DECREASING FEMORAL LINE UTILIZATION WITHIN THE CRITICAL CARE UNIT

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BACKGROUND

The use of temporary central venous catheters (CVCs) is routine practice in acute care. In emergency situations, femoral CVCs are sometimes placed to establish access quickly. While all CVCs have risks, femoral lines pose a high risk for central line associated infections (CLABSIs) due to microbial colonization at the site. While Columbus Regional Health's CLABSI rate was below expected, there was opportunity to reduce femoral line days to further eliminate harm.

OBJECTIVE

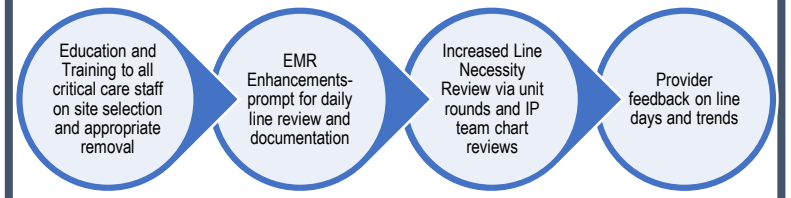
Reduce femoral line days in a critical care unit to reduce the risk for CLABSI.

METHODS

Utilizing the NAHQ performance and process improvement domain, the quality improvement initiative utilized the Plan-Do-Study-Act (PDSA) framework.

During the **Plan** phase, data was collected on femoral line placements (by provider and location) and femoral line days (by location). Based on initial data collected and preliminary root cause analysis, it was hypothesized that implementing a multi-faceted approach (described below) in our critical care unit would reduce femoral line days.

During the **Do** phase, a multi-faceted femoral line day reduction bundle was implemented during Q2-Q3 2024 in our critical care unit. This intervention bundle consisted of four components: Education and Training, Electronic Medical Record (EMR) enhancements, Increased Line Necessity Review and Provider Feedback.



OUTCOMES

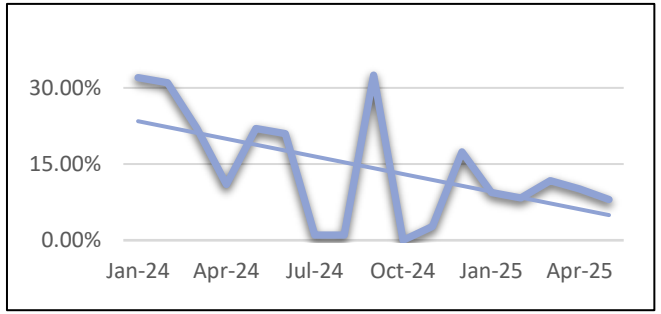
Table 1: Baseline demographics

Characteristic	Pre-Implementation (2024Q1)	Post-Implementation (2024Q4)
Age (yr), mean	62	69
Gender, no. (%) Male Female	 M = 16/32 (50%) F =16/32 (50%)	 M = 5/9 (56%) F = 4/9 (44%)

Table 2: Results

Femoral Line Days: CCU (# of days), mean	35	10
Femoral Line Days : non-CCU (# of days), mean	5	2

Femoral Line Days: Critical Care Unit



Femoral line days (as a percentage of overall central line days) in the critical care unit decreased from 28% (Q1 2024) to 6.7% (Q4 2024)

DISCUSSION

Hospital acquired infections, including CLABSIs continue to be a major challenge for hospitals, with each CLABSI significantly increasing patients' risk for morbidity and mortality and dramatically increasing cost to the healthcare system. Finding effective methods for CLABSI risk reduction are an important focus for infection prevention (IP) programs. At our institution, decreasing femoral line days was a proactive quality control strategy to sustain zero CLABSI harm.

During our initial **Study** phase, we determined that femoral line days decreased from 28% to 6.7% after a multi-faceted femoral line reduction bundle was implemented in our critical care unit. Since the intervention elements were implemented simultaneously, we are unable to determine if any one single component of the bundle was more or less effective than any other. However, anecdotally, retrospective review and team feedback demonstrated early appropriate line removal and provider feedback on line use performance were deemed critical to the success of the overall intervention. We also found that provider beliefs were varied on the degree of risk associated with femoral lines and provider comfort level with central line insertion at alternative sites was variable. We were able to **Act** on this information and provide targeted education to this subset of CCU providers as part of our ongoing improvement efforts. Femoral line use trends and overall central line use trends are monitored monthly and reported to providers quarterly with sustainable results still realized.

Conclusions

An overall decrease in femoral line utilization was noted during our trial period. Our findings suggest that provider education and feedback, paired with evidence-based practices to promote appropriate site selection and timely line removal, led to a decrease in femoral line days and elimination of CLABSI harm.

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