Digital Tools for Atrial Fibrillation

Atrial fibrillation (AFib) is the most common arrhythmia in clinical practice. Even short episodes of intermittent AFib increase the risk of stroke and thromboembolic disease. Patients may not notice symptoms that warrant care-seeking, and clinicians may not have an index of suspicion relative to patients at high risk for AFib. Approximately 20% of patients who have an AFib-related stroke are not diagnosed with AFib until the time of stroke or shortly thereafter. Therefore, screening for AFib in asymptomatic patients is critical to improve the detection of AFib and provide anticoagulation therapy in appropriate patients to reduce stroke risk.

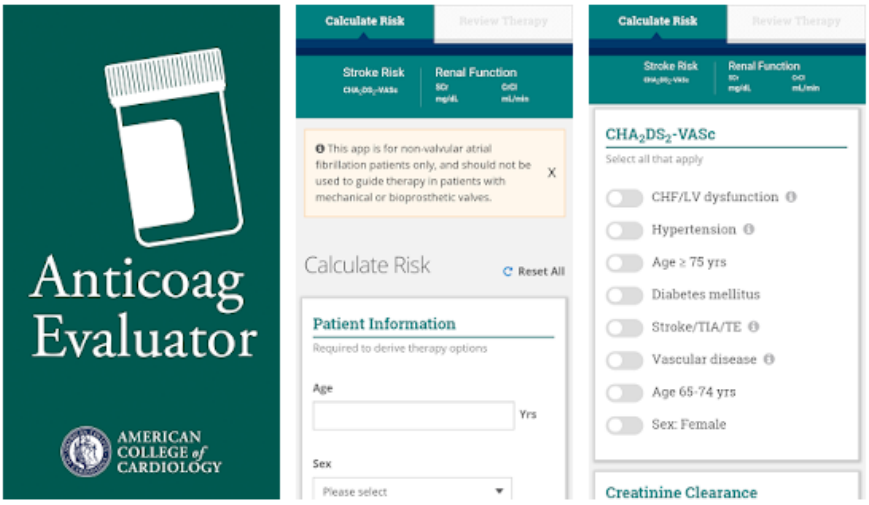
This guide provides information on tools you can use for AFib screening and risk stratification to guide therapeutic decisions. A number of digital health tools are described, including smartphone applications and wearables, that can increase the rate of detection of AFib and potentially improve patient outcomes and reduce healthcare costs. Also provided are links to resources that you can share with your patients, including a whiteboard animation video that describes AFib symptoms, risk factors, and treatments, and several printable resource sheets to help patients learn more about AFib management.

Tools to Assist in Anticoagulation Decision-Making

AnticoagEvaluator App from American College of Cardiology

- App available for iOS and Android; web version available at: http://tools.acc.org/anticoag/#!/content/calculator/
- Calculate a patient's stroke risk (CHA2DS2-VASc) and renal function (Cockcroft-Gault Equation), and review factors that may contribute to bleed risk (HAS-BLED criteria and concomitant meds)
- Consider updated stroke prevention therapy guidance based on the 2019 ACC/AHA/HRS Focused Update of the 2014 Guideline for the Management of Patients with AF
- Improve safe use of direct oral anticoagulants with adjusted dosage based on prescribing information, fine-tuned for renal and other patient characteristics
- Evaluate suitable therapy for a patient by reviewing:
    - Synthesized individualized risk for antithrombotic therapy options based on clinical trials (i.e., ACTIVE-A, RE-LY, ROCKET-AF, ARISTOTLE, ENGAGE-AF)
    - Relevant safety information and full prescribing information for all therapy options

More information at: https://www.acc.org/tools-and-practice-support/mobile-resources/features/anticoag-evaluator

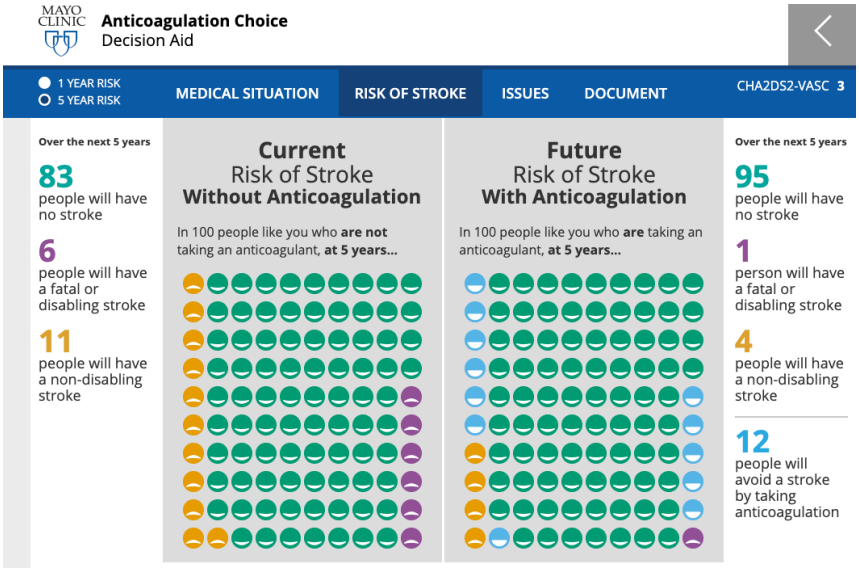


Anticoagulation Choice Decision Aid

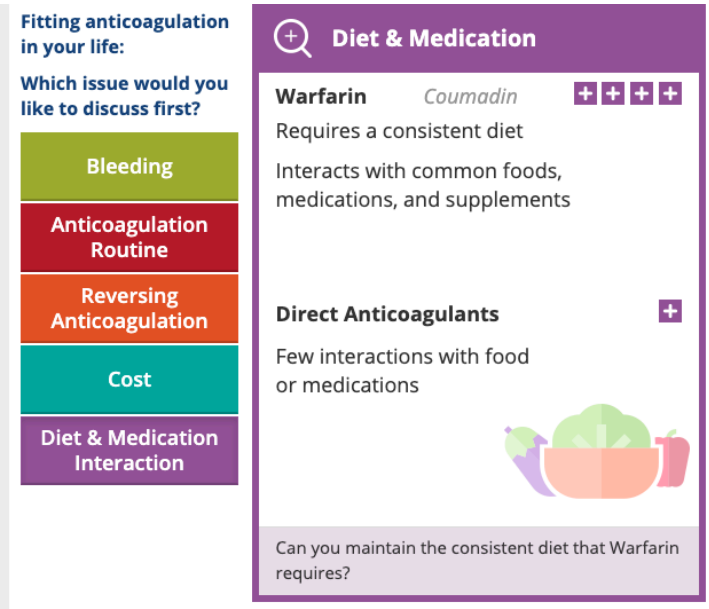
Available at: https://anticoagulationdecisionaid.mayoclinic.org/

This tool can be used during office visits to support shared decision-making.

Input patient clinical information to display personalized risk information.



Issue cards help educate patients and identify their priorities to inform the selection of an anticoagulation treatment.



Stroke and Bleeding Risk Stratification Tools

CHA_2DS_2-VASc

Letter	Risk Factor	Score
C	Cardiac failure	1
H	Hypertension	1
A_2	Age ≥ 75 years	2
D	Diabetes	1
S_2	Stroke	2
V	Vascular disease (MI, peripheral arterial disease, aortic atherosclerosis)	1
A	Age 65-74 years	1
Sc	Sex category (female)	1

CHA_2DS_2-VASc calculator: https://www.mdcalc.com/cha2ds2-vasc-score-atrial-fibrillation-stroke-risk

HAS-BLED

Letter	Clinical Characteristic	Points
H	Hypertension	1
A	Abnormal Liver or Renal Function	1 or 2
S	Stroke	1
B	Bleeding	1
L	Labile INR	1
E	Elderly (age > 65)	1
D	Drugs or Alcohol	1 or 2
Maximum Score		9

HAS-BLED calculator: https://www.mdcalc.com/has-bled-score-major-bleeding-risk

Digital Health Tools for Patient Monitoring of AFib

Kardia app by AliveCor

- Works with KardiaMobile, an FDA-cleared, clinical grade personal electrocardiogram (ECG) monitor
- Capture medical-grade ECG in 30 seconds by placing fingers on KardiaMobile's sensors – no wires, patches, or gels necessary
- Kardia app (Android or iOS) is free; Kardia Mobile single-lead device is $99; KardiaMobile 6L six-lead device is $149
- Additional information available at: https://www.alivecor.com/

Cardiio app

- Heart rate monitor
- Measures pulse using smartphone camera
- App is free, but currently only available for iOS
- Additional information available at: https://apps.apple.com/us/app/cardiio-heart-rate-monitor/id542891434

FibriCheck

- FDA-approved for the detection of irregular heart rhythms, including AFib
- Smartwatch app automatically monitors users' heart rhythms every five minutes during their sleep.
- Smartphone app measures heart rhythm while user places finger on smartphone camera for 60 seconds
- Information can be easily shared with healthcare provider
- Additional information available at: https://fibricheck.com/

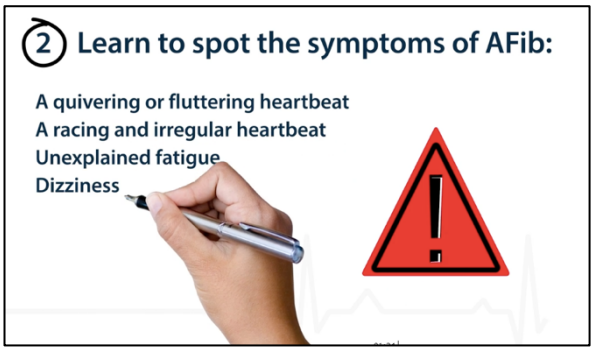
Wearable technologies

ZioZT by iRhythm cardiac monitoring device

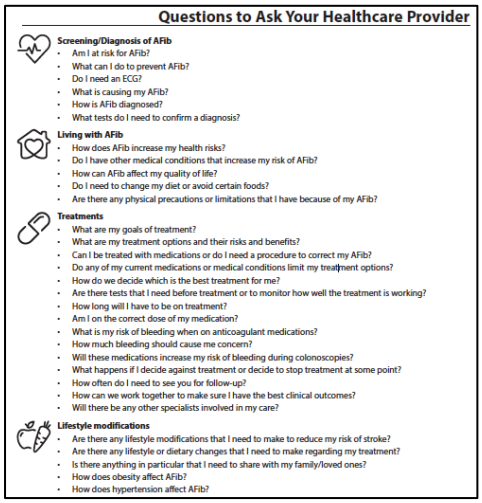
- Wearable ECG patch
- Uninterrupted ECG recording for a flexible time frame up to 14 days
- Requires prescription; covered by all major commercial insurance companies and Medicare
- Report is generated and published to your electronic health record (EHR) system
- Higher diagnostic yield than Holter monitoring
- Additional information at: https://www.irhythmtech.com/

Patient Education Tools

What Is AFib? A Virtual Whiteboarding Session
A 2-minute video describing AFib, its symptoms, risk factors, and treatment, available at:
https://www.youtube.com/watch?v=vrtM0CGZKbs&feature=youtu.be



Questions to Ask Your Healthcare Provider
A guide for patients to prepare for their medical visits and to ensure that they understand how Afib may affect their life.
Available as a printable PDF at:
https://www.cmeoutfitters.com/wp-content/uploads/2018/09/Questions-to-Ask-Your-HCP.pdf


Questions to Ask Your Healthcare Provider

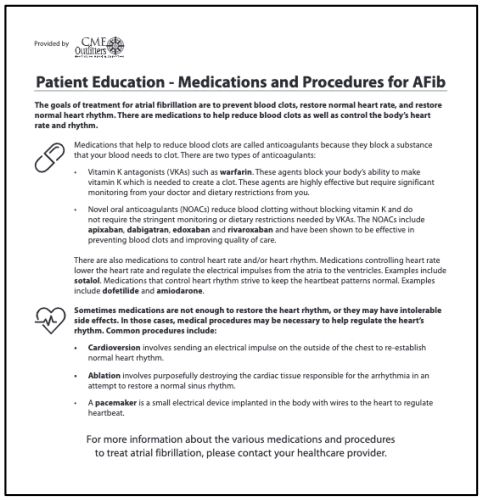
Screening/Diagnosis of AFib
- Am I at risk for AFib?
- What can I do to prevent AFib?
- Do I need an ECG?
- What is causing my AFib?
- How is AFib diagnosed?
- What tests do I need to confirm a diagnosis?

Living with AFib
- How does AFib increase my health risks?
- Do I have other medical conditions that increase my risk of AFib?
- How can AFib affect my quality of life?
- Do I need to change my diet or avoid certain foods?
- Are there any physical precautions or limitations that I have because of my AFib?

Treatments
- What are my goals of treatment?
- What are my treatment options and their risks and benefits?
- Can I be treated with medications or do I need a procedure to correct my AFib?
- Do any of my current medications or medical conditions limit my treatment options?
- How do we decide which is the best treatment for me?
- Are there tests that I need before treatment or to monitor how well the treatment is working?
- How long will I have to be on treatment?
- Am I on the correct dose of my medication?
- What is my risk of bleeding when on anticoagulant medications?
- How much bleeding should cause me concern?
- Will these medications increase my risk of bleeding during colonoscopies?
- What happens if I decide against treatment or decide to stop treatment at some point?
- How often do I need to see you for follow-up?
- How can we work together to make sure I have the best clinical outcomes?
- Will there be any other specialists involved in my care?

Lifestyle modifications
- Are there any lifestyle modifications that I need to make to reduce my risk of stroke?
- Are there any lifestyle or dietary changes that I need to make regarding my treatment?
- Is there anything in particular that I need to share with my family/loved ones?
- How does obesity affect AFib?
- How does hypertension affect AFib?

Patient Education - Medications and Procedures for AFib
A reference guide for patients to understand treatments that may be used for AFib.
Available as a printable PDF at:
https://www.cmeoutfitters.com/wp-content/uploads/2018/11/AFib_Patient-Education.pdf


Provided by CME Outfitters

Patient Education - Medications and Procedures for AFib

The goals of treatment for atrial fibrillation are to prevent blood clots, restore normal heart rate, and restore normal heart rhythm. There are medications to help reduce blood clots as well as control the body's heart rate and rhythm.

Medications that help to reduce blood clots are called anticoagulants because they block a substance that your blood needs to clot. There are two types of anticoagulants:

- Vitamin K antagonists (VKAs) such as **warfarin**. These agents block your body's ability to make vitamin K which is needed to create a clot. These agents are highly effective but require significant monitoring from your doctor and dietary restrictions from you.
- Novel oral anticoagulants (NOACs) reduce blood clotting without blocking vitamin K and do not require the stringent monitoring or dietary restrictions needed by VKAs. The NOACs include **apixaban**, **dabigatran**, **edoxaban** and **rivaroxaban** and have been shown to be effective in preventing blood clots and improving quality of care.

There are also medications to control heart rate and/or heart rhythm. Medications controlling heart rate lower the heart rate and regulate the electrical impulses from the atria to the ventricles. Examples include **sotalol**. Medications that control heart rhythm strive to keep the heartbeat patterns normal. Examples include **dofetilide** and **amiodarone**.

Sometimes medications are not enough to restore the heart rhythm, or they may have intolerable side effects. In those cases, medical procedures may be necessary to help regulate the heart's rhythm. Common procedures include:

- **Cardioversion** involves sending an electrical impulse on the outside of the chest to re-establish normal heart rhythm.
- **Ablation** involves purposefully destroying the cardiac tissue responsible for the arrhythmia in an attempt to restore a normal sinus rhythm.
- A **pacemaker** is a small electrical device implanted in the body with wires to the heart to regulate heartbeat.

For more information about the various medications and procedures to treat atrial fibrillation, please contact your healthcare provider.