The Centers for Disease Control (CDC) guidelines for prevention of surgical site infections (SSIs) published a category IB recommendation as follows: "Require patients to shower or bathe with an antiseptic agent at least the night before and on the morning of surgery if no preoperative skin preparation is used; use an alcohol-based 2% chlorhexidine gluconate (CHG) no-rinse cloth (2% CHG cloth). Recommendations, such as the above CDC recommendation, strongly recommend the use of an antiseptic agent at least the night before the operative date to prevent harmful bacteria; however, a large Cochrane review came to this conclusion by evaluating studies on the use of preoperative bathing or showering in relation to prevention of SSBs. It is well known that harmful bacteria, such as methicillin-resistant Staphylococcus aureus and vancomycin-resistant Enterococcus, attach to or grow in areas of skin that are not completely covered, and that have not been cleansed thoroughly, and that cause skin type, dressing techniques, etc., between subjects. The study was comprised of two groups: Group A (n=12) and B (n=12).

CHG Prep and Test Protocol:

**METHODS**

This was a prospective, randomized study with a total cohort of 24 subjects (4 males, 20 females; median age of 39, ranging from 30 to 58 years). All subjects used both products to eliminate any variations that may cause skin type, dressing techniques, etc., between subjects. The study was comprised of two groups: Group A (n=12) and B (n=12).

**RESULTS**

Is there a correlation between the amount of CHG residual on the skin after use of the 4% CHG solution compared to the 2% CHG cloth?

There was no correlation between the amount of 4% CHG solution used and the residual amount left on the skin for each group (P=0.92). However, when the same analysis was done for the 2% CHG cloth, there was a significant correlation between the amount of product used and the amount of residual on the skin (correlation coefficient 0.8, P<0.001).

Is there a difference in the amount of CHG prep used on the 2% CHG cloth compared to the 2% CHG cloth?

The amount of solution used during showering with 4% CHG solution and wiping with the 2% CHG cloth was comparable. There was no statistical difference in the amount of residual CHG agent left on the skin when comparing 4% CHG solution and Day 8 (2% CHG cloth, P=0.63).

Is there a difference in the residual CHG left on the skin when the 4% CHG solution is used compared to the use of the 2% CHG cloth?

In both groups, the 2% CHG cloth subjects had more residual CHG on their skin than the 4% CHG solution subjects.

Is there a difference in the residual CHG left on the skin after one or two preps with the 2% CHG cloth compared to the 2% CHG cloth?

Two preps with 4% CHG solution showed no more residual CHG than one prep (P=0.33).

Two preps with the 2% CHG cloth showed more residual CHG than one prep (P<0.001).

Is there a difference in the CHG residual left on the skin at three and ten hours after the use of the 4% CHG solution compared to the 2% CHG cloth?

There was no change in the amount of CHG detected on the skin at three and ten hours for 4% CHG solution (P=0.64) or the 2% CHG cloths (P=0.16).

Average Residual CHG by Sample Area

<table>
<thead>
<tr>
<th>Sample Area</th>
<th>CHG Prep and Test Protocol</th>
<th>CHG Peppering Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4% CHG rinse-off solution</td>
<td>2% no-rinse CHG cloth</td>
</tr>
<tr>
<td></td>
<td>On Day 1, both groups showed normally with a standard washcloth and 4% CHG rinse-off solution provided, subjects instructed not to use regular soap after 4% CHG solution wash.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2% CHG rinse-off clothes:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>On Day 8, both groups did not shower, but instead wiped down entire body with three packages of the 2% CHG cloth (2% CHG cloth) provided. Subjects used 1 cloth to wipe each of the following areas for ~30 seconds each: back, chest and abdomen, one left and right side, neck, hand and foot, elbow and test infracta and genital and each site. Each site was allowed to dry for 5-10 minutes, and subjects did not rinse.</td>
<td></td>
</tr>
</tbody>
</table>

**CONCLUSIONS**

This study was done to determine if there is a difference in the amount of residual CHG left on the skin when prepping with a 4% rinse-off application of CHG compared to that of a 2% no-rinse application. The amount of CHG that remains on the skin after a no-rinse application is significantly higher than a CHG application that is rinsed off. This finding indicates the fact that the rinse-off application has a higher concentration of CHG (4%) than the no-rinse cloth (2%).

No correlation was found between the amount of rinse-off product used and the residual on the skin.

This finding indicates that most of the CHG is likely rinsed off the skin during or after the application of the product, leaving very little CHG on the skin. This would contribute to the efficacy of the no-rinse CHG cloths as compared to the rinse-off product.

A higher residual CHG quantity is attained by prepping twice with the 2% CHG cloth, whereas the 4% CHG solution shows no additional residual quantity after the second prep.

**Data**

**CHG Peppering Protocol:** (Left to Right: R arm, L arm, abdomen, L leg, R leg)