

Child Labor and Protecting Young Workers Around the World

An Introduction to This Issue

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According to the International Labour Organization, more than 218 million children in the world today are involved in child labor, often doing work that is damaging to their mental, physical, and emotional development. At least 126 million children are performing hazardous work. For many decades, children have been recognized as a vulnerable population in need of and deserving special protections, as reflected in international conventions and national laws. This special issue of the *International Journal of Occupational and Environmental Health* presents research on child and adolescent labor around the world, focusing on studies that evaluate health effects from exposures at work; programmatic interventions to reduce work exposures or limit hazardous work activities; and policy mechanisms to reduce the negative health impacts from working too many hours, night hours, or in settings that are too dangerous and inappropriate for youth under age 18. The issue also includes a resource list and photographs of children at work. *Key words:* child labor; adolescent labor; child work; hazardous work; labor policy; youth.

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It has been said that progress can be measured by the extent to which children's rights are safeguarded.¹

According to the International Labour Organization (ILO), more than 218 million children in the world today are involved in child labor, often doing work that is damaging to their mental, physical, and emotional development. At least 126 million children are performing hazardous work. The highest rate of children's work is found in Sub-Saharan Africa, while the greatest numbers of child workers are

found in the Asia-Pacific region.² In all likelihood, this is a significant underestimate of the true picture since many jobs where children work around the world are in the informal sector and often hidden from view. While many circumstances of work performed by children differ in developed countries versus developing or newly developed countries, similarities are also evident. A special contribution to this journal in 2000 profiled many aspects of child labor and the associated health issues across industry sectors and the hazards associated with them by comparing settings such as developed and developing countries.³ The work published here builds on that article by presenting research on child and adolescent labor around the world. We have focused on studies that evaluated health effects from exposures at work; programmatic interventions to reduce work exposures or to limit hazardous work activities; and policy mechanisms to reduce the negative health impacts from working too many hours, night hours, or in settings that are too dangerous and inappropriate for youth under age 18.

The idea of this special issue grew out of a consultation entitled "Reducing child labour through protection of young workers" organized by the International Labour Organization's International Programme for the Elimination of Child Labour (ILO-IPEC), which was held in Pune, India in 2007. In attendance were 60 participants, half of whom were OSH specialists who had been doing research on the health impacts of child labor and the rest of whom were IPEC staff managing child labor projects in 15 nations in Eastern Europe, Asia (Central, South, and Southeast regions), North Africa, and Lebanon. I participated because I was resource personnel for part of a small ILO project to create educational materials for young workers and because of my role as the child labor specialist from Washington State. By default, I also served to "represent" the United States in describing the status of regulations, enforcement, research, and educational efforts regarding child labor and young workers around the US. During the several days of meetings to discuss issues, projects, and future directions, I realized that these dedicated and hard-working individuals, and

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others working in this field elsewhere, had much to share with the rest of the world.

I became inspired to pursue this special issue so that the work being done to protect child workers could have a larger voice through the *International Journal of Occupational and Environmental Health*. The call for abstracts was distributed widely to the general audience of this journal; the participants of the original meeting and other ILO contacts; and other professional networks. I have great appreciation and thanks for the journal Editor-in-Chief, David Egilman, and Deputy Editor, Susanna Bohme, for providing this opportunity. I extend my heartiest thanks to Sharon Cooper and Eva Shipp, who graciously agreed to join me as guest editors of this issue. Without them, this would not have been possible. David Parker, a gifted photographer of children working around the world, shows us the many faces of child workers through his special contribution to this issue. These images of children who maintain their personal dignity despite dangerous and difficult working conditions brings their stories closer to our hearts.

The research findings of the articles assembled here are critical for making progress in showing us the scope of the problem and possible solutions, one study at a time. The reader will find a range of research studies that assess child labor in various industries and countries. Specific research projects include: an analysis of respiratory symptoms among waste pickers in Nicaragua (Hernández); a cross-sectional study of health effects among child carpet weavers in Pakistan (Awan et al.); a case series study describing diagnoses of silicosis among young adults whose exposures began as child workers in stone polishing and mining in Brazil (Chiavegatto et al.); surveillance of acute pesticide exposures among child farmworkers in Nicaragua (Corriols and Aragón); a pilot study of symptoms of neurotoxicity and acute injury among adolescent farmworkers in the United States (Whitworth et al.); and an exploratory study of youth pesticide vendors in urban South Africa (Rother). In addition to specific hazards in a particular trade or industry sector, there are also studies of other health impacts of work by children which are not typically well described in the literature, including the effects on growth and development, such as reduced height among child laborers (Dantas and Santana), and the effect of work schedules on sleep patterns (Teixeira et al.). Many children work on the streets in many countries around the world, and a study by Pinzon-Rondon et al. explores abuses and exploitation of children working in the streets of Latin American cities. The study by Carothers and colleagues describes a promising innovative approach to improving working conditions for children and their families in Egypt through microfinance programming.

As the topic list for this issue emerged, one area of particular interest was the need to understand the

dimensions of adolescent development in order to be able to understand and assess the unique risks faced by youth in the workplace. In the US, research has shown that those under age 18 have a higher rate of injury compared to adults; in some cases, the rate is two times higher.⁴⁻⁸ The issues surrounding adolescent development and age-related injury risk factors have received more attention in the US in recent years, and we are pleased to present an article on the relationship between developmental issues and work hazards by Sudhinaraset, as well as a commentary on it by Breslin and Smith. The evidence from neuroscience and behavioral science continues to evolve and can potentially inform discussions about policy decisions; we hope this contribution to the dialogue will serve to stimulate further inquiry and discussion among professionals, policy makers, and youth advocates around the world.

At the end of the issue is a resource section that we hope will be useful for anyone, anywhere seeking to make use of the many innovative ideas and materials already available on the Internet. It is not exhaustive, by any means, but hopefully will lead to more discovery and novel applications. With shrinking budgets everywhere for public health and social programs, we can all benefit from existing resources that can be adapted to our local needs.

The remainder of this introduction is intended to provide a framework for this issue that combines some of the salient issues regarding child labor and the protection of young workers around the world.

CHILDREN'S RIGHTS AND CHILD LABOR

For many decades, children have been recognized as a vulnerable population in need of and deserving special protections. In 1924 the League of Nations passed the Geneva Declaration on the Rights of the Child, the first international document that affirms these rights.⁹ Next, in 1959 the United Nations (UN) passed the Declaration of the Rights of the Child, which, in addition to other provisions, recognized the right to education and freedom from exploitation.¹⁰ The following excerpt provides an overall summary of these protections:

The child shall enjoy special protection, and shall be given opportunities and facilities, by law and by other means, to enable him to develop physically, mentally, morally, spiritually and socially in a healthy and normal manner and in conditions of freedom and dignity. In the enactment of laws for this purpose, the best interests of the child shall be the paramount consideration.¹⁰

Following this, the UN passed the first Convention on the Rights of the Child in 1989, which was the first legally binding international instrument to incorporate a full range of civil and political rights for children, including economic, social, and cultural issues.¹¹ It also defined a child as a person under the age 18, and stated that chil-

dren need special care and protection. In particular, article 32 of this document explicitly states that a child has the right to protection from economic exploitation. The ILO's Convention 138, ratified in 1973, established a minimum age (15 years old) for work. Some countries where the established minimum age for most work is age 14, such as the US, have not ratified this convention.¹² In 1999, the ILO passed Convention 182, calling for the elimination of the "worst forms of child labor"; this convention has been ratified by 171 of the 183 member states of the ILO, including the US.¹³ These and other ILO conventions direct signatory countries to adopt national policies and regulations to conform to the specific recommendations. Youth under age 18 and who are legally allowed to be employed must be protected by child labor regulations which restrict them from the worst forms of child labor, typically enumerated in a listing of prohibited and hazardous work activities. The ILO uses the term "child labor" to refer to any work that has been prohibited and is therefore "abusive" by definition. Work involving youth who are "economically active" and who are employed in age-appropriate jobs which are not considered to be dangerous by nature is therefore not prohibited.

The ILO's Convention 182, Article 3(d) addresses work that is by nature or its circumstances likely to be harmful to the health, safety, or morals of children. The most egregious examples of exploitation and abuse of children include child trafficking, particularly for the sex-trade industry, and conditions which constitute slavery for any purpose. Examples of other hazardous work activities, which should be prohibited for anyone under age 18, include work

- with exposure to physical, psychological, or sexual abuse;
- underground, under water, at dangerous heights, or in confined spaces;
- with dangerous machinery, equipment, or tools, or involving handling of heavy loads;
- in unhealthy environments exposing a child to hazardous substances, agents, processes, temperatures, noise, or vibrations damaging to health; or
- under difficult conditions, such as long hours, late night, or confinement by employer.

Convention 182 also defines as "abusive" to children work that is done under excessive strain or pressure; work on the streets; work for inadequate pay; work that is too monotonous; work where a child must assume too much responsibility; or work where the child is subjected to intimidation.

Various types of children's work activities can be defined according to their purpose and conditions. In recent years, there seems to be increasing consensus on the goal of eliminating child labor by those under the age of 14 or 15 (depending upon the legal convention for employment in a particular country) and/or work under

hazardous conditions by those under age 18. Child labor is usually understood to include work activities that are in breach of law and policy and which are detrimental to the child's well-being and development, including work that has a negative impact on schooling and health or normal development (including physical, mental, spiritual, or social development) or exposes children to hazardous conditions to which they may be especially vulnerable compared to adults.¹⁴ On the other hand, some work by children may be acceptable if it includes only work activities that are not detrimental to the child's well-being or in breach of law and policy. These activities, which may include paid or unpaid employment in agriculture and other sectors as well as domestic work activities (such as childcare, collecting firewood, or assisting with the family livestock), can be referred to as "child work."

The definition of what constitutes childhood and adolescence is also central to regulating child labor. Legal and social conventions in most cultures define those under age 18 as children or adolescents.¹⁵ Age distinctions bestow variable rights and responsibilities. In some instances these distinctions may serve to be protective of children while in others they may serve to be more paternalistic, implying that children are not competent to act on their own behalf and restricting their rights to undertake activities of their own choosing.

Advances in neuroscience and behavioral science also provide increasing data to illuminate the differences between children, adolescents, and adults and inform decisions about how adolescents should be treated under the law. These decisions are political and moral in nature, yet must also be realistic. Certainly, an individual's chronologic age does not provide the full picture of their capabilities and limitations, but serves as a guide when establishing group norms or profiles.¹⁶

In addition, it is important to remember that relying primarily on an age-based definition to draw the line for what is considered illegal or abusive work is not always appropriate, particularly in places without universal birth registration. Some children must work to survive; some work in jobs that can be done without harm or exploitation. Not all work is bad, and often, similar jobs can vary a great deal, from very positive to negative, depending upon setting-specific work conditions, environments, supervisory styles, and work intensity (that is, the number of work hours). Consensus for action must focus on the main goal of protecting children. Measures to achieve this goal may fluctuate according to the economic realities or the availability of resources and programs to mitigate the need for children to work. The primary goal must be to achieve economic and social justice while protecting human rights.

Risks and Benefits of Work by Children

Work can be part of normal socialization without harmful effect to physical and psychological well-being. Early

work experiences help to teach youth responsibility and to develop new skills, and in many instances provide needed income. In addition, career interests may be fostered through first encounters in the workplace. But the type, intensity, and pattern of work, such as night and shift work, work environment, and the age of a child in a specific job, determine whether the balance shifts toward the harmful side of the equation. In addition to the effects from various exposures and working conditions described throughout this issue, work hours (that is, how early, how late, how many) also contribute to health impacts. Work intensity, which describes how many hours per day or per week one works, has been found to be associated with increased drug and alcohol use, truancy, pursuit of adult-oriented high-risk activities, impaired school performance, and sleep deprivation.^{6,17,18}

The characteristics of young workers and the nature of their employment are both factors that increase their risk of injury or illness on the job¹⁹.

From a developmental perspective, young workers:

- experience rapid growth of organ and musculoskeletal systems, which may make them more likely to be harmed by exposure to hazardous substances or to develop cumulative trauma disorders;^{20,21}
- need more sleep than adults at a time when sleep habits and patterns may be adversely affected by multitasking and multiple demands;¹⁷
- may lack the experience and physical and emotional maturity needed for certain tasks;
- desire acceptance from adults and peers and are susceptible to peer pressure, yet want to assert their independence;²²
- may lack the self-confidence and communication skills to effectively ask questions, ask for assistance, or convey concerns to their supervisors;
- explore, experiment, and take risks, but may lack a sense of vulnerability;
- experience a great deal of change, learning many new things and facing difficult challenges, potentially compromising their ability to focus.

At the same time, a variety of workplace factors also affect the safety of young workers, who:

- may be unfamiliar with work requirements and safe operating procedures for workplace tasks;
- may not know their legal rights and may not know which work tasks are prohibited by child labor laws;
- are less likely than adult workers to receive health and safety training on the job;⁶
- may perform tasks outside their usual work assignments for which they may not have received training, and may often work alone and without supervision;²³
- often enter the workforce at the bottom of the employment ladder, performing the least desirable jobs;
- switch jobs more than adults, making them more likely to perform unfamiliar tasks;

- work at low-skilled jobs with little control over their work activities, and experience a power differential between their status as a child versus an adult co-worker or supervisor.

Poverty as a Root Cause of Child Labor

The preamble of Convention 182 recognizes poverty as the root cause of child labor, particularly the worst forms, and acknowledges that the long-term solution lies in sustained economic growth leading to social progress, including reductions in poverty and improvements in universal education policies. Poverty is both a cause and a consequence of child labor. Child labor exists where inequality in resource distribution means that adult workers cannot adequately support themselves and their families or where there is a desire for cheap labor. At the same time, the use of child labor slows down the economic growth and social development of a community due to an overall lowered educational attainment, an unprepared adult work force, a lower standard of living, poor health, and early occupational morbidity and mortality. In addition, discrimination plays a role in this dynamic by excluding girls and ethnic minorities from educational and economic opportunities. The individual child and the community suffer together. Overall, the impacts on individual children include deprivation of the right to health, safety, education, and childhood, and ultimately to the denial of a decent future.

In the absence of addressing the root causes of child labor, that is, poverty and the exploitation of both child and adult workers, attempts to ban it can perpetuate the conditions giving rise to it. For some, the total elimination of all child labor is controversial and represents an imposition of Western norms on non-Western cultures. Efforts to abolish child labor may only serve to drive more of it underground and further away from regulation and protection. As stated earlier, finding the balance between the economic realities and the need to protect children is essential. However, there are many examples of egregious conditions in which no child, or adult for that matter, should be permitted to engage. Exploitative child labor constitutes a violation of the basic human rights of children. This has been spelled out in the conventions listed above. Examples of the impacts on health and development are described in this issue.

There are a number of interconnected contributors to poverty and child labor. A few of the most important are discussed briefly here.

Education. In many nations, less than 50% of children complete primary education. Lower educational attainment, particularly for girls, will have ripple effects long into their adulthood as their job and wage opportunities continue to be diminished throughout their lives, ultimately lowering the standard of living for their own families and serving to perpetuate this cycle.

HIV/AIDS. The AIDS crisis has orphaned hundreds of thousands of children who now must support themselves and siblings; access to antiretroviral drugs is needed to reduce premature mortality.

War and natural disasters. Armed conflicts lead to losses on every level: families, homes, industries, food supplies, and overall infrastructure. Natural disasters, such as earthquakes and tsunamis, have similar disruptive impacts. Building schools, hospitals, and basic infrastructures are critical to prevent desperate conditions from becoming worse.

Globalization. Globalization and rapid industrialization in many countries has brought increasing contradictions and inequities in supply chain economics. In particular, a growing informal sector has emerged in many developing countries. It has been estimated that 60% to 75% of new work activities are created in the informal sector, increasing the risk for abusive child labor.²⁴⁻²⁶ In areas where formal employers have relocated from the US, for instance, jobs and their hazards are exported, but not necessarily the safety net. Trade agreements either do not include adequate safety measures, or they are not monitored and enforced.

Consequently, risk profiles and exposure levels may be higher in both informal and formal sector jobs. The intensity and duration of exposures may be greater, particularly for children who begin exposure earlier in life and at a time during intense physiologic changes in various organ systems. There may be greater potential for uncontrolled exposures in many worksites, in part, because fewer resources may be available for engineering controls, safety equipment, and personal protective equipment.

PREVENTION STRATEGIES AND RESEARCH PRIORITIES

While it is not possible to present an exhaustive list of potential solutions to address child labor and the protection of young workers, we highlight some key recommendations here. A public health framework focusing on population-level prevention is a useful approach to the protection of child workers.²⁷ First, of course, it is important to prevent early entry into the workforce, which is the subject of most efforts to end abusive child labor by addressing its root causes. For those who are working, primary prevention strategies include controlling workplace hazards and improving working conditions, as well as removing children from hazardous work through regulations and access to alternative options. Secondary prevention encompasses the early detection and treatment of abnormalities, illnesses, or injuries through access to primary health care or occupational health services. And finally, tertiary prevention provides treatment of disease and rehabilitation of disability, including access to adequate workers' compensation insurance. For many, compensation for lost

wages may need to cover many years of lost productive work years, but may not be available. Rehabilitation of children must include assisting them to return to other age-appropriate activities.

Education must be mandatory at the primary and secondary levels for children, and incentives must be available for retaining children in school. Scholarship programs can help to pay families to keep their children in school.

Educational programs must be accessible, flexible, and relevant for the intended audience. Public awareness campaigns are needed to address hazardous work and workplace rights for youth; such campaigns must reach child workers, parents, teachers, healthcare providers, employers, and the public-at-large. Community-based programs that create networks and partnerships with a wide range of organizations can collaborate to share the responsibility for protecting youth.

All adults must have access to employment in jobs with a living wage so that children do not need to work to support their families. As a key part of this effort, women must be provided equity and basic human rights, including access to education, healthcare, and economic opportunities either through employment or access to mechanisms to finance their own businesses. Furthering women's health and independence will impact their families and ultimately entire communities. For orphaned children, social service programs are essential to provide options that can enable them to survive without resorting to desperate measures.

In addition to child labor regulations, legislation and trade agreements must require accountability by multinational corporations to observe all relevant conventions on child labor, workplace safety, and environmental health protections. Essential to all these goals is the development of training programs that build capacity of professionals and the public alike, including health and safety professionals, healthcare providers, youth employment staff, educators, and regulators. Finally, children need to be involved and actively participate in the decisions and activities critical to their lives and their future.

Research

Access to data that adequately documents the scope of the problem of child labor is itself a major limitation. Some available options may include surveillance programs or access to administrative databases, such as workers' compensation insurance. For those wishing to pursue the development of a surveillance program, the Massachusetts Department of Public Health has developed *A Guide for Building a State Surveillance System for Work-Related Injuries to Youth*.³⁰ In the US, using workers' compensation system data can be helpful at a state or other regional level, but there is no single national workers' compensation program or pooling of data. Individ-

ual states run separate programs with variable reporting requirements, making it difficult to make comparisons from state-to-state. Other national databases exist, but are often limited by major gaps in the types of data accessible. Another valid option to obtain data, particularly descriptive information, is for communities to use survey methods to collect information that helps to define or describe the scope of the issues in a given area among youth, employers, parents, and other partners.

Surveillance systems are often either non-existent or limited in their ability to give us a true and full picture of the numbers of children working, injured, or killed. Much of what has been described over the years provides information primarily on physical health effects, which are known to be numerous. Little to no information is available on the many other dimensions of the impact of work on children's lives. For instance, work activities and working conditions have many impacts on psychological functioning and social-intellectual development.²⁸ Job stress has been identified as a significant impact on the lives of adult workers, but little to no research on this subject has been done with children and adolescents who are in a stage of ongoing growth and development. More research is needed on stress caused by the intensity of work by children, such as the amount of time spent working, late night work, and shiftwork that can lead to exhaustion and sleep deprivation, as well as on stresses caused by working in settings where children are victims of abuse and in oppressive work environments. The forthcoming publication by Gunn, Parker, and Miller²⁸ will provide a much-needed framework for addressing the critical implications of work on children's lives.

Even where it is possible to identify the numbers of children injured, disabled, or killed, it is much more difficult to measure the long-term impact of injuries or exposures sustained during early work experiences and more difficult still to measure chronic impacts of oppressive and abusive working conditions. There is little data on the consequences of these early work injuries or illnesses, either in terms of their psychological impact—including children's general attitudes about work and risk and decisions they make about future career options which could lead to potential loss of earning power—or long-term disability and associated costs. For instance, in a unique longitudinal study of the use of health care services, Koehoorn et al.²⁹ found a differential impact of long-term consequences of work injuries suffered by youth compared to a non-injured sample. Young females suffered more chronic and recurrent symptoms associated with their working conditions or exposures than males. Young males also showed increased odds of long-term impacts and increased utilization of health services associated with musculoskeletal injuries.

Of course, more research is always needed. The following is a short list of additional priorities to consider:

Utilization of workers' compensation benefits. It is important that research be done to evaluate the utilization of the workers' compensation system by young workers, including the extent of underreporting, knowledge among child workers about compensation benefits, and awareness by primary health care providers, such as pediatricians, family practice physicians, and nurse practitioners.

Pesticides and other hazardous substances. Exposure to hazardous chemicals such as pesticides and solvents, or hazardous substances such as lead, asbestos, and silica, may have greater impact during childhood and puberty. Evaluation of the long-term effects of early exposures is needed.

Violence in the workplace. The extent of assaults and homicides in retail and other settings where children often work is a serious problem with potential for fatalities and other issues, including the development of post-traumatic stress disorder. Research is needed to foster an understanding of these events and potential risk factors, such as working alone or without adult supervision, late night hours, or store location and clientele.

Ergonomic risk factors for musculoskeletal disorders. Heavy lifting, repetitive motions, and awkward work postures among child workers need further evaluation, as the musculoskeletal system is also in rapid change during this time. Cumulative trauma disorders are significant for adult workers, and research indicates many youth are incurring similar injuries, particularly back injuries,^{19,31-33} which poses the potential for long-term consequences. More investigation is needed to help establish weight limits for lifting, as well as establishing other ergonomic restrictions.

Organizational factors. Factors that may influence risk for injury include supervisory style, work organization, pace of work, stress level, complexity of job tasks and hazards, work that is not connected to career goals, limited control or opportunity for promotion, and workplace power dynamics (such as supervisor/manager versus employee and adult versus child). Intervention studies should ask whether teen or adult mentors in the workplace may provide a protective effect.

Work schedules. As mentioned earlier, there is limited information on the impacts of work schedules on health and well-being, school achievement, and incidence of injuries. Further evaluation is needed on the health effects of total number of hours worked, early hours, late hours, and shiftwork schedules. Another concern for teens who work until late night or during the night shift are the safety issues connected with getting home from work.

Training. Training is a cornerstone of many injury prevention strategies, and in the case of child labor, should include employers, young workers, and parents. Training methods vary and provide unique opportunities, but little is known about the differences in their

effectiveness. Various types of training include interactive, hands-on, web-based, and peer-education models.

Interventions. It is critical to develop methods to assess the effectiveness of prevention strategies and programs. In general, intervention studies are difficult to undertake and are limited in number. Training, engineering controls, job rotation, mentoring programs, and peer education models are all strategies that should be evaluated.

Qualitative research. Teen focus groups and surveys to assess attitudes toward working and workplace safety are needed to provide relevance in the work being done on their behalf. Such studies should include comparisons of injured youth to those not injured, as well as the perceptions of injured youth about injury incidents and their impacts.

Regulations

Child labor regulations in the US, as well as in other countries, apply to employers who hire anyone under age 18. In many settings, this includes those working in their family's business. The first such regulations in the US were promulgated in 1938 under the Fair Labor Standards Act (FLSA). These were restrictions for youth employed in non-agricultural jobs. Regulations for agricultural employment came much later, in 1970. The FLSA came about as a response to increasingly dangerous working conditions for adults and children alike in industrial settings. At the same time, the Great Depression brought severe economic hardship, prompting adults' willingness to work for the same wages as children. The movement to protect children combined with the need to provide employment for adults helped promote the passage of the first child labor regulations. Compulsory education and social welfare programs also helped to make these efforts more viable. As the world of work has continued to change, regulations often do not keep pace with relevant protections. We know that there are different protections for child workers depending upon the industry sector in which they work. In agricultural settings in the US, for example, teens can do far more dangerous activities and at a younger age than they can in non-agricultural settings. Protections based on comparable risks must be the norm.

Regulations require political backing and resources for adequate enforcement. Outreach and education campaigns are critical to inform all concerned parties not only about the specific details of the regulations, but also about the rationale for them in the first place. To move beyond efforts to merely avoid citations and penalties and truly foster commitment to the ultimate goal of worker safety, employers, parents, teens, and the public, in general, need information about the problems they intend to address.

Policy discussions should continue to include advances in our knowledge of adolescent development,

but should always move in the direction of providing options that advocate the highest level of protection to keep children and adolescents from harm. Ideally, providing additional protections to children should serve to promote healthier development for their long-term needs as they mature into adulthood. Programs and resources that give children and adolescents adequate options as alternatives to labor is key to limiting the adverse impacts of work initiated at too young an age or under dangerous and abusive conditions. Youth must be included as partners in the development of strategies to protect them so that they are also empowered to understand and act on their rights.

South African child labor regulations. Newly promulgated child labor regulations in South Africa provide an example of unique and progressive policy. On January 15, 2010 South Africa promulgated their first-ever child labor regulations, which became effective in February 2010.³⁴ These new regulations amend both the Occupational Health and Safety Act of 1993 and the Basic Conditions of Employment Act of 1997. In many other nations, including the US, it is unheard of to have child labor regulations in the both the health and safety and employment standards and wage and hour codes. In addition, the South African regulations include a number of unique features for an enforcement document, including guidelines for risk assessments to identify the risks and hazards child workers will be exposed to and plans for establishing, implementing, and monitoring safe work procedures. The regulations provide a summary of the increased risks of work to children, including factors such as children's vulnerability to hazardous exposures (chemicals, biological agents, carcinogens, and hormone disruptors) during the rapid physiologic changes of puberty as well as their vulnerability to sleep disruption, abuse, coercion (especially when working alone), and ergonomic risk factors during periods of musculoskeletal growth and development. Finally, the regulations recognize the need to accommodate the special requirements of young workers. The document provides background information on the impact of developmental factors on maturity, judgment, and the perception of dangers. It includes guidance to employers on the use of a safety orientation checklist and provides basic youth training principles, such as training topics, when to train, and how to train; it includes details on specific trainings, such as proper lifting techniques, how to address abusive customers, and how to handle possible robberies. The document also recommends extra supervision of child workers and the use of experienced workers as mentors. These regulations cover all agricultural and non-agricultural youth employment. This is a truly remarkable document that will provide an example to anyone around the world interested in protecting young workers. The test of its contents, of course, will be in the diligence of its enforcement.

WORKPLACE SAFETY STRATEGIES FOR YOUTH

For Parents, Caregivers, and Teens

- Parents and teens should be aware that there are restrictions for hazardous work for children and adolescents, including restricted work hours.
- Parents and teens should be aware of the minimum age for work. The number of hours per week and starting and quitting times and work activities may be more limited for younger age groups. The hours of work may also differ while school is in session.
- Healthcare providers should incorporate taking a work history from children and adolescents during routine primary care visits, as well as information about care provided in emergency departments.
- School health professionals and social service workers should inquire about work activities and work schedules during any contact with children and adolescents.
- Teens should know their rights, which include the right to a safe and healthy workplace and the right to refuse to do dangerous work. Teens should be provided the information they need to know about what work activities they are not permitted to perform. They should know that they can decline to perform a task that they have not been trained to do. They should be encouraged to ask the following questions in any job:
 - What are the hazards and dangers of my job?
 - What are my health and safety responsibilities?
 - Will I receive job safety training and information on any safety gear I'll need to wear?
 - Who do I ask if I have a health and safety question?
 - What do I do if I get hurt?

For Employers

- Follow all child labor and relevant health and safety regulations.
- Provide increased supervision to new workers; if possible, teens should not work alone.
- Consider a young worker's physical capacity to perform the job safely, maturity to exercise good judgment, and ability to read and understand written instructions and safety signs.
- Involve coworkers; for example, create a mentoring program among experienced workers, including experienced teen workers.
- Encourage young workers to ask questions and ask for assistance.
- Provide more detailed training for those new to the world of work including:
 - New employee orientation;
 - Specific task training;
 - Age-appropriate training; make it fun and easy to understand by keeping instruction direct, short, and simple, and including only information that will be needed immediately;
 - Frequently review and retrain.

For Schools and Communities

- Encourage high schools and job training and placement programs to integrate curricula about workplace safety and teens' on-the-job rights.
- Develop community coalitions comprised of business associations, labor groups, schools, job placement and training programs, youth-advocacy groups, teen organizations, government agencies, healthcare providers, and family members.
- Encourage community coalitions to provide information to employers on the regulations for hiring minors, including the need to have a minor work endorsement or permit, the importance of providing training when a young worker is new to a job, and the need to provide periodic retraining and ongoing supervision.
- Conduct an assessment of the community to determine the extent and nature of local teen employment and workplace injury. Based on the composition of the types of industries in the community, target outreach measures based on the potential job activities and hazards teens are likely to encounter.
- Provide training and educational resources to members of the community so all are informed about the major issues concerning young workers.
- Assess teen attitudes toward work and workplace safety and health issues through the use of surveys or focus groups, and promote peer education programs to address workplace safety and health issues.

LOOKING AHEAD

The children of any nation are its future. A country, a movement, a person that does not value its youth and children does not deserve its future.

Oliver Tambo
African National Congress President, 1985

Slowly the tide is turning. More research, education, and child labor regulations all contribute to the progress that is being made. For many hundreds of thousands, or possibly millions, of children, change will not come soon enough. The problems and challenges of child labor are multifaceted, and the concerns and solutions cross many disciplines, industry sectors, and national boundaries. Protection of the most vulnerable among us will serve to improve not only their lives, but all of us. The political and social will is critical and urgent to maintain the momentum that has begun.

Early in my professional work on child labor and young worker health and safety issues, I realized that health and safety professionals generally did not include in their scope of practice the issues facing young workers, and that professionals in pediatric or adolescent injury prevention generally did not acknowledge work as an important contributor to morbidity and mortality in those under age 18. This represented to me a major lapse in protecting child workers. Over the past 10 years we have made progress, but there is still much to be done to promote a more integrated approach. A multidisciplinary approach is needed to bring together researchers and practitioners from a variety of fields, including neuroscience, the behavioral sciences, public health (including injury control and occupational safety and health), primary healthcare, education, labor law, and youth employment and advocacy organizations, among others. Together, we must share research and strategies for translating research into practice that will contribute to safer, more positive work experiences for youth. In doing so, it is essential to build alliances with employer groups, labor unions, educators, youth advocates, teens, parents, and community partners.³⁵⁻³⁷

Recently, a young high school student interviewed me for a class project she was doing about child labor issues in developing countries. In the short amount of time we had to discuss such a large topic, I answered her specific questions, such as: "Why is there child labor?"; "Wouldn't these kids be worse off if they didn't work and have an income?"; "If we boycott companies that use child labor, won't that just cause those kids to lose their jobs?" These are the very type of hard questions that we must address and provide answers to in our strategies and interventions. At the end of the interview, she wondered what she should say to her classmates about why they should care about child labor issues. I showed her David Parker's book of photographs, *Before Their Time: The World of Child Labor*³⁸

and the link to many of his photos from his first publication, *Stolen Dreams*³⁹ in a gallery on the Internet (<http://www.hsph.harvard.edu/gallery>). I suggested that she ask her classmates to try to put themselves in the place of the children seen in these remarkable and disturbing images, and to try to imagine how they would feel living such a different life than the one they have the good fortune to enjoy. I have yet to hear how her presentation was received. I can only hope her generation will discover for themselves the critical nature of addressing these problems.

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ERRATUM

An error appeared in Karstadt M. Inadequate Toxicity Test of Food Additive Acesulfame. *Int J Occup Environ Health*.16;1:89–96. In the first paragraph, the article should have read: “It was approved by the Food and Drug Administration (FDA) in 1988 (for certain dry uses) and 2003 (for general purposes) despite poor toxicological test design, implementation, and data analysis.”