

increased workplace hazard evaluations, development and improvement of animal models, and identification of biomarkers of disease.

Potential impact resulting from these objectives include: identification of occupational hazards; identification of factors that can influence occupational exposure to chemicals which will help to determine the most appropriate ways to prevent or minimize exposure; an understanding of the mechanisms of occupational diseases which will allow for proper treatment and/or prevention; and hazard identification that will lead to risk assessment which will ensure safe working environments.

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NIOSH—Traumatic Injury Prevention Program

Christine Schuler (NIOSH)

The National Institute for Occupational Safety and Health's (NIOSH) Traumatic Injury Prevention (TIP) Program aims to reduce and prevent work-related injury and death, across all industries, due to acute trauma or violence. To achieve this mission, we conduct high-quality research using the public health approach to identify the most compelling risks to workers through surveillance, analytic epidemiology, and field investigations. We also leverage protective technology, and engineering science as a means to improve personal protective equipment, tools, and workspaces, to keep workers safe on the job.

The TIP Program is committed to the development of practical solutions to address the complex problems that cause traumatic injuries and deaths among workers. To do this, the TIP Program's research is focused on:

- Preventing injuries and deaths from falls at work, on-the-job motor vehicle crashes, workplace violence, and the use of machines and industrial vehicles to perform work duties.
 - Recommending strategies and solutions to reduce risks associated with work-related injury and death from falls, motor vehicle crashes, workplace violence, and contact with machines.
 - Identifying and evaluating ways to reduce traumatic injuries among high-risk jobs and vulnerable worker groups.
 - Addressing emerging issues such as robotics and drug overdoses.
- There are three key research activities that support the TIP Program's aim to reduce worker injury and death. Those activities are:
- Surveillance to identify and track traumatic injury problems in specific worker populations, prioritize research needs, target prevention efforts, and monitor work-related injury and death trends.
 - Field research to determine the causes of and risk factors for work-related injuries, and evaluate the efficacy of interventions, best practice solutions, and engineering controls.
 - Lab research to examine everything from workplace equipment to human behavior and decision-making skills in a safe and controlled environment.

Some examples of the TIP Program's recent research efforts include:

- Publishing findings on the effectiveness of a no-cost-to-workers slip-resistant footwear program to reduce falls among food services workers.

- Publishing a Morbidity and Mortality Weekly Report on suicide rates by major occupational groups.
- Contributing surveillance data from the National Electronic Injury Surveillance System-Occupational Supplement (NEISS-Work) and Childhood Agricultural Injury Surveys to a Government Accountability Office report with recommendations for improving Department of Labor efforts to keep children who work safe.
- Convening the 7th National Occupational Injury Research Symposium (NOIRS) in October 2018 with more than 330 researchers, safety professionals, and students in attendance.

In addition to conducting research, the TIP Program works closely with partners from industry, labor, trade associations, professional organizations, other government agencies, and academia. Through our program partnerships we are able to address the difficult challenges facing today's workforce. Our partners contribute to building a safer workforce by providing:

- Valuable input for setting research priorities through the National Occupational Research Agenda (NORA).
- Specialized expertise to support the research, analysis, interpretation, and communication of results.
- A means of putting information into every day practice at the worksite.

Individuals and organizations interested in reducing and preventing work-related traumatic injuries are encouraged to join the NORA TIP Program Council, which serves as the venue to bring those with similar interests together to address the national agenda through information exchange, collaboration, and enhanced dissemination and implementation of solutions that work.

Collective efforts from the TIP Program's research activities and partnerships are vital to ensuring the effective promotion and transfer of findings into practices, products, and technologies that keep workers safe on the job. Some examples of how the TIP Program has worked to support adoption of our research—or move research to practice—includes the development of:

- A free mobile app to help workers who use ladders set up a ladder at the appropriate angle,
- A toolkit that includes 40 safety messages to promote safe driving practices among law enforcement patrol officers,
- An online, interactive training course to aid healthcare workers in better understanding the scope and nature of violence in the workplace, and
- A hazard alert prepared by the Washington State FACE Program, a TIP Program partner, to notify employers and workers of the dangers involved in using remote-controlled demolition robots.

To learn more about the TIP Program, visit our website: <https://www.cdc.gov/niosh/programs/ti/default.html>. To join the NORA TIP Program Council, please contact Dr. Christine Schuler at CSchuler@cdc.gov

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NIOSH—An Overview Of The NIOSH Healthy Work Design And Well-Being Cross Sector

Jeannie Nigam (NIOSH)

The National Institute for Occupational Safety and Health (NIOSH) Healthy Work Design and Well-Being (HWD) Program seeks to improve the design of work, work environments, and management practices in order to advance worker safety, health, and well-being. HWD partners with industry, labor, trade associations, professional organizations, and academia to accomplish its goals. Current priorities include: improving the organization of work in order to reduce job stress; advancing the safety and health of workers in non-standard work arrangements, such as temporary staffing agency, contract, and gig arrangements; and protecting workers from the adverse health and safety consequences of shift work, long work hour schedules, and other factors that contribute to work-related fatigue.

This poster highlights recent HWD accomplishments and products including information on: the fifth administration of the NIOSH Quality of WorkLife survey, which gathers data from a nationally representative sample of employed adults in order to track changes in the organization of work and understand their impacts on worker health, safety, and well-being; and a satellite meeting of experts at the 24th International Symposium of Shiftwork and Working Time aiming to identify gaps and needs surrounding working hours, sleep, and fatigue among U.S. industries. We also highlight key international presentations including: one on the association between precarious employment and workplace mistreatment, including harassment and discrimination, at the 11th International Conference on Workplace Bullying and Harassment; one on work flexibility in the U.S. and the associated work-related well-being at the 2019 Congress of the European Association for Work & Organizational Psychology; and another at the 5th International Conference on Well-being at Work, on the NIOSH-RAND worker well-being framework that characterizes well-being among workers through individual health and work-related environmental, organizational, and psychosocial factors which, when optimized, enable workers to thrive and achieve their full potential.

Lastly, the poster highlights a few recent HWD publications on opioids, fatigue, and comprehensive approaches to achieve worker safety, health, and well-being. We developed resources that address the “full lifecycle” of the opioid crisis through the lens of industry, occupation, and other work-related factors and provide actionable information and recommendations for workers and employers. In addition, we published on suicide and drug-related mortality following occupational injury and on comprehensive recommendations to reduce fatigue associated with sleep deficiency and work hours in nursing, in collaboration with the American Academy of Nursing. We also published guidance on organizational approaches for designing, implementing, and evaluating policies, programs, and practices that comprehensively address worker safety and health, including through Total Worker Health.®

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NIOSH—Total Worker Health® Program: Exploring new research horizons for worker well-being

Sarah Mitchell (NIOSH)

Today, there is increasing evidence of a strong connection between the work environment and overall health, safety, and well-being of the workers within it. Diminished health or injury, whether caused by work or resulting from non-work activities, reduces quality of life, opportunity, and income for workers and those dependent upon them. Conversely, workplaces with enhanced opportunities for the total health of workers can lead to a vibrant, engaged and high-performing workforce.

Employers, workers, and their communities all have a stake in promoting the design of healthy jobs and advancing the well-being of workers.

Traditional workplace health promotion, wellness, and safety programs have often remained siloed, focusing on promoting worker health through reduction of individual risk-related behaviors, or minimizing workers’ exposures to job-related risks, including exposures to physical, biological, and chemical hazards. There is increasing evidence that this fragmented approach is not as effective as coordinated and comprehensive organizational-level interventions that consider all aspects of work. New approaches will focus on ensuring the safety of workers while looking more broadly at how work and the workplace can advance worker health and productivity on and off the job. The National Institute for Occupational Safety and Health (NIOSH) believes that a holistic approach that promotes the integration of all conditions of work and employment that impact worker safety is key to protecting workers and designing safer, healthier jobs.

NIOSH defines Total Worker Health (TWH) as “policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being.” The NIOSH TWH Program has articulated a need for further research to expand the relevant evidence base and move research into practice. The TWH Program at NIOSH supports the development and adoption of ground-breaking research and best practices of integrative prevention approaches that address health risks arising from work-related and non-work related factors. The TWH Program carries out its aim to prevent worker injury and illness and to advance health and well-being through 1) an intramural research program and an extramural research program comprised of six Centers of Excellence for Total Worker Health; 2) active engagement with partners from labor, industry and the federal, state and local government; 3) dissemination of research results through publications, presentations, and scientific meetings; and, 4) motivating trans-disciplinary collaboration among national and international investigators focused on preserving and improving the health of all people who work.

Sarah Mitchell, MPH; CDR Heidi Hudson, MPH; L. Casey Chosewood MD, MPH; on behalf of the NIOSH Office for Total Worker Health®

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NIOSH—Center For Motor Vehicle Safety: Keeping Workers Safe On The Road

Stephanie Pratt (NIOSH)

Motor vehicle crashes are the leading cause of work-related deaths in the United States (U.S.). From 2003-2017, more than 27,000 workers in the U.S. died in a work-related motor vehicle crash. Crashes affect workers in all industries and occupations, whether they drive heavy trucks, emergency vehicles, pickup trucks, or cars, and whether driving is a primary or occasional part of the job. To address this important worker safety issue, the National Institute for Occupational Safety and Health’s (NIOSH) Center for Motor Vehicle Safety (CMVS) conducts research and develops strategies to prevent work-related motor vehicle crashes and injuries. Using a multidisciplinary approach, CMVS researchers and communicators across NIOSH work with partners to identify crash risk factors, develop and evaluate workplace interventions to prevent crashes and injuries, and share the results with employers, workers, and others. The poster presentation will convey the scope and purpose of the CMVS and provide highlights of recent

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