

NOISE, TOXINS AND THE AUDITORY SYSTEM

T.C. Morata

National Institute for Occupational Safety and Health, Cincinnati, 45226 USA,
tmorata@cdc.gov

Research of the last decade has indicated clearly that work-related chemicals (alone or in combination with noise) can damage hearing. In an effort to address the problem of ototoxic agents in the workplace, the National Institute for Occupational Safety and Health and the National Hearing Conservation Association co-sponsored the workshop entitled “Best Practices: Combined Effects of Chemicals and Noise on Hearing”, which was held in Cincinnati, Ohio, on April 11-12, 2002. The 71 attendees were drawn from the private sector, unions, universities, and the government, including representatives from national occupational health research institutions of France, Denmark, Sweden and Poland. The aim of the Workshop was to provide hearing loss prevention professionals with an overview of the current state of the art on the effects of industrial chemicals on the auditory system, as well as initiate discussions that would identify research priorities and specific goals. The first day of the meeting consisted of scientific presentations, and the second day was reserved for working group meetings and elaboration of recommendations based on current knowledge. At the conclusion of the meeting, each facilitator summarized the discussions for the whole attendance of the Workshop. The presentations are available at <http://www.cdc.gov/niosh/noise/noiseandchem/noiseandchem.html>.

This presentation will summarize the papers and workgroup recommendations of the Workshop and the NIOSH strategy for partnering with industry, academia, and professional organizations interested in preventing occupational hearing loss. The groups identified the following as key issues: rationale and proposal of consensus list for priority chemicals, valid administration routes for animals studies and methods for evaluating exposures of concern for workers and appropriate biomarkers, specific needs for mechanistic research, methods for assessing auditory effects of chemicals, the need for the proposal of a Response Level, an Action Level-like criterion, and recommendations for what are the actions to be taken, regarding inclusion criteria in HLPP, and appropriate components of such program and, finally, the need for information dissemination. The participants of the Workshop recognized that concurrent efforts are needed to develop and disseminate interim best hearing conservation practices until accurate safe exposure levels are defined for ototoxic agents alone or in combination with noise. Following these recommendations a NIOSH strategy has been proposed for addressing chemical and noise hazards to hearing and it involves partnering in the US and abroad with groups interested in preventing work-related hearing loss. The partnerships will include direct research collaboration, use of grant/contract mechanisms and standing workgroups to advance knowledge and distribute information. NIOSH realizes that it can only assist in a portion of this international effort. As such, NIOSH is considering an interim goal of recommending best practices and *Response Levels* to protect workers until specific safe exposure levels are determined. As with all workplace hazards, the ultimate goal for NIOSH is the development of safe exposure guidelines. Any guidelines developed as part of this effort will be for selected ototoxic agents alone or in combination with noise.

Key words: chemicals, hearing, prevention, guidelines