

**Atrial Fibrillation 2026: Practical
Updates Every Primary Care
Provider Needs to Know-
Guidelines, Evidence and
Practice**

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Financial Disclosures

Chad Link, DO FACC FACOI

The following relevant financial relationships have been disclosed for this presentation:

- **Nature of Financial Relationship:** Kiniksa Pharmaceuticals
- 

Case Study 1

- A 60-year-old male presents to the office for a routine physical examination. He has no significant PMHx. He is currently experiencing mild SOB. The patient was scheduled for a 4 pm appointment and arrived on time, however the provider is running a bit behind in clinic. The medical assistant noted that the patients HR was approximately 150 bpm. She alerts the provider and an ECG was performed.

Case Study 1

1505557
DOB: 27-Apr-1960

17-Jan-2025 16:40:22

SPARROW HEALTH SY.....
SMG Practices (02)
STCI LANSING (116)

HR 147 . Atrial fibrillation.....? atrial activity
RR 408 . ST depression, probably rate related.....ST <-0.10mV & extreme tachycardia

Oper: RH

QRSD 84
QT 303
QTc 474

-- AXIS --

QRS 50
T 37

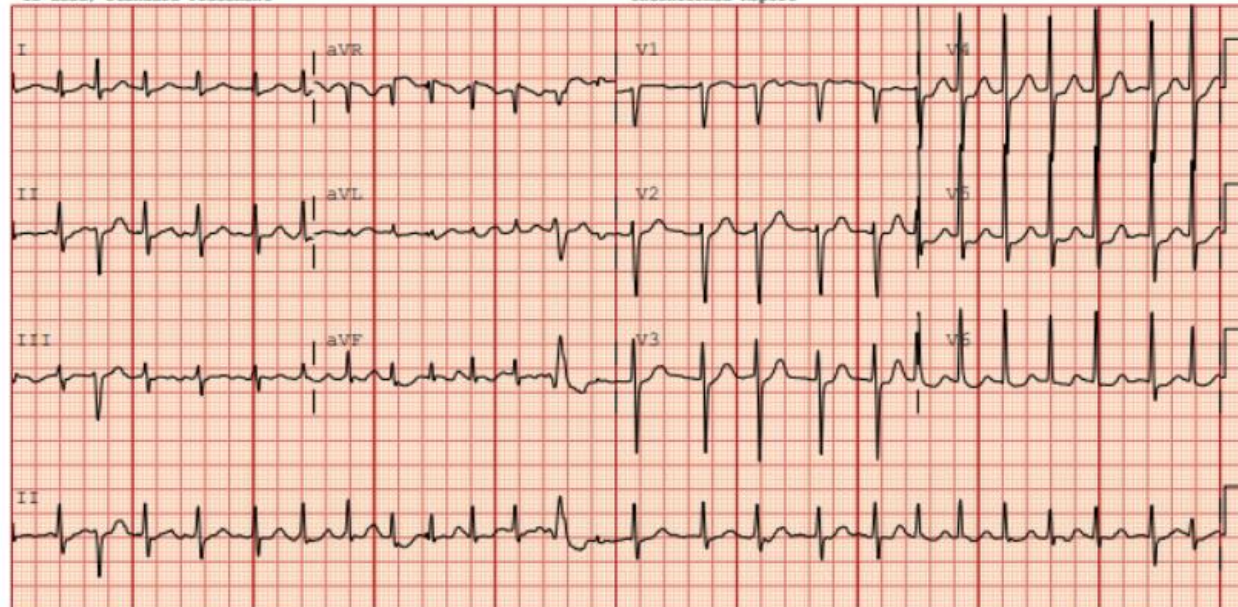
- ABNORMAL ECG -

Account #: 1503957882
Order #: 305677990
Enc ID: 1503957882

Previous Study:17-Oct-2024 09:46:35 - Borderline Confirmed
12 Lead: Standard Placement

Requested By: WILCOX, MATTHEW D

Unconfirmed Report



Device: 50538477 Speed: 25 mm/sec Lib: 10 mm/mV Chest: 10 mm/mV F 60- 0.5-100 Hz W PH110C bCL P7

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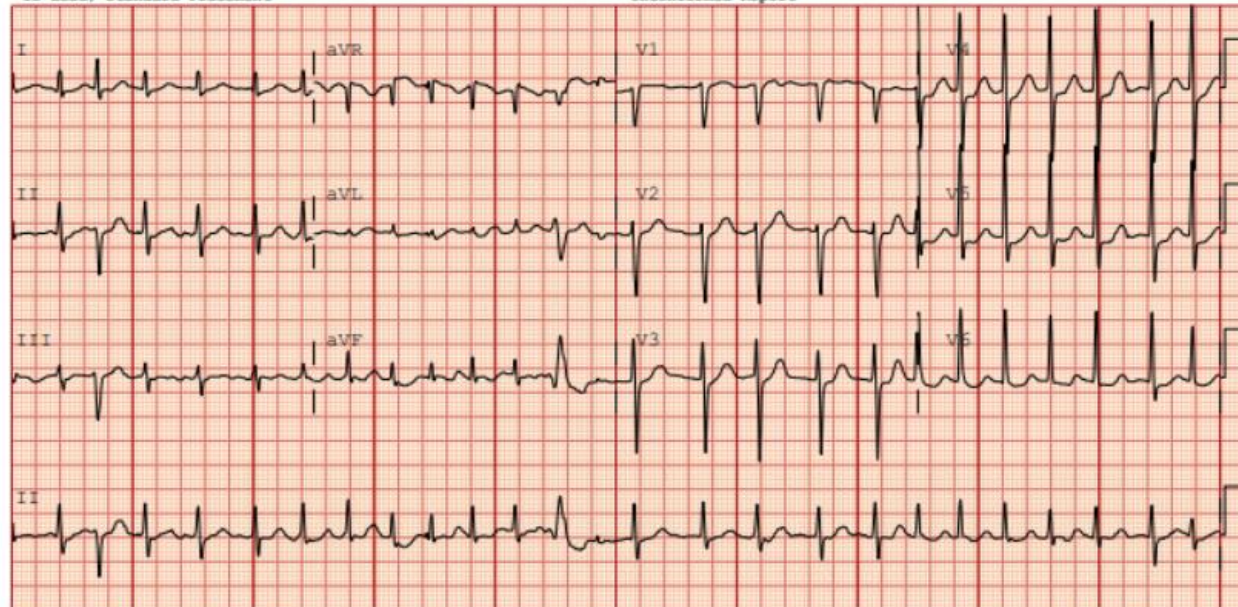
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Case Study 1

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 - 1. Start the patient on oral Cardizem and arrange 1 week follow up
 - 2. Start the patient on oral Cardizem and start on OAC and arrange 1 week follow up
 - 3. Send the patient to the ER for evaluation.
 - 4. Advise patient given lack of symptoms he can go home.

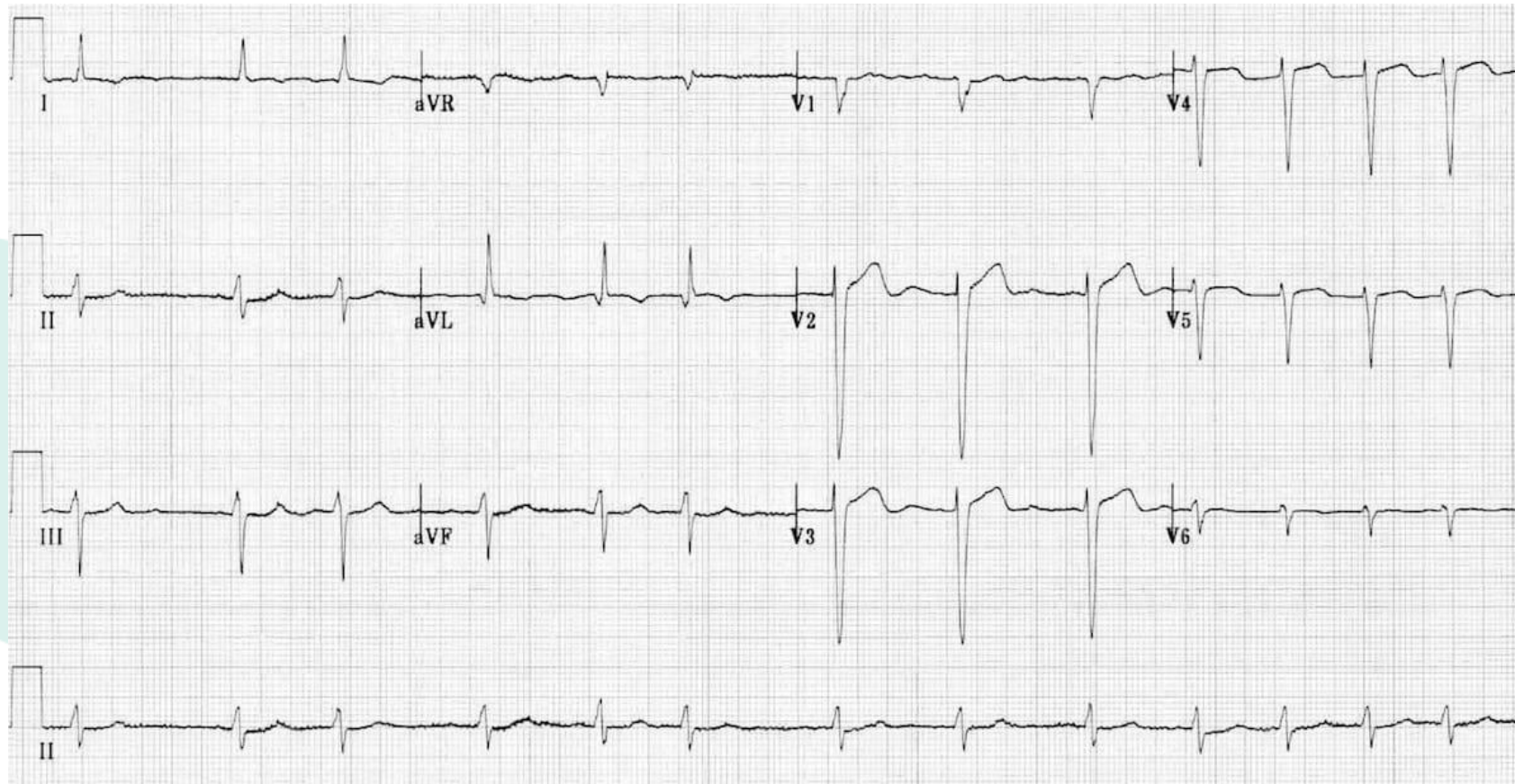
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 - 2. Start the patient on oral Cardizem and start on OAC and arrange 1 week follow up
 - **3. Send the patient to the ER for evaluation.**
 - 4. Advise patient given lack of symptoms he can go home.

Case Study 2

- Another 70-year-old male presents to the office for a routine physical examination at 4:45 pm. He has a history of DM and HTN. He is currently not experiencing any symptoms. His HR is 78 BPM. Given the recent patient the MA ordered another ECG. After reviewing the ECG what would be your next step?
 - 1. Start the patient on oral Cardizem and arrange 1 week follow up
 - 2. Start the patient on oral Cardizem and start on an OAC
 - 3. Send the patient to the ER for evaluation
 - 4. Start on OAC and arrange for echocardiogram, TSH and BMP
 - 5. Advise patient given lack of symptoms he can go home

Case Study 2



Case Study 2

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2023 ACC/AHA/ACCP/HRS Guideline for the Diagnosis and Management of Atrial Fibrillation

A Report of the American College of Cardiology/American Heart Association Joint Committee
on Clinical Practice Guidelines



Summary

- 1- Prevalence**
- 2- Risk Factors for Diagnosed AF**
- 3- Atrial Arrhythmia Classification and Definitions**
- 4- Clinical Evaluation**
- 5- Lifestyle and Risk Factor Modification (LRFM) for AF Management**
- 6- Prevention of Thromboembolism**
- 7- Rate Control**
- 8- AF and Specific Patient Groups**
- 9- Top 10 Take-Home Messages**

Summary

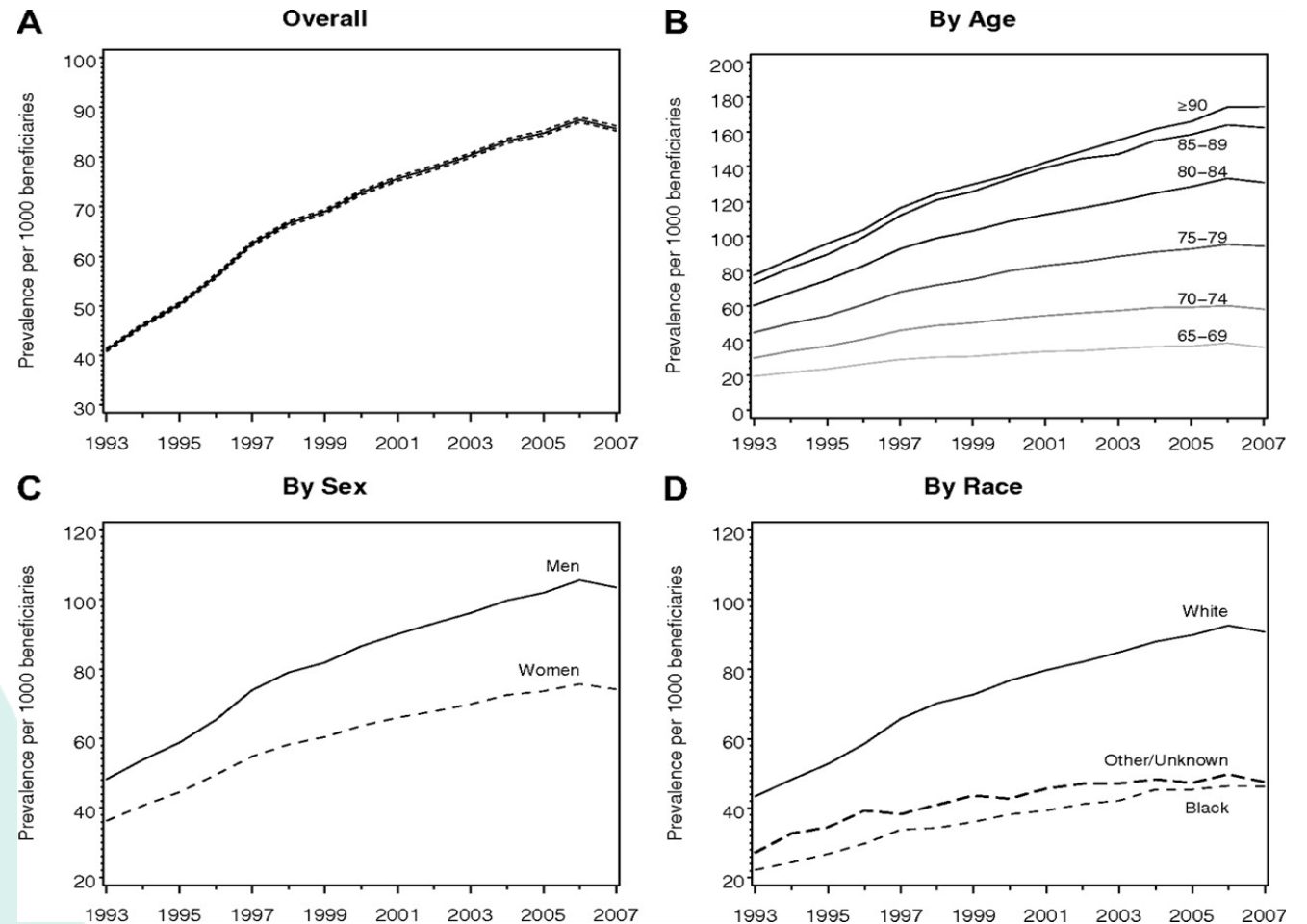
- 1- Prevalence**
 - 2- Risk Factors for Diagnosed AF**
 - 3- Atrial Arrhythmia Classification and Definitions**
 - 4- Clinical Evaluation**
 - 5- Lifestyle and Risk Factor Modification (LRFM) for AF Management**
 - 6- Prevention of Thromboembolism**
 - 7- Rate Control**
 - 8- AF and Specific Patient Groups**
 - 9- Top 10 Take-Home Messages**
- Briefly discussing rhythm control strategies (AAD/Ablation)**

Summary

Figure 2. Prevalence of AF Among Medicare Beneficiaries, 1993–2007.

(A) In the overall cohort, (B) by age group, (C) by sex, and (D) by race. The dashed lines in panel A represent 95% CIs.

AF indicates atrial fibrillation.



Case Study 3

- A 40-year-old male presents to the office for a routine physical examination. He has no significant PMHx. He is currently not experiencing any symptoms. His father has a history of atrial fibrillation and is always in the hospital. He asks you what are the most important risk factors that he needs to work on to avoid this happening to him?

Table 3. Risk Factors for Diagnosed AF

Condition	Study Type	Effect on Risk of AF	Summary Risk of Incident AF	Effect of LRFM
Risk Factors				
Advancing age	• SR/MA	• Age per 5 y: ↑ risk (HR, 1.43-1.66)	• ↑ Risk	• N/A
	• MR	• Accelerated epigenetic age by MR: no association		
Smoking	• Single study	• Current smoking: ↑ risk (9.8%)	• ↑ Risk	• N/A
	• SR/MA	• Smoking: ↑ risk (HR, 1.21-1.43)		
	• MR	• Smoking initiation: ↑ risk (OR, 1.11)		
Physical activity	• SR/MA	<ul style="list-style-type: none"> • Sedentary lifestyle: ↑ risk (OR, 2.47) • Guideline-recommended physical activity: ↓ risk (HR, 0.94) • Elite athletes vs. nonathletes: ↑ risk (OR, 2.46) 	• U curve: Sedentary lifestyle and elite/extreme exercise: ↑ risk	• Exercise: ↓ AF burden, recurrence, symptoms; ↑ quality of life, functional capacity

↘, decreased; ↑, increased; ↔no significant change in risk

AF, atrial fibrillation; HR, hazard ratio; LRFM, lifestyle and risk factor modification; MA, meta-analysis; MR, Mendelian randomization; N/A, not available/applicable; OR, odds ratio; SR, systematic review;

Table 3. Risk Factors for Diagnosed AF (con't.)

Alcohol	<ul style="list-style-type: none"> • Single studies 	<ul style="list-style-type: none"> • Risk of AF episode within 4 h of 1 drink: ↑ risk (OR, 2.02) • Greater access to alcohol law: ↑ risk 	↑ Risk	<ul style="list-style-type: none"> • Randomized abstinence: ↓ AF recurrence and burden • N-of-1 studies of alcohol avoidance: ↓ near-term AF • Alcohol avoidance or reduction as part of a comprehensive LRFM program: ↓ AF burden, symptoms, progression of AF
	<ul style="list-style-type: none"> • SR/MA 	<ul style="list-style-type: none"> • Dose response (#drinks/d): ↑ risk (RR) • 1: 1.08; 2: 1.17; 3: 1.33; 4: 1.36; 5: 1.47 		
	<ul style="list-style-type: none"> • MR 	<ul style="list-style-type: none"> • Genetically predicted heavy alcohol consumption (>35 U/week for women and >50 U/week for men): ↑ risk (OR, 1.11) 		
<p>↓ indicates decreased; ↑, increased; ↔no significant change in risk</p> <p>AF, atrial fibrillation; LRFM, lifestyle and risk factor modification; MA, meta-analysis; MR, Mendelian randomization; N/A, not available/applicable; OR, odds ratio; RR, relative risk; SR, systematic review</p>				

Table 3. Risk Factors for Diagnosed AF (con't.)

Adiposity markers: weight, BMI, obesity	<ul style="list-style-type: none"> • Single study 	<ul style="list-style-type: none"> • Obesity: population attributable fraction 12.7%-16.9% 	↑ Risk	<ul style="list-style-type: none"> • Weight loss in overweight or obese patients with AF as part of a comprehensive LRFM program: ↓ AF symptoms, burden, recurrence, progression • Bariatric surgery in class III obesity: associated with reversal of AF type, ↑ sinus rhythm postablation • Weight loss in long-lasting persistent AF and obesity: ↔
	<ul style="list-style-type: none"> • SR/MA 	<ul style="list-style-type: none"> • BMI: RR, 1.28 per 5-unit ↑ in BMI • Weight: HR, 1.12 per 15 kg ↑ 		
	<ul style="list-style-type: none"> • MR 	<ul style="list-style-type: none"> • Obesity • Birthweight: 1.26 per SD ↑ • Childhood BMI (OR, 1.18) • BMI 1.31 per unit BMI 		

↓ indicates decreased; ↑, increased; ↔no significant change in risk

Table 3. Risk Factors for Diagnosed AF (con't.)

Hypertension and BP	<ul style="list-style-type: none"> • Single studies 	<ul style="list-style-type: none"> • Elevated BP: ↑ risk, population attributable fraction, 21.6% • Presence of hypertension treatment: ↑ risk (HR, 1.35-1.68), incidence 9.8%-19.5%; both AF and SBP decreased over time 	<ul style="list-style-type: none"> • Hypertension: ↑ risk • SBP: ↑ risk • DBP: ↑ ↓ ↔ risk 	<ul style="list-style-type: none"> • Renal denervation: ↓ AF postablation • Mineralocorticoid receptor antagonists: ↓ AF burden • BP control postablation: ↔ • Intensive BP control to SBP <120 mm Hg in patients with hypertension at high risk for CVD: ↓ AF risk • BP control as part of a comprehensive LRFM program: ↓ AF burden
	<ul style="list-style-type: none"> • MA 	<ul style="list-style-type: none"> • BP: SBP: ↑ risk (HR per 20 mm Hg, 1.22); DBP per 10 mm Hg ↓ risk (HR, 0.90); use of BP medications ↑ risk (HR, 1.42) 		
	<ul style="list-style-type: none"> • SR/MA 	<ul style="list-style-type: none"> • Hypertension: ↑ risk 		
	<ul style="list-style-type: none"> • MR 	<ul style="list-style-type: none"> • SBP ↑ risk; DBP mixed results ↔ ↑ risk; pulse pressure ↑ risk 		

Table 3. Risk Factors for Diagnosed AF (con't.)

Diabetes	<ul style="list-style-type: none"> Single study 	<ul style="list-style-type: none"> Diabetes: ↑ risk, population attributable fraction 3.1% Diabetes: ↑ risk, population attributable fraction ↑ over time 3.2%-5.9% 	↑ Risk	<ul style="list-style-type: none"> Optimal glycemic control preablation may ↓ AF recurrence postablation
	<ul style="list-style-type: none"> MA 	<ul style="list-style-type: none"> Diabetes: ↑ risk (HR, 1.27 [95% CI, 1.10-1.46]) 		
	<ul style="list-style-type: none"> SR/MA 	<ul style="list-style-type: none"> Diabetes: ↑ risk (RR, 1.28, excluding large outlying study) Pre-diabetes: ↑ risk (RR, 1.20) Blood glucose; ↑ risk (RR per 20 mg/dL↑, 1.11) 		

↓ indicates decreased; ↑, increased; ↔no significant change in risk

Table 3. Risk Factors for Diagnosed AF (con't.)

CKD	• SR/MA	• CKD: ↑ risk (HR, 1.47)	↑ ↔ Risk	N/A
	• MR	• Bidirectional relation between CKD and AF • AF causal for CKD; CKD not causal for AF		
Obstructive sleep apnea	• SR/MA	• OSA: ↑ risk (OR, 1.71), with potential dose response relation by severity	↑ Risk	• Observational studies of SDB treatment: ↓AF burden • Small RCTs of SDB treatment: ↔
	• MR	• Genetically predicted OSA: ↑ risk (OR, 1.21)		
Thyroid disease	• SR/MA	• Clinical hyperthyroidism: ↑ risk (RR, 2.35)	↑ Risk	
	• MR	• Hyperthyroidism: ↑ risk (OR, 1.31)		

AF, atrial fibrillation; ASCVD, atherosclerotic cardiovascular disease; BMI, body mass index; BNP, brain natriuretic peptide; BP, blood pressure; CABG, coronary artery bypass graft surgery; CAD, coronary artery disease; CI, confidence interval; CKD, chronic kidney disease; DBP, diastolic blood pressure; DM, diabetes mellitus; ECG, electrocardiogram; GWAS, genome-wide association study; HF, heart failure; HR, hazard ratio; LA, left atrial; LRFM, lifestyle and risk factor modification; LV, left ventricular; LVH, left ventricular hypertrophy; MA, meta-analysis; MR, Mendelian randomization; N/A, not available/applicable; OR, odds ratio; RR, relative risk; OSA, obstructive sleep apnea; SMD, standardized mean difference; SBP, systolic blood pressure; SES, socioeconomic status; SR, systematic review; and VHD, valvular heart disease

Table 3. Risk Factors for Diagnosed AF (con't.)

Genetics				
Family history/ heritability	• Single studies	• Family history of AF: ↑ risk	↑ Risk	N/A
	• MR	• Proportion heritability explained by loci in European ancestry analysis, 42%		

↓ indicates decreased; ↑, increased; ↔no significant change in risk

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Case Study 4

- A 30-year-old female was recently seen in your office for palpitations, and you ordered an echocardiogram. Before you had time to even review the report, the patient reviews her report and sends a question in the portal and asks if having a **mild increase in left atrial size** can increase her risk of atrial fibrillation. The echo report is normal with the exception that the left atrium was felt to be mildly dilated. What would be your best response?

Table 3. Risk Factors for Diagnosed AF (con't.)

Echocardiography- Imaging markers				
LA size or function	<ul style="list-style-type: none"> • Single studies 	<ul style="list-style-type: none"> • LA anterior-posterior dimension: ↑ risk (HR per 5 mm ↑, 1.39) • End diastolic LA volume (min): ↑ risk (HR, 1.12) • LA emptying fraction: ↑ risk (HR, 1.03) 	↑ LA size, emptying fraction: ↑ risk	Surgical LA reduction in conjunction with cardiac surgery or surgical AF ablation in patients with persistent AF may ↑ rates of sinus rhythm
	<ul style="list-style-type: none"> • MR 	<ul style="list-style-type: none"> • Genetic susceptibility to AF (independent measure) is associated with ↑ indexed LA size and ↓ LA ejection fraction (dependent measures) 		
LV wall thickness	<ul style="list-style-type: none"> • Single study 	<ul style="list-style-type: none"> • LV posterior wall thickness: ↑ risk HR per 4-mm ↑, 1.28 	↑ risk	N/A
	<ul style="list-style-type: none"> • SR/MA 	<ul style="list-style-type: none"> • LVH: ↑ risk RR, 1.46 		

AF, atrial fibrillation; ASCVD, atherosclerotic cardiovascular disease; BMI, body mass index; BNP, brain natriuretic peptide; BP, blood pressure; CABG, coronary artery bypass graft surgery; CAD, coronary artery disease; CI, confidence interval; CKD, chronic kidney disease; DBP, diastolic blood pressure; DM, diabetes mellitus; ECG, electrocardiogram; GWAS, genome-wide association study; HF, heart failure; HR, hazard ratio; LA, left atrial; LRFM, lifestyle and risk factor modification; LV, left ventricular; LVH, left ventricular hypertrophy; MA, meta-analysis; MR, Mendelian randomization; N/A, not available/applicable; OR, odds ratio; RR, relative risk; OSA, obstructive sleep apnea; SMD, standardized mean difference; SBP, systolic blood pressure; SES, socioeconomic status; SR, systematic review; and VHD, valvular heart disease

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Atrial Arrhythmia Classification and Definitions



Table 4. Definitions

Term	Definition
Atrial fibrillation (AF)	<p>A supraventricular tachyarrhythmia with uncoordinated atrial activation and ineffective atrial contraction</p> <p>Electrocardiographic characteristics include (1) <u>irregular R-R intervals</u> (when atrioventricular conduction is present), (2) <u>absence of distinct P waves</u>, and (3) <u>irregular atrial activity also known as fibrillatory waves</u>. AF can be documented by, for example, 12-lead ECG, rhythm strips, wearables, intracardiac electrograms, but will always require visual confirmation that the diagnosis is accurate.</p>
Clinical AF	<p>With the increasing availability of wearable devices and other continuous monitoring technologies, <u>the distinction between clinical and subclinical AF has become increasingly blurred</u>, thus the writing committee felt the term clinical AF has become less useful. Yet, the term was kept because most of the evidence from randomized trials that have led to guideline recommendations for the treatment of AF refer to “clinical AF.” These trials required <u>electrocardiographic (EKG) documentation of the arrhythmia</u> for inclusion and most patients presented for clinical evaluation and/or therapy of the arrhythmia.</p>

Table 4. Definitions (con't.)

Subclinical AF	<p>Subclinical AF refers to this arrhythmia identified in individuals who do not have symptoms attributable to AF and in whom there are <u>no previous ECGs documenting AF</u></p> <p>This includes AF identified by <u>implanted devices</u> (pacemakers, defibrillators, or implantable loop recorders) or wearable monitors</p>
Atrial high-rate episodes (AHRE)	<p>These are defined as <u>atrial events exceeding the programmed detection rate limit set by the device</u>. These are recorded by implanted devices but require visual inspection to confirm AF and exclude other atrial arrhythmias, artifact or oversensing.</p>
AF burden	<p>AF burden encompasses both frequency and duration and refers to the amount of AF that an individual has. AF burden has been defined differently across studies. For the purpose of this guideline, <u>AF burden will be defined as the durations of an an episode or as a percentage of AF duration</u> during the monitoring period depending on how it was defined in the individual studies.</p>

Table 4. Definitions (con't.)

First detected AF	The first documentation of AF, regardless of previous symptoms
Paroxysmal AF	AF that is intermittent and terminates within ≤ 7 d of onset
Persistent AF	AF that is continuous and sustains for >7 d and requires intervention. Of note, patients with persistent AF who, with therapy, become paroxysmal should still be defined as persistent as this reflects their original pattern and is a more useful to predict outcomes and define substrate.
Long-standing persistent AF	AF that is continuous for >12 mo in duration
Permanent AF	<p>A term that is used when the patient and clinician make a joint decision to stop further attempts to restore and/or maintain sinus rhythm</p> <p>Acceptance of AF represents a therapeutic decision and does not represent an inherent pathophysiological attribute of AF</p>

Table 4. Definitions (con't.)

<u>Terms considered obsolete</u>	
Chronic AF	This historical term has had variable definitions and should be abandoned. It has been replaced by the “paroxysmal”, “persistent”, “long-standing persistent” and “permanent” terminology.
Valvular and nonvalvular AF	The distinction between “valvular” and “non-valvular” AF remains a matter of debate. Their definitions may be confusing. Recent trials comparing vitamin K antagonists with non-vitamin K antagonist oral anticoagulants in AF were performed among patients with so-called “non-valvular” AF. <u>These trials have all allowed native valvular heart disease other than mitral stenosis (mostly moderate and severe) and prosthetic heart valves to be included.</u> We should no longer consider the classification of AF as “valvular” or “non-valvular” for the purpose of defining the etiology of AF, since the term was specific for eligibility of stroke risk reduction therapies. Valvular and nonvalvular terminology should be abandoned.
Lone AF	This term has been used in the past to identify AF in younger patients without structural heart disease who are at a lower risk for thromboembolism. This term does not enhance patient care, is not currently used and should be abandoned.

Figure 4. AF Stages: Evolution of Atrial Arrhythmia Progression

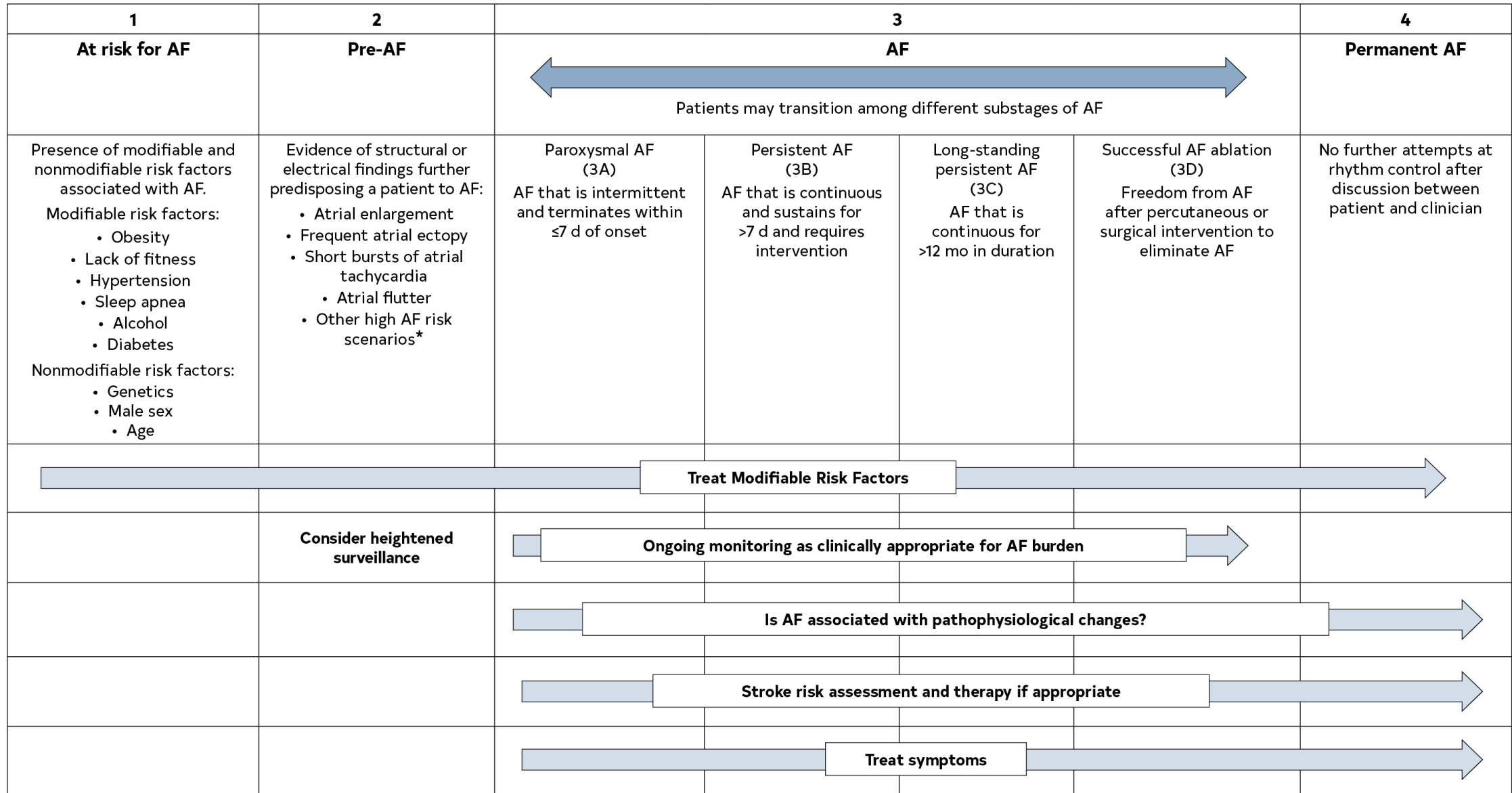


Figure 5. Pillars for AF Management

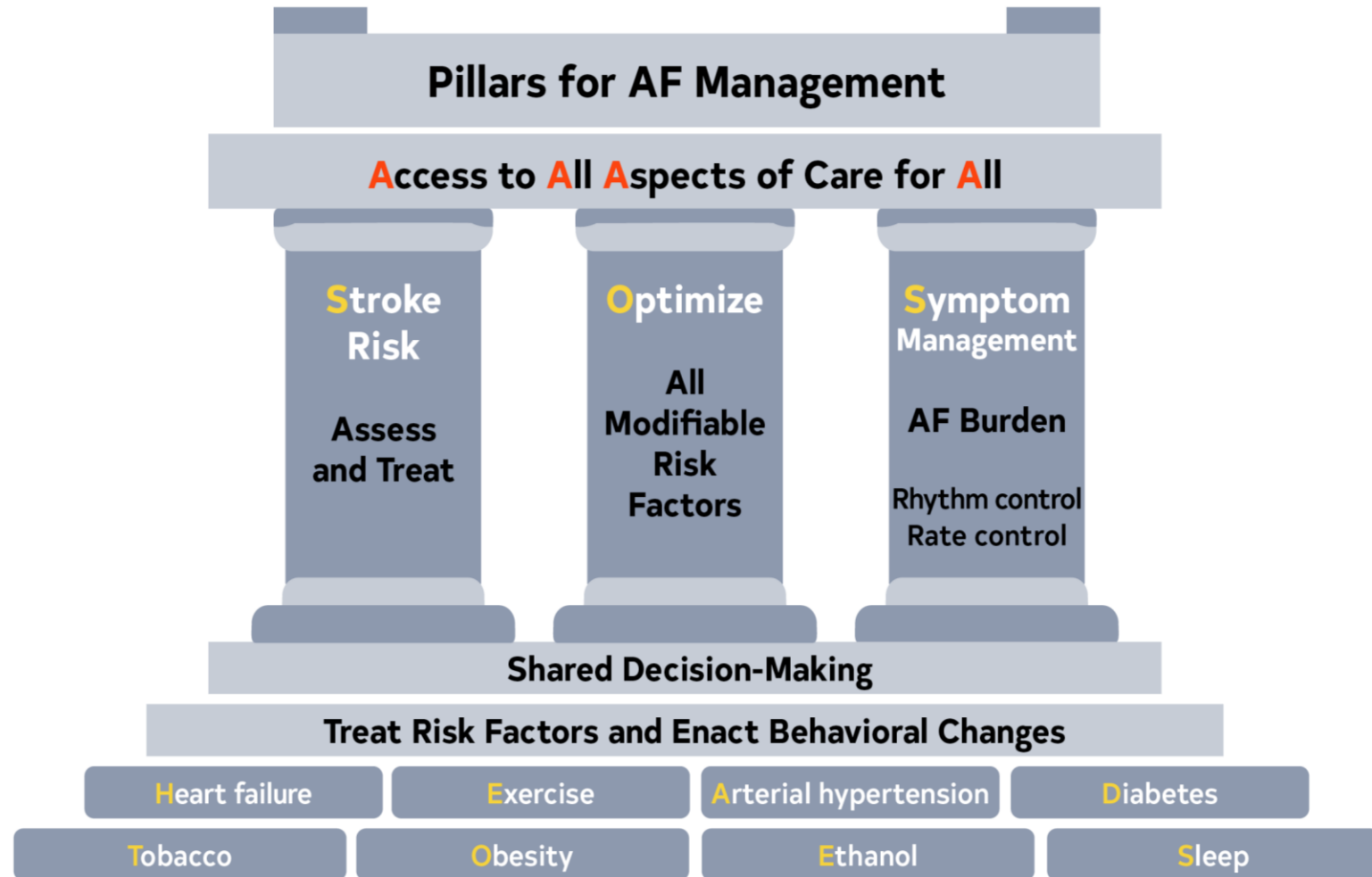
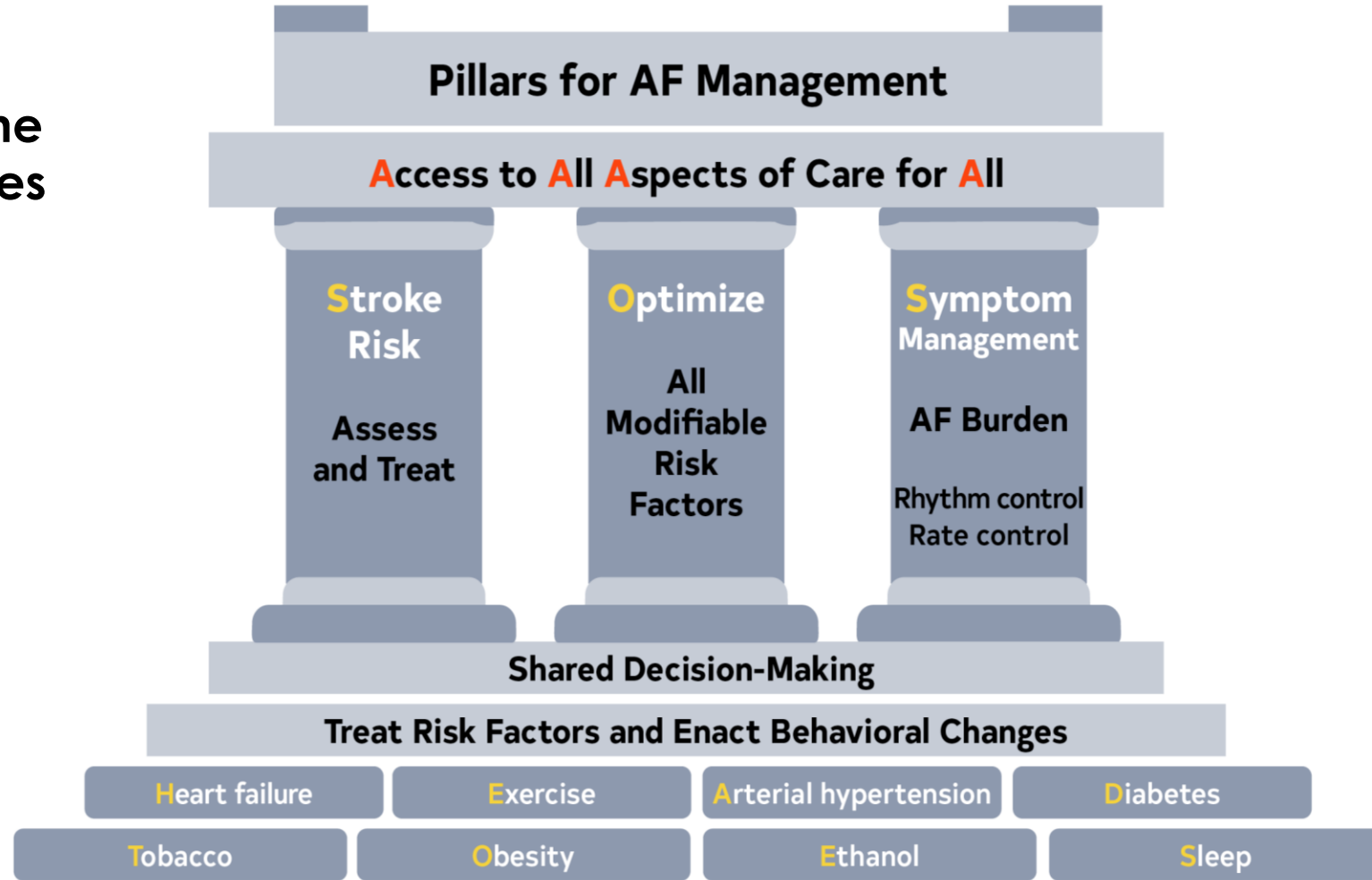


Figure 5. Pillars for AF Management

While the ACC guidelines define the pillars of AF care, the ESC guidelines organize these principles into a practical longitudinal framework



AF-CARE Pathway: A Practical Framework for Primary Care Providers (ESC 2024)

Atrial fibrillation is no longer managed as an isolated arrhythmia — it is a chronic, progressive cardiovascular disease requiring longitudinal care. AF-CARE Pathway (ESC 2024)

- **C — Comorbidity & Risk Factor Management**

- Hypertension, obesity, diabetes, sleep apnea, alcohol use, Lifestyle and cardiometabolic optimization across all AF stages

- **A — Avoid Stroke**

- Annual thromboembolic risk assessment, Oral anticoagulation guided by CHA₂DS₂-VASc and risk modifiers

- **R — Reduce Symptoms**

- Rate or rhythm control strategy individualized to patient profile, Symptom burden, functional status, and quality of life prioritized

- **E — Evaluate & Reassess**

Regular reassessment of AF burden, comorbidities, and therapy, AF management is dynamic and evolves over time

AF Management Algorithm for Primary Care Providers

- **Step 1 — Confirm diagnosis**
- ECG documentation required
- **Step 2 — Stroke risk assessment**
- CHA₂DS₂-VASc score
- ≥ 2 men / ≥ 3 women → anticoagulate
- **Step 3 — Rate vs Rhythm strategy**
- Symptomatic → rhythm control preferred
- Asymptomatic → rate control reasonable

Step 4 — Risk factor modification
Weight loss $\geq 10\%$
Treat HTN, OSA, diabetes

Step 5 — Ongoing reassessment
AF is progressive disease

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Clinical Evaluation

Case Study 5

- A 70-year-old male with a history of HTN presents to your office as he was complaining of palpitations and his wearable detected atrial fibrillation. An ECG was performed in the office and confirms atrial fibrillation. You start him on OAC given his CHADS₂-VASC₂ and order a cardiology consult. What would be the best tests to order on this patient prior to the cardiology visit?
- A. Cardiac stress testing and an Echocardiogram
- B. Echocardiogram and a 24-hour Holter monitor
- C. Echocardiogram and basic labs including TSH
- D. 14-day event monitor, echocardiogram and cardiac stress testing

Case Study 5

- A 70-year-old male with a history of HTN presents to your office as he was complaining of palpitations and his wearable detected atrial fibrillation. An ECG was performed in the office and confirms atrial fibrillation. You start him on OAC given his CHADS-2-VASC-2 and order a cardiology consult. What would be the best tests to order on this patient prior to the cardiology visit?
- A. Cardiac stress testing and an Echocardiogram
- B. Echocardiogram and a 24-hour Holter monitor
- **C. Echocardiogram and basic labs including TSH**
- D. 14-day event monitor, echocardiogram and cardiac stress testing

Wearable-Detected Atrial Fibrillation: A Practical Clinical Approach

Consumer wearables and implantable devices have dramatically increased detection of atrial fibrillation — often in asymptomatic patients.

- **Stepwise Approach for Primary Care Providers**
- **1. Confirm the Diagnosis**
- Wearable alert → confirm with ECG or rhythm strip, review wearable strips if able (**If the clinician reviews the ECG wearable and confirms AF, this can serve as a valid basis for AF diagnosis**)
- **2. Assess Stroke Risk**
- Calculate CHA₂DS₂-VASc score, Identify additional stroke risk modifiers
- **3. Determine Episode Duration**
- Brief episodes (<24 hours): shared decision-making, Longer episodes (≥24 hours): higher thromboembolic risk

Wearable-Detected Atrial Fibrillation: A Practical Clinical Approach

Consumer wearables and implantable devices have dramatically increased detection of atrial fibrillation — often in asymptomatic patients.

- **Stepwise Approach**
- **4. Initiate Anticoagulation When Appropriate- Should be confirmed with ECG**
- CHA₂DS₂-VASc ≥2 (men) or ≥3 (women): OAC generally recommended, Supported by NOAH-AFNET 6 and ARTESiA and guideline updates (reduced ischemic stroke by 32%)
- **5. Refer to Cardiology**
- Newly diagnosed AF, Uncertain AF burden, Symptomatic or recurrent episodes

Key Message: Wearables detect rhythm — clinicians determine risk and therapy.

Basic Clinical Evaluation

Recommendations for Basic Clinical Evaluation

Referenced studies that support the recommendations are summarized in the Online Data Supplement.

COR	LOE	Recommendations
1	B-NR	<p>1. In patients with newly diagnosed AF, <u>a transthoracic echocardiogram to assess cardiac structure, laboratory testing to include a complete blood count, metabolic panel, and thyroid function,⁵⁻⁷</u> and when clinical suspicion exists, targeted testing to assess for other medical conditions associated with AF are recommended to determine stroke and bleeding risk factors, as well as underlying conditions that will guide further management.</p>
3: No benefit	B-NR	<p>2. In patients with newly diagnosed AF, protocolized testing for ischemia, acute coronary syndrome (ACS), and pulmonary embolism (PE) should NOT routinely be performed to assess the etiology of AF unless there are additional signs or symptoms to indicate those disorders.</p>

Rhythm Monitoring Tools and Methods

Recommendations for Rhythm Monitoring Tools and Methods

Referenced studies that support the recommendations are summarized in the Online Data Supplement.

COR	LOE	Recommendations
1	B-NR	1. Among individuals without a known history of AF, it is recommended that an initial AF diagnosis be made by a clinician using visual interpretation of the electrocardiographic signals, regardless of the type of rhythm or monitoring device.
1	B-NR	2. In patients with an intracardiac rhythm device capable of a diagnosis of AF, such as from an atrial pacemaker lead, a diagnosis of AF should only be made after it is visually confirmed by reviewing intracardiac tracings to exclude signal artifacts and other arrhythmias.

Rhythm Monitoring Tools and Methods (con't.)

2a	B-R	3. For patients who have had a <u>systemic thromboembolic event</u> without a known history of AF and in whom maximum sensitivity to detect AF is sought, an <u>implantable cardiac monitor</u> is reasonable.
2a	B-NR	4. Among patients <u>with a diagnosis of AF</u> , it is reasonable to infer AF frequency, duration, and burden using automated algorithms available from electrocardiographic monitors, implantable cardiac monitors, and cardiac rhythm devices with an atrial lead, recognizing that periodic review can be required to exclude other arrhythmias.
2a	B-R	5. Among patients <u>with AF</u> in whom cardiac monitoring is advised, it is reasonable to recommend use of a consumer-accessible electrocardiographic device that provides a high-quality tracing to detect recurrences.

A large teal-colored arc is positioned on the left side of the slide, starting from the bottom and curving upwards and to the right.

Lifestyle and Risk Factor Modification (LRFM) for AF Management

Case Study 6

- A 20-year-old male with a BMI of 50 presents to your office as he was complaining of palpitations and was concerned about atrial fibrillation after seeing a commercial on television. He asks what are the best ways to reduce his risk of developing atrial fibrillation and specially inquires about weight loss. What would be your recommendations for this patient on duration of aerobic activity and recommendation on weight loss?

Risk Factor Modification: What Should We Actually Tell Patients?

Lifestyle and risk factor modification is now a core pillar of atrial fibrillation management — not an adjunct. Evidence-Based Targets (ESC 2024 / ACC 2023)

- **Weight Management**
- **≥ 10% sustained weight loss** reduces AF burden and recurrence, Strongest modifiable predictor of AF progression
- **Physical Activity**
- **150–300 minutes/week** of moderate aerobic exercise, Improves AF symptoms and cardiometabolic risk
- Avoid excessive endurance training
- **Blood Pressure Control**
- Target **<130/80 mmHg**, Poor BP control increases AF recurrence and stroke risk

Risk Factor Modification: What Should We Actually Tell Patients?

Lifestyle and risk factor modification is now a core pillar of atrial fibrillation management — not an adjunct. Evidence-Based Targets (ESC 2024 / ACC 2023)

- **Alcohol Consumption**
- Limit to **≤3 standard drinks per week**
- Alcohol reduction associated with decreased AF recurrence
- **Sleep Health**
- Screen for obstructive sleep apnea
- Questionnaires alone may be insufficient
- Treatment may reduce AF progression

Risk Factor Modification: What Should We Actually Tell Patients?

These recommendations should be delivered with the same urgency as anticoagulation counseling



Primary Prevention

Recommendation for Primary Prevention		
Referenced studies that support the recommendations are summarized in the Online Data Supplement.		
COR	LOE	Recommendation
1	B-NR	1. Patients at increased risk of AF should receive comprehensive guideline-directed LRFM for AF, targeting obesity, physical inactivity, unhealthy alcohol consumption, smoking, diabetes, and hypertension.

Weight Loss in Individuals Who Are Overweight or Obese

Recommendation for Weight Loss in Individuals Who Are Overweight or Obese		
Referenced studies that support the recommendation are summarized in the Online Data Supplement.		
COR	LOE	Recommendation
1	B-R	1. In patients with AF who are overweight or obese (with body mass index [BMI] >27 kg/m ²), weight loss is recommended, with an ideal target of at least <u>10% weight loss</u> to reduce AF symptoms, burden, recurrence, and progression to persistent AF.

Physical Fitness

Recommendation for Physical Fitness		
Referenced studies that support the recommendation are summarized in the Online Data Supplement.		
COR	LOE	Recommendation
1	B-R	1. In individuals with AF,* moderate to vigorous exercise training to a target of <u>210 minutes per week</u> is recommended to reduce AF symptoms and burden, increase maintenance of sinus rhythm, increase functional capacity, and improve QOL.

*Patients without AF related to excessive exercise

Smoking Cessation

Recommendation for Smoking Cessation

Referenced studies that support the recommendation are summarized in the Online Data Supplement.

COR	LOE	Recommendation
1	B-NR	1. Patients with a history of AF who smoke cigarettes should be strongly advised to quit smoking and should receive GDMT for tobacco cessation to mitigate increased risks of AF-related cardiovascular complications and other adverse outcomes.

Alcohol Consumption

Recommendation for Alcohol Consumption		
Referenced studies that support the recommendation are summarized in the Online Data Supplement.		
COR	LOE	Recommendation
1	B-R	1. Patients with AF seeking a <u>rhythm-control strategy</u> should <u>minimize or eliminate</u> alcohol consumption to reduce AF recurrence and burden.

Caffeine Consumption

Recommendation for Caffeine Consumption		
Referenced studies that support the recommendation are summarized in the Online Data Supplement.		
COR	LOE	Recommendation
3: No Benefit	B-NR	1. For patients with AF, recommending caffeine abstinence to prevent AF episodes is of <u>no benefit</u> , although it may reduce symptoms in patients who report caffeine triggers or worsens AF symptoms.

Treatment of Hypertension

Recommendation for the Treatment of Hypertension		
Referenced studies that support the recommendation are summarized in the Online Data Supplement.		
COR	LOE	Recommendation
1	B-NR	1. For patients with AF and hypertension, optimal BP control is recommended to reduce AF recurrence and AF-related cardiovascular events.

Sleep

Recommendation for Sleep

Referenced studies that support the recommendation are summarized in the Online Data Supplement.

COR	LOE	Recommendation
2b	B-NR	1. Among patients with AF, it may be reasonable to <u>screen for obstructive sleep apnea</u> , given its high prevalence in patients with AF, although the role of treatment of sleep-disordered breathing (SDB) to maintain sinus rhythm is uncertain.



Prevention of Thromboembolism

Case Study 7

- A 75-year-old male presents to the office for a routine physical examination. He was noted to have an irregular heart rate by the MA and an ECG was performed which demonstrated atrial fibrillation with a rate of 60 bpm. He has no significant past medical history and takes no medications. After the ECG was completed, he spontaneously converts to sinus rhythm, and a repeat ECG confirms this. Patient's CHADS-2-VASC score is 2. What would be your recommendations for oral anticoagulation?
 - A. Start patient on aspirin 81 mg daily
 - B. Start patient on aspirin 325 mg daily
 - C. Start patient on OAC
 - D. No anticoagulation therapy is indicated

Case Study 7

- A 75-year-old male presents to the office for a routine physical examination. He was noted to have an irregular heart rate by the MA and an ECG was performed which demonstrated atrial fibrillation with a rate of 60 bpm. He has no significant past medical history and takes no medications. After the ECG was completed, he spontaneously converts to sinus rhythm, and a repeat ECG confirms this. Patient's CHADS-2-VASC score is 2. What would be your recommendations for oral anticoagulation?
 - A. Start patient on aspirin 81 mg daily
 - B. Start patient on aspirin 325 mg daily
 - **C. Start patient on OAC**
 - D. No anticoagulation therapy is indicated

Risk Stratification Schemes

Recommendations for Risk Stratification Schemes		
Referenced studies that support the recommendations are summarized in the Online Data Supplement.		
COR	LOE	Recommendations
1	B-NR	1. Patients with AF should be evaluated for their annual risk of thromboembolic events using a validated clinical risk score, such as <u>CHA₂DS₂-VASc</u> .
1	B-NR	2. Patients with AF should be evaluated for factors that specifically indicate a higher risk of bleeding, such as previous bleeding and use of drugs that increase bleeding risk, in order to identify possible interventions to prevent bleeding on anticoagulation.

Risk Stratification Schemes (con't.)

3: No Benefit	B-NR	4. In patients who are deemed at high risk for stroke, bleeding risk scores should NOT be used in isolation to determine eligibility for oral anticoagulation but instead to identify and modify bleeding risk factors and to inform medical decision-making.
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AF burden or other features in Table 3.

Table 10. Risk Factor Definitions for CHA₂DS₂-VASc² Score as in the Original Article

C	Heart Failure	The presence of signs and symptoms of either right (elevated central venous pressure, hepatomegaly, dependent edema) or left ventricular failure (exertional dyspnea, cough, fatigue, orthopnea, paroxysmal nocturnal dyspnea, cardiac enlargement, rales, gallop rhythm, pulmonary venous congestion) or both, confirmed by noninvasive or invasive measurements demonstrating objective evidence of cardiac dysfunction
H	Hypertension	A resting blood pressure >140 mm Hg systolic and/or >90 mm Hg diastolic on at least 2 occasions or current antihypertensive pharmacological treatment
A ₂	Age, additional risk/point	Age ≥75 y
D	Diabetes	Fasting plasma glucose level ≥7.0 mmol/L (126 mg/dL) or treatment with hypoglycemic agent and/or insulin

Table 10. Risk Factor Definitions for CHA₂DS₂-VASc² Score as in the Original Article (con't.)

S₂	Thromboembolism	Either an ischemic stroke, transient ischemic attack, peripheral embolism, or pulmonary embolism
V	Vascular disease	Coronary artery disease (prior myocardial infarction, angina pectoris, percutaneous coronary intervention, or coronary artery bypass surgery) or peripheral vascular disease (the presence of any of the following: intermittent claudication, previous surgery or percutaneous intervention on the abdominal aorta or the lower extremity vessels, abdominal or thoracic vascular surgery, arterial and venous thrombosis)
A	Age standard risk/weight	Age 65–74 y
Sc	Sex Category	Female sex

**Table 8.
Three
Validated
Risk Models
for Stroke**

* 8 points if age <65 y; 4 points if age 65-74 y; 2 points if age 75-84 y; and 3 points if ≥85 y.

Risk Factor	CHA ₂ DS ₂ -VASc	ATRIA	GARFIELD
Age ≥85 y		6	0.98
Age ≥75 y	2	5	0.59
Age 65-74 y	1	3	0.20
Female sex	1	1	
Hypertension	1		0.16
Renal disease		1	0.35
Diabetes	1	1	0.21
Current smoking			0.48
Congestive heart failure	1	1	0.23
Previous stroke or TIA	2	2-8*	0.80
Vascular disease	1		0.20
Dementia			0.51
Previous bleeding			0.30
Proteinuria		1	
Low risk score	0	0-5	0-0.89
Intermediate risk score	1	6	0.90-1.59
High risk score	≥2	7-15	≥1.60
C-index (11)	0.63	0.66	-
C-index (13)	0.67	-	0.71

ATRIA indicates Anticoagulation and Risk Factors in Atrial Fibrillation: anemia, renal disease, elderly (age ≥75 y), any previous bleeding, hypertension; CHA₂DS₂-VASc, indicates congestive heart failure, hypertension, age ≥75 y (doubled), diabetes mellitus, prior stroke or transient ischemic attack or thromboembolism (doubled), vascular disease, age 65 to 74 y, sex category; GARFIELD-AF, Global Anticoagulant Registry in the Field-Atrial Fibrillation; and TIA, transient ischemic attack.

Table 11. Additional Risk Factors That Increase Risk of Stroke Not Included in CHA₂DS₂-VASc

Persistent/permanent AF vs paroxysmal
Obesity (BMI ≥ 30 kg/m²)
HCM (OAC regardless of Score for AF)
Poorly controlled hypertension
eGFR (<45 mL/h)
Proteinuria (>150 mg/24 h or equivalent)
Enlarged LA volume (≥ 73 mL) or Higher AF burden/Long duration diameter (≥ 4.7 cm)

AF indicates atrial fibrillation; BMI, body mass index; eGFR, estimated glomerular filtration rate; HCM, hypertrophic cardiomyopathy; and LA, left atrium.

***Antithrombotic Therapy

Recommendations for Antithrombotic Therapy		
Referenced studies that support the recommendations are summarized in the Online Data Supplement.		
COR	LOE	Recommendations
1	A	1. For patients with AF and an estimated annual thromboembolic risk of $\geq 2\%$ per year (eg, CHA ₂ DS ₂ -VASc score of ≥ 2 in men and ≥ 3 in women), anticoagulation is recommended to prevent stroke and systemic thromboembolism.
1	A	2. In patients with AF who do <u>not</u> have a history of moderate to severe rheumatic mitral stenosis or a mechanical heart valve, and who are candidates for anticoagulation, <u>DOACs are recommended over warfarin</u> to reduce the risk of mortality, stroke, systemic embolism, and ICH.

Risk-Based Selection of Oral Anticoagulation: Balancing Risks and Benefits

Recommendations for Risk-Based Selection of Oral Anticoagulation: Balancing Risks and Benefits		
Referenced studies that support the recommendations are summarized in the Online Data Supplement.		
COR	LOE	Recommendations
1	B-R	1. In patients diagnosed with AF who have an estimated annual risk of stroke or thromboembolic events $\geq 2\%$, selection of therapy to reduce the risk of stroke should be based on the risk of thromboembolism, <u>regardless of whether the AF pattern is paroxysmal, persistent, long-standing persistent, or permanent.</u>
1	B-NR	2. In patients with AF at risk for stroke, reevaluation of the need for and choice of stroke risk reduction therapy at periodic intervals is recommended to reassess stroke and bleeding risk, net clinical benefit, and proper dosing.

****Antithrombotic Therapy (con't.)

2a	A	3. For patients with AF and an estimated annual thromboembolic risk of $\geq 1\%$ but $< 2\%$ per year (equivalent to CHA ₂ DS ₂ -VASc score of 1 in men and 2 in women), anticoagulation is reasonable to prevent stroke and systemic thromboembolism.
3: Harm	B-R	4. In patients with AF who are candidates for anticoagulation and without an indication for antiplatelet therapy, aspirin either alone or in combination with clopidogrel as an alternative to anticoagulation is <u>NOT</u> recommended to reduce stroke risk.
3: No Benefit	B-NR	5. In patients with AF without risk factors for stroke (CHA ₂ DS ₂ -VASc score of 0), aspirin monotherapy for prevention of thromboembolic events is of <u>NO</u> benefit.

DOAC Trials: Why DOACs are First-Line

<u>Trial</u>	<u>Drug</u>	<u>Major finding</u>
RE-LY	Dabigatran	↓ stroke vs warfarin
ARISTOTLE	Apixaban	↓ stroke, ↓ bleeding, ↓ mortality
ROCKET-AF	Rivaroxaban	Non-inferior
ENGAGE AF	Edoxaban	↓ bleeding

Key outcomes:

- ↓ stroke
- ↓ intracranial hemorrhage (most important)
- ↓ mortality (apixaban, edoxaban)
- Similar or ↓ major bleeding

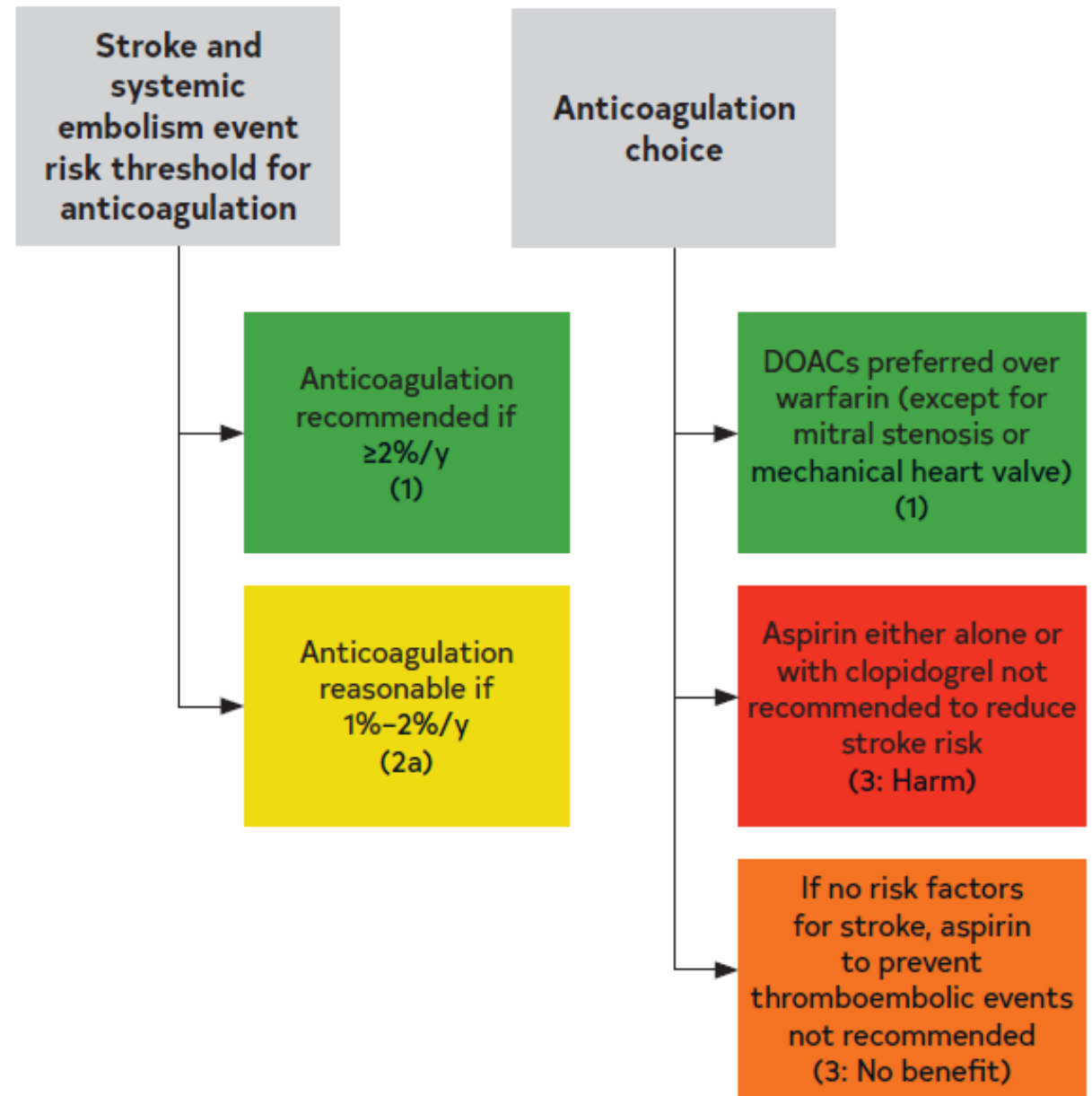
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Exception:

- Mechanical valve → **Warfarin**
- Moderate-severe mitral stenosis → **Warfarin**

**Figure 10.
Antithrombotic
Options in Patients
with AF**

DOAC indicates direct oral anticoagulant.



Considerations in Managing Anticoagulants

Recommendations for Considerations in Managing Anticoagulants

Referenced studies that support the recommendations are summarized in the Online Data Supplement.

		Recommendations
1	C-LD	1. For patients with AF receiving DOACs, optimal management of drug interactions is recommended for those receiving concomitant therapy with interacting drugs, especially CYP 3A4 and/or p-glycoprotein inhibitors or inducers (Table 13).
1	B-R	2. For patients with AF receiving warfarin,* a target INR between 2 and 3 is recommended , as well as optimal management of drug-drug interactions, consistency in vitamin K dietary intake, and routine INR monitoring to improve time in therapeutic range and to minimize risks of preventable thromboembolism or major bleeding.
3: Harm	B-NR	3. For patients with AF, nonevidence-based doses of DOACs should be avoided to minimize risks of preventable thromboembolism or major bleeding and to improve survival.

*Excludes patients with mechanical valves.

Figure 12. Consideration of Oral Anticoagulation for Device-Detected AHREs According to Patient Stroke Risk by CHA₂DS₂-VASc Score and Episode Duration (con't.)

ARTESiA, Apixaban for the Reduction of Thrombo-Embolism in Patients With Device-Detected Subclinical Atrial Fibrillation trial (>6 min);

COMMANDER HF, A Study to Assess the Effectiveness and Safety of Rivaroxaban in Reducing the Risk of Death, Myocardial Infarction, or Stroke in Participants With Heart Failure and Coronary Artery Disease Following an Episode of Decompensated Heart Failure;

COMPASS, Cardiovascular Outcomes for People Using Anticoagulation Strategies; ECG, electrocardiogram;

NOAH, Non-Vitamin K Antagonist Oral Anticoagulants in Patients With Atrial High Rate Episodes Trial; OAC, oral anticoagulation; and SCAF, subclinical atrial fibrillation (>6 min); .

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ORIGINAL RESEARCH ARTICLE

Direct Oral Anticoagulants for Stroke Prevention in Patients With Device-Detected Atrial Fibrillation: A Study-Level Meta-Analysis of the NOAH-AFNET 6 and ARTESiA Trials

Editorial, see p 989

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Recommendations for Device-detected AHR

6.4.1. Oral Anticoagulation for Device-Detected Atrial High-Rate Episodes Among Patients Without a Previous Diagnosis of AF

Recommendations for Oral Anticoagulation for Device-Detected Atrial High-Rate Episodes Among Patients Without a Previous Diagnosis of AF
Referenced studies that support the recommendations are summarized in the [Online Data Supplement](#).

COR	LOE	Recommendations
2a	B-NR	1. For patients with a device-detected atrial high-rate episode (AHRE) lasting ≥ 24 hours ¹ and with a CHA ₂ DS ₂ -VASc score ≥ 2 or equivalent stroke risk, ² it is reasonable to initiate oral anticoagulation ³ within a SDM framework that considers episode duration and individual patient risk.
2b	B-NR	2. For patients with a device-detected AHRE lasting between 5 minutes and 24 hours and with a CHA ₂ DS ₂ -VASc score ≥ 3 or equivalent stroke risk, ² it may be reasonable to initiate anticoagulation within a SDM framework that considers episode duration and individual patient risk.
3: No Benefit	B-NR	3. Patients with a device-detected AHRE lasting < 5 minutes and without another indication for oral anticoagulation should not receive oral anticoagulation. ^{4,5}

Case Study 8

- An 80-year-old male with a known history of paroxysmal atrial fibrillation on OAC presents with recurrent epistaxis. They have a CHADS₂-VASC score of 3 based on age > 75 and HTN. What would be the next most appropriate step in the management of this patient?

Percutaneous Approaches to Occlude the Left Atrial Appendage (LAA)

Recommendations for Percutaneous Approaches to Occlude the Left Atrial Appendage (LAA)		
Referenced studies that support the recommendations are summarized in the Online Data Supplement.		
COR	LOE	Recommendations
2a	B-NR	1. In patients with AF, a moderate to high risk of stroke (CHAD ₂ DS ₂ -VASc score ≥ 2), and a contraindication (Table 14) to long-term oral anticoagulation due to a nonreversible cause, percutaneous LAAO (pLAAO) is reasonable.
2b	B-R	2. In patients with AF and a moderate to high risk of stroke and a high risk of major bleeding on oral anticoagulation, pLAAO may be a reasonable alternative to oral anticoagulation based on patient preference, with careful consideration of procedural risk and with the understanding that the evidence for oral anticoagulation is more extensive.

Table 14. Situations in Which Long-Term Anticoagulation Is Contraindicated and Situations When It Remains Reasonable

<p style="text-align: center;">Long-Term Anticoagulation Contraindicated</p>	<p style="text-align: center;">Long-Term Anticoagulation Is Still Reasonable</p>
<ul style="list-style-type: none"> • Severe bleeding due to a nonreversible cause involving the gastrointestinal, pulmonary, or genitourinary systems • Spontaneous intracranial/intraspinal bleeding due to a nonreversible cause • Serious bleeding related to recurrent falls when cause of falls is not felt to be treatable 	<ul style="list-style-type: none"> • Bleeding involving the gastrointestinal, pulmonary, or genitourinary systems that is treatable • Bleeding related to isolated trauma • Bleeding related to procedural complications

AF Complicating ACS or PCI

Recommendations for AF Complicating Acute Coronary Syndrome (ACS) or Percutaneous Coronary Intervention (PCI)

Referenced studies that support the recommendations are summarized in the Online Data Supplement.

COR	LOE	Recommendations
1	A	1. In patients with AF and an increased risk for stroke who <u>undergo PCI</u> , DOACs are preferred over VKAs in combination with APT to reduce the risk of clinically relevant bleeding.
1	A	2. In most patients with AF who take oral anticoagulation and undergo PCI, early <u>discontinuation of aspirin (1-4 wk)</u> and continuation of dual antithrombotic therapy with OAC and a P2Y12 inhibitor is <u>preferred over triple therapy</u> (OAC, P2Y12 inhibitor, and aspirin) to reduce the risk of clinically relevant bleeding.

Chronic Coronary Disease (CCD)

Recommendation for Chronic Coronary Disease (CCD)

Referenced studies that support the recommendation are summarized in the Online Data Supplement.

COR	LOE	Recommendation
1	B-R	1. In patients with AF and CCD (beyond 1 year after revascularization or CAD not requiring coronary revascularization) without history of stent thrombosis, oral anticoagulation monotherapy is recommended over the combination therapy of OAC and single APT (aspirin or P2Y12 inhibitor) to decrease the risk of major bleeding.

Peripheral Artery Disease (PAD)

Recommendation for PAD		
Referenced studies that support the recommendation are summarized in the Online Data Supplement.		
COR	LOE	Recommendation
2a	B-NR	1. In patients with AF and concomitant stable PAD, monotherapy oral anticoagulation is reasonable over dual therapy (anticoagulation plus aspirin or P2Y12 inhibitors) to reduce the risk of bleeding.

Chronic Kidney Disease (CKD)/Kidney Failure

Recommendations for CKD/Kidney Failure		
Referenced studies that support the recommendations are summarized in the Online Data Supplement.		
COR	LOE	Recommendations
1	B-R	1. For patients with AF at elevated risk for stroke and CKD stage 3, treatment with warfarin or, preferably, evidence-based doses of direct thrombin or factor Xa inhibitors (Table 19) is recommended to reduce the risk of stroke.
2a	B-NR	2. For patients with AF at elevated risk for stroke and CKD stage 4, treatment with warfarin or labeled doses of DOACs is reasonable to reduce the risk of stroke.
2b	B-NR	3. For patients with AF at elevated risk for stroke and who have end-stage CKD (CrCl <15 mL/min) or are on dialysis, it might be reasonable to prescribe warfarin (INR 2.0-3.0) or an evidence-based dose of apixaban (or rivaroxaban) for oral anticoagulation to reduce the risk of stroke.

Table 19. Recommended Doses of Currently Approved DOACs According to Renal Function

DOAC	CrCl (mL/min)				
	>95	51-95	31-50	15-30	<15 or on dialysis
Apixaban	5 or 2.5 mg twice daily*	5 or 2.5 mg twice daily*	5 or 2.5 mg twice daily*	5 or 2.5 mg twice daily*	5 or 2.5 mg twice daily*
Dabigatran	150 mg twice daily	150 mg twice daily	150 mg twice daily	75 mg twice daily	Contraindicated
Edoxaban	Contraindicated	60 mg once daily	30 mg once daily	30 mg once daily	Contraindicated
Rivaroxaban	20 mg once daily	20 mg once daily	15 mg once daily	15 mg once daily	15 mg once daily† (NEW)

* If at least 2 of the following are present: serum creatinine ≥ 1.5 mg/dL, age ≥ 80 y, or body weight ≤ 60 kg, the recommended dose is 2.5 mg twice daily. The ARISTOTLE trial excluded patients with either a creatinine of >2.5 mg/dL or a calculated CrCl <25 mL/min.

†Rivaroxaban is not recommended for other indications in patients with a CrCl <15 mL/min, but such a recommendation is not made for the AF indication. However, pharmacokinetic data are limited.

Note that other, nonrenal considerations such as drug interactions may also apply. The gray area indicates doses not studied in the pivotal clinical trials of these agents.

AF indicates atrial fibrillation; ARISTOTLE, Apixaban for Reduction in Stroke and Other Thromboembolic Events in Atrial Fibrillation; CrCl, creatinine clearance; and DOAC, direct oral anticoagulant.

Case Study 9

- A 70-year-old female with a known history of moderate mitral valve stenosis is found to have atrial fibrillation on a routine ECG in your office. Her CHADS₂-VASC score is 6. She is asymptomatic and has HR of 70 bpm. What would be the best choice of OAC for this patient?

AF in Valvular Heart Disease (VHD)

Recommendations for AF in VHD		
Referenced studies that support the recommendations are summarized in the Online Data Supplement.		
	LOE	Recommendations
1	B-R	1. In patients with rheumatic mitral stenosis or mitral stenosis of <u>moderate or greater severity</u> and history of AF, long-term anticoagulation with warfarin is recommended over DOACs, independent of the CHA ₂ DS ₂ -VASc score to prevent cardiovascular events, including stroke or death.
1	B-NR	2. In patients with AF and valve disease other than moderate or greater mitral stenosis or a mechanical heart valve, DOACs are recommended over VKAs.



Rate Control

Case Study 10

- An 80-year-old male presents for a routine physical examination. They have HR of 60 bpm but appears irregular. You perform an ECG and it demonstrates AF. They have a CHADS-2-VASC score of 3 based on age > 75 and HTN. In addition to starting on OAC what would be the next most appropriate step in the management of this patient?
- A. Start on Cardizem 60 mg TID
- B. Start on metoprolol 25 mg BID
- C. Start on digoxin 0.25 mcg daily
- D. No rate control therapy is indicated

Case Study 10

- An 80-year-old male presents for a routine physical examination. They have HR of 60 bpm but appears irregular. You perform an ECG and it demonstrates AF. They have a CHADS-2-VASC score of 3 based on age > 75 and HTN. In addition to starting on OAC what would be the next most appropriate step in the management of this patient?
- A. Start on Cardizem 60 mg TID
- B. Start on metoprolol 25 mg BID
- C. Start on digoxin 0.25 mcg daily
- **D. No rate control therapy is indicated**

Broad Considerations for Rate Control

Recommendations for Broad Considerations in Rate Control Referenced studies that support the recommendations are summarized in the Online Data Supplement.		
COR	LOE	Recommendations
1	B-NR	1. In patients with AF, SDM with the patient is recommended to discuss rhythm- versus rate-control strategies (taking into consideration clinical presentation, comorbidity burden, medication profile, and patient preferences), discuss therapeutic options, and for assessing long-term benefits.
2a	B-R	2. In patients with AF without HF who are candidates for select rate-control strategies, heart rate target should be guided by underlying patient symptoms, in general aiming at a resting heart rate of <100 to 110 bpm.

**Table 21.
Pharmacological
Agents for Rate
Control in
Patients With AF**

	Intravenous Administration	Oral Maintenance Dose	Elimination Half-Life	Notes
Beta blockers				
Metoprolol tartrate	2.5-5 mg bolus over 2 min; up to 3 doses	25-200 mg, twice daily	3-4 h	
Metoprolol succinate	N/A	50-400 mg daily or twice daily in divided doses	3-7 h	
Atenolol	N/A	25-100 mg daily	6-7 h	Renally eliminated
Bisoprolol	N/A	2.5-10 mg daily	9-12 h	
Carvedilol	N/A	3.125-25 mg twice daily	7-10 h	
Esmolol	500 µg/kg bolus over 1 min; then 50-300 µg/kg/min	N/A	9 min	
Nadolol	N/A	10-240 mg daily	20-24 h	

AF indicates atrial fibrillation; ER, extended release; HFrEF, heart failure with reduced ejection fraction; IV, intravenous; and N/A, not applicable.

Table 21. Pharmacological Agents for Rate Control in Patients With AF (con't.)

Propranolol	1 mg over 1 min; repeat as needed every 2 min; up to 3 doses	10-40 mg, 3-4 times daily	IV: 2-4 h Oral: 3-6 h ER: 8-20 h	
Nondihydropyridine calcium channel blockers				
Diltiazem	0.25 mg/kg (actual body weight) IV over 2 min May repeat 0.35 mg/kg over 2 min; then 5-15 mg/h continuous infusion	120-360 mg daily (ER)	IV: 3-5 h Oral immediate release: 3-4.5 h ER: 4-9.5 h	Avoid in HFrEF
Verapamil	5-10 mg over ≥2 min (may repeat twice); then 5 mg/h continuous infusion (max 20 mg/h)	180-480 mg daily (ER)	IV: 6-8 h Oral: 2-7 h ER: 12-17 h	Avoid in HFrEF

AF indicates atrial fibrillation; ER, extended release; HFrEF, heart failure with reduced ejection fraction; IV, intravenous; and N/A, not applicable.

Table 21. Pharmacological Agents for Rate Control in Patients With AF (con't.)

Digitalis glycoside				
Digoxin	0.25-0.5 mg over several min; repeat doses of 0.25 mg every 6 h (maximum 1.5 mg/24 h)	0.0625-0.25 mg daily	1-2 d	Renally eliminated Increased mortality at plasma concentrations exceeding 1.2 ng/mL

AF indicates atrial fibrillation; ER, extended release; HFrEF, heart failure with reduced ejection fraction; IV, intravenous; and N/A, not applicable.

Acute Rate Control

Recommendations for <u>Acute Rate Control</u>		
Referenced studies that support the recommendations are summarized in the Online Data Supplement.		
COR	LOE	Recommendations
1	B-R	<ol style="list-style-type: none">1. In patients with AF with rapid ventricular response who are hemodynamically stable, beta blockers or nondihydropyridine calcium channel blockers (verapamil, diltiazem; provided that EF >40%) are recommended for acute rate control (Figure 17).

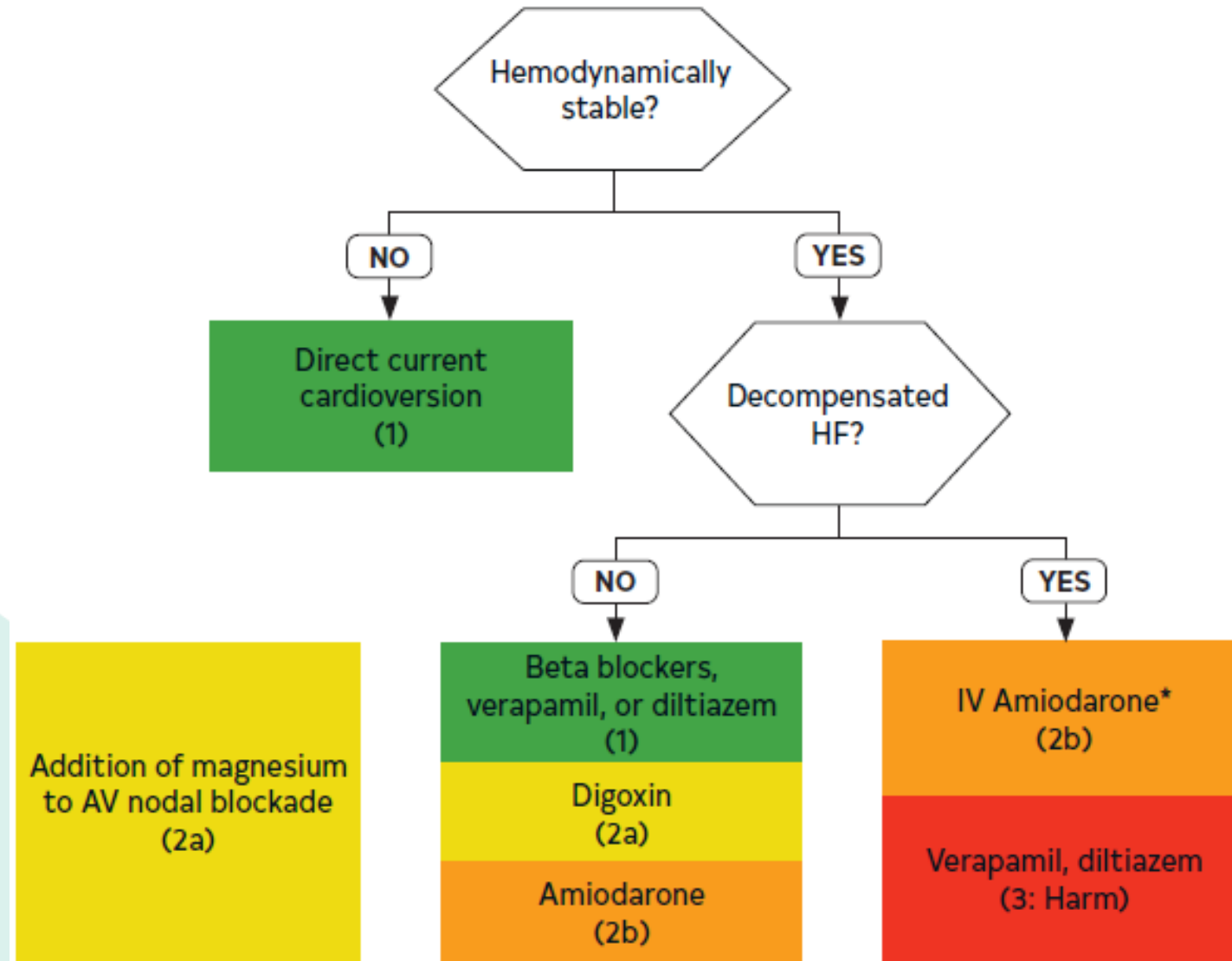
Acute Rate Control (con't.)

2a	B-R	2. In patients with AF with rapid ventricular response in whom beta blockers and nondihydropyridine calcium channel blockers are ineffective or contraindicated, <u>digoxin</u> can be considered for acute rate control, either alone or in combination with the aforementioned agents.
2a	A	3. In patients with AF with rapid ventricular response, the addition of intravenous magnesium to standard rate-control measures is reasonable to achieve and maintain rate control.
2b	B-NR	4. In patients with AF with rapid ventricular response who are critically ill and/or in decompensated HF in whom beta blockers and nondihydropyridine calcium channel blockers are ineffective or contraindicated, intravenous amiodarone may be considered for acute rate control.*
3: Harm	B-NR	5. In patients with AF with rapid ventricular response and known moderate or <u>severe LV systolic dysfunction</u> with or without decompensated HF, <u>intravenous nondihydropyridine calcium channel blockers should not be administered.</u>

*Consider the risk of cardioversion and stroke when using amiodarone as a rate-control agent.

**Figure 17.
Acute Rate
Control in AF
With Rapid
Ventricular
Response (RVR)**

AF indicates atrial fibrillation;
AV, atrioventricular; HF, heart
failure; LV, left ventricular; and
RVR, rapid ventricular
response.



* Note: Contraindicated in patients with moderate-severe LV dysfunction regardless of decompensated HF.

Long-Term Rate Control

Recommendations for Long-Term Rate Control

Referenced studies that support the recommendations are summarized in the Online Data Supplement.

COR	LOE	Recommendations
1	B-NR	1. In patients with AF, beta blockers or nondihydropyridine calcium-channel blockers (diltiazem, verapamil) are recommended for long-term rate control with the choice of agent according to underlying substrate and comorbid conditions.
2a	B-NR	2. For patients with AF in whom measuring serum digoxin levels is indicated, it is reasonable to target levels <u><1.2 ng/mL</u> .

Long-Term Rate Control (con't.)

2a	B-R	3. In patients with AF and HF symptoms, digoxin is reasonable for long-term rate control in combination with other rate-controlling agents, or as monotherapy if other agents are not preferred, not tolerated, or contraindicated.
3: Harm	C-LD	4. In patients with AF and LVEF <40%, nondihydropyridine calcium channel-blocking drugs should not be administered given their potential to exacerbate HF.
3: Harm	B-R	5. In patients with permanent AF who have risk factors for cardiovascular events, dronedarone should not be used for long-term rate control.

Atrial Fibrillation in 2026 — What Has Fundamentally Changed?



Atrial Fibrillation in 2026 — What Has Fundamentally Changed?

- AF is a **progressive disease**, not an episodic arrhythmia
- Lifestyle modification is **disease-modifying therapy**
- Stroke prevention must account for **AF burden and patient risk**
- Wearables are common — clinical judgment is essential
- Earlier rhythm control improves long-term outcomes

Top 10 Take-Home Messages

2023 Guideline for Atrial Fibrillation



Top 10 Take Home Messages

1. **Stages of atrial fibrillation (AF)**- The previous classification of AF, which was based only on arrhythmia duration, although useful, tended to emphasize therapeutic interventions.

The new proposed classification, using stages, recognizes AF as a disease continuum that requires a variety of strategies at the different stages, from prevention, lifestyle and risk factor modification, screening, and therapy.

Top 10 Take Home Messages

2. **AF risk factor modification and prevention**- This guideline recognizes lifestyle and risk factor modification as a pillar of AF management to prevent onset, progression, and adverse outcomes.

The guideline emphasizes risk factor management throughout the disease continuum and offers more prescriptive recommendations, accordingly, including management of obesity, weight loss, physical activity, smoking cessation, alcohol moderation, hypertension, and other comorbidities.

Top 10 Take Home Messages

3. Flexibility in using clinical risk scores and expanding beyond CHA2DS2-VASc for prediction of stroke and systemic embolism. Recommendations for anticoagulation are now made based on yearly thromboembolic event risk using a validated clinical risk score, such as CHA2DS2-VAS_C.

However, patients at an intermediate annual risk score who remain uncertain about the benefit of anticoagulation can benefit from consideration of other risk variables to help inform the decision, or the use of other clinical risk scores to improve prediction, facilitate shared decision making, and incorporate into the electronic medical record.

Top 10 Take Home Messages

4. **Consideration of stroke risk modifiers**- Patients with AF at intermediate to low (<2%) annual risk of ischemic stroke can benefit from consideration of factors that might modify their risk of stroke, such as the characteristics of their AF (eg, burden), nonmodifiable risk factors (sex), and other dynamic or modifiable factors (blood pressure control) that may inform shared decision-making discussions.

Top 10 Take-Home Messages (not discussed)

2023 Guideline for Atrial Fibrillation



Top 10 Take Home Messages (Rhythm Control)

5. **Early rhythm control**- With the emergence of new and consistent evidence, this guideline emphasizes the importance of early and continued management of patients with AF that should focus on maintaining sinus rhythm and minimizing AF burden.

Top 10 Take Home Messages (Rhythm Control)

6. Catheter ablation of AF receives a Class 1 indication as first-line therapy in selected patients.

Recent randomized studies have demonstrated the superiority of catheter ablation over drug therapy for rhythm control in appropriately selected patients. In view of the most recent evidence, we upgraded the Class of Recommendation.

Top 10 Take Home Messages (Rhythm Control)

7. **Catheter ablation of AF in appropriate patients with heart failure with reduced ejection fraction receives a Class 1 indication.** Recent randomized studies have demonstrated the superiority of catheter ablation over drug therapy for rhythm control in patients with heart failure and reduced ejection failure. In view of the data, we upgraded the Class of Recommendation for this population of patients.

Top 10 Take Home Messages

8. Recommendations have been updated for device-detected AF. In view of recent studies, more prescriptive recommendations are provided for patients with device-detected AF that consider the interaction between episode duration and the patient's underlying risk for thromboembolism. This includes considerations for patients with AF detected via implantable devices and wearables.

Top 10 Take Home Messages

9. **Left atrial appendage occlusion devices receive higher level Class of Recommendation.** In view of additional data on safety and efficacy of left atrial appendage occlusion devices, the Class of Recommendation has been upgraded to 2a compared with the 2019 AF Focused Update for use of these devices in patients with long-term contraindications to anticoagulation.

Top 10 Take Home Messages

10. **Recommendations are made for patients with AF identified during medical illness or surgery (precipitants)**- Emphasis is made on the risk of recurrent AF after AF is discovered during noncardiac illness or other precipitants, such as surgery.

Summary

Top 10 Take-Home Messages

- AF is a progressive disease — early intervention improves outcomes
- Stroke prevention is the highest priority in AF management
- CHA₂DS₂-VASc guides anticoagulation decisions — not symptom burden
- DOACs are first-line except mechanical valves or moderate-severe mitral stenosis
- Aspirin has NO role in stroke prevention in AF
- Early rhythm control improves CV outcomes (EAST-AFNET 4)
- Weight loss ≥10% significantly reduces AF burden
- Wearables increase detection but require ECG confirmation
- Rate control target typically <100–110 bpm at rest
- Comprehensive care (AF-CARE pathway) improves long-term outcomes

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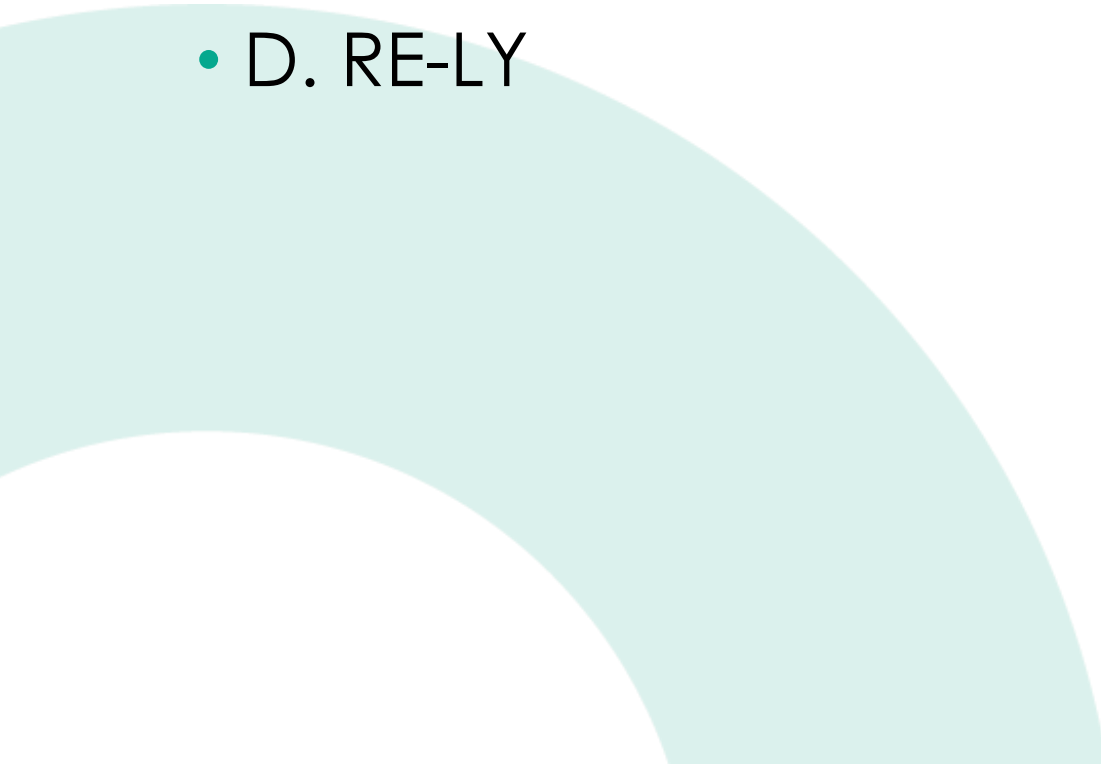


Thank You !


Board Review Questions



Board Review Question 1

- Which trial demonstrated benefit of early rhythm control in atrial fibrillation?
 - A. AFFIRM
 - B. EAST-AFNET 4
 - C. ARISTOTLE
 - D. RE-LY
- 

Board Review Question 2

- Which anticoagulant is preferred in most patients with nonvalvular atrial fibrillation?
 - A. Warfarin
 - B. Aspirin
 - C. Direct oral anticoagulant
 - D. Clopidogrel
- 

Board Review Question 3

- True or False: Stroke risk in atrial fibrillation is determined by AF duration.
 - A. True
 - B. False
- 

Board Review Question 4

- True or False: Symptoms alone determine the need for anticoagulation.
 - A. True
 - B. False
- 

Table 3. Risk Factors for Diagnosed AF (con't.)

HF	• Single studies	• HF: ↑ risk but population attributable fraction ↓ over time 7.8%-1.4%	↑ Risk	N/A
	• MA	• Bidirectional relation between AF and HF		
	• MR	• History of HF: ↑ risk (HR, 2.02) • Genetically predicted HF: ↑ risk OR, 1.86		
CAD	• Single study	• MI: Population attributable fraction 3.6%	↑ Risk	N/A
	• MA	• History of MI: HR, 1.64		
	• MR	• Genetically predicted CAD: OR, 1.18		

↓ indicates decreased; ↑, increased; ↔no significant change in risk

What's New in Rhythm Control (2026)

Recent evidence supports earlier intervention to reduce AF progression and improve outcomes.

- **Key Contemporary Concepts**

- **Early Rhythm Control**

- Early treatment (<1 year from diagnosis) associated with reduced CV events
- Supported by EAST-AFNET 4 trial

- **Catheter Ablation**

- Class I indication as first-line therapy in selected patients
- Particularly beneficial in symptomatic patients and those with HFrEF

What's New in Rhythm Control (2026)

Catheter Ablation as First-Line Therapy

Key Trials:

- EARLY-AF
- STOP-AF First
- Cryo-FIRST

Key Points:

- Superior to antiarrhythmic drugs for maintaining sinus rhythm
- Reduces AF burden and recurrence
- Improves quality of life
- Reasonable first-line in symptomatic paroxysmal AF

What's New in Rhythm Control (2026)

EAST-AFNET 4 Trial

- Early rhythm control reduces:
 - CV death
 - Stroke
 - HF hospitalization

- Key implication:

→ Rhythm control is no longer symptom-driven — it is outcome-driven.

- Early rhythm control (<1 year from diagnosis)
- Reduced composite endpoint:
 - CV death
 - Stroke
 - HF hospitalization
 - ACS hospitalization
- HR 0.79 (21% relative risk reduction)
- Benefit even in minimally symptomatic patients

What's New in Rhythm Control (2026)

Recent evidence supports earlier intervention to reduce AF progression and improve outcomes.

- **Key Contemporary Concepts**

- **Pulsed Field Ablation (PFA)**

- Emerging non-thermal ablation technology
- Demonstrates myocardial selectivity with reduced collateral injury
- Increasing adoption in contemporary AF practice

- **Role of the Primary Care Provider**

- Identify patients early
- Optimize comorbidities
- Refer during the “early rhythm control window”

Rhythm control favored early if:

- Symptomatic
- HF
- Younger patients
- Newly diagnosed AF
- Desire sinus rhythm

Comprehensive Care

Recommendations for Comprehensive Care

Referenced studies that support the recommendations are summarized in the Online Data Supplement.

COR	LOE	Recommendations
1	A	1. Patients with AF should receive comprehensive care addressing guideline-directed LRFM, AF symptoms, risk of stroke, and other associated medical conditions to reduce AF burden, progression, or consequences.
2a	B-R	2. In patients with AF, use of clinical care pathways, such as nurse-led AF clinics, is reasonable to promote comprehensive, team-based care and to enhance adherence to evidence-based therapies for AF and associated conditions.