Overview of Reprocessing Medical Flexible Endoscope

CSAO Conference

Sept 8, 2013

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Learning Goals

1. Review endoscope construction
2. Describe reprocessing recommendation(s) for Olympus endoscopes
3. Establish importance of reprocessing steps
4. Identify common reprocessing errors
5. Review proper handling and storage
6. Review delayed reprocessing
Endoscopes

Correct endoscope reprocessing procedure and ensuring endoscopes are in good working condition is crucial to maintaining a patient ready endoscope, thus preventing infection control risk or patient injury.

It is the responsibility of the entire team to ensure endoscopes are handled properly and the manufacturer reprocessing IFU is being adhered to.
Endoscope Construction & Nomenclature
Components & Flexible Scope Terminology

1. Control Head or Section
2. Angulation Knobs and Levers
3. Insertion Tube
4. Bending Section
5. Universal Cord & Light Guide Connector Section
6. Specialty Channels
Endoscope- External Components
New 190 Series Construction
Endoscope Components: Quick Review (160/180 Series)
Endoscope- Internal Channels
GIF-H180

Gastroscopy

Series

High Definition
Scope Type – Quality – Model Number – Length

Colonoscope

Wide Screen image

Series

Adjustable

Long

CF – Q 160 AL

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Endoscope Reprocessing
Incorrect Equipment Reprocessing may Result in…

1. Compromising Practice Standards
2. Risk Management Issues - Infection Control/Quality Assurance/Safety
3. Increased Equipment Damages and Repairs
4. Decrease Staff and Patient Satisfaction
5. Inefficiencies
General Steps For Endoscope Reprocessing

1. Pre-cleaning
2. Leakage testing
3. Manual cleaning
4. HLD/sterilization preferred in the PeriOperative setting
5. Rinsing/drying/alcohol purge
6. Drying
7. Storage
1. Pre Cleaning

Common Pre-Cleaning Errors

1. Not performed at all!!!

2. Not performed correctly as per OEM recommendations
Pre-Cleaning Steps – GI Scopes Can’t be Skipped! (160 & 180 & 190 Series)

1. Wipe
2. Aspirate *30sec/10sec (160 & 180)
3. Flush *10sec/10sec (190)
4. Detach Valves
5. Special Adapters
6. Attach Cap (as applicable)
Precleaning Steps - Auxiliary water channel

**Auxiliary water channel can be flushed by using the OFP pump:**

1. Confirm the auxiliary water tube is attached to the auxiliary water inlet of the endoscope
2. Confirm the filter and the irrigation tube of the OFP pump are attached to the Luer lock port of the auxiliary water tube
3. Immerse the distal end of the insertion section in water
4. Activate the pump according to the OFP instructions, and flush the auxiliary water channel with water from the OFP fluid container for 10 seconds
5. Detach the filter and the irrigation tube from the auxiliary water tube
2. Leakage Testing

Leakage Testing Errors

1. Inaccurate leakage testing
2. Improper sequence of leakage testing
3. Omission of leakage testing procedure prior to reprocessing
Leak Testing

(Always performed prior to reprocessing)

Basin/sink (minimum size of 16” x 16”) deep enough for complete endoscope immersion

Use fresh clean water each time

Do not use detergent solution during leak testing

MU-1 Maintenance Unit (or Olympus light source) are only validated leak testing methods
Leakage Testing

Confirm leak tester is functional
Confirm leak tester's connector cap is dry
Confirm leak tester is locked onto venting connector / water resistant cap
Confirm angulations locks are in the “Free” position
Leak Testing

(Verify Endoscope is Pressurized)

Check to make sure endoscope is pressurized
Pressurize endoscope prior to immersing
Observe bending section “ballooning”
Leak Testing

(Immerse Entire Endoscope)

Observe approximately 30 seconds
Residual bubbles may not indicate leak
Manipulate angulation control knobs and video switches
Complete Leak Testing
(Remove Endoscope from Water)

Turn off air source

Remove leak tester

Release Pressure

Disconnect connector cap
Found a Leak in the Endoscope ……

An endoscope leak is indicated by a continuous series of bubbles emerging from a location on the endoscope (What to do with a leaking endoscope?)

Before removing the endoscope from the water, identify and make note of the location of the leak.

With the maintenance unit or light source still turned on and the leakage tester still connected, remove the endoscope from the water.

For a leak detected in the covering of the insertion tube, bending section, or universal cord, dry the leaking area thoroughly and wipe with alcohol.

Tape over the location of the leak with a piece of electrical tape or other waterproof tape wrapped tightly, prior to immersing in detergent solution.
Found a Leak in the Endoscope …..

For leaks detected in other locations (e.g., internal channel), keep leak tester on at all times and complete the manual cleaning process and manual HLD.

Minimize unnecessary flexion of the insertion tube and universal cord during cleaning.

If the damage to the endoscope is so extensive that none of the above methods for cleaning, disinfection or sterilization can be achieved, the endoscope can be sent in for repair but it must be transported in compliance with federal and provincial regulations regarding the transport of dangerous goods and/or facility procedure.
Sending a Soiled Endoscope for Repair

Seal the endoscope into an impermeable, plastic bag labeled “biohazard”. Place the bagged endoscope into the endoscope case or covered transport container with a biohazard label attached to the outside so it can be easily identified.
3. Manual Cleaning & Reprocessing

*Flexible Endoscopes*
Recommended Manual Cleaning Practices

✓ Wipe the exterior
✓ Brush channels and openings
✓ Suction detergent
✓ Flush detergent to fill channels
✓ Soak for contact time
✓ Wipe exterior & rinse channels with clean water
✓ Dry
✓ HLD/rinse/dry
✓ Alcohol Purge
✓ Dry
Overview-Manual Cleaning Steps for GI Scopes

1. Detergent Cleaning
2. Brushing Channel
3. Brushing Channel
4. Brushing Channel
5. Suction Detergent
6. Flush Detergent

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Overview - Manual Cleaning Steps for GI Scopes

6. For endoscopes with elevators or auxiliary-water feeding only

Flush Specialty Channels

7. Soak in Detergent

8. Rinse in Clean Water

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Manual Cleaning for Duodenoscope (Elevator brushing)
If Using Olympus OER-Pro-AER

Partial cleaning claim - reduces manual cleaning time by eliminating 7 of the 11 manual cleaning steps
Improve efficiency with a shorter reprocessing turnaround time of two endoscopes in approx 26 minutes including alcohol/air purge
4. Recommended Terminal Processing Practices

1. HLD- processes
2. AERs
   - Follow OEM – specific reprocessing compatibilities and protocols
   - Ensure proper placement of the endoscope
   - Be sure to use the endoscope adapters/connectors validated by the AER manufacturer for the specific model of endoscope
   - Use validated HLD and monitor and document MEC
3. Sterilizers
   - Ensure endoscopes are validated for the specific sterilizer
5. Storage
Storage

Remove caps, valves and other detachable components during storage and reassemble just before use.

Store caps and valves close to the endoscope in a manner that minimizes contamination.

Store endoscopes that have been sterilized in their sterilization containers.

Do not allow endoscopes to coil, touch the floor or bottom of the cabinet while handing, or be stored in their cases.
Storage

Store semicritical endoscopes by hanging vertically in a dedicated, closed, ventilated cabinet outside of the decontamination area and procedure room. HEPA–filtered channel purge drying cabinets should be used for storage. Ensure that endoscope storage cabinets are constructed of non-porous material that can be cleaned. Clean and disinfect endoscope storage cabinets at least weekly with an approved low-level disinfectant/cleaner approved for use in the facility.
Key Storage Recommendations

Keep the storage area clean, dry, dust-free and lint-free
Control temperature and humidity (approximate temperature 24°C and relative humidity <70%) when possible
Containers with sterile or high-level disinfected items should be stored 20–25 cm (8–10 inches) off the floor, 45–50 cm (18–20 inches) from the ceiling and 15–20 cm (6–8 inches) from an outside wall
Do not use cardboard boxes for storage
Date and rotate the supplies (first in/first out)
Bronchoscopes - Pre-cleaning 160 & 180 Series

1. Wipe Down
2. Aspirate*

- Wipe Down: 30 seconds
- Aspirate*: 10 seconds
Bronchoscopes - Pre-cleaning 190 Series

* Required suction time has been reduced from 30 seconds to 10 seconds for the 190 series bronchoscopes and an additional step of rotating the control ring to the neutral position is required

1. Neutral Ring Position
2. Wipe Down
3. Aspirate*

10 seconds

* Required suction time has been reduced from 30 seconds to 10 seconds for the 190 series bronchoscopes and an additional step of rotating the control ring to the neutral position is required.
Reprocessing Steps for Bronchoscopes

✓ Leakage Testing
✓ Wiping the exterior
✓ Brushing the channels
✓ Suctioning of detergent
✓ Filling of the channels with detergent
✓ Soaking the endoscope
✓ Rinsing with clean water
✓ Drying
✓ HLD or Sterilization (preferred choice)
✓ Rinsing/drying/alcohol purge
✓ Drying & Storage
Delayed Reprocessing

Not recommended for routine practice
Presoak the endoscope only if the endoscope was used in a patient procedure with excessive bleeding or if reprocessing of the endoscope was delayed, allowing debris to dry
Unnecessary long-term immersions should be avoided
Consecutive reprocessing sessions using extended immersion may damage the endoscope
Delayed Reprocessing

The delayed reprocessing instructions listed in the 180 & 190 series manual should be followed regardless of the series of GI endoscope inventory. “Allow the endoscope to soak in the detergent solution until the debris is loosened. Do not immerse the endoscope for more than 10 hours.”
3rd Party Repairs

RISK
Endoscope Damage & Repair

Knowing the most common repairs helps prevent their occurrence

What are your most frequent repairs?

- Bending section cover replacement
- Insertion tube damage
- Angulation repair
- Nozzle replacement
- C-Cover replacement
- Dents
- Lens damage
Handling and Coiling the Endoscope

Do not coil the endoscope in a diameter of less than 12cm
Always protect the distal end of the endoscope
Transport in a closed container
Summary

Repair Issues Revolve Around Each Other

Equipment Care

Reprocessing

Scope Inventory

Procedures Volumes

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Visionary Thoughts

The co-ordination and the delivery of safe and caring services that promote health and well-being are being demonstrated by the CSAO

The CSAO is creating positive change in people's health and well-being by leading Ontario’s health care services and partnering with those who share similar goals for equipment reprocessing

Olympus is here to help!!
References

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PIDAC Best Practices for Cleaning, Disinfection and Sterilization of Medical Equipment/Devices 2013
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Thank You

QUESTIONS?
Demonstration Session

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Jane Smallwood
Christopher Stout

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