



MASSACHUSETTS

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Medical Policy

Open and Thoracoscopic Approaches to Treat Atrial Fibrillation (Maze and Related Procedures)

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Policy Number: 356

BCBSA Reference Number: 7.01.14

Related Policies

- Radiofrequency Ablation of the Pulmonary Vein for Treatment of Atrial Fibrillation, #[141](#)
- Catheter Ablation of Arrhythmogenic Foci, #[123](#)
- 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

The maze procedure or modified procedure, performed on a non-beating heart during cardiopulmonary bypass with or without concomitant cardiac surgery, may be [MEDICALLY NECESSARY](#) for the treatment of symptomatic, drug-resistant atrial fibrillation and atrial flutter.

Minimally invasive, off-pump maze procedures (i.e., modified maze procedures), including those done via mini-thoracotomy for treatment of drug-resistant atrial fibrillation or flutter, are [INVESTIGATIONAL](#).

Hybrid ablation (defined as a combined percutaneous and thoracoscopic approach) is [INVESTIGATIONAL](#) for the treatment of atrial fibrillation or flutter.

Prior Authorization Information

Commercial Members: Managed Care (HMO and POS)

Prior authorization is required.

Commercial Members: PPO, and Indemnity

Prior authorization is required.

Medicare Members: HMO BlueSM

Prior authorization is required.

Medicare Members: PPO BlueSM

Prior authorization is 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
33254	Operative tissue ablation and reconstruction of atria, limited (e.g., modified maze procedure)
33255	Operative tissue ablation and reconstruction of atria, extensive (e.g., maze procedure); without cardiopulmonary bypass
33256	Operative tissue ablation and reconstruction of atria, extensive (e.g., maze procedure); with cardiopulmonary bypass
33257	Operative tissue ablation and reconstruction of atria, performed at the time of other cardiac procedure(s), limited (e.g., modified maze procedure) (List separately in addition to code for primary procedure)
33258	Operative tissue ablation and reconstruction of atria, performed at the time of other cardiac procedure(s), extensive (e.g., maze procedure), without cardiopulmonary bypass (List separately in addition to code for primary procedure)
33259	Operative tissue ablation and reconstruction of atria, performed at the time of other cardiac procedure(s), extensive (e.g., maze procedure), with cardiopulmonary bypass (List separately in addition to code for primary procedure)
33265	Endoscopy, surgical; operative tissue ablation and reconstruction of atria, limited (e.g., modified maze procedure), without cardiopulmonary bypass
33266	Endoscopy, surgical; operative tissue ablation and reconstruction of atria, limited (e.g., modified maze procedure), without cardiopulmonary bypass

ICD-9 Procedure Codes

ICD-9-CM procedure codes:	Code Description
37.33	Excision or destruction of other lesion or tissue of heart, open approach
37.34	Excision or destruction of other lesion or tissue of heart, endovascular approach
37.36	Excision, destruction, or exclusion of left atrial appendage (LAA)
37.37	Excision or destruction of other lesion or tissue of heart, thoracoscopic approach

ICD-10 Procedure Codes

ICD-10 procedure codes:	Code Description
02550ZZ	Destruction of Atrial Septum, Open Approach
02553ZZ	Destruction of Atrial Septum, Percutaneous Approach
02554ZZ	Destruction of Atrial Septum, Percutaneous Endoscopic Approach
02560ZZ	Destruction of Right Atrium, Open Approach
02563ZZ	Destruction of Right Atrium, Percutaneous Approach
02564ZZ	Destruction of Right Atrium, Percutaneous Endoscopic Approach
02570ZK	Destruction of Left Atrial Appendage, Open Approach

02570ZZ	Destruction of Left Atrium, Open Approach
02573ZK	Destruction of Left Atrial Appendage, Percutaneous Approach
02573ZZ	Destruction of Left Atrium, Percutaneous Approach
02574ZK	Destruction of Left Atrial Appendage, Percutaneous Endoscopic Approach
02574ZZ	Destruction of Left Atrium, Percutaneous Endoscopic Approach
02580ZZ	Destruction of Conduction Mechanism, Open Approach
02583ZZ	Destruction of Conduction Mechanism, Percutaneous Approach
02584ZZ	Destruction of Conduction Mechanism, Percutaneous Endoscopic Approach
02590ZZ	Destruction of Chordae Tendineae, Open Approach
02593ZZ	Destruction of Chordae Tendineae, Percutaneous Approach
02594ZZ	Destruction of Chordae Tendineae, Percutaneous Endoscopic Approach
025F0ZZ	Destruction of Aortic Valve, Open Approach
025F3ZZ	Destruction of Aortic Valve, Percutaneous Approach
025F4ZZ	Destruction of Aortic Valve, Percutaneous Endoscopic Approach
025G0ZZ	Destruction of Mitral Valve, Open Approach
025G3ZZ	Destruction of Mitral Valve, Percutaneous Approach
025G4ZZ	Destruction of Mitral Valve, Percutaneous Endoscopic Approach
025H0ZZ	Destruction of Pulmonary Valve, Open Approach
025H3ZZ	Destruction of Pulmonary Valve, Percutaneous Approach
025H4ZZ	Destruction of Pulmonary Valve, Percutaneous Endoscopic Approach
025J0ZZ	Destruction of Tricuspid Valve, Open Approach
025J3ZZ	Destruction of Tricuspid Valve, Percutaneous Approach
025J4ZZ	Destruction of Tricuspid Valve, Percutaneous Endoscopic Approach
025K0ZZ	Destruction of Right Ventricle, Open Approach
025K3ZZ	Destruction of Right Ventricle, Percutaneous Approach
025K4ZZ	Destruction of Right Ventricle, Percutaneous Endoscopic Approach
025L0ZZ	Destruction of Left Ventricle, Open Approach
025L3ZZ	Destruction of Left Ventricle, Percutaneous Approach
025L4ZZ	Destruction of Left Ventricle, Percutaneous Endoscopic Approach
025M0ZZ	Destruction of Ventricular Septum, Open Approach
025M3ZZ	Destruction of Ventricular Septum, Percutaneous Approach
025M4ZZ	Destruction of Ventricular Septum, Percutaneous Endoscopic Approach
02B50ZZ	Excision of Atrial Septum, Open Approach
02B53ZZ	Excision of Atrial Septum, Percutaneous Approach
02B54ZZ	Excision of Atrial Septum, Percutaneous Endoscopic Approach
02B60ZZ	Excision of Right Atrium, Open Approach
02B63ZZ	Excision of Right Atrium, Percutaneous Approach
02B64ZZ	Excision of Right Atrium, Percutaneous Endoscopic Approach
02B70ZK	Excision of Left Atrial Appendage, Open Approach
02B70ZZ	Excision of Left Atrium, Open Approach
02B73ZK	Excision of Left Atrial Appendage, Percutaneous Approach
02B73ZZ	Excision of Left Atrium, Percutaneous Approach
02B74ZK	Excision of Left Atrial Appendage, Percutaneous Endoscopic Approach
02B74ZZ	Excision of Left Atrium, Percutaneous Endoscopic Approach
02B80ZZ	Excision of Conduction Mechanism, Open Approach
02B83ZZ	Excision of Conduction Mechanism, Percutaneous Approach
02B84ZZ	Excision of Conduction Mechanism, Percutaneous Endoscopic Approach
02B90ZZ	Excision of Chordae Tendineae, Open Approach
02B93ZZ	Excision of Chordae Tendineae, Percutaneous Approach
02B94ZZ	Excision of Chordae Tendineae, Percutaneous Endoscopic Approach
02BF0ZZ	Excision of Aortic Valve, Open Approach
02BF3ZZ	Excision of Aortic Valve, Percutaneous Approach
02BF4ZZ	Excision of Aortic Valve, Percutaneous Endoscopic Approach
02BG0ZZ	Excision of Mitral Valve, Open Approach

02BG3ZZ	Excision of Mitral Valve, Percutaneous Approach
02BG4ZZ	Excision of Mitral Valve, Percutaneous Endoscopic Approach
02BH0ZZ	Excision of Pulmonary Valve, Open Approach
02BH3ZZ	Excision of Pulmonary Valve, Percutaneous Approach
02BH4ZZ	Excision of Pulmonary Valve, Percutaneous Endoscopic Approach
02BJ0ZZ	Excision of Tricuspid Valve, Open Approach
02BJ3ZZ	Excision of Tricuspid Valve, Percutaneous Approach
02BJ4ZZ	Excision of Tricuspid Valve, Percutaneous Endoscopic Approach
02BK0ZZ	Excision of Right Ventricle, Open Approach
02BK3ZZ	Excision of Right Ventricle, Percutaneous Approach
02BK4ZZ	Excision of Right Ventricle, Percutaneous Endoscopic Approach
02BL0ZZ	Excision of Left Ventricle, Open Approach
02BL3ZZ	Excision of Left Ventricle, Percutaneous Approach
02BL4ZZ	Excision of Left Ventricle, Percutaneous Endoscopic Approach
02BM0ZZ	Excision of Ventricular Septum, Open Approach
02BM3ZZ	Excision of Ventricular Septum, Percutaneous Approach
02BM4ZZ	Excision of Ventricular Septum, Percutaneous Endoscopic Approach
02L70CK	Occlusion of Left Atrial Appendage with Extraluminal Device, Open Approach
02L70DK	Occlusion of Left Atrial Appendage with Intraluminal Device, Open Approach
02L70ZK	Occlusion of Left Atrial Appendage, Open Approach
02L73CK	Occlusion of Left Atrial Appendage with Extraluminal Device, Percutaneous Approach
02L73DK	Occlusion of Left Atrial Appendage with Intraluminal Device, Percutaneous Approach
02L73ZK	Occlusion of Left Atrial Appendage, Percutaneous Approach
02L74CK	Occlusion of Left Atrial Appendage with Extraluminal Device, Percutaneous Endoscopic Approach
02L74DK	Occlusion of Left Atrial Appendage with Intraluminal Device, Percutaneous Endoscopic Approach
02L74ZK	Occlusion of Left Atrial Appendage, Percutaneous Endoscopic Approach
02Q70ZZ	Repair Left Atrium, Open Approach
02Q73ZZ	Repair Left Atrium, Percutaneous Approach
02Q74ZZ	Repair Left Atrium, Percutaneous Endoscopic Approach
02T80ZZ	Resection of Conduction Mechanism, Open Approach
02T83ZZ	Resection of Conduction Mechanism, Percutaneous Approach
02T84ZZ	Resection of Conduction Mechanism, Percutaneous Endoscopic Approach

Description

Atrial fibrillation (AF) is a supraventricular tachyarrhythmia, characterized by disorganized atrial activation with ineffective atrial ejection. The atria are frequently abnormal in patients with AF and demonstrate enlargement or increased conduction time.

The classic Cox maze III procedure is a complex surgical procedure that is performed on a non-beating heart during cardiopulmonary bypass and is intended to preserve atrial function. It is indicated for patients who do not respond to medical or other surgical antiarrhythmic therapies and is often performed in conjunction with correction of structural cardiac conditions such as valve repair or replacement.

The maze procedure entails making incisions in the heart that:

- Direct an impulse from the sinoatrial (SA) node to the atrioventricular (AV) node
- Preserve activation of the entire atrium, and
- Block re-entrant impulses that are responsible for AF or atrial flutter.

Alternative surgical approaches include mini-thoracotomy and total thoracoscopy with video assistance. Open thoracotomy and mini-thoracotomy employ cardiopulmonary bypass and open heart surgery, while thoracoscopic approaches are performed on the beating heart. Thoracoscopic approaches do not enter

the heart and use epicardial ablation lesion sets, whereas the open approaches use either the classic “cut and sew” approach or endocardial ablation.

Lesion sets may vary independent of the surgical approach, with a tendency towards less extensive lesion sets targeted to areas that are most likely to be triggers of AF. The most limited lesion sets involve pulmonary vein isolation and exclusion of the left atrial appendage. More extensive lesions sets include linear ablations of the left and/or right atrium, and ablation of ganglionic plexi. Some surgeons perform left-atrial reduction in cases of left-atrial enlargement. The type of energy used for ablation also varies; radiofrequency energy is most commonly applied.

Summary

Several small RCTs confirm the benefit of a modified maze procedure for patients with AF who are undergoing mitral valve surgery. These trials establish that the addition of a modified maze procedure results in a lower incidence of atrial arrhythmias following surgery, with minimal additional risks. One RCT that concentrated on QOL did not show a benefit for the maze procedure; however this patient population included CABG patients as well as valvular surgery patients. The available evidence is sufficient to conclude that this procedure is likely to improve outcomes by reducing symptoms and morbidity related to AF, reducing the need for antiarrhythmic medications, and potentially reducing the rate of thromboembolic events. Therefore, surgical treatment of AF, by the modified Maze or related procedures, may be considered medically necessary for patients with AF undergoing open heart surgery for other indications.

As a stand-alone procedure to treat AF, many case series of minimally invasive surgical approaches have been published, the most common approach being thoracoscopic epicardial RF ablation. These case series generally report high success rates, and the few case series with matched comparison groups report higher success rates with surgical treatment compared to catheter ablation. However, this evidence does not permit conclusions on the effect of these procedures on health outcomes. The studies are small in size, retrospective, use different lesion sets for ablation, and have limited follow-up. The matched comparisons do not adequately control for selection bias between the treated populations, and the studies do not provide complete information on adverse events. Further controlled trials are needed to determine whether health outcomes are improved by surgical treatment of AF as a stand-alone procedure. Therefore, this treatment is considered investigational as a stand-alone procedure.

Hybrid ablation, which combines both thoracoscopic and percutaneous approaches, is another option for AF ablation. There is limited evidence on this technique, consisting of only case series. This evidence is insufficient to determine the comparative efficacy and safety of hybrid ablation compared to alternatives. Therefore, hybrid AF ablation is considered investigational.

Policy History

Date	Action
9/2014	New references added from BCBSA National medical policy.
6/2014	Updated Coding section with ICD10 procedure and diagnosis codes, effective 10/2015.
1/2014	BCBSA National medical policy review. New investigational indications described. Effective 1/1/2014.
12/2013	Removed ICD-9 diagnosis codes 427.31, 427.32 as the policy is requires prior authorization
7/2013	BCBSA National medical policy review. Added “or modified” and “(i.e., modified maze procedures)” to the policy statements. Effective 7/1/2013.
11/2011-4/2012	Medical policy ICD 10 remediation: Formatting, editing and coding updates. No 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.
4/2009	Reviewed - Medical Policy Group - Cardiology and Pulmonology.

	No changes to policy statements.
4/2008	Reviewed - Medical Policy Group - Cardiology and Pulmonology. No changes to policy statements.
8/2007	BCBSA National medical policy review. 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](#)

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