The Flexible Endoscope Reprocessing Cycle: From Contamination to Decontamination

Pam Boulet RN, BSN, CGRN
Medivators Senior Clinical Specialist
pboulet@medivators.com
504-390-4668

Reprocessing Guidelines

• Guidelines for reprocessing flexible endoscopes are published by federal regulatory agencies such as the CDC: Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008

• Professional organizations have established guidelines for flexible endoscopes.
  Some are:
  – Society of Gastroenterology Nurses and Associates (SGNA) - www.sgna.org
  Standards of Infection Control in Reprocessing of Flexible Gastrointestinal Endoscopes (2012)
  – Association for Practitioners in Infection Control and Epidemiology (APIC)
  Guideline for infection prevention and control in flexible endoscopy, 2000
  – Association of Peri-Operative Registered Nurses (AORN) - www.aorn.org
  – American Society for Gastrointestinal Endoscopy (ASGE)
  (Also known as SHEA paper) Multisociety guideline on reprocessing flexible gastrointestinal endoscopes: 2011

• Endoscope manufacturer reprocessing guidelines for each endoscope (i.e. Olympus, Pentax, Fujinon, Karl Storz, etc.).

Necessary Steps to High Level Disinfect Endoscopes

Withdrawal of the Endoscope
Pre-cleaning at Bedside
Transport Enclosed Contaminated Scope to Reprocessing Area

Leak Testing
Manual Cleaning
Rinsing with Water; Purging with Air
High Level Disinfection
Rinsing
Air Drying & Alcohol Flush
Storage or Set-up for Patient
Manual Cleaning...Is it really that important?

SGNA states, "Manual cleaning of endoscopes is necessary prior to automated or manual disinfection. This is the most important step in removing the microbial burden from an endoscope." (SGNA, Standards of Infection Control in Reprocessing of Flexible Gastrointestinal Endoscopes, 2012., 14)

Manual cleaning:

- Reduces the number of microorganisms and organic load on an endoscope (bioburden).
  - Reduces the potential of biofilm growth.
  - Biofilms consist of colonies of organisms that form structures with potential to have maximum growth.
  - Biofilms adhere to the internal channels of endoscopes.
  - This growth potential is an important factor because they interfere with disinfection.
- Reduces the burden on the high-level disinfectant.
  (i.e. Rapicide or Rapicide PA)
- Starts at the bedside, immediately after withdrawal.

Step 1 – Pre-cleaning at Bedside

1) Immediately – Wipe down scope’s exterior with a detergent-soaked cloth like Intercept or with an Intercept Wipe.

**Detergent solution should be diluted per manufacturer’s label.**

Intercept Solution Dilution

1 oz = 1 full pump per 3 gallons of water

2) Suction detergent through the scope, then air. Alternate suctioning of air and detergent to create agitation.

3) If applicable, install the air/water cleaning adapter. Flush with water, then air, through air/water channel.

4) Clear the air and water channels according to the manufacturer’s instructions.
Step 1 – Pre-cleaning at Bedside continued...

5) Flush detergent, then air through ANY SPECIAL FEATURE CHANNELS, such as auxiliary water inlet, elevator wire channel, etc.

6) Detach all removable parts and cleaning equipment and place in accessory bag.

7) Ensure water-resistant cap (soaking cap) is attached, if applicable.

Step 2

Transport Enclosed Contaminated Scope to Reprocessing Area

Contain the scope and transport to reprocessing area.
Purpose: To detect a hole or leak in an endoscope.

Why leak test?
1) To prevent cross contamination of patient matter or chemicals.
2) To prevent fluid invasion.
3) To prevent very costly & lengthy repair.

Always:
- Leak test after EVERY procedure and PRIOR to immersing the endoscope in any fluid.
- Test for leaks according to the endoscope manufacturers’ instructions.

Leak test methods can be WET, DRY or AUTOMATIC

DRY LEAK TEST
- Attach leak tester to scope.
- Squeeze bulb to level of desired pressurization.
- Confirm bending section has inflated slightly.
- Observe the gauge continuously for 90 seconds.
- While observing the gauge, angulate the scope fully in each direction at least once.
- A steady drop in pressure on the gauge indicates a leak.
- If this fails, check integrity of water resistant cap connection and reconnect, if necessary.
Step 3 – Leak Testing continued...

WET LEAK TEST

- Remove all valves and/or buttons from the endoscope.
- Turn on air supply (i.e., maintenance unit or light source).
- Depress pin in leak tester connector to ensure all is flowing through tubing.
- Attach the leak tester connection to the scope.
- Confirm bending section has inflated slightly.
- Carefully place the scope in a basin of water full enough to completely cover the scope, ensuring the knobs are covered.
- Observe the scope for at least 90 seconds.
- Angle the scope fully in each direction at least once during the observation period.
- Depress each of the switches to observe for leaks.
- If testing a duodenoscope, activate the elevator wire both up and down as well.
- A steady stream of bubbles indicates a leak. If a leak is found, keep scope on leak tester and finish manual cleaning.
- Bubbles escaping at an irregular rate usually indicates trapped air.
- If no leak found, remove the scope from the basin.
- Turn off the air supply.
- Unplug the leak tester from the air supply, and release all of the air pressure in the scope.
- Remove the leak test connector from the scope.

VERISCAN LT AUTOMATIC LEAK TEST

The Veriscan LT features:

- Detect leaks with 99% accuracy.
- Lowers cross-contamination risk due to undetected leaks.
- Detects endoscope leaks early when repairs are minor and less costly.
- Unsurpassed leak detection compared to visual observation methods.
- Dry endoscope leak test – no fluid submersion required.
- Utilizes highly sensitive, innovative leak sensing technology.
- Compatible with all flexible endoscopes.
- Simple to operate.
- Ensures compliance with endoscope leak test protocols.
- Provides consistent, repeatable endoscope leak testing.
- Printed confirmation of leak test results.
- Computerized endoscope leak test records and reports.

- If a leak is found, the endoscope needs to be taken out of service and sent for repairs. Follow the manufacturer’s instructions for decontamination to avoid further damage.

- For smaller leaks, the Medivators Advantage and DSD-LT reprocessors can be used to reprocess the endoscope prior to being sent for repair by keeping the scope pressurized with air for the entire reprocessing cycle to avoid fluid invasion.

- Contaminated scopes should never be placed in a suitcase and sent off for repair.
BRUSH...  
- Scrub, brush, and soak scope and all removable parts.  
- Ensure the correct brush size is being used.  
- Do not reuse single-use brushes.  
- Valves also should be depressed and the exposed areas brushed.  
- Immerse scope in freshly prepared detergent solution like Intercept.  
- Thoroughly clean exterior of endoscope.  
- Brush distal tip and elevator, if applicable.  
- Brush the entire suction/biopsy channel system.  
- Clean brush each time it exits distal tip and umbilical cord.  
- Brushing should be repeated until no debris is visible on the brush.

Step 4 – Manual Cleaning

Flush all channels with Detergent, followed by an air purge:
1. Attach cleaning adapters or Scope Buddy connectors and channel plugs to endoscope.
2. For manual flushing, push the required amount of Intercept Detergent solution through all channels (suction, air/water, accessory water, elevator wire).
3. For Scope Buddy flushing, push the START button.
4. Remove filter from detergent solution and flush air through all channels to purge detergent from channels.
Step 5 – Rinsing with Water; Purging with Air

FLUSH...all channels with clean water; then purge with air.

- The scope’s exterior and removable parts need to be rinsed thoroughly under water to remove residual detergent.
- All internal channels need to be flushed with water.
- This can be accomplished with SCOPE BUDDY by placing the intake filter in clean water and pressing START.
- If no SCOPE BUDDY, then manual flushing of all channels with clean water needs to be done (including auxiliary-water/escalator wire, if applicable).
- Remove water from all channels by purging with air.
- Use a soft, lint-free cloth to remove excess moisture from the exterior of endoscope and cleaning accessories in preparation for disinfection.

Step 6 – High Level Disinfection

Can be accomplished by:
Placing endoscope in a Medivators Endoscope Reprocessor

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Manually Disinfect
Medivators Automated Endoscope Reprocessors

• For AERs using aldehyde-based high level disinfectants, test disinfectant concentration (MEC or MRC) using a test strip and document result.
• Place endoscope in the reprocessor and attach all channel hookups.
• If applicable, verify disinfectant temperature is within required range.
• Place valves and other removable parts into the accessory bag. Tuck accessory bag under scope in basin to prevent floating.
• Enter in AER or log all ID data.
• Start endoscope reprocessor.

Step 6 – High Level Disinfection continued...

Medivators Automated Endoscope Reprocessors

• For AERs using Rapicide PA, test high level disinfectant potency (MEC or MRC) with test strip at the end of cycle and document.

Steps to Manually Disinfect Endoscopes:

• Completely immerse the clean, rinsed, and water-purged endoscope and all removable parts in a FDA-approved room temperature HDL.
• Ensure channel plug and irrigation tube are attached to the endoscope.
• Use syringe to completely fill air, water, and suction channels with disinfectant solution until no bubbles are seen.
• If applicable, flush disinfectant solution into elevator-wire channel and accessory water channel.
• While the endoscope is immersed, disconnect cleaning accessories.
• Soak all equipment according to the disinfectant manufacturer’s required time and temperature.
• Use a timer to measure exact contact time.
• Manually document all ID data.
**Steps to Manually Rinse Endoscopes**

- Reconnect channel plug and irrigation tube.
- Use syringe to inject air in order to remove disinfectant from air, water, and suction channel and, if applicable, from elevator-wire channel and auxiliary water channel.
- Remove endoscope from disinfectant.
- Immerse endoscope and detached parts in water.
- Thoroughly rinse all external surfaces and removable parts with water to remove all traces of the disinfectant.
- Use a syringe to inject water to rinse disinfectant from all internal channels.
- Rinse with fresh water for the required amount of times needed for HLD used, per manufacturer’s DFU.

**Step 7 – Rinsing with Water**

1) Remove endoscope from rinse water.
2) Use syringe and irrigation tube to inject AIR through air, water, and suction channels, and from elevator-wire channel and/or auxiliary-water channel, expelling the rinse water.
3) Use syringe and irrigation tube to flush 70% ALCOHOL through air, water, and suction channels, and from elevator-wire channel and/or auxiliary-water channel to facilitate drying.
4) Purge all channels with air.
5) Disconnect all accessories from the endoscope.
6) Dry endoscope and accessories with a soft, lint-free cloth.
7) Ensure equipment is completely dry prior to storage.

**Step 8 – Air Drying and Alcohol Flush**

1) Remove endoscope from rinse water.
2) Use syringe and irrigation tube to inject AIR through air, water, and suction channels, and from elevator-wire channel and/or auxiliary-water channel, expelling the rinse water.
3) Use syringe and irrigation tube to flush 70% ALCOHOL through air, water, and suction channels, and from elevator-wire channel and/or auxiliary-water channel to facilitate drying.
4) Purge all channels with air.
5) Disconnect all accessories from the endoscope.
6) Dry endoscope and accessories with a soft, lint-free cloth.
7) Ensure equipment is completely dry prior to storage.

**Note:** When using a Medivators Automated Endoscope Reprocessor (AER)
You can eliminate the following manual labor-intensive and time-consuming steps because they are done automatically:

- Manual High Level Disinfection
- Manual Rinsing
- Manual Air Drying & Alcohol Flush

This provides:
Safety to Staff and Consistency for Our Patients!
Step 9 – Storage or Set-Up for Patient

For Storage:
- Remove all removable parts, including water-resistant cap.
- Hang endoscopes vertically in a ventilated area.
- Do not replace removable parts until immediately prior to scope use.

The Flexible Endoscope Reprocessing Cycle:
From Contamination to Decontamination

The Endoscope Cycle is complete...
It has moved from Contamination to Decontamination
Medivators products provide solutions for your endoscope reprocessing needs—the way it should be.

**Bedside pre-cleaning** – Medivators detergents and wipes are specifically designed for endoscopes, offering the most technologically advanced detergent called Intercept.

**Leak testing** – an important step for eliminating cross-contamination and reducing endoscope leak-related repair costs, the Veriscan is an automated leak tester with 99% detection of endoscope leaks. Supplemental leak testing is performed in certain Medivators reprocessors.

**Manual cleaning** – Brush with Medivators **PULL THRU™ & Stubby Brush Combo**
- Disposable.
- Effective on lumens 2.8mm - 5mm in size.
- Significantly improves efficiency over traditional brushes.
- Smooth, non-abrasive, non-damaging, and time-saving method to pre-clean the endoscope in a single pass.
- Patented design provides a complete circumferential seal in the lumen tube.

Medivators Products
www.medivators.com

High-level Disinfection – whether you need a counter-top style to reprocess one or two endoscopes at a time, or a free-standing, dual basin version capable of reprocessing multiple endoscopes, the Medivators line of Automated Endoscope Reprocessors provide unsurpassed infection control and the lowest cost of ownership.

Medivators CER OPTIMA

Medivators Products
www.medivators.com

High-level Disinfection

Medivators DSD EDGE
Medivators DSD-201LT
High-level Disinfection

Medivators Advantage Plus

High-level Disinfectants

Rapicide & Rapicide Test Strips
- Disinfects in 5 minutes at 35°C (95°F).
- Effectively kills TB, hepatitis viruses, and Clostridium difficile.
- Up to 28-day reuse life.
- Only 2 rinses required.
- Easy to read Rapicide Test Strips accurately measure the Rapicide solution for the minimum recommended concentration (MRC).

Rapicide PA & Rapicide PA Test Strips
- Disinfects in 5 minutes at 30°C.
- Effectively kills TB, hepatitis viruses, Clostridium difficile, VRE, and MRSA.
- Single-use, non-aldehyde chemistry base.
- Easy to read Rapicide PA Test Strips accurately measure the minimum recommended concentration (MRC) of Rapicide PA.
Hookups for Medivators AERs

Hookups provide the critical connection between the endoscope and the automated endoscope reprocessor (AER).

- Largest array of endoscope hookups, more than any other manufacturer.
- Examples include: gastroscopes, colonoscopes, EUS scopes, cystoscopes, bronchoscopes, twin channel, dilators, and TEE probes.

Interactive Hookup Guide can be found at http://www.minntech.com/medivators/Hookuplookup/

Medivators Products
www.medivators.com

Endo SmartCap®

- 1st completely disposable, 24-hour use alternative to the reusable water bottle in GI Endoscopy.
- Design minimizes infection control risks that are associated with manual cleaning and sterilization.

EndoGator Irrigation Tubing

- 1st cost-effective, completely disposable irrigation alternative to reusable irrigation tubing for GI Endoscopy.
- Universally compatible with any GI Endoscope or sterile water bottle.
- Sterile 24-hour disposable tubing.
- Eliminates manual cleaning and reprocessing of reusable tubing.

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Procedure Room Products

DEFEND® Sterile Single Use Valves

- Eliminates manual cleaning and reprocessing of reusable valves.
- Helps create consistent practices.
- Reduces the potential for errors.

Verifind™ Protein Detection Kit

- 10-second protein detection time (blood, mucus, saliva, serum, skin/tissue fragments).
- 1 microgram sensitivity.
- Visual color change indicator.
- Minimal training needed.
The Flexible Endoscope Reprocessing Cycle:
From Contamination to Decontamination

ALWAYS REMEMBER:
To get your colonoscopy with a scope that has gone from Contamination to Decontamination.

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If you’re not sure that the scope has been properly decontaminated, then you might need to check for yourself…that is…

YOU MIGHT NEED TO...
Open your eyes, and see what’s happening in your colon!

THE END!!

QUESTIONS ???
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THANK YOU!!!