North East London
Barts Health NHS Trust
Homerton Healthcare NHS Foundation Trust
Barking, Havering and Redbridge University Hospitals NHS Trust

# Direct Oral Anticoagulant (DOAC) Initiation and Monitoring Guidance Template in Non-Valvular Atrial Fibrillation (NVAF)

| Document control | |
|---|---|
| **Title** | Direct Oral Anticoagulant (DOAC) initiation and monitoring guidance template in Non-Valvular Atrial Fibrillation (NVAF) |
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| **Produced by** | North East London Pharmacy and Medicines Optimisation Team |
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The purpose of this template is to guide healthcare professionals in primary care to safeguard patients NVAF who are being initiated on DOAC and to guide the monitoring of DOAC therapy for all therapeutic indications.

The aim is to ensure a consistent approach to this across North East London. This guidance was originally developed Pan-London by Haematology Specialists and it has been adapted by NHS North East London for local use.

This template guidance relates to **NVAF patients ONLY at initiation**: If the patient requires anticoagulation for any other indication, please refer to specialist anticoagulation services. DOAC monitoring guidance on page 4 applies to all indications.

## 1. Which Patients? Assess need and offer anticoagulation for:

- Non-Valvular AF/Atrial Flutter
- Offer anticoagulation where $CHA_2DS_2$-VASc ≥2 for both men and women (Consider anticoagulation when $CHA_2DS_2$-VASc score is ≥ 1 for men)
- A cardioversion/ablation procedure when advised by a cardiology specialist (*started regardless of $CHA_2DS_2$-VASc score. If the score is 0, patients do not require long term anticoagulation following the procedure*)

**Note: Do not withhold anticoagulation solely because of a person's age or their risk of falls**

## 2. Contraindications?

**Do not treat & refer patient to specialist services when:**

- Known intolerance or contraindication to anticoagulation
- Previous serious bleed (consider a lesion or condition that is a significant risk for major bleeding e.g. current or recent gastrointestinal ulceration, known or suspected oesophageal varices)
- Hepatic disease associated with coagulopathy
- Mechanical heart valve
- Transcatheter aortic valve implantation within last 3 months
- Mitral valve replacement or repair within last 3 months
- Known moderate to severe mitral stenosis (valvular AF)
- Active or underlying cancer
- Pregnant/breastfeeding or planning a pregnancy.
- Triple positive antiphospholipid syndrome (APLS)
- Under the age of 18 years old
- History of haemorrhagic stroke
- History of clinically significant bleeding
- Significant renal or liver disease
- Underlying haematological disorders

## 3. Assess for initiation of DOAC

| Parameter | Action | When to refer |
|---|---|---|
| **Actual Weight** | -Measured within the last year | <50kg or >120kg |
| **Creatinine Clearance (CrCl)** | -Use MDCalc to calculate CrCl (Cockcroft-Gault)<br>**DO NOT USE eGFR or ideal body weight for CrCl**<br>**Refer to website for full guidance on calculating CrCl**<br>-Review nephrotoxic medication if CrCl reduced:<br>See Guidelines for Medicines Optimisation in Patients with acute kidney injury | -CrCl <15ml/min, <30ml/min for Dabigatran<br>*(refer to Section 4 for more information)*<br>-If CrCl >95ml/min (**use of edoxaban is cautioned**- consider alternative DOAC before referral)<br>-Dialysis patients |
| **Review blood results within the last month** | -U&Es: serum creatinine (Cr)<br>-FBC: haemoglobin (Hb), platelets<br>-LFTs: AST/ALT, bilirubin<br>-Clotting screen | -Hb low (<100g/l) with no identifiable cause<br>-Platelets <100 units<br>-ALT/AST >2 x ULN<br>-Bilirubin >1.5 x ULN<br>-Abnormal clotting screen |
| **Bleeding Risk ORBIT score** | -Calculate ORBIT bleeding risk score<br>-Modify risk factors to reduce bleeding risk – e.g. controlling hypertension, assessing concurrent medication, addressing alcohol consumption, addressing reversible causes of anaemia | -Gastrointestinal/genitourinary bleed within 3 months<br>-Intracranial haemorrhage within last 6 months<br>-Severe menorrhagia<br>-Known bleeding disorders<br>-Known liver cirrhosis |
| **Alcohol consumption** | Aim < 8 units per week – counsel on bleeding risk | Known liver cirrhosis |
| **Blood Pressure (BP) mmHg** | Address uncontrolled hypertension- systolic BP >140mmHg | If SBP is >180mmHg same day review |
| **Concurrent medications** | -Antiplatelets: review course length and indication<br>-NSAIDs: bleeding risk refer to SPS for further advice<br>-Check for interactions -Refer to SPCs BNF, HIV Drug Interaction Checker<br>-Consider ability of patient to swallow orally – refer to SPS for advice | -Dual Antiplatelet Therapy (DAPT) - cardiologist should specify time period for prescription post CVD event/intervention and confirm dose of anticoagulant<br>-Antiplatelet co- prescribing should be avoided (unless advised by a specialist)<br>-Contraindications/Interactions: ask pharmacist for advice |

## 4. Choose DOAC (consider patient preference and lifestyle- adapt dosing as below)

| SPC link | Apixaban (Preferred) | Edoxaban | Rivaroxaban | Dabigatran |
|---|---|---|---|---|
| **Standard dose** | 5mg twice daily | 60mg once daily | 20mg once daily (with food) | 150mg twice daily |
| **Reduced dose** | 2.5mg twice daily | 30mg once daily | 15mg once daily (with food) | 110mg twice daily |
| **Criteria for reduced doses** | CrCl 15-29ml/min<br><br>**OR**<br><br>≥ 2 of<br>• age ≥ 80yrs<br>• weight ≤ 60kg<br>• Cr ≥ 133µmol/L | ≥1 of<br>• weight ≤ 60kg<br>• CrCl 15-50ml/min<br>• on ciclosporin, dronedarone erythromycin, ketoconazole | CrCl 15-49ml/min | Any of<br>• age ≥ 80 years<br>• on verapamil<br><br>*consider reduced dose for*<br>• *reflux/gastritis*<br>• *age 75-80years*<br>• *CrCl 30-50ml/min*<br>• *"Bleed Risk"* |
| **Contra-indications** | **CrCl <15ml/min** | **CrCl <15ml/min**<br>(Caution CrCl > 95ml/min) | **CrCl <15ml/min** | **CrCl <30ml/min** |
| **Compliance Aid** | Compatible | Compatible | Compatible | **Not compatible** |

## 5. Monitoring: For patients who DNA for monitoring, refer to practice repeat prescribing protocol

| **First Review**<br>(ideally after 1 month of therapy) | **Then MINIMUM YEARLY review**<br>(more frequent renal, liver and haemoglobin monitoring if CrCl <60ml/min, age over 75 years and/or frail- see table 6 below) |
|---|---|
| • **Check for side effects** (refer to SPC for each DOAC- table 4) – seek advice and guidance from haematology clinic if present/a concern<br>• **Check for bruising/bleeding** – refer for further investigation according to local pathways as indicated<br>• **U&Es and FBC** – as specified by initiating clinic/secondary care and/or if indicated by a change to clinical state of patient: **Check CrCl** (and review DOAC dosing- see table 4)<br>• **Check medication adherence**- refer to community pharmacist for NMS (New Medicines Service) and further support (refer to DOAC counselling checklist - appendix 1)<br>• **Carries an anticoagulant alert card**<br>• **Schedule repeat prescriptions and reviews** | • **Age** – check if DOAC dosage adjustment is required (see table 4)<br>• **Weight** - check if DOAC dosage adjustment is required (see table 4)<br>• **FBC** - investigate any Hb drop without an identifiable cause and if platelets <100<br>• **LFTs** – seek advice and guidance from haematology clinic if Bilirubin >1.5 ULN, AST/ALT >2 x ULN<br>• **U&Es and CrCl** (as per table below)- check if DOAC dosage adjustment is required<br>• **Interacting/new medications**- check if may affect DOAC dosing and set a review/course length date (seek advice from pharmacist as indicated)<br>• **Check Dosage** – up/down titrate if necessary |

## 6. Renal function monitoring frequency

| Creatinine Clearance (CrCl) range (ml/min) and other factors to consider | How often to check renal function? |
|---|---|
| <15 | **All DOACs are contraindicated,** refer to specialist (to consider warfarin) |
| 15 – 30 | 3 monthly, consider referral to specialist (dabigatran contraindicated)▲ |
| 30 – 60 | 6 monthly |
| All patients who are aged >75 years and/or frail‡ | 4-6 monthly |
| >60 | 12 monthly |

‡EHRA/ESC 2021 recommends 6 monthly renal, liver function (LFT) and haemoglobin (Hb) monitoring for elderly and frail patients. ▲Note previous trends if chronic kidney disease (CKD): More frequent monitoring may be needed in people with previous variable or erratic renal function, and less frequent monitoring may be needed for those with stable results: https://cks.nice.org.uk/chronic-kidney-disease For acute kidney injury (AKI) see: https://www.thinkkidneys.nhs.uk/aki/wp-content/uploads/sites/2/2016/03/Guidelines-for-Medicines-optimisation-in-patients-with-AKI-final.pdf

## Appendix 1: DOAC in AF Counselling Checklist for DOAC initiation for Healthcare Professionals (HCP)

**Apixaban, Dabigatran, Edoxaban, Rivaroxaban**

DOAC Agent Counselled: ……

| **Counselling points** (tailor specifics to your patient and record any queries or concerns in medical notes) | **HCP Sign:** |
|---|---|
| **Explanation of an anticoagulant** (increases clotting time and reduces risk of clot formation) **and explanation of atrial fibrillation** (including stroke risk reduction)<br>- Information of DOAC therapy is available on the NHS DOAC document.<br>- Please see Home - electronic medicines compendium (emc) for individual patient information leaflets of the DOAC agent. | |
| **Differences between DOAC and warfarin** *(if applicable for patients converting from warfarin to DOAC therapy or offering choice of anticoagulation agent)*<br>• No routine INR monitoring<br>• Fixed dosing<br>• No dietary restrictions<br>• Alcohol consumption – counsel patient on bleeding risk and aim for <8 units of alcohol/week<br>• Fewer drug interactions | |
| **Name of drug:** generic | |
| **Explanation of dose:** strength & frequency<br>**Please review prescribed dosage in line with recommendation in Section 4 above.* | |
| **Duration of therapy:** lifelong (unless risk: benefit of anticoagulation changes) | |
| **Oral administration –** rivaroxaban should be taken with food. Apixaban, dabigatran or edoxaban can be taken with or without food. For patients with swallowing difficulties apixaban, edoxaban and rivaroxaban may be crushed – refer to the summary of product characteristics for more information | |
| **Missed doses:** Message is to "take the dose as soon as you remember and then at the same time each day". For further information:<br>• **Apixaban and dabigatran** can be taken within 6 hours of missed dose, otherwise omit the missed dose<br>• **Edoxaban and rivaroxaban** can be taken within 12 hours of missed dose, otherwise omit the missed dose | |
| **Extra doses taken:** advise patient to obtain advice immediately from pharmacist/GP/NHS Direct (111)<br>*It is recommended patient should temporarily stop DOAC and observe for any sign of bleedings.* | |
| **Importance of adherence:** short half-life and associated risk of stroke and/or thrombosis if patient is non-adherent | |
| **Common and serious side-effects and who/when to refer:** symptoms of bleeding/unexplained bruising.<br>Avoidance of contact sports<br>• Single/self-terminating bleeding episode – routine appointment with GP/pharmacist<br>• Prolonged/recurrent/severe bleeding/head injury – A&E<br>Major bleeds managed/reversed by supportive measures and Prothrombin Complex Concentrate (PCC). Antidotes: *Idarucizumab for dabigatran (NICE TA);* Andexanet alfa for GI bleed with apixaban/rivaroxaban | |
| **Drug interactions and concomitant medication:** avoid NSAID's. Always check with pharmacist regarding OTC/herbal/complimentary medicines | |
| **Inform all healthcare professionals of DOAC therapy:** GP, nurse, dentist, pharmacist i.e. prior to surgery, hospital admissions<br>This includes recommending patient to carry the patient alert card at all time. | |
| **Pregnancy and breastfeeding:** potential risk to foetus – obtain medical advice as soon as possible if pregnant/considering pregnancy. Avoid in breastfeeding | |
| **Storage:** dabigatran must be kept in original packaging – moisture sensitive. All other DOAC's suitable for medication compliance aids if required | |
| **Follow-up appointments, blood tests, and repeat prescriptions:** where and when<br>Record here: ……<br>*It is recommended to set an alert or entry onto patient's clinical record for the next follow up reviews. 1st follow up after initiation recommended for 4 weeks after initiation* | |
| **Issue relevant patient information AF booklet/leaflet and anticoagulant patient alert card** (*For AC alert card supplies*- email: pcse.supplies-leeds@nhs.net alternatively use QR codes below) | |
| **Give patient opportunity to ask questions and refer patient to Community Pharmacy New Medicines Service -** prescriber to write 'eligible for New Medicines Service' in a Pharmacy Message on the DOAC prescription item of the prescription form to encourage additional follow up with Community Pharmacist | |

# Resources For Healthcare Professionals

**DOAC risk minimisation materials (prescribing guide) for Healthcare Professional from proprietary manufacturers**

| | |
|---|---|
| Apixaban | https://www.medicines.org.uk/emc/rmm/113/Document |
| Edoxaban | https://www.medicines.org.uk/emc/rmm/226/Document |
| Rivaroxaban | https://www.medicines.org.uk/emc/rmm/626/Document |
| Dabigatran | https://www.medicines.org.uk/emc/rmm/399/Document |

# Resources For Patients

**DOAC information**

| | |
|---|---|
| NHS Direct Oral Anticoagulant (DOAC) Booklet | NHS Direct Anticoagulant Therapy Booklet |

**DOAC alert cards**

| | |
|---|---|
| Apixaban | https://www.medicines.org.uk/emc/rmm/112/Document |
| Edoxaban | https://www.medicines.org.uk/emc/rmm/227/Document |
| Rivaroxaban | https://www.medicines.org.uk/emc/rmm/2255/Document |
| Dabigatran | https://www.medicines.org.uk/emc/rmm/401/Document |

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