OP522 Years Of Potential Productive Life Lost Due To Cancer Premature Mortality In Brazil: 2000 to 2016

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Introduction. Early death from cancer is potentially preventable. In developing countries, it is not only a human tragedy but also an economic tragedy. In Latin America and the Caribbean, the estimated number of deaths for people 15–64 years in 2018 was 262,141, with Brazil being the country with the largest number of cases in the region (38.2%). The mortality rate for cancer in Brazil was 68.7/100,000. The analysis of causes impacting premature mortality is an essential function of public health surveillance. This study aims to estimate Potential Productive Life Years of Lost (YPPLL) due to cancer from 2000 to 2016, according to the region, sex and cancer site.

Methods. Official data from the Brazilian government were used for the period 2000–2016 for the 15–64 age group (economically active population). For each cancer death in working-age people, potential years of productive life lost (YPPLL) were calculated as the difference between pensionable age and age at death from cancer (based on the age group mid-point). The limit considered as pensionable age was 65 years for men and 60 years for women.

Results. The total of cancer deaths among working-age people was 61,547 in 2000 and increased to 93,551 in 2016. The correspondent YPPLL was 717,883 and 944,565, respectively (increase of 31.6%), mostly coming from males (56.8%). Highest individual YPPLL were observed in the North and Northeast and Midwest, for both sexes. The most substantial changes observed from 2000 to 2016 in total YPPLL were for colorectal cancer, which moved from sixth to the second position nationally.

Conclusions. The YPPLL due to cancer is increasing in Brazil and present different patterns by sex and geographic regions. While in the South and Southeast lung cancer has the highest impact among males, in the North and Northeast most YPPLL come from stomach cancer. Among females, a clear pattern is observed with breast cancer being responsible for most YPPLL excepting in the North, where cervical cancer still having a major impact compared to other tumors.

OP523 Towards A Health Technology Assessment Framework For Omics-Technologies: Preliminary Results Of The ExACT project.

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Introduction. Omics technologies enable the measurements of genes (genomics), mRNA (transcriptomics), proteins (proteomics) and metabolites (metabolomics) and thus proved to be valuable tools for personalized decision-making in clinical practice. For their evaluation, a health technology assessment (HTA) framework is not standardized and accepted, yet. Therefore, we aim at designing an omics-technologies HTA evaluation framework to facilitate their assessment, through a mixed-method approach. This work is part of the ExACT project, which aims to produce a range of tools to facilitate the implementation of precision health in clinical practice.

Methods. A systematic review was conducted to identify the existing HTA frameworks used for the evaluation of omics-technologies. Desk research on the HTA agencies' websites was performed to identify the reports on omics-technologies HTA evaluation frameworks used by these agencies. A questionnaire evaluating HTA agencies' experience on evaluation of omics-technologies was designed. The new framework will be elaborated based on the findings from the three methodological steps, and will be validated through a Delphi process.

Results. Twenty-three articles were included in the systematic review. The main identified HTA frameworks were ACCE and "Evaluation of Genomic Applications in Practice and Prevention" (EGAPP). The desk research showed that these frameworks were seldom used by HTA agencies, which for the evaluation of omics-technologies mostly refer to the HTA Core Model®, mainly assessing the following domains: clinical effectiveness and economic evaluation. Data collection process of the questionnaire HTA agencies' experience is in progress.

Conclusions. Although two main HTA frameworks for the evaluation of omics-technologies have been identified, these frameworks are sporadically used by HTA agencies in their practice. The particular interest of HTA agencies on clinical effectiveness and economic evaluation, might potentially reflect the uncertainty and difficulties when evaluating omics-technologies. This could indicate that these HTA frameworks are not feasible and practical to be used in routine HTA agency processes for omics technologies, emphasizing the need for a new framework. Our methodological approach might contribute to the development of a new HTA framework, feasible and practical to use not only for HTA agencies.

OP535 Cost-Effectiveness Of Internet-Based HIV Screening In Men Who Have Sex With Men in Vancouver, British Columbia, Canada

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Introduction. In Canada, individuals test for HIV commonly through clinic-based screening services (CBSS). However, gay, bisexual and other men who have sex with men (GBMSM) may face barriers accessing such services due to, for example, feeling discomfort disclosing their sexual history or fearing judgment from healthcare providers. To reduce barriers and increase uptake and frequency of screening for sexually-transmitted infections

https://doi.org/10.1017/S026646232000121X Published online by Cambridge University Press

(STIs) including HIV, the British Columbia Centre for Disease Control implemented an internet-based screening service, GetCheckedOnline.com (GCO), in September 2014 in Vancouver, Canada. We assessed the cost-effectiveness of GCO at different uptake scenarios compared to CBSS in Vancouver GBMSM.

Methods. Cost-utility analyses were conducted from a healthcare payer's perspective using an established dynamic GBMSM HIV compartmental model. The model estimated the probability of becoming infected with HIV, progressing through diagnosis, disease stages, and treatment over a 30-year time horizon. The base case assumed 4.7 percent uptake of GCO, and 74 percent of high-risk and 44 percent of low-risk infrequent testers becoming regular testers in five years. Scenario analyses tested GCO 10 and 15 percent uptakes.

Results. Compared with the conventional CBSS alone, a 4.7 percent GCO uptake increased the costs by CAD90,059 (USD75,680; 95% confidence interval (CI): -CAD420,836, CAD273,987) and gained 3 (95% CI: 0, 6) quality-adjusted life years (QALYs) in a 30-year time horizon. There was a 71 percent probability that GCO was cost-effective at a cost-effectiveness threshold of CAD50,000 (USD42,000) per QALY. The results were consistent in other two uptake scenarios.

Conclusions. Expanding HIV screening for GBMSM through increasing uptake of GCO is a cost-effective alternative to expanding the conventional CBSS. We noted that difference in total costs might be smaller if a battery of STI tests is considered, which in turn may affect our cost-effectiveness estimate. For the next phase of cost-utility analysis, we will expand our model to include testing for other STIs.

OP544 Appraising Variation In Health Technology Assessment Of Novel Immuno-Oncology Medicines In Australia, Canada, France, And The United Kingdom

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Introduction. Demonstrating the value of medicines through health technology assessment (HTA) systems is becoming increasingly complex. Innovative therapies – such as immuno-oncology (IO) agents – are testing limits of methodological approaches in markets with established HTA systems. The objective of this study is to understand how requirements, approaches, and decision-making differ between select HTA agencies with a focus on specific PD-1/PD-L1 (programmed death receptor-1/programmed death-ligand 1) agents and cancer indications, and to describe how this variation impacts patient access. To achieve this objective, we conducted a detailed HTA dossier review for several recently launched IO products across Australia (AU), Canada (CA), France (FR), and the United Kingdom (UK).

Methods. Content experts reviewed HTA dossiers for pembrolizumab, nivolumab, and atezolizumab for non-small cell lung cancer (NSCLC) first-line monotherapy, NSCLC combination therapy, and adjuvant melanoma. A systematic analytic framework was developed to understand best-practice methodology across systems. Information on submitted data, patient/expert input, and access decisions were extracted; key themes were identified and refined through workshop discussion, and probed further through blinded primary research with eight individuals with current or recent experience of HTA systems.

Results. We identified six major elements of variation impacting decision-making: evidentiary expectations for biomarkers, use/impact of patient-centered data; use/impact of real-world data, acceptance of surrogate endpoints, approaches for clinical data extrapolation, and accepted time horizons. Considerable variation in time to access was observed; for pembrolizumab (NSCLC first-line monotherapy), time from product registration to HTA decision ranged from 42 (CA) to 487 (AU) days; time from registration to listing ranged from 189 (CA) to 605 (AU) days.

Conclusions. Evaluated HTA systems demonstrate a large degree of variability in approaches to decision-making for novel IO medicines; resultant access decisions and time to access are also highly variable. Inconsistency between systems and duplication of effort when assessing similar clinical/economic data could be contributing to limited or delayed patient access; the relationship merits further exploration. Assessed HTA systems are currently undergoing process revisions but expert input suggests that this is not expected to reduce variation, and could further increase complexity. The influence of parallel scientific advice programs between HTA agencies and regulatory bodies in reducing variation must also be determined.

OP605 Artificial Intelligence Assisted Diagnosis Technology For Benign-Malignant Lung Nodule Classification On Computerized Tomography Images: A Meta-Analysis

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Introduction. Artificial Intelligence (AI) is an important product of the rapid development of computer technology today. It has a far-reaching impact on the development of medical diagnostic technology especially in combination with medical imaging. The aim of this study was to analyze the diagnostic accuracy of AI-assisted diagnosis technology for classification of benign and malignant lung nodules on Computerized Tomography (CT) images.

Methods. A meta-analysis was conducted of published research articles on diagnostic accuracy of AI-assisted diagnosis technology for lung nodules classification between 2010 and 2019 in the databases of PubMed, EMBASE, Cochrane Library, China National Knowledge Infrastructure, Wanfang Data Knowledge Service Platform and China Bio-medicine Database. Statistical analysis was performed with the software SAS 9.4 and Stata 12.0, and the summary receiver operating characteristic (SROC) curve was drawn to evaluate accuracy of the method.

https://doi.org/10.1017/S026646232000121X Published online by Cambridge University Press