Understanding the Gaps in Flexible Endoscope Reprocessing Practices in Ambulatory Surgical Centers

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BACKGROUND

- Nebraska (NE) Infection Control Assessment and Promotion Program (ICAP) is supported by the Nebraska DHHS Healthcare Associated Infections (HAI) program via a CDC grant and works to assess and improve infection prevention and control (IPC) programs in all types of healthcare facilities.
- The CDC has described essential elements of a reprocessing program for flexible endoscopes. However, little is known about the compliance with these essential elements in Ambulatory Surgical Centers (ASC).
- We studied the frequency of IPC gaps in endoscope reprocessing in ASC.

METHODS

- NE ICAP conducted on-site assessments and observations of IPC programs in ASC between 2/2018 and 07/2018
- Eight facilities were assessed using the "CDC HICPAC Audit Tool for Reprocessing Flexible Endoscopes"
- The tool facilitated assessment on 52 best practice recommendations in 8 different steps of reprocessing that included pre-cleaning, transport, leak testing, manual cleaning, visual inspection, disinfection or sterilization, storage and documentation
- Compliance with essential elements of endoscope reprocessing and gap frequencies were studied using descriptive analyses.

Table 1. Facility Characteristics

Facility Characteristics	N=8
Number (%) of facilities with hospital affiliation	4 (50%)
Number (%) of facilities with trained IP	7 (87.5%)
Number (%) of facilities with endoscopy as primary procedure*	4 (50%)
Number (%) of accredited facilities*	3 (37.5%)
Number (%) of facilities with written IPC policies and procedures	8 (100%)
Number (%) of facilities with a competency-based training program providing job-specific training on IPC policies and procedures to employees	5 (62.5%)
Median number (range) of physicians working at the facilities*	20 (4 - 46)
Median number (range) of patients seen/ week*	80 (30 – 150)

- Information unavailable for 1 facility
- IP=Infection preventionist; IPC= Infection prevention and control

Table 2. Overall Compliance Within Each Reprocessing Domain

Domain	Number of questions in domain	Instances not possible to observe or not applicable	Instances observed	Compliance Score (%)
Pre-cleaning	2	0	16	100%
Transporting	2	0	8	50%
Leak Testing	1	0	8	100%
Manual Cleaning	13	9	80	84%
Inspection	8	1	50	79%
High-level Disinfection (HLD) or Sterilization	1	3	4	80%
HLD: Steps for Mechanical methods	5	1	36	92%
HLD: Steps required for both mechanical and manual methods	2	0	15	94%
Sterilization	1	5	3	100%
Storage	4	3	25	86%
Records	13	6	86	88%

Table 3. IPC Gaps in Endoscope Reprocessing Identified in Over 25% of Facilities

Reprocessing Domain	Reprocessing Procedure	# Facilities Assessed	% Facilities with gaps
Transporting	Ensures the container or cart is labeled with a biohazard legend.	8	88%
Manual Cleaning	Cleans all accessible channels and the end of the endoscope with a cleaning brush of the length, width, and material recommended by the endoscope manufacturer.	8	25%
	Flushes the channels of the endoscope with the cleaning solution.	7	29%
	Flushes and rinses exterior surfaces and internal channels with water until all cleaning solution and residual debris is removed.	7	29%
	Dries exterior surfaces and removable parts of the endoscope and purges all channels with air.	7	57%
Inspection	Inspects and evaluates endoscopes and accessories for: clarity of lenses.	8	38%
	Inspects and evaluates endoscopes and accessories for: moisture.	8	25%
	Uses additional illumination and magnification for inspection, as needed.	7	71%
HLD - Mechanical methods	Checks the expiration date of the high-level disinfectant or liquid chemical sterilant before each use.	8	25%
Storage	Based on the cabinet design, stores flexible endoscopes horizontally or hangs them vertically so that they do not coil or touch the floor of the cabinet.	8	25%
	Stores sterile items in a sterile storage area.	5	40%
Records	Processing records include: identity of the endoscope and endoscope accessories.	8	63%
	Processing records include: lot numbers of the processing solutions.	7	29%
	Procedural records include: identity of the endoscope and endoscope accessories used.	8	50%

Table 4. Examples of Low-Frequency, High-Concern Gaps

Low-Frequency/ High-Concern Gaps
Did not clean exterior surfaces of the endoscope with a soft, lint-free cloth or sponge.
Did not remove debris before retracting the brush back through the endoscope.
Did not inspect and evaluate endoscopes and accessories for cleanliness.
Did not use a test strip or other FDA-cleared testing device specific to the disinfectant or liquid chemical sterilant and minimum effective concentration of the active ingredient for monitoring solution potency before each use.
Did not dry exterior surfaces and removable parts of the endoscope and purges all channels with air.

RESULTS

- A median of 49 (range 45 to 52) BPR were assessed in 8 ASC. Facility demographics are displayed in Table 1
- Percent compliance with the assessed BPR in individual facilities ranged from 71% to 91%. Table 2 highlights overall compliance within each reprocessing domain.
- IPC gaps in endoscope reprocessing that were observed in over 25% of facilities are displayed in Table 3.
- An additional 13 BPR were not in place in <25% of facilities. Even though most facilities are implementing these 13 best practices, it is still concerning to see some of these gaps even in a single facility. Examples of these low frequency, high concern gaps are shown in Table 4.

DISCUSSION

- Important IPC gaps in endoscope reprocessing exist in ambulatory surgical centers.
- Focused IPC efforts toward mitigation of commonly identified gaps may help increase overall compliance with essential elements of endoscope reprocessing.
- In addition to providing guidance for gap mitigation to these facilities, NE ICAP/NE DHHS HAI/AR program is working towards incorporating the gap mitigation strategies in a basic infection prevention course for healthcare workers involve in overseeing IPC activities in ambulatory care setting.

DISCLOSURE

The authors of this poster have no relevant disclosures.

REFERENCES

- Centers for Disease Control and Prevention Healthcare Infection Control Practices Advisory Committee (HICPAC) Essential Elements of a Reprocessing Program for Flexible Endoscopes – Audit Tool https://www.cdc.gov/hicpac/recommendations/flexible-endoscope-reprocessing.html