

WASHABLE KEYBOARDS HELP HOSPITAL FIGHT ACINETOBACTER INFECTIONS

By Karin Lillis

One bacterial outbreak is one too many, says Marie Ayers, RN, CIC, interim director of infection prevention and control at UF Health Shands Hospital.

The facility — a level 1 trauma center, tertiary care and teaching hospital in Gainesville, Fla. — had an outbreak of *Acinetobacter* on its burn unit. Ayers quickly looked to the keyboards, and found that equipment carried most of the bioburden — swabs obtained from keyboards on the unit revealed unacceptable levels of *Acinetobacter*. Ayers and her colleagues quickly looked to Seal Shield for answers.

The Jacksonville, Fla.-based company makes submersible and waterproof keyboards and other computer equipment that can withstand high-powered disinfectants hospitals use to keep equipment and surfaces bacteria- and virus-free. Seal Shield also offers Silver Seal Antimicrobial Protection for many of its products.

“Outbreaks of *Acinetobacter* infections typically occur in intensive care units and healthcare settings housing very ill patients. *Acinetobacter* infections rarely occur outside of healthcare settings,” the Centers for Disease Control and Prevention notes. Especially at risk are acutely or chronically ill patients who are on a ventilator, patients hospitalized for long periods of time and those with open wounds, the CDC says. Urinary catheters can also increase a patient’s risk of contracting an *Acinetobacter* infection. The bacteria spreads from person-to-person contact, the CDC says, or when someone touches a contaminated surface.

“We ended up rebuilding the unit and cleaning up. We started to look at features that we could bring to the unit that would help us prevent the spread of infections. Keyboards are a horrible source of pathogens,” Ayers says. She and her colleagues had seen Seal Shield’s submersible keyboard at a recent APIC conference.

“The Seal Shield guys actually had a keyboard in an aquarium, and told us to fish it out and use it. I pulled out a mouse from

the bottom of the tank and used it. That sold me right there,” Ayers says.

“Our nurses were so devastated by the outbreak and so interested in what they could do to stop the spread of bacteria and viruses,” Ayers says. “We let our nurses pick the keyboard we would use on the unit. We actually took a whole box up to them and told them to test them all out.”

Ultimately the hospital provided Seal Shield keyboards throughout its entire burn unit. The nurses, Ayers says, selected a white keyboard so it was “easier to see dust, dirt and debris.”

The infection prevention staff then taught nurses on the burn unit the right way to clean the keyboards.

“We don’t really submerge the keyboards as much as we spray them down between every patient,” she says, unless the keyboard is visibly contaminated with bodily fluid or tissue.

The nurses picked the keyboard and Ayers and her staff have not heard any complaints. The keyboards, she says, are working well. Nurses are responsible for spraying down the keyboards a few times a day and at the end of every patient transfer.

UF staff use Sani-Cloth wipes “in all different shapes and sizes,” Ayers says — including bleach, quaternary with alcohol and quaternary products. “In the case of a patient with *C. diff*, we always use bleach — and we can actually submerge the keyboards in a 10:1 bleach/water solution.”

The hospital also trained its environmental services staff to properly clean the keyboards. “The biggest thing we did, too, is adding housekeeping to assist us in cleaning surfaces that previously they couldn’t touch — like keyboards. They can absolutely spray it down and clean it. We encourage them to do so,” Ayers says.

She adds that keyboards like Seal Shield’s should be “the future and the standard for everyone in healthcare. Proactively switching to a product that we can use and clean makes sense. If we clean everything and encourage cleaning high-touch areas, why not start with the keyboard?” □

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Research that substantiates keyboard contamination includes:

- ◆ University of North Carolina (Chapel Hill) Research Study (Keyboards in Hospital Settings) The study, published in *Infection Control and Hospital Epidemiology*, comes from William Rutala, PhD, MPH, and colleagues at the University of North Carolina (UNC) at Chapel Hill. Researchers took samples from 25 computer keyboards at various locations inside UNC Hospitals and tested the samples for bacterial contamination. They found that each keyboard was contaminated with at least two types of bacteria. In particular, every keyboard tested positive for coagulase-negative staphylococci or CoNS, which is a major cause of bloodstream infections in hospitalized patients. In addition, 13 other types of bacteria were found, with the most common, after CoNS, being diphtheroids (found on 20 computers, or 80 percent), *Micrococcus* species (72 percent) and *Bacillus* species (64 percent). Data suggest that microbial contamination of keyboards is prevalent and that keyboards may be successfully decontaminated with disinfectants. Keyboards should be disinfected daily or when visibly soiled or if they become contaminated with blood.

- ◆ Northwestern Memorial Hospital (Chicago) Research Study (Keyboards in Hospital Settings) Samples obtained from the keyboards and keyboard covers revealed growth of MRSA and VRE at 24 hours. Transmission studies revealed that increased contact with the inoculated keyboards (from 1 to 5 touches) increased recovery of bacteria on hands. The transmissibility rate from keyboard covers was not appreciably different. VRE and MRSA are capable of prolonged survival on both computer keyboards and keyboard covers. After any contact with computer keyboards, both gloved and ungloved hands frequently become contaminated. Researchers found that a good way to prevent the transmission of this type of infection is for healthcare workers to wash their hands and to have computer keyboards disinfected on a regular basis.