

# Long-term Survival and Valve Durability in Patients Undergoing Transcatheter Aortic Valve Implantation



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## Introduction

Recent randomised trials have shown non-inferiority and even superiority of transcatheter aortic valve implantation (TAVI) versus surgical aortic valve replacement with regards to complications and mortality in younger, low-risk patients. Consequently, valve durability has become an important issue.

## Aim

This analysis aims to identify the incidence of long-term valve durability of TAVI since commencement in Australia in 2008.

## Methodology

Between 2008 and 2017, patients who underwent TAVI at Epworth and Alfred hospitals were prospectively included in a registry. Ethics approval for this study was gained from Epworth and Alfred hospital research and ethics committee with patient informed consent. Outcomes were based on VARC-2 criteria and recently published definition for structural valve degeneration (SVD):

- SVD stage 2S (mean pressure gradient (MPG)  $\geq 20$  mmHg and  $< 40$  mmHg and increase of MPG  $> 10$  mmHg from baseline).
- Stage 2R (new moderate intraprosthetic aortic regurgitation (AR)).
- Stage 2RS (combination of 2S and 2R).
- Stage 3 (MPG  $\geq 40$  mmHg or severe intraprosthetic AR).

Patients were followed up yearly with clinical and echocardiographic assessment.

## Results

Table 1 - baseline criteria	
Patients, n=656	
Mean Age (years)	84.2
Sex (Females), n (%)	319 (48%)
Mean STS score	4.9

### References

Popma, J. J et al, (2019). *Transcatheter Aortic Valve replacement with a self expanding valve in low risk patients*. NEJM  
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Dr. Dvir et al,(2018). *Standardized Definition of Structural Valve Degeneration for Surgical and Transcatheter Bioprosthetic Aortic Valves*. Circulation  
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## Results

Table 2 - outcomes	
In-hospital mortality, n (%)	8 (1.2%)
Paravalvular aortic regurgitation >moderate at discharge, n (%)	42(6.4%)
Major cardiovascular events, n (%)	16(2.5%)
Need for permanent pacemaker insertion, n (%)	223(34%)
Femoral access site complication, n (%)	43(6.5%)

Median survival in those patients followed up >5years was 5.4 years.

Table 3 - structural valve degeneration	
SVD >1, n (%)	10 (1.5%)
SVD 2S, n (%)	5 (0.8%)
SVD 2R, n (%)	2 (0.3%)
SVD 2SR, n (%)	1 (0.2%)
SVD 3, n (%)	2 (0.3%)

7 patients showed MPG  $> 20$ mmHg but did not fulfil the SVD (did not show an increase in MPG of  $> 10$ mmHg)  
No patients underwent re-intervention due to SVD

## Conclusions

Performance of TAVI in a large Victorian TAVI program over ten years shows excellent short- and long-term outcomes with no events of SVD requiring re-intervention. However, median survival in those patients followed up >5years was only 5.4 years and only 2 patients reached 10 year of follow up. Hence, further investigations with younger patients and a therefore longer life-expectancy are required to adequately assess long-term valve durability for TAVI.