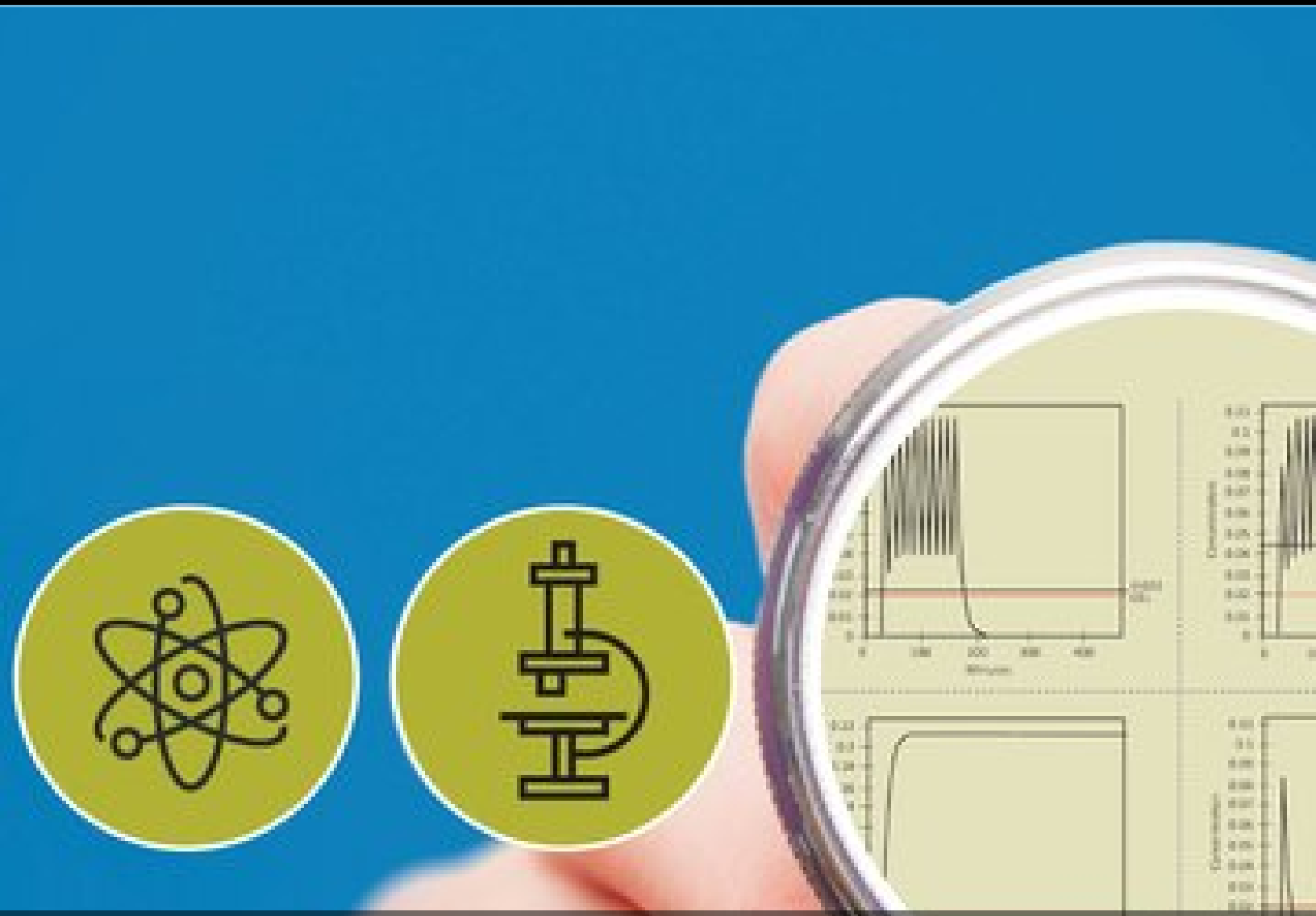

Integrating IH into Healthcare

Key Concerns for a Rapidly Growing Field

BY ROBERTA SMITH

Healthcare is one of our nation's fastest-growing industries. The Bureau of Labor Statistics projects employment of healthcare-related professionals to grow 19 percent from 2014 to 2024, a rate much faster than the average growth for all occupations. To ensure both patient and worker safety, this expanding industry must keep pace with regulations and requirements from federal and private accreditation agencies. In 2015, hospitals had a nonfatal occupational injury and illness rate of 6 cases per 100 full-time workers, according to BLS. Healthcare workers face a wide range of hazards on the job, including microorganisms, sharps injuries, harmful exposures to chemicals and hazardous drugs, respiratory exposures, ergonomic injuries, radiation, violence, and stress. As technologies and practices change and as facilities grow to accommodate a wider variety of patients, the need for an industrial hygienist in healthcare is greater than ever.

An industrial hygienist's scope of practice aligns with many aspects of a healthcare environment, depending on the services offered at a particular facility. Many healthcare facilities have health and safety regulations that fall under the purview of OSHA; however, in addition to meeting federal safety regulations, healthcare facilities may need to meet accreditation standards, many of which directly parallel OSHA and other federal safety regulations. This article illustrates how the industrial hygienist can be an integral resource in the healthcare industry.

IH CONCERNS IN HEALTHCARE

In 2004, NIOSH published "Preventing Occupational Exposures to Antineoplastic and Other Hazardous Drugs in Health Care Settings." Appendix A of this alert includes a sample list of hazardous drugs, compiled from information provided by key institutional lists as well as from Pharmaceutical Research and Manufacturers of America. Since its original 2004 publication, the guide continues to be updated; the most recent drug list was published in 2016. The alert and corresponding hazardous drug list are helpful in understanding hazardous drugs, their potential health effects on workers, and how the drugs should be handled according to the hierarchy of controls. The industrial hygienist is in a key position to assist with drug handling policies, hazard communication, and exposure controls. (To learn more about these issues, read "Hazardous Drugs: The Silent Stalker of Healthcare Workers?" in the January 2015 *Synergist*.)

In addition to hazardous drugs, NIOSH has also published a useful resource titled "Waste Anesthetic Gases: Occupational Hazards in Hospitals." This document increases awareness about the adverse

health effects of WAGs, describes how workers are exposed to such gases, and recommends work practices to reduce these exposures. OSHA estimates that more than 250,000 healthcare professionals face potential exposure to WAGs and are at risk of occupational illness. The industrial hygienist can assist surgical departments and their staff in understanding their potential occupational health exposures when working with or around WAGs. These exposures can be mitigated through the application of many of the well-known controls used by the industrial hygienist, such as establishing a comprehensive hazard communication plan, installing and monitoring anesthetic gas scavenging systems wherever anesthesia is used, placing and monitoring proper ventilation systems, and developing a comprehensive monitoring program, to name a few methods.

Beyond anesthetic gases and hazardous drugs, chemicals that are used to clean and disinfect work surfaces and medical supplies can pose exposure risk to both employees and patients. Recently, the Infection Control Subcommittee of the AIHA Healthcare Working Group developed a guide for the selection of surface disinfection products. This publication is intended to help the industrial hygienist working in healthcare to select the best product for surface cleaning and disinfecting. The guide presents the pros and cons of many widely used products as well as how monitoring can be performed for some commonly used disinfectants. Industrial hygienists may find themselves directly involved with selecting products or consulting with other healthcare professionals, including environmental services, on how to properly use and store these chemicals. In a healthcare setting, the selection of these products is not a “one product fits all” scenario. Selection of cleaning and disinfection agents is based on the type of surface they will be used on and the organisms that need to be killed. In addition, considerations such as the type of application necessary—for example, a saturated wipe versus spray, required contact time for the product to work effectively, and proper concentrations of the chemical—must be evaluated. As new cleaning technologies, such as the use of ultraviolet lighting, emerge, an industrial hygienist can be helpful in evaluating the administrative, engineering, and PPE controls that might need to be in place when using the technologies. The hygienist’s expertise can also inform evaluation of any hazardous waste these new technologies might create, such as used UV bulbs.

As hospitals expand to meet an increased patient demand or to accommodate new technologies, construction projects have been on the rise. According to a report from the Gordian Group, spending on healthcare construction projects will increase to more than $8 billion by 2020. Construction projects in the healthcare industry must be managed in a more protective way to prevent patient exposures linked with healthcare-associated infections. Construction barriers must be designed and maintained, and construction workers need to understand how their practices must be modified to accommodate unique patient susceptibilities in the healthcare environment. The industrial hygienist’s role in healthcare construction can range from designing and utilizing engineering and work practice controls to monitoring the day-to-day ventilation of the construction space to ensure that pressure differentials are maintained for maximum patient safety. Beyond containment barriers, safety measures such as fire protection, contractor management, and asbestos and lead remediation are all areas in which the skills of an industrial hygienist can be realized. In addition, with an increased focus on water systems as reservoirs for pathogens such as Legionella and other gram-negative bacteria, hygienists’ skills in microbiology, epidemiology, and engineering can benefit an organization, as they can assist with needed risk assessments, surveillance, and necessary controls.

Essentially, a large healthcare facility can be considered similar to a small community where people live, work, and visit. As with any community, the waste that is generated can fall under many different classifications. Hazardous waste from used chemicals or pharmaceuticals, universal waste generated through maintenance activities, and biological waste from patient proceduresand laboratory activities can be a challenge for healthcare facilities to track and manage appropriately. Understanding exposure risks and the controls necessary for handling diverse waste streams can fall under the skillset of an industrial hygienist. In some instances, the industrial hygienist may be able to help streamline systems and lower costs through proper waste segregation. Significant cost savings can result from keeping items not classified as infectious waste out of regulated waste streams. Industrial hygienists can also educate staff on infectious disease exposure risks and chemical classifications.

Common OSHA citations in the healthcare industry involve many areas where the industrial hygienist has expertise. As explained in a 2012 article in *Becker's Hospital Review*, hazard communication and confined space policies are among the most cited OSHA violations in healthcare facilities. Working collaboratively with facilities management or safety professionals, the industrial hygienist can help implement policies and practices in these high-risk areas. Healthcare facilities have many areas that could meet the definition of a confined space, including laundry facilities, trash compactors, cart washers, utility tunnels and chases, air handlers, and boiler and elevator shafts. Because these areas may not have been evaluated in a confined space policy, the overall facility may be out of compliance.

Industrial hygienists also play key roles during emergency response or emerging disease scenarios. During the 2014–2016 Ebola virus epidemic in West Africa, industrial hygienists throughout the United States were engaged in the selection, training, and management activities of respiratory and personal protective equipment programs associated with their facility preparedness programs. In addition, some healthcare facilities have been identified as "Ebola Treatment Centers" by the Centers for Disease Control and Prevention; these local entities are gearing up to train and protect employees here in the United States to prevent person-to-person transmission. Under these scenarios, the industrial hygienist's familiarity with personal protection science—and his or her ability to train colleagues in it—can go a long way in facilitating staff readiness and confidence.

COLLABORATION AND COMMUNICATION

Some healthcare facilities may not be familiar with the underlying knowledge and expertise that an industrial hygienist possesses. One challenge that an industrial hygienist might face is that an organization may place more emphasis on patient safety than on staff safety. Because financial incentives are offered for patient satisfaction, staff safety may not always receive the attention it deserves. The role of the industrial hygienist takes the safety considerations of the patient, employee, and public into consideration. In a healthcare organization, it is crucial that the industrial hygienist understand the roles of the other professionals with whom they will collaborate. These roles include infection preventionists, occupational/employee health managers, and facilities and safety management. Hygienists may also find themselves consulting with physicians, nurses, other medical staff, and contractors in order to communicate those effective practices and controls needed to protect a diverse population. As in other industries, it can be common in healthcare for communications to stay in only one department and not be disseminated to others—an example is an industrial hygienist conducting exposure-level testing in a laboratory and the exposure results not being shared with occupational/employee health. Ensuring that information is shared widely not only saves resources but is key to employee health and safety.

Participation in organizations such as the Association for Professionals in Infection Control, AIHA's Healthcare Working Group, Association of Occupational Health Professionals in Healthcare, and the American Society for Healthcare Engineering can help industrial hygienists remain educated and aware of current practices and research in the healthcare environment. Many national organizations have local chapters whose members include representatives from local healthcare facilities. It is important that healthcare administrators and industrial hygienists alike realize the benefits of working with each other to create a safe environment for the patient and the employee. Although the work can be challenging at times, industrial hygienists in a healthcare environment will find themselves rewarded by a unique career opportunity.

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Send feedback on this article to the author and *The Synergist*.

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RESOURCES

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