THE NATIONAL ACADEMIES
REPORT IN BRIEF

The Health Hazard Evaluation Program at NIOSH

This report evaluates the National Institute for Occupational Safety and Health (NIOSH) Health Hazard Evaluation Program for its relevance and impact in identifying and responding to occupational health hazards. The report finds that the program has had a positive impact on workforce conditions, responds well during public health emergencies, and offers excellent training programs for occupational health professionals. The program could be further strengthened by increasing its visibility, by expanding communication and outreach activities, and by expanding its training programs.

Exposure to chemical or physical hazards in the workplace can lead to illness, injury, or even death. These hazards can also be costly to employers due to loss of productivity caused by lost days of work by employees, increased workers' compensation payments, and legal costs. It is the unique mission of the Health Hazard Evaluation Program within the National Institute for Occupational Safety and Health (NIOSH) to respond to requests to investigate previously unknown potential occupational health hazards and known health hazards found in new occupational settings. In contrast to other NIOSH programs, the Health Hazard Evaluation Program is not primarily a research program. Rather, it investigates and provides advice to workplaces in response to requests from employers, labor unions, and federal agencies. The program also responds to emergencies such as the 9/11 attacks and provides training in field investigations to many health and safety professionals.

The Health Hazard Evaluation Program has been instrumental in identifying a wide array of hazards such as potentially fatal latex allergies associated with latex glove use in medical facilities, and the occupational transmission of infectious diseases to workers in swine processing facilities. In a highly publicized case in 1999, the program responded to a call to investigate a microwave popcorn manufacturing plant where workers were becoming ill with a rare lung disease. The investigation showed a link between occupational exposure to a butter flavoring and the illness, which became widely known as "popcorn lung" (see Box 1, p. 2).

As part of a series of reviews of NIOSH programs, the National Research Council assembled a committee to evaluate the NIOSH Health Hazard Evaluation Program with respect to its 1) relevance in addressing workplace health hazards, 2) impacts on worker health and safety as well as its impacts through outreach, and 3) future directions to improve both relevance and impact of the program.

ASSESSMENT OF THE PROGRAM'S RELEVANCE AND IMPACT

The committee was charged with evaluating the NIOSH Health Hazard Evaluation Program and determining whether program

activities resulted in improvements in workplace practices and decreases in hazardous exposures that cause occupational illnesses. The committee assessed the relevance of the program in addressing current and emerging workplace health hazards. The committee also evaluated the impact of the program on reducing worker risk and occupational illness, transferring program-generated information beyond the investigated workplaces, and whether the program impacts research and policy decisions within NIOSH and elsewhere.

The program was assessed on scales from 1-5, with 5 as the top score (see Box 2). The criteria were developed by a framework committee to evaluate all NIOSH programs in a consistent manner. The program received scores of 4 for both relevance and impact. The evaluation committee notes that the program actually performs between a 4 and 5 in both categories, but that it was restricted to the use of integers for the rating scale.

FINDINGS AND RECOMMENDATIONS

Even though the Health Hazard Evaluation Program is very strong overall, the committee makes several recommendations that could help advance the program beyond its current strengths. These recommendations are not provided in order of importance. The committee recognizes that implementation of the recommendations depends on the availability of resources and encourages the program to implement any of the recommendations as resources are available.

Strategic Planning. The Health Hazard Evaluation Program's strategic plan, intermediate goals, and performance measures are highly relevant to its mission given its limited resources. If more resources become available, the committee believes performance measures could be improved by being more specific and ambitious. The committee recommends regular assessments of performance measures to determine whether more ambitious goals could be implemented with available resources.

Improving the Investigation Request Process. The Health Hazard Evaluation Program responds well to health hazard evaluation requests, but it could reach a wider range of requesters. Outreach could be improved by establishing formal relationships with organizations that represent underserved populations, and small businesses and their employees. The function and activities of the program need to be communicated to national, regional, and state health and labor departments. Cooperation between the program and these departments could be improved.

Overall, the program's current process of prioritizing requests is effective. To improve the process, requests could be prioritized using an explicit written process that is more transparent to requestors. The staff could further improve the prioritization process by using scientific and professional meetings, surveillance data, and scientific literature to recognize emerging issues. A formal technical assistance mechanism could be implemented to help requestors formulate requests, or in the case of requests that will not be addressed by the program, referrals to another NIOSH division or government agency.

Increasing Report Quality. Reports that result from investigation requests tend to be well-written,

Box 1: Finding the Cause of "Popcorn Lung"

In 1999 and 2000, workers at a Missouri microwave popcorn plant became ill with bronchiolitis oblitans, a severe and sometimes fatal lung disease. The workers' doctors noticed the heightened occurrence of this rare disease, and contacted the state health department. The plant was inspected for known respiratory health hazards by both state and federal inspectors and was determined to be in compliance with existing standards. However, the cause of the workers' illnesses remained unsolved.

The Missouri Department of Health then contacted the Health Hazard Evaluation Program to conduct an investigation of the plant. The investigation revealed that rates of bronchiolitis obliterans in plant workers and former workers were significantly higher than in the general population, and that the likely cause was occupational exposure to an artificial butter flavoring. The program issued recommendations to prevent exposure to the flavoring in the future, and continued testing the plant to ensure that the recommendations were effective. The program then worked to inform workers at other workplaces that use the artificial butter flavoring to help prevent bronchiolitis obliterans, now commonly referred to as "popcorn lung."

exhibit a high level of expertise, and provide important information and control solutions to prevent occupational illness, but there is no evidence of a formal quality-assurance program in place. An external review of a subset of reports for scientific content, report completeness, and appropriateness of recommendation could help ensure consistency in report quality. Quality of recommendations made in reports is generally excellent. Additional impact might be realized if the reports included descriptions of the priority, relevance, feasibility and impact of each recommendation. Assessment of the effectiveness of investigations might benefit from post-investigation debriefing in NIOSH to systematically identify missed opportunities and emerging hazards, and by improvement of post-investigation of surveys to employers to assess impacts.

Professional Training. The Health Hazard Evaluation Program offers training opportunities for occupational health professionals that are highly effective. However, this training function could be more effective if NIOSH relationships with occupational health professionals were expanded. Recruitment of personnel for temporary assignment to participate in health hazard evaluations from universities, government agencies, occupational medicine residencies, and state and local health departments could be increased. The program could make use of educational and research centers to increase collaborations with faculty and to involve trainees in field investigations. Training program alumni could also help develop program opportunities through a program-level advisory board, or assist in the maintenance of vital routine program functions during deployment of key staff responding to emergencies.

Reaching a Wider Audience. The Health Hazard Evaluation Program uses a wide variety of tools to disseminate its findings to the public, such as the Internet, free CD-ROMS, articles in trade publications, and presentations at trade and scientific meetings. There is a concern that the program is not reaching many who could benefit from its services. The program could reach a wider audience through innovative communications

BOX 2: Committee Scoring Criteria

Rating of Relevance

5 = Activities are in high-priority subject areas and NIOSH is significantly engaged in appropriate transfer activities for completed projects/reported results.
4 = Activities are in priority subject areas and NIOSH is engaged in appropriate transfer activities for completed projects/reported results.
3 = Activities are in high-priority or priority subject areas, but NIOSH is not engaged in appropriate transfer activities; or activities focus on lesser priorities but NIOSH is engaged in appropriate transfer activities.
2 = Activities are focused on lesser priorities and NIOSH is not engaged in or planning some appropriate transfer activities.
1 = Activities are not focused on priorities and NIOSH is not engaged in transfer activities.

Rating of Impact

5 = Activities have made major contribution(s) to worker health and safety on the basis of end outcomes or well-accepted intermediate outcomes.
4 = Activities have made some contributions to end outcomes or well-accepted intermediate outcomes.
3 = Activities are ongoing and outputs are produced that are likely to result in improvements in worker health and safety (with explanation of why not rated higher). Well-accepted outcomes have not been recorded.
2 = Activities are ongoing and outputs are produced that may result in new knowledge or technology, but only limited application is expected. Well accepted outcomes have not been recorded.
1 = Activities and outputs do not result in or are NOT likely to have any application.
NA = Impact cannot be assessed; program not mature enough.

techniques such as public service announcements for truck drivers, or collaborations with centers that work with immigrant workers. Resources could be made available in multiple languages and in multiple forms of media to address literacy and cultural issues. To increase outreach, outside resources such as community and small business groups and federal agencies could be enlisted to help translate report findings to their constituencies.

Influencing Policy and Research. Although the Health Hazard Evaluation Program is not a regulatory agency, it has substantially impacted policies and regulations designed to protect workers. Likewise, the program has had a profound impact on research carried out by other NIOSH divisions. In order to increase its impact on research and policy within NIOSH and the Department of Health and Human Services, the committee recommends the program form more extensive formal linkages with other NIOSH divisions, with the Centers for Disease Control, and with the Department of Health and Human Services.

Identifying Emerging Hazards. The Health Hazard Evaluation Program is highly effective at identifying emerging hazards. However, available surveillance data (health-related events data that have been systematically collected, analyzed, and interpreted) have not been used sufficiently. The program could establish a systematic approach using surveillance data to more actively seek opportunities for field investigations. This would help to identify occupational health hazards that are either unknown, known but found in new circumstances, or known but are not regulated or are under-regulated.

Responding to Emergencies. Staff of the Health Hazard Evaluation Program have the unique ability to formulate information needed to safeguard the workforce during and following a disaster and are well prepared to deploy during emergencies. When public health emergencies arise, care should be taken by the program to balance the immediate needs of the crisis with the need to maintain essential functions. A mechanism could be developed, perhaps with the assistance of training program participants and alumni, to ensure routine essential functions are maintained while key staff are deployed.

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This report brief was prepared by the National Research Council based on the committee's report. For more information, contact the Division on Earth and Life Studies at (202) 334-2500 or visit http://dels.nas.edu. Copies of The Health Hazard Evaluation Program at NIOSH are available from the National Academies Press, 500 Fifth Street, N.W., Washington, DC 20001; (800) 624-6242; www.nap.edu.

EXPERT CONSENSUS REPORT

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