An Injury Prevention Strategy for Teen Restaurant Workers

Washington State's ProSafety Project

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ABSTRACT

High levels of youth employment, workplace hazards, and characteristics unique to adolescents contribute to a relatively high incidence of injuries among teens in the restaurant industry. This article discusses the ProSafety model of injury prevention among teen restaurant workers. Through integration with an existing career and technical education program, the ProSafety project seeks to prevent occupational injuries among the teen worker population through classroom safety education and internship skills reinforcement. ProSafety is the product of an innovative collaboration with occupational health nurses, business professionals, educators, and government. Its approach is derived from Social Cognitive Theory, is consistent with key values and strategies of occupational health nurses, and provides lessons for practitioners seeking to reduce occupational injuries in food service or among other populations of adolescent workers.

Previous reports note that occupational health and safety efforts in the United States often do not address the unique needs of youth. Despite the recognition that occupational injuries among young workers are significant, a gap exists in the literature regarding effective injury prevention strategies and program models for young workers in nonagricultural industries (Runyan & Zakocs, 2000). In this article, the ProSafety adolescent restaurant worker injury prevention project developed by occupational health nurses in collaboration with the Washington State Department of Labor and Industries, the Washington Restaurant Association Education Foundation, University of Washington safety and health experts, and high school career and technical educators is discussed. Through integration with an existing national career and technical education program for the culinary arts (ProStart), ProSafety was designed to prevent occupational injuries among teen workers as they pursue careers in the food service industry.

Occupational health nurses are well positioned to facilitate the development of effective workplace injury prevention strategies for young workers. In addition to fundamental education focused on nurse-client interactions across the lifespan, occupational health nurses also have expertise in identifying and addressing hazards in

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the workplace. They can ensure compliance with laws and regulations that guide safe employment, collaborate with businesses and community members to promote workplace safety, and generate knowledge and best practices for occupational health and safety (American Association of Occupational Health Nurses, Inc. [AAOHN], 2007). Occupational health nurses direct these skills toward effecting change at the systems level, creating positive change in programs, policies, or community structures that impact worker populations. ProSafety is a recent example of occupational health nurse leaders applying a community health nursing perspective to risk reduction for occupational injuries among teens working in the food service industry (Fig. 1).

OCCUPATIONAL ILLNESSES AND INJURIES AMONG YOUNG WORKERS

In developed countries, workers younger than 25 years are injured on-the-job at a rate 1.2 to 2.0 times that of adult workers (Salminen, 2004). In 2000, the estimated rate of nonfatal occupational injuries and illnesses treated in U.S. emergency departments was 6.3 and 5.1 per 100 full-time employees for 18 to 19 year olds and 20 to 24 year olds, respectively. In comparison, adult rates ranged from 1.5 to 3.5 per 100 full-time employees for all age groups beyond 30 years (National Institute for Occupational Safety and Health [NIOSH], 2000). In Washington State, adolescent workers younger than 18 years were injured at a rate 2 times higher than that of adult workers (Miller & Kaufman, 1998). During the time period from 2000 through 2008, a total of 13,568 injury claims were accepted for teens younger than 18 years in Washington State, with an annual average of 1,500 claims (range = 1,400 to 2,600) (Washington State Department of Labor and Industries, 2009).

The most common injuries experienced by young workers include acute, traumatic injuries (e.g., burns, lacerations, puncture wounds, sprains, strains, and dislocations) (Breslin & Smith, 2005; NIOSH, 2000). These injuries impact young workers in lasting ways. Potential consequences include chronic pain, scarring, sensory loss, decreased range of motion, limited-activity days, and absences from work or school (Parker, Carl, French, & Martin, 1994). Young workers may also lose earning power subsequent to suffering an occupational injury (Breslin, Smith, & Dunn, 2007), which has implications for individuals, their families, and their communities.

INJURIES AND ILLNESSES AMONG YOUNG RESTAURANT AND FOOD SERVICE WORKERS

Of the 11.6 million workers employed by restaurants and other food and beverage service businesses in the United States, approximately 30% are younger than 20 years. Restaurants are the first formal employer of many youth (Occupational Safety and Health Administration [OSHA], 2008). Several reports provide insight into the scope of teen injuries in the food service industry. Zierold and Anderson (2006) reported that among a sample of more than 3,000 working teens in Wisconsin, 36% were employed in full- and quick-service restaurants, whereas 42% of teens with on-the-job injuries were employed in that setting. In Massachusetts, the restaurant industry accounted for the largest portion (26%) of occupational injuries among teen workers 14 to 17 years old between 1993 and 1999 (NIOSH, 2004). Hospitality and food service is also the most common employer among injured youth in Washington State, accounting for 37% of occupational injuries from 2000 to 2008 (Washington State Department of Labor and Industries, 2009).

In addition to the overall proportion of youth in food service, workplace risk factors specific to this industry contribute to the incidence of injuries and near-misses. Common restaurant hazards include hot equipment and substances, slippery floors, sharp objects, exposure to cleaning solutions, heavy lifting, and awkward positions (Mardis & Pratt, 2003; Tsai & Salazar, 2007). Psychosocial hazards of the restaurant business include pace pressure (Evensen, Schulman, Runyan, Zakocs, & Dunn, 2000; Tsai & Salazar, 2007); organizational demands to prioritize customer service (de Castro, Curbow, Agnew, Haythornthwaite, & Fitzgerald, 2006; Hochschild, 2003; Tsai & Salazar, 2007; West, de Castro, & Fitzgerald, 2005); and interacting with hostile customers and with criminals during robberies and assaults (NIOSH, 2003). Additionally, unsafe work practices by coworkers have been associated with fatal injuries of young workers, underscoring the importance of a collective culture of safety in the workplace (Higgins, Tierney, & Hanrahan, 2002).

Youth characteristics may also contribute to increased risk for occupational injury. Young workers are not as mature physically as adult workers, making them differentially vulnerable to hazardous exposures. For example, work equipment, typically designed to accommodate the physical features and stature of full-grown adults, requires young workers to use awkward postures during operation (Breslin & Smith, 2005, Runyan & Zakocs, 2000). Researchers have also suggested that because teens are often unaware of worker rights and employer responsibilities, they may be more hesitant to ask questions or call attention to needed changes in working conditions when they discover a workplace hazard (Greenberger & Steinberg, 1986; West et al., 2005). Further, because young workers tend to be part-time or temporary employees, they may receive less consistent training or be unfamiliar with work requirements and safe operating procedures (Breslin & Smith, 2005; NIOSH, 2003).

THE PROSAFETY PROJECT

Workplace risk factors and youth characteristics combined with the potential long-term impact of occupational injuries on the lives of young workers demonstrate the need for intervention strategies aimed at injury prevention. Zierold and Anderson (2006) emphasized the need for safety education appropriate in content and context for the age and development of workers. ProSafety was designed to reach high school students enrolled in the Pro-

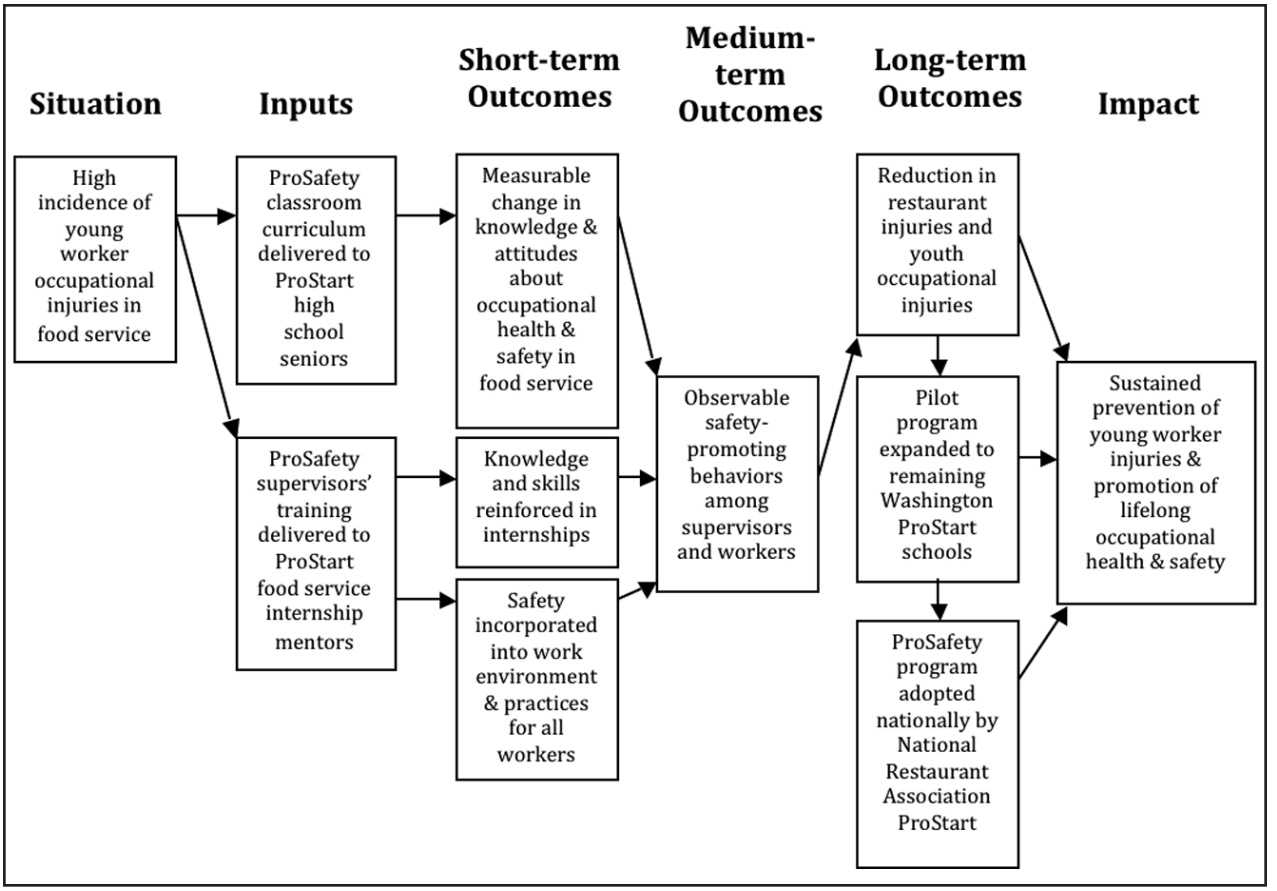

Figure 1. ProSafety logic model.

Start culinary arts program, where safety training could be taught within the context of learning and practicing technical skills. Developed by the National Restaurant Association Education Foundation, the ProStart program (www.prostart.restaurant.org) is a nationwide system of high school and restaurant partnerships delivering vocational skills in the classroom coupled with mentored worksite experiences. Topics covered by the national curriculum include customer service, use of kitchen equipment, nutrition basics, business and management principles, food preparation techniques, menu design, and identifying career opportunities. Although all technical culinary skills are developed in a highly experiential way—taught in the classroom and reinforced in internship settings and at local and regional competitions—the workplace safety content of this 2-year curriculum is limited. Safety content, which is contained in an early, first-year textbook chapter, is limited to brief, introductory information on liability, fire response, and injury prevention (National Restaurant Association Educational Foundation, 2005). Because of the limited workplace safety content provided in this curriculum, many ProStart teachers in Washington State add materials they gather independently or use an existing, general-industry safety curriculum developed for Washington State high schools, Health and Safety Awareness for Working Teens (HSAWT) (Linker, Miller, Freeman, & Burbacher, 2005).

ProSafety Program Model

ProSafety is guided by the framework of Social Cognitive Theory (SCT) (Bandura, 2004). According to SCT, a desired behavioral outcome is a product of the interaction among characteristics of behaviors, individuals, and the environment. This foundational concept is known as "reciprocal determinism" (Glanz, Rimer, & Lewis, 2002). SCT also emphasizes the importance of reinforcements in response to an individual's behavior, which promote or discourage its reoccurrence (Glanz et al., 2002). Figure 2 illustrates ProSafety's model of positive reinforcements, which unites the classroom and internship environments to promote safe work behaviors.

Design of ProSafety

ProSafety adapts the existing HSAWT curriculum with restaurant-specific examples and content. The intervention is intended to operate on two fronts: the classroom and the internship setting. Young workers first learn health and safety principles and skills in the classroom, as an integrated component of their ProStart culinary skills training. The ProSafety team provides training and guidance to the curriculum liaisons, who in turn provide the materials and information to the ProStart teachers to deliver to their students. After completing the classroom modules, students are assigned to restaurant internship

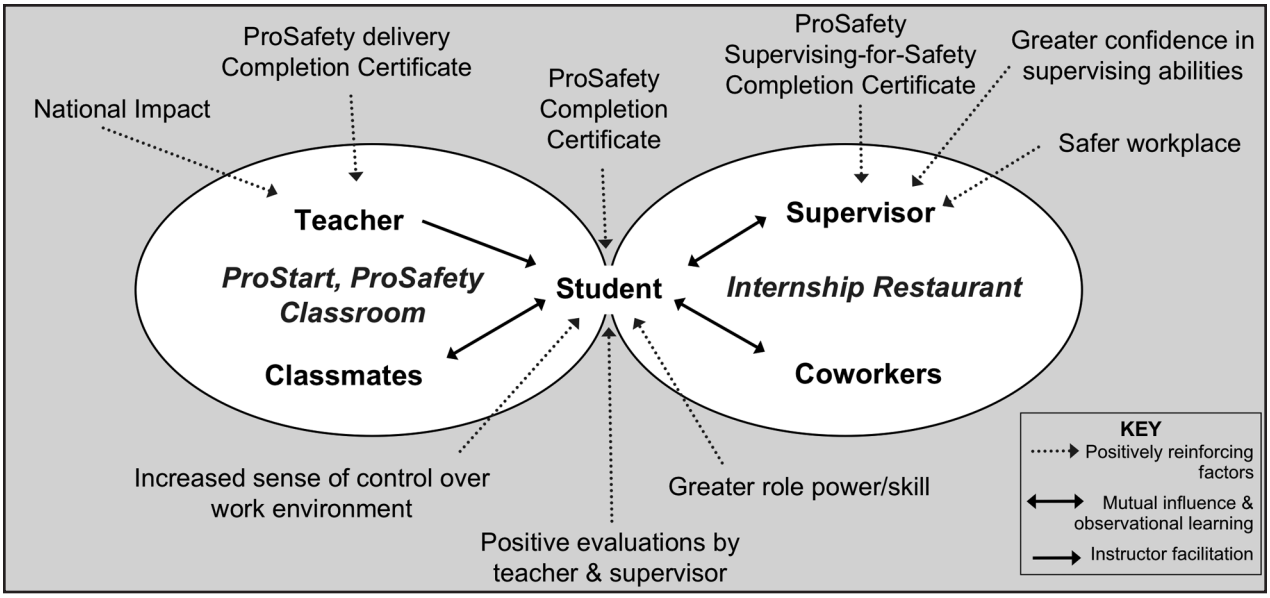

Figure 2. ProSafety program model of positive reinforcements.

settings with trained mentors. Meanwhile, the project's plan is for the internship mentors to receive ProSafety-compatible trainings. These employer trainings, known as "supervising-for-safety," equip restaurant supervisors and mentors with information to facilitate appropriate supervision and safety skills reinforcement during students' internships.

The interactive student curriculum focuses on real-life scenarios and consequences. It emphasizes risk assessment and hazard response, seeking to build students' knowledge and confidence in their ability to contribute to workplace safety. Through multimedia presentations, discussions, games, and activities, the classroom lessons build positive, shared student experiences around workplace safety.

The workplace reinforcement component is key to making the classroom messages observable in real work settings. Supervisor and internship mentor trainings offer similar risk assessment and safety skills information to supervisors and internship mentors as the students receive in the classroom, as well as tips on effective approaches for working with youth. The continuity of the message and safety values that are presented to students by ProStart instructors and internship mentors provide students with observational and experiential learning opportunities and meaningful reinforcement of safety knowledge, attitudes, and behaviors.

ProSafety Curriculum

The ProSafety team consisted of the occupational health nursing graduate student; the child labor specialist at Washington State Department of Labor and Industries, also an occupational health nurse; the Executive Director of the Washington Restaurant Association Education Foundation; and the curriculum expert from the University of Washington. Together the team selected six topics from the existing HSAWT general curriculum based on the results of a literature review and related experience of the team members (Table). These modules were adapted to reflect the hazards and safety issues unique to the food service industry. Each lesson contains a combination of teacher instruction and reinforcing activities. PowerPoint slides, DVDs with viewing guides, and a computer-based learning module complement and enhance traditional instructional methods and learner activities (Eckerman et al., 2002, 2003).

IMPLEMENTATION OF PROSAFETY

A challenge identified by other groups in previous vocational safety integration efforts was a lack of cooperation by key stakeholders in the process. To increase success, ProSafety team members actively and explicitly informed, updated, and sought input from a variety of stakeholders, including individual teachers, state and national ProStart leaders, labor and industry experts, restaurateurs, students, and parents, from very early in the process and throughout the development and implementation stages. Venues through which the team accomplished this included professional conferences, board meetings, and state culinary competitions involving ProStart participants; and less formal, direct conversations with identified organizational leaders and community members. These interactions allowed the team to clearly communicate the motivations and intent of the ProSafety effort and its compatibility with each stakeholder group's self-identified mission and priorities. For example, in January 2009 the team's representative from the Washington Restaurant Association presented a large concept poster to the Washington Restaurant Association Education Foundation board of directors. The board indicated that the poster not only encompassed the mission and framework of the ProSafety project, but also represented their philosophy as ProStart leaders in connecting industry with students and calling upon

Table

ProSafety Curriculum

Lesson	*Content*	*Selection Criteria Met*
1	Introduction to injuries in the workplace and effects on teens	Teens, food service
2	Identifying hazards	Underdeveloped skill, severity
3	Labor laws	Underdeveloped skill, severity
4	Prevention strategies	
	Sharps safety	Teens, food service
	Burns	Teens, food service, severity
	Fryer safety	Food service, severity
	Slips and falls	Food service
	Lifting	Food service
	Ergonomics	Teens, underdeveloped skill
	Personal protective equipment	Underdeveloped skill
	Fire safety	Severity
5	Talking to supervisors	Underdeveloped skill, teens, food service
	Problem solving	Underdeveloped skill
	Conflict resolution	Underdeveloped skill
6	Workplace violence	Food service, severity
	Sexual harassment	Severity

Note. *Teens = prevalent occurrence among teen workers; food service = prevalent occurrence in the food service industry; severity = high relative severity or duration of consequences; underdeveloped skill = underdeveloped skill for addressing occupational safety needs.*

technologies to promote learning and skill building. The board also expressed excitement at the potential for this added safety component to shift the general employer perception of young workers as a safety liability to a belief in ProStart teens as highly qualified, skilled, and safety-promoting contributors to the work force. This buy-in and sense of ownership was crucial to achieving system-wide cooperation in the endeavor.

A pilot test was first conducted to assess feasibility and effectiveness among 20 Washington State ProStart schools, 14 from the urban western Washington and 6 from the more rural eastern Washington, and their associated internship sites. Ten Washington Restaurant Association Education Foundation-affiliated ProStart schools remain as non-pilot referents and will be phased-in after the pilot. Pilot schools were selected based on teacher-expressed interest and ability to deliver the curriculum and feedback to the program developers in May-August 2009. Each teacher was given a $200 one-time incentive payment for attendance at a half-day train-the-trainer session and subsequent involvement in the pilot. Each teacher was also assigned a ProSafety liaison for technical assistance throughout the pilot implementation.

At the time of writing, internship sites partnering with the implementation schools had not yet received the supervisor version of the ProSafety content. The ProSafety team is making final adjustments to the supervising-for-safety curriculum, which is expected to be available for in-person delivery to internship mentors by ProSafety staff or via DVD format in 2010. Although face-to-face training is preferable because it provides opportunities for trainees to ask questions and engage with project leadership (Linker et al., 2005), a DVD alternative will also be developed to support anticipated time and travel constraints among restaurant mentors. An advantage of the DVD format is its availability for continual, periodic use in future restaurant staff orientations and trainings.

EVALUATION PLAN

The ProSafety pilot began in May 2009. No evaluation data are currently available to report. However, an evaluation plan was built into the overall design of the program. Evaluation strategies will include process measures (e.g., actual content delivered, number of students in attendance, and qualitative feedback for content improvement) and outcome measures (e.g., pre- and post-test assessment of changes in knowledge and attitudes, direct observations of the students and the safety envi-

Sample Student Evaluation Questions

Sample pre- and posttest knowledge questions

- List three examples of job hazards that could be found in the restaurant workplace.
- Name two tasks, which might be found in food service, that no worker younger than 18 years is allowed to do in Washington State.
- How late can a 16 or 17 year old work on a school night?
- What is the purpose of child labor laws?

Sample pre- and posttest attitude and behavior-intent questions

Please respond to the following statements with Strongly agree, Agree, Uncertain, Disagree, or Strongly disagree.

There is no need to be concerned about workplace injuries and illnesses because most are not serious.

Labor laws are important for protecting workers.

I would talk to my employer about working conditions that I think are unsafe.

ronment at intervention internship sites, and comparison observations at non-intervention sites). Teachers will complete process evaluation forms and administer students' pre- and posttests. ProSafety liaisons assigned to each school will be responsible for conducting site observations, distributing evaluation forms, and ensuring collection of the data.

The ultimate goal of ProSafety is to contribute to a reduction in injuries through the development of safer work environments for the future work force, young and old alike. More immediately, success will be defined in terms of usability of the curriculum, increased knowledge among students, and observed behavior adoption. Attendance by supervisors, teachers, and students at trainings and classroom activities will inform decisions about audiences' ease of engagement. Qualitative feedback from teachers will provide additional clarity regarding engagement and curriculum delivery. Increased knowledge will be measured through the comparison of pre- and posttest data (Sidebar). Behavior adoption will be assessed through standardized observation of students from pilot and non-pilot classrooms in their respective internship settings. The relationship among content received in class, degree of supervisor engagement and behaviors adoption, and student performance of safety behaviors will measure intervention effectiveness.

CHALLENGES AND OPPORTUNITIES

Despite support from multiple stakeholders, some challenges are worth noting. The availability of internship mentors to complete the ProSafety-compatible supervising-for-safety trainings could impact the program's ability to reach the internship setting. In addition to providing both in-person and DVD training options to increase employers' participation, the team has spoken with the oversight committee of the Washington Retrospective Rating Program about the future possibility of incorporating ProSafety into retrospective rating qualification requirements. The Retrospective Rating Program allows employers who choose to enroll to receive adjustments to their industrial insurance premiums, based on their Labor and Industries claims costs for the preceding year. This adjustment may result in either a refund or an increased premium. With ProSafety as an entry requirement, participating employers could leverage their participation in the training to reduce claims costs, potentially resulting in a distinct financial advantage. This possible future partnership is an indication of industry support, an opportunity for a broader future audience, and a potential motivator for employers focused on the bottom line.

In addition to the workplace, the classroom also presents challenges and opportunities. Hundeloh and Hess (2003) advised that for school-based safety promotion to be successful, the intervention must take into account the educational framework, structure, conditions, and mission of the organization. In addition, the intervention cannot place an additional burden on teachers (Hundeloh & Hess, 2003). One aspect of the current education system in Washington State is pressure to demonstrate student learning through required standardized testing. Classroom time limitations and school administrators' focus on standardized testing requirements could pose a challenge to ProStart teachers incorporating ProSafety training content into their existing curriculum. However, on the basis of preliminary feedback from a variety of stakeholders, including the Washington Restaurant Association, University of Washington curriculum experts, the Department of Labor and Industries, and ProStart teachers, the team anticipates that sufficient class time will be devoted to this project.

The academic calendar could pose time challenges when conducting interventions within the school system. Washington State operates according to a traditional academic schedule, with schools closed during the summer months. This calendar does not always coincide with the fiscal calendars of funding organizations. ProSafety originally planned to receive funding

in July 2008, which would mean the summer months would be available to focus on curriculum development, culminating in a curriculum launch at Washington ProStart educators' annual meeting in the fall. In reality, funding was not secured until October 2008, requiring a significant shift in the implementation schedule while still adhering to the logical implementation windows within the academic schedule. The duration of the pilot was reduced, and in exchange for the fall kick-off presentation, the ProSafety team presented at a statewide ProStart culinary competition in March 2009. An unanticipated benefit of presenting at the spring event, rather than the fall event, was the opportunity to interact with parents and students—not just teachers—around the goals of the project and the perceptions, interests, and needs of a broader stakeholder audience. However, by delivering classroom content only during the spring months and focusing on internship site training and curriculum reinforcement during the summer months, ProSafety may have substantially reduced the likelihood of producing a measurable programmatic impact from the pilot alone. The Washington Restaurant Association Education Foundation has expressed strong support for the mission, design, and content of the project and has committed to increasing implementation in 2010. This reflects the quality of the leadership support garnered by the ProSafety team and will provide a longer-duration opportunity for the project to demonstrate impact. Although the extent of this organization's outright commitment may be atypical, it illustrates the power of recruiting and maintaining the support of management in occupational health and safety endeavors.

IMPLICATIONS FOR BUSINESS AND OCCUPATIONAL HEALTH NURSE LEADERSHIP

With the leadership of occupational health nurses, Washington State is pioneering the development and provision of comprehensive education and support for young workers in the restaurant industry. Facilitating factors in this project included strong, passionate, and forward-thinking leadership; supportive funding sources; interest among educators; a recognized need in the restaurant community; and a strong career and technical training program through which students of the culinary professions could be reached. Challenges have included limited time and resources and competing priorities in high schools and restaurants alike. Increasingly, high schools are under pressure to demonstrate students' academic achievement through standardized testing assessments, and restaurants' programming is being tested as the financial consequences of every decision are felt more intensely. The current economic climate poses many challenges, but may also build interest in training students and employees in ways that could reduce costs related to occupational injury and work force turnover.

ProSafety has combined the interests and needs of young workers, the business and government sectors, educators, and health professionals. A multidisciplinary effort of this scale depends on skilled, collaborative leadership to coordinate the team's internal structures, resources, and activities. With a broad knowledge base, organizational and prioritizing skills, and experience with people, occupational health nurses can act effectively as the coordinators of multidisciplinary teams to promote clear communication, facilitate knowledge-sharing from team members' areas of expertise, and enable team-based decision making in the pursuit of a shared goal (AAOHN, 2007; Garrett, 2005).

In addition to coordinating internal collaboration, occupational health nurses must leverage external partnerships and resources that support the team's efforts. Occupational health nurses' understanding of business values (AAOHN, 2005) and communication skills, including "speaking the language of business" (Marinescu, 2007, p. 86), provide a basis for gaining the support of the business sector. ProSafety team members' experience with young worker safety, a commitment to educating youth about their rights and responsibilities, plus ongoing collaboration with the Washington Restaurant Association created the means to pursue the funding opportunity provided by the Labor and Industries Safety and Health Investment Projects (SHIP) grant program. ProSafety occupational health nurses' grant writing, professional networking, and formal and informal presentation skills further facilitated the process. Thorough understanding of the current research regarding health promotion, program development, and injury prevention principles was necessary to create a sound project design, which further bolstered support.

In conclusion, occupational health nurses seeking to develop similar programs in their states can begin by identifying partners with whom they can unite under a common vision. As in the case of ProSafety, these partnerships can be maximized by occupational health nurses capitalizing on their knowledge, skills, and collaborative leadership potential. Including multiple stakeholders in the development and implementation of the project expands the project's base of support, leads to broader visibility, and creates a greater legacy potential through sustainable programs and policies that support the goal of safer work environments. Projects that impact workplace safety can begin by targeting workplaces where adolescents are employed, such as the food service industry, and the advantage that access to schools provides. At the same time, occupational health nurses should be mindful of potential scheduling conflicts that may exist between academic calendars and funding cycles. Because stakeholders' time is valuable and implementation capacities may be limited, occupational health nurses should think creatively about what incentives motivate. Washington restaurant leaders understand the benefits of injury prevention programs in preserving skilled employees and the implication for youth, whose long careers remain ahead of them. Occupational health nurses can integrate their understanding of injury prevention, health promotion, business principles, and collaborative leadership to motivate key decision makers in favor of promoting the occupational health and safety of the work force—including its youngest members.

IN SUMMARY

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1. Teens are a vulnerable worker population, with high employment in the restaurant and food service industry. ProSafety is one of few interventions designed to comprehensively address the injury prevention needs of this population.

2. Despite common implementation challenges, schools and vocational education programs present an opportunity to integrate classroom safety learning with technical skill development in the workplace.

3. Occupational health nurses possess the knowledge, skill, and leadership potential to unite multidisciplinary teams under a shared vision for safer work environments.

The Washington Restaurant Association Education Foundation was the administrator of the ProSafety project, along with collaboration from occupational safety and health experts at the University of Washington Department of Environmental and Occupational Health Sciences and the Washington State Department of Labor and Industries. The project was funded through a grant received from the State of Washington Department of Labor and Industries, Safety and Health Investment Projects fund (Project Number 2008-XB-00062), with partial support from the Northwest Center for Occupational Safety and Health (an Education and Research Center funded by CDC/NIOSH, Grant 3T42OH008433).

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