HEALTHCARE PURCHASING NEWS

Follow @HPN_Onlin

CLINICAL INTELLIGENCE FOR SUPPLY CHAIN LEADERSHIP

Like us on Facebook

Inside the November Issue

Click the cover above for the online edition, or click below for the digital flip book.

November Cover Story

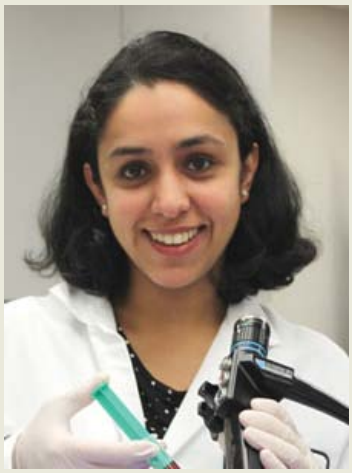
Quality patient care hinges on quality tool care

SHOP HPN
FEATURED PRODUCTS INFORMATION LINK

INSIDE THE CURRENT ISSUE

November 2013

2013 Endoscope Care Guide



Just how safe are stored endoscopes anyway?

Upon close inspection, the answers may startle you

by Kaumudi Kulkarni

All's well that ends well. This is particularly true in the case of endoscopic procedures and patient safety. The advent of endoscopy in the last century heralded a major breakthrough in the diagnostic and therapeutic medical procedures. Technological advances in endoscopy contributed to the changing landscape in surgery and made minimally invasive surgeries possible. Procedures that would have required prolonged and complex surgery are now within the realms of endoscopy.

Millions of endoscopic procedures are performed annually in the United States. Now in today's information age, access to information is at our fingertips. We get to read about post-endoscopy cross contamination every so often. Incidences of improperly reprocessed and stored endoscopes are well-documented. Due to the complex design of endoscopes, any slight deviation from the recommended reprocessing protocol can lead to the survival of microorganisms[1]. Furthermore, present day endoscopes have multiple channels and ports that allow for the collection of organic material. Consequently more nosocomial outbreaks have been associated with endoscopes than other medical devices[2].

As we are aware, reprocessing endoscopes is multi-step process. It entails a series of steps involving manual cleaning (and possibly automated cleaning), high-level disinfection, rinsing and drying, thus making it complex and more error-prone. These steps must be followed with no shortcuts each and every time.

Endoscope storage techniques, tips and tricks that work

When it comes to properly storing flexible or rigid endoscopes, Sydney Nye, R.N., Senior Product Manager, Customer Education and Reprocessing, Richard Wolf Medical Instruments Corp., offers some useful fundamental recommendations worth noting.

"Any device should be thoroughly cleaned, at least disinfected, and thoroughly dried before storing them," Nye noted. "The scope should be labeled with the date and initials of the person who last handled the scope and any decontamination and disinfection steps that were performed prior to storage.

"Flexible scopes should be hung for storage in well-ventilated environment that prevents damage and contamination and helps to dry the channels following cleaning protocols," she continued. "There are many specialty cabinets on the market that can assist in the best environment for storage. The scope should be tagged to document the date, initials and what was done to the scope prior to storage (reprocessed and high-level disinfection, etc.)

"Rigid scopes can be placed in a clean storage location that prevents them from being bent or damaged during storage. Always store a rigid endoscope with a scope protector and place them in tray to segregate them from other instruments. Nothing should be laid on top of or next to the scope to prevent damage to the eyepiece and shaft, even with a scope protector in place."

Beverly Young, Marketing Manager, Mobile Instrument Service & Repair Inc., shared some helpful hints, too.

Classifieds
Issue Archives
Advertise
About Us
Home
Subscribe

Contact Us

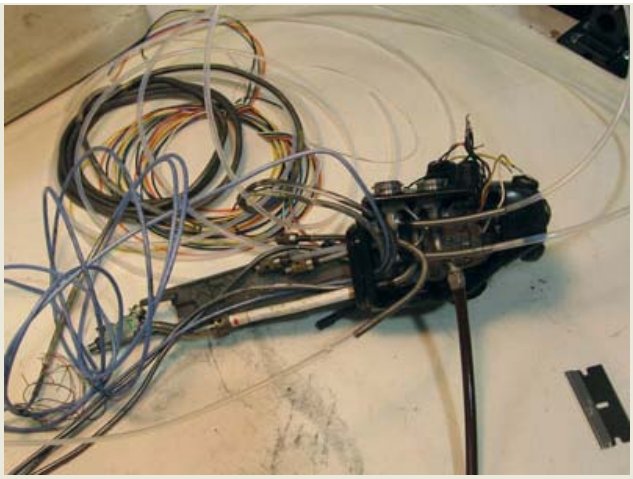


Photo courtesy Healthmark

The guts of a flexible endoscope

Post-reprocessing blurs

Now as much as reprocessing is crucial, the focus on post-reprocessing handling, including endoscope storage, is blurred. Storage of endoscopes is a hot topic but still an elephant in the room when it comes to endoscope handling.

Numerous studies have identified microbial contamination in improperly reprocessed endoscopes in storage, thereby demonstrating the value of surveillance testing[3]. These studies can provide guidance for the design of an ongoing surveillance program of endoscopes in storage. Testing of endoscopes would not be necessary if everything was done right every time all the time.

But all processes are susceptible to failure. The sources of reprocessing failures include manual errors[4], physically compromised endoscopes[5], as well as contaminated water supply used during disinfection and final rinse[6]. These lapses in the disinfection process, indicated by growth of microorganisms, often do not appear until the endoscopes have been placed in storage, thus emphasizing the need of testing scopes in storage.

All of this is valuable information as we try to clear away the smoke and mirrors of the safety of endoscopes in storage, and seek to deliver safe instruments for patient care. Microbial surveillance thereby is a valuable quality control tool to determine the quality of the outcome of the reprocessing procedures[7]. It helps detect breaches in reprocessing and also identify previously unknown problems with the reprocessing process[8]. This, in turn, helps prevent contamination and potential infection in patients after endoscopic procedures.

Endoscope reprocessing guidelines emphasize the need to dry and store the endoscopes properly. AORN guidelines recommend that endoscopes be reprocessed before use, if not used for more than five days[9]. The Veterans Health Administration currently follows a directive to reprocess unused scopes after 12 days of hanging[10]. The SGNA recommends that stored endoscopes be hanged vertically, with the distal tip hanging freely in a clean, well-ventilated, dust-free area[11]. Good ventilation in the storage area encourages continued air drying of the scopes, and prevents moisture build-up, thereby discouraging microbial contamination. These guidelines further recommend that the endoscope's valves and other detachable components be removed in storage, to prevent the endoscope's internal channels from retaining water, which could then become contaminated with microorganisms. Even the reprocessing guidelines of several international organizations, including those from Australia[12], France[13] and Europe[14], recommend microbial surveillance testing of endoscopes after

Utilizing a plastic container during leak test and manual cleaning for small diameter endoscopes greatly reduces the chance of impact damage to the distal end by the metal sink, she recommended.

Utilizing double sided hook and pile (Velcro) strips securely attached to the wall or back of the storage container keeps the distal end of the insertion from swinging freely, minimizing impact damage to the distal end, she added.

NOVEMBER 2013

Featured advertisers:

AHRMM
Anton/Bauer
Apex Supply Chain Techologies
Carstens
ChemDAQ Corp.
Crosstex International
CS Medical
Cygnus Medical
Dale Medical Products Inc.
Ecolab Inc.
Healthmark Industries
HealthTrust Purchasing Group
Honeywell
Hy-Tape Corp.
IAHCSMM
IMS
Innovative Therapies
Key Surgical
Masimo

reprocessing – during storage or before use.

Guideline detours

In practice however, it is observed that many endoscopes are not hanged properly, and the storage conditions are not typically monitored. Failure to adhere to the guidelines leads to an increased risk of survival and growth of microorganisms inside the endoscope channels. A survey of stored flexible endoscopes found that about 24 percent of samples taken from devices' channels had more than 105 CFU/channel[15]. Periodic surveillance of stored endoscopes at set intervals thus plays a significant role in increasing efficiency, saving time and reducing future costs[16].

To find out if the endoscopes in storage are really safe, a study was conducted at a hospital. This study was designed to test endoscopes in storage for gram negative bacteria. The reason for testing these is that the exogenous microorganisms most frequently associated with transmission during endoscopy are gram-negative bacteria, e.g., E. coli, Pseudomonas aeruginosa, Legionella, Salmonella, Helicobacter pylori, Serratia marcescens. These replicate more easily in the presence of moisture, and have been implicated in endoscope associated infections more frequently than have gram positive bacteria[17].

The gram-negative bacteria also act as indicators for bacterial contamination in endoscopes and reduce the risk of false positives associated with the gram-positive bacteria occurring normally as skin flora like Staphylococcus epidermidis, Streptococcus salivarius. Contamination and colonization of automated endoscope reprocessors (AERs) may also result in exposure of the endoscopes to pathogens, and gram negative bacilli have been isolated from contaminated AERs on many occasions[18]. Also, there are studies documenting that the bacterial filters used in rinse-water supplies can wear over time and fail, thus allowing bacteria to pass through the membrane, resulting in contamination[19].

Data were collected from 59 endoscopes. Along with the days in storage, the parameters tested were the type of endoscope, brand of endoscope, and if alcohol flush was performed on channels followed by forced air-drying as the final step. These could be some of the factors that might affect the number of days an endoscope can safely hang in storage without the risk of bacterial colonization. From the study, it was summarized that alcohol flush was significant. On performing this study, it came to attention that 37 percent of the endoscopes tested were not flushed with alcohol. Out of these, 45 percent tested positive for gram-negative bacteria. Thus, testing of stored endoscopes helped identify breaches in endoscope reprocessing.

Check and verify

Endoscopes in storage do need to be checked if they are observed to be wet, if their distal tip is touching the ground, if the valves had not been removed or if they are stored in an AER or the carrying case[20]. In order to confirm their safety before reuse, it is a good practice to label processed endoscopes in storage with their last processing date, as well as test them for microbial growth. Growth of microorganisms in endoscope lumen is a marker for inadequacy in the reprocessing protocol. Thus, the importance of periodic endoscope sampling cannot be undermined.

Routine surveillance of endoscopes in storage can help establish a quality assurance program, monitor effectiveness of new cleaning and disinfection protocol, as well as investigate nosocomial outbreaks. The need for endoscope sampling is especially pronounced if the facility has recently adopted new reprocessing protocol, is training new employees or if a perfect quality assurance program is not in place.

So are endoscopes in storage safe? Is there any residual bioburden in the lumen that we cannot visualize? Do we need periodic surveillance to

monitor this? These are the questions that need to be asked more often. Consideration given to such questions will help enhance patient care by reducing the risk of cross contamination, infection, and other adverse events. Given the challenges in endoscope reprocessing, it is prudent and in the best interest of patient safety to have appropriate guidelines in place to ensure that the endoscopes hanging in storage are safe. HPN

REFERENCES

1. Alfa, M.J., et al. American Journal of Infection Control, 2006
2. Rutala WA, Weber DJ. J Hosp Infect. Apr 2004
3. Kovaleva, et al. 2011; Aumeran, 2010; P. Corne, 2004; C. V. Sciortino; Jr, et al. 2004
4. Muscarella, 2006; Fraser et al., 2004, Srinivasan, 2003, Allen et al., 1987
5. DiazGranados, 2009; Shimonom et al.; 2008, Nelson & Muscarella; 2006, Pajkos et al., 2004; Schelenz & French, 2000; Alvarado et al., 1991
6. Nelson & Muscarella, 2006, Bass et al., 1990
7. Beilenhoff EU et al; ESGE-ESGENA guideline: cleaning and disinfection in gastrointestinal endoscopy, 2008
8. Infection Prevention and Control Guideline for Flexible Gastrointestinal Endoscopy and Flexible Bronchoscopy, Public Health Agency of Canada Public Health Agency of Canada
9. Perioperative Standards and Recommended Practices, AORN, 2009
10. OR Manager, Vol. 29 No. 1, January 2013
11. SGNA Standards of Infection Control in Reprocessing of Flexible Gastrointestinal Endoscopes, 2008
12. Cowen A et. al; Infection control in gastrointestinal endoscopy, Gastroenterological Society of Australia, 2003
13. Systchenko R, et al. Guidelines of the French Society of Digestive Endoscopy: Recommendations for setting up cleaning and disinfection procedures in gastrointestinal endoscopy, 2000
14. Beilenhoff EU et al; ESGE-ESGENA guideline: cleaning and disinfection in gastrointestinal endoscopy, 2008.
15. Kaczmarek RG, et. al. Am J Med 1992
16. Muscarella, L.F., The Q-Net Monthly, Feb. 2001
17. Alfa M.J. et al. J Hosp Infect 1991
18. Babb JR et.al J Hosp Infec 1995
19. Pang J et.al Gastrointest Endosc, 2002
20. Muscarella, L.F., The Q-Net Monthly, Dec. 2009

Kaumudi Kulkarni is a Business Development Microbiologist for Healthmark Industries Co.