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# Hearing Protection Training: A Deep Dive into Standard 1910.95(a)

The Occupational Noise Exposure mandate (OSHA's 29 CFR 1910.95) requires employees exposed to 85dBA TWA be enrolled in a Hearing Conservation Program (HCP). Employers are required to ensure employees participate in hearing conservation training for the duration of their employment. This should begin with initial orientation training, followed by annual reinforcement.

Section 1910.95(a) part of the standard initiates and establishes a hearing conservation program to protect personnel from the effects of occupational noise exposure. Here is

a short look at the “what,” “who,” “how” and “when” of hearing conservation implementation.

## What Should be Taught

OSHA's CFR 1910.95 includes specific guidance as to what topic areas must be covered annually. The required topics can be broken into three groups of information:

1. The effects of noise on hearing
2. The purpose of hearing protectors; the advantages, disadvantages and attenuation of various types; and instructions on selection, fitting, use and care
3. The purpose of audiometric testing and an explanation of the test procedures

## Who Should Be Trained

According to audiologists Dr. Vickie Tuten and Dr. Kathy Gates, all employees exposed to 85dBA TWA, for even one day, need to be enrolled in the HCP. 85dBA TWA is referred to as the action level (AL) under OSHA. The program must have, at a minimum, annual testing, annual training and available hearing protection to enrolled employees. When employees reach the Permissible Exposure Limit (PEL) of 90dBA TWA, hearing protection is mandated. Annual education and training remain a constant throughout, once the AL is reached.

## How to Conduct Training

Industrial hygienists are in a perfect position to provide formal training and impromptu education, when conducting area monitoring or dosimetry. Formal training should always be documented and records maintained, in case of an audit. Informal or impromptu education serves as great reinforcement to remind workers of the importance of adopting

good hearing conservation practices, noted Drs. Gates and Tuten.

The training element is flexible and allows for creativity to be incorporated into the process. When you break the topics into the three groups of information listed above, the primary focus of the industrial hygienist would be to provide training on the “effects of noise on hearing” and “all things hearing protection.”

The third required topic, “purpose of audiometric testing and explanation of test procedures,” should be provided by the hearing technician at the time of the hearing test. The topic “effects of noise on hearing” can be delivered at any time. This could be covered during a formal training session or shared with workers while visiting individual worksites. Informal education sessions are “excellent opportunities to discuss the noise hazards being heard in participants' workplaces; how unprotected exposures to this noise hazard may result in a permanent injury/illness; and how properly worn hearing protection can mitigate the risk of a permanent hearing loss,” stated Gates and Tuten.

## When Training Should Occur

HCP training must be completed annually, and employers must ensure employee participation. The education and training element allows flexibility for the employer to provide the training at different times throughout the year, by any HCP team member. “There is not a requirement to discuss all mandated education and training topics in a single event; however, the mandatory topics need to be covered and employee attendance rosters maintained,” Drs. Tuten and Gates concluded.

**[Editor's note:** Much of the material used in this article first ran in IHW's March/April 2021 issue in an article titled “Now Hear This: Right Steps for Hearing Conservation Training.” For the entire article, go to <https://industrialhygienepub.com/hearing-now-hear-this-right-steps-for-hearing-conservation-training/>.]





# An Essential Resource for Hearing Loss Prevention Strategies



AIHA University Bookstore publications set the standard for the occupational and environmental health and safety (OEHS) profession. AIHA offers everything from continuously updated, peer-reviewed text editions to white papers covering the latest research.

One of the most recent additions to the Bookstore line-up is the [sixth edition of The Noise Manual](#). This leading resource covers the latest hearing-loss prevention strategies to protect your workplace and the community. It contains scientific content relevant to diverse disciplines, including students,

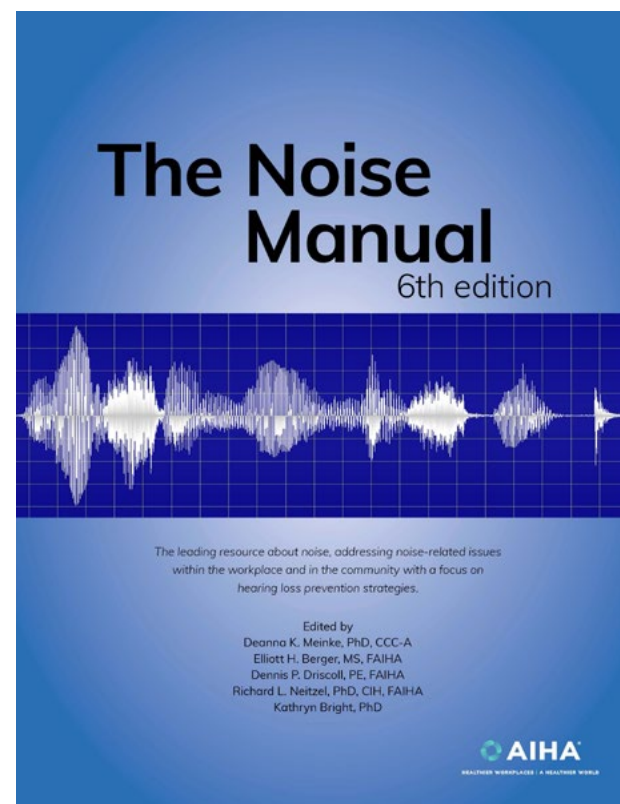
industrial hygienists, physicists, safety managers, nurses, and more.

Each chapter has been extensively reviewed, updated, and in some cases, completely rewritten by new authors who are all long-standing international leaders in the field of hearing conservation. Prior to publication, the new edition was rigorously peer-reviewed by dedicated, qualified volunteers.

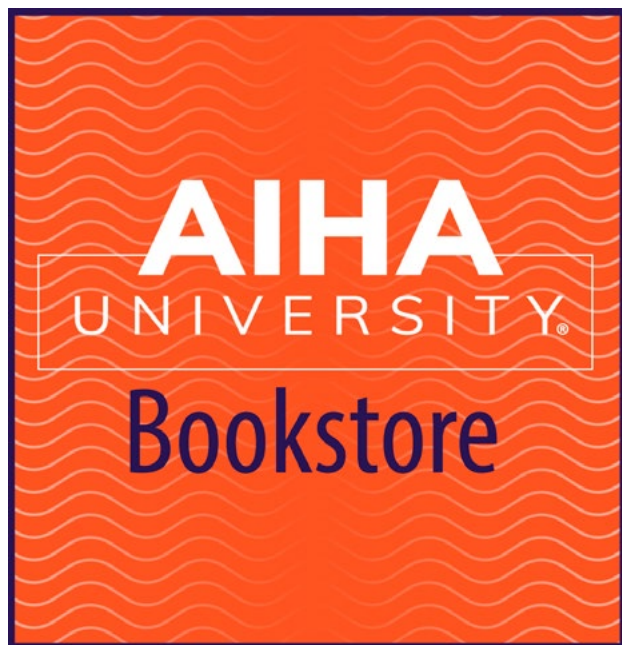
Through AIHA's online marketplace, access to print and digital versions is quick and easy. To make the content even more accessible, The Noise Manual, 6th edition can be purchased in topic bundles for as little as \$29. Each bundle includes the front cover, a full chapter, and extras like the front matter, table of contents, symbols and abbreviations, and appendices.

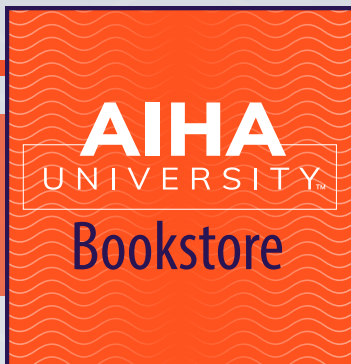
The publication includes both fundamental concepts and advanced technical information, making it the perfect addition to your IH resource library.

This resource displays just one of the ways AIHA supports IH/OEHS professionals in their pursuit of healthier workplaces and a healthier world. AIHA members can also join committees focused on hearing-loss prevention and other topics. By exchanging ideas with like-minded professionals and advocating for public support, members can help practitioners achieve best-in-class performance.



The leadership and valuable input provided by members has put AIHA on the map as the go-to resource for scientific-based education and training. Consider taking your seat at the table by [joining AIHA](#). ■





# The Noise Manual, 6th edition

## An Essential Resource for Hearing Loss Prevention

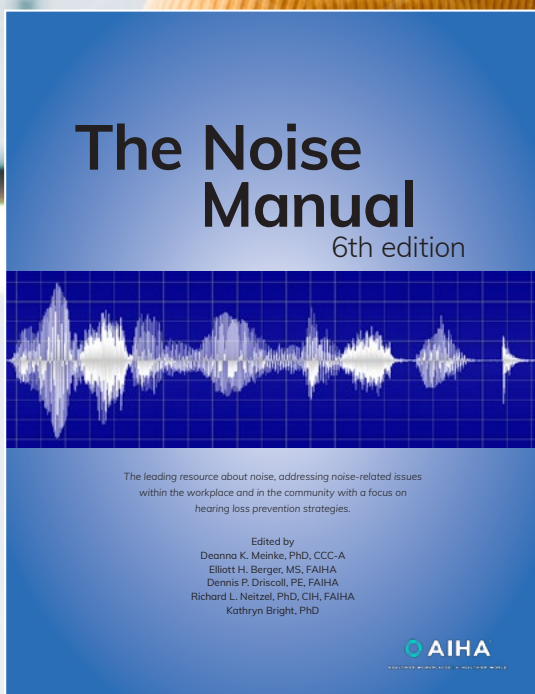
What's Inside:

- Fundamentals of sound, vibration, & hearing
- Elements of a hearing conservation program
- U.S. regulations, standards, & laws
- And so much more!

Tap into this leading resource to learn more about addressing noise-related issues within your workplace and community.

Member \$109

Non-Member \$153



Get your copy today at [bit.ly/IHnoise](https://bit.ly/IHnoise)





# Listen Up! From the NHCA Experts... Hearing Loss Prevention Protects More than Hearing

There is a general recognition of the importance of hearing and the need to protect it. However, hearing loss prevention protects so much more than hearing.

As hearing is degraded, many areas of life are affected. Communication deteriorates, and relationships can suffer. Hearing loss is associated with cognitive decline and cardiovascular outcomes, such as hypertension and coronary heart

disease. It is also strongly associated with depression. Tinnitus (ringing in the ears), which often co-occurs with hearing loss, can disrupt sleep and concentration and is associated with both depression and anxiety. Workers with hearing loss are also at higher risk for injuries on and off the job.

The impact of hearing loss on finances is often overlooked. Workers who cannot effectively communicate are less likely to

be promoted, and workers with hearing loss often suffer career decrements. Income is typically lower among these workers than among workers with normal hearing. Workers who develop profound hearing loss may have to leave the workforce entirely, especially in hearing-critical occupations.

Other costs include hearing aids and healthcare for the conditions discussed earlier, such as heart problems and mental health. To highlight the impact of hearing loss on quality of life and encourage prevention, the [NORA Hearing Loss Prevention Cross-Sector Council](#) produced the first in a series of short motivational videos, hosted by [NHCA](#). They feature

conversations with noise-exposed workers who have experienced hearing loss and/or tinnitus.

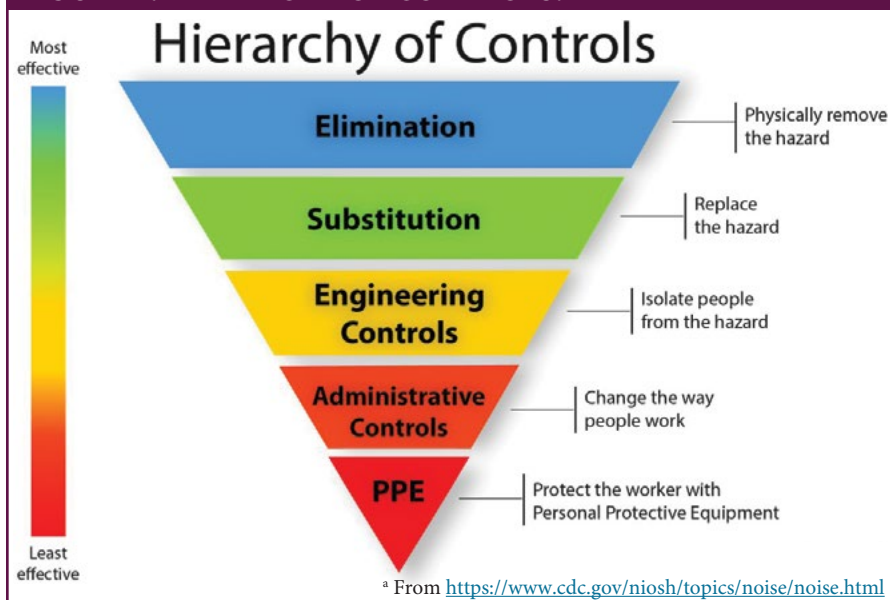
Fortunately, occupational hearing loss can be prevented. [NIOSH](#) has produced new hearing loss prevention guidance, using the hierarchy of controls (see image). Actions that workers, employers and safety professionals can take to prevent exposures to the hearing hazards of [noise](#) and [ototoxic chemicals](#) are provided in detail. With so much more to lose, hearing loss prevention should be a priority. ■

[To view the motivational videos discussed in this article, go to: <https://nhc.memberclicks.net/hearing-is-quality-of-life>]

Elizabeth A. Masterson is a National Institute for Occupational Safety and Health (NIOSH) Research Epidemiologist and National Hearing Conservation Association (NHCA) Expert. Visit NHCA at: <https://www.hearingconservation.org/>

**Disclaimer:** The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention.

**FIGURE 1: HIERARCHY OF CONTROLS.<sup>a</sup>**



# Next-Generation Hearing Protection From ISOtunes



ISOtunes is not just a brand; it's a commitment to your safety and comfort. We embarked on our journey with the goal to redefine hearing protection, driven by a desire to improve the lives of people who work or play in loud environments. Our dedication to innovation led to the development of products that go beyond traditional ear protection.



A [family-built consumer safety brand](#), ISOtunes merges hearing protection with enhanced audio and communication technology. As a global industry leader, ISOtunes [earplugs](#) and [earmuffs](#) allow the hardest workers to listen to what they want, when they want, no matter their environment. Whether you're a hobbyist or a professional, we're here to provide the "ISOtunes Difference" with innovative, superior quality products and unsurpassed customer service.

## NEXT-GENERATION HEARING PROTECTION:

ISOtunes products are proven to enhance workplace productivity while increasing OSHA compliance and employee satisfaction. We offer a range of products tailored to various needs and preferences, earning the trust of renowned brands including Duke Energy, Michelin, Spirit Aerosystems, and more.

- **Compliance:** All ISOtunes products are ANSI-tested, NRR rated, and volume-limited for OSHA compliance.
- **Increased productivity:** Connectivity fuels productivity. ISOtunes products allow users to seamlessly connect to mobile devices, 2-way radios, computers, mesh networks, and more, all while keeping their ears protected. Workers who listen to music on the job are 90 % more likely to report an improvement in job satisfaction and productivity.
- **Employee satisfaction and retention:** Passive hearing protection can be far from inspiring. That's why we've created the Next Generation of Hearing Protection™ – a line of products designed not just for safety, but to enhance user experiences.

## NEW: ISOTUNES LINK 2.0 HELMET MOUNT

[ISOtunes LINK 2.0 Helmet Mount](#) is the ultimate solution for professionals in need of both head and ear protection on the jobsite. Specifically designed for individuals working in construction or job sites where hard hats are essential for safety.

Easily attaching to hard hats, it not only ensures safety but also enhances user experience by providing audio capabilities and the option to take calls. Featuring Bluetooth connectivity and up to 50 hours of battery life, it promises convenience and all-day wear, affirming

ISOtunes' commitment to integrating safety with technology.

These helmets have been tested to ensure proper hearing protection. Other models are compatible with the product's universal clip:

- MSA V-Gard
- ENHA Radius
- Arco Champion Plus
- Centurion Nexus Safety - Linesman

Ready to bring your team the next generation of hearing protection? [Visit our website](#) and contact us. An ISOtunes representative will get back to you within one business day. ■





# Noise Pollution in Industrial Settings

The National Institute for Occupational Safety and Health reports that [22 million](#) workers are exposed to hazardous noise levels annually. Employees across all industries are vulnerable to the effects of noise pollution. However, those in industrial workplaces—mechanics, factory workers, construction workers, etc. —must take extra precautions to stay safe and reduce noise pollution.

This article discusses some of the most well-known causes of noise pollution and how loud noises can affect worker well-being. It also breaks down steps employers can take to comply with the latest regulations regarding noise pollution and keep employees safe—now and in the future.

## The Impact of Noise Pollution in Industrial Settings

Ongoing exposure to noise pollution in industrial settings is, understandably, associated with hearing loss. It can

also contribute to other health problems, including the following:

- Elevated blood pressure
- Increased stress and anxiety
- Fatigue
- Sleep difficulties
- Headaches
- Increased anger and emotional regulation difficulties

Loud noises in the workplace also impede employee communication efforts and can lead to misunderstandings and mistakes—some of which could be dangerous or even life-threatening—especially in the industrial field, where workers frequently use heavy machinery.

## Occupational Noise Regulations and Standards

The Occupational Safety and Health Administration states that, during an 8-hour day, noise exposure must be at or below 85dBA (decibels). Hearing damage can occur when someone is exposed to noise at or above this level, especially for extended periods.

What does 85dBA sound like? It's comparable to the noise made by a blender or hair dryer, or the sound of a noisy restaurant. OSHA also suggests that, if you have to shout to be heard from three feet away, the noise level is likely around 85dBA.

## Common Noise Generators in Industrial Workplaces

Numerous machines and devices can contribute to noise pollution in an industrial workplace, from jet engines at an airport to chainsaws used by loggers. The table below shares some of the most common noise generators and the amount of noise (in decibels) they produce:

Noise Source	Average Noise Level
Jet engine	Approximately 140dBA
Bulldozer	Approximately 120dBA
Jackhammer	Approximately 120dBA
Nail gun	Approximately 110-130dBA
Chainsaw	Approximately 91-110dBA
Factory machinery	Approximately 92-96dBA

## Most Effective Noise-Reducing Technologies and Equipment

Loud noises and noise pollution are unavoidable in many industrial settings. However, employers can take steps to reduce sound in their facilities and protect employees from the harmful effects of prolonged exposure.

### Facilities

In industrial facilities, the following tools and technologies have been shown to help minimize the effects of noise pollution:

#### Constrained Layer Damping

Damping reduces vibrations and allows machines to run more quietly. Constrained layer damping is particularly effective ([30% more](#), in some cases), as it reduces vibrations and prevents the damping layer from becoming damaged over time.

#### Noise-Canceling Windows

Putting the loudest machinery behind noise-canceling windows can help to isolate it and reduce the total exposure employees have to it. One study found that these windows could reduce sound by [50%](#).

#### IoT Noise Cancellation

Some facilities have seen success with Internet of Things (IoT) noise cancellation systems. These systems contain sensors that pick up on incoming soundwaves. The sensors



Loud noises and noise pollution are unavoidable in many industrial settings, but employers can take steps to reduce sound in their facilities and protect employees from the harmful effects of prolonged exposure. (photo courtesy PlantTours)



Controlling noise pollution in industrial workplaces benefits employees, leaders and the entire company. (photo courtesy PlantTours)

then trigger sound emitters to play counteractive noises (through headphones) that cancel out the incoming sound waves before they reach workers.

### Nanotechnology Soundproofing Foam

Soundproofing foam is one of the oldest, but also most effective, options for blocking vibrations and sound. Nanotechnology foam is particularly effective at absorbing vibrations. It also converts them to heat!

### Workers

In addition to making changes to the facility, employers can also empower workers by providing them with tools to protect their hearing, including these popular and effective options:

### Earplugs

Earplugs are some of the most popular options for blocking sound and protecting hearing, primarily because they're easy to use and affordable. Earplugs can be pre-molded or made from moldable foam that conforms to the shape of the wearer's ear. The latter option is typically more effective.

### Semi-Insert Earplugs

Semi-insert earplugs can't be pressed fully into the ear canal. They're also held in place with a connecting headband. These

earplugs can be effective in some environments, but they're not customizable, making them a poor fit for some users.

### Earmuffs

Earmuffs feature soft ear cushions that are covered by a hard outer shell. They sit over the entire ear and are held together with a headband (which is often adjustable). Earmuffs are often considered the best option for blocking sound.

### Double Hearing Protection

In extra-loud environments, [effective hearing protection](#) such as wearing earplugs and earmuffs is the best approach. Doubling up prevents loud noises from sneaking through and damaging the worker's hearing while they're performing tasks with specific types of machinery.

### Benefits of Noise Reduction in the Workplace

Controlling noise pollution in industrial workplaces benefits employees, leaders and the entire company. The following are some of the greatest advantages that result from prioritizing noise reduction:

**Reduced Hearing Loss Risk:** Naturally, reducing noise—either through tools like soundproofing foam or equipment like earmuffs—will reduce employees' risk of experiencing hearing loss. This reduction is especially likely if employers

start implementing these devices before warning early signs of hearing damage occur.

**Improved Psychological Health:** Noise pollution has psychological effects as well as physical. By controlling noise in industrial workplaces, employers can protect employees' mental and emotional well-being, creating a more supportive culture and increasing employees' job satisfaction.

**Improved Communication:** When employers dampen loud noises, they make communication easier for employees. Improved communication reduces the risk of misunderstandings and helps people complete tasks correctly the first time. Fewer misunderstandings and mistakes, in turn, enhance performance and increase productivity across the board.

### Final Thoughts

From hearing loss and trouble with mood regulation to decreased productivity, noise pollution in the industrial workplace can contribute to numerous issues for employees and employers. Fortunately, employers can take many steps to reduce noise, protect employees and create a more efficient workplace. Those interested in experiencing these benefits should implement the strategies discussed above, especially those regarding double hearing protection for their most vulnerable employees. ■



### About the Author:

*Rick Farrell is President of PlantTours. Farrell is North America's foremost expert in improving manufacturing group communication, education, training and group hospitality processes. He has over 40 years of group hospitality experience, most recently serving as*

*President of [PlantTours](#) for the last 18 years. He has provided consulting services with many Fortune 500 industrial corporations, improving group communication dynamics of all types in manufacturing environments.*



# TSI® Quest™ Edge 7 Personal Noise Dosimeter



UNDERSTANDING,  
ACCELERATED

When you looking for a solution to help identify hearing loss threats and inform the design of hearing protection programs and engineering controls in the workplace, look no further than the all-new TSI® Quest™ Edge 7 Personal Noise Dosimeter. With its unparalleled capabilities, durable design, and intuitive software, this dosimeter helps to safeguard your workforce against the threats of hazardous noise levels.

The Quest™ Edge 7 dosimeter is packed with a range of features that empower you to take control of your noise exposure data. Its user-configurable settings ensure that you can tailor the dosimeter to meet your specific requirements without any additional upgrade charges. Here's a glimpse of what it offers:

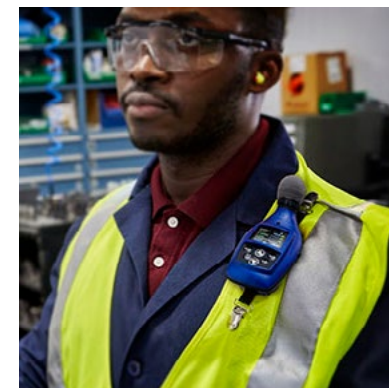
- **1/1 Octave Band Data Analysis:** This feature enables the administrator to determine the most appropriate hearing protection device based on specific and individual variables at the users' ear. It also aids in validating engineering controls and identifying necessary modifications.
- **Voice Notes:** Capture verbal notes about locations, descriptions, or noise events, which are seamlessly integrated into the time-stamped data set for future reference during post study analysis.



- **Ceiling Threshold Monitoring:** Keep track of the frequency that harmful noise dB levels exceed pre-set thresholds and trigger times. This information guides your decisions on implementing engineering controls and adjusting hearing protection devices and requirements.
- **Audio Recording Function:** Automatically record audio when noise levels exceed a configurable dB level. This feature not only aids in diagnostics but also saves valuable time during analysis.
- **Pause Study Functionality:** Eliminate noise data during breaks, location or shift changes, or off-site travel, ensuring a more accurate representation of working conditions.

In addition to its powerful capabilities, the Quest™ Edge 7 is built to withstand the toughest conditions. It features an easily removable and robust windscreen, a durable ½ inch MEMS microphone, and a shock-resistant rubber overlay for an extra layer of protection. This durable and compact design mounts easily and securely on your shoulder, allowing for freedom of movement without compromising performance.

To further streamline your noise exposure management the dosimeter is available with intuitive Detection Management Software (DMS). This software simplifies the process of monitoring



and analyzing noise exposure data, identifying trends, and taking proactive measures to protect your workforce. Compatible with various TSI® Quest™ data logging instruments, the DMS program provides comprehensive recording, reporting, charting, and analysis of exposures to occupational and environmental hazards.

Don't wait to enhance the safety and well-being of your workers. Get in touch with us today to learn more about the Quest™ Edge 7 Personal Noise Dosimeter. With its powerful capabilities, durability, and user-friendly software, it's the go-to and trusted solution to see through the noise and safeguard your workforce from hearing loss threats. ■

Learn more at <https://tsi.news/3LyxTWt>.

# See Through the



In a work environment filled with noise, it's crucial to have a device that cuts through the clamor to provide real-time, reliable data in identifying noise-induced hearing loss threats.

Help protect your workers from hazardous noise levels in the workplace with the all-new

## **TSI® Quest™ Edge 7 Personal Noise Dosimeters.**

Its **countless capabilities** provide accurate data on noise exposure levels.

The **durable** design and **intuitive** Detection Management Software makes it a true powerhouse.



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# New Hearing Protection Options for Workers With Hearing Loss

In today's global environment, the ramifications of excessive noise exposure could not be more apparent. According to the World Health Organization (WHO), unaddressed hearing loss is the third most common health disability—ahead of diabetes, vision loss or cancer. The two primary factors causing hearing loss are excessive noise exposure and aging-related presbycusis.<sup>1</sup>

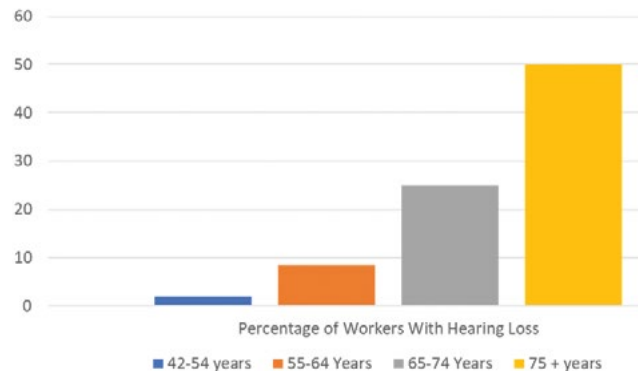
Traditionally, reaching 65 years of age meant a person had become an “old timer,” ready for retirement. Due to better healthcare and knowledge of successful medical treatments, the 21st century finds people working longer and, simultaneously, experiencing hearing loss due to aging in addition to excessive noise exposure. In a study<sup>2</sup> of 83,000 subjects that compared people who retired to those who worked past age 65, those who worked past age 65 were about three times more likely to report good health and about half as likely to have serious health problems, such as cancer, heart disease or severe hearing loss. The number of workers over age 65 has been increasing for some time. According to U.S. Bureau of Labor Statistics (BLS), from 1977 to 2007 there was a 101% increase in employed people who were over the age of 65.<sup>3</sup>

Not all Baby Boomers are itching to retire. Because a substantial portion of the U.S. workforce is older, it is imperative to recognize the possibilities that one of the potential issues in this group can be a moderate-to-severe hearing loss.

## The Plight of Workers with Hearing Loss

Among all noise-exposed workers, 19% have a level of hearing impairment that impacts day-to-day activities, such as understanding speech and enjoying routine activities. The incidence of hearing loss in the U.S. is well known.

Figure 1 shows data<sup>4</sup> suggesting that, due to a combination of possible previous noise exposure complicated by presbycusis (old age hearing loss), the likelihood of older workers with a significant hearing loss is much greater than with younger workers. In most cases, younger workers can use traditional hearing protection devices (HPDs), while older workers with a hearing loss may require filtered or electronic devices that provide situational awareness.



## Situational Awareness and HPDs

Situational awareness is described as an acoustical awareness of environmental surroundings, as being able to detect, recognize and identify the source of the sound. Hearing warning sounds from alarms or machinery in addition to localizing environmental sounds is a critical concern for the safety of the employees, as well as for those who work near them.

One way of preserving situational awareness but maintaining hearing protection is to attenuate (reduce) damaging noise. However, too much attenuation has long been recognized as a serious concern in industrial, military and recreational hearing conservation. Over-attenuating may contribute to employees



Various types of filtered and unfiltered passive HPDs. Image courtesy of E.A.R. Inc.

being unable to adequately communicate with coworkers or hear critical sounds, such as alarms or equipment noise, resulting in modifying the fit of the assigned HPD.

Passive HPDs can be frustrating for the hearing-impaired seeking to preserve their hearing. Active HPDs have been proven to offer great benefit to both those with normal hearing and those with a noticeable hearing impairment. Options include filtered ear protection, in addition to digital electronic devices that amplify critical sounds while attenuating loud sounds, such as wind or impact sounds. For employees with moderate to severe hearing loss, if they are not programmable, they can contribute to poorer hearing.

These researchers state that, when substantial hearing impairment is present, especially in the case of hearing aid users, decisions regarding employment in noisy occupations and/or the use of hearing protection are not clear cut. This has always been the view of OSHA and industrial audiology consultants, as standard hearing aids are not designed to be used as an ear protector.

## HPD Solution: Moderate-to-Severe Hearing Loss

Just in time for the increasingly numerous older workers and those that have noisy recreational activities, new technology has become available that makes special hearing aids multi-functional. They can now be programmed to an individual's



Various types of active HPDs. Image courtesy of E.A.R. Inc.



E.A.R. Inc. multifunctional hearing aid. Image courtesy of E.A.R. Inc.

hearing loss and modified to work well as an ear protector. Basically, these devices use special ear couplings to the ear to facilitate its use in both modes: as a hearing aid and as an HPD. These instruments usually begin as a lower technology device but may be upgraded by audiologists and hearing aid dispensers as necessary, to offer premium technology through a simple upgrade. One study<sup>5</sup> found that those experiencing tinnitus (ringing in the ears) had a reduction in the problem 65% of the time when wearing hearing aids.

In summary, there are more individuals today working in noisy industrial environments or enjoying recreational activities past the age of 65. Fortunately, there are now multifunctional hearing aids that can be incorporated to allow them to continue working or enjoying noisy hobbies. While they are not the over-the-counter type of hearing devices, multifunctional programmable instruments *are* a reality, enabling better hearing and improved safety for those with moderate-to-severe hearing loss. ■

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### RECOMMENDED READING

- BLS 2008 report: *Older workers: Are there more older people in the workplace?*
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# Casella

Casella's dBadge2 noise dosimeters capture every possible noise exposure-related parameter in a single measurement run and make it available for subsequent download and analysis. dBadge2 Personal Noise Dosimeter Kits allow remote start, stop, or pause of a measurement run without interrupting the user—ideal for hazardous locations, positions, and filed data capture.

## CASELLA

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Transmit sound level measurements through Bluetooth® 4.0 wireless connectivity to increase productivity—no need to stop working to download readings! Dose, status, level alerts and more can be accessed through the free Airwave™ app and sent directly to your Apple or Android enabled device. Casella's dBadge2 noise dosimeters capture every possible noise exposure-related parameter in a single measurement run, and make it available for subsequent download and analysis. Email summary data, photographs, and even notes for review or inclusion in reports.

Ensure the correct hearing protection is chosen for each application and location. The measurements taken are in accordance with CFR 1910.95, ISO 9612:2009, and UK Guidance document L108. The LCD displays current noise levels in color-coded format for easy interpretation of alarm conditions at a glance. Use the preset alarm limits to adhere to OSHA, ISO, MSHA, and ACGIH guidelines, or set your own.

Each personal noise dosimeter comes with two mounting clips, one at the top and one at the bottom, for secure shoulder attachment and features a reliable and robust 1/2" diameter microphone with windscreen.

The dBadge2 downloads to the latest software package, Noisesafe. Casella's

NoiseSafe software saves the user time with its instantaneous reporting on an employee's noise exposure levels. Linked to the dBadge2, the software downloads a typical eight-hour workplace recording in just a few seconds. Audio and motion can be analysed to determine if any of the data is erroneous, which can be quickly and easily removed from exposure data, giving confidence in the results.

Designed to simplify downloading, reporting and analysing the data from Casella's dBadge2, our NoiseSafe software is free and available with each purchase any of our noise dosimeters. Support your noise exposure compliance and hearing conservation program with the easy generation of professional reports using Casella's NoiseSafe software. Easy analysis of the results from tests allow for compliance to legislation saving yourself time. Should you have any spurious noise readings; these can easily be selected and excluded from exposure results.

Tim Turney, Global marketing Manager at Casella explains, "The software is designed to make noise assessments easier for managers concerned with the health of their employees. The graphs and data produced can easily be customised depending on the user's requirements, making reporting pain-free and quick."

Casella's NoiseSafe software is available Free with any purchase of the dBadge2.

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Casella is dedicated to reducing occupational health and environmental risks and supporting businesses with their monitoring and analysis needs. For more information about Casella's advanced dBadge2 and NoiseSafe software visit, [www.casellasolutions.com](http://www.casellasolutions.com).

# Avoiding Prolonged Noise Exposure

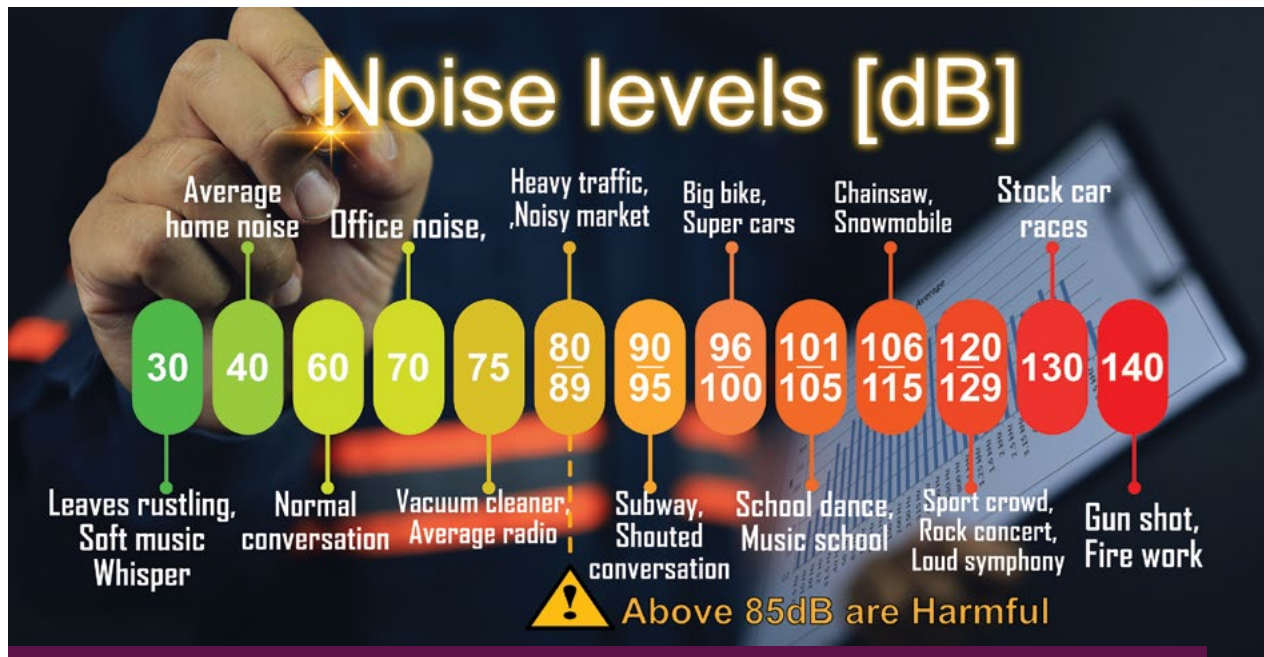
*“Earning a living should not come at the expense of hearing loss.” – William Donovan, OSHA Acting Regional Administrator*

Overlooking prolonged noise exposure is an expensive proposition.

- According to the [CDC](#), hearing loss is the third-most common chronic physical ailment in adults, after hypertension and arthritis.
- Nearly one in 10 people endure noise levels at work loud enough to cause hearing loss, while seven in 10 experience moderately loud noise levels, reports the [Bureau of Labor Statistics \(BLS\)](#).

- BLS’s Occupational Requirements [Survey](#), published in 2019, found that more than 50% of the nation’s manufacturing workers reported not using personal protective equipment (PPE) to protect their hearing.
- Organizations spend about [\\$242 million](#) annually on workers’ compensation for hearing loss disability.

Starting in 2002, OSHA implemented hearing conservation programs that require employers to monitor noise exposure levels and protect employees, limiting noise exposure to noise at or above 85 decibels (dB) averaged over eight working hours, or an 8-hour, time-weighted average. Recently, OSHA introduced a [Regional Emphasis Program](#) to address on-the-job noise hazards in the manufacturing industry, specifically targeting organizations in the Midwest.



In 2002, OSHA implemented hearing conservation programs that require employers to limit noise exposure to noise at or above 85 decibels (dB) averaged over eight working hours, or an 8-hour, time-weighted average. (photo courtesy Adobe Stock Images)

This program aims to reduce workplace dangers; prevent workplace hearing loss; protect remaining hearing; and provide employers and workers with the knowledge and equipment to control and reduce exposure to noise for improved safety and compliance.

The first phase of the three-month outreach program includes informational mailings to employers, professional associations, local survey councils, apprenticeship programs, local hospitals and occupational health clinics, as well as OSHA presentations to industry organizations and stakeholders. Organizations can get a free consultation from OSHA experts to implement the right noise safety strategies.

The Regional Emphasis Program outlines:

- Different types of noise monitoring required of employers.
- Demands that exposure measurements include all continuous, intermittent and impulsive noise within an 80dB-130dB range. Employers must also repeat these measurements whenever changes in production, processes or controls increase noise exposure.
- Establishing and maintaining an audiometric testing program and referring employees for further testing, if necessary.
- Providing obligatory baseline audiograms and providing annual audiograms within one year of the baseline.
- Mandatory employer responsibilities in ensuring proper hearing PPE distribution and access for all workers exposed to 8-hour TWA noise levels of 85dB or above prior to them experiencing any hearing loss.

Hearing loss is avoidable with the right equipment, regular monitoring and timely intervention. It is time to use intelligent technology solutions to drive behavioral shifts and improve worker safety through worker empowerment, strategic decision-making and real-time information capture.



### Connect and Empower

Technologies such as IoT, [wearable devices](#), and sensor networks can connect industrial workplaces and provide insights to make better decisions. Integrating smart solutions into [safety processes](#) and powering them with the right technology improves worker safety.

Technologies, such as IoT and sensors, can power [industrial wearables](#) to automatically detect unsafe exposure to noise and generate local and remote alarms, based on configurable rules and policies.

### Improve Compliance and Decision-Making

Advanced worker safety solutions that use sensors and IoT can be used to drive PPE compliance. Workers are only safe if they properly use the technology and protective equipment available to them, and equipment is only effective if used in the appropriate situation. Therefore, industrial safety solutions must be intuitive and workers trained to use the correct PPE, based on the work location, job type and other parameters.

### Drive Behavior-Based Safety with Real-Time Information

Behavior-based safety (BBS) programs are easy to implement and can be boosted with help from connected technologies, like real-time location services (RTLS), digital lockouts, geofences, zone marking, real-time proximity detection and real-time notifications. These ensure access control to hazardous locations, restricting access to only those who are approved and are equipped with appropriate PPE.

BBS program success is tied to the correct use of technology and PPE by workers. By establishing the correct safety protocols and training their workforce in their use, employers can ensure that workers are more engaged and responsible towards safety and are therefore able to make workplaces inherently safer for employees. This helps to prevent things such as work-related hearing injuries or loss. ■

**[Editor's Note:** This article was originally published on Guardhat's website. For the original, go to: <https://www.guardhat.com/osh-hearing-conservation-programs-a-long-awaited-shift/>.]



Hearing loss is avoidable with the right equipment, regular monitoring and timely intervention.  
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