

Impact of a Multidisciplinary Quality Framework on Outcomes in Robotic Cardiac Surgery: A Two-Year Experience

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Objective

- Evaluate the impact of **structured, multidisciplinary quality framework** on clinical outcomes and program growth following implementation of a robotic cardiac surgery program.

Methods

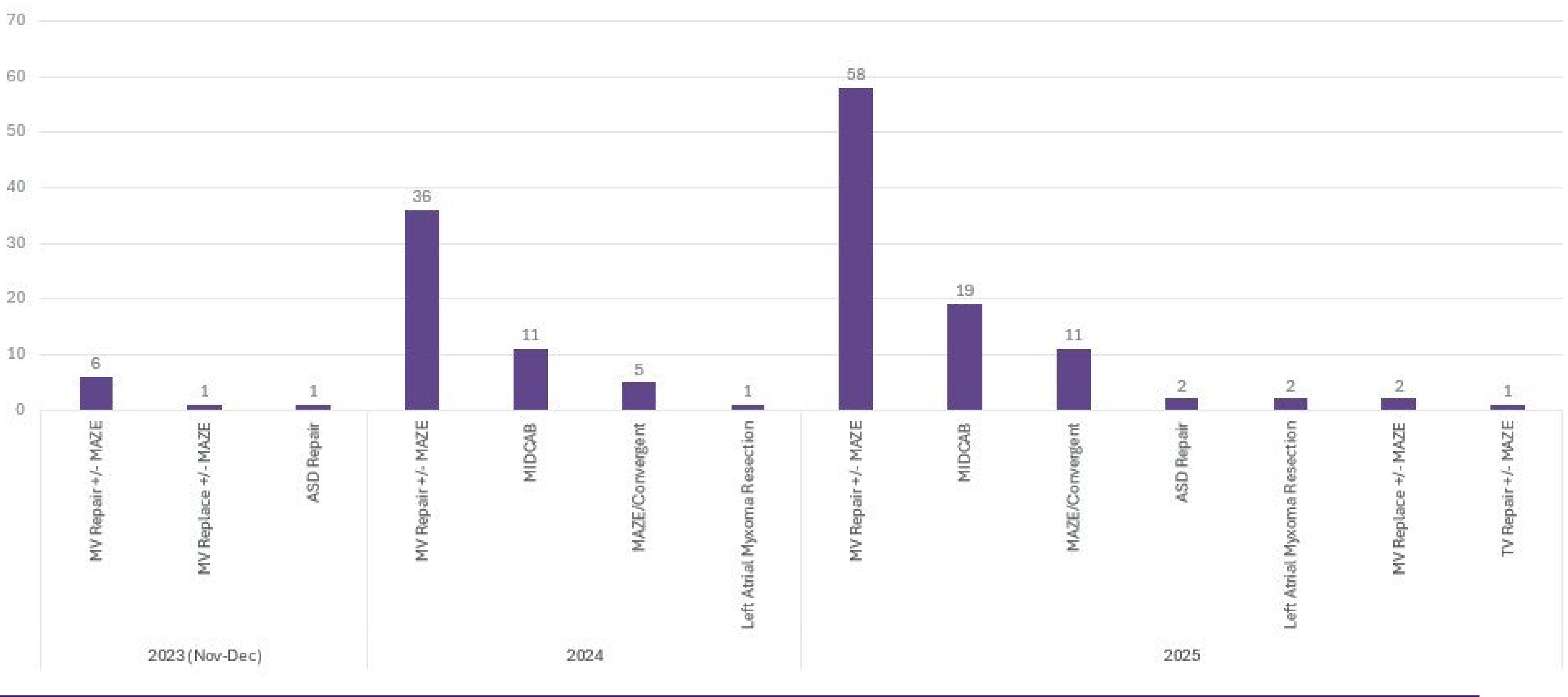
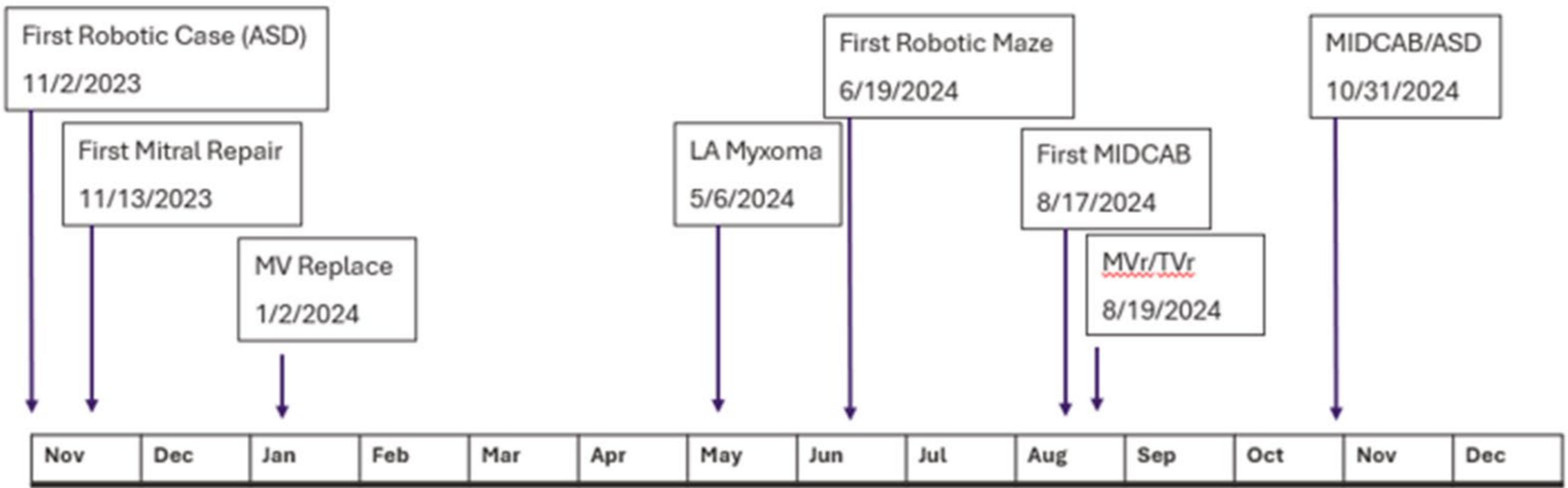
Robotics Debrief Committee

- A working group comprised of surgeons, anesthesia, OR nursing, perfusion, operation and quality leadership was formed.
- A case review template was created and used to review all robotic surgery cases
- A detailed tracking sheet of all robotic cases was established to track outcome metrics
- Close communication with STS ACS data abstractors allowed for near real time outcome tracking and complication identification
- The monthly meeting was held in person with a remote option to promote attendance
- Detailed case discussion included:
 - Scheduling barriers
 - OR processes
 - Post-operative care
 - Outcome metrics

Results

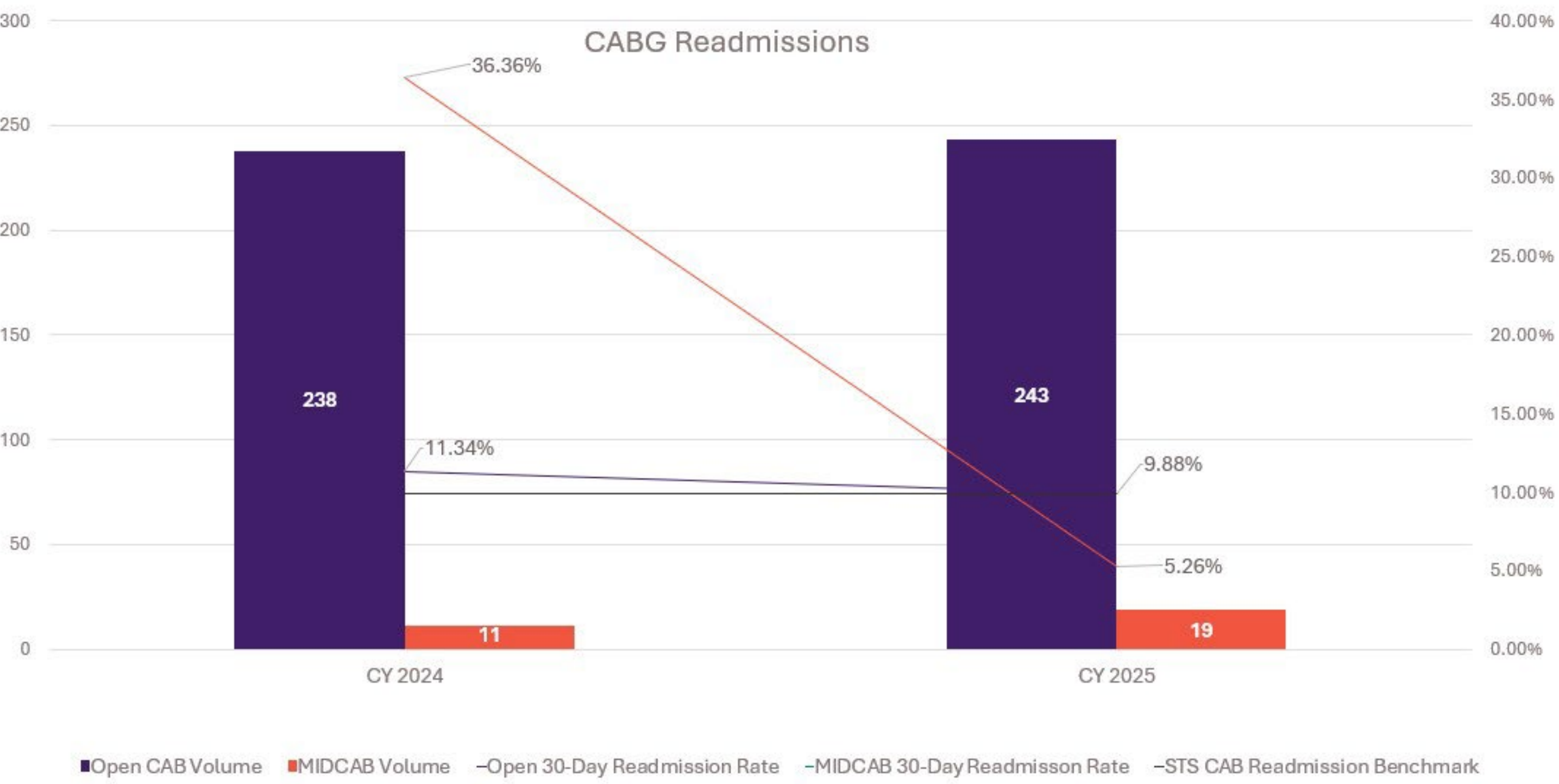
From November 2023 to November 2025, 156 patients underwent robotic cardiac procedures, including mitral valve repair/replacement, standalone MAZE/epicardial ablation, and minimally invasive direct coronary bypass (MIDCAB).

Programmatic Growth



Outcomes

Outcome Metric	2023 (n=8)	2024 (n=53)	2025 (n=87)
Multiple Cross Clamps	37.50%	3.70%	4.60%
Approach Converted	12.50%	1.90%	1.20%
Infection	12.50%	1.90%	0.00%
Post-Operative Bleeding	0.00%	3.80%	1.20%
Return to OR	12.50%	3.80%	2.30%
Post Procedure LOS (Avg)	5.0	5.0	5.1
30-Day Readmission	12.50%	11.30%	5.80%
30-Day Mortality	0.00%	0.00%	0.00%



CABG Readmission Interventions

- Post-operative pain management was identified as a key factor
- Cryo Nerve Block Therapy was identified as an intraoperative solution for pain management

Conclusion

Key Takeaways

- Monthly outcome reviews and structured debriefs have led to measurable improvements in key quality metrics, particularly 30-day readmissions.
- Expeditious review and improvements resulted in a reduction of MIDCAB 30-Day readmissions from 36% to 5%
- The integration of a multidisciplinary quality framework has proven essential in driving continuous improvement in this evolving robotic cardiac surgery program.

Sustainable Improvements

- Ongoing quarterly Robotic Debrief meetings
- Monthly outcomes collated and sent to the Surgical Director of Minimally Invasive and Robotic Cardiac Surgery
- An Enhanced Recovery After Surgery protocol is being developed to further enhance outcomes and length of stay

Limitations

- Single center quality improvement project.
- Small initial n size in robotic surgery volumes