

A. ED AFib/Flutter Management: Acute Rate and Rhythm Control

UNSTABLE • Acute CHF • Hypotension • New ischemic changes on ECG • Altered LOC	STEP 1:	STEP 2:	STEP 3: Proceed to Stroke Prevention Refer to cardiology
	Duration ≤ 48 hrs	Synchronized cardioversion 150-200J biphasic*	
Duration > 48 hrs	Judicious rate control can obviate the need for cardioversion – however if worsening or unable to control symptoms then: Synchronized cardioversion 150-200J biphasic* Note: If ventricular rate < 150, instability is likely from causes other than AF.		

STABLE and HR ≤ 110	STEP 1:	STEP 2:	STEP 3: Proceed to Stroke Prevention Discharge home** and refer to AF-QCP†	
	New onset or Paroxysmal	Duration ≤ 48 hrs or anticoagulated		Rhythm control strategy → See CARDIOVERSION below Rate control strategy → See RATE CONTROL below
		Duration > 48 hrs or High risk for stroke*** AND not anticoagulated or INR < 2 (if on warfarin)		See RATE CONTROL below NB: As target HR is 60-110, acute rate control may not be necessary.
Permanent				

STABLE and HR 110 - 200	STEP 1:	STEP 2:	STEP 3: Proceed to Stroke Prevention Discharge home** and refer to AF-QCP†	
	New onset or Paroxysmal	Duration ≤ 48 hrs or anticoagulated		Rhythm control strategy → See CARDIOVERSION below Rate control strategy → See RATE CONTROL below
		Duration > 48 hrs OR High risk for stroke*** AND not anticoagulated or INR < 2		See RATE CONTROL below
Permanent				

STABLE HR > 200 or Wide QRS	STEP 1:	STEP 2:
	Cardiovert with any of: Synchronized cardioversion 150-200J biphasic or procainamide (If duration > 48 hrs consider TEE guided if available)	Proceed to Stroke Prevention Refer to cardiology

Your Quick Guide to RATE CONTROL in the Emergency Department

Target: Resting heart rate 60-110 bpm and symptom control. If patient is already on one rate control agent optimize their dose before switching to another agent.		
AGENT	HOW TO GIVE IT	
Diltiazem • Exercise caution in LV dysfunction	Diltiazem IV 0.25 mg/kg max 20 mg given over 2-10 mins May repeat 0.35 mg/kg max 25 mg given over 2-10 mins	Once acute rate control is achieved give oral medication: • Diltiazem – starting dose CD 120 mg po daily (usual range 120-360 mg daily) • Metoprolol – starting dose 12.5 mg po bid (usual range 25-150 mg po bid)
Metoprolol • Exercise caution in LV dysfunction • Preferred in ACS • Not contraindicated in asthma unless severe or uncontrolled	Metoprolol IV 5 mg given over 2-5 minutes. May repeat x 2	
Digoxin • Preferred in LV dysfunction • Full effect may take up to 6 hours	Digoxin 0.5 mg IV bolus. Repeat 0.25 mg IV every 6hrs up to 1 mg total dose (0.75 mg total dose in renal dysfunction) until rate control. Stop if digoxin toxicity. Usual oral maintenance dose 0.125-0.25 mg po daily.	

Your Quick Guide to CARDIOVERSION in the Emergency Department

If you choose cardioversion as your first approach, avoid rate control as it may reduce success rates. If cardioversion fails, use rate control.	
AGENT AND HOW TO GIVE IT	
ELECTRICAL Synchronized cardioversion 150-200J biphasic. <i>Cardioversion at 200J (monophasic) for AFib has been shown to reduce need for repeat shocks. Lower joules are required in aflutter.</i>	• Works in 80-90% in converting to sinus in both AFib and aflutter. If it does not work, proceed to rate control.
CHEMICAL**** Procainamide 15-17 mg/kg IV (usual dose 1 g) in 250 mL D5W or NS over 60 minutes until conversion to sinus. <i>Look for, and slow down or stop infusion if, QRS widening and/or hypotension</i>	• Converts AFib to sinus in 50-60%; 18% in aflutter • Can be safely combined with electrical cardioversion

* The 2014 CCS guidelines suggest, despite the lack of good evidence, to give either a novel direct oral anticoagulant (NOAC) or a dose of low molecular weight heparin (i.e. enoxaparin 1mg/kg SC) or unfractionated heparin with bridging to warfarin if a NOAC is contraindicated in the following 2 scenarios:

1. Duration of AF < 48 hrs AND High risk for stroke (i.e. rheumatic valve disease, prosthetic heart valve, TIA/Stroke < 6 months) AND no therapeutic OAC for at least 3 weeks
2. Duration > 48 hrs OR unknown duration AND no therapeutic OAC for at least 3 weeks

**Unless admission required for any secondary diagnosis

***High risk for stroke = rheumatic heart disease, mitral stenosis, prosthetic heart valve, previous TIA/stroke < 6 months

****Other options are ibutilide, flecainide, propafenone

† Atrial Fibrillation Quality Care Program

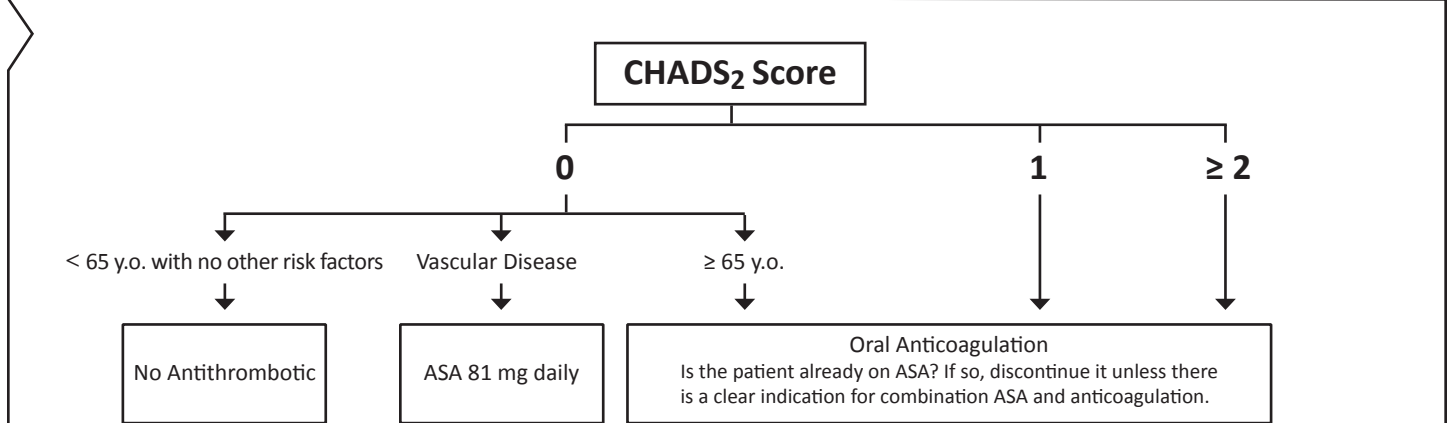
Reviewed by UHN CV Subcommittee January 2015

B. ED AFib/Flutter Management: Stroke Prevention

All patients with AFib/AFlutter require risk stratification for anticoagulation regardless of the type of AFib/AFlutter, or the chosen rate or rhythm control strategy.

STEP 1 DETERMINE IF VALVULAR DISEASE IS PRESENT:	STEP 2 DETERMINE CHADS ₂ SCORE:	STEP 3 DETERMINE BLEEDING RISK:
<p>If mitral stenosis or prosthetic heart valve is present, patient is classified as high risk and anticoagulation with warfarin is strongly recommended. Proceed to Step 3 to determine bleeding risk and choose warfarin for anticoagulation.</p> <p>If no valvular disease go to Step 2.</p>	<p>CHF/LV Dysfunction (1 point) Hypertension (1 point) Age ≥75 (1 point) Diabetes Mellitus (1 point) Stroke/TIA or embolism (2 points)</p> <p>Total points = CHADS₂ score</p>	<p>Does the patient have:</p> <ul style="list-style-type: none"> • Current or recent active bleed • Severe hepatic disease • History of intracranial hemorrhage (ICH) • Recent surgery • A terminal illness (active cancer) • Severe cognitive dysfunction • Severe renal disease/dialysis <p>Is the patient currently receiving dual antiplatelet therapy?</p> <p>If YES to any of the above, we suggest not initiating anticoagulation in the ED; reassessment will occur during follow up care in the AF-QCP</p>

STEP 4 SELECT THERAPY FOR STROKE PREVENTION:



Your Quick Guide to Oral Anticoagulation Selection

		PREFERRED*	ALTERNATIVE
		Listed in alphabetical order	
> 80 y.o. OR Bleeding Risk OR CrCl 30-50 ml/min [†]	Yes ‡	Apixaban 2.5 mg po bid OR Dabigatran 110 mg po bid OR Rivaroxaban 15 mg po daily (w/ main meal)	Warfarin 5 mg po daily x 5d then reassess to maintain INR 2-3
	No	Apixaban 5 mg po bid OR Dabigatran 150 mg po bid OR Rivaroxaban 20 mg po daily (w/ main meal)	Warfarin 5 mg po daily x 5d then reassess to maintain INR 2-3
Impaired renal function (CrCl < 30 ml/min) [†]		Warfarin 5 mg po daily x 5d then reassess to maintain INR 2-3	If warfarin not appropriate, refer for specialist consultation

*Ensure patient has coverage. For eligible patients, ODB LU codes are: 448 for Apixaban, 431 for Dabigatran and 435 for Rivaroxaban.

Drug interactions with these agents exist, although to a lesser extent than with warfarin. Please advise the patient to discuss possible drug interactions with their pharmacist.

‡Dose adjustments have been simplified. Refer to product monographs of each agent for full dosing recommendations.

[†]CrCl formula (for Cr measured in umol/L): $CrCl = \frac{(140 - age) (weight\ in\ kg) \times 1.23}{SerumCr\ (umol/L)}$ (x 0.85 if female)