



IMPROVING PATIENT SAFETY BY DECREASING PERIPHERALLY INSERTED CENTRAL CATHETER OCCLUSION RATES THROUGH EDUCATION



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Background

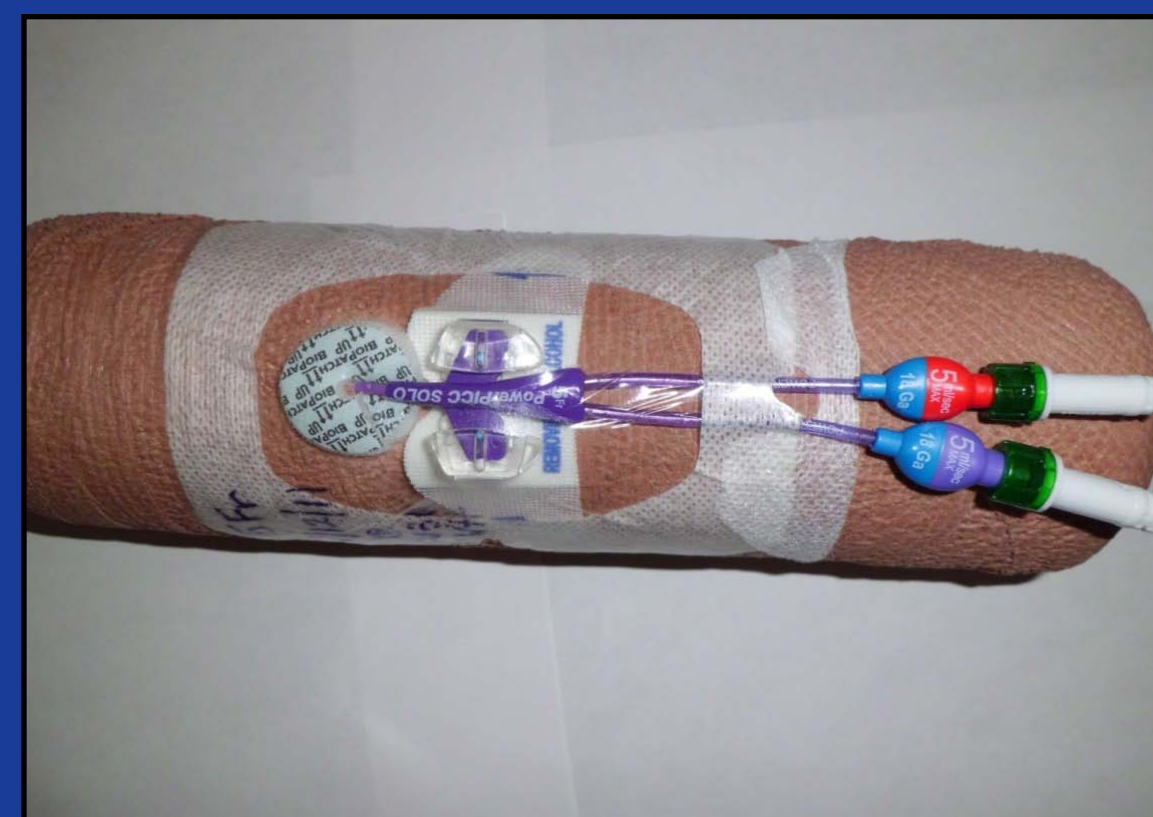
The occlusion rate on the surgical unit increased from 18% to 27% within a year. A clear vision of patient safety related to PICC occlusion was needed to create a culture of excellence where concern for the patient is paramount. Avoidance of risks associated with care is a patient's right.

Purpose

An innovative process was used to educate nurses on a surgical unit with high occlusion rates about peripherally inserted central catheter (PICC) maintenance. The goal was to empower nurses with the knowledge to reduce occlusion rates and improve patient safety, an essential component of quality care.

Strategy and Implementation

Multiple calls were being received by the Vascular Access Specialty Team (VAST) about occluded PICC lines on the surgical unit. Nurses were unable to flush or withdraw blood which signals withdrawal occlusion, the step before a complete occlusion. VAST activity data base showed increase in occlusion rates and use of declotting medication. The workload was not conducive to spot education moments so permission for in-services was obtained from the nurse manager. A pre-test/post-test design using a convenience sample of the core staff nurses working on the surgical unit at Durham Regional Hospital was utilized. Objective measures included written assessment of nurse's knowledge and direct observation of nurse's flushing techniques during in-services held. An educational packet was created and an arm with PICC inserted was constructed for hands on use. Educational sessions were provided at skills day and on all shifts. Proper management of lines was taught to prevent future occlusions.



Evaluation

Mean written test scores improved from 0.88 to 0.99. Mean observation rate improved from 0.74 to 0.99. Pre-education occlusion rate was 30%. Post results were 23%. The nurses rated the project "excellent" and felt able to serve as competent PICC line managers. Learned behaviors were then modeled.

Care and Maintenance of PICC Line Self-Assessment Tool

1. When should you flush the PICC?
2. What size syringe should be used when obtaining lab specimens?
3. What size syringe should be used when instilling medications?
4. Which PICC requires Heparin?
5. If no IVF is infusing, when is it appropriate to instill Heparin in a PICC line?
6. Is it acceptable to ignore a withdrawal occlusion just because you have another lumen available to use?
7. Who is responsible for the RyMed cap change and when should it be changed?
8. The PICC should be flushed fast and forceful when meeting resistance?
9. Is it acceptable to obtain the lab specimen without flushing the PICC first?
10. What is the correct amount of flushes to use after obtaining labs?

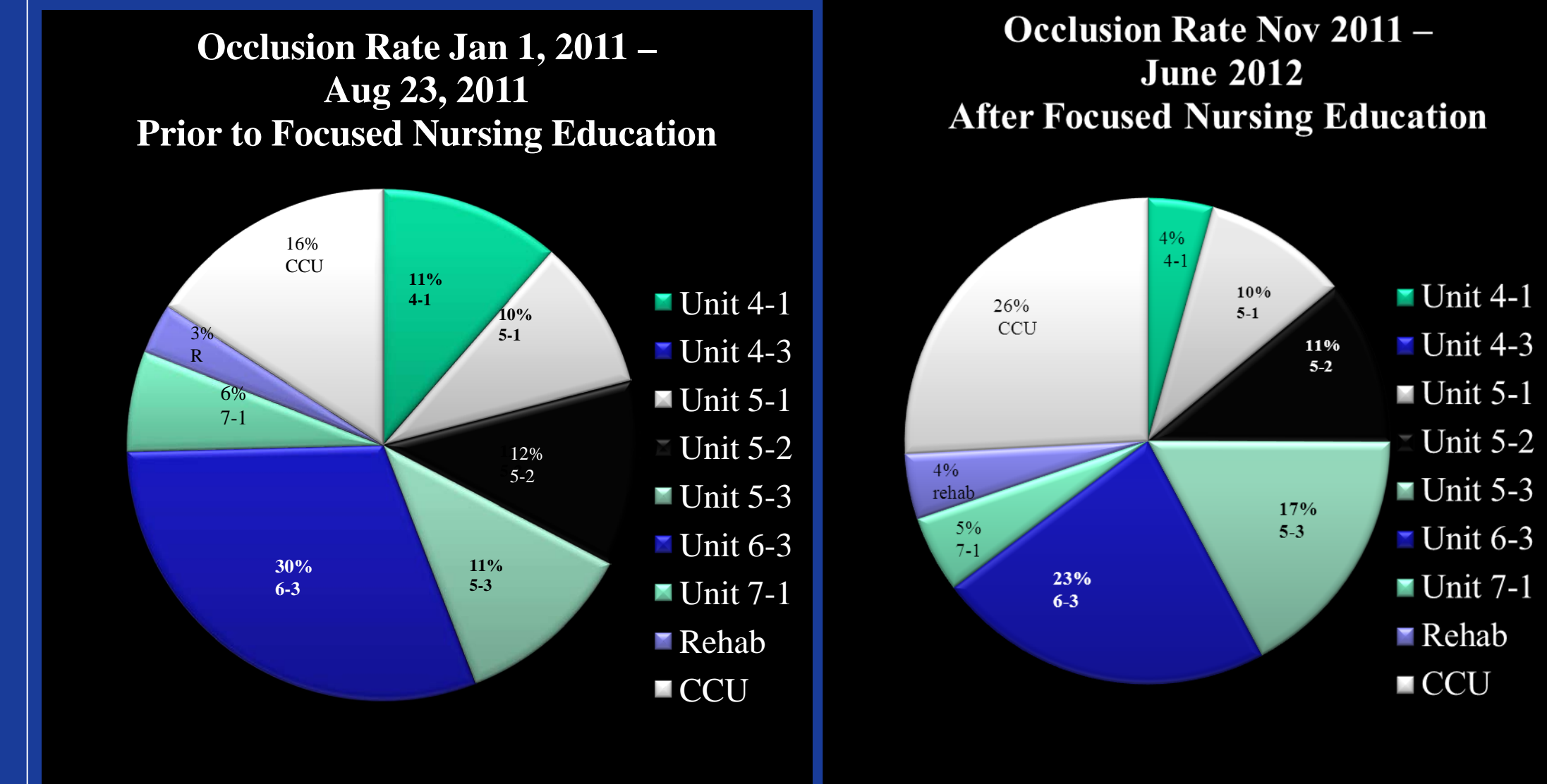
% of the 27 RNs Correctly Answering Questions Pre - Education

	70%-79%	80%-89%	90%-99%	100%
Question 1			93%	
Question 2			96%	
Question 3			93%	
Question 4		85%		
Question 5	74%			
Question 6				100%
Question 7			96%	
Question 8	70%			
Question 9			96%	
Question 10		85%		

% of the 27 RNs Answering Questions Correctly Post-Education

	70%-79%	80%-89%	90%-99%	100%
Question 1				100%
Question 2				100%
Question 3				100%
Question 4				100%
Question 5				100%
Question 6				100%
Question 7				100%
Question 8			92%	
Question 9				100%
Question 10				100%

Outcomes



Implications for Practice

Focused education improved patient outcomes by reducing PICC occlusions and delay in care caused by use of declotting medication. Key was empowering nurses with the right technique to use every time. A culture of mutual accountability was created and nurses disseminated the information to others.

References

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