ISPOR Europe 2023

12 - 15 November

# Poster Tour Guide Packet

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| **Poster Session:** | **Poster Session 4** |
| **Tour Name:** | **Student Research Spotlight** |
| **Tour Date/Time:** | Tuesday, 14 November 2023, 15:30 - 16:15 |
| **Tour Location:** | Area B, Poster and Exhibit Hall, Hall C |

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|---|---|
| **Acceptance Code:** | PT43 |
| **Board Number:** | 1B |
| **Abstract Title:** | Cost-Effectiveness Analysis of Prostate-Specific Antigen (PSA)-Based Risk-Adapted Screening in Germany: An Early Economic Evaluation Study |
| **Presenting Author:** | Muchandifunga Muchadeyi |

**Abstract Body:**

OBJECTIVES: Prostate cancer (PCa) caused 12% of Germany's men's cancer deaths in 2021. Current early detection guidelines involve digital rectal examination (DRE). PCa can also be detected early using prostate-specific antigen (PSA) testing. PSA testing decreases mortality but can lead to overdiagnosis and overtreatment. There is a growing interest in PSA-based risk-adapted screening and Multiparametric Magnetic Resonance Imaging (mpMRI) techniques which can minimize harm by targeting men at higher risk. This study aimed to recalibrate the Swedish Prostata model to the German context and assess the cost-effectiveness of seven PCa screening strategies.

METHODS: The model was recalibrated to age-specific PCa incidence and Gleason score distributions in Germany from 2014-2019. A cost-utility analysis was conducted from the Statutory Health Insurance (SHI) perspective employing a lifetime horizon starting at age 35. We assumed mpMRI post-diagnosis, with variations during pre-biopsy screening and mpMRI-targeted biopsy [TBx]. Primary outcome measures included lifetime costs and quality-adjusted life years (QALYs). Deterministic sensitivity analyses were performed on utility values, discount rates, screening intervals, starting/stopping ages, and cost parameters.

RESULTS: Compared to no screening, the current German guidelines (DRE+PSA+systematic prostate biopsy [SBx] at 45) exhibited the highest number of deaths averted (70) and the fewest metastatic cancers detected (119) per 100,000 men screened. However, that strategy led to considerable overdiagnosis (137 per 100,000 men), escalated healthcare costs, and cannot be considered cost-effective. Strategies with PSA+MRI+ combined SBx/TBx at 50 and PSA+SBx at 50 demonstrated a substantial reduction in overdiagnosis by 86% and 79%, respectively, compared to the current guidelines. The latter two strategies were cost-effective, with incremental cost-effectiveness ratios below €10,000 per QALY gained compared to no screening.

CONCLUSIONS: The current German guidelines lead to non-negligible overdiagnosis, unnecessary biopsies, and increased healthcare costs. A strong case is made for reassessing these guidelines towards PSA-based risk-adapted screening, with or without mpMRI, starting at 50.

**Tour Guide's Questions for Starting Q&A** (Each poster will have ~5 minutes for Q&A with attendees/Tour Guide)

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|---|---|
| **Acceptance Code:** | PT44 |
| **Board Number:** | 2B |
| **Abstract Title:** | Cost-Effectiveness of Olaparib Vs. Rucaparib for Patients with Metastatic Castration-Resistant Prostate Cancer – the Canadian Perspective |
| **Presenting Author:** | Ivan Yanev |

**Abstract Body:**

OBJECTIVES: Metastatic castration-resistant prostate cancer (mCRPC) is the most advanced phase of prostate cancer (PCa) and is responsible for most deaths. Through phase III clinical trials, olaparib (ola) and rucaparib (ruca), (poly(adenosine diphosphate–ribose) polymerase inhibitors) have demonstrated improvements in progression-free survival in mCRPC patients with alterations of BRCA1/2 and having progressed on second-generation androgen-receptor pathway inhibitor (ARPI). While improving outcomes, ruca and ola contribute to the ever-growing economic burden of PCa. Cost-effectiveness analyses are needed to estimate their impact and thus optimize resource utilization. Our objective is to evaluate the cost-effectiveness of ola and ruca versus physician's choice (docetaxel or ARPI) for mCRPC patients with BRCA1/2 mutations in the Canadian healthcare setting.

METHODS: Partitioned survival models were created to represent mCRPC disease after progression on ARPI until death or 5 years. Survival inputs were extracted from PROfound and TRITON3. Ola costs were extracted from the Quebec Health Insurance Board medication list. As ruca is not commercially available in Canada, we hypothesized that it will be priced on par with ola.

RESULTS: Our findings suggest that ruca provides better survival benefit in terms of quality-adjusted life years (QALY) than ola, but at a higher cost (ICER $302,158/QALY). When compared to the docetaxel, ola and ruca provided an additional 0.27 and 0.44 QALY with additional costs of $81,756 and $131,193, resulting in ICERs of $299,022/QALY and $300,196/QALY respectively. When compared to ARPI, ola and ruca demonstrated clinical benefit and ICERs of $565,057/QALY and $416,204/QALY respectively.

CONCLUSIONS: While providing survival benefit to mCRPC patients presenting alterations of BRCA genes, the cost of ola and ruca requires major reductions to be considered cost-effective when analyzed from the Canadian healthcare perspective.

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| **Acceptance Code:** | PT45 |
| **Board Number:** | 3B |
| **Abstract Title:** | Disease Relapse and Adverse Events During the Combination Use of Clozapine and Long-Acting Injectable Antipsychotics and During the Clozapine Monotherapy |
| **Presenting Author:** | Ka Chun Yan |


**Abstract Body:**

OBJECTIVES: To assess the rate of hospitalizations for schizophrenia and extrapyramidal symptoms during the combination use of clozapine and long-acting injectable antipsychotics (CLO+LAIA) and during the clozapine monotherapy (CLO-mono) among people with schizophrenia.

METHODS: In this population-based study, we utilized the electronic medical records of the Clinical Data Analysis and Reporting System (CDARS) in Hong Kong to identify individuals diagnosed with schizophrenia and prescribed clozapine and LAIA during 2004-2019. Rate of hospitalizations for schizophrenia and extrapyramidal symptoms during the full treatment periods of CLO+LAIA and CLO-mono were reported. The rate beyond the first 90 days of each treatment was further assessed to reduce potential indication bias and assess the outcomes during subsequent treatment periods.

RESULTS: Of the 70,396 individuals with schizophrenia (mean [SD] age, 44.2 [15.8] years; male, 47.2%), 5704 (mean [SD] age, 35.9 [12.1] years; male, 49.0%) were prescribed clozapine and 2745 (mean [SD] age, 36.5 [11.4] years; male, 49.0%) were prescribed both clozapine and LAIA during the observation period. The rate of hospitalizations for schizophrenia and extrapyramidal symptoms was 45.90 and 12.05 per 100 person-years during the CLO+LAIA treatment period, while the rate was 30.27 and 5.98 per 100 person-years during the CLO-mono treatment period, respectively. After excluding the first 90 days of each treatment period. The rate of hospitalizations for schizophrenia and extrapyramidal symptoms was 33.34 and 3.66 per 100 person-years during the CLO+LAIA treatment period, while the rate was 27.03 and 4.18 per 100 person-years during the CLO-mono treatment period, respectively.

CONCLUSIONS: The CLO+LAIA treatment appears not to reduce the risk of disease relapse and adverse events than CLO-mono treatments. However, further research is needed to make a detailed comparison between CLO+LAIA and CLO-mono treatments.


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|---|---|
| **Acceptance Code:** | PT46 |
| **Board Number:** | 4B |
| **Abstract Title:** | Does Public Research Investment on Emerging Infectious Diseases Correspond to Disease Burden in China? A Cross-Sectional Study from 2009 to 2019 |
| **Presenting Author:** | Jiyan Ma |

**Abstract Body:**

OBJECTIVES: To evaluate to what extent the public research investment addresses infections caused by emerging infectious diseases (EIDs), we examined the magnitude of relevant public funding in China and compared it with disease burden across different pathogens.

METHODS: A cross-sectional study was conducted using the publicly available data from 2009 to 2019. The disease burden was measured in the number of newly notified incidence cases, considering the sporadic nature of EIDs. The public funding was estimated using the funding amount on award for the National Natural Science Foundation of China (NSFC) projects related to detecting, preventing and controlling EIDs. The relationship between disease burden and public funding was analyzed in a linear regression model in RStudio (Version 4.1.3).

RESULTS: From 2009 to 2019, China has invested 170 NSFC projects on EIDs, totaling 128.50 million RMB (20.01 million USD). 45.70% of the total funding was allocated to the WHO's Blueprint priority pathogens (i.e., Ebola and Marburg virus), which have not been reported in China so far; whereas research input on brucellosis and Japanese encephalitis (1.10%), as diseases that have been prevalent and re-emerged in China, were lower than expectation. Our analysis indicates the correlation between NSFC funding and EID burden is not strong enough to determine that two variables are dependent of each other (log (X) log (y): P = 0.44, Coefficient=0.52).

CONCLUSIONS: Although China is always missing from the global landscape of research funding on EIDs, our study suggests it might become a strong public funder in terms of share of funding, ongoing support and diversified disease portfolio. The funding allocation mechanism needs to strengthen awareness and responsiveness to the changes in burden of disease. A better understanding of priority settings at both national and global levels is required to facilitate strategic funding programs toward better pandemic preparedness and response.

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| **Acceptance Code:** | PT47 |
| **Board Number:** | 5B |
| **Abstract Title:** | High-Volume Hospitals Experience Fewer Postoperative Complications After Neonatal Surgery: Analyses of the National Clinical Database Pediatric Surgical Registry in Japan |
| **Presenting Author:** | Kentaro Hayashi |

**Abstract Body:**

OBJECTIVES: Reports on volume–outcome relationships have suggested that surgical and interventional procedures should be centralized. However, because pediatric surgery is rare and complex, there is limited evidence in this field. We investigated the situation and hospital-level volume–outcome relationship for neonatal surgery in Japan.

METHODS: We utilized data recorded in the National Clinical Database (NCD) pediatric surgical registry (January 2015–December 2020). Hospitals were categorized as low-volume (>0 to <10), middle-volume (≥10 to <36), and high-volume (≥36) based on the mean annual number of neonatal surgeries. We compared the incidences of periprocedural outcomes among six major procedures esophageal atresia, congenital diaphragmatic hernia, omphalocele, gastroschisis, intestinal atresia, and duodenal atresia by surgical volume. The outcomes included death at hospital discharge, any postoperative complications within 30 days, postoperative surgical complications (wound dehiscence, anastomotic leakage, reoperation, readmission) within 30 days, and operation time. The hospital volume–outcome associations were adjusted for surgery type, gestational age, preoperative cardiac risk, chromosomal abnormality, and Apgar score at 5 minutes.

RESULTS: Of 738 registered hospitals, 154, 76, and 12 were categorized as low-, middle-, and high-volume hospitals, respectively; 496 performed no neonatal surgery. The frequency of any postoperative complications was lower at high-volume (252/1075 [23.5%]) than at low-volume (230/770 [29.9%]; adjusted odds ratio [aOR] 1.46, 95% confidence interval [CI] 1.16–1.83) and middle-volume (622/2219 [28.0%]; aOR 1.31, 95% CI 1.09–1.58) hospitals. Average operation time was 15.2 (95% CI 9.08–21.4) and 6.68 (95% CI 1.85–11.5) minutes longer at low- and middle-volume hospitals than at high-volume hospitals, respectively. We found no significant differences in mortality or individual postoperative surgical complications.

CONCLUSIONS: The incidence of any postoperative complications after neonatal surgery was lower at high-volume hospitals where operation times were also shorter. Centralizing neonatal surgical facilities may improve the quality of pediatric surgery in Japan.

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