OP64 Risk-Based Prioritization In Patients Referred For Transcatheter Aortic Valve Implantation: A Simulation Study

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Introduction: Demand for transcatheter aortic valve implantation (TAVI) has increased in the last decade and has outpaced system capacity, impacting wait times and bringing undesirable health outcomes such as waitlist mortality and number of urgent procedures. Risk-based prioritization can improve equitable access to patients. In this study, we assess the impacts of different classifications and wait times for each risk group on health outcomes.
Methods: We developed decision-analytic models that simulate the patient trajectory from referral to completion of TAVI. Using prediction models that can classify patients based on their risk of adverse events on the waitlist, we assessed the impacts of (i) the number of risk groups, (ii) size of the risk groups, and (iii) recommended wait times for each risk group, on waitlist mortality, hospitalization, and the proportion of urgent TAVIs. All scenarios were modeled under the same resource constraints, allowing us to explore the trade-offs between faster access to prioritized patients and deferred access to nonprioritized groups.
Results: Increasing the number of risk groups from two to three, increasing the sizes of the higher-risk groups from five percent to 30 percent of the cohort each, and providing faster access to the higher-risk groups (five to three weeks for high-risk and 11 to five weeks for medium-risk) achieved the greatest reductions in mortality, hospitalizations, and urgent TAVIs (relative reductions of up to 29%, 23%, and 38%, respectively). However, this occurs at the expense of excessive wait times in the nonprioritized group (up to 25 weeks). The reduction in adverse events was lower when the nonprioritized group had more reasonable wait times.
Conclusions: When developing and implementing waitlist prioritization strategies, it is important to consider the resource constraints of the system and the patient profile, as the benefits of providing faster access to prioritized patients can lead to unreasonable wait times for nonprioritized ones. In settings with long wait times, prioritization initiatives must be followed by expansion of supply to achieve optimal improvements in health outcomes.

OP65 Focusing On What Matters Most: A Public Dialogue On How NICE Should Prioritize Topics In Health Technology Assessment

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Introduction: To meet the needs of an evolving health and care system, the National Institute of Health and Care Excellence (NICE) is changing its approach to topic prioritization so it can focus on what matters most. To support this, NICE ran a public dialogue to gather informed opinion on how it should select topics for guidance, including for some technology evaluation programs.
Methods: Fifty-five general public participants from across England took part in two face-to-face and three online deliberative workshops (each lasting two or three hours, held over four weeks in 2023). Participants were asked to consider the following criteria in the context of prioritization: health and care need, evidence availability, system impact, budget impact, health inequalities, and environmental sustainability. The workshops were designed to understand whether any aspects were more important than others and explore the reasons why. They used deliberative engagement methods and included trade-off exercises, role-play, group discussion, ranking tasks, and interactions with specialists.
Results: Emerging findings show that the participants think NICE should consider several aspects when prioritizing topics for guidance. Health and care need was of primary importance for people, followed by evidence availability, budget impact, and system impact. Health inequalities and environmental sustainability were generally considered to be less important, though participants still felt these were areas that should inform NICE's prioritization decisions. Participants identified relevant interactions between the criteria, suggesting that each criterion cannot be considered in isolation. Full results will be available to present at HTAi 2024.
Conclusions: Deliberative public engagement is a meaningful way to involve the public in complex policy decisions with a social value element. Broad public agreement was found with the criteria NICE has proposed to consider when prioritizing topics for guidance, and some criteria are more important to people than others. The findings will feed into NICE's new approach to topic prioritization.

OP67 "Black Box Bottleneck" Paradigm And Transparency Issues On Artificial-Intelligence-Based Tools In Health Technology Assessment: A Scoping Review

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Introduction: One of the pillars of health technology assessment (HTA) is transparency, which guarantees reproducibility and accountability. Due to the "black-boxness" of artificial intelligence (AI) models, the use of AI-based tools adds new layers of complexity for transparency issues. The aim of this scoping review is to map

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AI-based tools applied in HTA processes, regarding human supervision and "open-sourceness" aspects.
Methods: A search strategy using the terms "AI," "HTA," and correlated terms was performed in nine specialized databases (health and informatics) in February 2022. Inclusion criteria were publications testing AI models applied in HTA. Selection of studies was performed by two independent researchers. No filter was applied. Variables of interest included a subset of AI models (e.g., machine learning [ML], neural network), learning methods (e.g., supervised, unsupervised, or semi-supervised learning), and code availability (e.g., open source, closed source). Data were analyzed exploratorily as frequency statistics.
Results: ML with one layer of hidden nodes was applied in 48 (78.6 %) studies, while deep learning (DL) (two-plus layers) were applied in eight (13.1 %). ML models that used supervised learning accounted only for half of the reported models, while half used unsupervised learning. Considering supervision methods in DL models, seven used unsupervised learning, and one used supervision. Four studies did not report the AI model, and 14 studies did not report the supervision paradigm. It was not possible to assess "open-sourceness" in 31 studies. Among the identified software, seven models were not open source, and 13 were open source.
Conclusions: Transparency and accountability are of utmost importance to HTA. Complexity of AI models may introduce trustworthiness issues in HTA. Transparency provided by open-source code becomes essential in building trust in the automation of HTA processes, as does quality of report. Although progress has been observed in transparency and quality, the lack of a methodological framework still poses challenges in the field.

OP68 Adaptation Of Processes For HTA Of Digital Health Technologies Based On Artificial Intelligence

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Introduction: The advent of artificial intelligence (AI) in digital health technologies (DHT) requires a comprehensive health technology assessment (HTA) to ensure safety and effectiveness and to demonstrate the value of these technologies in healthcare systems. Recognizing the unique requirements posed by AI-based DHT, our agency has undertaken several initiatives to tailor and adapt our processes for effective HTA.
Methods: We started by identifying the processes that were not working optimally and planned a list of actions needed to improve them. These actions were: (i) to develop a new evaluation framework for the assessment of DHT, including those based on AI; (ii) to increase our activity on early HTA; (iii) to seek collaboration with an organization for technical assessment of AI, with a particular emphasis on trustworthy AI requirements; (iv) to adapt our HTA report templates; (v) to create new forms to request information from the technology developers; and (vi) to set up a working group on HTA of AI-based DHT.
Results: We have now an evaluation framework that informs on the relevant aspects for HTA of AI-based DHT and the evidence that developers need to generate in order to proof the value of their technology. We designed a circuit to identify promising technologies and increased our early HTA work for timely advice. The evaluation team now involves an additional partner for the technical assessment domain. In addition, we have new templates for early HTA reports, which explain those AI-specific elements to be addressed, as well as industry information request forms that enable collecting specific information like algorithm type and population used for clinical validation.
Conclusions: Tailoring HTA processes to AI-based DHT is crucial in today's fast-paced health technology landscape. Our new evaluation framework, the involvement of new partners in the assessment team, the creation of new templates, and enhanced early HTA work helps to evaluate these technologies optimally. We are also setting up a working group to ensure homogeneous evaluation within Spain.

OP69 Are Artificial-Intelligence-Based Literature Reviews Accepted By Health Technology Assessment Bodies?

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Introduction: Literature reviews (LR) play a crucial role in all health technology assessment (HTA) dossiers, presenting evidence-based value of interventions. There is global exploration of artificial intelligence (AI) to expedite and enhance the efficiency of literature reviews. Our research aimed to identify any existing guidance from HTA bodies regarding the use of AI for conducting literature reviews.
Methods: We conducted a comprehensive search and review of any published guidance from prominent HTA bodies, including the National Institute for Health and Care Excellence (NICE, England), Scottish Medicines Consortium (SMC, Scotland), National Centre for Pharmacoeconomics (NCPE, Ireland), National Authority for Health (HAS, France), Federal Joint Committee (G-BA, Germany), Institute for Quality and Efficiency in Health Care (IQWiG, Germany), Canadian Agency for Drugs and Technologies in Health (CADTH, Canada), and Pharmaceutical Benefits Advisory Committee (PBAC, Australia). This was done to gain insights into their views regarding the utilization of AI in literature reviews. Additionally, we engaged with HTA representatives, such as NICE, to gain a deeper understanding of their perspectives.
Results: We found a lack of clear guidance on the use of AI for conducting LRs. NICE has recommended a priority screening technique using machine learning (ML) for identification of a higher proportion of relevant papers at an earlier stage. NICE is currently in the process of developing guidance and is updating its manual in this area. SMC refers readers to NICE methodologies. In its HRB-CICER report, NCPE only acknowledges the potential of ML algorithms for

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