Medical Policy
Catheter Ablation for Cardiac Arrhythmias

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Policy Number: 123
BCBSA Reference Number: 2.02.01
NCD/LCD: N/A

Related Policies
- Radiofrequency Catheter Ablation of the Pulmonary Vein as a Treatment for Atrial Fibrillation, #141
- Implantable Cardioverter Defibrillator (ICD), #070

Policy¹
Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity Medicare HMO BlueSM and Medicare PPO BlueSM Members

Catheter ablation may be considered MEDICALLY NECESSARY for the treatment of supraventricular tachyarrhythmias, as follows:
- Treatment of paroxysmal supraventricular tachycardia due to atroventricular (AV) nodal reentry tachycardia
- Treatment of paroxysmal supraventricular tachycardia due to accessory pathways
- Treatment of atrial flutter
- Treatment of focal atrial tachycardia, AND
- Treatment of Wolff-Parkinson-White (WPW) syndrome in pediatric patients (0-18 years old)
  - Who are asymptomatic, AND
  - Who are at high risk of life threatening arrhythmias as determined by the persistence of a delta wave during an exercise tolerance test in which a maximal heart rate is achieved.¹

Catheter ablation using radiofrequency energy may be considered MEDICALLY NECESSARY for the treatment of chronic, recurrent, ventricular tachycardia that is refractory to implantable cardioverter defibrillator treatment and antiarrhythmic medications, and for which an identifiable arrhythmogenic focus can be identified.

Catheter ablation for ventricular tachycardia storm may be considered MEDICALLY NECESSARY when pharmacologic treatment has been unsuccessful in controlling the arrhythmia.
Ventricular tachycardia storm, also known as incessant ventricular tachycardia, is defined as at least three episodes of sustained VT in a 24-hour period.

Catheter ablation for all other ventricular arrhythmias is considered INVESTIGATIONAL.

**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 for outpatient services.

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>
<th>Commercial Managed Care (HMO and POS)</th>
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<tr>
<td></td>
<td>Commercial PPO and Indemnity</td>
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<td>Medicare HMO Blue℠</td>
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<td>Medicare PPO Blue℠</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.

**CPT Codes**

<table>
<thead>
<tr>
<th>CPT codes:</th>
<th>Code Description</th>
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<tbody>
<tr>
<td>93650</td>
<td>Intracardiac catheter ablation of atrioventricular node function, atrioventricular conduction for creation of complete heart block, with or without temporary pacemaker placement</td>
</tr>
<tr>
<td>93653</td>
<td>Comprehensive electrophysiologic evaluation including insertion and repositioning of multiple electrode catheters with induction or attempted induction of an arrhythmia with right atrial pacing and recording, right ventricular pacing and recording (when necessary) and His bundle recording (when necessary) with intracardiac catheter ablation of arrhythmogenic focus; with treatment of supraventricular tachycardia by ablation of fast or slow atrioventricular pathway, accessory atrioventricular connection, cavo-tricuspid isthmus or other single atrial focus or source of atrial re-entry</td>
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<tr>
<td>93654</td>
<td>Comprehensive electrophysiologic evaluation including insertion and repositioning of multiple electrode catheters with induction or attempted induction of an arrhythmia with right atrial pacing and recording, right ventricular pacing and recording (when necessary), and His bundle recording (when necessary) with intracardiac catheter ablation of arrhythmogenic focus; with treatment of ventricular tachycardia or focus of ventricular ectopy including intracardiac electrophysiologic 3D mapping, when performed, and left ventricular pacing and recording, when performed</td>
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<tr>
<td>93655</td>
<td>Intracardiac catheter ablation of a discrete mechanism of arrhythmia which is distinct from the primary ablated mechanism, including repeat diagnostic maneuvers, to treat a spontaneous or induced arrhythmia (List separately in addition to code for primary procedure)</td>
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ICD-9 Diagnosis Codes

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<th>ICD-9-CM diagnosis codes:</th>
<th>Code Description</th>
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<tr>
<td>426.7</td>
<td>Anomalous atrioventricular excitation</td>
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<tr>
<td>427.0</td>
<td>Paroxysmal supraventricular tachycardia</td>
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<td>427.1</td>
<td>Paroxysmal ventricular tachycardia</td>
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<tr>
<td>427.32</td>
<td>Atrial flutter</td>
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<td>427.89</td>
<td>Other specified cardiac dysrhythmias</td>
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<td>779.82</td>
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ICD-10 Diagnosis Codes

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<tr>
<td>I45.6</td>
<td>Pre-excitation syndrome</td>
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<td>I47.0</td>
<td>Re-entry ventricular arrhythmia</td>
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<td>I47.1</td>
<td>Supraventricular tachycardia</td>
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<td>I47.2</td>
<td>Ventricular tachycardia</td>
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<td>I48.1</td>
<td>Persistent atrial fibrillation</td>
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<td>Typical atrial flutter</td>
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<td>I48.4</td>
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<td>I48.92</td>
<td>Unspecified atrial flutter</td>
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<td>I49.2</td>
<td>Junctional premature depolarization</td>
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<td>I49.8</td>
<td>Other specified cardiac arrhythmias</td>
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<td>R00.1</td>
<td>Bradycardia, unspecified</td>
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<td>P29.11</td>
<td>Neonatal tachycardia</td>
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Description

Catheter ablation has been used as a treatment for cardiac arrhythmias for several decades. Radiofrequency energy is the most commonly used source, although other energy sources such as cryoablation have also been used. The technique treats supraventricular tachycardias by partially or fully ablatung the atrioventricular node or accessory conduction pathways, thus ablating the arrhythmogenic focus. It controls idiopathic ventricular tachycardia (VT) or reentrant VTs by eliminating the focus.

Ablation is preceded by preprocedural imaging and mapping of the focus during electrophysiologic studies. Imaging and anatomic mapping systems recreate the 3-dimensional structure of the cardiac chambers. This assists the electrophysiologist in defining the individual anatomy, locating the electroanatomic location of arrhythmogenic foci, and positioning the ablation catheter for delivery of radiofrequency energy. There are a variety of approaches to preprocedural imaging and mapping. Most commonly computed tomographic angiography and/or magnetic resonance imaging are used for initial imaging. Mapping can be done by an electroanatomic technique, by using multielectrode arrays, or by variations of these approaches.

Anticoagulation is indicated for some patients undergoing ablation. In general, ablations involving the right side of the heart for supraventricular arrhythmias do not require anticoagulation. Ablations in the left side of the heart are often combined with anticoagulation during and/or after the procedure. There are no standardized guidelines for which patients should receive anticoagulation or for the duration of therapy.
Cardiac Catheter Ablation Complications
Catheter ablation is invasive in that a catheter is passed into the heart via an arm or leg vein. The risks of catheter ablation vary with the specific type of procedure performed and whether there are underlying structural abnormalities of the heart. Various complications have been documented; they include:

- **Vascular injury.** Injury can occur to the peripheral vessels at the site of vascular access, with resulting hemorrhage, arteriovenous fistula, and/or pseudoaneurysm formation. Venous injury may lead to deep venous thrombosis, with the attendant risk of pulmonary embolism. Significant vascular injury has been estimated to occur in approximately 2% of ablation procedures.

- **Cardiac tamponade.** Perforation of the myocardium can lead to bleeding into the pericardial space and cardiac tamponade. This complication is estimated to occur in approximately 1% of ablation procedures and may require pericardiocentesis for treatment.

- **Myocardial ischemia/infarction.** Ischemia or infarction can result from damage to the coronary arteries during the procedure or from demand ischemia as a result of the procedure. The rate of these complications is not well characterized.

- **Thromboembolism.** Destruction of tissue by radiofrequency energy promotes thrombus formation. Thromboembolism following ablation most commonly leads to stroke or transient ischemic attack (TIA). The estimated incidence of stroke or TIA following catheter ablation is 1.3%.

- **Heart failure.** Heart failure can be precipitated by “stunning” of myocardium following ablation and/or by the saline administration required during the procedure. Patients who are at risk for this complication are mostly those with preexisting left-ventricular dysfunction. Patients undergoing large ablations of the left ventricle are at greatest risk.

- **Radiation exposure.** In any ablation procedure using radiofrequency energy, the patient is exposed to radiation from fluoroscopy. Systems intended to reduce radiation exposure, such as the use of electroanatomic mapping and remote navigation systems, are available.

Summary
Catheter ablation is a technique to eliminate cardiac arrhythmias by selectively destroying a portion of myocardium or conduction system tissue that contains the arrhythmogenic focus. A variety of different energy sources can be used with catheter ablation, such as radiofrequency and/or cryotherapy.

For individuals who have supraventricular arrhythmias who receive catheter ablation, the evidence includes numerous case series and uncontrolled trials and 1 randomized controlled trial (RCT). Relevant outcomes are overall survival, symptoms, change in disease status, morbid events, medication use, and treatment-related morbidity. Clinical series of paroxysmal supraventricular tachycardia have reported very high success rates at well over 90%. Serious complications, mainly consisting of atrioventricular block requiring pacemaker insertion, occur in approximately 1% of patients. High success rates are also reported for atrial flutter and focal atrial tachycardia. There are few comparative or trial data. The RCT assessing catheter ablation of the accessory pathway confirmed that incidence of arrhythmic events is greatly reduced with catheter ablation. The evidence is sufficient to determine qualitatively that the technology results in a meaningful improvement in the net health outcome.

For individuals with drug- and implantable cardioverter-defibrillator-refractory ventricular tachycardia due to structural heart disease who receive catheter ablation, the evidence systematic reviews of RCTs. Relevant outcomes are overall survival, symptoms, change in disease-status, morbid events, medication use, and treatment-related morbidity. Across 9 individual RCTs that evaluated catheter ablation versus usual care with medical management and 1 RCT that directly compared escalation of antiarrhythmic medications to catheter ablation in patients with VTs and an automatic ICD, the evidence has shown that procedural success is 80% to 90% and that catheter ablation is successful at reducing the number of VT episodes by about 30% and associated with approximately a 50% reduction in inappropriate ICD interventions compared to usual medical management alone. The rate of serious procedural adverse events is low. Late recurrences do occur, but most patients treated with ablation remain free of VT at 1- to 2-year follow-ups and 40% to 50% remain VT free after 6 years of follow-up. The trial directly comparing catheter ablation to escalation of medication found a 28% lower rate of a composite of death, VT storm, and appropriate ICD shock among patients undergoing catheter ablation versus those receiving an
escalation in antiarrhythmic drug therapy. The evidence is sufficient to determine qualitatively that the technology results in a meaningful improvement in the net health outcome.

For individuals who have idiopathic VT refractory to drug therapy and ICD placement who receive catheter ablation, the evidence includes a few case series. Relevant outcomes are overall survival, symptoms, change in disease status, morbidity events, medication use, and treatment-related morbidity. There are no comparative or trial data and, given the rarity of the disease, such RCTs are unlikely. Case series have reported high success and low rates of adverse events with catheter ablation. However, the body of literature is small. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have VT storm who have failed pharmacologic treatment who receive catheter ablation, the evidence includes a few case series. Relevant outcomes are overall survival, symptoms, change in disease status, morbidity events, medication use, and treatment-related morbidity. Serious complications have been reported at reasonably low rates, and mortality from the procedure has been reported to be 0.6% in a meta-analysis of case series. There are no comparative or trial data. Because of the emergent nature of this condition, RCTs are not expected to be performed. However, in these situations, morbidity and mortality are expected to be extremely high in patients who have failed pharmacologic therapy; therefore, the available evidence is considered sufficient to draw conclusions about outcomes. The evidence is sufficient to determine qualitatively that the technology results in a meaningful improvement in the net health outcome.

Clinical input has supported the use of catheter ablation to treat VT and other ventricular arrhythmias.

Policy History

<table>
<thead>
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<th>Date</th>
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<tr>
<td>7/2017</td>
<td>Medical policy criteria clarified. 7/1/2017</td>
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<tr>
<td>10/2016</td>
<td>New references added from BCBSA National medical policy.</td>
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<tr>
<td>5/2015</td>
<td>New references added from BCBSA National medical policy.</td>
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<tr>
<td>10/2013</td>
<td>Updated to add CPT codes 93653, 93654 and 93655. Removed deleted codes 93651 and 93652.</td>
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<tr>
<td>5/2013</td>
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<tr>
<td>1/2013</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
References


43. Aliot EM, Stevenson WG, Almendral-Garrote JM, et al. EHRA/HRS Expert Consensus on Catheter Ablation of Ventricular Arrhythmias: developed in a partnership with the European Heart Rhythm Association (EHRA), a Registered Branch of the European Society of Cardiology (ESC), and the Heart Rhythm Society (HRS); in collaboration with the American College of Cardiology (ACC) and the American Heart Association (AHA). Europace. Jun 2009;11(6):771-817. PMID 19443434
45. Pediatric Congenital Electrophysiology Society, Heart Rhythm Society, American College of Cardiology Foundation, et al. PACES/HRS expert consensus statement on the management of the asymptomatic young patient with a Wolff-Parkinson-White (WPW, ventricular preexcitation) electrocardiographic pattern: developed in partnership between the Pediatric and Congenital Electrophysiology Society (PACES) and the Heart Rhythm Society (HRS). Endorsed by the governing bodies of PACES, HRS, the American College of Cardiology Foundation (ACCF), the American Heart Association (AHA), the American Academy of Pediatrics (AAP), and the Canadian Heart Rhythm Society (CHRS). Heart Rhythm. Jun 2012;9(6):1006-1024. PMID 22579340

Endnote

1 Based on local expert opinion