

in the workplace in the mid-1980s. Increased use of robots and breakthroughs in human-robot collaboration during recent years require a new level of scientific efforts to guide the development and use of robots that enhance worker safety, health, and well-being. NIOSH established the Center for Occupational Robotics Research (CORR) in September 2017. The CORR addresses the safety of today's workers who use, wear, or work near robots by working in partnership with academic researchers, trade associations, robotics manufacturers, employers using robotics technology, integrators who set-up robotic systems in workplaces, labor organizations, and other federal agencies.

The proposed poster will focus on NIOSH efforts on (1) the potential for robotics technologies to prevent worker injuries and musculoskeletal disorders, (2) increasing understanding of human and robot interactions to ensure human worker safety, (3) improving the ability to identify and track injuries involving robotics technologies, and (4) providing guidance on working safely with robotics technologies. The materials will be organized by (1) the concept of human-centered robotics, (2) NIOSH's role in robotics research, (3) current NIOSH robotics research projects, and (4) NIOSH laboratory capacity for robotics research on worker safety, health, and well-being. The subjects of work, stress, and health are integrated in the poster presentation.

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H-13

NIOSH—National Center For Productive Aging And Work

Bermang Ortiz (NIOSH)

This poster will present strategic goals for the National Center for Productive Aging and Work (NCPAW), a description of current activities, and a model of productive aging.

Workers 55 or older are increasing in number and will account for nearly 25% of the labor force in 2024. The aging of the U.S. workforce has implications for the safety and health of all workers. Aging can be a process of decline and loss as well as a course of development and growth. For example, although the likelihood of fatal occupational injuries increases with age, older workers tend to experience fewer non-fatal workplace injuries than their younger coworkers. The US workforce is also becoming increasingly age diverse, with many workplaces having up to five generations working side by side.

The National Center for Productive Aging and Work (NCPAW) at the National Institute for Occupational Safety and Health (NIOSH) advances lifelong well-being for workers of all ages and supports productive aging across the working life through: a) research activities that advance the understanding of workplace factors that contribute to the productive and healthy aging of workers; b) research translation that effectively engages stakeholders and intermediaries in the reduction and prevention of work-related injuries and illness in the aging workforce; and c) partnership development and capacity building with occupational health and safety researchers, organized labor, employers, intermediaries, and other stakeholders. Current NCPAW projects include develop educational products to prevent WMSDs in construction workers across age groups; develop educational products to prevent WMSDs and falls among aging retail workers; and develop fact sheets about important occupational and safety affecting aging workers.

NCPAW's concept of productive aging is informed by the Work Ability approach first developed by the Finnish Institute of Occupational Health, and Total Worker Health®. Productive aging takes a comprehensive, integrated approach to understanding the aging process across the life span, including the physical, mental, and social aspects of a worker's well-being. In particular, NCPAW's approach to productive aging includes four attributes: (1) a life-span perspective, (2) a comprehensive and integrated framework, (3) outcomes that recognize the priorities of both workers and organizations, and (4) a supportive work culture for multi-generational issues. These attributes illustrate the emphasis of productive aging on meeting the needs of all workers as they age.

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H-14

NIOSH—Safe ▪ Skilled ▪ Ready Workforce Program

Rebecca Guerin (NIOSH)

Globalization and advancements in technology have generated new demands for the knowledge and skills required for job and life success. The World Economic Forum suggests that cross-sector competencies, such as critical thinking, are in higher demand by employers than are "narrow" technical skills. No international consensus exists about the skills required for tomorrow's workers or if competencies related to occupational safety and health (OSH) are included in this vision. Yet ensuring that future jobs are also safe and healthy jobs is a critical, and often missing, component of efforts to develop the future workforce. The societal and economic costs of work-related injuries and illnesses are a serious and persistent public health problem in the United States. A 2011 analysis suggests that the cost of work-related fatalities and nonfatal injuries and illnesses, based on medical costs and productivity losses, at over \$250 billion per year. This exceeds the cost of cancer and cardiovascular disease.¹ Young and contingent workers suffer disproportionately from workplace injury and illness.^{2,3} Young people between the ages of 15 and 19 are more than twice as likely than workers ages 25 and over to experience a work-related injury that requires treatment in a hospital emergency department.² Workplace incidents may result in lifelong disabilities that impact young workers' health, well-being, and financial future. Contingent workers are another population at high risk for experiencing a work-related injury.³ One of many contributing factors to this high burden of injury among new (including young and contingent) workers is a lack of sufficient safety and health training.^{3,4} Thus, OSH knowledge and skills should be part of every effort to prepare the future workforce.

In 2013, NIOSH launched the Safe Skilled Ready Workforce (SSRW) Program to build on two decades of young worker research at NIOSH and advance science for the design, implementation, and evaluation of programs that prepare young and contingent workers for safe and healthy employment. The Program's mission is to ensure that all people, before they join the U.S. labor force or start a new job, have essential OSH competencies that pertain to hazard recognition and control in the workplace; employer responsibilities and worker rights and roles; actions to take in a work-related emergency; and communication with others when feeling unsafe or threatened.⁵ These cross-sector

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