Medical Policy
Catheter Ablation as Treatment for Atrial Fibrillation

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Policy Number: 141
BCBSA Reference Number: 2.02.19
NCD/LCD: N/A

Related Policies
- Catheter Ablation of other Arrhythmogenic Foci #123
- Open and Thoracoscopic Approaches to Treat Atrial Fibrillation - Maze and Related Procedures, #356
- Left-Atrial Appendage Closure Devices for Stroke Prevention in Atrial Fibrillation, #334

Policy
Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity Medicare HMO BlueSM and Medicare PPO BlueSM Members

Transcatheter radiofrequency ablation or cryoablation to treat atrial fibrillation may be MEDICALLY NECESSARY as a treatment for either of the following indications which have failed to respond to adequate trials of antiarrhythmic medications:
- Symptomatic paroxysmal or symptomatic persistent atrial fibrillation, or
- As an alternative to atrioventricular nodal ablation and pacemaker insertion in patients with class II or III congestive heart failure and symptomatic atrial fibrillation.

Transcatheter radiofrequency ablation or cryoablation to treat atrial fibrillation may be considered MEDICALLY NECESSARY as an initial treatment for patients with recurrent symptomatic paroxysmal atrial fibrillation (>1 episode, with 4 or fewer episodes in the previous 6 months) in whom a rhythm-control strategy is desired.

Up to 3 repeat radiofrequency ablations or cryoablations may be considered MEDICALLY NECESSARY in patients with recurrence of atrial fibrillation and/or development of atrial flutter following the initial procedure.

Transcatheter radiofrequency ablation or cryoablation to treat atrial fibrillation is considered INVESTIGATIONAL as a treatment for cases of atrial fibrillation that do not meet the criteria outlined above.

Transcatheter treatment of atrial fibrillation may include pulmonary vein isolation and/or focal ablation.
**Prior Authorization Information**

Pre-service approval is required for all inpatient services for all products. See below for situations where prior authorization may be required or may not be required. Yes indicates that prior authorization is required. No indicates that prior authorization is not required. N/A indicates that this service is primarily performed in an inpatient setting.

<table>
<thead>
<tr>
<th>Outpatient</th>
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<tbody>
<tr>
<td>Commercial Managed Care (HMO and POS)</td>
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<tr>
<td>Commercial PPO and Indemnity</td>
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<tr>
<td>Medicare HMO Blue&lt;sup&gt;SM&lt;/sup&gt;</td>
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<tr>
<td>Medicare PPO Blue&lt;sup&gt;SM&lt;/sup&gt;</td>
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**CPT Codes / HCPCS Codes / ICD Codes**

Inclusion or exclusion of a code does not constitute or imply member coverage or provider reimbursement. Please refer to the member’s contract benefits in effect at the time of service to determine coverage or non-coverage as it applies to an individual member.

Providers should report all services using the most up-to-date industry-standard procedure, revenue, and diagnosis codes, including modifiers where applicable.

The following codes are included below for informational purposes only; this is not an all-inclusive list.

The above medical necessity criteria MUST be met for the following codes to be covered for Commercial Members: Managed Care (HMO and POS), PPO, Indemnity, Medicare HMO Blue and Medicare PPO Blue:

**CPT Codes**

<table>
<thead>
<tr>
<th>CPT codes:</th>
<th>Code Description</th>
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<tbody>
<tr>
<td>93656</td>
<td>Comprehensive electrophysiologic evaluation including transseptal catheterizations, insertion and repositioning of multiple electrode catheters with induction or attempted induction of an arrhythmia including left or right atrial pacing/recording when necessary, right ventricular pacing/recording when necessary, and His bundle recording when necessary with intracardiac catheter ablation of atrial fibrillation by pulmonary vein isolation</td>
</tr>
<tr>
<td>93657</td>
<td>Additional linear or focal intracardiac catheter ablation of the left or right atrium for treatment of atrial fibrillation remaining after completion of pulmonary vein isolation (List separately in addition to code for primary procedure)</td>
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</table>

The following ICD Diagnosis Codes are considered medically necessary when submitted with the CPT codes above if medical necessity criteria are met:

**ICD-10 Diagnosis Codes**

<table>
<thead>
<tr>
<th>ICD-10-CM Diagnosis codes:</th>
<th>Code Description</th>
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<tbody>
<tr>
<td>I48.0</td>
<td>Paroxysmal atrial fibrillation</td>
</tr>
<tr>
<td>I48.1</td>
<td>Persistent atrial fibrillation</td>
</tr>
<tr>
<td>I48.2</td>
<td>Chronic atrial fibrillation</td>
</tr>
<tr>
<td>I48.3</td>
<td>Typical atrial flutter</td>
</tr>
<tr>
<td>I48.4</td>
<td>Atypical atrial flutter</td>
</tr>
<tr>
<td>I48.91</td>
<td>Unspecified atrial fibrillation</td>
</tr>
<tr>
<td>I48.92</td>
<td>Unspecified atrial flutter</td>
</tr>
<tr>
<td>I50.20</td>
<td>Unspecified systolic (congestive) heart failure</td>
</tr>
</tbody>
</table>
Description
Atrial fibrillation (AF) is the most common cardiac arrhythmia, with a prevalence estimated at 0.4% of the population, increasing with age. The underlying mechanism of AF involves interplay between electrical triggering events and the myocardial substrate that permits propagation and maintenance of the aberrant electrical circuit. The most common focal trigger of AF appears to be located within the cardiac muscle that extends into the pulmonary veins.

AF accounts for approximately one-third of hospitalizations for cardiac rhythm disturbances. Symptoms of AF (eg, palpitations, decreased exercise tolerance, dyspnea) are primarily related to poorly controlled or irregular heart rate. The loss of atrioventricular (AV) synchrony results in a decreased cardiac output, which can be significant in patients with compromised cardiac function. In addition, patients with AF are at higher risk for stroke, and anticoagulation is typically recommended. AF is also associated with other cardiac conditions, such as valvular heart disease, heart failure, hypertension, and diabetes. Although episodes of AF can be converted to normal sinus rhythm using either pharmacologic or electroshock conversion, the natural history of AF is one of recurrence, thought to be related to fibrillation-induced anatomic and electrical remodeling of the atria.

AF can be subdivided into 3 types:
- paroxysmal (episodes that last fewer than 7 days and are self-terminating),
- persistent (episodes that last for more than 7 days and can be terminated pharmacologically or by electrical cardioversion), or
- permanent.

Atrial Fibrillation Treatment Strategies
Treatment strategies can be broadly subdivided into rate control, in which only the ventricular rate is controlled and the atria are allowed to fibrillate, or rhythm control, in which there is an attempt to reestablish and maintain normal sinus rhythm. Rhythm control has long been considered an important treatment goal for management of AF, although its primacy has recently been challenged by the results of several randomized trials that reported that pharmacologically maintained rhythm control offered no improvement in mortality or cardiovascular morbidity compared with rate control.

Currently, the main indications for a rhythm control are for patients with paroxysmal or persistent AF who have hemodynamic compromise associated with episodes of AF or who have bothersome symptoms, despite adequate rate control. A rhythm-control strategy involves initial pharmacologic or electronic cardioversion, followed by pharmacologic treatment to maintain normal sinus rhythm. However, antiarrhythmic medications are often not effective in maintaining sinus rhythm. As a result, episodes of recurrent AF are typical, and patients with persistent AF may require multiple episodes of cardioversion. Implantable atrial defibrillators, which are designed to detect and terminate an episode of AF, are an alternative in patients otherwise requiring serial cardioversions, but these have not yet achieved widespread use. Patients with paroxysmal AF, by definition, do not require cardioversion but may be treated pharmacologically to prevent further arrhythmic episodes.
Treatment of permanent AF focuses on rate control, using either pharmacologic therapy or ablation of the AV node, followed by ventricular pacing. Although AV nodal ablation produces symptomatic improvement, it does entail lifelong anticoagulation (due to the ongoing fibrillation of the atria), loss of AV synchrony, and lifelong pacemaker dependency. Implantable defibrillators are contraindicated in patients with permanent AF.

The cited treatment options are not considered curative. A variety of ablative procedures have been investigated as potentially curative approaches, or perhaps modifying the arrhythmia such that drug therapy becomes more effective. Ablative approaches focus on interruption of the electrical pathways that contribute to AF through modifying the arrhythmia triggers and/or the myocardial substrate that maintains the aberrant rhythm. The Maze procedure, an open surgical procedure often combined with other cardiac surgeries (eg, valve repair), is an ablative procedure that involves sequential atriotomy incisions designed to create electrical barriers that prevent the maintenance of AF. Because of the highly invasive nature of this procedure, it is currently mainly reserved for patients who are undergoing open heart surgery for other reasons, such as valve repair or coronary artery bypass grafting.

Catheter Ablation for Atrial Fibrillation

Radiofrequency ablation (RFA) using a percutaneous catheter-based approach is a widely used technique for a variety of supraventricular arrhythmias, in which intracardiac mapping identifies a discrete arrhythmogenic focus that is the target of ablation. The situation is more complex for AF, because there is no single arrhythmogenic focus. Since the inception of ablation techniques in the early 1990s, there has been a progressive understanding of the underlying electrical pathways in the heart that are associated with AF. In the late 1990s, it was recognized that AF most frequently arose from an abnormal focus at or near the junction of the pulmonary veins and the left atrium, thus leading to the feasibility of more focused, percutaneous ablation techniques. The strategies that have emerged for focal ablation within the pulmonary veins originally involved segmental ostial ablation guided by pulmonary vein potential (electrical approach) but currently more typically involve circumferential pulmonary vein ablation (anatomic approach).

The individual lesion set (in addition to the pulmonary vein isolation) and the degree to which the pulmonary vein antrum is electrically isolated vary. Research is ongoing into specific ablation/pulmonary vein isolation techniques is ongoing. Evidence from a randomized controlled trial (RCT) comparing pulmonary vein isolation alone with pulmonary vein isolation plus ablation of electrograms showing complex fractionated activity and with pulmonary vein isolation plus additional linear ablation across the left atrial roof and mitral valve isthmus suggests that the more extensive lesion sets do not reduce the AF recurrence rate.1 Meta-analyses have found that the addition of complex fractionated atrial electrogram ablation to pulmonary vein isolation alone did not improve rates of freedom from recurrent AF,2–5 although at least 1 RCT has reported that patients with ablation of dormant conduction sources outside the pulmonary veins had fewer arrhythmia recurrences than those treated with pulmonary vein isolation alone.6

Circumferential pulmonary vein ablation using radiofrequency energy is the most common approach at the present time. The procedure also can be done using cryoablation technology. Use of currently available radiofrequency catheters for AF has a steep learning curve because they require extensive guiding to multiple ablation points. One of the potential advantages to cryoablation techniques is that cryoablation catheters have a circular or shaped end point, allowing a “one-shot” ablation. Other types of radiofrequency catheters, such as Medtronic’s radiofrequency-based Pulmonary Vein Ablation Catheter®, which incorporate circular or otherwise shaped end points, may also be used.

Repeat procedures following initial RFA are commonly performed if AF recurs or if atrial flutter develops postprocedure. The need for repeat procedures may, in part, depend on clinical characteristics of the patient (eg, age, persistent vs paroxysmal AF, atrial dilatation), and the type of initial ablation performed. Repeat procedures are generally more limited than the initial procedure. For example, in cases where electrical reconnections occur as a result of incomplete ablation lines, a “touch up” procedure is done to correct gaps in the original ablation. In other cases when atrial flutter develops after ablation, a “flutter ablation” is performed, which is more limited than the original AF procedure. A number of clinical and
demographic factors have been associated with the need for a second procedure, including age, length of
AF, permanent AF, left atrial size, and left ventricular ejection fraction.

Summary
Radiofrequency ablation (RFA) using a percutaneous catheter is a common approach to treat
supraventricular arrhythmias. Atrial fibrillation (AF) frequently arises from an abnormal focus at or near the
junction of the pulmonary veins and the left atrium, thus leading to the feasibility of more focused ablation
techniques directed at these structures. Catheter-based ablation, using RFA or cryoablation, is being studied in the treatment of various types of AF.

For individuals who have symptomatic paroxysmal or persistent AF who have failed antiarrhythmic drugs
who receive RFA or cryoablation, the evidence includes multiple randomized controlled trials (RCTs) and
systematic reviews. Relevant outcomes are overall survival, symptoms, morbid events, and quality of life. RCTs that compare RFA with antiarrhythmic medications have reported that freedom from AF is more likely after ablation than after medications. Results of long-term follow-up (5-6 years) after ablation has demonstrated that late recurrences continue to occur in patients who are free of AF at 1 year. However, most patients who are AF-free at 1 year remain AF-free at 5 to 6 years. Multiple RCTs comparing
cryoablation and RFA have found that cryoablation is noninferior to RFA for AF control. RFA and
cryoablation differ in adverse effect profiles; for example, cryoablation is associated with higher rates of
phrenic nerve paralysis, but may allow a shorter procedure time. Given currently available data, it would
be reasonable to consider both RFA and cryoablation effective for catheter ablation of AF foci or
pulmonary vein isolation, provided that there is a discussion about the risks and benefits of each. The
evidence is sufficient to determine qualitatively that the technology results in a meaningful improvement in
the net health outcome.

For individuals who have symptomatic AF and congestive heart failure who have failed rate control and
antiarrhythmic drugs who receive RFA or cryoablation, the evidence includes a TEC Assessment, supported by RCTs. Relevant outcomes are overall survival, symptoms, morbid events, and quality of life. Based on 1 available multicenter RCT, the TEC Assessment found that the evidence was sufficient to
conclude that catheter ablation improves outcomes more than the alternative, atrioventricular (AV) nodal
ablation and pacemaker insertion. Findings from this RCT have been supported by other comparative
studies, which have reported improvements in AF. It is reasonable to consider both RFA and cryoablation
effective for catheter ablation of AF foci or pulmonary vein isolation, provided that there is a discussion
about the risks and benefits of each. The evidence is sufficient to determine qualitatively that the
technology results in a meaningful improvement in the net health outcome.

For individuals who have recurrent symptomatic paroxysmal AF who receive RFA or cryoablation as an
initial rhythm-control strategy, the evidence includes RCTs and systematic reviews. Relevant outcomes are
overall survival, symptoms, morbid events, and quality of life. Two RCTs with low risk of bias
compared catheter ablation for pulmonary vein isolation to antiarrhythmic medications. One RCT
demonstrated reduced rates of AF recurrence, while the other reported reduced cumulative overall AF
burden. Together, these results suggest that, when a rhythm-control strategy is desired, catheter ablation
is a reasonable alternative to antiarrhythmic drug therapy. While the RCTs comparing ablation to medical
therapy were conducted using RFA, it is reasonable to consider both RFA and cryoablation effective for
catheter ablation of AF foci or pulmonary vein isolation, provided that there is a discussion about the risks
and benefits of each. The evidence is sufficient to determine qualitatively that the technology results in a
meaningful improvement in the net health outcome.

Policy History

<table>
<thead>
<tr>
<th>Date</th>
<th>Action</th>
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<tbody>
<tr>
<td>2/2018</td>
<td>Clarified coding information.</td>
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<tr>
<td>6/2017</td>
<td>New references added from BCBSA National medical policy.</td>
</tr>
<tr>
<td>8/2016</td>
<td>BCBSA National medical policy review. Last paragraph in Background section revised to remove redundant language and add clarity. 8/2016</td>
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Information Pertaining to All Blue Cross Blue Shield Medical Policies
Click on any of the following terms to access the relevant information:
Medical Policy Terms of Use
Managed Care Guidelines
Indemnity/PPO Guidelines
Clinical Exception Process
Medical Technology Assessment Guidelines

References


69. Malmborg H, Lonnerholm S, Blomstrom P, et al. Ablation of atrial fibrillation with cryoballoon or duty-cycled radiofrequency pulmonary vein ablation catheter: a randomized controlled study
96. Calkins H, Kuck KH, Cappato R, et al. 2012 HRS/EHRA/ECAS expert consensus statement on catheter and surgical ablation of atrial fibrillation: recommendations for patient selection, procedural techniques, patient management and follow-up, definitions, endpoints, and research trial design: a report of the Heart Rhythm Society (HRS) Task Force on Catheter and Surgical Ablation of Atrial Fibrillation. Developed in partnership with the European Heart Rhythm Association (EHRA), a registered branch of the European Society of Cardiology (ESC) and the European Cardiac Arrhythmia Society (ECAS); and in collaboration with the American College of Cardiology (ACC), American Heart Association (AHA), the Asia Pacific Heart Rhythm Society (APHRS), and the Society of Thoracic Surgeons (STS). Endorsed by the governing bodies of the American College of Cardiology Foundation, the American Heart Association, the European Cardiac Arrhythmia Society, the European Heart Rhythm Association, the Society of Thoracic Surgeons, the Asia Pacific Heart Rhythm Society, and the Heart Rhythm Society. Heart Rhythm. Apr 2012;9(4):632-696 e621. PMID 22386883