

Methods. A set of simulations using hypothetical scenarios were developed with uncertainty set at ± 20 percent. The simulations investigated the impact of number of cost components, balance between components, and correlation between them. A cost-utility model from an assessment of robot-assisted radical prostatectomy was analyzed; procedure cost was divided into 32 individual cost components or treated as a total cost.

Results. Based on five equal cost components, uncertainty reduces from ± 20 percent for correlated variables to ± 9 percent for uncorrelated variables. With increasing numbers of uncorrelated cost components, the uncertainty in the total cost decreases markedly. The uncertainty around total robot-assisted surgery procedure equipment costs was ± 19.7 percent when components were correlated and ± 9.4 percent when uncorrelated. The impact on uncertainty in the incremental cost effectiveness ratio (ICER) was negligible but the ranking of parameters in the univariate sensitivity analysis changed.

Conclusions. Analyzing uncertainty by aggregated or disaggregated costs can have implications for presenting uncertainty in costs to decision makers. Applying uncertainty to aggregated costs essentially implies that variation in the cost of individual components is perfectly correlated. By disaggregating cost components they are being treated as uncorrelated, which can substantially reduce uncertainty in the total cost. In this case study we found that although the reduction in uncertainty could be clearly seen in the cost parameter, it had a negligible impact on uncertainty in the ICER.

OP38 Implementing Social Innovations: From Evidence-Based To Theory-Driven

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Introduction. For the last decades, health technology assessment has been strongly promoted in order to provide evidence-based rather than eminence-based healthcare. However, when it comes to implementing interventions that are based on processes and behavior rather than products, importing evidence-based interventions is likely to fail because it ignores the strong influence of contextual factors. In a recently started research project, an alternative approach is tested.

Methods. The project aims at improving identification and support of children who have parents with a mental illness in an Austrian region (Tyrol). A theory- and stakeholder-driven approach has been designed in order to co-develop, implement and evaluate practice approaches for improving the situation for children. The former addresses the questions whether, how and why suggested practices may work and the later brings together evidence and practice to develop interventions that are feasible and take the regional context and service settings into account.

Results. Based on evidence from various sources (literature, international and local stakeholder interviews), theories that describe the key mechanisms of action to influence outcomes for children have been developed. A regional and interdisciplinary group of practitioners and people with lived experience has been established to facilitate the development of the theory of change and practice approaches for the region and local service settings.

The final practice model is then monitored in the respective organizations with implementation support from the research team.

Conclusions. Theory-driven and co-designed-based approaches are a feasible alternative to 'off-the-shelf' evidence-based practices for supporting decision makers in implementing complex interventions. However, they require a broad variety of skills within the research team as well as willingness to accept uncertainties of the final outcomes produced, which can also be of risk to funders. The ongoing project will demonstrate whether the developed practices will be implemented successfully and result in benefits for the affected children.

OP39 Adapting HTA To Suit Emerging Needs - An Australian Experience

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Introduction. Australia has a well-developed HTA system for approving, funding and disinvesting in medical services, but how does it cope when it assesses new or existing services when health system frameworks, policy and legislation do not keep pace? This presentation will present a number of case studies where HTA methods have adapted to suit emerging health needs of the Australian community.

Methods. Australia's HTA system has been adapted over recent years to allow it to perform HTA on novel services that do not fit into its standard HTA pathway to public funding. There has also been an increasing number of assessments where HTA has been unusually sponsored by the funder to assess priority health care needs.

Results. More Medicare funding for addiction and sexual health consultation services are an example of a novel HTA which led to more public funding for these services. Limited evidence for these services was available and there was difficulty in demonstrating that increased public funding would lead to better outcomes for patients. A range of techniques, such as examining real world data and stakeholder views were partnered with HTA to assess these services. Currently, HTA is being utilised to assess a novel medical treatment known as the anti-CD19 chimeric antigen receptor T cell (CAR-T) therapeutic process. This is a complex, non-standard HTA which encompasses aspects of the Australian hospital funding system, Medicare and the Pharmaceutical Benefits Scheme and requires an adapted HTA process to assess evidence across a range of funder systems.

Conclusions. Australia's well established HTA system has adapted to become more agile to suit emerging health care needs for a range of interest groups, the government, sponsors and consumers. Consultation with stakeholders and the community have assisted in developing and refining these new processes.

OP40 Criminal Justice Costs And Benefits Of Mental Health Interventions

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Introduction. Mental health disorders and their treatments produce costs and benefits in both healthcare and non-healthcare sectors. The latter one is often referred to as inter-sectoral costs and benefits (ICBs). Limited research is available on the inclusion of these inter-sectoral costs and benefits (ICBs) in economic evaluations. In this study, we focus on the identification and classification of ICBs of mental health-related interventions within the criminal justice sector in a broader European context. This study was conducted as part of the PECUNIA-project, which aims to develop new standardized, harmonized and validated methods and tools for the assessment of costs and outcomes in European healthcare systems. The aim of the study is to further conceptualize an internationally applicable list of ICBs of mental health-related interventions in the criminal justice sector. Additionally, we aim to facilitate the inclusion of ICBs in economic evaluations across EU by prioritizing important ICBs.

Methods. Data was collected via a systematic literature search on PubMed and PsychINFO. Additionally, a grey literature search was carried out in six European countries. In order to validate the international applicability of the list and prioritize the ICBs, a survey was conducted with an international group of experts from the criminal justice sector.

Results. The literature search identified ICBs and resulted in a comprehensive list of items. A multi-dimensional list was constructed, distinguishing between costs as consequence of crime, and costs in response to crime. Based on the expert survey, the international applicability of the list was validated and the most important ICBs from the economic perspective were identified.

Conclusions. This study laid further foundations for the inclusion of important societal costs of mental health-related interventions within the criminal justice sector. More research is needed to facilitate the greater use of ICBs in economic evaluations.

OP41 Intercultural Medical Decision Support System Using Natural Language Processing (NLP)

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Introduction. This study aimed to reach patients using different languages while providing an opportunity to enter symptoms in their everyday language text besides medical expressions of symptoms.

Methodology. Named entity recognition (NER) techniques, based on natural language processing (NLP), were applied to develop a language independent predictive model. The research was based on extracting symptoms entered to the system by patient using NER method of NLP. In order to implement the system, python was used while pre-processing the data and string similarity function was used to estimate similarity with disease symptoms. Two sets were used for classification, one including only symptoms, and the other the matching diseases. Four thousand two hundred and eighty different symptoms were processed for the corresponding 880 diseases.

Results. Each user symptom had a similarity score for each symptom in all diseases. Top N results with highest similarities were

chosen from this list. The final N results are matched with diseases. According to these results, matched diseases were ordered in terms of the percentage of matched symptoms in the disease's symptoms. Extracted terms were implied as an input of the model and analysed for a matching diagnosis where an accuracy of 83 percent was accomplished when it is tested and compared using Mayo Clinic data for specific foreign languages other than English.

Conclusion. This language independent online diagnostic tool is a solution for both personal and clinical use and provides maintainable, updatable and more reliable diagnostics. This tool is particularly relevant today, with global mobility growing at a rate faster than the world's population. We aim to upgrade the system by adding speech recognition and engaging it with the background (if available, electronic health records) of the patient.

OP44 Robot-Assisted Surgery: Joint HTA To Inform Australian Policy And Funding

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Introduction. Robot-Assisted Surgery (RAS) has been available in Australia since 2003. There are 50 da Vinci RAS systems in Australia (18 in NSW and 12 in Victoria) with most in the private hospital sector. In Australia the capital cost of a da Vinci RAS system is up to AUD 4 million (USD 2.8 million), which excludes annual maintenance fees of AUD 250,000 (USD 175,000) and consumable costs of AUD 3,500 (USD 2,450) for each procedure.

Methods. The NSW Ministry of Health and Victorian Department of Health and Human Services commissioned a health technology assessment (HTA) to explore the benefits, risks and economic implications of surgical robotics, which involved a review of the peer reviewed literature, a cost benefit analysis of public sector patients who received RAS and broad stakeholder consultation to document current perspectives on RAS applications.

Results. RAS is as safe and effective as other surgical modalities when performed by sufficiently skilled surgeons, although evidence generally comes from small studies with limited follow-up time and few studies report long term mortality, morbidity or patient-reported outcomes. Comparative benefits of RAS are uncertain as most studies conclude little or no difference in procedure related or functional outcomes. While RAS reduces length of stay, which offers patient and health system benefits, this is insufficient to fully offset high capital and consumable costs currently charged to Australian providers. Government and clinical stakeholders identified that establishing an RAS service requires consideration of important factors, including: i) Governance is critical; ii) Higher case volumes may improve financial viability; and iii) a need for state-wide/national standards for surgeon training and credentialing.

Conclusions. RAS is as safe and effective as other modalities when performed by skilled surgeons. However, uncertainty remains around long-term outcomes and clinical and cost effectiveness. An accredited training program, monitoring and evaluation will be critical to ensure outcomes data inform ongoing evidence assessment and government policy and investment.