

Research demonstrates bacterial contamination in pharmacy robots

Chicago -- Drug dispensing robots designed to quickly prepare intravenous medications in a sterile environment can harbor dangerous bacteria, according to a report in *Infection Control and Hospital Epidemiology*, the journal of the Society for Healthcare Epidemiology of America.

During a routine screening in 2010, personnel at Wake Forest Baptist Medical Center in North Carolina discovered *Bacillus cereus* bacteria in samples dispensed by their machine, the Intellifill IV. "To our knowledge, this is the first published report of a pharmacy robot being contaminated with *Bacillus* with resultant contamination of intravenous drug product," the report's authors write.

Bacillus is a potentially harmful bacterium that is resistant to many commonly used disinfectants, including alcohol.

Personnel discovered the contamination through quality assurance measures recommended by the manufacturer before any patients were harmed by the contaminated drugs. The implications of contaminated intravenous products can be serious, including potentially life-threatening bloodstream infections. While any adverse events were avoided, the investigation into how the machine became contaminated suggests that the current cleaning and maintenance recommendations may need to be strengthened.

The investigators traced the contamination to the machine's washing station and the tubing associated with it. Because this area is not considered a sterile part of the robot, the manufacturer does not specify a cleaning procedure for these parts beyond regular "fogging" with alcohol, using a spray bottle to clean inaccessible parts.

"To prevent other users of Intellifill IV from experiencing the same problem, the manufacturer should consider establishing a formal procedure for cleaning and maintaining the washing station, with more detailed recommendations to change the drain tube, the container, and possibly the washing station itself," the authors write. "In addition, it is reasonable to expand existing quality assurance recommendations to include surface testing of the washing station and air sampling in the center of the compartment. Last, using the robot in the pharmacy's clean room could further decrease the risk of contamination."

The findings stress the importance of routine screening of medication prepared by robotic dispensers, which are increasingly used in hospitals. "Quality assurance methods are critical to ensure ongoing patient safety," the authors write.

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