

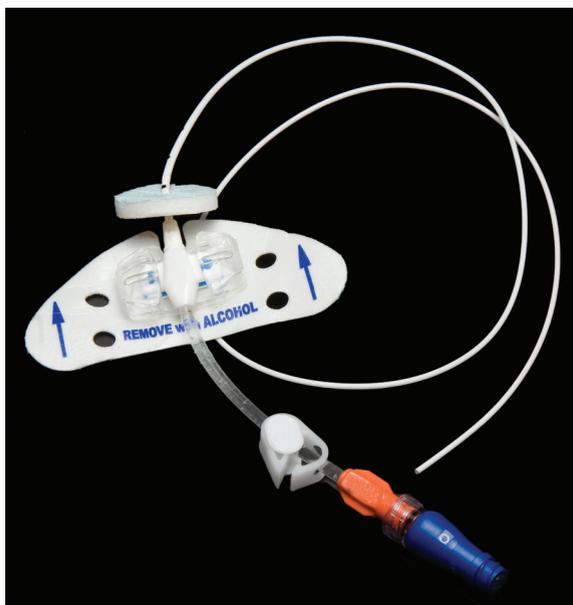
Reducing the risk of central line-associated bloodstream infections

Limiting access limits infection.

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Although the incidence of central line-associated bloodstream infections (CLABSIs) has decreased, the Centers for Disease Control and Prevention reports that an estimated 30,100 of these infections still occur in the United States each year, resulting in thousands of deaths and adding up to billions in costs. To reduce CLABSIs, nurses need to address quality-control issues and make prevention a daily task.

At Penn State Hershey Medical Center, our 49-bed medical-surgical unit uses central lines for posttransplant medications, I.V. vesicants and antibiotics, and total parenteral nutrition. The unit averages 230 central line patient days per month. To address the issue of CLABSIs, we convened an interprofessional team of nurses, physicians, phlebotomists, and infection prevention experts to implement guidelines and recommendations to reduce central line access. The team collaborated to create the No Central Blood Line Draw program. We used the Plan-Do-Check-Act quality-improvement model to implement changes in physician ordering practices, phlebotomy and nursing workflow, patient education, and charge nurse competency in central line blood draws.



How it works

The unit's education council members designed an education plan, which included teaching all staff about the risks for infection when a central line is accessed. Charge nurses, the only nurses permitted to perform blood draws from central lines, reviewed the relevant policy and received specialized training in this and capillary blood sampling. Laboratory and phlebotomy staff implemented laboratory specimen bundling and explained the process to staff. Collection times occur every 4 hours beginning at 4 A.M. Any specimens ordered between these collection times are drawn on the next collection cycle. Exceptions include admission laboratory spec-

imens, coding or critically ill patients, stat blood cultures, blood cultures ordered before initiating antibiotics, drug monitoring that occurs at nonstandard lab times, and specimens needed after a blood product transfusion.

Nurses evaluate all patients with a central line for their willingness to participate in the No Central Blood Line Draw program. Patients naturally prefer having blood drawn from a central line to being "stuck" with a needle, so we teach them about the relationship between accessing central lines for blood

specimens and the risk of infection with each occurrence. We also developed a patient education handout describing CLABSIs, strategies used to prevent them, and how patients can participate in their own care. (See *Keeping you safe.*)

Once patients agree to participate, staff and charge nurses evaluate them for venous accessibility for peripheral blood specimens, and laboratory specimens are bundled and drawn by phlebotomy or nursing staff. We created a process flow chart to provide a visual guide for all staff. (See the *Making the right decision: The No Central Line Blood Draw decision tree* on page 44.)

In addition to the steps and ex-
(continued on page 44)

(continued from page 42)

ceptions identified in the flow chart, if a specimen can't be obtained after four attempts or if the patient is identified as having difficult venous access, we evaluate him or her for a foot or capillary blood specimen. If a patient refuses peripheral blood draws despite CLABSI prevention awareness education, or if the patient meets one of the exceptions, the physician orders central line collection. The charge nurse documents this information in the unit charge nurse's resource book, which contains patients who have had a specimen drawn from their central line and why the line was accessed.

Success

Since implementing No Central Line Blood Draw in October 2014, no participating patient has acquired a CLABSI, down from 2.99 infections per 1,000 central line days. In addition, the number of times central lines were accessed for specimen collection decreased from an average of 6 to 1.4 times per day, and mislabeled or contaminated specimens sent to the laboratory were significantly reduced.

Implementation of this innovative process allowed for interprofessional collaboration and decreased the risk of patients acquiring CLABSIs. The process is now standard practice on the unit, and it's being evaluated for implementation in other medical-surgical units. ★

All authors work at Penn State Hershey Medical Center in Hershey, Pennsylvania. Krista Williamson is a nurse manager, Lorie Gonzalez is a nurse educator, Ashley Neusbaum is a clinical head nurse, and Jaime Messing is a staff nurse.

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Keeping You Safe

At Penn State Hershey Medical Center, our goal is to create the highest level of quality, safety, and value to you. As part of our commitment, the 5th Floor Acute Care Unit wants to minimize the risk of central line-associated bloodstream infections (CLABSIs).

What's a CLABSI?

A central line or central catheter is a tube that's placed into a patient's large vein, usually in the neck, chest, arm, or groin. It's used to draw blood and give fluids or medications. It may be left in place for several weeks. A bloodstream infection can occur when bacteria or other germs travel down a central line and enter the blood. If you develop a CLABSI, you may become ill with fever and chills or the skin around the line may become sore and red.

What are we doing to prevent CLABSIs?

To prevent infections, doctors and nurses will:

- limit or eliminate how many times the central line is accessed.
- obtain lab specimens from somewhere other than the central line, such as a vein in the arm.
- perform proper hand hygiene, including washing hands and wearing gloves when handling the central line.
- cover the port of your I.V. tubing and central line with a green cap for disinfection and protection.
- wash their hands and wear gloves when changing the bandage that covers the area where the central line enters your skin.
- ensure a specially trained nurse changes your dressing once a week or as needed. The team will use a special patch that contains anti-infection properties and a special solution that helps keep your dressing secure.
- frequently check your central line site and dressing.
- decide every day if you need to have the central line, so it can be removed as soon as it's no longer needed.
- carefully handle all medications and fluids that are given through your central line.
- offer you the opportunity to take a daily bath with 2% chlorhexidine gluconate cloths (CHG wipes) to reduce the risk of infection.

How can you help prevent a CLABSI?

- If you don't see your doctors and nurses clean their hands, please ask them to do so.
- Immediately notify the nursing staff if your bandage comes off or becomes wet, dirty, or loose.
- Speak to your nurse before showering. He or she will give you a special covering to keep your central line dry.
- Tell your nurse or doctor if the area around your central line becomes red or sore.
- Don't let family or friends touch the central line, and encourage them to wash their hands every time they enter or leave your room.
- To help prevent infection, ask your healthcare team about your central line and its care. For example, ask why you need a central line and who changes your central line dressing.

Vital signs: Central line-associated bloodstream infections—United States, 2001, 2008, and 2009. *MMWR Morb Mortal Wkly Rep.* 2011;60(8):243-8.

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(continued on page 46)

Making the right decision: The No Central Line Blood Draw decision tree

This decision tree helps staff understand and remember the process for limiting central line access and specifies exceptions.

