

Heemstra, Sarah

From: Heemstra, Sarah
Sent: Tuesday, February 19, 2019 11:20 AM
To: Heemstra, Sarah
Subject: Infection Prevention Champions Program: Endoscope Reprocessing

Infection Prevention Champions Program



Dear Champion,

At this point in the program, you have already reviewed the [Standards of Infection Prevention in Reprocessing of Flexible Gastrointestinal Endoscopes](#) and completed your first education requirements (either technician or nurse focused) which has given you a solid foundation for infection prevention processes and endoscope reprocessing. We will now review the nine steps of endoscope reprocessing which are critical to the safe and successful treatment of patients.

1. Precleaning
2. Leak testing
3. Manual cleaning
4. Rinse after cleaning
5. Visual Inspection
6. High level disinfection (manual or automated reprocessing)
7. Rinse after high level disinfection
8. Drying (alcohol and forced air)
9. Storage

Precleaning:

Precleaning is performed in the procedure room immediately following removal of the endoscope from the patient and prior to disconnecting the endoscope from the power source. Precleaning is outlined in the manufacturer's reprocessing manual and should be followed in detail for the specific time period outlined. Precleaning is an important first step in that it removes bioburden or contaminants before it has a chance to dry making manual cleaning more difficult. Following precleaning, the soiled endoscope is transported to the reprocessing room in a closed container that prevents exposing staff, patients, or the environment to potentially infectious organisms. All removable parts are disassembled in preparation for leak testing. Refer to manufacturer's guidelines on how to reprocess a scope which has not had the precleaning performed in a timely manner.

Leak testing:

Leak testing is performed under pressure to detect damage to the interior or exterior of the endoscope. Leak testing can be done manually or may be automated. If wet leak testing is performed, fresh water without detergent should be used so that air bubbles indicating a leak are easily visible. Follow manufacturer's guidelines when performing leak testing steps and for reprocessing an endoscope under pressure if a leak is identified.

Manual cleaning:

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Manual cleaning is the most important step in removing bacteria and material from the endoscope and is necessary prior to disinfection. Manual cleaning involves thoroughly washing the valves and exterior of the endoscope with a detergent solution and brushing through the entire length of the biopsy/suction channels until no further debris is detected. Next the endoscope manufacturer's cleaning adapters should be attached for suction, biopsy, air and water channels. Flush all channels with the detergent solution to remove debris. Soak the endoscope and its internal channels for the period of time specified by the detergent manufacturer.

Debris not removed during manual cleaning may inactivate or interfere with the active ingredient in the disinfectant making it less effective in killing and/or inactivating microorganisms. Delay in precleaning and/or manual cleaning could result in biofilm formation within the endoscope which is a hardened matrix which protects bacteria from contact with the disinfection chemical. This could result in a source of endoscope contamination and lead to patient illness. Regardless of the type of automated endoscope reprocessor (AER) utilized, manual cleaning is still the best way to ensure the overall effectiveness of High Level Disinfection (HLD).

Rinse after manual cleaning:

Following manual cleaning, thoroughly rinse the endoscope and all removable parts with clean water to remove residual debris and detergent. Purge water from all channels using forced air. If an automated process is used for this step, follow manufacturer's guidelines. Dry the exterior of the endoscope with a soft, lint-free cloth to prevent dilution of the liquid chemical disinfectant used in subsequent steps.

Visual Inspection:

Visual inspection is recommended to make sure the endoscope is visibly clean. It is not a guarantee that decontamination from manual cleaning is complete, but it can be considered a safety stop or "time out" to ensure the endoscope is visually clean before proceeding to the next step of HLD. Visually inspect for conditions that could affect the disinfection process (e.g., cracks, corrosion, discoloration, retained debris). Use magnification and adequate lighting to help assist with visual inspection. Repeat manual cleaning step(s) if not clean. Note: it is impossible to visualize internal channels. Literature suggests that to confirm the adequacy of manual cleaning, a rapid cleaning monitor for residual organic soil can be used prior to high-level disinfection. If the tool results are positive, this allows for the recleaning of the endoscope prior to disinfection. The frequency of the testing should be determined by the individual institutions.

High level disinfection:

HLD is the standard recommended for reprocessing gastrointestinal endoscopes. HLD destroys all viable microorganisms, but not necessarily all bacterial spores. The high level disinfectant chemical must be prepared in accordance with manufacturer's directions and each reprocessing cycle must be tested to ensure minimal effective concentration (MEC) or the lowest concentration of active ingredient necessary to ensure a high level disinfection. MEC is tested by using specific product test strips. Be aware that each bottle of test strips must also be tested. Refer to package insert.

HLD can be achieved by manual or automated process by the use of AERs. Refer to SGNAs [Standards of Infection Prevention in Reprocessing of Flexible Gastrointestinal Endoscopes](#) and manufacturer's guidelines for specific steps for each method.

Rinse after high level disinfection:

Thoroughly rinse all surfaces and removable parts, and flush all channels of the endoscope and its removable parts with clean water according to disinfectant and endoscope manufacturer's recommendations. Rinsing prevents exposure and potential injury of skin and mucous membranes from chemical residue. Fresh clean water should be used for each rinse of the endoscope. This step may be completed in the AER.

Drying:

Drying is a vital step in the reprocessing process in that *Pseudomonas aeruginosa* has been shown to grow in moist environments which re-contaminate the endoscope. Drying includes flushing all channels, including accessory channels, with alcohol and purging with air until dry. Use compressed air that has been filtered to remove microorganisms. Avoid the use of excessively high air pressure that can damage the internal channels of flexible endoscopes. Alcohol mixes with the remaining water on the channel surfaces and encourages evaporation of the residual water. Some AERs may perform the alcohol flush but the endoscope should still be blown dry and the exterior of the scope dried with a clean, lint-free cloth. Once there is confirmation that an endoscope has been properly reprocessed, it is suggested that a system exist for identifying scopes that are clean and ready to use.

Storage:

Endoscopes must be stored in an area that is clean, well-ventilated and dust free in order to keep the endoscopes dry and free of microbial contamination. An endoscope that is not dry must be reprocessed before use. Endoscopes should be stored in accordance with the endoscope and storage cabinet manufacturers' IFU. Two major types of storage cabinets exist: conventional cabinets and drying cabinets. In conventional cabinets, hang endoscopes in a vertical position (with caps, valves, and other detachable components removed) to prevent moisture accumulation and subsequent microbial growth. Make sure that they hang freely so they are not damaged by contact with one another. When using drying cabinets, follow the cabinet manufacturer's instructions. Since drying does not rely on gravity, the endoscopes can be stored horizontally or vertically depending on the design of the cabinet. Literature suggests that reusable buttons and valves should be reprocessed and stored together with the endoscope as a unique set for tracking purposes. SGNA supports a 7-day storage interval for reprocessed endoscopes, but only if they were reprocessed and stored according to professional guidelines and manufacturer instructions.

Conclusion:

Reprocessing of flexible gastrointestinal endoscopes according to the manufacturer's instructions and professional guidelines is critical to patient and staff safety. Understanding the reprocessing continuum from procedure room to storage is imperative. Until recently, every reported case of hospital acquired infection related to contaminated gastrointestinal endoscopes has been found linked to a violation of at least one of the nine reprocessing steps, with the exception of defective equipment. However, CRE infections related to ERCP scopes have been found to cause infection and even death despite adequate reprocessing. Please review [SGNA recommendations](#) when developing a plan to address reprocessing of ERCP endoscopes in your unit. Diligence in the application of all reprocessing steps remain paramount in the safe delivery of endoscopic services.

Things to consider:

- Review endoscope reprocessing manuals and manufacturer's guidelines for equipment used in the manual cleaning and disinfection of endoscopes such as leak tester, automatic flushing pump and automated endoscope reprocessor. Store materials in a centralized location for all staff to access as needed.
- Make use of [available resources](#) including professional society guidelines, manufacturer resources and educational resources, including SGNA's Reprocessing Competency Skills Checklist, Cleaning & HLD video and Cleaning and HLD wall chart.
- Ensure individuals who reprocess receive initial education and training on hire and then perform annual competencies of each step thereafter. Because of recent transmission of CRE through ERCP procedures, it is advisable that all personnel who reprocess duodenoscopes receive additional staff training with device-specific reprocessing instructions. Competencies with repeat demonstrations are advised.
- Include topics on reprocessing and endoscope care and handling in education provided to staff members. Educate all endoscopy staff on CRE infections.

Requirements should either be emailed to Champions@sgna.org or faxed to 312-673-6694 as due. The following are the assignments for the next two weeks:

1. Write and submit at least two department goals to SGNA using the Unit Infection Prevention Goals form. One goal should address the 120 minutes of education provided to staff and one goal should address an infection prevention need in the department.
2. Complete the Education Documentation Grid for **one** activity.
3. Continue to develop and implement infection prevention education for your peers (total of 120 minutes due by **December 31**)
4. Seek Opportunities to educate yourself on infection prevention topics (total of 180 minutes due by **December 31**).

These emails will be [archived](#) for you to access as needed.

As always, SGNA is available for any questions or difficulties you may have.

Sincerely,
The SGNA Infection Prevention Work Group

References:

ASGE Multisociety guideline on reprocessing flexible gastrointestinal endoscopes: 2016, Available at: https://www.asge.org/docs/default-source/importfiles/publications_and_products/practice_guidelines/doc-multisociety-guideline-on-reprocessing-flexible-gastrointestinal.pdf

SGNA Standards of Infection Control in Reprocessing of Flexible Gastrointestinal Endoscopes, 2018 .Available at: https://www.sgna.org/Portals/0/Standards_for_reprocessing_endoscopes_FINAL.pdf

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Society of Gastroenterology Nurses and Associates, Inc.
330 North Wabash Avenue, Suite 2000 | Chicago, IL 60611-7621
P: 800/245-7462, In Illinois: 312/321-5165 | F: 312/673-6694

SGNA, 330 N. Wabash Ave., Suite 2000, Chicago, IL 60611

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