SECTION 14: ANTICOAGULANTS

Formulary and Prescribing Guidelines
14.1 Introduction

Anticoagulants are amongst the most frequently identified medicines causing preventable harm and admission to hospital. Managing the risks associated with anticoagulants can reduce the chance of patients being harmed in the future.¹

When anticoagulants are prescribed guidance should be sought from the anticoagulation service in the local acute Trust. It is not expected that EPUT services will initiate these medicines, but maintenance and monitoring of treatment is expected. All prescribers who initiate, continue or adjust dosage of anticoagulants shall have the necessary work competencies as defined by the NPSA ¹ (www.npsa.nhs.uk/health/alerts)

Listed below are the steps that should be followed to ensure that treatment with anticoagulants is managed appropriately.

- Information should be provided to the patient prior to the start of anticoagulant therapy and/or prior to discharge, which is patient-held and includes written doses. Oral Anticoagulation Therapy booklets (OAT) are available through the pharmacy department if the patient doesn’t already hold one. All relevant sections should be completed.

  A clear indication for the anticoagulant therapy and duration of treatment must be recorded in the patient notes and on the Prescription Administration Chart (Drug Chart).

- Prescribe doses in mg (milligrams) and not numbers of tablets.

- Prescribe the least number of tablets needed to be taken each day

- Prescribe a constant daily dose where possible

- Discontinuation of an anticoagulant or a change in dose should be done in liaison with the local anticoagulation clinic.

  If a patient self-administers medicines during their stay the doses to be taken should be confirmed in writing.

- Ensure there is a stop-date or review date for anticoagulant therapy, where initiated or dose changed by EPUT.

14.2 Oral Anticoagulants

These include Warfarin, Acenocoumarol, and Phenindione, and should be prescribed in line with local acute Trust guidelines. These medicines require the INR to be monitored regularly and maintained at the indicated therapeutic level.

- For most indications the target INR is usually 2.5 (2.0-3.0), but in some cases a higher target INR is indicated. INR should always be maintained at <5. Where INR levels are above 5 advice should be sought from the Local Acute Trust Anticoagulation Service and corrective action must be taken.
Prescribers should check carefully for interactions when prescribing these medicines. Where a medicine interacting with anticoagulants has been prescribed, or the dose changed additional INR testing should be arranged.

Avoid use of both 5mg and 500 microgram (0.5mg) Warfarin tablets together. Ensure 0.5mg tablets are prescribed and administered in preference to half tablets.

Ensure INR is within the appropriate therapeutic range at discharge from services.

These drugs are not usually suitable to be included in monitored dosage systems as dose changes cannot be accommodated

14.3: In-patient prescribing

If a service user prescribed anticoagulants is admitted to an in-patient unit:

- Check the service user’s anticoagulant record book before prescribing. (These can be ordered from Pharmacy if the patient does not have one)
- Complete the Anticoagulant Treatment Record Card ensuring ALL sections are completed
- Take a baseline INR and decide on the frequency of INR checks
- Decide on the dose (which may vary) to be administered and prescribe on the Anticoagulant Treatment Record Card, having checked for interactions, contraindications and cautions
- Ensure the anticoagulant is also prescribed on the In-patient treatment card with reference to the Anticoagulant Treatment Record Card so it is not overlooked during medicine administration rounds. (The dose will not be prescribed and administration will not be recorded on the In-patient treatment card).
- Ensure the nursing staff are clear as to the care and observation of the patient

In-patient monitoring

- The patient should be observed for bruising and other side effects (such as bleeding gums) and if this is found the doctor should be contacted. A body map of the bruising should also be completed.
- The dose should be monitored as per the Anticoagulant Treatment Record Card. This can vary from every 1-7 days, but should not exceed 7 days between INR checks.
- Anticoagulant clinic and GP monitoring appointments should be attended wherever possible, and details of the treatment while an in-patient should be provided.
- Missed doses: If a dose is missed but remembered on the same day it should be administered and a note made of the time of administration on the treatment card. If the dose is not remembered until the next day, omit the dose and continue with the prescription for that day. Do not administer a double dose.
• If an incorrect dose is administered, contact the doctor. It may be necessary to seek advice from the anticoagulant clinic.

**Duration of Treatment and Review**

• For Atrial Fibrillation review the need for anticoagulation and the quality of anticoagulation at least annually, or more frequently if clinically relevant events occur affecting anticoagulation or bleeding risk.\(^6\)

• Venous thrombo-embolism (VTE) should generally be treated for either three months or indefinitely, depending on the long-term risk of recurrence, the risk of bleeding and by patient preference.\(^7\)

• For prevention of VTE following major elective orthopaedic surgery (i.e. knee or hip replacement) ensure NOACs are stopped after the documented (as in discharge) or licensed duration of treatment period is reached.

• These reviews should be facilitated by EPUT and carried out by the local acute trust anticoagulation service.

**Management of High INR (>5) or Haemorrhage**

• Refer to the latest BNF guidance, and obtain advice from the local anticoagulant service.

**Discharge from EPUT**

• The patient must have an anticoagulant therapy record book (“yellow book”) updated at the date of discharge, an alert card and a patient information leaflet

• Ensure the patient has a date for their next anticoagulant check, and that they and/or their carer are clear about the dose to be taken, especially if it has changed.

**Newer Oral Anticoagulants (NOACs)**

Dabigatran, Apixaban, Rivaroxaban, Edoxoban

• These drugs are increasingly being used as alternatives to warfarin therapy,

• They do not require any specific INR monitoring, however, the patient should be checked for signs of bleeding or anaemia.

• Dosage depends on renal function

**14.4 Low Molecular Weight Heparins (LMWH)**

Enoxaparin, dalteparin, tinzaparin

Low molecular weight heparins have been identified as an area of risk by the National Patient Safety Agency (NPSA) and are the subject of a Rapid Response Report, NPSA/2010/RRR014. The following guidance should be followed when prescribing these medicines to ensure patient safety.
- Patient weight must be used as the basis for calculating the required treatment dose of LMWH. The weight must be accurately recorded in kilograms (kg) in the patient’s notes. Patients should be weighed at the start of therapy and, where applicable, during treatment, if this is warranted.

- Renal function should be considered when prescribing treatment doses of LMWHs. The renal function test should not delay initiation of the first dose but every effort must be made to base subsequent dosing on these results. A pharmacist should be consulted for advice on prescribing in individuals with reduced renal function. Thrombocytopenia and hyperkalaemia are potential side effects of heparin therapy and should be monitored for if treatment is prolonged.

- Essential information such as dose, weight, renal function, indication and duration of treatment should be communicated at transfer of care (e.g. by discharge letters) and used to ensure that future doses are safe.

- Doses should be checked based on patient information by prescribers and pharmacists when LMHWs are reviewed or dispensed.

**14.4.1 Recommended Doses**

<table>
<thead>
<tr>
<th>Drug and Formulation</th>
<th>Dose</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enoxaparin syringes 20mg, 40mg</td>
<td>40mg s/c od (20mg s/c od if GFR &lt;30ml/min)</td>
<td>Thromboprophylaxis</td>
</tr>
<tr>
<td>Enoxaparin syringes 60mg, 80mg, 100mg, 120mg, 150mg</td>
<td>1mg/kg s/c bd (1mg/kg s/c od if GFR &lt;30ml/min)</td>
<td>Treatment of Acute ST elevated MI</td>
</tr>
<tr>
<td>Enoxaparin syringes 60mg, 80mg, 100mg, 120mg, 150mg</td>
<td>1.5mg/kg s/c od (1mg/kg s/c od if GFR &lt;30ml/min)</td>
<td>Treatment of Deep vein thrombosis (DVT) and Pulmonary embolism (PE)</td>
</tr>
</tbody>
</table>

**Note**

Enoxaparin is available as Clexane® (100mg/ml) and Clexane Forte® (150mg/ml).

**Care should be taken during dose calculation using different strengths**

Clexane® (100mg/ml) is available as 20mg, 40mg, 60mg, 80mg and 100mg injections

Clexane Forte® (150mg/ml) is available as 120mg and 150mg injections.
### 14.4.2 Dose Calculation for Treatment of DVT and PE

Dosage: Enoxaparin 1.5mg/kg ONCE daily

<table>
<thead>
<tr>
<th>Product</th>
<th>Weight (kg)</th>
<th>Weight (stones/lbs)</th>
<th>Dose (mg)</th>
<th>Volume (ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clexane® 60mg</td>
<td>40</td>
<td>6st 4 lbs</td>
<td>60 od</td>
<td>0.60*</td>
</tr>
<tr>
<td>Syringe</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Clexane® 80mg</td>
<td>45</td>
<td>7st 1 lb</td>
<td>68 od</td>
<td>0.70*</td>
</tr>
<tr>
<td>Syringe</td>
<td>50</td>
<td>7st 12 lbs</td>
<td>75 od</td>
<td>0.75*</td>
</tr>
<tr>
<td>Clexane® 100mg</td>
<td>55</td>
<td>8st 9 lbs</td>
<td>83 od</td>
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</tr>
<tr>
<td>Syringe</td>
<td>60</td>
<td>9st 6 lbs</td>
<td>90 od</td>
<td>0.90*</td>
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<tr>
<td></td>
<td>65</td>
<td>10st 3 lbs</td>
<td>98 od</td>
<td>1.00*</td>
</tr>
<tr>
<td>Clexane Forte®</td>
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<td>11st 0 lbs</td>
<td>105 od</td>
<td>0.70*</td>
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<tr>
<td>120mg Syringe</td>
<td>75</td>
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<td>113 od</td>
<td>0.75*</td>
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<td></td>
<td>80</td>
<td>12st 8 lbs</td>
<td>120 od</td>
<td>0.80*</td>
</tr>
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<td>13st 5 lbs</td>
<td>128 od</td>
<td>0.85*</td>
</tr>
<tr>
<td>150mg Syringe</td>
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<td>14st 2 lbs</td>
<td>135 od</td>
<td>0.90*</td>
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<tr>
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<tr>
<td></td>
<td>100</td>
<td>15st 10 lbs</td>
<td>150 od</td>
<td>1.00*</td>
</tr>
</tbody>
</table>

* These figures have been rounded to the nearest 0.05ml

Where Clexane Forte® is not available it is acceptable to use multiple ‘regular’ Clexane® if necessary until it can be acquired.

**Example**

Patient weights 70kg therefore; 70 x 1.5 = **105mg** of enoxaparin required

- Clexane Forte® (150mg/ml) = 105mg/150 = **0.7ml**
- Clexane® standard (100mg/ml) = 105mg/100 = **1.05ml**

For further information contact your ward pharmacist and/or refer to the Trust Clinical Guideline for the Management of Patients on Anticoagulant Medicines in Inpatient Wards (CG83)

### 14.5 NICE Guidelines

NG 89: Venous thromboembolism in over 16s: reducing the risk of hospital-acquired deep vein thrombosis or pulmonary embolism.⁸
The section “Interventions for people with psychiatric illness” in NG89 gives the following recommendations:

Assess all acute psychiatric patients to identify their risk of VTE and bleeding:
- As soon as possible after admission to hospital or by the time of the first consultant review
- Using a tool published by a national UK body, professional network or peer-reviewed journal. The most commonly used risk assessment tool for hospital patients is the Department of Health VTE risk assessment tool.

Reassess all people admitted to an acute psychiatric ward for risk of VTE and bleeding at the point of consultant review or if their clinical condition changes.

Consider pharmacological VTE prophylaxis with LMWH for people admitted to an acute psychiatric ward whose risk of VTE outweighs their risk of bleeding.

Consider pharmacological VTE prophylaxis with fondaparinux sodium if LMWH is contraindicated for people admitted to an acute psychiatric ward whose risk of VTE outweighs their risk of bleeding.

Continue pharmacological VTE prophylaxis for people admitted to an acute psychiatric ward until the person is no longer at increased risk of VTE.

References


