simple, bright ideas.

Infection Control in the Physician Office

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Scientific literature has clearly identified issues related to the reprocessing of nondisposable devices that should create doubt in the mind of patients and office staff about whether the instruments used in a procedure are safe for future use.

Introduction

When it comes to infection control in the medical office, preventing the transmission of contaminants—including blood and bodily fluids—from reusable medical devices is a critical step in ensuring patient safety. Failure to properly disinfect or sterilize equipment carries not only the risks associated with contact with mucous membranes but also the danger of patient-to-patient transmission (e.g., hepatitis B or C virus) and transmission of environmental pathogens (e.g., Pseudomonas aeruginosa).

To prevent cross-contamination, medical personnel must precisely follow published guidelines to remove all organic materials from instruments after use and ensure that reprocessed devices are sanitized. Unfortunately, multiple studies in several countries have documented a lack of compliance with established guidelines for disinfection and sterilization.[1] This failure has led to numerous outbreaks that could have been avoided.[2]

Medical offices looking to reduce the risk of cross-contamination must take a close—and realistic—look at their sterilization and decontamination procedures and determine if newer innovations, such as single-use devices, might offer a higher level of patient safety.

Potential Sources of Contamination

In addition to potentially fatal bodily fluid–borne pathogens, such as human immunodeficiency virus and hepatitis B and C viruses, the emergence of pathogenicity of other bodily fluid-borne viruses, such as human papillomavirus, has heightened awareness about the importance of implementing rigorous infection control precautions, especially in medical offices where pelvic exams and procedures take place. On almost a weekly basis, we hear about transmission of pathogenic bacteria—in addition to viruses—which have occurred as a result of improperly sterilized instruments being used during medical procedures.

To put that shortfall into real perspective, in March 2010, Dallas-based Parkland Memorial Hospital was forced to notify 73 female patients that they were potentially exposed to infectious agents—including HIV and hepatitis—due to equipment failure and the reuse of an improperly sterilized vaginal speculum. Not only did the cross-contamination scare have the potential to cause serious harm to the patients and their partners, but it also caused significant reputational damage to the hospital.[3]

[1,2] Rutala W, Weber J, and the Healthcare Infection Control Practices Advisory Committee (HICPAC). Guidelines for Disinfection and Sterilization in Healthcare Facilities. CDC website. 2008. Available at: http://www.cdc.gov/hicpac/pdf/guidelines/disinfection_nov_2008.pdf.

[3] Dallas News, August 20, 2011.

The potential for nonsexual transmission of HPV is real, as well.[4] There is a risk that reuse of vaginal specula and of the light sources used during a pelvic exam could be sources of iatrogenic viral transmission.[5] Specifically, HPV DNA has been found on surgical gloves and biopsy forceps used in the care of patients with genital condyloma. In addition, cryoprobe tips and biopsy forceps may still harbor HPV DNA, even after sterilization.[6]

Endotoxins, formed by the breakdown of the cell wall of gram-negative bacteria, also pose a risk to the patient if they remain on inadequately processed instruments. Bacterial endotoxins can be active even if the bacteria from which they are released were killed.

Risk of Transmission

Patient safety depends on instruments that are properly disposed of or adequately reprocessed (i.e., cleaned, disinfected, sterilized and stored properly). A mistake in any step in the established protocol for ensuring that instruments are ready for reuse can lead to infection risk. Instruments can become compromised as the result of numerous factors, such as: 1) failure to apply appropriate sterilization or disinfection, 2) damage to the storage wrapping, 3) retained biologic debris and 4) improper storage and handling.

For an example, let's use a reusable metal speculum. These devices have moving, hinged parts that can easily become impacted with lubricant, in which organisms may be imbedded. Unless the speculum is disassembled and thoroughly washed prior to the disinfection or sterilization process, the pathogens can survive in the lubricant left behind. In addition, some non-disposable specula cannot be disassembled, making them impossible to adequately clean. The pathogens remaining on the inadequately processed instruments then have the potential to get passed on to the next patient.

Some medical offices have determined that the risks posed by improper reprocessing are simply too great and have made the switch to disposable devices. However, even this precaution may not be sufficient due to other equipment in the office, such as external light sources used during pelvic exams. This equipment can also pose a risk.

External light sources are typically reusable but cannot withstand a rigorous disinfection or sterilization. Instead, these instruments are wiped down and considered ready for the next patient. The light source is then set out on a counter top or placed in a drawer where it can easily become contaminated by touch, presenting yet another potential source of pathogen transmission.

[4] Birley HDL. Continuing medical ignorance: modern myths in the management of genital warts. Int J STD AIDS. 2001;12:71–74.

[5] McCance J, Campion MJ, Baram A, Singer A. Risk of transmission of human papillomavirus by vaginal speculum. Lancet. 1986;2:816–817.

[6] Carr J, Gyorfi T. Human papillomavirus: epidemiology, transmission and pathogenesis. Clin Lab Med. 2000;20:235–255.

But the risk for potential cross-contamination doesn't only occur in the operating room. Ann Marie Pettis, RN, BSN, CIC, director of infection prevention for the University of Rochester Medical Center, Rochester, N.Y. told The Journal of Healthcare Contracting that the waiting room of the physician's office may increase one's chances of becoming infected.[7] Patients who are experiencing serious conditions, such as tuberculosis, could transfer illness from coughing without covering their mouths or forgetting to wash their hands in the waiting room due to the close-quartered seating arrangements.

Reprocessing Issues

The reprocessing process plays an important role in helping to prevent infection. Autoclave sterilization or high-level disinfection with glutaraldehyde (e.g., Cidex) or ortho-phthalaldehyde (e.g., Cidex OPA) is the usual method used in medical offices to reprocess non-disposable instruments.

Most clinics are not equipped spatially for reprocessing instruments, and front-line clinic staff often lack the knowledge or understanding necessary to perform this intricate process properly.[8] Studies have identified a host of non-standardized and inappropriate methods used for instrument processing, reuse of disposables, inadequate supply storage, inappropriate utilization and mixture of disinfectants, and insufficient education of staff responsible for reprocessing.[9] In addition, lack of indicator monitoring or less-than-recommended monitoring of stand-alone autoclaves, using water instead of detergent to clean equipment prior to disinfection, inadequate testing of the strength of chemical disinfectants prior to use, and inadequacies in the frequency of changing chemical disinfectants have also been reported.[10] Any one of these failures increases the risk of cross-contamination.

These potential knowledge deficits have been identified in aseptic technique, instrument decontamination, and sterilization process monitoring.[11] What's needed in every medical office is consistent on-site supervision of the sterilization and disinfection processes with return demonstration of correct practices by all staff with documentation of practice competency.[12]

[7] http://www.jhconline.com/fighting-infection-in-the-doctors-office.html

[8] D Huey. Decreasing Autoclave Sterilization in 34 Ambulatory Clinics: How One Health System Used a Multi-disciplinary Team Approach to Develop Standardization. Presented at the APIC 41st Annual Educational Conference & International Meeting, Anaheim, CA. June 7-9, 2014.

[9] B Gray, D Kenebrew, P Batiste, J Landrith, N Saage, K Hartless. Delving Beneath the Tip of the Iceberg: Instrument Processing by Personnel Outside of Supply, Processing, and Distribution. AJIC 2004;3, e23.

[10] R Wiens, M Buchanan-Chell, S Forgie, A Groeneveld, D Hobbs, T Kirkland, G Taylor. Infection Control Audit of Disinfection/Sterilization Practices outside of Central Sterile Services. AJIC 2004;3, e23.

[11] L Roach. What Is Wrong with Using a Dishwasher to Clean My Instruments? AJIC 2012; 5. e148.

[12] J Hayes, R Fitzpatrick. Creating an Instrument Processing Educational Program for Ambulatory Setting with Capacity to Measure and Monitor Competencies. Presented at the APIC 41st Annual Educational Conference & International Meeting j Anaheim, CA, June 7-9, 2014.

Infection Control Best Practices

To ensure patients, facility staff and other public entities entering the hospital are safe, it's critical for facility administrators to put specific policies and procedures in place that help to manage exposure and infection control. According to the U.S. Centers for Disease and Control Prevention, outpatient settings should consider the following key administrative recommendations:[13]

1. Create and maintain infection prevention and occupational health practices with programs throughout the facility.

2. Ensure the facility is always equipped with sufficient and appropriate supplies to reduce risk for contamination and infection, such as hand hygiene products, personal protective tools and injection equipment.

3. Make sure at least one staff member with infection control training is regularly available to work and maintain the facility's infection prevention program.

4. Develop written policies and procedures for all of the services the facility has to offer based on standards and regulations.

In regard to the proper use and handling of needles, cannulae and syringes, the New York State Department of Health recommended the following regulations:[14]

- Use sterile, single-use items. Once an item is used, it's considered contaminated.

- Medication must not be administered to more than one patient even if the needle on the syringe is changed.

- All used needles and syringes must be immediately disposed into a leakproof, puncture-resistant container.

- Put policies and procedures in place to prevent sharp object injury among staff members.

[13] https://www.cdc.gov/hai/settings/outpatient/outpatient-care-guidelines.html

[14] https://health.ny.gov/professionals/diseases/reporting/communicable/infection/key_infection_control_practices.htm

Summary

Scientific literature has clearly identified issues related to reprocessing of non-disposable devices that should create doubt in the mind of patients and office staff about whether the instruments used in a procedure are safe for future reuse. In the case of the vaginal speculum, one mechanism to reduce risk of infection is the single-use speculum with integrated light source. These newer devices not only eliminate the risk of cross-contamination from the instrument but also reduce the potential risk of contamination from external light sources.[15]

As a woman and an occasional patient, if my physician opts for a disposable speculum with an integrated light source—one that comes out of the package ready for my exam and is completely discarded after use—I feel reassured that my safety and best interests are a priority for my physician and his/her medical staff. Patients should expect nothing less.

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About the Author

Ms. Frederick owns the consulting firm, "Infection Prevention Consultants, LLC," providing infection prevention mentorship and program development services to for-profit and not-for-profit healthcare providers nationwide and internationally. Prior to this, she was Corporate Infection Prevention Officer for MedCath, Inc. and co-owned the consulting firm "Infection Control Consultants" providing consultation on Infection Prevention and Control. Leah has successfully developed Infection Prevention and Control Programs for new hospitals, and led organizations in improving existing programs. She specializes in leading organizations to decrease and prevent healthcare-acquired infections and in providing the most up-to-date information on regulatory compliance. She has been active and has held office in numerous professional associations which include the Association for Professionals in Infection Control and Epidemiology (APIC), Society for Healthcare Epidemiology of America (SHEA), and Sigma Theta Tau. Ms. Frederick holds a Bachelor's degree in Nursing and holds a Master of Science Degree in Community Health from Arizona State University. She is currently certified in Infection Control by the Certification Board of Infection Control (CBIC), and has been certified for more than 20 years.

[15] J Young. Incidence of Instrument Compromise in TKA: Comparison of Standard Instruments vs. Single Use Instruments. AJIC 2009;5. e77.