Basics of Safe Endoscopic Reprocessing

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Agenda

- Basics of Endoscope Reprocessing (The “WHY”)
- Manual vs. Automated Reprocessing
- Key Success Factors for Safe Outcomes
- Key Takeaways

Importance of Endoscope Reprocessing

Patient Safety:
Proper reprocessing of endoscopes is crucial to prevent the transmission of infections and help ensure the safety of every patient.

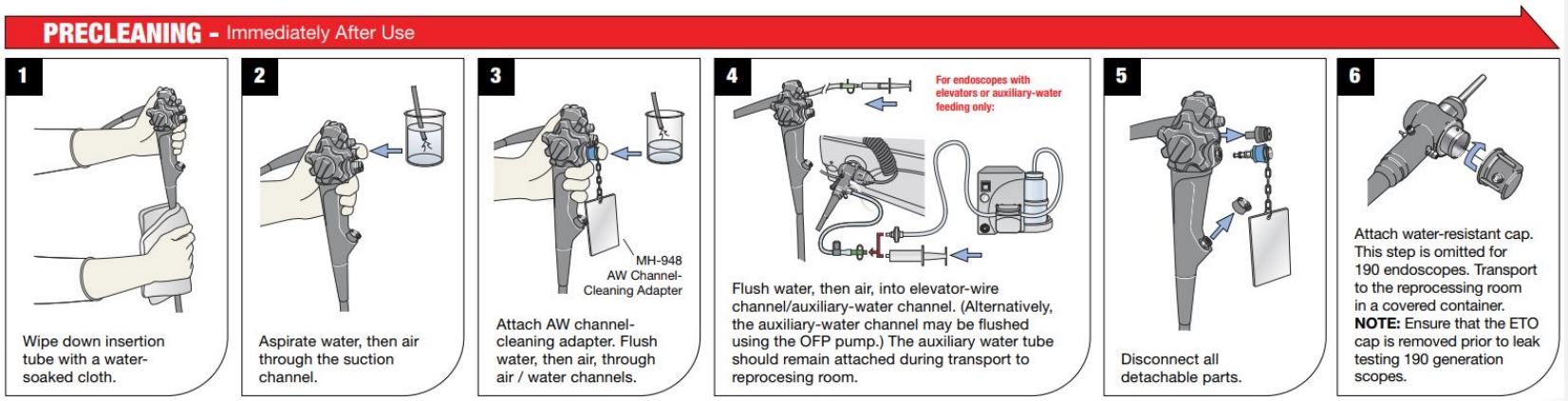
Infection Control:
Endoscopes that are not adequately cleaned and disinfected can harbor harmful pathogens, leading to potential outbreaks and compromising healthcare outcomes.

Regulatory Compliance:
Adherence to strict reprocessing protocols is required to meet regulatory standards, avoid legal ramifications, and uphold the highest standards of care.

Reputation and Trust:
Hospitals and healthcare facilities that maintain rigorous reprocessing standards build trust with patients, ensuring confidence in the safety and quality of care provided.

Pre-Cleaning/Point of Use Treatment

- Immediately following procedure
- Performed at point of use (i.e. patient examination room)
- Removal of gross debris
- Prevent hardening of debris in channels and on external surfaces



*EVIS EXCERA Endoscope Cleaning Guide

Leakage Testing

- Performed in the decontamination room prior to reprocessing each endoscope
- Verify that the endoscope has no leaks to minimize the risk of fluid invasion
- Fluid invasion can increase the risk of cross contamination and increase the cost of repair

*Olympus MU-1 & MB-155

Manual Cleaning

- Removes microbial bioburden
- Thorough cleaning of exterior and interior surfaces of the endoscope by manually:
  - Wiping
  - Brushing
  - Aspirating
  - Flushing
  - Rinsing all channels and surfaces

- Meticulous manual cleaning is essential for the removal of organic contamination that can interfere with the subsequent disinfection or sterilization process.

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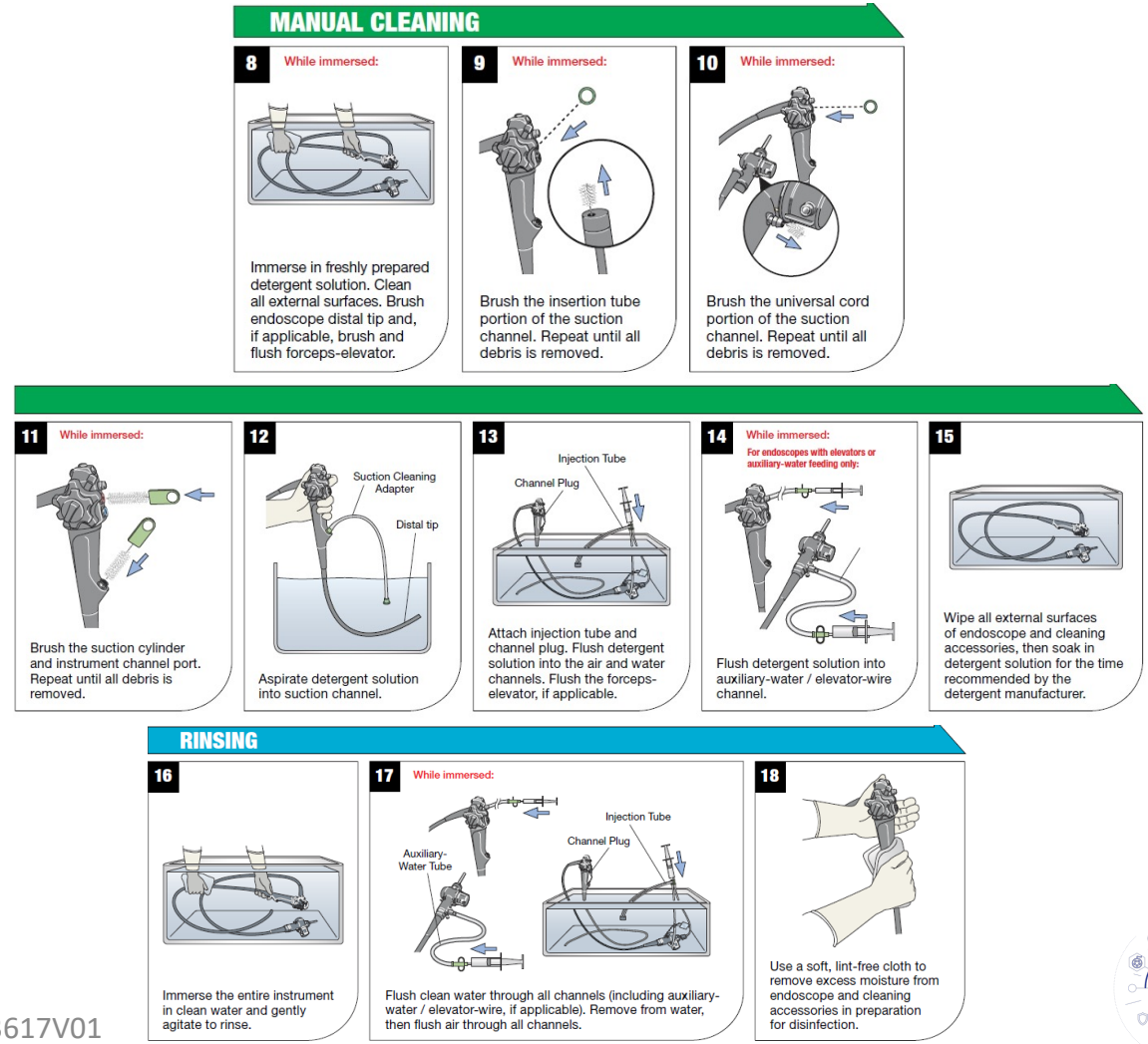

High Level Disinfection

- High-level disinfection is the minimum level of processing for semi-critical endoscopes
- Kills all microorganisms, in or on an instrument, except for bacteria spores when present in large numbers
- Without thorough manual cleaning, the effectiveness of the disinfectant is significantly compromised

Key steps for High Level Disinfection

- Flush the channels to ensure the disinfectant is coming in contact with ALL parts of the endoscope
- Immerse in disinfectant (Disinfectant manufacturers guidelines on contact time)
- Rinse (Follow the Disinfectant manufacturers guidelines on prescribed number of rinses)
- Alcohol Flush*
- Dry

Drying

•Residual moisture within endoscope lumens during storage can help create a suitable environment for the growth of any bacteria that may remain after disinfection.

•Inadequate or incomplete drying of endoscope channels after HLD and before storage may contribute to..

- •Retained fluid and contamination1
- •Formation of biofilms2
- •Higher risk of cross contamination and outbreaks3,4

•Evidence also suggests that forced-air drying of endoscopes…

- •Is highly effective at elimination moisture compares with overnight hang-drying alone5
- •Results in dry channels & prevents growth/regrowth of organisms and biofilms6,7
- •May significantly reduce the rate of contaminated endoscopes8

•**How to dry the endoscope lumens**:

- •Use pressure-regulated instrument air or HEPA-filtered air to dry the channels until no visible signs of moisture remain9

1. Ofstead CL, Heymann OL, Quick MR, et al. Residual moisture and waterborne pathogens inside flexible endoscopes: Evidence from a multisite study of endoscope drying. Am J Infect Control. 46(6): 689-696, 2018
2. Ren-Pei Correlation between the growth of bacterial biofilm in flexible endoscopes and endoscope reprocessing methods AM J Infect Control Nov 2014
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4. Kumarage J, Khonyongwa K, Khan A, Desai N, Hoffman P, Taori SK. Transmission of MDR Pseudomonas aeruginosa between two flexible ureteroscopes and an outbreak of urinary tract infection: the fragility of endoscope decontamination. J Hosp Infect. 102(1):89-94, 2019
5. Thaker AM, Kim S, Sedarat A, Watson RR, Muthusamy VR. Inspection of endoscope instrument channels after reprocessing using a prototype borescope. Gastrointest Endosc. 88(4):612-619, 2018
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7. Alfa, M.J., Sitter, D.L. In-hospital evaluation of contamination of duodenoscopes: a quantitative assessment of the effect of drying. J Hosp Infect. 19(2):89-98, 1991
8. Saliou P, Cholet F, Jezequel J, Robaszkiewicz M, Le Bars H, Baron R. The use of channel-purge storage for gastrointestinal endoscopes reduces microbial contamination. Infect Control Hosp Epidemiol. 36(9):1100-1102, 2015
9. AAMI ST91:2021

Storage

- Helps to ensure the devices are safe for patient use by providing protection of the endoscopes and accessories and helps to prevent recontamination
- Stored in an area that is clean, well-ventilated, and dust-free in order to keep the endoscopes dry and prevent exposure to potentially hazardous microbial contamination

*Olympus ChennaleDry Cabinet

Manual vs. Automated High Level Disinfection

Manual High-Level Disinfection

Items required:

- Containers
- Separate sink for rinsing
- Ventilation Hood (If required)
- Storage for the chemicals, spill kit, PPE, Alcohol, adapters, connectors
- Water treatment for the rinse water
- **TIME**
- **SPACE**

Advantages

- **Cost-Effective**: Lower upfront costs compared to automated systems.
- **Flexibility**: Allows for disinfection of various scope sizes and types, including those not compatible with automated systems.
- **Control**: Offers more direct oversight of the disinfection process, allowing for adjustments based on the condition of each scope.

Disadvantages

- **Labor-Intensive**: Requires significant time and effort from staff, leading to potential fatigue and human error.
- **Inconsistent Results**: Variability in technique can lead to inconsistent disinfection quality.
- **Exposure Risks**: Increased risk of staff exposure to hazardous chemicals.
- **Documentation Challenges**: Manual logging of disinfection processes can lead to incomplete or inaccurate records.
- **Time and Space consuming**

Automated High-Level Disinfection

Advantages:
•**Consistency:** Provides standardized, repeatable disinfection processes, reducing the risk of human error.
•**Efficiency:** Faster turnaround times, allowing for higher throughput of scopes.
•**Safety:** Minimizes staff exposure to hazardous chemicals and reduces handling of contaminated equipment.
•**Comprehensive Documentation:** Automated systems often include built-in documentation, ensuring accurate record-keeping and traceability.

Disadvantages:
•**Compatibility Issues:** Not all endoscopes or instruments are compatible with automated reprocessors.
•**Maintenance Requirements:** Regular maintenance is essential to ensure proper functioning and prevent breakdowns.
•**High Initial Costs:** Significant upfront investment in purchasing and maintaining automated systems.
•**Potential Over-Reliance:** Over-reliance on automation may lead to decreased vigilance in monitoring the overall reprocessing quality.

Key Success Factors for Safe Outcomes

Staff Training

- Teach the "**WHY**" (fundamentals)
- Hands-on training (Practice, Practice, Practice)
- Competency Verification Assessments
- Continuous education and encourage certification
- Read the Instructions for Use

Adherence to Protocols

Standardized Procedures: Implementation of consistent, evidence-based protocols across all reprocessing stages.

Guideline Compliance: Ensuring that reprocessing practices align with international standards and manufacturer's instructions.

Routine Maintenance of Equipment

Scheduled Servicing: Regular maintenance and servicing of reprocessing equipment to prevent malfunctions.

Immediate Repairs: Prompt attention to any equipment issues to minimize downtime and prevent compromised reprocessing.

Quality Assurance and Monitoring

Microbiological Testing: Regular testing of reprocessed scopes to verify the effectiveness of disinfection processes.

Documentation and Traceability: Comprehensive record-keeping to track each scope's reprocessing history, ensuring accountability and traceability.

Continuous Improvement: Use of audit results and feedback to refine and improve reprocessing practices continuously.

Effective Communication and Teamwork

Interdisciplinary Collaboration: Encouraging collaboration between infection prevention teams, technicians, and clinical staff to ensure a holistic approach to patient safety.

Incident Reporting: Open communication channels for reporting and addressing any reprocessing failures or near-misses.

Key Takeaways

Thorough Endoscope Reprocessing is Critical for Patient Safety

•Each step in the reprocessing workflow—from initial cleaning to storage—is vital in preventing infections and ensuring safe outcomes.

Consistent Adherence to Protocols Ensures Reliable Outcomes

•Following standardized procedures and manufacturer's guidelines is essential to achieving consistent and effective reprocessing.

Staff Competency and Continuous Training are Essential

•Regular education, hands-on training, and competency assessments are key to maintaining a skilled workforce capable of executing proper reprocessing.

Routine Maintenance and Quality Assurance are Non-Negotiable

•Regular equipment maintenance, thorough documentation, and ongoing quality checks help prevent errors and maintain high standards in endoscope reprocessing.

Effective Communication and Teamwork Enhance Safety

•Collaboration between all stakeholders, coupled with open communication, fosters a safer environment and continuous improvement in reprocessing practices.