

INS Position Paper

The Role of the Registered Nurse in Determining Distal Tip Placement of Peripherally Inserted Central Catheters by Chest Radiograph

As a leader in infusion therapy, the Infusion Nurses Society (INS) recognizes the expanding scope of practice of the licensed registered nurse in the field of infusion therapy. It is the position of INS that a qualified registered nurse may determine the distal tip placement of peripherally inserted central catheters by chest radiograph.

Background

The peripherally inserted central catheter (PICC) was introduced in the last quarter of the 20th century.¹ The catheter is inserted percutaneously through the veins and advanced until the tip resides in the lower one-third of the superior vena cava (SVC) to the junction of the SVC and the right atrium.^{2,3} The catheter may be inserted by a specially trained registered nurse (RN).^{1,4} Radiographic determination of appropriate catheter tip location is made by a physician, and the catheter can then be used for infusion therapy.^{3,5}

INS convened a national task force of infusion therapy experts to examine the practice of RNs determining the distal tip placement of PICCs by chest radiograph. The task force examined current practices and reviewed current literature. In addition, a survey of state boards of nursing was conducted. Analysis revealed a need for the expansion in the RN scope of practice to include viewing chest radiographs to determine distal tip placement of PICCs.

Discussion

Before a PICC can be used, the termination of the distal tip must be confirmed to be in the lower one-third of the SVC to the junction of the SVC and the right atrium.³

Traditionally, the location of the PICC tip is determined by chest radiograph interpreted by a physician prior to the device being used.⁵ In the event a physician is not readily available to review the radiograph, the PICC cannot be used.⁵ A qualified RN can determine the placement of the distal tip of the PICC. Once the catheter tip is determined to be centrally located, the prescribed therapy may be initiated.³

Should the distal tip of the PICC not be readily identifiable, the placement should be determined by a physician.⁵ Each chest radiograph viewed by the RN should be reviewed and confirmed by a physician within 24 hours.^{1,5,6}

To be qualified, an RN must attend and successfully complete an educational program that contains theoretical and anatomical content, as well as didactic sessions.^{1,5,7} A competency checklist will be completed and signed by a qualified instructor.

Policies and procedures defining educational program content, competencies, and qualifications for the RN and instructor will be clearly defined by the organization.^{5,7} The organization will develop and maintain a program for ongoing monitoring and validation of clinical competence.⁵ These policies and procedures must be in accordance with the state Nurse Practice Act, which is promulgated by the state's Board of Nursing, and federal and state regulatory and accrediting agencies in all practice settings.

Statement of Position

It is the position of the Infusion Nurses Society that a qualified registered nurse may determine the distal tip location of peripherally inserted central catheters by initial or repeat chest radiograph studies prior to administration of the prescribed therapy. It is the responsibility of the organization to determine its own criteria for allowing RNs to perform this function.

This statement is specific to the RN determining the location of the distal tip of the PICC only and does not extend to interpretation of radiographs for any other purpose. It is strongly recommended that chest radiographs viewed by a qualified RN be followed by a physician's final view and report.

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REFERENCES

1. Corrigan A. Infusion nursing as a specialty. In: Alexander M, Corrigan A, Gorski L, Hankins J, Perucca R, eds. *Infusion Nursing: An Evidence-Based Approach*. 3rd ed. St. Louis, MO: Saunders/Elsevier; 2010:4,5.
2. Hadaway L. Infusion therapy equipment. In: Alexander M, Corrigan A, Gorski L, Hankins J, Perucca R, eds. *Infusion Nursing: An Evidence-Based Approach*. 3rd ed. St. Louis, MO: Saunders/Elsevier; 2010:425.
3. Infusion Nurses Society: Infusion Nursing Standards of Practice. *J Infus Nurs*. 2006;29(1S):S42.
4. Harako M, Nguyen T, Cohen A. Optimizing the patient positioning for PICC line tip determination. *Emerg Radiol*. 2004;10:186-189.
5. Earhart A, Royer T. Taking the leap from PICC placement to tip placement. *JAVA*. 2007;12(3):148-155.
6. Miller C. Infusion nursing practice. In: Alexander M, Corrigan A, Gorski L, Hankins J, Perucca R, eds. *Infusion Nursing: An Evidence-Based Approach*. 3rd ed. St. Louis, MO: Saunders/Elsevier; 2010:488.

7. Markovich M. The expanding role of the infusion nurse in radiographic interpretation for peripherally inserted central catheter tip placement. *J Infus Nurs.* 2008;31(2):96-103.

Additional Reading

International Council of Nurses [position statement]. Scope of nursing. <http://www.icn.ch/>. Accessed September 24, 2009.

Melander S, Kleinpell R, McLaughlin R. Ensuring clinical competency for NPs in acute care. *Nurse Pract.* 2007;32(4):19-20.

Donze A, Hamvas A, Linck D. Neonatal peripherally inserted central catheter team. *Adv Neonatal Care.* 2007;7(1):22-29.

Siela D. Chest radiograph evaluation and interpretation. *Adv Crit Care.* 19(4):444-473.

Oncology Nursing Society. *Access Device Guidelines Recommendations for Nursing Practice and Education.* 2nd ed. Pittsburgh, PA: ONS;2004:37-41.

All Nursing Schools. Complete listing of state nursing boards. <http://www.allnursingschools.com/faqs/boards.php>. Accessed August 7, 2009.

Bowe-Geddes L, Nichols H. An overview of peripherally inserted central catheters. *Top Adv Pract Nurs.* 2005;5(3).
http://currentnursing.com/research/topics_in_advanced_practice_nurs.htm.
Accessed September 24, 2009.