



It's Louder Than You Think: Are Hearing Conservation Efforts Effective Enough?

By Melissa Heche

Wham! Roar! Whoosh! Clink! There is no doubt about it—we live in an increasingly noisy world. As technology becomes more available and necessary, we find ourselves surrounded by various machines on a regular basis. Each machine contributes to escalating levels of sound to which we are habitually exposed. Studies measuring noise levels have revealed that the quieter environmental situations of today are akin to the

louder environmental situations of a century ago.

This fact makes logical sense—in the last century we have seen the advent of such things as passenger vehicles, advanced machinery, microphones and sound systems, electric musical instruments, and amplifiers. The world has gotten so much louder that we have actually become acclimated to the increased noise as our new baseline. This perceptual distortion results in a

reduced ability to objectively measure sounds as excessively loud. In fact, sounds that are at dangerous levels are often understood as much less intense. The truth is that it's all much louder than we think.

Not surprisingly, the incidence of noise-induced hearing loss (NIHL) has increased significantly over the years (Chepesiuk, 2005). Furthermore, the auditory impact is notable in younger people—sometimes before even entering the workforce. This

finding contributes to the conclusion that noise-induced hearing loss is increasingly becoming a non-occupational issue. With this significant rise in incidence, it has become a public health issue. Individuals are suffering earlier in life—cochlea damage is a consequence—and functional communicative abilities in younger adults may be compromised. The long-term impact of these issues suggests that noise-induced hearing loss is an international health emergency (Rabinowitz, 2012).

Where Is Noise? I Don't Hear Noise

People become accustomed to surrounding sounds, so that the fact that sound is dangerously loud is either unrecognizable or acceptable (Chepesiuk, 2005; Rabinowitz, 2012). The roar of the wind against the ears while driving with the window down is not a sound that people automatically relate to as being dangerously loud. Recreational activities can expose the participant to dangerous levels of noise—sometimes surprisingly so. Though golf is a fairly quiet sport, a titanium club in use is twice as loud as a steel club and places the player at greater risk for impact on the auditory system (The Telegraph, 2009). Sometimes people may ignore the dangers, such as concert goers who go to venues knowing that the bands are very loud and yet do not wear hearing protection. Some subsets of the population engage in self-deceptive practices by thinking that a particular level of exposure will not apply to them. Musicians may argue that the music they play is not loud enough to cause auditory damage. Sometimes, however, the noise is obvious but unavoidable—horns honking in traffic, roadwork, or the loud roar of trains.

Hearing Protection: A Regulation to Be Followed?

In New York City, all Metro-Transit employees wear hearing protection while working in the subway system because the continuous average noise levels within the subway cars or on the platforms have been found to be above that which can cause damage to hearing function. This is common practice: industries such as construction, mass transit, and police service employ regulated hearing-conservation programs.

a motorcycle, the rider should be required to complete a hearing conservation course so that there is understanding of the dangerous noise levels involved. When learning to play a musical instrument, the musician should be taught regarding the risks of long-term exposure to high levels of noise.

Ironically, more often than not, formal classes that involve the education of these skills do not include training regarding exposure to dangerous noise levels and the need for protection. People exposed to

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Employees are tested annually, educated regarding noise exposure, and provided with hearing protective devices, which they—for the most part—use when working (Neitzel et al, 2009).

But what about the members of the public exposed to the same noise levels, potentially for long periods each day? Who educates the public to make them aware that a hearing protection device may be necessary? Who ensures that the general public protects themselves?

People should be made aware of the potential risks of a particular activity on hearing function prior to participating. While the hunter is learning to use the gun, there should be education regarding the risks of gunshot noise. When buying

dangerous levels of noise need to be aware of this fact so that an informed decision can be made regarding protection against those dangers. Unless the participant understands the risks of the activity on hearing function, the need for the use of protection is marginalized. Without understanding the dangers, the person may not take the necessary precautions.

There are no existing standards in the education programs for certain fields—music, sound engineering, hairdressing, air conditioning installation, to name a few—that require the inclusion of a hearing conservation course within the education process. The inclusion of such a class would give the individual the tools necessary for proper employment of hearing protection practices.

But, many people learn these trades through informal programs, and may not be using the skill on an occupational level. The motorcyclist may learn to ride from his father or mother, who may not teach about hearing protection because neither internalizes the concept themselves. Still further, some people are indirectly exposed and depend on the skill and expertise of others to ensure safety—only safety is not guaranteed. Music and dance venues are notoriously loud, with sound levels far exceeding safe levels according to both Occupational Safety and Health Administration (OSHA) and National Institute for Occupational Safety and Health (NIOSH) standards.

To assume that each individual is aware of this may be an overestimation. Assurance that people are making mindful decisions when exposed to dangerous levels of noise is a key factor in controlling this increasing health issue. An argument can be made that standards should be in place for individuals who are exposed to harmful levels of sounds.

The more we can avoid the occurrence of noise-induced hearing loss, the greater the possibility of controlling this health epidemic. Logically, the increasing incidence of noise-induced hearing loss can be a costly occurrence individually, within health care, and within society. Younger individuals are struggling to accommodate in the workplace with otological issues such as hearing loss or tinnitus that result from noise exposure. The more that the occurrence of noise-induced hearing loss can be controlled, the greater the epidemic can be managed.

However, the argument against standardization suggests that personal liberties would be at stake. The thought is that freedoms to make choices, regardless of if they result

in health issues, are individual and should not be challenged. To that end, education is important. Each individual should have the capacity to make an informed decision about how and if they will protect themselves (Rabinowitz, 2012).

How to assure this information gets transmitted can be a challenge. Budgetary issues may limit hearing conservation courses, whether they are placed in formal training programs or in places that facilitate the execution of a hobby that is typically noisy (such as at a shooting range). The more that hearing health-care professionals embrace their roles and educate special populations who may be at risk for dangerous levels of noise exposure, the greater the chance to control the epidemic of noise-induced hearing loss. Targeting small groups can be effective in an attempt to direct the message functionally; noise exposure education can be directed regionally as a byproduct of the smaller groups. Educating the public on a larger scale may be functional using the Internet or social media as a conduit. The goal is to communicate the information to as many affected persons as possible to empower the at-risk population to make informed decisions regarding hearing protection.

With changing technology and an increasingly diverse world, our exposure to harmful levels of noise is consistently increasing. Our occupations, hobbies, goals, outlets, and environments may all be risking our hearing health. It is important to be aware of this fact and to provide education—on an individual, group or large-scale level—to ensure the understanding of exposure dangers. The responsibility of education and providing conservation efforts is multidimensional. It must begin with independent efforts from audiologists and expand to large-scale

communication, reaching communities, groups, and regions across the country and the world.

The goal is for the music of life to carry on, with as minimal changes in reception as can be controlled. Ultimately, it is the individual's responsibility to make a decision impacting overall hearing health care, but that decision should be an informed one. Knowledge is power; after all, it's louder than you think. **AT**

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Illustration by Johanna van der Sterre.

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