

Cell phones, ECG leads are nosocomial pathways: hospitalized patients

CHICAGO -- Cell phones and reusable ECG leads have come under scrutiny as reservoirs for multidrug-resistant bacterial pathogens that may potentially play an important role in serious nosocomial infections in hospitalized patients.

New evidence that the use of cell phones by hospital personnel provides a plausible route of nosocomial disease transmission has prompted a prohibition against staff cell phone use during patient care at one major Israeli university hospital, Dr. Abraham Borer said at the annual Interscience Conference on Antimicrobial Agents and Chemotherapy.

Dr. Borer presented a study in which the hands and personal cell phones of 71 physicians and 53 nurses at Soroka University Medical Center in Beer-Sheva, Israel, were cultured for *Acinetobacter baumannii*. He and his coinvestigators focused on this microorganism because it is "among the most fearsome" pathogens involved in nosocomial bacterial infections in hospitalized patients. *A. baumannii* has a propensity to develop resistance to a wide range of antimicrobials, and the microorganism can survive on fomites for long periods, he explained.

A. baumannii was found on 24% of tested hands and 12% of cell phones. Overall, 10% of the *A. baumannii* isolates were multidrug resistant."

Rates of contaminated cell phones were highest among hospital staff working on internal medicine wards. In contrast, positive hand cultures were detected most frequently among personnel working on pediatric wards.

Dr. Borer is organizing a study in which genetic profiling of resistant bacteria obtained from staff members' hands and cell phones will be used to pin down the actual rate of staff-to-patient transmission--and precisely what role cell phones play in the chain of transmission.

In a separate presentation, Dr. Paul R. Brookmeyer characterized ECG telemetry leads, which are cleaned and reused in most hospitals, as "an unappreciated reservoir" of multidrug-resistant nosocomial pathogens.

"It is plausible that unrecognized but widespread contamination of ECG lead wires is an important mechanism of cross-infection in hospitals, especially of resistant nosocomial bacteria such as methicillin-resistant coagulase-negative streptococci, methicillin-resistant *Staphylococcus aureus*, vancomycin-resistant enterococci, gram negative bacilli resistant to extended-spectrum [beta]-lactams, and *Clostridium difficile*," said Dr. Brookmeyer of University of Wisconsin Hospital and Clinics, Madison.

He cultured 100 randomly selected ECG telemetry leads after they had been reprocessed and immediately before their planned attachment to new ICU patients. Among the key findings: 77% of the ECG leads were contaminated with one or more antibiotic-resistant nosocomial pathogens. Overall, 67% of leads were contaminated with methicillin-resistant *S. aureus*, 17% with vancomycin-resistant enterococci, and 12% with gram-negative bacilli resistant to extended-spectrum [beta]-lactams.

Moreover, failure to adequately decontaminate ECG leads was implicated by Wisconsin hospital epidemiologists as the cause of an outbreak of *Serratia marcescens* infection. And an outbreak of vancomycin resistant enterococcal infection in a burn unit was determined to have perpetuated by a contaminated ECG lead wire harness.

More effective means of decontaminating ECG lead wires are needed, such as, perhaps, ethylene oxide gas sterilization. Better yet would be routine use of wireless telemetry, which would eliminate the problem altogether, Dr. Brookmeyer said at the conference, sponsored by the American Society for Microbiology.

Bibliography for: "Cell phones, ECG leads are nosocomial pathways: hospitalized patients"

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