Fatality Narratives

An effective way to convey hazard information

By Peregrin Spielholz, Randy Clark and Tom Sjostrom

THE WASHINGTON STATE Fatality Assessment and Control Evaluation (FACE) Program is funded by NIOSH. Through the program, staff tracks acute occupational fatalities in the state, conducts targeted research investigations, and disseminates findings and educational material. Acute trauma fatalities are identified as events that occurred in the state to a person conducting work during the course of formal employment. The cases are identified and information is gathered from various sources, including the state Division of Occupational Safety and Health (DOSH), Department of Public Health, coroners/medical examiners, newspapers/media and federal agencies.

The case definition and program priorities for Washington state's FACE Program largely follow the direction of NIOSH's FACE Program. However, each funded state has the opportunity to focus on specific areas and industries, which often vary by the region and makeup of industry in the state.

Construction incident fatality narratives were developed by the Washington state FACE Program with the goal of providing tools for education and conducting training sessions directly with workers and companies. The one-page descriptions of the incident include bullet-point lists of best practice recommendations or requirements that could have prevented the death. Although the controls are meant to respond to the specific incident, they often apply to more general situations as well, such as hazards associated with falling from heights.

The narratives are developed initially by a research analyst who reviews case information such as the industrial insurance report, industry safety inspection investigation and media reports. The document then is completed by a safety engineer who researches preventive measures and applicable solutions. The level of research and analysis involved is more limited than that involved with a full fatality investigation, but possible incident root causes, including human factors issues, supervisory procedures and communication, are evaluated. The recommendations are focused on prevention, not compliance. However, in many cases these are one in the same and are identified by an exclamation mark as a bullet symbol before the recommendation description in the narrative. The resulting narrative is then finalized with input from the state DOSH (the state's OSHA plan).

The Focus on Construction

The fatality narratives were developed after an analysis of industry impact potential. Review of acute work-related fatality data for the state revealed that the construction industry consistently had both the highest count (16 per year) and rate (8.7 per 100,000 workers) by industry on a year-to-year basis.

The industry also has opportunities for outreach and dissemination because of an industry focus on safety, particularly in the western part of the state. General contractors have focused significant resources on safety and health to reduce costs associated with injury risk and to improve bidding status. The trend to not award subcontracts to companies with higher injury experience factors has prompted more companies to provide resources for safety and injury prevention.

Additionally, the Puget Sound region has a long history of voluntary construction safety organizations, which makes it easier to distribute information and develop contacts. One informal organization of construction safety professionals has been meeting for more than 50 years, and another is the largest monthly meeting of construction safety personnel in

Peregrin Spielholz, Ph.D., CSP, CPE, *is a principal investigator with the Washington State Department of Labor and Industries' Safety & Health Assessment & Research for Prevention (SHARP) Program. He completed his B.S. and M.S. degrees at the University of Michigan and his Ph.D. at the University of Washington. Spielholz is the principal investigator for the NIOSH-funded Fatality Assessment and Control Evaluation (FACE) and Trucking Injury Reduction programs in Washington, and is an affiliate assistant professor in the Department of Environmental and Occupational Health Sciences at the University of Washington.*

Randy Clark *is the data manager for the Washington State FACE Program and a research analyst for the SHARP Program. He received his B.A. in Journalism from Evergreen State College.*

Tom Sjostrom, M.S., CPEA, *is a safety engineer in the SHARP Program. He has a B.S. in Occupational Safety and Industrial Hygiene and an M.S. in Environmental Engineering/Environmental Science from the University of New Haven. He is a member of the Hazardous Materials Control Research Institute, ASSE, AIHA, NFPA and American Society of Civil Engineers.*

the country. These factors, the high fatality frequency and rate, and the ready avenue for intervention led to the decision to develop a narrative for every construction fatality in the state.

The fatality narratives are posted at www.lni.wa.gov/safety/research/FACE. They are sent via e-mail to a list of nearly 600 construction safety professionals each month. The narratives are meant to be used for toolbox training and as informational resources for both professionals and workers. FACE Program trainers also use the narratives when training workers. In this case, the incident description is read to the group and supporting pictures are provided in many cases. Workers then discuss what happened and how it could have been prevented.

Fatality Narrative

Roofing Foreman Run Over by Forklift*

Industry: Roofing Contractors
Occupation: Foreman
Task: Hand carrying materials to construction crew
Type of Incident: Machinery/Struck by

Release Date: September 20, 2004
Case No.: 03WA074
SHARP Report No.: 71-23-2004

On December 3, 2003, a roofing contractor foreman was run over by an all-terrain forklift at a construction site. The 42-year-old foreman was employed by a roofing contractor doing work on a high school under construction. The victim was hand delivering some construction materials to the crew. He approached the all-terrain forklift from the back of the equipment. The forklift operator did not see him as he turned the vehicle sharply right to pick up some insulation. At this point the victim was walking next to the forklift's left rear wheel, which was a few feet from a stack of panelized roofing insulation. The forklift had rear-wheel steering so when the forklift turned right, the back-end of the forklift swung left and the rear wheel caught the victim's foot, causing him to pitch forward under the wheel. When the forklift continued to move forward, it ran over the victim's left leg and torso. The victim died at the scene.

Requirements/Recommendations
(! Indicates items required by law)

! Employers must ensure that operators of forklifts and other large construction equipment are properly trained in safe operating procedures, that includes specific equipment operating instructions, and warnings regarding steering and maneuvering while traveling through work areas.

! Workers must wear high visibility apparel when working around mobile equipment.

- Forklift and construction equipment operators need to be aware of possible pedestrian traffic, persons walking and/or working near the equipment.

! All site construction personnel working near construction equipment must be trained in the hazards of working around mobile equipment.

- Never approach operating construction equipment without communicating with the operator by some means: i.e., verbal communication, radio, hand signals, and/or some sort of clear visual contact and recognition. Make sure you don't approach equipment from the operators "blind spots."
- An "Internal Traffic Control Plan" should be developed that defines motor vehicle/construction equipment and pedestrian traffic lanes.
- Equipment manufacturers and owners should install mirrors on mobile equipment so that operators will not have blind spots, and consider installing fenders or guards over unprotected wheels.
- Equipment manufacturers and owners should consider installing fenders/guards over unprotected wheels.

State Wide Statistics: This was the 71st out of 74 work-related fatalities in Washington State during the year 2003, and was the 12th construction-related fatality of the year.

**This bulletin was developed at the Washington State Department of Labor and Industries to alert employers and employees in a timely manner of a tragic loss of life of a worker in Washington State. We encourage you to consider the above information as you make safety decisions for or recommendations to your company or constituency. The information in this notice is based on preliminary data ONLY and does not represent final determinations regarding the nature of the incident or conclusions regarding the cause of the fatality.*

Developed by the Washington State Fatality Assessment and Control Evaluation (FACE) and Washington Industrial Safety and Health Act (WISHA) Programs at the WA State Dept. of Labor & Industries. For more information, contact the Safety and Health Assessment and Research for Prevention (SHARP) Program, 1-888-667-4277, http:/www.lni.wa.gov/Safety/Research/FACE.

Surveying the Users

A web survey was developed to evaluate the recipients' perception and use of the narratives. A link to the survey was included in the monthly e-mail distribution for 3 consecutive months. Answers recorded the respondent's job position, type of company, types of uses and types of changes made in response to the narratives. Respondents also completed categorical scales of 1 (poor) to 5 (excellent) rating readability, usefulness and overall opinion. A total of 110 respondents submitted answers out of 579 valid e-mail addresses for a response rate of 19%.

The narratives were also used as training materials for presentations given to workers in different companies over a 2-year period. Seven sessions were delivered to a total of 377 workers; of these, 318 completed post-session evaluations for a response rate of 84%. Training participants also rated narrative readability, usefulness and overall quality.

As part of the survey, workers were asked to record their top three prevention strategies for the presented incident and changes they planned to make based on the training (selected from provided categories). The training sessions used different narratives to better tailor the material to the audience. An example of a narrative for a struck-by forklift fatality is provided above. Photo 1 is an example of an image that might accompany a narrative.

Results of the Web Survey

Of the web survey respondents, 59% were safety and health professionals; 22% reported their position as management; approximately 14% were hourly or salaried employees; and 6% were owners or supervisors. The employer demographics were relatively distributed with 17% each in general contracting and specialty trades, 13% in consulting, 26% in government, 12% in university/research and 13% in other construction or material supply.

Photo 1: The forklift and scene described in the example fatality narrative (above).

Abstract: *Narratives of fatal workplace incidents were developed by the Washington State Fatality Assessment and Control Evaluation Program. These one-page documents have been distributed for use in toolbox training and as an information source. These materials have proven to be a quick, effective way to convey safety information to workers. More than 60% of trainers who use the narratives reported making changes in their work based on a narrative, while nearly 70% of trainees surveyed stated they would make changes in the way they performed their jobs following a narrative training session. Overall, both users and trainees rated the usefulness of the narratives as very good.*

Figure 1

Rating the Narratives

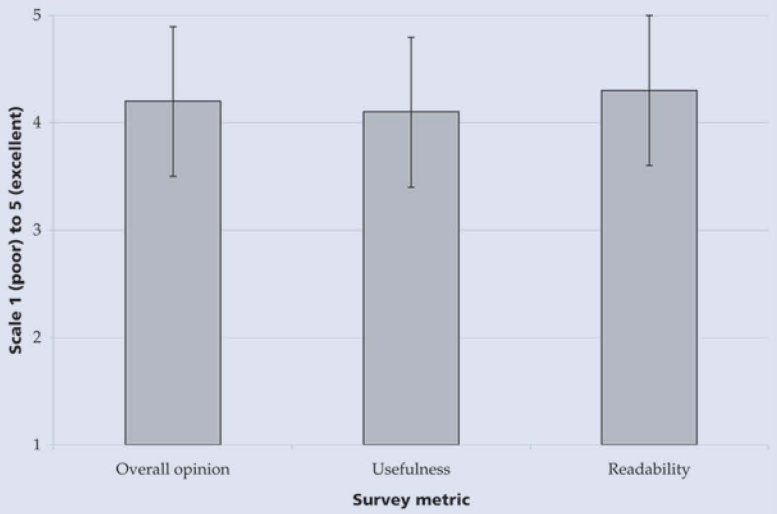
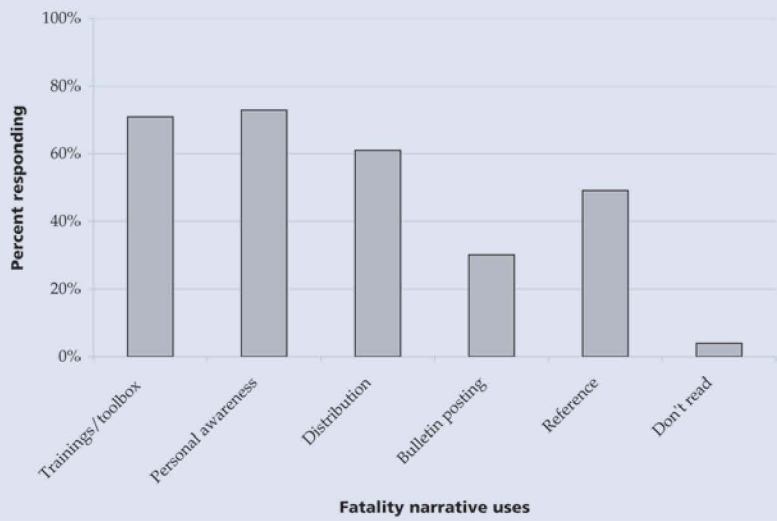


Figure 2

Using the Fatality Narratives



The overall opinion, usefulness and readability of the materials were generally rated as "very good"—4.1 on the 1-to-5 scale (Figure 1). Most respondents reported that they used the narratives in several ways and made changes on the job as a result of reading the materials. Almost 70% reported using the narratives for training or toolbox talks, and 63% stated making changes in identifying hazards (Figure 2). Nearly 30% also reported making changes in planning or setting up a job; 41% made changes in the use of safety gear; and 24% made changes in their choice of tools or equipment (Figure 3).

Training Session Evaluations

The narratives were used in training sessions delivered to construction workers, superintendents, apprentices and maintenance workers. Trainees rated the materials and training as "very good"—4 on a 1-to-5 scale—on average for overall opinion, usefulness and readability. Approximately 70% stated that they planned to make changes in identifying hazards and 50% planned to make changes in planning or setting up a job after the training. More than 25% reported planning to make changes in the use of tools or safety gear as a result of the training session.

Effective Way to Share Hazard Information

Developing and presenting safety and health training material in an exciting and informative manner is a challenge. The ultimate goal of training and education is to promote change and adoption of best practices. Fatality narratives have proven to be an effective tool to communicate hazards and promote changes on the job. The evaluation of the materials and presentations both by professionals and workers demonstrated the utility of this training tool.

Audience involvement was a key component of the fatality narrative training sessions with workers. Previous studies have shown benefits to using a participatory approach to safety training (LaMontagne, Kelsey, Ryan et al., 1992). This type of "narrative storytelling" has been used by other SH&E professionals to transmit safety information in a more personal way (Smith, 2005).

In the presentations, trainees were given the written incident narratives and pictures, but were tasked as a group to consider prevention strategies. If key concepts were not initially derived through the group process, the trainer then would prompt the audience for more ideas. The description of a fatal incident is emotive and normally grabs listeners' attention. Having the group participate in the presentation of control strategies appears to help keep the listeners involved and attentive to key "take-away" points.

As noted, these materials were developed primarily for distribution to industry for use in training and toolbox talks. The narratives provide vivid descriptions and concise recommendations that are intended for short presentations. Field staff presentation of the material may be more effective in construction and other industries because workers identify with the trainer (Kurtz, Robins & Schork, 1997). Companies have informally acknowledged this and have expressed their desire to continue receiving the materials regularly.

Recent fatality narratives have included photographs of the actual incident scene as well. Photos can be a valuable addition because they bring home the reality of the tragic loss of life and enhance the event description. It can be helpful to distribute copies of these or, if possible, to project them on a screen so that workers can all see the scene. Another effective method is to enlarge and laminate the photographs, then pass them around during training.

In addition, translating these materials into lan-

guages prevalent within the working population being trained also may be helpful. Washington FACE is currently working to translate all posted fatality narratives into Spanish; these materials should be available for download by the fourth quarter of 2007.

The format of the narratives can be useful for communicating information to both workers and management in a concise manner. Workers generally appreciate that the information is brief (sessions are designed to last 10 to 15 minutes) and focused on genuine hazards, and that it includes discussion of practical preventive measures.

The format can also be customized to fit specific needs. For example, those who receive the narratives via the monthly e-mail distribution receive an electronic copy that can be modified. FACE staff has been told that many recipients simply post the narratives or leave copies at lunch tables for workers to read.

It should be noted that safety training is only one part of injury and illness prevention. The training program cannot be separated from that effort or the organization (Ford & Fisher, 1994). A company must support the material presented to workers by implementing the procedures and ensuring effectiveness.

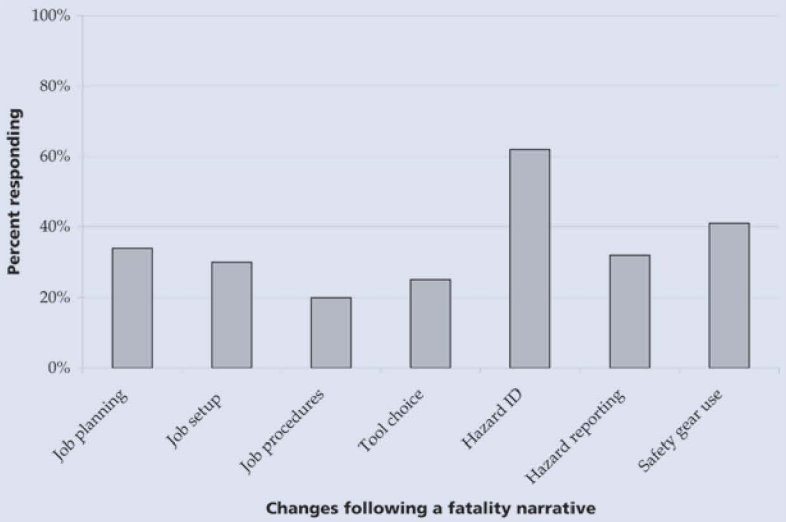
Training is not likely to be productive if workers do not feel the information is valued in practice by supervisors, management and the organization. One study showed that workers' commitment to safety was most strongly related to their perception of management actions for safety. Additionally the level of commitment predicted the perceived quality of the training (Cox, Tomas, Cheyne et al., 1998).

Conducting Narrative Training

- Learn about the work happening now or in the near future to select a relevant topic. Allow 10 to 15 minutes for the talk.
- Prepare handouts and photos based on the meeting space. Projected slides or photos can work, but enlarged, laminated photos often work better for toolbox talks.
- Make copies of the narratives without the recommendations. These will be used as handouts to promote discussion.
- After reading the narrative, ask trainees what they would have done to prevent the incident. Use a flip-chart or whiteboard, if available, to record ideas.
- Guide discussion or present additional ideas if key points are not mentioned.
- Present the narrative as a specific incident, but remind workers that these hazards may be present on another job or situation even if they believe it is not relevant to them right now.
- Include feedback and knowledge questions on the reverse side of the handout, if time allows, for trainees to complete and return after training.

Figure 3

Changes as a Result of Fatality Narratives



Thus, it can be argued that safety training alone is unlikely to be effective without recognizable management actions to reinforce the importance of the presented material.

Conclusion

The FACE narratives discuss workplace fatalities. However, the same method can be used to present other types of information such as injury risk factors. The goal of the process is to use a real incident to capture the attention of people in an industry and highlight the concept that hazards are real and can occur in operations that they perform. In some cases, workers may feel that training is removed from their reality and job. The use of fatality narratives has proven to be an effective way to connect and demonstrate real-world experience and practical controls. ■

References

Cox, S., Tomas, J., Cheyne, A., et al. (1998). Safety culture: The prediction of commitment to safety in the manufacturing industry. *British Journal of Management, 9*(1), 3-11.

Ford, J. & Fisher, S. (1994). The transfer of safety training in work organizations: A systems perspective to continuous learning. *Occupational Medicine, 9*(2), 241-259.

Kurtz, J., Robins, T. & Schork, M. (1997). An evaluation of peer and professional trainers in a union-based occupational health and safety training program. *Journal of Occupational and Environmental Medicine, 39*(7), 661-671.

LaMontagne, A., Kelsey, K., Ryan, C., et al. (1992). A participatory workplace health and safety training program for ethylene oxide. *American Journal of Industrial Medicine,* 22(5), 651-664.

Smith, S. (2005, April). Preaching of teaching: The use of narrative in safety training. *Occupational Hazards,* 19-24.

Acknowledgments

This work and the administration of the Washington FACE Program are funded by NIOSH grant U60/OH008336 and by the Washington State Department of Labor and Industries.