Appendix 8: Previous Program Evaluations

Evaluation of the Fatality Assessment and Control Evaluation (FACE) Program

Program Evaluator(s) *(individuals, their organization, and contact information)*:

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What Part of the TI Program was Evaluated?

The FACE project has two components. The first is the NIOSH in-house program which began in 1982. NIOSH staff conduct on-site epidemiologic investigations of selected types of death, and develop a narrative report with recommendations for preventing future similar deaths. Fatality investigation findings are incorporated into NIOSH products, such as Alerts that describe hazards and identify prevention measures. In 1990, NIOSH expanded the FACE program through cooperative agreements to state health or labor departments. Under these cooperative agreements, states conduct fatal occupational injury surveillance, investigations of selected types of worker deaths, and prevention activities at the state level, using the FACE model.

There were two phases to the FACE evaluation. The first involved an evaluation of the dissemination component of the three originally funded state-FACE programs (Colorado, Massachusetts, and New Jersey). The second was an evaluation of the usefulness of five NIOSH documents.

In phase 1, RTI used interviews of selected key people at the state and local level, employers, and focus groups to determine the most effective dissemination techniques.

Examples of questions for key people at the state and local level were:
- How were the reports used?
- Is the level of detail appropriate?
- Is the report format useful?
- What additional information would be useful?

Examples of questions for employers were:
- What was the general reaction to the report?
- Was the report understandable
- Were the recommendations feasible?
- Were any report recommendations implemented?

Examples of questions for focus groups were:
- Was the report format eye-catching?
- Was the report read all the way through?
- Do the recommendations realistic?
- What changes could be made to improve the report?

In phase II, RTI conducted a limited number of phone interviews of workers and intermediaries to: get their assessment of the accuracy, relevance, and appropriateness of FACE publications; learn how the publications were used and disseminated by users; assess whether the content and format were appropriate for users' needs; and, identify impacts resulting from the publications. This phase of the evaluation focused on five NIOSH publications:
- NIOSH Alert: Preventing Scalping and Other Severe Injuries from Farm Machinery (NIOSH Pub. No. 94-105)
- NIOSH Alert: Preventing Injuries and Deaths of Fire Fighters (NIOSH Pub. No. 94-125)
- NIOSH Alert: Preventing Injuries and Deaths of Loggers (NIOSH Pub. No. 95-101)
- NIOSH Alert: Preventing Electrocutions of Crane Operators and Crew Members Working Near Overhead Powerlines (NIOSH Pub. No. 95-108)
- Worker Deaths in Confined Spaces: A Summary of NIOSH Surveillance and Investigative Findings (NIOSH Pub. No. 94-103)

Period of Time Evaluated: Phase I: 1994; Phase II: 1995

Description of Findings:

Phase 1: RTI performed an evaluation of the Colorado, Massachusetts, and New Jersey FACE programs' dissemination component for the year 1994. Program strengths identified were:

 a broad audience, with varied uses of its materials and extensive secondary dissemination of materials.
- Fatality reports were recognized as credible, accurate and comprehensive assessments that presented balanced descriptions of the circumstances of the fatality.

- The program extended the reach of regulatory agencies and monitoring efforts through its active surveillance, enhanced access to information, and detailed reporting.

- Through collaborative relationships with university centers, the State programs supported professional training in occupational health and industrial hygiene while gaining access to expert consultative services.

Specific recommendations to increase the programs responsiveness and reach included:

- Providing rapid feedback to employers to maximize the likelihood of worksite changes being made;

- Offering shortened and simplified versions of FACE reports for broader dissemination;

- Increasing access to existing materials by offering indexes and listings to help users identify reports of interest;

- Considering allocating staff or support services to allow increased production of FACE materials;

- Publicizing the program's existence and products through broad dissemination networks in order to identify potential users;

- Disseminating materials through industry-specific channels, such as those suggested by focus group participants; and

- Incorporating techniques for monitoring reach into all efforts to increase dissemination.

Phase II: In 1995, RTI performed an evaluation of the usefulness of four NIOSH Alerts and the NIOSH Confined Space Monograph. The publications' strengths were identified as:

- The publications were considered technically accurate and focused on significant occupational hazards;

- The publications supported a variety of applications by diverse users, including use "as is" or incorporation into, reference materials, training curricula, and safety publications;

- The publications, or information abstracted from them, were widely distributed through existing information networks, extending their impact well beyond their dissemination by NIOSH;

- Impacts of FACE program publications included improvements in worker training programs, heightened awareness of hazards and prevention measures among both workers and employers, and strengthened safety standards and regulations.

Specific recommendations to enhance the impact of FACE publications included:

- Improving the tear-out sheets' effectiveness at capturing and holding workers' attention by increasing use of graphics and case histories and simplifying text;

- Increasing tear-out sheets' persuasiveness through judicious use of emotional and/or fear-based appeals, and by addressing concerns related to feasibility of prevention measures;

- Increasing intermediaries' access to materials through the use of electronic dissemination channels;

- Using formative evaluation to identify themes and approaches that are most effective in conveying messages to worksite audiences

Outputs *(e.g., evaluation report, article; include full citation)*:

1994]. Evaluation of the Fatality Assessment and Control Evaluation (FACE) Program: Dissemination Component (Workplan). Research Triangle Park, NC: RTI, CDC contract no. 200-93-0697, RTI project no. 5761-03, September 23, 1994.
RTI [1995]. Evaluation of the Fatality Assessment and Control Evaluation (FACE) Program: Dissemination Component (Final Report). Research Triangle Park, NC: RTI, CDC contract no. 200-93-0697, RTI project no. 5761-03, July 14, 1995.

RTI [1996]. Evaluation of the Fatality Assessment and Control Evaluation (FACE) Program: Phase II (Final Report). Research Triangle Park, NC: RTI, CDC contract no. 200-93-0697, RTI project no., 5761-06, November 25, 1996.

TI Program Response to Findings *(if any)*:

NIOSH expanded the state-based FACE program based on the positive findings of the RTI evaluation. The program was expanded to 15 states by 2001, though the number of funded states recently dropped to nine.   NIOSH and states made several modifications in response to recommendations in the RTI evaluation, including:

- FACE investigators provide employers with a packet of FACE materials, such as reports, NIOSH Alerts, and Workplace Solutions that are relevant to the case being investigated. This provides the employer with preventive recommendations in a very timely fashion.
- State programs have increased the use of products that condense and simplify information in FACE reports, specifically FACE facts. The NIOSH FACE program has also increased the production of more concise user-friendly documents, specifically NIOSH Workplace Solutions which are typically 3-5 pages in length, with clear and concise prevention recommendations and short case studies.
- All NIOSH and State-based FACE reports are now available on the NIOSH internet at www.cdc.gov/niosh/face/face.   The FACE webpage has been equipped with a listserv. Any interested party can enter their email address and they will automatically receive an

email notification when a new product is placed on the FACE webpage. Several states distribute new reports electronically.

- All of the fatality investigation reports on the FACE website are indexed by industry or cause of fatality such as construction, electrocution, or youth. This allows the end user to view their area of interest and also allows them access to all the reports.
- Several organizations include links on their websites to the FACE website or individual reports, including the National Safety Council, American Society of Safety Engineers, the Occupational Safety and Health Administration, and the National Association of Tower Erectors.
- NIOSH recently sent approximately 600 letters nationally and internationally to stakeholders describing the FACE program, FACE website, and providing instructions on how to subscribe to the listserv. Recipients included other government agencies, trade associations, safety and health professionals and regional education centers.
- NIOSH and states have undertaken targeted dissemination efforts, including using industry-specific mailing lists.
- NIOSH has increased the use of graphics and pictures in NIOSH publications and tear-out sheets.
- The number of hits the FACE website receives is tallied and monitored. Additionally, a reader response card has been incorporated into the FACE Alerts and FACE website in an effort to receive timely user response. This will help evaluate the effectiveness and usefulness of FACE program products.

Program Evaluator(s) *(individuals, their organization, and contact information)***:**

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What Part of the TI Program was Evaluated?

In 2000, Congress passed legislation aimed at reducing the number of occupational aviation fatalities in Alaska by 50 percent for the years 2000 through 2009. This legislation created an interagency initiative—the Alaska Aviation Safety Initiative—to improve safety in Alaska through the combined efforts of the Federal Aviation Administration (FAA), the National Transportation and Safety Board (NTSB), the National Weather Service (NWS), and the National Institute for Occupational Safety and Health (NIOSH). In the report, ISER describes the evolution of the programs of the Alaska Interagency Aviation Safety Initiative. Next, they document other recent developments in the Alaska aviation industry that were not part of the interagency initiative but might affect safety, including changes in safety-related infrastructure. After providing this context, they analyze trends and variation in accidents, incidents, and documented occurrences over the period 1990-2004. Then, they discuss changes in aviation operations levels over the period 1997-2002, and analyze accident rates based on the operations estimates. ISER concludes with an assessment of the evidence for the effects of the interagency initiative on safety, qualified by the study's limitations.

Period of Time Evaluated: 1997-2002

Description of Findings:

During the past 15 years, the total number of aviation accidents and the number of fatal accidents have both declined by nearly 50 percent. There have been no fatal accidents involving commuter aircraft since late 2001. In this study, ISER reviewed a number of factors that may have contributed to this outcome.

In general, accident rates as a whole have declined, but the decline in rates has not been as great as the decline in the total number of accidents. At least some, if not most, of this improvement in accident rates appears to be associated with the shifts in the type of operations.

It is challenging to sort out whether the Alaska Interagency Aviation Safety Initiative has contributed to the observed reduction in accident rates, much less quantify the role of any one of its constituent programs. The interagency initiative combines a number of different programs that were all implemented during a short window of time since 2001. Only Capstone Phase I (Southwest Alaska) was fully implemented by the end of our study period, providing just two complete years (2003 and 2004) of post-implementation data. The Medallion program held its first seminar in August of 2002, Mic-in-hand operated out of only one weather service office in 2001, and has been slowly growing since. Circle of Safety began in late 2002. If we are not able

to link declining accident rates to individual programs, it does not necessarily imply that that program is ineffective. Rather, it may be simply too early to tell. Unless the effect of a program is very large, one typically needs to observe data over many years to determine statistically whether the effect is significant.

Another complication with the evaluation is that the interagency initiative combines a set of programs with overlapping target populations. The Capstone program was intensively implemented in certain regions. Capstone operators are eligible to enter the Medallion program, and some have. Many operators participating in the Capstone program fly in other parts of the state. Circle of Safety targets passenger operations.

It is also difficult to separate effects of the different programs, and program effects from those resulting from infrastructure changes. When multiple factors affect all operations statewide, we cannot determine how much of that change is attributable to each program or infrastructure change. There also may be combined effects of mixes of infrastructure and programs that are greater than the sum of the individual infrastructure and program effects. One successful program may raise awareness about safe operating practices, and thereby make other programs more likely to succeed. Indeed, the sum total of programs in the interagency initiative may have cumulative effects on creating a 'culture of safety' that make the combined initiative more successful than any of its parts.

Outputs *(e.g., evaluation report, article; include full citation)***:**

Berman, M., Martin, S., Hill, A. (2005) *Evaluation of the Alaska Interagency Aviation Safety Initiative*, Institute of Social and Economic Research, University of Alaska Anchorage: Anchorage, Alaska. Dated July 16, 2005.

TI Program Response to Findings *(if any)***:**

None

The NIOSH Fire Fighter Fatality Investigation and Prevention Program (FFFIPP) was evaluated by means of surveys, interviews and focus groups of the principal target audience: fire fighters and fire chiefs.

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What Part of the TI Program was Evaluated?

Fire Fighter Fatality Investigation and Prevention Program (FFFIPP)

Period of Time Evaluated: October 1997 – December 2003

Description of Findings:

The purpose of this evaluation was to

1. assess the effects of FFFIPP recommendations and information products on the safety knowledge, attitudes, and behavior of the nation's firefighters and

2. identify possible strategies for improving the impact of FFFIPP, including improvements in the approaches used by NIOSH to disseminate the findings from FFFIPP investigations.

The evaluation was based on data from two sources: (1) a national survey of fire departments and (2) a series of focus groups with frontline firefighters.

NIOSH issued several hundred recommendations during the first 5 years of the FFFIPP program. Many of these recommendations overlap or duplicate one another. For this evaluation, NIOSH identified 31 "key" recommendations, 22 involving traumatic injury fatalities and 9 involving cardiovascular disease (CVD) fatalities. From this list, 17 recommendations were selected to serve as sentinel recommendations for the evaluation. The selections were based on frequency of mention in FFFIPP reports, specificity of the recommendation, and balance among the categories of safety recommendations. The evaluation focused on the impacts of these sentinel FFFIPP recommendations in firefighter training, standard operating procedures, safety practices, and the safety environment of the fire departments.

FIRE DEPARTMENT SURVEY

The Fire Department Survey was mailed to the fire chiefs of a stratified random sample of 3,000 fire departments across the country during spring 2006. The sample includes

- all 208 fire departments that had experienced a FFFIPP investigation as of December 31, 2003,
- a random sample of 215 fire departments where a firefighter fatality had occurred but no FFFIPP investigation had been conducted,
- the 10 largest fire departments, because of their unique status, and
- a stratified random sample of 2,575 fire departments where there had not been a fatality as of December 31, 2003.

This sample includes representative subpopulations defined by geographic location, department type (career and volunteer), jurisdiction size, and population density.

The overall response rate for the survey was 54.9%.

FIREFIGHTER FOCUS GROUPS

A series of six focus groups was conducted with frontline firefighters to collect additional information. The focus groups took place during March and April 2006 and included participants from both career and volunteer fire departments and from departments in both rural and urban jurisdictions.

RTI is still in the process of analyzing survey results. However, a draft report recommended the following:

Outreach Efforts

1. Enhance outreach efforts to small, rural, and volunteer fire departments.

Technical Assistance

2. Develop documents about recommended equipment, training, or procedures that could be used to justify budget requests.

3. For smaller, volunteer departments, provide additional technical assistance for preparing grant applications.

NIOSH Web Site

4. Improve the FFFIPP Web site with a firefighter-friendly page that connects broad topics with recommendations and action items, with links to specific FFFIPP LODD reports and other FFFIPP materials and resources.

Outreach

5. Contact fire departments that experience a firefighter fatality or "near miss" incident, regardless of whether an investigation is planned. Partnering with other organizations, as needed, provide relevant FFFIPP materials and offer technical assistance to help address safety issues.

LODDs

6. Continue developing and disseminating LODD reports.

7. Continue providing all four sections of the current reports, including a summary, investigation results, discussion, and recommendations.

8. Consider the use of formatting, headings, and headlines to enhance the messages communicated both in individual LODDs and over the LODD series.

Content of the LODDs

9. To improve accessibility and information, incorporate more photos, timelines, diagrams, and other visual aids into the FFFIPP reports.

10. Review the investigation protocol, particularly the sources used for developing technical recommendations. Consider using an outside panel of experts to review findings.

Fire Fighter Fatality Investigation and Prevention Program Evaluation Ancillary Materials

11. Help transfer knowledge gained from FFFIPP investigations by creating training tools based on the FFFIPP reports including PowerPoint slides and lesson plans. Incorporate photos, timelines, diagrams, and other visual aides.

12. Expand the production of existing publications such as Safety First, Workplace Solutions, and Hazard IDs to include additional topics. Make use of graphics, statistics, and other tools to communicate the level of risk and practical steps firefighters and fire departments can take to promote safety.

13. Explore new technology for disseminating the findings of FFFIPP investigations in a public service campaign format. Use videos, public service channels, and Internet streaming video to present safety messages on each key FFFIPP recommendation. These messages should draw from multiple fatality investigations and should employ public safety advocacy techniques.

Distribution of FFFIPP Materials

14. Ensure NIOSH materials reach all fire departments by instituting new measures to maintain a complete and up-to-date mailing list.

15. Ensure that NIOSH e-mail lists are up to date (e.g., with an e-mail cohort maintenance—or refresher—program that generates automatic e-mails to listserv members to confirm addresses).

Marketing

16. Improve the promotion of the FFFIPP Web site. Create a poster suitable for fire department station bulletin boards with the NIOSH Web site featured prominently.

17. Consider coordinated promotional campaigns on single themes.

18. Develop additional mechanisms for raising awareness about FFFIPP across the fire service and the public.

Outputs *(e.g., evaluation report, article; include full citation)***:**

As stated in "Findings", RTI is in the process of analyzing survey data. A draft report has been issued, and a comprehensive evaluation report is planned.

TI Program Response to Findings *(if any)***:**