbal education and the influence of drug information leaflets in patients with epilepsy. Drug compliance and sources of information of the patients were also examined. Fifty-one adults in an epilepsy outpatient clinic participated this survey. These patients were asked to complete a questionnaire and to specify sources of drug information. Serum drug levels were checked and compared with the self-reported compliance. Then, drug information leaflets were given to patients. In the next follow-up visit, patients were asked to fill out the same questionnaire again. In the baseline assessment, 36 patients (70.6%) could accurately list their medications. However, half of patients were not knowledgeable about side effects and did not keep a seizure diary. After provision of drug leaflets, the epilepsy medication assessment score increased from 3.9 +/- 1.9 to 5.1 +/- 1.7 (P<0.001). In addition, patients reported being compliant most of the time and this matched drug levels. On average, each patient had 2.8 sources of information and 5 patients used Internet as a tool. Despite achieving good compliance, conventional verbal education did not sufficiently cover drug-related issues. Providing patients with written information apparently increase their medication knowledge and probably enhance seizure control.

80. Lo Sasso, A. A.; Lane, J. L., and Malloy, R. B. Using standardized patient outcome to measure the effect of teaching asthma-related patient education and information-giving skills to medical students. Teach Learn Med. 2005 Summer; 17(3):228-32.

Abstract: BACKGROUND: Patient education and giving information is a core skill that improves patient adherence and medical outcomes. PURPOSE: To evaluate the impact of a teaching intervention on 3rd-year students' competency in patient education and information giving about asthma medication delivery. METHODS: Students (n=81) completed a 1-hr teaching intervention of didactics followed by role playing of asthma patient education scenarios. Using a standardized patient post intervention, patient education and information-giving skills about spacer/metered dose inhalers were scored overall and on a 12-item checklist and compared to a control group (n=70). Students' knowledge was evaluated using a short answer test. RESULTS: The performance of intervention students on overall patient education, 10 of the 12 checklist
items, and the test was significantly higher than controls but did not approach competency. CONCLUSIONS: The 1-hr intervention improved clinical performance and knowledge, but students did not become competent. Future studies should investigate how competence in this and other core patient education skills can be successfully achieved.


Keywords: Case-Control Studies/ Comorbidity/ Computers/ Female/ *Health Knowledge, Attitudes, Practice/ Humans/ Male/ Middle Aged/ Patient Compliance/ *Patient Discharge/ Patient Education: *methods/ Pharmaceutical Preparations: *administration & dosage/ Research Support, Non-U.S. Gov't/ Switzerland

Abstract: PURPOSE: Many recently hospitalized patients lack knowledge about important aspects of their medications. We evaluated whether a structured discharge interview could improve medication knowledge. METHODS: Patients discharged with at least one discharge medication were recruited from two general internal medicine services (one experimental and one control) of a teaching hospital. During a 3-month baseline period, usual care at discharge was provided in both services. During the ensuing 3-month period, observation was continued in the control service; residents in the experimental service implemented the intervention, which consisted of a structured patient-centered discharge interview during which a computer-generated individualized treatment card was discussed with and provided to patients. One week after discharge, patients' knowledge about their medications was assessed by telephone. RESULTS: We enrolled a total of 809 patients. After adjustment for patients' characteristics and for the effect of time, the intervention significantly increased the percentage of medications for which patients correctly knew the purposes (adjusted difference = 6%; 95% confidence interval [CI]: 3% to 8%; P <0.001), possible side effects (adjusted difference = 19%; 95% CI: 9% to 29%; P <0.001), and precautions to observe (adjusted difference = 9%; 95% CI: 2% to 19%; P <0.001). However, the number of medications that patients discontinued after discharge was not modified. Patients with a better knowledge of side effects of their active treatment were less likely to discontinue their medications, but there were no associations with other types of knowledge. CONCLUSION: A structured patient-centered discharge interview, performed by residents using a standardized treatment card, significantly increased patients' knowledge about their medications. Its effects on compliance require further study.


Keywords: Antidepressive Agents: *therapeutic use/ Cognitive Therapy: *methods/ Depression: diagnosis: *prevention & control: *psychology/ Female/ Humans/ Male/ Middle Aged/ Patient Compliance: statistics & numerical data/ *Primary Health Care/ Recurrence: prevention & control/ Research Support, U.S. Gov't, P.H.S./ Risk Factors/ Self Efficacy/ Severity of Illness Index/ *Social Behavior/ Treatment Outcome
Abstract: BACKGROUND: A randomized trial of a primary care-based intervention to prevent depression relapse resulted in improved adherence to long-term antidepressant medication and depression outcomes. We evaluated the effects of this intervention on behavioural processes and identified process predictors of improved depressive symptoms. METHOD: Patients at high risk for depression recurrence or relapse following successful acute phase treatment (N=386) were randomly assigned to receive a low intensity 12-month intervention or continued usual care. The intervention combined education about depression, shared decision-making regarding use of maintenance pharmacotherapy and cognitive-behavioural strategies to promote self-management. Baseline, 3, 6, 9 and 12-month interviews assessed patients' self-care practices, self-efficacy for managing depression and depressive symptoms. RESULTS: Intervention patients had significantly greater self-efficacy for managing depression (P<0.01) and were more likely to keep track of depressive symptoms (P<0.0001), monitor early warning signs (P<0.0001), and plan for coping with high risk situations (P<0.0001) at all time points compared to usual care control patients. Self-efficacy for managing depression (P<0.0001), keeping track of depressive symptoms (P=0.05), monitoring for early warning signs (P=0.01), engaging in pleasant activities (P<0.0001) and engaging in social activities (P<0.0001) positively predicted improvements in depression symptom scores. CONCLUSIONS: A brief intervention designed to target cognitive-behavioural factors and promote adherence to pharmacotherapy in order to prevent depression relapse was highly successful in changing several behaviours related to controlling depression. Improvements in self-efficacy and several self-management behaviours that were targets of the intervention were significantly related to improvements in depression outcome.


Keywords: Adolescent/ *Adolescent Behavior/ Adult/ *Antiretroviral Therapy, Highly Active/ Attitude to Health/ *Family/ Female/ Focus Groups/ HIV Infections: classification: *drug therapy: psychology/ *Health Behavior/ Humans/ Male/ *Patient Compliance/ Patient Education: *methods/ Pilot Projects/ Psychotherapy, Group/ Severity of Illness Index/ Viral Load

Abstract: This paper describes the development of a novel, pilot program in which a combined family group and peer approach were used to increase adherence to antiretroviral therapy in HIV-infected youths. Twenty-three HIV-positive youths, 15-22 years of age and 23 family members or "treatment buddies" participated in one of three 12-week programs. The intervention had six biweekly family and youth education sessions and six biweekly youth-only education sessions. Devices to increase adherence to antiretroviral therapy such as pill boxes, calendars, and watch alarms were introduced at youth-only sessions. Eighteen of the 23 youths completed a group. Ninety-one percent of youths self-reported increased adherence to medications after completion of a group. Four participants experienced a one-log reduction in viral loads to undetectable levels during the intervention. Two participants continued to decline antiretroviral medications at the end of the intervention and demonstrated no decrease
in viral load. Participants tested five devices and rated the multiple alarm watch as the best aid for improving adherence to medication. Family/treatment buddies rated the overall program as highly helpful, citing social support as most valuable. An unanticipated benefit was an increase in other health behaviors, including medical and dental appointments, hepatitis B and influenza immunizations, and referrals to mental health and substance abuse treatment.

Keywords: *Community Pharmacy Services/ *Counseling/ Czech Republic/ Drug Interactions/ English Abstract/ Humans/ Medication Errors/ Patient Education
Abstract: Evaluation of 108 cases when the pharmacist found a need to intervene into prescription verified the use of internationally employed system of classification of pharmaceutical interventions in the conditions of the Czech pharmacy of the basic type. The so-called dispensing care at the counter was provided by five participating pharmacists (out of seven working in the pharmacy) for a period of six months. The most frequently identified problems included: inappropriate use of medicaments--overdose, use at unsuitable time (28.7 %), a need to inform the patient (17.6 %), potentially ineffective therapy (12.9 %), drug interactions (7.4 %), suspected and potential undesirable effects of prescribed medicaments (7.4 %), and insufficient compliance (6.5 %). Solution of problems with medicaments was most frequently: a change in dosage (25.9 %), recommendation to consult the physician (24.1 %), and professional counselling on pharmacotherapy (23.1 %). The pharmacotherapeutic group identified as the one most frequently requiring a telephone consultation of the pharmacist and the physician was antibiotics, including antibacterial chemotherapeutic agents.

Keywords: Adult/ Bipolar Disorder: *drug therapy: *psychology/ *Health Knowledge, Attitudes, Practice/ Humans/ Lithium Carbonate: therapeutic use/ Male/ Patient Compliance: *psychology/ Patient Education: *methods/ Valproic Acid: therapeutic use
Abstract: OBJECTIVE: To report a patient with bipolar disorder in whom elements of the patient's belief system were used to foster acceptance of medication treatment. CASE SUMMARY: A 21-year-old white man with bipolar disorder began refusing prescribed divalproex sodium treatment. On consultation, the psychiatric pharmacist identified key elements of the patient's belief system and used this information in developing a plan to foster patient acceptance of lithium carbonate treatment. DISCUSSION: Noncompliance with treatment for bipolar disorder is common, and reluctance to accept initial pharmacotherapeutic intervention often occurs. There are many possible reasons for this phenomenon. Patients may not believe in pharmacotherapy and/or in its benefit, fear adverse reactions, or deny that they are ill. We report a patient in denial of his illness and believing that divalproex sodium was causing adverse effects. A psychiatric pharmacist consultant identified certain patient beliefs that were ultimately important in developing a treatment plan that was acceptable to the patient. The consultant, accompanied by a colleague, used
persuasive technique in proposing treatment with the natural product lithium. The patient was discharged within 1 week of accepting the lithium therapy.

CONCLUSIONS: When a patient refuses to accept needed treatment, it is important to carefully examine the reasons for this refusal, focusing on the patient's beliefs about the illness and the therapy. Intervention strategies can be developed, using this information, to foster treatment adherence and produce positive outcomes.


Abstract: An educational program to improve the management of HIV patients was introduced in the department of infectious diseases of Ibn Rochd hospital, Casablanca, Morocco in January 2000. The project, funded by the GlaxoSmithKline Foundation, began by training ward physicians as well as volunteers from the ALLOCS (Association de lutte contre le sida) in pedagogy and patient education techniques (four-day course). Other sessions reviewed HIV management and treatment. Treatment training sessions were offered to all patients receiving antiretroviral treatment when the program began. All had been taking medication for at least two months and gave their informed consent to participation in the project. Each patient's sessions took place just after his or her medical consultation, in a room set aside for this purpose in the hospital. During the first session the educator established an educational diagnosis and defined educational objectives according to the individual patient's needs. Objectives were related to patients' knowledge about HIV transmission prevention and treatment management (including problem-solving for mild adverse events, delays, forgetting, vacations etc.). Trainers used several educational tools, including therapeutic planning (planning card with self-adhesive stickers showing the treatment medication); a folder of drawings depicting HIV transmission, prevention, and natural history, as well as the aims of antiretroviral therapy; decks of cards illustrating symptoms and psycho-sociological problems. Each patient had to attend at least 3 educational sessions. The program was evaluated at the end of one year. Patients' attendance, treatment adherence, laboratory test results (CD4 count, viral load), satisfaction about patient-staff relationships and knowledge about HIV disease and treatment were assessed on an on-going basis with various questionnaires and data collection systems. In all, 96 patients attended classes, with a mean of 14 sessions per patient per year. After 6 and 12 months of training, patients' CD4 cell counts increased, and the proportion with viral loads below the detection level rose, as did adherence scores. Patients' knowledge appeared to have improved at 6 months but regressed somewhat at 12 months. This may be explained by program timing: most educational sessions take place during the first 6 months of patient enrolment in the program. Patient satisfaction about the program and their care reveals that they acquired autonomy in managing their disease and treatment. Their satisfaction at 12 months, however, was lower than it was at 6 months. One explanation may be that more educated patients are more demanding, but another is the staff turnover in the program. New staff may have required more support and training than
was then available. This pilot program allowed us to draft guidelines for setting up educational programs for HIV patients in relatively poor countries.

Keywords: Antimalarials: *administration & dosage/ Child/ Community Pharmacy Services: *standards/ Developing Countries/ Drugs, Non-Prescription: *administration & dosage/ Education, Pharmacy: *organization & administration/ Fever: drug therapy/ Humans/ Kenya/ Malaria: *drug therapy/ Patient Compliance: statistics & numerical data/ Program Evaluation/ Research Support, Non-U.S. Gov't/ Rural Health/ Self Medication
Abstract: Recent global malaria control initiatives highlight the potential role of drug retailers to improve access to early effective malaria treatment. We report on the findings and discuss the implications of an educational programme for rural drug retailers and communities in Kenya between 1998 and 2001 in a study population of 70,000. Impact was evaluated through annual household surveys of over-the-counter (OTC) drug use and simulated retail client surveys in an early (1999) and a late (2000) implementation area. The programme achieved major improvements in drug selling practices. The proportion of OTC anti-malarial drug users receiving an adequate dose rose from 8% (n = 98) to 33% (n = 121) between 1998 and 1999 in the early implementation area. By 2001, and with the introduction of sulphadoxine pyrimethamine group drugs in accordance with national policy, this proportion rose to 64% (n = 441) across the early and late implementation areas. Overall, the proportion of shop-treated childhood fevers receiving an adequate dose of a recommended anti-malarial drug within 24 h rose from 1% (n = 681) to 28% (n = 919) by 2001. These findings strongly support the inclusion of private drug retailers in control strategies aiming to improve prompt effective treatment of malaria.

Keywords: Adult/ Anti-HIV Agents: *therapeutic use/ Behavior Therapy: *methods/ HIV Infections: *drug therapy: psychology/ Humans/ Life Style/ Male/ Middle Aged/ Patient Compliance: *psychology/ Patient Education: methods/ Patient Satisfaction/ Pilot Projects/ Prospective Studies/ Research Support, Non-U.S. Gov't
Abstract: A pilot study was carried out in a group of six HIV-infected non-adherent men testing the effects of a behavioural medication management intervention on adherence with antiretroviral drugs. The study was prospective, using a one-group repeated-measures design. Adherence was measured using two self-reports. The intervention was a behaviourally-based programme that lasted for three months and included individualized education about antiretroviral medication and their side effects; positive reinforcement and encouragement; individualized counselling weekly; follow-up calls; and lifestyle assessment and the identification of adherence barriers. Assessments were carried out at recruitment, immediately after the initiation of the intervention, one month, three months and six months later. Results suggested that the intervention
enhanced adherence rates from a mean percentage of 80.27 at baseline to a mean of 97.5% at the end of follow-up (six months time point). Similar improvement was observed in the scores of the scale measuring adherence difficulties. Further, CD4+ counts also slightly improved. Interviews with four of the participants at the end of the study highlighted the problems experienced by patients in taking their medication and supported the usefulness of the intervention. Because of the complexity of the factors behind adherence, it is important that patients are supported with individualized medication management programmes.


Abstract: BACKGROUND: Chronic heart failure (CHF) is associated with reduced functional capacity and quality of life, particularly among older adults. Complex medication regimens for CHF challenge older patients' ability to adhere to them, in part because of age-related cognitive decline and poor communication about medications. OBJECTIVE: This article describes patient-centered instructions for taking CHF medications that were developed as part of a multifaceted pharmacy-based intervention to improve medication adherence and health-related outcomes among older adults with CHF. The findings of 3 initial validation studies investigating patients' reactions to the instructions are reported. METHODS: Patients' responses to the instructions were measured using focus group (study 1) and questionnaire (studies 2 and 3) techniques. RESULTS: Overall, older adults with CHF in the 3 studies preferred the patient-centered instructions to the standard pharmacy instructions (93.8% in study 1, 65.0% in study 2). In addition, participants' preferences depended on their medication-related goals. A preference for patient-centered instructions reflected a focus on ease of understanding (as supported by the use of large type size, icons, and patient-centered organization), whereas a preference for the standard pharmacy instructions reflected a focus on the amount of information provided about drug interactions (studies 2 and 3). CONCLUSIONS: In the 3 validation studies, older adults with CHF tended to prefer the patient-centered instructions to the standard pharmacy instructions, although the results were not statistically significant in study 2. This suggests that the use of such instructions may improve patients' medication knowledge and their adherence to treatment regimens.

Patient Education: *methods/ Patient-Centered Care: *methods/ *Prescriptions, Drug/ Regression Analysis/ Research Support, N.I.H., Extramural/ Research Support, U.S. Gov't, P.H.S.

Abstract: PURPOSE: We investigated whether patient-centered instructions for chronic heart failure medications increase comprehension and memory for medication information in older adults diagnosed with chronic heart failure. DESIGN AND METHODS: Patient-centered instructions for familiar and unfamiliar medications were compared with instructions for the same medications from a chain pharmacy (standard pharmacy instructions). Thirty-two adults (age, M = 63.8) read and answered questions about each instruction, recalled medication information (free recall), and then answered questions from memory (cued recall). RESULTS: Patient-centered instructions were better recalled and understood more quickly than the standard instructions. Instructions for the familiar medications also were better recalled. Patient-centered instructions were understood more accurately for the unfamiliar medications, but standard instructions were understood more accurately for the familiar medications. However, the recall measures showed that the advantage of the standard format for familiar medications was short lived. IMPLICATIONS: The findings suggest that the patient-centered format may improve printed medication instructions available in many pharmacies, which should help older adults to better understand how to take their medications.


Abstract: OBJECTIVES: To longitudinally follow a cohort of adolescents with human immunodeficiency virus (HIV) and to investigate long-term antiretroviral therapy adherence and factors associated with adherence. DESIGN, SETTING, AND PATIENTS: Adolescents infected with HIV (N = 231; mean age, 18.4 years; 72.7% female; 74.9% African American) from 13 cities throughout the United States were assessed at 3-month intervals. MAIN OUTCOME MEASURES: Self-reported adherence measures were validated by comparison with HIV-1 RNA viral load, and behavioral factors that may be associated with antiretroviral therapy adherence were assessed. RESULTS: At the initial visit, approximately 69% of the adolescents reported being adherent to antiretroviral therapy. Adolescents in the later HIV disease stage were less likely to be adherent compared with those in the earlier disease stage. Less alcohol use and being in school were associated with adherence by adolescents on weekends and over the preceding month. Longitudinal adherence was investigated among 65 subjects initially adherent with available information for at least 4 consecutive
visits. The median time to nonadherence was 12 months, and failure to maintain adherence was significantly associated with younger age and depression. Among adolescents who attained an undetectable viral load, only about 50% maintained an undetectable viral load for the year. CONCLUSIONS: These findings indicate an urgent need for better interventions to assist adolescents with HIV in adhering to their medication regimens. Adolescents with advanced disease are likely to need more intervention. New treatments recently found effective for adolescent depression may assist in improving adherence for a majority of adolescents with HIV.

92. Murray, M. D.; Young, J. M.; Morrow, D. G.; Weiner, M.; Tu, W.; Hoke, S. C.; Clark, D. O.; Stroupe, K. T.; Wu, J.; Deer, M. M.; Bruner-England, T. E.; Sowinski, K. M.; Smith, F. E.; Oldridge, N. B.; Gradus-Pižlo, I.; Murray, L. L.; Brater, D. C., and Weinberger, M. Methodology of an ongoing, randomized, controlled trial to improve drug use for elderly patients with chronic heart failure. Am J Geriatr Pharmacother. 2004 Mar; 2(1):53-65. Keywords: Aged/ Cardiovascular Agents: *therapeutic use/ Chronic Disease/ Communication/ Drug Labeling/ Education, Pharmacy/ Female/ Heart Failure, Congestive: *drug therapy/ Humans/ Male/ Outcome Assessment (Health Care)/ *Patient Compliance/ Patient Education/ Pharmaceutical Services/ Pharmacists/ Physicians/ Professional Role/ Research Support, U.S. Gov't, P.H.S. Abstract: BACKGROUND: Medications can improve the functioning and health-related quality of life of patients with chronic heart failure (CHF) and reduce morbidity, mortality, and costs of treatment. However, patients may not adhere to therapy. Patients with complex medication regimens and low health literacy are at risk for nonadherence. OBJECTIVE: The primary goal of this project is to develop and assess a multilevel pharmacy-based program to improve patient medication adherence and health outcomes for elderly CHF patients with low health literacy. METHODS: In this 4-year, controlled trial, patients aged 50 years with a diagnosis of CHF who are being treated at Wishard Health Services (Indianapolis, Indiana) are randomly assigned to pharmacist intervention or usual care. Intervention patients receive 9 months of pharmacist support and 3 months of postintervention follow-up. The intervention involves a pharmacist providing verbal and written education, icon-based labeling of medication containers, and therapeutic monitoring. The pharmacist identifies patients' barriers to appropriate drug use, coaches them on overcoming these barriers, and coordinates medication use issues with their primary care providers. Daily updates of relevant monitoring data are delivered via an electronic medical record system and stored in a personal computer system designed to support pharmacist monitoring and facilitate documentation of interventions. To measure medication adherence objectively, electronic monitoring lids are used on all CHF medications for patients in both study groups. Other assessments include self-reported medication adherence, results of echocardiography (eg, ejection fraction), brain natriuretic peptide concentrations, and health-related quality of life. Health services utilization, refill adherence, and cost data derive from electronic medical records. After completion of this study, the data can be used to assess the effectiveness and cost-effectiveness of our intervention. RESULTS: One hundred twenty-two patients have been assigned to receive the intervention and 192 to receive usual care. CONCLUSIONS: Our study aims to improve patients' knowledge and self-management of their medication and to
improve medication monitoring in a multilevel pharmacy-based intervention. By doing so, we intend that the intervention will improve the health outcomes of elderly patients with CHF.

Abstract: Although long-term continuation medical treatment is needed in chronic diseases, such as osteoporosis, and hypertension, hyperlipemia, since there are no subjective symptoms much, an understanding of the necessity for medication is hard to be obtained. Furthermore, in elderly people, it has two or more chronic diseases, and since the medicine of varieties is taken in many cases, medication compliance tends to become bad. Explanation with a disease sufficient in a chronic-disease patient and medication counseling of elderly people is useful to improvement in compliance, and safety reservation of a patient.

Abstract: Directly addressing HIV medication adherence and substance use together is ideal in light of the research on the complex connections between these two behaviors. This paper describes the development of a pilot program in which a combined motivational interviewing and cognitive behavioral therapy intervention was used to increase adherence to highly active antiretroviral therapy (HAART) and reduce substance use in HIV-infected adults. The main goals of the pilot study were (1) to confirm the ability to recruit HIV-positive substance users taking HAART; (2) to demonstrate the ability to retain participants over the course of an eight-session intervention; and (3) to examine changes in substance use and HAART adherence from pretreatment to posttreatment. Twelve HIV-positive adults with a substance use disorder participated in an 8-week intervention, which consisted of weekly individual sessions with a trained therapist. Results showed that despite the small sample size, there was a significant reduction in substance use from pretreatment to posttreatment. No statistically significant differences were found for changes in HIV medication adherence, but the trends suggest the potential for positive results with a larger sample. Retention for all eight sessions of the treatment was 73.3%. Eighty percent completed the 3-month follow-up assessment. Participants reported high therapeutic alliance reflecting comfort with their therapists and in the treatment. Overall, the pilot demonstrated feasibility and acceptability of the treatment. Furthermore, results
suggest that this may, in fact, be an effective intervention to reduce substance use and improve HIV medication adherence.


Abstract: BACKGROUND: Inappropriate use of medications is a significant problem in health care today. A possible solution to this problem may be achieved through better control of patients' drug therapy. OBJECTIVE: To design a pharmaceutical care program for dyslipidemic patients within a community pharmacy setting that provides education in the areas of medication compliance and lifestyle modifications, while emphasizing the importance of achieving cholesterol goals to ensure improvement in quality of life. METHODS: Patients at an outpatient pharmacy volunteered to be surveyed for 16 weeks. Although both the intervention and control groups were surveyed, the randomly selected intervention group was interviewed more frequently and more comprehensively. Cholesterol, triglycerides, glucose, weight, risk factors, drug-related problems (DRPs), and quality of life were measured via a survey at the onset of the study and continually measured until the study's conclusion. RESULTS: In the intervention group, 26 DRPs were detected, of which 24 were resolved; in the control group, 26 DRPs were detected, of which 5 were resolved. When comparing initial and final blood cholesterol levels in the intervention group, the mean decrease was 27.0 +/- 41.1 mg/dL (p = 0.0266); in the control group, the average blood cholesterol level decreased by a mean of 1.4 +/- 37.2 mg/dL (p = 0.6624). In the intervention group, the triglyceride level decreased an average of 50.5 +/- 80.3 mg/dL (p = 0.0169), while the control group experienced a mean triglyceride level increase of 29.6 +/- 118.5 mg/dL (p = 0.1435). As a result of the intervention, the quality of life in the intervention group was improved. CONCLUSIONS: Short-term pharmaceutical care plans developed in a retail pharmacy within the proper setting may contribute to improved blood lipid values, cardiovascular disease risk factors, and patients' quality of life.


Abstract: The effect of tools and methods designed to enhance medication adherence that have been evaluated in randomized controlled trials was studied. A literature search was performed with MEDLINE, International Pharmaceutical Abstracts, PsychLIT, ERIC, and EMBASE for the period from 1966 to December 2000. Only
randomized, controlled trials with at least 10 subjects per intervention group were included. Of 484 articles evaluated, only 61 met the criteria for the meta-analysis. Multiple interventions or study samples were identified in 23 of the articles. Each intervention was counted as a separate study, yielding 95 cohorts totaling 18,922 subjects. Of these subjects, 9,604 (51%) received interventions and 9,318 served as controls. Cohorts reported between 1990 and 1999 accounted for 53% of the sample; 56% of all cohorts were based in physician offices and 26% involved hypertensive patients. Behavioral interventions accounted for 41 cohorts (8,885 subjects), educational interventions for 22 cohorts (6,392 subjects), and combined interventions for 32 cohorts (3,645 subjects). Homogeneity of groupings and effect sizes (ESs) were calculated for each type of intervention. Overall, the data were not homogeneous, so conclusions could not be derived from the entire body of data. The educational intervention and combined intervention cohorts were nonhomogeneous ($p < 0.001$ and $p < 0.01$, respectively); however, the behavioral intervention cohort was homogeneous ($Q = 42.48$, d.f. = 40, $p = 0.36$). The overall ES for behavioral interventions was 0.07 (95% confidence interval [CI] = 0.04-0.09). There were no significant differences among the behavioral interventions. Educational interventions had an overall ES of 0.11 (95% CI = 0.06-0.15); there were no significant differences among the educational interventions. The overall ES of the combined interventions was 0.08 (95% CI = 0.04-0.12). When stratifying the combined intervention group by type of behavioral intervention, mail reminders had the largest impact (ES = 0.38). Meta-analysis of studies of interventions to improve medication adherence revealed an increase in adherence of 4-11%. No single strategy appeared to be best.


Abstract: OBJECTIVE: To identify the documented indications for long-term therapy with lansoprazole 30 mg twice daily at the Veterans Affairs Pittsburgh Healthcare System, assess compliance with appropriate use criteria, evaluate patients eligible for step-down therapy, and recommend appropriate step-down therapy in order to improve patient care, decrease overprescribing, and reduce medication costs. STUDY DESIGN: Prospective intervention. METHODS: The records of all patients with prescriptions for lansoprazole 30 mg twice daily as of June 2000 were reviewed. Patients were interviewed to assess medication compliance and symptom control and to provide education on lifestyle modifications. Interventions with the providers were completed to encourage step-down therapy in appropriate patients. RESULTS: Two hundred forty-eight patients with active prescriptions for twice-daily lansoprazole were
reviewed. Of these patients, 66% (n = 163) did not have an indication compliant with the medical center’s guidelines for use of lansoprazole 30 mg twice daily. Of these, 88% (n = 143) had no documented attempt at step-down therapy and 49% (n = 80) had no documented gastrointestinal workup. Interventions for step-down therapy were recommended for 48% (n = 120) of the 248 patients. Forty-six percent (n = 60) of recommendations were accepted, resulting in a cost savings of dollars 85000 per year.

CONCLUSIONS: A high rate of clinician noncompliance with the guidelines for appropriate use of lansoprazole 30 mg twice daily was found. These prescribing patterns resulted in significant cost concerns. Our review and interventions led to step-down therapy for almost half of the patients receiving twice-daily lansoprazole. This review of patient records and intervention with primary care providers resulted in cost reduction and offered an opportunity to educate patients on beneficial lifestyle modifications.


Keywords: Adult/ Counseling: *standards/ Developing Countries/ Drug Therapy: *psychology: statistics & numerical data/ Educational Status/ Female/ Follow-Up Studies/ Health Knowledge, Attitudes, Practice/ Hospitals, Private/ Humans/ India/ Male/ Middle Aged/ Outpatient Clinics, Hospital/ Patient Compliance: *psychology: statistics & numerical data/ Patient Education: *standards/ Program Evaluation/ Questionnaires

Abstract: The primary aim of this study was to assess the impact of patient medication counseling by comparing the levels of patient's medication knowledge and adherence achieved by medication counseling in an outpatient clinic. Ninety patients were randomized in the ratio of 1:2 into either counseled or usual care group. Their medication knowledge was assessed by a questionnaire and adherence was assessed by pill count method and self-assessment by the patients. Their medication knowledge was assessed at baseline and during their subsequent appointments. The average medication knowledge score of the counseled group versus usual care group was 13.82+/-1.8064 and 11.78+/-3.5037. Compliance score of the patients during their follow-up period was 92.29+/−4.5 and 84.71+/−11.80 for the counseled and control group, respectively. Statistical analysis of medication knowledge was carried out and all the demographic characters and number of medication were individually correlated with medication knowledge score and the difference observed was statistically significant. Compliance score of the patients was 92.29+/−4.5 and 84.71+/−11.8 % for the counseled and usual care group, respectively.


Keywords: Antipsychotic Agents: *administration & dosage/ *Cognitive Therapy/ English Abstract/ Follow-Up Studies/ Humans/ Meta-Analysis/ Patient Compliance: *psychology/ *Patient Education/ Schizophrenia: *drug therapy/ *Schizophrenic
Psychology

Abstract: BACKGROUND: Non-compliance (or non-adherence) with antipsychotic pharmacotherapy occurs frequently. In addition, there is overwhelming evidence that it constitutes a major risk factor for psychotic relapse. Compliance substantially affects course and treatment of schizophrenia. During the last decades, a large body of research on compliance with antipsychotic medication has been accumulated.

METHOD: The authors provide an overview of meta-analyses. Reviews published since 1990 on effects of interventions aiming at increasing compliance with medication in people suffering from schizophrenia are summarized.

RESULTS: We found eight reviews which reported empirical findings on the efficacy and effectiveness of interventions with the goal of improving compliance. Interventions have shown limited (psychoeducation) to moderate (cognitive-behavioral and combined interventions) effects. Other relevant findings are summarized and discussed.


Keywords: Adult/ *Antiretroviral Therapy, Highly Active/ Drug Administration Schedule/ Drug Monitoring: methods/ Female/ HIV Infections: *drug therapy: virology/ Humans/ Male/ *Patient Compliance/ Patient Education: *methods/ Pharmacists: utilization/ Pilot Projects/ Prospective Studies/ Research Support, Non-U.S. Gov't/ *Viral Load

Abstract: OBJECTIVE: The aim of this randomized, controlled pilot study was to examine the impact of a pharmacist operated adherence clinic on adherence to highly active antiretroviral therapy (HAART) and viral suppression in patients with HIV over 28 weeks. METHODS: Consecutive eligible patients initiating HAART at an indigent-care clinic were randomized to an adherence clinic or to standard care (information provided by physician or nurse practitioner) for education and monitoring. Group assignment was stratified before randomization according to regimen complexity and potential tolerability. Adherence (electronic monitoring and patient self-report) and viral load (reverse-transcription polymerase chain reaction) were assessed at weeks 4, 16, and 28. RESULTS: Thirty-three randomized patients (adherence clinic, n = 16; standard care, n = 17) comprised the intent-to-treat population. The groups were well-matched for demographics and antiretroviral regimen. The median age was 38.0 years in both groups. Most patients were male (85%), had previously used HAART (78%), and had an AIDS diagnosis (79%). Mean (SD) adherence at weeks 4, 16, and 28 was 86% (27%), 77% (28%), and 74% (31%) in the adherence clinic group versus 73% (32%), 56% (39%), and 51% (41%) in the standard care group (week-16 difference, 21% [90% CI, 1%-42%]; week-28 difference, 23% [90% CI, 1%-44%]). Sixty-nine percent of patients in the adherence clinic group took their medication on schedule versus 42% in the standard care group (P = 0.025); mean decline in adherence from weeks 4 to 28 was 12% in the adherence clinic group (P = 0.15) versus 22% in the standard care group (P = 0.002). HIV-1 RNA levels were <400 copies/mL at weeks 4, 16, and 28 in 63%, 100%, and 94% of the adherence clinic group and 29% (P = NS), 71% (P = 0.04), and 65% (P = NS) of the standard care group. CONCLUSIONS: In this
preliminary trial, an adherence clinic model improved adherence to HAART and virologic response over 28 weeks in the patients studied.


Keywords: Adolescent/ Adult/ Anti-HIV Agents: *administration & dosage/ Antiretroviral Therapy, Highly Active/ Dideoxynucleosides: administration & dosage: adverse effects/ Drug Administration Schedule/ Drug Therapy, Combination/ Female/ HIV Infections: *drug therapy: virology/ Humans/ Lamivudine: administration & dosage: adverse effects/ Male/ Middle Aged/ *Patient Compliance/ *Patient Education/ RNA, Viral: blood/ Research Support, Non-U.S. Gov't/ Zidovudine: administration & dosage: adverse effects

Notes: CORPORATE NAME: NZTA4006 Helping to Enhance Adherence to Antiretroviral Therapy (HEART) Study Team.

Abstract: A 24-week open-label clinical trial was conducted in 195 HIV-infected adults commonly underrepresented in research (35% female, 71% African American, 21% Hispanic, and 20% injection drug users [IDUs]) to evaluate the effect of an HIV educational program on efficacy and adherence with a simple, compact, twice-daily triple nucleoside regimen containing a lamivudine (150 mg)/zidovudine (300 mg) combination (COM) tablet plus abacavir (ABC), 300 mg. At baseline, the patients' median plasma HIV-1 RNA level was 4.18 log10 copies/mL and the median CD4+ cell count was 379 cells/mm3. Patients were randomized 1:1 to 4 modules of the Tools for Health and Empowerment HIV education intervention plus routine counseling (EI + RC; n = 96) or to routine counseling alone (RC; n = 99). No differences between the EI + RC and RC treatment arms were observed with respect to the proportion of patients achieving plasma HIV-1 RNA levels <40 copies/mL (60% [33/55] vs. 55% [38/69]; P = 0.529) or <400 copies/mL (80% [44/55] vs. 80% [55/69]; P = 0.689) at week 24 (intent-to-treat observed analysis), increase in median CD4 cell count above baseline at week 24 (78.3 vs. 104.8 cells/mm3; P = 0.498), or mean overall adherence rates as measured by the Medication Event Monitoring System (MEMS) (70% vs. 74%). COM + ABC was generally well tolerated, and no association was observed between interruptions in treatment and the development of ABC hypersensitivity (5 suspected cases). In conclusion, in underrepresented patients, the EI used in this study did not affect the efficacy and adherence results with ABC + COM to any greater degree than did RC.


Keywords: Adult/ Antiretroviral Therapy, Highly Active/ Female/ HIV Infections: *drug therapy: psychology/ Homosexuality/ Humans/ Male/ New York City/ *Patient Compliance/ Patient Education/ Research Support, N.I.H., Extramural/ Research
Abstract: OBJECTIVE: To assess the efficacy of a couple-based intervention to improve medication-taking behavior in a clinic population with demonstrated adherence problems. DESIGN: A randomized controlled trial (SMART Couples Study) conducted between August 2000 and January 2004. SETTING: Two HIV/AIDS outpatient clinics in New York City. PARTICIPANTS: Heterosexual and homosexual HIV-serodiscordant couples (n = 215) in which the HIV-seropositive partner had < 80% adherence at baseline. The sample was predominantly lower-income racial/ethnic minorities. INTERVENTION: Participants were randomly assigned to a four-session couple-focused adherence intervention or usual care. The intervention consisted of education about treatment and adherence, identifying adherence barriers, developing communication and problem-solving strategies, optimizing partner support, and building confidence for optimal adherence. OUTCOME MEASURES: Medication adherence at week 8 (2 weeks after the intervention) compared with baseline, assessed with a Medication Event Monitoring System cap. RESULTS: Intervention participants showed higher mean medication adherence at post-intervention when compared with controls whether adherence was defined as proportion of prescribed doses taken (76% versus 60%) or doses taken within specified time parameters (58% versus 35%). Also, participants in the intervention arm were significantly more likely to achieve high levels of adherence (> 80%, > 90%, or > 95%) when compared with controls. However, in most cases, effects diminished with time, as seen at follow-up at 3 and 6 months. CONCLUSION: The SMART Couples program significantly improved medication adherence over usual care, although the level of improved adherence, for many participants, was still suboptimal and the effect was attenuated over time.

Keywords: Affect/ Anti-HIV Agents: *therapeutic use/ Cognition/ Depression: psychology/ HIV Infections: *drug therapy: psychology/ Humans/ Models, Psychological/ Patient Compliance: *psychology/ Patient Education: methods/ Professional-Patient Relations/ Research Support, U.S. Gov't, P.H.S./ Self Concept/ Social Control, Informal/ Social Support
Abstract: Controlled trials that determine which interventions can significantly improve adherence to combination antiretroviral regimens are urgently needed. Rates of adherence to the regimens are often sub-optimal, and while a variety of factors that are predictive or associated with antiretroviral adherence have been identified, few research findings are reported of interventions that effectively promote adherence and improve health outcomes. Further, the mechanisms by which interventions promote antiretroviral adherence are not well understood. Maximizing adherence and achieving the full potential of the antiretroviral therapies demand multidimensional initiatives that address complex behavioural and biomedical issues. A model drawn from self-regulation theory and empirical data to explain antiretroviral medication adherence is proposed.

Abstract: The purpose of this study was to evaluate the effect of several interventions on improving medication adherence among White, Black, and Hispanic older women. A total of 109 women older than age 65 who were participating in a clinical osteoporosis trial were recruited for this 12-month study examining medication adherence. After baseline medication adherence was assessed, participants underwent standardized teaching. Participants were contacted monthly by telephone and were seen in a clinic setting every 3 months. All participants used a pillbox for 6 months, and the minority women used an electronic monitoring bottle for 6 months. Adherence was highest in White women. Black women showed significant improvement in adherence at 9 and 12 months, and Hispanic women demonstrated a significant increase in adherence at 12 months. The use of electronic monitors had a positive effect on adherence for the minority women.

105. Sajatovic, M.; Davies, M., and Hrouda, D. R. Enhancement of treatment adherence among patients with bipolar disorder. Psychiatr Serv. 2004 Mar; 55(3):264-9. Keywords: Bipolar Disorder: *drug therapy/ Health Services Research/ Humans/ *Patient Compliance/ Randomized Controlled Trials/ United States Abstract: OBJECTIVE: Because about one-third of persons with bipolar illness take less than 30 percent of their medication and because nonadherence is associated with rehospitalization and suicide, the literature was searched to identify controlled studies of enhancement of treatment adherence among persons with bipolar disorder. METHODS: Studies published up to October 2003 were evaluated. Those selected for review were controlled trials that used samples of adults with a diagnosis of bipolar disorder and that measured adherence to either mood-stabilizing medication or psychotherapy. Information was extracted on the diagnostic composition and size of the study group, the type and duration of the intervention, the method of measuring adherence, and outcomes. RESULTS: Eleven studies met inclusion criteria. Although the literature on enhancing treatment adherence among persons with bipolar disorder is limited, the existing data are promising and demonstrate development over time in our understanding of how best to manage this illness. Interventions that have been shown to be effective include interpersonal group therapy, cognitive-behavioral therapy, group sessions for partners of persons with bipolar disorder, and patient and family psychoeducation. Effective therapies occur in the context of long-term management of illness that incorporates a good understanding of medications and their risks and benefits as well as education about illness awareness and self-management. The majority of effective therapies feature an interactional component between patients and their care providers or therapists. CONCLUSIONS: Adherence to treatment for bipolar disorder may be enhanced by interventions that address issues of appropriately taking
medications to manage illness. For optimum outcomes, promotion of adherence must be integrated into the medication management of bipolar illness.


Keywords: Adolescent/ Adult/ Analysis of Variance/ Asthma: *drug therapy: *psychology/ Comparative Study/ Follow-Up Studies/ Health Knowledge, Attitudes, Practice/ Humans/ Male/ Middle Aged/ Models, Educational/ Models, Psychological/ Motivation/ Nursing Evaluation Research/ *Pamphlets/ Patient Compliance: *psychology/ Patient Education: *methods/ Psychological Theory/ Research Support, U.S. Gov't, P.H.S./ Self Care: psychology/ Tape Recording: *standards/ Teaching Materials: *standards

Abstract: This study compared the effects of a theoretically focused audiotape and a standard educational booklet on asthma preventive medication adherence and other asthma outcomes. Forty-six adult asthmatics were randomly assigned to receive either an experimental audiotape incorporating components of protection motivation theory, a standard asthma management booklet, both, or no educational materials. Outcomes were assessed at baseline, 3 months, and 6 months. Mean pharmacy-verified adherence improved 15% to 19% in the intervention groups and declined 22% in the control group at 6 months. Using analysis of covariance (ANCOVA) to control for baseline adherence, these changes were significant between the control and booklet group (t = 2.47; p = .02) and between control and combined group (t = 2.07; p = .04). Providing a minimal educational intervention can have a beneficial effect on asthma medication adherence that persists at least 6 months.


Keywords: Antilipemic Agents: *therapeutic use/ Cardiovascular Diseases: prevention & control/ Humans/ *Patient Compliance/ Randomized Controlled Trials

Abstract: BACKGROUND: Lipid lowering drugs are still widely underused, despite compelling evidence about their effectiveness in the treatment and prevention of cardiovascular disease. Poor patient adherence to medication regimen is a major factor in the lack of success in treating hyperlipidaemia. In this review we focus on interventions, which encourage patients at risk of heart disease or stroke to take lipid lowering medication regularly. OBJECTIVES: To assess the effect of interventions aiming at improved adherence to lipid lowering drugs, focusing on measures of adherence and clinical outcomes. SEARCH STRATEGY: We searched the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, EMBASE, PsycInfo and CINAHL. Date of most recent search was in February 2003. No language restrictions were applied. SELECTION CRITERIA: Randomised controlled trials of adherence-enhancing interventions to lipid lowering medication in adults for both primary and secondary prevention of cardiovascular disease in an ambulatory setting. DATA COLLECTION AND ANALYSIS: Two reviewers extracted data independently and assessed studies according to criteria outlined by the Cochrane Reviewers’ Handbook. MAIN RESULTS: The eight studies found contained data on 5943 patients.
Interventions could be stratified into four categories: 1. simplification of drug regimen, 2. patient information/education, 3. intensified patient care such as reminding and 4. complex behavioural interventions such as group sessions. Change in adherence ranged from -3% to 25% (decrease in adherence by 3% to increase in adherence by 25%). Three studies reported significantly improved adherence through simplification of drug regimen (category 1), improved patient information/education (category 2) and reminding (category 3). The fact that the successful interventions were evenly spread across the categories, does not suggest any advantage of one particular type of intervention. The methodological and analytical quality was generally low and results have to be considered with caution. Combining data was not appropriate due to the substantial heterogeneity between included randomised controlled trials (RCTs).

REVIEWERS’ CONCLUSIONS: At this stage, no specific intervention aimed at improving adherence to lipid lowering drugs can be recommended. The lack of a gold standard method of measuring adherence is one major barrier in adherence research. More reliable data might be achieved by newer methods of measurement, more consistency in adherence assessment and longer duration of follow-up. Increased patient-centredness with emphasis on the patient’s perspective and shared-decision-making might lead to more conclusive answers when searching for tools to encourage patients to take lipid lowering medication.


Keywords: Antihypertensive Agents: *administration & dosage/ Humans/ Hypertension: *drug therapy: *psychology/ *Patient Compliance/ Patient Education/ Randomized Controlled Trials

Abstract: BACKGROUND: Lack of adherence to blood pressure lowering medication is a major reason for poor control of hypertension worldwide. Interventions to improve adherence to antihypertensive medication have been evaluated in randomised trials but it is unclear which interventions are effective. OBJECTIVES: To determine the effectiveness of interventions aiming to increase adherence to blood pressure lowering medication in adults with high blood pressure SEARCH STRATEGY: All-language search of all articles (any year) in the Cochrane Controlled Trials Register (CCTR), MEDLINE, EMBASE, and CINAHL in April 2002. SELECTION CRITERIA: RCTs of interventions to increase adherence to blood pressure lowering medication in adults with essential hypertension in primary care, with adherence to medication and blood pressure control as outcomes DATA COLLECTION AND ANALYSIS: Two authors extracted data independently and in duplicate and assessed each study according to the criteria outlined by the Cochrane Collaboration Handbook. MAIN RESULTS: We included 38 studies testing 58 different interventions and containing data on 15519 patients. The studies were conducted in nine countries between 1975 and 2000. The duration of follow-up ranged from two to 60 months. Due to heterogeneity between studies in terms of interventions and the methods used to measure adherence, we did not pool the results. Simplifying dosing regimens increased adherence in seven out of nine studies, with a relative increase in adherence of 8 per cent to 19.6 per cent. Motivational strategies were successful in 10 out of 24 studies with generally small
increases in adherence up to a maximum of 23 per cent. Complex interventions involving more than one technique increased adherence in eight out of 18 studies, ranging from 5 per cent to a maximum of 41 per cent. Patient education alone seemed largely unsuccessful. REVIEWERS' CONCLUSIONS: Reducing the number of daily doses appears to be effective in increasing adherence to blood pressure lowering medication and should be tried as a first line strategy, although there is less evidence of an effect on blood pressure reduction. Some motivational strategies and complex interventions appear promising, but we need more evidence on their effect through carefully designed RCTs.


Abstract: BACKGROUND: Lack of adherence to blood pressure-lowering medication is a major reason for poor control of hypertension worldwide. The objective of this study was to determine the effectiveness of interventions to increase adherence to blood pressure-lowering medication. METHODS: We performed a systematic review of randomized controlled trials and searched for all-language publications in the Cochrane Controlled Trials Register, MEDLINE, EMBASE, and CINAHL in April 2002. RESULTS: We included 38 studies testing 58 different interventions and containing data on 15 519 patients. The studies were conducted in 9 countries between 1975 and 2000. The duration of follow-up ranged from 2 to 60 months. Because of heterogeneity between studies in terms of interventions and the methods used to measure adherence, we did not pool the results. Simplifying dosing regimens increased adherence in 7 of 9 studies, with a relative increase in adherence of 8% to 19.6%. Motivational strategies were partly successful in 10 of 24 studies with generally small increases in adherence up to a maximum of 23%. Complex interventions comparing more than 1 technique increased adherence in 8 of 18 studies, ranging from 5% to a maximum of 41%. Patient education alone seemed largely unsuccessful. CONCLUSIONS: Reducing the number of daily doses appears to be effective in increasing adherence to blood pressure-lowering medication and should be tried as a first-line strategy, although there is so far less evidence of an effect on blood pressure reduction. Some motivational strategies and complex interventions appear promising, but we need more evidence on their effect through carefully designed randomized controlled trials.

Abstract: The purpose of this study was to develop and test a structural model explaining medication compliance of schizophrenia. From a review of the literature, a hypothetical model was developed based on the conceptual framework of the Health Belief Model with medication knowledge, symptom severity and social support as the exogenous variables, and perceived benefits, perceived barriers, substance use and medication compliance as the endogenous variables. Data was collected at various mental health facilities, including psychiatric outpatient clinics of general hospitals and community mental health centers, between March and May, 2001. A structured questionnaire was used by one-on-one interviews to collect data on 208 schizophrenic patients. Well established measurement instruments, with confirmed reliability, were used to assess each method variable. As a result of covariance structural analysis, the hypothetical model was found not to fit the empirical data well, so a parsimonious model was adopted after modifying the model. The final model was able to explain the 33% medication compliance. Medication knowledge, social support and perceived benefits had significant effects on medication compliance. The findings of this study address the importance of medication education and social support to promote medication compliance. It is also suggested that various education programs and support groups are needed to enhance medication compliance.

Keywords: Adult/ Female/ Humans/ Korea/ Male/ Mental Disorders: drug therapy: *rehabilitation/ Middle Aged/ Patient Compliance/ *Patient Education/ Research Support, Non-U.S. Gov't/ *Self Efficacy
Abstract: An effective rehabilitation program was developed for psychiatric patients' self-management of medication and symptoms. The rehabilitation program was designed to allow the patients to understand their illness, cope with their medical regimen, and prevent a relapse by recognizing any of the symptoms when they recur. This study consisted of three phases. The first phase was to explore the extent and the specific mental health needs of psychiatric patients. Data was obtained from 82 subjects who had symptoms of a mental illness including schizophrenia, bipolar disorders, and delusional disorder. They had received medication instruction during their hospitalization. The subjects were at the time outpatients in a psychiatric hospital. In the second phase, the researchers developed an educational program focused on coping with the residual and relapse warning signs, managing the drug side effects, medication compliance, and daily routines, according to the information acquired in the first step. The developed program includes the self-efficacy method reported by Bandura, including manuals and videotapes focusing on real life situations, small group discussions, and telephone coaching. Finally, the researchers investigated the effects of this program. Thirty-eight patients were selected for this study, 18 in the experimental program and 20 as controls. The diagnoses were same as those with the first step. The results showed that the subjects who attended this educational program reported significantly more improvement in self-efficacy (p=0.014) and medication compliance (p=0.005), and significantly less relapse warning symptom scores (p=0.000) than the controls. In conclusion, these instructional materials will be beneficial for medication
and symptom management in rehabilitating psychiatric patients in Korea. In addition, the materials may be a useful psychoeducational resource for professionals in the field of clinical psychiatry.


Keywords: Adult/ Anti-HIV Agents: *therapeutic use/ Drug Administration Schedule/ Feedback, Psychological/ Female/ HIV Infections: *drug therapy: psychology/ HIV Protease Inhibitors: therapeutic use/ Health Knowledge, Attitudes, Practice/ Humans/ Logistic Models/ Male/ Middle Aged/ Models, Educational/ North Carolina/ Patient Compliance: *psychology/ Patient Education: *methods/ Program Evaluation/ Questionnaires/ Research Support, Non-U.S. Gov't/ Research Support, U.S. Gov't, P.H.S./ Self Administration: *methods: psychology/ Self Efficacy

Abstract: This study examined whether a self-management intervention based on feedback of adherence performance and principles of social cognitive theory improves adherence to antiretroviral dosing schedules. Forty-three individuals with HIV/AIDS who were starting or switching to a new protease inhibitor regimen were randomly assigned to be in a medication self-management program or usual care control group. The self-management program included skills development exercises, three monthly visits for medication consultations, and monthly feedback of adherence performance using electronic monitors on medication bottles. Participants also completed a 40-item questionnaire that measured self-efficacy to take medications on schedule, in a variety of situations. Logistic regression analysis indicated that individuals in the self-management group were significantly more likely to take 80% or more of their doses each week than individuals in the control group (n=29, OR=7.8, 95% CI=2.2-28.1). Self-management training with feedback of adherence performance is a potentially useful model for improving adherence to complex regimens in HIV/AIDS care.


Keywords: Adult/ Antidepressive Agents: *therapeutic use/ Attitude of Health Personnel/ Depressive Disorder: *drug therapy/ Educational Status/ Female/ Humans/ Outcome Assessment (Health Care)/ Patient Compliance: *statistics & numerical data/ Patient Education: *methods/ Patient Satisfaction/ Primary Health Care: *organization & administration/ *Reminder Systems/ Research Support, Non-U.S. Gov't/ Self Care/ *Telephone/ United States/ *User-Computer Interface/ *Voice

Abstract: Advances in technology can have direct and indirect benefits to clinical practice. The challenge that clinicians face is to properly match resources and outcomes, along with patient preferences. This article explores the use of an innovative interactive voice response system to increase patient compliance with antidepressant medication prescribed in primary care settings. The development of the interactive voice response system, its implementation, and clinical outcomes are described. The findings underscore the need to carefully match intervention strategies with the needs of
specific patient populations, and the importance of human dialog in the context of healing.

   Keywords: Antihypertensive Agents: *administration & dosage: therapeutic use/ Humans/ *Patient Compliance/ Patient Education/ Research Support, Non-U.S. Gov't
   Abstract: OBJECTIVE: To identify methods targeted at improving adherence to antihypertensives and determine their effect on adherence using meta-analytic techniques. METHODS: A literature search from 1970 to December 2000 using MEDLINE, International Pharmaceutical Abstracts, PsychLit, ERIC, and EMBASE was performed using the terms compliance, adherence, and medication. Randomized articles with an intervention directed at a patient/caregiver, a comparator group, and a minimum of 10 subjects in each intervention group were identified by 3 independent reviewers. Articles that did not report sample size data or adequate results of the intervention were excluded. Sixteen citations focusing on antihypertensive adherence were identified. Of the 16 citations, 6 studied either more than one intervention in the same population or different interventions in different patient populations, yielding 24 cohorts with 2446 patients. RESULTS: Fifty-eight percent of the methods focused on behavioral interventions (BIs), 29% studied the effect of a combination of behavioral and educational interventions (BEIs), and 13% utilized educational interventions (EIs) alone. Overall, the study groups were nonhomogenous (Q = 183.92; p < 0.001). However, when the groups were separated by the intervention type, the BIs were homogenous (Q = 1.19; p = 1.00) with an overall effect size (ES) of 0.04 (95% CI -0.01 to -0.09), indicating a trend toward improved adherence. Fifty percent of the BIs were performed in the physician's office; however, setting did not influence the intervention's impact (p = 0.13). Within the BIs, no single intervention improved adherence over others. CONCLUSIONS: Based on the interventions included in this meta-analysis, there is no single intervention that improves adherence to antihypertensives over others; therefore, a patient-specific approach should be modeled.

Abstract: BACKGROUND: Private outlets are the main suppliers of uncomplicated malaria treatment in Africa. However, they are so numerous that they are difficult for governments to influence and regulate. This study's objective was to evaluate a low-cost outreach education (vendor-to-vendor) programme to improve the private sector's compliance with malaria guidelines in Bungoma district, Kenya. The cornerstone of the programme was the district's training of 73 wholesalers who were equipped with customized job aids for distribution to small retailers. METHODS: Six months after training the wholesalers, the programme was evaluated using mystery shoppers. The shoppers posed as caretakers of sick children needing medication at 252 drug outlets. Afterwards, supervisors assessed the outlets' knowledge, drug stocks, and prices. RESULTS: The intervention seems to have had a significant impact on stocking patterns, malaria knowledge and prescribing practices of shops/kiosks, but not consistently on other types of outlets. About 32% of shops receiving job aids prescribed to mystery shoppers the approved first-line drug, sulfadoxine-pyremethamine, as compared to only 3% of the control shops. In the first six months, it is estimated that 500 outlets were reached, at a cost of about $8000. CONCLUSIONS: Changing private sector knowledge and practices is widely acknowledged to be slow and difficult. The vendor-to-vendor programme seems a feasible district-level strategy for achieving significant improvements in knowledge and practices of shops/kiosks. However, alternate strategies will be needed to influence pharmacies and clinics. Overall, the impact will be only moderate unless national policies and programmes are also introduced.


Keywords: Adult/ Asthma: *therapy/ Child/ Humans/ Medical Records/ Patient Compliance/ Patient Education/ Randomized Controlled Trials/ Self Care: *methods

Abstract: BACKGROUND: Non-adherence to treatment advice is a common phenomenon in asthma and may account for a significant proportion of the morbidity. Comprehensive care that includes asthma education, a written self-management plan and regular review has been shown to improve asthma outcomes, but the contribution of these components has not been established. OBJECTIVES: To determine whether the provision of a written asthma self-management plan increases adherence and improves outcome. SEARCH STRATEGY: We carried out a search on the Cochrane Airways Group trials register. There was no language restriction. The search of the databases used the following terms: action plan OR self OR self-care OR self-manag* OR educ* AND adher* OR comply OR compli*. We contacted authors of included studies for any unpublished or on-going studies and bibliographies of all included studies and reviews were searched for further studies. The most recent search was carried out in May 2003. SELECTION CRITERIA: We only considered randomised controlled trials (RCTs) in patients with asthma. Participants must have been assigned to receive an individualised written asthma management plan (symptom or peak flow based) about the actions required for regular asthma management and/or the actions to take in the event of an asthma exacerbation. DATA COLLECTION AND ANALYSIS: Two reviewers independently assessed study quality and abstracted data. MAIN RESULTS: Seven trials met the inclusion criteria. The written management plans were
either peak flow or symptom based, which were compared against each other or compared to no written management plan. Reported outcomes included: medication adherence, hospitalisation, emergency department visits, oral corticosteroid use, lung function, days lost from school/work, unscheduled doctor visits and respiratory tract infections. There was no consistent evidence that written plans produced better patient outcomes than no written plan. For some outcomes, there appeared to be an advantage of one type of plan over the other, but there was no consistency - one type of plan was not consistently more effective than another. REVIEWERS' CONCLUSIONS: The available trials are too small and the results too few and inconsistent to form any firm conclusions as to the contribution of written self management plans in the known beneficial effects of a comprehensive asthma care programme.

117. van Eijken, M.; Tsang, S.; Wensing, M.; de Smet, P. A., and Grol, R. P. Interventions to improve medication compliance in older patients living in the community: a systematic review of the literature. Drugs Aging. 2003; 20(3):229-40. Keywords: Aged: *physiology/ Drug Therapy/ Humans/ *Patient Compliance/ Patient Education: *methods/ Research Support, Non-U.S. Gov't Abstract: Noncompliance affects all age groups, but older patients have specific barriers against effective medication use and can be more vulnerable to the incorrect use of medication. Some age-related barriers are vision loss and cognitive impairment. In people aged 60 years or older, noncompliance with medication regimens varies from 26-59%. In this article we review randomised controlled trials (RCTs) on interventions aimed to improve compliance with medication regimens in older patients living in the community. It is known from other reviews that multifaceted interventions, a combination of interventions, are more often effective than single-focus interventions, probably because these address a wider range of barriers. Also, an individual approach with specifically tailored interventions is effective at improving compliance. In this review the following two hypotheses are evaluated: i) multifaceted interventions improve compliance more successfully than single interventions; and ii) interventions that are tailored to patients improve compliance more successfully than generalised interventions. A systematic literature search in four databases produced 14 suitable RCTs with 23 interventions that we categorised as single or multifaceted, and generalised or tailored. Differences in medication compliance between the intervention group and the control group were in less than half of the comparisons in favour of the intervention group. Telephone-linked reminder systems achieved the most striking effect, looking at differences between the intervention and control group, and deserve further attention. Overall, multifaceted interventions and tailored interventions seemed to result more often in differences in compliance rates in older adults in favour of the intervention group compared with a control group than single and generalised interventions.

118. van Servellen, G.; Carpio, F.; Lopez, M.; Garcia-Teague, L.; Herrera, G.; Monterrosa, F.; Gomez, R., and Lombardi, E. Program to enhance health literacy and treatment adherence in low-income HIV-infected Latino men and women. AIDS Patient Care STDS. 2003 Nov; 17(11):581-94. Keywords: Adult/ Aged/ *Educational Status/ Female/ HIV Infections: ethnology:
Abstract: This paper reports the initial results of a pilot study to evaluate the acceptability and effectiveness of a program to enhance health literacy in low-income HIV-infected Latino men and women receiving antiretroviral therapy. Participants rated the program highly on measures of satisfaction, providing evidence of its acceptability. The effectiveness of the program was assessed in comparisons of the intervention (n = 41) and standard care only (n = 40) groups at baseline and 6-week intervals. Program participants showed significant improvement over comparison group participants on measures of HIV/AIDS and treatment-related knowledge and recognition and understanding of HIV terms. Although there were no significant changes in adherence mastery and behaviors during the 6-week follow up period, there were significant changes in program participants’ knowledge about medication adherence. Future steps to examine the sustainability of the program in the medical management of patients are planned in addition to determining its long-range relative impact.


Abstract: OBJECTIVE: To systematically review the impact of interventions by community pharmacists on patients’ adherence with chronic medication. DATA SOURCES: A MEDLINE search (1966-November 30, 2003) and a review of reference sections were done to identify all pertinent English- and German-language journal articles. Search terms included compliance, adherence, persistence, discontinuation, pharmacist, and intervention. STUDY SELECTION AND DATA EXTRACTION: From each relevant study, the following data were extracted: study design, country, disease, number of patients, patients’ age and gender, type of intervention, duration of follow-up, method of measurement of adherence and adherence rate, and data concerning the quality of the included studies. DATA SYNTHESIS: A total of 162 studies were identified, of which 18 matched our inclusion criteria. Twelve were randomized controlled trials and 6 were non-crossover single-group trials. Eight studies showed significant improvement of adherence at one or more time points. Eight studies did not show any effect, 7 of which were randomized controlled trials. In most studies, adherence rates at baseline were high compared with rates reported in the general population. Counseling, monitoring, and education during weekly or monthly appointments showed some effect. However, these same types of interventions showed no effect in other studies. The overall quality of the included studies was low. CONCLUSIONS: Currently, it is impossible to identify an overall successful adherence-improving strategy performed by pharmacists. More well-designed and well-conducted studies on the effectiveness of interventions by a community pharmacist to improve patient adherence to chronic medication need to be performed.
Bibliography of Medication Compliance.

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Keywords: Antidepressive Agents: *administration & dosage: adverse effects/ Comparative Study/ Depressive Disorder: *drug therapy: psychology/ Humans/ Patient Care Team/ Patient Compliance: *psychology/ Patient Education/ Primary Health Care/ Randomized Controlled Trials/ Treatment Outcome/ Treatment Refusal: psychology Abstract: BACKGROUND: Effectiveness of antidepressant medication is reduced by patients' nonadherence. Several interventions to improve adherence in patients diagnosed with unipolar depression have been tested. OBJECTIVE: To systematically review the effectiveness of interventions that aimed to improve adherence to antidepressant medication in patients with unipolar depression. METHOD: Systematic review of English-language articles of randomized controlled trials obtained by a computerized literature search of MEDLINE (1966-January 2002) using the terms patient compliance, patient dropout, treatment refusal, patient education, adherence, clinical trial, randomized controlled trial, controlled trial, depressive disorder, and depression; PSYCINFO (1984-January 2002) using the terms random, clinical, control, trial, adherence, compliance, noncompliance, dropouts, patient education, depression, major depression, affective disorders, and dysthymic disorder; EMBASE (1980-January 2002) using the terms patient compliance, patient dropouts, illness behavior, treatment refusal, patient education, clinical trial, controlled study, randomized controlled trial, and depression; and the Cochrane Controlled Trials Register (no restrictions) using the terms random*, complian*, adheren*, pharmacotherapy, regimen*, educat*, medicat*, depression, and depressive disorder. RESULTS: Educational interventions to enhance adherence failed to demonstrate a clear benefit on adherence and depression outcome. However, collaborative care interventions tested in primary care demonstrated significant improvements in adherence during the acute and continuation phase of treatment and were associated with clinical benefit, especially in patients suffering from major depression who were prescribed adequate dosages of antidepressant medication. CONCLUSION: We found evidence to support the introduction of interventions to enhance adherence with antidepressant medication in primary care, not only because of better adherence but also because of better treatment results. Because collaborative care interventions require additional resources, a better understanding of the mode of action of different programs is needed to reduce avoidable costs. The effectiveness of educational interventions needs more evidence.

Keywords: Antidepressive Agents: *administration & dosage/ Attitude to Health/ Depressive Disorder: *drug therapy/ English Abstract/ Humans/ *Patient Compliance/ Patient Education/ Physician-Patient Relations/ Treatment Outcome/ Treatment Refusal Abstract: Compliance during treatment with antidepressants is important, yet about half of the patients stop using antidepressive medication within 3 months. A structured treatment programme, in which the patient actively participates, with extensive
education, surveillance of side effects and compliance, simple regimes, improving problem-solving behaviour and eventually engaging and educating family members and friends can improve compliance. This has been demonstrated in published studies. Research has shown that interventions that enhance compliance can lead to a better outcome of the depression.

122. Vermeire, E.; Wens, J.; Van Royen, P.; Biot, Y.; Hearnshaw, H., and Lindenmeyer, A. Interventions for improving adherence to treatment recommendations in people with type 2 diabetes mellitus. Cochrane Database Syst Rev. 2005; (2):CD003638. Keywords: Diabetes Mellitus, Type 2: psychology: *therapy/ Health Behavior/ Humans/ *Patient Compliance: psychology/ Patient Education/ Randomized Controlled Trials Abstract: BACKGROUND: Research suggests adherence to treatment recommendations is low. In type 2 diabetes, which is a chronic condition slowly leading to serious vascular, nephrologie, neurologic and ophthalmological complications, it can be assumed that enhancing adherence to treatment recommendations may lead to a reduction of complications. Treatment regimens in type 2 diabetes are complicated, encompassing life-style adaptations and medication intake. OBJECTIVES: To assess the effects of interventions for improving adherence to treatment recommendations in people with type 2 diabetes mellitus. SEARCH STRATEGY: Studies were obtained from searches of multiple electronic bibliographic databases supplemented with hand searches of references. Date of last search: November 2002. SELECTION CRITERIA: Randomised controlled and controlled clinical trials, before-after studies and epidemiological studies, assessing changes in adherence to treatment recommendations, as defined in the objectives section, were included. DATA COLLECTION AND ANALYSIS: Two teams of reviewers independently assessed the trials identified for inclusion. Three teams of two reviewers assessed trial quality and extracted data. The analysis for the narrative part was performed by one reviewer (EV), the meta-analysis by two reviewers (EV, JW). MAIN RESULTS: Twentyone studies assessing interventions aiming at improving adherence to treatment recommendations, not to diet or exercise recommendations, in people living with type 2 diabetes in primary care, outpatient settings, community and hospital settings, were included. Outcomes evaluated in these studies were heterogeneous, there was a variety of adherence measurement instruments. Nurse led interventions, home aids, diabetes education, pharmacy led interventions, adaptation of dosing and frequency of medication taking showed a small effect on a variety of outcomes including HbA1c. No data on mortality and morbidity, nor on quality of life could be found. AUTHORS' CONCLUSIONS: Current efforts to improve or to facilitate adherence of people with type 2 diabetes to treatment recommendations do not show significant effects nor harms. The question whether any intervention enhances adherence to treatment recommendations in type 2 diabetes effectively, thus still remains unanswered.

Abstract: OBJECTIVE: Medication compliance is an orphan topic. Training in the understanding and management of noncompliance does not neatly fall within the domain of psychopharmacology, nor does it clearly fit into other core curricula areas, such as clinical interviewing or psychotherapy training. The objective of this article is to increase awareness about this vagueness among academic psychiatrists and to offer a suggested curriculum to facilitate implementation. METHODS: The authors present a curriculum covering major aspects of the theory and practice of compliance. The proposed curriculum is divided into five core components that can be used together or separately. These components are: 1) definition of compliance and noncompliance; 2) understanding how compliance depends on efficacy; 3) assessment of compliance and noncompliance; 4) the importance of the therapeutic alliance; and 5) pharmacological and psychosocial strategies to improve compliance. These five sections can be modified into specific lectures that are added to ongoing psychopharmacology, psychiatric interviewing, or psychotherapy courses. RESULTS: A careful review of the American Board of Psychiatry and Neurology (ABPN) core curriculum found no mention of medication compliance/adherence as a specific training goal, and our residency program, like many others, did not have a specific course that focused on this issue. To address this omission, the authors designed and taught a five-session course for PGY-III and PGY-IV psychiatry residents that specifically addressed assessment and management of noncompliance. It was piloted in the 2003-2004 academic year. The course was very well received and formed the basis of this material presented in this review and discussion. CONCLUSION: The principles of understanding, assessing, and managing medication compliance should be a part of the core curriculum for every psychiatric residency training program.


Keywords: Aged/ Anti-Inflammatory Agents, Non-Steroidal: *therapeutic use/ Comparative Study/ *Drug Information Services/ Humans/ Ontario/ *Pamphlets/ *Patient Compliance/ Patient Education: *methods/ Research Support, Non-U.S. Gov't

Abstract: One hundred and ninety-six patients over the age of 65 years suffering from joint pain were randomised to receive one of three patient information leaflets describing a hypothetical pain medication, a standard textual patient information leaflet (PIL) given out by a pharmaceutical chain, and two alternate-forms depicting information with icons and graphs. The results showed that patients randomised to the traditional PIL were less likely to consider taking the hypothetical medication.


Keywords: Anti-HIV Agents: therapeutic use/ Communication/ Community Health Nursing: organization & administration/ Cooperative Behavior/ HIV Infections: *drug therapy: nursing: psychology/ Health Behavior/ Health Promotion: organization & administration/ House Calls/ Humans/ Nurse's Role/ Nurse-Patient Relations/ Patient Compliance: *psychology/ Patient Education: *organization & administration/ Patient
Abstract: Most interventions to promote medication adherence are based on psychological theories of individual behavior. In contrast, this article describes the theory and practice of a socially based adherence intervention that is guided by the educational principles of Paolo Freire. This approach asserts that adherence is influenced by the patient's social context and attempts to improve adherence through identifying social constraints on adherence behavior. The program builds on the traditions of patient education through home nursing visits. Using a dialectic process of dialogue and problem solving and working with a team that includes a nurse and a peer-educator, patients are encouraged to act to change their social environment to support their desire to achieve high levels of medication adherence. This strategy does not replace, but rather supplements, traditional methods of understanding individual patient behavior and allows the patient and the nurse to consider potential solutions to adherence challenges in the larger social context.


Abstract: Pharmacotherapy is the foundation of treatment for bipolar disorder, but research suggests that adjunctive psychosocial interventions that are manualized, reproducible, time-limited, empirically supported, and strategically target a number of critical domains, can efficiently provide additional benefits. Psychoeducation as an adjunct of pharmacotherapy may be beneficial, but questions remain about the utility of this treatment for patients who are already compliant with medication treatment. Family educational interventions have demonstrated encouraging results in relapse prevention, but follow-up data are limited and application to patients who have limited social networks may be problematic. Reports on interpersonal and social rhythm therapy in patients with bipolar disorder are scarce, and what is available shows no differential effect on time to remission or relapse, but a significant impact on subsyndromal symptoms. Follow-up data suggest that patients receiving cognitive behavior therapy have significantly fewer bipolar episodes, shorter episodes, fewer hospitalizations, and less subsyndromal mood symptoms. It is unclear, however, if cognitive behavior therapy is superior to other active psychosocial treatments and whether its mechanism in patients with bipolar disorder is through changing dysfunctional cognitions or simply enhancing early symptom detection. Psychotherapies should be considered early in the course of illness to improve medication compliance and to help patients identify prodromes of relapse in order to take steps for prevention. In addition, some strategies may have a beneficial effect on residual symptoms, particularly symptoms of depression, and thus help move patients toward a more comprehensive functional recovery.

Abstract: OBJECTIVE: Although nonadherence with the antipsychotic medication regimen is a common barrier to the effective treatment for schizophrenia, knowledge is limited about how to improve medication adherence. This systematic literature review examined psychosocial interventions for improving medication adherence, focusing on promising initiatives, reasonable standards for conducting research in this area, and implications for clinical practice. METHOD: Studies were identified by computerized searches of MEDLINE and PsychLIT for the years between 1980 and 2000 and by manual searches of relevant bibliographies and conference proceedings. Key articles were summarized. RESULTS: Thirteen (33%) of 39 identified studies reported significant intervention effects. Although interventions and family therapy programs relying on psychoeducation were common in clinical practice, they were typically ineffective. Concrete problem solving or motivational techniques were common features of successful programs. Interventions targeted specifically to problems of nonadherence were more likely to be effective (55%) than were more broadly based treatment interventions (26%). One-half (four of eight) of the successful interventions not specifically focused on nonadherence involved an array of supportive and rehabilitative community-based services. CONCLUSIONS: Psychoeducational interventions without accompanying behavioral components and supportive services are not likely to be effective in improving medication adherence in schizophrenia. Models of community care such as assertive community treatment and interventions based on principles of motivational interviewing are promising. Providing patients with concrete instructions and problem-solving strategies, such as reminders, self-monitoring tools, cues, and reinforcements, is useful. Problems in adherence are recurring, and booster sessions are needed to reinforce and consolidate gains.
Contact us

**ISPOR Medication Compliance**

Joyce A. Cramer  
Associate Research Scientist  
Department of Psychiatry  
Yale University  
School of  
950 Campbell Ave. (G7E)  
West Haven, CT 06516-2770  
Tel: 203-937-3894  
Fax: 203-937-3468  
e-mail: joyce.cramer@yale.edu

**ISPOR Medication Compliance Bibliography Group**

Jasmanda H. Wu  
Sr. Epidemiologist  
Merck & Co., Inc.  
770 Sumneytown Pike  
WP39-166  
West Point, PA 19486  
Tel: 215-652-2072  
Fax: 215-652-0860  
e-mail: jasmanda_wu@yahoo.com