Guideline on the management of adult patients treated with oral anticoagulants in Suffolk

May 2010
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Acronyms

DVT Deep Vein Thrombosis
PE Pulmonary Embolism
AF Atrial Fibrillation
INR International Normalised Ratio
FBC Full Blood Count
U&Es Urea and Electrolytes
mg Milligrams
BCSH British Committee for Standards in Haematology
NICE National Institute for Health and Clinical Excellence
NPSA National Patient Safety Agency
NHS National Health Service
GP General Practitioner
PCT Primary Care Trust
BNF British National Formulary

Authors/Contributors:
Dr Dipti Chitnavis (Haematology Consultant West Suffolk Hospital)
Dr Ioana Whalley (Haematology Consultant Ipswich Hospital)
Emma Travers (Senior Pharmacist Ipswich Hospital)
Linda Lord (Pharmacist NHS Suffolk)
Judith Wolstenholme (Anticoagulant Nurse Specialist West Suffolk Hospital)
Julia Green (Anticoagulant Nurse Specialist Ipswich Hospital)
Mike Wallis (Senior Biomedical Scientist)
Richard Chalmers (Pharmacist Ipswich Hospital)
Simon Whitworth (Chief Pharmacist West Suffolk Hospital)
1.0  Introduction

This document is intended to provide guidance to all multidisciplinary staff involved in the care of patients taking oral anticoagulants. It has been developed by a multidisciplinary team to ensure a safe, effective and consistent approach is adopted in line with National Patient Safety Agency recommendations. The prescribing information contained in these guidelines is issued on the understanding that it is best practice from available resources at the time of issue.

2.0  Scope of the guidelines

- To provide advice to prescribers and other healthcare professionals on managing patients on oral anticoagulants (i.e. warfarin, phenindione and acenocoumarol), prescribing considerations, monitoring requirements and factors affecting therapy.
- To define the scope of activity for those healthcare professionals as necessary.

3.0  Risk assessment of anticoagulation

Before a patient is initiated on anticoagulation therapy there are both medical and social factors to be considered. If the medication is administered by a carer the social factors would apply equally to them. During therapy further risk assessments are necessary (at least annually by the GP when clinically reviewing the patient) to ensure therapy continues to be safe. Additional risk assessments may be required if the patient’s circumstances change.

1. **Is the patient capable of safe compliance and understanding the medication?**
   If not then please do not prescribe anticoagulation therapy and consider other alternatives. Better patient evaluation at commencement of oral anticoagulation therapy is more effective in reducing and preventing adverse drug reactions.

2. Does the patient have any disabilities which could affect the way in which dosage adjustments are communicated i.e. blind, deaf or illiterate?

3. Does the patient use a medication compliance aid (i.e. dossett box)? Although the use of these systems may be beneficial for medication where dose changes are infrequent, the addition of anticoagulants to these dosage systems is not recommended.
   If the oral anticoagulant must go in the compliance aid check with the person responsible for filling the compliance aid to ensure dosage adjustments can be made the same day they are needed. Consideration must also be given as to how dosage adjustments will be communicated to the person responsible for filling the compliance aid.

4. Do any of the contra-indications listed in the current BNF apply to the patient?

5. Consider whether the patient is at risk of recurrent falls.

6. **Is the patient receiving concurrent medication (including complimentary medication) which could affect how the anticoagulant is initiated and monitored?**
   See current issue of the BNF for up to date interaction list.

Anticoagulant medication carries with it a relatively high risk due to variable dosing, a narrow therapeutic index of all anticoagulants and the need for ongoing blood monitoring. It is essential that the benefit of having a therapeutic INR (International Normalised Ratio) is carefully weighed against the risk of having an uncontrolled INR.
4.0 Warfarin - fast loading regimen for acute episode (DVT/PE) for use in secondary care only

The fast loading regimen is suitable for most cases other than slow atrial fibrillation in which case the slow loading regime is more appropriate. For patients restarting oral anticoagulation post surgery refer to local hospital guidelines.

Baseline FBC, U&Es, coagulation screen, INR and liver function tests should be conducted. Reminder – Low molecular weight heparin is commenced immediately and should be administered for at least 5 days or until the INR has been in the therapeutic range for two successive days, whichever is the longer. (It takes up to five days for certain clotting factors levels to fall with warfarin, even though the target INR may be reached earlier).

<table>
<thead>
<tr>
<th>Day</th>
<th>INR</th>
<th>Warfarin dose in mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&lt;1.4*</td>
<td>10**</td>
</tr>
<tr>
<td>2</td>
<td>&lt;1.8</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>1.8</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>&gt;1.8</td>
<td>0.5</td>
</tr>
<tr>
<td>3</td>
<td>&lt;2.0</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>2.0 - 2.1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>2.2 - 2.3</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>2.4 - 2.5</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>2.6 - 2.7</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>2.8 - 2.9</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3.0 - 3.1</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>3.2 - 3.3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3.4</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>3.5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>3.6</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>&gt;4.0</td>
<td>0</td>
</tr>
</tbody>
</table>

** Modifications to the oral anticoagulant loading dose may be necessary if baseline coagulation results are abnormal. Some patients may be particularly sensitive to warfarin. These include the elderly and those with high risk factors such as congestive cardiac failure, liver disease or those on drug therapy known to potentiate oral anticoagulants. A loading dose of less than 10mg daily is recommended under these circumstances.

* If the INR on day 1 is 1.4 or greater the initial dose of warfarin should be reduced and the schedule is no longer relevant. Seek advice from the haematology department. Blood tests are taken daily on days 1 to 4 and dosing is adjusted according to the above table.

Frequency of monitoring after fast loading is governed by the individual patient’s INR result.
5.0  **Warfarin - slow loading regimen for non-acute episode (AF) not requiring heparin.** For use in both primary and secondary care.

The slow loading regimens used in Ipswich and West Suffolk NHS Trusts are outlined below. Both are validated and the choice will be governed by which hospital the patient is likely to attend for monitoring. The use of a slow loading regimen results in better INR control for the patient post discharge.

If the INR on day 1 is 1.4 or greater, the initial dose of warfarin should be reduced and the schedules are no longer relevant, seek advice from the Haematology Department.

Arrangements must be put in place to ensure adequate checks of INR can be made, particularly for patients discharged from hospital who have yet to be stabilised. The first day of treatment should take this into account.

**Ipswich Hospital NHS Trust**
Initially 5mg daily for 4 days then check INR on day 5 (see table below). Only commence on a Monday, Thursday or Friday to allow for INR checks. Then

<table>
<thead>
<tr>
<th>DAY 5 INR</th>
<th>DOSE for DAYS 5 - 7</th>
<th>DAY 8 INR</th>
<th>DOSE from DAY 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1.8</td>
<td>5mg</td>
<td>&lt; 1.8</td>
<td>6mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.8 - 2.4</td>
<td>5mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.5 - 3.0</td>
<td>4mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 3.0</td>
<td>3mg for 4 days</td>
</tr>
<tr>
<td>1.8 - 2.2</td>
<td>4mg</td>
<td>&lt; 1.8</td>
<td>5mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.8 - 2.4</td>
<td>4mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.5 - 3.0</td>
<td>3.5mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.1 - 3.5</td>
<td>3mg for 4 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 3.5</td>
<td>2.5mg for 4 days</td>
</tr>
<tr>
<td>2.3 - 2.7</td>
<td>3mg</td>
<td>&lt; 1.8</td>
<td>4mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.8 - 2.4</td>
<td>3.5mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.5 - 3.0</td>
<td>3mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.1 - 3.5</td>
<td>2.5mg for 4 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 3.5</td>
<td>2mg for 4 days</td>
</tr>
<tr>
<td>2.8 - 3.2</td>
<td>2mg</td>
<td>&lt; 1.8</td>
<td>3mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.8 - 2.4</td>
<td>2.5mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.5 - 3.0</td>
<td>2mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.1 - 3.5</td>
<td>1.5mg for 4 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 3.5</td>
<td>1mg for 4 days</td>
</tr>
<tr>
<td>3.3 - 3.7</td>
<td>1mg</td>
<td>&lt; 1.8</td>
<td>2mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.8 - 2.4</td>
<td>1.5mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.5 - 3.0</td>
<td>1mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.1 - 3.5</td>
<td>0.5mg for 4 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 3.5</td>
<td>omit for 4 days</td>
</tr>
<tr>
<td>&gt; 3.7</td>
<td>0mg</td>
<td>&lt; 2.0</td>
<td>1.5mg for 4 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.0 - 2.9</td>
<td>1mg for 4 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.0 - 3.5</td>
<td>0.5mg for 4 days</td>
</tr>
</tbody>
</table>

It should be noted that within general practice there are no facilities for the routine testing of patients’ INRs over the weekends or bank holiday periods.

Frequency of monitoring after slow loading is governed by the individual patient’s INR result.

**West Suffolk NHS Trust**
Initially 3mg daily for 7 days then check INR on day 8 (see table below). Only commence Monday to Friday. Then

<table>
<thead>
<tr>
<th>DAY 8 INR</th>
<th>DOSE from DAY 8</th>
<th>RECALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1.8</td>
<td>4mg</td>
<td>1 week</td>
</tr>
<tr>
<td>1.8 - &lt;2.5</td>
<td>3mg</td>
<td>1 week</td>
</tr>
<tr>
<td>2.5 - &lt;4.0</td>
<td>2mg</td>
<td>1 week</td>
</tr>
<tr>
<td>&gt;4.0</td>
<td>seek advice</td>
<td>max 1 week</td>
</tr>
</tbody>
</table>

MANAGEMENT OF ADULT PATIENTS TREATED WITH ORAL ANTICOAGULANTS May2010– Clinical Guidelines
6.0 Other oral anticoagulants for secondary care

Warfarin is considered the oral anticoagulant of choice. In certain patients who cannot tolerate warfarin, anticoagulation with phenindione or acenocoumarol may be appropriate. The same counselling and information pack as used for warfarin must be provided.

Phenindione loading regimen

200mg on day 1; 100mg on day 2; maintenance dose usually 50 – 150mg daily. (seek specialist advice). **Note the dosing amounts are approximately ten times higher than that of warfarin or acenocoumarol and may be a source of confusion.**

Acenocoumarol loading regimen

4 – 12mg on day 1; 4 - 8mg on day 2; maintenance dose usually 1 – 8mg daily. (seek specialist advice).

**Caution is required when prescribing these medicines. When initiated in hospital they must always be prescribed on an anticoagulant chart by name, never as a daily dose on the inpatient chart.**

7.0 Target INR and treatment length

The target INR, clinical diagnosis and intended period of treatment must be recorded in the medical notes when therapy is commenced. This information **must** also be included on the discharge letter, the referral to the anticoagulant monitoring service and the patient held record (see Section 10.3b, 10.3c and 10.3d - Patient counselling and information at initiation of anticoagulant therapy).

The following table lists the target INR for a range of conditions and the usual length of treatment.

---

---
<table>
<thead>
<tr>
<th>Indication</th>
<th>Target INR</th>
<th>Treatment length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulmonary embolus</td>
<td>2.5</td>
<td>6 months (for patients with temporary risk factors and a low risk of recurrence 3 months treatment may be sufficient)</td>
</tr>
<tr>
<td>Proximal deep vein thrombosis</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>Calf vein thrombosis</td>
<td>2.5</td>
<td>At least 6 weeks</td>
</tr>
<tr>
<td>Recurrence of venous thromboembolism when no longer on warfarin therapy</td>
<td>2.5</td>
<td>6 months</td>
</tr>
<tr>
<td>Recurrence of venous thromboembolism whilst on warfarin therapy (with INR in range)</td>
<td>3.5</td>
<td>6 months</td>
</tr>
<tr>
<td>Symptomatic inherited thrombophilia</td>
<td>2.5</td>
<td>A</td>
</tr>
<tr>
<td>Antiphospholipid syndrome (venous)</td>
<td>2.5</td>
<td>6 months</td>
</tr>
<tr>
<td>Antiphospholipid syndrome (arterial)</td>
<td>3.5 or 2.5 B</td>
<td>6 months</td>
</tr>
<tr>
<td>Non-rheumatic atrial fibrillation</td>
<td>2.5</td>
<td>Long term</td>
</tr>
<tr>
<td>Atrial fibrillation due to rheumatic heart disease, congenital heart disease and thyrotoxicosis</td>
<td>2.5</td>
<td>Long term</td>
</tr>
<tr>
<td>Cardioversion</td>
<td>2.5 or 3.0°C</td>
<td>For 3 weeks before and 4 weeks after cardioversion</td>
</tr>
<tr>
<td>Mural thrombus</td>
<td>2.5</td>
<td>3 months</td>
</tr>
<tr>
<td>Cardiomyopathy</td>
<td>2.5</td>
<td>Long term</td>
</tr>
<tr>
<td>Mechanical prosthetic heart valve (aortic)</td>
<td>3.0 or 2.5*D</td>
<td>Long term</td>
</tr>
<tr>
<td>Mechanical prosthetic heart valve (mitral)</td>
<td>3.5 or 3.0*D</td>
<td>Long term</td>
</tr>
<tr>
<td>Bioprosthetic valve(see original 1998 BCSH guideline)</td>
<td>2.5 if anticoagulated</td>
<td>3-6 months (sinus rhythm) Long term (atrial fibrillation)</td>
</tr>
<tr>
<td>Ischaemic stroke without atrial fibrillation</td>
<td>Not indicated</td>
<td></td>
</tr>
<tr>
<td>Retinal vessel occlusion</td>
<td>Not indicated</td>
<td></td>
</tr>
<tr>
<td>Peripheral arterial thrombosis</td>
<td>Not indicated</td>
<td></td>
</tr>
<tr>
<td>Arterial grafts</td>
<td>2.5 if anticoagulated*E</td>
<td>As long as indicated</td>
</tr>
<tr>
<td>Coronary artery thrombosis</td>
<td>2.5 if anticoagulated*F</td>
<td>As long as indicated</td>
</tr>
<tr>
<td>Coronary artery graft</td>
<td>Not indicated</td>
<td></td>
</tr>
<tr>
<td>Coronary angioplasty and stents</td>
<td>Not indicated</td>
<td></td>
</tr>
</tbody>
</table>

*A: The duration of anticoagulation is not influenced by laboratory evidence of thrombophilia in most cases. Extended duration of anticoagulation may be considered in cases of excessive risk of recurrent venous thromboembolism (VTE).
*B: A higher target INR of 3.5 is often used and is reasonable as long as the bleeding risk at the higher intensity is taken into consideration.
*C Target INR of 2.5 is recommended for at least 3 weeks before and 4 weeks after cardioversion. To minimise cardioversion cancellations due to low INRs on the day of the procedure a higher target INR, e.g. 3.0, can be used prior to the procedure.
*D For patients in whom valve type and location are known specific target INRs are recommended (see Appendix 2). Otherwise a target INR of 3.0 is recommended for valves in the aortic position and 3.5 in the mitral position.
*E Antiplatelet drugs remain first line intervention for secondary antithrombotic prophylaxis. If long term anticoagulation is given to patients at high risk of femoral vein graft failure a target INR of 2.5 is recommended.
*F If oral anticoagulant therapy is prescribed a target INR of 2.5 is recommended.
8.0 Specialist advice

It is recommended that specialist advice is obtained from a consultant haematologist if any of the following circumstances are encountered:

- Recurrent DVT/PE despite INR within target range
- Screening and management of patients with thrombophilia
- Difficulty in reaching and maintaining target INR/erratic control
- Patient on another anticoagulant i.e. phenindione/acenocoumarol.

9.0 Antiplatelet therapy and oral anticoagulants

Many patients who are started on oral anticoagulation will already be on other antiplatelet therapy. The combination of antiplatelet therapy and oral anticoagulation is best avoided. The indication should be carefully assessed on a case by case basis by the clinician initiating therapy both at the onset and completion of oral anticoagulation.

10.0 Prescribing

10.1 Timing of dose

The usual maintenance dose of anticoagulant is given once daily at a fixed time. Evening dosing is preferred because it allows for dosage adjustments to be made on the same day as blood sampling. If morning dosing is preferable to aid compliance or suit carers, then omit the evening dose and recommence at the same dose the following morning. Conversely if the change is made from the morning to evening omit the morning dose and recommence at the same dose in the evening.

10.2 Available tablets

It is essential when prescribing anticoagulant therapy to clearly state the drug name to avoid potential dosing error.

Always prescribe the dose in milligrams and not as a number of tablets.

Use constant daily dosing and not alternate day dosing wherever possible.

The NPSA recommends the use of 0.5mg warfarin tablets. However Ipswich Hospital NHS Trust and West Suffolk Hospital NHS Trust will NOT be issuing 0.5mg warfarin tablets. This decision was made to minimise potential dosing risk resulting from confusion between the 0.5mg tablets and the 5mg tablets.

In cases where a 0.5mg dosage adjustment is required and the patient is incapable of halving tablets, it is preferable to issue the patient with a tablet cutter.

Consideration should also be given on an individual basis as to whether warfarin 5mg needs to be routinely issued to patients. To ensure this is happening hospitals no longer issue warfarin 5mg as a pre-labelled TTA pack for the wards. Warfarin 5mg tablets will remain available from the pharmacy department for patients where higher doses are prescribed.
It is recommended that GP practices ‘flag’ warfarin 0.5mg tablets and warfarin 5mg tablets on their computer system to ensure they are not prescribed in error or both prescribed to the same patient.

10.3  Treatment in secondary care

When a patient is initiated on anticoagulant therapy in secondary care, except in an emergency, the following steps must be taken.

Having assessed the need for treatment:

10.3a  Risk assessment

A risk assessment must be carried out. See section 3.0

10.3b  Counselling and information must be provided for the patient

When commenced on anticoagulants, all patients should be given a pack called Oral Anticoagulant Therapy: Important information for patients. Supplies of these packs are available from the anticoagulant monitoring service (AMS), the NHS Suffolk Stores or see BNF59 page 142 or www.npsa.nhs.uk/health/alerts.

The pack includes general information and practical advice for anticoagulated patients. Also included is an alert card, the size of a credit card, which should be carried at all times. It informs healthcare staff that the patient is taking anticoagulants. This is important if they are in a medical emergency or are about to receive other treatment. This information has also been translated into 11 other languages and is available from the NPSA website.

Ideally, information for the patient should be provided before anticoagulant therapy is commenced, prior to hospital discharge and on their first visit to the anticoagulant clinic. Discuss the contents and purpose of the anticoagulant therapy information pack and draw attention to the following points:

- Discuss the indication for which the anticoagulant has been started and the expected duration of treatment
- The different strengths of anticoagulant
- The dose of anticoagulant to take on discharge
- Future prescriptions for anticoagulants to be obtained from their GP
- The need for regular blood tests and when and where the next blood test will be
- Dietary advice.

For further advice relating to the discharge of patients prescribed anticoagulants please contact the anticoagulant monitoring service or the anticoagulation nurse specialist (see useful contacts).

Patients should also be reminded to keep the last INR letter sent from the anticoagulant monitoring service and take it with them every time they visit a healthcare professional.

Patients should be reminded that before buying medicines without a prescription, including alternative remedies, they should tell the pharmacist...
that they are taking anticoagulants. The pharmacist will then be able to advise patients which medicines are safe to take.

Patients should be told that the colouring of warfarin tablets used in the UK might vary in other countries.

A suitable anticoagulant counselling checklist is available and can be found in Appendix 6.

10.3c Referral to the anticoagulant monitoring service

A referral to the anticoagulant monitoring service must be made by the doctor initiating therapy.

This referral must include the following information as the minimum data set:

- Which anticoagulant has been initiated
- The indication
- Target INR
- The expected length of treatment
- Patient contact details
- Any other special considerations (e.g. date of cardioversion, compliance issues and relevant medical history)
- Previous INR results and doses
- Current medication.

This information should also be recorded in the medical notes.

10.3d Discharge from hospital

The oral anticoagulant therapy yellow booklet must be completed with recent doses and INR results together with daily doses until the next INR blood test.

This is often the stage at which risk assessment issues come to light. If there are concerns about any of the points raised in the risk assessment section (page 4) then these must be addressed prior to discharge.

Discharge arrangements for anticoagulant follow up must be clearly established and documented. The anticoagulant monitoring service must be informed before any anticoagulated patient is discharged. Responsibility for the discharge arrangements lies with the clinician who initiated the anticoagulant. The following information must be included in the hospital discharge letter to inform the GP:

- Which anticoagulant has been initiated
- The indication
- Target INR
- The expected length of treatment
- Patient contact details
- Any other special considerations (e.g. date of cardioversion, compliance issues and relevant medical history)
- Previous INR results and doses
- Current medication.
10.4 Management of already anticoagulated patients in secondary care

Patients already on anticoagulation therapy on admission must have on discharge:

- The oral anticoagulant therapy yellow booklet completed
- A referral made to the anticoagulation monitoring service (section 10.3c)
- A discharge letter with relevant information (section 10.3d).

10.5 Initiation in primary care

Warfarin has been classified by Suffolk Drug and Therapeutics Committee as a ‘green’ drug. It is usually initiated in hospital and prescribed by the GP. Warfarin should only be initiated in primary care to treat atrial fibrillation. GPs wishing to initiate warfarin prior to making a hospital referral are highly recommended to use the slow loading regimen for non-acute episode (AF) – see page 6. A referral to the anticoagulant monitoring service must be made using the referral forms found in Appendix 3 or 4.

Sections 3.0, 10.3a, b and c of this guideline must be followed.

10.6 Management of patients in primary care receiving anticoagulants

The BMA national enhanced service – ‘anticoagulant monitoring’ sets out the level of responsibility undertaken by the GP practice. Currently standard local practice corresponds with level 1, unless a separate service level agreement has been agreed between NHS Suffolk and the GP surgery. The table outlines the levels of responsibility as taken from the BMA national enhanced service – anticoagulation monitoring.

<table>
<thead>
<tr>
<th>Level of responsibility</th>
<th>INR testing</th>
<th>Blood sampling</th>
<th>Dose recommendations</th>
<th>Repeat prescribing monitoring for side effects, complications and compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>Anticoagulant monitoring service</td>
<td>Anticoagulant monitoring service/GP practice</td>
<td>Anticoagulant monitoring service</td>
<td>GP responsibility</td>
</tr>
</tbody>
</table>

The patient’s GP maintains responsibility for prescribing, monitoring side effects and compliance. The NPSA recommends an annual clinical review for patients on oral anticoagulation therapy.

It is for the prescriber supplying the repeat prescription to ensure that it is safe to do so. Repeat prescriptions of anticoagulants should only be issued if the prescriber has checked that:

- The patient is regularly attending the anticoagulant clinic
- That the INR test result is within safe limits
- That the patient understands what dose to administer.
This can be achieved by asking to see the latest copy of the patients INR results letter, contacting the anticoagulant monitoring service or by checking electronically if INR tests are regularly being performed. INR results will be made available electronically to allow this to be checked (this would not require the GP to interpret the INR or recommend dosing). The GP practice must decide which method it is going to employ.

10.7 The anticoagulant monitoring service

Abnormal INR results

The anticoagulant monitoring service uses an automated system to recommend dosing, if an INR result is returned outside of the following ranges the patient is highlighted to be reviewed:

- INR <1.3 or >5.0 – Ipswich Hospital NHS Trust
- INR <1.5 or >4.6 – West Suffolk Hospital NHS Trust.

An appropriate recommendation will be made to correct the INR, be it withholding the dosage, administration of oral vitamin K or anticoagulant cover with low molecular weight heparin.

At West Suffolk and Ipswich Hospital all patients with an INR between 5 and 8 will be individually assessed over the telephone by the anticoagulant monitoring service. Action will be taken depending on the probable cause of the raised INR and any symptoms they may be experiencing (increased bruising etc).

If a West Suffolk Hospital patient requires additional treatment the anticoagulant monitoring service will liaise with the admission prevention team, the GP and where necessary A&E/Medical Assessment Unit.

If an Ipswich Hospital patient requires additional treatment the anticoagulant monitoring service will liaise with the rapid response team. They will visit the patient at home and administer the required medication. Once the medication has been given, the rapid response nurses will contact the GP practice via fax and outline the action that has been taken. If they visit the patient outside normal working hours, they will also contact the Suffolk Out of Hours service (Harmoni) in addition to the GP practice.

Electronic INR results, if available to GP practices, may also be accompanied by a message outlining the actions undertaken by the anticoagulant monitoring service should the INR be out of range.
Missed appointments

The anticoagulant monitoring service will alert the GP in writing if there are concerns about a patient’s compliance or if three appointments are missed. The following action will be taken:

<table>
<thead>
<tr>
<th>Appointment Missed</th>
<th>Ipswich</th>
<th>West Suffolk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st appointment</td>
<td>Reminder letter sent to patient.</td>
<td>Reminder letter sent to patient.</td>
</tr>
<tr>
<td>2nd appointment</td>
<td>Reminder letter sent to patient plus an attempt to contact the patient by phone for an explanation.</td>
<td>Reminder letter sent to patient and letter to GP to inform patient has missed two consecutive blood tests.</td>
</tr>
<tr>
<td>3rd appointment</td>
<td>As above and GP is also contacted in writing to alert them that the patient is not attending their appointments. It also advises that repeat prescriptions for warfarin should not be issued until the problem is resolved.</td>
<td>Letter to patient informing that warfarin prescriptions will cease if patient does not attend for blood test. Letter sent to GP informing that patient has missed 3 (or more) blood tests and requesting that repeat prescriptions are withheld until the patient attends for a blood test.</td>
</tr>
</tbody>
</table>

10.8 Anticoagulated patients new to the area

Patients new to a GP practice or who change practice should use the standard referral letter to inform the anticoagulant monitoring service. See Appendix 3 or 4 for referral form.

10.9 Complete management in primary care using near patient testing and decision support software

Details of this practice are not included in this guideline. However it should be noted that this approach would necessitate robust quality assurance procedures being put in place. Protocols should also be established for the testing process and all associated procedures. It is also considered good clinical practice to participate in some form of external quality control. Close liaison between the GP practice and the anticoagulant monitoring service is essential.

11.0 Prescribing issues

11.1 Starting new medications in an anticoagulated patient

Many medicines can interact with anticoagulants. If a new medication is started whilst a patient is on anticoagulant therapy it is recommended to have a repeat blood test within four to seven days to ensure the INR remains within the desired range. The doctor must advise the patient to have an early INR test. It is not necessary to adjust dosing of either medication prior to an INR result being available. If possible medication should be selected which does not interact with the anticoagulant. Refer to Appendix 1 of the current BNF for comprehensive list of interactions.

The anticoagulant monitoring service should be informed of any changes to medication prescribed and the patient advised to complete their dose letter request form.
11.2 Withdrawal of anticoagulant therapy

The decision to stop anticoagulant therapy should be made after careful clinical assessment of the patient. Communication to all agencies involved in the patient's care of the decision to stop anticoagulation and the reason why is essential.

Although it is not necessary to taper off the dose of anticoagulant prior to it being stopped, this may be recommended. Clinical studies have failed to show any evidence of rebound hypercoagulability.7

Consideration should be given to reinstating or commencing antiplatelet therapy as appropriate.

12.0 Management of dental patients on warfarin

A chart Managing patients who are taking warfarin and undergoing dental treatment10 has been produced and may be used as a reference document.

There is no need to check the INR for patients requiring any non-invasive dental procedure11 or for prosthodontics, conservation and endodontic procedures10.

The risk of thromboembolism after withdrawal of anticoagulant therapy greatly outweighs the risk of bleeding12. Continuing anticoagulant therapy during dental surgical procedures may increase the risk of post-operative bleeding requiring intervention. It is important to ensure that the procedure is made as atraumatic as possible and any bleeding managed using local measures such as packing with a haemostatic dressing, suturing, and pressure.

If the patient is on a short course of an anticoagulant, it may be prudent to consider delaying the procedure until the course has been completed11.

For patients on long-term therapy with an anticoagulant with a stable INR of 4.0 or less, an INR should be assessed 72 hours before the dental procedure11,12. These patients can be treated safely in primary care without needing to stop their anticoagulant or reducing their dose.

For patients with an unstable INR, those requiring weekly monitoring or those who have an INR greater than 4.0, the INR should be assessed within 24 hours of the dental procedure11. These patients should be treated in secondary care.

12.1 Patients who should not be treated in primary care

- Patients who are maintained with an INR > 4.0
- Patients with an erratic INR control
- Patients requiring weekly monitoring of INR
- Liver impairment and/or alcoholism
- Renal failure
- Thrombocytopenia, haemophilia or other disorders of haemostasis
- Those currently receiving a course of cytotoxic medication or radiotherapy.
12.2 Altering the patient’s anticoagulant regimen

A General Dental Practitioner should not stop or alter the patient’s anticoagulant regimen.

For patients treated in secondary care the dose of anticoagulant may need to be adjusted but should be done in consultation and agreement with the physician. Some patients may require other forms of anticoagulation if their current therapy is stopped. This would usually be managed on an in-patient basis.

12.3 Children

Where children require extractions, possible blood loss presents a more serious risk since this could represent a more significant proportion of their total blood volume than is the case of adults. In addition, young children and those with learning difficulties may not be amenable to local measures, such as pressure packs, if bleeding restarts. In such cases, paediatricians may agree that careful adjustment of the INR to 2.5 or just below may be the best way of managing the risks. Hospitalisation of such patients may be advisable to encourage rest and to provide support for anxious parents.

12.4 Dental procedures for those on anticoagulants that can be carried out safely in primary care

Local anaesthesia
A local anaesthetic containing a vasoconstrictor should be administered by infiltration, intraligamentary or mental nerve injection wherever practical. If regional nerve blocks cannot be avoided the local anaesthetic should be given cautiously using an aspirating syringe.

Restorative procedures
Most restorative procedures present no significant risk.

Minor surgical procedures
- Simple extraction of up to 3 teeth
- Surgical removal of teeth
- Periodontal surgery
- Biopsies.

When more than 3 teeth need to be extracted then multiple visits will be required.

Periodontal procedures
Periodontal examinations and supragingival scaling are considered to be low risk for bleeding. However, subgingival debridement may cause significant bleeding especially if the gums are inflamed. Therefore, treatment should initially be restricted to a limited area in order to assess the potential for bleeding.
12.5 Patient management

Patients should be treated at the beginning of the day, early in the week.

After extraction, sockets should be gently packed with an absorbable haemostatic dressing e.g. oxidised cellulose ("Surgicel") or collagen sponge ("Haemocollagen") then carefully sutured. Pressure should be applied by using a gauze pad that the patient bites down on for 15 to 30 minutes.

Patients should be given clear instructions on the management of the clot in the post-operative period. A leaflet for patients taking anticoagulant and requiring dental treatment entitled Oral anticoagulant therapy: Important information for dental patients16 is available.

Tranexamic acid mouthwash should not be used routinely in primary dental care, unless on the advice of a specialist as it is not available commercially and cannot be prescribed on an NHS prescription17.

For patients treated in hospital, tranexamic acid 5% mouthwash is available through the pharmacy from the Ipswich Hospital Manufacturing Unit (01473 703440).

12.6 Post-operative pain

Patients should follow the advice of their anticoagulant clinic with regard to the choice of analgesia16. Generally, paracetamol is considered the safest analgesic. An alternative could be dihydrocodeine. Patients should be advised not to take aspirin, aspirin containing compound analgesic preparations or non-steroidal anti-inflammatory drugs (NSAIDs) e.g. ibuprofen.

12.7 Drugs that interfere with anticoagulants should be avoided wherever possible

- Metronidazole
- Macrolides (e.g. erythromycin, azithromycin)
- Azole anti-fungals (e.g. miconazole topical preparations including oral gel, fluconazole, itraconazole and ketoconazole)
- Doxycycline.
13.0 Issues for pharmacists

The practitioner who dispenses a prescription for anticoagulants (i.e. the pharmacist) must ensure it is safe to do so. There may have been some delay between the prescription being written and it being dispensed. It should not be assumed that the prescriber has undertaken the safety checks in all cases. Reviewing the patient-held record, which includes the date of the last clinic appointment, the latest INR test result and current dose, and confirming this information with the patient, is recommended as safe practice.

If the patient is unable to request or collect the oral anticoagulant prescription in person and instead sends a representative, this person should provide the patient-held information instead. The patient or carer should be contacted if any of the information is unavailable.

When dispensing clinically significant interacting medicines, the pharmacist must check that additional blood tests have been arranged.

The NPSA has issued guidance to community pharmacists that can be found here: http://www.npsa.nhs.uk/EasySiteWeb/GatewayLink.aspx?alId=5257

14.0 Issues for the patient

Patients should provide relevant information required by the prescriber and dispenser in order that a repeat supply of anticoagulant can be made. They should seek advice before making changes to their medication or diet (over-the-counter/herbal medication, extreme diets). Patients must inform the anticoagulant monitoring service about any change in medication or health. They must keep appointments to have their INR monitored and should inform the anticoagulant monitoring service or their GP if they experience any side effects from their anticoagulant therapy.

15.0 Useful Contacts

<table>
<thead>
<tr>
<th>Anticoagulant Monitoring Service</th>
<th>Anticoagulant Monitoring Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haematology Department (C363)</td>
<td>Haematology Department</td>
</tr>
<tr>
<td>Ipswich Hospital NHS Trust</td>
<td>West Suffolk Hospital NHS Trust</td>
</tr>
<tr>
<td>Heath Road, Ipswich,</td>
<td>Hardwick Lane, Bury St Edmunds</td>
</tr>
<tr>
<td>Suffolk IP4 1PN</td>
<td>Suffolk IP33 2QZ</td>
</tr>
<tr>
<td>Monday to Friday between 9.30am and 4.30pm</td>
<td>Monday to Friday between 10am and 6pm</td>
</tr>
<tr>
<td>Telephone 01473 703228</td>
<td>Telephone 01284 713085</td>
</tr>
<tr>
<td></td>
<td>Fax 01284 713075</td>
</tr>
</tbody>
</table>
Appendix 1 - Treatment Flow Charts

Treatment of Patients in Primary Care

Patient attends GP Surgery

Initiation already carried out by local hospital

Initiation of anticoagulation by GP
Section 10.5

Risk assessment of prescribing
Section 3.0

Counselling and information
Section 10.3b

Referral to Anticoagulant Monitoring Service
Section 10.3c

Monitoring and Management
Section 10.6

Dispensing Issues
Section 13.0

Prescribing of anticoagulant
Section 10.2

Prescribing of other medication
Section 11.1

Stopping of therapy
Section 11.2

New patient to surgery already on anticoagulation
Section 10.8

Standard referral to Anticoagulation Monitoring Service
Appendix 3 or Section 10.3c

Section 10.5

Section 10.8

Section 3.0

Section 10.3b

Section 10.3c

Section 10.6

Section 13.0

Section 10.2

Section 11.1

Section 11.2
Treatement of Patients in Secondary Care

- Patient attends secondary care
  - Diagnosis of medical need
  - Risk assessment of prescribing
    Section 3.0
  - Counselling and information
    Section 10.3b
  - Referral to anticoagulant monitoring service
    Section 10.3c
  - Prescribing of anticoagulants
    Section 10.2
  - Prescribing of other medication
    Section 11.1
  - Discharge
    Section 10.3d
  - Further monitoring via GP Service
    Section 10.6
  - Stopping of therapy
    Section 11.2

- Already on anticoagulation
  - See local hospital guidelines
    Section 10.4
  - Re-assess risk factors
    Section 3.0
  - Inform anticoagulant monitoring service of any change
    Section 10.3c

- Dispensing issues
  Section 13.0
### Appendix 2 - Recommendations for valve-location-specific target international normalised ratios (INRs)

<table>
<thead>
<tr>
<th>Valve type</th>
<th>Position</th>
<th>Target INR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bileaflet</td>
<td>Aortic</td>
<td>2.5</td>
</tr>
<tr>
<td>Tilting disk</td>
<td>Aortic</td>
<td>3</td>
</tr>
<tr>
<td>Bileaflet</td>
<td>Mitral</td>
<td>3</td>
</tr>
<tr>
<td>Tilting disk</td>
<td>Mitral</td>
<td>3</td>
</tr>
<tr>
<td>Caged ball and caged disk</td>
<td>Aortic or Mitral</td>
<td>3.5</td>
</tr>
</tbody>
</table>
Anticoagulation Monitoring Service

Tel: 01473 703228 (Ext 5228)
Fax: 01473 703720
Email: ams@ipswichhospital.nhs.uk

Anticoagulation Monitoring Service Referral Form

No patient will be dosed by the Anticoagulation Monitoring Service unless this form is completed IN FULL.
Responsibility for anticoagulation rests with the referring team until that time.

<table>
<thead>
<tr>
<th>Patient Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient name:</td>
</tr>
<tr>
<td>DoB:</td>
</tr>
<tr>
<td>Patient address:</td>
</tr>
<tr>
<td>Hospital no:</td>
</tr>
<tr>
<td>Referring consultant:</td>
</tr>
<tr>
<td>GP</td>
</tr>
<tr>
<td>GP address:</td>
</tr>
<tr>
<td>Postcode:</td>
</tr>
<tr>
<td>Tel (home):</td>
</tr>
<tr>
<td>Tel (daytime)</td>
</tr>
<tr>
<td>Tel (mobile):</td>
</tr>
<tr>
<td>GP tel:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indication for Anticoagulation – ✔ that which applies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
</tr>
<tr>
<td>INR</td>
</tr>
<tr>
<td>--------------</td>
</tr>
<tr>
<td>✔ Atrial fibrillation</td>
</tr>
<tr>
<td>2.0–3.0</td>
</tr>
<tr>
<td>✔ Atrial fibrillation</td>
</tr>
<tr>
<td>2.0–3.0</td>
</tr>
<tr>
<td>✔ PE and/or proximal DVT (includes popliteal)</td>
</tr>
<tr>
<td>2.0–3.0</td>
</tr>
<tr>
<td>✔ Calf DVT: post-op, no other factors</td>
</tr>
<tr>
<td>2.0–3.0</td>
</tr>
<tr>
<td>✔ Calf DVT: non-surgical</td>
</tr>
<tr>
<td>2.0–3.0</td>
</tr>
<tr>
<td>Recurrent DVT and/or PE</td>
</tr>
<tr>
<td>2.0–3.0</td>
</tr>
<tr>
<td>Recurrent DVT with INR 2.0–3.0</td>
</tr>
<tr>
<td>3.0–4.0</td>
</tr>
<tr>
<td>Mechanical prosthetic valve</td>
</tr>
<tr>
<td>3.0–4.0</td>
</tr>
<tr>
<td>✔ Tissue valve</td>
</tr>
<tr>
<td>2.0–3.0</td>
</tr>
<tr>
<td>Cardiomyopathy, mural thrombus or akinetic segment</td>
</tr>
<tr>
<td>2.0–3.0</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>

* The Anticoagulation Monitoring Service will discontinue Warfarin after specified duration unless we hear from you to the contrary.

Patients with metastatic malignancy may require an individual anticoagulation plan. Discuss with oncology team or physician as appropriate.

Anticoagulation Clinic, The Ipswich Hospital NHS Trust, Heath Road, Ipswich IP4 5PD
If you are faxing this form please print patient name here: ________________________________

<table>
<thead>
<tr>
<th>Current Drug Therapy</th>
<th>Past Medical History</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Including doses)</td>
<td>History of peptic ulceration?</td>
</tr>
<tr>
<td></td>
<td>History of liver disease?</td>
</tr>
<tr>
<td></td>
<td>History of renal impairment?</td>
</tr>
<tr>
<td></td>
<td>Uncontrolled hypertension?</td>
</tr>
<tr>
<td></td>
<td>Congestive heart failure?</td>
</tr>
<tr>
<td></td>
<td>Alcohol excess?</td>
</tr>
</tbody>
</table>

Any other relevant medical history?

If the patient is currently taking aspirin/dipyridamole/clopidogrel (delete as appropriate) should it stop? YES / NO

Name of anticoagulant: ________________________________

Has anticoagulation been started?
Yes ☐ No ☐
Start date: ________________________________

If your patient has already started taking an anticoagulant, you must list the most recent INR levels and doses given.

<table>
<thead>
<tr>
<th>Date</th>
<th>INR</th>
<th>Dose (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Referring doctor (print name): ________________________________
Bleep no: ________________________________

Signature: ________________________________
Date: ________________________________

Referring consultant (print name): ________________________________

- The Ipswich Hospital Anticoagulant Team
- Dr Isobel Chalmers, Consultant Haematologist
- Anticoagulant Nurse Specialists on bleep 500 or 944

PLEASE NOTE
It is the referring team's responsibility to book any transport or interpreters for the patient's first anticoagulation appointment.
### Appendix 4 - Anticoagulant monitoring service referral form West Suffolk Hospital

**Name**

**Address (including postcode)**

**Date of Birth:**

**Telephone number:**

**Contact Telephone Number (if different):**

**Mobile Number:**

**GP Name & Address**

**Date started anticoagulant therapy:**

| Doctor recommending anticoagulation | (please print name and department) |
| Doctor completing form | (if different from above please print and sign name) |

| **Indication for anticoagulation** |
| **Target INR (see below for details)** |

**Duration of anticoagulation therapy**

N.B: This is the referring doctor's responsibility

**Current medication**

(full list please)

**Is patient on aspirin?** YES / NO

**Please confirm that Baseline bloods have been taken:**

LFT / U&E / PT / INR YES / NO

**Yellow Anticoagulant Therapy Record Book given to patient?** YES / NO

### Indications for oral anticoagulation (BCSH Guidelines 1998)

<table>
<thead>
<tr>
<th>Indication</th>
<th>Target</th>
<th>Duration</th>
<th>Indication</th>
<th>Target</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>AF (all causes)</td>
<td>2.5</td>
<td>Lifelong</td>
<td>Post op calf DVT, no other risk factors</td>
<td>2.5</td>
<td>6 weeks</td>
</tr>
<tr>
<td>Cardioversion</td>
<td>2.5</td>
<td>3 weeks before, 4 weeks after, assuming return to SR</td>
<td>Calf DVT, no other risk factors</td>
<td>2.5</td>
<td>3 months</td>
</tr>
<tr>
<td>Mural thrombus</td>
<td>2.5</td>
<td>3 months</td>
<td>Proximal DVT / PE</td>
<td>2.5</td>
<td>6 months</td>
</tr>
<tr>
<td>Cardiomyopathy</td>
<td>2.5</td>
<td>Lifelong</td>
<td>Recurrent thrombosis off warfarin</td>
<td>2.5</td>
<td>Consider lifelong warfarin for recurrent thromboses or life threatening initial event</td>
</tr>
<tr>
<td>Heart Valves: Mechanical</td>
<td>3.5</td>
<td>Lifelong</td>
<td>Recurrent thrombosis on warfarin</td>
<td>3.5</td>
<td>As above</td>
</tr>
<tr>
<td>Heart Valves: Tissue</td>
<td>2.5</td>
<td>Ask cardiology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antiphospholipid syndrome</td>
<td>2.5*</td>
<td>Review after 2 years</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DATE**

**INR**

**DOSE**

**DATE**

**INR**

**DOSE**

N.B: Patients on lifelong Warfarin should be reviewed regularly to ensure the benefits of treatment outweigh the risks

* May be 3.5 for selected patients
Appendix 5 - Discharge Checklist for Anticoagulated patients

Department of Haematology

The Ipswich Hospital NHS Trust

Checklist for Patients to be Discharged on Anticoagulant Therapy

All points must be completed (ticked) prior to discharge:

☐ Anticoagulant Monitoring Service referral
   All patients being discharged home on anticoagulant therapy should be referred to the Anticoagulant Monitoring Service by the medical team via Lorenzo ICM on the day of discharge.

☐ Anticoagulant therapy yellow book
   This should be completed with patient’s discharge address, diagnosis, target range and duration of treatment. As a minimum the discharge INR, dose and date of next INR should be recorded. If possible, include any recent previous INR results and anticoagulant doses.

☐ Inform patient about next INR blood test
   Inform the patient of the date of the next INR test and who will be taking it – district nurse, Intermediate Care Team (‘Rapid Response’), GP surgery or pathology outpatient phlebotomy.

☐ Discuss oral anticoagulants
   The discharging nurse should explain the different coloured Warfarin tablets and be confident that the patient can work out different doses. If the patient is unable to do this, other arrangements need to be made – friends, family or neighbours. If you have any concerns contact the medical team or Anticoagulant Nurse.

☐ Educational advice
   The nurse in charge of the patient should discuss the yellow book with the patient and give advice leaflets and contact numbers for the Anticoagulant Monitoring Service 01473 703228 (ext 5228).

☐ Outpatient appointment with the Anticoagulant Nurse
   Contact the Anticoagulation Monitoring Service on ext 5228 (Out-of-hours answerphone ext 5391) or the Anticoagulant Nurse on bleep 944.

Completed by:

Surname: __________________________ Forename: __________________________
Signature: __________________________ Grade: __________________________
Discharge Checklist for Patients on Oral Anticoagulants

<table>
<thead>
<tr>
<th>Name</th>
<th>CRN</th>
<th>DOB</th>
</tr>
</thead>
</table>

All points must be completed (initialled) prior to discharge:

**Anticoagulant Service Referral Form**
All patients discharged on oral anticoagulants must be referred to the anticoagulant monitoring service. Ensure that all sections of the form are completed.

**Counselling Session**
Ensure the patient has received a warfarin counselling session. Between 8.30am and 4.30pm Monday to Friday, a member of the pharmacy team will provide this session. Outside these hours, the discharging clinician must provide counselling.

**Anticoagulant Therapy Yellow Book**
This should be completed with the patient’s discharge address, diagnosis, target and duration of treatment. It should be updated with the recent INR results and doses. The discharge INR, dose and date of next blood test should be recorded.

**TTO**
Ensure that you have correctly completed the TTO with all the relevant information: discharge dose, target INR and date for next INR check.

**Discharge Dose and Next Blood Test**
The patient must be informed the dose of warfarin that they are to take on discharge and when to have their next blood test. Ensure arrangements have been made for the blood test i.e. at the WSH pathology department or with a District Nurse if required.

Completed/checked by:

Name: ____________________________________________
Signature: ____________________________________________
Designation: ________________________ Date: ________________________
Appendix 6 - Warfarin counselling checklist from West Suffolk Hospital

The following is a suggested list of the main points to be covered when counselling patients who are to be discharged on warfarin. Patients who are already established on warfarin may only need their dose confirming and clarification of the INR service appointments.

The anticoagulant service uses a computer generated letter which is sent to patients with their dose and blood test information. This means that patients will have a letter posted to them rather than the updated yellow book. The yellow anticoagulant books should be kept by the patient for personal information.

The NPSA have introduced a new anticoagulant pack. This is split into 4 parts: an anticoagulant information book, an anticoagulant record book, an anticoagulant treatment record and an anticoagulant alert card.

These packs will only be issued to patients starting warfarin as they contain most of the information given to them during the counselling session. Patients who are admitted on warfarin will only be discharged with an updated anticoagulant record book regardless of whether there has been a change to their dose or blood test date. Their letter should be placed in the book if it is available. The patient should take the record book or the letter and record book with them when they attend for their first blood test after being discharged as this alerts the anticoagulant service to the fact that the patient has had a recent hospital admission.

Please see the Blood Test section below for other patient information on blood tests.

Patient Details
Check patient details at the front of the record book and on the alert card are correctly filled in – make sure you have the correct address and a contact telephone number. The patient, a family member or carer should be asked to complete the details in the front of the anticoagulant information book. The anticoagulant treatment record sheet should be left blank. This is for the patient’s personal use if required.

Indication
What does the patient know about warfarin? Do they know why they are taking it? Give a brief explanation of why warfarin has been prescribed, if necessary, and how it works.
Brief explanation of how warfarin combined with tinzaparin works (if necessary). Patient should keep either the alert card or record book with them at all times.
Explain about regular blood tests and the importance of keeping appointments.

Time of Day
Take tablets at 6pm each day to ensure blood levels taken in the morning are accurate.
If a dose is forgotten the tablets can be taken anytime before bedtime but if only remembered the next morning then that dose should be missed.
NEVER take two doses together to make up for a missed dose.
The anticoagulant service should also be advised of the missed dose the next time patient attends for a blood test. This should be recorded in the anticoagulant record book in the comments section or written on their letter.

Dose
Confirm dose with patient or explain they will be advised of dose by doctor/nurse/pharmacy on discharge. Explain strengths and colours of tablets.
Pharmacy will usually supply 28 x 1mg and 28 x 3mg tablets unless the patient is routinely on a larger dose when 5mg tablets will be supplied. 5 x 5mg tablets should not be issued to DVT patients on initiation as the DVT protocol has changed so only 28 x 1mg and 28 x 3mg tablets should be supplied.

Repeat supplies of tablets should be obtained from the patient’s GP. Patients or their representative will need to take their last INR result with them when they collect prescriptions.

COLOURS: 1mg tabs – Brown 3mg tabs – Blue 5mg tabs- Pink

0.5mg tablets are not and will not be stocked at WSH to avoid confusion for patients. Our anticoagulant service prefers to dose patients on rounded up/down alternate day doses instead, rather than ask them to halve tablets.

Blood Tests
Explain the need for regular blood tests – these will start as weekly but may move to fortnightly or monthly if there are no problems. Some patients may have blood tests every twelve weeks if they are long-term stable patients.

The West Suffolk Hospital anticoagulant service is open Monday – Friday 7.30am – 7pm and 9am – noon on Saturdays. For their first visit after discharge patients should attend in the morning on the day of their test. Appointments are then sent out with their letter. A telephone number is included for patients if they need to change the time. They can also request a time when they hand in their books or letters at their blood test although requests cannot always be guaranteed.

Patients may also attend Walnuttree or Newmarket hospitals. They are open in the mornings but do not require appointments. Some GP practices also provide blood tests but as they do not always have someone available on a daily basis, patients should check the availability of the service. Two Thetford practices – School Lane and Grove surgery - carry out a complete blood test and result service at their surgeries for patients who have been stabilised on their warfarin.

After their first blood test the patient will be telephoned at home with the result and the dose they should take that evening. The computer generated letter is then posted to them. This will have the result of the blood test, the dose the patient has to take and the date of the next blood test. They should take this letter with them when they attend for their next blood test. They should also take the yellow record book if it is their first blood test after being discharged from hospital.

After subsequent blood tests patients will only get a phone call if there is a large dose change or they have to stop taking warfarin. They should continue on the dose they were taking, changing their dose if necessary when the letter arrives at their home.

DVT Protocol
Newly diagnosed patients will be given an initial 10mg dose and will then have daily INR tests until they have two consecutive therapeutic results (within 0.5mg). They must also be discharged with enough tinzaparin to complete seven days treatment. Nursing staff should arrange for the administration of tinzaparin and inform the patient of these arrangements. If possible, they should attend the West Suffolk hospital for their first blood test. The results will be telephoned to their home. The service will accept new DVT patients on a Friday for blood tests but they will need to attend the WSH at weekends. They will be advised which department to attend.
DVT patients should also be advised that they obtain their supply of compression stockings in the community.

Travelling
Patients intending to go on holiday in Britain or abroad should let their doctor and the service know well in advance. They may be advised to arrange a local blood test if necessary while they are away or blood tests may be arranged around their holiday.

Side Effects
Consult a doctor immediately in the event of:
- bleeding, severe bruising or other illness.
- prolonged bleeding from cuts - bleeding that does not stop by itself – nose bleeds
- bleeding gums - bloodshot eyes – red or dark brown urine
- red or black(sometimes tarry) stools – extensive or abnormal bruising
- for women: increased bleeding during periods, or any other vaginal bleeding

Dental or other medical or natural treatments
Inform doctors, dentists, chiropodists, acupuncturists etc.-especially before any treatment. An information leaflet for any patients about to undergo dental treatment is available on the NPSA website if required. Dentists etc will require to see the patient’s most recent INR result.

Other Medicines
Avoid aspirin and clopidogrel (unless it has been specifically prescribed) or any preparation containing aspirin – remember cold remedies, headache tablets etc. Recommend patients check anything they may have at home and may intend to use. Always consult a pharmacist when buying over the counter remedies. (Aspirin may be continued for a short time after starting warfarin and may be discontinued by their GP at a later date).

In general paracetamol is safe. Maximum strength herbal remedies and fish oils should be avoided if possible. They have an increased effect on bleeding times. Glucosamine and glucosamine with chondroitin should also be avoided. If it has been prescribed by a doctor the INR needs to be monitored for any side effects. If a patient is taking them, unknown to their doctor, when commenced on warfarin or wishes to start taking them they need to inform the anticoagulant service so that their INR can be monitored more closely. A more comprehensive list of herbal remedies and other drugs that may cause interactions with warfarin will shortly be available in pharmacy in conjunction with NPSA guidelines.

If a patient is taking any medication you feel the service should know about for any reason you should fill in the details in the anticoagulant record book in the comments section.

If a patient is started on any medication that may interact with warfarin they should inform the anticoagulant service by telephone or by documenting in the record book or on their letter so that the information can be logged on the computer system. This will then alert the service each time the patient attends for an INR test.

Patients should inform their GP or the anticoagulant service if they are significantly unwell for more than 5 days or have a change in medication lasting for more than 5 days as their warfarin dose may need to be altered to prevent a marked change in their INR.
Diet
Maintain a well balanced diet. Don’t crash diet or binge eat. Avoid irregular or large consumption of large amounts of food that is high in Vitamin K. Avoid cranberry juice or anything containing cranberries. Small or moderate amounts of alcohol can be safely taken e.g. up to 2 units daily for women or up to 3 units daily for men (the recommended national guidelines). However, if a patient regularly drinks slightly more on a daily basis then this may also be considered safe. Avoid irregular consumption of large amounts of alcohol.

Pregnancy
Female patients of childbearing age should avoid pregnancy and should contact their doctor immediately if they think they may be pregnant.
References

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