

# Left Atrial Appendage Occlusion (LAAO) Devices for Prevention of Stroke and Systemic Embolism in Atrial Fibrillation

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## Background

45% of patients with atrial fibrillation (AFib) who are admitted to the hospital for a major bleed are discharged without a **stroke and systemic embolism (SSE)** prevention plan.<sup>1</sup>

- Patients with AFib are at high risk for SSE from thrombus<sup>1</sup>
- ≥90% of AFib-related thrombi form in the **Left Atrial Appendage (LAA)**<sup>2</sup>
- AFib-related strokes are more likely to involve large brain territories, lead to death or permanent disability, and recur<sup>3</sup>

**Oral anticoagulation (OAC)** is first-line in most AFib patients for SSE prevention.

**In patients unable/unwilling to tolerate long-term OAC, left atrial appendage occlusion (LAAO)** should be considered.<sup>5</sup>

LAAO involves a minimally invasive procedure to place a small device that occludes the LAA opening, preventing thrombus from leaving the appendage and embolizing systemically. Over time, the endocardial tissue grows over the device, but short-term antithrombotic therapy is required until this occurs, and imaging is performed to ensure the LAA has been occluded without significant peri-device leak.<sup>6</sup>

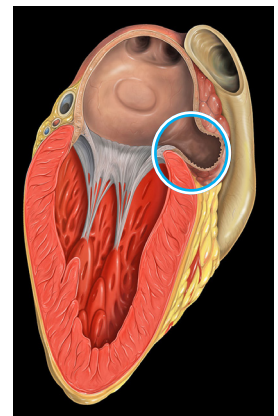


Figure 1: Heart left atrial appendage TEE view<sup>7</sup>

## BOTTOM LINE

DO	DON'T	CONSIDER	CAUTION
<ul style="list-style-type: none"> <li>• Consider LAAO in <b>non-valvular AFib (NVAf)</b> patients with stroke risk factors when risks of long-term anticoagulation outweigh the benefits</li> <li>• Utilize and document <a href="#">shared decision-making</a> process</li> <li>• Assure LAAO device has an adequate fit prior to antithrombotic therapy discontinuation</li> </ul>	<ul style="list-style-type: none"> <li>• Do not forget stroke prevention in patients with AFib that cannot be on chronic oral anticoagulation</li> <li>• Do not forget that most patients require anticoagulation or anti-platelet therapy for a short period of time after LAAO implantation</li> </ul>	<ul style="list-style-type: none"> <li>• Consider different devices and approaches to LAAO via shared decision making with NVAf patients</li> <li>• Consider using a direct oral anticoagulant (DOAC) for patients intolerant of warfarin</li> <li>• Consider LAAO for patients unable/unwilling to tolerate any long-term oral anticoagulation</li> </ul>	<ul style="list-style-type: none"> <li>• LAAO devices may have different short-term post implant antithrombotic approaches such as anticoagulation or dual anti-platelet therapy</li> <li>• The bleeding risk associated with dual antiplatelet therapy may be no different than that of warfarin in AFib patients<sup>4</sup></li> </ul>

## LAAO Patient Selection and Referral

Patients should have:

- A suitability for short-term oral anticoagulation but inability to take long-term OAC
- A CHADS<sub>2</sub> score ≥ 2 (Congestive heart failure, Hypertension, Age >75, Diabetes, Stroke/transient ischemia attack/thromboembolism) **OR** a CHA<sub>2</sub>DS<sub>2</sub>-VASc score ≥ 3 (Congestive heart failure, Hypertension, Age ≥ 65, Diabetes, Stroke/transient ischemia attack/thromboembolism, Vascular disease, Sex category)<sup>1</sup>
- A documented shared decision-making interaction using an evidence-based decision tool on OACs in patients with NVAf prior to LAAO. Shared decision-making note must be done by provider outside the implantation team

Refer patients to Structural Heart and/or Electrophysiology program for consideration of LAAO implantation

## FDA-Approved LAAO Devices

### Watchman FLX®

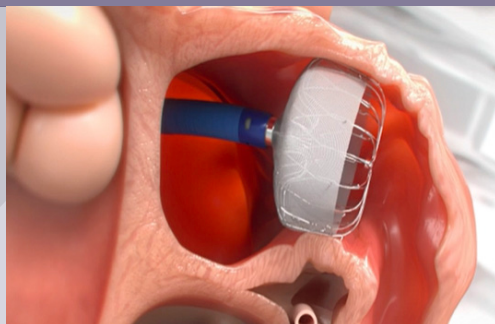


Figure 2: WATCHMAN FLX™ LAA Closure Device

### AMPLATZER Amulet®

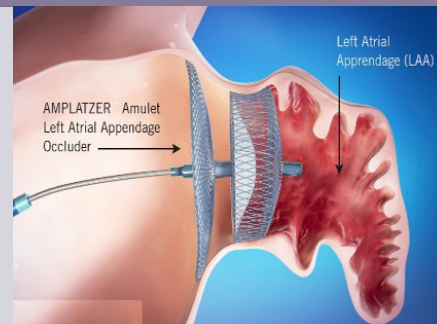


Figure 3: The AMPLATZER™ Amulet™ LAA Closure Device

**References:** 1. Gorgis S, Dabbagh MF, Mishra K, et al. Interv Card Electrophysiol. 2021 Nov;62(2):337-346.PMID: 33119818. 2. Blackshear JL & Odell JA. Ann Thorac Surg. 1996 Feb;61(2):755-9. PMID: 8572814. 3. National Stroke Association website. <http://www.stroke.org/>. Published 2017. 4. ACTIVE Writing Group of the ACTIVE Investigators, Connolly S, Pogue J, Hart R, et al. 2006 Jun 10;367(9526):1903-12. PMID: 16765759. 5. Percutaneous left atrial appendage (LAA) closure therapy. CMS.gov Centers for Medicare & Medicaid Services. [n.d.]. 6. Chava R, Turagam MK, Lakkireddy DD. Innov Card Rhythm Manag. 2018 Apr 15;9(4):3095-3106. PMID: 32494488. 7. Lynch, P.J. medical illustrator; Jaffe, C.C., MD, cardiologist (Dec.23, 2006). Heart left atrial appendage TEE view [illustration]. Yale University Center for Advanced Instructional Media Medical Illustrations.

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