

## Peer Review File

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### Reviewer A

*Comment 1:* I find your paper well structured, even if the subject is not so “appealing”, as concerning the boring ICD 9 system. I think that only English revision should be provided.

*Reply 1:* Thank you for your review. We agree that there are limitations in the utilization of administrative datasets. However, these limitations are weighed with the strengths of larger numbers and real-world data.

*Changes in the text:* None

### Reviewer B

*Comment 1:* The choice of TAVR is actually mainly driven by national guidelines. This study analyzed data before 2020 American guidelines, therefore, no wonder the proportion of patients undergoing TAVR was small and in those who undergone SAVR, 32.9% of them were patients  $\geq 65$ .

*Reply 1:* Thank you for this comment. These data predominantly capture a time period early in the use of TAVR in the BAV population and do not capture 2020 and onward. It will remain important to continue to evaluate real world data for outcomes as guidelines change, indications expand and new devices enter use.

*Changes in the text:* Added a statement acknowledging the epoch evaluated in these data in the discussion on page 11.

*Comment 2:* Given the progressive expansion of TAVR toward younger and lower risk patients, heart team are encountering BAV patients more frequently, while the ability of this therapy to treat such a challenging anatomy remains uncertain. In this analysis, the TAVR outcomes were just unsatisfactory, included a relatively high rates of in-hospital mortality and needing of permanent pacemaker implantation. These makes the less invasive procedure with rapid recovery and shorter LOS less attractive. What were the underlying causes of the unfavorable outcomes of TAVR in Texas, e.g., TAVR performed in high-risk patients, use of early-generation valves, or learning curves of the heart teams? These should be clarified.

*Reply 2:* Thank you for this comment. These data do not allow for detail as to learning curves or devices utilized. However, it is likely that the outcomes are a combination of all three components.

*Changes in the text:* Added a statement acknowledging the epoch evaluated in these data in the discussion on page 11.

*Comment 3:* The comparison among different AVI in the present study was not fair. Patients undergone Ross procedure are more likely have a concomitant CHD diagnosis, those who undergone AV repair were more likely to have a concomitant diagnosis of thoracic aortic dilatation. So those patients seemed “have to” undergo

those procedures (and maybe some other procedures in one session), instead of isolated SAVR or TAVR. This should be addressed, too.

*Reply 3:* Thank you for this important comment. Unfortunately, this dataset does not afford the ability to determine indications for intervention or which interventions patients are offered/eligible. However, the multivariable analysis attempts to account for patient specific differences between intervention types.

*Changes in the text:* Added a statement acknowledging these limitations in the limitations section on page 12.

### **Reviewer C**

*Comment 1:* Spelling error in page 3 line 82 – Procedure

*Reply 1:* Thank you for this comment. Error has been corrected.

*Changes in the text:* Spelling error corrected on page 3

*Comment 2:* This is a purely descriptive analysis from a mega database without any long term follow up. Therefore long term morbidity and mortality of these patients are unknown.

*Reply 2:* Thank you for this comment. Unfortunately, this dataset does not contain longitudinal data and as it is de-identified, does not afford the opportunity to link to other datasets to assess longitudinal outcomes. Long-term outcomes, in particular, intervention durability are important for future research inquiries.

*Changes in the text:* No change

*Comment 3:* There is lack of medication lists as well as imaging data (CT, echo etc) to support the relevance of the conclusion of the study, maybe it is impossible to obtain those data

*Reply 3:* Thank you for this comment. Unfortunately, this dataset does not contain medications administered and imaging documentation is unreliable and does not contain results of imaging studies even if they are present. As noted in the limitations, granular patient data is lacking in this administrative dataset.

*Changes in the text:* No change