Medicines Optimisation
Best Practice Guidance – *Bulletin 12*

Anticoagulants – Warfarin and Direct Oral Anticoagulants (DOACs)

Anticoagulants are medicines that help prevent blood clots forming in blood vessels. They are prescribed for people at high risk of getting clots and to reduce their chances of developing serious conditions such as strokes and heart attacks. Anticoagulants are sometimes known as 'blood-thinners' although they do not actually make the blood thinner. Anticoagulants work by slowing down the blood clotting process so clots take much longer to form.

Warfarin is the most commonly prescribed anticoagulant (Warfarin Communication and Administration). The newer type of anticoagulants known as Direct Oral Anticoagulants (DOACs) are becoming increasingly common. These include **apixaban, dabigatran, edoxaban and rivaroxaban**.

People should **never be prescribed both warfarin and a DOAC**.

Common Uses of anticoagulants

- **Atrial Fibrillation (AF)** – is a heart condition that causes an irregular and often abnormally fast heart rate. People with AF have a greater risk of developing blood clots which can lead to a stroke. Treatment with anticoagulants is usually long term.
  Deep vein thrombosis (DVT) - A DVT occurs when a blood clot forms in a deep vein, usually in the lower leg but can also develop in the thigh, pelvis or arm. Treatment for DVT will vary for each person but is usually for 3 months. Long-term anticoagulant treatment may be required if the person has had previous DVTs.
- **Pulmonary Embolism (PE)** – A PE is a blockage in a blood vessel in the lungs caused by a dislodged blood clot which has formed in a deep vein in the body. Duration for treatment will vary although anticoagulants are usually needed for a minimum of 3 months. Long term treatment may be required if the person has had a previous DVT or PE.
- **Recent hip or knee replacement** – Following surgery, an anticoagulant may be prescribed to prevent clots forming while the person is less mobile. Treatment is usually short term.

Monitoring Requirements

The dose of warfarin a person is prescribed may needed to be adjusted so their blood does not clot too easily but also does not put them at increased risk of having a bleed. To ensure a person is prescribed the correct warfarin dose a regular blood test called an INR is required. The INR is a measure how quickly the blood clots. The target INR is usually between 2 and 3; this must always be documented in the person's care plan. An INR must be repeated **at least every 12 weeks** but may be more frequently.

The effects of blood clotting from DOACs cannot be measured by monitoring the INR, however other regular monitoring is still required to ensure the medication is prescribed at a safe dose. These blood tests include monitoring of kidney and liver function. People started on a DOAC should have their blood test at the point of starting treatment and then at **least annually** thereafter. In older people and people with reduced kidney and/or liver function, these blood tests will be required much more frequently (can be up to every 3 months).

Side Effects

Anticoagulants are one of the medicines most frequently identified as causing preventable harm and admission to hospital. Safe administration and monitoring of all anticoagulants can reduce this risk of harm and improve care.

Bleeding is a common side effect of all anticoagulants. Care home staff should be aware of signs of bleeding. **Seek immediate medical advice** if spontaneous bleeding occurs whilst taking an anticoagulant or if the bleeding does not stop or reoccurs. This includes:

- Severe or unexplained bruising
- Coughing up or vomiting blood
- Blood in urine or stools (including black tar-like stools)
- Prolonged bleeding (including nosebleeds) lasting more than10 minutes
- Bleeding gums
- Vaginal bleeding in post-menopausal women

Care home staff should also be aware of, and seek medical advice in the event of:

- Sudden severe back pain
- Unusual headaches
- Fall or injury to head or face
- Difficulty breathing or chest pain

Anticoagulants and falls

If a person has a fall whilst prescribed an anticoagulant there is a higher risk of internal bleeding. Care home staff must follow their local protocol for falls. In the event of a fall where the person has potentially sustained a head or facial injury, **immediate medical advice must be sought**.

Missed or delayed doses

Anticoagulants are classed as critical medicines and must be given at the prescribed times to ensure they are effective. Missing or delaying a dose may increase the risk of the person developing a clot which could cause them serious harm. **Any missed or delayed doses must be documented as soon as identified.**

Warfarin is taken once daily, usually in the evening. This allows any dose changes to be made following an INR test. If a warfarin dose is missed, give the dose as soon as possible provided it is the same day it was due. If the dose is not given on the day it was due, omit the dose and give the next dose at the usual time. **Never administer two doses at the same time**. The prescriber should be informed as soon as practically possible that a dose was missed.

DOACs are administered either once or twice daily, depending on which DOAC is prescribed. For once daily dosing, administer the dose at the same time each day. If a DOAC is prescribed twice daily, administer the doses 12 hours apart.

The anticoagulant effects of DOACs reduces quickly even after one dose omission. If a DOAC dose is missed, check whether it is still possible to administer by consulting the Patient Information Leaflet or the NHS UK website. Further advice can be sought from the prescriber or pharmacist. The prescriber must always be notified as soon as practically possible if any doses are missed.

If a person given more anticoagulant than prescribed, **immediate medical advice must be sought**.

Interactions with other medications

Anticoagulants can interact with several other types of medicines including some antibiotics, steroids and non-steroidal inflammatory drugs (NSAIDs) such as ibuprofen.

Homely remedies, herbal medicines and over the counter medicines purchased by patient or a family member also need to be checked for suitability as they can potentially interact with DOACs. Care home staff should always read the patient information leaflet or contact a clinician for advice if they have concerns.

Dietary considerations

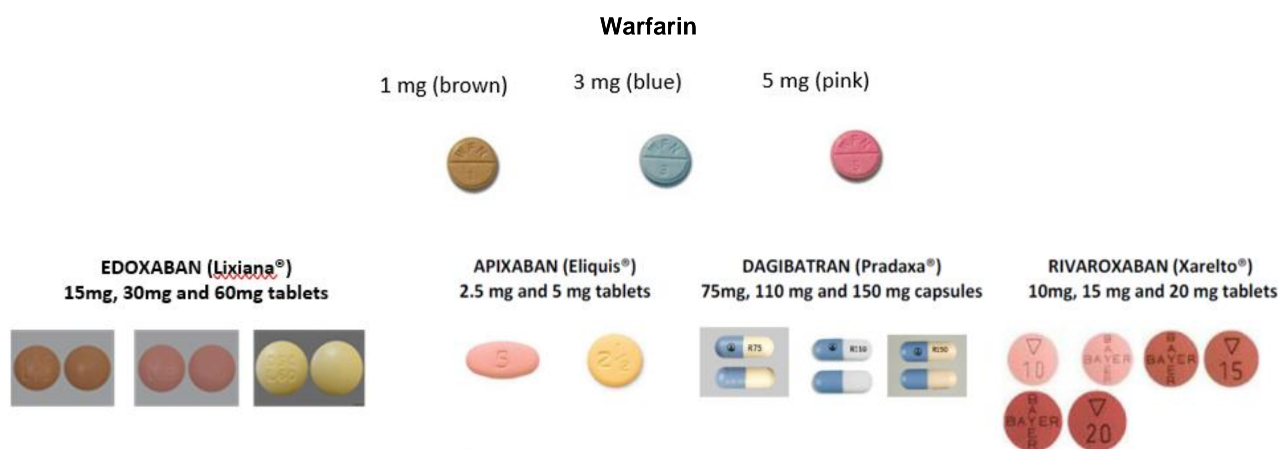
Food containing high amounts of vitamin K such as broccoli, cabbage, leafy green vegetables, chickpeas and liver can affect how warfarin works. These food do not need to be avoided but should be eaten in consistent amounts. If there are any sudden, major changes in diet the prescriber must be made aware. Some food and drinks are known to affect how warfarin works.

Cranberry juice, grapefruit juice, pomegranate juice and products containing these (including herbal supplements) should be avoided whilst taking warfarin. Alcohol can also affect the anticoagulants effects of warfarin but can be consumed provided it is within the recommended daily guide or 1 to 2 alcoholic drinks. Binge drinking should be avoided.

DOACs are not known to interact with any food or drinks.

Tablet identification

Warfarin is commonly available in three strengths 1mg (brown), 3mg (blue) and 5mg (pink). A 500mcg tablet (white) is also available but should not be prescribed in Norfolk and Waveney as it can lead to confusion with dose administration.



Further advice

- Warfarin can be administered with or without food.
- Dose of **rivaroxaban 15mg or more must be given with food**. Doses under 15mg can be given without food.
- Apixaban, dabigatran and edoxaban can be administered with or without food.
- Tablets should not be crushed without discussion with a clinician. Any decisions involving crushing medication should be recorded. See Best Practice Guide 4 for crushing guidance.
- People who take DOACs should have an 'Anticoagulant Alert Card'.
- People prescribed warfarin should have a 'Yellow Book'
- If a person has medical treatment, a dental appointment or surgical procedure it is very important that the clinician is made aware that they take anticoagulants.
- Special care is needed when opening dabigatran packages to ensure that capsules are not broken or damaged. The capsule should be removed from the blister by peeling off the backing foil. If the capsule is damaged, it can increase the amount of medication absorbed by the body. Damaged capsules should be discarded.

References

Adapted for use from 'Care Homes Good Practice Guidance – Anticoagulants' NHS Hertfordshire and West Essex. December 2022

NHS UK website – anticoagulant medicines
CQC website - High risk medicines: anticoagulants
NICE CKS website – Anticoagulation - oral

Title	Best Practice Guidance – Anticoagulants – Warfarin and Direct Oral Anticoagulants (DOACs)
Description of policy	To inform healthcare professionals
Scope	Primary care and care homes
Prepared by	Medicines Optimisation Team – Hayley Hurst
Evidence base / Legislation	Level of Evidence: *A. based on national research-based evidence and is considered best evidence* ***B. mix of national and local consensus*** *C. based on local good practice and consensus in the absence of national research based information.*
Dissemination	Is there any reason why any part of this document should not be available on the public website? ☐ Yes / No ☒
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Version	Date	Author	Status	Comment
0.1	Jul 2015	Prescribing & Medicines Management Team *JC*	Draft	Discussed at SMT and some amendments suggested
0.2	Sept 2015	Prescribing & Medicines Management Team JC/ SW	draft	Discussed at SMT and further amendments suggested
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1.1	November 2016	Prescribing and Medicines Management Team MS	Final	Updated wording only to change NOAC to DOAC as per other NEL CSU guides. Further review as per schedule.
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3.0	Jun 2021	Medicines Optimisation Team	Final	Approved by Medicines Optimisation Senior Team Jun 21
3.1	December 2023	Medicines Optimisation Team – HH	Draft	Logo changed and templated updated. Warfarin information included. Addition of the following sections: • Monitoring requirements • Anticoagulants and falls • Missed or delayed doses • Dietary requirements • Tablet identification