

Endoscopes still contaminated after cleaning, study shows

August 5 2015

Potentially harmful bacteria can survive on endoscopes used to examine the interior of the digestive tract, despite a multi-step cleaning and disinfecting process, according to a study published in the August issue of the *American Journal of Infection Control*, the official publication of the Association for Professionals in Infection Control and Epidemiology (APIC).

Though endoscopes were cleaned in accordance with multi-society guidelines, viable microbes and residual contamination remained on surfaces after each stage of cleaning, according to study findings.

Researchers from Ofstead & Associates in Saint Paul, Minnesota and Mayo Clinic in Rochester, Minnesota tested samples collected from 60 encounters with 15 colonoscopes and gastroscopes used for gastrointestinal procedures after each reprocessing step to assess contamination levels. Investigators observed all reprocessing activities, using a checklist to ensure that cleaning protocols were performed in accordance with published guidelines.

Reprocessing consisted of: bedside cleaning, manual cleaning in dedicated reprocessing rooms, and automated endoscope reprocessing with a high-level disinfectant. Disinfected endoscopes were stored vertically after drying with isopropyl alcohol and forced air. When contamination levels exceeded pre-determined benchmarks for each cleaning step, technicians went beyond guidelines and repeated cleaning procedures, retesting after each attempt to reduce contamination.



Researchers performed microbial cultures and various rapid tests to detect viable organisms and organic residue that remained after each step of cleaning. Viable organisms were detected on 92 percent of devices after bedside cleaning; 46 percent after manual cleaning; 64 percent after high-level disinfection, and 9 percent after overnight storage. Rapid indicator tests detected contamination above benchmarks on 100 percent of devices after bedside cleaning; 92 percent after manual cleaning; 73 percent after high-level disinfection, and 82 percent after overnight storage.

"This study demonstrates that colonoscopes and gastroscopes can harbor residual organic material, including viable microbes, even when adherence with recommended reprocessing guidelines is verified," said the study authors. "More research is needed to identify processes that can ensure all flexible endoscopes are free of residual contamination and viable microbes prior to patient use, including the potential use of routine monitoring with rapid indicators and microbiologic cultures. Results from this study suggest that current standards and practices may not be sufficient for detecting and removing residual contamination."

The authors list several potential limitations of the study including that it is a single-site study and may not be generalizable nationwide. In addition, reprocessing technicians were aware of the researchers' use of a checklist to ensure guideline compliance and therefore may have devoted more time and effort to reprocessing. Another caveat is that technicians were immediately informed about contamination that exceeded benchmarks and repeated cleaning steps—actions that are not generally part of standard practice.

Colonoscopes and gastroscopes are endoscopic devices with thin tubes, channels, and ports that are used to examine the interior of the colon and the stomach. Recent reports of multidrug-resistant infections related to contaminated duodenoscopes, which have intricate elevator mechanisms



and channels that are especially difficult to clean, have raised awareness about the necessity for meticulous reprocessing of all types of <u>endoscopes</u> to prevent the transmission of pathogens to patients.

More information: "Persistent contamination on colonoscopes and gastroscopes detected by biologic cultures and rapid indicators despite reprocessing performed in accordance with guidelines," by Cori L. Ofstead, Harry P. Wetzler, Evan M. Doyle, Catherine K. Rocco, Kavel H. Visrodia, Todd H. Baron, and Pritish K. Tosh appears in the *American Journal of Infection Control*, Volume 43, Issue 8 (August 2015).

Provided by Elsevier

Citation: Endoscopes still contaminated after cleaning, study shows (2015, August 5) retrieved 6 May 2024 from <u>https://medicalxpress.com/news/2015-08-endoscopes-contaminated.html</u>

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