



The Search for Hearing Loss Prevention Practices in School Vocational Programs

By Robert L. Folmer, PhD

I contacted a few Industrial Technology teachers in area high schools and asked if they would allow me to visit their shops to record sound levels of power tools while students were using them. I didn't inform the teachers about my other agenda: to find out what types of hearing protective devices were available in the classes and to observe their frequency of utilization. Walking down the hallway toward the woodshop at one school, I noticed two yellow signs attached to the outside of the door. One read, "Safety glasses and hard shoes must be worn by all persons entering the shop. No exceptions." The smaller sign declared, "Protect your eyes. Always wear safety glasses."

When I entered the room, I was transported back in time to some of my happiest days in school in the woodshop. I've always enjoyed working with wood – the fragrance of lumber, the personality of the grain, shaping, sanding and staining raw materials to create something beautiful or useful. As the students prepared to work, I revisited my past in a different way. Every student in the class put on a pair of safety glasses as soon as they entered the shop. After all, the signs on the door commanded them to do so. The instructor also wore safety glasses while he circulated among students answering questions about their projects. I noticed several pairs of earmuffs hanging near each power tool and piece of machinery in the shop. The earmuffs remained on their perches as students used table saws, radial saws, orbital sanders and routers. A dispenser box of foam earplugs gathered dust at the front of the room. I held my sound meter near students' ears and measured levels ranging from 100-120 dBA for various power tools they used. To my chagrin, this scene was reminiscent of shop classes I attended almost four decades earlier. Then, as now, no one in the shop wore any type of hearing protection.

I talked to the teacher after I completed my sound level measurements. He was surprised to learn that some of the power tools were so loud. He said that earmuffs and earplugs are always available, but students do not use them. The instructional safety video he shows at the beginning of every semester covers hearing protection, but (to no one's surprise) this does not motivate students to employ hearing loss prevention practices. A veteran of 25 years of teaching industrial technology classes, the teacher assured me that his hearing was "shot." I suppose he told me this to explain why he didn't use hearing protection devices (HPDs) in the shop. As class ended and students prepared to leave, the teacher

made an observation. "Look at them showing those earphones into their ears." It was true: most of the students were re-connecting to their iPods or MP3 players, which are banned during class. "They're getting more hearing loss from their stereos than from the machines in the shop." The truth of that observation is open to question, but the point is that like some occupational hearing conservationists he is looking elsewhere to find the problem.



Students pictured in a high school workshop.

Unfortunately, similar scenarios were repeated in all of the shop classes I visited. Students were exposed to hazardous sound levels on a daily basis. HPDs were available, but not used by anyone – including teachers. I was disappointed by the revelation that apparently no progress had been made in hearing conservation practices in my area of the country. To determine if this is a national trend, I contacted Dr. Charles Gagel, Professor of Professional-Technical and Technology Education at the University of Idaho (and Past-President of the National Association of Industrial and Technical Teacher Educators). Dr. Gagel responded by email, "I am not surprised by your findings thus far. Eye protection has always been the major personal safety issue in these laboratories. ... it falls to the instructor to establish a culture in the lab for any kind of safety practices. Machine guarding, fall prevention, and fire prevention are the foremost issues in most labs. As for hearing protection, I have witnessed very few occasions where the instructors have promoted it ... I will say that I have noticed hearing protection devices in more labs in recent years than before – not necessarily that they were being used, by the way."

Like many aspects of hearing loss prevention, the findings and recommendations are not new. Roeser (1980) wrote about a noise survey that was conducted in Dallas Independent School District woodshops. He stated, "Three pieces of equipment exceeded 105 dBA! The findings from this survey certainly suggest the need for some form of hearing conservation program at the high school level."

Woodford & O'Farrell (1983) surveyed school shops in Alabama, Ohio, Pennsylvania and West Virginia. They concluded: 1) sound levels in most school shops were potentially hazardous to hearing; 2) only a small percentage of schools furnished hearing protection or monitored sound levels; 3) students were more likely to have high-frequency

continued on page 8

Hearing Loss Prevention Practices in School – continued from page 5

hearing loss if they engaged in noisy activities; 4) students were not motivated to use HPDs.

Plakke (1985) surveyed junior high and high school industrial arts teachers in Iowa. He found that these teachers were conscientious about eye protection, but most of them never wore or required students to use HPDs. These findings prompted Plakke and colleagues to develop a guide for industrial arts students and teachers about the hazards of excessive noise exposure; to offer hearing conservation workshops at meetings of industrial technology teachers; and to train audiologists in hearing conservation practices. In 1991, Plakke conducted another survey to determine the effectiveness of these efforts. He concluded: “While small inroads to hearing conservation training of industrial technology teachers have been made, the majority of teachers are still not using hearing conservation techniques . . . While Iowa is one of the few states to require hearing conservation in educational laboratories, very few teachers and administrators are enforcing the law . . . Administrators need to be informed of their responsibility to protect the hearing of their students and teachers. The enforcement of mandatory eye protection in laboratories is strict with no exceptions. The same attitude of instructors should be expected for use of hearing protection.”

The lack of hearing loss prevention practices in school vocational programs reflects a general dearth of knowledge about noise-induced hearing loss (NIHL) in our society. For more than 30 years, numerous experts have recommended teaching hearing loss prevention practices to children in schools (see Folmer, 2004, for a list of quotes and references). In spite of mounting evidence that the prevalence of noise-induced hearing loss is increasing among children and adults – and contrary to the recommendations of countless experts in the field – basic hearing loss prevention information (that could prevent many cases of NIHL) remains conspicuously absent from school curricula.

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. A major reason for this omission is the fact that “hearing health” is not a priority (we could say it is not even on the radar screen) of the *Healthy Youth!* program within the Centers for Disease Control and Prevention (CDC). State Departments of Education and Health look to CDC for guidance about which health topics to address in our nation’s schools. Because hearing health education is not a priority at CDC, hearing loss prevention is not taught in schools. Although teachers, parents, administrators, members of school districts and school boards might be aware that excessive noise exposure is hazardous for children and adults, CDC’s Division of Adolescent and School Health provides no information or guidelines for educators about this significant problem.

Hearing specialists across the nation should ask CDC to:

- 1) Add “Hearing Health” to its list of “Important Health Topics” within the *Healthy Youth!* program. Contact the CDC through their website: <http://www.cdc.gov/HealthyYouth/healthtopics/index.htm>

- 2) Authorize and publish “Guidelines for School Programs to Prevent Noise-Induced Hearing Loss” in *Morbidity & Mortality Weekly Report (MMWR)*. CDC has published guidelines for several other school health programs in *MMWR*:

<http://www.cdc.gov/HealthyYouth/publications/guidelines.htm>

These actions will facilitate implementation of hearing loss prevention education in our nation’s schools. There is an abundance of hearing loss prevention curricula and materials that have already been developed for children and evaluated for effectiveness (Folmer, 2003). Broad dissemination of this information on a continuing basis in schools will eventually help to reduce the incidence and prevalence of noise-induced hearing loss in the United States. The time is **now** to wage a public health campaign against NIHL, a potentially debilitating condition that, according to *Healthy People 2010*, is fully preventable.

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OHC Spotlight and YOU!

We hope you enjoyed reading about Betty Stabler in the “OHC Spotlight” on page 3 of this summer issue. We think it’s interesting to read how OHCs, like you, are applying their knowledge and skills in diverse workplaces.

If you would like to be considered by the editorial staff for a future “OHC Spotlight” feature, please contact Barbara Lechner at the CAOHC office by e-mail: info@caohc.org or by phoning 414/276-5338.

Fall 2006 Council Meeting

The CAOHC Council will hold their annual committee and board meetings on Wednesday and Thursday, November 8-9, 2006 in Rosemont, Illinois at the Sheraton Gateway Suites Hotel. The Council is comprised of two representatives from each of the nine Component Professional Organizations assisting CAOHC in meeting its mission (see outside back cover for these representatives and their organizations). The Council meets to report on the status of committee projects, discuss tactics for carrying out future tasks, and to review the fiscal activities of CAOHC.