

Hospital rooms and patients equally likely to transmit pathogens

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Hospital rooms, not just the patients in them, can spread germs through contact with health care personnel, a Duke Health study reports.

"This study is a good wake-up call that health care personnel need to concentrate on the idea that the health care environment can be contaminated," said Deverick Anderson, M.D., the study's lead author and associate professor of medicine at Duke University School of Medicine. "Any type of patient care, or even just entry into a room where care is provided, truly should be considered a chance for interacting with organisms that can cause disease."

Anderson presented the study's findings on Oct. 27 at IDWeek, the annual meeting of the Infectious Diseases Society of America (IDSA), the Society for Healthcare Epidemiology of America (SHEA), the HIV Medicine Association (HIVMA), and the Pediatric Infectious Diseases Society (PIDS).

The Duke-led research team set out to understand how pathogens travel between the "transmission triangle" in a health care setting: [patients](#), the environment where care is administered, and the [health care provider](#).

During the study, the researchers took cultures from the sleeves, pockets, and midribs of the surgical scrubs of 40 [intensive care unit](#) nurses at Duke University Hospital. Each set of scrubs was new and the samples were collected at the start (before any patient interaction) and end of each shift. Cultures were also collected from the bodies of all patients the nurse cared for during each shift and the patients' room contents (bed, bedrail, and supply cart).

In total, 167 patients received care over 120, 12-hour shifts. The study collected 2,185 cultures from the nurses' clothing, 455 from patients, and 2,919 from patients' rooms.

Molecular analysis identified organisms on the nurses' clothing that were not present at the beginning of a shift, but were present at the end. The researchers then looked for those same organisms in the samples collected from patients and their rooms.

Specifically, they searched for five pathogens known to cause difficult-to-treat infections, including MRSA, a staphylococcus strain that is resistant to antibiotics. If such pathogens are present on nurses' scrubs, they could be transferred between patients or lead to infection of the nurses themselves.

During the shifts considered, the researchers confirmed 12 instances when at least one of the five pathogens was transmitted from the patient or the room to the scrubs. Six incidents each involved transmission from patient to nurse and room to nurse. An additional ten transmissions were from the patient to the room.

The researchers did not document any nurse-to-patient or nurse-to-room transmission.

The analysis found that pockets and sleeves of the scrubs were most likely to be contaminated, as were the bed rails in the rooms.

"I think sometimes there's the misconception that if, for instance, a nurse is just talking to patients and not actually touching them, that it might be okay to skip protocols that help reduce pathogen transmission, like washing hands or wearing gloves," Anderson said. "The study's results demonstrate the need for caution whenever health care providers enter a patient room, regardless of the task they're completing."

Anderson said the results were also significant because previous studies on pathogen transmission focused mainly on the patient-to-nurse interaction, while this study demonstrated that the

room itself should be approached with equal consideration and caution.

"Oftentimes, especially when dealing with very sick patients, health care personnel may feel a conflict between providing care and following protocol that helps prevent pathogen transmission," Anderson added. "Our study shows following prevention strategies has to be a top priority, and that [health care](#) providers should be looking for ways to improve the likelihood that they are."

Provided by Duke University Medical Center

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