Project to Prevent Central Line–Associated Bloodstream Infections in the Medical Intensive Care Unit

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In an attempt to reduce the rate of central line–associated bloodstream infection (CLABSI) in its medical intensive care unit (ICU), Gaston Memorial Hospital in 2009 joined the NC Prevent CLABSI Collaborative that had been formed by the North Carolina Center for Hospital Quality and Patient Safety (now known as the NC Quality Center). Our team was comprised of nursing managers, clinical nurse specialists, infection preventionists, risk managers, ICU staff nurses, and members of the IV team. At this time, we did not focus on the Comprehensive Unit-based Safety Program recommended by the collaborative. Instead, we focused on house-wide initiatives, such as hand hygiene campaigns and “scrub the hub” campaigns, and we also initiated multidisciplinary patient care rounds. Although we did see some reductions in CLABSI rates, those lower rates were not sustainable.

When we decided to participate in the continuation of the NC Prevent CLABSI Collaborative that began in August 2011, we knew that we had to make some changes. Therefore the Comprehensive Unit-based Safety Program was adopted in 2011 and was utilized during the second phase of the collaborative. We knew that staff buy-in was a key factor and that staff members had to own this project in order for it to succeed. We created a Medical ICU Performance Improvement Project focused on CLABSI rate reduction. Medical ICU staff members were encouraged to participate in team meetings, and their input was viewed as essential.

Medical ICU CLABSI rates were posted monthly and were discussed at every unit meeting so that staff members were made aware of their progress. Whenever a CLABSI was identified, staff members were asked to participate in a defect analysis, which helped them to take ownership of the situation and to hold one another accountable. Members of the staff began to engage in conversations and to explore additional opportunities for improvement. They began reporting concerns about other areas of the hospital where practices differed from those followed in the medical ICU. Their feedback was instrumental in helping to identify the need to implement our nursing strategies in other departments, such as respiratory therapy, anesthesia, and radiology, and to impart those strategies to laboratory personnel and any other health care workers who accessed the vascular system.

Staff members created a central line maintenance bundle, which was used as a teaching tool and in competency check-offs. “Super users” were trained in aseptic technique and blood culture collection. The super users then trained their peers and performed competency checks. The maintenance bundle checklist was also used as an audit tool to track compliance. This tool was later reformatted and is currently used hospital-wide as a competency check-off.

The strategies and outcomes discussed in the NC Prevent CLABSI Collaborative were also a standing agenda item for our Vascular Access Safety Team Committee. We
measured the success of our initiatives and performed return-on-investment analyses to justify hospital-wide adoption of our strategies. We had been using neutral needleless connectors on our peripheral lines and mechanical valves on our central lines, but we decided to switch to use of a positive pressure displacement valve for both peripheral and central lines. We implemented the recommendation of the Centers for Disease Control and Prevention that all patients with a central line be bathed using a product containing chlorhexidine gluconate [1-3]. We eliminated the use of bath basins and began using prepackaged baths for all patients. We also began requiring that a second health care worker be present for all central line insertions, and this intervention prompted better compliance with central line insertion practices and helped to prevent routine use of femoral insertion sites for central lines [1-3].

During our involvement with the NC Prevent CLABSI Collaborative, an outbreak of vancomycin-resistant enterococcal (VRE) bacteremia occurred, which opened up communication with physicians, surgeons, the chief medical officer, and the chief nursing officer. Their involvement improved cooperation between departments. For example, the medical ICU partnered with Environmental Services to perform a thorough cleaning of not only all patient rooms but also all common areas in the medical ICU. We also worked with the laboratory to perform active surveillance for VRE bacteria and to perform VRE screenings on every patient admitted to a critical-care bed [4].

During our continued involvement in the NC Prevent CLABSI Collaborative, we have focused on the Comprehensive Unit-based Safety Program and have been able to decrease CLABSI rates hospital-wide. The key to our success has been the involvement of bedside nurses and their taking ownership of the unit’s infection rates by doing what is right for patients and developing a culture of safety for all patients. NCMJ

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References

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