Robust Processes & Training Needed to Maintain High-Level Disinfection

Challenges in achieving effective high-level disinfection in endoscope reprocessing

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Summary and Methods

Microbes can remain on endoscopes following reprocessing with high-level disinfectants (HLDs). Factors that can contribute to ineffective endoscope reprocessing include: non-compliance to reprocessing guidelines or facility processes; inadequate device cleaning; using contaminated water for rinsing; remains of insoluble products on devices; insufficient endoscope drying techniques; or HLD chemistry or monitoring issues.

Ofstead & Associates sought to understand the key factors leading to ineffective reprocessing of endoscopes. The authors used a multi-faceted research approach of analyzing published studies, interviews with frontline infection preventionists and sterile processing, surveys of sterile processing professionals, and results from audits and site visits.

Discussion and Results

The most widely used HLDs for reprocessing endoscopes are OPA, glutaraldehyde, hydrogen peroxide, and peracetic acid. With each comes varying HLD concentrations, exposure times, temperatures, expiration terms, allowable reuse periods and minimum effective concentration (MEC) test instructions, per instructions for use (IFU).

Published literature and interviews with frontline technicians suggest issues with HLD concentrations could be a major factor in the effectiveness of endoscope reprocessing. The HLD reuse periods may not be perfectly reliable, which is why instructions for use and industry guidelines recommend MEC tests for each reprocessing cycle to ensure the HLD concentration exceeds the MEC.

Multiple studies also indicate technician non-adherence to standard processes for MEC testing and HLD use. One study concluded that steps in the disinfection process were done incorrectly or missed altogether for 99% of the endoscopes reprocessed. A survey of IAHCSMM (International Association of Healthcare Central Sterile Materiels Management) members revealed only 51% of respondents document MEC results.

Patient infection outbreaks have occurred as a result of guidelines non-compliance, per the FDA and CMS. The FDA report discusses two cystoscopy patients who were contaminated by a device that had not been leak tested and which MEC testing was only conducted once every two weeks. The CMS study cites expired HLD being used to reprocess endoscopes used on 45 patients, one of which had a history of hepatitis.

Conclusions

Endoscope reprocessing can be complex and time-consuming, but the results of non-compliant processes put patients at risk of acquiring infections. The author recommends that infection preventionists collaborate with manufacturers, endoscopists, and reprocessing personnel to improve the quality of high-level disinfection.

1. Consider automating the process – Automated high-level disinfection systems can help ensure consistent reprocessing cycles and compliant data logging by reducing the ability for technicians to skip or shortcut required steps.
2. Allow for the proper amount of time to adequately reprocess endoscopes – 70% of IAHCSMM survey respondents feel pressured to reprocess endoscopes more quickly. MEC testing can be a time-consuming part of the process, particularly if the test fails and requires additional documentation or repeating cycles. This can lead to technicians skipping essential reprocessing steps.
3. Invest in training – In the IAHCSMM survey, 70% of participants received a week or less of training before reprocessing endoscopes without assistance. Determine the right amount of training a technician should complete before reprocessing endoscopes independently and identify methods to quality check reprocessing performance among frontline staff.