



Creating a proactive CLABSI prevention culture

It may seem like “mission impossible,” but improving CLABSI prevention is indeed possible through proper education and encouragement.

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At today's bedside, central venous catheters (CVCs) are increasingly used due to patient acuity levels and poor I.V. access, especially in critical and progressive care settings. When these CVCs are subjected to contamination, a resulting infection can develop, called a central line-associated bloodstream infection (CLABSI), a specific type of healthcare-associated infection (HAI). Because nurses are at the forefront of direct care, we have a direct impact on CLABSI prevention efforts.

Poor adherence to prevention is one variable that contributes to CLABSI occurrence; however, it's not the only cause: the nurses' environment can also contribute to improper practice. Therefore, it's necessary for nurses to receive consistent, evidence-based education on CLABSI prevention so they can learn to identify and understand barriers to practice and engage in peer accountability discussions. With this in mind, nurses can empower a new era of proactive bedside culture.

Mission possible

Patients generally develop HAIs at least 48 hours after admission or within 30 days of receiving healthcare services.¹ To nurses, HAI are known to be costly, preventable, and unnecessary. HAIs are troublesome infections that can complicate medical treatment and increase morbidity and mortality worldwide. According to the CDC, about 1 in 31 patients has an HAI on any given day.²

CLABSIs, on the other hand, are also costly, deadly, and numerous in nature. About 250,000 CLABSIs occur each year in the US, costing the healthcare industry more than \$1 billion annually.³ Between 2019 and 2020, there was a 24% increase in the national CLABSI rate in acute care hospitals.⁴ CLABSIs also increase patient length of stay and decrease patient satisfaction. Because CLABSIs pose a threat to the patients we take care of every day, we as nurses must be vigilant for infection sources.

These sources include contamination of the central line device prior to insertion,

the nurse's gloves/hands, infusates, needleless access sites, skin flora, the patient's interactions (such as visitors accidentally contaminating the CVC at a facility or at home), or via hematogenous sources (organisms being distributed by way of the bloodstream from one location in the body to another).

We as healthcare professionals should be very mindful of the hematogenous spread of infection. A CVC that becomes colonized with bacteria has the potential, for example, to infect a new post-op site. A separate source of infection, such as a complicated urinary tract infection or skin ulcer, has the potential to spread bacteria into the bloodstream and cause the CVC to become seeded with organisms, causing additional infection.

Why are CLABSI significant to nurses?

Patient safety is a nonnegotiable part of nursing, no matter how experienced you are. In line with the American Nurses' Association's *Code of Ethics*, nurses have several consistent responsibilities to patient care.⁵ One of the ethical principles that is significant for CLABSI prevention is *nonmaleficence*, which ensures patient safety in all practice settings. Each day that we work with patients, we make the unspoken but mutually understood choice to *do no harm*, making ethical decisions to protect patients during all phases of care delivery, and speaking out when things aren't right (see *On the web*).

We can think of ourselves as the "first and last line of defense" for patients in upholding infection prevention measures, especially because we're the members of the healthcare team who spend the most time at the bedside. Realizing that there's an opportunity (and necessity) for improvement at the bedside, nurses can be properly educated on CLABSI development, infection prevention measures, proper protocol, as well as taking part in personal and peer accountability to ensure

that standards are held in place to produce the most optimal patient outcomes.

Taking on a spirit of inquiry

As nurses, we're complex individuals; we can take both the art and science of nursing and transform it into personalized care for patients. We employ critical thinking, empathy, and resilience every time we interact with patients to produce the best outcomes. We're also professionals who can embrace a healthy "spirit of inquiry" whenever a problem occurs; a state of curious, forward-thinking that can help us navigate problems, create solutions, and enhance current practice into a new standard. By embodying a questioning attitude toward practice, we can ask ourselves: "What can we be doing better, not only for ourselves, but for the patients we take care of?"

We may ask: "How and why are CLABSIs occurring?" We can easily identify some common reasons for the occurrence of CLABSIs, such as: protocol not being followed for the care of a patient with a central line (such as chlorhexidine [CHG] baths not being completed daily, or dressing changes not being performed correctly/routinely), no bactericide applied before using ports, and poor hand hygiene measures. It's important to note that these reasons for occurrence aren't limited to the *nursing* bedside; we must also consider other licensed healthcare professionals who use central line access (for example, imaging team members who administer contrast/media). These individuals may not necessarily be as frequently exposed to CLABSI prevention education and oversight as nurses are.

We can also acknowledge the environmental factors that influence our practice, such as distractions, high workload, patient acuity levels, inadequate staffing/turnover or a lack of easily accessible information impact central line maintenance/use.⁶ Finally, we can acknowledge personal factors that may affect

practice, such as burnout, lack of accountability, and *risk desensitization* (a phenomenon where repetitive practices or routines minimize the thought of adverse events/risks occurring from the repetitive action).⁷

Creating awareness

Despite how easy it seems for CLABSI to occur, nurses can acknowledge that they're the ones driving patient care at the bedside. We can make the active decision to strive and be the best providers we can be in the moment, within the limits of the environment. This means using evidence-based practice and institutional policies/procedures to guide our personal practice, along with the moral standards that make us professionals at the bedside.

Nurse leaders, supervisors, and educators in care settings with central line presence can be proactive in supporting floor staff when it comes to CLABSI prevention.⁸ Routine education on CLABSI prevention, policy, and protocol for nurses will provide frequent reminders that the issue is very real for the patients we take care of. Education that's provided to floor staff should also be multimodal in nature to address the diverse learning needs of nurses.⁹ Providing audiovisual or print content with hands-on practice is a good combination of learning methods to cater to staff needs. Educators should make a defined effort to include all licensed team members who handle central lines in CLABSI prevention education, including imaging staff who handle contrast or injectable media. Collaborative outreach will allow for consistency in practice across various patient settings.

Research has noted that there's often a gap between healthcare providers' "behavioral intentions and their implementation in practice."¹⁰ Educators are encouraged to work with nurse leaders to provide nurses with hands-on opportunities (dressing



On the web

CDC

www.cdc.gov/hai/bsi/bsi.html

CDC CLABSI Progress Report

www.cdc.gov/hai/data/portal/progress-report.html

Agency for Healthcare Research and Quality (AHRQ)

www.ahrq.gov/hai/clabsi-tools/appendix-3.html

The Joint Commission

www.jointcommission.org/resources/patient-safety-topics/infection-prevention-and-control/central-line-associated-bloodstream-infections-toolkit-and-monograph/

American Nurses' Association: Code of Ethics

www.nursingworld.org/practice-policy/nursing-excellence/ethics/code-of-ethics-for-nurses/

changes, proper documentation methods, use of lines for blood draws/medications), audiovisual resources, and written resources to aid in closing this gap for direct care staff. On a facility-wide level, nurses and stakeholders alike may find it beneficial to establish a designated vascular access team; this group of licensed professionals could be responsible for assessing, maintaining, and tracking central line devices to allow for further reduction in device-related complications and consistency in catheter management.¹¹

Real-time postings of the number of CLABSI present, or how many days it has been since the last CLABSI, either in a specific unit or within the facility as a whole, will provide more context for the situation.⁷ Educators and nursing supervision can ensure that information on central line maintenance and CLABSI prevention is easily accessible on the unit for reference by providing a binder on the topic located in a common area. If floor nurses have suggestions on how to improve central line maintenance, leaders can provide encouragement and be receptive to the nurses doing so, especially if



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there's an opportunity to reduce the risk of CLABSI for patients.

Although the supervision available to nurses varies per setting and shift, don't let any negatives of this situation deter you from speaking out regarding concerns or the need for resources. Nurses who advocate for themselves, their colleagues, and their patients help pave the way for meaningful change in care delivery. Be brave, you may end up speaking up about concerns that others are thinking but aren't saying!

Take charge with assessment

For those patients with CVCs, nurses must assess the device regularly to determine necessity, ensure functionality, and catch potential early signs of infection. Because these devices are always subject to risk of infection, it's imperative that we think critically about a patient's current status to consider whether the patient may be developing a bloodstream infection while in our care, especially if the patient wasn't admitted for an infection itself. Be sure to consider each day whether the patient truly needs the CVC. Ask yourself: is the CVC present out of convenience, or necessity? If the patient doesn't require the use of a central line anymore, speak with the provider to consider removal as soon as possible to reduce further chance of infection.

When looking at the site of a CVC, inspect the skin locally around and along the insertion site to determine if the skin is swollen, reddened, warm, and/or

painful to touch, also noting if there's any abnormal drainage coming from the site.¹² You may notice some initial bleeding (or small oozing) from the site if the line was just recently placed, but if you notice pus or an enlarging wound around the insertion site, be sure to notify the provider as soon as possible. You can also assess if the catheter may have been dislodged, snagged, or pulled from the insertion site. If a central line is present in the subclavian area, inspect the area for crepitus. The skin around the area of the line may appear bulging, and when touched, you'll hear a "crackling" sound.¹³ This is a result of air or gas trapped under the skin, which is cause for concern and should be brought to the provider's attention immediately.

Systemically, the patient may be showing signs of infection related to sepsis, such as chills, fever, tachycardia, and potentially even hypotension, lethargy, or varying levels of altered mental status depending on the severity of illness and patient risk factors.¹² Additionally, if a patient's white blood cells appear to increase for no reason related to the present state of illness, it would be beneficial to let the provider know so that infection can be ruled out as soon as possible, and peripheral blood cultures can be drawn as needed.

Be "in the moment" at the bedside

Taking the time to acknowledge your surroundings at the bedside can allow you to be more present in the moment,

allowing the worry of risk desensitization to fall to the wayside. Performing care with intention and being mindful of your actions can aid in CLABSI prevention despite environmental barriers. You may also feel inclined to educate not only yourself, but also the patient about their central line, as doing so can empower your patient to self-advocate.¹⁴ When providing a CHG bath, performing a dressing change, or using a central line, you can educate the patient in simple terms regarding the purpose of your actions, how to refrain from disrupting the integrity of the dressing, and how important it is to ward off infection.

As nurses, we know that education should also extend to family members or individuals that the patient is in close interaction with during their time of healing. Don't be afraid to tell both the patient and their circle of care about maintaining the line, signs of infection to watch out for, or how the line is used, for example. No matter the patient-care setting, nurses have the opportunity to assist in creating logical, mindful routines with patients and their families to address needs. When patients, families, and friends are included in the education process, they can become our allies, bringing to our attention any concerns that may arise regarding the care of the central line.

When it comes to CHG bathing, dressing changes, and I.V. tubing changes for patients with central lines, you can be proactive in various ways to ensure that the risk of CLABSI is reduced as much as possible. Ideally, you'll follow your institution's policy on CHG bathing based on the product you use, and your policy on central lines, as a certain number of days between dressing/tubing changes or a dedicated staff member to change the dressing may be required.

Always determine if your patient has an allergy to CHG agents or adhesives prior to pursuing either task. Make a

note for patients with histories of skin reactions but who require a CHG bath; if the patient has a history of dermatologic reactions or a documented CHG allergy, a thorough soap and water bath may be sufficient. With every CHG bath, always make sure you change *all* of the linens that a patient is in contact with so that they aren't exposed to preexisting bacteria that may be contaminating the linens postbath. Be sure to monitor the patient's skin post-CHG bathing; if you find that the patient starts to develop skin hypersensitivity in the form of a rash (from mild to severe) with or without burning, itching, or peeling skin sensations, notify the provider as soon as possible and discontinue use of the product for that patient. Work with the provider to pursue supportive measures and stick to solely soap and water bathing.

If the sterile central line dressing needs to be changed because it's soiled or coming undone, don't reinforce the dressing with general tape or ignore the disruption. You can be proactive in alerting the appropriate nurse trained to perform dressing changes so that a new occlusive dressing can be applied as soon as possible, or if you're trained to perform a sterile dressing change, replace it immediately to reduce risk of infection. It's best practice to date and time your dressings and I.V. tubing so that you can easily identify when the set should be changed to prevent bacterial growth; capping the end of I.V. tubing and needless access ports is also key to preventing contamination.

When it comes to needless access ports on central lines, you should set yourself up for success by always "scrubbing the hub" prior to use. These access sites *need* to be scrubbed with an alcohol pad or other approved bactericidal agent prior to use in order to decontaminate the surface. Although times may vary in research, it's best practice to "scrub the hub" for 15 seconds and let the surface dry completely for

Did you know?

After mechanically scrubbing the hub of a line with a disinfectant pad, biocide activity on the hub occurs when the solution is wet and immediately after drying.¹⁴ Depending on the type of disinfectant pad you use (alcohol only, alcohol-chlorhexidine combination), scrubbing and drying time will vary. The Joint Commission recommends a 15-second scrub and 15-second dry for standard alcohol pads.

15 seconds.¹⁵ (See *Did you know?*) If your facility has alcohol-CHG impregnated cleansing pads, try to prioritize using those for disinfecting the hubs of central lines; the use of 70% alcohol, 3.15% CHG swabs compared with regular alcohol pads can help sustain statistically significant lower CLABSI rates.¹⁶

In reality, 30 seconds doesn't seem like a long time, but it's one of the most important steps that's commonly neglected, especially when environmental factors are at play. You can set yourself a routine while you "scrub the hub," by using the time to ask the patient a question (how their day was), to educate on medications, to explain what you're doing, and more. When you're finished using the port, always cover the hub with a *new* capping device. *Don't* reuse caps to cover access sites. Alcohol-impregnated caps are *not* a substitute for "scrubbing the hub"; you must still *always* disinfect the hub with the appropriate disinfectant

pad prior to use. You can't know for sure how long the last cap was in place, if it was reused, or if it was manipulated or mishandled in your absence.

And as always, document the dutiful work that you perform. If you don't document it, others can assume that it wasn't done; take credit for your hard work and commitment to patient safety by appropriately documenting in patient charts when CHG bathing was completed, when dressings were changed, your assessments of CVCs, and more. As previously noted, HAIs are costly burdens on both facilities and patients. If a patient is to leave your care setting with a CVC in place, be sure to not only document your own meticulous care of the device prior to discharge, but also provide the patient and/or family with sufficient discharge instructions regarding the device. An HAI can easily be attributed back to the facility if the patient's condition worsens post-discharge with a CVC in place. As mentioned earlier in this section, be present and take any and every opportunity you can to educate the patient and their loved ones on care of the line (see *Cheat sheet: At the bedside*).

Your actions make real-time difference

Ultimately, it's important to realize we all are key players in creating and maintaining a culture of infection prevention. Nursing is a 24-hour job, and it's true that each one of us can only control our own actions. However, we shouldn't forget our behaviors have real-time impact on the care that we give and those we are around. We can choose to inspire peers around us to perform best practice; in doing so, we not only put the patient first, but we also strengthen team camaraderie and individual integrity.

Being comfortable with accountability, whether it be your own or others', should be encouraged and practiced on units. It's okay to acknowledge that better practice exists for yourself and

At the bedside

cheat sheet

- Fully take in the patient's environment
- Be "in the moment" and present
- Take any opportunity to educate the patient and/or their circle of care on relevant care, medications, or interventions
- Always perform hand hygiene and change gloves prior to accessing a central line
- Check CVC thoroughly: dressing, functionality, integrity, necessity
- Check I.V. tubing: capped, dated, timed with expiration
- Be aware of (and monitor for) patient allergies to cleansing agents
- Always "scrub the hub"
- Cap all needleless access points when not in use
- Never reuse capping devices
- Always document all assessments, line maintenance, infection prevention practices, personal care, and education performed

others, and it's okay to approach peers in an open, nondemeaning way. Be cognizant of suggestions when mentoring peers, including new nurses: time, place, tone, and the words you choose matter. Maybe one of your coworkers doesn't realize the harm they could incur with repetitive routines or ingrained, outdated practice. Constructive, meaningful, real-time feedback is important and can be brought up in a way such that nurses can grow together and prevent inadvertent harm to patients.¹⁴

If you're on the receiving end of constructive criticism from another nurse or peer, encourage yourself to be open and receptive to the dialogue that pursues. If you can look at the situation objectively, you may be able to identify what caused the situation to transpire the way it did. Receiving input from a peer on how to better approach a situation doesn't have to be personal or punitive, it can be purposeful to our practice.¹⁴ Engage in courageous conversations with your peers and respond, rather than react. Nursing is a field with perpetual learning opportunities, so let's allow ourselves to be both mentors and students in order to improve ourselves and change poor habits together (see *Ethical principles to practice by*).

At the end of the day, all your expertise culminates in a collaborative goal: keeping your patients safe and making a difference. Infection prevention, and more specifically, CLABSI prevention is a topic that we all can improve upon, so allow yourself the opportunity and patience to do so. Put yourself in the patients' shoes—would you want unnecessary infection to complicate your hospital admission, long-term stay, or home care? If you were receiving care, would you want your nurse to be proactive or complacent? If you see a practice that can be improved, be vocal about it and discuss the concern with peers. Change can't occur if you don't choose to speak

Ethical principles to practice by

Accountability - taking responsibility for your personal and professional actions

Autonomy - supporting each individual's right to make their own decisions

Beneficence - performing actions that promote good

Fidelity - keeping promises and staying true to responsibilities

Justice - delivering care that is equal, fair, and impartial to all

Nonmaleficence - Preventing intentional and unintentional harm to all

Veracity - being honest and telling the truth

up about it. CLABSIs are preventable—your actions count, take control! ■

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