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# NIOSH Health Hazard Evaluation Program

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Monitoring Progress  
in Implementing the  
National Academies'  
Program Evaluation  
Recommendations:  
*A Report to the  
NIOSH Board of  
Scientific Counselors*

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June 2014

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## Introduction

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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 HHE Program is 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. On the basis of a scale of 5 (high) to 1 (low), the NA assigned the HHE Program a score of 4 for relevance and a score of 4 for impact. For areas it thought could be strengthened, the NA offered eight overarching recommendations.

Subsequently, we developed an implementation plan and revised the HHE Program strategic plan. The implementation plan stated that “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.” This emphasis has continued to the present date.

In 2011, the NIOSH Board of Scientific Counselors (BSC) reviewed the HHE Program’s progress. The Board assigned the HHE Program scores for each recommendation in the areas of Relevance, Sustainability, Progress, and Potential for Impact (Appendix A).

To assess our efforts, we have monitored progress for five of the eight overarching recommendations and two sub-recommendations within each of these. The selected recommendations cover input, output, and transfer components of the HHE Program logic model. The overarching recommendations address areas that are integral to the basic operations of the HHE Program and are likely to be relevant and ongoing for many years. Many specific activities have been accomplished and are noted in this report. The narratives cover two periods: 2008-September 2011 and October 2012-present. Efforts to maintain those activities completed in the first period are described. For the second period, this report addresses continuing, modified, and new activities. See Appendix B for brief information about recommendations not selected for on-going monitoring.

We are building on the strong foundation of the HHE Program with guidance from the NA’s 2008 recommendations and the BSC’s 2011 input.

## Monitoring Implementation of Selected Recommendations

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(Note: the recommendation numbers refer to those used in the NA report.)

### Recommendation 2

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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.

### Background

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#### Status as of September 2011

In progress

#### External Factors

External factors influence whether stakeholders submit HHE requests and the issues that are of concern to them. Unions, whose representation in the workforce has decreased, may not be in a position to submit requests. Not only do unions represent fewer workers, but they are less likely to represent minority workers and workers in small businesses. Without union support, particularly during difficult economic times, employees' fear of reprisal by their employers can be a disincentive to submitting HHE requests. Community groups advocating for underserved workers cannot submit HHE requests. Many underserved populations work in areas not subject to HHE Program authority, e.g., jobs with ergonomic hazards in the service sector or safety hazards in construction.

### Implementation of Recommendation

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#### Activity 2E: Partnerships with Underserved Populations, Small Business Employers & Employees

##### *Description*

To move forward strategically in developing partnerships, we identify priority areas for outreach. We develop HHE Program strategic goals by considering priorities of the National Occupational Research Agenda (NORA) sector programs, interests and expertise of HHE Program staff, and stakeholder needs. Our efforts focus on networking with and gathering information from key informants, and leveraging ongoing efforts of other NIOSH programs.

##### *Progress as of September 2011*

In our FY10 and FY11 strategic plans, we identified specific outreach targets. We hired an industrial hygienist fluent in Spanish to lead our efforts related to underserved populations. The following items demonstrate our progress:

- Completed a literature review and outreach to occupational safety and health experts for the automotive repair industry that helped us connect with the Coordinating Committee for Automotive Repair, an industry, education, and government partnership. This partner is helping us set up observational walkthroughs at auto body shops to identify priorities and potential evaluation sites.
- Completed a literature review and outreach to occupational safety and health experts with knowledge of green jobs (e.g., in wind, solar, and geothermal energy, biofuels, recycling) led to the identification of three priority areas for future outreach, (1) construction,

infrastructure, and repurposing of materials; (2) manufacturing and emerging technologies; and (3) waste management and recycling.

- Developed a process for translating summary portions of all HHE reports into Spanish
- Held a training session for our staff on communicating with non-English-speaking populations.
- Contacted organized labor to request links between their websites and the HHE Program website.
- Met with the Ohio Bureau of Workers Compensation, which assists small employers in the state. We are working together to help a small employer for whom we completed an HHE receive grant money from the Bureau to upgrade the ventilation system in his workplace.
- Participated in discussions with the National Healthy Nail and Beauty Salon Alliance and the National Asian Pacific American Women's Forum about hazards in salons. This networking increased awareness about the HHE Program.
- Participated in NIOSH-sponsored meetings and conferences regarding underserved populations, which helped us identify new groups and individuals for outreach.
- Completed focus groups and a website design research project with small business employers and employees. These efforts helped us plan for new HHE Program marketing brochures and website enhancements.
- Continued ongoing interactions with organized labor, specifically targeting unions representing many underserved workers, including the United Food and Commercial Workers Union and UNITE HERE.

### *Impact as of September 2011*

Our outreach efforts have generated HHE requests. In 2011 we received two requests for evaluations at workplaces employing Hispanic workers. Both concerned ergonomic hazards in the service sector.

Our website continues to be an important communication medium. Many labor organizations linked their websites to ours, including the AFL-CIO, International Association of Firefighters, United Steelworkers, and Ironworkers, among others, as did the U.S. Small Business Administration. We redesigned our HHE website home page, request form page, and report search page using the results of our focus groups and research. We added Frequently Asked Questions and Help Mailbox tools.

About 10% of HHE requests since 2008 were submitted by unions; this percent has been fairly steady since the early 2000s. Since 2008, we conducted 15 field investigations (about 15% of the total) for workers represented by the United Food and Commercial Workers Union, UNITE HERE, International Brotherhood of Teamsters, United Mine Workers Association, American Federation of Government Employees, United Auto Workers, and two transit workers unions.

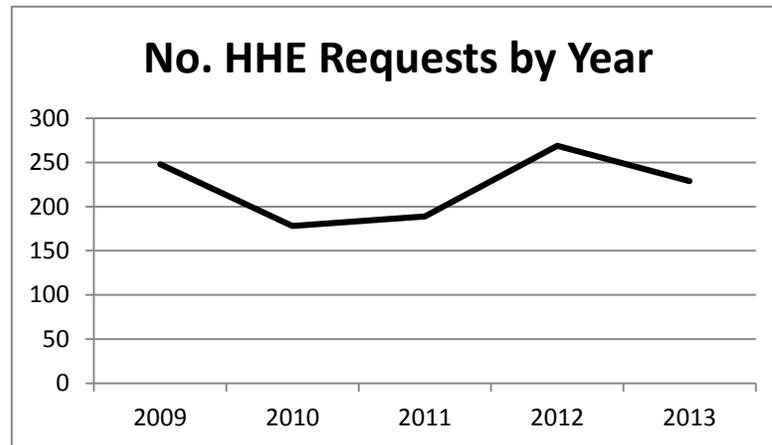
### *Future Plans as of September 2011*

We will annually review and revise our strategic plan to adjust for accomplishments and challenges and will continue the efforts described above. We plan to strengthen our relationship with the Center for Construction Research and Training, a nonprofit organization applying research, training, and service to the construction industry. We also plan to reach out to participants in the Manufacturing Extension Partnership program supported by the National Institute of Standards and Technology. This is a state-based program for small and mid-sized U.S. manufacturers. We will complete the redesign of our English language website and begin a redesign of the Spanish language pages.

## 2014 Update

### *External factors*

The external factors affecting the HHE program in 2009 remain today. Additionally, our focus group findings suggest that negative public opinion about government in general affects attitudes about all government programs, including the HHE Program. This negative perception may be contributing to the inconsistent trends in the number of HHE requests as shown in the figure below.



### *Addition of or modifications to activities since last review*

- We monitor and revise the HHE program strategic plan; although are moving from an annual to a multi-year plan. We will develop a new plan for 2015-2017.
- We began our outreach to the Manufacturing Extension Partnership program through their Facebook page but made no further efforts with this potential partner.
- We placed the redesign of the Spanish language HHE website pages on hold given resource constraints; however, this effort remains a priority for the future.

### *Progress made or maintenance efforts since last review*

We have kept the focus of outreach efforts on targeted populations. With each strategic plan revision, our targets have and will change to try to reach a broader audience as new opportunities arise and we learn from our successes and failures. In addition, as a result of the opportunistic nature of the HHE Program unanticipated opportunities for outreach are followed as they arise.

- We have strengthened our infrastructure for responding to the needs of underserved populations, particularly Spanish speaking workers. These changes included: (1) posting a Spanish language translation of all HHE report Highlights pages on our website and (2) developing a guide for project officers regarding obtaining foreign language translation and interpretation. A bilingual intern is facilitating this activity.
- As a result of ongoing communication with CPWR (The Center for Construction Research and Training), we received a request and are investigating exposures and health effects from the use of new insulation products. The focus presently is on aerogels, a synthetic porous ultralight material derived from a gel, in which the liquid component of the gel has been

replaced with a gas. This exposure affects a range of employer types and employee populations. The HHE Program maintains effective informal communications with the NIOSH construction sector program, which promotes and facilitates interactions with CPWR on issues of concern to them.

- We initiated a collaborative project with the Washington State Department of Health. This project focuses on minority small business owners in the dry cleaning industry. It addresses exposure characterization and controls for new cleaning solvents. We are evaluating four workplaces and providing recommendations specific to each. Additionally, the data will be combined and the findings used to develop communication products targeted to stakeholders, for example through dry cleaning industry trade associations.
- Other emerging hazards for which we have initiated evaluations include (1) exposures to dusts created when handling drugs at mail order pharmacies and (2) solvent and metal exposures at a wind blade manufacturing plant. Reports regarding the pharmacies have been completed and an HHE Program investigator presented the findings at a national meeting of pharmacy professionals. Pharmacy exposures affect large and small employers. A research proposal has been submitted for intramural funds to follow up on this work. The wind blade evaluation is ongoing, with a focus on assessing the potential for obliterative bronchiolitis and evaluating engineering controls for styrene. Although the evaluated worksite is a large employer, the exposures found at this worksite are common throughout many industry sectors in businesses of all sizes.
- We entered into a partnership with the U.S. Environmental Protection Agency (EPA) regarding electronic waste recycling. EPA contributed some funds for a telephone survey of electronic waste businesses. Through this survey, open invitations, and participation in trade meetings, three facilities requested HHEs. Many electronic waste facilities are small business employing non-English speaking workers. We will be writing a report and plan to disseminate the findings to occupational health and industry groups.
- We initiated and completed a multifaceted communication evaluation project that included: (1) an evaluation of our website re-design, (2) an evaluation of our revised HHE report format, and (3) development of two new HHE Program brochures, one for employers and the other for employees. The content of these brochures addresses issues particularly of concern to small businesses (such as public release of their business name) and underserved populations (such as sharing the names of employee requestors with their employer).
- Our [Facebook](#) page remains an important outreach tool. We regularly post four times a week and include general occupational health and safety information, links to our recent reports, and generalizable tips and findings from our evaluations. The number of new “Likes” each week is small but steady.
- We increasingly encounter situations where a high percent of the workforce has a language other than English as their primary language. Two recent successes in this area are inclusion of Hmong-speaking workers who accounted for a large percent of the workforce at an electronics waste processor and Haitian-Creole-speaking workers at a poultry processing plant. The need for foreign language translators and interpreters is challenging, yet presents opportunities for strengthening the impact of our work.

#### *Impact(s) made since last review (process or outcome related)*

- The HHE request mailbox on our website is a popular tool for stakeholders requesting HHE reports that are not posted on our website (i.e., before 1985). In 2012 and 2013, we filled requests from nearly 200 individuals who asked for 1 to more than 20 HHE reports each.

To a lesser extent, the mailbox serves as a first step toward submitting an HHE request. One or two requests per year have come through this mechanism. In many cases, however, in response to inquiries to the mailbox, the HHE Program provides assistance by answering technical questions, or by directing requestors to online resources and other agencies.

- We receive three to six requests per year from largely Hispanic workforces. Among all HHE requests, the proportion of requests from unions remains low, at 7% in 2012-2013. New union-requested evaluations that involved field investigations came from American Federation of Government Employees, International Association of Firefighters and another firefighter union, International Brotherhood of Teamsters, United Steelworkers, and an insulators union.
- The partnership with the EPA on electronic waste also led to new relationships with business and nonprofit groups that have performance-based certification programs. With input from the HHE program, these organizations have increased their outreach regarding occupational health and safety in their industry. They disseminated [information and recommendations from the HHE Program](#)<sup>1</sup>, particularly regarding occupational exposure to lead, to their stakeholders through print and online channels. HHE investigators were invited by a major electronic waste trade association to speak at their annual conference in 2014.
- Our followback surveys of HHE investigators show that about 40% of HHE field investigations address issues not well described in the scientific literature. These investigations provide findings that are disseminated through peer-reviewed publications, scientific meetings, and trade magazines.

#### *Future plans*

- We will explore the potential for outreach to workers centers to help us reach a broader worker audience. These non-profit, community-based organizations often advocate on labor issues among immigrant and low wage workers who are not union members and, increasingly, are involved with occupational health and safety issues. The HHE Program is limited, however, in what it can offer because the workers centers themselves cannot submit HHE requests.
- We will assess the potential for (1) intervention activities related to our work in the dry cleaning industry in Washington and (2) expanding this project to partners in other states.
- We will address recommendations from the marketing contractor related to the HHE website, final report format, and HHE Program brochures.

### *Activity 2F: Outreach to Federal, State, and Local Agencies*

#### *Description*

We focus on networking to increase awareness of the HHE Program and, when possible, formalize relationships. We are finding that prior collaborative work with other government agencies leads to new requests for assistance and referrals for HHEs.

#### *Progress as of September 2011*

By working with other NIOSH programs that support and develop state-based capacity in occupational health, we increased awareness of the HHE Program. We named an HHE Program

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<sup>1</sup> The full URL for all hyperlinks is provided in Appendix C.

liaison to the state-based surveillance efforts and participated in meetings with the Council of State and Territorial Epidemiologists (CSTE), including a joint meeting with this organization and the Occupational Safety and Health Administration (OSHA).

We presented information about the HHE Program to (a) OSHA managers in Regions I and V, (b) the annual meeting of the OSHA consultation program, (c) the semiannual meeting of the Occupational Safety & Health State Plan Association, (d) the Western States Occupational Health Network, (e) the Ohio Public Health Association, and (f) the NIOSH-OSHA monthly issues exchange group.

To ensure awareness of HHE activities and products, in 2011 we began notifying local health departments of field investigations in their areas and sending them our final reports. We distributed our first annual HHE Program report to OSHA regional and area offices and local health departments, among others.

We are developing a relationship with OSHA headquarters staff regarding emerging issues. We have discussed areas of mutual interest and shared information on topics including formaldehyde in hair treatments and chemical exposures during hydraulic fracturing. We established a partnership with the OSHA office of Occupational Medicine to compile and disseminate information about disease clusters, such as hairy cell leukemia in miners, and other instances of health outcomes with suspected but unconfirmed links to exposures. With OSHA regional and area offices, we have discussed opportunities to evaluate styrene exposure in wind vane manufacturing and how our Hispanic outreach efforts can complement OSHA activities.

#### *Impact as of September 2011*

Our participation in formative meetings with CSTE contributed to a plan to establish routine phone calls between NIOSH, OSHA, and CSTE. A priority area for these calls is how to involve the HHE Program in emerging issues and priority hazards identified through state-based surveillance.

Our efforts to increase awareness among state and local agencies led to HHE field investigations and technical consultations. We worked with the Puerto Rico Department of Health, OSHA, and the Environmental Protection Agency to ensure that workers at a battery recycling plant were protected from lead exposure. We contributed to an educational brochure which was distributed to these workers. We investigated the spread of campylobacter in poultry workers and legionnaire's disease at a metal shredding facility when employers requested an HHE at the prompting of public health agencies in Virginia and New York. In New York, we assisted the State during the H1N1 influenza pandemic and investigated flavoring ingredient hazards in the food service industry following technical assistance requests. We are working with an OSHA area office to assess exposures and workplace controls for perfluorooctanoic acid (a chemical of concern used to make nonstick cookware and all weather clothing) in a manufacturing facility in West Virginia. We surveyed employees in more than 20 workplaces and recommended approaches to overcome barriers to influenza vaccination among day care center workers following a request from an Ohio county social services agency.

A successful record of assisting other federal agencies has continued to spur new requests. For example, partners in the Department of Interior requested our assistance in evaluating a cluster of rhabdomyolysis in wildland firefighters, exposure to insecticides in wildlife population control workers, and radon exposures during the closing of abandoned uranium mines.

#### *Future Plans as of September 2011*

With available resources, we will nurture the relationships we have begun with OSHA and state agencies. We will identify the best options for new informational products for state health and labor agencies, including marketing brochures and a guidance document on when and how to request assistance from or make referrals to the HHE Program. We will look for opportunities to link the HHE Program to programs with common interests in the Small Business Administration and the Environmental Protection Agency.

## 2014 Update

### *Addition of or modifications to activities since last review*

- We are disseminating information about unusual disease clusters to professional partners through traditional communication channels. We no longer have a formal partnership with the OSHA Office of Occupational Medicine, because of their limitations on sharing confidential medical information, especially for active cases.

### *Progress made or maintenance efforts since last review*

- We are continuing our dialogue with internal surveillance colleagues and their state-based partners. This effort led to an ongoing collaborative project concerning lead exposures in battery plants in three states.
- We regularly presented HHE information and updates to the NIOSH and OSHA staff participating in a monthly phone conference. HHE-related topics in 2012 and 2013 included influenza, Deepwater Horizon response, disinfectant fogging, ortho-phthaldehyde, styrene, Valley Fever, Bronchiolitis obliterans, electronics recycling, Hurricane Sandy response, campylobacter infections in poultry workers, pharmaceutical dusts, beryllium and abrasive blasting, and poultry line speed. HHE investigators have also been asked to speak in a related series of phone conversations designed to bring together state health departments and OSHA.
- We developed and distributed an informational brochure about the HHE Program to all OSHA regional and area offices.
- We continue to work with OSHA to identify situations where an HHE request submitted after an OSHA citation is appropriate as part of an OSHA settlement agreement. This process has presented challenges regarding clarifying employer expectations and sharing of confidential medical information between agencies but we remain open to this avenue for HHE requests.
- We developed an informational [brochure](#) about the HHE Program for local health departments. We completed an initial round of dissemination to all departments (~500) in 10 states. In the first four months of 2014, the brochure was downloaded 645 times. We also announced the brochure through four NIOSH Twitter feeds and in NIOSH e-News, published a notice about it in Public Health Dispatch, the monthly electronic newsletter of the National Association of County and City Health Officials, and posted about its availability on the 12 state-specific Facebook pages for state affiliates of the American Public Health Association. We will have a poster presentation at the 2014 annual conference of the National Association of County and City Health Officials and have proposed a meeting with the Big Cities Health Coalition.
- We have been enhancing and promoting the [NIOSH Dampness and Mold Assessment Tool](#)

for visually assessing mold and dampness in buildings, particularly schools. This tool provides an simple, low cost, and effective way for business owners and property managers to identify and problem areas and set priorities for intervention.

*Impact(s) made since last review (process or outcome related)*

- Our work with the Virginia Department of Health regarding campylobacter infections in poultry workers is a good example of a successful federal-state partnership. Staff from the state participated in our initial evaluation and was involved when we made a return visit to the plant 2 years later. We observed and heard about improvements in training, communication, personal protective equipment programs, and work practices. Data from the state showed that the incidence of reported infection decreased about 70% in the 2 years after our evaluation. We learned that our recommendations for one plant and the employer’s response to them were shared with the company’s corporate staff; these efforts are being used as a model across the company’s five plants and 4,700 employees. The plant manager wrote the following to us:

“We are so appreciative of what your Team has done for us since that initial visit back in 2011. I think the words in the Closing Conference reflected the partnership approach we have had and the successes because of that working relationship. We are certainly all the better for it at our Plant –our process is chicken but we are in the people business – and that means keeping everyone of or employees healthy and safe in our workplace. “
- Our work documenting a high prevalence of carpal tunnel syndrome in a poultry processing plant is highlighted by NIOSH in its new [poultry industry workers topic page](#). The report is included as a Highlight on the [OSHA poultry processing](#) webpage and the findings are included in OSHA’s updated [guidelines for preventing musculoskeletal injuries in poultry processing](#). The report received national media attention including stores in the [Huffington Post](#) and in online occupational safety and health [blogs](#).
- Through a collaboration with management and union representatives in the School District of Philadelphia, the NIOSH Dampness and Mold Assessment Tool was used in the 249 buildings. Enhancements to the system are being integrated into their systems for ongoing use. To extend this work, our staff successfully competed for funding for new projects and collaborations for an online health questionnaire and training in Connecticut and New York City.
- We entered into a partnership with the U.S. Environmental Protection Agency (EPA) regarding electronic waste recycling. EPA contributed some funds for a telephone survey of electronic waste businesses. Through this survey, open invitations, and participation in trade meetings, three facilities requested HHEs. Many electronic waste facilities are small business employing non-English speaking workers. We will be writing a report and plan to disseminate the findings to occupational health and industry groups.
- In response to the initial distribution of our brochure to local health departments, one department wrote “Thank you! I'm so glad I took the time to check this out. I completed the survey. This is an awesome resource for my line of work.” Nearly 90% of the 87 health departments that responded to our survey said that they were not familiar with HHE Program prior to receiving the brochure and that it is relevant to their work. After reading the brochure, more than 70% of respondents said they are likely to contact the HHE Program. About 80% said they are more likely to contact HHE Program now than in the past. About 80% said they were very or somewhat likely to refer someone to the HHE Program; most were more likely to do so after reading the brochure. These responses demonstrate

the need for the information and point to an area where additional outreach efforts would be useful.

- Our evaluation of influenza vaccination at Ohio day care centers was strongly supported by the county social services agency and participating employers, the majority of whom were small business owners. With their assistance, we developed and disseminated the NIOSH web-based document titled "[Common misconceptions about the flu among people who work in child care settings](#)," which is available in English and Spanish.

### *Future plans*

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- We are planning a webinar for health and safety inspectors in OSHA area offices to highlight recent HHEs. Following the distribution of our brochure, we learned that the OSHA offices were interested in more opportunities to interact with the HHE Program.
- We are reaching out to stakeholders in the public health community to further disseminate our brochure for local health departments. The National Association of County and City Health Officials included a notice about the HHE brochure in a recent electronic newsletter.
- We are just beginning to work with volunteers from several states health departments to develop a guidance document about making referrals to the HHE Program.
- We are developing a mobile "app" for the NIOSH Dampness and Mold Assessment Tool and will make it available for download on the NIOSH website
- We will work with EPA's Indoor Air Quality - [Tools for Schools](#) representatives to integrate the assessment tool into their program. This program is a cornerstone of EPA extensive program to reduce exposures to indoor environmental contaminants in schools through the voluntary adoption of sound and effective management practices.
- As part of NIOSH Program Portfolio activities, we have proposed that the HHE Program and the NIOSH Small Business Cross-Sector explore collaboration opportunities.

## Recommendation 3

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

### Background

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#### Status as of September 2011

In progress

#### External Factors

The best information about relevancy, feasibility, and effectiveness of HHE recommendations comes from employers, employees, and employee representatives at investigated facilities. Our ability to obtain this information can be hindered by the reluctance of employers to participate in follow back efforts once our investigation is complete and by downsizing and turnover in the workforce leading to the departure of key personnel involved in the investigation. We have learned that institutional memories can be short.

## Implementation of Recommendation

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### Activity 3C: Systematic evaluation of relevance and impact

### *Description*

We survey key contacts at all investigated facilities and a sample of HHE requestors for whom we provided consultative assistance. These surveys produce information about stakeholders' satisfaction with our work and the impact it had in addressing their concerns. We also encourage project officers to document informal feedback during an investigation. In selected instances, we do follow up investigations. These can happen as part of the original evaluation (when we know that changes will be made in the near term) or after we release our final report.

### *Progress as of September 2011*

We worked with cooperative employers to document the effectiveness of HHE recommendations to control legionella exposure in a metal shredding facility, upgrade ventilation in a homeless shelter to prevent tuberculosis transmission, and improve personal protective equipment use and upgrade ventilation in an animal sanctuary to prevent tuberculosis transmission. We visited a wood cabinet manufacturer and a parts distribution warehouse and found that most of our ergonomic recommendations were implemented.

We instituted a new procedure to call key employer and employee contacts shortly after the release of an HHE final report. In these calls we answer questions about our report, learn what actions have been taken or are planned, learn about intermediate outcomes (e.g., redistribution of our report), assess the need for an onsite briefing, and lay the groundwork for a return visit to assess implementation of recommendations.

### *Impact as of September 2011*

Our follow back efforts provide data for monitoring progress on our strategic plan and making program adjustments. For HHEs started in 2007–2009 and completed by 2010, 93 percent of respondents reported that recommendations made during the closing conference or in the final report had been implemented, 97 percent reported that the recommendations were useful, and 89 percent reported that the recommendations were practical. When asked whether the NIOSH evaluation made things better at the workplace, 82 percent answered positively. These data are used by HHE Program managers and by the NIOSH Office of the Director for monitoring progress towards meeting the CDC Director's goals and the Institute's goals under the Government Performance and Results Act.

### *Future Plans as of September 2011*

We will continue our data collection efforts, placing greater emphasis on finding opportunities for follow back site visits. To complement our ongoing work, we will continue a newly established dialogue with the NIOSH economics cross sector program to help us gather information about the economics of implementing HHE recommendations and the financial barriers and motivators to making recommended workplace changes.

We will develop new products based on our follow back efforts so that others may benefit from our findings. We plan to develop case studies from our onsite follow back site visits and post these on our website and our Facebook page to share the lessons learned. We hope to use a variety of formats (e.g., text, video).

## 2014 Update

### *Addition of or modifications to activities since last review*

- None

### *Progress made or maintenance efforts since last review*

- We are working on a scientific manuscript describing our follow back site visit efforts after getting external peer review comments.
- We continue to offer employer and employee contacts the opportunity to discuss the final HHE report with us about 1 month after its release. For the 52 reports issues in 2012 and 2013, the outcome of our call efforts is as follows:

Outcome	%
Held call	46
No response to invitation	16
Decline call*	17
*Includes (1) those who said that they were satisfied with the report, had no questions and did not need a call, and (2) those who refused	

- We have not progressed on plans for new products based on follow back efforts, including, case studies. This activity, however, remains a priority.
- When we are able to do an on-site followback evaluation, we look for opportunities to incorporate information about the economic impact of implementing our recommendations.

### *Impact(s) made since last review (process or outcome related)*

Our follow back efforts provide data for monitoring progress on our strategic plan and making program adjustments. Data from 2009-2013 shows that 94% of respondents reported that recommendations made during the closing conference or in the final report had been implemented and 88% said that the NIOSH evaluation made things better at the workplace. These data are used by HHE Program managers and by the NIOSH Office of the Director for monitoring progress towards meeting NIOSH Program Portfolio and the CDC Director's goals. We are modifying our followback survey to include more items allowing us to assess impact at evaluated work sites.

The following are examples of impact learned from followback activities.

- Following our evaluation of smoke simulants used during firefighter training, the Fire Captain reported that he planned to use our findings and recommendations in a presentation he gives at a nationwide annual training conference for fire department instructors. Independently, we learned that our report of this evaluation was sent to all 200+ members of the Interagency Fire Board (a voluntary organization of emergency preparedness and response practitioners from a wide array of professional disciplines that represents all levels of government and operational, technical, and support organizations.) Our report has been picked up by an [online newsletter](#) for the fire service community.

- The safety manager at a drum refurbishing facility told us that he implemented our recommendation to start a management and worker health and safety committee. Previously, he thought that because it was a small company, the workers would speak up if they had workplace health and safety concerns. Since beginning the committee, however, he learned that his assumption was incorrect; the committee was very helpful in addressing concerns he had not known about.
- The manager and safety director at the second largest cemetery in the United States reported that they were using our recommendations to help them make decisions about purchasing new equipment. Our recommendations regarding ergonomic and vibration hazards also prompted them to institute new engineering and administrative controls to reduce exposures.

We also learn of impact through other sources. For example, an OSHA Voluntary Protection Program team evaluated a snack food production facility after we completed an employee-requested HHE. We had recommended enhanced engineering controls, modified work practices, and mandatory use of respiratory protection to reduce risk; the OSHA team reported that the company agreed with our recommendations and had taken steps to implement them.

#### *Future plans*

- We will continue to administer followback mailed surveys, offer opportunities for conference calls to discuss our final report, and make followback site visits. We will refocus our efforts on sharing our experiences from these followback visits (for example, the evaluation of campylobacter exposure at a poultry plant) through our website.

### *Activity 3E: Quality assurance for HHE reports*

#### *Description*

We maintain procedures for consistent, thorough, ongoing internal review of all reports and correspondence. These procedures involve multiple levels of supervisory and management review and, in selected cases, internal and external peer review.

#### *Progress as of September 2011*

We developed a formal, written quality assurance plan for HHE final reports. This plan is being incorporated into the HHE Procedures Manual and shared with HHE investigators in periodic HHE Refresher Training.

We developed a program for obtaining retrospective, external peer and stakeholder review of HHE reports (including consultative assistance and field investigation reports). From participants in our newly formed HHE Alumni Network, we solicited the first round of volunteer reviewers, developed a review form, selected a random sample of reports and letters completed in the past year, and distributed these documents to the reviewers. We expect reviewers to submit comments by the end of November 2011.

Ongoing maintenance and revisions to our HHE Report Style Guide and HHE Procedures Manual contribute to the quality of our products by ensuring consistency and facilitating report preparation and review.

#### *Impact as of September 2011*

As a result of these efforts, project officers have a better understanding of what reviewers expect in a final HHE report. This makes the report preparation process more efficient and reinforces the emphasis on report quality. Internally, our reviewers have noted steady improvements, cutting down on the time needed for review and resulting in improved products.

### *Future Plans as of September 2011*

We will continue the external peer review program and share the findings with HHE investigators. After several rounds, we will assess its ongoing utility to the HHE Program, seeking feedback from participating reviewers. Although not solely a quality assurance initiative, we plan to roll out a revised version of our standard HHE report. The new version will streamline the report contents, target the report contents to the primary customers (employers and employees), and enhance the visual appeal of the product.

## 2014 Update

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### *Addition of or modifications to activities since last review*

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- None

### *Progress made or maintenance efforts since last review*

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- We revised our procedures and requirements for developing project plans and protocols. An important factor affecting the quality of our final report is the quality of the planning effort at the beginning of the project. To help ensure that evaluation objectives are clear and well thought out, all components of the evaluation are appropriately coordinated, methods are matched to objectives, and the right resources are available.
- We completed two rounds of external peer reviews of completed HHE reports. We sought volunteer reviewers from the HHE Alumni network. For each randomly selected report for review, the reviewers provided thoughtful comments. Most of the comments have been specific to the report reviewed and have addressed issues that we had carefully considered or issues we could not have addressed in the evaluation. We shared project-specific recommendations with the report authors. We also looked for generalizable comments and shared them with all staff. Examples of general issues include the following:
  - Ensuring that recommendations for respiratory protection are supported by our air sampling results.
  - Clearly distinguishing between recommendations that address a gap at the investigated facility from those that are a statement about good occupational health.
  - Not speculating when it would have been possible to collect information to make more definitive statements.
  - Going a step further in some evaluations. For example in a small business with limited resources, consider doing additional sampling ourselves rather than recommending that the employer do it.
  - Making sure that the “boilerplate” recommendations are tailored to the facility evaluated.

Overall, the reviewers commented that the discussions of the results are thorough, and the conclusions and recommendations are scientifically credible. We have not seen any consistent threads in the comments addressing major areas where changes are needed. In

our opinion, the value of this effort remains to be seen. We will initiate another round of reviews this year and make a decision about continuing this activity.

- We have maintained our efforts to work closely with supervisors regarding report review and are updating our procedures manual to reflect current practice.
- We completed the planned changes to our standard HHE report.

#### *Impact(s) made since last review (process or outcome related)*

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- Mailed followback survey results show that 92% of respondents rate the HHE final report as excellent or very good. In the followback conference calls, employer and employee representatives generally describe the report as thorough, easy to read, and helpful. In some cases, comments about the technical information, particularly the statistical analysis, are made, and in other cases, some respondents requested clarification of specific details. As with the external peer reviews, no consistent threads have emerged.
- The HHE Program was contacted by a manager from the United States Army Public Health Command, which has activities similar to the HHE Program. Having a favorable impression of a recent HHE report, they were interested in learning about our quality assurance program. We discussed common interests, shared our written program guidelines and HHE report style guide, and agreed to be available for further consultation as needed.

#### *Future plans*

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- We will continue to mentor new staff, emphasize the focus on planning high quality evaluations, and writing comprehensive but understandable reports targeted to our primary stakeholders—the employer and employees at the facilities evaluated.
- We will be using feedback from focus group evaluations of our final reports and new CDC communication guidance to update the report design, layout, and organization.

## Recommendation 5

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

### Background

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#### Status as of September 2011

In progress

#### External Factors

Lack of awareness of the HHE Program limits the transfer of HHE Program outputs. Travel budget reductions impede our ability to carry out face-to-face interactions with stakeholders who can be avenues for transfer. Use of social media brings new opportunities. But, as we are learning with the launch of our Facebook page, significant resources are needed to initiate and maintain these efforts and the impact is slow to be realized.

## Implementation of Recommendation

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### Activity 5: Innovative techniques for reaching small businesses and underserved populations, including using community and small-business groups to translate HHE results and findings

#### *Description*

Our efforts focus on identifying dissemination venues to reach new audiences, enhancing our website, and translating HHE materials for non-English speaking populations.

#### *Progress as of September 2011*

We successfully used trade publications to target HHE information to specific stakeholder audiences. From January through September 2011 alone, we published 10 articles in trade publications, including *Wildlife Rehabilitation Bulletin*, *American Drycleaner*, *Ceramics Monthly*, *Countertops and Surfaces*, *Evidence Technology*, and *Screen Printing Magazine*, to name a few.

NIOSH continues to emphasize its website as an important path for information transfer. To contribute to this effort, we modified the NIOSH Indoor Environmental Quality website (which was developed and is maintained by HHE Program staff) to add information about common issues and solutions identified in HHEs. We also modified the HHE Program website as described above (*see Activity 2E: Partnerships with Underserved Populations, Small Business Employers & Employees*).

In 2011 we launched the HHE Program Facebook page. Four days per week, we post notes about recent investigations, questions about our readers' interests and concerns, photos from our investigations, profiles of our staff, and facts about our program.

When possible, we distribute HHE materials at conferences through the NIOSH booth or a specific HHE Program display. We provide copies of HHE reports relevant to the specific event.

In several instances, we took steps to ensure that workers received information in their native language. We assisted the California Department of Public Health in translating materials for flavoring workers, which then were posted on their website. We developed survey and other field investigations tools in Spanish for flavoring workers and poultry workers. We also partnered with a local health department to ensure that we communicated effectively with workers from the Marshall Islands.

We have two NIOSH numbered documents in progress. One is an alert concerning indoor environmental quality, highlighting common problems and solutions. The other is a compilation of HHEs addressing noise exposure and hearing loss in the past 10 years.

#### *Impact as of September 2011*

In nearly all instances we have identified an appropriate trade publication for HHE findings. Magazine editors gladly received our information and worked with us to move from submission to publication in a timely manner. The editor of *EndoNurse Magazine* reported that our article on sterilization chemicals was viewed online over 3,000 times, well above average for the time posted.

Since the 2010 addition of the HHE Request Help Mailbox to our website, we have responded to nearly 200 inquiries. Several led to HHE requests. Many others have been requests for older HHE reports unavailable on our website. We used this opportunity to update the website to make the reports more accessible to others.

The Facebook page ([www.facebook.com/health.hazard.evaluation.program](http://www.facebook.com/health.hazard.evaluation.program)) has slowly increased its readership. It is, however, too early to assess its impact.

### *Future Plans as of September 2011*

We believe that publishing HHE findings in trade publications will have a long-term payoff in terms of program visibility and information transfer, and we will continue these efforts. We will explore options and place new types of content on our website, e.g., short video clips based on HHE findings.

## 2014 Update

### *Addition of or modifications to activities since last review*

- We suspended our work on a compilation of HHE summaries regarding occupational noise exposure. After getting input from stakeholders we decided to go in a new direction for sharing information. Because our reports are readily available on our website and our search engine has made them easier to find, a summary document is less useful now than it was in the past. In its place, we are moving toward making HHE exposure data available on our website. We plan to do this incrementally and have begun with noise. Exposure data collected over the past 10 years has been compiled and should be posted in 2014. We are identifying priorities for similar efforts focusing on other exposures.

### *Progress made or maintenance efforts since last review*

- We completed two HHE Program videos.
  - [The first video is an overview of the HHE Program](#) (NIOSH Publication No. 2013-154). It has been widely disseminated through Facebook (HHE Program and NIOSH pages, partner/stakeholder pages such as the Small Business Administration, USW Tony Mazzocchi Center, American Association of Occupational Health Nurses) and Twitter (several NIOSH accounts). We announced the video in NIOSH eNews and posted it on our website and on YouTube. We include a link to the video in all responses to inquiries to the HHE help mailbox. In its first 8 months on YouTube, the video had about 1,800 views.
  - [The second video is an explanation of the use of sampling devices](#) (e.g., air sampling pumps and noise dosimeters) in our evaluations (NIOSH Publication No. 2014-118). Although it is primarily intended for our investigators to use in the field, its nontechnical, entertaining presentation makes it a good candidate for wider dissemination. We plan to distribute it to educators in academic industrial hygiene training programs. In its first 3 months on YouTube, the video has had over 800 views.
- We completed a [2012 HHE Program annual report](#) and distributed it to a mailing list of about 300 individuals, agencies, and organizations. This list included Councils for Occupational Safety and Health (community groups that often work with underserved populations), and OSHA Hispanic Outreach Coordinators and Labor Liaisons. Our 2013 report is nearly complete.
- We use a comprehensive r2p strategy for HHE reports. It starts with getting stakeholder and customer feedback on the design and content of our reports (as recently completed through focus groups) and making changes in response. It includes gathering and assessing feedback

on the value of our reports in worksites where HHEs were requested. And, it includes active use of social media, our website, NIOSH e-News, and other public health communication channels to widely distribute the reports.

- We continued posting all final reports on our website, announcing them through NIOSH eNews and the HHE Program Facebook page, sending them to the appropriate NORA sectors and cross-sectors, and publishing summaries in the *International Journal of Occupational and Environmental Health*. We began posting a Spanish translation of the Highlights (plain language) page for every report and a Spanish translation of the full report when warranted.
- Our [Facebook](#) page remains an important outreach tool. We regularly post four times a week and include general occupational health and safety information, links to our recent reports, and generalizable tips and findings from our evaluations. The number of new “Likes” each week is small but steady.
- We are publishing HHE findings in trade publications at the rate of about four per year. For example, *American Jails* published an article about an evaluation regarding risk for tuberculosis in immigrant detention facility staff and *Parks and Recreation* published an article about the hazards faced by workers who maintain composting toilets. We are implementing a plan to produce more of these types of articles.
- We published the NIOSH Alert, [Preventing Occupational Respiratory Disease from Exposures Caused by Dampness in Office Buildings, Schools, and Other Nonindustrial Buildings](#). It was authored by HHE staff and largely derived from the findings from HHEs.
- Notices about new HHE reports have been “tweeted” by others at NIOSH, e.g., @NIOSH and @NIOSHNoise.
- For the past several years our investigators have held a well-attended roundtable session featuring HHE activities at the annual meeting of the American College of Occupational and Environmental Medicine. We remain committed to offering a strong rotation program for occupational medicine professionals in training. In 2013, we hosted nine occupational medicine residents, a number consistent with prior years.

#### *Impact(s) made since last review (process or outcome related)*

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- The HHE Program Facebook page has 540 “Likes.”The “likes” are by people from around the world, 49% of whom are outside the United States. We proactively seek opportunities to share information with other Facebook pages with common interests and goals.
- The NIOSH Alert on dampness was posted by many organizations and agencies on their websites including the American Industrial Hygiene Association, EPA, National Safety Council, Washington State Department of Labor and Industries, West Virginia Department of Health and Human Resources, South Carolina’s American Society of Safety Engineers, University of Medicine and Dentistry of New Jersey, Canadians for a Safe Learning Environment, and the Global Health Network. We have learned from school officials, industrial hygienists, environmental consultants, restoration personnel, other government agencies, and standards-setting organizations that they plan to use the guidance in the Alert in their work. In 2013, the NIOSH Alert had about 9,500 page views for the English version and 8,000 for the Spanish version.

#### *Future plans*

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- We will look for ways to evaluate the effectiveness and use of the HHE videos as a promotional tool. Guided by the findings, we will develop new video products, for example investigator narrations of HHE highlights.

- We will evaluate the impact of the public release of HHE exposure data by monitoring their use on the internet, tracking citations, and seeking feedback from users.

## Recommendation 6

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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.

## Background

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### Status as of September 2011

In progress

### External Factors

In the current economic climate, participation in conferences by public and private sector individuals and organizations appears to be declining. This results in fewer opportunities for developing the personal relationships that facilitate organizational partnerships and linkages.

## Implementation of Recommendation

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### Activity 6A: Communication with federal and state occupational safety and health agencies

#### *Description, Progress, Impact, and Future Plans as of September 2011*

In addition to the work summarized above in *Activity 2F: Outreach to Federal, State, and Local Agencies*, we hold annual 2–3 day training meetings for state- and local-assigned Epidemic Intelligence Service officers. Collaborative projects and consultations arise from information exchanged at these meetings. The benefits extend beyond the HHE Program and lead to HHE activities, including investigations of indoor environmental quality in a damp county office building in Wisconsin and a sarcoidosis cluster in a Vermont office building. These meetings will continue, as will new efforts to build relationships with other parts of CDC, such as ongoing work on zoonotic diseases.

## 2014 Update

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### *Addition of or modifications to activities since last review*

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- None

### *Progress made or maintenance efforts since last review*

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- We have continued the annual training of Epidemic Intelligence Service officers assigned to state and local health departments. In the past two years, 65 individuals attended the training.
- We have maintained our efforts to seek collaboration with partners in other parts of CDC. Areas of mutual interest identified to date and for which recent activity has occurred include outreach to local health departments, Valley Fever among prisoners and prison employees in California, influenza immunization practices and attitudes among school employees, the intersection between food safety and occupational health (as in the poultry and

meatpacking industries), bloodborne pathogen exposure in the body donation industry, and flame retardants. These activities have brought us together with the Office for State, Tribal, Local and Territorial Support, the National Center for Immunization and Respiratory Diseases, the National Center for Emerging and Zoonotic Infectious Diseases, and the National Center for Environmental Health.

- We have made significant contributions as authors and reviewers for the draft NIOSH criteria document and risk assessment for diacetyl. Two peer-reviewed publications for our HHEs were completed and are cited in the draft criteria document.

#### *Impact(s) made since last review (process or outcome related)*

See page 6 in Activity 2F: Outreach to Federal, State, and Local Agencies Impact(s) made since last review (process or outcome related).

#### *Future plans*

- The activities and directions indicated above as maintenance efforts will continue.

### **Activity 6C: Interaction with the National Occupational Research Agenda sector councils and the NIOSH Board of Scientific Counselors**

#### *Description*

The activities of NIOSH and its partners through NORA are an input to the HHE Program and a means of information transfer. We provide selected sector programs with annual summaries of HHE requests and completed HHE reports. HHE Program staff participates on the councils for the manufacturing, service, and public safety sector programs. HHE Program staff also participate in the hearing loss, small business, communications, respiratory disease, emergency preparedness and response, exposure assessment, personal protective technology, and dermal diseases cross-sector program steering committees. Connections made through their participation foster collaborative efforts across programs and contribute to intermediate outcomes of the HHE Program.

#### *Progress as of September 2011*

The HHE Program 2011 strategic plan incorporates NORA sector program priorities. For example, the service sector program fostered our work with the Coordinating Committee for Automotive Repair. In addition, HHE Program staff gave presentations at the 2011 NIOSH Symposium and the 2011 NORA Manufacturing Sector Conference; because these conferences were in Cincinnati, we were able to have several participants. An HHE investigator was selected by the NORA manufacturing sector for its New Investigator Award on the basis of his evaluation of manganese exposures at a manganese dioxide processing plant.

#### *Impact as of September 2011*

Involvement with NORA activities has helped us network with stakeholders and indirectly led to one or two HHE requests. Other impacts have yet to be determined.

#### *Future Plans as of September 2011*

We will ask sector program managers and council members for feedback on the HHE information we provide and modify it, as needed. We also will continue monitoring sector goals to identify opportunities for aligning them with goals in the HHE Program strategic plan.

## 2014 Update

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### *Addition of or modifications to activities since last review*

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- None

### *Progress made or maintenance efforts since last review*

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- The HHE Program provides relevant HHE reports to each sector and cross-sector manager and coordinator when a report is released. In addition, it prepares and distributes a sector-specific annual report tallying information about new HHE requests in the sector.
- The HHE Program reviews sector goals annually and will use this information in the upcoming update of its strategic plan. HHE program investigators identify potential areas of interest when considering proposals for internal funding. For example, HHE investigators reached out to the service sector program regarding mutual interests in electronic waste recycling. Because HHE Program requests are largely driven by the HHE request stream and the sector programs' goals are established by internal and external partners to address various agendas, at a specific point in time, alignment is not always possible.

### *Impact(s) made since last review (process or outcome related)*

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Individual sector and cross-sector managers report satisfaction with and value from getting HHE reports. We are unaware of specific actions taken, however, because of these reports.

### *Future plans*

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The activities and directions indicated above as maintenance efforts will continue.

## Recommendation 7

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Initiate formal periodic assessment of new and emerging hazards.

## Background

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### Status as of September 2011

In progress

### External Factors

The changing economic, social, cultural, and political landscape in the U.S. means that the HHE Program must reach out to new populations to remain relevant and address high priority needs. We continuously balance our resources to meet the expectations of stakeholders for us to respond promptly to unsolicited HHE requests, yet move towards being proactive and generating HHE requests. We are, however, subject to the legal limitations on our authority and have encountered employer resistance in some instances. As the HHE Program becomes more

proactive in generating requests it seeks to remain a unique resource for employers and employees to get help in identifying and solving problems.

#### Activity 7A: Evolution from a passive to a proactive program seeking opportunities for field investigations

##### *Description*

We use the networks and partnerships described throughout this report to identify new investigative opportunities.

##### *Progress as of September 2011*

We have increased outreach to other government agencies, employers, labor, and other key stakeholders, resulting in new investigative opportunities. In addition, in 2011 we drafted issues and options for expanding the statutory language establishing the HHE Program. We continue to explore options for addressing this issue.

##### *Impact as of September 2011*

- Through contacts with physicians, we received two employee and one employer request regarding exposure to flavorings chemicals. Both led to HHE field investigations that have prompted new research areas (i.e., restrictive lung disease and flavoring chemicals)
- We contacted two companies to offer consultation and they submitted HHE requests, one to evaluate exposures and effects related to substitute flavorings and one to evaluate respiratory disease and indium exposure. The first investigation is complete and its findings disseminated. The second is in progress.
- We reached out to industry, government, and labor groups to find workplaces where we could evaluate pharmacy employees' exposures to dusts generated by automated pill dispensers. We distributed a report of our investigation at a large mail order processing facility.
- Following a referral from partners in the CDC's National Center for Emerging and Zoonotic Infectious Diseases, an employer submitted an HHE request to assess brucellosis, coxiella, and leptospira exposures at a marine mammal sanctuary. We completed a field investigation and are preparing the report.
- We worked with union health and safety leaders who were concerned about exposure of retail clerks to Bisphenol-A used in printing inks. As a result, local union officials for three employers submitted HHE requests. Subsequently, the employers phased out the chemical of concern; we are now gathering information about the substituted chemicals.

##### *Future Plans as of September 2011*

We will continue these efforts and document their impact on the HHE Program's mission.

#### 2014 Update

##### *Addition of or modifications to activities since last review*

- We discontinued activities specifically focusing on BPA and its substitutes. These issues were not a high priority for our partners and stakeholders.

### *Progress made or maintenance efforts since last review*

- We are working with NIOSH policy and legal staff regarding options for revising the regulatory language that covers the HHE Program.
- We have continued outreach and networking opportunities regarding pharmacy employees' exposures to dusts generated by automated pill dispensers. HHE Program investigators developed a research proposal to expand this effort. In addition to further exposure characterization, a proposed project for which we are seeking internal NIOSH research funds will involve collaborating with NIOSH laboratory scientists regarding the biological effects of exposures at the levels found in the workplace.
- The ongoing work in the dry cleaning industry (page 5) is an offshoot of our focus on emerging hazards.
- Emerging hazards often are discovered serendipitously during HHEs. In a recent evaluation of exposures at a paper tissue converting equipment manufacturer, we learned of three employees with bronchial-associated lymphoid tissue, a pathology not previously described in relation to metalworking fluids. This finding has led to collaborations with researchers at New York University to look for evidence of microbial DNA in lung pathology specimens from workers.

### *Impact(s) made since last review (process or outcome related)*

Our work on emerging flavoring hazards, which began through and continues in the HHE Program, has had significant impact throughout NIOSH and beyond. Within NIOSH, the draft criteria document and risk assessment rely heavily on HHE findings and HHE Program staff expertise. Animal toxicology studies have been initiated at NIOSH, the National Toxicology Program, and Duke University. NIOSH chemists have developed better analytic methods for diacetyl and their substitutes and new efforts are underway to develop better sampling methods that allow for measurement of multiple volatile organic contaminants in a single sample. Numerous peer-reviewed publications have involved or been stimulated by our work.

### *Future plans*

The activities and directions indicated above as maintenance efforts will continue.

## **Activity 7C: Gathering of information about emerging issues**

### *Description*

We monitor various sources to identify and prioritize emerging issues. These include the priorities of the National Toxicology Program, EPA, and OSHA, and reports of the European Agency for Safety and Health at Work and the European Chemical agency (REACH). Information from these and other sources is shared with staff and is discussed at management meetings for consideration when triaging HHE requests. By participating in professional activities, including conferences and ListServes, and responding to inquiries from the general public, we are informed about new issues.

### *Progress as of September 2011*

We created a list of new and emerging issues and used it to help target specific goals in the 2011 strategic plan, including the goals for green jobs.

### *Impact as of September 2011*

It is too soon in the process for impact to be assessed for these activities. We will periodically assess whether these activities generate new HHE requests or help stimulate new research initiatives.

### *Future Plans as of September 2011*

This is an ongoing effort that we are integrating into the fabric of the HHE Program.

## 2014 Update

### *Addition of or modifications to activities since last review*

- None

### *Progress made or maintenance efforts since last review*

- Emerging issues often are brought to our attention from unexpected sources or are uncovered when evaluating known hazards. Nonetheless, we remain attuned to new hazards posed by changing technologies, shifting work patterns, and changing worker demographics. For example, the addition of a health psychologist to our staff has enabled us to expand our work in the area of safety climate and work organization. These issues increasingly affect all workplaces but may impact those with underserved populations more significantly.
- The HHE Program's followback surveys provide information to monitor activity related to emerging issues. Based on the most recent data, project officers report the following for 85 field investigations:
  - 37% of investigations are for issues not well described in the literature
  - 14% of investigations are in a new or rapidly growing industry
  - 12% of investigation findings provide evidence of a new occupational hazard
  - 6% of investigations involve developing new analytic methods for exposure assessment

### *Impact(s) made since last review (process or outcome related)*

Impacts related to emerging issues and our efforts to identify them and communicate about them have been described above in various sections of this report. Exposures include pharmaceuticals (e.g., page 5), dry cleaning solvents (e.g., page 5), and flavorings (e.g., page 23). Health outcomes include newly identified lung pathologies and unusual disease clusters. Populations of interest include immigrants.

### *Future plans*

The activities and directions indicated above as maintenance activities will continue.

**Review of Progress Implementation Report for  
NIOSH Health Hazard Evaluation Program**

**Submitted by Board of Scientific Counselors**

**January 10, 2012**

**BSC Working Group Members**

**Bob Harrison**

**Clarion Johnson**

**Michael Kosnett**

**Jim Ramsay**

## Health Hazard Evaluation Program Score Sheet

**Directions:** For each recommendation listed below, please circle a score for each scoring element and provide a brief justification for the assignment of that score. The work group may provide scores in .5 increments where they deem appropriate. If the group chooses to do that, please put a .5 next to the corresponding number and circle that number.

### Recommendations In Progress:

***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.***

Relevance:            1        2        3        4        5 – **SCORE: 5**

Brief Justification: The changing nature of the workforce - including declining unionization, vulnerable workers, manufacturing jobs and part time and contract work – creates a challenge to reach populations for HHEs.

Sustainability:        1        2        3        4        4.5    5 – **SCORE: 4.5**

Brief Justification: These changes are likely to be permanent, and create the opportunity and challenge for NIOSH to develop innovative methods to reach these target audiences for HHEs. The program is encouraged to develop additional strategies to ensure that programs to reach these audiences are included in the strategic plan and sustainable (staff and other resources). Further thinking is also encouraged in terms of how this relates to the overall strategic plan implementation, and to broaden the audience to include the health care community as one target group.

Progress:             1        2        3        4        4.5    5 – **SCORE: 4.5**

Brief Justification: The progress to date has been impressive and the program is encouraged to track the types and patterns of requests as an evaluation tool. Other possible methods include the greater use of social media, and focus on specific industry and trade association relationships over a longer term.

Potential Impact:    1        2        3        4        5 – **SCORE: 5**

Brief Justification: Receiving a broad array of requests for HHEs is considered a priority for NIOSH, as the HHE program is one key mechanism within the Federal government to respond to emerging issues and create useful and timely products that can immediately reach diverse audiences.

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

Relevance:           1       2       3       4       5 – **SCORE: 5**

Brief Justification: The assessment of HHE recommendations is a key measure to determine whether the resources are targeted to the right issues in the workplace. This is highly relevant to NIOSH programs in general, as the HHE program through their evaluations can provide feedback of a very practical nature.

Sustainability:       1       2       3       4       4.5    5 – **SCORE: 4.5**

Brief Justification: The plans for continued work in this area are reasonable and efficient. In addition to examining the value of HHEs to the target worksite(s), the program is encouraged to seek broad input from industry, management and health care professionals regarding how they utilize and benefit from these documents. Formulation of a written quality assurance plan for HHE reports is recommended.

Progress:            1       2       3       4       5 – **SCORE: 5**

Brief Justification: The use of workplace surveys and external peer review shows that HHEs are useful and practical, and should improve the quality of published reports. Case studies published on the NIOSH HHE web site should also improve the impact of the results.

Potential Impact:   1       2       3       4       5 – **SCORE: 5**

Brief Justification: The HHE has made a substantial impact on the breadth of knowledge in occupational safety and health. There have been improvements in accessibility of the HHE reports through the web site, and strategies to make them even more “user-friendly.”

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

Relevance:           1       2       3       4       5 – **SCORE: 5**

Brief Justification: The use of alternative and efficient information transfer tools such as trade associations, web conferencing and trade association outreach should improve the relevance of the HHE program.

Sustainability: 1 2 3 4 4.5 5 – **SCORE: 4.5**

Brief Justification: The program has acknowledged the lack of awareness of the HHE program within its constituents and relevant federal agencies, and recognized the relative lack of resources to improve the visibility. The program is encouraged to use inexpensive techniques to multiple the messages from the HHEs. Partnering with occupational health professionals and occupational health training programs to increase awareness of the HHE program is encouraged.

Progress: 1 2 3 4 4.5 5 – **SCORE: 4.5**

Brief Justification: The use of trade associations, professional associations (ASSE, AIHA, ACOEM) can get the scientific information from HHEs into the hands of users. These users can disseminate results of HHEs, and act as early warning sentinels for issues and concerns. The program is encouraged to develop an R2P strategy for HHE reports.

Potential Impact: 1 2 3 4 5 – **SCORE: 5**

Brief Justification: The translation of findings from HHE reports have high potential impact on health and safety in the workplace.

***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.***

Relevance: 1 2 3 4 5 – **SCORE: 4**

Brief Justification: The program is encouraged to develop additional collaborative ties with other parts of the CDC (such as ATSDR, NCEH). Raising the visibility of the HHE program is considered very important and of high relevance, and greater efforts should be made in this area. The HHE program is still relatively poorly understood by local and State health departments.

Sustainability: 1 2 3 4 5 – **SCORE: 4**

Brief Justification: The program is encouraged to consider making this effort a greater priority for staff, but would need to balance this against other competing needs for HHE themselves. In the longer term, sustaining and/or growing the HHE program depends in part on improving these linkages.

Progress: 1 2 3 4 5 – **SCORE: 4**

Brief Justification: The program described relatively little in this area; while efforts have been made to develop these linkages, the program is encouraged to make this a greater priority as over the long run this make solidify support for the HHE program.

Potential Impact:      1      2      3      4      5 – **SCORE: 4**

Brief Justification: The HHE program is a crucial element of NIOSH and has a great potential impact as scientists evaluate workplace hazards and publish timely and relevant results. These can be used to improve linkages with many other programs within and outside of the CDC.

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

Relevance:              1      2      3      4      5 – **SCORE: 5**

Brief Justification: The HHE program has done an excellent job in demonstrating the relevance of its investigations across a broad range of new and emerging hazards.

Sustainability:        1      2      3      4      4.5      5 – **SCORE: 4.5**

Brief Justification: The program is encouraged to consider how to balance and differentially allocate adequate resources to ongoing “old” hazards with “new and emerging” hazards such as nanotechnology and alternative energies. The allocation of resources should be carefully monitored.

Progress:                1      2      3      4      5 – **SCORE: 4**

Brief Justification: The program is encouraged to develop greater specificity in its program planning to track progress in this area. Expanding the authority of the HHE program with statutory language change should be given high priority by both the HHE program and NIOSH director.

Potential Impact:      1      2      3      4      5 – **SCORE: 5**

Brief Justification: The HHE has historically had – and continues to have – potential enormous impact, with HHE findings often predating findings in the peer-reviewed literature.

## Appendix B. Recommendations not selected for review

Comments about recommendations not selected for ongoing review (following the organizational approach used in the March 2010 HHE Program Implementation Plan)

Recommendation	Comments Note: 2014 updates are bolded.
<p>2b Implement a formal mechanism to help requestors to formulate valid HHE requests or to make appropriate referrals.</p>	<p>Completed. In June 2010, we created a help mailbox on our website. We typically get a few requests each week. Many are for HHE reports not available on the website, but a few have led to HHE requests. We also have proposed revisions to the HHE request form to simplify it. We are awaiting OMB approval. <b>2014 update: OMB approval was received, but it is now time to renew again. We anticipate changes to the mechanics of the request form to bring it up to current web and security standards.</b></p>
<p>2c Develop an explicit process for classifying and prioritizing HHE requests.</p>	<p>Nearly completed. The process is final and documentation developed. We will post it on our website as we move forward with other revisions. <b>2014 update: To be completed</b></p>
<p>2d Better formalize the triage process and improve its transparency to HHE requestors.</p>	<p>Same as 2c</p>
<p>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.</p>	<p>We drafted issues and options for expanding the statutory authority. Discussions are ongoing. <b>2014 update: This effort continues.</b></p>
<p>2a Use professional meetings, surveillance data, etc. to assist in prioritizing field investigations and recognizing emerging issues.</p>	<p>This is interrelated with other objectives and will be accomplished through the other outreach efforts selected for monitoring (<i>see Activity 7C: Gathering of information about emerging issues</i>) <b>2014 update: This effort continues.</b></p>
<p>3c Conduct internal debriefings after site visits and report dissemination to systematically assess relevance and impact, and identify emerging hazards.</p>	<p>This is an ongoing, management priority. <b>2014 update: This effort continues.</b></p>
<p>7b Develop systematic approaches to identify hazards where OSHA permissible exposure limits are inadequate or nonexistent, unknown hazards, and known hazards in new circumstances.</p>	<p>This is a broad NIOSH recommendation extending beyond the HHE Program. The HHE program engages with other NIOSH programs and OSHA colleagues when opportunities arise. In addition, this is related to 7C, described below.</p>

Recommendation	Comments Note: 2014 updates are bolded.
<p>7c Establish and periodically review a tickler file of inconclusive or unexpected evaluation results to determine whether new trends or problems may be emerging.</p>	<p>This was started and it is too soon to evaluate impact. It is a component of our larger effort to network with OSHA on emerging issues (see <u>Activity 2F: Outreach to Federal, State, and Local Agencies</u>). A letter to the editor of a professional journal is the first output from this effort. <b>2014 update: Formal collaboration with OSHA has ended. We will seek opportunities to publish on interesting clusters or post notices on professional listservs.</b></p>
<p>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.</p>	<p>This is related to 7c and other networking measures.</p>
<p>8a Work with NIOSH management to avoid negative impact on routine activities as a result of emergency response activities.</p>	<p>This issue is influenced strongly by external factors (e.g., the Deepwater Horizon response in 2010). Emergency response is an important area of responsibility for the HHE Program. We are working with CDC partners to clarify our role in responses (e.g., anthrax, radiation) and working closely with the NIOSH Emergency Preparedness and Response Office to engage HHE program staff appropriately. <b>2014 update: This close collaboration has continued. HHE program staff have been an integral part of the team developing and implementing the ERMS system (define ERMS) and helped revise the CDC website regarding anthrax sampling.</b></p>
<p>8b Develop a mechanism to ensure continuation of routine operations in the absence of staff involved in emergency response.</p>	<p>Same as 8a</p>
<p>3a Explain the relevance, feasibility, and impact of each recommendation in HHE reports.</p>	<p>This was completed at the time of the Implementation plan. We modified the HHE report to provide a rationale for recommendations in the context of a hierarchy of controls approach.</p>
<p>3b Set priorities among report recommendations to indicate those requiring immediate action in the targeted workplace.</p>	<p>We considered this to be addressed as part of the changes made for 3a.</p>

Recommendation	Comments Note: 2014 updates are bolded.
<p>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.</p>	<p>We created an Alumni Network and have 67 participants. We will continue to explore how to use this to benefit the program but do not consider it a high priority for monitoring. <b>2014 update: We are producing an Alumni Newsletter (now twice per year). Whenever we send updates, respondents indicate they want to continue to be included. From time-to-time we use the Alumni list to solicit reviewers for HHE Program products.</b></p>
<p>4a Increase recruitment for training rotations; develop more attractive training, mentoring, and rotations.</p>	<p>Without significant new resources, we are unable to do this to any great extent. Nonetheless, we developed and implemented a standard curriculum to enhance the quality of the rotation experience for occupational medicine trainees and have agreed to host a Korean industrial hygienist for 1 year. <b>2014 update:</b> <b>1) We hosted a guest researcher from a provincial health agency in China for 15 months. .</b> <b>2) We formalized a partnership with the U.S. Air Force to host 4 trainees per year and provide lecturers for their training programs.</b></p>
<p>4c Use ERCs and other university-based training programs to involve trainees in HHE field investigations.</p>	<p>We were already doing this and have continued as is feasible. Scheduling conflicts can be a problem.</p>
<p>4d Collaborate more formally with ERC faculty and other extramural researchers to assist in field investigation, dissemination, and training.</p>	<p>When feasible (e.g., considering scheduling, budget, expertise), we do this to a small degree.</p>
<p>5b Improve the searchability of HHE reports online.</p>	<p>Nearly complete. We are planning on adding pull down menus for exposure classes. <b>2014 update: Progress has been hindered by competing priorities and lack of resources.</b></p>
<p>5c Develop distribution mechanisms that are not internet-dependent.</p>	<p>This overlaps significantly with other recommendations selected for monitoring (see <u><i>Activity 5: Innovative techniques for reaching small businesses and underserved populations, including using community and small-business groups to translate HHE results and findings</i></u>)</p>
<p>5d Disseminate HHE results more broadly to affected groups, including distribution in the geographic regions where investigations are conducted.</p>	<p>Other than our outreach to local health departments (see <u><i>Activity 2F: Outreach to Federal, State, and Local Agencies</i></u>), geographic distribution is not a high priority.</p>
<p>5e Increase efforts to compile compendia of findings.</p>	<p>We have one document underway (on noise and hearing loss) but do not have the resources to undertake a large effort. <b>2014 update: A noted previously we are moving to releasing public data sets rather than compendia documents.</b></p>

<b>Recommendation</b>	<b>Comments Note: 2014 updates are bolded.</b>
5f Develop improved outreach methods to alert affected workers and workplaces quickly of new occupational health problems.	This overlaps with <u>Activity 5: Innovative techniques for reaching small businesses and underserved populations, including using community and small-business groups to translate HHE results and findings</u>
5h Leverage NIOSH, CDC, and DHHS resources to enhance technology transfer.	This overlaps with <u>Activity 6A: Communication with federal and state occupational safety and health agencies.</u>
6b Alert NIOSH and CDC about HHEs that are relevant to policy-making outside the CDC system.	We regularly bring these to the attention of the NIOSH Office of the Director. All HHE field investigation reports are announced in NIOSH eNews and posted on Epi-X, the CDC secure communications network.
1 Conduct regular assessments of performance measures to determine whether available resources allow more ambitious goals.	We use our strategic plan for this purpose. Annually, we assess our progress toward each goal and adjust the plan for the coming year.
3d Modify the followback surveys to assess the relevance, feasibility, and impact of recommendations.	This overlaps with <u>Activity 3C: Systematic evaluation of relevance and impact.</u> <b>2014 update: We are requesting approval from OMB to continue our followback surveys and as part of this process we are adding survey items that will enhance our ability to assess impact.</b>
5i Formally evaluate the effectiveness of information transfer programs.	We are gathering information about the use of our website and the impact of our expanded use of trade publications. Further efforts are beyond the scope and resources of the HHE Program. See <u>Activity 5: Innovative techniques for reaching small businesses and underserved populations, including using community and small-business groups to translate HHE results and findings</u>

## **Appendix C. URLs cited in this report**

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Common misconceptions about the flu among people who work in child care settings

<http://www.cdc.gov/niosh/docs/2014-103/>

e-Stewards program response to government findings on elevated lead levels

[http://www.e-stewards.org/files/Letter to e Stewards Regarding NIOSH Findings.pdf](http://www.e-stewards.org/files/Letter_to_e_Stewards_Regarding_NIOSH_Findings.pdf)

Health hazard evaluation program: 2012 annual report

[http://www.cdc.gov/niosh/hhe/pdfs/HHE\\_2012\\_Annual\\_Report.pdf](http://www.cdc.gov/niosh/hhe/pdfs/HHE_2012_Annual_Report.pdf)

Local health departments and the NIOSH health hazard evaluation program: working together

<http://www.cdc.gov/niosh/docs/2014-113/>

NIOSH - Evaluation of chemical exposures during firefighter training exercises involving smoke simulant

<http://www.firewiseconsulting.com/firewatch/niosh-evaluation-of-chemical-exposures-during-firefighter-training-exercises-involving-smoke-simulant>

NIOSH health hazards evaluation program: helping to eliminate health hazards

[http://www.youtube.com/watch?v=CP\\_W121FmZQ](http://www.youtube.com/watch?v=CP_W121FmZQ)

NIOSH investigation composting toilets

<http://www.parksandrecreation.org/2012/March/NIOSH-Investigation-Composting-Toilets/>

NIOSH study finds widespread carpal tunnel among poultry workers, underscores why poultry rule is a bad idea

<http://www.coshnetwork.org/niosh-study-finds-widespread-carpal-tunnel-among-poultry-workers-underscores-why-poultry-rule-bad>

Poultry processing

<https://www.osha.gov/SLTC/poultryprocessing/>

Poultry worker study finds alarming rate of carpal tunnel as USDA considers line speedup

[http://www.huffingtonpost.com/2013/06/05/poultry-workers-carpal-tunnel\\_n\\_3391207.html](http://www.huffingtonpost.com/2013/06/05/poultry-workers-carpal-tunnel_n_3391207.html)

Preventing occupational respiratory disease from exposures caused by dampness in office buildings, schools, and other nonindustrial buildings

<http://www.cdc.gov/niosh/docs/2013-102/>

Prevention of musculoskeletal injuries in poultry processing

<https://www.osha.gov/Publications/OSHA3213.pdf>