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Clinical decision- making tool for embolism prophylaxis for patients with non-valvular atrial fibrillation

CHA_2DS_2-VASc≥2		**ORBIT**	
Congestive heart failure (inc LVD)	1	Haemoglobin < 12g/dL or Haematocrit < 36%	2
Hypertension	1	Age > 74 years	1
Aged 75 or more	2	History of GI / intracranial bleed or haemorrhagic stroke	2
Diabetes	1	GFR < 60ml/min/ 1.73m^2	1
Stroke/TIA/thromboembolism	2	Treatment with antiplatelet agents	1
Vascular disease (prior MI, PAD or aortic plaque)	1		
Aged 65-74	1		
Sex category: female	1		

- Anticoagulation is recommended in patients with CHA_2DS_2-VASc≥2
- Consider oral anticoagulation depending on bleeding risk & patient preferences in patients with CHA_2DS_2-VASc of 1, except for female patients < 65 years & lone AF where no prophylaxis is recommended

Direct Oral Anticoagulant versus Vitamin K Antagonist (VKA)

- European Society of Cardiology (ESC) guidelines recommend starting a DOAC in preference to warfarin if there are no contra-indications due to their favourable safety profile.
- Non-valvular AF is defined as AF in the absence of a mechanical prosthetic heart valve or absence of moderate to severe mitral valve stenosis (usually of rheumatic origin).

Do not prescribe a DOAC if the patient has any of the following exclusion criteria:

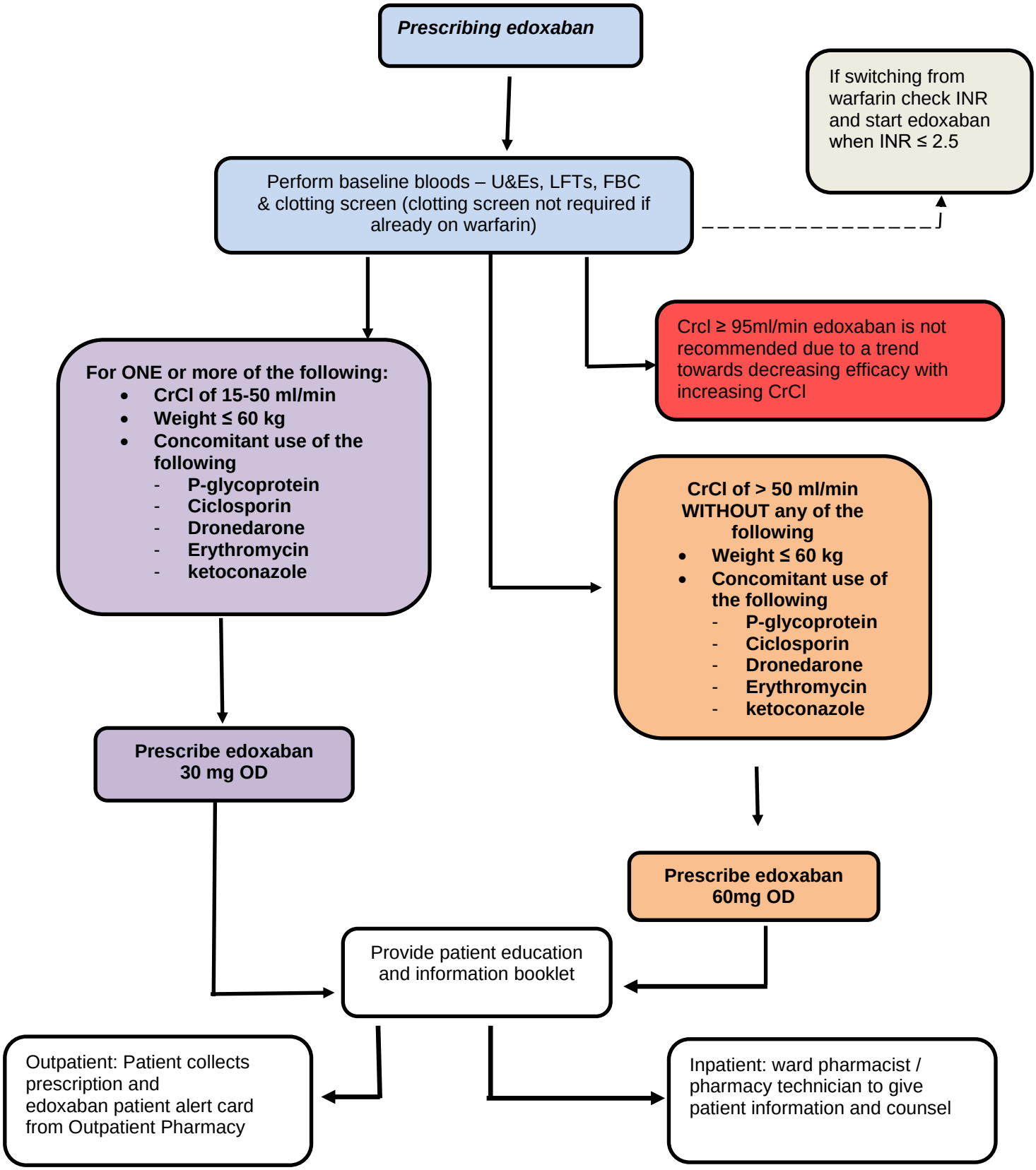
- Presence of contra-indication (see SPC www.medicines.org.uk)
- Age < 18 years
- >150kg. If risk outweighs benefit for warfarin therapy consider rivaroxaban but requires anti-Xa level. Contact Haematologist (via switchboard) or Anticoagulant service (HRI ext 5607)
- Women of child-bearing age without adequate contraception
- Presence of interactions that lead to unmanageable risk
- CrCl < 15ml/min for rivaroxaban / apixaban / edoxaban & CrCl < 30ml/min for dabigatran

Note Creatinine Clearance (CrCl) should be calculated using the Cockcroft & Gault Equation

Creatinine clearance (ml/min) = $\frac{F \times (140-age) \times weight\ (kg)}{Serum\ creatinine\ (micromol/L)}$ F = 1.23 for men and 1.04 for women

Use edoxaban 1st line EXCEPT in the following patient groups:

- Patients on concomitant antiplatelets (post PCI or post MI)
- > 120kg. Most experience is with rivaroxaban or apixaban in this patient group
- CrCl > 95ml/min (use adjusted CrCl for BMI ≥ 30)
- High risk of bleeding ORBIT > 3 after attempts to adjust for modifiable risk factor (blood pressure control drugs, alcohol). Consider using apixaban 1st line
- History of GI bleed. Consider using lowest licensed dose of apixaban
- Very high CHADS-VASc score ≥5 (or any or other reason specified by stroke physician or cardiologist). Consider using apixaban 1st line.



Prescribing notes for edoxaban

- Edoxaban tablets can be crushed and mixed with water if swallowing difficulties/enteral tubes.
- Manufacturers of edoxaban state that they would not expect any interaction with carbamazepine to be clinically significant so is not a contra-indication to starting edoxaban therapy. (Caution with high doses of carbamazepine, consider checking levels as edoxaban plasma concentration may be reduced)

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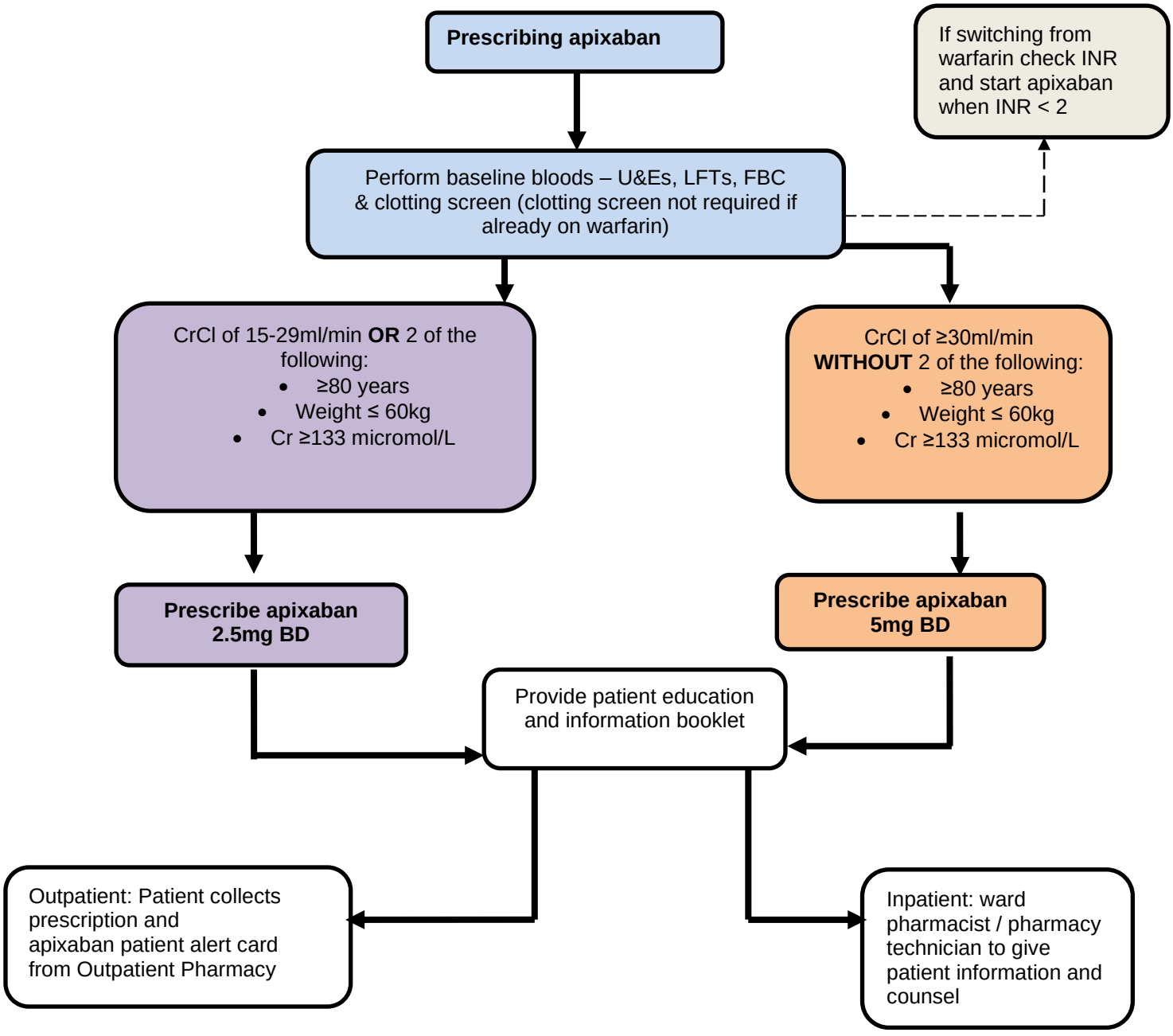
Consider using apixaban as first line agent in patients with the following:

- High risk of bleeding ORBIT>3 after attempts to adjust for modifiable risk factor (blood pressure control drugs, alcohol)
- History of GI bleed



Prescribing notes for apixaban:

- Suitable for administration in compliance aids.
- Swallowing difficulties – apixaban is licensed to be crushed and dispersed in water, glucose 5%, apple juice, or apple puree immediately prior to use and administered orally
- NG tubes – apixaban is licensed to be crushed and dispersed in water or in glucose 5% for administration (the manufacturers recommend 60mL) through nasogastric tubes – administration through other types of enteral feeding tube would be outside the product license. Flush well after each dose.

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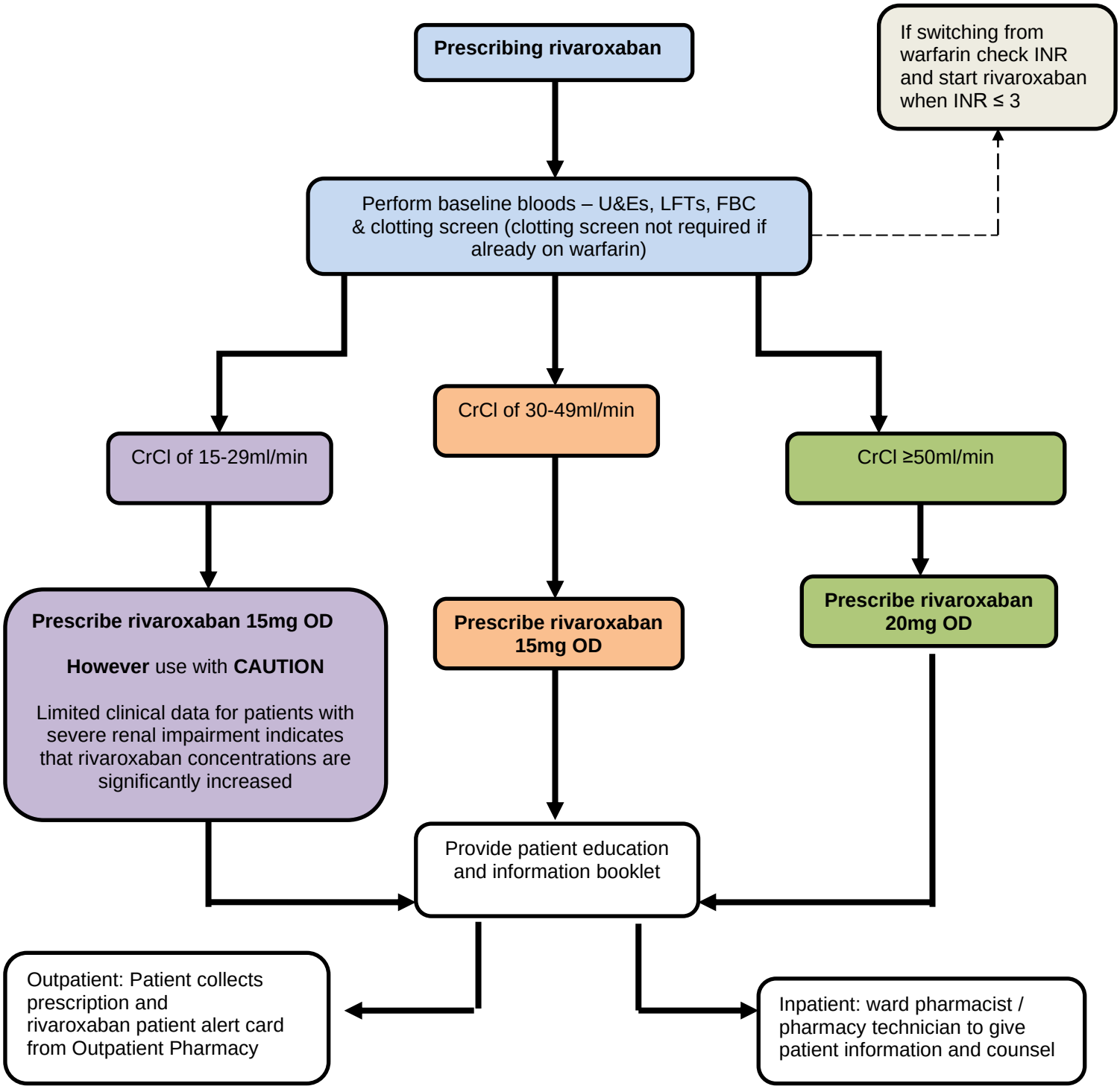

Prescribing notes for rivaroxaban:

- Suitable for administration in compliance aids.
- Swallowing difficulties - rivaroxaban is licensed to be crushed and mixed with water or apple puree immediately prior to use and administered orally. After the administration of crushed tablets, the dose should be immediately followed by food.
- NG / PEG tubes – rivaroxaban is licensed to be crushed and mixed with water for administration. Re-start the feed immediately after the dose has been given and the feeding tube flushed (15mg and 20mg doses).
- NJ / PEJ / PEGJ - Rivaroxaban is not suitable for administration via enteral feeding tubes terminating beyond the stomach (ie. in the duodenum or jejunum) due to decreased absorption of the drug when given in this manner. Bioavailability is significantly reduced when rivaroxaban is administered beyond the stomach.
- Rivaroxaban must be taken with food to optimise its absorption. This makes it unsuitable for patients without a regular meal pattern.

DOAC Clinical Decision Making Tool written by Wendy Sunter Anticoagulant and Thrombosis Pharmacist
Approved by: MMC 21.7.22 **Review:**July 2025

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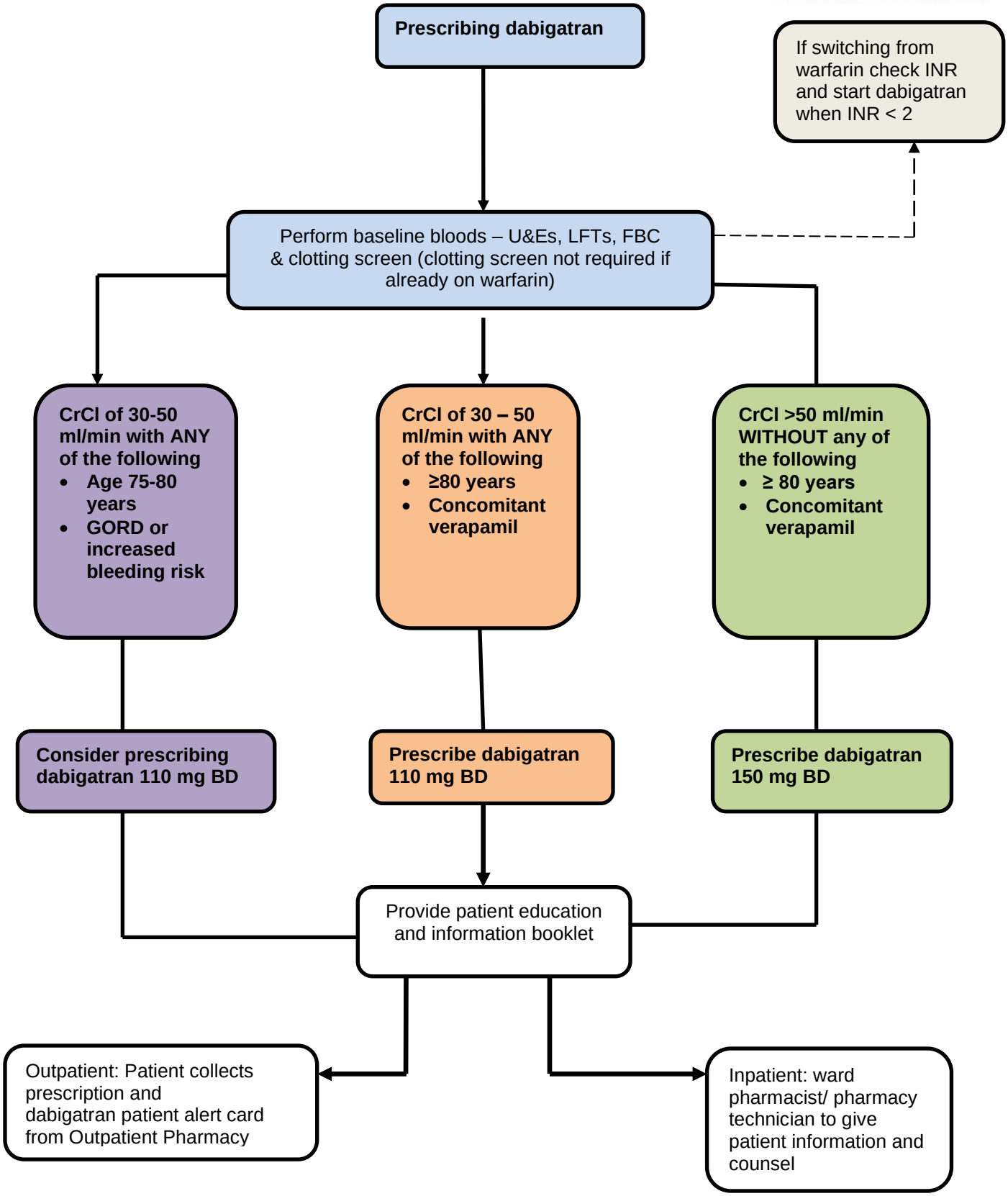

Prescribing notes for dabigatran:

- Dabigatran capsules should not be opened. The capsule shell is specially formulated to release slowly at the correct point of the GI tract. The pellets inside the shell are designed to create an acidic micro-environment to improve drug dissolution and absorption. Opening the capsules may greatly affect the oral bioavailability of the drug with a risk of increased side effects (i.e. bleeding).
- Cannot be put in a compliance aid.
- Reversal agent, Idarucizumab (Praxbind ®), available.

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Follow up at 1 month
Check:

1. Adherence. Patient should bring remaining pills
2. Bleeding events. FBC to monitor Hb can be of assistance in monitoring for bleeding if clinically appropriate
3. Other side effects
4. Interactions
5. Thrombo-embolic events
6. Safety of therapy – emergence of contra-indications or complication/co-morbidities
7. Adequate contraception in women of childbearing age
8. Reinforce safe alcohol limits. (Alcohol does not interact with DOACs but will increase the risk of bleeding)

Follow up at 3 months
Check all of above and

9. Blood tests only if clinically indicated for CrCl> 60ml/min
10. U&Es, FBC and LFTs if CrCl 15 – 60ml/min

USE CHECKLIST AT EACH REVIEW

For GP pathway only

Concern

Contraindication

Stop DOAC

CrCl ≥ 60ml/min

Review checklist as above and check bloods every 12 months.

CrCl ≥30 - 59ml/min

Review checklist as above and check bloods every 6 months

CrCl 15 - 29ml/min

Follow up as per NICE CKD Guideline. Consider bleeding risk may be increased. Check bloods every 3 months.
NOTE: dabigatran contraindicated if CrCl < 30 ml/min

CrCl < 15ml/min

Concern

Concern

Concern

Investigate

Resolved

Contraindication

PLEASE NOTE
If CrCl is declining a follow up may be required sooner

Stop DOAC

*CrCl – Calculate using Cockcroft & Gault equation and ABW as recommended by the manufacturers. Use adjusted weight for CrCl calculation if BMI ≥ 30

DOAC Clinical Decision Making Tool written by Wendy Sunter Anticoagulant and Thrombosis Pharmacist
Approved by: MMC 21.7.22 **Review:**July 2025

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DOAC dosing shortcut tool

Creatinine Clearance (CrCl)	≥50 ml/min	30-49 ml/min	15-29 ml/min	<15 ml/min
Apixaban	**5mg BD. Check: Age** ≥80 y. **Weight** ≤60 kg & **Creatinine** ≥133µmol/L. If ≥ **2** of these features present:2**.5 mg BD**		**2.5mg BD**	
Dabigatran	**150 mg BD**. **Check: Age** ≥80y & **Drugs** – Verapamil. If **either** present: **110 mg BD** If:Aged 75-80 y, CrCl 30-50 ml/min, GORD or increased risk of bleeding **consider** reduced dose **110 mg BD**		**<30 ml/min**	
Edoxaban	**60 mg OD**. **Check:Weight** ≤60 kg & **Drugs** – Ciclosporin, Dronedarone, Erythromycin or Ketoconazole. If **either** present: **30 mg OD**	**30 mg OD**		**<15 ml/min & ≥ 95 ml/min**
Rivaroxaban	**20 mg OD (with food)**	**15 mg OD (with food)**		

No dose adjustment required Dose adjustment recommended Not recommended / contraindicated

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Drug Interactions

The information provided below is based on information available at the time of writing and is not exhaustive. Refer to the BNF and SPC for further information.

	No current data available

√	Combination has been proven safe

X	Combination has been proven to be clinically unsafe

Caution	Combination is known to / may alter plasma concentration. Approach with care and take into account other factors affecting plasma concentrations e.g. renal impairment, other concomitant interacting drugs etc. Dose adjustments may be needed.

	Apixaban	Rivaroxaban	Dabigatran	Edoxaban
Azole antifungals:				
Itraconazole	X	X	X	Caution – may increase plasma levels of edoxaban
Posaconazole	X	X	Caution – may increase plasma levels of dabigatran	
Voriconazole	X	X	Caution – may increase plasma levels of dabigatran	
Fluconazole	√	√	Caution – may increase plasma levels of dabigatran	
Ketoconazole	X	X	X	Reduce edoxaban dose by 50%
Anti-arrhythmics:				
Dronedarone	Caution – may increase plasma levels of apixaban	X	X	Reduce edoxaban dose by 50%
Amiodarone	Caution- may increase plasma levels of apixaban	Caution – may increase plasma levels of rivaroxaban	Caution – may increase plasma levels of dabigatran	Caution – may increase plasma levels of edoxaban
Quinidine	Caution- may increase plasma levels of apixaban		Caution – may increase plasma levels of dabigatran	Caution – may increase plasma levels of edoxaban
Verapamil	√	√	Caution – may increase plasma levels of dabigatran	Caution – may increase plasma levels of edoxaban
Other drugs:				
Tacrolimus	√	√	X	Caution – may increase plasma levels of edoxaban
Clarithromycin / Erythromycin	Caution – may increase plasma levels of apixaban	√	Caution – may increase plasma levels of dabigatran	Erythromycin - reduce edoxaban dose by 50% Clarithromycin – caution may

				increase plasma levels of edoxaban
Ciclosporin	Caution – predicted to increase exposure to apixaban	Caution – predicted to increase exposure to rivaroxaban	X	Reduce edoxaban dose by 50%

Interactions with other medicinal products affecting haemostasis	
Anticoagulants Unfractionated heparins, low molecular weight heparins (e.g. tinzaparin, enoxaparin, dalteparin), heparin derivatives (e.g. Fondaparinux) Oral anticoagulants e.g. warfarin	Concomitant use of a DOAC with any other anticoagulant agent is contraindicated, except under the circumstances of switching therapy to or from a DOAC or when unfractionated heparin is given at doses necessary to maintain a patent central venous or arterial catheter
Platelet aggregation inhibitors and NSAIDs including Acetylsalicylic acid (ASA) and platelet aggregation inhibitors	Care is to be taken if patients are treated concomitantly with non-steroidal anti-inflammatory drugs (NSAIDs), including ASA and platelet aggregation inhibitors because these medicinal products typically increase the bleeding risk. For patients at risk of ulcerative gastrointestinal disease an appropriate prophylactic treatment may be considered. Combination therapy with oral anticoagulants and anti-platelets in patients with AF/IHD/PCI must be decided / initiated on a case by case basis by a Cardiologist and the duration of the regime clearly documented.

Additional notes:

The following drugs are contraindicated with DOACs and warfarin should be used for anticoagulation: HIV protease inhibitors (e.g. ritonavir), rifampicin.

The following drugs are contraindicated with apixaban, rivaroxaban and dabigatran. They may reduce the plasma concentration of edoxaban and should be used with caution on an individual basis: St John's Wort, carbamazepine, phenytoin, phenobarbital

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Acknowledgement

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