Disinfection of Shared Mobile Phones Carried by Registered Nurses: A Comparison of Two Methods

Roberta Basol
CentraCare Health

Amy Hilleren-Listerud
CentraCare Health, hilleren-listeruda@centracare.com

Sherri Reischl
CentraCare Health - St Cloud Hospital, reischls@centracare.com

Terri McCaffrey
CentraCare Health - St Cloud Hospital

Jean Beckel
CentraCare Health - St Cloud Hospital

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Disinfection of Shared Mobile Phones Carried by Registered Nurses: A Comparison of Two Methods

Principal Investigator: Roberta Basol MA, RN; Co-Investigators: Jean Beckel DNP, MPH, RN; Judy Gilsdorf-Gracie MSN, RN; Amy Hilleren-Listerud MA, RN, ACNS-BC; Terri McCaffrey MA, RN, PCNS-BC; Sherri Reischl RN, CEN; Pam Rickbell MS, RN, ACNS-BC; Mary Schimmich RN; Kirsten Skillings MA, RN, CCNS; Mary Struffert MSN, RN

Introduction
This study determined the efficacy of cleaning products on mobile phones. Previous research has demonstrated the risk for bacterial cross contamination between healthcare workers' hands, close contact equipment, and mobile communication devices. There is extensive literature on survival of organisms on inanimate objects. Mobile communication devices can act as a reservoir for bacteria associated with nosocomial infection. Additional studies show cross contamination between the healthcare workers hands, the mobile phones, and the patient.

Research Problem/ Question
1. Is 70% isopropyl alcohol or PhoneKleen™ more effective in reducing bacterial counts on mobile phones?
2. Is either 70% isopropyl alcohol or PhoneKleen™ more effective in reducing bacterial counts on mobile phones?

Methodology
A random sample of 66 shared mobile phones was sampled in 11 acute and critical care units. Two phone cleaning products were tested (70% isopropyl alcohol wipe and PhoneKleen™). The phones were cultured by having the RN hold the phone, and the researcher would aseptically obtain the culture by swabbing the keypad, mouthpiece, earpiece, and back areas of the phone using 3 long strokes per side, constantly rotating the swab and not touching the RN's fingers. The phones were cultured before and after cleaning with the RN performing hand hygiene between the cultures.

Table 1.
Contamination Prior To and After Cleaning

<table>
<thead>
<tr>
<th></th>
<th>% of mobile phones contaminated with pathogenic bacteria prior to cleaning</th>
<th>% of mobile phones contaminated with pathogenic bacteria after cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>70% Isopropyl Alcohol</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PhoneKleen™</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 2.
Presence of Normal Skin Flora

<table>
<thead>
<tr>
<th></th>
<th>All mobile phones cleaned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Skin Flora</td>
<td>42</td>
</tr>
<tr>
<td>% Mobile Phones with Skin Flora</td>
<td>64%</td>
</tr>
</tbody>
</table>

Table 3.
Disinfection of Normal Skin Flora

<table>
<thead>
<tr>
<th></th>
<th>70% Isopropyl Alcohol</th>
<th>PhoneKleen™</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior to mobile phone cleaning</td>
<td>After mobile phone cleaning</td>
<td>Prior to mobile phone cleaning</td>
</tr>
<tr>
<td>Normal Skin Flora</td>
<td>21</td>
<td>4</td>
</tr>
<tr>
<td>% Mobile Phones with Skin Flora</td>
<td>64%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Conclusions/Implications
Inanimate objects may harbor pathogenic bacteria which could result in cross contamination from healthcare workers to patients resulting in hospital acquired infections. Previous studies have demonstrated pens, stethoscopes, pagers, computer keyboards, and mobile phone devices culture positive for pathogenic and non-pathogenic bacteria including multi-drug resistant organisms. Health care workers are responsible for maintaining clean shared mobile phones, by following the cleaning process. Culture results did not reveal the presence of pathogenic bacteria, however normal skin flora was found. Shared mobile telephones are not a source of hospital acquired infection when cleaned with 70% isopropyl alcohol wipe or PhoneKleen™.

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References


Robert Basol email: basolr@centracare.com