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

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

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BACKGROUND

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:

- assess the burden of unnecessary PICCs and other non-tunneled central lines on med-surg units at TJUH and
- 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 lines 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.

AUDIT FORM

Central Line Audit Form

Criteria for Justification of Non-ICU Central Venous Access

- Scheduled medication requiring central venous access
- Total peripheral nutrition or plasmapheresis
Anticipated need for home intravenous (IV) therapy (e.g. antibiotics)
- Unable to obtain adequate peripheral access *and* one of following
 - scheduled IV medication
 - PRN IV medication
 - 2 IV medications and/or blood products being simultaneously administered
- Active (within last 24 hours) cardiovascular instability (SBP <100, heart rate <50 or >120)
- < 24 hours from ICU transfer with central line in place
- No justification for central line**

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 lines 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

Proposed Interventions

- 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.

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FISHBONE DIAGRAM

