



Thromboprophylaxis risk guide for Major Trauma

This guide is not a substitute for local guidance and clinical judgement. Always discuss individual cases with the parent team before finalising management.

The majority of major-trauma patients are at high risk of VTE, and early pharmacological prophylaxis prevents potentially life-threatening pulmonary embolism. The decision to delay pharmacological prophylaxis should be exceptional, time-limited, and documented with a clear plan to start pharmacological prophylaxis as soon as it is safe. [^1]. Always involve the relevant specialty team for high-risk or complex cases.

The default position is that all major trauma patients should be actively considered for LMWH within 24 hours, unless there are:

1. **Spinal injuries with spinal haematoma or neurological deficit—mechanical prophylaxis only and seek specialist advice before commencing chemical prophylaxis. Mechanical prophylaxis should NOT be delayed.**
2. **Traumatic intracranial haemorrhage - withholding of pLMWH to be advised by neurosurgery. Mechanical prophylaxis should NOT be delayed.**

For these two groups, timing is at neurosurgical discretion, but daily review is mandatory and mechanical prophylaxis must be in place from admission.

The following findings are NOT contraindications to LMWH once haemodynamic stability and basic haemostasis are achieved. In fact, they are associated with increased VTE risk:

Haemothorax – NOT a contraindication. Stable haemothorax does not increase bleeding risk with LMWH, and is associated with immobility and inflammation

Rib fractures – NOT a contraindication. Rib fractures increase VTE risk due to pain related immobility.

Intraoperative blood loss – NOT a contraindication once haemostasis is achieved. Trauma guidelines advise not withholding LMWH solely due to blood loss.

Extensive haematoma or bruising – NOT a contraindication. Soft tissue haematomas reflect tissue injury and inflammation; they do not contraindicate LMWH unless there is ongoing active bleeding.

Solid organ injury – NOT a contraindication. Early LMWH (24-48 hours) is safe in solid organ injury where there is no requirement for bleeding control intervention and reduces VTE.

Stable spinal fractures or fractures treated non-operatively – NOT a contraindication. Commence chemical prophylaxis within 24 hours. Mechanical prophylaxis should not be delayed.

Spinal fractures accepted for operative fixation, with no neurological deficit, and no spinal haematoma on CT/MRI - NOT a contraindication. Commence chemical prophylaxis within 24 hours whilst awaiting transfer/surgery, BUT withhold for 24 hours pre-op. Mechanical prophylaxis should not be delayed.



Core principles (NICE NG89)

- Assess VTE and bleeding risk immediately on admission for all trauma and surgical patients and reassess every 24 hours or if the clinical condition changes. Use a nationally recognised VTE risk assessment tool. [^1].
- Start pharmacological thromboprophylaxis as soon as possible. Do not routinely wait for a scheduled ward drug round (for example 18:00/6 pm) if the patient is ready for prophylaxis earlier. [^1].
- Balance VTE risk against bleeding risk for each patient; in the majority of major-trauma cases the risk of venous thromboembolism (DVT/PE) substantially outweighs the risk of bleeding. Document the multidisciplinary rationale when delaying pharmacological prophylaxis. [^1].
- Mechanical prophylaxis (intermittent pneumatic compression or graduated anti-embolism stockings) should be used immediately when pharmacological prophylaxis is contraindicated or delayed and continued until pharmacological prophylaxis can be started. Ensure correct sizing and skin checks. [^1].
- LMWH is first-line pharmacological prophylaxis for most hospitalised adults; use fondaparinux or unfractionated heparin, according to local guidelines, where LMWH is contraindicated or in renal impairment per local protocols and specialist advice. [^1].

Communication and patient information

- Explain to patients and families the reason for early thromboprophylaxis, the balance of benefits and bleeding risks, and the signs and symptoms of DVT/PE and bleeding. Provide written information and ensure discharge plans include VTE prophylaxis instructions if continued after discharge. [^1].

Mandatory safety controls

Each Trauma Unit must implement the following minimum controls:

- 1) "VTE Prophylactic status" at every trauma handover (ED→ward, ward→theatre, theatre→ICU, ICU→ward):
 - i) Risk assessment completed. (Y/N)
 - ii) Pharmacological prophylaxis prescribed? Given? Next due?
 - iii) If withheld, documented reason and next review time
- 2) Pharmacy / ward checklist trigger:
 - i) Any trauma admission without prophylaxis within 24 hours must generate an escalation to the responsible registrar/consultant. [^1]
- 3) Daily consultant-led trauma board round prompt:
 - i) "VTE prophylaxis: appropriate/contraindicated/hold with review time/mechanical in place."

References

[^1]: NICE NG89: Venous thromboembolism in over 16s: reducing the risk of hospital-acquired DVT or PE.