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Abstract:

Background: Measurement of central line-associated bloodstream infection (CLABSI) rates outside of intensive care units is challenged by the difficulty in reliably determining central venous catheter (CVC) use. The National Healthcare Safety Network (NHSN) allows for use of electronic data for determination of CVC-days, but validation of electronic data has not been studied systematically.

Objective: To design and validate a process to reliably measure CVC-days outside of the intensive care units that leverages electronic documentation.

Methods: Thirty-four inpatient wards at 2 academic hospitals using a common electronic platform for nursing documentation were studied. Electronic queries were created to capture patient and CVC information, and tools and processes for tracking and reporting errors in documentation were developed. Strategies to validate electronic data included comparisons with manual CVC-day determinations and automated data validation using customized tools. Interventions included redesign of documentation interface, real-time audit with feedback of errors, and education. The primary outcome was patient-level total error rate in electronic CVC-day measurement compared with manually counted CVC-days.

Results: At baseline, there were a mean (± standard deviation) of electronic CVC-day errors (omission and commission errors summed and counted equally) per manually counted CVC-day. After several process improvement cycles over 7 months, the error rate decreased to

Conclusions: Baseline electronic CVC-day counts had a high error rate. Stepwise interventions reduced errors to consistently low levels. Validation of electronic calculation of CVC-days is essential to ensure accuracy, particularly if these data will be used for interinstitutional comparison.
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