Management of endoscopes, endoscope reprocessing, and storage areas during the COVID-19 Pandemic

- This document provides best practice recommendations with respect to endoscope handling, endoscope reprocessing, and storage area management during the COVID-19 pandemic.
- As more evidence becomes available, some of these suggestions may require subsequent updates.

DISINFECTION, HANDLING, AND ENDOSCOPE STORAGE

a. Endoscopes

Question: Does standard manual cleaning followed by high-level disinfection eradicate SARS-CoV-2?

Recommendation:

- Based on available evidence, standard manual cleaning followed by high-level disinfection (HLD) should be effective at eradicating SARS-CoV-2(1). At this time no changes to the reprocessing of GI endoscopes are recommended.

Question: Is there any specific new guidance to the reprocessing steps as outlined in prior guidelines for the SARS-CoV-2?

Recommendations:

- Consider limiting the number of reprocessing staff.
- Consider limiting reprocessing to experienced staff with documented competency (avoid trainees and novices at this time).
- All endoscopes should undergo full standard reprocessing prior to return to the endoscope manufacturer for maintenance, as per usual practice.

Question: What changes are needed to prevent transmission from patients to the reprocessing staff?

Recommendations:

- Pre-cleaning should commence in the procedure room per protocol, which is typically done by the staff already in the room.
- Reprocessing staff should be donning personal protective equipment (PPE) that includes gloves, gown, face shield, and mask(2). While there is no data to support a requirement for the use of N95 respirators in the reprocessing room, their use should be considered, if available.
- Place endoscope in a fully enclosed and labeled container for transportation to the decontamination room, as per institutional policy.

Question: Is there any special handling of endoscopes for known COVID-19 cases?

Recommendation:

- There is no evidence that any special handling of endoscopes used in known COVID-19 positive patients is required at this time.

Question: Are there any changes to the process needed to prevent transmission from staff to patients via handling of fully reprocessed endoscopes post high-level disinfection?

Recommendations:

- No changes are recommended to existing processes.
- Fully dry endoscopes to prevent outbreaks of waterborne organisms(3, 4).
- Dry exterior of the endoscope using a clean, lint free cloth.
- Dry the interior of an endoscope with prolonged flow of medical air through all accessible channels for at least 10 minutes(5).
- Ensure that all endoscopes are completely dried after reprocessing and before use.
- Transport dry endoscopes to storage or drying cabinet wearing clean gloves.

b. Room cleaning processes

Question: How should procedure rooms be cleaned after each patient during the COVID-19 pandemic?

Recommendations:

- Perform meticulous cleaning of room after each procedure, which includes cleaning of all high touch and horizontal surfaces in procedure rooms with an EPA approved surface disinfectant(6).
- Medical waste and linen should be removed from each room according to endoscopy unit policy.
- Staff involved in the cleaning of endoscopy rooms should utilize PPE. This should include: head cover, gown, surgical mask, eye-protection, and gloves.
- Each endoscopy unit should have a plan in place for the cleaning and disinfecting of the entire unit at the end of the day.

Question: How should a procedure room be cleaned after *known* COVID-19 cases?

Recommendations:

- Perform meticulous cleaning as above.
- Once the procedure is completed, extra time, as determined by your facility, should be allowed to permit air changes to remove potentially infectious particles within the room.
- Adequate aeration time will be determined by your facility. If negative pressure rooms are utilized, as has been advised by CDC, aeration time may be more abbreviated(7).

c. Endoscope storage

Question: Are there any special endoscope storage needs after use on suspected/confirmed COVID-19 patients?

Recommendations:

- There is no evidence for any special considerations with regards to endoscope storage during the pandemic.
- After an endoscope has been fully reprocessed and dried, it should be stored in a secure storage cabinet according to manufacturer instructions for use (IFU) and according to the endoscopy unit's own policies.

Question: How long can an endoscope be stored after it is fully reprocessed?

Recommendation:

- This should be based on each institution's policy, as the COVID pandemic does not require any specific changes in storage from usual practices.

GUIDANCE FOR RESUMPTION OF ELECTIVE ENDOSCOPY

a. Endoscopes

Question: Are there any special instructions to reprocess the endoscopes before long-term storage?

Recommendations:

- There is no evidence that endoscopes need to be handled differently at the time of storage.
- Leave endoscopes in hanging storage, if available.
- Ensure adequate drying before storing.
- Consider use of drying verification.
- Reprocess endoscopes before use after long-term storage that exceeds the unit policy for limits on "hang time."

b. Reprocessing rooms & storage areas

Question: Are there any instructions on cleaning reprocessing and storage areas prior to re-opening of endoscopy suites?

Recommendations:

- Perform meticulous cleaning for all reprocessing and storage areas after the last procedure.
- Repeat meticulous cleaning on the day before anticipated reopening.
- Staff involved in the cleaning process should be protected by PPE.
- Ensure that high-efficiency particulate air (HEPA) filters are replaced as per IFU.

c. Reprocessing equipment

Question: Are there any special instructions on handling reprocessing equipment when shutting down, during shutdown, and just before reopening endoscopy facilities?

Recommendations for prolonged full or partial closure:

- Consult your automated endoscope reprocessor (AER) manufacturer for instructions on the proper procedure for shutting down your AER for an extended period of time.
- Perform a disinfection cycle of all AERs and automated flushing pumps based on manufacturer IFUs.
- All chemical solutions should be emptied.

Recommendations during the pandemic:

- Check that all routine maintenance is up to date.
- Ensure ample supplies of detergents and accessories.

Recommendations for re-opening:

- Consult your AER manufacturer for instructions on the proper procedure for restarting your AER after being shut down either completely or with limited use for an extended period of time.
- Perform disinfection cycle of all AERs and automated flushing pumps per manufacturer IFUs.
- Clean and disinfect all plumbing lines feeding all equipment used for reprocessing, including sinks, hookups, channel adaptors, and AERs and if needed, test for water quality.
- Change all filters and pre-filters for all applicable equipment.
- Check expiration dates for all chemical solutions and detergents.
- Contact automatic equipment manufacturer to confirm specific recommendations.

DISCUSSION

A number of guidelines recommend high-level disinfection (HLD) for the reprocessing of gastrointestinal (GI) endoscopes(8-11). Manual cleaning followed by HLD, when properly performed, effectively eliminates nearly all microorganisms from endoscopes during reprocessing(12). Transmission of viral infections during endoscopy is exceedingly rare and when it does occur, it is the result of noncompliance or deviation from the required steps of reprocessing.

Reprocessing of GI endoscopes has been outlined in a number of guidelines(8-11) and should follow endoscope manufacturer IFUs. Reprocessing staff should undergo necessary training and ongoing, annual assessment of competency. A reprocessing training curriculum that is evidence based and incorporates effective modalities for adult learning should be employed. Part of this curriculum should embed an auditing tool for reprocessing staff. It would be prudent at this time for endoscopy unit leadership to re-emphasize the importance of optimal reprocessing and ensure competency assessments are up-to-date.

SARS-CoV-2 is known to remain on some surfaces for up to three days(13). The recommendations above therefore reflect an even higher degree of surface cleaning than is performed under typical circumstances.

Current literature does not support a maximal outer duration for use of appropriately cleaned, reprocessed, dried, and stored flexible endoscopes. Reuse of endoscopes within 21, and perhaps even 56 days of appropriately reprocessed, dried, and stored flexible endoscopes appears to be safe(14). Independent of the COVID pandemic, endoscopy units have been advised to evaluate the available literature, perform an assessment as to the benefits and risks around the optimal storage time for endoscopes, and develop a policy and procedure specific to their unit on endoscope storage time. Any endoscope not reprocessed for longer than the endoscopy unit's own endoscope storage time policy ought to be reprocessed again prior to use.

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