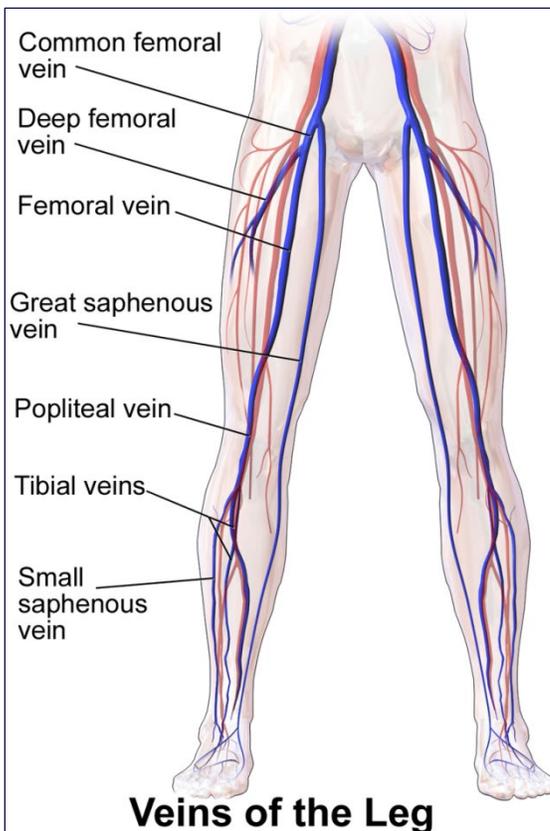


# How-To Guide

## DVT Ultrasound



### How to do it:

1. Position patient in frog leg position on the bed (leg flexed at hip and externally rotated, knees bent).
2. Select the linear array, or superficial probe.
3. Hold probe in transverse orientation.
4. Compress the vein with probe pressure – you need complete collapse of vein to call this a negative scan. Partial collapse is abnormal.
5. Start by scanning the femoral vein in the groin region. Scan caudally from the inguinal ligament and the saphenous vein branch point. Compress the vein every centimeter, sliding caudally to the point of the

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*The Hands-On Ultrasound Education (HOUSE) Program is offered in close collaboration with the Rural Coordination Centre of BC (RCCBC)*

bifurcation of the femoral vein into superficial and deep femoral veins. See image above for visual. *In other words, ensure you should see one branch point and then a bifurcation.*

6. Move on to popliteal region. Start high up in the popliteal fossa, and scan caudally to just past the calf vein trifurcation. Be sure to compress the veins every cm or so.

## How to do it better:

- While there is some variability with venous anatomy, the femoral vein and femoral artery are typically side-by-side. The popliteal vein usually lies more superficial than the popliteal artery.
- Groin lymph nodes are well-circumscribed, non-compressible entities. Ensure you are looking at the vein, and not a lymph node, by following it for a few centimeters. The difference will become clear.

## How to do it safely:

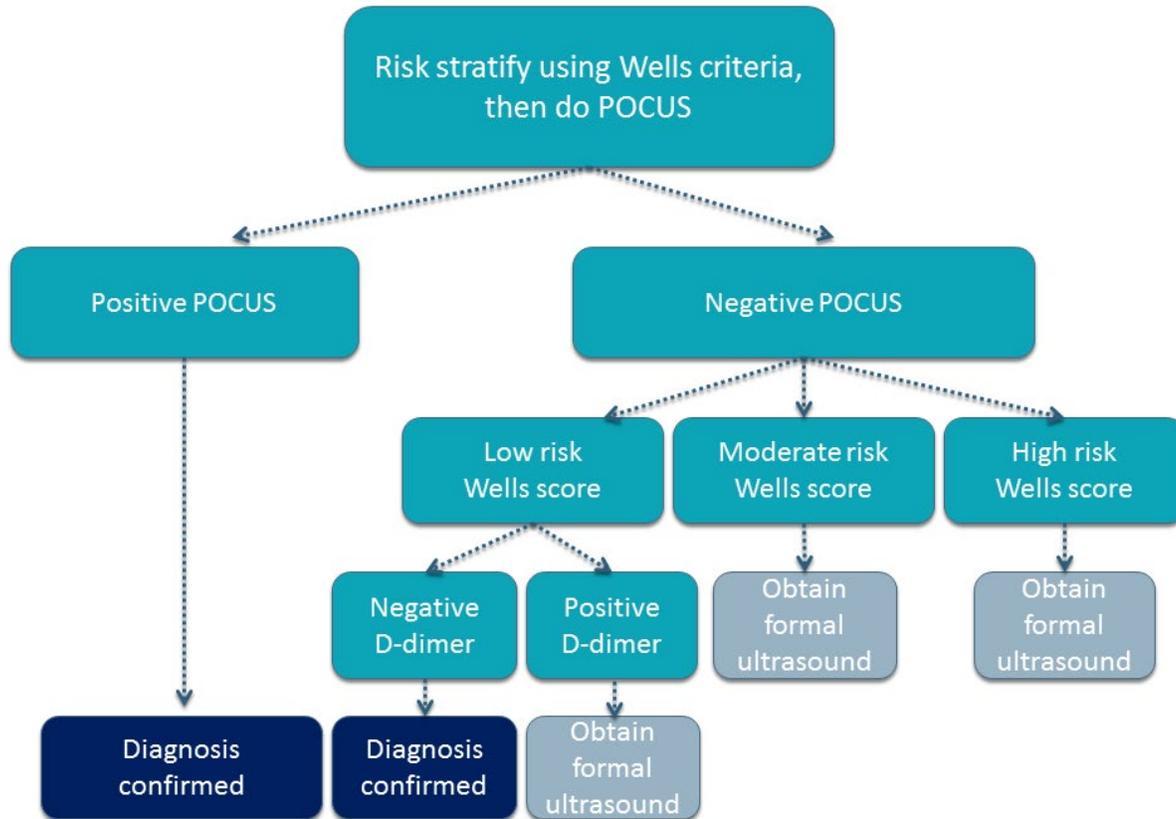
- Ensure you apply compression only in the transverse orientation. If you are in longitudinal, it's possible to push the vessel off to one side, giving the false impression of vein collapse.
- Too much pressure can collapse the artery as well – look carefully to ensure you aren't compressing the artery, and mistaking a non-compressible thrombosed vein for the artery.
- Large superficial veins can be mistaken for deep veins if occlusion in the deep veins has caused them to dilate. You can recognize this because superficial veins don't have corresponding adjacent arteries.
- Remember that a negative DVT scan does not rule out a pulmonary embolism. It also doesn't rule out a DVT! This simplified protocol can miss some smaller, segmental DVTs.
- It is much more difficult to interpret images associated with chronic or partially resolved DVTs. POCUS is not helpful in this setting, unless it is completely normal.

## How to use this in practice:

This is a useful scan to include in the work up of a patient with undifferentiated shock, dyspnea, or chest pain where a positive POCUS for DVT essentially diagnoses a PE.

This scan can aid you considerably in the work up of a patient with a suspected DVT. While we know that POCUS is not as reliable as formal ultrasound for detecting DVT, it can certainly change your management of this problem in the ED. It's especially helpful as a rule-in test, because it can confirm your diagnosis. As we know that we can miss some DVTs with POCUS, it's a bit more confusing when have a negative POCUS finding.

Here is one approach (current as of 2016):



Visit <https://www.aliem.com/category/clinical/pv-card> for formal guidelines on diagnosis of DVT

<sup>i</sup> Blausen.com staff. "Blausen gallery 2014". Wikiversity Journal of Medicine. DOI:10.15347/wjm/2014.010. ISSN 20018762. - Own work