

Minimizing the Risk of Bacterial Transmission from Patient to Patient When Using Duodenoscopes

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ABSTRACT

This document was developed by the Provincial Infectious Diseases Advisory Committee (PIDAC) as an extension to the Best Practices for Cleaning, Disinfection and Sterilization of Medical Equipment/Devices in All Health Care Settings guideline. Recent outbreaks have demonstrated that adherence to current guidelines for endoscope reprocessing may not be sufficient to prevent bacterial transmission following the use of duodenoscopes. This document reviews the recommended cleaning and disinfection practices for reprocessing duodenoscopes which have been based on theoretical consideration and expert opinion.

BACKGROUND

Gastrointestinal endoscopes are a challenge to reprocess due to their narrow and angulated internal lumens and irregular, hard to reach surfaces, combined with the high levels of bacterial contamination that occurs following routine use. Over the last five years, outbreaks of multidrug-resistant bacteria have been associated with the use of duodenoscopes. These outbreaks occurred despite adherence to best practices for endoscope reprocessing. Currently there is not a clear understanding of the frequency of bacterial transmission related to the use of duodenoscopes or the degree of risk faced by patients. Until a definitive solution to the problem can be identified, facilities must ensure that reprocessing guidelines and updated manufacturer's instructions are meticulously followed.

Best Practices for Duodenoscope Reprocessing

1. Healthcare facilities that perform duodenoscopy must comply with currently accepted best practices for endoscope reprocessing.
2. Endoscopy reprocessing practices must be audited by infection prevention and control in collaboration with the endoscope reprocessing leads to ensure that practice is consistent with facility policies and procedures.
3. A duodenoscope that is implicated in a transmission event should be sent to the manufacturer for assessment and repair, and reprocessed and cultured on return.

Manual Cleaning of the Elevator Mechanism and Channel

1. Prior to high-level disinfection or sterilization, duodenoscopes must be thoroughly cleaned manually regardless of whether an automated endoscope reprocessor is used.
2. Facilities may consider using biological markers using a Health Canada approved assay as a quality check of pre-cleaning and manual cleaning processes.
3. The elevator mechanism and recess should be carefully inspected during manual cleaning to ensure that all gross contamination is removed; the use of a magnifying lens or borescope to increase detection of gross contamination may be considered.

4. The elevator mechanism shall be raised and lowered throughout the manual cleaning process to allow brushing on both sides of the device.
5. The elevator mechanism should be raised and lowered while flushing the elevator channel with enzymatic detergent and during subsequent rinsing of the elevator channels with water.
6. Facilities may consider a double cleaning process, during which the duodenoscope is manually cleaned twice, ideally by a second trained cleaner.

Disinfection of Duodenoscope

1. Healthcare facilities at which duodenoscopy is performed, may consider double reprocessing as a potential strategy to reduce the risk of bacterial transmission related to duodenoscopes.
2. Healthcare facilities that adopt a double reprocessing strategy can repeat their high-level disinfection step, or add a low-temperature sterilization step to the initial high-level disinfection step, after considering the risks and benefits of the sterilization method chosen, and ensuring that the methods are compatible with the specific duodenoscope used.

CONCLUSION

The PIDAC guideline for minimizing the risk of bacterial transmission when using duodenoscopes emphasizes the importance of ensuring meticulous cleaning and disinfection. These recommendations are the basic expectations for safe care within healthcare facilities and should be implemented into every infection prevention program to better protect patients and staff.