

Resources to Facilitate Classroom Instruction of Hearing Loss Prevention

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Noise-induced hearing loss isn't new – it has been with us since people started firing guns and working with loud machinery. When humans of any age are repeatedly exposed to hazardous sound levels without using adequate hearing protection, the common result is noise-induced hearing loss (NIHL). Consequences of noise-induced hearing loss include communication difficulties, lower academic performance, reduced productivity, social isolation, depression, and tinnitus (ringing, buzzing or hissing in the ears or head). Unlike many other causes of hearing loss, **nearly all cases of noise-induced hearing loss can be prevented** if people are taught to take a few simple precautions.

Children are often exposed to excessive levels of sound: loud music, real or toy firearms, power tools, fireworks, loud toys, snowmobiles or other loud engines such as jet skis or motorcycles. The effects of excessive noise exposure continue to accumulate over one's lifetime.

Teaching children to protect themselves from NIHL isn't a new idea, either. For more than 30 years, numerous experts have recommended teaching hearing loss prevention practices to children in schools (see the article "Why Aren't Hearing Conservation Practices Taught in Schools?" for a list of quotes and references dating back to 1974: http://www.healthyhearing.com/library/article_content.asp?article_id=151).

In 1990, the National Institutes of Health (NIH) held a conference on "Noise and Hearing Loss." This panel of experts made the following recommendation in their Consensus Statement: "In addition to existing hearing conservation programs, a comprehensive program of education regarding the causes and prevention of NIHL should be developed and disseminated, with specific attention directed toward educating school-age children." See <http://consensus.nih.gov/1990/1990NoiseHearingLoss076html.htm>

In 1997, the World Health Organization held the conference "Prevention of Noise-Induced Hearing Loss" in Geneva, Switzerland. Recommendations from this conference included the following: "There is a great need for creating more public awareness of the harmful effects of noise on hearing and the prevention of NIHL. It is recommended that this matter should be included in school and all health educational programmes." See

<http://www.who.int/pbd/deafness/en/noise.pdf#search='World%20Health%20Organization%20Prevention%20of%20NoiseInduced%20Hearing%20Loss%201997'>

In 2000, the U.S. Department of Health and Human Services published *Healthy People 2010*, “a statement of national health objectives designed to identify the most significant preventable threats to health and to establish national goals to reduce these threats.” *Healthy People 2010* states the following about hearing: “Prevention of noise-induced hearing loss is necessary for people both on and off the job . . . Public education can promote hearing health and behavior to reduce noise-induced hearing loss, which is a fully preventable condition.” *Healthy People 2010* objectives include the following: “Increase the use of appropriate ear protection devices, equipment, and practices; Reduce noise-induced hearing loss in children and adolescents aged 17 years and under; Reduce adult hearing loss in the hearing loss in the noise-exposed public.” See http://www.healthypeople.gov/Document/HTML/Volume2/28Vision.htm#_Toc489325915

Why aren't hearing loss prevention practices taught in most schools?

In spite of recommendations made by experts over the last three decades, basic hearing loss prevention information that could prevent countless cases of NIHL remains conspicuously absent from most school curricula. Why? Here are some of the reasons for this omission:

- Lack of public awareness about how excessive sound exposure damages hearing and the consequences of hearing loss. In general, people tend to take hearing for granted until their own hearing loss becomes so severe that it interferes with communication. Because most teachers, school administrators, and parents are not aware of the problem, hearing conservation and the preventability of NIHL are given a low priority if they are considered at all.
- Students are routinely bombarded with a plethora of health education messages including admonishments about smoking, drugs, alcohol, sex, and personal safety. Compared to the potential life-and-death consequences related to these topics, NIHL might not seem like such a big deal. School curricula are already so packed with required elements that many teachers and administrators would hesitate to add yet another public health campaign.
- Lack of effective dissemination of existing hearing loss prevention programs. Although some organizations have attempted to market their curricula and materials nationally, the total percentage of schools that ever purchased or used them is minuscule.
- Lack of perpetuation of hearing loss prevention education. A relatively small number of teachers, audiologists, nurses, or trained volunteers present hearing conservation curricula in selected classrooms across the country. However, if the person who implemented the program retires, moves, or stops making such efforts for other reasons, hearing conservation education in those schools usually diminishes or ceases completely.

- Lack of a mandate. According to the Occupational Safety and Health Administration's Occupational Noise Exposure Standard and Hearing Conservation Amendment (published in the Federal Register on March 8, 1983), if workers are exposed to excessive sound levels, "the employer shall administer a continuing, effective hearing conservation program." (29 CFR Part 1910.95c1) Even though children are often exposed to excessive sound levels, there are no policies requiring hearing loss prevention practices to be taught in our nation's classrooms.

What can be done to address these problems?

- Raise public awareness about hearing, how hearing can be damaged by excessive sound exposure, the consequences and permanent nature of hearing loss, and how and why NIHL can and should be prevented. Parents should be encouraged to implement hearing loss prevention practices at home and communicate the importance of these precautions to children.
- Inform teachers and school administrators about existing hearing loss prevention programs, curricula, and materials that can be used in classrooms.
- Persuade teachers to integrate hearing loss prevention messages into existing lesson plans on hearing, sound, music, science, math, and health.
- Qualified volunteers or health professionals such as school nurses, audiologists or speech pathologists could present hearing loss prevention curricula as "guest speakers" in classrooms. Teachers who observe the presentations should be encouraged to integrate hearing loss prevention messages into appropriate lesson plans on a regular basis.
- Seek a mandate from state and local school boards, state or federal legislatures and health agencies to implement and perpetuate hearing loss prevention instruction to each new 4th, 7th, and 10th grade class of students in all of the nation's schools on a continuing basis.

Effective prevention of noise-induced hearing loss, as with other environmental health risks, should begin prior to one's exposure to the hazard. The *Healthy Youth!* web site within the Division of Adolescent and School Health (DASH), Centers for Disease Control (CDC) states: "Establishing healthy behaviors during childhood is easier and more effective than trying to change unhealthy behaviors during adulthood. Schools have a critical role to play in promoting the health and safety of young people and helping them establish lifelong healthy behavior patterns because: Each school day is an opportunity to teach behaviors to America's 54 million students; America's 121,000 schools provide many opportunities for students to practice healthy behaviors." See <http://www.cdc.gov/HealthyYouth/about/healthyyouth.htm>

Berger & Royster (1987) made the following statement about occupational hearing conservation programs: "In large part, what is needed is not the development of new solutions, but rather the broad dissemination of existing techniques plus the education and motivation of management and labor alike to speed the implementation of effective programs." If we substitute the words "administrators, teachers, parents, and students" for "management and labor," this statement would also apply to school hearing loss prevention programs.

The problem is *not* a lack of hearing loss prevention education materials and resources. The problem is *not* a lack of agreement among experts about what should be done. Given the paucity of hearing loss prevention instruction that is offered in our nation's schools, the problem is a lack of dissemination of this important information to our children.

My presentation at the NIHL in Children Conference on October 20 will review programs, resources, materials and curricula that can be utilized or adapted to teach hearing loss prevention practices to school-age children.

REFERENCE

Berger EH, Royster JD. The development of a national noise strategy. *Sound and Vibration* 1987;21(1):40-44.