### STEP 1
Determine pretest probability (two level Wells Criteria)

<table>
<thead>
<tr>
<th>Clinical Feature</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active cancer (treatment ongoing or within the previous 6 months or palliative)</td>
<td>1</td>
</tr>
<tr>
<td>Paralysis, paresis or recent plaster immobilization of the lower extremities</td>
<td>1</td>
</tr>
<tr>
<td>Recently bedridden for more than 3 days or major surgery, within the last 12 weeks</td>
<td>1</td>
</tr>
<tr>
<td>Localized tenderness along the distribution of the deep venous system</td>
<td>1</td>
</tr>
<tr>
<td>Entire lower limb swollen</td>
<td>1</td>
</tr>
<tr>
<td>Calf swelling by more than 3cm when compared to the asymptomatic leg (measured 10cm below the tibial tuberosity)</td>
<td>1</td>
</tr>
<tr>
<td>Pitting oedema (greater in the symptomatic leg)</td>
<td>1</td>
</tr>
<tr>
<td>Collateral superficial veins (non-varicose)</td>
<td>1</td>
</tr>
<tr>
<td>Previously documented DVT</td>
<td>1</td>
</tr>
<tr>
<td>Alternative diagnosis as likely or more likely than that of DVT</td>
<td>-2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DVT unlikely</th>
<th>DVT likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1 or less)</td>
<td>(2 or more)</td>
</tr>
</tbody>
</table>

### NOTES – Assessment of bleeding risk

**Bleeding Risk - HAS-BLED score (Validated for AF)**

- 1 point for each; high risk = 3 or more (3.74% / yr bleed); (2 = 1.88% / yr bleed)
- Uncontrolled hypertension (SBP>160)
- Impaired renal function (Cr>200)
- Impaired liver function (ALT/ALP>3x normal)
- History of stroke
- History of major bleeding
- Labile INRs
- Elderly (>65 years)
- Drugs (NSAIDS or Antiplatelets) 1 point each
- Alcohol consumption (>8 std/week)

**Additional high risk factors for bleeding**
- Recent surgery / trauma (discuss with surgical team)
- Active GI disease
- Inherited or acquired bleeding disorder

### STEP 2
Investigations

**DVT unlikely**
- **(high or moderate sensitivity)**
- **Negative**
  - *D dimer*
  - Entire lower limb Doppler venous scan
  - See note below re timing of scan and limitations of above knee only scans
  - **Negative**
  - DVT excluded
  - consider alternative diagnosis
- **Positive**
  - **DVT Confirmed**
  - See STEP 3 – other Ix
  - See Management next Pg

**DVT likely**
- **(1 or less)**
- **Positive**
  - **Ultrasound**
  - Entire lower limb Doppler venous scan
  - See note below re timing of scan and limitations of above knee only scans
  - **DVT Confirmed**
  - See STEP 3 – other Ix
  - See Management next Pg

### NOTES – D-Dimer exclusion and timing of USS

<table>
<thead>
<tr>
<th><strong>D-dimer</strong></th>
<th><strong>Ultrasound</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative</td>
<td>Negative</td>
</tr>
<tr>
<td>Positive</td>
<td>Positive</td>
</tr>
</tbody>
</table>

**If unable to perform ultrasound on the same day**

DVT likely group - Treat with LMWH overnight and have patient return to ED the next morning (unless high bleeding risk – discuss with senior clinician)

**For DVT Likely group**

If below knee component of whole lower limb USS not possible for technical reasons then further assessment / follow up is required:
- Perform high sensitivity D dimer
  - D dimer negative then no further investigation for DVT required
  - D dimer positive then repeat proximal lower limb USS at one week

### STEP 3
Additional investigations for proven DVT

**Massive (iliaofemoral) DVT**
- CT venogram for phlegmasia / pre lysis consideration
- Assessment of contraindications to treatment
  - Assess bleeding risk
  - FBE / U+E / LFT / Coags
- Malignancy screen
  - History / Examination
  - FBE / Ca++ / LFT / U/A / CXR
  - Ensure age / sex appropriate cancer screening up to date
    - Mammmogram / PAP / prostate + PSA / FOB
  - If not refer to GP to arrange
- Thrombophilia screen
  - To be determined at DVT clinic follow up
- Anatomical variants
  - Consider investigation (eg. May Thurner)

**Unprovoked or any recurrent DVT**
- Assessment of contraindications to treatment
  - Assess bleeding risk
  - FBE / U+E / LFT / Coags
- Malignancy screen
  - History / Examination
  - FBE / Ca++ / LFT / U/A / CXR
  - Ensure age / sex appropriate cancer screening up to date
    - Mammmogram / PAP / prostate + PSA / FOB
  - If not refer to GP to arrange
- Thrombophilia screen
  - To be determined at DVT clinic follow up

**Provoked DVT**
- Assessment of contraindications to treatment
  - Assess bleeding risk – see note bottom left of page
  - FBE / U+E / LFT / Coags

**Upper limb DVT with no intravascular device**
- Basilic, brachial, axillary or subclavian veins
- Assessment of contraindications to treatment
  - Assess bleeding risk – see note bottom left of page
  - FBE / U+E / LFT / Coags
  - Consider CT venogram thoracic inlet (for cervical rib / fibrous band)
<table>
<thead>
<tr>
<th>Thrombus location / type</th>
<th>Massive DVT</th>
<th>Proximal DVT</th>
<th>Proximal DVT</th>
<th>Below knee DVT*</th>
<th>Calf muscle vein thrombus*</th>
<th>Superficial vein thrombus / thrombophlebitis^</th>
<th>Upper limb DVT</th>
<th>Upper limb DVT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below knee DVT</td>
<td>Illofemoral</td>
<td>Unprovoked or Recurrent *</td>
<td>Provoked +</td>
<td>Provoked or first unprovoked</td>
<td>Not associated with IV infusions or co-existent DVT</td>
<td>No intravascular device</td>
<td>Basilic, brachial, axillary or subclavian</td>
<td>See CCRVT Guideline form</td>
</tr>
<tr>
<td>Disposition</td>
<td>Admit</td>
<td>Discharge if good social support</td>
<td>Discharge if good social support</td>
<td>Discharge</td>
<td>Discharge</td>
<td>Discharge</td>
<td>Discharge</td>
<td>Discharge</td>
</tr>
<tr>
<td>Referral</td>
<td>Vascular (urgent review if phlebitis)</td>
<td>eReferral to DVT clinic (refer oncology pts to own team)</td>
<td>GP</td>
<td>GP</td>
<td>GP</td>
<td>GP Discuss with Vascular if LSV / SSV involved post varicose vein surgery / ablation</td>
<td>Vascular</td>
<td>Own team</td>
</tr>
<tr>
<td>Anti-coagulation</td>
<td>3 months minimum (ongoing Rx to be determined at DVT clinic follow up)</td>
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<td>3 months</td>
<td>3 months #</td>
<td>6 weeks anticoagulation Rivaroxaban or Apixaban or LMWH (unless contraindication) #</td>
<td>6 weeks anticoagulation Rivaroxaban or Apixaban or LMWH (unless contraindication) #</td>
<td>3 months</td>
<td>Until device is removed and then for 3 months (if device required, patient, correct position and not infected leave and use)</td>
</tr>
<tr>
<td>Below knee stockings</td>
<td>Offer HASS will arrange</td>
<td>Offer HASS will arrange</td>
<td>Offer HASS will arrange</td>
<td>Offer if symptomatic HASS will arrange</td>
<td>No</td>
<td>No (if anticoagulated)</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

### Treatment Options for DVT

Prior to commencing anticoagulation all patients require a full clinical assessment, FBC, U&E, LFTs, & coags to rule out any contraindication to therapy

- Rivaroxaban
- Apixaban
- LMWH
- Warfarin
- Catheter directed lysis
- IVC filter

**Notes:**

+ Provoked DVT — occurring in a patient with an antecedent (within 3 months) and transient major clinical risk factor for VTE (e.g. Surgery / trauma / significant immobility (travel > 8 hours) / pregnancy or puerperium / HRT or OCP).

* In patients already on blood thinners a decision needs to be made whether symptoms are due to clot extension or post-thrombotic changes. If thought to be clot extension, intensification of Rx is required e.g. LMWH cover for 5 days and increase target INR.

# In patients with acute isolated distal DVT or calf vein thrombosis without severe symptoms or risk factors for extension serial imaging over two weeks is an alternative to anticoagulant therapy. Anticoagulation should be initiated if there is evidence of thrombus extension, even if it remains confined to the distal veins.

* Risk factors for extension = positive D-dimer, clot >5cm in length, involves multiple veins, >7mm diameter or close to proximal veins, unprovoked, cancer, thrombophilia, history of VTE, inpatient admission, ongoing immobilisation.

^ In patients with superficial vein thrombosis and a contraindication to anticoagulation or short, distal thrombus anti-inflammatory medications and compression stockings, with follow up ultrasound scan in one week if there is worsening of symptoms or signs, is an alternative.

$ HASS — Home anticoagulation support service. Contact on 0424 181 640 between 0730-2130 or after hours send eReferral (sub-division of HITH) attention Michaela Walters
References

• National Institute for Health and Care Excellence. NICE Pathways. www.nice.org.uk/pathways/venous-thromboembolism
• Antithrombotic Therapy and Prevention of Thrombosis, 9th ed: Chest Evidence Based Clinical Practice Guidelines
• Baglin et al. Duration of anticoagulation therapy after a first episode of an unprovoked pulmonary embolus or deep venous thrombosis: Guidance from the SSC of the ISTH. Journal of Thrombosis and Haemostasis; 10: 698-702

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• Mr Stefan Ponosh (Vascular Surgeon SCGH)