

Abstract:

OBJECTIVES: Central line-associated bloodstream infection (CLABSI) is a preventable nosocomial infection. Simulation-based training in sterile technique during central venous catheter (CVC) placement for emergency medicine (EM) residents, and its effect on changing the medical intensive care unit (MICU) practice of routine replacement of CVCs placed under sterile technique in the emergency department (ED), has not been evaluated.

METHODS: Emergency medicine residents received simulation-based sterile technique training during CVC placement between May 2008 and September 2010. Between June 2008 and January 2011, the authors reviewed records of patients who had CVCs placed in the ED under sterile technique by EM residents and were admitted to the MICU (group 1) and CVCs placed in the MICU under sterile technique by internal medicine (IM) residents (group 2). IM residents completed similar simulation-based training before May 2008. Changes in EM residents' sterile technique performance scores were compared, as well as CLABSI rates in both groups. EM residents' CVC procedural skills were not assessed.

RESULTS: Seventy-six EM residents completed simulation-based training with significant improvement in performance (median scores 13 out of 24 before training, 24 out of 24 after training; $p < 0.001$). CLABSI rates per 1,000 catheter-days were 1.02 in group 1 and 1.02 in group 2 ($p = 0.99$). Both groups had similar demographics, acuity, and mortality ($p > 0.5$).

CONCLUSIONS: Routine replacement of CVCs placed in the ED under sterile technique after simulation-based training would appear to be unnecessary. These findings demonstrate patient-centered outcomes that are comparable for CVCs in ED-admitted MICU patients, regardless of whether the CVC was placed in the ED or MICU.

Reference:

Hoskote, S.S., Khouli, H., Lanoix, R., Rose, K., Aqeel, A., Clark, M., Chalfin, D., Shapiro, J. and Han, Q. (2014) Simulation-based Training for Emergency Medicine Residents in Sterile Technique During Central Venous Catheterization: Impact on Performance, Policy, and Outcomes. *Academic Emergency Medicine*. December 31st. (epub ahead of print).