HSE Venous Thromboembolism (VTE) Interim Clinical Guidance for Acute Hospitals during the COVID-19 pandemic

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Purpose: This guidance is to clarify current recommendations for prevention of VTE and patient information for hospitalised adult medical or COVID-19 patients.

Target Audience: All healthcare professionals in acute hospitals (protocol and patient information). All patients in acute hospitals (patient information).

Background

Venous thromboembolism (VTE) or blood clots led to or occurred during hospitalisation of 6,772 people in acute public hospitals in 2021. Up to 70% of blood clots associated with hospitalisation are considered to be potentially preventable with appropriate prophylaxis depending on patient and disease factors. COVID-19 is associated with an increased risk of VTE in hospitalised patients.

Recommendations

The HSE VTE protocol template includes recommendations for adult patients admitted to acute hospitals with COVID-19, together with all adult medical patients. The template has been updated in April 2022 and should replace previous versions in use.

All adult patients admitted to hospital, including patients with COVID-19, require:

- Risk assessment of the patient's risk of VTE and bleeding, with VTE prophylaxis prescribed and administered as appropriate.
- Patient information (including provision of HSE/Thrombosis Ireland VTE alert card).

For patients deemed to be at high VTE risk (due to COVID-19 or Padua Prediction Score of 4 or greater), we suggest:

- **Prophylactic-intensity** low molecular weight heparin (LMWH) or unfractionated heparin (unless contra-indicated due to bleeding risk), if the patient has:
  - Severe COVID-19 infection (requiring critical care level treatment including high flow oxygen, invasive or non-invasive ventilation, vasopressors),
  - Mild-moderate COVID-19 infection who do not have oxygen saturations of 93% or less on room air or low-flow oxygen, and who do not have an elevated bleeding risk. This may include patients who test positive for COVID-19, who require admission from other medical illnesses,
  - Medical patients with no evidence of COVID-19.

- Therapeutic-intensity LMWH* *may be considered* in patients admitted to hospital because of moderate COVID-19** AND who have a low bleeding risk **for the purpose of reducing risk of death, invasive mechanical ventilation, non-invasive mechanical ventilation, or admission to ICU*

***Moderate COVID-19 is defined as follows: admission to hospital ward level of care (ie not to ICU), not already mechanically ventilated, and not imminently requiring mechanical ventilation or critical care. We suggest that this therapeutic strategy be limited to patients who have oxygen saturations of ≤ 93% on room air due to COVID-19, or who require low-flow oxygen via nasal prongs or face mask to maintain normal oxygen saturations.*

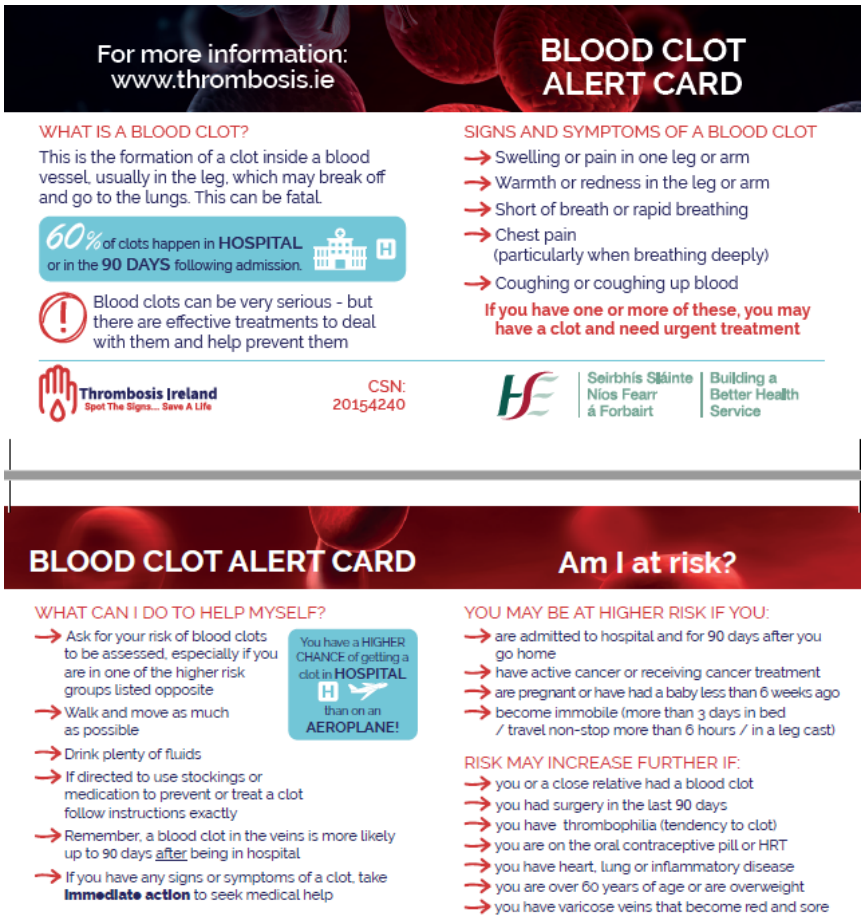
This suggestion also applies to patients who are admitted for another reason but who progress to develop moderate COVID-19. The evidence supports prophylactic intensity LMWH for all other patients with COVID-19 (unless contra-indicated), including those with severe COVID-19.

Patients with COVID-19 should be re-assessed regularly, with VTE prevention adjusted if their condition or level of care changes. Note that this may include a return to prophylactic-intensity LMWH if patient progresses to severe COVID-19.

Medical patients and patients with COVID-19 assessed to be high-risk for VTE but with contra-indications to LMWH or heparin should receive mechanical VTE prophylaxis unless contra-indicated. Measure and select the appropriate size(s). Assess fit, compliance and skin integrity at least daily.

Patient information

Hospitals are asked to ensure patients in all high-risk groups receive the information in these cards.



Blood clot alert cards are available to download from www.safermeds.ie and supplies of alert cards are available from safermeds@hse.ie. Patient and public information as well as alert cards are available translated into multiple languages from www.thrombosisireland.ie.

VTE Prevention Protocol
for In-Patients aged 16 or Over with COVID-19 or Medical Conditions

All hospitalized patients are at increased risk for VTE. VTE is associated with increased morbidity and mortality.
Appropriate VTE prevention reduces risk for patients at high risk of VTE.
Assess all patients as soon as possible (within 14 hours) after the decision to admit. Reassess at consultant review and if clinical condition changes.

Step 1: VTE risk assessment VTE risk factors	Padua score	VTE risk factors continued	Padua score
Confirmed or presumed COVID-19		At risk, proceed to step 2	
Medical in-patient without a COVID-19 diagnosis		Assess according to Padua Prediction Score (below)	
Immobility expected for at least 3 days (confined to bed +/- bathroom)	3	Active cancer or treatment (chemo-or radiotherapy within 6 months or metastases)	3
Previous DVT/PE	3	Thrombophilia	3
Trauma and/or surgery in previous 30 days	2	Ischaemic stroke (discuss with stroke team) or Acute MI	1
Heart and/or respiratory failure	1	Aged 70 or over	1
Taking oestrogen-containing contraceptive or oral HRT	1	Acute infection or Acute or chronic rheumatologic disorder	1
BMI 30 or greater (obese)	1	Pregnant or up to 6 weeks post-partum*	4*

Patients with COVID-19: all patients are at risk of VTE; proceed to step 2.
Medical patients: Padua Prediction Score 4 or greater = at risk of VTE; proceed to step 2.
Padua Prediction Score 3 or less = at low risk of VTE; no prophylaxis required.
***Pregnant or post-partum: Medical admission = at risk of VTE, proceed to step 2. Maternity = follow maternity guidance.**

Step 2: Bleeding risk assessment. Any risk factor below = contra-indication to low molecular weight heparin (LMWH) or heparin	
Active bleeding	On anticoagulant at therapeutic levels/dose, e.g. warfarin, dabigatran, rivaroxaban, edoxaban, apixaban, heparin, enoxaparin: No additional prophylaxis except while anticoagulant held
Platelets less than 50 x 10^9/L	Undergoing procedure with high bleeding risk, e.g. neurosurgery, spinal or eye surgery
Bleeding disorder, e.g. haemophilia, Von Willebrand's	History of Heparin-Induced Thrombocytopaenia (HIT): Contact haematology or pharmacy
Acquired bleeding disorder e.g. liver failure with PT over 15	Other bleeding risk: if risk of VTE outweighs bleeding risk, consider pharmacological prophylaxis. If risk of bleeding outweighs risk of VTE, consider mechanical VTE prophylaxis
Acute stroke (discuss with stroke team)	
Blood pressure 230 systolic or 120 diastolic or greater	Note: Dual antiplatelet therapy does not preclude prophylactic dose LMWH. There is a lack of data to support therapeutic dose LMWH in patients with COVID-19 who are receiving dual antiplatelet therapy: Consider prophylactic-intensity anticoagulation as an alternative
Epidural or spinal or lumbar puncture in last 4 hours or expected in next 12 hours	

Step 3: Recommended VTE prevention (or anticoagulation as a "therapeutic" strategy for COVID-19). These recommendations should not be used to guide care for patients with acute venous thromboembolism.

All patients	Adequate hydration, early mobilisation			
Pharmacological	**Weight 50-100 kg and GFR over 30 mL/min**	**Weight 101-150 kg**	**Weight less than 50 kg**	**GFR less than 30 mL/min**
Prophylactic intensity anticoagulation: All COVID-19 patients not on therapeutic anticoagulation or Medical patients with Padua score ≥4 **And** No C/I to heparin	Tinzaparin 4500 units once daily or Enoxaparin 40 mg once daily	Tinzaparin 4500 units bd or Enoxaparin 40 mg bd	Tinzaparin 3500 units once daily or Enoxaparin 20mg once daily	Heparin 5000 units twice daily or Tinzaparin 3500 units daily (caution) or enoxaparin 20 mg daily (contra-indicated in GFR less than 15 mL/min)
Therapeutic-intensity LMWH* **may be considered** in patients admitted to hospital because of moderate COVID-19** AND **who have a low bleeding risk** This also applies to patients admitted for another reason but who progress to develop moderate COVID-19	Tinzaparin 175 units / kg once daily or Enoxaparin 1 mg/kg twice daily or 1.5 mg/kg once daily ** Moderate COVID-19 is defined as follows: admission to hospital ward level of care (ie, not to ICU), not already mechanically ventilated, and not imminently requiring mechanical ventilation or critical care. **We suggest that this therapeutic strategy be limited to patients who have oxygen saturations of ≤ 93% on room air due to COVID-19, or who require low-flow oxygen via nasal prongs or face mask to maintain normal oxygen saturations.** The evidence supports prophylactic intensity LMWH for all other patients with COVID-19 (unless contra-indicated), including those with severe COVID-19			Data supporting the use of therapeutic-intensity anticoagulation for patients with COVID-19 and renal impairment are lacking. We suggest against therapeutic anticoagulation (in the absence of a VTE event), if GFR is less than 30ml/min. Consider prophylactic-intensity LMWH instead.
Mechanical				
COVID-19 patient or High-risk medical patient (score 4 or greater) with contra-indication to heparins	Mechanical compression: Anti-embolism stockings* +/- intermittent pneumatic compression devices (IPCD)/ foot pumps * Do not use in suspected or proven peripheral arterial disease, severe dermatitis, massive leg oedema, leg deformity preventing correct fit, peripheral neuropathy, recent skin graft, allergy to fabric or acute stroke. Use caution and clinical judgement if applying stockings over venous ulcers or wounds. Use IPCD if available, particularly in COVID-19 or acute stroke.			
Low-risk medical (score 3 or lower)	No heparin or low molecular weight heparin - No mechanical compression			
Duration: local decision; e.g. until low-risk for VTE or until discharged. May consider prolonged prophylaxis on a case-by-case basis.				

Step 4: Inform the patient about the signs and symptoms of VTE. Prescribe appropriate prophylaxis.

Step 5: As part of the discharge plan, give patients (and family members/carers if appropriate) verbal information and the VTE patient alert card. Give those discharged with prophylaxis information about its importance and how to use it effectively and safely and notify their GP.

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