Key Words:
VTE, compression stockings, intermittent pneumatic compression devices (ICD)

Policy Applies To:
All Mercy Hospital Nursing Staff and Credentialed Specialists via their Surgical Preferences

Related Standards:
EQuIP standard 2.1.2 risk assessment and 1.1.2 care planning and delivery

Rationale:
This policy outlines the VTE risk assessment screening and prevention for surgical patients at Mercy Hospital. Where necessary, prophylactic management strategies will be employed, in keeping with International Best Practice guidelines.

Strategies may include pharmacological or mechanical thromboprophylaxis.

Definitions:
Venous thromboembolism – the blocking of a blood vessel by a blood clot dislodged from its site of origin. It includes both DVT (deep vein thrombosis) and PE (pulmonary embolus) (NICE, 2010).

Pharmacological thromboprophylaxis – the use of anticoagulation. Anticoagulants most frequently prescribed at Mercy Hospital include Enoxaparin, Aspirin, Warfarin or Rivaroxaban (outlined in Surgeons Preferences).

Mechanical thromboprophylaxis – the use of compression stockings or intermittent pneumatic compression devices (ICD) – calf or foot pumps

Implementation:
Currently there is little evidence to suggest that using both SCDs and TEDs simultaneously, improves VTE prophylaxis.

Pre-operative
- Patients are screened for VTE Medical risk factors via the Health Questionnaire. This includes questions relating to bleeding or clotting disorders, pregnancy, obesity (BMI>30) anticoagulation use, age, length of surgery, airways disease, previous clots in legs or lungs and impaired mobility. Other risk factors to consider include – varicose veins, heart disease, active malignancy, and oral contraceptive or hormone replacement therapy

- The following ‘VTE Risk Assessment Tool’ is the screening tool that guides the assessment of a patient’s VTE risk. All patients should be assessed for risk on admission (as per care plan) and reassessed whenever the clinical situation changes significantly e.g. dehydration, return to Theatre. This screen includes screening for contraindications to the use of mechanical or pharmacological thromboprophylaxis.
### VTE Risk Assessment Screening Tool
(tick any boxes that apply)

<table>
<thead>
<tr>
<th>Medical Risk Factors</th>
<th>Surgical Risk Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active malignancy</td>
<td>ALL Orthopaedic Surgery</td>
</tr>
<tr>
<td>Past History DVT/PE</td>
<td>Major General surgery</td>
</tr>
<tr>
<td>Ischaemic stroke</td>
<td>Lower limb Arthroplasty e.g. THR or TKR</td>
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<tr>
<td>Severe Respiratory disease, CHF, COAD, smoker</td>
<td>Lower limb cast + immobilization</td>
</tr>
<tr>
<td>Obesity - BMI &gt;/= 30</td>
<td>Lower limb arthroscopy</td>
</tr>
<tr>
<td>HRT or oestrogen containing contraception</td>
<td>Spinal surgery</td>
</tr>
<tr>
<td>Pregnancy &lt; 6 weeks post-partum</td>
<td>Pelvic surgery</td>
</tr>
<tr>
<td>Known thrombophilia</td>
<td></td>
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<tr>
<td>Age&gt;/= 60 years</td>
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<tr>
<td>On-going reduced mobility</td>
<td></td>
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<tr>
<td>Rheumatic disease / Irritable Bowel Syndrome (IBS)</td>
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</tbody>
</table>

**Contraindications to VTE Prophylaxis (either Pharmacological or Mechanical prophylaxis)**

<table>
<thead>
<tr>
<th>Contraindications to pharmacological prophylaxis</th>
<th>Contraindications to mechanical prophylaxis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergies to heparin or enoxaparin</td>
<td>Suspected or proven arterial disease</td>
</tr>
<tr>
<td>Coagulation disturbances (increased risk of bleeding) e.g. oesophageal varices, recent GI bleed (&lt; 3/12)</td>
<td>Conditions in which stockings or pumps may cause damage e.g. fragile skin, recent skin grafts, ulceration, dermatitis or cellulitis</td>
</tr>
<tr>
<td>Severe liver or renal impairment</td>
<td>Leg oedema or heart failure</td>
</tr>
<tr>
<td>High risk of bleeding e.g. warfarin, aspirin, dabigatrin currently</td>
<td>Major limb deformity preventing correct fit</td>
</tr>
<tr>
<td>Uncontrolled SBP &gt;230/120</td>
<td>Stroke patients</td>
</tr>
<tr>
<td>Unexplained anaemia (Hb&lt;100)</td>
<td>Peripheral neuropathy or sensory impairment</td>
</tr>
<tr>
<td>Procedure with high bleeding risk e.g. spinal, eye, neurosurgery</td>
<td>Paediatric patients (in general)</td>
</tr>
</tbody>
</table>

If any of the Medical or Surgical risk factors outlined above are present and there are **no contraindications to VTE Prophylaxis**

1. Implement Mechanical Prophylaxis as per Surgical Preferences (Appendix I)
2. In the absence of written Surgical Preferences, ALL patients with >45 minutes surgery will have compression stockings applied
3. Where risk of VTE is identified using the VTE Risk Assessment Screening Tool, escalate the factors to the credentialed specialist/ Anaesthetist. Pharmacological VTE prophylaxis may be indicated.
- Where appropriate DSU ward nurses measure and fit compression stockings - documented in the care pathway – ‘antiembolism stockings applied’ section.

- Patient education will include emphasis on early mobilization (as appropriate), good hydration, deep breathing and frequent position change. Posters and patient information brochures on VTE prophylaxis are located in preadmission, inpatient waiting areas and patient bathrooms

**Intra-operative**
- The Mercy Hospital Surgical Safety Checklist includes verification of VTE prophylaxis
- The peri-operative record and the Anaesthetic record document the use of ICD’s.
- The Theatre coordinator will asterix on the theatre list all patients (young children generally excluded) who are expected to be in Theatre for longer than 45 minutes. These patients MUST, as a minimum, have TEDs put on in DSU. The normal contraindications still apply. (exception Mr. McCoubrey – see Surgical Preferences)

**Post-operative Pharmacological thromboprophylaxis**
- Where prescribed, enoxaparin is administered daily in the postoperative period (usually 20-40mg). Patient resources include instruction sheet and Clexane ‘discharge kit’ for self-administration (if patient going home on this). Discharge kit contains information sheet, DVD and sharps bin.
- Where warfarin is prescribed, the ‘Anticoagulation – warfarin’ protocol should be activated.
- This includes information on INR testing intervals and dosing ranges.
- If a heparin infusion is prescribed, the ‘Heparin IV Infusion Chart – adult for treatment of venous thromboembolism (DVT or PE) shall be activated. This would REPLACE enoxaparin administration.

**Postoperative mechanical thromboprophylaxis**
- Calf or foot pumps are located in the Theatre / PACU corridor and applied in Theatre.
- If compression stockings are used, the nurse provides patient education including the correct application of stockings, avoiding the garter effect, awareness of signs and symptoms of DVT or PE (e.g. heat, pain, shortness of breath) and the actions to take, should any of these occur.

**Discharge**
- ‘Antiembolism stockings’ summary located in the front of the Surgeons preference folder, outlines the duration of time for antiembolism stockings to be worn post discharge. This may vary according to the procedure the patient has undergone.
• Discharge summary conveys information on discharge medications, antiembolism stocking usage and duration and mobility instructions.

• When a patient is going home on enoxaparin, an ‘Application for subsidy by special authority’ (Form SA0975) is required to be faxed to the MOH.

• A phone call will be made to the Practice Nurse of every patient’s GP, where the patient is being discharged home on anticoagulants and advising them when the patient needs to be followed up

Evaluation
• Annual ‘clinical records’ audit shows completion of VTE history / preoperative assessment questions pertaining to VTE risk.

• Number of attendees at the annual update on the WHO Surgical Safety Checklist or the VTE education session

• Recorded incidents of PE/DVT where notified

Associated Documents
External
• National policy framework : VTE prevention in adult hospitalized in NZ June 2012
• SDHB – Venous thromboembolism (VTE) prophylaxis assessment for surgery (District)
• SDHB - Guidelines for prescribing venous thromboembolism prophylaxis in surgery patients (District)

Internal
• Appendix I - VTE Surgical Preferences for Mechanical Prophylaxis
• Plastic Surgeons - VTE Surgical Preferences
• Orthopaedic Surgeons – VTE Surgical preferences
• Heparin IV Infusion Chart (Adult) for treatment of venous thromboembolism (DVT or PE), Sharepoint-Work Manual
• Compression stockings – Sharepoint- Work Manual
• Anticoagulant – warfarin – Sharepoint-Work Manual
• Patient Brochure – ‘Clexane injection administration’ – McAuley Ward
• Patient Brochure – ‘GCS Stockings – Patient information’, ‘Starting on warfarin’
• Patient Handbook – ‘Your anticoagulant treatment’
• Mercy Hospital Admission Form and Health Questionnaire
• Mercy Hospital Nursing Assessment form
• Poster – ‘Stop the clot’
• Patient Brochure – ‘Stop the clot’