OP42 A Budget Impact Analysis Of The Introduction Of Noninvasive Prenatal Testing To Korean National Health Insurance

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Introduction: This study assessed the budget impact (BI) of introducing noninvasive perinatal testing (NIPT) to the Korean National Health Insurance (KNHI). It aims to provide useful economic evidence on reimbursement decisions on prenatal screening. Since NIPT is widely used in Korea as a noncovered service, BI can be reliably estimated from real-world data (RWD).

Methods: In this BI analysis, we derived the total number of pregnant women from 2017 birth statistics (n=358,000) and its distribution of singleton births (96.1%) and multiples (3.9%). The age distribution of pregnant women was 29.4 percent for 35 and above, and 70.6 percent for below 35, according to the 2017 statistics. For NIPT costs, we considered a price range of KRW357,000 (USD260) to KRW715,000 (USD522) from a 2018 survey. To evaluate the BI of introducing NIPT, we examined eight scenarios based on NIPT cost sharing of 30 percent and 70 percent, NIPT price, and whether to include pregnant women aged less than 35 years old.

Results: BI for KNHI was estimated as KRW6 trillion (USD4 billion) to approximately KRW56 trillion (USD40 billion). Scenario seven, targeting older pregnant women with serum screening high risk with NIPT price at the lower end and payer coverage of 30 percent, shows the lowest annual BI of KRW6,115,813,866 (USD4,469,516); scenario two, covering all older pregnant women and younger high-risk cases with NIPT price at the higher end and payer coverage of 70 percent, exhibits the highest burden at KRW56,240,636,611 (USD41,091,993).

Conclusions: Our BI analysis of introducing NIPT to KNHI can serve as essential data for estimating insurer burdens during the potential transition of NIPT to provisional or selective coverage. In the absence of prenatal diagnostics cost-effectiveness research in Korea, our findings provide crucial evidence for establishing relevant reimbursement criteria, addressing a gap in current research and supporting evidence-based policymaking.

OP43 Incorporating Mathematical Modeling To Improve Accuracy Of Budget Impact Analysis: Using Screening For Hepatitis C As An Example

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Introduction: The majority of those infected with chronic hepatitis C (CHC) are asymptomatic. Population screening has proven to be both effective and cost effective. When considering whether to implement screening or not, the uncertainty of the budget impact plays an important role. This study aims to develop methods that improve the accuracy of budget impact analysis for a one-time CHC screening program.

Methods: We developed a back-calculation mathematical model that employs a Markov chain Monte Carlo algorithm to estimate the prevalence and proportion of undiagnosed CHC. Subsequently, we utilized a state-transition model to assess the budget impact of two strategies: (i) no screening; and (ii) screen-and-treat with direct-acting antiviral (DAA) for individuals born between 1945 and 1965 ("baby-boomer" birth cohort). Model data were gathered from published literature. Our analysis adopted a Canadian provincial payer perspective, employed a 10-year time horizon, and followed best-practice recommendations by not applying discounting.

Results: For individuals born between 1945 and 1965, the estimated prevalence of CHC was 1.74 percent (95% confidence interval [CI]: 1.52, 2.30) with an undiagnosed proportion of 15.72 percent (95% CI: 11.27, 18.54). The initial budget impact analysis indicated an additional cost of CAD61.5 million (USD45.0 million) over 10 years for screening related individuals for CHC in Ontario. With these updated prevalence and undiagnosed proportion estimates, our projection suggests a 29.6 percent reduction in the budget impact, now estimated at CAD43.3 million (USD31.7 million).

Conclusions: By comparing the budget impact of the CHC screening strategy with other recommended health services and technologies in Ontario, we have concluded that CHC screening may be considered affordable. To enhance the accuracy of budget impact analysis for population-level screening decision-making, it is crucial to develop precise methodologies for estimating the underlying prevalence and undiagnosed proportions.

OP44 Cost-Of-Illness And Cost–Consequence Analysis Of Dementia In Italy

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Introduction: In Italy, there is a lack of evidence regarding the care and management of patients with dementia, as well as the associated costs. This study aims to fill this informational gap by utilizing data from both literature and national surveys.

Methods: A prevalence-based cost-of-illness (COI) model was developed to assess dementia-related costs from a societal perspective. The resources utilization for management and treatment of patients with dementia was derived from both the literature and the analysis of surveys conducted by the National Institute of Health on the social-health structures dedicated to dementia. Indirect costs from informal caregiving were evaluated through a human capital approach.

Additionally, a cost–consequence analysis (CCA) was conducted to assess the economic impact of healthcare resource utilization changes.

Results: Based on an estimated 1,150,691 dementia cases in Italy, with approximately 12 percent institutionalized, the COI model estimated an annual expenditure of around EUR23.6 billion (USD25.7 billion) for dementia patient management, with 63 percent attributed to out-of-pocket expenses. CCA indicated that if all affiliated with Centers for Cognitive Disorders and Dementia (CDCD) received nonpharmacological interventions (versus the surveyed 25.5 percent), there would be a direct cost increase of approximately EUR4.3 million (USD4.7 million).

Conclusions: This analysis provides an updated overview of current dementia patient management in Italy, offering valuable insights for decision-makers to prioritize health policies and interventions for patients and their caregivers.

OP45 Incorporation Of The Tetravalent Dengue Vaccine In The Brazilian Public Health System: A Cost–Benefit Analysis

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Introduction: Dengue, a mosquito-borne disease, is prevalent in Brazil, ranking third in the Americas. The country has confirmed all four serotypes (DENV-1, DENV-2, DENV-3, and DENV-4) of the virus. In 2023, a tetravalent vaccine, approved for individuals aged four to 60 years, opens the possibility of integration into the public health system.

Methods: The invested amount for purchasing two doses of the vaccine to immunize the entire eligible population in the year 2023 was calculated. A comprehensive analysis of direct and indirect costs was conducted regarding the integration of the tetravalent dengue virus vaccine into Brazil's public healthcare system. Direct costs encompassed treatment expenses for mild, moderate, and severe cases, while indirect costs involved workdays lost and mortality-related expenses. Direct and indirect costs were compared in two scenarios (with and without vaccination), followed by a cost–benefit ratio calculation.

Results: The investment for procuring vaccines for over 168 million Brazilians amounted to approximately EUR17.9 billion, resulting in savings of about EUR193.5 million. Indirect costs were particularly significant when compared to the non-vaccinated population. Considering herd immunity and reducing the vaccinated population to 70 percent of the eligible populace, the invested amount was approximately EUR12.5 billion, while savings reached EUR214.2 million. A

cost-benefit ratio calculation revealed a return of one centavo (EUR0.0019) for every BRL1.00 invested (EUR0.0019), and considering herd immunity, the cost–benefit ratio was approximately 0.02.

Conclusions: Despite Brazil being one of the countries with the highest prevalence of dengue in the Americas, the availability of the tetravalent dengue virus vaccine in the country's public system does not seem to be a sustainable option, given the unfavorable cost–benefit analysis for such implementation. Nevertheless, it is imperative to conduct this analysis with due consideration for alternative scenarios.

OP46 A New Modular Approach To Updating National Institute For Health And Care Excellence Manuals

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Introduction: Methods and processes for health technology assessment (HTA) must be sufficiently flexible to reflect emerging best practice and adapt to changes in the health and care landscape. They must also be clearly documented and subject to review, assessment, and consultation. This requires a framework to flexibly update HTA manuals, while providing stability and predictability for stakeholders.

Methods: The National Institute for Health and Care Excellence (NICE) is introducing a modular approach to updating its manuals. Previously, NICE completed full, but infrequent, updates to its manuals. A modular update is a review of the process and/or methods informing NICE's guidance in a specific subject area, which can then be updated in the appropriate manual(s) if required. We are developing a modular updates framework that sets out NICE's approach for identifying and prioritizing modular updates to review, reviewing the evidence and proposing changes to the manual(s), engaging and consulting with stakeholders, and implementing the modular updates.

Results: The proposed approach allows external stakeholders to contribute to topic identification and the content of updates, helping to ensure that the manuals meet the needs of users. The first modular update to the NICE manual for health technology evaluations was published in October 2023. This included updated processes for carrying out cost comparisons, streamlining committee decision-making and handling confidential information. Potential future modular updates may include updated methods to consider health inequalities.

Conclusions: The introduction of a modular approach will enable NICE to be more agile and responsive in monitoring, reviewing, and improving our methods and processes, making sure they remain cutting edge as the health and care landscape continues to evolve.