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Health Hazard Evaluation/Technical Assistance and Emerging Problems

Section A

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B. Collections of Information Employing Statistical Methods

Each year, NIOSH receives approximately 250 requests for Health Hazard Evaluations to identify potential chemical, biological, or physical hazards in workplaces throughout the U.S. Since 1970, NIOSH has responded to over 16,700 Health Hazard Evaluation requests. The main purpose of a Health Hazard Evaluation is to help employers and employees identify and eliminate work hazards. Because of the number of investigations conducted each year, the need for rapid response by NIOSH to requests for assistance, and the unpredictable and changing nature of the investigations, consolidated clearance is requested for data collection activities related to Health Hazard Evaluations.

1. *Respondent Universe and Sampling Methods*

Most of these investigations of workplace hazards require the interviewing of all individuals affected by the condition or exposed to the hazard in question. On some occasions, however, there is the need to interview a sample of affected or exposed individuals and a comparison group. When statistical methods are employed in the collection of information, NIOSH statisticians participate in study design.

2. *Procedures for the Collection of Information*

In most cases, data are collected by self-administered questionnaire or personal interview. Specific procedures depend on the available resources, time constraints, nature of the inquiry, number of potential respondents, and other circumstances specific to each situation.

A request for a Health Hazard Evaluation is received on a “Request for Health Hazard Evaluation” form (Attachment C). From the time the request is received until the report is issued, well-established procedures are followed to execute and complete the evaluation in an efficient, timely, and comprehensive manner. These general procedures are described below.

(a) Initial Processing of the Health Hazard Evaluation Request

- Under Section 20 of the Occupational Safety and Health Act of 1970 and Section 501 of the MSH Act of 1977, request for General Industry and Mining Health Hazard Evaluation, respectively, are received and acted upon by NIOSH (Attachment A1). A Health Hazard Evaluation request form (English and Spanish versions; OMB No. 0920-0260, Attachment C) is available by contacting NIOSH (1-800 CDC INFO) or on the NIOSH internet site: www.cdc.gov/niosh/Health_Hazard_Evaluation.
- When a Health Hazard Evaluation request is received, it is logged into an electronic data base and made an official part of the program records, whether or not the request is subsequently determined to be valid (in the administrative and legal sense).

- The validity of a Health Hazard Evaluation request is determined in accordance with Title 42 CFR Part 85 and 85a (Attachment A2). Technical assistance requests are discussed with the appropriate state, local, or federal agency.
- The requester is notified by letter within two to three days to acknowledge receipt of the request.

(b) Assigning Investigators

- Health Hazard Evaluation requests are discussed twice a week with senior managers and supervisors in the Health Hazard Evaluation program. This group makes an initial determination of what type of response is needed (e.g., telephone response, standard written communication, on-site evaluation) and what personnel are needed (e.g., industrial hygienist, medical officer). The Health Hazard Evaluation requests are then distributed to program staff to identify the appropriate and available project officers.
- When the project officers are assigned, this information is recorded in the electronic data base.

(c) Planning the Initial Site Visit (for those requests where an on-site visit is deemed necessary)

- The requester is contacted for background information. The requester is asked to provide as much environmental, medical, and process information as possible to minimize time spent gathering this information on site.
- The company and employee representatives (if other than the requester) are contacted to explain the Health Hazard Evaluation request and process, obtain background information, and schedule a site visit. These individuals are asked to provide as much environmental, medical, and process information as possible to minimize time spent gathering this information on site.
- The appropriate agencies (OSHA or MSHA, state, local, or other federal) are notified.
- The investigators gather additional relevant information, including past reports and records of other government agency investigations and relevant reports in the scientific literature.

(d) Making the Initial Site Visit

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- All site visits are preceded by the preparation of a Site Visit Plan. The Site Visit Plan is created by the project officers and outlines the expected

activities and goals of the site visit. Site Visit Plans are reviewed by Team Leaders and the Branch Chief, and are revised as needed prior to the site visit.

- The NIOSH investigators hold an opening meeting with the establishment's management and employee representatives. The purpose of this meeting is to describe the Health Hazard Evaluation request, discuss the history of the issues raised, describe the roles and responsibilities of NIOSH, and describe plans for the visit.
- The NIOSH investigators do an observational walkthrough of the work areas of concern with management and employee representatives. The purpose is to see work processes, exposure controls, and work practices first-hand.
- The NIOSH investigators interview potentially exposed employees, particularly those with work-related health concerns.
- The NIOSH investigators carry out other activities (e.g., review of exposure and health records), as needed.
- The NIOSH investigators hold an exit meeting with management and employee representatives. At this meeting, they review their activities, present preliminary observations and recommendations, and discuss future plans. A questionnaire about the initial site visit (Attachment H) is mailed to the primary employer and employee representatives after the visit. This questionnaire focuses on the conduct of the investigators and the investigation process. The questionnaire takes approximately 15 minutes to complete. Respondents are asked to fill it out and mail it back to the survey coordinator.

(e) Carrying out a Comprehensive Evaluation Plan

- Based on the findings of the initial site visit, NIOSH investigators may find that a more comprehensive evaluation is needed. This evaluation may include industrial hygiene or other environmental measurements (e.g., sampling for chemical agents, measuring ventilation parameters, measuring noise exposure), health questionnaires, and medical examinations and tests (e.g., tests of pulmonary function, neurobehavioral tests, collection of blood or urine to measure chemicals). All site visits are preceded by preparation and approval of a Site Visit Plan as noted above.
- When required for the planned activity, the Health Hazard Evaluation Program maintains a standard informed consent form that is modified, reviewed, and then used as applicable (Attachment E2). A specific IRB protocol is submitted when the techniques or procedures meet human subjects research criteria established by the IRB.

- NIOSH investigators make a return visit to the establishment to carry out their plans.
- Biological and environmental samples are sent to appropriate laboratories for analysis. Individual participants are sent their personal results from biological samples, medical tests, examinations, and individual workplace exposure monitoring.
- A final report is prepared and distributed to the Health Hazard Evaluation requester and other management or employee representatives, as well as other parties (e.g., other government agencies) who have been involved. The timing of these reports often is driven by the time required for analysis and reporting of sampling results. When some results are available, but others are not, an interim report may be sent to ensure that all parties receive important information in a timely manner.

(f) Assessing Program Effectiveness

A series of questionnaires is distributed to assess the effectiveness of the Health Hazard Evaluation program in reducing workplace hazards and preventing occupational illness. Although respondents are asked to complete multiple questionnaires, this occurs over a period of two or more years. When NIOSH does an on-site investigation, a respondent is asked to complete a questionnaire following the initial visit, one month after the report is issued, and one year after the report is issued. Details are provided below. Respondent burden is kept low because each questionnaire requires little time to complete. In a pilot survey, respondents indicated that the amount of time needed to complete each form was reasonable.

- A follow-back survey is distributed approximately one month after the investigation report is issued. This survey focuses on the report, e.g., its usefulness in addressing concerns. One of two versions of the survey form is distributed, depending on whether an on-site evaluation was done.
 - For those Health Hazard Evaluation requests that do not result in an on-site evaluation, a 50% systematic sample (i.e., selecting every other request) is selected for follow-back. The survey form (Attachment K) is mailed to the primary requestor. This survey takes about 10 minutes. Nonrespondents are sent a postcard reminder several weeks after the initial mailing.
 - For those Health Hazard Evaluation requests that involve an on-site evaluation, 100% are selected for follow-back. The survey form (Attachment I) is mailed to the requester and to the primary employer and employee participant, if different from the requestor,

who participated in the opening or exit meetings during the on-site evaluation. The survey takes about 20 minutes. Nonrespondents are sent a postcard reminder several weeks after the initial mailing.

- A final follow-back survey is distributed approximately one year after the investigation report is issued. This survey focuses on the current situation in the workplace and implementation of the recommendations in the NIOSH report. One of two versions of the survey form is distributed, depending on whether an on-site evaluation was done. (Attachments J, L). The survey is distributed to the same individuals as described above.
- Summary reports are prepared describing the follow-back survey results. This information is used to make changes in the Health Hazard Evaluation program to enhance its effectiveness and its service to Health Hazard Evaluation requesters. The importance of conducting follow-back activities was reinforced in the 2009 report by the National Academy of Science Committee to Review the NIOSH Health Hazard Evaluation Program (<http://www.cdc.gov/niosh/nas/>).

3. Methods to Maximize Response Rates and Deal with Nonresponse

Response rates for on-site evaluations are around 80%. This is attributed to the close relationship of respondents to the issues being studied and good cooperation of employers and union representatives. For the follow-back surveys, the response rate is 53% for HHEs that had a site visit. (Note: The response rate is lower for HHEs that didn't have a site visit.) To maximize response to the follow-back surveys, NIOSH staff sends postcard reminders following the mailing of questionnaires, and then sends second mailings to non-respondents. Because the surveys are completed by managers (sometimes in different locations), and nonsupervisory employees, for whom NIOSH does not have information regarding their access to computers and the internet it is neither efficient nor cost effective to develop an electronic version of the questionnaires at the present time.

4. Tests of Procedures or Methods to be Undertaken

Pilot tests of procedures are usually not carried out for a Health Hazard Evaluation because of the need for a timely response. In addition, the work force at the site of the evaluation is usually relatively small and the only one with the precise set of circumstances being evaluated. Whenever possible, questionnaires for on-site investigations are drawn from those that have been used previously by NIOSH investigators or are derived from standardized, published questionnaires. For the follow-back surveys, pilot testing was done before this activity was implemented fully and questionnaires were modified after several years of use.

5. Individuals Consulted on Statistical Aspects and Individuals Collecting and/or Analyzing Data

The NIOSH investigators (and their supervisors who review analytical results and reports) are trained in biostatistics and epidemiology. The Health Hazard Evaluation program employs multiple staff with Doctoral and Masters level training in statistics and multiple staff with experience in administering surveys in a functioning workplace (i.e. in a manner that minimizes disruption of the workplace).