MEDICAL POLICY – 2.02.30
Transcatheter Mitral Valve Repair

BCBSA Ref. Policy: 2.02.30
Effective Date: Aug. 1, 2018
Last Revised: July 13, 2018
Replaces: N/A
RELATED MEDICAL POLICIES:
7.01.131 Transcatheter Pulmonary Valve Implantation
7.01.132 Transcatheter Aortic Valve Implantation for Aortic Stenosis

Select a hyperlink below to be directed to that section.

POLICY CRITERIA | DOCUMENTATION REQUIREMENTS | CODING
RELATED INFORMATION | EVIDENCE REVIEW | REFERENCES | HISTORY

∞ Clicking this icon returns you to the hyperlinks menu above.

Introduction

The heart has four chambers, two upper and two lower. The mitral valve is between the upper and lower left chambers. After blood has been pumped from the upper left chamber to the lower left chamber, the mitral valve closes. The mitral valve is made up of small pieces of tissue called leaflets. If the leaflets don’t close properly when the left lower chamber pumps blood out to the body some of the blood can leak back into the upper left chamber. This is known as mitral valve regurgitation. Medication can be used to help manage the symptoms of mitral valve regurgitation. Open heart surgery is a treatment option. If a person is too sick for surgery, a nonsurgical procedure may be used to place a clip to close the leaky mitral valve. In this procedure, a long, hollow tube (a catheter) is threaded through a specific vein into the heart. The catheter then becomes the pathway for getting the clip to the mitral valve. Imaging is used to make sure the device is correctly placed. This policy describes when transcatheter mitral valve repair is considered medically necessary.

Note: The Introduction section is for your general knowledge and is not to be taken as policy coverage criteria. The rest of the policy uses specific words and concepts familiar to medical professionals. It is intended for providers. A provider can be a person, such as a doctor, nurse, psychologist, or dentist. A provider also can be a place where medical care is given, like a hospital, clinic, or lab. This policy informs them about when a service may be covered.
<table>
<thead>
<tr>
<th>Service</th>
<th>Medical Necessity</th>
</tr>
</thead>
</table>
| Transcatheter mitral valve repair (eg, MitraClip® Clip Delivery System) | Transcatheter mitral valve repair using a device approved by the U.S. Food and Drug Administration for use in mitral valve repair may be considered medically necessary for patients with symptomatic, primary mitral regurgitation who are considered at prohibitive risk for open surgery. Prohibitive risk for open mitral valve repair surgery may be determined based on:  
  - The documented presence of a Society for Thoracic Surgeons predicted mortality risk of 12% or greater  
  **AND/OR**  
  - The documented presence of a logistic EuroSCORE of 20% or greater  
Transcatheter mitral valve repair is considered investigational in all other situations. |

**Documentation Requirements**

The patient’s medical records submitted for review for all conditions should document that medical necessity criteria are met. The record should include the following:  
- Name of the Food and Drug Administration (FDA) approved device to be used  
- Documentation that patient has symptomatic primary mitral regurgitation  
**AND**  
- Patient is at greater risk for open mitral valve repair surgery based on:  
  - The documented presence of a Society for Thoracic Surgeons predicted mortality risk of 12% or greater  
  **AND/OR**  
  - The documented presence of a logistic EuroSCORE of 20% or greater  

**Coding**
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0345T</td>
<td>Transcatheter mitral valve repair percutaneous approach via the coronary sinus</td>
</tr>
<tr>
<td>0483T</td>
<td>Transcatheter mitral valve implantation/replacement (TMVI) with prosthetic valve; percutaneous approach, including transseptal puncture, when performed (new code effective 1/1/18)</td>
</tr>
<tr>
<td>0484T</td>
<td>Transcatheter mitral valve implantation/replacement (TMVI) with prosthetic valve; transthoracic exposure (eg, thoracotomy, transapical) (new code effective 1/1/18)</td>
</tr>
<tr>
<td>33418</td>
<td>Transcatheter mitral valve repair, percutaneous approach, including transseptal puncture when performed; initial prosthesis</td>
</tr>
<tr>
<td>33419</td>
<td>Transcatheter mitral valve repair, percutaneous approach, including transseptal puncture when performed; additional prosthesis(es) during same session (List separately in addition to code for primary procedure)</td>
</tr>
</tbody>
</table>

**Note:** CPT codes, descriptions and materials are copyrighted by the American Medical Association (AMA). HCPCS codes, descriptions and materials are copyrighted by Centers for Medicare Services (CMS).

**Related Information**

**Indications for Use**

The FDA summary of safety and effectiveness data (SSED) from 2013 states the indications for use below:

The MitraClip Clip Delivery System is indicated for the percutaneous reduction of significant symptomatic mitral regurgitation (MR of 3+ or greater) due to primary abnormality of the mitral apparatus [degenerative MR] in patients who have been determined to be at prohibitive risk for mitral valve surgery by a heart team that includes a cardiac surgeon experienced in mitral valve surgery and a cardiologist experienced in mitral valve disease, and in whom existing comorbidities would not preclude the expected benefit from reduction of the mitral regurgitation.12

**Repair Device**

MitraClip® Clip Delivery System has the U.S. Food and Drug Administration (FDA) approval for the treatment of severe symptomatic degenerative mitral regurgitation (see Regulatory Status).
Evidence Review

Description

Transcatheter mitral valve repair (TMVR) is an alternative to surgical therapy for mitral regurgitation (MR). MR is a common valvular heart disease that can result from a primary structural abnormality of the mitral valve (MV) complex or a secondary dilatation of an anatomically normal MV due to a dilated left ventricle caused by ischemic or dilated cardiomyopathy. Surgical therapy may be underutilized, particularly in patients with multiple comorbidities, suggesting that there is an unmet need for less invasive procedures for MV repair. One device, MitraClip, has approval from the U.S. Food and Drug Administration for the treatment of severe symptomatic MR due to a primary abnormality of the MV (primary MR) in patients considered at prohibitive risk for surgery.

Background

Mitral Regurgitation

Epidemiology and Classification

Mitral regurgitation (MR) is the second most common valvular heart disease, occurring in 7% of people older than age 75 years and accounting for 24% of all patients with valvular heart disease.\textsuperscript{1-2}

Patients with MR generally fall into 2 categories — primary (also called degenerative) and secondary (also called functional) MR. Primary MR results from a primary structural abnormality in the valve, which causes it to leak. This leak may result from a floppy leaflet (called prolapse) or a ruptured cord that caused the leaflet to detach partially (called flail).\textsuperscript{3} Because the primary cause is a structural abnormality, most cases of primary MR are surgically corrected. In contrast, secondary MR results from left ventricular dilatation due to ischemic or dilated cardiomyopathy. This causes the mitral valve (MV) leaflets not to coapt or meet in the center.\textsuperscript{4} Because the valves are structurally normal in secondary MR, correcting the dilated left ventricular using medical therapy is the primary treatment strategy used in the United States.
MR severity is classified as mild, moderate, or severe disease on the basis of echocardiographic and/or angiographic findings (1+, 2+, and 3-4+ angiographic grade, respectively). MR with accompanying valvular incompetence leads to left ventricular volume overload with secondary ventricular remodeling, myocardial dysfunction, and left heart failure. Clinical signs and symptoms of dyspnea and orthopnea may also present in patients with valvular dysfunction.4

**Standard Management**

**Medical Management**

Medical management has a primary role in secondary MR. Patients with chronic secondary MR should receive standard therapy for heart failure with reduced ejection fraction; standard management includes angiotensin converting enzyme inhibitor (or angiotensin II receptor blocker or angiotensin receptor-neprilysin inhibitor), β-blocker and mineralocorticoid receptor antagonist, and diuretic therapy as needed to treat volume overload.3,4

**Surgical Management**

In symptomatic patients with primary MR, surgery is the main therapy. In most cases, MV repair is preferred over replacement, as long as the valve is suitable for repair and personnel with appropriate surgical expertise are available. The American College of Cardiology and the American Heart Association have issued joint guidelines for the surgical management of MV, which are outlined in Table 1.3

**Table 1. Guidelines on Mitral Value Surgery**

<table>
<thead>
<tr>
<th>Recommendation</th>
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</thead>
<tbody>
<tr>
<td>MV surgery is recommended for the symptomatic patient with acute severe MR.</td>
</tr>
<tr>
<td>MV surgery is beneficial for patients with chronic severe MR and NYHA functional class II, III, or IV symptoms in the absence of severe LV dysfunction (severe LV dysfunction is defined as ejection fraction less than 0.30) and/or end-systolic dimension greater than 55 mm.</td>
</tr>
<tr>
<td>MV surgery is beneficial for asymptomatic patients with chronic severe MR and mild-to-moderate LV dysfunction, ejection fraction 0.30 to 0.60, and/or end systolic dimension greater than or equal to 40 mm.</td>
</tr>
<tr>
<td>MV repair is recommended over MV replacement in the majority of patients with severe chronic MR who require surgery, and patients should be referred to surgical centers experienced in MV</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Recommendation</th>
<th>COR</th>
<th>LOE</th>
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<tbody>
<tr>
<td>MV surgery is recommended for the symptomatic patient with acute severe MR.</td>
<td>I</td>
<td>B</td>
</tr>
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<td>I</td>
<td>C</td>
</tr>
<tr>
<td>Recommendation</td>
<td>COR</td>
<td>LOE</td>
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<tr>
<td>-------------------------------------------------------------------------------</td>
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<tr>
<td>MV repair is also reasonable for asymptomatic patients with chronic severe MR with preserved LV function … in whom the high likelihood of successful MV repair without residual MR is greater than 90%.</td>
<td>IIa</td>
<td>B</td>
</tr>
<tr>
<td>MV surgery is reasonable for asymptomatic patients with chronic severe MR, preserved LV function, and new onset of atrial fibrillation.</td>
<td>IIa</td>
<td>C</td>
</tr>
<tr>
<td>MV surgery is reasonable for asymptomatic patients with chronic severe MR, preserved LV function, and pulmonary hypertension….</td>
<td>IIa</td>
<td>C</td>
</tr>
<tr>
<td>MV surgery is reasonable for patients with chronic severe MR due to a primary abnormality of the mitral apparatus and NYHA functional class III–IV symptoms and severe LV dysfunction … in whom MV repair is highly likely.</td>
<td>IIa</td>
<td>C</td>
</tr>
</tbody>
</table>

COR: class of recommendation; LOE: level of evidence; LV: left ventricular; MR: mitral regurgitation; MV: mitral valve; NYHA: New York Heart Association.

The use of standard open MV repair is limited by the requirement for thoracotomy and cardiopulmonary bypass, which may not be tolerated by elderly or debilitated patients due to their underlying cardiac disease or other conditions. In a single-center evaluation of 5737 patients with severe MR in the United States, Goel et al (2014) found that 53% of patients did not have MV surgery performed, suggesting an unmet need for such patients.\(^5\)

**Transcatheter MV Repair**

Transcatheter approaches have been investigated to address the unmet need for less invasive MV repair, particularly among inoperable patients who face prohibitively high surgical risks due to their ages or comorbidities. MV repair devices under development address various components of the MV complex and generally are performed on the beating heart without the need for cardiopulmonary bypass.\(^1,6\) Approaches to MV repair include direct leaflet repair, repair of the mitral annulus via direct annuloplasty, or indirect repair based on the annulus' proximity to the coronary sinus. There are also devices in development to counteract ventricular remodeling and systems designed for complete MV replacement via catheter.
**Direct Leaflet Approximation**

One device that undertakes direct leaflet repair, the MitraClip Clip Delivery System (Abbott Vascular), has been approved through premarket approval process by the U.S. Food and Drug Administration (FDA) for use in certain patients with symptomatic primary MR (see [Regulatory Status](#) section). Of the transcatheter MV repair devices under investigation, the MitraClip, has the largest body of evidence evaluating its use; it has been in use in Europe since 2008. The MitraClip system is deployed percutaneously and approximates the open Alfieri edge-to-edge repair approach to treating MR. The delivery system consists of a catheter, a steerable sleeve, and the MitraClip device, which is a 4-mm wide clip fabricated from a cobalt-chromium alloy and polypropylene fabric. MitraClip is deployed via a transfemoral approach, with trans-septal puncture used to access the left side of the heart and the MV. Placement of the MitraClip leads to coapting of the mitral leaflets, thus creating a double-orifice valve.

**Other MV Repair Devices**

Additional devices for transcatheter MV repair that use various approaches are in development. Techniques to repair the mitral annulus include those that target the annulus itself (direct annuloplasty) and those that tighten the mitral annulus via manipulation of the adjacent coronary sinus (indirect annuloplasty). Indirect annuloplasty devices include the Carillon® Mitral Contour System (Cardiac Dimension) and the Monarc™ device (Edwards Lifesciences). The CE-marked Carillon Mitral Contour System is comprised of self-expanding proximal and distal anchors connected with a nitinol bridge, with the proximal end coronary sinus ostium and the distal anchor in the great cardiac vein. The size of the connection is controlled by manual pullback on the catheter (CE-marked). The Carillon system was evaluated in the Carillon Mitral Annuloplasty Device European Union Study (AMADEUS) and the follow-up Tighten the Annulus Now study, with further studies planned. The Monarc system also involves 2 self-expanding stents connected by a nitinol bridge, with 1 end implanted in the coronary sinus via internal jugular vein and the other in the great cardiac vein. Several weeks following implantation, a biologically degradable coating over the nitinol bridge degrades, allowing the bridge to shrink and the system to shorten. It has been evaluated in the Clinical Evaluation of the Edwards Lifesciences Percutaneous Mitral Annuloplasty System for the Treatment of Mitral Regurgitation (EVOLUTION I) trial.

Direct annuloplasty devices include the Mitralign Percutaneous Annuloplasty System (Mitralign) and the AccuCinch® System (Guided Delivery Systems), both of which involve transcatheter placement of anchors in the MV; they are cinched or connected to narrow the mitral annulus. Other transcutaneous direct annuloplasty devices under investigation include the enCorTC™
device (Micardia), which involves a percutaneously insertable annuloplasty ring that is adjustable using radiofrequency energy, a variation on its CE-marked enCorSQ™ Mitral Valve Repair System, and the Cardioband™ Annuloplasty System (Valtech Cardio), an implantable annuloplasty band with a transfemoral venous delivery system.

**Transcatheter MV Replacement**

Permavalve™ (MicroInterventional Devices), under investigation in the United States, is a transcatheter MV replacement device that is delivered via the transapical approach. On June 5, 2017, the SAPIEN 3 Transcatheter Heart Valve (Edwards Lifesciences) was approved by FDA as MV replacement device. These replacement valves are outside the scope of this evidence review.

**Summary of Evidence**

*MitraClip*

**Primary MR at Prohibitive Risk for Surgery**

For individuals who have symptomatic primary mitral regurgitation (MR) and are at prohibitive risk for open surgery who receive transcatheter mitral valve repair (TMVR) using MitraClip, the evidence includes a single-arm cohort with historical cohort and registry studies. Relevant outcomes are overall survival, morbid events, functional outcomes, and treatment-related morbidity. The primary evidence includes the pivotal EVEREST II HRR and EVEREST II REALISM studies and Transcatheter Valve Therapy Registry studies. These studies have demonstrated that MitraClip implantation is feasible with a procedural success rate greater than 90%, 30-day mortality ranging from 2.3% to 6.4% (less than predicted STS mortality risk score for MR repair or replacement; range, 9.5%-13.2%), postimplantation MR severity grade of 2+ or less in 82% to 93% of patients, and a clinically meaningful gain in quality of life (5-point to 6-point gains in 36-Item Short-Form Health Survey scores). At 1 year, freedom from death and MR more than 2+ was achieved in 61% of patients but the 1-year mortality or heart failure hospitalization rates remain considerably high (38%). Conclusions related to the treatment effect on mortality based on historical controls cannot be made because the control groups did not provide unbiased or precise estimates of the natural history of patients eligible to receive MitraClip. Given that primary MR is a mechanical problem and there is no effective medical therapy, a randomized controlled trial (RCT) comparing MitraClip with medical management is not feasible or ethical. The postmarketing data from the United States is supportive that MitraClip surgery is being
performed with short-term effectiveness and safety in select patient population. The evidence is sufficient to determine the effects of the technology on health outcomes.

**Secondary MR at Prohibitive Risk for Surgery**

For individuals who have symptomatic secondary MR and at prohibitive risk for open surgery who receive TMVR using MitraClip, the evidence includes multiple observational studies. Relevant outcomes are overall survival, morbid events, functional outcomes, and treatment-related morbidity. Multiple observational studies from Europe have suggested that MitraClip reduces the severity of MR and improves functional class in patients with secondary MR. However, recommendations from major societies regarding mitral valve surgery (conventional or percutaneous) are weak because the current evidence is inconsistent on whether mitral valve surgery produces a clinical benefit in patients with secondary MR. A RCT comparing the safety and effectiveness of MitraClip (COAPT trial) in patients with secondary MR is currently underway and is expected to be completed in 2024. The evidence is insufficient to determine the effects of the technology on health outcomes.

**Primary or Secondary MR Not at Risk for Surgery**

For individuals who have symptomatic primary or secondary MR and are surgical candidates who receive TMVR using MitraClip, the evidence includes a systematic review and an RCT. Relevant outcomes are overall survival, morbid events, functional outcomes, and treatment-related morbidity. The RCT found that MitraClip did not reduce MR as often or as completely as the surgical control, although it could be safely implanted and was associated with fewer adverse events at 1 year. Long-term follow-up from the RCT showed that significantly more MitraClip patients required surgery for MV dysfunction than conventional surgery patients. For these reasons, this single trial is not definitive in demonstrating improved clinical outcomes with MitraClip compared with surgery. Additional RCTs are needed to corroborate these results. The evidence is insufficient to determine the effects of the technology on health outcomes.

**Devices Other Than MitraClip**

For individuals who have primary or secondary MR who receive TMVR using devices other than MitraClip, the evidence includes primarily noncomparative feasibility studies. Relevant outcomes are overall survival, morbid events, functional outcomes, and treatment-related morbidity. The
body of evidence consists only of very small case series and case reports. Controlled studies, preferably RCTs, are needed to draw conclusions about the net health benefit. The evidence is insufficient to determine the effects of the technology on health outcomes.

**Ongoing and Unpublished Clinical Trials**

Some currently unpublished trials that might influence this review are listed in Table 2.

**Table 2. Summary of Key Trials**

<table>
<thead>
<tr>
<th>NCT No.</th>
<th>Trial Name</th>
<th>Planned Enrollment</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ongoing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCT01920698</td>
<td>Multicentre Randomized Study of Percutaneous Mitral Valve Repair MitraClip Device in Patients With Severe Secondary Mitral Regurgitation (MITRA-FR)</td>
<td>288</td>
<td>Oct 2017</td>
</tr>
<tr>
<td>NCT02444338</td>
<td>A Clinical Evaluation of the Safety and Effectiveness of the MitraClip System in the Treatment of Clinically Significant Functional Mitral Regurgitation</td>
<td>380</td>
<td>Sep 2019</td>
</tr>
<tr>
<td>NCT01626079</td>
<td>Cardiovascular Outcomes Assessment of the MitraClip Percutaneous Therapy for Heart Failure Patients With Functional Mitral Regurgitation (The COAPT Trial)</td>
<td>610</td>
<td>July 2024</td>
</tr>
</tbody>
</table>

NCT: national clinical trial

**Clinical Input Received from Physician Specialty Societies and Academic Medical Centers**

While the various physician specialty societies and academic medical centers may collaborate with and make recommendations during this process, through the provision of appropriate reviewers, input received does not represent an endorsement or position statement by the physician specialty societies or academic medical centers, unless otherwise noted.

In response to requests, input was received from 4 academic medical centers, one of which provided 4 responses, for a total of 7 responses, while this policy was under review in 2015. Input supported the use of transcatheter mitral valve repair in patients with primary
(degenerative) mitral regurgitation at prohibitive risk of open surgery. The greatest consensus for selection criteria to determine “prohibitive risk” was for the use of the Society of Thoracic Surgeons predictive operative risk of 12% or higher, or a logistic EuroSCORE of 20% or higher.

Practice Guidelines and Position Statements

American College of Cardiology

The American College of Cardiology and American Heart Association released guidelines on the management of valvular heart disease in 2017.33 Table 3 provides the relevant recommendations:

Table 3. Recommendations on Primary and Secondary MR

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>SOR</th>
<th>LOE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary MR</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transcatheter mitral valve repair may be considered for severely symptomatic patients (NYHA class III to IV) with chronic severe primary MR (stage D) who have favorable anatomy for the repair procedure and a reasonable life expectancy but who have a prohibitive surgical risk because of severe comorbidities and remain severely symptomatic despite optimal guideline-directed medical therapy for heart failure.</td>
<td>IIb</td>
<td>B</td>
</tr>
<tr>
<td><strong>Secondary MR</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitral valve surgery is reasonable for patients with chronic severe secondary MR (stages C and D) who are undergoing CABG or AVR.</td>
<td>IIb</td>
<td>B</td>
</tr>
<tr>
<td>Mitral valve repair or replacement may be considered for severely symptomatic patients (NYHA class III to IV) with chronic severe secondary MR (stage D) who have persistent symptoms despite optimal GDMT for HF.</td>
<td>IIb</td>
<td>B-R</td>
</tr>
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The American College of Cardiology, American Association for Thoracic Surgery, Society for Cardiovascular Angiography and Interventions, and Society of Thoracic Surgeons issued a position statement on transcatheter therapies for mitral regurgitation (MR) in 2014.45 This statement outlines critical components for successful transcatheter MR therapies and
recommended ongoing research and inclusion of all patients treated with transcatheter MR therapies in a disease registry.

**European Society of Cardiology and European Association for Cardio-Thoracic Surgery**

In 2017, the European Society of Cardiology and the European Association for Cardio-Thoracic Surgery released joint guidelines on the management of valvular heart disease (see Table 4).46

**Table 4. Recommendations on Management of Valvular Heart Disease**

<table>
<thead>
<tr>
<th>Recommendation</th>
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<th>LOE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary MR</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percutaneous edge-to-edge procedure may be considered in patients with symptomatic severe primary mitral regurgitation who fulfill the echocardiographic criteria of eligibility and are judged inoperable or at high surgical risk by the Heart Team, avoiding futility.</td>
<td>IIb</td>
<td>C</td>
</tr>
<tr>
<td><strong>Secondary MR</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percutaneous edge-to-edge repair for secondary mitral regurgitation is a low risk option, but its efficacy to reduce mitral regurgitation remains inferior to surgery. It can improve symptoms, functional capacity and quality of life and may induce reverse LV remodelling. Similar to surgery, a survival benefit compared with 'optimal' medical therapy according to current guidelines has not yet been proven.</td>
<td>a</td>
<td>a</td>
</tr>
</tbody>
</table>

LOE: level of evidence; LV: left ventricular; SOR: strength of recommendation

a No specific recommendations

**Medicare National Coverage**

In April 2015, the Centers for Medicare & Medicaid Services issued a national coverage decision for the use of transcatheter mitral valve repair (TMVR).47

Centers for Medicare & Medicaid Services determined that it would cover TMVR under Coverage with Evidence Development (CED) for the treatment of significant symptomatic MR when all of the following conditions are met:

1. “The procedure is performed with a complete TMVR system that has received FDA [Food and Drug Administration] premarket approval (PMA) for that system's FDA approved indication.”
2. “Both a cardiac surgeon experienced in mitral valve surgery and a cardiologist experienced in mitral valve disease have independently examined the patient face-to-face and evaluated the patient’s suitability for mitral valve surgery and determination of prohibitive risk; and both surgeons have documented the rationale for their clinical judgment and the rationale is available to the heart team.

3. “The patient (pre-operatively and post-operatively) is under the care of a heart team.... TMVR must be furnished in a hospital and with the appropriate infrastructure that includes but is not limited to:

   a. On-site active valvular heart disease surgical program with > 2 hospital-based cardiothoracic surgeons experienced in valvular surgery;

   b. Cardiac catheterization lab or hybrid operating room/catheterization lab equipped with a fixed radiographic imaging system with flat-panel fluoroscopy, offering catheterization laboratory-quality imaging,

   c. Non-invasive imaging expertise including transthoracic/transesophageal/3D echocardiography, vascular studies, and cardiac CT studies;

   d. Post-procedure intensive care facility with personnel experienced in managing patients who have undergone open-heart valve procedures;

   e. Adequate outpatient clinical care facilities

   f. Appropriate volume requirements per the applicable qualifications below.

“There are institutional and operator requirements for performing TMVR. The hospital must have the following:

   a. A surgical program that performs > 25 total mitral valve surgical procedures for severe MR per year of which at least 10 must be mitral valve repairs;

   b. An interventional cardiology program that performs > 1000 catheterizations per year, including > 400 percutaneous coronary interventions (PCIs) per year, with acceptable outcomes for conventional procedures compared to National Cardiovascular Data Registry (NCDR) benchmarks;

   c. The heart team must include:

      o An interventional cardiologist(s) who:
- Performs > 50 structural procedures per year including atrial septal defects (ASD), patent foramen ovale (PFO) and trans-septal punctures; AND
- Must receive prior suitable training on the devices to be used; AND
- Must be board-certified in interventional cardiology or board-certified/eligible in pediatric cardiology or similar boards from outside the United States
  - Additional members of the heart team, including: cardiac echocardiographers, other cardiac imaging specialists, heart valve and heart failure specialists, electrophysiologists, cardiac anesthesiologists, intensivists, nurses, nurse practitioners, physician assistants, data/research coordinators, and a dedicated administrator;
  - “All cases must be submitted to a single national database;
  - “Ongoing continuing medical education (or the nursing/technologist equivalent) of 10 hours per year of relevant material;
  - “The cardiothoracic surgeon(s) must be board-certified in thoracic surgery or similar foreign equivalent.

4. “The heart team’s interventional cardiologist or a cardiothoracic surgeon must perform the TMVR. Interventional cardiologist(s) and cardiothoracic surgeon(s) may jointly participate in the intra-operative technical aspects of TMVR as appropriate.

5. “The heart team and hospital are participating in a prospective, national, audited registry that: 1) consecutively enrolls TMVR patients; 2) accepts all manufactured devices; 3) follows the patient for at least one year; and, 4) complies with relevant regulations relating to protecting human research subjects...

“The registry should collect all data necessary and have a written executable plan.

1. “TMVR for MR uses that are not expressly listed as an FDA-approved indication when performed within a FDA-approved randomized clinical trial that fulfills all of the following:
   - TMVR must be performed by an interventional cardiologist or a cardiac surgeon.
     Interventional cardiologist(s) and cardiothoracic surgeon(s) may jointly participate in the intra-operative technical aspects of TMVR as appropriate.
   - As a fully-described, written part of its protocol, the clinical research study must critically evaluate the following questions at 12 months of longer follow-up:
- What is the patient’s post-TMVR quality of life (compared to pre-TMVR) at one year?
- What is the patient’s post-TMVR functional capacity (compared to pre-TMVR) at one year?”

In addition, the clinical research study must address a series of questions at 1 year post procedure as outlined in the proposed decision memo.

**Regulatory Status**

In October 2013, the MitraClip® Clip Delivery System (Abbott Vascular) was approved by FDA through the premarket approval process for treatment of “significant symptomatic mitral regurgitation (MR ≥3+) due to primary abnormality of the mitral apparatus (degenerative MR) in patients who have been determined to be at a prohibitive risk for mitral valve surgery by a heart team.”

*FDA product code: NKM.*

**References**


**History**

<table>
<thead>
<tr>
<th>Date</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>09/08/14</td>
<td>New Policy. Policy created with literature review through June 4, 2014. Transcatheter mitral valve repair considered investigational for all indications.</td>
</tr>
<tr>
<td>01/12/15</td>
<td>Coding update. New CPT codes 33418-33419, effective 1/1/15, added to policy; codes 0343T and 0344T deleted 12/31/14 noted on policy.</td>
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<tr>
<td>12/08/15</td>
<td>Annual Review. Added policy statement that Transcatheter mitral valve repair with the MitraClip is now medically necessary to treat degenerative mitral regurgitation when criteria are met. (Previously considered Investigational). Updated Policy Guidelines, with clarification about documented presence of risk score from one of the stated tools in the prohibitive risk definition. Added FDA indications for use. Policy updated with literature review through June 1, 2015; references added. Policy statement changed as noted. Codes 0343T and 0344T removed as deleted from codebook effective 12/31/14.</td>
</tr>
<tr>
<td>02/01/16</td>
<td>Coding update. Added 93799.</td>
</tr>
<tr>
<td>10/21/16</td>
<td>Minor formatting edit. Restored reference hyperlinks.</td>
</tr>
<tr>
<td>01/23/18</td>
<td>Coding update, added CPT codes 0483T and 0484T (new codes effective 1/1/18).</td>
</tr>
<tr>
<td>08/01/18</td>
<td>Annual Review, approved July 13, 2018. Policy updated with literature review through March 2018; references 29, 34-35, and 53 added. In the policy degenerative mitral regurgitation was replaced with primary mitral regurgitation and functional mitral regurgitation was replaced with secondary mitral regurgitation including the policy statement to be in consistent with language used in the guidelines. Data from FDA documents were added.</td>
</tr>
</tbody>
</table>
Disclaimer: This medical policy is a guide in evaluating the medical necessity of a particular service or treatment. The Company adopts policies after careful review of published peer-reviewed scientific literature, national guidelines and local standards of practice. Since medical technology is constantly changing, the Company reserves the right to review and update policies as appropriate. Member contracts differ in their benefits. Always consult the member benefit booklet or contact a member service representative to determine coverage for a specific medical service or supply. CPT codes, descriptions and materials are copyrighted by the American Medical Association (AMA). ©2018 Premera All Rights Reserved.

Scope: Medical policies are systematically developed guidelines that serve as a resource for Company staff when determining coverage for specific medical procedures, drugs or devices. Coverage for medical services is subject to the limits and conditions of the member benefit plan. Members and their providers should consult the member benefit booklet or contact a customer service representative to determine whether there are any benefit limitations applicable to this service or supply. This medical policy does not apply to Medicare Advantage.
Discrimination Is Against the Law

Premera Blue Cross complies with applicable Federal civil rights laws and does not discriminate on the basis of race, color, national origin, age, disability, or sex. Premera does not exclude people or treat them differently because of race, color, national origin, age, disability or sex.

Premera:
- Provides free aids and services to people with disabilities to communicate effectively with us, such as:
  - Qualified sign language interpreters
  - Written information in other formats (large print, audio, accessible electronic formats, other formats)
- Provides free language services to people whose primary language is not English, such as:
  - Qualified interpreters
  - Information written in other languages

If you need these services, contact the Civil Rights Coordinator.

If you believe that Premera has failed to provide these services or discriminated in another way on the basis of race, color, national origin, age, disability, or sex, you can file a grievance with:
Civil Rights Coordinator - Complaints and Appeals
PO Box 91102, Seattle, WA 98111
Toll free 855-332-4535, Fax 425-918-5592, TTY 800-842-5357
Email AppealsDepartmentinquiries@Premera.com

You can file a grievance in person or by mail, fax, or email. If you need help filing a grievance, the Civil Rights Coordinator is available to help you.

You can also file a civil rights complaint with the U.S. Department of Health and Human Services, Office for Civil Rights, electronically through the Office for Civil Rights Complaint Portal, available at:
https://ocrportal.hhs.gov/ocr/portal/lobby.jsf, or by mail or phone at:
U.S. Department of Health and Human Services
200 Independence Avenue SW, Room 509F, HHH Building
Washington, D.C. 20201, 1-800-368-1019, 800-537-7697 (TDD)
Complaint forms are available at:

Getting Help in Other Languages

This Notice has Important Information. This notice may have important information about your application or coverage through Premera Blue Cross. There may be key dates in this notice. You may need to take action by certain deadlines to keep your health coverage or help with costs. You may need to take action by certain deadlines to keep your health coverage or help with costs.

Call 800-722-1471 (TTY: 800-842-5357).

Arabic (Arabic):
 buscate en este aviso informaciones importantes. Podría tener derecho a recibir ayuda o cobertura de salud no aprobada. Si usted necesita ayuda, puede comunicarse por teléfono con la oficina de atención al público de Premera Blue Cross al 800-722-1471 (TTY: 800-842-5357) o escribir a:

Français (French):

Kreyòl ayisyen (Creole):
Avi sila a gen Enfòmasyon Enpòtan idanann. Avi sila a kapab genyen enfòmasyon enpòtan konsèn an aplikasyon w ou lan oswa konsèn kouvèti asirans lan atravè Premera Blue Cross. Kapab genyen dat ki enpòtan nan avi sila a. Ou ka gen pou pran kèk aksyon avan sèten at limit pou ka kenbe kouvèti asirans sante w la oswa pou yo ka ede w avèk deppans yo. Se dwa w pou resewa enfòmasyon sa a ak asistans nan lang ou pale a, san ou pa gen pou peye pou sa. Rate nan 800-722-1471 (TTY: 800-842-5357).

Deutsche (German):

Hmoob (Hmong):

Illoko (Illocano):
Daytoy a Pakdaar ket naglaon iti Napateg nga Impormasion. Daytoy a pakdaar mabalind nga adda ket naglaon iti napateg nga impormasion maipanggpe iti aplikasyon yowo coverage babaha iti Premera Blue Cross. Daytoy ket mabalind dagiti importante a pelta iti daytoy a pakdaar. Mabalind nga adda rumbeng nga aramidenyo nga addang sakbay dagiti partikular a naitading adda koj tapo napagmalatiday nga coverage iti salan-atyo yowo tungon kadagiti gastos. Adda karbenganyo a mangala iti daytoy nga impormasion ken tungon iti bukodyo a pagasao nga awan iti bayadanyo. Tumawg iti numero nga 800-722-1471 (TTY: 800-842-5357).

Italiano (Italian):
Premera Blue Cross có thể có thông tin quan trọng cho bạn cần biết. Để biết thêm thông tin, vui lòng gọi vào số 800-722-1471 (TTY: 800-842-5357) để được hỗ trợ.

Român (Romanian): Prezenta notificare conține informații importante. Această notificare poate conține informații importante privind cererea sau acoperirea asigurării dumneavoastră de sănătate într-un mod care vă poate fi benefic.

Русский (Russian): Настоящее уведомление содержит важную информацию. Это уведомление может содержать важную информацию о вашем заявлении или страховом покрытии через Premera Blue Cross. В настоящем уведомлении могут быть указаны ключевые даты. Вам, возможно, потребуется принять меры к определенным предельным срокам для сохранения страхового покрытия или помощи с расходами.

Español (Spanish): Este Aviso contiene información importante. Es posible que este aviso contenga información importante acerca de su solicitud o cobertura a través de Premera Blue Cross. Es posible que haya fechas claves en este aviso. Es posible que deba tomar alguna medida antes de determinadas fechas para mantener su cobertura médica o ayuda con los costos. Usted tiene derecho a recibir esta información y ayuda en su idioma sin costo alguno. Llame al 800-722-1471 (TTY: 800-842-5357).


ไทย (Thai): ประกาศนี้มีข้อมูลสัญญาร้ายแรง ประกาศนี้มีข้อมูลสัญญาร้ายแรง ประกาศนี้มีข้อมูลสัญญาร้ายแรง ประกาศนี้มีข้อมูลสัญญาร้ายแรง ประกาศนี้มีข้อมูลสัญญาร้ายแรง ประกาศนี้มีข้อมูลสัญญาร้ายแรง. ประกาศนี้มีข้อมูลสัญญาร้ายแรง

日本語 (Japanese): この通知には重要な情報が含まれています。この通知には、Premera Blue Crossの申請または補償範囲に関する重要な情報が含まれている場合があります。この通知には記載されている情報が重要である日時をご確認ください。健康保険や無料サポートを維持するには、特定の期日までに行動を取らなければなりません。ご希望の言語による情報とサポートが無料で提供されます。800-722-1471 (TTY: 800-842-5357)までお電話ください。