Computer Keyboard Bacteria Travel To Health Care Workers' Hands

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LOS ANGELES — Computer keyboards and keyboard covers harbored vancomycin-resistant *Enterococcus faecium* and methicillin-resistant *Staphylococcus aureus* for more than 24 hours, during which time the bacteria easily spread to bare, and in some cases, gloved hands, a Northwestern University study has found.

The findings strongly suggest the need for health care providers to wash their hands after using computers, particularly in hospital settings and around immunocompromised patients, said Gary A. Noskin, M.D., an infectious disease specialist at Northwestern University and director of health care epidemiology and quality at Northwestern Memorial Hospital in Chicago.

Electronic patient records have ushered more computers into examining and patient rooms, heightening the importance of their role as a "viable reservoir for pathogenic bacteria," in the words of the study presented in poster form at the annual meeting of the Society for Healthcare Epidemiology of America.

Investigators inoculated standard computer keyboards and Dell computer keyboard covers with isolates of vancomycin-resistant *E. faecium* (VRE), methicillin-resistant *S. aureus* (MRSA), and *Pseudomonas aeruginosa* (PSAE).

Analysis of samples obtained at various time intervals revealed that both VRE and MRSA survived 24 hours, while PSAE was less hardy, growing for 5 minutes on keyboard covers and 1 hour on keyboards.

Bacteria transmission to volunteers' hands increased with the number of times they touched the keyboards. For example, MRSA resulted in recovery of bacteria on hands 92% of the time with 5 touches, versus 42% of the time after 1 touch of the keyboard. Rates for VRE were 50% and 22% after 5 touches and 1 touch, and with PSAE, 18% and 9%, respectively.

Bare hands were more likely than were gloved hands to acquire VRE and MRSA, 67% versus 7%, and 80% versus 67%, respectively.

Investigators then conducted an experiment to see whether two quaternary ammonium–based germicides commonly used in health care settings could eliminate bacterial contamination on keyboards and keyboard covers.

Virex II 256 (Johnson Wax Professional, Sturtevant, Wisc.), when used as directed with a 10-minute dwell time, successfully disinfected both keyboards and keyboard covers.

Sani-Wipes (PDI, Upper Saddle River, N.J.), used as directed with a 5-minute dwell time, disinfected keyboards but failed to eliminate VRE and PSAE on keyboard covers.

Dr. Noskin and his associates recommended hand washing after contact with computers. It is unknown how keyboards and keyboard covers should be disinfected, since there's "just no data" on how frequent germicide use might impact their durability, circuitry, and electronics, he said in a telephone interview following the meeting."On a practical level, keyboards and other environmental surfaces are never going to be sterile, so it's just very important for healthcare workers to wash their hands so the contamination is less relevant," he said.

No industry funding was used for the study. ■

Physicians Slip Up on Isolation Gown Policy Where Multiresistant Organisms Lurk

LOS ANGELES — Physicians were the least likely among health care workers to comply with hospital rules requiring isolation gowns in rooms of patients carrying multiresistant organisms, according to a study aimed at exploring ways to reduce severe nosocomial infection outbreaks.

Among physicians, surgeons were the least compliant, reported Farrin A. Manian, M.D., an infectious disease specialist at St. John's Mercy Medical Center in St. Louis, at the annual meeting of the Society for Healthcare Epidemiology of America.

Gowns and gloves are required as part of modified contact precautions (MCP) at Dr. Manian's hospital as part of an effort to avert the epidemic spread of infections caused by organisms such as methicillin-resistant *Staphylococcus aureus,* vancomycin-resistant enterococci, and *Clostridium difficile*.

All visitors and health care workers must comply with precautions before entering the well-marked rooms of patients infected or colonized by these pathogens.

But just 74% of 2,144 people seen entering MCP rooms wore gowns in a covert observation study coordinated by Dr. Manian and John J. Ponzillo, Pharm.D., at the 900-bed tertiary care medical center.

Health care workers were more likely than visitors to wear gowns, at rates of 77% and 66%, respectively.

The health care workers most likely to comply were respiratory therapists, with a compliance rate of 96.2%. Physicians were the worst at following infection control gown orders, with a compliance rate just over 67%.

Compliance also varied by medical specialty, with intensivists topping the list at a compliance rate of 84%, followed by house staff, 71%, miscellaneous physicians, 70%, internists and family physicians, 61%, and surgeons, 41%.

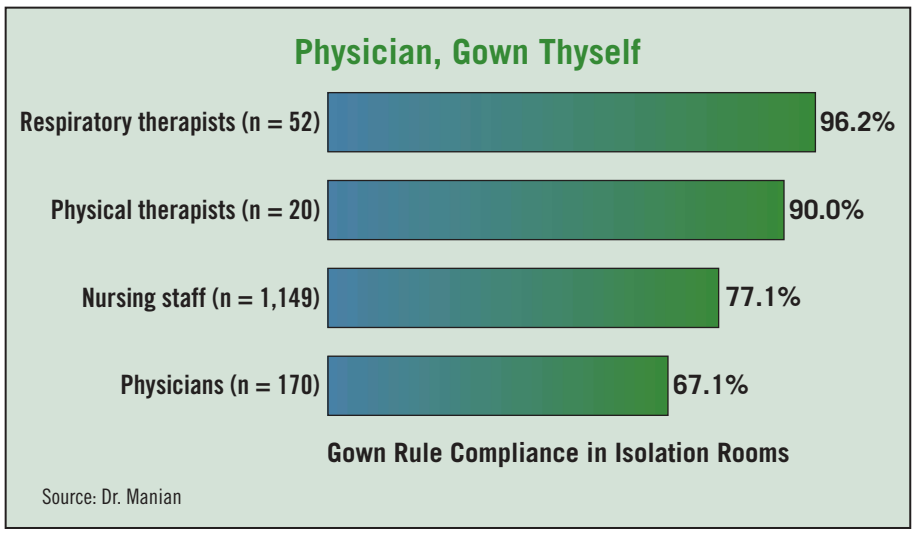
Logistic regression analysis identified three factors independently associated with noncompliance with the gown rule: location of the patient room in a non-ICU ward, occupation (physician), and male gender.

There was a very strong correlation between gown use and glove use among health care workers in the ICU, with 110 of 115 workers (96%) wearing gowns also wearing gloves, compared with 3 of 18 (17%) not wearing gowns.

Dr. Manian stressed the importance of complying with modified isolation precautions in hospital environments increasingly under threat of difficult-to-control nosocomial infections.

In an interview about poor physician compliance, he said, "Honestly, I think it has to do with the perception of risk. If I said this patient has Ebola, physicians would comply."

Some physicians, he added, "think rules don't apply to them." ■



Alcohol Rubs Reduce Germs On Stethoscopes

LOS ANGELES — One in five stethoscopes used by hospital physicians was contaminated with *Staphylococcus aureus*, including one that harbored methicillin-resistant *S. aureus*, according to a study presented at the annual meeting of the Society for Healthcare Epidemiology of America.

Cultures taken from stethoscopes also grew *Enterococcus* species and *Enterobacter aerogenes*.

Skin flora, including diphtheroids, α-hemolytic streptococci, and coagulase-negative staphylococci, were the most common microorganisms found on 84 randomly tested stethoscopes from house staff, medical students, and attending physicians at Grady Memorial and Emory Crawford Long Hospitals, Atlanta.

When 24 of the stethoscopes were wiped with an alcohol pad, the median number of colony-forming units plummeted to 0, with a range of 0-59.

The median number of colony-forming units isolated from stethoscopes was 35, with a range of 0-247. The stethoscopes were tested by investigators from Emory University, Atlanta.

"We don't mean to claim stethoscopes are the scourge of civilization, or that they are anywhere near as important in transmitting disease as hand carriage," James P. Steinberg, M.D., an associate chief of medicine and hospital epidemiologist, said in an interview. "But they can be colonized."

In a related survey of stethoscope users, 10 said they cleaned their stethoscopes between patients. Another 35 cleaned them daily, 30 did so weekly, 7 cleaned them monthly, and 2 never cleaned them.

When 24 of the stethoscopes were wiped with an alcohol pad as part of the study, the median number of colony-forming units plummeted to 0, with a range of 0-59.

However, because there is no "smoking gun" linking contaminated stethoscopes with disease, Dr. Steinberg said it seems excessive to recommend that all health professionals clean their stethoscopes with alcohol wipes before and after every patient contact.

Use of alcohol hand rubs, on the other hand, is already routinely recommended before and after patient contacts, so Dr. Steinberg and associates set out to determine whether a quick rub of the stethoscope might suffice.

Indeed it did.

Among 60 stethoscopes with a median of 33.5 colony-forming units at baseline (range, 1-247), the median colony-forming units dropped to 4 (range, 0-60) after the stethoscopes were swiped with an alcohol hand rub. ■