

# Now Hear This . . .



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## Review of Hearing Loss Research at the National Institute for Occupational Safety and Health (NIOSH)

In 2004, NIOSH requested that the National Research Council and Institute of Medicine conduct reviews of 15 programs conducted by NIOSH. One of the first program areas that has been reviewed is the Occupational Hearing Loss Research Program. The review was released in September, 2006 and a free on-line copy is available at the National Academies Press website at <http://newton.nap.edu/catalog/11721.htmltoc>.

The committee rated NIOSH's hearing loss research program as making a moderate contribution to its end outcome; improving worker health and a moderate contribution to intermediate outcome; adoption of its work by stakeholders. The committee was more harsh on the relevance of NIOSH's hearing loss research; "often the research focuses on lesser priorities and is loosely or only indirectly connected to workplace protection." "The lack of surveillance data for workers' noise exposure and incidence and severity of occupational hearing loss" was identified "as one of the fundamental knowledge gaps in the field." Although the data collected by our state-wide program are limited, Michigan is the only state that conducts such surveillance and Michigan data were noted in the report.

There were 15 specific recommendations in the report for improving NIOSH's hearing loss research program:

### Need for Effective Leadership

1. Foster effective leadership. NIOSH should ensure that the Hearing Loss Research Program and its components have leadership with appropriate technical expertise as well as skills in managing in a complex environment, mobilizing resources, promoting collaboration within the program, and increasing program coherence. All of these leaders must serve as champions of the program within and outside NIOSH and help to garner adequate resources and recruit expertise. The leaders should be respected and involved in the hearing loss prevention community and in their own fields of expertise. NIOSH should provide the overall program leader with sufficient authority to make appropriate program and budgetary decisions.

### Need for More Expertise, Particularly in Epidemiology and Noise Control

2. Recruit additional expert researchers to the NIOSH Hearing Loss Research Program staff. The Hearing Loss

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## Audiologist Licensure

Audiologist Licensing Legislation Enacted: Effective May 7, 2004, legislation was enacted which requires the licensing of audiologists. Effective September 4, 2004, the practice of audiology is restricted to those who possess a license unless they are specifically exempt from licensure.

To date, 152 audiologists have been granted licensure by the State of Michigan. For more information about the audiologist licensing and the application packet, please visit the Michigan Department of Community Health web site at:

[http://www.michigan.gov/mdch/0,1607,7-132-27417\\_27529\\_31491---,00.html](http://www.michigan.gov/mdch/0,1607,7-132-27417_27529_31491---,00.html)

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Research Program should recruit and retain experienced professionals with recognized expertise in the fields of epidemiology and noise control engineering who can exercise leadership in planning, conducting, and evaluating the program's work in these crucial areas. It is essential for the program to make gaining this additional expertise a priority.

3. Expand access to outside expertise. The program should make efforts to draw more broadly from the communities responsible for the prevention of occupational hearing loss as reviewers, conference participants, and collaborators. As part of this effort, the program should strengthen ties to the National Institute on Deafness and Other Communication Disorders and other components of the National Institutes of Health to benefit from additional interactions with the scientific researchers there. The program should also explore expanding its collaborations with noise control engineers inside and outside the federal government.

#### Better Program Planning

4. Develop a strategic plan. The Hearing Loss Research Program should develop a strategic plan that takes into account the strengths, weaknesses, and external factors identified in this evaluation. It should reflect a focus on the program's mission and serve to guide decision making about the value of projects and proposed collaborations. It should also reflect coordination with the strategic plans developed by the sector-based NIOSH research programs that may need to address hearing loss as one of several health hazards faced by the workforce.
5. Use surveillance data as well as stakeholder input to identify priorities. The Hearing Loss Research Program should make the rationale for its research prioritization more explicit, using analyses of surveillance data to the extent possible as well as the concerns and interests of stakeholders from a variety of industrial sectors to guide allocations of resources and effort.
6. Use information from evaluation of hearing loss prevention measures to guide program planning. The Hearing Loss Research Program should use information gained from evaluation of the effectiveness of its program activities to help identify approaches to hearing loss prevention that should be emphasized, revised, or possibly discontinued.
7. Systematize collaboration with regulatory partners. The Hearing Loss Research Program should establish regular means for conferring with OSHA, MSHA, and the Environmental Protection Agency to better anticipate research needs relevant to regulatory decision-making.

#### Improve Evaluation of Activity

8. Place greater emphasis on evaluation of the effectiveness of hearing loss prevention measures on the basis of outcomes that are as closely related as possible to reducing noise exposure and the incidence of

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The committee conducting the review was made up of the following individuals:

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occupational hearing loss. The Hearing Loss Research Program should implement consistent and concerted evaluation activities that inform and focus its work on hearing loss prevention. Prospective evaluations of the recommended components of hearing loss prevention programs are needed to determine which features have the most significant impacts on reducing noise exposure levels or hearing loss incidence rates. These evaluations should address actual (not just intended) worker and employer behavior and the end results of exposure levels and hearing loss.

#### Need for Surveillance

9. Initiate national surveillance for occupational hearing loss and hazardous noise. The Hearing Loss Research Program should rally expertise and resources to lead surveillance of the incidence and prevalence of work-related hearing loss and the occurrence of exposure to hazardous noise levels in occupational settings in the United States. Surveillance efforts should be accompanied by plans for appropriate analyses of the data.

#### Expand Noise Control Efforts

10. Integrate the noise control engineering perspective into overall program efforts for all sectors. The Hearing Loss Research Program should apply its dissemination expertise to further emphasize the application of “quiet by design” “buy quiet” and engineered noise control approaches to industrial settings as part of hearing loss prevention programs.
11. Develop noise control engineering approaches for non-mining sectors. The Hearing Loss Research Program should increase efforts to develop noise control approaches applicable in industrial sectors outside mining where workers are also at risk from hazardous noise. Where possible, dual-use applications from work done in mining could help bring noise reduction benefit to both miners and workers from other industrial sectors.
12. Increase the visibility of noise control engineering as a component of the Hearing Loss Research Program. The Hearing Loss Research Program should use means such as periodic workshops on noise control engineering topics to raise the visibility of its noise control engineering projects within the field. Such workshops can facilitate information exchange, can provide specialized technical training, and may attract qualified professionals who can serve as advisers, consultants, collaborators, or recruits to the NIOSH program.
13. Accredite laboratories used to conduct studies for the Hearing Loss Research Program. The Hearing Loss Research Program should work to achieve accreditation of all laboratories that are involved in the acquisition of data that are published or shared externally. To the extent possible, testing on behalf of the NIOSH intramural program should be carried out at facilities owned or controlled by NIOSH.

#### Need for Targeted Research and More Interaction Between Research Funded by NIOSH and Research Conducted at NIOSH

14. Target more of the extramural research funding. The Hearing Loss Research Program should increase its use of Requests for Applications and focused Program Announcements to target more of its extramural research funding toward program priority areas.
15. Increase collaboration and mutual awareness of ongoing work among intramural and extramural researchers. For the Hearing Loss Research Program to maximize the benefit of extramural research, it is important for intramural and extramural researchers to each be aware of the work that the others are doing relevant to occupational hearing loss or noise control. Where appropriate, intramural researchers should be building upon extramural work within the Hearing Loss Research Program. Toward this end, after a grant has been awarded, NIOSH should facilitate increased communication between intra-and extramural researchers.

**We continue to rely on your reports of work-related hearing loss to provide estimates that are used both in the state and at the national level. There are multiple ways to report both electronically and via paper and we are happy to answer any questions or concerns you have about this requirement for all licensed health care professionals to comply with Michigan’s occupational disease reporting law.**

Now Hear This...

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Address service requested.

In this issue:  
Review of Hearing Loss Research at NIOSH

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1. A history of significant exposure to noise at work; AND
  2. A STS of 10 dB or more in either ear at an average of 2000, 3000 & 4000 Hz. And the employee's total hearing level is 25 dB or more at the same three frequencies. OR
  3. A fixed loss.\*
- \*Suggested definitions: a 25 dB or greater loss in either ear at an average of: 500, 1000 & 2000 Hz; or 1000, 2000 & 3000 Hz; or 3000, 4000 & 6000 Hz; or a 15 dB or greater loss in either ear at an average of 3000 & 4000 Hz.

**Suggested Criteria for Reporting Occupational NIHL**

Internet  
www.oem.msu.edu  
E-Mail  
ODREPORT@ht.msu.edu  
FAX  
517-432-3606  
Telephone  
1-800-446-7805  
Mail  
MIOSHA-MTS Division  
P.O. Box 30649  
Lansing, MI 48909-8149

Michigan Law Requires the  
Reporting of Known or Suspected  
Occupational NIHL  
Reporting can be done by:

**Project SENSOR Staff**

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Safety & Health Administration  
(MIOSHA)*

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