Editor’s note: This is the second article in a two-part series on central line–associated bloodstream infections (CLABSI). Part one focused on CLABSI indications and insertion (americannursetoday.com/revisiting-clabsi-prevention-strategies-part-1).

When a patient’s healthcare team determines that a central line is needed (see americannursetoday.com/revisiting-clabsi-prevention-strategies-part-1), proper maintenance is required to prevent CLABSI and prompt action is needed if one occurs.

Central line care and maintenance
Before applying a dressing to a central line insertion site, secure the device. Advocate for newer options (such as subcutaneous securement) that avoid suturing, allowing the line to be more easily cared for.

When choosing a dressing, consider that in 2017, the Centers for Disease Control and Prevention (CDC) made one update to the 2011 guidelines for the prevention of intravascular catheter-related infections: Using a chlorhexidine-impregnated dressing is now a Category 1A recommendation (the strongest recommendation) for nontunneled, short-term catheters. The CDC specifies that this type of dressing should carry a U.S. Food and Drug Administration (FDA)–cleared label with an indication to prevent infections.

Once the dressing is in place, follow the basics of central line care and maintenance, including hand hygiene (before and after contact with the patient or the patient’s environment and whenever moving from dirty to clean tasks), hub hygiene, device flushing, appropriate administration set change practices (continuous versus intermittent and infusate specific requirements), site assessment, and maintaining a clean, dry, and intact dressing. (See Maintenance = prevention.)

Central line necessity
Central line care also should include daily review of its necessity. Use the electronic health record (EHR), with specific criteria to be verified as part of the daily assessment. Best practice alerts for all staff will remind providers to carefully review the patient’s current and anticipated vascular access needs and prompt a purposeful decision to keep or discontinue the line. Auditing (through chart review and direct observation) provides an opportunity to address correctable process failures before they result in patient harm. These audits can help aggregate data on device use and adherence with other prevention strategies. The combination of approaches offers a more robust understanding than relying only on retrospective review. The decision to discontinue or de-escalate a central line should be made via interprofessional rounds, with input from pharmacy and vascular access specialists, and it should include an evaluation of the patient’s postdischarge needs.

What to do when a CLABSI occurs
If a CLABSI is suspected, the provider will order blood cultures. (See Specimen collection: Best practices.) Any diagnosed CLABSI’s should be treated as life-threatening, and antibiotics specific to the organism should be initiated. Infection preventionists, vascular access specialists, providers involved with device insertion, and frontline staff should review the case in detail, looking for potential contributing factors.
Uncovering the cause of the CLABSI and developing an action plan are key steps to preventing future infections. One method of review is apparent cause analysis. (At Methodist Hospitals, the analysis is facilitated by a member of the infection prevention team who’s a clinical nurse specialist with expertise in critical care and is certified in infection control and vascular access.)

Start with an initial EHR chart review to provide patient and situation background information. Within a week of identifying the infection, the clinical staff from the units who provided care should gather to review all aspects of the case—from line insertion to any care difficulties (dressing problems, daily bathing documentation, tubing changes, and needleless connector change documentation)—and identify improvement opportunities. They then can create an action plan with measurable goals. (See Questions lead to answers.)

When conducted in a collaborative, nonpunitive manner, this discussion is a powerful tool for understanding prevention opportunities. Infection preventionists must rely on information in the EHR to determine whether the patient has developed a CLABSI, but performance improvement requires open discussion with staff and direct observations of care.

**Information sharing**
Share review and discussion findings through learning opportunities for all staff. Acknowledge different learning styles and ask for team input about the best way to distribute the information.

When you help staff understand what contributed to CLASBI, they can focus on preventing infections rather than responding to them. In addition to the complete case review, share information about specific organisms and microbiology related to skin, environment, water, and...
Specimen collection practices influence the likelihood of a culture providing the most accurate clinical information to identify a central line–associated bloodstream infection (CLABSI).

CLABSIs are identified by a positive blood culture (with a recognized pathogen) in a patient with a central venous catheter (in place for at least 3 calendar days) in the absence of another defined infection (following Centers for Disease Control and Prevention site-specific requirements). This is different from the clinical definition of catheter-related bloodstream infections, which also relies on additional testing (including methods such as paired cultures, time to positivity analysis, or culturing the tip of the catheter if it has been removed).

These best practices will help ensure correct specimen collection:
- To decrease false positive results, don’t draw blood cultures through existing catheters unless otherwise ordered by the provider. If a blood culture is drawn through the catheter, a new needleless connector must be applied prior to obtaining the culture; drawing through an existing connector increases the risk of a contaminated culture.
- Blood culture bottles have a dust cap (not a sterile cap), which must be disinfected before specimen collection.
- If your organization experiences repeated instances of blood culture contamination, consider implementing strategies such as dedicated trained phlebotomists or initial specimen diversion technologies.
- Needle-free blood draw devices used in peripheral vessels allow samples to be drawn through existing I.V. catheters. These devices can help reduce the number of peripheral sticks a patient endures and the potential risk of infection.

A quality specimen helps speed the time to appropriate treatment and minimizes unnecessary treatment resulting from potential false-positive results.

Questions lead to answers

Asking the right questions can help prevent central line–associated bloodstream infections. For example, to determine if proper techniques are being used to avoid infection from *Staphylococcus aureus*, a skin pathogen, observe staff and ask:
- Was the skin visibly clean before performing chlorhexidine gluconate skin preparation?
- Was sufficient time taken to clean the skin? (Depending on the product used and site accessed, scrub and dry times can be between 30 seconds and 2 minutes.)
- Was a back-and-forth friction scrub technique used?
- Was appropriate aseptic technique used when applying dressings?
- Did the dressing remain fully intact in the days leading up to the infection?
- For patients in the intensive care unit, was the organization’s decolonization protocol followed?

The right care

Personal accountability for care includes receiving feedback when expectations aren’t met. Unit score cards are common, but taking these issues directly to individual nurses can help make them personal. Engage bedside staff in chart audits and vascular access rounds to help bolster awareness. For staff who are interested in furthering their knowledge and demonstrating their role in vascular access, board certification (vacert.org) is an option. This credential is for teams placing lines and for anyone with a role in vascular access, including frontline staff and infection prevention teams.

Staff involvement in reviewing CLABSI cases and the
policies and process measures that help prevent infections can help focus the team on ensuring that the right care is provided for every patient, every line, every single time.

Michelle DeVries is senior infection control officer for Methodist Hospitals in Gary, Indiana, and is an adjunct research fellow at Griffith University in Australia. She serves on the speakers’ bureau for Access Scientific, Becton Dickinson, Ethicon, and Eloquest.

Selected references


(continued from page 43)

pool to address unplanned scheduling issues, and assess for trends that may prevent a unit from appropriately staffing its area. When issues are discovered, their root causes are identified, and strategies are developed to help the manager correct the problem.

In addition to the daily and weekly meetings, new tools were developed to help unit managers address staffing needs. For example, incentivized shifts promote self-directed floating. Unit managers use incentives to fill less-desirable shifts with available staff who are willing to work outside of their home unit and can be reassigned to a similar area of competency. A limited number of shifts can be posted per manager, and they can only be posted 7 days before the time the shift will be worked. This eliminates issues with staff waiting to cover shifts only if bonus dollars are assigned and reverts staff who are proactive and flexible.

Outcomes
VCU’s decentralized staffing model has improved organizational and staff outcomes. Since the inception of the staffing and scheduling committee, staffing performance has improved. The budget to actual hours per patient day for nurse staffing is consistently on target, and VCU continues to demonstrate strong clinical performance in nurse-sensitive indicators. Although many other factors contribute to financial and clinical performance, VCU demonstrates that efficiency and high quality can be achieved in a decentralized staffing environment.

Take a holistic approach
No single approach to staffing and scheduling works for all organizations. Nurse leaders must evaluate their current staffing model, their organizational goals, and their team members to determine the staffing and scheduling system that will work best in their environment.

Visit americannursetoday.com/?p=56727 for a list of selected references

Danielle Bowie is vice president of nursing workforce development at Bon Secours Mercy Health in Cincinnati, Ohio. At the time this article was written, she was systems director of clinical resource management at Legacy Health in Portland, Oregon. Kathy Baker is associate vice president of nursing at VCU Health in Richmond, Virginia, and adjunct faculty at VCU School of Nursing.