

# Study shows nurses' scrubs become contaminated with bacteria in hospitals

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Clothing worn by healthcare providers can become contaminated with bacteria, however having nurses wear scrubs with antimicrobial properties did not prevent this bacterial contamination from occurring, according to a study published online today in *Infection Control & Hospital Epidemiology*, the journal of the Society for Healthcare Epidemiology of America.

As part of the Antimicrobial Scrub Contamination and Transmission (ASCOT) Trial, researchers from Duke University Hospital, followed 40 nurses who wore three different types of scrubs over three consecutive 12-hour shifts, taking a series of cultures from each nurses' clothing, patients, and the environment before and after each shift.

"Healthcare providers must understand that they can become contaminated by their patients and the environment near patients," said Deverick J. Anderson, MD, MPH, Director of the Center for Antimicrobial Stewardship and Infection Prevention at Duke University Medical Center and lead author of the study. "Although not effective, we looked to eliminate this risk for contamination by changing the material of nurses' scrubs."

In a random rotation, each nurse wore traditional cotton-polyester scrubs, scrubs that contained silver-alloy embedded in its fibers, or another type of scrub treated with a combination of antibacterial materials. The nurses did not know which scrubs they were wearing.

The researchers analyzed 2,919 cultures from bed rails, beds, and supply carts in each room and 2,185 cultures from the sleeve, abdomen and pocket of nurses' scrubs. No differences in contamination were found based on the type of scrubs worn.

Researchers identified new contamination during 33 percent, or 39 of 120 shifts. Scrubs became newly contaminated with bacteria during 16 percent, or 19 out of 120, shifts studied, including three cases of contamination of nurses' scrubs while caring for patients on contact precautions where patients were known to be infected with drug-resistant bacteria and personnel entering the room were required to put on gloves and gowns. The mostly commonly transmitted pathogen was *Staphylococcus aureus* including MRSA and methicillin susceptible *S. aureus*. The [nurses](#) in the study worked in medical and surgical intensive care units, caring for one to two patients per shift.

"There is no such thing as a sterile environment," said Anderson.

"Bacteria and pathogens will always be in the environment. Hospitals need to create and use protocols for improved cleaning of the healthcare environment, and patients and family members should feel empowered to ask [healthcare providers](#) if they are doing everything they can to keep their loved one from being exposed to bacteria in the environment."

The authors note that the scrubs were likely ineffective at reducing pathogens because of the low-level disinfectant capabilities of the textiles, coupled with repeated exposure in a short timeframe. They suggest antimicrobial-impregnated textiles might be effective if used in bed linens and patient gowns, given the prolonged exposure to patients.

Given the findings, the authors recommend diligent hand hygiene following all patient room entries and exits and, when appropriate, use of gowns and gloves- even if no direct patient care is performed to reduce the risk of clothing contamination of [healthcare](#) providers.

**More information:** Deverick J. Anderson et al, The Antimicrobial Scrub Contamination and Transmission (ASCOT) Trial: A Three-Arm, Blinded, Randomized Controlled Trial With Crossover Design to Determine the Efficacy of Antimicrobial-Impregnated Scrubs in Preventing Healthcare Provider Contamination, *Infection Control & Hospital Epidemiology* (2017). [DOI: 10.1017/ice.2017.181](https://doi.org/10.1017/ice.2017.181)

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