Assessing the Burden of Unnecessary Central Venous Catheters in Patients on Medical-Surgical Floors

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Central lines -- including peripherally-inserted central venous catheters (PICCs) -- allow the administration of intravenous therapies but also pose risks including catheter-associated thrombosis and central-line associated bloodstream infection (CLABSI). Placing PICCs and other non-tunneled central lines only when necessary, and removing them when they are no longer clinically indicated, is critical to ensuring patient safety. Based on our clinical experience, we suspected that a significant proportion of PICCs and other central line days in medical-surgical floor (med-surg) patients at Thomas Jefferson University Hospital (TJUH) are not indicated. A project to reduce unnecessary line days could improve the quality and safety of care at TJUH.

**PROJECT GOALS**

Our project goals are to:
- a) assess the burden of unnecessary PICCs and other non-tunneled central lines on med-surg units at TJUH and
- b) understand the underlying reasons behind the problem. In the first phase of our project we conducted an audit of med-surg unit PICCs and other non-tunneled central lines with the goal of obtaining a rough estimate of the number of line days that are unnecessary.

**SMART AIM**

By December 31, 2017, the TJUH medical-surgical floors will reduce the number of unnecessary PICC line days by 30%.

**METHODS**

We developed a definition for necessity of central lines based on previously published studies and adapted them for TJUH. A Central Audit Form was developed in which we developed specific criteria to justify non-ICU central venous access. Members of the project then undertook several random audits of med-surg floors in which patients with PICCs (or other central lines) were identified and assessed for central line necessity. Data from these audits was pooled and analyzed.

**RESULTS**

A total of 266 patients on medical-surgical floors were audited. 28/266 (10.5%) patients had PICCs or other central lines. 5 of these 28 lines (18%) were determined to be unnecessary at the time of audit as they did not meet proposed criteria of justification. The remainder of central venous catheters (82%) were justified. The most common reasons for PICC/CVC use were: 12/28 (42.8%) for home antibiotics, 5/28 (17.8%) for chemotherapy, 4/28 (14.2%) difficult IV access, 3/28 (10.7%) for TPN, 1/28 (3.5%) for instability and need for IV meds.

**CONCLUSIONS**

There are a significant number of unnecessary PICC or central line days in med-surg patients at TJUH. Reducing these unnecessary line days could reduce central line-associated complications. Next steps will include investigation of underlying reasons and the development of strategies to address the problem.

**NEXT STEPS**

- Address justification of non-central venous catheters to the “script” for patient centered rounds.
- Similar to the antibiotic stewardship team, create a stewardship team to address use of central venous catheters on medical-surgical floors.
- Assign the nurse manager for each nursing unit to round on PICC necessity and discuss justification with primary team directly.
- Assign a pop-up or hard stop in EMR that notifies team of duration of central venous access and asks them to justify its indication.

**REFERENCES**