Statement on recommendations for uniform use of real-time ultrasound guidance for placement of central venous catheters

[by the American College of Surgeons]

This statement was developed by the College’s Committee on Perioperative Care and approved by the Board of Regents at its June 2008 meeting.

More than 5 million central venous catheters (CVCs) are placed each year in the U.S. with an associated complications rate of more than 15 percent. Mechanical complications such as arterial puncture and pneumothorax are seen in up to 21 percent of patients with CVC complications, and up to 35 percent of insertion attempts are not successful.

Several prospective, randomized trials as well as two meta-analyses document that the use of ultrasound has been associated with a reduction in complication rate and an improved first-pass success when placing catheters in the internal jugular vein.

Real-time (rather than static) ultrasound guidance is the safest, most cost-effective and successful method for CVC placement compared with the traditional, percutaneous, landmark-based approach for cannulation of the internal jugular vein. The use of ultrasound for central venous catheterization increases success rate while simultaneously decreasing procedural time and complication rate. Standardization of education, training, and practice is also an important component of this technique.

In 2001, the Agency for Healthcare Research and Quality recommended the use of ultrasound guidance for the placement of CVCs as one of the top 11 evidence-based practices that health care providers can use to improve patient care and patient safety.

The Guidance on the Use of Ultrasound Locating Devices for Placing Central Venous Catheters from the National Institute for Clinical Excellence had the following major recommendations:

- Two-dimensional (2-D) imaging ultrasound guidance is recommended as the preferred method for insertion of CVCs into the internal jugular vein in adults and children in elective situations
- The use of 2-D imaging ultrasound guidance should be considered in most clinical circumstances where CVC insertion is necessary either electively or in an emergency situation
- It is recommended that all those involved in placing CVCs using 2-D imaging ultrasound guidance should undertake appropriate training to achieve competence
- Audio-guided Doppler ultrasound guidance is not recommended for CVC insertion

The American College of Surgeons supports the uniform use of real-time ultrasound guidance for the placement of CVCs in all patients.

References


Technology appraisal guidance no. 49.

**Additional resources**

- Procedure videos: Ultrasound-guided central venous catheter placement.
  
  [http://www.youtube.com/watch?v=Ahz1SPKTIbU](http://www.youtube.com/watch?v=Ahz1SPKTIbU)


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**Statements**

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