



# Performance Measures For Mitral Valve Repair Reference Centers

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## Designated Hospital Performance Measures

### 5.2 Non-risk-adjusted 30-day Operative Mortality Rate after Mitral Valve Repair (Center)

#### Percentage of Patients Who Die Within 30 Days or During Hospitalization Following Elective Mitral Valve Repair

##### Initial Patient Population

All patients 18 years and older with primary (degenerative) mitral valve disease with prolapse who have an elective, open mitral valve procedure (repair or replacement),\* with or without concomitant operations, during the measurement period.

*\* This includes all open approaches, including full sternotomy, minimally invasive, robot-assisted and mini-thoracotomy.*

##### Denominator

###### *Include:*

All patients in the initial patient population

###### *Exclusions: (Always remove from denominator)*

- Patients undergoing urgent or emergent procedures
- Patients undergoing transcatheter mitral valve procedures
- Patients who have had any prior cardiac surgery
- Patients who have had a prior transcatheter mitral valve procedure
- Patients with severe mitral annulus calcification as documented in preoperative imaging or the operative report
- Patients with mitral valve leaflet calcification (any severity)

**Performance Measures  
For Mitral Valve Repair Reference Centers**

**5.2 Non-risk-adjusted 30-day Operative Mortality Rate after  
Mitral Valve Repair (Center)**

**Percentage of Patients Who Die Within 30 Days or During Hospitalization Following  
Elective Mitral Valve Repair**

<i>Exceptions: (Remove from denominator if present and numerator is not met)</i>
<i>Note: Any potential medical, patient or system reason(s) listed below are provided as examples only and should not be considered all inclusive. Reasons should be clearly documented in the medical record and may be audited.</i>
<ul style="list-style-type: none"> <li>• Documented medical reason(s) that patient death was wholly unrelated to MV repair (Medical reasons are circumstances that could never be attributable to MV repair (e.g., accidental or intentional deaths due to e.g., trauma due to accident, natural disaster or suicide)</li> <li>• Documented patient reason(s) that patient status at 30 days could not be confirmed (Patient reasons are circumstances specific to an individual patient e.g., international patients who cannot be contacted)</li> </ul>
<b>Numerator</b>
Patients who die during the hospitalization (even if after 30 days) or within 30 days following MV repair
<b>Measurement Period</b>
3 calendar years
<b>Method of Reporting</b>
3 options for reporting all repairs plus all replacements: <ol style="list-style-type: none"> <li>1) All Index Mitral Valve Procedures performed during the 3 calendar year measurement period; <b>OR</b></li> <li>2) All Index Mitral Valve Procedures performed during the most recent 1 calendar year period, if at least 150 mitral valve repairs were performed during that year <b>OR</b></li> <li>3) The 150 most recent consecutive Index Mitral Valve Procedures that are repairs plus all Index Mitral Valve Procedures that are replacements performed during the same time period as the repairs, beginning with the end of the most recent calendar year and identifying Procedures retrospectively until the count is achieved.</li> </ol>
<b>Level of Reporting</b>
Mitral Valve Repair Center at the <u>Designated Hospital</u>
<b>Recognition Goal</b>
Less than or equal to 1%
<b>Clinical Guideline Recommendations or Other Evidence Supporting the Measure</b>
Mitral Foundation's <i>Standards and Best Practices</i>

**Performance Measures  
For Mitral Valve Repair Reference Centers**

**5.3 Repair Rate for Index Mitral Valve Cases (Center)**

<b>Percentage of Index Mitral Valve Cases where a Mitral Valve repair was performed</b>
<b>Initial Patient Population</b>
All patients 18 years and older with primary (degenerative) mitral valve disease with prolapse who have an elective, open mitral valve procedure (repair or replacement),* with or without concomitant operations, during the measurement period.
<i>* This includes all open approaches, including full sternotomy, minimally invasive, robot-assisted and mini-thoracotomy.</i>
<b>Denominator</b>
<i>Include:</i>
All patients in the initial patient population
<i>Exclusions: (Always remove from denominator)</i>
<ul style="list-style-type: none"> <li>• Patients undergoing urgent or emergent procedures</li> <li>• Patients undergoing transcatheter mitral valve procedures</li> <li>• Patients who have had any prior cardiac surgery</li> <li>• Patients who have had a prior transcatheter mitral valve procedure</li> <li>• Patients with severe mitral annulus calcification as documented in preoperative imaging or the operative report</li> <li>• Patients with mitral valve leaflet calcification (any severity)</li> </ul>
<i>Exceptions: (Remove from denominator if present and numerator is not met)</i>
<i>Note: Any potential medical, patient or system reason(s) listed below are provided as examples only and should not be considered all inclusive. Reasons should be clearly documented in the medical record and may be audited.</i>
Documented medical reason(s) for performing MV replacement instead of repair: Medical reasons are conditions or circumstances specific to an individual patient that, in the judgment of the surgeon, favor replacement over repair.
<b>Numerator</b>
All patients who had a mitral valve repair
<b>Measurement Period</b>
3 calendar years

*Performance Measures  
For Mitral Valve Repair Reference Centers*

**5.3 Repair Rate for Index Mitral Valve Cases (Center)**

<b>Percentage of Index Mitral Valve Cases where a Mitral Valve repair was performed</b>
<b>Method of Reporting</b>
3 options for reporting all repairs plus all replacements: <ul style="list-style-type: none"> <li>4) All Index Mitral Valve Procedures performed during the 3 calendar year measurement period; <b>OR</b></li> <li>5) All Index Mitral Valve Procedures performed during the most recent 1 calendar year period, if at least 150 mitral valve repairs were performed during that year <b>OR</b></li> <li>6) The 150 most recent consecutive Index Mitral Valve Procedures that are repairs plus all Index Mitral Valve Procedures that are replacements performed during the same time period as the repairs, beginning with the end of the most recent calendar year and identifying Procedures retrospectively until the count is achieved.</li> </ul>
<b>Level of Reporting</b>
Mitral Valve Repair Center at the <u>Designated Hospital</u>
<b>Recognition Goal</b>
95% or greater
<b>Clinical Guideline Recommendations or Other Evidence Supporting the Measure</b>
Nishimura, R. A., Otto, C. M., Bonow, R. O., Carabello, B. A., Erwin, J. P., Fleisher, L. A., ... Thompson, A. (2017). 2017 AHA/ACC Focused Update of the 2014 AHA/ACC Guideline for the Management of Patients With Valvular Heart Disease: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. <i>Circulation</i> , 135(25). doi: 10.1161/cir.0000000000000503

**Performance Measures  
For Mitral Valve Repair Reference Centers**

**6.5 Intraoperative Echocardiogram for Mitral Valve Repair (Center)**

**Percentage of Patients Undergoing Mitral Valve Repair who have Echocardiogram Performed After Weaning from Cardiopulmonary Bypass**

**Initial Patient Population**

All patients 18 years and older with primary (degenerative) mitral valve disease with prolapse who have an elective, open mitral valve procedure (repair or replacement),\* with or without concomitant operations, during the measurement period.

*\* This includes all open approaches, including full sternotomy, minimally invasive, robot-assisted and mini-thoracotomy.*

**Denominator**

*Include:*

All patients in the initial patient population

*Exclusions: (Always remove from denominator)*

- Patients undergoing urgent or emergent procedures
- Patients undergoing transcatheter mitral valve procedures
- Patients who have had any prior cardiac surgery
- Patients who have had a prior transcatheter mitral valve procedure
- Patients with severe mitral annulus calcification as documented in preoperative imaging or the operative report
- Patients with mitral valve leaflet calcification (any severity)
- Patients with contraindications to transesophageal echocardiogram (e.g., esophageal pathology, recent GI surgery, etc.)

*Exceptions: (Remove from denominator if present and numerator is not met)*

None

**Numerator**

Patients who have an echocardiogram performed in the operating room following weaning from cardiopulmonary bypass

**Measurement Period**

1 calendar year

*Performance Measures  
For Mitral Valve Repair Reference Centers*

**6.5 Intraoperative Echocardiogram for Mitral Valve Repair (Center)**

<b>Percentage of Patients Undergoing Mitral Valve Repair who have Echocardiogram Performed After Weaning from Cardiopulmonary Bypass</b>
<b>Method of Reporting</b>
<p>2 options for reporting all repairs plus all replacements: 9</p> <ol style="list-style-type: none"> <li>1) All Index Mitral Valve Procedures performed during the 1 calendar year measurement period; <b>OR</b></li> <li>2) The 150 most recent consecutive Index Mitral Valve Cases that are repairs performed during the measurement period, beginning with the end of the most recent calendar year and identifying cases retrospectively until the count is achieved</li> </ol>
<b>Level of Reporting</b>
<u>Mitral Valve Repair Center at the Designated Hospital</u>
<b>Recognition Goal</b>
100%
<b>Clinical Guideline Recommendations or Other Evidence Supporting the Measure</b>
Mitral Foundation's <u>Standards and Best Practices</u>



**Performance Measures  
For Mitral Valve Repair Reference Centers**

**6.6 Postoperative Echocardiogram within 90 Days of Mitral Valve Repair  
(Center)**

**Percentage of Patients who have Undergone Mitral Valve Repair who have a  
Postoperative Transthoracic Echocardiogram Performed  
within 90 Days of Mitral Valve Repair**

**Initial Patient Population**

All patients 18 years and older with primary (degenerative) mitral valve disease with prolapse who have an elective, open mitral valve procedure (repair or replacement),\* with or without concomitant operations, during the measurement period.

*\* This includes all open approaches, including full sternotomy, minimally invasive, robot-assisted and mini-thoracotomy.*

**Denominator**

*Include:*

All patients in the initial patient population

*Exclusions: (Always remove from denominator)*

- Patients undergoing urgent or emergent procedures
- Patients undergoing transcatheter mitral valve procedures
- Patients who have had any prior cardiac surgery
- Patients who have had a prior transcatheter mitral valve procedure
- Patients with severe mitral annulus calcification as documented in preoperative imaging or the operative report
- Patients with mitral valve leaflet calcification (any severity)

*Exceptions: (Remove from denominator if present and numerator is not met)*

*Note: Any potential medical, patient or system reason(s) listed below are provided as examples only and should not be considered all inclusive. Reasons should be clearly documented in the medical record and may be audited.*

- Documented patient reason(s) for not performing post-operative echocardiogram within 90 days (Patient reasons are circumstances specific to an individual patient e.g., patient refusal; unable to contact patient despite several attempts; international patient for whom follow up cannot be confirmed)
- Documented system reason(s) for not performing post-operative echocardiogram within 90 days (e.g., patient's insurance plan will not cover post-operative echocardiogram)

*Performance Measures  
For Mitral Valve Repair Reference Centers*

**6.6 Postoperative Echocardiogram within 90 Days of Mitral Valve Repair  
(Center)**

<b>Percentage of Patients who have Undergone Mitral Valve Repair who have a Postoperative Transthoracic Echocardiogram Performed within 90 Days of Mitral Valve Repair</b>
<b>Numerator</b>
Patients who have a post-operative transthoracic echocardiogram* performed within 90-days following MV repair
<i>* May include the pre-discharge echocardiogram performed while the patient is still in the hospital or post discharge echocardiogram in any other physician office or care facility within 90 days post-repair.</i>
<b>Measurement Period</b>
1 calendar year
<b>Method of Reporting</b>
2 options for reporting all repairs plus all replacements: 9 1) All Index Mitral Valve Procedures performed during the 1 calendar year measurement period; <b>OR</b> 2) The 150 most recent consecutive Index Mitral Valve Cases that are repairs performed during the measurement period, beginning with the end of the most recent calendar year and identifying cases retrospectively until the count is achieved
<b>Level of Reporting</b>
Mitral Valve Repair Center at the <u>Designated Hospital</u>
<b>Recognition Goal</b>
95% or greater
<b>Clinical Guideline Recommendations or Other Evidence Supporting the Measure</b>
Mitral Foundation's <i>Standards and Best Practices</i>

## Reference Surgeon Performance Measures

### 4.1 Mitral Valve Repair Rate (Reference Surgeon)

Percentage of Patients Undergoing an Index Mitral Valve Procedure who have a Mitral Valve Repair
<b>Initial Patient Population</b>
All patients 18 years and older with primary (degenerative) mitral valve disease with prolapse who have an elective, open mitral valve procedure (repair or replacement),* with or without concomitant operations, during the measurement period.
<i>* This includes all open approaches, including full sternotomy, minimally invasive, robot-assisted and mini-thoracotomy.</i>
<b>Denominator</b>
<i>Include:</i>
All patients in the initial patient population
<i>Exclusions: (Always remove from denominator)</i>
<ul style="list-style-type: none"> <li>• Patients undergoing urgent or emergent procedures</li> <li>• Patients undergoing transcatheter mitral valve procedures</li> <li>• Patients who have had any prior cardiac surgery</li> <li>• Patients who have had a prior transcatheter mitral valve procedure</li> <li>• Patients with severe mitral annulus calcification as documented in preoperative imaging or the operative report</li> <li>• Patients with mitral valve leaflet calcification (any severity)</li> </ul>
<i>Exceptions: (Remove from denominator if present and numerator is not met)</i>
Note: Any potential medical, patient or system reason(s) listed below are provided as examples only and should not be considered all inclusive. Reasons should be clearly documented in the medical record and may be audited.
<b>Numerator</b>
Patients who have a mitral valve repair
<b>Measurement Period</b>
2 calendar years

*Performance Measures  
For Mitral Valve Repair Reference Centers*

**4.1 Mitral Valve Repair Rate (Reference Surgeon)**

**Percentage of Patients Undergoing an Index Mitral Valve Procedure  
who have a Mitral Valve Repair**

**Method of Reporting**

3 options for reporting all repairs plus all replacements:

- 3) All Index Mitral Valve Procedures performed during the 2 calendar year measurement period; **OR**
- 4) All Index Mitral Valve Procedures performed during the most recent 1 calendar year period, if at least 100 mitral valve repairs were performed during that year **OR**
- 5) The 100 most recent consecutive Index Mitral Valve Procedures that are repairs plus all Index Mitral Valve Procedures that are replacements performed during the same time period as the repairs, beginning with the end of the most recent calendar year and identifying Procedures retrospectively until the count is achieved.

**Level of Reporting**

Reference Surgeon

**Recognition Goal**

95% or greater

**Clinical Guideline Recommendations or Other Evidence Supporting the Measure**

Mitral Foundation's *Standards and Best Practices*

*Performance Measures  
For Mitral Valve Repair Reference Centers*

**4.2 Freedom from Mitral Regurgitation or Reintervention at 90-Days Post-Mitral Valve Repair (Reference Surgeon)**

<b>Percentage of Patients who have Undergone Mitral Valve Repair who are Free From Moderate or Greater Mitral Regurgitation and who have not Undergone Re-intervention at 90 Days Post-repair</b>
<b>Initial Patient Population</b>
All patients 18 years and older with primary (degenerative) mitral valve disease with prolapse who have an elective, open mitral valve procedure (repair or replacement),* with or without concomitant operations, during the measurement period.
<i>* This includes all open approaches, including full sternotomy, minimally invasive, robot-assisted and mini-thoracotomy.</i>
<b>Denominator</b>
<i>Include:</i>
All patients in the initial patient population
<i>Exclusions: (Always remove from denominator)</i>
<ul style="list-style-type: none"> <li>• Patients undergoing urgent or emergent procedures</li> <li>• Patients undergoing transcatheter mitral valve procedures</li> <li>• Patients who have had any prior cardiac surgery</li> <li>• Patients who have had a prior transcatheter mitral valve procedure</li> <li>• Patients with severe mitral annulus calcification as documented in preoperative imaging or the operative report</li> <li>• Patients with mitral valve leaflet calcification (any severity)</li> </ul>
<i>Exceptions: (Remove from denominator if present and numerator is not met)</i>
Documented patient reason(s) that patient status at 90 days could not be confirmed (Patient reasons are circumstances specific to an individual patient e.g., international patients who cannot be contacted)
<b>Numerator</b>
Patients who are free from moderate or greater regurgitation and who have not undergone re-intervention at 90-days post-repair.
<b>Measurement Period</b>
2 calendar years

*Performance Measures  
For Mitral Valve Repair Reference Centers*

**4.2 Freedom from Mitral Regurgitation or Reintervention at 90-Days  
Post-Mitral Valve Repair (Reference Surgeon)**

<b>Percentage of Patients who have Undergone Mitral Valve Repair who are Free From Moderate or Greater Mitral Regurgitation and who have not Undergone Re-intervention at 90 Days Post-repair</b>
<b>Method of Reporting</b>
3 options for reporting all repairs plus all replacements: 6) All Index Mitral Valve Procedures performed during the 2 calendar year measurement period; <b>OR</b> 7) All Index Mitral Valve Procedures performed during the most recent 1 calendar year period, if at least 100 mitral valve repairs were performed during that year <b>OR</b> 8) The 100 most recent consecutive Index Mitral Valve Procedures that are repairs plus all Index Mitral Valve Procedures that are replacements performed during the same time period as the repairs, beginning with the end of the most recent calendar year and identifying Procedures retrospectively until the count is achieved.
<b>Level of Reporting</b>
<u>Reference Surgeon</u>
<b>Recognition Goal</b>
95% or greater
<b>Clinical Guideline Recommendations or Other Evidence Supporting the Measure</b>
Mitral Foundation's <i>Standards and Best Practices</i>

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