

Office of Operations Review and Audit



Program Review

**Occupational Health and Safety Training
for UW Employees**

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EXECUTIVE SUMMARY

The University of Wisconsin System Office of Operations Review and Audit examined the extent to which UW institutions provide occupational health and safety training to their employees. UW employees hold such diverse jobs as academic and research positions, custodial, facilities maintenance, food service, office work and health professions. Each of these occupations carries its own unique set of occupational health and safety risks, ranging from carpal tunnel syndrome from the repetitive motions used in an office setting to exposure to dangerous chemicals or radioactive materials in laboratory settings. In 2003 the UW System employed 37,567 individuals in classified, unclassified, and research assistant positions. The System also employs approximately 23,000 student hourly workers each year. Most UW institutions have one staff person assigned to perform a range of risk management, environmental health, workers' compensation and occupational safety responsibilities.

In addition to training workers to protect themselves, effective health and safety training may reduce the costs associated with workplace accidents and injuries. For example, the UW System paid an average of approximately \$3.5 million per year in workers' compensation claims between 1998 and 2002. These costs do not take into account the pain or lost productivity resulting from workplace accidents and injuries.

Occupational Health and Safety Training Requirements

Federal Occupational Safety and Health Administration (OSHA) regulations require employers to train employees about specific issues to protect their health and safety. The Wisconsin Department of Commerce has adopted and enforces virtually all OSHA regulations in government workplaces, including the UW System. Examples of training include training in responses to hazardous materials for employees who have these materials in their work areas, as well as training about bloodborne pathogens for employees who could be exposed to blood as part of their work. Other federal agencies, such as the Environmental Protection Agency, the Department of Transportation and the Nuclear Regulatory Commission, also require employee training.

While meeting regulatory requirements is important, creating a safe workplace requires employers to address issues beyond those outlined in regulations. UW occupational health and safety staff noted that most workers' compensation claims are for slips and falls, yet no regulations require training to address this hazard. Higher education institutions commonly offer ergonomics training, drivers' education training, and food service training to make their workplace safer.

UW Efforts to Meet Safety Training Requirements

Based on our review of training practices at eight UW institutions, we found that none of the institutions had established formal training programs to cover all of the requirements outlined in federal regulations. Even institutions that have actively tried to comply with the regulations are not able to provide formal training programs for the full range of topics or to offer them

frequently enough to meet deadlines included in the regulations. Our review of formal training programs at institutions in other states revealed that this may not be unusual in higher education.

Occupational health and safety staff acknowledged that compliance is a challenge, given the large number of requirements, the variety of occupations on each campus, and the number of employees requiring training. Some occupational health and safety staff noted that supervisors may train employees directly to meet requirements for which no formal program is provided, while other supervisors rely on occupational health and safety staff to provide training. OSHA guidelines suggest that targeting certain high-risk groups, such as new employees and employees in high-risk jobs, is one way to maximize training resources. The report includes a recommendation that institutions promote a safety culture that seeks to meet and exceed minimum safety standards outlined in health and safety regulations.

Training Methods and Coordination

UW occupational health and safety staff indicated that classroom training is generally the most effective method for conveying health and safety information. Staff indicated that direct training by supervisors, training videos, and computer-based training were also useful for employees whose schedules cannot accommodate traditional classroom sessions. Some institutions have hired consultants to provide training, but staff noted that the cost makes this impractical for meeting the extensive number of mandated training requirements. Most institutions use more than one method to meet training needs, such as using videos as part of a classroom session.

Computer-based health and safety training is becoming increasingly prevalent. We reviewed training information from 27 institutions in other states and found that 19 of these offered at least one on-line training course, with some institutions offering a large number of on-line courses. The UW System Office of Safety and Loss Prevention piloted a systemwide computer-based training program to help UW institutions meet the hazardous communication requirement. Some UW institutions also have developed their own computer-based programs.

We examined institutions' methods for identifying training needs and documenting whether employees have received training. Staff described a variety of approaches for identifying training needs. They indicated that student employees, limited-term employees, summer employees and some faculty were the least likely groups to receive required training. Some institutions maintain a central file to document employee training, while others rely on supervisors to maintain those records in employee files. Documentation that an institution has provided required training can assure that employees receive the training they need to protect their safety and may also protect the institution's interests if workers' compensation claims arise. The report includes a recommendation that institutions assure that proper procedures are in place to identify training needs and to document provided training.

Efforts to coordinate training systemwide could help avoid duplication of effort and promote the sharing of resources among institutions. The Oklahoma State Regents for Higher Education established an innovative model for coordinating occupational health and safety training among institutions. The report includes a recommendation that UW System establish a mechanism for coordinating training among the UW institutions.

SCOPE

In response to a request from the University of Wisconsin System Office of Safety and Loss Prevention, the Office of Operations Review and Audit reviewed the implementation of policies and procedures used to provide required occupational health and safety training to UW employees. State and federal regulations require employers to provide a range of training to employees to help prevent accidents and injuries.

To conduct the review, Office of Operations Review and Audit staff visited and interviewed occupational health and safety staff at UW-Madison, Milwaukee, Oshkosh, Parkside, River Falls, Stevens Point and Stout, and interviewed staff at UW-Green Bay to identify methods these institutions use to provide, document, and track training. We identified federal regulations and state administrative rules that include health and safety training requirements and guidelines. We also reviewed health and safety training information from 27 higher education institutions in other states for comparative analysis.

BACKGROUND

University jobs include a wide variety of occupations in addition to academic and research positions, such as custodial work, facilities maintenance, food service, office jobs, and health professions. Each of these occupations carries its own unique set of occupational health and safety risks. For example, office workers may be at risk of developing carpal tunnel syndrome from the repetitive motion of typing, facilities workers may work in potentially dangerous enclosed spaces, and some academic staff may use dangerous chemicals or radioactive materials as part of their research. UW System headcount data for the October 2003 payroll show that the UW System employed a total of 37,567 individuals in classified, unclassified and research assistant positions in 2003. UW Employee Compensation and Business Service statistics also show that UW System employs approximately 23,000 student hourly workers each year.

A 1997 incident at Dartmouth College illustrates the importance of meeting federal Occupational Safety and Health Administration (OSHA) training regulations for protecting employee safety. A professor at Dartmouth died of mercury poisoning in June 1997 after she was exposed to a rare chemical in a university laboratory ten months earlier. The professor was exposed while using disposable latex gloves that did not adequately protect against the chemical. In addition to experiencing this tragic loss, this private institution received citations and a \$9,000 fine from OSHA for not training the employee about the limitations of various types of protective gloves when handling chemicals.

In July 1993 Governor Tommy Thompson issued an executive order recognizing the importance of protecting the health and safety of state employees. Executive Order 194 required all state agencies to develop a comprehensive written occupational health and safety program that included a range of activities designed to improve worker safety in government agencies. Among the required components of the safety program was to “provide adequate health and safety training and education for managers, supervisors and employees.” In October 1994, in response to the executive order, the Board of Regents adopted a written occupational health and

safety program for UW System Administration. The health and safety program outlines 13 elements of an effective safety program and describes the role that the UW System Office of Safety and Loss Prevention plays in meeting those goals. One of the program elements is to help institutions assure that institutions provide health and safety training.

Occupational health and safety training is an important component of an overall safety program. Some OSHA regulations require employers to train employees about specific issues to protect their health and safety. Other OSHA regulations require employers to “limit certain job assignments to employees who are ‘certified,’ ‘competent,’ or ‘qualified’--meaning that they have had special previous training in or out of the workplace.”

While OSHA is responsible for developing federal regulations to protect the health and safety of employees, it does not directly regulate government employers. The Department of Commerce in Wisconsin, however, has adopted and enforces virtually all OSHA regulations for government workplaces, including the University of Wisconsin (s. Comm 32.15, Wis. Adm. Code). Other federal agencies, such as the Nuclear Regulatory Commission, the Department of Transportation, and the Environmental Protection Agency, also have training regulations that apply to UW workplaces.

Occupational health and safety training is part of an overall safety program.

In addition to protecting employees, an effective occupational health and safety program can be cost effective for an organization by including a range of activities to help identify and manage hazards. According to the American Society of Safety Engineers, every dollar invested in a health and safety program could save four to six dollars in costs associated with injuries, illnesses, and fatalities. Safety experts note that cost savings may result from increased worker productivity through reduced time loss due to injury or illness.

A safe workplace also reduces workers’ compensation claims. Workers’ compensation provides benefits to employees who are injured or disabled on the job and to dependents of employees who are killed in work-related accidents. Workers’ compensation claims for UW System institutions have remained fairly stable over time, averaging approximately \$3.5 million per year between 1998 and 2002. Premiums the UW paid to the Department of Administration to cover those claims during that time averaged approximately \$3.8 million. Premiums are based, in part, on the past claims experience of an organization. Training efforts that help to reduce workplace injuries could help reduce these costs.

DISCUSSION AND RECOMMENDATIONS

This review examines occupational health and safety training requirements and explores approaches UW institutions and institutions in other states have used to provide health and safety training. The review covers: 1) federal and state training requirements and recommendations; 2) training methods; and 3) administrative processes related to this training.

OCCUPATIONAL HEALTH AND SAFETY TRAINING REQUIREMENTS

We found that UW institutions provide a variety of health and safety training programs for employees. We reviewed OSHA training regulations, other federal health and safety training requirements, and UW compliance with the training regulations.

OSHA Regulations

Occupational health and safety training requirements are extensive. One source we reviewed identified over 70 training requirements in OSHA regulations. OSHA regulations require training for employees in workplaces with hazards such as bloodborne pathogens, asbestos, and flammable and combustible material. The regulations require that training cover topics such as approaches to help employees recognize and prevent hazards, practices to protect employees from hazards, and appropriate responses to emergencies. Employers are usually required to provide training soon after a new employee is hired and, in some cases, also to provide additional training annually thereafter. OSHA regulations are found in the Code of Federal Regulations at 29 CFR 1910. The following are three common types of OSHA training that illustrate the types of training UW institutions must provide:

Employees are required to receive training about workplace hazards.

- *Hazard Communication Training (29 CFR 1910.1200)*: Employers are required to provide employees with information and training on hazardous chemicals in their work area. Some of the topics that training is required to cover include: methods to detect the presence of chemicals in the work area, the physical and health hazards of those chemicals, approaches for protecting against those chemical hazards, the employer's hazard communication program, the location and availability of information about chemicals contained in Material Data Safety Sheets, and instructions for using the information in the sheets.
- *Bloodborne Pathogens Training (29 CFR 1910.1030)*: Training about bloodborne pathogens must be provided to all employees who may be exposed to blood during their work. While this most commonly includes employees who work in the health professions, the institutions in our review also included other employees, such as custodial staff, athletic staff and child care workers, who may encounter blood as part of their work. Training is required at the time of initial assignment to tasks in which occupational exposure may occur, annually thereafter, and whenever new tasks that could change the level of exposure are added to an employee's work tasks. The training must include information about the transmission of bloodborne pathogens; methods for preventing exposure, including use of personal protective equipment and information about the hepatitis B vaccination; and appropriate responses to exposure incidents. The training must include an opportunity for interactive questions and answers with the person conducting the training.
- *Personal Protective Equipment (PPE) Training (29 CFR 1910.132)*: Personal Protective Equipment includes such items as gloves, goggles and face-shields. PPE training is required for anyone who is required to use PPE as part of their job. The training is required to cover when and how to use PPE, as well as the proper care, useful life and limitations of PPE.

Employees are required to demonstrate that they know how to use the equipment. Employees must be retrained if it appears that they do not have the skills to use the equipment or if there are changes in the workplace that make their previous training obsolete. Employers must verify and certify in writing that the training has been completed.

While meeting regulatory requirements is important, OSHA guidelines recognize that creating a safe workplace requires employers to address issues beyond those outlined in regulations. OSHA recommends that employers use a proactive approach for identifying and developing training to reduce any job hazard identified by the employer, whether or not regulations cover the hazard. We found circumstances in which training could be beneficial, even if not required by federal or state regulations. UW staff noted, for example, that most workers' compensation claims involve slips and falls, and yet no regulations require training to address these hazards. UW institutions that operate their own food services are not licensed or regulated by outside agencies for food safety, and yet efforts to assure that proper food handling procedures are used are critical for preventing illness. Other examples of optional training provided by universities in other states include ergonomics training; drivers' education training, including training in the appropriate operation of 15-passenger vans; and health and safety issues for pregnant workers.

OSHA guidelines recognize other, non-mandatory safety training needs.

OSHA guidelines recommend a variety of approaches for identifying training needs. These approaches include: 1) analyzing company accident and injury records to determine how accidents occurred and how to prevent them; 2) requesting that employees describe their jobs in writing, including the tasks, tools and equipment used to perform the jobs; 3) observing employees at work and questioning them about their activities; 4) examining similar training programs offered by other companies in the same industry; and 5) using a formal job hazard analysis that assesses the risks of specific jobs.

Other Federal Training Regulations

Other federal agencies, in addition to OSHA, regulate workplace safety and require certain training for workers. For example, the Environmental Protection Agency and the Department of Transportation require training for people who handle hazardous waste. These regulations require that employees receive training within 90 days after employment and recurrent training once every three years. Employers are required to keep training records for each employee throughout employment and for varying lengths of time after leaving employment, depending on the regulations governing the training.

Other federal agencies, in addition to OSHA, require health and safety training.

The Nuclear Regulatory Commission (NRC) requires safety training for employees who work with radioactive materials. Employers are to train all employees who may be exposed to radiation in the workplace about such topics as appropriate storage of radioactive materials, health protection and appropriate response to emergencies. Wisconsin became an agreement state with the Nuclear Regulatory Commission in 2003, at which time Wisconsin's Department

of Health and Family Services became responsible for enforcing certain regulations covering the use of radioactive materials.

Meeting Safety Training Requirements

We found that occupational health and safety offices at UW institutions typically offer formal training programs for a small number of the state- and federally-required training topics. One institution offers only two training courses, while staff at another institution indicated that staffing limitations prevent the institution from developing any formal safety training program. Occupational health and safety staff indicated that supervisors are ultimately responsible for providing training to meet the requirements; however, it is unlikely that most supervisors are aware of all of the requirements.

Even institutions that have actively attempted to meet regulatory requirements by providing formal training programs are unable to provide the full range of topics frequently enough to meet those requirements. For example, UW-Stout's training calendar revealed plans to offer training on 26 topics throughout 2003, which is about 40 percent of the 66 topics UW-Stout estimated would apply to the institution. Training that is offered only once a year also may not be sufficient to meet deadlines included in the regulations. Many of the regulations require that employers train employees before they are exposed to a risk. Bloodborne pathogen training, for example, is required before exposure to blood may occur and annually thereafter. Employees may find themselves facing new risks throughout the year. Other regulations, such as those for operating fire extinguishers, are required upon initial employment. New employees may be hired throughout the year, requiring frequent and flexible scheduling of training to meet the requirements.

Difficulty in achieving compliance with training requirements may not be unique to UW System institutions. We found that the number of formal occupational health and safety training programs offered by institutions in other states also varied significantly. For example, the 27 institutions in other states for which we obtained information offered an average of 19 formal training programs each; one offered no courses, and five of the remaining institutions offered five or fewer. Given UW-Stout's analysis, it appears unlikely that these institutions would be subject to so few training requirements.

While it may be difficult to meet federal and state training regulations, compliance is important. Employee safety is of paramount concern, and failing to comply with state and federal training regulations may place employees at undue risk of injury.

In addition, federal and state officials may issue citations and fines if they find compliance problems. Further, s. 102.57, Wis. Stats., entitles an employee to a 15 percent bonus in workers' compensation benefits if the employee can demonstrate that an injury resulted because

Compliance with training requirements promotes safety and can reduce workers' compensation costs.

the employer violated health and safety regulations; failing to provide required training would be a violation. Conversely, s. 102.58, Wis. Stats., decreases workers' compensation benefits by 15 percent if the employer can demonstrate that an employee failed to use a safety device or follow

safety practices. Documentation of training could help employers demonstrate that the institution communicated safety practices to employees.

While achieving compliance with all of these requirements may not be feasible, efforts to systematically identify training requirements that apply to the workplace would allow institutions to prioritize training efforts and, over time, to address gaps that may exist. UW-Stout has used a self-assessment checklist to identify potential compliance issues. ***We recommend that institutional occupational safety managers, working with other UW campus administrators, review occupational health and safety training regulations to identify training needs and develop a plan to prioritize and meet training requirements.***

TRAINING METHODS

OSHA guidelines recognize that there are a variety of methods for providing training. They indicate that the resources available to the organization, as well as the nature of the training, will determine the type of training provided. For example, teaching a physical skill requires a different training approach than providing training designed to change attitudes.

We found that most institutions use multiple methods to meet training needs. Multiple training methods can stretch scarce resources, provide options to meet a variety of work schedules, and help institutions meet timeframes established in health and safety regulations. For example, several institutions appeared to require classroom instruction to meet initial training requirements and then used on-line training to meet refresher requirements. Others provided formal classroom instruction while relying on supervisors to provide additional instruction to address safety issues specific to a worksite. The flexibility of on-line training, combined with direct instruction from supervisors, could provide critical information to workers in a timely manner and help institutions meet mandatory training deadlines. We examined methods UW institutions use to deliver training to employees -- classroom training, training by supervisors, consultant training, videos, and computer-based training -- and identified benefits and disadvantages of each approach.

Classroom Training

All staff interviewed for our review indicated that they relied primarily on formal classroom health and safety training for employees. Staff generally believed that classroom training was the most effective means of delivering training because it allows participants to ask questions if they are confused about a concept, and it allows the trainer to observe participants practice hands-on activities.

Staff also noted drawbacks to classroom training. They indicated that it can be difficult to schedule formal classroom training in a timely manner, particularly for topics that may be required for only a small number of employees. They also reported that it can be difficult to schedule training to meet the needs of employees who do

Formal classroom training can be difficult to develop and to schedule for small groups of employees.

not work regular shifts. Some supervisors do not believe that they can spare staff for the amount of time away from work that formal training requires. Finally, the majority of institutions in our review have allocated only a small portion of one person's staff time for developing and delivering occupational health and safety training. It would be impossible for most UW institutions to develop and deliver formal training for the full range of required topics.

Direct Training by Supervisors

Staff indicated that informal training methods also play an important role in meeting training requirements. Institutions rely on direct instruction by supervisors to achieve compliance with many of the OSHA training requirements. For example, supervisors may provide direct instruction in the proper use of personal protective equipment. Direct instruction does not require training to be scheduled and may allow employers to provide the information in a timely manner.

Supervisor instruction is an essential part of any occupational safety program, but some safety managers we interviewed were uncomfortable relying too extensively on supervisors to provide training. One staff person noted that supervisors may not deliver a consistent message based on the most recent or best information about preventing a hazard. Supervisors may also neglect to provide training if they are unaware of a training requirement or if they presume an employee already has a certain skill or knowledge. However, even institutions that provide an extensive number of formal training programs often rely on supervisors to provide additional instruction to help employees apply the concepts of training to the specific worksite.

On-the-job safety training by supervisors is common.

To improve the ability of supervisors to provide direct instruction, one university in another state provides supervisors with brochures that describe appropriate information to be shared with employees. Also, participation in train-the-trainer exercises can provide supervisors and others with skills they need to train their employees.

Office of Safety and Loss Prevention staff suggested that subscription services could also be useful for providing supervisors with valuable health and safety information. Subscription services are Internet sites that provide training and compliance information resources so that managers do not have to create them on their own. For example, a safety website developed by the Business and Legal Report includes training resources such as PowerPoint presentations, training checklists, handouts, quizzes and trainers' outlines; compliance resources such as regulatory analysis, regulations, directives, compliance checklists and policies; and best practice information for safety management. UW System previously provided systemwide access to a similar subscription service, "*SafetySmart!*," but discontinued participation due to the high cost of the service and budget constraints. The subscription cost \$16,773 in 2002. UW System staff indicated that they plan to explore other subscription service options.

Consultants

In some cases, UW institutions reported that they hired consultants to provide training. Consultants are available to provide training on most health and safety topics. This approach has the advantages of classroom training, while allowing institutions to provide specialized training in areas where on-site staff may lack expertise or knowledge. Most staff noted, however, that the extensive use of consultants to meet training requirements would not be practical. Staff noted that consultants can be expensive, often costing thousands of dollars for a few days of work. Staff at one UW institution indicated that they have not used consultants for several years because past programs did not respond to the specific needs of the organization; a pre-conference meeting would be important to clarify the organization's training needs.

Training Videos

We found that both UW institutions and educational institutions in other states maintain a library of health and safety videos that supervisors and employees may use. Training videos typically present health and safety information in a lecture format, along with illustrations and examples of approaches for managing hazards. Training videos allow institutions to expand the range of topics offered beyond those within the expertise of the institution's health and safety staff. Training videos also are adaptable to work schedules, since supervisors or staff may use videos upon request. This flexibility could increase the ability of institutions to meet the deadlines for providing initial training and for accommodating unusual work schedules.

Training videos are a flexible option, but they may become quickly outdated.

Despite these advantages, staff reported that supervisors and employees rarely request or use training videos.

They noted that the information is often quickly outdated and is not customized to the specific needs of the organization. Employees that view videos in isolation do not have the opportunity to ask questions or use hands-on skills. Nevertheless, some staff reported that there are some good videos available and that they can be used as one component of classroom training.

Computer-Based Training

Computer-based training, which includes training delivered "on-line" on the Internet, is an emerging option that higher education institutions are using to meet some training requirements. We reviewed the extent to which institutions provide on-line occupational health and safety training.

We found that 19 of the 27 educational institutions in other states in our review offered at least one on-line training course, with Iowa State University providing the most on-line training, offering over 40 on-line courses.

The University of Iowa listed 28 on-line courses on its training website, while the University of Pennsylvania listed 18 courses. Most institutions, however, appeared to offer only a few such courses, with 10 of the 19 institutions that offer on-line training providing three or fewer courses.

Nineteen of the 27 higher educational institutions in other states in our review offered at least one on-line training course.

We reviewed the content of some of the on-line programs and found that institutions use a wide range of approaches. Most programs we reviewed were a series of informational slides. Some on-line programs require participants to “log in” to begin the program and then the computer program monitors whether the employee completes the course. Others relied on supervisors or participants to report that the employee completed the course. More sophisticated programs required participants to answer questions throughout the program or complete a computer-graded quiz at the end of the course. One course we reviewed had participants complete a series of questions at the beginning to determine which components applied to the specific needs of the employee; the computer program then automatically customized the training to the specific needs of the employee.

The UW also has developed on-line training options. UW-Milwaukee, for example, provides on-line information for over a dozen health and safety topics, consisting of a series of slides describing health and safety issues for each topic. Also, the UW System Office of Safety and Loss Prevention recently developed and piloted an on-line training course to meet OSHA’s hazard communication requirement.

We reviewed the UW System hazard communication training. Office of Safety and Loss Prevention staff worked with institutional staff and the University of Wisconsin Learning Innovations program to develop the program. Learning Innovations provides instructional design support for on-line courses UW institutions develop. This is an interactive system that allows participants to review information and then tests their knowledge. It has an optional sound function that reads written material to participants. The program tracks completion and provides an opportunity for the participant to evaluate the quality of the training.

UW institutional staff we interviewed generally believed that UW System’s on-line training could potentially help UW institutions maximize scarce resources and meet training requirements; however, the training may need some improvements before it is a cost-effective option. Between January 2001, when the program was launched, and February 2003, the hazard communication course had enrolled 520 employees; yet only approximately 100 participants, most of them from one institution, had completed the program. UW System staff

UW System’s hazardous communication on-line training has not been extensively used.

believe that the ability to interrupt the program and complete it at a later date may contribute to the low completion rate. Some occupational health and safety staff suggested that establishing deadlines for completing a course could increase the completion rate. Another suggestion from institutional staff was to develop the capability to administer on-line training in a central location, such as providing workstations in a monitored training room, which would allow staff to supervise participation and provide assistance. This oversight could help improve completion rates, as well as provide participants with the opportunity to ask questions.

The on-line training program cost \$89,705 to establish, including \$14,880 for two on-line training servers and \$74,825 to develop the system. The program originally cost an additional \$22,900 each year, including \$7,900 for server hosting and maintenance by UW-Madison’s Division of Information Technology (DoIT) and a \$15,000 license fee that allowed up to 5,000

users to access the system. In 2003 UW System negotiated a contract with a new vendor, Desire2Learn, to provide on-line training services for UW System. The new license allows UW System to incorporate the cost of employee training into the cost of providing on-line classes for students, eliminating the \$15,000 license fee. Since UW System staff are providing server hosting and maintenance services for this new software, this new agreement also eliminates the \$7,900 annual fee to DoIT.

We identified several other options that could allow institutions to develop cost-effective computer-based training:

- *Existing software*: Safety training staff at the University of Iowa developed an extensive number of on-line programs using existing software, such as Microsoft PowerPoint and Pagemaker. They reported that the only cost for developing the programs was the staff time required to create them. The University of Vermont also publishes a webpage of safety training resources, including safety graphics and an extensive list of PowerPoint presentations prepared by peer institutions.
- *Links to other training*: Some institutions in our review provided links to on-line training provided by other organizations, such as www.free-training.com, which provides free on-line training for hazard communication, personal protection equipment, back safety, forklift safety and hearing conservation. In Wisconsin, the Department of Administration also provides free on-line training for ergonomics that employees of Wisconsin agencies may use.
- *CD-ROMs*: Computer-based occupational health and safety training programs provided on CD-ROMs provide a training format similar to on-line training. The programs provide interactive quizzes, and employees may complete them as their schedules allow. While companies develop most CD-ROM programs for private industry, it appears that topics and content are often similar to the information provided for university-based training programs. Follow-up training to customize the information to specific worksites could further enhance the effectiveness of this approach. Some CD-ROMs cost as little as \$20.

Our review identified cost-effective methods for offering on-line health and safety training.

Staff noted several advantages to on-line and other computer-based training. While classroom training has to be scheduled, on-line training is flexible, allowing employees to complete training at a convenient time and at their own pace. Also, employees may complete it soon after they are hired, thus helping institutions meet requirements to provide initial training. Outside experts often develop on-line training, providing access to training on topics that institutional staff may not be qualified to develop. Finally, staff noted that it is possible to update on-line training to meet changing needs and requirements.

Despite these advantages, most of the UW occupational health and safety staff we interviewed did not believe that on-line training could replace formal, classroom training. They noted that employees have varying levels of skill with computers and reading levels that could make it difficult for some staff to complete on-line training. One staff person believed that the online training developed by UW System may be too sophisticated for the average user. Health and

safety staff also report that not all employees may have access to computers. Some also were concerned about the potential for cheating, noting that it might be easy for participants to print questions and answers and share the information with other workers. Finally, some staff indicated that on-line training does not provide the level of interaction that they believe is essential for effective learning. While participants may e-mail questions or follow up with a supervisor or trainer, on-line training provides a limited capability to provide an immediate response to questions.

TRAINING ADMINISTRATION

UW occupational health and safety staff report that few resources are devoted specifically to health and safety training. Developing and providing training is only one of many responsibilities of occupational health and safety staff. Most institutions have only one staff person assigned to perform a range of risk management, environmental health, workers' compensation and occupational safety responsibilities. Given the large number of training requirements and the level of available staffing, alternative approaches are required to meet training requirements. We explored approaches that could improve compliance with health and safety training regulations, given these limited resources, including tracking and documenting training, coordinating training on a systemwide basis, and promoting a safety culture.

Tracking and Documenting Training

Occupational health and safety staff indicated that identifying employees who are required to receive training can sometimes be difficult. The UW institutions employ full-time and part-time faculty and academic staff, students, and limited-term employees (LTEs) in various departments, schools, colleges, and administrative offices. Safety staff identified student employees, LTEs, summer employees, and some faculty as the least likely groups to receive required training. Many OSHA regulations require that employees receive training within a few days of hire, but staff reported that it is often difficult to identify new hires. For example, at one UW institution, staff reported that while information about new classified staff was readily available, the human resources department could not provide information identifying new faculty and academic staff. Other regulations require staff to receive periodic refresher training that can be difficult to track.

Targeting Training

OSHA guidelines suggest that targeting certain high-risk groups, such as new employees and employees working in high-risk jobs, is one way to maximize training resources. Staff described several approaches that they use to try to target and track training needs:

- *Systematic training*: Methods for ensuring appropriate staff are targeted for training in a timely manner include: providing information about occupational health and safety training to new employees as part of new employee

UW institutions have adopted methods for ensuring new employees receive required training and for documenting the training.

orientations and handbooks; targeting groups of employees, such as custodial staff or facilities workers, and providing all required training to the employees as a group; and providing training building by building, to various groups working in each building. Some suggested that rather than try to comply with all training regulations, institutions could maximize resources by targeting training to those topics that address the greatest risks to which employees are exposed.

- *Checklists*: Occupational health and safety staff at UW-Green Bay developed a checklist to help supervisors identify the appropriate training for their employees. Supervisors are required to complete the checklist for each new employee. The checklist includes 14 types of training, a brief description of those employees who are required to take each type of training, and contact persons for arranging for the training. Once an employee completes the training, the trainer and employee sign the form. At least one other UW institution uses UW-Green Bay's checklist; we found that institutions in other states, such as Florida State University, have developed similar checklists. UW-Green Bay staff continue to consider improvements to the checklist process.

Staff also reported that the most successful efforts to provide timely training were those for which there is a mechanism for assuring that employees complete training before beginning work assignments. For example, employees who work with radioactive materials may not begin work until they receive a dosimeter, an instrument used to measure radiation. One campus requires employees to complete radiation training before they may receive a dosimeter and begin their work duties. Also, some institution staff noted that additional training goals are identified during annual employee performance reviews.

Documenting Training Delivery

According to OSHA guidelines, proper documentation of training activities can “provide evidence of the employer’s good faith and compliance with OSHA standards.” This is important for resolving workers’ compensation claims and for passing health and safety inspections. We found that the institutions in our review used a variety of approaches for documenting health and safety training provided on campus. For example:

- *Central records*: In many cases, institutions keep a central record of all employees completing formal training provided by the institution’s safety staff. In these cases, the safety staffs typically maintain a database or spreadsheet that lists the employees’ names, training date, type of training and the employing department.
- *Supervisor documentation*: At institutions with a large number of employees, supervisors may be in the best position to document training, including informal, on-the-job training. At the same time, relying on supervisors to maintain training records may result in inconsistent documentation approaches. For example, in one workers’ compensation case described by staff, the hearing officer decided the case against the institution, in part because a supervisor could not produce training records to demonstrate that he had provided informal instruction to the employee about the use of equipment. When institutions delegate documentation

responsibilities to departments, periodic reviews of departmental training files to verify that supervisors are maintaining training records could help assure compliance.

- *Computer program:* Michigan State University (MSU) has established an interactive computer program consisting of a series of databases and a master record for each employee. The master record is created when a new employee is hired and is updated when an employee takes a health and safety class. Each employee can view the courses they've taken in the past and, if applicable, when they are required to take a refresher course. Also, supervisors can view the training records of those they supervise. According to safety staff at MSU, one of the most effective aspects of the system is that the computer automatically notifies workers by e-mail when their annual refresher date is approaching. If the employee fails to complete the course, the system sends another e-mail notifying the employee and the employee's supervisor. According to MSU staff, the e-mail system has dramatically improved compliance. Staff reported that the program was developed in-house and the cost was nominal.

Tracking participation to assure that employees receive required training in a timely manner is critical for safeguarding employees and for assuring compliance with state and federal regulations. Proper documentation of that training is also necessary to protect the interests of UW institutions in the event that employees file workers' compensation claims. ***We recommend that each UW institution assure: 1) that it has procedures in place to identify and refer employees to required training, and 2) that it is properly documenting all training.***

Systemwide Coordination

Although staff indicated that they regularly share information with other UW institutions, we found that the institutions in our review developed most of their own training materials, typically duplicating the efforts of other institutions. At the same time, several staff noted that institutions provide limited resources for training. The topics offered at each institution seemed to be dependent on the skills and available time of the safety staff at the institution. While some customization may be necessary to assure that training addresses the specific needs of the institution or a worksite, health and safety training regulations are common to all workplaces. Efforts to share and coordinate information among UW institutions could prevent duplication of effort, stretch limited resources and allow institutions to offer a broader range of training.

UW System Administration's 1994 health and safety program identified a coordination role for the UW System Office of Safety and Loss Prevention. According to the plan, the office would develop training aids and instructional materials, plan and sponsor systemwide conferences for occupational health and safety staff, and provide training to campus staff on a variety of topics.

UW institution staff reported that they appreciated UW System Administration's efforts to provide resources that institutions may modify and adapt to institutional needs. UW occupational health and safety staff at several institutions identified the annual safety conference as an important forum for sharing safety information. These staff also identified resources UW

UW System health and safety resources have been useful to UW institution staff.

System Administration provided that they found useful. These included templates that provide an outline to help institutional staff establish policies and training materials, subscriptions to services such as “*SafetySmart!*,” and a CD-ROM that UW System recently developed that included training examples from UW institutions. Institutional administrators and staff also indicated that they would like UW System staff to visit campuses more often; to establish a system for sharing trainer services; to offer more train-the-trainer opportunities; and to convene a work group of campus representatives to coordinate the development of lists of regulations and training needs and share training materials.

During our review, we found an innovative approach for coordinating occupational health and safety training services among multiple institutions that could serve as a model for UW System training efforts. In 1994 the Oklahoma State Regents for Higher Education, with assistance from the University of Oklahoma and the State Regents Council of Business Managers, established the systemwide State Regents Training Center for Occupational Safety and Health and Environmental Compliance. The establishment of the center, with 24 public higher education institutions as members, recognizes that many federal, state and local health and safety compliance issues are common to all institutions throughout the state. An advisory board that includes a representative from each institution in the consortium oversees the center, which has an annual operating budget of \$55,000 to cover the cost of staff, travel and supplies.

Oklahoma higher education institutions established a center for occupational safety compliance.

The Center provides technical and consultative services; plans and promotes safe and environmentally sound workplaces within Oklahoma’s higher education system; and assists with jobsite analyses to identify and eliminate workplace hazards. Member institutions continue to do most of their own training, but the center provides on-line information to assist with that training. A full-time coordinator staffs the center and does training as time allows. The center is developing web-based training and also sponsors statewide seminars and workshops three to four times per year.

Some UW institutions also have found that establishing a formal consortium is a practical way to maximize scarce resources. UW-Stout, Eau Claire and River Falls share the services of a full-time environmental health and safety specialist. The specialist provides assistance and training services at each institution, as needed. ***To respond to institutional health and safety training needs and maximize scarce resources, we recommend that UW System Administration establish a formal consortium or consortia to develop training resources.*** Several health and safety managers indicated their support for this concept, although some expressed concern about how this effort would be funded, noting that institutions have limited resources for training. One health and safety manager suggested that a cost-effective approach for beginning this process could be to establish a systemwide task force to do tasks such as sharing, choosing and editing PowerPoint presentations, developing short test questions and designing health and safety training resources for human resources departments.

Promoting a Safety Culture

OSHA guidelines discuss the importance of developing a safety culture as part of a successful safety program and note that training is a critical component of a safety management system. In organizations with a strong safety culture, managers and employees alike feel responsible for assuring safe practices in the workplace. Safety practices exceed minimum compliance with health and safety regulations. Employees are accountable for using safe practices and feel responsible for their co-workers' safety. Management, including top administrators, actively and visibly supports a safe workplace, provides the necessary resources to manage workplace hazards, and trains employees. Organizational policies and procedures reinforce workplace safety. Performance measures are used to monitor safety, identify training needs, improve safety practices and hold managers and employees accountable for safety.

A safety culture includes exceeding minimum safety requirements and being accountable for using safe practices.

During our review, occupational health and safety staff indicated that supervisors are not always cooperative with efforts to assure that employees receive appropriate training. They indicated that some supervisors have resisted the training because they believed they could not spare the staff time for training. Also, health and safety staff reported that some academic departments and individual faculty do not participate in required training because they do not believe they need the training. At two institutions, staff described instances in which departments resisted professional safety staff's efforts to review training materials to assure that appropriate topics are covered. Also, some safety staff believe that some managers perceive safety as solely the responsibility of the safety office. However, they note that safety managers do not have the authority to require employees to attend training. Some safety staff also reported that it is essential for an effective safety training program to have active support from top administration. Safety staff indicated that employees, supervisors, and administrators, along with professional safety staff, all have a role to play in creating a safe workplace and meeting training regulations.

Safety experts recognize that supervisors play a central role in assuring a safe workplace. For example, during our review, safety staff reported that supervisors are in the best position to know when an employee begins a new job or is assigned new responsibilities that may require training. Supervisors also may be in a good position to assess the risks associated with a specific worksite and to recommend training for staff as necessary to correct deficiencies in skills that affect worker safety. Supervisors typically maintain personnel records that may be used to document training. Safety staff noted that, even if centralized training is provided, supervisors often must do additional training to address hazards specific to the job site.

Health and safety training for new supervisors can help highlight the importance of these functions. For example, the Wisconsin Department of Administration routinely offers health and safety training for supervisors in state agencies. The training includes an overview of property and liability issues, workers' compensation issues, and methods for preventing injuries. Health and safety training is not currently required for UW supervisors. Training that provides supervisors with information about state and federal health and safety training regulations, as

well as about how to conduct and reinforce training, could improve compliance. Attendance at such training could be made part of supervisors' annual performance expectations.

Efforts to establish written health and safety performance and accountability standards for supervisors also could promote a safe workplace. UW System's 1994 health and safety plan advocates incorporating safety responsibilities into the position descriptions of UW supervisors. The UW System human resources office issued a memo to UW personnel directors at the time the plan was issued, outlining language that institutions could voluntarily use to establish written standards for UW supervisors. One of the suggested standards was that supervisors endeavor to provide health and safety instruction for employees and students. Holding supervisors formally accountable for providing required health and safety training to employees could also promote a stronger safety culture. ***We recommend that UW institutions identify approaches to promote a safety culture that seeks to exceed minimum standards outlined in health and safety regulations by: 1) promoting employee involvement in health and safety activities; and 2) developing supervisor accountability systems that promote workplace safety.***

Once a safety program is fully established, evaluation efforts may help institutions improve existing training, identify and develop new programs to meet health and safety needs, and identify the most effective approaches for delivering training. OSHA guidelines suggest that organizations evaluate the effectiveness of training, including analyzing participants' opinions of the training, supervisors' observations about whether employee behavior reflects information from training, and data on accident or injury rates.

CONCLUSION

Effective health and safety training may reduce accidents and injuries on the job, minimizing the pain and costs associated with these incidents. We found that institutions use a variety of approaches to provide formal health and safety training. Classroom training was described as the most effective method for providing training, although other methods, such as direct training by supervisors, training videos, and on-line training, were cited as useful approaches, particularly when it is necessary to accommodate flexible schedules.

Given the extensive number of training requirements, occupational health and safety staff reported that it can be difficult to identify all employees who are required to receive training; student employees, limited-term employees, summer employees and some faculty were the least likely to be properly trained. Since all UW institutions must comply with the same regulations, improved coordination and efforts to share resources throughout UW System could enhance compliance. Occupational health and safety staff indicated that stronger accountability systems for assuring compliance and a commitment to safety by all levels of management also could improve compliance and reduce injuries and illnesses.

We have offered several recommendations to improve compliance with health and safety requirements that may also reduce occupational injuries and illnesses. We have recommended that UW institutions:

- review occupational health and safety training regulations to identify training needs and develop a plan to prioritize and meet training requirements;
- assure that they have appropriate procedures in place to identify and refer employees to required training;
- assure that they are properly documenting all training; and
- identify approaches to promote a safety culture that exceeds minimum standards outlined in health and safety regulations by promoting employee involvement in health and safety activities and developing supervisory accountability systems that promote workplace safety.

In addition, we have recommended that UW System Administration establish a formal consortium or consortia for developing and delivering safety training.

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