
NIOSH Health Hazard Evaluation Program

Plan to Implement
the National
Academies Program
Evaluation
Recommendations

April 2010

Executive Summary

The National Institute for Occupational Safety and Health (NIOSH) Health Hazard Evaluation (HHE) Program underwent a systematic review for relevance and impact by the National Academies (NA) beginning in 2007. The NA concluded in their 2008 report that the NIOSH HHE Program was highly effective in investigating and advising workplaces, fills a special need in the occupational health community, and has a major impact on improving occupational health. The NA gave the HHE Program a score of 4 for relevance and a score of 4 for impact. The NA identified several areas in which the HHE Program could be strengthened. It offered the following eight overarching recommendations, and more specific recommendations for items 2-8.

Recommendation 1: Conduct regular assessments of performance measures to determine whether available resources allow more ambitious goals.

Recommendation 2: Improve the mechanisms by which requests for HHEs are sought and prioritized to include a broader array of requests from a wider variety of requestors.

Recommendation 3: Ensure that recommendations in HHEs are relevant, feasible, effective, and clearly explained.

Recommendation 4: Use the HHE Program to develop occupational health professional resources.

Recommendation 5: Develop a proactive, comprehensive information-transfer strategy for HHE Program outputs with better approaches to reaching wider audiences, including traditionally underserved populations.

Recommendation 6: Develop more extensive formal linkages and mechanisms with other parts of NIOSH, CDC, and HHS to enhance the capacity for involvement in policy-relevant impacts.

Recommendation 7: Initiate formal periodic assessment of new and emerging hazards.

Recommendation 8: Continue to provide guidance and recommendations during public health emergencies.

This implementation plan describes current and planned efforts to respond to these recommendations. The NIOSH HHE Program reports progress to date on some of the recommendations. Over the next 3-5 years, primary emphasis will be given to increasing awareness of the HHE program to ensure that 1) its services are available to meet the changing needs of the American workforce and 2) the information learned from its investigations reaches all those who have a role in ensuring safe and healthy workplaces.

Table of Contents

Executive Summary	ii
1 Introduction to the Health Hazard Evaluation (HHE) Program	1
1.1 Mission	1
1.2 Goals	1
2 Background on National Academies Review	2
3 Implementation Plan	3
3.1 Purpose	3
3.2 Development Process	3
3.3 External Factors	4
3.4 Vision	4
4 HHE Program Response to the NA Recommendations	4
4.1 Overview	4
4.2 Inputs	5
4.2.1 Improving the triage of HHE requests	5
4.2.2 Expanding the base from which HHE requests are received	6
4.2.3 Increasing opportunities to recognize emerging issues	9
4.2.4 Preserving program resources during emergencies	10
4.3 Outputs	11
4.3.1 Enhancing the quality and helpfulness of HHE reports	11
4.3.2 Expanding opportunities to train occupational health professionals	13
4.4 Transfers	14
4.4.1 Improving dissemination channels and developing partnerships to enhance dissemination	14
4.5 Intermediate Outcomes	16
4.5.1 Establishing partnerships with government programs that can use HHE-generated information	16
4.6 Program Evaluation	17
4.6.1 Evaluating various aspects of the program formally and regularly	17
Table 1. Strategic and Intermediate Goals of the HHE Program	19
Table 2. Overview of Recommendations	20
Figure 1. Health Hazard Evaluation Program Logic Model	27
Appendix A – Revised Criteria for Field Investigations	1

1 Introduction to the Health Hazard Evaluation (HHE) Program

1.1 *Mission*

The National Institute for Occupational Safety and Health (NIOSH) is the federal agency responsible for conducting research and making recommendations to prevent occupational illness and injury. NIOSH is part of the Centers for Disease Control and Prevention (CDC) in the Department of Health and Human Services (DHHS). The Health Hazard Evaluation (HHE) Program carries out the NIOSH mandate to respond to requests for investigations to learn whether exposures or conditions in specific workplaces pose a health hazard to workers. These investigations are termed health hazard evaluations, or HHEs. We use the term HHE to refer to our response including field investigations and office-based technical assistance.

The HHE Program has a unique role in NIOSH as an external sensor for current and emerging issues, helping the Institute stay relevant with regard to occupational health issues in today's workplaces. The HHE Program can be likened to a hospital emergency department, reflecting events happening in the community and serving as one of the first places people go for assistance in solving workplace problems. The HHE Program was designed to deal with problems whose causes, implications, and solutions are not well understood.

The HHE Program contributes to the NIOSH mission through a diverse set of activities and outputs. The Program's mission is to protect worker health through problem solving, research, risk communication, and dissemination of findings and recommendations by responding to external requests for hazard evaluations and technical assistance.

1.2 *Goals*

We formalized a strategic plan in response to a recommendation by the NIOSH Board of Scientific Counselors (BSC) in 2006. The National Academies (NA) review committee noted that the "goals are well targeted and relevant, and can be measured by the number and types of HHE requests received, the number of reports and field investigations conducted related to each of these goals, and their effects as determined through followback surveys." The NA committee further stated that "Appropriate performance measures for each intermediate goal have been chosen, given the limited resources of the program." Because of the emphasis given by the NA to the occupational health professional training role of the HHE Program, we added a new Strategic Goal addressing this issue. We believe that the strategic and intermediate goals enumerated in Table 1 (Page 19) will serve the program well over the next 5 years. The wording of some goals has been revised from earlier versions of the strategic plan to follow current NIOSH guidance for programs in the NIOSH Program Portfolio. That is, strategic goals describe a specific desired change in the social system, intermediate goals describe the desired activities that organizations or individuals undertake with the outputs created by

the program, and activity/output goals are statements of desired program activities, including outputs and transfers to stakeholders. Performance measures are metrics indicating progress toward the goals.

2 Background on National Academies Review

As part of a series of planned reviews of NIOSH research programs, NIOSH contracted with the NA to evaluate the HHE Program. In requesting this review, NIOSH and the NA recognized that the HHE Program, unlike most other programs evaluated by the NA for NIOSH, is not a traditional research program but a program whose primary focus is to carry out public health practice activities in response to requests for assistance. The NA convened a committee of experts to evaluate the relevance of the HHE Program's work in improving occupational safety and health and the impact of its work in reducing workplace injuries and illnesses. NIOSH asked the NA to assign two numerical scores for its assessment, one for relevance and one for impact. NIOSH also asked the NA to examine future issues and provide recommendations for its vision for the HHE Program.

We prepared an evidence package documenting the activities, outputs, and outcomes of the HHE Program, focusing on the most recent 10 years. Print and electronic copies of the evidence package were given to the NA. The electronic version can be found at <http://www.cdc.gov/niosh/nas/hhe/>. The print version is available upon request from the HHE Program (<http://www.cdc.gov/niosh/programs/hhe/contacts.html>).

After completing its review, the NA Evaluation Committee presented its findings to NIOSH and subsequently published the report titled [*The Health Hazard Evaluation Program at NIOSH*](#).

The NA assigned the HHE Program a score of 4 (out of 5) for both relevance and impact. The report noted that "If the committee had not been restricted to the use of integers, both scores would have been between 4 and 5." The NA found that the HHE Program is "highly effective in investigating and advising workplaces when requested. The program fills a special need in the occupational health community by investigating unexpected or underestimated workplace hazards and relating them to worker exposures or circumstances." Overall, the committee considered the HHE Program to be "highly relevant and to have a major impact on improving occupational health."

The NA identified several areas in which the HHE Program could be strengthened. It offered the following eight overarching recommendations, and more specific recommendations for items 2-8.

Recommendation 1: Conduct regular assessments of performance measures to determine whether available resources allow more ambitious goals.

Recommendation 2: Improve the mechanisms by which requests for HHEs are sought and prioritized to include a broader array of requests from a wider variety of requestors.

Recommendation 3: Ensure that recommendations in HHEs are relevant, feasible, effective, and clearly explained.

Recommendation 4: Use the HHE Program to develop occupational health professional resources.

Recommendation 5: Develop a proactive, comprehensive information-transfer strategy for HHE Program outputs with better approaches to reaching wider audiences, including traditionally underserved populations.

Recommendation 6: Develop more extensive formal linkages and mechanisms with other parts of NIOSH, CDC, and HHS to enhance the capacity for involvement in policy-relevant impacts.

Recommendation 7: Initiate formal periodic assessment of new and emerging hazards.

Recommendation 8: Continue to provide guidance and recommendations during public health emergencies.

HHE Program staff disseminated the NA report within NIOSH and announced its availability on the NIOSH website and through NIOSH e-News.

3 Implementation Plan

3.1 Purpose

The Implementation Plan summarizes actions taken, underway, or planned in response to the NA recommendations. The Implementation Plan supports the HHE Program goals identified above and is integrated with the HHE Program Strategic Plan.

3.2 Development Process

We held group meetings to discuss the NA recommendations, brainstorm response options, and develop specific strategies and activities. We also sought input from others in NIOSH, including the HHE Cross-sector Steering Committee, a group comprised of HHE Program partners and stakeholders from other NIOSH programs. HHE Program managers presented the Implementation Plan to the NIOSH BSC at a meeting in August 2009; the BSC provided comments at a meeting in December 2009 and in a written report in March 2010. We also posted the Implementation Plan on the NIOSH website for public comment. Two comments were received.

3.3 External Factors

External factors contribute to the dynamic environment in which the HHE Program operates. Untold factors influence whether the Program receives requests for HHEs when health hazards are present in a workplace. These factors relate to awareness of the HHE Program, incentives for submitting requests (e.g., free services available to small business owners), disincentives to submitting requests (e.g., employees' fear of reprisals by their employers, employers concerns about the public availability of the HHE report), acknowledgement in the workplace that a problem might exist, and legal limits on the authority of the Program. Numerous factors also influence whether workplace changes are made in accordance with HHE Program recommendations. These factors relate to economic realities in individual workplaces, attitudes about health and safety in the workplace, labor-management relations, and regulatory requirements, among others. In all, these factors require that Program enhancements and new initiatives remain in balance with available resources. Integrating the Implementation Plan into the annual strategic planning process provides opportunities to adjust annual goals and performance measures, as needed, to meet shifting needs and priorities.

3.4 Vision

In addition to being responsive to the specific recommendations of the NA, the Implementation Plan reflects the NA's vision for the HHE Program of the future. According to the NA vision, the HHE Program "would serve to identify heretofore unrecognized workplace hazards, as well as known hazards for which permissible exposure limits or other control measures appear inadequate." In keeping with this vision, among other efforts, the HHE Program of the future would:

- Continue to emphasize activities unique to NIOSH, e.g., combining medical, industrial hygiene, epidemiologic, and toxicologic techniques
- Expand its role in training occupational health professionals
- Be more well known in the workplace and in the occupational health community
- Be recognized by local, state, and national agencies and organizations as a primary resource when health problems arise in the workplace

To fully attain this vision, the HHE Program will require additional resources and active engagement of its partners and stakeholders.

4 HHE Program Response to the NA Recommendations

4.1 Overview

We discuss the 34 specific NA recommendations according to their role in the HHE logic model (Figure 1, Page 27). Because many recommendations are interrelated, with separate recommendations sharing common concepts, this approach allows for common themes to emerge and shows how HHE Program enhancements will ultimately affect the impact of the HHE Program on occupational health.

Table 2 (Page 20) lists the recommendations according to the logic model structure and notes the following additional information:

- status of NIOSH efforts to implement the recommendation
- parties who need to be involved in implementation
- a relative sense of the need for additional resources to implement the recommendation. Absolute numbers are not provided because further input and discussion are needed to identify options, evaluate their relative merits, and characterize their feasibility. The resource designation considers both personnel costs and discretionary funding.

Based on this information, we developed the following scheme to classify the activities described in the Implementation Plan:

- Group A: Activities the HHE Program can do alone, or with limited partner involvement, with few new resources
- Group B: Activities needing partners and moderate new resources
- Group C: Activities needing partners and significant new resources

4.2 Inputs

4.2.1 Improving the triage of HHE requests

(See Table 2, Page 20)

4.2.1.1 NA Recommendations

The NA noted that the triage process, while generally efficient, needs more structure and explicit criteria.

Recommendation 2b: Implementing, as part of the triage process, a formal technical assistance mechanism to help requestors to formulate valid HHE requests. In cases where an HHE is not appropriate or where resource limitations prohibit an investigation, technical assistance should include referral to more appropriate NIOSH divisions or government agencies.

Recommendation 2c: Development of an explicit, written process for classifying and prioritizing HHE requests. Priority should be based on the gravity of the potential harm, the number of employees potentially at risk at similar workplaces or using similar work processes, the urgency of the problem, the potential to assess health outcomes, and the possibility of identifying emerging issues. Potential impact on standards and policy should also enhance the priority of an HHE request in the triage process. Relationship of the HHE to current research may be considered, but should not be the only or primary factor. The process should provide guidance on weighting these varying factors.

Recommendation 2d: Better formalizing of the triage process, including the identification of needed expertise, and improving the transparency of the process to HHE requestors, while maintaining flexibility and speed.

4.2.1.2 NIOSH Response

We recognize that the decisions we make about how we respond to HHE requests can influence the HHE Program's relevance and impact. Based on the definitions given above, we classify activities in this area as Group A (HHE program alone, or with limited partners, with few new resources). In response to the NA recommendations, we have refined our triage criteria based on need, authority, and mitigating factors (Appendix A) and will incorporate this information into the HHE Program Procedures Manual. Guided by these criteria, HHE Program staff will continue to use professional judgment (with input, as needed from others in NIOSH) to make the best decision for each specific situation. Often it is not possible to predict the outcome of a field investigation in terms of the balance between resources expended, information gained, and public health actions taken. Additionally, unlike programs whose priorities and planned projects may be set for one or multiple years, the HHE Program works in a more fluid manner over a shorter-term planning horizon. We adjust our decisions based on the nature of incoming HHE requests and available resources. A request for a specific issue might receive a low priority one year, but at a later time a similar request might receive a higher priority based on external factors and internal conditions and priorities.

To better communicate this information to potential HHE requestors, we will post a plain language summary of the decision criteria on the HHE Program website. We believe this addition will promote accountability and provide information for citizens about what their Government is doing. Improved communication with the public also will be accomplished by other website enhancements, such as adding a frequently asked questions section, a means to provide input to the HHE Program, and a means to request assistance in formulating and submitting HHE requests. The concept of an interactive website has been discussed by HHE Program staff and continues to be an area of interest. We have committed resources to website enhancement, with work continuing throughout Fiscal Year 2010.

4.2.2 Expanding the base from which HHE requests are received

(See Table 2, Page 20)

While acknowledging a lack of information about whether the needs of underserved populations and small businesses are being met by the HHE Program, the NA noted the need for the Program to elicit a broader array of HHE requests.

4.2.2.1 NA Recommendations

Recommendation 2e: Establishment of formal relationships with organizations representing underserved populations, small businesses, and their employees.

Recommendation 2f: Enhancing HHE Program outreach to OSHA national and regional offices and to state health and labor departments to better communicate the functions and activities of the HHE Program, increase cooperation with these agencies, and provide more complete and timely feedback.

Recommendation 6d: Pursuit of a change in the HHE Program's legislative and regulatory authority to improve the capacity to identify hazards in need of HHEs, improve the ability to gain entrance to facilities when requested by treating physicians or community representatives, and address exposure other than chemical agents.

Recommendation 7a: Evolve from a program that passively receives requests to a proactive program that seeks opportunities for field investigations.

4.2.2.2 NIOSH Response

The changing economic, social, cultural, and political landscape in the United States means that we must reach out to new populations. To remain relevant and address high priority needs, the HHE Program relies on a steady volume of HHE requests from a broad base that is representative of our Nation's working population. Historically, the Program has been mostly passive with regard to seeking HHE opportunities. We envision becoming more active in creating opportunities to increase awareness of the HHE Program and strategically encouraging submission of HHE requests. A significant increase in the number of HHE requests, however, could strain resources and impair our ability to respond in a timely manner. HHE Program managers will evaluate the effectiveness of proactive efforts and monitor their impact on staff workload and timeliness.

The following three groups are mentioned throughout the NA report and arise in several places in the HHE Program's logic model:

- Underserved populations
- Small businesses
- Other government agencies (e.g., the Occupational Safety and Health Administration (OSHA), state labor departments, state health departments)

The approach to working with these groups varies, as does the need for resources and partnerships. The likelihood of significant success, particularly in the next 5 years also varies.

We have increased outreach to other government agencies. We classify activities in this area as Group B (HHE Program and partners with moderate new resources). Two new activities are now underway. We initiated an informal partnership with OSHA Region I to increase awareness of the HHE Program among its field staff and help them identify appropriate opportunities to make referrals and encourage the submission of HHE requests. This effort, in its infancy, may provide a model that can be expanded. We also began a collaborative effort with the NIOSH Adult Blood Lead Epidemiology and Surveillance (ABLES) Program to increase awareness of HHE services among the 40 ABLES Program state-based partners. The early concept for this effort is to identify a subset of state partners who have active lead surveillance programs with limited internal resources, particularly in the area of industrial hygiene. These states will be assigned an HHE Program liaison for technical support and to encourage the submission of appropriate HHE requests to evaluate workplaces from which elevated blood levels were reported. This effort is particularly timely given the recent decision of the Council of State and Territorial Epidemiologists to change the case definition for reporting elevated

adult blood lead levels from 25 micrograms per deciliter or greater to 10 micrograms per deciliter or greater. This new requirement will likely bring many more facilities to the attention of public health agencies. Other activities that will be considered include direct outreach to state labor departments operating OSHA-approved occupational safety and health programs and geographically targeted outreach to local health departments.

We are exploring ways to reach out to small businesses, and classify activities in this area as Group C (HHE Program and partners with significant new resources). We have established a working relationship with the NIOSH Small Business Assistance and Outreach Program. The two Programs have taken steps to explore opportunities with Chambers of Commerce in the Cincinnati metropolitan area. We believe that this is likely to be a long-term effort. In the near term we are following up on a recently completed customer survey focused on small businesses. We surveyed a national sample of businesses with fewer than 250 employees in the food manufacturing sector and the building services sector. We plan to follow the survey with focus groups to provide more in-depth information about concerns, needs, and issues affecting small businesses and their involvement with the HHE Program. We will combine this information with other inputs to develop a targeted marketing campaign to increase awareness of the HHE Program. Our success in the two sectors initially selected will provide lessons that can be applied more broadly.

Since a pilot project in 2002-2004 to develop partnerships with Hispanic community organizations in the Cincinnati, Ohio, area, we have not begun new efforts to reach out to underserved populations. We classify activities in this area as Group C (HHE Program and partners with significant new resources) and, likely, the most challenging new undertaking. Our previous efforts have given us insights into issues affecting underserved populations and have demonstrated the low likelihood that increased awareness alone will lead to a meaningful increase in requests for HHE services. Legal, cultural, and economic barriers are significant impediments to meeting the needs of underserved populations, particularly low wage, immigrant, temporary, and contract workers. We will maintain a dialogue with the NIOSH Occupational Health Disparities Cross-sector Program, to help us understand and evaluate possible approaches to working with underserved populations.

To some extent, changing the HHE Program's legislative and regulatory mandate would contribute to the goal of increased access to the HHE Program for the groups discussed above. By giving NIOSH authority to conduct investigations based on requests from individuals or organizations other than employees and employers, underserved populations would have more voices speaking on their behalf and requesting HHE Program assistance. Additionally, expanding NIOSH authority to address a broader range of hazards, including physical hazards in general industry, would also allow us to reach some sectors of the population currently outside the scope of the Program. We welcome the opportunity to begin a dialogue about this issue within NIOSH. We have begun to compile a list of issues and options and, with guidance from the NIOSH Director, will evaluate the impact of this recommendation. We classify this activity as Group C.

4.2.3 Increasing opportunities to recognize emerging issues

(See Table 2, Page 21)

4.2.3.1 NA Recommendations

Recommendation 2a: Systematic use of professional meetings, scientific conferences, scientific literature, and surveillance data, including those generated by NIOSH, to assist in prioritizing field investigations and recognizing emerging issues.

Recommendation 3c: Debriefing in NIOSH after site visits and report dissemination for determination of relevance and impact on a systematic basis (potentially missed opportunities to identify emerging health hazards could also be identified).

Recommendation 7b: Develop systematic approaches to identify hazards where OSHA permissible exposure limits are inadequate or nonexistent, to identify unknown hazards, and to identify known hazards encountered under new circumstances.

Recommendation 7c: Establish and periodically review a tickler file of inconclusive or unexpected evaluation results to determine whether new trends or problems may be emerging.

Recommendation 7d: Periodically meet with intramural and extramural research scientists and stakeholders in government, academe, labor, and industry to discuss specific unresolved evaluations, to review aggregate findings, and to solicit input about new or emerging hazards or interventions.

4.2.3.2 NIOSH Response

Our activities with respect to emerging issues can be viewed from two perspectives: (1) HHEs uncovering emerging issues and (2) HHEs providing descriptive data about emerging issues identified by others. We classify activities in this area as either Group A (HHE program alone, or with limited partners, with few new resources) or Group B (HHE Program and partners with moderate new resources).

HHEs uncovering emerging issues. This can occur when the HHE Program receives a request and, in the course of responding, documents a newly discovered hazard or a known hazard in a new or previously overlooked population. Generally, such issues are readily apparent at the completion of an evaluation. A recent example is the recognition of bronchiolitis obliterans related to flavoring chemicals used in the manufacturing of popcorn. For these situations, timely dissemination of HHE findings is essential. In some HHEs, however, emerging issues may not be immediately apparent due to the small size of the investigated work force or the lack of scientific tools to fully evaluate the situation. Periodically reviewing the findings from investigations with unresolved problems is one activity that may help bring unrecognized hazards to light. We are working with the OSHA Office of Occupational Medicine to establish a tickler file of unresolved cases from both agencies. These cases will be reviewed by staff from the agencies, who will share information internally and with professional colleagues at scientific meetings and through electronic discussion groups.

Field staff from federal OSHA, state agencies with OSHA-approved programs, and state and local health departments can also be a source of leads to uncover previously unrecognized emerging issues. Since the numbers of these staff far outweigh the number of HHE investigators, their presence in the workplace can help identify emerging hazards. This will require that the OSHA and state field personnel are aware of the HHE Program and know when it is appropriate to make a referral or encourage the submission of an HHE request. The new collaboration with OSHA Region I to increase awareness of the HHE program among its field staff is one step in this direction. To ensure that the state programs are engaged, we recently participated in a meeting of the Occupational Safety and Health State Plan Association and will continue to look for opportunities with this organization. We also will explore opportunities with public health organizations such as the Council of State and Territorial Epidemiologists and the National Association of County and City Health Officials.

HHEs providing descriptive data about emerging issues already identified. Enhanced identification of emerging issues requires a framework and systematic approach that encompasses many NIOSH programs. This process is closely intertwined with NIOSH efforts to develop more robust surveillance systems for occupational diseases and workplace hazards. Ensuring that the HHE program gives priority to emerging issues requires knowing what those issues are. The HHE program will seek to learn about existing resources to identify emerging issues, such as the Risk Observatory of the European Agency for Safety and Health at Work. When emerging issues are known, the HHE program can actively seek opportunities to explore such issues or can give priority to requests we receive. This can occur when we actively seek opportunities to explore such issues or when we receive unanticipated requests. A recent example is the collaboration between the HHE Program and other NIOSH researchers to evaluate the potential hazards related to the increasing use of ortho-phthalaldehyde to sterilize certain equipment in healthcare settings. As more focus is put on surveillance data across NIOSH, and data about occupational illnesses and health hazards becomes more comprehensive and accessible, it will be possible to see if this new information is helpful in targeting HHE Program resources.

4.2.4 Preserving program resources during emergencies

(See Table 2, Page 22)

4.2.4.1 NA Recommendations

Recommendation 8a: Remain diligent by working with NIOSH management to avoid negative impact on routine activities of the HHE Program as a result of emergency response activities.

Recommendation 8b: Develop a mechanism, such as the enlistment of help from training program participants and alumni, to ensure continuation of routine operations in the absence of staff involved in emergency response.

4.2.4.2 NIOSH Response

In the nearly 2 years since we prepared the documentation for the NA review, the situation with regard to emergency response activities in the HHE Program has continued to evolve. Presently, we do not believe that new activities are needed in this area. We will, however, remain vigilant to ensure that HHE Program resources are appropriately protected and the integrity of the traditional mission of the HHE Program is maintained. We classify activities in this area as Group A (HHE program alone, or with limited partners, with few new resources).

In the immediate aftermath of the World Trade Center and anthrax responses, CDC and NIOSH created new programs to better support responses to terrorist activities, natural disasters, and emerging infectious diseases. Leadership for and coordination of emergency response and preparedness, a task that in the past fell in large part to the HHE Program, now resides in the NIOSH Emergency Preparedness and Response Office. Over time, this has resulted in less frequent and less intense reliance on the HHE Program to support field activities, provide subject matter experts, and staff the emergency operations center. Because of training coordinated by HHE Program staff, other NIOSH field staff now can be called on for emergency response activities. As a result of these efforts, we believe we can better manage resources internally to ensure that critical, routine HHE functions are not affected significantly. In the event, however, of a large-scale national emergency, it is possible that we would be asked to become more involved. In this situation, shifting a portion of personnel resources away from routine HHEs may become necessary; we view this as an appropriate public health action. HHE Program management would continue to provide a timely assessment of incoming requests to ensure that urgent situations receive an appropriate response. In addition, information about temporary shifts in Program resources would be communicated to stakeholders to maintain transparency in HHE Program operations. Former HHE Program staff now working in other parts of NIOSH, of which there are many, could assist in meeting urgent needs. Compared to bringing in HHE alumni now working in the private sector, this approach would be simpler to implement due to legal limitations when using non-NIOSH employees in field investigations.

4.3 Outputs

4.3.1 Enhancing the quality and helpfulness of HHE reports

(See Table 2, Page 23)

4.3.1.1 NA Recommendations

Recommendation 3a: Explanation of the relevance, feasibility, and impact of each recommendation in the text of HHE reports.

Recommendation 3b: Priority-setting among recommendations in all reports to indicate those requiring immediate action in the targeted workplace.

Recommendation 3e: Enhancement of internal quality assurance by development of a formal program. Consider external review of a sampling of recent reports and technical

assistance letters for scientific content, report completeness, and appropriateness of recommendations.

Recommendation 4b: Tracking and mobilizing the extensive talent and commitment represented in the HHE Program-trained occupational health workforce. A network of HHE Program alumni could be fostered to help to develop HHE opportunities. A program-level advisory board could assist the Program in leveraging resources, serve a recruiting and retention function, assist in identifying emerging issues, and provide expert advice.

4.3.1.2 NIOSH Response

HHE reports are the primary output of the HHE Program and provide a basis for most other Program outputs. As such, we are committed to ensuring that the reports are of the highest quality and meet the needs of our stakeholders. Although HHE reports are used by a diverse group of stakeholders, the primary audience remains employers and employees at investigated facilities. Activities related to the HHE report quality are considered Group A (HHE program alone, or with limited partners, with few new resources).

We have changed the recommendations section of the standard HHE report in response to the NA recommendation. We developed standard structure and content for the recommendations that focuses on the well-accepted concept of a hierarchy of controls. The new information included in HHE reports clearly addresses situations where short-term actions (such as use of respiratory protection) are needed while longer term solutions (such as installation of engineering controls) are evaluated and implemented. The new information also gives a brief explanation of each class of actions in the hierarchy and offers a rationale for these actions. Although it is essential that HHE investigators become familiar with the facilities they investigate and understand the implications of their recommendations, a thorough evaluation of feasibility generally is outside the scope and expertise of the HHE Program. We added new language to HHE reports recommending that a health and safety committee with management and labor representatives form a working group to discuss the HHE report findings and recommendations, including their feasibility. As appropriate, during followback visits, we will look for opportunities to discuss financial considerations and cost-benefit calculations as they relate to our recommendations. We will maintain a dialogue with other NIOSH researchers to ensure that opportunities for collaboration are identified.

We will continue to maintain a rigorous internal review process and explore efficient ways of incorporating interactions with other NIOSH programs as part of the process. Our review process is designed to ensure scientific quality, consistency with NIOSH policy, and responsiveness to the needs of the HHE requestor. The review process also is intended to ensure that recommendations made by HHE investigators are supported by their findings. To augment this process, as recommended by the NA, we will begin a pilot effort to assess the feasibility and value of having an external quality assurance process that involves evaluating a sample of HHE reports after they are issued. We will provide evaluation guidelines much like is done for manuscripts submitted to peer-reviewed

journals. Potential reviewers will be chosen to represent the scientific disciplines appropriate for each report and the perspectives of different types of stakeholders (including the business and labor communities). These reviewers will be drawn from the newly developed network of HHE Program alumni (as described below). This new quality assurance process will be evaluated at the end of 2 years by HHE Program staff with input from participating reviewers. The evaluation will consider the following program attributes:

- Ability to obtain volunteer reviewers
- Timeliness of the reviews
- Reviewers' assessment of the HHE Program's guidance
- Extent of program resources used to maintain the program
- Value of the information derived from the reviews

The HHE Program has created an alumni network using online social media tools. We have created a database of former HHE Program staff, EIS officers, other fellows, guest researchers, and short-term domestic and international visitors, and are continuing to populate the database with information about their professional area(s) of expertise, former role in the HHE Program, current affiliation, and contact information. When we have contact information, we have invited these individuals to participate in the alumni network. Participants in the network may be asked to assist and provide input in various ways, including the following:

- Offering opinions about HHE Program policies and procedures
- Providing technical review of investigation protocols
- Providing quality assurance evaluation of HHE reports and other documents
- Acting as an ambassador to increase awareness of the HHE Program among potential program requestors
- Helping to disseminate HHE program products
- Identifying emerging issues for which HHEs would be useful

We hope that participants find benefit from the alumni network as a way of connecting with other occupational health professionals and by enhancing their contributions to occupational safety and health through participation in a national program.

4.3.2 Expanding opportunities to train occupational health professionals

(See Table 2, Page 23)

4.3.2.1 NA Recommendations

Recommendation 4a: Increased recruitment of new investigators from universities, the Epidemic Intelligence Service, the Commissioned Officer Student Training Extern Program, occupational medicine residencies, Education and Research Centers (ERCs) for Occupational Safety and Health, and state and local health departments into HHE Program training rotations. This will require ongoing development of more attractive training, mentoring, and rotations.

Recommendation 4c: Engagement and use of ERCs and other university-based training programs to involve trainees in HHE field investigations.

Recommendation 4d: More formal collaboration with ERC faculty and other extramural researchers to assist in field investigation, dissemination, and training opportunities.

4.3.2.2 NIOSH Response

We are cognizant of the role the HHE Program plays in the training of occupational health professionals. Based on the response of the NA review committee, we have added a new strategic goal in this area. Because expansion of these efforts is not feasible without significant new resources, however, we consider most activities related to training as Group C (HHE Program and partners with significant new resources).

With current resources, we are taking some new steps to strengthen training activities. These include:

- Developing a more formal curriculum for trainee rotations
- Opening up training opportunities beyond our traditional partners to include others with applicable training programs such as the Veterinary Public Health Program at The Ohio State University.
- Reaching out to the NIOSH ERCs to increase awareness of the HHE Program. In particular, the NIOSH Denver Office is working closely with the new Colorado ERC to identify opportunities for trainees to participate in HHE field investigations.

4.4 Transfers

4.4.1 Improving dissemination channels and developing partnerships to enhance dissemination

(See Table 2, Page 24)

4.4.1.1 National Academies Recommendations

Recommendation 5a: Use innovative techniques to reach small businesses and underserved populations, creating a broad array of mechanisms for communicating with diverse constituencies and attending to issues of literacy, language, and national-origin barriers. The effectiveness of applied outreach should be evaluated in a formal manner.

Recommendation 5b: Improve the searchability of the online HHE search engine by developing a list of standardized key words (an alphabetized list of hazards and diseases would be beneficial).

Recommendation 5c: Develop distribution mechanisms that are not internet-dependent to complement internet distributions.

Recommendation 5d: Disseminate HHE results more broadly to groups likely to be affected, including distribution of HHE reports in the geographic regions where investigations are conducted.

Recommendation 5e: Increase efforts to compile compendia of findings (such as those developed for isocyanates, noise, tuberculosis, and lead) when generalized process-oriented findings can be gleaned from the experience of the HHE Program in a variety of settings.

Recommendation 5f: Develop improved methods of outreach to stakeholders so that workers and workplaces affected by new and emerging occupational health problems will be alerted quickly.

Recommendation 5g: Supplement program outreach efforts by using community and small business groups to translate HHE results and finding for their constituencies.

Recommendation 6c: Continued regular use of the NORA sector councils and the NIOSH Board of Scientific Counselors to disseminate information about the HHE Program.

Recommendation 5h: Leverage existing NIOSH, Centers for Disease Control and Prevention, and Department of Health and Human Services resources to enhance technology transfer.

4.4.1.2 NIOSH Response

Many of these recommendations focus on the same groups discussed above in terms of increasing outreach to enhance awareness of the HHE Program:

- Underserved populations
- Small businesses
- Other government agencies (e.g., OSHA, state labor departments, state health departments)

Thus, the efforts previously described will not only lead to better recognition of the Program and the services it can provide but these efforts also will open up new channels for disseminating HHE Program findings. Because the efforts in these areas are varied, we classify them individually and they fall into Groups A, B, and C.

In the short-term, we plan to give priority to the following areas in which we are involved directly and have available expertise:

- Improving access to HHE reports on the HHE Program website. The ability to retrieve HHE reports by industry sector will added to the NIOSH website. Our next steps will be to expand this concept for other commonly used criteria such as state, health outcome, or nature of the exposure. As part of this effort, we have begun the process of making all numbered HHE reports available electronically; many reports before about 1985 are now available at no cost from the HHE Program upon request. In another effort, we have established a partnership with the International Journal of Occupational and Environmental Health. The Journal

is now publishing selected HHE investigation summaries, which are included in PubMed.

- Increasing production of written materials for dissemination through on-line and print trade publications.
- Developing HHE summary documents on priority topics as identified in the NIOSH Program Portfolio. Currently, we are updating the document summarizing HHEs related to noise exposure and hearing loss, which was published in 1999. Since that time nearly 60 new HHE reports on this topic have been released.
- Using the findings from our customer survey to develop new communication channels for reaching small businesses.

Other efforts addressing new dissemination channels and methods of outreach and leveraging resources will rely on efforts of others in NIOSH. Similarly, efforts by the NIOSH Office of the Director to streamline processes for creating and disseminating NIOSH documents will benefit the HHE Program. Improved communication internally through the NIOSH Program Portfolio may prove beneficial to the HHE Program in this regard.

4.5 Intermediate Outcomes

4.5.1 Establishing partnerships with government programs that can use HHE-generated information

(See Table 2, Page 25)

4.5.1.1 National Academies Recommendations

Recommendation 6a: Promotion and increase in direct communication, especially with OSHA and state occupational safety and health agencies.

Recommendation 6b: Alerts to NIOSH and CDC about HHEs that are relevant to policy-making outside the CDC system.

4.5.1.2 NIOSH Response

HHE Program partnerships to increase awareness of the HHE Program for the purposes of facilitating new HHE requests will also serve to enhance transfer of HHE-generated information. We classify our activities in these areas as Group A (HHE program alone, or with limited partners, with few new resources). In addition to the activities discussed previously, HHE Program staff participates in an ongoing, regularly scheduled NIOSH-OSHA issues exchange meeting.

NIOSH continues to look for and take advantage of opportunities to share information about the HHE Program with others throughout CDC and outside the CDC system, when warranted. For example, we recently released a report on exposure to environmental tobacco smoke among casino dealers in Las Vegas; we communicated with the CDC Office of Smoking and Health about this report; they were keenly interested in disseminating it to their stakeholders. We also included information about this report in a briefing for the CDC Director. We also shared the report with the public health

association in several states and , to date, two (New Jersey and Ohio) have posted an announcement about it on their website. In another example, NIOSH issued a press release about the release of an HHE report on occupational radiation exposure to airport baggage screeners.

The DHHS Secretary is informed regularly of NIOSH activities determined to have significant visibility and, or, impact. HHE reports are routinely provided to OSHA and state health agencies. Through enhance communications with various OSHA offices, we have improved distribution of HHE reports to state plan states and to federal agencies.

4.6 Program Evaluation

4.6.1 Evaluating various aspects of the program formally and regularly

(See Table 2, Page 25)

4.6.1.1 National Academies Recommendations

Recommendation 1: Conduct regular assessments of performance measures to determine whether available resources allow more ambitious goals.

Recommendation 3d: Modification of the followback surveys for use in assessing the relevance, feasibility, and impact of recommendations.

Recommendation 5i: Evaluate, in a formal manner, the effectiveness of information transfer programs, including knowledge transfer to employers and employees not investigated.

4.6.1.2 NIOSH Response

We are committed to an annual review of the HHE Program strategic plan. We classify activities in this area as Group A (HHE program alone, or with limited partners, with few new resources). As resources expand or contract, and external demands change, the annual goals and performance measures will be adjusted. HHE Program supervisors have begun to more effectively use milestones and project tracking management tools that can provide information useful for adjusting the strategic plan. We are mindful of the NA recommendation to develop more ambitious goals and continue to look for opportunities to use our resources more efficiently. For example, producing an HHE compendium document on a specific topic (Recommendation 5e) may allow us to respond without a field investigation to a greater number of requests concerning that topic. This may also be the case as better information is obtained from the HHE followback program about the effectiveness of specific recommendations (Recommendation 3d).

Over the next 3-5 years, we will increase the number of onsite followback evaluations. We believe that this offers the best approach to gathering valid and comprehensive information about our recommendations. We classify this activity as Group B (HHE Program and partners with moderate new resources). Recently, we identified a senior

staff member to lead this effort and have involved our health communications specialist. They are trying a variety of approaches to garnering cooperation from employers in the followback efforts; this effort presents many challenges for which new approaches will be needed. They have had preliminary discussions with staff involved in the NIOSH Economics Cross-sector Program and will continue to share information that may help identify opportunities for research related to economic aspects of feasibility. We plan to use the followback information to make improvements to the HHE Program. We also plan to use the information to develop and disseminate case studies describing 1) approaches that work and do not work in protecting worker health when hazards have been identified and 2) ways of overcoming barriers to implementing HHE Program recommendations.

Evaluating the effectiveness of information transfer programs, particularly for facilities not investigated by the HHE Program, reaches beyond the scope and resources of the HHE Program. We classify this activity as Group C (HHE Program and partners with moderate new resources). Other NIOSH efforts, however, can contribute valuable information. For example, questions about familiarity with the HHE Program were part of a recent survey of labor and trade associations and the results will be shared with us. The NIOSH Research to Practice (r2p) initiative focuses on the transfer and translation of research findings, technologies, and information into effective prevention practices and products that are adopted in the workplace. When resources become available through this effort and other Institute-wide dissemination and evaluation efforts, we will seek opportunities for partnership to explore this aspect of HHE information transfer.

Table 1. Strategic and Intermediate Goals of the HHE Program¹

1. Strategic Goal. Prevent occupational illnesses through reduced exposure to workplace hazards
 - 1.1. Intermediate goal: Increase the number of health hazard evaluation requests concerning important occupational health problems.
 - 1.2. Intermediate goal: HHE Program resources are focused on high priority problems
 - 1.3. Intermediate goal: Develop and maintain state-of-the-art investigative, analytic, and communication tools.
 - 1.4. Facilitate implementation of recommendations at facilities investigated through the HHE Program
 - 1.5. Provide appropriate technical assistance for health hazard evaluation requests addressed without a field visit
 - 1.6. Intermediate goal: Employees and employers at facilities not investigated through the HHE Program are aware of hazards identified and controls recommended by HHE Program investigators
 - 1.7. Intermediate goal: Professional practices, guidelines, policies, standards, and regulations are influenced by information generated from the HHE Program
2. Strategic Goal. Promote occupational safety and health research on emerging issues
 - 2.1. Intermediate goal: Stakeholders have information about emerging issues
 - 2.2. Intermediate goal: HHE program managers and investigators are informed about emerging hazards
3. Strategic Goal. Partners and customers have the information they need regarding high priority occupational health issues likely to arise during public health emergencies
 - 3.1. Intermediate goal : Partners and customers have the information they need regarding high priority occupational health issues likely to arise during public health emergencies
 - 3.2. Intermediate goal: HHE Program personnel respond appropriately to requests for assistance
4. Strategic Goal. Train physicians, nurses, industrial hygienists, and other professionals to address workplace health hazards from a practical, public health perspective through HHE field experiences
 - 4.1. Intermediate goal: Education and Research Centers provide information to new occupational health and safety trainees about HHE Program opportunities, including EIS Program and NIOSH rotations
 - 4.2. Intermediate goal: Academic training centers request training for occupational health professionals

Table 2. Overview of Recommendations

Recommendation (as numbered in the NA report)	<u>Status</u> Well underway	<u>Status</u> Just begun	<u>Status</u> Not yet begun	<u>Who?</u> HHE	<u>Who?</u> HHE + Internal Partners	<u>Who</u> HHE + External Partners	Few Resources	Moderate Resources	Significant Resources	Group ¹
Improving the triage of HHE requests (4.2.1)										
2b Implement a formal mechanism to help requestors to formulate valid HHE requests or to make appropriate referrals.	✓			✓			✓			A
2c Develop an explicit process for classifying and prioritizing HHE requests.	✓			✓			✓			A
2d Better formalize the triage process and improve its transparency to HHE requestors.	✓			✓			✓			A
Expanding the base from which HHE requests are received (4.2.2)										
2e Establish formal relationships with organizations representing underserved populations, small businesses, and their employees.		✓			✓	✓			✓	C

¹ A: HHE program alone, or with limited partners, with few new resources; B: HHE + partners, moderate new resources; C: HHE + partners, significant new resources

Attachment D: HHE local health department brochure evaluation, Implementation Plan

Recommendation (as numbered in the NA report)	<u>Status</u> Well underway	<u>Status</u> Just begun	<u>Status</u> Not yet begun	<u>Who?</u> HHE	<u>Who?</u> HHE + Internal Partners	<u>Who</u> HHE + External Partners	Few Resources	Moderate Resources	Significant Resources	Group ¹
2f Enhance outreach to OSHA and to state health and labor departments to better communicate HHE functions and activities and to increase collaboration.	✓					✓		✓		B
6d Pursue a change in the HHE Program’s legislative and regulatory authority to improve capacity to identify hazards in need of HHEs, ability to gain entrance to facilities, and ability to address exposures other than chemical agents.				✓		✓	✓			✓
7a Evolve from a program that passively receives requests to a proactive program that seeks opportunities for field investigations			✓				✓			✓
Increasing opportunities to recognize emerging issues (4.2.3)										
2a Use professional meetings, surveillance data, etc. to assist in prioritizing field investigations and recognizing emerging issues.		✓			✓			✓		
3c Conduct internal debriefings after site visits and report dissemination to systematically assess relevance and impact, and identify emerging hazards.		✓			✓			✓		

Attachment D: HHE local health department brochure evaluation, Implementation Plan

Recommendation (as numbered in the NA report)	<u>Status</u> Well underway	<u>Status</u> Just begun	<u>Status</u> Not yet begun	<u>Who?</u> HHE	<u>Who?</u> HHE + Internal Partners	<u>Who</u> HHE + External Partners	Few Resources	Moderate Resources	Significant Resources	Group ¹
7b Develop systematic approaches to identify hazards where OSHA permissible exposure limits are inadequate or nonexistent, unknown hazards, and known hazards in new circumstances.			✓			✓	✓		✓	
7c Establish and periodically review a tickler file of inconclusive or unexpected evaluation results to determine whether new trends or problems may be emerging.		✓					✓		✓	
7d Periodically meet with intramural and extramural research scientists and stakeholders to discuss unresolved evaluations, review aggregate findings, and solicit input about emerging hazards or interventions.		✓				✓	✓		✓	
Preserving program resources during emergencies (4.2.4)										
8a Work with NIOSH management to avoid negative impact on routine activities as a result of emergency response activities.		✓				✓		✓		
8b Develop a mechanism to ensure continuation of routine operations in the absence of staff involved in emergency response.			✓			✓			✓	

Attachment D: HHE local health department brochure evaluation, Implementation Plan

Recommendation (as numbered in the NA report)	<u>Status</u> Well underway	<u>Status</u> Just begun	<u>Status</u> Not yet begun	<u>Who?</u> HHE	<u>Who?</u> HHE + Internal Partners	<u>Who</u> HHE + External Partners	Few Resources	Moderate Resources	Significant Resources	Group ¹
Enhancing the quality and helpfulness of HHE reports (4.3.1)										
3a Explain the relevance, feasibility, and impact of each recommendation in HHE reports.			✓		✓	✓	✓	✓		
3b Set priorities among report recommendations to indicate those requiring immediate action in the targeted workplace.		✓			✓			✓		
3e Enhance quality assurance by developing a formal external review program for a sampled of recent reports and letters.			✓				✓	✓		
4b Track and mobilize HHE Program alumni to assist in leveraging resources, help with recruitment and retention, assist in identifying emerging issues, and provide expert advice.			✓				✓	✓		
Expanding opportunities to train occupational health professionals (4.3.2)										
4a Increase recruitment for training rotations; develop more attractive training, mentoring, and rotations.			✓			✓	✓			✓
4c Use ERCs and other university- based training programs to involve trainees in HHE field investigations.				✓		✓	✓			✓

Attachment D: HHE local health department brochure evaluation, Implementation Plan

Recommendation (as numbered in the NA report)	<u>Status</u> Well underway	<u>Status</u> Just begun	<u>Status</u> Not yet begun	<u>Who?</u> HHE	<u>Who?</u> HHE + Internal Partners	<u>Who</u> HHE + External Partners	Few Resources	Moderate Resources	Significant Resources	Group ¹
4d Collaborate more formally with ERC faculty and other extramural researchers to assist in field investigation, dissemination, and training.				✓		✓	✓		✓	
Improving dissemination channels and developing partnerships to enhance dissemination (4.4.1)										
5a Use innovative techniques to reach small businesses and underserved populations; formally evaluate outreach efforts.				✓		✓	✓			✓
5b Improve the searchability of HHE reports online.			✓			✓	✓		✓	
5c Develop distribution mechanisms that are not internet-dependent.				✓		✓	✓			✓
5d Disseminate HHE results more broadly to affected groups, including distribution in the geographic regions where investigations are conducted.				✓	✓		✓		✓	
5e Increase efforts to compile compendia of findings.			✓		✓	✓	✓		✓	
5f Develop improved outreach methods to alert affected workers and workplaces quickly of new occupational health problems.				✓			✓			✓

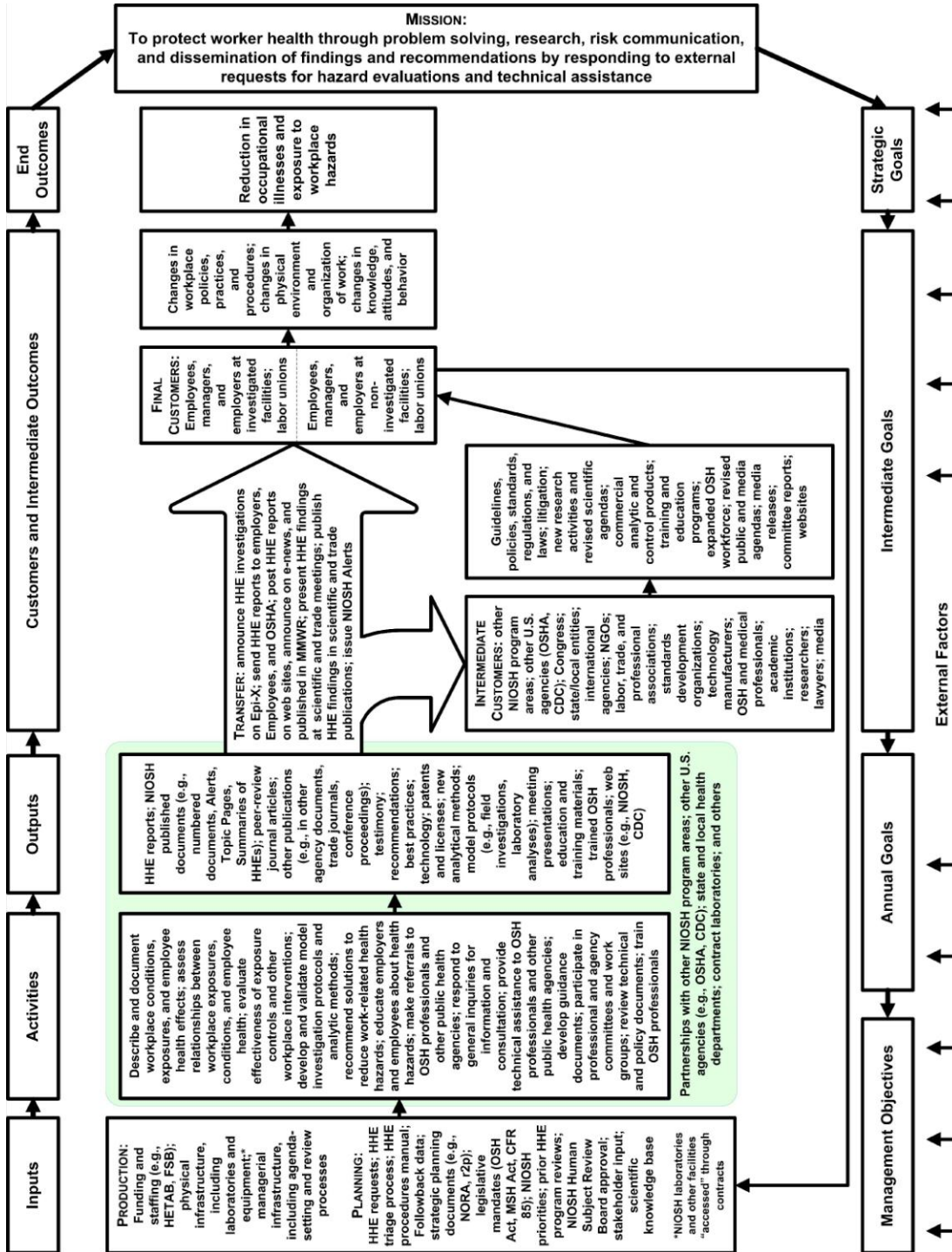
Attachment D: HHE local health department brochure evaluation, Implementation Plan

Recommendation (as numbered in the NA report)	<u>Status</u> Well underway	<u>Status</u> Just begun	<u>Status</u> Not yet begun	<u>Who?</u> HHE	<u>Who?</u> HHE + Internal Partners	<u>Who</u> HHE + External Partners	Few Resources	Moderate Resources	Significant Resources	Group ¹
5g Supplement outreach efforts by using community and small business groups to translate HHE results and finding for their constituencies.				✓			✓			✓
5h Leverage NIOSH, CDC, and DHHS resources to enhance technology transfer.				✓		✓	✓	✓		
6c Regularly use NORA sector councils and the NIOSH Board of Scientific Counselors to disseminate information.		✓				✓	✓	✓		
Establishing partnerships with government programs that can use HHE-generated information (4.5.1)										
6a Increase direct communication with OSHA and state occupational safety and health agencies.			✓				✓	✓		
6b Alert NIOSH and CDC about HHEs that are relevant to policy-making outside the CDC system.			✓			✓	✓	✓		
Evaluating various aspects of the program formally and regularly (4.6.1)										
1 Conduct regular assessments of performance measures to determine whether available resources allow more ambitious goals.			✓		✓			✓		

Attachment D: HHE local health department brochure evaluation, Implementation Plan

Recommendation (as numbered in the NA report)	<u>Status</u> Well underway	<u>Status</u> Just begun	<u>Status</u> Not yet begun	<u>Who?</u> HHE	<u>Who?</u> HHE + Internal Partners	<u>Who</u> HHE + External Partners	Few Resources	Moderate Resources	Significant Resources	Group ¹
3d Modify the followback surveys to assess the relevance, feasibility, and impact of recommendations.				✓	✓		✓		✓	
5i Formally evaluate the effectiveness of information transfer programs.				✓			✓			✓

Figure 1. Health Hazard Evaluation Program Logic Model



Appendix A – Revised Criteria for Field Investigations

Need

NIOSH gives highest priority for field investigations regarding serious health effects that are plausibly related to current workplace exposures or conditions. Priority decreases with decreasing severity of the health effects and/or plausibility of the relationship to workplace exposures or conditions.

NIOSH gives higher priority for field investigations to new and emerging issues and lower priority to well known problems for which appropriate guidance information is readily available. The latter includes most concerns relating to indoor environmental quality and mold in nonindustrial buildings. For the majority of these requests, our extensive experience enables us to provide assistance by telephone and correspondence.

While investigations potentially affecting large numbers of workers are generally given higher priority, when other criteria are met, NIOSH may initiate a field investigation even when the number of workers is small.

1. What is the gravity of the potential workplace health hazard? (listed in order of decreasing priority)
 - a. Potentially life-threatening hazard
 - b. Medical conditions diagnosed by a health care provider
 - c. Symptoms suggestive of a recognized medical condition
 - d. Nonspecific symptoms that are not common in the general population
 - e. Nonspecific symptoms that are common in the general population
2. How likely is it that current exposures or conditions are causing, or could cause, a serious health problem?
 - a. Are exposures or conditions known to cause serious adverse health effects?
 - b. Are exposures or conditions not known to cause serious adverse health effects but could plausibly do so, based on established principles of occupational medicine, industrial hygiene, toxicology, and other relevant disciplines?
3. Is the number of workers exposed to the hazard at this facility or at other facilities likely to be large? While investigations potentially affecting large numbers of workers are generally given higher priority, when other criteria are met (specifically need and legal authority), NIOSH *may* initiate a field investigation even when the number of workers is small.

Authority

NIOSH gives highest priority to situations in which it has clear authority to initiate a workplace investigation.

1. Does the request meet the statutory and regulatory requirements? A request that does meets all of the following requirements:
 - a. Is submitted in writing; and
 - i. Is signed by the employer, three current employees (unless three or fewer are exposed to the potential health hazard), or an employee representative (as defined in 42 CFR 85)
 - ii. Identifies a specific workplace(s) where the potential hazard exists
 - iii. Concerns a workplace covered by the Occupational Safety and Health Act or Executive Order 12196 of February 26, 1980, "Occupational Safety Programs for Federal Employees"
 - iv. Concerns a workplace covered by the OSHAct and the hazard is a substance *or* concerns a workplace covered by the MSHAct and the hazard is a substance or physical agent

When a request does not fall within the parameters of the Occupational Safety and Health Act or Mine Safety and Health Act, and NIOSH determines that there is a need for a field investigation, it proceeds as follows:

- When the request is from another government agency and that agency has the legal authority to enter the workplace, NIOSH will proceed with an investigation by providing technical assistance to the requesting government agency and entry will be under that agency's authority.
- In the following circumstances, NIOSH will proceed with an investigation with the consent of all parties involved
 - i. When (i) and (ii) are met, but (iii) or (iv) are not
 - ii. When the request is from another government agency and that agency does not have legal authority

Mitigating Factors

NIOSH gives higher priority when 1) no other resources are available to address the concerns, 2) it has the tools and approaches to address the concerns, or could acquire or develop the tools and approaches in a timely manner, and 3) the concerns relate to ongoing government priorities and activities

1. Is other, more appropriate, assistance available?
2. Does NIOSH have the tools and approaches to assess the concerns, or could they be acquired or developed in a timely manner?
3. The concern has been identified by NIOSH or other entity as an emerging hazard.
4. Are the concerns of current high national interest or related to ongoing national or international priorities and activities? NIOSH is more likely to proceed with a field investigation if any of the following apply:

- b. The concerns are in an industry or occupational group, or relate to a health outcome or exposure, identified as a priority in the National Occupational Research Agenda
- c. The concerns are in an industry or occupational group, or relate to a health outcome or exposure, identified as a priority by the Occupational Safety and Health Administration

NIOSH generally will defer a field investigation if the workplace is the subject of an ongoing inspection by OSHA or state OSH agency for similar issues to those raised in the HHE request.

- 5. When the above considerations have been addressed, NIOSH *may* consider other factors. NIOSH is more likely to conduct a field investigation when the following circumstances apply.
 - a. The task producing the hazard is present continuously or most days, rather than intermittently or sporadically.
 - b. A problem has been documented, but efforts to address it have not been successful.
 - c. Action has been requested by a member of Congress or the Executive Branch.
 - d. A field investigation would provide training opportunities for NIOSH staff, staff of other government agencies, or students involved in occupational health training programs.

