

What's New in the Patient Safety World

March 2025

Guidelines for Ultrasound-Guided Vascular Cannulation

The American Society of Echocardiography (ASE) has updated its [guidelines for ultrasound-guided vascular cannulation](#). The new guidelines replace the 2011 guidelines and include recommendations for US-guided access to central and peripheral veins and arteries in adult and pediatric patients based on the strength of the scientific evidence present in the literature.

Ultrasound can not only identify anatomy and suitable vessel size for cannulation but it can also:

- Determine vessel patency
- Real-time US guidance during needle insertion and catheter advancement
- Confirm guidewire position in a vessel
- Assess for complications

The document nicely describes the evidence and strength of evidence for ultrasound guidance for a variety of specific veins and arteries, with both excellent photographs and diagrams to illustrate techniques.

The choice of vessel puncture site is based on the clinical scenario, indication for vascular access, patient comfort and condition, operator experience, ease of access, and vessel characteristics

Examples of specific vessels and procedures discussed are the internal jugular vein, subclavian and axillary veins, common femoral vein, peripheral veins, peripherally inserted central catheters (PICC's), radial and ulnar arteries, brachial artery, axillary artery, common femoral artery, posterior tibial and dorsalis pedis arteries.

For instance, the section on the internal jugular vein (IJV) begins with a description of the anatomy, including variable relationship with the carotid artery (CA). Then it goes on to describe how the patient should be positioned and what anatomical landmarks should be visualized. In the US-guided technique, the operator scans the IJV to determine the puncture site that provides a direct pathway to the vessel lumen and minimizes IJV-CA overlap and the risk for CA puncture.

It has a good section on common complications, such as hematoma, abscess, seroma, lymphocele, thrombosis, embolization, stenosis, vasospasm, arterial dissection, pseudoaneurysm, arteriovenous fistula, and several site-specific complications.

It also has an extensive section on pediatric vascular access.

References:

American Society of Echocardiography (ASE). Guidelines for Performing Ultrasound-Guided Vascular Cannulation: Recommendations of the American Society of Echocardiography. ASE February 2025

https://www.asecho.org/wp-content/uploads/2025/02/PIIS0894731724006321_VascCann_Feb25.pdf

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