

REPORT BRIEF • AUGUST 2009

EVALUATING OCCUPATIONAL HEALTH AND SAFETY RESEARCH PROGRAMS

FRAMEWORK AND NEXT STEPS



In 2007, 5,657 fatal work injuries occurred in the United States, along with an estimated 4 million nonfatal occupational injuries and illnesses among workers in private industry. Improving occupational health and safety requires research that is critically evaluated for its relevance and impact. The core mission of the National Institute for Occupational Safety and Health (NIOSH) is to conduct research to improve and protect the health and safety of workers.

In September 2004, NIOSH contracted with The National Academies to conduct a series of evaluations of individual NIOSH research programs. This set of independent evaluations focused on the relevance and impact of each NIOSH program on reducing worker injuries, illnesses, and hazardous exposures.

The first step in this multiphase effort was to develop an evaluation framework that could be applied consistently across the set of evaluation studies. An Institute of Medicine (IOM)/National Research Council (NRC) committee (the framework committee) was appointed to develop the evaluation framework. The resulting evaluation framework was then used by eight separately appointed ad hoc committees (evaluation committees) to assess NIOSH programs in hearing loss; mining; agriculture, forestry, and fishing; respiratory diseases; personal protective technology; traumatic injury; construction; and health hazard evaluation. This report has two goals: (1) to summarize the evaluation process and lessons learned in the development and use of the framework and (2) to provide recommendations for future evaluation efforts. The evaluation framework may prove applicable in evaluating other federal agency research programs.

EVALUATION FRAMEWORK

After examining different approaches to program evaluation, the framework committee decided to define the scope and stages of the evaluation process based on the logic model, a model that is widely used in program evaluation and planning.

The logic model organizes the program efforts into inputs (for example, budget, staffing, facilities), activities (for example, research studies, surveillance, exposure measurement), outputs (for example, reports, publications, conferences, training, patents), and outcomes (for example, collaborations, policy changes, reductions in exposures and injuries). The framework (outlined in Figure 1) developed for the evaluation of the NIOSH research programs provides criteria for assessing each component of the logic model.

As requested by NIOSH, the charge to the framework committee included scoring each program (using an integer rating scale of 1 to 5) on the relevance and on the im-

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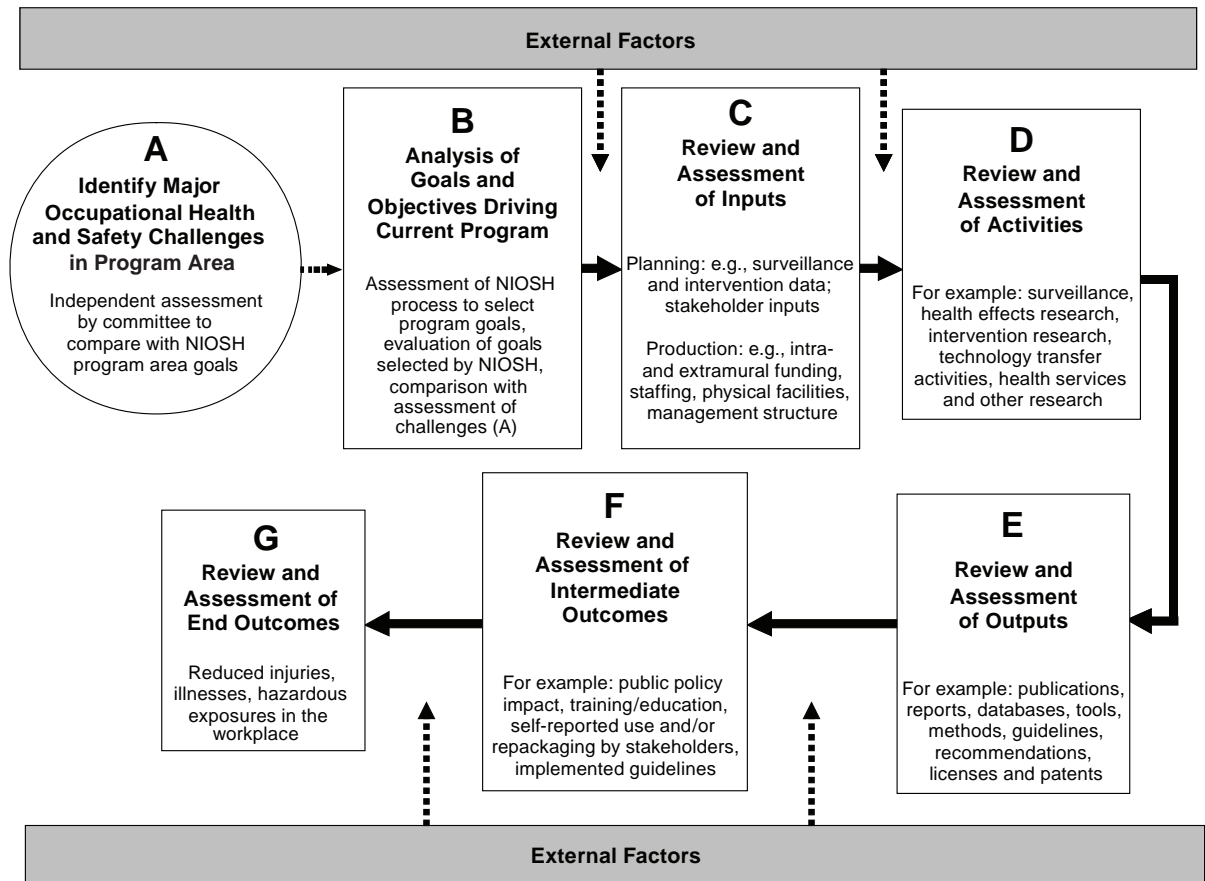
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part of the NIOSH program in improving worker safety and health. To provide guidance on evaluating and scoring these measures after assessing each NIOSH program, the framework committee developed criteria and specific questions to be used in the assessment of each component of the logic model. Assessment of strategic goals and objectives, inputs, activities, and outputs largely defined the relevance of the program; the committee examined the adequacy of the inputs and the scope and targeting of the activities and outputs in achieving the program's goals. Assessment of the intermediate and end outcomes largely defined the program's impact. The evaluation framework also included specific sets of scoring criteria for rating the program's relevance and impact on reducing work-related injuries, illnesses, or hazardous exposures.

Setting the metric for program success at demonstrating an impact on end outcomes is laudable. Evaluation and framework committee members give NIOSH a great deal of credit for holding their research programs accountable for real outcomes that affect life and health.

FIGURE 1: OVERVIEW OF THE EVALUATION PROCESS



IMPROVING THE EVALUATION PROCESS

The framework and evaluation process was used successfully for eight program evaluations. Lessons learned in these evaluations suggested a number of areas in which the evaluation process could be improved, including adding further information in the evidence packages on priority setting efforts and on budget and staffing; additional input on extramural research and the connections between the intramural and extramural program objectives; ensuring plenty of opportunities for input by external stakeholders

and agency staff; lengthening the time line for the evaluation; and expanding the options for the types and categories of recommendations. Increased opportunities, particularly informal opportunities, for NIOSH staff to discuss issues with evaluation committees would be helpful. Equally important would be increased focus on some of the more indirect measures of intermediate outcomes. The committee also recognized that logic models are quite linear and focus on readily observable short and medium term outcomes. Evaluation committees, therefore, need to be open to exploring less linear aspects of knowledge development and flow. Concerted efforts need to be made to include the program's contributions to the development of general knowledge and human capital in the field of occupational safety and health.

RECOMMENDATIONS

RECOMMENDATION 1: CONTINUE SYSTEMATIC EXTERNAL EVALUATIONS

NIOSH should establish a system for periodic external evaluation complemented by internal self-assessments on a regular basis. Program or agency-wide evaluations should begin with strong self-evaluation efforts that allow the program or agency to assemble and analyze data and act on relevant findings concerning the program's strengths, weaknesses, and opportunities.

RECOMMENDATION 2: CONTINUE TO BUILD AND IMPROVE RESEARCH TRANSLATION EFFORTS

NIOSH should continue to build and improve its research translation efforts with an emphasis on:

- ongoing assessment and improvement of its research translation efforts through formative evaluation processes of listening to those in the workplace (workers and employers) and beyond (product designers, architects, health care providers, etc.), both to identify intervention needs and to provide early feedback regarding research translation products to improve the interventions, and
- building the capacity to implement and evaluate research translation efforts, both as research-to-practice and as practice-to-research.

RECOMMENDATION 3: INCREASE AND IMPROVE SURVEILLANCE TO BENCHMARK PROGRESS

NIOSH should increase and improve surveillance of work-related injuries, illnesses, exposures, and working conditions so that information needed to assess program relevance and impact will be available for future evaluations. Enhanced surveillance should prove informative in balancing research priorities.

RECOMMENDATION 4: INTEGRATE EVALUATIONS OF INTRAMURAL AND EXTRAMURAL RESEARCH

Future evaluations should systematically consider intramural and extramural research activities, in terms of both evaluating the impact and relevance of each type of research and assessing the extent to which intramural and extramural research are integrated in strategic planning.

FOR MORE INFORMATION . . .

Copies of *Evaluating Occupational Health and Safety Research Programs: Framework and Next Steps* are available from the National Academies Press, 500 Fifth Street, N.W., Lockbox 285, Washington, DC 20055; (800) 624-6242 or (202) 334-3313 (in the Washington metropolitan area); Internet, www.nap.edu. The full text of this report is available at www.nap.edu.

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