Technoleg Iechyd Cymru
Health Technology Wales

Topic Exploration Report

Topic explorations are designed to provide a high-level briefing on new topics submitted for consideration by Health Technology Wales. The main objectives of this report are to:

1. Determine the quantity and quality of evidence available for a technology of interest.
2. Identify any gaps in the evidence/ongoing evidence collection.
3. Inform decisions on topics that warrant fuller assessment by Health Technology Wales.

Topic:	Transcatheter aortic valve implantation (TAVI) for the treatment of patients with severe symptomatic aortic stenosis who are at intermediate surgical risk
Topic exploration report number:	TER178

Introduction and aims

For patients with severe symptomatic aortic stenosis (AS), surgical aortic valve replacement (SAVR) is the reference treatment where surgical risk is low. For those assessed by a heart team as being at increased surgical risk, transcatheter aortic valve implantation (TAVI) is an alternative procedure.

Health Technology Wales researchers searched for evidence on the use of TAVI as an intervention for people with severe symptomatic aortic stenosis who are assessed by a heart team as being operable but at intermediate surgical risk.

Summary of findings

We identified recent technology assessments and economic evaluations from the Scottish Health Technologies Group and the Health Information and Quality Authority that cover this topic. Systematic reviews and other economic evaluations also exist, but further scrutiny of these is needed to determine whether they match the decision problem of interest here.

Evidence

Technology assessments

The Scottish Health Technologies Group appraised TAVI for the population of interest in 2019. Clinical effectiveness evidence was adapted from a 2018 EUNetHTA assessment. Cost effectiveness data from five economic evaluations was also considered.

The Health Information and Quality Authority have recently issued advice on the use of TAVI as an intervention for people with aortic stenosis who have a low or intermediate surgical risk profile. This assessment includes a systematic review of clinical effectiveness evidence and an

economic model developed to estimate the cost effectiveness and budget impact of TAVI in the Irish health system.

Other secondary evidence

Because recent health technology assessments already exist, we only searched for other systematic reviews published in the last 12 months. We identified one Cochrane Review of TAVI but this focusses on people with low surgical risk and may therefore not be of relevance. We also identified a systematic review that assessed the comparative risk of infective endocarditis after TAVI or SAVR. This include people of any surgical risk profile but carried out a subgroup analysis on people at intermediate risk.

We also identified a cost-effectiveness analysis of TAVI compared with surgery in intermediate-risk patients, conducted from the perspective of the French healthcare system.

Areas of uncertainty

It is unclear whether some of the sources match the exact decision problem of interest: specifically, some sources include populations other than intermediate risk.

It is assumed that the most appropriate comparator intervention would be surgical aortic valve replacement, but this needs clarification from experts in this clinical area.

Conclusions

The clinical and cost effectiveness of TAVI for use in the target population has been assessed in recent technology assessments that could be adapted for the purposes of decision making in NHS Wales. Further exploration of this topic is warranted.

Brief literature search results

Resource	Results
HTA organisations	
Healthcare Improvement Scotland	Advice Statement 04-19 and Evidence Note 91. Transcatheter aortic valve implantation (TAVI) for the treatment of patients with severe symptomatic aortic stenosis who are at intermediate surgical risk. April 2019. http://www.healthcareimprovementscotland.org/our_work/technologies_and_medicines/topics_assessed/shtg_04-19.aspx
Health Technology Assessment Group	We did not identify any relevant guidance from this source.
Health Information and Quality Authority	HTA of transcatheter aortic valve implantation (TAVI). December 2019. https://www.hiqa.ie/reports-and-publications/health-technology-assessment/hta-transcatheter-aortic-valve-implantation
UK guidelines and guidance	
SIGN	We did not identify any relevant guidelines from this source.
NICE	Interventional procedures guidance [IPG586]. Transcatheter aortic valve implantation for aortic stenosis. July 2017. https://www.nice.org.uk/guidance/ipg586 Clinical guideline [CG187]. Acute heart failure: diagnosis and management. October 2014. https://www.nice.org.uk/guidance/cg187/chapter/1-Recommendations *Includes the following recommendation on TAVI (1.6.2): Consider transcatheter aortic valve implantation (TAVI) in selected people [as detailed in IPG586], with heart failure caused by severe aortic stenosis, who are assessed as unsuitable for surgical aortic valve replacement. Details of all people undergoing TAVI should be entered into the UK Central Cardiac Audit database.*
Secondary literature and economic evaluations	
EUnetHTA	Collaborative Assessment OTCA06: Transcatheter aortic valve implantation (TAVI) in patients at intermediate surgical risk. December 2018. https://eunethta.eu/the-collaborative-assessment-otca06-on-transcatheter-aortic-valve-implantation-tavi-in-patients-at-intermediate-surgical-risk-is-now-available/
Cochrane library	Kolkailah AA, Doukky R, Pelletier MP, Volgman AS, Kaneko T, Nabhan AF. Transcatheter aortic valve implantation versus surgical aortic valve replacement for severe aortic stenosis in people with low surgical risk. Cochrane Database of Systematic Reviews 2019, Issue 12. Art. No.: CD013319. DOI: 10.1002/14651858.CD013319.pub2.
Medline	Goodall G, Lamotte M, Ramos M, Maunoury F, Pejchalova B, de Pouvourville G. Cost-effectiveness analysis of the SAPIEN 3 TAVI valve compared with surgery in intermediate-risk patients. J Med Econ. 2019 Apr;22(4):289-296. doi: 10.1080/13696998.2018.1559600. Epub 2019 Feb 11. PMID: 30547704. Ando T, Ashraf S, Villablanca PA, Telila TA, Takagi H, Grines CL, Afonso L, Briasoulis A. Meta-Analysis Comparing the Incidence of Infective Endocarditis Following Transcatheter Aortic Valve Implantation Versus Surgical Aortic Valve Replacement. Am J Cardiol. 2019 Mar 1;123(5):827-832. doi:10.1016/j.amjcard.2018.11.031. Epub 2018 Dec 3. PMID: 30545481.

	Witberg G, Landes U, Lador A, Yahav D, Kornowski R. Meta-analysis of transcatheter aortic valve implantation versus surgical aortic valve replacement in patients at low surgical risk. EuroIntervention. 2019 Dec 20;15(12):e1047-e1056. doi: 10.4244/EIJ-D-19-00663. PMID: 31566571.

Date of search:	January 2020
Concepts used:	TAVI (and synonyms); intermediate risk, stenosis