



MASSACHUSETTS

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Medical Policy

Catheter Ablation of Arrhythmogenic Foci

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Policy Number: 123

BCBSA Reference Number: 2.02.01

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 of arrhythmogenic foci may be considered **MEDICALLY NECESSARY** for the treatment of supraventricular tachyarrhythmias in any of the following conditions:

- Paroxysmal supraventricular tachycardia due to atrioventricular (AV) nodal re-entry tachycardia,
- Paroxysmal supraventricular tachycardia due to accessory pathways,
- Atrial flutter,
- Focal atrial tachycardia, and
- 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 of arrhythmogenic foci may be considered **MEDICALLY NECESSARY** for the treatment of chronic, recurrent, ventricular tachycardias when the tachycardia:

- Is refractory to implantable cardioverter-defibrillator treatment, AND
- Is refractory to antiarrhythmic medications, AND
- Has an arrhythmogenic focus that 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.)

Patients with ventricular tachycardia who are not refractory to medications and ICD, the role of catheter ablation is uncertain are [INVESTIGATIONAL](#).

Catheter ablation for all other ventricular arrhythmias is considered [INVESTIGATIONAL](#).

Prior Authorization Information

Commercial Members: Managed Care (HMO and POS)

Prior authorization is **NOT** required.

Commercial Members: PPO, and Indemnity

Prior authorization is **NOT** required.

Medicare Members: HMO BlueSM

Prior authorization is **NOT** required.

Medicare Members: PPO BlueSM

Prior authorization is **NOT** required.

CPT Codes / HCPCS Codes / ICD-9 Codes

The following codes are included below for informational purposes. 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. A draft of future ICD-10 Coding related to this document, as it might look today, is included below for your reference.

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

CPT Codes

CPT codes:	Code Description
93650	Intracardiac catheter ablation of atrioventricular node function, atrioventricular conduction for creation of complete heart block, with or without temporary pacemaker placement
93653	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
93654	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
93655	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)

ICD-9 Diagnosis Codes

ICD-9-CM diagnosis codes:	Code Description
426.7	Anomalous atrioventricular excitation
427.0	Paroxysmal supraventricular tachycardia
427.1	Paroxysmal ventricular tachycardia
427.32	Atrial flutter
427.89	Other specified cardiac dysrhythmias
779.82	Neonatal tachycardia

ICD-10 Diagnosis Codes

ICD-10-CM Diagnosis codes:	Code Description
I45.6	Pre-excitation syndrome
I47.0	Re-entry ventricular arrhythmia
I47.1	Supraventricular tachycardia
I47.2	Ventricular tachycardia
I48.1	Persistent atrial fibrillation
I48.3	Typical atrial flutter
I48.4	Atypical atrial flutter
I48.92	Unspecified atrial flutter
I49.2	Junctional premature depolarization
I49.8	Other specified cardiac arrhythmias
R00.1	Bradycardia, unspecified
P29.11	Neonatal tachycardia

Description

Cardiac arrhythmias are descriptions of heart beats that are too fast, too slow, or have an interruption, or irregularity of the rhythm of the beat. Most often this is due to diseased cardiac tissue affecting the conduction system or the myocardium structure. Catheter ablation is a technique for eliminating cardiac arrhythmias by selectively destroying a portion of the myocardium, or conduction system tissue that contains the arrhythmogenic focus. Radiofrequency energy is the most commonly used source for ablation of cardiac arrhythmias, although other energy sources such as cryoablation have also been used. The technique treats supraventricular tachycardias by partially or fully ablating the atrioventricular (AV) node or accessory conduction pathways, thus ablating the arrhythmogenic focus. It controls idiopathic ventricular or re-entrant ventricular tachycardias by eliminating the focus.

Ablation is performed following pre-procedural imaging and mapping of the focus during electrophysiologic studies that recreate a three-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.

Catheter ablation is invasive. It can be done in conjunction with open heart surgery or on a stand-alone basis where a cardiac 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 or not there are underlying structural abnormalities of the heart. A variety of complications have been documented. These may include vascular injury, cardiac tamponade, stroke, myocardial ischemia/infarction, thromboembolism, heart failure, and/or radiation exposure.

Examples of cardiac catheter ablation systems to treat arrhythmogenic foci are the Synergy Cardiac Ablation Device by AtriCure the Phased RF Ablation System from Medtronic and Numeris® Coagulation

System with VisiTrax® from nContact. All cardiac catheter ablation devices for treating arrhythmogenic foci are considered investigational regardless of the commercial name, the manufacturer or FDA approval status except when used for the medically necessary indications that are consistent with the policy statement.

Summary

Catheter ablation is an established and widely used technique in the treatment of supraventricular arrhythmias. While large-scale RCTs of efficacy are lacking for PSVT, numerous clinical series report very high success rates at well over 90%. Serious complications, mainly consisting of AV block requiring pacemaker insertion, occur in approximately 1% of patients. High success rates are also reported for atrial flutter and focal atrial tachycardia, although the evidence is less robust than for PSVT. Therefore, these procedures offer a very favorable risk-benefit ratio for supraventricular arrhythmias and can be considered medically necessary. .

For ventricular arrhythmias, the use of catheter ablation is less well-established. Two small RCTs in patients with an ICD demonstrated a reduction in the number of ICD discharges for ventricular arrhythmias following catheter ablation, and a systematic review of controlled trials reports a 31% reduction in VT recurrence associated with ablation. Clinical series demonstrate that acute success can be achieved in a high percentage of patients, in the range of 80-90%. Late recurrences do occur, but the majority of patients treated with ablation remain free of ventricular tachycardia at 1-2 years' follow-up. This evidence establishes that ablation for ventricular tachycardia reduces the future occurrence of ventricular arrhythmias. As a result, it is reasonable to recommend ablation as a treatment for patients with ventricular arrhythmias that are not controlled by ICD implantation and medications. As a result, catheter ablation may be considered medically necessary for these patients.

The evidence is limited on treatment of VT "storm". A few small case series of patients with VT storm report high acute success and favorable long-term response rates for catheter ablation. Based on this data, together with the results of clinical vetting, the lack of alternative treatments, and the infeasibility of performing clinical trials, catheter ablation may be considered medically necessary for patients with VT storm who fail to respond to pharmacologic treatment.

Policy History

Date	Action
5/2014	New references from BCBSA National medical policy. Updated Coding section with ICD10 procedure and diagnosis codes, effective 10/2015.
10/2013	Updated to add CPT codes 93653, 93654 and 93655. Removed deleted codes 93651 and 93652.
5/2013	New references from BCBSA National medical policy.
2/2013	BCBSA National medical policy review Changes made to policy statement. Effective 2/4/2013.
1/2013	Updated to add new code 93655.
11/2011-4/2012	Medical policy ICD 10 remediation: Formatting, editing and coding updates. No changes to policy statements.
7/2011	BCBSA National medical policy review. Changes to policy statements.
4/2011	Reviewed - Medical Policy Group - Cardiology and Pulmonology. No changes to policy statements.
4/2010	Reviewed - Medical Policy Group - Cardiology and Pulmonology. No changes to policy statements.
10/2009	BCBSA National medical policy review. Changes to policy statements.
4/2009	Reviewed - Medical Policy Group - Cardiology and Pulmonology. No changes to policy statements.

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

1. Blomstrom-Lundqvist C, Scheinman MM, Aliot EM et al. ACC/AHA/ESC guidelines for the management of patients with supraventricular arrhythmias--executive summary. a report of the American college of cardiology/American heart association task force on practice guidelines and the European society of cardiology committee for practice guidelines (writing committee to develop guidelines for the management of patients with supraventricular arrhythmias) developed in collaboration with NASPE-Heart Rhythm Society. *J Am Coll Cardiol* 2003; 42(8):1493-531.
2. Deisenhofer I, Zrenner B, Yin YH et al. Cryoablation versus radiofrequency energy for the ablation of atrioventricular nodal reentrant tachycardia (the CYRANO Study): results from a large multicenter prospective randomized trial. *Circulation* 2010; 122(22):2239-45.
3. Rodriguez-Entem FJ, Exposito V, Gonzalez-Enriquez S et al. Cryoablation versus radiofrequency ablation for the treatment of atrioventricular nodal reentrant tachycardia: results of a prospective randomized study. *J Interv Card Electrophysiol* 2013; 36(1):41-5; discussion 45.
4. Morady F. Catheter ablation of supraventricular arrhythmias: state of the art. *Pacing and clinical electrophysiology : PACE* 2004; 27(1):125-42.
5. Bastani H, Drca N, Insulander P et al. Cryothermal vs. radiofrequency ablation as atrial flutter therapy: a randomized comparison. *Europace* 2013; 15(3):420-8.
6. Raymond JM, Sacher F, Winslow R et al. Catheter ablation for scar-related ventricular tachycardias. *Curr Probl Cardiol* 2009; 34(5):225-70.
7. Mallidi J, Nadkarni GN, Berger RD et al. Meta-analysis of catheter ablation as an adjunct to medical therapy for treatment of ventricular tachycardia in patients with structural heart disease. *Heart Rhythm* 2011; 8(4):503-10.
8. Reddy VY, Reynolds MR, Neuzil P et al. Prophylactic catheter ablation for the prevention of defibrillator therapy. *N Engl J Med* 2007; 357(26):2657-65.
9. Kuck KH, Schaumann A, Eckardt L et al. Catheter ablation of stable ventricular tachycardia before defibrillator implantation in patients with coronary heart disease (VTACH): a multicentre randomised controlled trial. *Lancet* 2010; 375(9708):31-40.
10. Jared Bunch T, Peter Weiss J, Crandall BG et al. Patients treated with catheter ablation for ventricular tachycardia after an ICD shock have lower long-term rates of death and heart failure hospitalization than do patients treated with medical management only. *Heart Rhythm* 2013.
11. Stevenson WG, Wilber DJ, Natale A et al. Irrigated radiofrequency catheter ablation guided by electroanatomic mapping for recurrent ventricular tachycardia after myocardial infarction: the multicenter thermocool ventricular tachycardia ablation trial. *Circulation* 2008; 118(25):2773-82.
12. Calkins H, Epstein A, Packer D et al. Catheter ablation of ventricular tachycardia in patients with structural heart disease using cooled radiofrequency energy: results of a prospective multicenter study. Cooled RF Multi Center Investigators Group. *J Am Coll Cardiol* 2000; 35(7):1905-14.
13. Tanner H, Hindricks G, Volkmer M et al. Catheter ablation of recurrent scar-related ventricular tachycardia using electroanatomical mapping and irrigated ablation technology: results of the prospective multicenter Euro-VT-study. *J Cardiovasc Electrophysiol* 2010; 21(1):47-53.
14. Mork TJ, Kristensen J, Gerdes JC et al. Catheter ablation for ventricular tachycardia in ischaemic heart disease; Acute success and long-term outcome. *Scand Cardiovasc J* 2014; 48(1):27-34.
15. Rodriguez LM, Smeets JL, Timmermans C et al. Predictors for successful ablation of right- and left-sided idiopathic ventricular tachycardia. *Am J Cardiol* 1997; 79(3):309-14.
16. Chinushi M, Aizawa Y, Takahashi K et al. Radiofrequency catheter ablation for idiopathic right ventricular tachycardia with special reference to morphological variation and long-term outcome. *Heart* 1997; 78(3):255-61.

17. Flemming MA, Oral H, Kim MH et al. Electrocardiographic predictors of successful ablation of tachycardia or bigeminy arising in the right ventricular outflow tract. *Am J Cardiol* 1999; 84(10):1266-8, A9.
18. Wen MS, Yeh SJ, Wang CC et al. Radiofrequency ablation therapy in idiopathic left ventricular tachycardia with no obvious structural heart disease. *Circulation* 1994; 89(4):1690-6.
19. Pytkowski M, Maciag A, Jankowska A et al. Quality of life improvement after radiofrequency catheter ablation of outflow tract ventricular arrhythmias in patients with structurally normal heart. *Acta Cardiol* 2012; 67(2):153-9.
20. Nayyar S, Ganesan AN, Brooks AG et al. Venturing into ventricular arrhythmia storm: a systematic review and meta-analysis. *Eur Heart J* 2012.
21. Carbucicchio C, Santamaria M, Trevisi N et al. Catheter ablation for the treatment of electrical storm in patients with implantable cardioverter-defibrillators: short- and long-term outcomes in a prospective single-center study. *Circulation* 2008; 117(4):462-9.
22. Arya A, Bode K, Piorkowski C et al. Catheter ablation of electrical storm due to monomorphic ventricular tachycardia in patients with nonischemic cardiomyopathy: acute results and its effect on long-term survival. *Pacing Clin Electrophysiol* 2010; 33(12):1504-9.
23. Deneke T, Shin DI, Lawo T et al. Catheter ablation of electrical storm in a collaborative hospital network. *Am J Cardiol* 2011; 108(2):233-9.
24. 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* 2009; 11(6):771-817.
25. Zipes DP, Camm AJ, Borggrefe M et al. ACC/AHA/ESC 2006 guidelines for management of patients with ventricular arrhythmias and the prevention of sudden cardiac death: a report of the American College of Cardiology/American Heart Association Task Force and the European Society of Cardiology Committee for Practice Guidelines (Writing Committee to Develop Guidelines for Management of Patients With Ventricular Arrhythmias and the Prevention of Sudden Cardiac Death). *J Am Coll Cardiol* 2006; 48(5):e247-346.
26. Brugada J, Blom N, Sarquella-Brugada G et al. Pharmacological and non-pharmacological therapy for arrhythmias in the pediatric population: EHRA and AEPIC-Arrhythmia Working Group joint consensus statement. *Europace* 2013; 15(9):1337-82.
27. Pediatric, Congenital Electrophysiology S, Heart Rhythm S 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* 2012; 9(6):1006-24.

Endnote

1. Based on local expert opinion.