Police officers are 4 times more likely to be fatally injured and 17 times more likely to suffer a nonfatal injury or illness than the average worker for all occupations in the United States.¹

While transportation incidents and violence are the two leading causes of fatal and nonfatal injuries, police officers are exposed to a wide variety of occupational hazards. These include exposures to hazardous drugs, lead, noise, carcinogens,
bloodborne pathogens, back injuries, and heat stress.²

High-performing organizations in hazardous industries ranging from nuclear energy to pharmaceuticals have demonstrated that injuries, illnesses, and fatalities can be prevented and do not need to be accepted as a cost of doing business. The key to their success is the employment of the industrial hygiene philosophy and safe work practices. Unfortunately, industrial hygiene is not well understood in law enforcement and very few agencies employ safety professionals.

Industrial hygiene is the science and art devoted to the anticipation, recognition, evaluation, and control of workplace hazards that can impair the health and well-being of workers.³ These hazards fall into three classes: physical (e.g., high-noise levels in gun ranges), chemical (e.g., lead or hazardous drugs), or biological (e.g., bloodborne pathogens). Industrial hygiene practitioners, often referred to as Occupational and Environmental Health and Safety (OEHS) professionals, are trained and experienced in engineering, chemistry, biology, physics, toxicology, and related scientific disciplines. OEHS professionals identify the scope and extent of workplace hazards and formulate potential solutions to limit the risk of an injury, illness, or fatality.

At its core, industrial hygiene is a four-part problem-solving strategy. The first step is to identify potential hazards. Many hazards, such as vehicle collisions during traffic stops, may be well-known and understood in the law enforcement community. However, some hazards are not readily apparent or are poorly understood. If not fully characterized and controlled, these unknown hazards may have catastrophic consequences for the individual police officers and the mission of the agency. For example, the illicit drug trade has undergone a shift to more potent synthetic drugs such as fentanyl. Recent work by the National Institute for Occupational Safety and Health (NIOSH) highlights the potential hazards to law enforcement and other first
responders. As a result, many law enforcement agencies have made substantial improvements in officer safety during drug enforcement and interdiction operations.

The second step is to characterize the extent of the hazard. OEHS professionals have the training, experience, and technology to conduct sampling and analysis of well-understood hazards—such as excessive noise and lead exposures in a gun range—and the poorly understood and emerging hazards—such as synthetic opioids and other novel psychoactive substances. Using an array of technologies, OEHS professionals can systematically and accurately characterize the scope and extent of the hazard. With data in hand, the OEHS professional consults with existing permissible exposure guidelines or other OEHS professionals to determine the relative risk.

The third step is to develop a menu of possible solutions to reduce the risk of injury or illness. OEHS professionals follow a process known as the “Hierarchy of Controls,” which provides guidance in the selection of feasible and effective hazard control solutions.

- **Elimination and Substitution:** The process begins with the most effective control methods that involve physically removing the hazard or replacing the hazard with a less hazardous alternative. For example, the most effective method for preventing exposure to lead in a gun range is to replace the training rounds with a lead-free alternative or otherwise modify the ammunition.

- **Engineering Controls:** When physically removing or substituting the hazard is not a feasible option, the next step is to introduce an engineering control. An engineering control places a physical barrier between the hazard and the worker. In the gun range example, exposure to excessive noise can be partially controlled by installing sound-absorbing wall covers or baffles to reduce the amount of sound reverberating within the range. Likewise, lead exposures can be effectively eliminated with a properly designed, operated, and maintained ventilation system, which quickly moves the air containing lead dust down range and away from the individual discharging the firearm.

- **Work Practices and Personal Protective Equipment:** When engineering controls are unfeasible or insufficient, the use of specific work practices and personal protective equipment may be necessary. At the gun range, for example, practices such as prohibiting food and beverages and requiring hand washing after shooting will limit lead exposures. The risk of excessive noise exposures and traumatic firearms injuries can be reduced by using hearing protection devices, safety glasses, and ballistic vests.
The fourth and final step is the implementation of a continuous monitoring program. The OEHS professional is trained to recognize that all safety systems are prone to decay and failure without continuous investment. New hazards arise over time, changes in work practices may increase the risk of exposure, and the methods used to control the hazards. For example, ventilation systems may lose their effectiveness if not properly maintained.

The law enforcement community can make significant improvements to the health, safety, and well-being of its members by investing in the benefits of a robust health and safety system with the help of an industrial hygienist or OEHS professional.

The American Industrial Hygiene Association (AIHA), the association for scientists and professionals committed to preserving and ensuring OEHS in the workplace and community, have developed free resources and guidance materials to help law enforcement. To learn more, visit www.workerhealthsafety.org.

Notes:


4) NIOSH, “Fentanyl: Emergency Responders at Risk.”

5) NIOSH, “Hierarchy of Controls.”

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