Optimizing the Effectiveness of Peripheral Intravenous Catheters

Date: July 8, 2020  
Time: 9:40 a.m. to 10:25 a.m.  
Place: Remote

Abstract

Problem Hospitalized adult patients require more than one short peripheral catheter (SPC) to complete the prescribed intravenous (IV) therapy due to catheter failure and the practice of resiting. The purpose of this quality improvement initiative was to increase the rate of SPCs remaining in situ for the entire duration of the IV therapy for hospitalized adult patients.

Methods Application of an engineered securement device (ESD), an educational program about modifiable risk factors, and removing an IV only upon clinical indication were methods utilized to reduce the number of SPC insertions and catheter failures. This study was conducted at a rural, Midwestern hospital using a convenience sample (N=405) and an observational, descriptive, cohort design in six phases over a six-month period.

Results Through phases, there was a gradual reduction of SPC replacements (24%), catheter failures (24% to 13%), SPCs per patient ($M=2.9$ to $2.2$, $p=.045$), SPC insertions (4,000 per year), and catheter-related bloodstream infection ([CRBSI], 0.26 per 1000 catheter days to 0.0), and a significant increase of SPCs remaining in situ ($M=2.6$ to 3.8 days; $p<.001$). The results demonstrated the risk of failure significantly increased when inserted in the wrist ($p=.007$) and upper arm ($p=.026$) and significantly reduced when inserted in the forearm ($p=0.39$).

Implications for Practice The use of an ESD, promoting insertion in the forearm, avoidance of the wrist and upper arm, and a practice change for IV removal only when clinically indicated may be effective in reducing the number of IVs inserted and reducing CRBSIs.