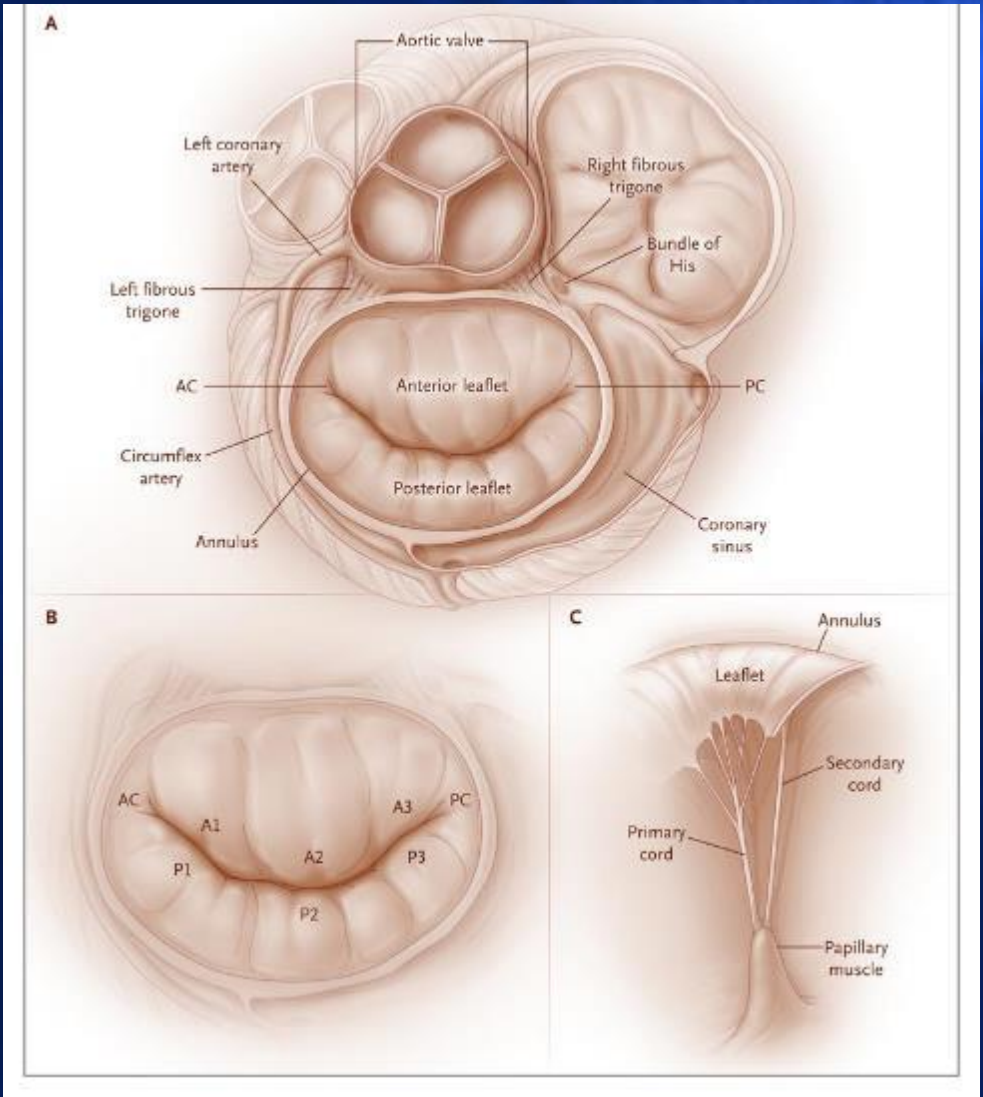
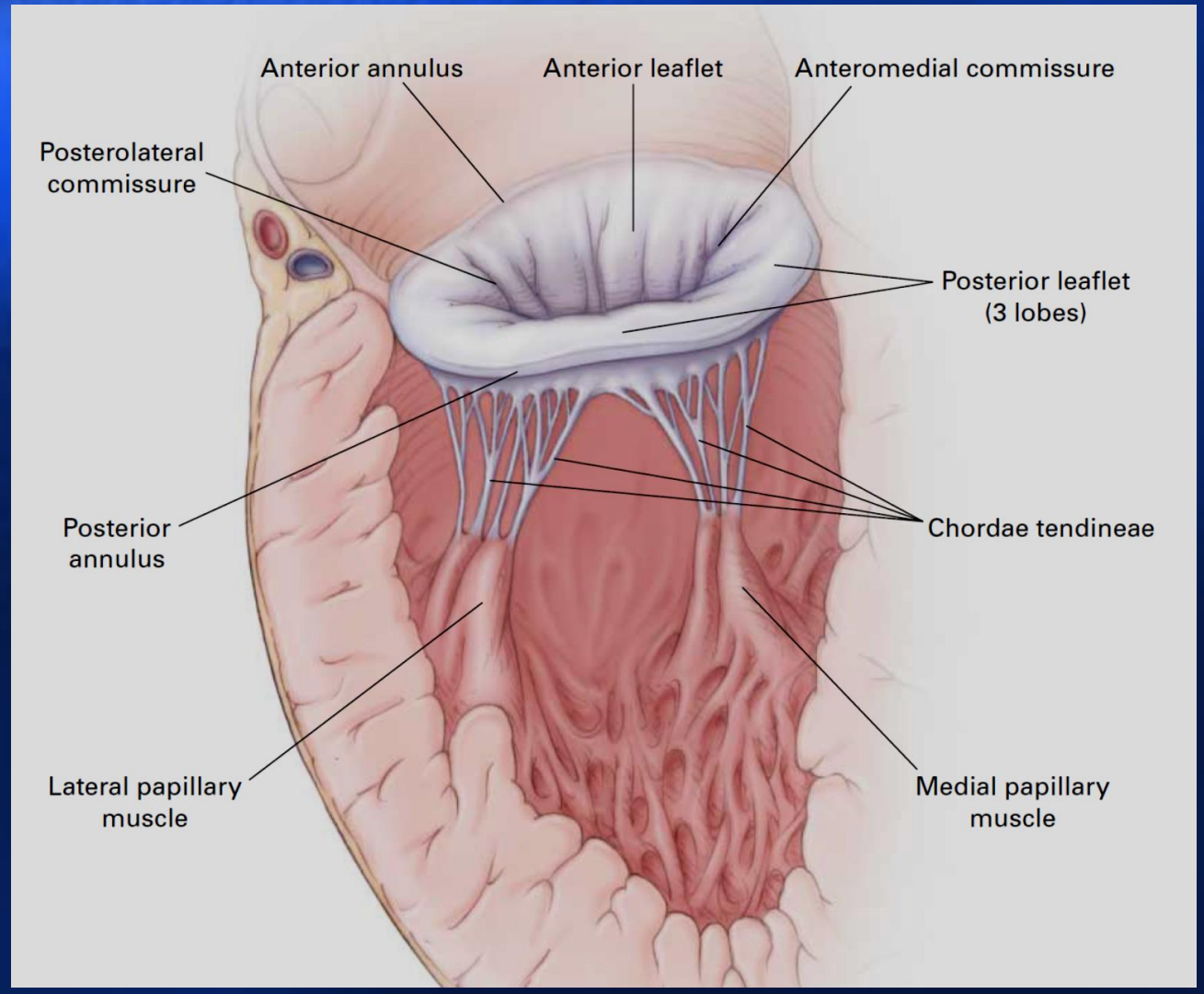
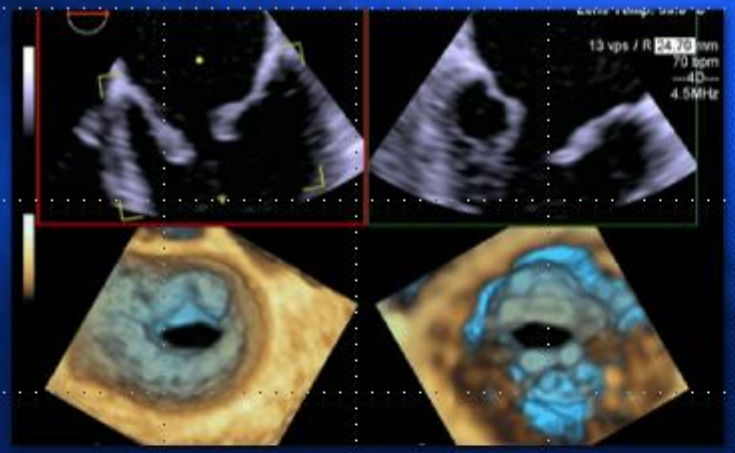
Mitral Valve Disease





Primary Mitral Valve Disease

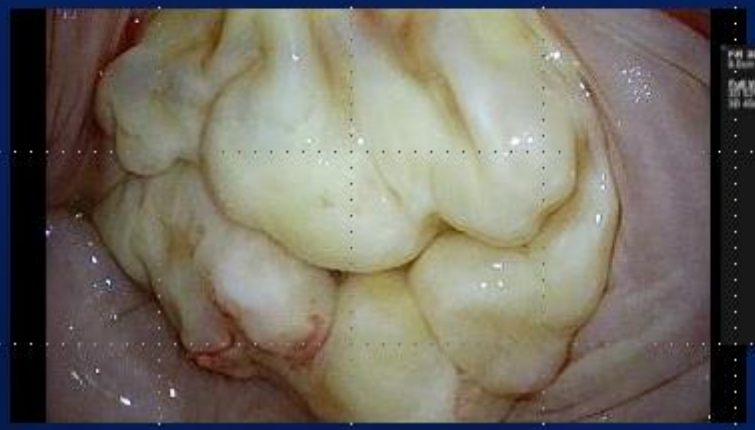
Rheumatic MS



MAC

SBE

Barlows

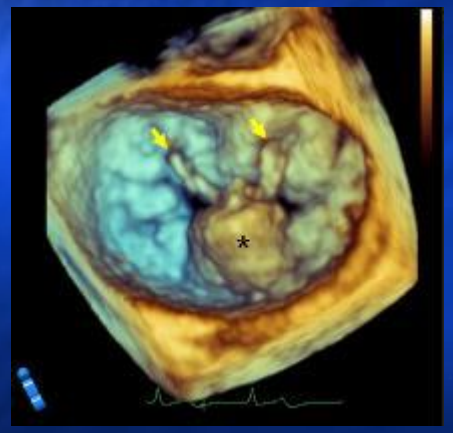


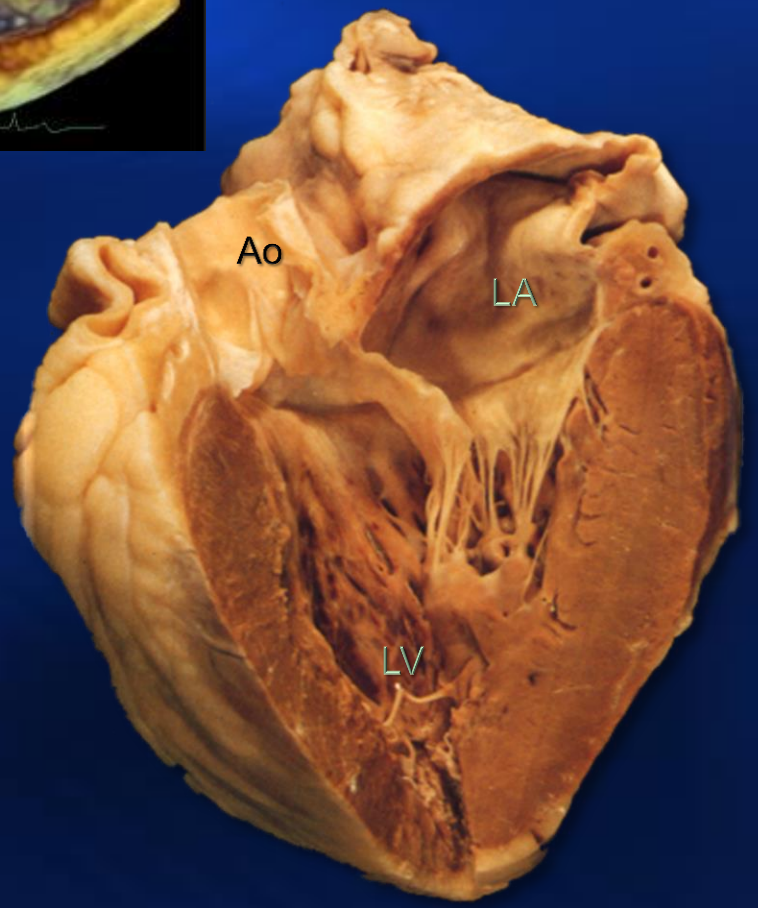
P2 Prolapse

Commissural Prolapse

Management of Valvular Heart Disease

Is the Heart Symptomatic?
Timing of Restorative Surgery

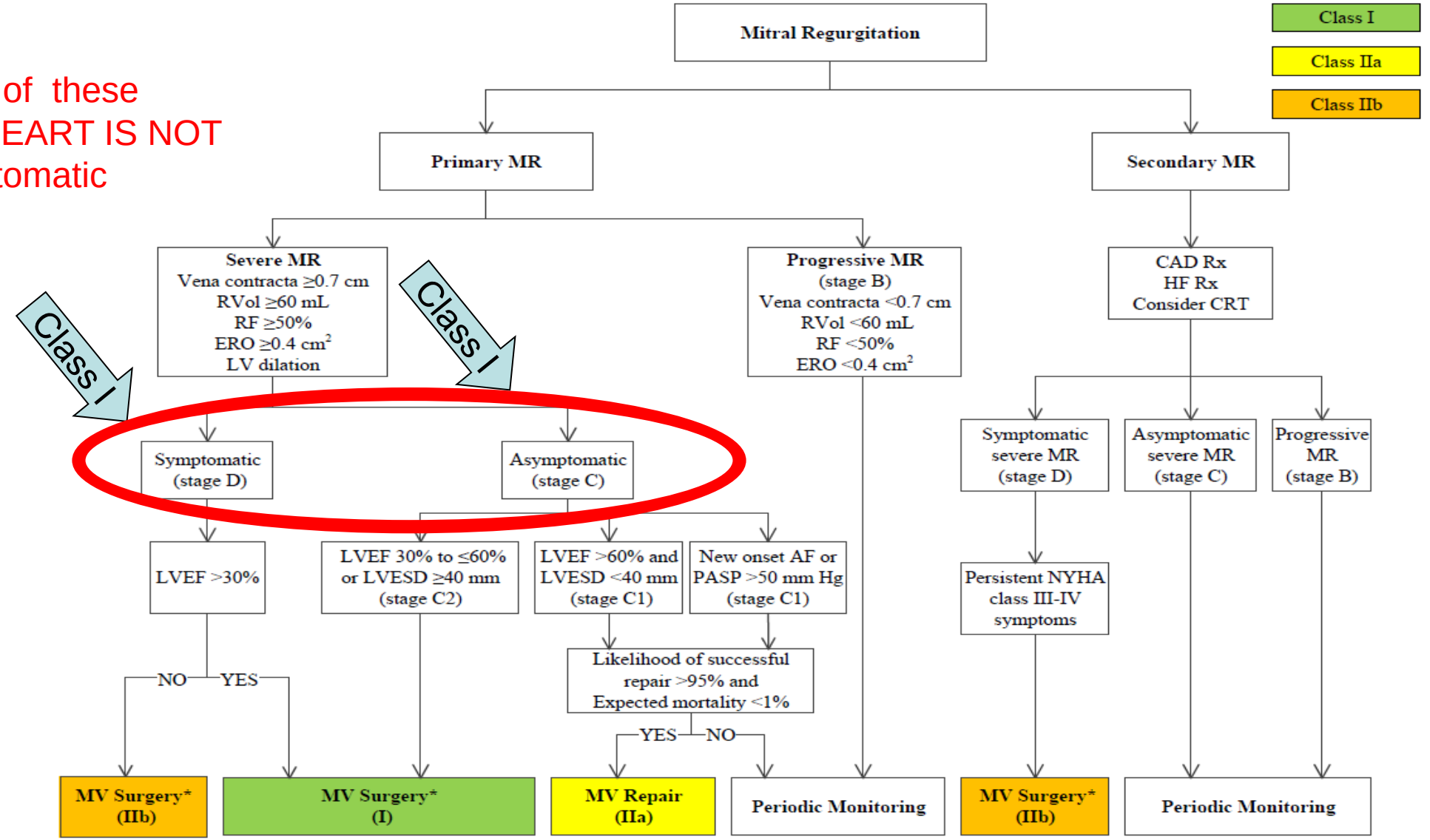




- Symptoms
- LV enlargement
- LV dysfunction
- LAE - Atrial Fib
- Pulmonary Hypertension

Indications for Surgery for Mitral Regurgitation

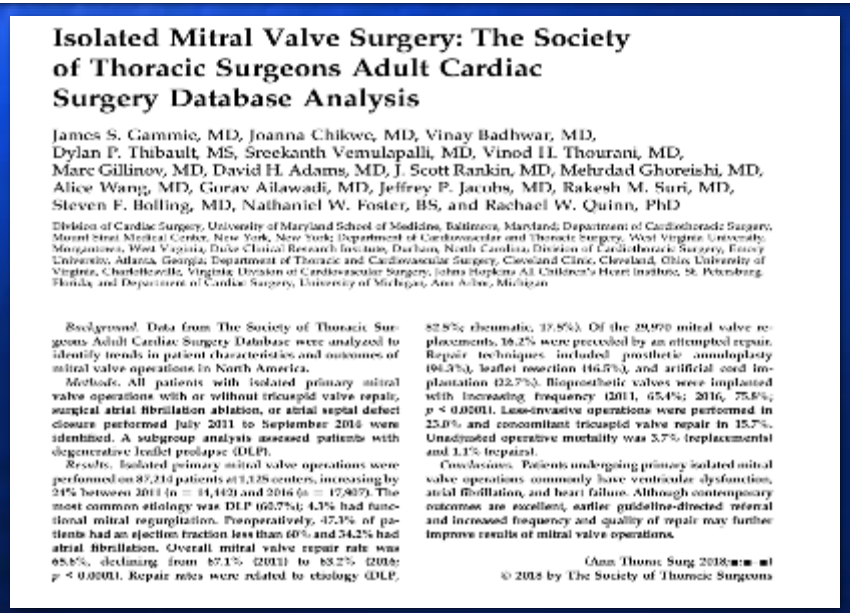
In both of these
THE HEART IS NOT
Asymptomatic



*MV repair is preferred over MV replacement when possible.

Isolated Mitral Valve Surgery: The Society of Thoracic Surgeons Adult Cardiac Surgery Database Analysis

Gammie et al Ann Thorac Surg 2018 ;106:716-272



Isolated Mitral Valve Surgery: The Society of Thoracic Surgeons Adult Cardiac Surgery Database Analysis

James S. Gammie, MD, Joanna Chikwe, MD, Vinay Badhwar, MD, Dylan P. Thibault, MS, Sreekanth Vemulapalli, MD, Vinod H. Thourani, MD, Marc Gillinov, MD, David H. Adams, MD, J. Scott Rankin, MD, Mehrdad Ghoreishi, MD, Alice Wang, MD, Gorav Ailawadi, MD, Jeffrey P. Jacobs, MD, Rakesh M. Suri, MD, Steven F. Bolling, MD, Nathaniel W. Foster, BS, and Rachael W. Quinn, PhD

Division of Cardiac Surgery, University of Maryland School of Medicine, Baltimore, Maryland; Department of Cardiothoracic Surgery, Mount Sinai Medical Center, New York, New York; Department of Cardiovascular and Thoracic Surgery, West Virginia University, Morgantown, West Virginia; Duke Clinical Research Institute, Durham, North Carolina; Division of Cardiothoracic Surgery, Emory University, Atlanta, Georgia; Department of Thoracic and Cardiovascular Surgery, Cleveland Clinic, Cleveland, Ohio; University of Virginia, Charlottesville, Virginia; Division of Cardiovascular Surgery, Johns Hopkins All Children's Heart Institute, St. Petersburg, Florida; and Department of Cardiac Surgery, University of Michigan, Ann Arbor, Michigan

Background. Data from The Society of Thoracic Surgeons Adult Cardiac Surgery Database were analyzed to identify trends in patient characteristics and outcomes of mitral valve operations in North America.

Methods. All patients with isolated primary mitral valve operations with or without tricuspid valve repair, surgical atrial fibrillation ablation, or atrial septal defect closure performed July 2011 to September 2016 were identified. A subgroup analysis assessed patients with degenerative leaflet prolapse (DLP).

Results. Isolated primary mitral valve operations were performed on 87,214 patients at 1,128 centers, increasing by 24% between 2011 (n = 14,442) and 2016 (n = 17,907). The most common etiology was DLP (60.7%); 4.3% had functional mitral regurgitation. Preoperatively, 47.3% of patients had an ejection fraction less than 60% and 34.2% had atrial fibrillation. Overall mitral valve repair rate was 65.6%, declining from 67.1% (2011) to 63.2% (2016; $p < 0.0001$). Repair rates were related to etiology (DLP, 82.8%; rheumatic, 17.8%). Of the 29,970 mitral valve replacements, 16.2% were preceded by an attempted repair. Repair techniques included prosthetic annuloplasty (90.3%), leaflet resection (16.8%), and artificial cord implantation (12.7%). Bioprosthetic valves were implanted with increasing frequency (2011, 65.4%; 2016, 75.8%; $p < 0.0001$). Less-invasive operations were performed in 23.0% and concomitant tricuspid valve repair in 15.7%. Unadjusted operative mortality was 3.7% (replacement) and 1.1% (repair).

Conclusions. Patients undergoing primary isolated mitral valve operations commonly have ventricular dysfunction, atrial fibrillation, and heart failure. Although contemporary outcomes are excellent, earlier guideline-directed referral and increased frequency and quality of repair may further improve results of mitral valve operations.

Ann Thorac Surg 2018;■:■ ■■

- 87,214 patients with Isolated Mitral Valve operations 2011-2016
- 60.7% were Mitral Valve Prolapse (MVP)
- Preop: 47.3% had EF<60% and 34.2% in AF
- Overall mitral valve repair rate 65.6%

Table 7. Total Isolated Mitral Valve Surgery Volume for Patients With Degenerative Leaflet Prolapse

	Center Volume[a] (n = 1,020)				Case Volume[b] (n = 36,948)			
Total Isolated MV Surgery Volume	Centers n (%)	Avg Repair Rate (% [95% CI])	Avg O/E Ratio (95% CI)	Avg STS PROM Score (95% CI)	Cases (n)	Repair Rate (%)	Mortality (%)	STS Risk Score (Median [IQR])
≤23 cases per year	972 (95.3%)	66.9 (65.1–68.7)	1.03 (0.80–1.25)	1.97 (1.89–2.05)	21,987	75.9[c]	1.60[c]	0.94 (0.48–2.02)[c]
>23 cases per year	48 (4.7%)	90.0 (87.0–93.0)	0.50 (0.38–0.61)	1.38 (1.27–1.48)	14,961	92.2	0.61	0.64 (0.36–1.30)

[a] Repair rates, observed to expected (O/E) ratios, and The Society of Thoracic Surgeons (STS) risk scores were averaged across centers within respective volume category. [b] Repair rates, mortality, and STS risk scores were averaged across cases within respective volume category. [c] Mean comparisons between 22.75 or fewer cases per year and more than 22.75 cases per year within each column are significantly different ($p < 0.0001$) calculated by χ^2 and Wilcoxon-Mann-Whitney U test.

Surgical volume was divided into two groups at the 95th percentile of annual volume.

Avg = average; CI = confidence interval; IQR = interquartile range; MV = mitral valve; STS PROM = The Society of Thoracic Surgeons predicted risk of mortality.

DLP case volume per year	Number of centers
0	106
> 0 to 6	763
> 6 to 25	213
> 25 to 50	28
> 50 to 100	11
> 100	4

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(Ann Thorac Surg 2018;■:■–■)

Gammie et al Ann Thorac Surg 2018;106:716-27

Mitral Valve Surgery at Roper 2021

Isolated Mitral Valve Repair	**Total = 48** Minimally-Invasive Surgery = 31 Open Surgery = 17
Isolated Mitral Valve Replacement	**Total = 16** Minimally-Invasive Surgery = 6 Open Surgery = 10
Concomitant Mitral Valve Repair	**Total = 25**
Concomitant Mitral Valve Replacement	**Total = 9**
Transcatheter Mitral Valve Replacement	**Total = 3**
All Mitral Valve Operations	**Total = 101**

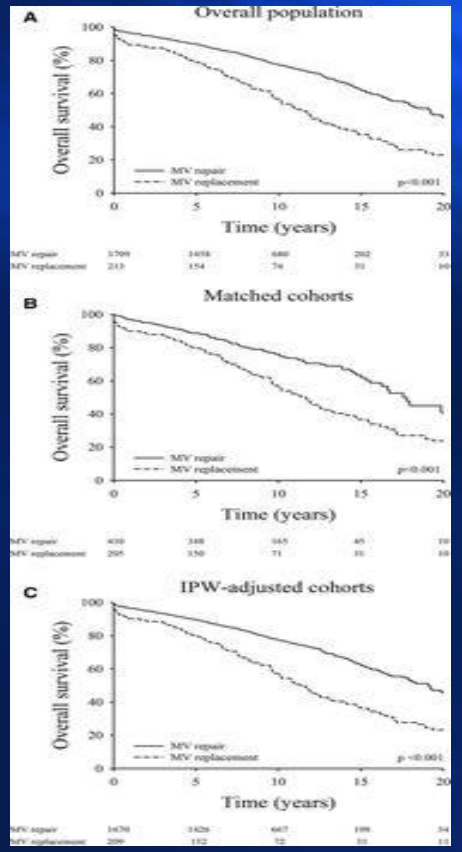
Repair Rate

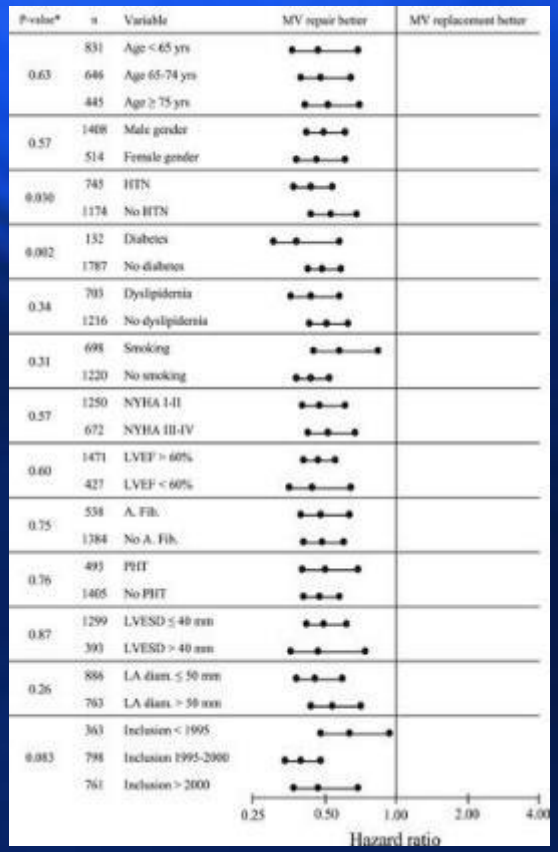
97.6%

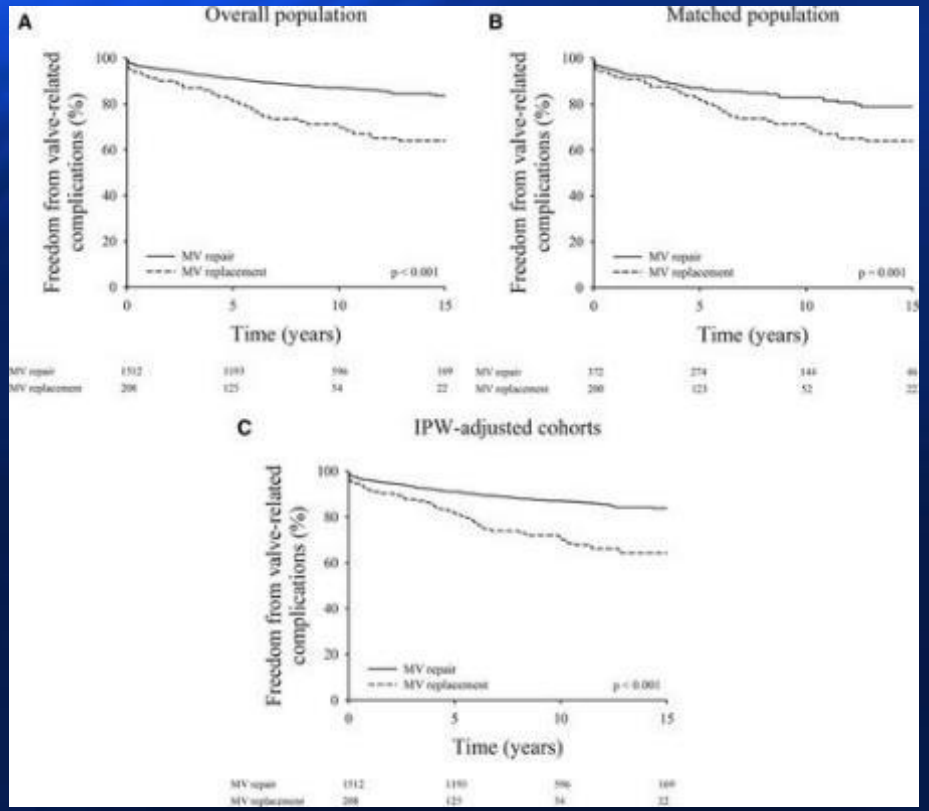
Mortality 0%

Mitral Valve Surgery

Repair vs Replacement for Severe Degenerative Mitral Insufficiency



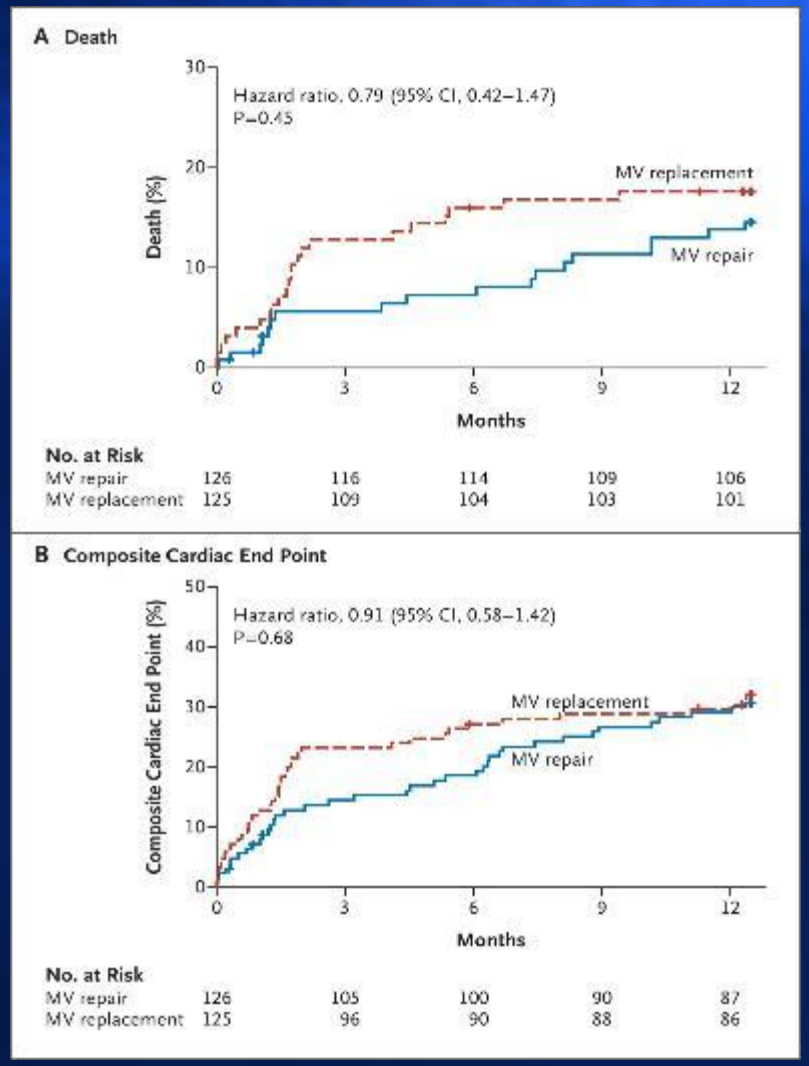




Siham Lazam. Circulation. Twenty-Year Outcome After Mitral Repair Versus Replacement for Severe Degenerative Mitral Regurgitation, Volume: 135, Issue: 5, Pages: 410-422.

Mitral Valve Surgery

Repair vs Replacement for Severe Ischemic Mitral Insufficiency

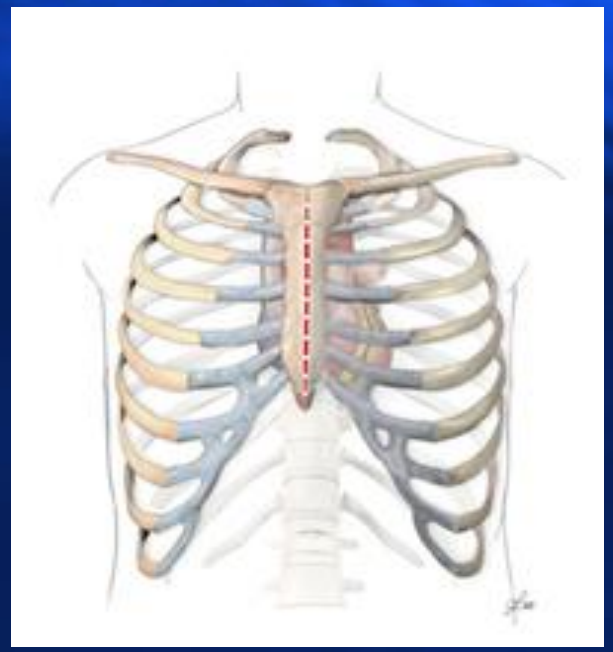


Acker MA et al. N Engl J Med 2014;370:23-32.

Rate of Recurrence of Mitral Insufficiency at 12 months:

- 32.6% in Repair Group
- 2.3% in Replacement Group

Traditional Heart Surgery via Sternotomy



Minimally Invasive Valve Surgery