



ASSOCIATION FOR VASCULAR ACCESS

POSITION PAPER

Central Venous Access Device Insertion by Qualified Vascular Access Specialists or Other Applicable Healthcare Clinician

Protect the Patient • Educate the Clinician • Save the Line

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Introduction / Summary

Vascular access today is the most common invasive procedure performed in healthcare¹. More than 300 million peripheral intravenous catheters (PIVCs) and upwards of 8 million central venous access devices (CVADs) are placed in patients in the acute care setting annually.¹ Over the past 2 plus decades, vascular access has grown into a recognized clinical specialty, requiring specialized knowledge, training, skill development and experience. The combination of this experience and knowledge establishes a high quality of vascular access holistic care, providing greater opportunities for improved device and patient outcomes, minimize the risk of complications and impact on the patient experience.²⁻⁴

The modern, ever-changing healthcare landscape requires a dedication to constant quality and service improvements in the provision of vascular access. These high-volume, often high-risk and problem-prone processes are now directly linked to quality of care, length of stay and patient satisfaction as well as reimbursement. Providing all healthcare facilities with clinicians who combine expert knowledge and skills in advanced vascular access procedures, provides a superior opportunity to improve facility-wide service requirements and provide exceptional levels of patient care, while at the same time, diminishing avoidable risks when utilizing the appropriately trained clinicians.⁴

This comprehensive, multidisciplinary approach to vascular access remains patient-centered; it drives services that are outcome-oriented and applies current evidence-based practices for vascular access. The development of a multidisciplinary vascular access service is centered on continuous program evaluation, outcomes monitoring, and program/process improvement.⁴

Background / Problem

A major determinant of inpatient procedural complications is directly related to the level of skill, knowledge, and confidence of a clinician.⁵ It is a skill that is often learned within the clinical environment, frequently from other practicing clinicians, often with variable skills and experience. This pushes relatively inexperienced clinicians to learn advanced (and often high risk) procedural skills in their early practice years, often without understanding the complex intricacies and knowledge of performing this advanced skill, let alone the serious intra-procedural consequences that can occur.² This creates substantial patient safety



dilemmas and clouds the potential learning of correct techniques and compliance within clinical practice.^{5,6,7,8}

Providing a standardized approach to device selection, insertion, care, maintenance,⁹ and removal by utilizing vascular access specialists or applicable healthcare clinicians, improves quality in patient care and is an efficient use of dedicated, expertly trained clinicians.

CVAD Terms: CICC - centrally inserted central catheter
PICC - peripherally inserted central catheter
FICC - femorally inserted central catheter
MTF-PICC - midhigh femoral-peripherally inserted central catheter

The Association for Vascular Access (AVA) recommendations:

It is the position of the Association for Vascular Access that a properly qualified vascular access specialist or other applicable healthcare clinician with valid competency should insert central venous access devices with the use of real-time ultrasound.

Position

- An expanded scope of practice for all vascular access specialists and applicable healthcare clinicians who are qualified to perform advanced vascular access procedures. This includes insertion of central venous access devices.
- Minimum competency requirements include a detailed documented training process and preceptorship for each insertion sites being practiced. Local policies are to include all procedures applicable to the device and a procedure selection criteria.
- Detailed outline of training plan and commitment to ongoing competency assessment.
- Utilizing a device monitoring tool for ongoing assessment.
- Approved hospital policy and procedure which includes the discipline, procedure, education, minimum requirements and how complication management is addressed.
- The vascular access specialist or applicable healthcare clinician must meet the education and clinical practice requirements by the designated professional board within their state of practice.

Practice Recommendations

Given the variability of facilities, personnel, organizational capabilities, and practices, AVA recommends the following as minimal qualifications for a vascular access specialist or other healthcare professional to perform insertion of ultrasound guided central venous access devices.

1. Established competency in ultrasound imaging for central venous access procedures to include knowledge of all central venous pathways (venous and arterial) and clear proficiency of vessel and patient assessment.



2. Established competency in the anatomy and physiology of the neck, chest, upper and lower abdomen, and upper and lower extremities to include at a minimum arteries, veins, nerves, lungs, and heart.
3. Established competency in creating and maintaining a sterile field and maximal sterile barrier precautions.
4. Adequate product review process prior to use. This should include acute and chronic CVADs, acute and chronic hemodialysis (where applicable), small and large bore percutaneous sheath introducer catheters, subcutaneous infusion ports (where applicable), and pressure monitoring equipment (where applicable).
5. Comprehensive knowledge and appropriate insertion techniques for central venous cannulation to include: Seldinger, modified Seldinger, direct puncture, and tunneling techniques (where applicable).
6. Established competency for the technical skills specific to cannulation of the internal jugular, axillary, and femoral veins which include the techniques to anesthetize the insertion site for patient comfort and secure catheter post insertion (manufactured securement device, subcutaneous securement device, and/or tissue adhesive).
7. Established competency for device tip clearance to include intracavitary electrocardiogram (ECG) or chest x-ray.
8. Established competency for sliding lung technique to rule out pneumothorax.
9. Established knowledge and (CICC, PICC, FICC & MTF-PICC) understanding of device troubleshooting and complications associated with all Central Venous Access Devices and their clinical management processes.
10. Established data collection process to ensure quality and outcome metrics that align with organizational goals. Such data should be used for ongoing competency and assessment of organizational processes and to implement additional changes based on a quantitative analysis.
11. Recommend a minimum two (2) years of experience performing ultrasound-guided vascular access.
12. Recommend successful completion of a minimum of ten (10) procedures of each insertion location supervised by a qualified mentor or preceptor. (The minimum number should be based on organizational policy and procedure.)
13. Establish a process for review of major device-related complications, such as but not limited to inadvertent arterial cannulation, pneumothorax, a “lost wire,” or air embolism. These events should be reviewed in a quality, peer review process, as outlined by each organizational policy and procedure.



14. Recommend certification in Advanced Cardiac Life Support (ACLS) for both adult and/or Pediatrics Advanced Life Support (PALS) due to the complication management aspects of CVAD insertion.
15. Recommend Vascular Access Board Certification VA-BC™ by the Vascular Access Certification Corporation (VACC).
16. Require approved policy and procedures be in place that supports all such practice(s).

Conclusion:

Due to the risks associated with central venous access device (CVAD) insertion, care, and use, these invasive procedures should be performed by clinicians with demonstrated competency, knowledge, and skills.

Vascular Access Specialists and other applicably qualified healthcare clinicians with documented competency and local institutional approval should be utilized for CVAD insertion to include: insertion, use, care, maintenance, education, and device removal, including consultation on the management of related complications in collaboration with other healthcare professionals.

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Additional Reading

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About the authors:

Timothy R. Spencer is a Vascular Access Specialist with nearly 30 years of experience and is currently the Director for Global Vascular Access, LLC. His clinical background and qualifications are in Intensive Care Nursing, Vascular Ultrasound, and Advanced Clinical Nutrition. Tim was the Clinical Nurse Consultant of the Central Venous Access and Parenteral Nutrition Service at the Liverpool Hospital, Australia, which he established and led from 1996–2014 (21 years). He has been instrumental in progressing the scope of advanced vascular access practices for clinicians globally, including contributions in clinical research and evidence, the promotion of patient safety, and best practices. He is fully trained in vascular ultrasound and facilitates the



progressive role of ultrasound-guided vascular access procedures. He is a member of 3 editorial boards; JVA, JAVA, Vascular Access, as well as a reviewer for JIN, Scientific Reports (Springer Nature) and The Journal of Hospital Medicine. His PhD dissertation is in catheter-related thrombosis in cancer patients. Global Vascular Access, LLC also provides consultancy services for Teleflex Inc., FUJIFILM Sonosite and Interrad Medical Inc.

Amy J. Bardin-Spencer is a Vascular Access Specialist with over 20 years of critical care and ultrasound-guided device insertion experience. Through her career, Amy has been on vascular access teams inserting and educating on vascular devices which include peripheral arterial catheters, peripheral and central venous catheters, acute hemodialysis catheter insertion, and IABP catheter monitoring. Amy believes that all patients deserve access to the right line using a “no blind stick” approach when vascular access is required. She has been instrumental in progressing the scope of vascular access practices for all clinician types which include team development and the promotion of patient safety and best practices. Today, Amy shares her knowledge and passion with clinicians around the world as an international speaker and by developing vascular access curriculum and overseeing vascular access simulation training courses for physicians and non-physician clinicians. Her EdD dissertation is in vascular access specialty teams and their impact on hospital acquired conditions. Amy is a full time employee of Teleflex Incorporated.

Both Tim (2019) and Amy (2016) are recipients of the Herbst Award for Excellence in Vascular Access from the Association for Vascular Access.

Disclaimer: This document is meant to serve as a basis for evidence-based decision making. Nothing contained within this position paper should take the place of following a medical devices approved instructions for use provided by the manufacturer.

The Association for Vascular Access (AVA) was founded in 1985 to promote the emerging vascular access specialty. Today, AVA stands at the forefront of protecting and saving lives via establishing best practices and promoting patient advocacy. AVA’s multidisciplinary membership advances research, provides professional and public education to shape practice and enhance patient outcomes, and partners with the device manufacturing community to bring about evidence-based innovations in vascular access. To learn more or join, visit www.joinAVAnow.com.

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