

How Soon Is Too Soon? A Quality Improvement Approach to Postoperative Length of Stay Following Transcatheter Aortic Valve Replacement

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BACKGROUND

- Heart valve disease is related to aging and is expected to double by 2040 and triple by 2060.²³
- Calcific aortic stenosis is the most common valvular disorder, impacting ~ 3.4% of those aged ≥ 75 years.²¹⁻²²
- Symptoms related to aortic stenosis are a significant cause of heart failure hospital admissions and high one-year mortality if untreated.²²
- Three treatment options for aortic stenosis include valvular surveillance for less severe cases and surgical or transcatheter aortic valve replacement for more severe cases.
- TAVR has been the most common procedural treatment method since 2016.^{21, 24}
- Rapid expansion of TAVR has led to bed capacity issues and there is no recommended postoperative length of stay following TAVR.^{3, 9}

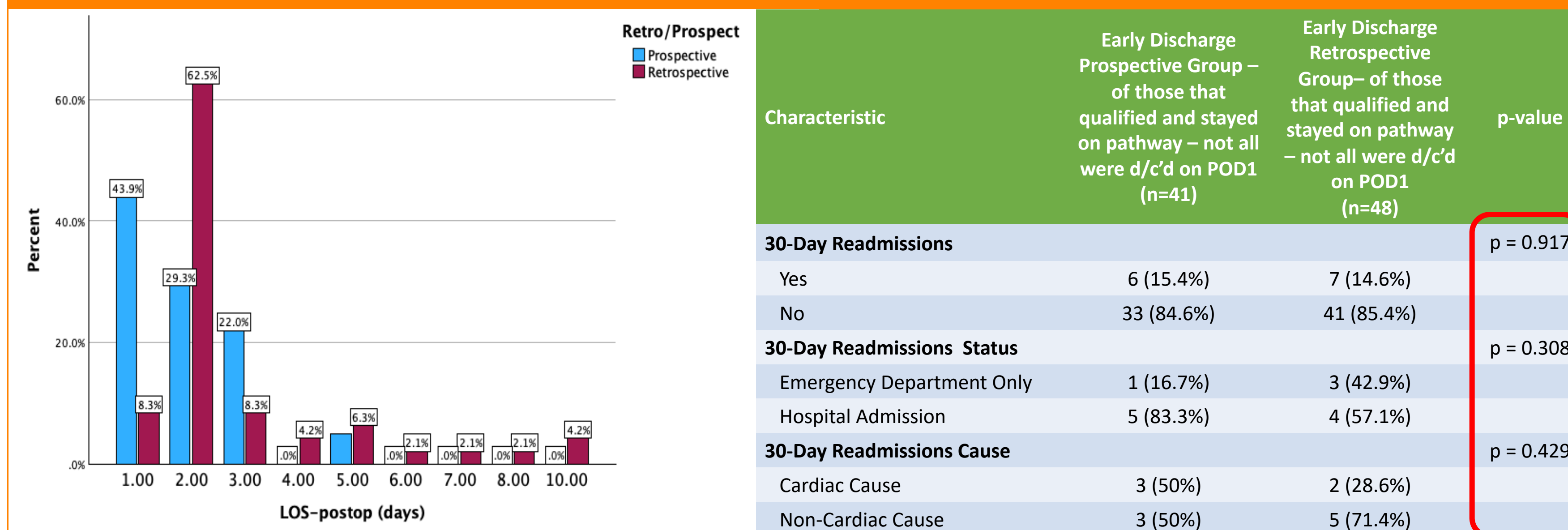
LOCAL PROBLEM

- The site for this quality improvement project is a 1,100-bed, not-for-profit, academic medical center in southeastern Pennsylvania, with annual gross patient revenue exceeding \$19.4 billion.²
- TAVR has been a treatment option at the site since 2007 with an average annual volume of 400 cases.²⁴
- The median length of stay following TAVR was 2 days, twice the median length of stay of national benchmarked data.²⁴
- This quality improvement project aimed to implement a next-day discharge protocol.
- The aims of the project were:
 - Decrease the hospital length of stay following TAVR.
 - Increase the percentage of patients discharged on postoperative day one following TAVR.

METHODS

- The Model for Improvement model was selected to produce specific, measurable results.^{6,14}
- Literature search and critical appraisal revealed evidence that strategies to implement same-day or next-day discharge could lead to safe and cost-efficient outcomes.^{3,5,9,15,16,26}
- Outcome measures of next-day discharge screening, patient education for the inclusion cohort, and pathway continuity documentation were assessed with PDSA (Plan-Do-Study-Act) Cycles.
- The 9-week prospective implementation period of a next-day discharge was compared to a similar retrospective cohort.
- Balancing measures included 30-day readmissions, patient satisfaction, and financial analysis.

Patients undergoing elective TAVR had a ***significant increase in a next-day discharge*** after the implementation of a next-day screening tool.



Characteristic	Early Discharge Prospective Inclusion Group (n=41)	Early Discharge Retrospective Inclusion Group (n=48)	p-value
Early Discharge Inclusions discharged on POD 1			
Early Discharge discharged on POD 1	43.9%	8.3%	< 0.001

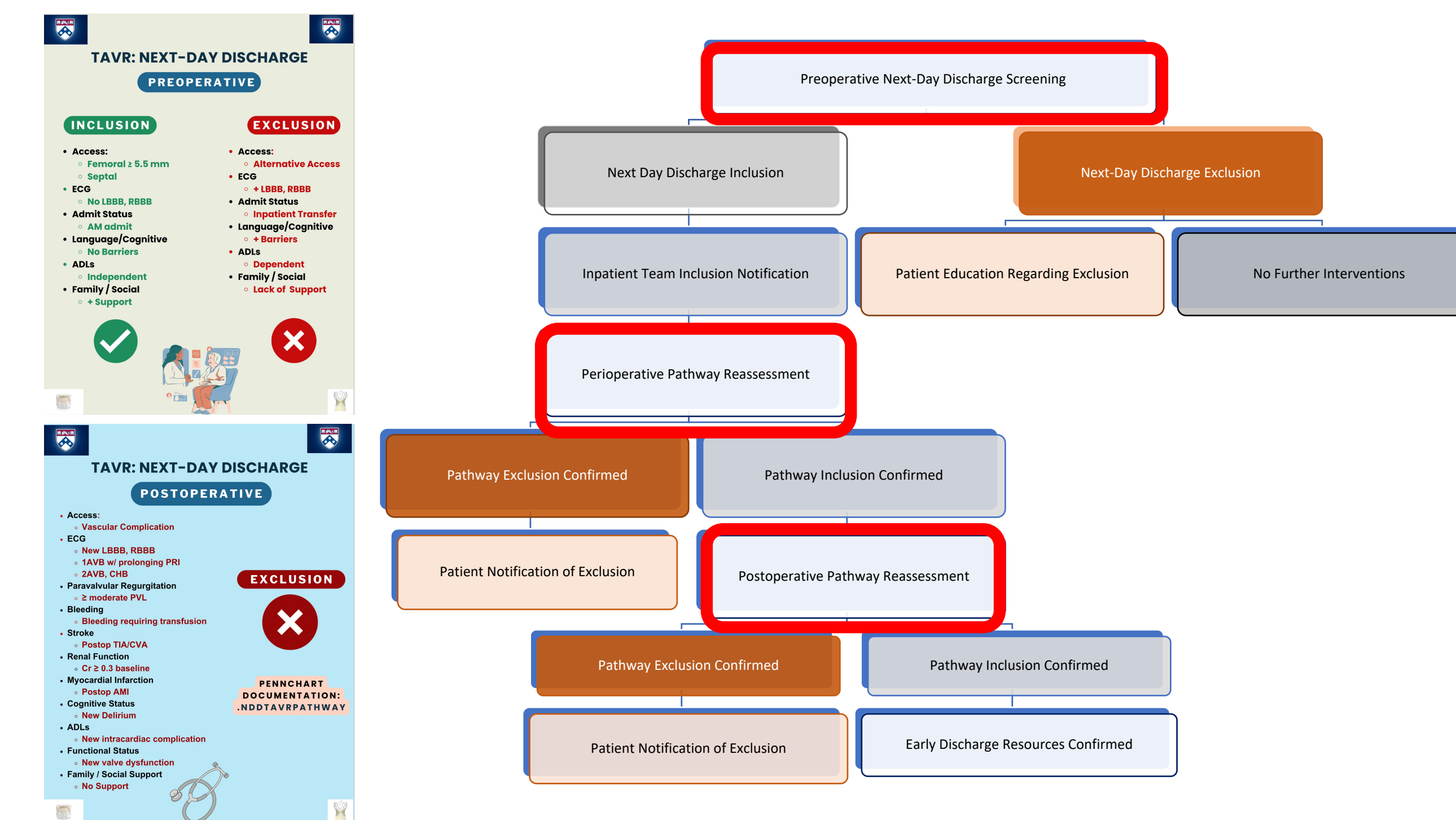
Patient Satisfaction Survey Results



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Scan for executive summary, presentation, and reference list.

INTERVENTIONS

- All patients that were consented for elective TAVR were screened with a next-day discharge screening tool.
- Next-day discharge patient education was provided to those meeting all inclusion criteria.
- Pathway continuity was documented throughout the hospital stay.
- Post-TAVR discharge hospitalizations, patient satisfaction, and financial impact was collected one month post procedure.



RESULTS

- 48% of the prospective cohort met next-day discharge inclusion criteria.
 - Of those, 43.9% were discharged on postoperative day one.
- 59% of the retrospective cohort met next-day discharge inclusion criteria
 - Of those, 8.3% were discharged on postoperative day one.
- No statistical differences in 30-day readmissions.
- Patient satisfaction was high with next-day discharge.

CONCLUSIONS

- Use of a next-day discharge screening tool resulted in a statistically significant increase in postoperative day one discharges following TAVR.
- Early discharge maintained high patient satisfaction and did not result in increased 30-day readmissions
- Early discharge practice in the appropriate TAVR population decreases bed capacity issues, increases patient access, and has a positive impact on gross patient revenue.