Clinical Decision Algorithm for Suspected Leg DVT

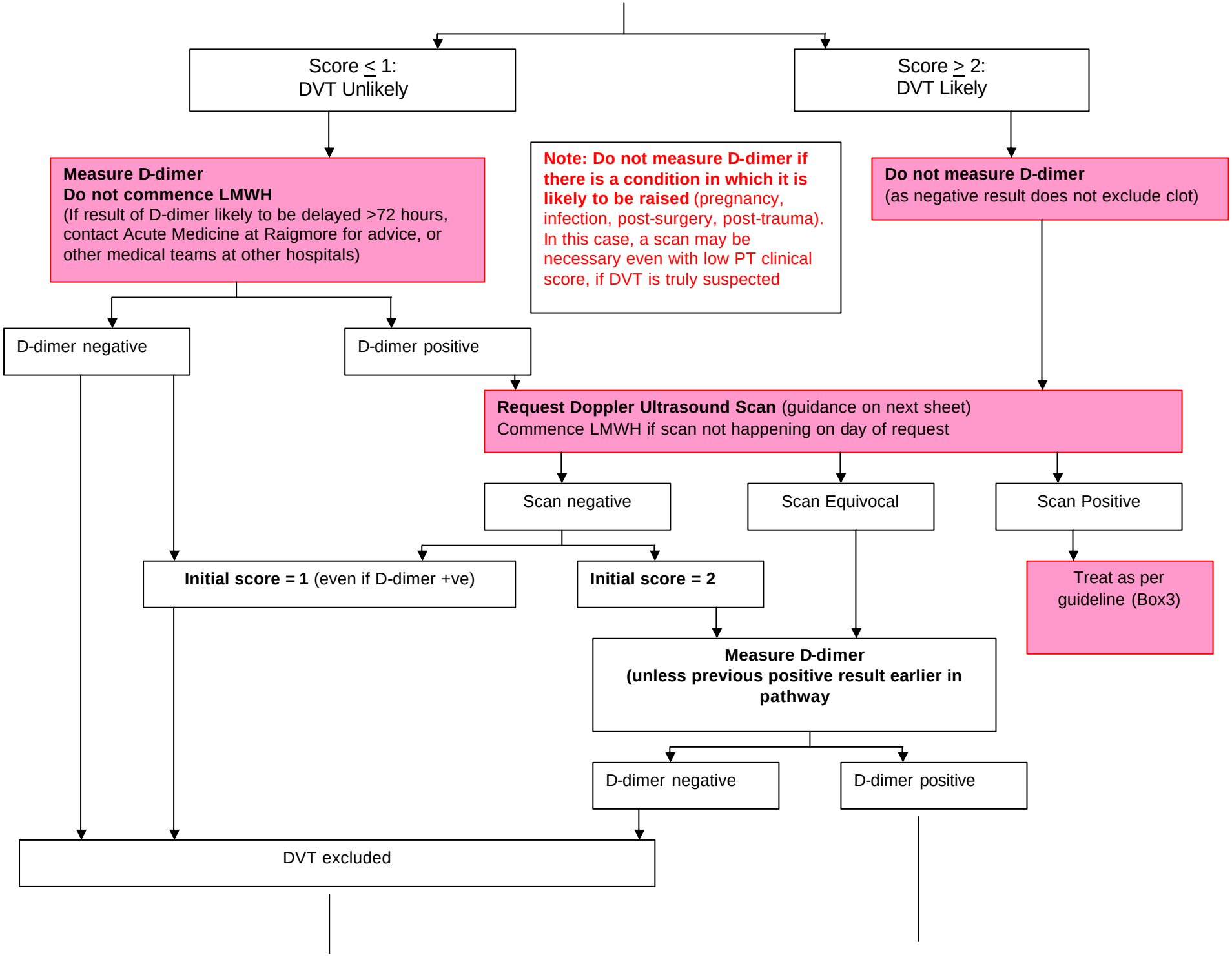
This algorithm should be used for inpatients and outpatients, including in General Practice and the Emergency Department. Those presenting via A&E and in General Practice should be considered for outpatient management (see notes, Box 1). It is recognised that DVT and PE raise significant clinical and management issues, but the guidance on the following pages is intended to simplify, standardise and formalise the process.

Any queries regarding investigation or treatment of DVT & PE can be directed to Acute Medicine at Raigmore (PAGE 4000), or the medical team at other hospitals in Highland.

Patient presents with possible DVT

Pre-test Clinical Scoring System (Modified Wells' Criteria, Wells et al. NEJM 2003; 349:1227-35)

- Active cancer (patient receiving treatment for cancer within the previous 6 months or currently receiving palliative treatment) 1
- Paralysis, paresis, or recent plaster immobilization of the lower extremities 1
- Recently bedridden for 3 days or more, or major surgery within the previous 12 weeks requiring general or regional anaesthesia 1
- Localized tenderness along the distribution of the deep venous system 1
- Entire leg swollen 1
- Calf swelling at least 3 cm larger than that on the asymptomatic side (measured 10 cm below tibial tuberosity) 1
- Pitting edema confined to the symptomatic leg 1
- Collateral superficial veins (nonvaricose) 1
- Previously documented deep-vein thrombosis 1
- Alternative diagnosis at least as likely as deep-vein thrombosis –2


Score ≤ 1:
DVT Unlikely
Score ≥ 2:
DVT Likely
Measure D-dimer
Do not commence LMWH
(If result of D-dimer likely to be delayed >72 hours, contact Acute Medicine at Raigmore for advice, or other medical teams at other hospitals)
Note: Do not measure D-dimer if there is a condition in which it is likely to be raised (pregnancy, infection, post-surgery, post-trauma). In this case, a scan may be necessary even with low PT clinical score, if DVT is truly suspected
Do not measure D-dimer
(as negative result does not exclude clot)
D-dimer negative
D-dimer positive
Request Doppler Ultrasound Scan (guidance on next sheet)
Commence LMWH if scan not happening on day of request
Scan negative
Scan Equivocal
Scan Positive
Initial score = 1 (even if D-dimer +ve)
Initial score = 2
Treat as per guideline (Box3)
Measure D-dimer
(unless previous positive result earlier in pathway
D-dimer negative
D-dimer positive
DVT excluded

Consider alternative diagnoses (trauma, Cellulitis, dependent oedema, ruptured Baker's cyst etc.)

Repeat assessment in 1/52 and request re-scan if symptoms persist and alternative diagnosis not made. Do not give LMWH in meantime

General Practice Management of Suspected DVT requiring Doppler Ultrasound
Note: Please complete the Assessment and Referral Proforma for investigation of lower limb DVT. Copy available on Intranet (under shared clinical guidelines. This acts as the radiology card and should accompany those requiring scan to their ultrasound appointment

Modified Well's Criteria = 2 OR clinical impression that patient requires doppler scan.

Can patient be managed as an outpatient? (Refer to Exclusion Criteria/Checklist) **[Box 1]**

Yes

No

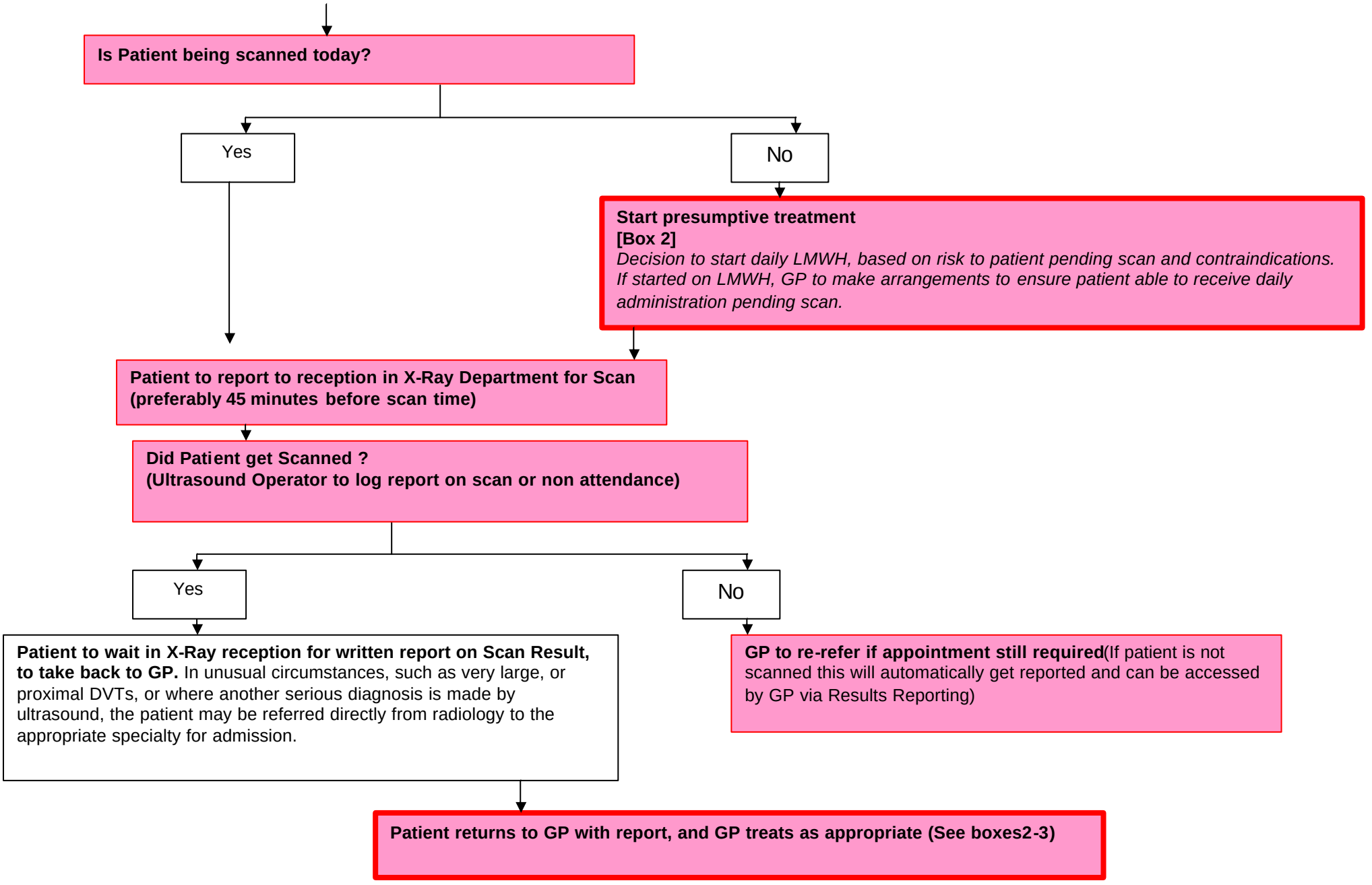
(SE CHP PATIENTS ONLY AT PRESENT)
GP to Book Scan via Direct DVT Hotline 01463 705564 (Mon-Fri, 9-5)

(Note for patients presenting via Emergency Department, Raigmore, Duty Radiologist should be contacted (BLEEP 2113)

GP should:
Confirm appointment with patient and inform them that they need report to X-Ray reception promptly ~ 15 mins in advance of appointment time
Arrange Transport if required
Arrange follow up appointment/contact with patient, ideally same day
Complete DVT Assessment and Referral Form, fax to X-Ray reception 01463 705516 & GIVE TO PATIENT the original request to take to scan.
In the unusual event of an indication to scan both legs, in the addition to above instructions, contact ultrasound dept as this will require a double appointment.
Take baseline bloods for: FBC, clotting screen, renal and liver function.
Obtain patient weight.
Analgesia as required

Refer to appropriate specialty (medicine, surgical specialty if post-op, obstetrics if pregnancy-associated)

Out of Hours
GP (or as delegated through local arrangements) to Contact Hotline and leave appropriate information on answer machine (note it will ring up to six times before switching to answer phone) Patient focussed Booking will contact Patient & GP with appointment time on the morning of the next working day. The appointment will be faxed back to GP surgery morning of the next working day.


Is Patient being scanned today?
Yes
No
Start presumptive treatment
[Box 2]
Decision to start daily LMWH, based on risk to patient pending scan and contraindications. If started on LMWH, GP to make arrangements to ensure patient able to receive daily administration pending scan.
Patient to report to reception in X-Ray Department for Scan (preferably 45 minutes before scan time)
Did Patient get Scanned ?
(Ultrasound Operator to log report on scan or non attendance)
Yes
No
Patient to wait in X-Ray reception for written report on Scan Result, to take back to GP. In unusual circumstances, such as very large, or proximal DVTs, or where another serious diagnosis is made by ultrasound, the patient may be referred directly from radiology to the appropriate specialty for admission.
GP to re-refer if appointment still required(If patient is not scanned this will automatically get reported and can be accessed by GP via Results Reporting)
Patient returns to GP with report, and GP treats as appropriate (See boxes2-3)

Box 1 Likely exclusion criteria for out-patient management:
Massive leg swelling or suspected PTE with compromise (tachycardia, hypotension, tachypnoea >20, hypoxia)
Pregnant (discuss with Obstetrics)
Significant co-morbid disease (Severe COPD, cardiac, renal or hepatic failure)
Known contraindications or heparin allergies
Patients with active bleeding, or at significant risk of bleeding (*Haemorrhagic tendency, recent bleeding, major surgery, liver disease, active peptic ulcer, significant alcohol abuse, severe uncontrolled hypertension)*

Box 2 Commencing LMWH:
Patients who are considered on clinical grounds as being at moderate or high risk of DVT (Wells' score = 2) and who are not getting ultrasound and follow up the same day) should be treated with therapeutic dose of LMWH, subcutaneously once daily, pending confirmation of diagnosis.
Enoxaparin (Clexane) dosing schedule: 1.5mg/kg once daily (rounded to nearest 10mg)

Box 3 Treatment for patients confirmed with DVT: Initiate concurrent LMWH and Warfarin:
LMWH is usually administered for at least 5 days AND until adequate oral anticoagulation is established (INR in therapeutic range (>2.0) for 48 hours). Note: (warfarin commenced at high dose has an initial pro-coagulant effect, so cover with LMWH is mandatory). Rapid warfarin induction carries potential risks of over-anticoagulation and bleeding. Slow induction is preferable, commencing with 1-2mg daily. More detailed advice is available in the Highland Formulary (HF).
Refer to HF for recommended INR ranges for therapeutic control (usually 2.5, range 2.0-3.0 for DVT).
Take into account patient circumstances (risk of falls, alcoholism, drug abuse etc) when deciding on appropriate range, and seek advice from haematology, if unsure.
If LMWH given for more than 5 days, assess renal function and alter dose if impaired AND check FBC for heparin related thrombocytopenia [Refer to BNF for contraindications or complications]
INR must be monitored at the start of warfarin therapy, frequently in the initiation phase and regularly thereafter.

Box 4 Duration of anticoagulation varies:
Indication
All patients should be individually assessed for risk: benefit, but the following should be considered:
First DVT confined to below knee clot (or superficial femoral): 6 weeks to 3 months
First DVT, affecting ileo-femoral veins (except superficial femoral): 3-6 months. (3 months usually appropriate for temporary risk factors and low risk of recurrence, 6 months for idiopathic DVT or permanent risk factors)
Recurrent DVT (or previous PE): 6 months and consider life-long anticoagulation (Discuss with haematology)
Check any changes on diet, medications and compliance before any adjustment of dosage
There is a wide range of drug interactions which need to be considered, especially amiodarone, tamoxifen, antibiotics & NSAIDS (Refer to BNF for details)
Special circumstances:
In active malignancy, long term LMWH may be more appropriate than Warfarin (discuss with oncology)
In current IVDUs, uncontrolled warfarinisation may be dangerous, and 6/52 treatment with LMWH is an alternative)
For other special circumstances, contact Acute Medicine or Haematology for advice.

Box 5 Compression stockings:
Graduated compression stockings should be sized and prescribed for all confirmed DVTs, to be worn for 6 months post-diagnosis to reduce the risk of post-phlebetic leg syndrome**.**

Box 6 General Note:
Consider need for investigation of cause of DVT (occult malignancy should be considered, but if there are no warning symptoms, and physical examination (including PR) is normal, further investigation is not usually appropriate. Thrombophilia screening in unexplained events in younger people should be discussed with haematology, and is usually done after warfarin is discontinued.)