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Roberta Basol

Jean Beckel

Judy Gilsdorf-Gracie

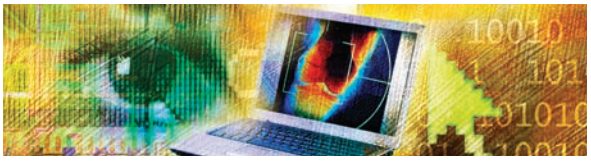
Amy Hilleren-Listerud

Terri McCaffrey

See next page for additional authors

Authors

Roberta Basol, Jean Beckel, Judy Gilsdorf-Gracie, Amy Hilleren-Listerud, Terri McCaffrey, Sherri Reischl, Pamela Rickbeil, Mary Schimnich, Kirsten Skillings, and Mary A. Struffert



Tech Talk

Bacteria on shared mobile phones can lead to infections

By Roberta Basol, MA, RN, NE-BC; Jean Beckel, DNP, MPH, RN, CNML; Judy Gilsdorf-Gracie, MBA, MS, RN, CNOR; Amy Hilleren-Listerud, DNP, RN, ACNS-BC, CBN, PCCN; Terri D. McCaffrey, MA, APRN, CNS; Sherri Reischl, RN, CEN; Pamela Rickbeil, MSN, RN, ACNS-BC, RN-BC; Mary Schimnich, RN; Kirsten Skillings, MA, RN, CCNS, CCRN; Mary A. Struffert, MSN, RN, NE-BC

It's now a common practice for hospital-owned mobile phones to be shared among healthcare employees from shift to shift. Despite the benefit of increased, timely communication between caregivers, sharing mobile devices can lead to the spread of healthcare-associated infections (HAIs) if they aren't properly disinfected. The Guidelines for Disinfection and Sterilization in Healthcare Facilities describe "non-critical environmental surfaces" as items that are frequently touched by the hand and may pose a risk of secondary infection transmission.[1]

Mobile phones are noncritical environmental surfaces, and research demonstrates the presence of contaminates on these devices.[2-4] The CDC recommends a cleaning regimen that's effective, fast-acting, easy to follow, and economical.[1] Currently, there are no published studies with standards for cleaning mobile phones. (See *Mobile phones are reservoirs for bacteria.*)

Contaminated mobile phones are hazardous to patients and may also pose a threat of spreading infections into the community.

We studied the efficacy of two types of cleaning products on shared mobile phones carried by RNs at a 489-bed, Magnet®-designated, Midwestern regional medical center. The cleaning methods evaluated were 40% ethyl alcohol wipes.

Collecting the cultures

A random sample was taken of 66 shared mobile phones routinely used by clinical RNs. The collection occurred in 11 acute care units and CCUs, with six samples taken from each unit. Two phone-cleaning products were tested: 70% isopropyl alcohol wipes (product a) and ethyl alcohol wipes (product b).

A cleaning method sampler container holding an equal number of products a (33) and b (33) was used to determine which cleaning method was tested. Paper lab requisition forms and adhesive labels for cultures were premade to match the total number of samples, with two requisitions per sample and a unique identifier number. The researcher selected a patient-care unit as well as cleaning product a or b. The researcher approached a clinical RN on the selected unit and informed the RN of the study to culture his or her phone. No consent was obtained. RNs were allowed to refuse to participate; however, none refused.

To culture the devices, an RN held the phone, while the researcher swabbed the keypad, mouthpiece, earpiece, and back of the phone using three long strokes per side, constantly rotating the swab and not touching the RN's fingers. This method was used to obtain the culture before and after cleaning.

The RN was asked to perform hand hygiene with alcohol-based foam following the first culture and before cleaning the phone. He or she was then instructed to clean the phone thoroughly using product a or b. The researcher waited 2 minutes, while the RN continued to hold the phone, which wasn't allowed to be set down, placed in a pocket, air blown, or waved dry. Then, the second culture was obtained. The culturettes were sent to the

hospital lab for analysis. A data collection log was used to track the samples and results.

Now that's clean!

Culture results from 66 paired samples taken before and after cleaning shared mobile phones were analyzed for the presence and identification of bacteria. There were no pathogenic bacteria detected on the mobile phones before or after cleaning with either 70% isopropyl alcohol wipes or ethyl alcohol wipes. Of the 66 samples obtained, 64% had the presence of normal skin flora. Normal skin flora was reduced from 64% to 12% with isopropyl alcohol wipes and from 64% to 15% with ethyl alcohol wipes.

Researchers in our study determined that the shared mobile phones tested weren't contaminated with pathogenic bacteria and weren't a source of HAIs. Because there was no MRSA or VRE cultured, resistance testing wasn't necessary. Disinfection of normal skin flora did occur with both 70% isopropyl alcohol wipes and ethyl alcohol wipes, but no conclusion may be drawn as to which product is more effective for disinfection of pathogenic bacteria. However, it was determined that the cleaning of mobile phones by healthcare workers is an effective way to eliminate bacteria.

Continued infection prevention

Inanimate objects may harbor pathogenic bacteria, which may result in cross-contamination from healthcare workers to patients, leading to HAIs.[5-7] Previous studies have demonstrated that pens, stethoscopes, pagers, computer keyboards, and mobile phones test positive for pathogenic and nonpathogenic bacteria, including multidrug-resistant organisms. Healthcare workers are responsible for maintaining clean shared mobile phones by following the cleaning process.

In this particular study, culture results didn't reveal the presence of pathogenic bacteria; however, normal skin flora was found. Healthcare facilities should consider disinfecting shared mobile devices with 70% isopropyl alcohol wipes or ethyl alcohol wipes to help prevent the spread of bacteria.

Mobile phones go everywhere with staff members on duty and are handled during the course of patient care, staff breaks, and in other venues within the hospital. Nurses need to balance efficient communication with hands-on patient contact to minimize the transfer of bacteria within the hospital environment. Identifying efficient and effective disinfection methods related to mobile phone bacterial transmission may reduce the spread of HAIs and their related impact on patient length of stay, cost, and mortality. ❖

Mobile phones are reservoirs for bacteria

The issue of HAIs has presented an ongoing challenge to healthcare facilities. Healthcare workers are a potential source of HAIs because many pathogens are transmitted by hand and contaminated medical devices. There's extensive literature on the survival of organisms on inanimate objects, and studies suggest that commonly used patient-care items may serve as reservoirs and vectors for HAIs.[5,6] For example, vancomycin-resistant enterococci (VRE) are capable of prolonged survival on hands, gloves, and environmental surfaces.[7]

Mobile communication devices can act as reservoirs for bacteria associated with HAIs and are routinely transported into the operating environment by medical staff.[8-19] Cross-contaminations occur between healthcare workers' hands and patients including transmission of multidrug-resistant strains of bacteria.[20]

Contaminated mobile phones are hazardous to patients and may also pose a threat of spreading infections into the community.[21] In one study, 88% to 89.5% of study participants never cleaned their mobile phones and pagers were often touched during or after the examination of patients without hand washing. Microbial contamination is a risk associated with the infrequent cleaning of phones.[22]

The good news is that there is a significant reduction in contaminated pagers with the use of several prepackaged disinfecting agents. Alcohol wipes with 0.5% chlorhexidine gluconate in 40% ethyl alcohol were significantly more efficacious in eliminating all bacterial growth than the other agents.[23] In a study on the use of alcohol-based hand foam, results showed that the foam simultaneously disinfected the hands and a stethoscope head, which significantly reduced the number of bacterial colonies, including methicillin-resistant *Staphylococcus aureus* (MRSA).[24] These studies suggest that cleaning mobile phones may significantly decrease bacterial colonies and the threat of device-related bacterial cross-contamination.

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At St. Cloud Hospital in St. Cloud, Minn., Roberta Basol is the Care Center director for the ICU, Surgical Care, and Clinical Practice; Jean Beckel is a performance improvement analyst and Magnet® Program director; Judy Gilsdorf-Gracie was a clinical resource nurse; Amy Hilleren-Listerud is a clinical nurse specialist; Terri D. McCaffrey is a clinical nurse specialist; Sherri Reischl is an ICU RN and ED interim educator; Pamela Rickbeil is a clinical nurse specialist; Mary Schimnich is a heart failure specialist; Kirsten Skillings is a clinical nurse specialist; and Mary A. Struffert is an administrative nursing supervisor.

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