National Institute for Occupational Safety and Health (NIOSH)
Board of Scientific Counselors Update
April 2023

Budget

On December 29, 2022, the President signed the FY 2023 Omnibus Appropriations spending bill titled, "Consolidated Appropriations Act, 2023," into law. This provided NIOSH $362.8M in budgetary resources in the annual appropriation account, an increase of $11M over the FY 2022 enacted level. The agreement provided:

- $1.5M increase – Agriculture, Forestry and Fishing (AgFF)
- $1M increase – Education and Research Centers (ERCs)
- $2.5M increase – Firefighter Cancer Registry (FFCR)
- $1M increase – Personal Protective Technologies (PPT)
- $1M increase - *Total Worker Health* (TWH)
- $4M increase – Mining

On Thursday, March 9, 2023, the Biden Administration released and sent to Congress the full President's FY 2024 Budget Request for Fiscal Year (FY) 2024 (October 1, 2023 – September 30, 2024). The President's FY 2024 Budget Request proposes an appropriation of $362.8 million for NIOSH, which is level with our FY 2023 enacted budget from Congress. There are no cuts proposed to NIOSH intramural or extramural programs. The request also formally proposes an average 5.2% pay increase for federal civilian employees.

Organizational and Personnel Announcements

NIOSH Leadership Updates

Dr. John Piacentino was appointed to NIOSH Deputy Director for Program on January 1, 2023. Dr. Piacentino has continued as Acting Associate Director for Science (ADS) until a new ADS is selected.

Retired Staff

Frank Hearl, NIOSH Chief of Staff, retired on December 31, 2022. Maria Strickland is the Acting Chief of Staff.

Dr. R.J. Matetic, NIOSH Associate Director for Manufacturing, retired on December 31, 2022.

Dr. Dori Reissman, Associate Administrator of the World Trade Center Health Program, retired on March 1, 2023. CDR Brittany Rizek is the Acting Associate Administrator of the World Trade Center Health Program.

In Memoriam

Dr. Jessica Kogel, NIOSH Associate Director of Mining, retired in December 2022 and passed away in January 2023.

Emergency Response

The federal government's plan to end the COVID-19 Public Health Emergency (PHE) on May 11, 2023 marks a new chapter in the pandemic. NIOSH continues to support COVID-19 activities. Utilizing building ventilation to improve air quality remains an important response priority and NIOSH researchers are updating the current Ventilation in Buildings | CDC web page and conducting studies. Additionally, NIOSH staff are serving as co-editors of the special edition COVID-19 in the Workplace: Observations, Research, and Lessons Learned in the Journal for Environmental Research and Public Health. Six papers were published here by NIOSH authors.

NIOSH staff provided technical assistance to the Ohio and Pennsylvania Health Departments as part of the Unified Command response to the East Palestine train derailment. NIOSH helped develop and administer a survey among responders to better understand the health effects that might be related to the incident. Additionally, NIOSH provided general occupational health and safety support to the Unified Command and labor representatives. NIOSH also updated existing domestic Ebola preparedness recommendations and maintained an on-call roster to deploy staff to respond to any travel-related Ebola cases in the US during the Uganda Ebola Outbreak response.

Part G of the Ryan White HIV/AIDS Treatment Extension Act of 2009 (Part G) establishes a notification process for emergency response employees (EREs) who may have been exposed to certain potentially life-threatening infectious diseases (e.g., rabies, tuberculosis, pneumonic plague, COVID-19) while attending, treating, assisting, or transporting victims of emergencies. NIOSH was recently granted legal authority under Part G to establish a process to encourage EREs to provide information to NIOSH when medical facilities and other entities with Part G obligations fail to meet those obligations and thus are in violation of Part G. NIOSH is working to implement this new public health compliance program.

Construction Safety and Health

National Safety Stand-Down to Prevent Falls in Construction

This year's National Safety Stand-Down will take place May 1-5, 2023. The goal of the Stand-Down is to raise awareness to fall hazards and reinforce safe work practices that help prevent fatalities and injuries related to falls. In 2020, out of 1,034 falls that resulted in death in the construction industry, 353 were due to falls from a height to a lower level. The Stand-Down is an opportunity for employers, supervisors, and workers to have a conversation about training, job hazards, protective methods, speaking up about

unsafe conditions, and the company's safety policies, goals and expectations. The Campaign began under the National Occupational Research Agenda (NORA) Construction Sector Council, and more information about the Stand-down and fall prevention resources are available on the OSHA, NIOSH, and CPWR's Campaign websites.

National Stand-Down to Prevent Struck-By Incidents

The 4th annual National Stand-Down to Prevent Struck-by Incidents is taking place April 17 – 21, 2023, in coordination with National Workzone Awareness Week. The Struck-by Stand-down began under the NORA Construction Sector Council and includes free webinars and resources to prevent struck-by incidents. CPWR recently released a report on "Struck-by Hazards, Barriers, and Opportunities in the Construction Industry" which explores causes of struck-by injuries; barriers to their prevention; and examines measures to protect workers and barriers to implementing them. Companies are encouraged to conduct a Safety Stand-Down by taking a break to have a toolbox talk, conducting safety equipment inspections, or discussing job specific hazards. Managers are encouraged to plan a stand-down anytime that works best for their workplace.

Personal Protective Equipment Fit in the Construction Sector

Building on the NIOSH National Personal Protective Technology Laboratory's Equitable PPE Protections Workshop held in November 2022, the NIOSH Construction Program is emphasizing the importance of personal protective equipment (PPE) fit in a NIOSH Science Blog. The construction sector is comprised of a diverse population of workers exposed to many different types of hazards. An important way to prevent occupational illness and injury related to these hazards is by implementing the hierarchy of controls. PPE is particularly important when other controls cannot sufficiently reduce or eliminate hazards. Construction workers rely on various types of PPE in the course of usual work - examples include fall harnesses, safety shoes, safety glasses, hardhats, ear plugs or muffs, and respirators – the PPE must fit properly to allow them to safely perform their jobs.

Recent work by the Lawrence Technological University's Construction Safety Research Center (CSRC) provided information about current problems and outlined several steps owners, contractors, and supervisors can take to increase the proper use of PPE – including a continuing need to provide regular training regarding PPE for all workers in the construction industry. Language barriers and differing levels of literacy level and previous training are among the important challenges that need to be addressed in regular training efforts.

Office of Agriculture Safety and Health (OASH)

Regional Ag Centers starting new 5-year cycle

In the fall, NIOSH funded 11 regional Centers for Agricultural Safety and Health (Ag Centers) including one new center described below. The Ag Centers represent the Institute's largest extramural investment in agriculture, forestry, and fishing research and outreach to further its mission of protecting and advancing the safety, health, and well-being of the workers who produce food and fiber for our nation.

NIOSH also supports the National Children's Center for Rural and Agricultural Health and Safety which specifically addresses the needs of children and families who live and work on farms across the country. Newly funded research projects will focus on respiratory health issues, pesticide exposure, mental health/farm stress, traumatic injuries and musculoskeletal disorders associated with agriculture, forestry and commercial fishing.

The new regional ag center is the Great Lakes Center for Farmworker Health and Wellbeing, based at the University of Illinois Chicago School of Public Health. It was created to amplify research efforts in farmworker health and wellbeing, as well as foster tighter networks of researchers, policy makers, advocacy groups, and healthcare organizations. Initial projects for the new center include adapting existing worker wellbeing surveys to address the unique nature of agricultural settings and using medical records to identify and characterize farmworker illness and injury, since nonfatal farmworker injuries and illnesses often go unreported.

Rural Health Office in CDC

CDC is establishing the Office of Rural Health (ORH). The ORH will enhance the implementation of CDC's rural health portfolio, coordinate efforts across programs, and develop a strategic plan for rural health. The NIOSH Office of Agriculture Safety and Health (OASH) will coordinate with the Office of Rural Health on rural health/occupational health matters. OASH staff have previously worked with the ORH's acting director on rural health issues during the COVID-19 response as well as other topics which intersect with occupational health such as farm stress and mental health.

Robotics Workshop

The SAfety For Emerging Robotics and Autonomous aGriculture (SAFER AG) Workshop took place November 9-10, 2022, at the University of Illinois Urbana-Champaign. Over 100 individuals from industry, academia, farm operators, and government attended. The workshop was designed to review/understand:

- The risk associated with agricultural robotic technology.
- The role regulation and standards will play in the adoption of safe digital technologies.
- Existing safety research efforts and gaps in research efforts.
- Workforce implication of new technology adoption, including training needs, cultural implications, impact on labor supply, and rural connectivity.

Papers are being drafted for a special collection in the *Journal of Agricultural Safety & Health*. Once completed, the organizing committee will start discussion on convening SAFER AG 2.0 to continue the workshop.

Division of Field Studies and Engineering (DFSE)

Contribution to USPHS Deployment Safety Training

Three DFSE Public Health Service (PHS) officers were selected to help develop USPHS Deployment Safety (D-SAFE) training in conjunction with staff at the University of Nebraska Medical Center (UNMC) at the Davis Global Center for Health Security in Omaha, Nebraska. D-SAFE will train PHS officers on subjects addressing self-care, personal safety, and security to prepare them for deployments responding to various outbreak situations including COVID-19, tuberculosis, polio, cholera, and smallpox.

Evaluation of the Impact of COVID-19 Using Workers' Compensation Systems

The NIOSH Center for Workers' Compensation Studies supported several states (CA, IL, MI, OH, WA, WI) and the Workers' Compensation Research Institute (WCRI) to study COVID-19 using workers' compensation systems. Specific aims of the initial studies were to understand how COVID-19 was related to several worker and employer factors and to detail the broad impact of COVID-19 on injured worker care, the overall workers' compensation system, and other occupational injuries/illnesses. NIOSH hosted a webinar on 2/25/22 where partners shared initial findings. Partners are now completing studies to evaluate the long-term impact of COVID-19 on workers. Here are links to partner reports: Michigan, Washington, WCRI -Impact of COVID-19 on injured worker care, Impact of COVID-19 on overall workers' compensation claim composition, Long COVID in the Workers' Compensation System Early in the Pandemic

Support of Collection of Industry and Occupation Data for COVID-19 and other Conditions

Since August of 2020, DFSE has been supporting a project to enhance collection by jurisdictions of industry and occupation (I/O) data of persons with COVID-19 and other conditions. This project was accomplished through a collaboration with the CDC National Center for Immunizations and Respiratory Diseases Vaccine Preventable Disease Program. Eighteen jurisdictions (16 states and 2 large cities) have participated. Participating jurisdictions have met with NIOSH for trainings on collecting high quality I/O data, technical assistance with using the NIOSH web-based coding system NIOCCS, sharing of best practices for incorporating I/O data collection into specific surveillance platforms (e.g., Redcap) using message mapping guides, analysis of I/O data for COVID cases and other topics.

Reduction of Language Barriers to Access of Occupational Health Information

The US workforce is multilingual. Immigrant workers make up 28% of all US workers and represented 83% of labor force growth from 2010 to 2018. A key health equity issue is to ensure language is not a barrier to access of health information. Partnerships were established as an initial task of a project focused on expanding the access of occupational safety and health (OSH) information to immigrant and non-English speaking populations. In coordination with the World Health Organization, NIOSH took the lead in designing and managing the online event Wiki4WorldHearingDay2023 to facilitate the improvement of Wikipedia content related to hearing, hearing health services, hearing testing, and preventive and treatment interventions, and partnering with other institutions to contribute content in

English, Portuguese, French, Spanish, and Chinese. Tracking of the contributions started in November 2023 and will continue until the end of March 2023 on the 2023 dashboard. So far, the articles have received more than 2 million views during the 3-month period. This effort aims to make OSH content one of the better-developed health areas within Wikipedia, while providing quality information to everyone in the world.

Division of Science Integration (DSI)

Special Journal Issue on Work and Fatigue

DSI researchers edited and managed the publication of a special issue of the American Journal of Industrial Medicine (volume 65, issue 11) which focuses on work and fatigue among American workers. This special issue has 10 manuscripts in total, including a Foreword from Dr. Howard and a Summary paper of all the articles with some background information about the review processes. Six manuscripts focused on sector-specific approaches to identify unique factors for fatigue risk and effective countermeasures. This not only included industries which traditionally have focused considerable efforts in reducing fatigue-related occupational health and safety risks (e.g., Transportation, Healthcare and Public Safety), but also included sectors where there are growing concerns (e.g., Mining, Oil and Gas Extraction, Agriculture, Forestry and Fishing). In addition to our sector-specific approach, two topic areas (populations at disproportionate risks, and economic evaluation) which cut across all industries were included. This special issue addresses the Board of Scientific Counselor's suggestion for sector-specific approaches following the 2021 mini-symposium on work-related fatigue. These manuscripts have been shared with the Teamsters Union to inform the development of internal guidelines on overtime hours among their members.

Dissemination and Implementation Science (DIS) Primer

A DSI researcher and external collaborators recently published a dissemination and implementation science (DIS) primer that provides resources to help build DIS capacity among OSH researchers. This work supports efforts under the NIOSH Evaluation Capacity Building plan to promote and expand implementation research at the Institute. This resource: 1) provides an overview of common DIS terminology and concepts; 2) describes several key and evolving issues in DIS: balancing adaptation with intervention fidelity and specifying implementation outcomes and strategies; 3) reviews DIS theories, models, and frameworks and offer examples for applying these to OSH research; 4) discusses widely used DIS research designs, methods, and measures; and 5) discusses future directions for DIS application to OSH and provide resources for further exploration. DIS methods can be used in the OSH field to advance the adoption, implementation, and sustainment of evidence-based interventions for workplaces. This manuscript fills a gap in the OSH research by providing an overview of DIS to enhance understanding of key concepts, issues, models, designs, methods, and measures for the translation into practice of effective OSH interventions to advance the safety, health, and well-being of workers.

Reducing Workplace Violence in Gas Stations and Convenience Stores

DSI and Division of Safety Research authors published a NIOSH Workplace Solutions document, Reducing Workplace Violence in Gasoline Stations and Convenience Stores. Workers in gasoline stations, which often involve sales of convenience store items, are at higher risk of violence compared with workers in other retail workplaces and the overall workforce. This document provides strategies and steps to prevent and reduce robbery-related violence in these workplaces. Information in the document is based on a study of convenience stores that implemented elements of Crime Prevention through Environmental Design programs, which suggest that environments can be modified to reduce robberies.

Division of Safety Research (DSR)

Simulations Yield Insights to Protect Firefighters during Emergency Driving

A disproportionately high number of deadly crash incidents involve fire tanker rollovers during emergency response driving. DSR researchers and collaborators recently published a study in the Journal of Safety Research to address this issue (Evaluation of Advanced Curve Speed Warning System to Prevent Fire Truck Rollover Crashes). In this study, twenty-four firefighter research participants used a laboratory driving simulator to help evaluate the effectiveness of a curve speed warning system (CSWS) for fire tanker vehicles. The knowledge gained from the study will be useful for system designers in the future to modify the CSWS for heavy emergency vehicles. One possible change based on the simulation results could be to adjust the safety speed limit which triggers the CSWS to allow more safety margin.

Workplace Violence (WPV) and the Mental Health of Public Health Workers During COVID-19

DSR researchers recently published a paper entitled Workplace Violence and the Mental Health of Public Health Workers During COVID-19 in the American Journal of Preventive Medicine (AJPM). This analysis included survey data on over 26,000 state, local, and tribal public health workers. One of the goals of the study was to assess how the COVID-19 pandemic and workplace stressors were impacting public health workers' mental health. One out of three public health workers experienced at least one form of WPV – examples included receiving job threats or being bullied, harassed, or stigmatized. Experiencing WPV was associated with a 21% greater risk of reporting depression or anxiety, a 31% greater risk of reporting PTSD, and a 26% greater risk of reporting suicidal thoughts, even after controlling for other stress-producing factors. The more WPV the PHW experienced, the greater the impact on their mental health. Several work factors were found to be associated with increasing WPV, such as hours worked and interaction with the public. The authors hoped to shed light on one of the alarming outcomes of the COVID-19 pandemic – WPV against PHWs.

Fire Service Community Meeting with FFFIPP and Nine Fire Service Organizations

In June 2022, the NIOSH Firefighter Fatality Investigation and Prevention Program (FFFIPP) held a virtual Fire Service Community Meeting (FSCM). The primary purpose was to gather comments and input from members of the fire service and partners on how the FFFIPP can increase its impact on the safety and health of firefighters in the US. The results of this meeting included a summary report detailing 40 issues

raised by the parties in attendance, along with corresponding plans for NIOSH to address the comments and make programmatic improvements including developing a preliminary report like that used by other federal agencies to be released within 120 days of the NIOSH investigation, and working with a contractor to improve the existing line-of-duty-death (LODD) report template. The investigation prioritization flowchart was revised to meet the resource constraints of the program and is no longer focusing on struck-by incidents or motor vehicle crashes, which comprise a large proportion of past LODD reports. Future FFFIPP investigations will be focused on training LODDs, new and emerging hazards, multiple LODD events, and structural fires.

Health Effects Laboratory Division (HELD)

Neurotoxicology Studies Conducted with Welding Fumes

Three important findings have recently emerged from HELD neurotoxicology research conducted with welding fumes. First, the investigative team showed the involvement of Parkinson's disease-related genes (PARK) in the neurotoxicity of welding fumes, providing a basis for evaluating these factors as potential biomarkers of the adverse health effects from welding fume exposures. Second, the findings of the modulation of neurotoxicity of welding fumes upon altering process conditions, i.e., voltage or shielding gas, suggests that simple modifications of welding process parameters can alter the fume profile and thereby its toxicological properties. As welding process conditions can be easily controlled at the workplace, such efforts are easily translatable and may contribute to prevention of adverse exposures and associated neurological risks. Third, the findings that accumulation of magnesium in nails selectively reflects the pattern of brain magnesium accumulation, but not magnesium accumulation in other organs, suggesting that toenails can serve as a reliable surrogate to monitor WF-related manganese intoxication and neurotoxicity.

Traumatic Brain Injury Impact on Long Term Neurological Disease

HELD is also studying traumatic brain injury (TBI) induced neuroinflammation and damage in relation to long term neurological disease. TBI has emerged as a major health concern in the US, with upwards of 2.5 million incidents per year, and is a significant risk for various US occupational environments including military settings. While TBI poses a risk on its own, there is also a high likelihood for TBIs to occur in combination with other exposures, such as stress and chemical agents. HELD is focused on understanding how stress and organophosphates, like pesticides and nerve agents, interact with subsequent or concurrent TBI to produce more significant toxicity and inflammation in the brain. While the moderate-severe TBI was found to produce significant neurobehavioral effects with widespread damage which was accompanied by significant neuroinflammation, the mild TBI produced mild activation of glial cells in the absence of neural damage. Additionally, repeated exposure to mild TBI was found to worsen the neuroinflammation and neurotoxicity associated with combined exposure to stress and organophosphates compared to a single mild TBI, expanding the areas of the brain affected by the stress, chemical, and TBI mixture and inducing peripheral inflammation. These findings highlight the increased risks for exposure-induced neuroinflammation, neurotoxicity, and neural damage in vulnerable occupational populations leading to increased risk for long-term neurological disease.

Impact of Aspergillus Versicolor Exposure on the Brain

HELD has studied the effects of repeated *Aspergillus versicolor* exposure over 4 weeks on the brain. Exposure to these fungi elicited changes in neuroimmune and neurotransmission gene expression. Significant transcriptional enrichment of several biological pathways were observed. Overall, this study indicated that the brain could detect and respond to *A. versicolor* inhalation exposure with changes in neuroimmune and neurotransmission gene expression regulation, providing much needed insight into how fungal exposures can affect CNS responses and regulate neuroimmune homeostasis. (Ladd et al. ASN Neuro. 2021). A second study to further evaluate the neurotoxicological effects over 13 weeks of repeated exposure to *A. versicolor* is ongoing. In this inhalational study, mice are being exposed to viable and heat-inactivated *A. versicolor* from which brains will be collected and processed for neuropathological and neurotoxicological assessment. An additional study investigating the role of environmental risk factors in Alzheimer's disease (AD) is also currently being conducted. In this AD model showed elevated transcriptional markers of neuroinflammation in the frontal lobe and changes in cortical microglia morphology, as well as increased beta amyloid (Aβ) plaque number and augmented dystrophic neurites were observed, demonstrating that *A. versicolor* inhalation augments Aβ pathology, a hallmark of AD. The underlying mechanisms involved in the exacerbation of Aβ neuropathology and specifically the role of different targets identified as a critical factor in AD and/or Aβ neuropathology following *A. versicolor* exposure are currently being investigated.

National Personal Protective Technology Laboratory (NPPTL)

Face Measuring Mobile Application

The Face Measuring Mobile Application for smartphones and tablets is being developed to measure a user's facial dimensions and then classify the user into the NIOSH Bivariate and Principal Component Analysis Panels. Additionally, the app will capture the user's point cloud (three-dimensional [3D] data set of the surface scan of the face). The app will be operationally inclusive of gender and racial/ethnic facial structures and skin tones. Following successful validation for accuracy and precision of facial measurements through this project, the app has the potential to be used in future research efforts such as large-scale anthropometric surveys and respirator fit prediction. The app will be made available to the public as a free download.

Registration of NIOSH Respirator Certification Marks and Other Brand Protection Activities

During the COVID-19 pandemic and continuing through to today, the respirator market was flooded with counterfeit respirators claiming approval by NIOSH. To address this issue, NPPTL (1) worked with federal partners to register respirator-related certification marks with the US Patent and Trademark Office and US Customs and Border Protection and (2) established and is actively staffing a team to develop, oversee, and execute the monitoring and enforcement of these marks to reduce the prevalence of counterfeit respirators on the market. So far, 12 certification marks have been registered in the US: NIOSH Approved®; the NIOSH stylized logos; N95®; P95®; N99®; N100®; P100®; PAPR100-P®; R95®; HE®; and PAPR100-N®. NIOSH Approved® and N95® are also registered in 12 other countries. Registering the certification marks provides NIOSH greater authority to act against any company that

produces or sells counterfeit respirators in the U.S. and other countries, protecting end users and protecting NIOSH's brand. When a potential counterfeit respirator is identified, NPPTL works with its legal team to request takedowns. NPPTL has also established public resources for information on the current registered marks, and how to identify counterfeit respirators.

Respiratory Protection for the Public

NIOSH has developed a draft "Strategy to Address Respiratory Protection for the Public". The Strategy was developed to respond to the recommendations provided in the National Academies Consensus Study Framework to Protect Workers and the Public published in 2022. This study was commissioned by NIOSH, EPA, State, and the CDC Foundation to identify consensus recommendations on respiratory protection for workers without respiratory protection programs and for the public. Respiratory Protection for the Public and for workers not under OSHA builds on NIOSH's 50+ years of occupational experience. The strategy involves developing and approving respiratory protective devices (RPDs), assessing hazards and determining appropriate RPDs, ensuring their availability and access, and incorporating continuous improvement.

Respiratory Health Division (RHD)

Health Hazard Evaluation (HHE) Program return to Field Surveys

Through our HHE Program, NIOSH RHD offers assistance to workplaces concerned about potential respiratory hazards. Field surveys conducted as part of the HHE program were impacted in 2020-21 due to the pandemic; however, they resumed in 2022. Field Studies Branch HHE staff traveled to: 1) Michigan to conduct health questionnaires and evaluate the ventilation system at an automotive parts manufacturer with concerns about potential exposures to formaldehyde and other solvents; 2) Utah to conduct health questionnaires and personal air sampling for waste anesthetic gases at a veterinary hospital; 3) Maine to evaluate the ventilation system and conduct air sampling concerning potential exposures to welding fumes at a shipyard; and 4) Connecticut to conduct two evaluations, one at a college campus with indoor environmental quality concerns and another at a dental facility with concerns about respiratory hazards related to practicing dentistry.

Respiratory Exposures and Aerosol Exposure Controls in Dental Clinics

Two projects evaluating exposures and controls in dental clinics are currently ongoing: (1) exposures contributing to asthma and interstitial lung disease in dental personnel (NORA) and (2) engineering controls for aerosol exposure mitigation in dental settings (JIT-COVID). The first project recently resumed after obtaining IRB approval for COVID-19 related protocol modifications in December. The research team is collaborating with the West Virginia University (WVU) School of Dentistry to schedule air sampling and ventilation surveys at five of their specialty clinics. Clinics identified for surveys this FY include: orthodontics, endodontics, periodontics, prosthodontics, and general dentistry. A summary of this project and preliminary results will be shared at the annual Dental Infection Prevention and Safety Association (OSAP) conference in June 2023. The second project recently received additional funds to extend the project by one year. This project is evaluating five different dental evacuation systems that

can be used to mitigate aerosols during commonly encountered aerosol generating dental procedures. To date, the research team has completed project goals of aerosol sampling during 92% (n=23/25) crown preparation procedures and 40% (n=10/25) ultrasonic scaling procedures. Evacuation systems will be evaluated by how well they mitigate dental aerosols by both mass and number concentrations, and by oral bacterial content. Collaborators at WVU's School of Dentistry are currently analyzing the microbiological content of dental aerosols.

Nail Salon Exposures and Controls

Nail polishes contain many chemical compounds, including chemicals which can cause adverse reproductive outcomes and pose a risk to the high proportion (96%) of nail salon workers who are women of childbearing age. Furthermore, a substantial proportion of salon workers are immigrants (63%) with limited or no English proficiency (46%). With training and safety materials often only provided in English, this leads to access issues with over half (55%) of salon employees stating they couldn't access health and safety information at work. The majority (92%) of nail salons in the United States are small businesses (employ less than 10 employees), and almost 16% of all nail salons are both immigrant-owned and small businesses that generate 30-40% less profit margins compared to large, U.S. citizen-owned salons. This disparity makes it particularly challenging for salons to adapt to standards requiring expensive solutions or up-front costs such as local exhaust ventilation as required in the 2018 International Mechanical Code (IMC). A better understanding of chemical exposures associated with nail polish products is necessary to understand potential worker exposures and develop effective control options. The RHD research team has conducted laboratory studies evaluating exposures from different types of manicures and nail products including a subset of more natural polishes (n-free products) that attempt to remove harmful ingredients such as formaldehyde, dibutyl phthalate, and toluene. They found that some nail polishes contained measurable emissions of formaldehyde and toluene despite company claims to be free of these compounds. They also developed a collaboration with the New York City State Health Department, Department of State, academic partners in NYC, and an EIS officer stationed at the New York City Department of Health and Mental Hygiene Bureau of Environmental Surveillance and Policy which has resulted in a technical assistance request to develop and pilot a survey tool to assess ventilation and personal protective equipment use in nail salons.

Total Worker Health® (TWH)

Newly-Launched Society for Total Worker Health Now Has 197 Members

The successful 3rd International Symposium to Advance *Total Worker Health*® brought together more than 500 THW supporters, researchers and employers in October, 2022; it also heralded the launch of a new professional society, the Society for TWH, whose mission is to collaboratively advance the field of *Total Worker Health* through sharing of knowledge and best practices for the benefit of working people, their families, organizations, and the community. The Society will serve as a hub, a community, for sharing new and innovative ideas to expand Total Worker Health® research, training, education, dissemination, and real-world solutions, and will be a place for professionals and students to engage across all disciplines. NIOSH inspired the creation of the Society, served on its launch steering committee

and allows use of the TWH trademark under a licensing agreement with the School of PH at the Univ of Colorado, one of 10 funded TWH Centers of Excellence. Society for Total Worker Health - About (twhsociety.org) As of March 1, 2023, the Society has 197 registered, dues-paying members.

Substance Use and Work Coordination Efforts Continue at NIOSH

Ongoing efforts to stem the growing epidemic of drug overdose deaths in the nation is a top NIOSH priority within the TWH program. In addition to coordinating work across the Institute on substance use disorders and work, overdose prevention, cannabis and work, and impairment, TWH team members now serve on two critical, related White House level workgroups.

NIOSH has been working with The Office of National Drug Control Policy (ONDCP) and the Domestic Policy Council (DPC) in an Interagency Working Group entitled "Recovery-Ready Workplaces," to identify and drive policy actions that facilitate employment opportunities for people in or seeking recovery from substance use disorders and promote the adoption of recovery-ready workplace policies. See the group's latest output here: Recovery-Ready Workplaces Resource Hub.

NIOSH will represent CDC at a new **Recovery Research Interagency Workgroup** (IWG), led by ONDCP and NIDA, to develop, prioritize, and coordinate the implementation of a federal recovery research agenda across agencies. Through this IWG, which is called for in the President's National Drug Control Strategy (NDCS), we will assess the current scientific knowledge of recovery from SUD, review federally funded research, evaluation, and data collection portfolios/strategies, and identify areas where additional research evaluation, and resources are needed. The group will inform requests that make up the Drug Control Budget for inclusion in the President's 2024 Budget.

National Marketing Campaign to Improve the Mental Health for Health Workers Readies for Launch

NIOSH continues to make progress on the ARP-funded $20M project to create a national campaign to raise awareness and spur interventions for this critical issue. Environmental scans of current interventions to include existing communication campaigns, and an assimilation of all the available evidence are now completed. Formative research related to audiences and messaging approaches is also being finalized. In-depth interviews were conducted with 26 hospital leaders and 30 health workers to understand knowledge, attitudes, and beliefs, most recently using 11 online bulletin boards with five types of hospital executives and six types of healthcare workers to identify the most compelling messaging strategies. Next steps include finalizing the dissemination plan and launching late Spring/early Summer.

To help bolster the current research in this area, NIOSH, in collaboration with the American Journal of Public Health, will publish a special journal issue/supplement exploring effective approaches for improving mental health within the health workforce. The call for papers is now open with submissions due May 15th, 2023.

Western States Division (WSD)

Interagency Working Group on Mariner Mental Health

NIOSH Center for Maritime Safety and Health Studies personnel have been leading a federal interagency working group on mariner mental health for the U.S. Committee on the Marine Transportation System. This working group, which includes representatives from 12 federal agencies and departments, hosted a virtual discussion in January 2023, entitled "Challenges and Solutions to Mariner Mental Health and Wellbeing". This event included a presentation and two panels, and brought together representatives from the federal government, employers, worker groups, and nonprofits who engage with these workers to discuss challenges and real solutions to support the mental health and wellbeing of mariners. A transcript and video recording from the event are available; the group is now focusing on challenges and solutions highlighted during the event.

Annual Health and Safety Summit for Oil and Gas Industry

The NORA Oil and Gas Extraction (OGE) Sector Council is hosting the annual Health and Safety Summit that brings together government, industry, and other partners to highlight state-of-the-art knowledge on assessment and control of workplace hazards in the oilfield. The NORA OGE Spring Health and Safety Summit is a free virtual event. The 2023 Summit will focus on Psychosocial Stressors in the Oilfield and will occur April 12-13, 2023 from 12:00-4:00 pm ET. Agenda topic this year include: advances in fatigue research, mental health and substance use in the oilfield, and NIOSH research and OSHA programmatic updates. Full agenda will be released soon. Registration is currently open: NORA Oil and Gas Extraction Sector Council Spring Health and Safety Summit NIOSH | CDC.

Social Presence Statistics

NIOSH continues to expand its presence on social networks**.**

Social Media and Public Outreach Accounts and Services		February 2023
Facebook - NIOSH	Followers	192,565
	Engagement Rate	2.2%
	Total Engagements	3705
	Total Impressions	167,397
Twitter @NIOSH	Followers	296,334
	Engagement Rate	2.2%
	Total Engagements	958
	Total Impressions	44,320
Instagram @NIOSHUSA	Followers	47,076
	Engagement Rate	2.7%
	Total Engagement	964
	Total Impressions	36,241
LinkedIn* - NIOSH	Followers	1186
	Engagement Rate	3.3%
	Total Engagements	145
	Total Impressions	4415
YouTube	Total Videos	278 12 months: 58 videos archived, 46 added
	Average Monthly Views	23,100 (2/2023) 23,700 (12 month average)
Website	Average Monthly Site Views	2,150,000 (2/2023) 2,200,000 (12 month average)
eNews	Subscribers	37,378
	Open Rate	23.2%
	Click Thru Rate	0.9%
Science Blog	Total Blog Entries	877 (all time, 3 archived) 94 (last 12 months)
	Total Blog Comments	10,635 (all time) 517 (last 12 months)
	Blog Site Views	60,826 (2/2023) 61,480 (12 month average)

*NIOSH transitioned to a public LinkedIn page in June 2022

eNews numbers and social media channel rates are for the month of February 2023.

Recent NIOSH Publications

September 2022

Respirator Selection Guide for the Construction Industry

NFR Stand Together

October 2022

NIOSH National Personal Protective Technology Laboratory (NPPTL) Fact Sheet (Revised October 2022)

The Importance of Understanding and Training on the Portable Radio Emergency Alert Button (EAB) during a Mayday

December 2022

Challenges and Tactics for Fighting Row House Fires

February 2023

Reducing Workplace Violence in Gasoline Stations and Convenience Stores

You've Got This! Understanding Hazards, Risks, and Controls for Safer Fluid Transfers in Oil and Gas Extraction

March 2023

Keeping Cool: Training to Reduce Heat Stress Incidents

Verifying Shelf Life for NIOSH Approved® Filtering Facepiece Respirators (FFRs)

Emergency Decision-making: Underground Coal Mine Escape Scenarios

American Indian and Alaska Native Worker Safety and Health Strategic Plan

How to Tell if Your N95® Respirator is NIOSH Approved

Safety and Health at Work: Hotel Workers

Safety and Health at Work: Construction Workers

Safety and Health at Work: Hotel Workers

Safety and Health at Work: Construction Workers

Safety and Health at Work: Prevention Strategies

Safety and Health at Work General Guidance

NFR Stand Together: Wildland Firefighters 2

NFR Stand Together: Wildland Firefighters 1

Stand Together – Join the National Firefighter Registry

NFR Stand Together: Groundbreaking 2

NFR Stand Together: Groundbreaking 1

NFR Stand Together: A New Effort 2

NFR Stand Together: A New Effort 1

National Firefighter Registry: Roll Call Announcement

National Firefighter Registry: Strength Through Diversity

National Firefighter Registry: Launch

National Firefighter Registry: Be the First