

The Impact of Procedural Checklist Competency Requirements on Early Chest Port Infections

Steven Zangan, Rakesh Navuluri,
Jonathan Lorenz, Brian Funaki,
Thuong Van Ha, Jeff Leef



Purpose

- Central line associated blood stream infections (CLABSI)
 - Prolong hospital stays
 - Increase cost
 - Important cause of morbidity and mortality

Purpose

- While subcutaneous port catheters have a lower incidence of infection, adverse events still occur

Purpose

- Early infections (within 30 days of placement) may be due to a variety of factors
 - Insertion technique
 - Patient skin preparation
 - Operator experience

Purpose

- We undertook a continuous quality improvement project to evaluate the impact of a multilevel intervention of formalized training and certification of residents, fellows, and technologists on the early infection rate.

Methods

- Baseline early infection (<30 days) rates as defined by the CDC were obtained in 152 consecutive patients
 - These were segregated by
 - primary operator (Attending, Fellow, Resident)
 - Timeframe (greater than or less than 14 days)

Methods

- Following establishment of a baseline infection rate, formalized training of residents and fellows was undertaken
 - Hands on suture workshop
 - Satisfactory completion of a skill set with attending level certification



THE UNIVERSITY OF CHICAGO
Department of Radiology

Procedure Competency Checklist
Section: Interventional Radiology
Procedure: Central Venous Access
Catheter type: Port

Resident Name: Date:

Rotation	PGY Level	PGY 3 (PG)	Yes	No
Obtain informed consent			<input type="checkbox"/>	<input type="checkbox"/>
Complete "Time-Out" form			<input type="checkbox"/>	<input type="checkbox"/>
Resident is wearing scrubs			<input type="checkbox"/>	<input type="checkbox"/>
Resident follows standard scrub protocol			<input type="checkbox"/>	<input type="checkbox"/>
Respects patient's privacy			<input type="checkbox"/>	<input type="checkbox"/>
Wears lead and radiation badge			<input type="checkbox"/>	<input type="checkbox"/>
Able to maneuver fluoroscopic unit/table			<input type="checkbox"/>	<input type="checkbox"/>
Responsive to patient's discomfort			<input type="checkbox"/>	<input type="checkbox"/>
Ultrasound guided puncture performed			<input type="checkbox"/>	<input type="checkbox"/>
Catheter/port placed correctly			<input type="checkbox"/>	<input type="checkbox"/>
Incision is closed satisfactorily			<input type="checkbox"/>	<input type="checkbox"/>
Catheter is flushed with heparin/saline			<input type="checkbox"/>	<input type="checkbox"/>
Caps are placed on catheter(s)			<input type="checkbox"/>	<input type="checkbox"/>
Sterile dressings applied			<input type="checkbox"/>	<input type="checkbox"/>
Paperwork is signed			<input type="checkbox"/>	<input type="checkbox"/>
Report is dictated in timely manner			<input type="checkbox"/>	<input type="checkbox"/>
Use minimal fluoroscopy time necessary for the study			<input type="checkbox"/>	<input type="checkbox"/>
Exposure time: <input type="text"/>				

Comments:

Competency with procedure achieved: Yes No

Faculty Name:

Methods

- Formalized training of technologists included
 - Observation of a demonstration about sterile technique
 - Completion of an inservice on prevention of port infection
 - Completion of a port placement checklist during subsequent cases

Methods

- Following the training period infection rates of 415 consecutive patients were calculated

Results

- During the intervention period, a total of 8 eligible residents (PGY3 or higher) rotated through our section who had completed the suture workshop
- 4/8 (50%) satisfactorily demonstrated competency and were certified as primary operators for port insertion
- Both of two Interventional Radiology Fellows were certified

Results

- Following the training period infection rates of 415 consecutive patients were calculated

Early Infection Rate

	Prior to Intervention	Following Intervention
Resident	3.0% (2/67)	2.2 % (2/89)
Fellow	NA	0.6 % (1/170)
Attending	2.4% (2/85)	1.9% (3/156)
Total	2.6% (4/152)	1.4% (6/415)

Acute Infection Rate

	Prior to Intervention	Following Intervention
Total	0.7% (1/152) (Resident)	0.5% (2/415) (Resident, Attending)

Conclusion

- Early infection rates of port catheters slightly decreased following the intervention period though this decrease was not statistically significant
- The intervention and formalized process received positive feedback

Conclusion

- The procedural competency checklist served as a method to document resident ACGME competency in patient care
- We continue the practice of holding an annual suture workshop and formally certifying residents during their Interventional Radiology rotation