

Appropriateness of Repeat US Doppler Requests for DVT

Dr Bahareh Gholipour, Dr Madiha Hussain, Adshara Vimalanathan
Radiology Department, Whittington Hospital, Whittington Health NHS Trust



BACKGROUND

Rising number of repeat doppler scan requests noted with a suspected low positive yield - therefore audit to determine:

...whether guidelines are being followed (i.e. **appropriate requests**) and to identify the **positive detection rate** in repeat scans

NICE Guidelines²

The following DVT investigation pathway is suggested by the National Institute for Health and Care Excellence (NICE):

“Carry out an assessment of the patient’s general medical **history** and a physical **exam** to exclude other causes”

If DVT is still suspected...

TWO-LEVEL DVT WELLS SCORE

Repeat DVT scans are **only** indicated in cases of:
high clinical suspicion (**Wells score >1**) with a **normal initial scan** and a subsequent **raised D-dimer**.

METHODOLOGY

Retrospective audit of 5 months of data using PACS:

x50 repeat US dopplers

DATA COLLECTION

- Request Forms
 - Wells Score
 - (D-dimer)
- US Reports
 - Presence of DVT (initial and repeat)

STANDARDS



Systematic review and meta-analysis of diagnostic accuracy of US for DVT: Goodacre et al. found a **positive detection rate of 15.7%** in those with a medium/high wells score and positive d-dimer³.

NICE National Institute for Health and Care Excellence



Every US Doppler request should have documentation of **Wells Score (+/- D-dimer)**¹.

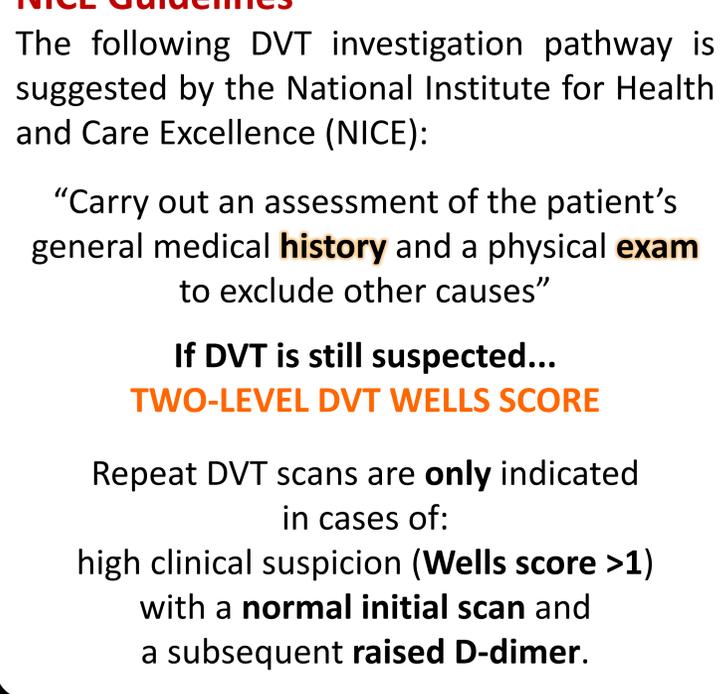
STANDARD	TARGET
Documentation of Wells Score on request form ^{1,2}	100%
Detection of DVT on repeat US ³	≥15%

DISCUSSION

Standards are currently not being met - this is thought to be secondary to low awareness of guidelines, given the lack of suitable requests and the low detection rate on repeat scans.



Positive detection rate on repeat scan **...only 4 out of 50**



ACTION PLAN

Raise awareness of the **NICE guidelines** on ‘Suspected DVT’ investigation pathway:

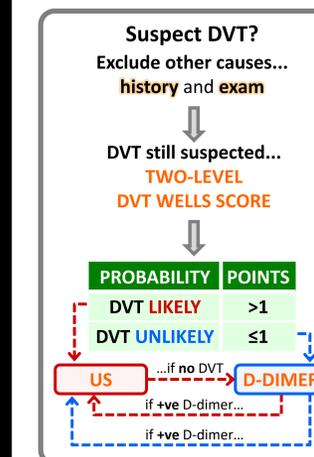


Fig. 1 - Example of NICE algorithm posters to raise awareness

- Junior doctor teaching
- Mandatory section on DVT Doppler request forms (i.e. Wells Score +/- D-dimer)
- NICE algorithm posters

Future:
▪ **Re-audit** in 6 months

RESULTS

Overall only 11 request forms (22%) documented the Wells score (only 8 of which had a score >1, thus indicating a repeat scan).

STANDARD	TARGET	RESULTS	✓
Wells Score on request form ^{1,2}	100%	22%	✗
DVT on repeat US ³	≥15%	8%	✗

Only 4 repeat scans (8%) were positive for Deep Vein Thrombosis (DVT).

REFERENCES

- RCR Guidelines: www.rcr.ac.uk/audit/audit-appropriateness-and-accuracy-information-provided-ultrasound-us-requests-deep-vein-thrombosis
- NICE Guidelines: CG144 Venous thromboembolic diseases (2012 updated 2015)
- Goodacre S, Sampson F, Thomas S, van Beek E, Sutton A. Systematic review and meta-analysis of the diagnostic accuracy of ultrasonography for deep vein thrombosis. BMC medical imaging. 2005;5(1):6.