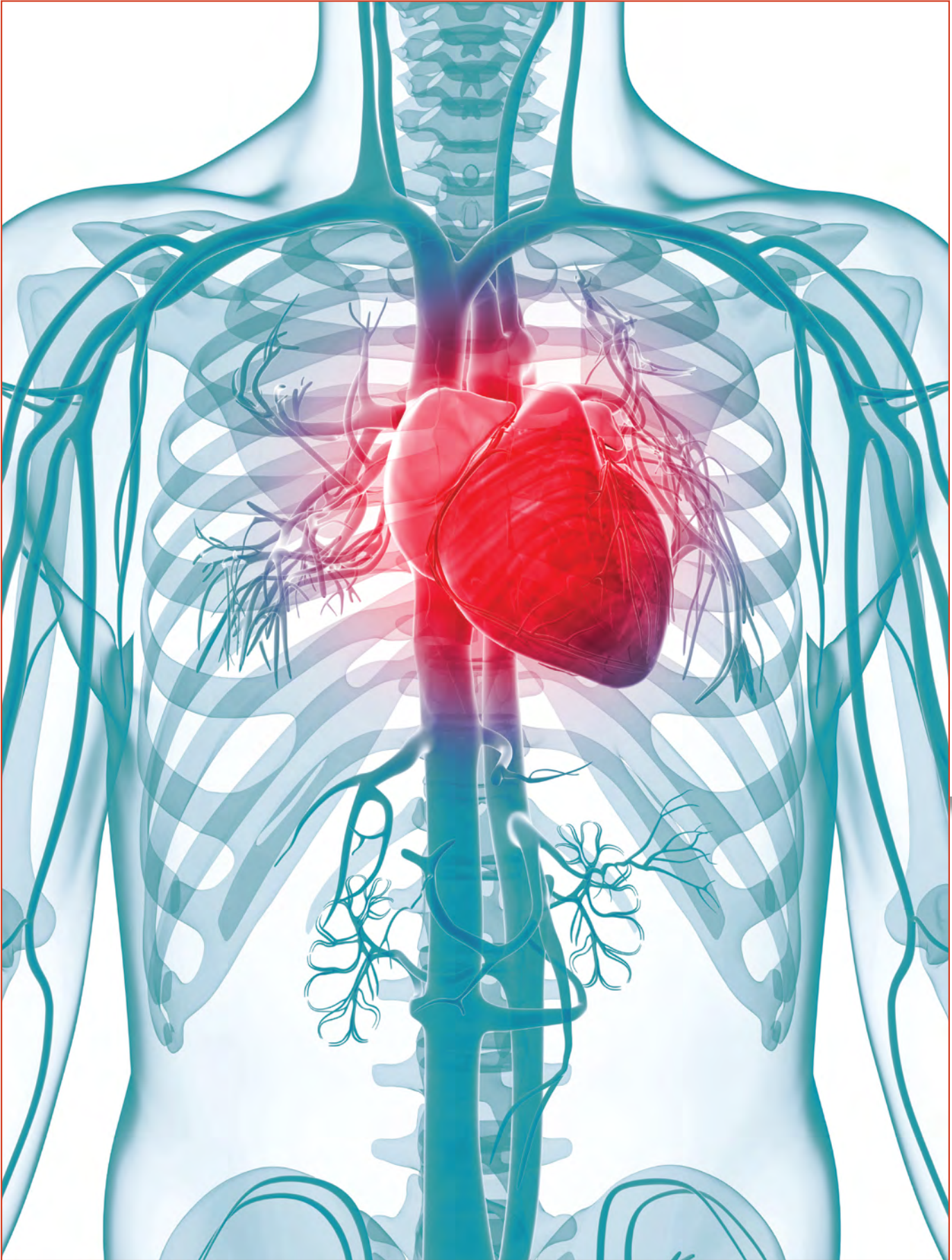


A pocket guide to current guidelines and recommendations

STROKE PREVENTION in Atrial Fibrillation







STROKE PREVENTION in Atrial Fibrillation

Atrial fibrillation (AFib) is the most common cardiac arrhythmia, affecting about 5% of patients age 65 or older, and 10% of patients age 80 or older.¹

AFib is associated with:

- Increased risk of thromboembolic events
- Hemodynamic abnormalities
- Increased hospitalization and mortality
- 5-fold risk of stroke

AFIB AFFECTS

5%

of patients 65+

10%

of patients 80+

AFib-related stroke has worse outcomes than non-AFib-related stroke and results in more than double the mortality risk.² To reduce stroke risk, patients with AFib are often treated with anticoagulant or antiplatelet therapy, both of which increase the risk of bleeding—from minor bleeding to fatal hemorrhage.¹ Examining individual patient risk factors can help providers manage bleeding risk while reducing risk of stroke in patients with AFib.

Published guidelines can assist providers in treatment decision-making. This document outlines the similarities and differences in current AFib guidelines, as well as efforts from major medical organizations to guide decision-making for stroke prevention in AFib (SPAF).

AFib Guidelines and SPAF



The most recently published management guidelines for AFib include:

- A 2014 set of clinical guidelines for AFib management, jointly authored by the American Heart Association, the American College of Cardiology, and the Heart Rhythm Society (AHA/ACC/HRS).¹
- A 2012 set of clinical guidelines on thrombosis prevention and antithrombotic therapy, authored by the American College of Chest Physicians (ACCP).³
- A 2012 focused update of clinical guidelines on AFib management by the European Society of Cardiology (ESC), with a special contribution from the European Heart Rhythm Association (EHRA).⁴

All guidelines recommend the evaluation of stroke risk using one of two available tools. CHADS₂ is recommended in the ACCP guidelines, and CHA₂DS₂-VASc is recommended in the AHA/ACC/HRS and ESC guidelines. Both tools evaluate risk on a point scale, as shown in **Figure 1** and **Figure 2**.

Figure 1

CHADS₂ Stroke Risk Scoring

Letter	Clinical Characteristic	Points	CHADS ₂ Score	Annual Adjusted Stroke Rate
C	Congestive heart failure	1	LOW RISK 0 POINTS	0 = 1.9%
H	Hypertension	1		1 = 2.8%
A	Age ≥75	1	INTERMEDIATE RISK 1 POINT	2 = 4.0%
D	Diabetes mellitus	1		3 = 5.9%
S₂	Stroke/TIA/TE	2	HIGH RISK 2 OR MORE POINTS	4 = 8.5%
Maximum CHADS₂ score		6		5 = 12.5%
				6 = 18.2%

TIA = transient ischemic attack; TE = thromboembolism

Figure 2

CHA₂DS₂-VASc Stroke Risk Scoring

Letter	Clinical Characteristic	Points	CHA ₂ DS ₂ -VASc Score	Annual Adjusted Stroke Rate
C	Congestive heart failure / LV dysfunction	1	LOW RISK 0 POINTS	0 = 0%
H	Hypertension	1		INTERMEDIATE RISK 2 POINTS
A₂	Age ≥75	2	2 = 2.2%	
D	Diabetes mellitus	1	3 = 3.2%	
S₂	Stroke/TIA/TE	2	4 = 4.0%	
V	Vascular disease	1	HIGH RISK 2 OR MORE POINTS	5 = 6.7%
A	Age 65 – 74	1		6 = 9.8%
Sc	Sex category (i.e. female sex)	1	7 = 9.6%	
Maximum CHA₂DS₂-VASc score		9	8 = 6.7%	
			9 = 15.2%	

LV = left ventricular; TIA = transient ischemic attack; TE = thromboembolism; vascular disease = prior myocardial infarction, peripheral artery disease, or aortic plaque

- All three guidelines recommend that AFib patients with a stroke risk score of 0 do not receive oral anticoagulants.
- The ESC and ACCP guidelines recommend oral anticoagulants for any AF patients with a stroke risk score of ≥1.
- The AHA/ACC/HRS guidelines recommend:
 - AFib patients with a stroke risk score of ≥2 receive oral anticoagulants
 - Patients with a stroke risk score of 1 may receive no antithrombotic therapy, oral anticoagulants, or aspirin.



SPAF and Bleeding Risk



Several tools to guide the assessment of bleeding risk in patients with AFib are mentioned in published guidelines. These tools use a variety of risk factors in determining bleeding risk, as listed in Table 1.^{1,3}

Table 1

Risk Factors Used to Determine Bleeding Risk Scores

Bleeding Risk Tool	Risk Factors Considered in Bleeding Risk Score
HAS-BLED	<ul style="list-style-type: none"> Hypertension Abnormal renal/liver function Stroke Bleeding history or predisposition Labile (unstable/high) INR Elderly (>65) Drugs/alcohol concomitantly
ATRIA (Anticoagulation and Risk Factors in Atrial Fibrillation)	<ul style="list-style-type: none"> Anemia, severe renal disease, >75 years of age, prior hemorrhage, hypertension
HEMORR ₂ HAGES	<ul style="list-style-type: none"> Hepatic or renal disease Ethanol abuse Malignancy Older age (>75) Reduced platelet count or function Rebleeding Hypertension Anemia Genetic factors Excessive fall risk Stroke
OBRI (Outpatient Bleeding Risk Index)	<ul style="list-style-type: none"> Older age (≥65), recent GI bleed, previous stroke, recent myocardial infarction, lowered hematocrit (<30%), diabetes, elevated creatinine (>1.5 mg/dL)
RIETE (Computerized Registry of Patients with Venous Thromboembolism)	<ul style="list-style-type: none"> Recent bleeding, abnormal creatinine levels or anemia, >75 years of age, cancer, pulmonary embolism
Bleeding Risk Model by Shireman et al.	<ul style="list-style-type: none"> >70 years of age, female, remote bleed, recent bleed, alcohol/drug abuse, diabetes, anemia, anti-platelet drug use

While the AHA/ACC/HRS guidelines list the HAS-BLED, RIETE, HEMORR₂AGES, and ATRIA tools, the scores are described as helpful, but insufficient to use as evidence in the clinical guidelines.



Anticoagulants and bleeding risk in patients during surgical/diagnostic procedures

Patients who require surgical or diagnostic procedures that increase bleeding risk may require interruption of anticoagulation therapy. During this time, treatment may be “bridged” with unfractionated or low-molecular-weight heparins. Treatment decisions should be individualized and based on risk of thrombotic events and bleeding risk.

[AHA 2014:p40]

The ESC guidelines recommend the use of the HAS-BLED scoring tool for all patients, and state that caution should be taken in prescribing anticoagulants to patients with a score of ≥ 3 . However, the guidelines state that a HAS-BLED score should not necessarily exclude patients from anticoagulants use, but instead act as a guide for assessing risk and helping identify correctable risk factors for bleeding.

The ACCP guidelines list and describe the OBRI, HEMORR₂AGES, and HAS-BLED tools, and the Bleeding Risk Model by Shireman et al.; however, no recommendations are made regarding which tool to use, and predictive values of all scores are described as modest.

Researchers continue to develop new tools for assessing bleeding risk; however, as of yet, no additional tools have been validated sufficiently to be included in guidelines.

While HAS-BLED is the most commonly described and recommended bleeding risk tool in the guidelines, there is little agreement on the evidence for the utility of all bleeding risk tools. All three guidelines state that the use of anticoagulants should be weighed against bleeding risk.

- Particularly for patients with higher risk of stroke (CHADS₂ score ≥ 2), the ACCP guidelines state that the net clinical benefit is in favor of anticoagulant use, as there will be a greater number of strokes prevented than bleeding events caused by the treatment; this is not as certain for patients with lower stroke risk.
- Additionally, the ESC guidelines state that even for patients with high bleeding risk, the benefit of stroke reduction associated with anticoagulant use can outweigh the risk of bleeding events, and that the combined use of the CHA₂DS₂-VAS_c and HAS-BLED tools should be used to identify patients with high bleeding risk and low stroke risk, as these patients may not benefit from anticoagulants.

Other Recommendations for SPAF



A variety of professional organizations have created guides or tools for providers, to aid in AF treatment decision-making. These efforts are summarized in Table 2.

Table 2

Available Guidance for Weighing Stroke and Bleeding Risk in AF Management

Organization	Resource	Recommendations/Tools
American College of Cardiology (ACC)	Clinical Toolkit: Atrial Fibrillation (online resource); Anticoag Evaluator (mobile application for various smartphones and iPad)	Website and mobile app provide calculators for CHADS ₂ , CHA ₂ DS ₂ -VASc, and HAS-BLED.
American College of Physicians (ACP)	Anticoagulation Decision Support Worksheet for Patients with Atrial Fibrillation	Use CHADS ₂ and OBRI scores to weigh risk of stroke vs bleeding. Worksheet states — “A stroke is usually worse for a patient than a major bleed.”
American Family Physician (AFP)	Point of Care Guide: Predicting the Risk of Bleeding in Patients Taking Warfarin	Use OBRI to determine bleeding risk for patients who require anticoagulants for SPAF.
American Geriatric Society (AGS)	iGeriatrics (mobile application for various smartphones and iPad)	Use CHADS ₂ . Does not recommend a bleeding risk tool.
AHA and American Stroke Association (ASA)	Get With the Guidelines—AFIB (online data management tool)	Patient Management Tool captures CHADS ₂ , CHA ₂ DS ₂ -VASc, HAS-BLED, and ATRIA scores.
AHRQ – Comparative Effectiveness Review	Comparative Effectiveness Review: Stroke Prevention in Atrial Fibrillation	Use CHADS ₂ or CHA ₂ DS ₂ -VASc to determine stroke risk, and HAS-BLED to determine bleeding risk in patients with AF.
Team-A Initiative	Assessing Risk of Bleeding in Patients with Atrial Fibrillation	Use HAS-BLED to assess bleeding risk in patients who require anticoagulants for SPAF.





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4. Camm AJ, GY Lip, R De Caterina, et al. 2012 Focused Update of the ESC Guidelines for the Management of Atrial Fibrillation: An update of the 2010 ESC Guidelines for the management of atrial fibrillation. Developed with the special contribution of the European Heart Rhythm Association. *Eur Heart J*. 2012;33(21):2719-47.

Resources

1. ACC Toolkit: <http://afib.acponline.org/docs/afib/>
2. ACC Anticoag Evaluator App: <https://itunes.apple.com/us/app/anticoagevaluator/id609795286?mt=8>
3. ACP Worksheet: <http://afib.acponline.org/docs/afib/briefing/afib-worksheet.pdf>
4. AFP Point of Care Guide: <http://www.aafp.org/afp/2010/0315/p780.html>
5. AGS iGeriatrics: <https://itunes.apple.com/us/app/igeriatrics/id365560773?mt=8>
6. AHA and ASA, Get With the Guidelines: AFIB: https://www.heart.org/HEARTORG/HealthcareResearch/GetWithTheGuidelines-AFib/Get-With-The-Guidelines-AFib_UCM_448881_SubHomePage.jsp
7. AHRQ Comparative Effectiveness Review: <http://www.effectivehealthcare.ahrq.gov/ehc/products/352/1668/stroke-atrial-fibrillation-report-130821.pdf>
8. Team-A Initiative Assessing Risk of Bleeding Tool: http://www.teamanticoag.com/system/learning_resources/60/original/241-Assessing_Risk_of_Bleeding_in_Patients_With_Atrial_Fibrillation_12.17.2013.pdf



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