

# INSERTION OF CENTRAL VENUS CATHETERS

## I. Introduction

1. The Institute of Medicine reports that more Americans die each year from medical errors than from breast cancer, AIDS or automobile accidents combined.<sup>1,2</sup> Furthermore, nearly half of adverse events in some populations are associated in some way with an operation or procedure.<sup>3</sup>
2. Competency in medical trainees requires continued evaluation and assessment of training modalities as only 67% of internal medicine program directors believe that their residents are proficient at central venous catheter (CVC) insertion<sup>4</sup> and < 25% of residents describe feeling “comfortable or very comfortable” with their ability to perform these procedures despite achieving the ACGME recommended number of successful cannulations.<sup>5</sup>
3. It is reasonable to assert that overt knowledge gaps are not a lone contributor to adverse events. In observational studies, practitioners know the steps required to reduce CLABSI, but at least one step is inadvertently skipped in over 30% of cases.<sup>6</sup>
4. The ability to safely and competently insert a CVC is a distinct skill and not dependent on an operator’s training specialty.
5. Currently, there is not a standardized training requirement for competency in CVC insertion at the University of Nevada Las Vegas School of Medicine (UNLV-SOM) between specialty training departments.

## II. Procedure

1. All graduate medical education trainees (residents and fellows) will be subjected to the same credentialing requirements in order to be certified to independently place a CVC.
  - a. Completion of a simulation session using task trainers under the supervision of attending physicians focused on standard Seldinger technique and the use of real-time ultrasound guidance
  - b. Completion of a didactic session (in conjunction with a simulation session) that provides specific education on the following:
    - i. The informed consent process (including description of risks, benefits, and alternatives of the procedure)
    - ii. Utilization of a CVC insertion checklist
    - iii. Utilization of “full barrier” sterile precautions
    - iv. Standard insertion technique as demonstrated in a teaching video (Available on the Savitt medical library webpage ☐Clinical Tools / Databases ☐Procedures Consult <http://app.proceduresconsult.com/Learner/Procedures.aspx?GetType=2&SpecialtyID=3&CategoryID=11>)
  - c. Successful completion of technique-specific CVC insertion under direct supervision is required in the following quantity:
    - i. Landmark guided CVC insertion (n=5)
    - ii. Real-time ultrasound guided CVC insertion (n=5)
    - iii. Determination of the presence of “real-time” guidance rather than simple landmark verification will be determined and attested to by the supervisor

- d. Direct Supervision of technique-specific CVC insertion will be limited to the following credentialed staff:
    - i. Attending physician
    - ii. Fellow
    - iii. Resident at the PGY-2 level or greater
  - e. Electronic record keeping of successful completion of each CVC insertion will be completed using an UNLV-SOM designated modality (e.g. [www.newinnov.com](http://www.newinnov.com)) and will include verification from the supervising staff
  - f. Upon successful completion of each CVC insertion, a copy of the CVC insertion checklist, with patient sticker and signed by the observing RN, will be provided to that resident's respective residency coordinator.
  - g. At least one of the final two technique-specific CVC insertions required for credentialing (i.e. insertion #4 or #5 for each technique) must be directly supervised by an attending physician or credentialed subspecialty fellow.
    - i. Endorsement by the supervising attending or fellow of the operator's ability to safely, successfully, and independently insert the CVC (technique-specific) is required for a resident to be credentialed as "independent."
2. Dissemination of information regarding residents able to independently perform CVC insertion will include the following:
- a. New Innovations
    - i. Generic log-on information will be provided to UMC nursing staff
    - ii. Logs will be updated by residency coordinators at least monthly
  - b. Badge Identifier
    - i. Upon reaching "independent" status residents will be provided with a color coded badge sticker indicating ability to insert CVC's with either US guidance or by landmark.
    - ii. Distribution of color coded badge stickers will be controlled by residency coordinators
3. Non- Emergency Medicine, Internal Medicine, or Surgical residents
- a. Credentialing for CVC insertion will be available to all residents regardless of specialty department (i.e. Family Medicine, OB, Pediatrics, etc.)
  - b. Requirements outlined herein will apply to those residents
  - c. Simulation and didactic training can be achieved through attendance at sessions provided by the Emergency Medicine, Internal Medicine, or Surgical departments
4. Quality Assurance
- a. Interdepartmental evaluations of the didactic and simulation educational sessions will be performed on an annual basis until consistency in instruction is determined by consensus between departments.

## References:

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4. Wigton RS, Blank LL, Nicolas JA, Tape TG. Procedural skills training in internal medicine residencies. A survey of program directors. *Annals of internal medicine*. Dec 1989;111(11):932-938.
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