

PP53 Increasing Emergence Of Novel Digital Health Technologies Identified Through Horizon Scanning

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Introduction: Recently, there have been calls for the development of new health technology assessment (HTA) methodologies to address the growing emergence of novel digital health technologies (DHTs). In particular, the lack of robust evidence base and technology-specific considerations of DHTs, such as software updates, present challenges for evaluation with conventional HTA methods. In Singapore, the Agency for Care Effectiveness (ACE) has established a horizon scanning (HS) system to provide the healthcare system with advance notice on emerging medical technologies (MedTechs) that may enter the Singapore market. This study aims to investigate the anticipated emergence of DHTs identified by ACE's HS system and the potential implications on subsequent HTA methodology.

Methods: Based on ACE's HS methodology, which is in line with international best practices, new and emerging MedTechs that address the top five local disease burden (i.e., cardiovascular, cancer, mental, neurological and musculoskeletal disorders) were identified from various sources and monitored for its development. These MedTechs were further filtered to shortlist potential technologies for HS assessment based on its innovative nature and appropriate time horizon to local regulatory approval. For this exercise, the filtered MedTechs were classified into categories such as DHTs, comprising technologies involving software or artificial intelligence (AI), and non-DHTs.

Results: Between 2021 and 2022, ACE has completed two topic filtration exercises. Based on 807 and 1,231 monitored MedTechs, 35 and 42 technologies remained after filtration, respectively. Among them, six out of 35 (17%) and 15 out of 42 (36%) filtered MedTechs were classified as DHTs, accounting for approximately two-fold increase in the number of DHTs shortlisted year-on-year. These DHTs include standalone AI software, software in a medical device, and digital therapeutics.

Conclusions: There is a substantial increase in DHTs identified that are anticipated to enter the local healthcare system. Given their unique characteristics, this may call for the modification of current HTA method to enable meaningful evaluation of DHTs.

PP54 Machine Learning For Accelerating Screening In Literature Reviews

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Introduction: Systematic reviews are important for informing decision-making and primary research, but they can be time consuming and costly. With the advent of machine learning, there is an opportunity to accelerate the review process in study screening. We aimed to understand the literature to make decisions about the use of machine learning for screening in our review workflow.

Methods: A pragmatic literature review of PubMed to obtain studies evaluating the accuracy of publicly available machine learning screening tools. A single reviewer used 'snowballing' searches to identify studies reporting accuracy data and extracted the sensitivity (ability to correctly identify included studies for a review) and specificity, or workload saved (ability to correctly exclude irrelevant studies).

Results: Ten tools (AbstractR, ASReview Lab, Cochrane RCT classifier, Concept encoder, Dpedia, DistillerAI, Rayyan, Research Screener, Robot Analyst, SWIFT-active screener) were evaluated in a total of 16 studies. Fourteen studies were single arm where, although compared with a reference standard (predominantly single reviewer screening), there was no other comparator. Two studies were comparative, where tools were compared with other tools as well as a reference standard. All tools ranked records by probability of inclusion and either (i) applied a cut-point to exclude records or (ii) were used to rank and re-rank records during screening iterations, with screening continuing until most relevant records were obtained. The accuracy of tools varied widely between different studies and review projects. When used in method (ii), at 95 percent to 100 percent sensitivity, tools achieved workload savings of between 7 percent and 99 percent. It was unclear whether evaluations were conducted independent of tool developers.

Conclusions: Evaluations suggest the potential for tools to correctly classify studies in screening. However, conclusions are limited since (i) tool accuracy is generally not compared with dual reviewer screening and (ii) the literature lacks comparative studies and, because of between-study heterogeneity, it is not possible to robustly determine the accuracy of tools compared with each other. Independent evaluations are needed.

PP55 Citizens' General Needs Assessment In SOTERIA Project: 'User-friendly Digital Secured Personal Data And Privacy Platform'

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Introduction: During the COVID-19 pandemic, the use of e-services increased, bringing a better choice of technologies and services. Nevertheless, these services require the use of sensitive personal data, which increased the level of risk because of potential privacy and security breaches. As a result, citizens are more concerned about their privacy, security, and personal data protection. The SOTERIA

project aims to provide a secure and user-driven solution. This study aims to identify barriers and key points related to citizens when using digital systems for data interoperability.

Methods: Both qualitative and quantitative approaches were applied in order to identify and measure citizens' general needs regarding the tool to be developed within the context of SOTERIA. The questionnaire was distributed throughout the three European countries under study: Austria, Romania, and Spain, with 400 responses collected in each country. The distribution of sex, age, occupation and educational level was representative in the entire sample.

Results: This study corroborates the critical role of perceived security in the intention to adopt new technologies. In addition, to trust and being consistent with the extant literature on technology adoption/acceptance, perceived benefits and usefulness also play a crucial role in driving attitudes and behavioral intention to adopt digital data wallet (DDW). Our findings show that perceived ease of use, the user's belief of having no difficulty using the technology (i.e., DDW), is a significant predictor of consumers' intentions to use DDW. Our qualitative data from both the in-depth interviews and focus groups also revealed convenience, being comfortable, and/or less time and energy needed to use DDW in comparison to one's current situation, to be a determinant of perceived benefits. Transparency, which provides consumers with knowledge of how firms manage their personal information, was also viewed as important among our participants in both in-depth interviews and focus groups. Our findings corroborate previous studies that report the control of privacy concerns, or the extent to which consumers believe they can manage the flow of information, feel comfortable and enhance their perceived view of privacy or lower privacy concerns.

Conclusions: Our qualitative studies confirmed that trust, or consumers' expectation of how data will be handled in the future plays an important role in influencing the intention of DDW adoption.

PP61 Cost-Effectiveness Analysis Of Trastuzumab Deruxtecan Versus Chemotherapy For Previously Treated HER2-Positive Gastric Cancer In Singapore

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Introduction: The phase two DESTINY-Gastric-01 trial demonstrated that trastuzumab deruxtecan (T-DXd) improved overall survival in Asian patients with human epidermal growth factor receptor 2 (HER2)-positive, advanced gastric or gastroesophageal adenocarcinoma that had progressed following two or more treatments, compared with chemotherapy (irinotecan or paclitaxel monotherapy). Considering the high cost of T-DXd, we assessed the cost-effectiveness of T-DXd versus chemotherapy from the Singapore healthcare system's perspective.

Methods: A partitioned survival model with three health states (progression-free, progressed disease and death) was developed, with

a five-year time horizon. Survival curves from DESTINY-Gastric-01 were extrapolated beyond the trial duration using parametric functions. Health state utilities were obtained from published literature and direct costs were sourced from public healthcare institutions in Singapore. Utility decrements for adverse events such as interstitial lung disease was incorporated into the model for the differences in safety profiles. A discount rate of three percent was applied to costs and outcomes. One-way deterministic sensitivity analyses (OWSA) and scenario analyses were conducted to assess parameter and model uncertainties.

Results: Treatment with T-DXd, compared to chemotherapy, had a high base case incremental cost-effectiveness ratio (ICER) of over SGD450,000 (USD334,900) per quality-adjusted life-year gained. The cost of T-DXd greatly influenced the results according to OWSA. Seventy-three percent of the total costs accrued in the T-DXd arm was due to the cost of the drug, compared to seven percent in the chemotherapy arm. The ICER was also sensitive to the assumptions around extrapolation of the survival curves, but when tested across all scenario analyses, the results remained unfavorable.

Conclusions: At the current cost, T-DXd does not represent good value compared to chemotherapy for previously treated HER2-positive gastric cancer in Singapore. The findings from our cost-effectiveness analysis, alongside other considerations, will be useful to inform policy makers on funding decisions.

PP64 Cost-Effectiveness Of Fractional Flow Reserve As Diagnostic Tool In Coronary Artery Disease Versus Angiogram Alone In Indian context

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Introduction: Fractional Flow Reserve (FFR) is a diagnostic tool that aids decision-making in the treatment of coronary artery disease (CAD). FFR provides an objective measurement and is used as an adjunct to an angiogram. The clinical and cost-benefit of using FFR have been well established across published literature. This research was aimed at evaluating the economic impact of using FFR as an adjunct to angiogram versus an angiogram alone, in the Indian healthcare context.

Methods: A study from a tertiary care public hospital in India estimated the impact of using FFR as an adjunct to angiogram in management of CAD. This study was used to create a mathematical simulation model to estimate cost-effectiveness and economic impact of using FFR over seven years' time horizon, from the Indian health systems perspective. A targeted literature review was performed to collect the clinical inputs for the model, and the national public health insurance program data was referenced to obtain the cost inputs.

Results: A hypothetical cohort of 100,000 patients in the model reported 30 percent reduction in unnecessary stenting. Moreover, 14,025 deaths were averted with the adoption of FFR. In addition,