

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