**Abstract number:** Euro19A-POS532
**Abstract type:** Poster
**Reference:** This abstract was presented at EuroPCR 2019, 20-24 May 2019, Paris
**Link:** https://abstractbook.pcronline.com/export/pdf/id/130675
**Published on:** 3 May 2019

# Cost-effectiveness of TAVI in patients at intermediate surgical risk: a model-based analysis based on the SURTAVI trial using contemporary cost data

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**THEME:** Interventions for Valvular Disease
**TOPIC(S):** TAVI

**AIMS**
Clinical non-inferiority between transcatheter aortic valve implantation (TAVI) and surgical aortic valve replacement (SAVR) has previously been demonstrated in patients with severe aortic stenosis at intermediate surgical risk. While the cost-effectiveness of TAVI has been studied in other - typically high or extreme risk - cohorts, additional data about the health-economics of TAVI in intermediate risk patients are desirable.

**METHODS AND RESULTS**
Mortality, clinical event rates, and rehabilitation resource utilization were derived from the SURTAVI trial (N=864 TAVI and N=796 SAVR patients with an STS PROM score of 4.5±1.6%). The patients' mean age was 79.8±6.2 years. Cost data for the index procedure and adverse events were based on an analysis of real-world data for TAVI and SAVR procedures from the US Medicare population in 2017 (Medpar inpatient dataset, N=38,120 TAVI and N=40,046 SAVR patients), with reported charges adjusted to cost using site-specific cost-to-charge ratios. Rehabilitation and long-term follow-up costs were derived from Medicare fee schedules as a proxy for true cost and data from the published literature. All costs were inflated to 2018 costs using the medical consumer price index.Costs and effectiveness as quality-adjusted life years (QALYs) were projected to lifetime via a decision-analytic model calibrated to 24-month incidences of all-cause mortality and stroke from the SURTAVI trial. Several scenarios were considered where after either 24-month data or an assumed catch up of mortality at 48 months, relative mortality risks were maintained, or would gradually fade out over time. The discounted incremental cost-effectiveness ratio (ICER) was compared to a willingness-to-pay (WTP) threshold of $150,000 per QALY gained, as per the American Heart Association/American College of Cardiology guidelines.Index hospitalization costs were slightly lower for TAVI than SAVR ($57,782 vs. $59,899: difference: -$2,118). When considering rehabilitation (mean of 1.30 and 4.30 days for TAVI and SAVR, respectively), TAVI resulted in lower costs at the 30-day follow-up ($59,794 vs. $66,287; difference: -$6,493). Lower TAVI cost were maintained through lifetime. Depending on the long-term mortality scenario used, TAVI, compared to SAVR, either gained or lost a small amount of QALYs.

**CONCLUSIONS**
TAVI in intermediate risk patients was found to be associated with lower cost compared to SAVR based on contemporary cost and resource utilization data from the United States. Follow-up analyses considering longer-term survival data would be desirable to further corroborate long-term cost-effectiveness.

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