

Infection prevention

Upping the game for OR cleaning with monitoring and partnerships

All ORs have protocols for cleaning between cases and at the end of the day's schedule. But constant vigilance is needed to make sure cleaning is thorough and carried out consistently.

Though an OR may look clean, studies have shown there's room for improvement.

For example, only 25% of OR surfaces targeted in a study of 71 ORs in 6 hospitals had been cleaned thoroughly, Jefferson and colleagues reported in the AORN Journal.

In a pilot study in 5 ORs, researchers cultured overhead lights and found lights in 3 of the 5 ORs were positive for growth of bacteria such as *Staphylococcus*, *Streptococcus*, and *Neisseria*.

The stakes of spotty cleaning are high. Evidence indicates that environmental contamination plays a role in the spread of methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant *Enterococcus* (VRE), and *Clostridium difficile*, among others.

There's also evidence that environmental bacteria, particularly coagulase-negative *Staphylococcus*, is the most common cause of deep organ space surgical site infections (SSIs) related to implants. The evidence is reviewed in the Jefferson et al article in the AORN Journal.

Visually checking surfaces for cleanliness is no longer enough. The Centers for Disease Control and Prevention (CDC) advises that cleaning be validated. The CDC's Guidelines for Environmental Infection Control in Healthcare Facilities recommend:

- enhanced cleaning for high-touch surfaces that are likely to be contaminated
- monitoring the staff's compliance with cleaning protocols.

A CDC web page, Options for Environmental Cleaning, offers advice and tools for evaluating cleaning of high-touch surfaces. Tools include a checklist for monitoring cleaning on patient units and guidance for selecting an objective monitoring method.

Improving cleaning

ORs are taking a focused look at cleaning protocols in partnership with infection prevention and environmental services (EVS). Many are adopting objective methods to monitor cleanliness with feedback and reeducation for the staff. A few are considering whole-room disinfection with new technologies (related article, p 12).

At the same time, managers worry about how they will sustain cleaning efforts if budget pressures force staffing cutbacks.

Evidence on OR cleaning

There's new evidence that systematic OR cleaning supported by a monitoring system can make a difference in removing gram-negative organisms.

L. Silvia Munoz-Price, MD, and colleagues evaluated cleaning at a 1,500-bed hospital with 43 ORs. In 4 cycles over 5 months, target surfaces were marked with a clear fluorescent marking gel (DAZO, Ecolab) and evaluated 24 hours later with a UV light. The UV light reveals how well the gel is removed as an indicator for the thoroughness of cleaning. The surfaces were also cultured for bacteria.

With feedback and reeducation of the staff, removal of the dye marks improved from 47% to 82% over 5 months. The most striking improvement was for anesthesia equipment, where dye removal rose from 25% to 77%.

Overall, culture results did not change: 17% of surfaces had pathogenic organisms at baseline compared to 12.5% at follow-up. But surfaces with gram-negative organisms did decline from 11% to 2%.

The authors conclude that feedback to the staff using the cultures and dye marking was successful in decreasing surface contamination from gram-negative organisms with potential to transmit infection.

Two main interventions the hospital adopted were:

- Anesthesia technologists are now responsible for cleaning the anesthesia machine and equipment between cases.
- The cleaning product was changed from 17.2% isopropanolol (CaviWipes, Metrex) to 1:10 sodium hypochlorite (Dispatch, Clorox).

Cleaning policies, which were consistent with AORN-recommended practices, were not changed.

In the pilot study on cleaning of OR lights, the authors think cross-contamination could have played a role in the results, possibly when lights were cleaned with the same wipe used on other surfaces, and soiled gloves were worn by personnel. They propose developing guidelines to specify that clean gloves be donned and a new wipe used when cleaning overhead lights.

More time doesn't equal better cleaning

Interestingly, the time spent cleaning a room doesn't necessarily equate with better results. In a study on a critical care unit, no correlation was found between how thoroughly high-touch surfaces were cleaned and how much time cleaning took. Although a few rooms were cleaned well within 30 minutes, considered the industry benchmark, many that took longer had below-average cleaning.

"Our study lends support to and may explain earlier studies that have shown that improved cleaning performance can be achieved without substantial additional cost," say the authors in the January 2013 *Infection Control and Hospital Epidemiology*.

Collaboration for cleaning

A sound cleaning program calls for a partnership among perioperative services, infection preventionists, and the EVS department.

Because EVS staff frequently clean ORs, their partnership is critical. In all, 79% of EVS departments had dedicated staff for OR terminal cleaning, and 42% had dedicated staff for between-case cleaning, according to a 2012 survey by the Association for the Healthcare Environment (AHE) (chart).

Regular communication is needed. Cleaning policies should be written and clear, advises Patti Costello, AHE's executive director. "We tell our members that if you're involved in OR cleaning, you need to make absolutely certain that you know who's cleaning which types of equipment and the high-touch areas so the staff is properly trained."

As an example of a good approach, she refers to a zone system for OR cleaning developed by St Luke's Boise Medical Center in Idaho (related article).

"I think the zone system addresses a number of issues," she says. Zones are clearly defined, and a staff member takes responsibility for each zone so there's no confusion about who will clean which areas.

Resources

Association for the Healthcare Environment

From Top to Bottom: Cleaning Operating and Procedure Rooms.

Video/DVD demonstrates and explains cleaning protocols for the OR and other procedure areas.

Part of 3-DVD series, *From Top to Bottom*, for environmental services, based on AHE's Practice Guidance for Environmental Cleaning. Available in English and Spanish. Order from www.envisioninc.net

—www.ahe.org

Association for Professionals in Infection Control and Epidemiology, Association for the Healthcare Environment

The associations are partnering in a joint educational campaign titled "Clean Spaces, Healthy Patients: Leaders in Infection Prevention and Environmental Services Working Together for Better Patient Outcomes." The campaign provides educational resources, training materials, and other solutions to assist in combating the spread of healthcare-associated infections.

—<http://cleanspaces.site.apic.org/>

Centers for Disease Control and Prevention

Options for Evaluating Environmental Cleaning.

Alice Guh, MD, MPH, and Philip Carling, MD, authors. Includes checklist for monitoring terminal cleaning and environmental cleaning evaluation worksheet.

—www.cdc.gov/HAI/toolkits/Evaluating-Environmental-Cleaning.html

Improving cleaning compliance

Cleaning compliance for ORs in the 15 medical centers in Kaiser Permanente’s Southern California Region improved rapidly after the ORs adopted a cleaning and validation program that already had been successful on patient units. The program includes:

- identifying high-touch surfaces with high risk for pathogen transmission
- standardizing policies and procedures
- implementing a cleaning validation process using fluorescent dye marking.

Cleaning on the patient units improved from 20% at baseline to 98% to 99% within a few months of adopting the program, and the results have lasted.

In 2010, Enid Eck, MPH, RN, Kaiser’s regional director for infection prevention and control, partnered with Marie Paulson, BSN, MS, RN, CNOR, regional director for perioperative services, on the OR cleaning project.

Baseline measurements for the ORs were higher than on the units, at 40% to 80%, but there was still room for improvement.

Within a few months after the cleaning program was introduced, results improved to over 80% at nearly all hospitals, with most well above 90%, Eck says.

The cleaning validation process is as follows:

- At least 20 ORs are validated each month at each facility, depending on its size, using the dye-marking system. EVS staff do not know which rooms will be marked.
- After the last case of the day, the specified surfaces are marked, and the rooms are cleaned.
- In the morning, before surgery starts, a manager uses the UV light to check the cleaned surfaces. Results are documented.
- Data is reviewed and trended monthly to see if surfaces are being missed. If so, further education is conducted.

Keys to improvement

Eck points to some key factors that helped improve and sustain OR cleaning:

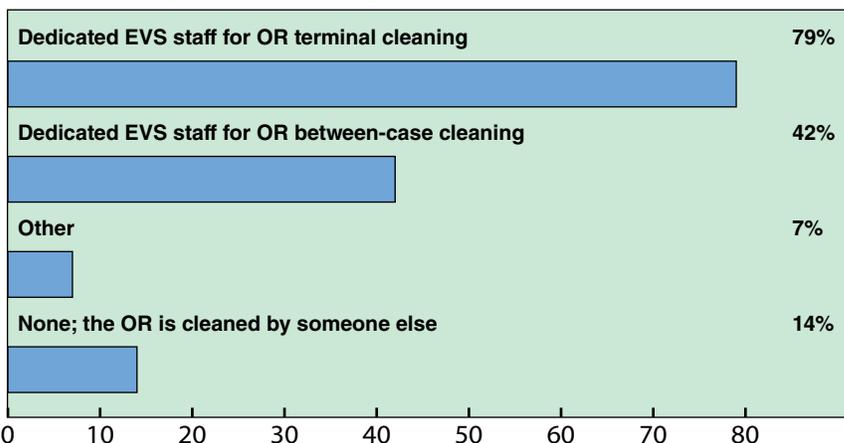
- a strong labor-management partnership with the unions
- sustained education and feedback for EVS personnel
- an emphasis on the EVS staff’s importance to safe patient care.

In meeting with labor leaders, Eck shared the baseline findings on cleaning and the potential risk to patients.

“We framed it as, ‘We assume the staff intends to do the right thing, but perhaps they have not been thoroughly educated,’” she says. “Our intent was to make sure the staff understood what needed to be done and how to do it.”

Especially important, she stresses, is to inspire a vision in EVS staff that “what EVS does is as important as what the clinicians do” in keeping patients safe from infection. In one example, she and the EVS managers encourage the staff to think about how clean they would want the OR to be if a family member were having surgery.

Environmental services departments’ responsibility for OR cleaning



Source: Survey by Association for the Healthcare Environment, 2012.
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Facing budget challenges

Budget pressures are a reality in health care. Managers need to advocate for the resources necessary to ensure thorough cleaning.

First, Costello advises, the OR director, EVS manager, and infection preventionist need to agree on a standard for OR cleaning that meets regulatory standards and is aimed at preventing SSIs. The standard should be in writing and communicated to the chief nursing officer and senior administration as well as to the staff.

If an order comes to cut the budget, she suggests, the same group can sit down with administrators and say, "This is the standard we have agreed upon."

They can suggest how this standard would be jeopardized if staffing were reduced; for example, cleaning might be less thorough or turnover times between cases might be longer.

Eck got buy-in from the senior administrator responsible for EVS when starting the cleaning validation project. She shared the baseline findings showing that even though rooms looked clean, high-touch surfaces still could harbor pathogens.

In addition, she presented data on surface transmission of health care-associated infections (HAIs) and their costs.

The administration realized what improving on or eliminating the risk of HAI would do for the bottom line, both in quality and cost, she says.

"Most SSIs have the potential to be seeded in the OR, particularly deep organ space infections, such as with joint replacements."

With public reporting, potential lawsuits, and a lack of reimbursement for treating HAIs, the costs of haphazard cleaning can easily count up, she points out. ❖

—Pat Patterson

References

- AORN. Recommended practices for environmental cleaning in the perioperative setting. Perioperative Standards and Recommended Practices. Denver, CO: AORN, 2012.
- Centers for Disease Control and Prevention. Options for evaluating environmental cleaning. www.cdc.gov/hai/toolkits/evaluating-environmental-cleaning.html
- Jefferson J, Whelan R, Dick B, et al. A novel technique for identifying opportunities to improve environmental hygiene in the operating room. AORN J. 2011;93:358-364.
- Kalava A, Midha M, Kurnutala L N, et al. How clean are the overhead lights in operating rooms? Letter. Am J Infect Control. 2012. doi:10.1016/j.ajic.2012.04.335.
- Munoz-Price L S, Birnbach D J, Lubarsky D A, et al. Decreasing operating room environmental pathogen contamination through improved cleaning practice. Infect Cont Hosp Epidemiol. 2012;33:897-904.
- Rupp M E, Adler A, Schellen M, et al. Time spent cleaning a hospital room does not correlate with the thoroughness of cleaning. Infect Cont Hosp Epidemiol. 2013;34:100-102.
- Weber D J, Rutala W A, Miller M B, et al. Role of hospital surfaces in the transmission of emerging health care-associated pathogens. Am J Infect Control. 2010.38(5 Suppl 1):S25-33.

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