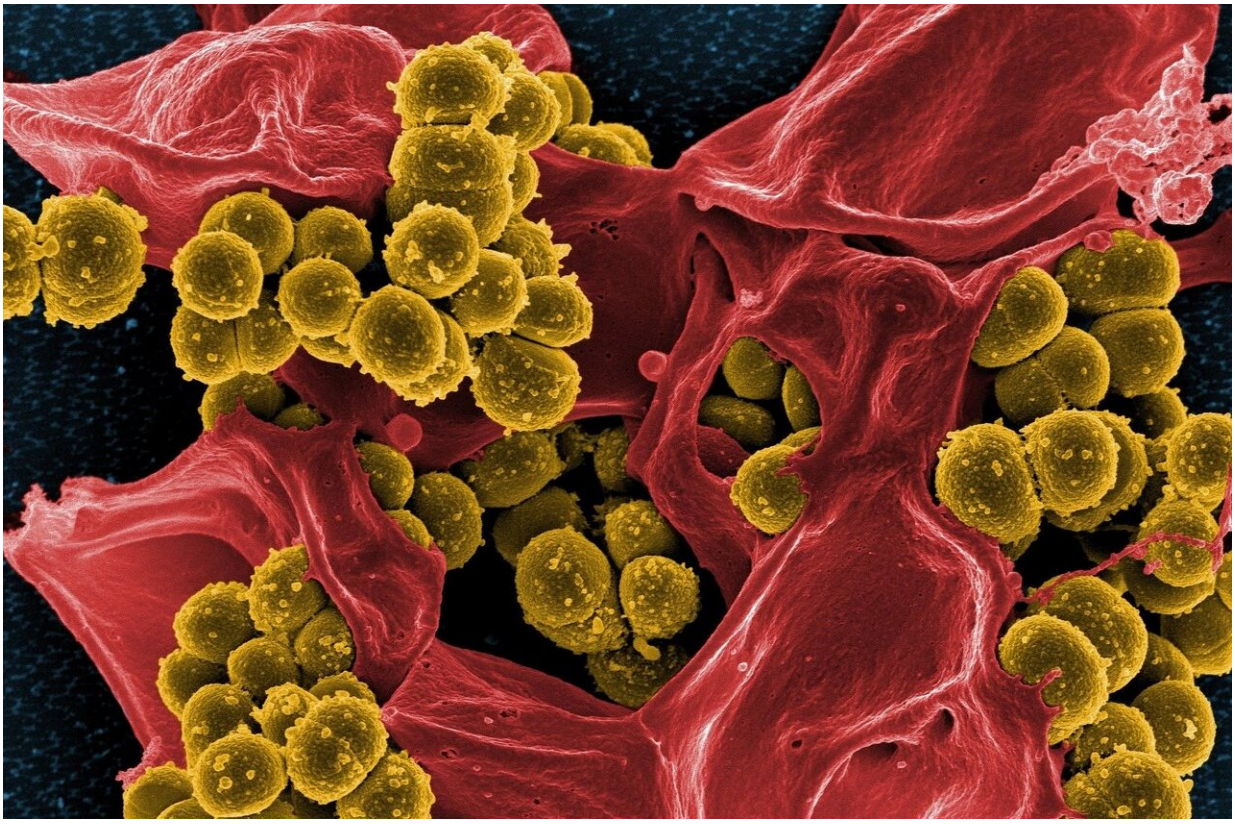
Safety protocol breaches—ways to prevent infection transmission in health care setting

June 11 2018



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The medical community is losing its biggest gun in fighting infection, antibiotics. Researchers are turning to safety protocols to reduce the transmission of antibiotic-resistant organisms, like *Clostridium difficile*,

methicillin-resistant *Staphylococcus aureus* (MRSA) and influenza. The health care environment, however, may be setting health care workers up for failure.

During 325 observations, researchers at the University of Utah and University of Michigan identified 283 protocol violations, which could increase the risk of self-contamination of health care personnel and transmission of antibiotic-resistant organisms to patients. The results of the study are published in the June 11 issue of *JAMA Internal Medicine*.

"We already know from other studies that there are breaches in practice," said first author Sarah Krein, Ph.D., R.N., research professor University of Michigan and research investigator at the Veterans Affairs Ann Arbor Healthcare System. "Our team was interested in understanding why and how those breaches occur so we can develop better strategies to ensure the safety of patients and health care personnel."

During a nine-month period, 11 staff observed health care professionals at 2 locations. At one location, 280 observations were conducted in medical-surgical units (196), intensive care units (64) and the emergency department (20). At the second location, 45 observations were made in medical-surgical units (36) and intensive care units (9).

"We were observing highly trained and motivated people working in a complex system that has issues," said Frank Drews, Ph.D., professor in Department of Psychology at the U and senior author on the paper. "We want to encourage health care decision-makers to make improvements to the system so it is easier for health care workers to adhere to best practices."

The observation staff used Reason's model of human error to classify errors as violations, mistakes or slips.

Violations occurred when personnel did not follow standard health care interaction protocols. Of the 102 violations, many occurred when the health care personnel did not put on the appropriate personal protective equipment, like gowns, gloves, and masks, because they did not plan to interact with the patient or the family. Other violations were observed when checking devices or dropping off supplies in patient rooms.

Mistakes were classified as errors in process or procedure. The 144 mistakes consisted of taking off gowns in the improper sequence, touching gloved hands to an ID badge to log into in-room computers and using gloved hands to retrieve medications or supplies from coat pockets.

Finally, the observers classified slips as inadvertent automatic behaviors. Of the 37 observed slips, the researchers identified actions like health care personnel touching their face with a gloved hand or using personal devices.

"At the core of our work is the idea that we need to be even more thoughtful about the type of equipment that we introduce in health care. More usable equipment will make it easier for health care workers to do their tasks and keep their patients safe," Drews said. "We want to make real fixes to the system not just put a band-aide here or there."

While this study identified numerous errors, it suggests an opportunity to re-evaluate strategies that allow more latitude in current self-contamination and transmission protocols, such as redefining the area within the patient's room where protective clothing is required and reducing precaution requirements for some bacteria to ensure greater vigilance is applied to virulent organisms. Finally, many mistakes resulted from poorly designed clothing, room configuration and computer access.

The researchers note that the personnel in the study knew they were being observed, which may have lowered the number of violations observed. In addition, the results were obtained from 11 individuals who, despite receiving training, could have influenced the results with unintentional bias. While the study was conducted at two locations with different policies, recommended practices and products, similar issues were observed at both locations.

Observers obtained verbal informed consent from patients and personnel prior to observations. Observations took place in 2- to 3-hour segments.

Provided by University of Utah