

# Partnership for Patients



ALASKA STATE HOSPITAL &  
NURSING HOME ASSOCIATION



Washington State  
Hospital Association

## Safety Action Bundle – Central Line-Associated Blood Stream Infections (CLABSI)

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### Background

- Although there has been a 46% decrease in the incidence of central line-associated bloodstream infections (CLABSI) in hospitals across the U.S. from 2008-2013, an estimated 30,100 CLABSI still occur in U.S. hospitals each year. These infections are usually serious and typically result in prolonged hospital stays, increased health care costs and increased risk of mortality.<sup>i</sup>
- Central lines are the mainstay of ICU treatment and infection risks and rates have typically focused on the ICU population. However, central lines are seen across the continuum of care and use is expected to continue to grow.<sup>ii</sup>
- Fortunately, most CLABSI can be prevented through proper insertion techniques and management.<sup>i, ii, iii</sup> It is estimated that compliance with evidence-based strategies can reduce 65-70% of these infections.<sup>ii</sup>
- Significant reduction in CLABSI is possible when prevention practices are based in evidence, are used consistently across health care settings and are linked to the organization's culture of safety.<sup>iii</sup>

### Aims

To reduce the incidence of CLABSI by 20% by September 27, 2018.

*\*Hospitals already at goal should focus on maintenance and hardwiring.*

### Measures

*Outcome:* CLABSI per Centers for Medicare and Medicaid (CMS), National Healthcare Safety Network (NHSN) and Washington State requirements<sup>iv</sup>

*Process:* CLABSI Safety Action Bundle<sup>v</sup>

*Submit:* National Healthcare Safety Network (NHSN)<sup>iv</sup>



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## Core Strategies

Strategy	Description
Patient and Family Engagement	<ul style="list-style-type: none"> <li><input type="checkbox"/> Encourage and support patient and family participation in care planning and decision making regarding the use of a central line.</li> <li><input type="checkbox"/> Educate patient and family on the care bundle, how they can participate in CLABSI prevention and why the catheter needs to be removed as soon as possible.<sup>vi</sup></li> <li><input type="checkbox"/> When an infection occurs, interview all staff, patient, and family for ways in which this might have occurred and been prevented.</li> </ul>
Culture	<ul style="list-style-type: none"> <li><input type="checkbox"/> Promote a blame-free environment where individuals are able to report errors or near misses without fear of reprimand or punishment.</li> <li><input type="checkbox"/> Encourage collaboration across ranks and disciplines to seek solutions for patient safety problems.</li> <li><input type="checkbox"/> Identify medical and front-line staff champions.</li> <li><input type="checkbox"/> Promote transparency of CLABSI results by displaying on units, to the board and to the public.</li> </ul>
Leadership	<ul style="list-style-type: none"> <li><input type="checkbox"/> Set aims, goals and timelines for practice changes. Engage front-line staff in adapting best practices into current workflow.</li> <li><input type="checkbox"/> Identify administrative and clinical leaders to champion.</li> <li><input type="checkbox"/> Ensure that any health care professional who inserts a CVC undergoes a credentialing process to ensure their competency before they independently insert a CVC.</li> <li><input type="checkbox"/> Ensure that all health care professionals who care for central line catheters have ongoing education and competency assessments at regular intervals.</li> <li><input type="checkbox"/> Re-educate staff when there are planned changes of products, devices or technology.</li> <li><input type="checkbox"/> Identify and address barriers to compliance with central line insertion, care and removal policies.</li> </ul>
Before Insertion	<ul style="list-style-type: none"> <li><input type="checkbox"/> Provide an evidence-based list of indications for CVC use to minimize unnecessary central line placement.</li> </ul>

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Strategy	Description
<p>Adopt Evidenced-Based Insertion Protocols</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Develop and educate to an evidence-based “insertion bundle”.</li> <li><input type="checkbox"/> Use a checklist to ensure and document compliance with aseptic technique and attach to the insertion kit for easy access.</li> <li><input type="checkbox"/> A cart or kit that contains all necessary components for aseptic catheter insertion should be available and easily accessible during catheter insertion.</li> <li><input type="checkbox"/> Encourage the use of ultrasound guidance to place central lines when possible – using a sterile sleeve over the ultrasound probe.</li> <li><input type="checkbox"/> A procedural time out should occur prior to insertion.</li> <li><input type="checkbox"/> CVC insertion should be observed by a nurse, physician or other health care personnel who has received appropriate education to ensure that aseptic technique is maintained: Empower healthcare personnel to stop the procedure if breaches in aseptic technique are observed.</li> <li><input type="checkbox"/> Perform hand hygiene before catheter insertion or manipulation: Use of gloves does not obviate hand hygiene.</li> <li><input type="checkbox"/> Consider appropriate site selection: Avoid using the femoral vein for central venous access in adult patients due to increased risk of infection.</li> <li><input type="checkbox"/> Use maximal sterile barrier precautions during CVC insertion.             <ul style="list-style-type: none"> <li>a. A mask, cap, sterile gown, and sterile gloves are to be worn by all healthcare personnel involved in the catheter insertion procedure.</li> <li>b. The patient is to be covered with a full body sterile drape during catheter insertion.</li> </ul> </li> <li><input type="checkbox"/> Apply an alcoholic chlorhexidine solution containing a concentration of chlorhexidine gluconate greater than 0.5% to the insertion site prior to insertion             <ul style="list-style-type: none"> <li>a. Apply antiseptic solution with scrub time and motion to manufacturer’s recommendations</li> <li>b. The antiseptic solution must be allowed to dry completely before making the skin puncture.</li> <li>c. Chlorhexidine products are not approved by the US Food and Drug Administration for children younger than 2 months of age; povidone-iodine can be used for children in this age group.</li> </ul> </li> <li><input type="checkbox"/> Use a non-suture catheter securement device for line stabilization.</li> <li><input type="checkbox"/> Utilize sterile technique when applying dressing. Use sterile gauze - or preferably - sterile transparent, semi-permeable dressing to cover the catheter site. Consider use of a CHG-impregnated sponge dressing in patients older than 2 months.</li> </ul>

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Strategy	Description
Adopt Evidenced-Based Maintenance Protocols	<ul style="list-style-type: none"> <li><input type="checkbox"/> Develop and educate to an evidence-based “maintenance bundle”. Promote adherence by including in nurse-to-nurse hand-off reports.</li> <li><input type="checkbox"/> Before accessing catheter hubs or injection ports, vigorously cleanse with an alcoholic chlorhexidine preparation or 70% alcohol to reduce contamination or utilize alcohol impregnated caps for all central line ports.</li> <li><input type="checkbox"/> Routinely perform site care with a chlorhexidine-based antiseptic and change central line dressings every 2 days for gauze dressings or every 7 days for semi-permeable dressings. Change dressings more frequently if damp, loose, or soiled. Consider two-person dressing changes for central lines to maintain aseptic technique and reduce risk of dislodgement. (Use of topical antimicrobial ointments is not recommended except for hemodialysis catheter insertion sites.)</li> <li><input type="checkbox"/> Consider a daily chlorhexidine bath for patients in the ICU.</li> <li><input type="checkbox"/> Replace administration sets not used for blood, blood products, or lipids at intervals not longer than 96 hours.</li> </ul>
Remove Catheters as Soon as Possible	<ul style="list-style-type: none"> <li><input type="checkbox"/> Assess the need for continued CVC access on a daily basis during multidisciplinary rounds. Remove catheters that are no longer required.</li> <li><input type="checkbox"/> Promote standard routine line reviews in nurse-to-nurse hand-off reports and consider instituting computer-based pop-up reminders for review of line necessity.</li> </ul>
Performance and Variation	<ul style="list-style-type: none"> <li><input type="checkbox"/> Present your performance compared to others to the board and other key stakeholder groups.</li> <li><input type="checkbox"/> Establish an audit process to ensure adherence to bundles<sup>vii</sup>.</li> </ul>

## Moving Towards Zero

Strategy	Description
Standardize Evidenced Based Practice Across the Continuum	<ul style="list-style-type: none"> <li><input type="checkbox"/> Develop a vascular access team composed of nurses specially trained in CVCs and infusion therapy to perform critical functions related to placing and maintaining lines. At minimum have designated trained staff available in all inpatient and ambulatory care areas to ensure vascular device care is performed per standardized evidenced-based protocols.</li> <li><input type="checkbox"/> For units with unacceptably high CLABSI rates despite bundle compliance or for patients at heightened CLABSI risk:             <ul style="list-style-type: none"> <li>• Consider extending CHG baths to non-ICU units</li> <li>• Consider the use of antiseptic or antimicrobial impregnated lines for very high-risk adults</li> <li>• Implement the use of antimicrobial locks</li> </ul> </li> </ul>

Developed by the Washington State Hospital Association's Partnership for Patients. For more information visit our website at [www.wsha.org](http://www.wsha.org)

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## Additional Resources

O’Grady, NP., Alexander, M., Burns, LA., Dellinger, EP., Garland, J., Heard, SO., Maki, DG., et al. “Guidelines for the Prevention of Intravascular Catheter-related Infections”. *Clinical Infectious Diseases* 52 (a): (2011): 1087-99.

Centers for Disease Control and Prevention. (2016). *Bloodstream Infection Event (Central Line-Associated Bloodstream Infection and Non-central line –associated Bloodstream Infection January 2016*. Retrieved from [http://www.cdc.gov/nhsn/PDFs/pscManual/4PSC\\_CLABScurrent.pdf](http://www.cdc.gov/nhsn/PDFs/pscManual/4PSC_CLABScurrent.pdf)

Umscheid CA, Mitchell MD, Doshi, TA, et al. Estimating the proportion of healthcare-associated infections that are reasonably preventable and the associated mortality and costs. *Infect Control Hosp Epidemiol* 2011; Feb; 32(2):101-114.

Central Line Associated Blood Stream Infection (CLABSI) Prevention Strategies – Component of SAFE HAI Roadmap 2.0 <http://www.mnhospitals.org/Portals/0/Documents/ptsafety/CLABSI/HAI%20-%20CLABSI%20Gap%20Analysis%20%200.pdf> From Collaborative Healthcare-Associated Infection Network

Marschall, J., Mermel, L. A., Fakhri, M., Hadaway, L., Kallen, A., O’Grady, N. P., ... Yokoe, D. S.. (2014). Strategies to Prevent Central Line–Associated Bloodstream Infections in Acute Care Hospitals: 2014 Update. *Infection Control and Hospital Epidemiology*, 35(7), 753–771. <http://doi.org/10.1086/676533>

Pyrek K.M. (2015) “Taking Central Line Infection Prevention to the Next Level”. *Infection Control Today*, 2015; July 13. Retrieved from <http://www.infectioncontrolday.com/articles/2015/07/taking-central-line-infection-prevention-to-the-next-level.aspx>

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<sup>i</sup> Health Research & Educational Trust (2016, February). Central Line-Associated Blood Stream Infections (CLABSI) Change Package: 2016 Update. Chicago, IL: Health Research & Educational Trust. Accessed at [www.hret-hen.org](http://www.hret-hen.org)

<sup>ii</sup> Barnes, S., Olmstead, R.M., Monsees, E., Harris, J.E., Khoury, R., Hadaway, L., Downham, G. (2015). *Guide to Preventing Central Line Associated Bloodstream Infections* (1st ed.). L. Goss (Ed.). Retrieved from <http://www.apic.org/Professional-Practice/Implementation-guides#Preventing>

<sup>iii</sup> CDC National and State Healthcare-Associated Infections Progress Report, published March 2014, available at <http://www.cdc.gov/HAI/pdfs/progress-report/hai-progressreport.pdf>

<sup>iv</sup> [https://www.cdc.gov/nhsn/pdfs/pscmanual/pscmanual\\_current.pdf](https://www.cdc.gov/nhsn/pdfs/pscmanual/pscmanual_current.pdf)

<sup>v</sup> <http://www.ihl.org/resources/Pages/Tools/HowtoGuidePreventCentralLineAssociatedBloodstreamInfection.aspx>

<sup>vi</sup> <http://www.mnhospitals.org/quality-patient-safety/current-safety-quality-initiatives/health-care-associated-infections/central-line-associated-bloodstream-infections-clabsi>

<sup>vii</sup> <https://www.ahrq.gov/professionals/education/curriculum-tools/clabstools/index.html>