This report was compiled from the latest research on global occupational health and safety trends. It is designed to help safety and health professionals stay on top of the latest industry developments and best practices.
Workers and safety and health professionals alike need to work together to reduce exposure to high levels of noise, which can cause permanent hearing loss that neither surgery nor a hearing aid may correct.

Tinnitus, or unwanted ringing or buzzing in the ears, makes it difficult for many people to concentrate, relax and enjoy quiet moments, and often interferes with sleeping. Temporary symptoms may go away within a few hours but repeated exposure to loud sounds over months or years can lead to permanent damage.

With the dangers of hearing loss and the increase of hearing-loss workers’ compensation claims, employers, safety and health professionals, and hearing conservation professionals are faced with a critical question: What level of hearing protection are workers really receiving from a hearing protector? Estimated protection levels for a given hearing protector are obtained using different test methods and rating schemes, sometimes with conflicting results. The most popular performance indicator in the U.S. is the Noise Reduction Rating (NRR) label on a hearing protector package, and the most popular indicator in Europe is the Single Number Rating (SNR). These numbers are based on testing conducted when the hearing protector is fit perfectly into a subject’s ear, under ideal laboratory conditions.

However, on the job, fit can be far from perfect, and

In Australia and New Zealand the performance indicator for hearing protection is the SLC80 Rating (Sound Level Conversion).

Innovative new fit-testing systems allow employers to test hearing protectors on individual workers to validate if they fit properly in a selected device. The results are used to improve the fit and to help ensure proper protection levels.

According to the Accident Compensation Corporation (ACC) in New Zealand, the total cost of noise-induced hearing loss exceeds $40 million per year, which is double the amount of five years ago.

According to the U.S. Bureau of Labor Statistics (BLS), occupational hearing loss is the most commonly recorded occupational illness in manufacturing, accounting for one out of every nine.
Optimizing Respiratory Protection

Fit
New technology in respiratory protection has improved comfort. Reusable respirators come with a variety of head strap configurations and face-seal materials. Disposable filtering face piece respirators are available in a variety of shapes with options for headband materials and other comfort features such as exhalation valves.

Fit testing a respirator for each worker is important, and safety and health professionals know that a properly fitted respirator results in the optimal level of protection for that worker. Individual fit testing of respirators is required in the United States, Canada and the United Kingdom and is becoming more common across the globe.*

* In Australia and New Zealand, a respiratory fit test is now mandated for compliance to AS/NZS 1715: 2009 (the standard for users of respiratory protection).

Filter
Filter media used in respirators today rely on mechanical and electrostatic filtration mechanisms. Advances in filter media technology and exhalation valves for these respirators allow easier breathing for workers wearing them.

Design
The design of filtering face-piece respirators, face seals and straps continues to evolve and differ among PPE providers. Workers demand respirators that release hot, humid exhaled breath quickly to help avoid the unpleasant build up of heat inside a respirator. There is also an emerging industry need for end-of-service life indicators for respirators to help reduce exposure to airborne gases and vapors.

A CALL TO ACTION — RISK EVALUATION SHOULD BE THE FIRST STEP

No matter what industry, there will always be incidents and illness. Safety and health professionals are personally invested in making sure employees are safe. The role of safety and health professionals in reducing incidents and illness begins with recognizing, evaluating and controlling hazards. This process is sometimes referred to as a risk evaluation or hazard assessment.

Increasingly, safety and health professionals are using outside expertise to help conduct an effective risk evaluation. Performing a thorough risk evaluation helps identify the areas of risk within an environment and pinpoint the best people, processes and PPE to help minimize those risks.

The WHO ranks respiratory diseases and hearing loss as two of the top six most common workplace illnesses.*

According to U.S. OSHA, respiratory violations were the fourth most common violation among companies on 2010.*

Certain occupations and industries are associated with an increased risk of developing occupational lung diseases. They range from construction to general industry to firefighting.

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Trends in Personal Protective Equipment

Planning for the combined use of different PPE components
The majority of current PPE performance standards around the world regulate individual PPE performance separately, rather than their combined performance. This is a common cause of worker discomfort and improper use of PPE. For example, the bridge of a worker’s nose may get in the way when using eye glasses and a respirator at the same time. When PPE is competing for space on the same face and head, and the products are designed to be used individually, workers may be tempted to remove or improperly use one component or the other. As a best practice, safety and health professionals should consider all the different types of PPE being used when selecting specific models.

Manage PPE supply and demand with a vending machine
One interesting development in the safety industry is the distribution of PPE in vending machines, which are typically located at the end user company for workers to access each day. When a worker needs PPE, he or she swipes a card or enters a code to receive that equipment, and the vending machine tracks which employee and department received each piece of equipment. The machine also notifies the distributor when stock needs to be replenished. This drastically simplifies managing PPE costs because the process of counting and replenishing stock is automated.

Comfort is the key
An ongoing struggle is to make sure all employees who are supposed to wear PPE are actually wearing it on the job, all the time. Ultimately, workers decide if they wear PPE correctly. The best way to protect workers is to purchase PPE they’ll actually want to wear.

Workers demand comfortable and lightweight respirators they can easily breathe through, especially in hot environments. Respirators must also fit unique face shapes and not interfere with other PPE such as head or eyewear. They need hearing protection that matches the ear canal, is easy to insert and comfortable for long periods of time. They need powered and supplied air respirators and hard hats that are lightweight and comfortable.

SAFETY STANDARDS ARE GOING GLOBAL
The International Standards Organization (ISO) continues to develop global safety standards for PPE. Health and safety regulations are becoming increasingly stringent around the world. Some areas, including Asia and Latin America, are beginning to increase their safety and health requirements to more closely align with standards in other areas like the U.S. and Europe. The development of ISO standards will continue to change this landscape and motivate countries all over the world to align with global health and safety standards as a best practice.
Specific industries are demanding customized PPE

Standards organizations around the world typically regulate PPE performance separately from selection and use of PPE. Increasingly, certain industries and substances have unique needs that require more attention and research, and may require specific health and safety standards.

**Mining:** Hearing loss is the most prevalent occupational illness for miners, according to NIOSH. 25 percent of the mining population is exposed to levels exceeding the permissible exposure limit of 90 dBA, according to the Mine Safety and Health Administration (MSHA) in 2006.¹

**Food & Beverage:** To help ensure worker protection and strict hygiene standards for food safety, respirators need to protect against particulate hazards, such as flour or grain dust. They also need to stand out in a highly visible color, include metal-detectable parts to prevent contamination, and be designed without staples or small, detachable parts. When it comes to hearing protection, these workers need special earmuff designs that include pre-molded foam inserts to provide better thermal isolation, helping prevent moisture build up.

**Military:** Balancing communication and protection is a challenge for the military. Soldiers have an ongoing need for enhanced, clear communication during operations while simultaneously needing to protect hearing from the noise and mechanics of battle. In addition, hearing loss often has no visible external manifestation of injury and has low priority for care in a trauma setting. However, hearing loss can act as an indicator of deeper brain injury and is especially dangerous in life and death situations such as war. In the U.S., the Department of Defense Hearing Center of Excellence (HCE) was established in 2010 and expects to be fully operational in December 2013. Among other goals, the HCE is committed to leading the way toward hearing-loss prevention and restorative technologies for all service members and veterans.

Sustainability has unique importance in PPE

Companies providing PPE are taking a more holistic approach to sustainability, addressing how to improve every aspect of the process, from raw materials and production to transportation and logistics, customer use and disposal.

Manufacturing PPE is reported to use about 10 percent of all clothing and technical textiles worldwide, according to Health & Safety Middle East (HSME) Magazine.² The PPE industry also uses polyester, polyamide, polyethylene and other polymers derived from fossil resources. In addition, increasingly technical demands of PPE lead to the use of materials such as aramides, flour-based membranes and finishes or phosphates, which are also derived from fossil sources. Looking ahead, PPE manufacturers may leverage biopolymers for disposable PPE and other alternative natural fibers such as linen and hemp.

PPE maintenance also deepens its carbon footprint. Safety and health professionals can help extend the lifetime of PPE by improving tracking and tracing of equipment. Adding end-of-service indicators can help automate the process of tracking and maintaining PPE.

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PPE AWARENESS IS ON THE RISE AT WORK AND AT HOME

More than 43 million active “Do-It-Yourselfers” took on home improvement projects last year.³ One in five people reported suffering from injuries while doing various maintenance projects in their home.⁴ For example, power tools can be noisy and ear plugs can help reduce exposures to potentially harmful noise that DIYers may encounter.
Q&A

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What does the future hold for safety and health professionals when it comes to providing worker safety?

A 2011 report prepared for NIOSH titled “National Assessment of the Occupational Safety and Health Workforce” notes the estimated number of safety and health professionals employers expect to hire in 2011, and over the next five years, is substantially higher than the number estimated to be produced from OS&H training programs. The report reveals that the OS&H workforce is graying with an average age of over 50 for many of the disciplines. While this is cause for great concern, it also represents tremendous opportunity for younger OS&H professionals currently in the workforce.

What advice do you have for safety and health professionals?

Employers are looking for OS&H professionals that are educated and skilled in more than one discipline and have training in non-core competencies, especially leadership and various forms of communication. The OS&H professional of the future needs to be well rounded, able to effectively lead and engage with leaders, have good communication skills and understand how OS&H integrates with other improvement initiatives and business processes.

What are the major trends happening in safety and health today?

Even though recent U.S. fatal occupational injuries reports show a slight decline in worker fatalities, 4,547 workers died from on-the-job injuries in 2010 compared to 4,551 in 2009. The fact that fatalities are not significantly decreasing should be a call to action, not complacency, especially in an economically challenging time when some of the most dangerous industries are not at full employment. A statistical plateau of worker fatalities is not an achievement, but evidence that this nation’s effort to protect workers is stalled. These statistics call for nothing less than a new paradigm in the way this nation protects workers.

What advice do you have for businesses when it comes to occupational safety and health?

They should not cut back on occupational safety and health systems during an economic downturn. When a robust economy returns, it will come back to severely haunt them in the guise of increased health care and workers’ compensation costs, production delays, reputation damage and much, much more.

In addition, as more of our global ASSE members are implementing improved safety and health programs at work sites outside the U.S., they are seeing the major positive benefits beyond improving worker safety — a protected brand reputation, a better bottom line and a consistent program across international operations.

How has the safety and health profession changed in the last 40 years?

It is beginning to focus on the business of safety. The safety and health professional must demonstrate to his or her employer that safety is not just compliance or regulation driven. He or she must demonstrate the financial benefits. For every dollar invested in a safety program, four to six dollars are saved because injuries and illnesses decline or are prevented, medical and workers’ compensation costs decrease, absenteeism decreases, turnover and delayed production time go down, and employee morale goes up.
To learn more about safety equipment and solutions, contact your local 3M representative.

Australia TechAssist: 1800 024 464  
Australia Website: www.3m.com.au/ppesafety

New Zealand TechAssist: 0800 252 627  
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References


