

**National Institute for Occupational Safety and Health (NIOSH)**  
**Board of Scientific Counselors Update**  
**Washington, D.C.**  
**April 28, 2020**

## **Budget**

The President's proposed budget for Fiscal Year (FY) 2021 (October 1, 2020 – September 30, 2021) was sent to the Congress on February 10, 2020 and released to the public. The President's proposed FY 2021 budget will now be considered by the various appropriations committees in the House of Representatives and the Senate in the months to come.

The President's budget proposes an appropriation of \$190 million for NIOSH (the same funding level proposed in last year's President's budget). Of that \$190 million, \$111 million is included in the Occupational Safety and Health Line and \$79 million has been reallocated from Public Health Service Evaluation Funds. Additional information on the budget can be found at the HHS FY 2021 Budget in Brief at: <https://www.hhs.gov/about/budget/fy2021/index.html>. NIOSH is discussed on p. 51.

## **Organizational and Personnel Announcements**

### **NIOSH Leadership Updates**

- In February 2020, Dr. R.J. Matetic was appointed to the position of Associate Director for Manufacturing, leading the NIOSH Manufacturing Sector Program. Dr. Matetic will also serve as a senior advisor to NIOSH for the Transportation, Warehousing and Utilities Sector Program and the Hearing Loss Prevention Cross-Sector Program.
- In February 2020, Dr. Jennifer Lincoln was appointed to the position of Associate Director for the NIOSH Office of Agriculture Safety and Health in the Office of the Director.
- In February 2020, LCDR Alice Shumate was appointed to lead the NIOSH Center for Maritime Safety and Health Studies.
- In December 2019, Dr. Lauralynn Taylor McKernan was appointed to the position of Director of the Division of Field Studies and Engineering (DFSE).

### **Retired Staff**

- Dr. Christine Branche retired February 2020.
- Dr. Brad Husberg retired January 2020.
- Dr. Teresa Schnorr retired November 2019.

## New Programs and Initiatives

### Follow #KeepTeenWorkersSafe for Young Workers Safety Info

NIOSH has teamed up with OSHA, CareerSafe, and others to provide workplace safety and health information and resources to employers of youth, young workers, parents, and educators with a goal of keeping young workers safe at their summer jobs. The program has been available on NIOSH [Facebook](#), [Instagram](#), and [Twitter](#) through April. Visit the [Keep Teen Workers Safe](#) website and the [NIOSH Science Blog](#) for materials, resources, and information.

## Office of the Director (OD)

### Update on Coronavirus Response

In response to Coronavirus Disease 2019 (COVID-19) CDC is operationalizing all of its pandemic preparedness and response plans, working on multiple fronts to meet these goals, including specific measures to [prepare communities](#) to respond to local transmission of the virus that causes COVID-19. For more information, please visit the [COVID-19 Outbreak web page](#).

NIOSH released a webpage to highlight resources available for the protection of workers: [https://www.cdc.gov/niosh/emres/2019\\_ncov.html](https://www.cdc.gov/niosh/emres/2019_ncov.html). This page provides a centralized resource for new guidance and recommendations produced during CDC's COVID-19 response, as well as pre-existing resources and materials, to promote the safety and health of workers during the response.

### Upcoming International Conferences

The XXII World Congress on Safety and Health at Work is planned for October 4-7, 2020 in Toronto. Our Canadian colleagues have put together an exciting program with the theme of *Prevention in the Connected Age*. The Call for Abstracts was due December 15, 2019. The announcement and preliminary program can be found at <https://www.safety2020canada.com/>.

## Division of Science Integration (DSI)

### Occupational Health Equity Program Update

One of the goals of the [Occupational Health Equity](#) (OHE) program is to encourage public health researchers to more actively engage with the relationship between work and health. While social and ecological models recognize that work influences health through numerous pathways, work remains largely absent from examination of health inequities in the United States. On March 9, 2020 the “Social Determinants of Health Conversation with CDC Authors” series featured a discussion of the recent article, [Work as an Inclusive Part of Population Health Inequities Research and Prevention](#), coauthored by NIOSH researchers. On March 24-25, 2020 several invited OHE collaborators presented at the workshop sponsored by the National Institute on Minority Health and Health Disparities, *The Role of*

*Work in Health Disparities in the U.S.* The OHE program, in collaboration with the NIOSH Surveillance program, will review federal and state supported public health surveillance and health monitoring systems to document the degree to which work-related variables are incorporated. The review will identify existing data sources that could be used by public health researchers to analyze the relationship between work and health and highlight opportunities to improve data collection on work-related variables in these systems.

### **Reaching Small Businesses**

At the most recent National Advisory Committee on Occupational Safety and Health (NACOSH) meeting, NIOSH and OSHA presented current efforts to reach small employers with safety and health information. The NACOSH workgroup requested a summary of NIOSH work with intermediaries in reaching small employers and planned to develop recommendations related to identifying specific intermediary organizations to engage in OSH outreach and assistance efforts. NIOSH researchers have investigated ways of reaching small employers with occupational safety and health information and training through intermediaries, including construction, general industry, restaurants, and fall prevention and boat repair contractors<sup>[1]</sup>. These outreach efforts engaged several combinations of intermediary organizations and achieved varying levels of success. NIOSH plans to continue investigating new ways of effectively disseminating and implementing OSH assistance activities for small employers and looks forward to possible NACOSH recommendations for how NIOSH and OSHA might better serve small business employees.

### **NIOSH Risk Assessment Practices**

The [Current Intelligence Bulletin: NIOSH Practices in Occupational Risk Assessment](#) was published in March 2020. The report describes the history, science, and approach behind NIOSH systematic assessments of health risks associated with workplace hazards. Risk assessment informs decision-making on appropriate safeguards when complete information is not available for a hazard. For example, recent NIOSH risk assessments have formed the basis for recommended limits on occupational exposures to carbon nanotubes, diacetyl and 2,3-pentandione, hexavalent chromium, refractory ceramic fibers, titanium dioxide dust, and others. The information provided in this report apprises a broad audience of scientists, labor, industry, and other stakeholders on the evolution and best practices in NIOSH risk assessment.

## **Division of Field Studies and Engineering (DFSE)**

### **NIOSH Workplace Solutions Documents on Legionella and Indoor Environmental Quality during Construction**

Two NIOSH Workplace Solutions documents were published - [Preventing Occupational Exposure to Legionella](#) and [Maintaining Acceptable Indoor Environmental Quality \(IEQ\) During Construction and](#)

---

<sup>[1]</sup>Cunningham, T.R. & Sinclair, R. (2015). Application of a model for delivering occupational safety and health to smaller businesses: Case studies from the U.S. *Safety Science*, 71, 213-225.

[Renovation Projects](#). Health Hazard Evaluations (HHEs) in workplaces with reported cases of Legionnaires' disease among employees were conducted and recommendations were made to prevent conditions that lead to Legionella growth and spread in workplaces. This work benefits individual workplaces and supplements the overall CDC Legionella effort. The second document is based on several HHEs conducted during construction and renovation in occupied buildings. Investigators identified issues that could affect IEQ such as a lack of dust control, the use of high emission building materials, and limited communication with occupants about hazards related to the work being done. After the evaluations, detailed recommendations were made to help employers reduce exposures and maintain acceptable IEQ.

### **Absenteeism in the Workplace**

Researchers are monitoring health-related workplace absenteeism on a monthly basis as a measure of the impact of influenza (and other illnesses) in the working population. Results from the surveillance analyses are reported to CDC and to the others (state health departments, employers, the public) via a Tableau-based dashboard on the [NIOSH absenteeism topic page](#).

### **Musculoskeletal Health Cross-sector Program**

NIOSH launched the Musculoskeletal Health Cross-Sector (MUS) program and associated NORA MUS council in FY17 to reduce occurrences of work-related musculoskeletal disorders (WMSDs). Stakeholders are collaborating with NIOSH to mitigate the risk and costs (\$15 billion per year, 25% of total workers' compensation cost) of WMSDs. The [MUS Council](#) is collaborating with the American Industrial Hygiene Association (AIHA) Ergonomics Committee on the latest update of the AIHA Ergonomic Assessment Toolkit and is posting comprehensive information on ergonomic solutions/interventions/guidelines in collaboration with the International Ergonomics Association (IEA).

With the rapid deployment of exoskeletons in workplaces, industrial stakeholders need information on the health and safety effects of exoskeletons. To address the research gap, eight NIOSH intramural MUS related projects have been started in FY20: four focus on safety and health assessments of industrial exoskeletons; two HELD laboratory-based projects assess health effects of exoskeletons in the construction and healthcare; and two field trials assessing the health effects of practical usage of exoskeletons. NIOSH also serves on the ASTM F48 committee and ISO 11228 ergonomic standard committee to assist stakeholders in developing consensus standards for industrial exoskeletons.

## **Division of Safety Research (DSR)**

### **Update on Public Crowdsourcing Competition to Refine Machine Coding of Occupational Injury Narratives**

Many occupational safety and health surveillance databases use free-text narratives to capture explanations of how workers are injured. Coding these narratives to analyze data is expensive, time consuming, and fraught with coding errors. NIOSH enlisted the help of both CDC staff and the public – via crowdsourcing competitions – to develop a natural language processing algorithm to classify

occupational work-related injury records. NIOSH's ability to code how workers were injured was 82%. The intramural CDC competition raised that to 87%. The public (external) crowdsourcing competition, conducted via an interagency agreement with NASA and hosted on Topcoder's crowdsourcing platform in partnership with the Laboratory for Innovation Science at Harvard, ran for 5 weeks. There were 388 registrants from 26 countries, with 961 submissions, and 5 scripts were published. A doctoral student from the University of Amsterdam, raised the bar to nearly 90%. These results were shared via the [NIOSH Science Blog](#) and a [NIOSH press release](#).

### **Drug Overdose Deaths at Work: 2011-2016**

Drug overdose fatalities have risen sharply and the impact on US workplaces has not been described. This paper, published in November 2019 in *Injury Prevention*, describes US workplace overdose deaths between 2011 and 2016. In that period, 760 workplace drug overdoses occurred for a fatality rate of 0.9 per 1,000,000 full-time equivalents (FTEs). Fatality rates significantly increased 24% annually, with highest rates in transportation and mining industries (3.0 and 2.6 per 1,000,000 FTEs, respectively). One-third of workplace overdose fatalities occurred in workplaces with fewer than 10 employees. Heroin was the single most frequent drug documented in workplace overdose deaths (17%). Workplace overdose deaths were low but increased considerably over the six-year period. The current Altmetric statistic for this publication is 33, placing it in the top 5% of all research outputs scored by Altmetric. Study results were shared through a [NIOSH Science Blog](#), and an [infographic suite](#) was developed to share results via NIOSH social media channels.

### **NIOSH Fast Facts – Taxi Drivers – How to Prevent Robbery and Violence**

Workplace violence for taxi drivers, including both physical assaults and verbal abuse like yelling or name-calling, can result in injuries and death. NIOSH published a [Fast Facts sheet](#) with recommended strategies for taxi drivers to prevent or reduce the likelihood of violence during a shift in October 2019. It was revised in November 2019 to include OSHA-related information and was cobranded with OSHA and the International Association of Transportation Regulators (IATR). NIOSH provided 150 copies to the Transportation Alliance, an industry group representing owners of both taxi companies and transportation networking companies. IATR and OSHA are assisting in disseminating the fact sheets and their availability.

## **Health Effects Laboratory Division (HELD)**

### **Biomarkers of Neurotoxicity**

Toxic exposures of the nervous system tend to affect different brain regions and cell types in an unpredictable manner. This characteristic feature of neurotoxicity hampers our ability to develop broadly applicable biomarkers of the neurotoxic condition. The Molecular Neurotoxicity team has made progress in overcoming this problem by using animal models to evaluate astrogliosis, a brain cell response that highlights the location of toxicant-induced damage anywhere in the nervous system. While enhanced expression of the protein, GFAP, has been found to be a hallmark of astrogliosis, few other

biomarkers have been identified. Recently, bacterial artificial chromosome - translating ribosome affinity purification (bacTRAP) technology has been shown to reveal the actively translating transcriptome of a particular cell type. This technique overcomes the difficulty of sorting molecular biomarkers among all of the different brain cell types. The bacTRAP approach was used to profile only the genes being translated in cells undergoing astrogliosis in response to a neurotoxic insult. This resulted in identification of several new astrogliosis biomarkers that can now be applied to assess broad classes of potential neurotoxic exposures using animal models.

## **National Personal Protective Technology Laboratory (NPPTL)**

### **Responding to PPE questions**

NIOSH continues to respond to COVID-19 personal protective equipment (PPE) questions through multiple communication outlets including webpages, webinars, and inquiry responses. A NIOSH Science Blog post covered [Proper N95 Respirator Use for Respiratory Protection Preparedness](#) Web content includes [frequently asked questions about PPE](#). In the month of February, there were over 121,000 visits to the NIOSH/NPPTL filtering facepiece respirator (FFR) main page and over 391,000 visits to the N95 respirator landing page. Additionally, NPPTL responded to over 250 requests for information in February and March (as of March 11, 2020).

### **Evaluating the performance of stockpiled respirators**

NIOSH identified ten U.S. stockpile facilities that varied in geographic location, type of facility (e.g., federal, state, county), type of storage conditions, inventory quantities, but had similar N95 FFR models stockpiled. These ten facilities included one federal, five state, two regional, and one county level stockpiles. At each facility NIOSH evaluated the site and storage conditions using checklists to record observations that may affect PPE performance. NIOSH evaluated the performance of 3,971 stockpiled respirators and determined that 98% of the respirators (including the P95 filters) tested from the ten facilities and manufactured between 2003-2013 maintained their inhalation and exhalation resistance and filtration performance in accordance with NIOSH performance requirements. This has informed CDC/NIOSH guidance as outlined in [Strategies for Optimizing the Supply of N95 Respirators](#) that in times of increased demand and decreased supply, such as when responding to COVID-19, consideration can be given to use N95 respirators past their designated shelf life.

### **Advancing an eye and face protection standard**

NIOSH is working with the ANSI Z87 Accredited Standards Committee on Safety Standards for Eye Protection to develop a new standard. The title of the standard is “Eye and Face Protection Used Against Biological Hazards,” ANSI Z87.62. This standard sets forth criteria related to the general requirements, testing, permanent marking, selection, care and use of protectors to minimize or prevent exposure to the wearer's eyes and/or face caused by biological hazards including, but not limited to blood, body fluids or other potentially infectious materials (OPIMs) or microorganisms, viruses or toxins from a biological source that can affect human health. This standard will not address hazards related to transmission of an

infectious agent suspended in the air, and which may require additional forms of protection. NIOSH has led development of initial testing requirements. It is expected in 2020, pending additional interlab testing to determine the repeatability and reproducibility of proposed techniques.

## Respiratory Health Division (RHD)

### Electronic Health Records

A cross-institute work group for electronic health records (EHRs), has developed a methodology collecting work information in EHRs called Occupational Data for Health (ODH). In December 2019 and January 2020, templates for ODH were published for trial use by Health Level Seven International (HL7®), an important standard-setting organization for EHRs.

### Respiratory Health in Coffee Workers

RHD staff developed and are guest editors for a research topic “Investigating exposures and respiratory health in coffee workers” in the journal *Frontiers in Public Health – Occupational Health and Safety*. One article has been published and others are in preparation.

### Cured-in-Place Pipe Installation

Two health hazard evaluations have been completed that evaluated styrene exposures during cured-in-place pipe installation, which is an emerging technology in infrastructure repair. One report has been published, and one is in preparation. Additionally, a NORA project is starting on this topic.

## Total Worker Health® (TWH)

### Opioids Coordination Efforts

To guide development of resources and ongoing research on the topic of *Workplace Supported Recovery* NIOSH has published a [Request for Information](#) in the Federal Register, which is open February 26-April 26, 2020. The RFI seeks input from a variety of stakeholders, including employers, labor unions, workers, researchers, treatment providers, and government agencies on the Workplace Supported Recovery program (WSRP). The intent is to develop approaches to reduce risk factors for substance use among workers and assist in recovery

In addition, NIOSH is partnering with CPWR, the National Construction Safety Center, TWH Centers of Excellence, and the National Safety Council to further efforts on peer support systems for persons with or at risk for opioid use disorder.

Lastly, NIOSH representatives were asked to serve on three sub-committees of the White House’s Office of National Drug Control Policy related to the opioid response, including: Peer Recovery Support Services; Employment for People in Recovery; and Expanding Research on Recovery.

## **TWH Releases the NIOSH WellBQ**

The TWH program plans to release a new survey tool to measure and understand worker well-being. The NIOSH WellBQ, developed in concert with the RAND corporation and a panel of more than two dozen international researchers and experts, will assess well-being across 5 domains (such as work experience, worker health, safety practices and financial security). The survey is designed to gauge the current state of workforce or personal well-being. It can also be used by employers, researchers, and workers.

## **Western States Division (WSD)**

### **Cannabis**

NIOSH is represented on the CDC Cannabis Working Group to draft a CDC Cannabis Strategy. The CDC Cannabis Strategy has been reviewed by all CIOs and comments have been addressed. It is now with the CDC Office of the Director for review. NIOSH activities preliminarily include conducting worksite hazard evaluations and identifying issues for the general worker population.

NIOSH is planning a Science blog on cannabis, impairment, and workers' comp issues. Bradley King has been working with the OSHA Education Center at Red Rocks Community College to develop a Hazard Awareness course, which will focus on the hazards found in the cannabis industry.

### **Fatalities in Oil and Gas**

The NIOSH Fatalities in Oil and Gas (FOG) Database released the 2017 data that provide a summary of worker fatalities by oil and gas operations, activities, industry group and worker demographics. During 2020, FOG researchers will compile the first five years of FOG data (2014-2018) and develop a NIOSH report containing findings and recommendations for improved worker safety and health.

### **In-Vehicle Monitoring System Data**

NIOSH is collaborating with industry, academic, and insurance partners to examine opportunities to use in-vehicle monitoring system data beyond its primary use of identifying individuals with risky driving behaviors for driver coaching. During 2020, NIOSH participated in two meetings with several partners including companies, IVMS service providers, and insurance companies to discuss potential research opportunities. Opportunities to use IVMS data to identify needed infrastructure improvements, guide journey management programs, and guide fleet safety policies were identified as priority research topics.

## Social Presence Statistics

NIOSH continues to expand its presence on social networks.

Social Media and Public Outreach Accounts and Services	February 2019	February 2020
Facebook	137,056 likes	147,780 likes
Twitter	@NIOSH account 306,094	@NIOSH account 305,064 *
Instagram	2,522 followers	4,529 followers
YouTube	234 videos, 739,962 views	271 videos, 1,050,445 views
LinkedIn	761 members	932 members
Website Views	1,184,799 site views in February 2019	3,425,461 site views in February 2020
eNews Subscribers	74,785	58,818 **
TWH Newsletter Subscribers	82,742	62,483 **
Science Blog	Total blog entries: 522 Total comments: 8,187 Blog site views (February 2019): 32,215	Total blog entries: 592 Total comments: 8,829 Blog site views (February 2020): 124,974

\* Twitter is actively deleting inactive accounts

\*\* Due to a change in subscription services some subscribers were lost

## **NIOSH Publications**

### **March 2020**

#### [EXAMiner](#)

[Current Intelligence Bulletin 69: NIOSH Practices in Occupational Risk Assessment](#) (Revised March 2020)

### **February 2020**

#### [Now Hear This! Take Action to Protect Your Hearing](#)

[Technology News 562 - ESPnano Characterizes Hazardous Airborne Particles in the Workplace](#)

### **January 2020**

[Maintaining Acceptable Indoor Environmental Quality \(IEQ\) During Construction and Renovation Projects](#)

[Faces of Black Lung II](#) (Video)

[Faces of Black Lung II](#) (Revised January 2020)

[Ground Stress in Mining \(Part 2\): Calibrating and Verifying Longwall Stress Models](#)

[Ground Stress in Mining \(Part 1\): Measurements and Observations at Two Western U.S. Longwall Mines](#)

### **December 2019**

[NIOSH Extramural Research and Training Program: Annual Report of Fiscal Year 2018](#)

[PPE CASE Notes Personal Protective Equipment Conformity Assessment Studies and Evaluation Notes: Firefighter SCBA Facepiece Sizing Issues](#)

### **November 2019**

[NIOSH Prevention through Design Program](#)

[Agriculture, Forestry, and Fishing Program](#)

[NIOSH Fast Facts Taxi Drivers How to Prevent Robbery and Violence](#) (Revised November 2019)

[Prevent Construction Falls from Roofs, Ladders, and Scaffolds](#) (Revised November 2019)