

Optimising the suspected deep vein thrombosis pathway in orthopaedic inpatients

Northern Health

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Background

- Surgery, trauma and immobility raise DVT risk, and post-operative swelling mimics thrombosis
- Delayed anticoagulation is linked to higher 90-day mortality¹, and untreated proximal DVT carries up to a 50% risk of PE²
- Unnecessary anticoagulation adds bleeding risk after orthopaedic surgery³
- Duplex ultrasound is first-line⁴, yet no guideline sets a time to scan surgical inpatients⁵

Aim and Method

Aim: to evaluate the timeliness and documentation of the suspected DVT ultrasound pathway

- Retrospective audit of electronic records for 71 consecutive orthopaedic inpatients scanned for suspected DVT, January 2024 to June 2025
- Documented = first note acknowledging the result or a management plan
- Data reported as median (IQR) in hours

Results: Documentation

- No request recorded a Wells score (0/71)
- 88.6% of results were documented within 24 h of the scan (62/70)
- In 21%, the result was documented before the formal report, using preliminary or verbal results

Results: Time Through the Pathway



Figure 1. Median (IQR) hours between steps

- 71.9% were scanned within 24 h, 91.2% within 48 h and 96.5% within 72 h
- 56% (32/57) waited more than 24 h from request to a documented result
- Weekday scans were reported in a median 1.1 h
- Bilateral requests waited a median 24.8 h vs 6.5 h for unilateral requests, with a similar yield (2/14 vs 7/57)

Results: Yield and Anticoagulation

- 9 of 71 scans (12.7%) confirmed DVT, of which 7 were distal and 2 proximal
- No interim therapeutic anticoagulation was commenced while awaiting the scan

Median p: Mann-Whitney U	DVT (n = 9)	No DVT (n = 62)	p
Request → scan	12.4 h	15.4 h	0.69
Scan → documented	5.2 h	16.1 h	0.97

Limitations

- Retrospective audit, did not assess clinical outcomes, request time was missing or inconsistent in 14 episodes
- Only 9 DVTs, so comparisons by scan result have limited power

Conclusions

- Most patients were scanned within a day, but over half waited over 24 h for a documented result.
- Waits reflected the type of request rather than clinical risk: bilateral requests waited longest, and patients with DVT were not scanned sooner.
- No Wells score was recorded, and no interim therapeutic anticoagulation was started.
- Teams already bridge reporting delays informally with preliminary results.

Recommendations

1. Structured EMR request with a mandatory Wells score.
2. Upload preliminary ultrasound results to the EMR at the time of scanning.
3. Document an interim anticoagulation plan for delayed scans, weighed against bleeding risk.
4. Re-audit 12 months after implementation.

References 1. Brunton NE, et al. Res Pract Thromb Haemost 2021;5:e12500. 2. Ziyadeh F, Mauer Y. Cleve Clin J Med 2024;91:229-35. 3. Chan NC, et al. J Thromb Thrombolysis 2015;40:231-9. 4. Bhatt M, et al. Blood Adv 2020;4:1250-64. 5. NICE guideline NG158, 2020 (updated 2023).