Anesthesia Patient Safety Foundation

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APSF Patient Safety Priorities Advisory Group - Infectious Diseases

Jonathan E. Charnin, MD, FASA **Randy W. Loftus, MD**

There are always opportunities to improve perioperative patient safety, but some might escape notice because the agent of harm is invisible. The Anesthesia Patient Safety Foundation (APSF) Committee on Infection Prevention is a multidisciplinary, multiprofessional group of experts who convene to build consensus on best practices for pathogen transmission prevention. In addition to the benefits for our patients, infection prevention efforts may reduce the risk of pathogen exposure for medical professionals in the OR.

Infection prevention has been a hot topic of discussion over the last few years due to the COVID-19 virus. Unlike most pathogens that are transmitted during the perioperative period and affect only our patients, the COVID-19 virus posed a measurable risk to the health care team, which in turn threatened our capacity to provide care to those in need. This gave providers pause, with an uncertain future for health care. With the advent of effective vaccines and antiviral therapeutics, there is now less fear associated with the ongoing pandemic. However, we should have learned from the COVID-19 pandemic that emerging viruses like monkeypox, Ebola, and polio join endemic viruses like respiratory syncytial virus and influenza as real threats to our patients and the health care team. Our interest in stopping the transmission of these viruses, along with pathogenic bacteria like *Enterococcus*, *Staphylococcus aureus*, *Klebsiella*, *Acinetobacter*, *Pseudomonas*, and *Enterobacter spp.*, make this the perfect time for anesthesia professionals to refocus our attention on reducing patient harm through infection prevention. We can refocus the energy we have already learned to spend on COVID-19 mitigation into a holistic approach to pathogen reduction.

The APSF Patient Safety Priorities Advisory Group-Infectious Diseases has reviewed much of the primary literature on perioperative infection control and guidelines and procedural statements from leading national perioperative organizations. There is very good evidence to guide our practice improvements, and now is the time to implement changes that will benefit our patients. The efficacy and effectiveness of optimized basic infection control

Jonathan E. Charnin, MD, FASA
Co-Chair, APSF Patient Safety Priorities Advisory Group-Infectious Diseases, Consultant in Anesthesia, and Medical Director of the Multispecialty Intensive Care Unit, Mayo Clinic, Rochester, Minnesota.

Randy W. Loftus, MD
Associate Professor of Anesthesia and Critical Care, University of Iowa, Iowa City, Iowa.

measures in the anesthesia work area have been confirmed. There is no question that we, current and historical leaders in patient safety, can generate substantial reductions in bacterial transmission and, in turn, surgical site infections (SSIs). In fact, based on a recent randomized controlled trial and large postimplementation analysis, we can reduce surgical site infections by over 80% (*JAMA Netw Open* 2020;3:e201934; *J Clin Anesth* 2022;77:110632). This is of tremendous importance, as SSIs increase the risk of death for our patients by greater than two-fold and substantially increase health care costs (*Surg Infect (Larchmt)* 2012;13:307-11; *Infect Control Hosp Epidemiol* 1999;20:725-30). These same measures have also been shown to eliminate residual intraoperative environmental contamination with SARS-CoV-2.

So, what are the interventions we should optimize? In a recent article in the October 2022 *APSF Newsletter*, the APSF infection prevention committee advanced four areas for infection prevention (asamonitor.pub/3EbWkFM). These strategies can be implemented with the expectation of a meaningful reduction of pathogen transmission for each strategy. The committee recommends feedback optimization of 1) patient decolonization, 2) improvement in provider hand hygiene, 3) disinfection before each administration of an intravenous medication, and 4) environmental cleaning done by the anesthesia provider to address the post-induction peak in environmental contamination. As stated by the Society for Healthcare Epidemiology of America (SHEA) expert guidance for intraoperative infection control, monitoring of these basic measures is critical for transparency to guide process improvement (*Infect Control Hosp Epidemiol* 2019;40:1-17). Monitoring *S. aureus* transmission within and between anesthesia reservoirs associated with increased risk of infection is an effective strategy to identity improvement targets for these basic preventive measures. For example, an anesthesia vaporizer contaminated with *S. aureus* at the start of the workday is simply contamination, while movement of that same *S. aureus* to the patient's nose previously measured to be negative at baseline would indicate transmission. The improvement target in this example would be to address the source of the transmission event by improving terminal cleaning, thereby reducing the chance that pathogen contamination of the vaporizer could result in patient transmission events. It is important to prevent transmission events because they can lead to downstream infection via subsequent movement of the pathogen from the nonsterile site (patient nose) to one or more sterile sites (i.e., blood stream, respiratory tract, urinary tract, the incision, and/or deep organ space) via direct contamination, aerosolization of particles, and/or hematogenous spread (*JAMA Netw Open* 2020;3:e201934; *J Clin Anesth* 2022;77:110632).

Patient decolonization is the reduction of the commensal bacteria that live on each patient to prevent infections. Surgical site infections remain a significant source of patient harm. Often, the bacteria that cause the SSI are brought into the OR by the patients themselves. *S. aureus* can colonize the nasal cavity. Patients who are colonized with *S. aureus* have higher rates of SSIs. Anesthesia professionals should join with surgeons and preoperative nurses to ensure that an effective nasal decolonization program is used. Both iodine-based nasal decolonization and mupirocin-based decolonization can be effective. Attention must be paid to getting an appropriate dose and an appropriate timeframe. Patients who are colonized with methicillin-resistant *S. aureus* (MRSA) can undergo the decolonization process over months to eliminate the MRSA pathogens. Anesthesia professionals should step beyond the perioperative period and collaborate with the perioperative team to create protocols that help to achieve MRSA decolonization.

Just as patients need decolonization, the hands of anesthesia professionals should not be contaminated. Hand hygiene with an alcohol-based disinfectant is already a requirement for health care providers. Many anesthesia professionals

already utilize hand hygiene when entering and leaving the OR and then occasionally during the provision of anesthesia care. Anesthesia patient care in the OR requires frequent contact with the patient, the anesthesia machine, and many other objects in the environment. As a practical step forward, the Committee on Infection Prevention recommends anesthesia professionals utilize hand hygiene at least eight times per hour while providing anesthesia care. Alcohol-based disinfection is preferred, but soap and water is required when the hands become visibly soiled. This frequent use of hand hygiene is achievable and is designed to intercept pathogens and limit the movement of germs around the OR (*Anesthesiology* 2009;110:978-85).

Clean hands are important when anesthesia providers disinfect intravenous medications and intravenous line access ports. Aseptic technique requires disinfecting the access points for intravenous medications before the medications are prepared or delivered. Every vial must be disinfected before preparing a medication for injection, and every injection site must be disinfected before giving the I.V. medication. A hard friction scrub with an alcohol pad with drying time will disinfect these sites. An alcohol-based cap can also disinfect a Luer lock injection site, but the time required to be effective may differ between different manufacturers (*Nurs Res Pract* 2015;2015:796762). Reducing or eliminating the bacteria injected into the bloodstream is an important step forward for patient safety.

Separating our work areas into "clean" and "dirty" works zones is an evidence-based approach to reducing pathogenic infections. Beyond this, there is an additional opportunity for anesthesia professionals to clean their work areas after the induction of anesthesia is complete. Anesthesia workspaces are exposed to respiratory droplets from airway management and airway secretions that travel on our gloves. The APSF Patient Safety Priorities Advisory Group-Infectious Diseases recommends implementing an intraoperative cleaning program to reduce the number of pathogens on our work surfaces. Hospitals should consider adding ultraviolet lights in the UV-C spectrum to better disinfect the ORs between cases or overnight (*Am J Infect Control* 2022;50:61-6). The evidence-based methodology to prevent disruption in turnover times has been described (*Cureus* 2021;13:e18861).

We contend that these interventions are ready to be implemented and do not require additional research to justify taking these actions. Such strategies may reduce transmission of pathogens and reduce the rates of SSIs. All anesthesia professionals have had to adapt to changes brought by the COVID-19 pandemic. It is time to use that same energy and skill set to reduce SSIs.

The next priority for the APSF Patient Safety Priorities Advisory Group-Infectious Diseases will be monkeypox. The group is reviewing the perioperative implications of this emerging virus. A discussion of practical steps for perioperative infection prevention is our next target. ■

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ASA's Corporate Partners Highlight Diverse Practice Management Solutions at ASA® ADVANCE 2023: The Anesthesiology Business Event

Lilian Kanai, MD, MBA, FASA, FACHE

Once again, ASA is bringing thought leaders and practice management experts together to shine a bright light on the business challenges our specialty faces and the universe of solutions clinicians can employ to tackle them at ASA ADVANCE 2023: The Anesthesiology Business Event in Orlando from January 27-29. And because it takes a village, our corporate partners will be there, too, ensuring the Exhibit Hall is loaded with new ideas, innovative solutions, and problem-solving tools and tactics.

"We always look forward to meeting with anesthesiologists in the Exhibit Hall. ASA ADVANCE: The Anesthesiology Business Event is *the* place to learn about challenges the specialty is facing and to share the latest data and information from our work on those same challenges," said Chad Turner, Chief Growth Officer with Ventra Health.

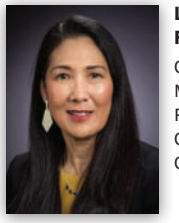
A can't-miss destination, this year's Exhibit Hall will be bursting with timely and relevant information. Corporate partners not only provide the funds that enable ASA to host this dynamic event and keep registration costs affordable, saving you money, they also bring a wide range of diverse and valuable educational resources to the event, infusing the Exhibit

Hall with life and filling it with answers to the questions you're asking. Wondering how ever-evolving practice models will impact you? Or what tactics others are using to conquer workforce issues and nurture future leaders? Or how to sell your C-suite on the value of anesthesiologists in leadership positions? Whatever your challenge, practice size, career stage, or setting, the Exhibit Hall will be teeming with remedies.

Of course, answers to questions as vast and nuanced as those our specialty grapples with can come in many different shapes and sizes, so the Exhibit Hall will feature a wide range of innovative materials, knowledgeable vendors, practical tools, and forward-thinking colleagues. "When it comes to gaining a better understanding of how industry can help the business of anesthesiology, the topics, networking, and resources at ASA ADVANCE: The Anesthesiology Business Event are the go-to resource. The landscape of health care continues to evolve as it becomes more complex and innovative. It's great to be a part of an event that evolves with the specialty and is finely tuned to addressing the most timely and relevant issues," remarked Jessica Kovash, Director, Product Marketing with LeanTaaS.

Corporate partners will educate attendees via lively presentations and other non-CME educational opportunities. You can mingle with peers at informative Center Stage presentations and connect face-to-face with exhibitors at daily coffee breaks (at 10:15 a.m. and 3:30 p.m.), lunch breaks (at 11:45 a.m.), and our spirited Friday evening Welcome Reception (from 5-6:30 p.m.). Outside of the Exhibit Hall, vendors will present Sunrise Sessions, non-CME learning opportunities designed to inform and inspire.

And that's not all we can expect from corporate partners. As much as we value the financial support and resources they



Lilian Kanai, MD, MBA, FASA, FACHE
Chair, ASA Committee on Practice Management, Private Practice Physician, and Chair, Credentials Committee, The Queen's Medical Center, Honolulu, Hawaii.

bring to the event, their support of ASA's future leaders is equally valued. ASA's Emerging Leader scholarships are made possible by the support of our partners. These scholarships make it possible for ASA to augment the clinical knowledge of participants with needed leadership skills and practice management information that will elevate their success. With this support, the society is more effective at helping residents thrive as their careers progress.

After many months of preparation, we're looking forward to a successful event. We appreciate the members, staff, and corporate partners who make it all possible, and we hope you'll join us to listen, learn, see, and experience. With the combined efforts of such engaged collaborators, you're sure to leave sunny Orlando more knowledgeable, confident, and prepared to face the future rushing our way. Visit **asahq.org/ADVANCE** for more information. ■