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.\textsuperscript{1,2} Furthermore, nearly half of adverse events in some populations are associated in some way with an operation or procedure.\textsuperscript{3}

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\textsuperscript{4} 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.\textsuperscript{5}

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.\textsuperscript{6}

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 School of Medicine (UNSOM) 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:
      1) The informed consent process (including description of risks, benefits, and alternatives of the procedure)
      2) Utilization of a CVC insertion checklist
      3) Utilization of “full barrier” sterile precautions

   c. Successful completion of technique-specific CVC insertion under direct supervision is required in the following quantity:
      1) Landmark guided CVC insertion (n=5)
      2) Real-time ultrasound guided CVC insertion (n=5)
         a) 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:
   1) Attending physician
   2) Fellow
   3) Resident at the PGY-2 level or greater

e. Electronic record keeping of successful completion of each CVC insertion will be completed using an UNSOM designated modality (e.g. 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.
   1) 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
      1) Generic log-on information will be provided to UMC nursing staff
      2) Logs will be updated by residency coordinators at least monthly

   b. Badge Identifier
      1) 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.
      2) 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. Existing Residents with previous credentialing / certification
   a. Residents who have been previously determined to be able to independently perform CVC insertion (i.e. credentialed prior to the introduction of these guidelines) will be “grandfathered” into the new credentialing system at the discretion of that resident’s program director.
1) A written statement of confidence from the department will be provided to residency coordinators in order for these residents to obtain their color-coded badge stickers.

5. 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:


2. AHRQ. TeamSTEPPS (Team Strategies and Tools to Enhance Performance and patient Safety). Paper presented at: TeamSTEPPS Master Course 2012; Seattle, WA.


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