PACE

Pharmaceutical Assistance Contract for the Elderly

Alosa Health

Balanced information for better care

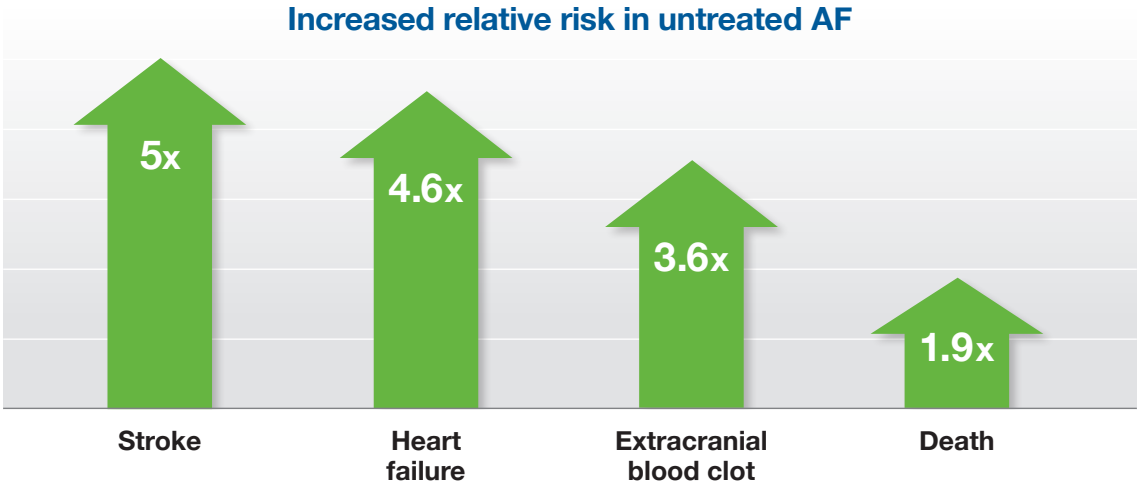
Getting the beat and rhythm right

Anticoagulation, rate, and rhythm control in atrial fibrillation

Atrial fibrillation increases morbidity and mortality, but anticoagulation reduces risk

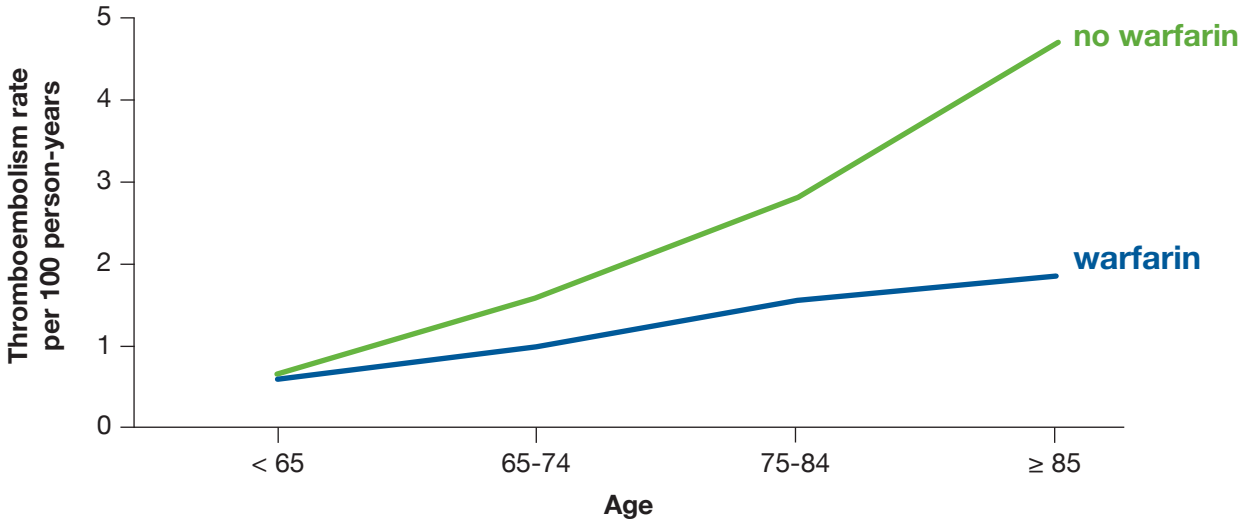
An estimated 9 million patients have atrial fibrillation (AF), most of whom are older adults.[1]

FIGURE 1. AF is associated with increased risk for adverse outcomes.[2-5]



Anticoagulation decreases stroke risk, especially in older adults.

FIGURE 2. As age increases, warfarin dramatically reduces the risk of stroke.[6]



Direct oral anticoagulants (DOACs) are similar to or better than warfarin at reducing stroke risk, with fewer side effects.[7-10]

Some fundamentals of managing AF

Decrease stroke risk.

Use anticoagulation to lower the risk of stroke in patients with AF.

Start rate control. Consider early referral for rhythm control.

Rate control: Use medications to normalize heart rate (though patients may remain in AF).

Rhythm control: Consider medications and procedures to achieve normal sinus rhythm.

Optimize modifiable risk factors.

Maintain blood pressure control.

After ablation, patients with uncontrolled BP had a 50% greater likelihood of AF recurrence than patients with controlled or no hypertension.[11]

Attain a healthy weight.

A ≥ 10% reduction in weight decreased the need for rhythm control strategies among patients with AF and overweight or obesity.[12]

Encourage physical activity.

A practical, customized exercise program (regardless of weight loss) decreased AF recurrence by 50% compared to usual care.[13]

Treat obstructive sleep apnea (OSA).

Patients with untreated OSA after catheter ablation were more than twice as likely to have AF recurrence.[14]

Stop or reduce alcohol use.

Consumption of alcohol increases the risk of stroke and reduces the efficacy of rhythm control strategies.[15,16]

Stop smoking.

Current smokers are twice as likely to develop AF and 20% more likely to have an AF recurrence after ablation than former or never smokers.[17,18]

Assess stroke risk with CHA_2DS_2-VA score

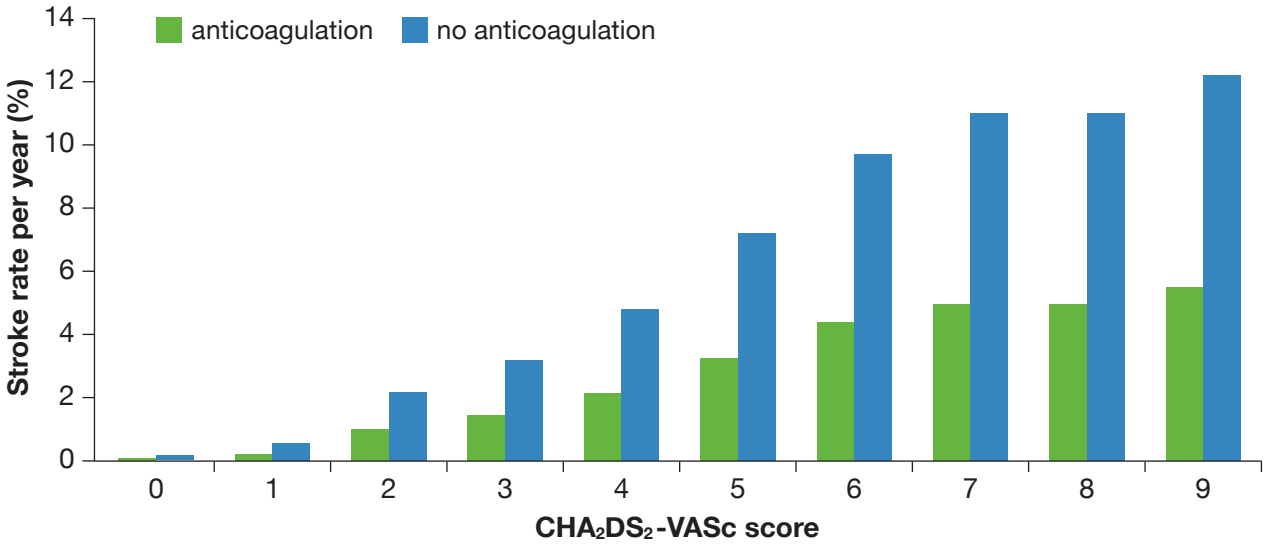
TABLE 1. The CHA_2DS_2-VA score is based on readily available clinical characteristics.[19]

Letter	Characteristic	Points (if yes)
C	congestive heart failure*	1
H	hypertension	1
A	age ≥ 75	2
D	diabetes	1
S	prior stroke, TIA, or thromboembolism	2
V	vascular disease**	1
A	age 65-74	1
		Maximum score: 8 points

*Congestive heart failure: symptomatic heart failure (HF) regardless of left ventricle ejection fraction (LVEF) and asymptomatic HF with LVEF 40%.
**Vascular disease: myocardial infarction, peripheral vascular disease, or aortic plaque.

What happened to the Sc in CHA_2DS_2-VASc?
Sex was a stroke risk modifier but not an independent risk factor in clinical anticoagulation trials. It is no longer a clinical factor in decisions about whether to start anticoagulation.[19]

FIGURE 3. The risk of stroke and the benefit of anticoagulation both increase sharply with a higher CHA_2DS_2-VASc score.[§,20]



§This study used the older 9-point CHA_2DS_2-VASc scoring system. Similar patterns of benefit of anticoagulation are seen with the CHA_2DS_2-VA scoring as well.[21]

Formulate a stroke prevention plan

FIGURE 4. Recommend an anticoagulation plan based on CHA_2DS_2-VA score.[21,22]

CHA_2DS_2-VA score

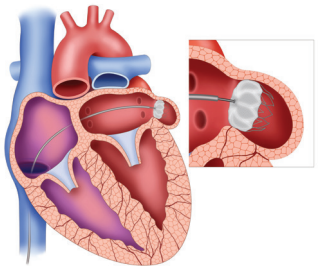
0 = LOW stroke risk	1 = MODERATE stroke risk	≥2 = HIGH stroke risk
Anticoagulation *not* recommended Reassess at routine follow-up	**Discuss anticoagulation** **Evaluate stroke risk factors not included in the score:** • high burden or duration of AF episodes • chronic kidney disease/ proteinuria • obesity • malignancy **Balance patient concerns** about stroke & bleeding risks.	**Anticoagulation recommended**

Anticoagulation is *always* recommended for patients with AF plus conditions associated with very high stroke risk—moderate to severe rheumatic mitral valve stenosis, hypertrophic cardiomyopathy, cardiac amyloidosis, or mechanical heart valve (even without AF).[22]

For patients who can't use long-term anticoagulation, a device may be an option.

A ***left atrial appendage occlusion device*** may be a good choice for patients unable to take long-term anticoagulation due to nonreversible causes of serious bleeding.[22] The device prevents blood from entering the part of the left atrium most prone to forming clots.

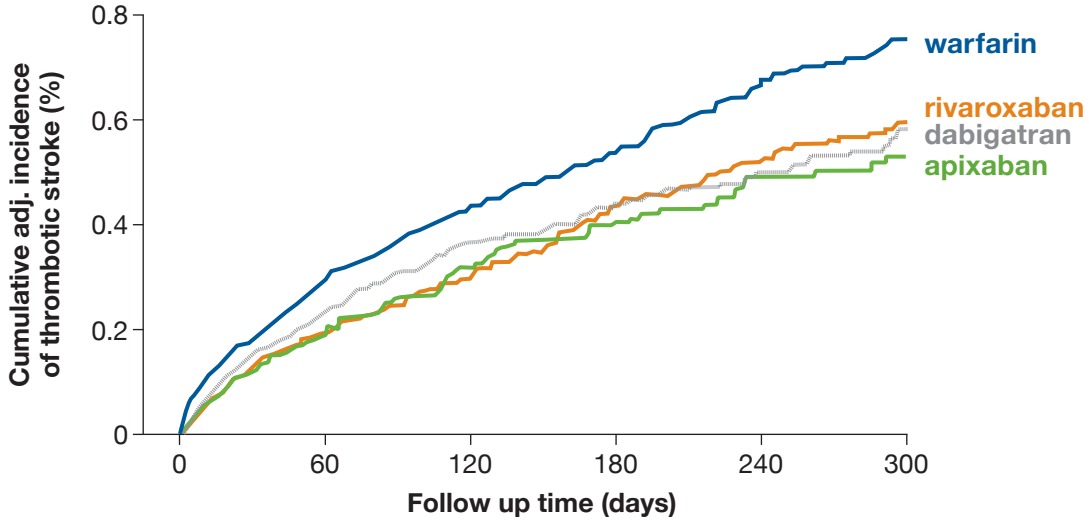
Short-term antiplatelet or anticoagulant therapy is still required around the time of the procedure.



Select an appropriate anticoagulant agent

Direct oral anticoagulants (DOACs) are the most effective.

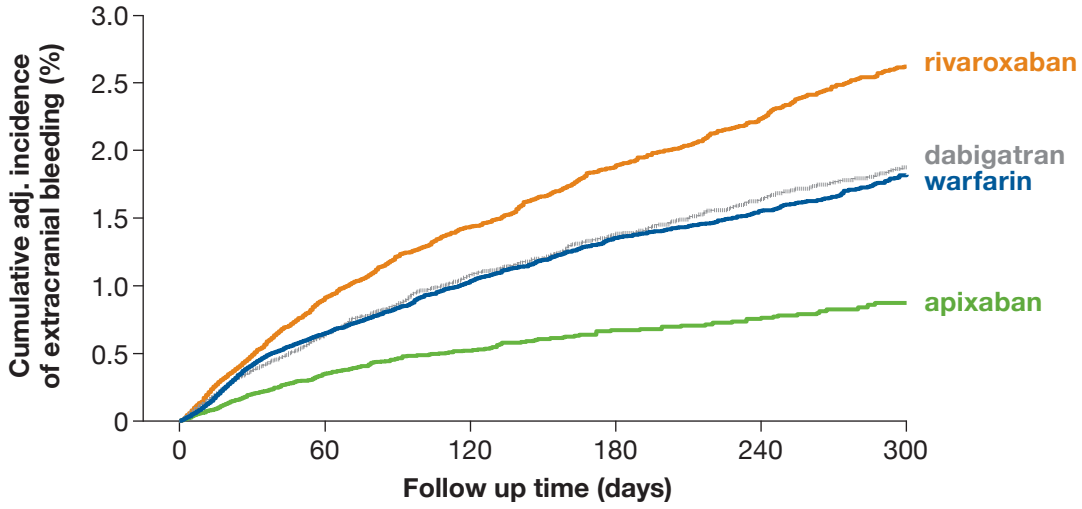
FIGURE 5. DOACs reduce the risk of stroke more than warfarin.[23]



Use warfarin for patients who have: moderate to severe rheumatic mitral valve stenosis; mechanical heart valves; severe liver dysfunction (Child-Pugh Class B and C); and very elevated body mass index (≥ 40 kg/m^2).[22]

Apixaban may be the safest of the DOACs.

FIGURE 6. Apixaban (Eliquis) has the lowest risk of extracranial bleeding.[23] Apixaban and edoxaban are preferred over rivaroxaban and dabigatran in older patients.[24]



All DOACs pose less risk of intracranial bleeding than warfarin.[23]

Don't overestimate risks of anticoagulants

The risk of stroke is usually greater than the risk of bleeding.

Fall risk is not a reason to withhold anticoagulation.

The risk factors that increase the risk of falls (frailty, age) usually increase the risk of stroke to a greater degree.[25]

Reduce fall risk by assessing gait and mitigating fall risk factors.

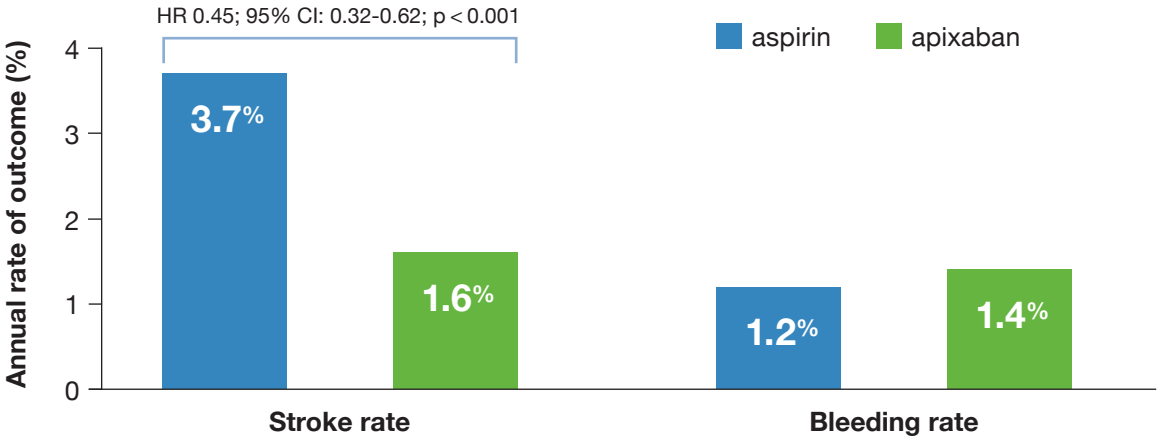
Stop antiplatelet agents if no longer needed.

- **Aspirin is not usually indicated for more than 30 days** after a cardiac stent is placed.[22]
- **After ACS or PCI, a P2Y12 like clopidogrel (Plavix) is needed for only 3-12 months** depending on indication.[26]
- In patients with AF, **anticoagulation after an ischemic stroke is recommended over antiplatelet agents**.[26,27] Anticoagulants can be restarted as early as 4 days after an ischemic stroke.[28]

ACS = acute coronary syndrome; PCI = percutaneous coronary intervention

Aspirin has no role in stroke prevention in AF.

FIGURE 7. Patients taking aspirin had more strokes than those taking apixaban, with a similar risk of bleeding.[29]



Even compared to placebo, aspirin did not decrease strokes despite similar bleeding risk.[30]

Start rate control; refer for rhythm control

After deciding on anticoagulation, determine whether a rate and/or rhythm control strategy is needed.

RATE CONTROL:
Using medications to maintain a normal heart rate, even if patients remain in AF

RHYTHM CONTROL:
Using medication or procedures to alter conduction to maintain normal sinus rhythm

Rate control is important, even alongside rhythm control.

Lenient rate control < 110 bpm	• Appropriate for most patients
Strict rate control < 80 bpm	• Patients with heart failure • If symptomatic with lenient rate control

If HR < 110 at rest, encourage the patient to take a walk and recheck to ensure they are not elevated above 110 after physical exertion.

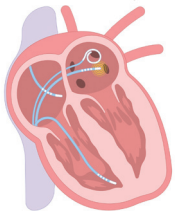
TABLE 2. Medications to control heart rate

Beta blockers	Non-dihydropyridine calcium channel blockers	Digoxin
• Common options include metoprolol, atenolol, bisoprolol, and carvedilol • Cardioselective agents that act on the heart's beta1-receptors—e.g., metoprolol, bisoprolol, and atenolol—are safe, even with COPD[31]	• Options include diltiazem and verapamil • Dihydropyridine CCB (e.g., amlodipine and nifedipine) do ***not*** control heart rate • Contraindicated if reduced LV function	• Considered third line • May have other benefits for those with heart failure • Caution if kidney disease • Narrow therapeutic index that requires close laboratory monitoring

Refer early to cardiology for rhythm control

Strategies to achieve and maintain sinus rhythm

Catheter ablation

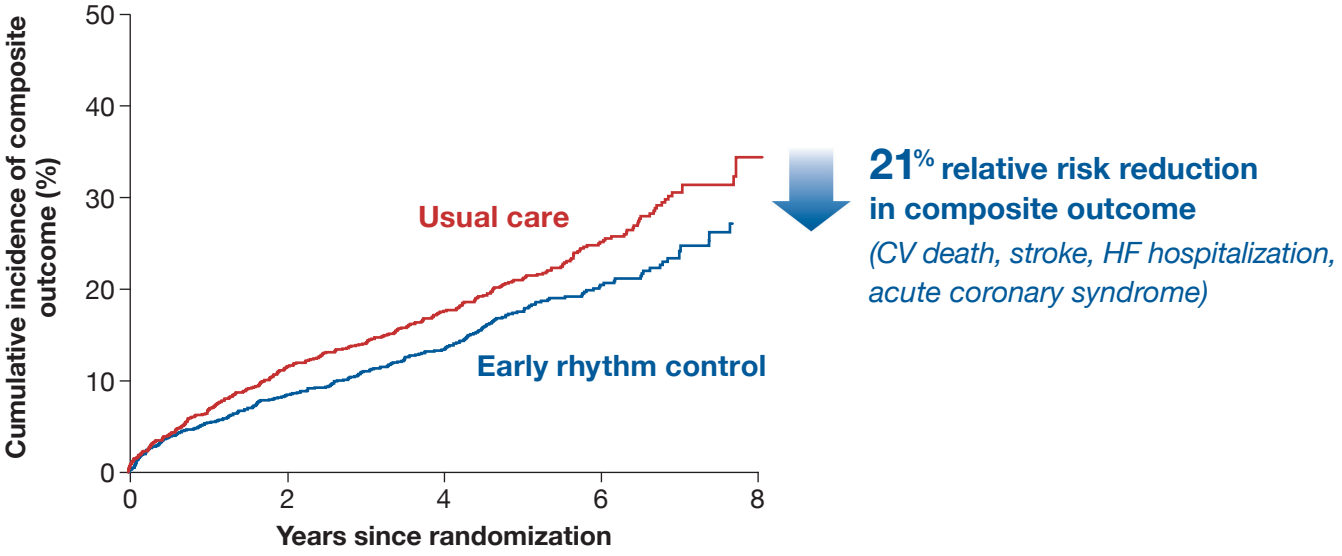


- Creates scarring in pulmonary veins to block electrical signals that cause AF
- Also called pulmonary vein isolation (PVI)
- Patients stay on lifelong anticoagulation

Antiarrhythmic medications

- Require lab and ECG monitoring
  - Dofetilide and sotalol require hospitalization to initiate
- Prescribed by clinicians with expertise in safe use of these medications
- Patients stay on lifelong anticoagulation

FIGURE 8. In the EAST-AFNET trial that included patients with AF plus additional cardiovascular (CV) risk, rhythm control within a year of diagnosis reduced composite CV outcomes compared to usual care, a primarily rate-control-only strategy.[32]

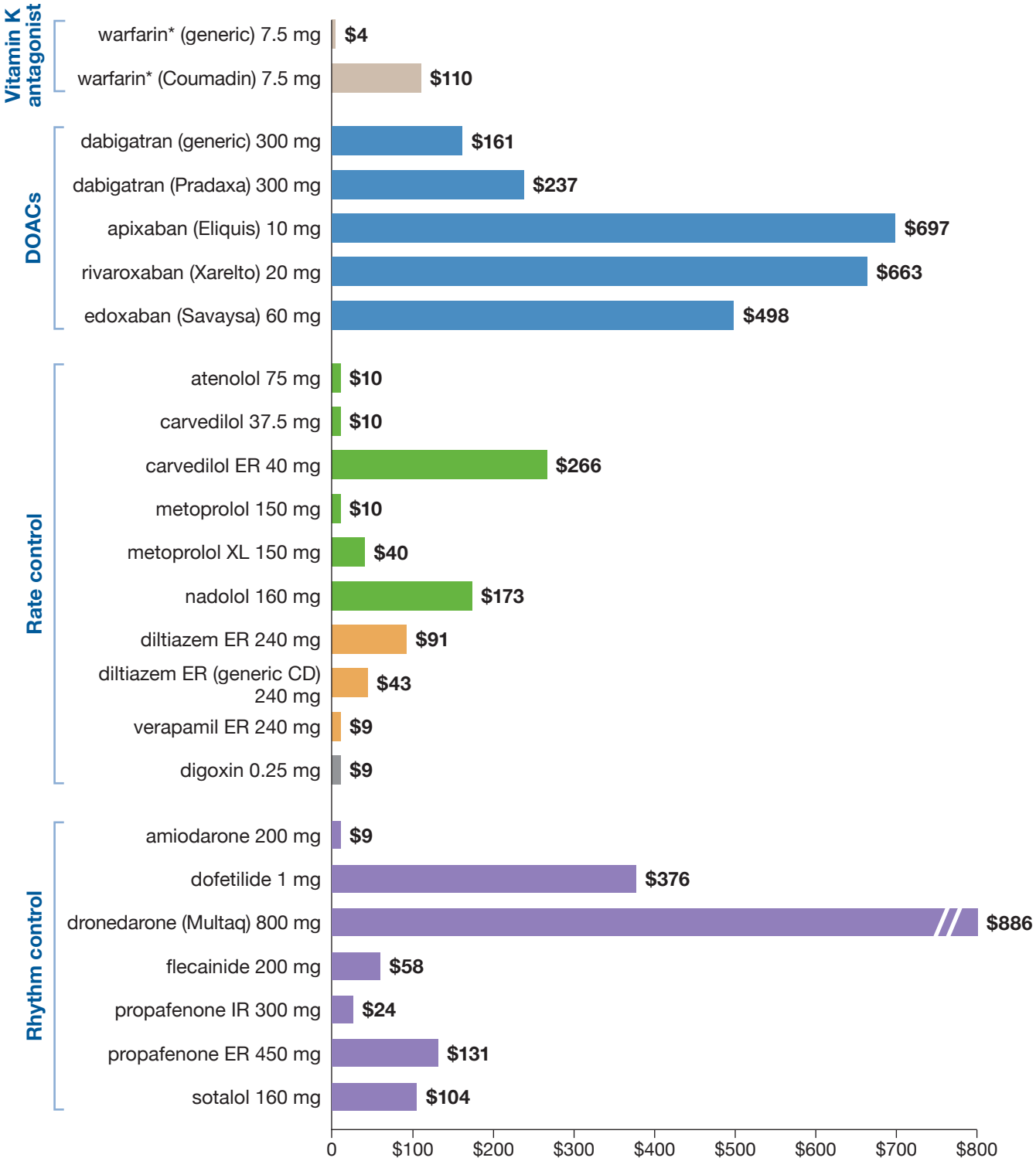


Prioritize cardiology referrals for rhythm control based on:

- **HF with EF < 35% at any stage:** Ablation may be preferable to medical therapy.[33,34]
- **≤ 75 years of age with AF diagnosis in the past year**. Older patients, especially those with co-occurring conditions, are less likely to benefit from rhythm control.[35]
- **Refractory symptoms** despite rate control, or difficult-to-control heart rate.

Cost of medications

FIGURE 9. Price of a 30-day supply of anticoagulants



*Price of warfarin does not include INR monitoring costs. ER / XL / CD = extended release; IR = immediate release

Prices from goodrx.com, September 2024. Listed doses are based on Defined Daily Doses by the World Health Organization, when available, or package inserts; they should not be used for dosing in all patients. All doses shown are generics when available, unless otherwise noted. These prices are a guide; patient costs will be subject to copays, rebates, and other incentives.

Key points

- **Encourage lifestyle changes and recommend medical interventions** to help reduce AF risk: controlling hypertension, reducing weight, exercising, treating obstructive sleep apnea, avoiding alcohol, and quitting smoking.
- **Use the CHA_2DS_2-VA score** to identify patients who should receive anticoagulation to reduce stroke risk.
- **Initiate a DOAC for most patients** requiring anticoagulation, reserving warfarin for select patients.
- **Control heart rate** for all patients with AF.
- **Refer to cardiology for rhythm control** within 1 year of diagnosis, especially for patients with reduced ejection fraction, age < 75, or refractory symptoms.

Visit AlosaHealth.org/AtrialFibrillation for links to other resources.

To access Continuing Education:

References:

(1) Williams BA, et al. *Am J Cardiol.* 2017;120(11):1961-1965. **(2)** Martin SS, et al. *Circulation.* 2024;149(8):e347-e913. **(3)** Vinter N, et al. *Bmj.* 2020;370:m2724. **(4)** Ruddox V, et al. *Eur J Prev Cardiol.* 2017;24(14):1555-1566. **(5)** Shi M, et al. *J Am Heart Assoc.* 2020;9(18):e016724. **(6)** Singer DE, et al. The net clinical benefit of warfarin anticoagulation in atrial fibrillation. *Ann Intern Med.* 2009;151(5):297-305. **(7)** Connolly SJ, et al. *N Engl J Med.* 2009;361(12):1139-1151. **(8)** Giugliano RP, et al. *N Engl J Med.* 2013;369(22):2093-2104. **(9)** Granger CB, et al. *N Engl J Med.* 2011;365(11):981-992. **(10)** Patel MR, et al. *N Engl J Med.* 2011;365(10):883-891. **(11)** Santoro F, et al. *JACC Clin Electrophysiol.* 2015;1(3):164-173. **(12)** Pathak RK, et al. *J Am Coll Cardiol.* 2015;65(20):2159-2169. **(13)** Elliott AD, et al. *JACC Clin Electrophysiol.* 2023;9(4):455-465. **(14)** Fein AS, et al. *J Am Coll Cardiol.* 2013;62(4):300-305. **(15)** Lee SR, et al. *Eur Heart J.* 2021;42(46):4759-4768. **(16)** Qiao Y, et al. *J Am Heart Assoc.* 2015;4(11):e002349. **(17)** Giomi A, et al. *Int J Cardiol.* 2024;413:132342. **(18)** Chamberlain AM, et al. *Heart Rhythm.* 2011;8(8):1160-1166. **(19)** Van Gelder IC, et al. *Eur Heart J.* 2024;45(36):3314-3414. **(20)** Friberg L, et al. *Eur Heart J.* 2012;33(12):1500-1510. **(21)** Nielsen PB, Overvad TF. *Thromb Haemost.* 2020 Jun;120(6):894-898. **(22)** Joglar JA, et al. *Circulation.* 2024;149(1):e1-e156. **(23)** Graham DJ, et al. *Am J Med.* 2019;132(5):596-604.e511. **(24)** American Geriatrics Society 2023 updated AGS Beers Criteria® for potentially inappropriate medication use in older adults. *J Am Geriatr Soc.* 2023;71(7):2052-2081. **(25)** Renedo D, et al. *Stroke.* 2023;54(6):1538-1547. **(26)** Kumbhani DJ, et al. *J Am Coll Cardiol.* 2021;77(5):629-658. **(27)** Kleindorfer DO, et al. *Stroke.* 2021;52(7):e364-e467. **(28)** Werring DJ, et al. *Lancet.* 2024;S0140-6736(24)02197-4. **(29)** Connolly SJ, et al. *N Engl J Med.* 2011;364(9):806-817. **(30)** Sato H, et al. *Stroke.* 2006;37(2):447-451. **(31)** Dransfield MT, et al. *N Engl J Med.* 2019;381(24):2304-2314. **(32)** Kirchhof P, et al. *N Engl J Med.* 2020;383(14):1305-1316. **(33)** Marrouche NF, et al. *N Engl J Med.* 2018;378(5):417-427. **(34)** Sohns C, et al. *N Engl J Med.* 2023;389(15):1380-1389. **(35)** Kim D, et al. *JACC Clin Electrophysiol.* 2022;8(5):619-632.

About this publication

These are general recommendations only; specific clinical decisions should be made by the treating clinician based on an individual patient's clinical condition. More detailed information on this topic is provided in a longer evidence document at AlosaHealth.org.

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