

## Background:

- Degenerative mitral valve disease has an increased prevalence in older populations
- Robotic-assisted mitral valve repair (rMVRep) is increasingly utilized for repairs with lower morbidity compared to sternotomy with similar outcomes
- Early reports demonstrate safety in older populations but outcomes or utilization of rMVRep in septuagenarians and octogenarians remains limited due to concerns for longer bypass or cross-clamp times
- This study evaluates peri-operative and short-term outcomes in patients aged  $\geq 70$  compared to younger cohorts

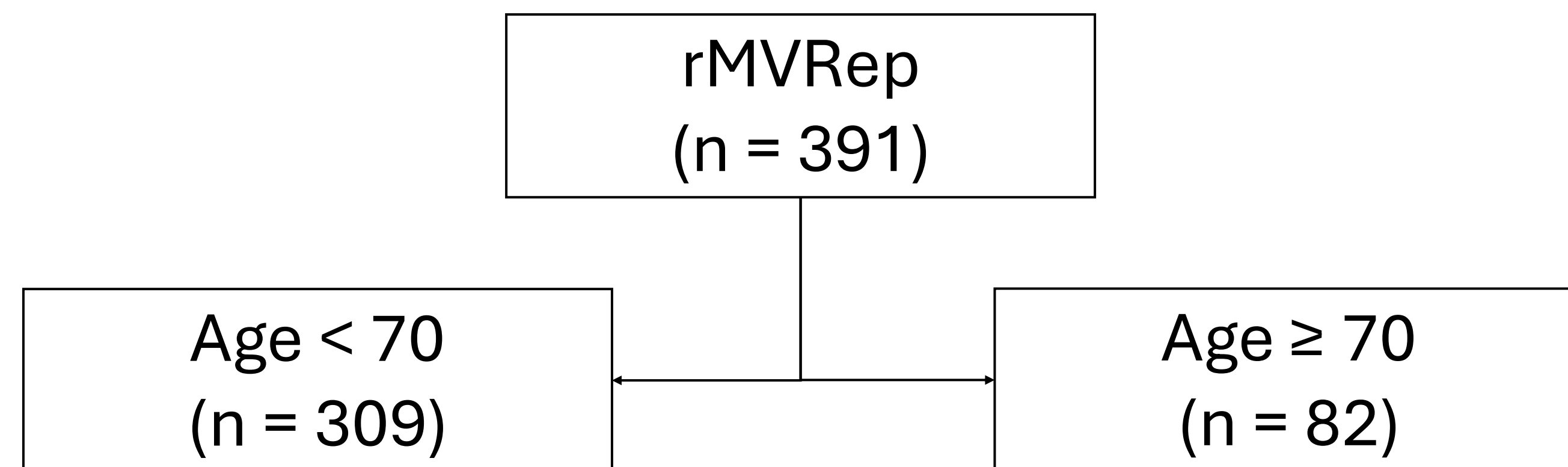


Figure 1. Flowchart demonstrating total study population and stratified by age cohort

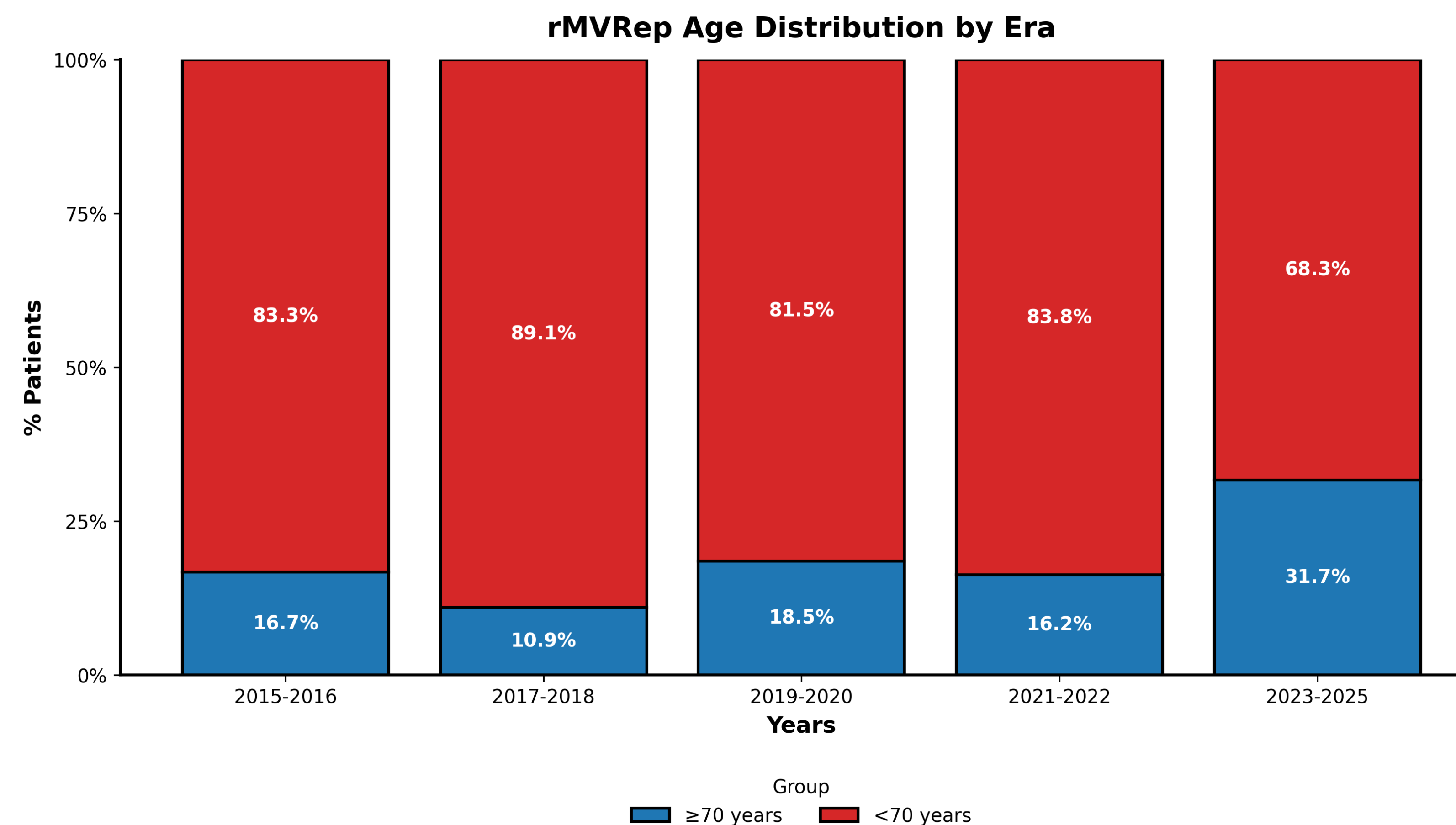
## Methods:

- Single-center retrospective review of consecutive patients who underwent rMVRep for degenerative mitral valve disease between 2015-2025
- Data obtained from STS database and electronic medical record
- Primary outcome was 30-day mortality
- Secondary outcomes include post-operative morbidity and 30-day re-admission

## Results:

| Variable                               | <70 Age<br>(n = 309) | ≥70 Age<br>(n = 82) | p-value |
|----------------------------------------|----------------------|---------------------|---------|
| Age (mean ± SD)                        | 57.7 ± 9.9           | 74.9 ± 3.9          | —       |
| Male (n, %)                            | 221 (71.5)           | 53 (64.6)           | 0.23    |
| BMI (kg/m <sup>2</sup> )               | 26.6 ± 3.9           | 25.6 ± 4.1          | <0.001  |
| CCI (median, IQR)                      | 3 (2-5)              | 5 (3.5-7)           | <0.001  |
| STS-Predicted Mortality (% range)      | 0.49 (0.09-3.65)     | 1.28 (0.38-3.83)    | <0.001  |
| Case urgency (n, %)                    |                      |                     | 0.38    |
| Elective                               | 300 (97.1)           | 78 (95.1)           |         |
| Urgent                                 | 9 (2.9)              | 4 (4.9)             |         |
| Cardiopulmonary bypass time (mean, SD) | 181 ± 68             | 167 ± 61            | 0.08    |

Table 1. Demographic comparison between cohorts. BMI: Body mass index. CCI: Charlson Comorbidity index. STS: Society of Thoracic Surgeons



Graph 1. Distribution of rMVRep by age cohort over the study period

| Variable                                | <70 Age<br>(n = 309) | ≥70 Age<br>(n = 82) | p-value |
|-----------------------------------------|----------------------|---------------------|---------|
| Mortality, 30-day (n, %)                | 0 (0.0)              | 1 (1.2)             | 0.21    |
| Stroke (n, %)                           | 4 (1.3)              | 2 (2.4)             | 0.62    |
| Renal failure requiring dialysis (n, %) | 2 (0.6)              | 1 (1.2)             | 0.51    |
| Post-op AFib (n, %)                     | 49 (16.2)            | 30 (36.9)           | <0.001  |
| Pneumonia (n, %)                        | 2 (0.6)              | 0 (0)               | 1.0     |
| Myocardial infarction (n, %)            | 2 (0.6)              | 2 (2.4)             | 0.18    |
| Sepsis (n, %)                           | 3 (1.0)              | 0 (0)               | 1.0     |
| Conversion to sternotomy (n, %)         | 0 (0.0)              | 0 (0.0)             | 1.0     |
| Ejection fraction (% SD)                |                      |                     | <0.001  |
| Pre-operative                           | 57 ± 7               | 61 ± 7              |         |
| Post-operative                          | 52 ± 8               | 52 ± 10             |         |
| Change in EF                            | -5.0                 | -8.8                |         |
| Rate of MR mild or less on (n, %)       |                      |                     |         |
| Initial post-op ECHO                    | 280 (92.4)           | 76 (92.7)           | 1.00    |
| Most recent ECHO                        | 274 (90.7)           | 70 (85.4)           | 0.34    |
| ECHO follow-up (months)                 | 37.6                 | 26.5                | 0.34    |
| Length of stay (days, IQR)              | 5 [4-6]              | 5 [5-6]             | 0.002   |
| 30-day re-admission rate (n, %)         | 11 (3.6)             | 9 (10.7)            | 0.02    |

Table 2. Intraoperative and postoperative characteristics between cohorts

## Conclusion:

- rMVRep in patients  $\geq 70$  showed comparable 30-day mortality, major complication rate, and success of repair as compared to younger patients, despite greater STS predicted mortality rates.