calculated, enabling an approximate cost benefit presented as the number of patients needed to reduce expenditure by AUD1 million (USD0.7 million).
**Results:** In 2021, it was calculated that 34,554 patients live with ESRD in Australia, of which 28,542 patients are on KRT. The number of new patients on KRT increases linearly by an average of 943 patients per year and provided a model with a strong goodness-of-fit ($R^2$ = 0.99); predicting that the prevalence of patients on KRT is estimated to increase to 33,417 patients by 2026. Dialysis accounts for the highest cost associated with ESRD management, estimated to be AUD87,975/year/patient (USD58,253), and accounts for over AUD1.3 billion (USD0.9 billion) in annual expenditure. When considering the proportion of patients receiving KRT undergoing dialysis (52.6%), first-year renal transplant (3.4%), and post-kidney transplantation (43.9%), in 2022, the average annual cost per patient receiving KRT is estimated to be AUD57,565 (USD38,109). The prevention of KRT in 17.4 patients in 2022, decreasing to 15.4 patients in 2026, has the potential to save AUD1 million/year (USD0.7 million).
**Conclusions:** The prevalence of ESRD in Australia increases linearly and contributes to a significant cost to the Australian healthcare system. In 2022, preventing KRT in 17.4 patients (0.06%) can equate to a saving of AUD1 million/year (USD0.7 million), further decreasing to 15.4 patients (0.05%) in 2026.

# PP90 Artificial Intelligence To Detect Ischemic Heart Disease In Non-traumatic Chest Pain At The Emergency Department – SmartHeart Study

Eunate Arana-arri (eunatea@outlook.es), Aitor García de Vicuña, Silvia Carbajo, Sara de Benito Sobrado, Magdalena Carreras, Irma Arrieta and Juan Carlos Bayon-Yusta

**Introduction:** An estimated 17.9 million people died from cardiovascular diseases (CVDs) in 2019, which is 32 percent of all global deaths and 85 percent were due to heart attack and stroke. Chest pain is one of the most common reasons for presenting to the emergency department (ED). It is increasingly recognized that artificial intelligence (AI) will have a significant impact on the practice of medicine in the near future and may help with diagnosis and risk stratification. We aim to estimate a diagnostic prediction of acute myocardial infarction by the development and validation of an AI model.
**Methods:** Data on 134 variables of 3,986 consecutive patients who presented to the ED with non-traumatic chest pain were included in the analysis. Using AI tools, a neural network model was developed to establish the risk of acute myocardial infarction (AMI) to achieve n=150 patients over 18 years of age attending the ED.
**Results:** The mean age was 65.5 (±13.7) years and 63.6 percent were male. Most (60.1%) patients were admitted to hospital, with only 20.3 percent diagnosed at hospital discharge with ischemic heart disease (IHD). All patients were followed up for two months, and 6.3 percent were readmitted to the ED, but none presented with an episode of IHD. In the data analysis of the entire sample we obtained a probability of diagnosing IHD by the SmartHeart model (S=93.1%, E=47.3%, PPV=31.0%, and NPV=96.4%). When we analyzed the sample of patients with no history of IHD (n=104), the diagnosis accuracy was as follows (S=100%, E=77.5%, PPV=42.8%, and NPV=100%).
**Conclusions:** Our AI model provides information to predict patients who are suffering from acute IHD. AI has been reported to outperform emergency physicians and current risk stratification tools to diagnose IHD, but has rarely been integrated into practice. This study highlights the diagnostic applicability and accuracy of this type of tool and that is why studies should be implemented to see its effectiveness in routine practice in EDs.

# PP93 Health Technology Assessments For Rare Diseases In Australia: A Case Study On Cystic Fibrosis

Himani Jaiswal (himani.jaiswal@evidera.com), Anna D'Ausilio and Matthew Bending

**Introduction:** Currently, no cure exists for the 1 in 2,500 Australian babies born with potentially fatal cystic fibrosis (CF). The authors conducted a health technology assessment (HTA) case study analysis of all regulatory approved CF treatments in Australia from January 1994 to July 2022. Submissions were also made under the Therapeutics Goods Administration and Pharmaceutical Benefits Advisory Committee (TGA-PBAC) parallel process.
**Methods:** Public summary and source materials were researched to understand relevant clinical and health economic evidence requirements, and access decisions from Australia's lead HTA body, PBAC.
**Results:** The review found that there are more than seven approved products in Australia. Of those, all four novel CF transmembrane conductance regulator (CFTR) modulating medications, which treat the underlying disease, received an orphan drug designation and were eventually listed. However, initial HTA decisions were mixed, with one recommended (25%), one not recommended (25%), and two deferred (50%). Clinical efficacy, cost-effectiveness, clinical need, as well as patient/carer-centric perspectives were most influential in HTA recommendations. Like other rare disease treatments, price, high incremental cost-effectiveness ratios (ICERs), uncertainty around cost-effectiveness and/or efficacy were key barriers to positive decisions. Notably, Australian stakeholders did not recommend CF medicines when their ICERs significantly exceeded a threshold of AUD200,000 (USD134,700) per quality-adjusted life year (QALY) gained. Administratively, Australia addresses risks associated with poor cost-effectiveness and high costs through managed access programs, risk-sharing agreements (RSA) and special pricing arrangements.
Recently approved elexacaftor-tezacaftor-ivacaftor would be inaccessible to many Australian patients without inclusion in the

https://doi.org/10.1017/S0266462323002192 Published online by Cambridge University Press

Pharmaceutical Benefits Scheme (PBS); this placement increases access by limiting patients' payments to AUD42.50 (USD28.62) maximum per prescription. Alternatively, manufacturers of therapies for other chronic or rare life-threatening conditions can participate in Australia's Highly Specialised Drugs Program and/or Life Saving Drugs Program to facilitate access.
**Conclusions:** Companies can accelerate and optimize market access by using the TGA-PBAC parallel process. Other Asia-Pacific countries can model components of Australia's approach to advancing access to innovative, live-saving therapies.

## PP94 Robotic-Assisted Thoracoscopic Surgery Versus Video-Assisted Thoracoscopic Surgery And Open Thoracotomy: A Systematic Review And Meta-Analysis

Jiyeon Lee (jiyeonlee9942@necare.kr) and Youjin Jung

**Introduction:** Robot-assisted surgery is one of the minimally invasive surgical approaches that has been increasingly utilized across a wide range of surgeries. However, there is limited evidence of robotic-assisted thoracic surgery (RATS) for patients with lung cancer. This study aims to evaluate the safety and effectiveness of RATS in lung cancer patients compared with video-assisted thoracoscopic surgery (VATS) and open thoracotomy.
**Methods:** A comprehensive search for studies that compared RATS versus VATS or open thoracotomy published until 12 April 2022, was conducted. Two review authors independently assessed studies for inclusion and risk of bias, and extracted data. We used results of reported perioperative outcomes, oncological outcomes, and survival outcomes. When more than two studies contributed data, meta-analyses were performed.
**Results:** Four randomized controlled trials (RCT) were included. Firstly, three RCTs comparing RATS with VATS were identified. Compared with the VATS group, the RATS group had significantly lower blood loss, more harvested lymph nodes and lymph node stations. However, there were no significant differences in operative time, transfusion rates, hospital stay, drainage duration, reoperation, readmission, postoperative pain, and postoperative complications. Survival outcomes were not reported. Secondly, one RCT comparing RATS with open thoracotomy was identified. Compared with open thoracotomy group, the RATS group had significantly lower blood loss, less postoperative pain, and shorter chest drainage duration. On the other hand, there were no significant differences in operative time, hospital stay, postoperative complications, number of harvested lymph nodes and lymph node stations, and survival outcomes (disease-free survival, overall survival).
**Conclusions:** Evidence on the effectiveness and safety of RATS compared with VATS or open thoracotomy for lung cancer is of low certainty, but we suggest that RATS is a feasible and safe alternative to conventional thoracic surgeries for lung cancer patients on the basis of current data. Additionally, more and better studies are required to provide evidence on the benefits and cost-effectiveness of RATS.

## PP96 Continuous Innovation In Neurostimulation Therapies For The Management Of Chronic Pain: Challenges For Health Technology Assessment Policy

Rashmi Joglekar (Rashmi.joglekar@medtronic.com) and Liesl Strachan

**Introduction:** Chronic pain is a debilitating condition with a high burden of disease. Neurostimulation therapy is an established modality for patients with chronic pain refractory to pharmacological based approaches and conservative interventional therapies. The therapy has evolved over the decades, based on improved understanding of the mechanisms of action, as well as technological advancement in device design.
Our objective is to conduct a review of the innovation in neurostimulation therapy for chronic pain, in the context of health technology assessment (HTA), and its implications on policies related to patient access.
**Methods:** A qualitative literature review was conducted to identify published HTAs, systematic reviews, clinical guidelines and other relevant articles and reports on neurostimulation therapies used in pain management. Searches were limited to the past 10 years to ensure that a contemporary analysis was conducted.
**Results:** Our review indicates that there has been continuous innovation in neurostimulation therapies for chronic pain. This includes improvements in battery longevity and reduced size, advances in the design of leads, the development of novel stimulation waveforms and personalized programming using sophisticated algorithms including sensing and feedback loops, and remote management to name a few. Clinical research has also enabled an expansion in the range of neural targets and indicated subpopulations. The literature shows that apart from reduction in pain, neurostimulation therapy facilitates improvements in the quality of life, and reduction in opioid dependence, carer burden and disability, which are outcomes important to patients as well as to society at large. Clinical guidelines are largely supportive of neurostimulation for the management of chronic refractory pain in carefully selected patients.
**Conclusions:** The range and complexity of neurostimulation devices and the variety of study designs presents a challenge for evidence synthesis. HTA bodies need to ensure that the methodologies for evaluating a heterogeneous therapy such as neurostimulation for pain management are robust, and that the policies for determining access to such innovative therapies are patient-centric and fit-for-purpose.

https://doi.org/10.1017/S0266462323002192 Published online by Cambridge University Press