

Setting an Agenda for Advancing Young Worker Safety in the U.S. and Canada

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ABSTRACT

Scholars and practitioners from multiple perspectives, including developmental science, sociology, business, medicine, and public health, have considered the implications of employment for young people. We summarize a series of meetings designed to synthesize information from these perspectives and derive recommendations to guide research, practice, and policy with a focus on young worker safety and health. During the first three meetings, participants from the United States and Canada considered invited white papers addressing developmental issues, public health data and findings, as well as programmatic advances and evaluation needs. At the final meeting, the participants recommended both research and policy directions to advance understanding and improve young worker safety.

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More than 17.6 million workers younger than 25 years of age are employed annually in the United States.¹ In Canada, nearly three million young people aged 15–24 years (65%) were working in 2010.^{2,3} The U.S. recorded 3.6 deaths per 100,000 young workers (younger than 25 years of age) in the period 1998–2007, with an additional 7.9 million nonfatal injuries treated in emergency departments.⁴ In Canada in 2009, there were 35 fatalities among workers younger than 25 years of age, and 33,837 experienced nonfatal injuries requiring time away from work.⁵ Both the U.S. and Canada have laws at the federal and state or provincial levels to regulate the employment of young people. In the U.S., the Fair Labor Standards Act protects workers younger than 18 years of age by limiting the types of jobs they can hold and their work hours.⁶ In addition, the Occupational Safety and Health Act of 1970 protects all workers.⁷ States have separate laws for workers younger than 18 years of age and can enact provisions that strengthen rather than weaken federal laws.

In Canada, employment legislation for young workers is limited at the federal level, with responsibility falling primarily to the individual provinces and territories. However, there are federal-level age restrictions,⁸ and individual provinces have passed regulations limiting the types of jobs or exposures permitted for young people. For example, in 2003, British Columbia added a requirement stipulating that all workers younger than 18 years of age be under constant and immediate supervision from a person who is at least 19 years of age.⁹

Work has multiple effects on young people, both positive and negative. It can help young people develop new skills, explore potential career options, earn money for essential needs, and enjoy increased self-esteem.¹⁰ At the same time, work can be dangerous, exposing young people to unsafe tasks or environments, particularly in situations where training and supervision may be limited. For example, a recent national U.S. study¹¹ reported that 26% of workers younger than 18 years of age worked at least part of the day without an adult supervisor, and as many as one-third of them reported not having any health and safety training. A similar Ontario study¹² revealed that 38% of young workers spent at least part of their day working without supervision.

Scholarship on work among adolescents and young adults spans multiple disciplines but is poorly integrated. To address this problem, we embarked on the project entitled “Improving the Experiences of Young Workers in the U.S. and Canada: An Interdisciplinary

Educational Program.” Funded by the National Institute for Occupational Safety and Health (NIOSH) and the Ontario Neurotrauma Foundation, the project used a series of invitational meetings to engage an array of scholars and practitioners in setting an agenda for more integrated approaches to improving the safety and quality of work for young workers. We describe the methods used in this process and the recommendations that resulted from this four-year project, which was conducted from 2006 to 2010.

METHODS

An organizing committee comprising U.S. and Canadian professionals identified white paper authors and selected a diverse group of multidisciplinary participants for each meeting, including sociologists, psychologists, physicians, lawyers, nurses, public health professionals, and business representatives.

Each of the first three meetings incorporated a series of white papers and discussion of major research and policy issues. The first meeting addressed developmental perspectives on work for young people, the second examined work for young people from a public health perspective, and the third focused on interventions and program evaluation. We used nominal group techniques to develop a list of needed research and policy interventions.

For the fourth meeting, we synthesized the ideas that had emerged from the prior sessions and organized them using the socioecological framework to provide a foundation for setting a research and policy agenda. In this meeting, a facilitator (William Flexner) helped the participants prioritize the topics, using the OptionFinder group decision support system, which allowed rapid voting on priorities with immediate display of findings.¹³ This system enabled participants to focus their attention on the topics of greatest perceived importance. Participants first engaged in silent brainstorming to generate ideas and then shared these ideas in small groups. Ideas from the small groups were compiled into a common list, discussed as a large group, and then prioritized by perceived importance. Members of the organizing group and authors of this article further refined these lists after the meeting. Topics within this domain are organized within the context of the socioecological framework.^{14,15} Although the research issues were common to both the U.S. and Canada, we focused this article on policy ideas for the U.S. A similar process to address Canadian policy ideas is in the planning stages.

POLICY RECOMMENDATIONS: U.S.

Issues affecting young workers can be too easily overlooked when they are not differentiated from those affecting adults. Multiple agencies are involved in protecting young workers, and there are few coordinated mechanisms to monitor needs, set priorities, and facilitate progress. To remedy this problem, the group urged that the U.S. and Canada each develop a clear governmental focus on young worker safety, cutting across relevant agencies to more nimbly allow for the compilation and use of surveillance data, as well as the development, implementation, and evaluation of evidence-based programs and policies. They advocated for planned strategies to communicate across the U.S.-Canada border to facilitate the sharing of information and ideas about best practices. One specific idea was the development of a resource center to facilitate an information exchange about evidence-based interventions and translational research.

Specific recommendations for policy interventions in the U.S. include the following:

1. Develop a comprehensive and coordinated plan for surveillance of young worker health and safety, including monitoring of morbidity, mortality, and hazardous exposures.
 - a. Establish a national database with standard measures of young worker deaths and information about hazards and violations, through collaborative efforts of the Occupational Safety and Health Administration (OSHA) and NIOSH.
 - b. Develop standard definitions and protocols for ascertaining who is a young worker, what is work, what are hazardous conditions, and what are injury outcomes.
2. Assure that young people working in agriculture receive the same level of protection under the law as those in other industries.
3. Develop a focus on young worker labor within the U.S. Department of Labor and the U.S. Department of Health and Human Services to ensure continued attention to the issues of safety and health for young workers, including:
 - a. Facilitating the exchange of information about evidence-based practices for improving working conditions for young workers;
 - b. Establishing business-based health and safety committees, including input from young workers, to facilitate the development of workplace policies;
 - c. Mandating evidence-based health and safety training as an integral component of all government-sponsored workforce development programs; and
 - d. Regularly evaluating and reporting progress in improving young worker safety and health, drawing on surveillance data as well as program and policy evaluations.
4. Ensure adequate funding for the enforcement of child labor laws and OSHA standards at both the federal and state levels.
 - a. Expand protection to young workers up to 25 years of age, consistent with Canadian practice.
 - b. Support small and/or family-owned businesses in meeting the obligations of adhering to OSHA and child labor regulations.

Rationale

Surveillance. The group agreed that it is imperative to develop more comprehensive and coordinated plans for the surveillance of mortality and morbidity among young workers. This plan is crucial for assessing trends in injury, developing evidence-based interventions and evaluating their implementation and effectiveness, and enforcing laws. Existing surveillance systems are inadequate for capturing the range of hazards and injuries as well as age and worker type. Young worker injuries are systematically underreported, and there are inadequate mechanisms to link data across sources. To enhance surveillance, standard definitions need to be developed and employed within all the various data systems that may pertain to the surveillance of young worker injury; for example, in medical records, death certificates, employer data systems, and workers' compensation systems. Also, it is strongly recommended that the U.S. Bureau of Labor Statistics expand surveillance definitions to include workers younger than 16 years of age, as many young people begin work before age 16 years,¹⁶ yet their employment and injury experiences are not captured in current data systems.

In addition, the age range considered for "young workers" in U.S. surveillance systems should extend to 25 years of age, as is done in Canada, recognizing that those in the 19- to 24-year age group are at particularly high risk for injury. As such, adequately protecting these young people may require special protections or the extension of some provisions of the Fair Labor Standards Act to these young adult workers.

OSHA and NIOSH should develop a mechanism to track hazard exposures and violations of state and federal laws at least in those cases of serious injury or death to a young worker. This information could facilitate identifying specific job tasks and environments in which young people are most at risk and provide

guidance on improved intervention and enforcement activities.

Protection for young people working in agriculture. A high priority for policy improvement is ensuring that there is parity in the protection of young people working in the agriculture industry compared with those working in nonagricultural settings. For young people of all ages, working in agriculture poses significant risks for serious and fatal injury, with this industry having the second highest fatality rate for workers between the ages of 14 and 24 years.⁴ This protection should include family-run farms as well as non-family-run farms and agribusiness.

Though additional research on the effectiveness of workplace safety programs is strongly recommended, efforts to incorporate evidence-based approaches to training and supervising young workers should be part of standard practices in all businesses. Safety committees are one way to provide an interface with practice innovations and monitor progress to improve safety. A number of ideas emerged about how and where to conduct safety training (e.g., school-based vs. work-based programs, programs incorporating mentoring by more experienced workers, programs addressing workers' rights generically as well as those focused on safety issues in specific industries or jobs, ongoing training vs. at the start of a new job, and use of specific curricula and teaching methodologies). Because so little evaluation of interventions has been conducted to date, much more testing is necessary to determine which types of interventions will be effective.

In addition, because of the increased risks to new workers, it is highly recommended that special policy provisions ensure that new and young workers are assigned to tasks with gradually increasing difficulty, allowing them time to learn new environments and roles. This approach parallels the graduated driver licensing policies that have successfully reduced adolescent motor vehicle crash risks by as much as 20%–30% by giving new drivers progressively more independence as they learn to drive.¹⁷

Child labor law enforcement. It is critically important to assure that there is sufficient support to properly enforce child labor laws at both the state and federal levels. Currently, labor agencies have very limited resources for oversight of child labor and face significant challenges in monitoring violations.^{18–20} As a result, serious violations can go unnoticed and policies may be unenforced.^{21,22} It was also noted that small and/or family-owned businesses may require special attention to ensure compliance with child labor laws.

RESEARCH RECOMMENDATIONS: U.S. AND CANADA

During the course of the symposia, participants generated scores of research questions that fell into several broad domains. One domain was understanding the dynamics of employment and its effects on adolescent health and social development. Another domain addressed how best to improve working conditions and/or health outcomes for young workers. Ideas included studies of employers as well as workers and of research about how to gain adoption of evidence-based approaches.

In addition, evaluations of the implementation, effectiveness, and cost-effectiveness of young worker employment policies is critical, including cross-national comparisons (e.g., comparing U.S. and Canadian approaches).

Understanding factors associated with young workers' experiences in the socioecological context

Included in this category are issues related to social and cultural values about adolescents who are working and acceptability of worker risk. It includes social and cultural norms about worker safety and factors associated with the context of work by young people, including demographic and economic factors and trends. Sample research questions include:

- What are the key elements of a successful campaign to change social and cultural norms about health and safety?
- How does the mix of young and old workers in the labor pool affect young worker safety?
- What is the likely impact of demographic shifts on the jobs available to young people in the next 15 years?
- What factors enhance worker safety as a community value?
- What level of risk for young workers is acceptable within the U.S. and Canada?
- How much control is it politically feasible to impose on businesses in support of young worker protection?
- How can businesses be more profitable by improving young worker safety?

Organizational and institutional contexts of work

Included in this category are issues related to the policies of organizations (e.g., industry and schools) that relate to work by young people (e.g., practices associated with training and supervision). It also includes

factors associated with the overall workplace climate and a commitment to safety consciousness, as well as to actual hazards and safety practices. Sample research questions include:

- What work conditions and practices of supervisors, coworkers, and young workers contribute to safety?
- How do training, supervision, other safety practices, and employer attitudes about young workers vary across different types or sizes of businesses?
- What differentiates worksites with and without a positive safety culture?
- What factors facilitate the successful movement of young people to jobs in school-to-work transition programs?
- What school factors are associated with young workers successfully managing the dual role of worker and student?

Interpersonal relationships between young workers and significant other people related to their work

This topic includes relationships between employers and parents, employers and teens, parents and teens, and teens and their peers as they relate to work practices and safety. Sample research questions include:

- What roles do parents play in their adolescents' work decisions?
- What level of workplace injury risk and protection from risk is acceptable to parents?
- How can parents be helpful in negotiating safer work for their children?
- How do the social networks of young workers influence their safety and risk-taking at work?
- What types of peer relationships are conducive to positive vs. negative work experiences among young workers, and how do they differ by gender?
- How do power relations at work between young workers and supervisors impact health and safety?

Effects of young workers' characteristics and behaviors on work and work outcomes

Research in this area is directed toward the knowledge, attitudes, beliefs, behaviors, and developmental characteristics of adolescents in selecting their roles as young workers and considers the outcomes of work for adolescent development. Sample research questions include:

- How do job choices and timing of job initiation among young people vary by socioeconomic factors, race/ethnicity, and gender?

- What are the short- and long-term developmental psychosocial benefits and risks of young worker employment, specifically concerning having multiple jobs in succession or simultaneously and having jobs of differing qualities?
- How well do young workers correctly estimate their competency to perform specific types of jobs or tasks?
- How, if at all, does work change the risks among adolescents with regard to specific health outcomes (e.g., sexual debut, unwanted pregnancy, drug abuse, and use of alcohol or other drugs)?
- What role does sleep deprivation play in young worker injury risk?
- What specific characteristics of young workers (e.g., socioeconomic status, racial/ethnic minority status, and learning or physical disabilities) increase or mitigate worker safety?
- What is the lifetime disability among people who are injured at work during adolescence?
- What risk factors are associated with workplace violence among young workers?

INTERVENTION RESEARCH RECOMMENDATIONS: U.S. AND CANADA

Our interdisciplinary symposia addressed a range of topics and issues important in setting policies that enable young people to work safely. The group acknowledged the importance of evaluating interventions, whether policies or programs, and generated numerous ideas for developing and applying evidence-based interventions. These interventions include policy interventions—both federal and state/provincial governmental policies, their adoption and enforcement, as well as organizational policies as they affect health and safety. The interventions also include efforts to translate successful interventions into new settings or to adapt interventions developed for one purpose (e.g., graduated driver licensing or increasing productivity) to worker safety.

Policy approaches: federal, state, and organizational

In this area, the group generated ideas that address both governmental policies to regulate the work environment and practices, as well as policies that could be adopted by organizations that employ young workers or provide services to young people.

- To what extent do workers' compensation policies enhance young worker safety?

- How can the model of graduated driver licensing be applied to protect young workers?
- What would be the impact on teen work and work safety if the minimum ages for specific hazardous work tasks were increased?
- How much do worker safety committees, supervisor training programs, work permits, prohibited work, and/or work hour restrictions improve young worker safety?

Interventions to improve young worker safety

This focus area is directed at changing the knowledge and/or practices of employers, young workers, or others (e.g., health professionals). Research questions include:

- What factors constitute the effective supervision of young workers?
- What types of interventions could create incentives for employers/management to create safer work environments?
- What are the minimum best practices for making work safer for adolescents in specific settings? For example, would it be feasible to require companies with a certain proportion of new workers to have a designated risk manager/safety supervisor?
- What selection and training processes are most effective in preparing young supervisors to be successful? For example, are certification courses a viable approach?
- How effective are safety training and workers' rights training in improving young worker safety?
- What are effective mentoring strategies that can be replicated across work settings?
- What are the effects of formal apprenticeship programs in improving outcomes (educational, health, and safety) for young workers who participate in them?
- What training of health-care professionals can enhance their provision of occupational health and safety preventive care for young workers?

Translational research and dissemination

Translational research is directed at learning how to take interventions that have been demonstrated to be effective in one or more settings and apply them in new settings, thereby expanding their impact. Dissemination and knowledge mobilization practices take knowledge gained from research and share it to advance the science or to facilitate practice improvements. Research questions include:

- What strategies facilitate the widespread adoption of interventions that improve young worker safety (e.g., incorporating attention to safety into the training of business leaders or increasing visibility of businesses employing sound practices)?
- How can the strongest evidence about prevention best be disseminated and applied in places employing young workers?
- What are the best methods for reaching young workers with information about health and safety (e.g., requiring businesses to mentor young workers for the first few months of employment)?
- What is necessary to get businesses to adhere to corporate policies that promote worker safety (e.g., tax or other financial incentives, appropriate training)?
- How can occupational safety and health best be incorporated into school curricula?

CONCLUSIONS

We advocate for more visible and vigorous attention to young workers as part of public health broadly and occupational health and safety more specifically. As with other public health issues, a comprehensive approach requires good surveillance as well as sound research to understand the etiology of problems and create evidence-based policy and programs. Evidence of successful interventions is minimal, so continued work is needed to develop and evaluate interventions to add to the body of evidence. There also is a need to conduct translational research to understand how interventions that are effective in one setting can be successfully implemented in others.

Organized efforts must track outcomes of interventions through improved surveillance employing the information to improve interventions using systematic evidence-based approaches. Ineffective approaches should be replaced by those with proven worth. The notion that "we know what works because we've been doing it this way for years" needs to be replaced with scientifically sound approaches to good practice. At the same time that we employ good research to inform practice, we must also be sure to incorporate practice experiences in informing research.

The integration of knowledge across disciplines is valuable, as in this series of meetings, drawing on theories and methods from the social sciences, industrial hygiene, injury control, and intervention practice. There is also much to be learned by comparing experiences in different social and political environments (e.g., the U.S. and Canada). Including input from

diverse stakeholders is also important. These stakeholders include representatives of both management and labor, individuals representing governmental and private interests, and young workers themselves.

As we think boldly about the future of protecting young workers, we are impressed by the approach used in traffic safety in Sweden to adopt Vision Zero, aiming to eliminate traffic fatalities. The Vision Zero concept (<http://www.visionzeroinitiative.com>) is based on the premise that no loss of life is acceptable and that humans make mistakes. Consequently, the road system is designed to protect people at every turn. We believe a similar approach, with a goal of eliminating serious and fatal injuries to young workers by 2015, is worthy of consideration.

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REFERENCES

1. Bureau of Labor Statistics (US). Labor force statistics from the Current Population Survey. Washington: Bureau of Labor Statistics; 2010. Also available from: URL: http://www.bls.gov/cps/cps_over.htm [cited 2011 Nov 28].
2. Statistics Canada. CANSIM table 282-0002: labour force survey estimates (LFS), by sex and age group, annual (persons unless otherwise noted). Ottawa (Ontario): Statistics Canada; 2010. Also available from: URL: <http://www5.statcan.gc.ca/cansim/a05?lang=eng&id=2820002&paSer=&pattern=282-0002&stByVal=2&csid=> [cited 2011 Nov 28].
3. Statistics Canada. CANSIM table 052-0005: projected population, by projection scenario, sex and age group as of July 1—Canada, provinces and territories, annual. Ottawa (Ontario): Statistics Canada; 2010.
4. Estes CR, Jackson LL, Castillo DN. Occupational injuries and deaths among younger workers—United States, 1998–2007. *MMWR Morb Mortal Wkly Rep* 2010;59(15):449-55.
5. Association of Workers' Compensation Boards of Canada. Young worker statistics [cited 2011 Dec 4]. Available from: URL: <http://www.awcbc.org/en/youngworkerresourcesinformation.asp#statistics>
6. Department of Labor (US), Wage and Hour Division. Child labor bulletin 102: child labor requirements in agricultural occupations under the Fair Labor Standards Act. Washington: Department of Labor; 2007. Report No. WH-1295. Also available from: URL: <http://www.dol.gov/whd/regs/compliance/childlabor102.pdf> [cited 2011 Dec 1].
7. Pub. L. 91-596. 84 Stat. 1590 (1970).
8. Minister of Justice. Canada Labour Code [cited 2011 Nov 29]. Available from: URL: <http://laws.justice.gc.ca/PDF/Statute/L/L-2.pdf>
9. Employment Standards Act, Employment Standards Regulation. B.C. Reg 396/95 [cited 2011 Nov 29]. Available from: URL: http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/11_396_95
10. Staff J, Messersmith E, Schulenberg J. Adolescents and the world of work. In: Lerner RM, Steinberg L, editors. *Handbook of adolescent psychology*. 3rd ed. Vol. 2. Hoboken (NJ): John Wiley & Sons; 2009. p. 270-313.
11. Runyan CW, Schulman M, Dal Santo J, Bowling JM, Agans R, Ta M. Work-related hazards and workplace safety of U.S. adolescents working in the retail and service sectors. *Pediatrics* 2007;119:526-34.
12. Lewko JH, Runyan CW, Tremblay CL, Staley JA, Volpe R. Workplace experiences of young workers in Ontario. *Can J Public Health* 2010;101:380-4.
13. Flexner WA, Wheatley KL. When you really must have them: face-to-face meetings using keypad electronic meeting systems. In: Coleman D, editor. *Collaborative strategies for corporate LANs and intranets*. Upper Saddle River (NJ): Prentice Hall; 1997.
14. Bronfenbrenner U. *The ecology of human development: experiments by nature and design*. Cambridge (MA): Harvard University Press; 1979.
15. Runyan CW. Introduction: back to the future—revisiting Haddon's conceptualization of injury epidemiology and prevention. *Epidemiol Rev* 2003;25:60-4.
16. Department of Labor (US). Report on the youth labor force. Washington: Department of Labor; 2000.
17. Chen LH, Baker SP, Guohua L. Graduated driver licensing programs and fatal crashes of 16-year-old drivers: a national evaluation. *Pediatrics* 2006;118:56-62.
18. Child Labor Coalition. The government's striking decline in child labor enforcement activities. Washington: Child Labor Coalition; 2006.
19. General Accounting Office (US). Child labor: labor can strengthen its efforts to protect children who work. Washington: GAO; 2002.
20. National Consumers League. 2004 child labor state survey. Washington: NCL; 2005.
21. Rauscher KJ, Runyan CW, Schulman MD, Bowling JM. U.S. child labor violations in the retail and service industries: findings from a national survey of working adolescents. *Am J Public Health* 2008;98:1693-9.
22. Kruse DL, Mahony D. Illegal child labor in the United States: prevalence and characteristics. *Ind Labor Relations Rev* 2000;54:17-40.