Background
The CDC estimates that 80,000 central line associated blood stream infections (CLABSIs) develop each year in ICU environments. This estimate climbs to 250,000 CLABSIs per year when entire hospitals are included (CDC, 2011). CLABSIs have been found to be the second most deadly type of hospital acquired infection.

The yearly cost of CLABSIs is greater than on billion and costs per individual patient with a CLABI can exceed $16,000. CLABSI can result in an extended length of hospital stay and increase the financial cost of treatment considerably. These consistenly high rates of CLABSIs, despite the adoption of standard prevention techniques by most hospitals, indicate the need for more effective interventions.

PICO Question
In adult patients with a central vascular access device, does the use of daily chlorohexidine bathing versus use of standard soap and water bath decrease the incidence of central line associated blood stream infections?

Literature Search
• A systemic search of published literature was performed in the Cumulative Index to Nursing and Allied Health Literature (CINAHL) and PubMed databases.

• The following keywords/phrases were searched: chlorohexidine bathing, central line infection, effects of daily chlorohexidine bathing on central line infection, chlorohexidine bathing AND central line infections, chlorohexidine bathing central, and CLABSI prevention.

• Thirteen articles were reviewed and eight were included for systematic review.

• No restrictions were placed on the date of publication and only articles in English were reviewed.

• The John Hopkins Nursing Evidence Based Practice Appraisal was utilized to determine strength of evidence of each study.

Literature Review

<table>
<thead>
<tr>
<th>Literature</th>
<th>Study Type</th>
<th>Sample/Setting</th>
<th>Level of Evidence</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Popovich, K., Hota, B., et al. (2010)</td>
<td>Quasi-experimental study</td>
<td>Surgical intensive care unit (SICU) at the Rush University Medical Center.</td>
<td>Level Two</td>
<td>No significant difference in rate of CLABSIs when chlorhexidine was utilized (p=.57).</td>
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<tr>
<td>Cimo, M., Yokoe, D., et al. (2013)</td>
<td>Randomized controlled study</td>
<td>Nine intensive care and burn intensive care units in six hospitals that included 7727 patients between Aug. 2007 – Feb. 2009.</td>
<td>Level One</td>
<td>Rate of hospital acquired bloodstream infections decreased 99% in hospital using chlorhexidine-impregnated washcloths (p=0.007).</td>
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<tr>
<td>Dixon, J. &amp; Carver, R. (2012)</td>
<td>Observational cohort study</td>
<td>144 patients in a nine bed SICU, that involved all patients who were admitted or transferred to the unit within the initial three months.</td>
<td>Level Three</td>
<td>Decrease in CLABSI rates from 12.07 CLABSIs per 1000 central line days to 3.17 CLABSIs per 1000 line days during the initial three months, resulting in 73.7% rate reduction (p=.0058).</td>
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<tr>
<td>Lopez, A. (2011)</td>
<td>Quasi-experimental study</td>
<td>Medical-surgical intensive care unit (ICU) at a regional medical center.</td>
<td>Level Two</td>
<td>Rates of CLABSI infection were reduced by 96% from pre intervention rate of 5.7/1000 device days to post intervention rate of 0.2/1000 device days (p&lt;.001).</td>
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<tr>
<td>Munoz-Price, L., Hota, B., et al. (2010)</td>
<td>Quasi-experimental study</td>
<td>70 bed ITACH in Chicago, IL from Feb. 2006 – Feb. 2008.</td>
<td>Level Two</td>
<td>Results showed a 99% reduction of CLABSI during the period when chlorhexidine bathing was utilized (p=.02).</td>
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</table>

Conclusions
• CLABSIs are a prevalent and costly issue in healthcare and are a preventable infection. Effective interventions can be implemented in order to reduce them.

• Existing evidence supports using daily chlorohexidine bathing as an effective intervention in comparison to traditional soap and water bathing to prevent CLABSI in adult patients with a central venous access device.

• Further study on the effectiveness of chlorohexidine bathing is warranted, specifically randomized controlled studies.

References

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