NIOSH BIBLIOGRAPHY OF COMMUNICATION AND RESEARCH PRODUCTS | 2022

Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

Cover: The photographs on the cover of the *NIOSH Bibliography of Communication and Research Products 2022* represent just a few of the workers and professions that NIOSH serves. The photographs are described below:

1. A miner works 150 meters below ground with minimal light and air. Photo by ©Fmajor/Getty Images
2. A firefighter suffers from emotional stress after duty. Photo by ©Rachasuk/Getty Images
3. A nurse pushes a woman in a wheelchair. Photo by ©Ferrantraite/Getty Images
4. A scientist works with samples in a lab. Photo by ©Marco VDM/Getty Images
5. A construction worker takes a break in the heat. Photo by ©Coffeekai/Getty Images
6. A doctor examines an X-ray. Photo by ©SelectStock/Getty Images
7. A worker holds a welding tool. Photo by ©Phymart Studio/Getty Images
8. A worker, wearing hearing protection, adjusts a machine. Photo by ©Bluecinema/Getty Images

NIOSH

Bibliography of Communication and Research Products

2022

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

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April 2024

Foreword

As the director of the National Institute for Occupational Safety and Health (NIOSH), I take pride in presenting the *NIOSH Bibliography of Research and Communication Products 2022*. This bibliography lists a wide variety of NIOSH products published in 2022. Each of them focuses on improving the safety, health, and lives of workers.

NIOSH research and communications products result from the NIOSH mission to develop and put into practice new occupational safety and health knowledge. NIOSH and its partners work to make workplaces safer, healthier, and more productive.

NIOSH does research and recommends how to prevent work-related injuries, illnesses, and deaths. NIOSH also provides training and education to workers, employers, and other stakeholders to help them understand and implement workplace safety and health best practices.

The products in this bibliography reflect the wide range of NIOSH work. Products include journal articles, research reports, fact sheets, training materials, and other workplace safety and health resources. These include preventing workplace injuries and illnesses, protecting workers from exposure to hazardous chemicals and other workplace hazards, and promoting workplace wellness.

I encourage you to explore the products in this bibliography and learn more about the work that NIOSH is doing to keep workers safe and healthy. I also encourage you to share these products freely with your colleagues in the occupational health and safety community.

Thank you for your interest in NIOSH and our work to improve the safety and health of workers.

John Howard, M.D.
Director,
National Institute for
Occupational Safety and Health

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Introduction

Research Highlights 2022

Below are examples of exemplary NIOSH research studies that advanced the safety and health of U.S. workers in 2022. Research recognized in Research Highlights was suggested by NIOSH Divisions, Labs, and Offices.

How Heat Strain May Affect Thinking

Miners working in underground and surface mining operations can face high heat and humidity. As a result, they can suffer from heat strain and heat-related symptoms including reduced cognitive function (the ability to think and reason). One cognitive effect of heat exposure is declining attention, which could impact worker safety. NIOSH researchers took a closer look at the relationship between heat exposure and cognitive function, publishing their preliminary study results in *Applied Ergonomics*.

This preliminary study evaluated four cognitive tests to see how well the tests identified cognitive changes that could impact vigilance and safety. Eight miner-subjects performed treadmill exercises in a thermal chamber, then took cognitive tests evaluating their reaction time, attention, and memory. Results showed that heat stress impacted each of these domains to various degrees. These findings will inform a larger study planned for next year. Researchers will use their results to guide the mining industry on how to assess and mitigate heat-related cognitive decline.

PHOTO BY NIOSH

A study participant exercises on a treadmill.

Yeoman K, Weakley A, DuBose W, Honn K, McMurry T, Eiter B, Baker B, Poplin G [2022]. Effects of heat strain on cognitive function among a sample of miners. Appl Ergon *102*:103743, https://doi.org/10.1016/j.apergo.2022.103743.

Workplace Violence During the Pandemic

In a study published in the *Journal of Safety Research*, a NIOSH team used novel surveillance methods to collect data on workplace violence during the COVID-19 pandemic. Using digital disease detection methods (media scraping), researchers scanned online sources to collect data on COVID-related violence incidents. From March 1 through October 31, 2020, they identified 400 COVID-19-related workplace violence events, 41% involving both physical and nonphysical violence. In 22% of the incidents, the perpetrator coughed or spit on a worker. Most disputes were related to masks and were committed by males acting alone in retail and dining establishments.

This project was the first using these surveillance methods to collect data on an emerging issue during a public health emergency and to summarize injury situations, types of workers assaulted, characteristics of assailants, and primary reasons for the workplace violence. Another unique feature of this study was the use of machine learning to build a library of word patterns to determine work-relatedness of the violence. This analysis shows that media scraping can be a useful tool for timely surveillance.

> **Tiesman H, Marsh S, Konda S, Tomasi S, Wiegand D, Hales T, Webb S [2022]. Workplace violence during the COVID-19 pandemic: March–October, 2020, United States. J Saf Res *82*:376–384,** https://doi.org/10.1016/j.jsr.2022.07.004.

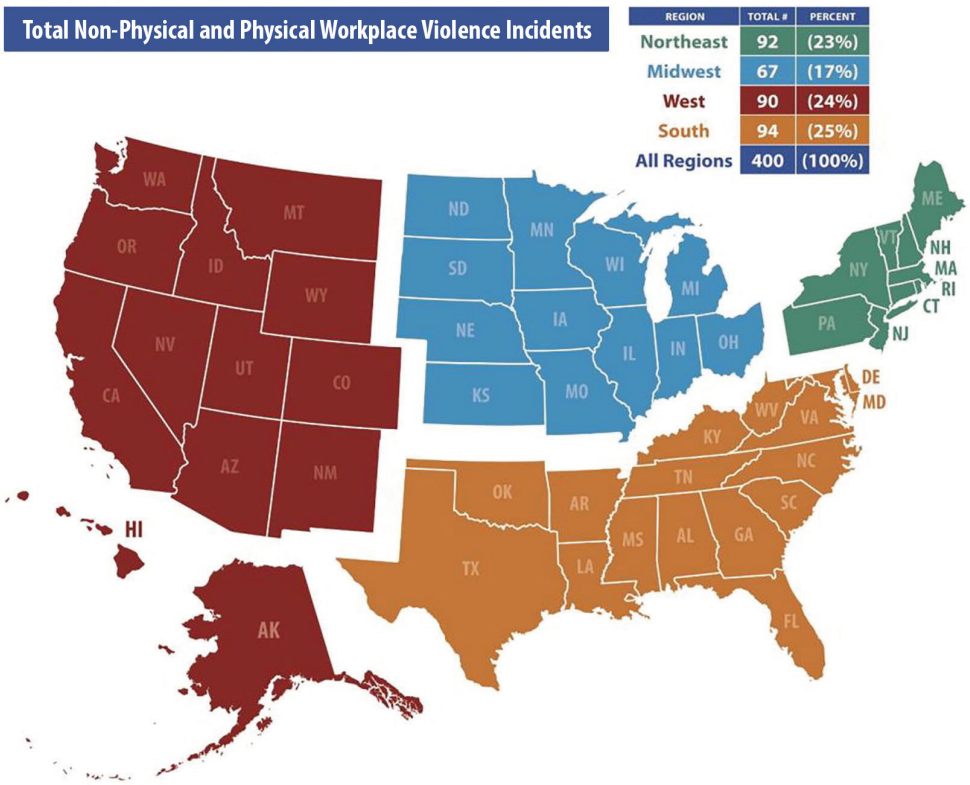

ILLUSTRATION BY NIOSH

Workplace Violence Events in the United States by State: March–October 2020. Numbers in regions do not add to 400 due to the exclusion of 57 cases where state could not be properly coded.

Toxicity of Boron Nitride Nanotubes

Engineered nanomaterials are becoming common in industry, so learning about their potential toxicity before widespread use is important. Boron nitride nanotubes (BNNTs) are widely used materials with little evaluation of their harmful effects. BNNTs are fiber-like materials that may be toxic when inhaled. BNNTs must be purified to use commercially; however, this process could impact the toxicity of the end product.

Kodali V, Kim KS, Roberts JR, Bowers L, Wolfarth MG, Hubczak J, Xin X, Eye T, Friend S, Stefaniak AB, Leonard SS, Jakubinek M, Erdely A [2022]. Influence of impurities from manufacturing process on the toxicity profile of boron nitride nanotubes. Small *18*(52):e2203259, https://doi.org/10.1002/smll.202203259.

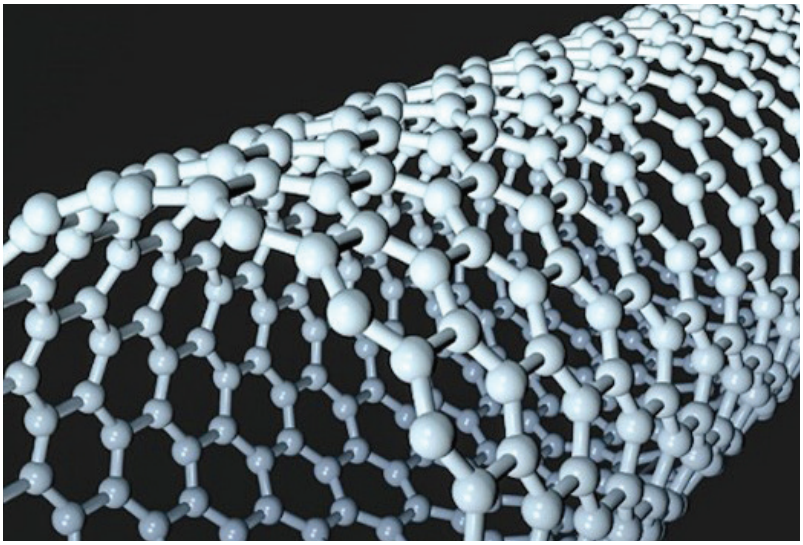

PHOTO ILLUSTRATION BY NASA

Boron nitride nanotubes have many uses in strong materials. NIOSH is studying their toxicity when breathed in.

Seeing this gap in knowledge, NIOSH toxicologists led a study with material scientists at a global BNNT manufacturer to learn more about BNNT toxicity. As described in the journal *Small*, scientists evaluated BNNT toxicity at various points along the purification process. After carefully studying BNNTs using a method that checks for signs and causes of toxicity, researchers found that the purer the material, the more signs of toxicity they saw. However, BNNTs were not overtly toxic overall.

This study showed that manufacturers can purify BNNTs while maintaining the physical structure of the tube. The scientists thought that the varying levels of harm they saw were probably because the purer material had more BNNTs shaped like fibers.

Treating Diseases Related to 9/11

Nearly one-half-million people are estimated to have been exposed to debris, dust, smoke, and fumes during the attacks on September 11, 2001. Many also suffered psychologically traumatizing scenes and events. Epidemiologic studies of 9/11 survivors found increased risks for some cancers, along with aerodigestive (affecting breathing and digestive organs) and mental health conditions. Because of the vast numbers exposed during the 9/11 terrorist attacks, clinicians need state-of-the-art information on how to identify, evaluate, and treat them.

To meet this need, a work group of World Trade Center (WTC)-affiliated clinicians

assembled to update clinical best practices for 9/11-related health conditions—last revised in 2008. They developed a series of papers, each describing a health condition covered by the WTC Health Program. The first paper, published in *Archives of Environmental & Occupational Health*, introduces the purpose of the series. This purpose is to promote the practice of high quality, evidence-based medicine for those with 9/11-related illnesses, describe the quality requirements for "medical best practices" to be cited in the series, and summarize the WTC Health Program.

PHOTO BY DET. GREG SEMENDINGER/NEW YORK CITY POLICE AVIATION UNIT

Massive plumes of dust and debris spread through Lower Manhattan after the South Tower of the World Trade Center collapsed on September 11, 2001.

Calvert GM, Anderson K, Cochran J, Cone JE, Harrison DJ, Haugen PT, Lilly G, Lowe SM, Luft BJ, Moline JM, Reibman J, Rosen R, Udasin IG, Werth AS [2022]. The World Trade Center Health Program: an introduction to best practices. Arch Environ Occup Health *19*:1–7, https://doi.org/10.1080/19338244.2022.2156975. Epub ahead of print, 2022 November.

Monitoring Respirable Crystalline Silica

Workers are exposed to respirable crystalline silica (RCS) in many industries, including mining. These workers can develop silicosis, lung cancer, and renal disease. An important tool to reduce worker exposure is to quickly assess RCS airborne concentration. As described in a *NIOSH Information Circular*, researchers at the Pittsburgh Mining Research Division developed a field-based monitoring process using portable Fourier transform infrared (FTIR) spectroscopy.

Field-based monitoring offers a supplement to sample analysis done by an offsite laboratory. It removes the time needed to transport samples and wait for lab results. Because the results are available more quickly, operators can make important decisions about controls, further protecting worker health.

The NIOSH team wrote these procedures for industrial hygienists and others with health and safety responsibilities in the mining industry. The procedures can be used by experienced RCS exposure assessors without specialized training in analytical techniques. Workers in other industries will also find this information helpful.

PHOTO BY NIOSH

A Fourier transform infrared spectrometer (a device that uses infrared light to analyze the chemical composition of substances) is used to process respirable crystalline silica samples in the field.

NIOSH [2022]. Direct-on-filter analysis for respirable crystalline silica using a portable FTIR instrument. By Chubbs L, Cauda E. Pittsburgh, PA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2022-108, https://www.cdc.gov/niosh/mining/UserFiles/works/pdfs/2022-108.pdf.

Studying Progression of Black Lung Disease

Pneumoconiosis (black lung disease) surveillance in the United States focuses on working coal miners, and research on disease progression in former miners has been limited. To learn more, NIOSH researchers used radiographic data and novel methods to study postexposure progression of pneumoconiosis. Published in the *American Journal of Industrial Medicine*, this was the first contemporary study of former coal miners characterizing postexposure progression of pneumoconiosis.

NIOSH researchers evaluated records of 130 former coal miners with two or more post-employment chest radiographs. The researchers classified the radiographs according to international standards, assigned summary severity scores, and defined progression as an increase in severity score over time. Forty-one miners (32%) had post-employment progression of pneumoconiosis, with a median of 3.6 years between first and latest radiograph. Among progressors, six advanced from normal findings on their initial post-employment radiograph to pneumoconiosis, including two who progressed from normal to progressive massive fibrosis.

The results suggest that lifelong surveillance of former coal miners may be needed for continuing health care and monitoring disease status, particularly for those previously denied state or federal black lung benefits.

Hall NB, Blackley DJ, Markle T, Crum JB, Halldin CN, Laney AS. Postexposure progression of pneumoconiosis among former Appalachian coal miners. Am J Ind Med *65*(12):953–958, https://doi.org/10.1002/ajim.23431.

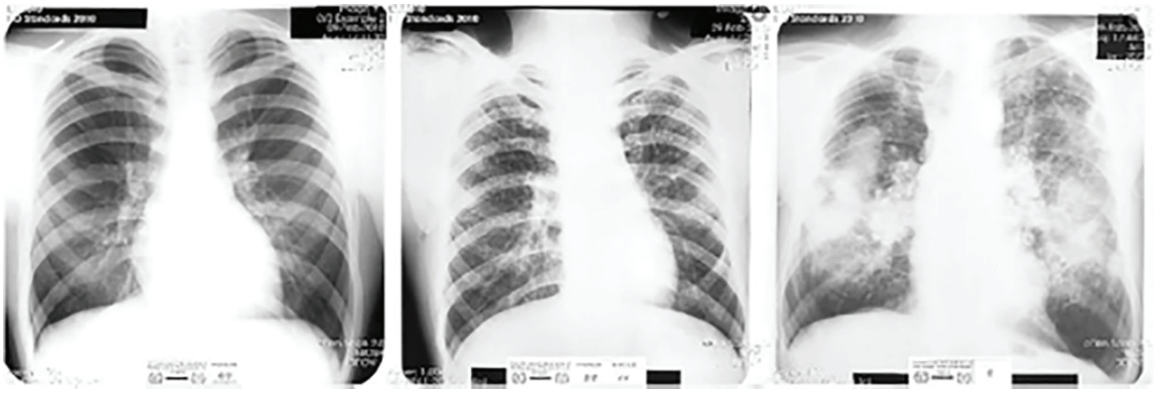

PHOTO BY INTERNATIONAL LABOUR OFFICE

Chest radiographs of healthy lungs (left), simple pneumoconiosis Category 2 (center), and progressive massive fibrosis Category C (right). NIOSH researchers have been studying progression of pneumonoconiosis, or "black lung disease."

PHOTO BY ©LEONID EREMEYCHUK/GETTY IMAGES

A tanker truck is parked alongside an oil rig.

Data Show Need for Better Vehicle Safety

Workers in the U.S. oil and gas extraction industry face work-related fatality rates higher than those of all U.S. workers. Motor vehicle crashes are the leading cause of death in the industry. To address this, NIOSH researchers surveyed 500 onshore oil and gas extraction workers to learn more about worker and employer characteristics, work and commute schedules, and driving behaviors. Their findings, published in the *American Journal of Industrial Medicine*, point to a need for employer interventions to improve motor vehicle safety.

Researchers found over 60% of those surveyed worked 12+ hours per day and had an average daily commute of over 1.75 hours. About one quarter of those surveyed reported falling asleep while driving a work vehicle or feeling "very drowsy" while driving at work more than once a month.

Longer daily commutes, nonstandard work schedules, less sleep, and a lack of employer policies were associated with one or more risky driving-related outcomes. These results show that interventions, such as alternative accommodations and modes of transportation, could help shorten commutes and allow for sufficient sleep.

Hagan-Haynes K, Ramirez-Cardenas A, Wingate KC, Pratt S, Ridl S, Schmick E, Snawder J, Dalsey E, Hale C [2022]. On the road again: a cross-sectional survey examining work schedules, commuting time, and driving-related outcomes among U.S. oil and gas extraction workers. Am J Ind Med *65*(9):749–761, https://doi.org/10.1002/ajim.23405.

Studying How Gloves Protect Against Heat

NIOSH scientists studied ways to improve the protection that firefighter gloves offer in preventing burns to the hand. They set up a one-dimensional (1-D) heat transfer model and simulations through COMSOL Multiphysics software to find out if thermal protective performance could improve if a phase change material layer was integrated into a conventional structural firefighting glove. Published in the *Journal of Environmental and Occupational Health*, the findings showed that thermal protective performance can be improved by using phase change material.

(2–4 times as long) for skin to reach second-degree burn temperature when compared with a conventional glove without phase change material.

> **Xu S, Pollard J, Zhao W [2022]. Modeling and analyzing for thermal protection of firefighters' glove by phase change material. J Environ Occup Health *12*(2):118–127,** https://www.jenvoh.com/jenvoh-articles/modeling-and-analyzing-for-thermal-protection-of-firefighters-glove-by-phase-change-material.pdf.

PHOTO BY ©MATIC GRMEK/GETTY IMAGES

NIOSH researchers studied how gloves made with phase-changing material can better protect firefighters against burns to the hands. The material changes phases when heated, dissipating some of the heat in order to protect the hands.

Parametric studies explored how phase change material thermal properties, layer thickness, and location in a glove's structure could affect hand protection. Researchers discovered specific properties and location produced better thermal protective performance. Overall, modeling suggested that adding a phase change material layer could significantly improve the thermal protective performance of firefighters' gloves. This enhancement showed an increased time

Depression and Diabetes in Workers

Diabetes is a serious, chronic illness, affecting more than 34 million adults. To understand depression among U.S. workers with diabetes, NIOSH researchers analyzed 2014–2018 Behavioral Risk Factor Surveillance System data. The findings, published in *Diabetes Spectrum*, showed that age, gender, and other coexisting chronic diseases were associated

with depression among workers with diabetes.

In the study's findings, the rate of depression among workers with diabetes was 30% higher than those without diabetes. Nearly 30% of young workers aged 18 to 34 years with diabetes reported depression compared with just over 11% of workers over age 65. Young adult workers with diabetes and another chronic condition were almost three times as likely to report depression. Female workers with diabetes in all age groups were more likely to self-report depression than their male counterparts. These findings suggest that addressing depression and diabetes at work may have positive impacts on employees' physical and mental health, particularly among young adult workers.

Kaur H, Scholl JC, Owens-Gary, M [2022]. Depression and diabetes in workers across the life span: addressing the health of America's workforce—Behavioral Risk Factor Surveillance System, 2014–2018. Diabetes Spectr *35*(2):198–206, https://doi.org/10.2337/ds21-0022.

Uranium Miners Have Long-Term Health Effects

PHOTO BY NATIONAL ARCHIVES NEXTGEN CATALOG

A uranium miner uses a pick-axe in this undated photo.

For decades, millions of tons of uranium ore were mined to make nuclear weapons. Unfortunately, uranium mining took a tremendous health toll on those workers. In the 1990s, the federal government passed the Radiation Exposure Compensation Act (RECA) to help those affected by uranium industry employment. In 2022, the act was set to expire. However, the deadline was extended when recently updated NIOSH findings on nonmalignant respiratory disease, published in the *American Journal of Industrial Medicine*, showed that these workers would continue dying of compensable diseases after the scheduled 2022 expiration.

NIOSH scientists found that during 1960–2016, interstitial pulmonary fibrosis death rates in this worker population were 380% higher than the comparable U.S. population. Pneumoconiosis rates were 3,860% higher, and silicosis rates were 4,040% higher. The results revealed that these miners' death rates remained elevated during recent time periods. During the passage of the RECA Extension Act of 2022, these research findings were entered in the U.S. Congressional Record.

Kelly-Reif K, Bertke S, Daniels RD, Richardson DB, Schubauer-Berigan MK [2022]. Nonmalignant respiratory disease mortality in male Colorado Plateau uranium miners, 1960–2016. Am J Ind Med *65*(10):773–782, https://doi.org/10.1002/ajim.23419.

Journal Articles

NOTE: For electronic versions of the NIOSH Bibliography, NIOSHTIC-2 numbers are linked to the corresponding page in the NIOSHTIC-2 Bibliographic Database. Blue type in product titles indicates web links.

Adjei S, Hong K, Molinari N-AM, Bull-Otterson L, Ajani UA, Gundlapalli AV, Harris AM, Hsu J, Kadri SS, Starnes J, Yeoman K, Boehmer TK [2022]. Mortality risk among patients hospitalized primarily for COVID-19 during the Omicron and Delta variant pandemic periods—United States, April 2020–June 2022. MMWR *71*(37):1182–1189.
NIOSHTIC-2: 20066053

Afshari AA, McKinney W, Cumpston JL, Leonard HD, Cumpston JB, Meighan TG, Jackson M, Friend S, Kodali V, Lee EG, Antonini JM [2022]. Development of a thermal spray coating aerosol generator and inhalation exposure system. Toxicol Rep *9*:126–135.
NIOSHTIC-2: 20064517 **|** NORA: Manufacturing / Services

Ahonen EQ, Fujishiro K, Brown S, Wang Y, Palumbo AJ, Michael YL [2022]. Gendered exposures: exploring the role of paid and unpaid work throughout life in U.S. women's cardiovascular health. Crit Public Health *32*(3):357–367.
NIOSHTIC-2: 20061635

Ajayi KM, Khademian Z, Schatzel SJ [2022]. Evaluation of parameters influencing potential gas flow to the mine in the event of a nearby unconventional shale gas well casing breach. Min Metall Explor *39*(6):2333–2341.
NIOSHTIC-2: 20066226 **|** NORA: Mining / Oil and Gas Extraction

Ajayi KM, Khademian Z, Schatzel SJ, Watkins E, Gangrade V [2022]. A discrete fracture network model for prediction of longwall-induced permeability. Min Metall Explor *39*(4):1793–1800.
NIOSHTIC-2: 20065517 **|** NORA: Mining

Alexander BM, Echt A, Qi C, Hammond D, Garcia A [2022]. Engineering controls for respirable crystalline silica hazards: investigations by NIOSH's Engineering and Physical Hazards Branch. Synergist *33*(4):20–25.
NIOSHTIC-2: 20065463 **|** NORA: Construction

Alexander BM, Wurzelbacher SJ, Zeiler RJ, Naber SJ, Kaur H, Grosch JW [2022]. The role of worker age in Ohio workers' compensation claims in the landscaping services industry. J Occup Environ Med *64*(9):766–776.
NIOSHTIC-2: 20065368 | NORA: Construction

Aljaroudi AM, Bhattacharya A, Strauch A, Quinn TD, Williams WJ [2022]. Effect of cooling on static postural balance while wearing firefighter's protective clothing in hot environment. Int J Occup Saf Ergon: Epub ahead of print, 2022 November.
NIOSHTIC-2: 20066294 | NORA: Public Safety

Allison P, Tiesman HM, Wong IS, Bernzweig D, James L, James SM, Navarro KM, Patterson PD [2022]. Working hours, sleep, and fatigue in the public safety sector: a scoping review of the research. Am Ind Med *65*(11):878–897.
NIOSHTIC-2: 20065427 | NORA: Public Safety / Transportation, Warehousing and Utilities

Amman BR, Cossaboom CM, Wendling NM, Harvey RR, Rettler H, Taylor D, Kainulainen MH, Ahmad A, Bunkley P, Godino C, Tong S, Li Y, Uehara A, Kelleher A, Zhang J, Lynch B, Barton Behravesh C, Towner JS [2022]. GPS tracking of free-roaming cats (*Felis catus*) on SARS-CoV-2-infected mink farms in Utah. Viruses *14*(10):2131.
NIOSHTIC-2: 20066290

Asfaw A [2022]. Cost of lost work hours associated with the COVID-19 pandemic—United States, March 2020 through February 2021. Am J Ind Med *65*(1):20–29.
NIOSHTIC-2: 20063943

Asfaw A [2022]. Racial and ethnic disparities in teleworking due to the COVID-19 pandemic in the United States: a mediation analysis. Int J Environ Res Public Health *19*(8):4680.
NIOSHTIC-2: 20065198

Asfaw A [2022]. Racial disparity in potential occupational exposure to COVID-19. J Racial Ethn Health Disparities *9*(5):1726–1739.
NIOSHTIC-2: 20063689

Asfaw A, Pana-Cryan R, Rosa R [2022]. QuickStats: percentage of currently employed adults aged ≥ 18 years who had paid sick leave benefits at last week's job or business, by region—National Health Interview Survey, United States, 2019 and 2020. MMWR *71*(17):611.
NIOSHTIC-2: 20065103

Asfaw A, Quay B, Bushnell T, Pana-Cryan R [2022]. Injuries that happen at work lead to more opioid prescriptions and higher opioid costs. J Occup Environ Med *64*(12):e823–e832.
NIOSHTIC-2: 20066083

Attfield KR, Zalay M, Zwack LM, Glassford EK, LeBouf RF, Materna BL [2022]. Assessment of worker chemical exposures in California vape shops. J Occup Environ Hyg *19*(4):197–209.
NIOSHTIC-2: 20064664 | NORA: Services

Attwood WR, Quinn T, Chiu SK, Li JF, Steege AL [2022]. Reducing occupational exposure to SARS-CoV-2: a survey of changes in caseload and controls among medical examiner and coroners' offices in Pennsylvania during 2020. J Occup Environ Hyg *19*(5):256–265.
NIOSHTIC-2: 20064812 | NORA: Services

Azman AS, Camargo HE, Kim B [2022]. Area noise assessment at surface stone, sand, and gravel mines: application for reducing worker noise exposure. Min Metall Explor *39*(2):467–483.
NIOSHTIC-2: 20064370 | NORA: Mining

Baker KE, Compton D, Fechter-Leggett ED, Grasso C, Kronk CA [2022]. Will clinical standards not be part of the choir? Harmonization between the HL7 gender harmony project model and the NASEM measuring sex, gender identity, and sexual orientation report in the United States. J Am Med Inform Assoc *30*(1):83–93.
NIOSHTIC-2: 20066620

Bartels J, Estill CF, Chen I-C, Neu D [2022]. Laboratory study of physical barrier efficiency for worker protection against SARS-CoV-2 while standing or sitting. Aerosol Sci Tech *56*(3):295–303.
NIOSHTIC-2: 20064380 | NORA: Construction / Services / Wholesale and Retail Trade

Bauerle TJ, Sammarco JJ, Dugdale ZJ, Dawson D [2022]. The human factors of mineworker fatigue: an overview on prevalence, mitigation, and what's next. Am J Ind Med *65*(11):832–839.
NIOSHTIC-2: 20063883 | NORA: Mining

Baur R, Shane HL, Weatherly LM, Lukomska E, Kashon M, Anderson SE [2022]. Exposure to the immunomodulatory chemical triclosan differentially impacts immune cell populations in the skin of haired (BALB/c) and hairless (SKH1) mice. Toxicol Rep *9*:1766–1776.
NIOSHTIC-2: 20066162 | NORA: Manufacturing

Beaudry MF, Beaudry AG, Bradley JP, Davis S, Baker BA, Holland G, Jacobson BR, Chetlin RD [2022]. Retrospective analysis of ulnar collateral ligament reconstructions in major league baseball pitchers: a comparison of the "tall and fall" versus "drop and drive" pitching styles. Orthop J Sports Med *10*(10): 6 pages.
NIOSHTIC-2: 20066325

Bennett JS, Mahmoud S, Dietrich W, Jones B, Hosni M [2022]. Evaluating vacant middle seats and masks as Coronavirus exposure reduction strategies in aircraft cabins using particle tracer experiments and computational fluid dynamics simulations. Eng Rep: Epub ahead of print, 2022 November.
NIOSHTIC-2: 20066408 | NORA: Transportation, Warehousing and Utilities

Billock RM, Groenewold MR, Sweeney MH, de Perio MA, Gaughan DM, Luckhaupt SE [2022]. Reported exposure trends among healthcare personnel COVID-19 cases, USA, March 2020–March 2021. Am J Infect Control *50*(5):548–554.
NIOSHTIC-2: 20065009

Billock RM, Steege AL, Miniño A [2022]. COVID-19 mortality by usual occupation and industry: 46 states and New York City, United States, 2020. Natl Vital Stat Rep *71*(6):1–33.
NIOSHTIC-2: 20067060

Billock RM, Steege AL, Miniño A [2022]. QuickStats: age-adjusted drug overdose death rates among workers aged 16–64 years in usual occupation groups with the highest drug overdose death rates—National Vital Statistics System, United States, 2020. MMWR *71*(29):948.
NIOSHTIC-2: 20065648 | NORA: Construction

Billock RM, Sweeney MH, Steege AL, Michaels R, Luckhaupt SE [2022]. Identifying essential critical infrastructure workers during the COVID-19 pandemic using standardized industry codes. Am J Ind Med *65*(7):548–555.
NIOSHTIC-2: 20065241

Blachere FM, Lemons AR, Coyle JP, Derk RC, Lindsley WG, Beezhold DH, Woodfork K, Duling MG, Boutin B, Boots T, Harris JR, Nurkiewicz T, Noti JD [2022]. Face mask fit modifications that improve source control performance. Am J Infect Control *50*(2):133–140.
NIOSHTIC-2: 20064288

Blackley BH, Anderson KR, Panagakos F, Chipps T, Virji MA [2022]. Efficacy of dental evacuation systems for aerosol exposure mitigation in dental clinic settings. J Occup Environ Hyg *19*(5):281–294.
NIOSHTIC-2: 20065244 | NORA: Healthcare and Social Assistance

Blackley BH, Groth CP, Cox-Ganser JM, Fortner AR, LeBouf RF, Liang X, Virji MA [2022]. Determinants of task-based exposures to alpha-diketones in coffee roasting and packaging facilities using a Bayesian model averaging approach. Front Public Health *10*:878907.
NIOSHTIC-2: 20065552

Boal WL, Li J, Silver SR [2022]. Health care access among essential critical infrastructure workers, 31 states, 2017–2018. Public Health Rep *137*(2):301–309.
NIOSHTIC-2: 20062335

Boden LI, Asfaw A, Busey A, Tripodis Y, O'Leary PK, Applebaum KM, Stokes AC, Fox MP [2022]. Increased all-cause mortality following occupational injury: a comparison of two states. Occup Environ Med *79*(12):816–823.
NIOSHTIC-2: 20066217

Bohn V, Morata TC, Roggia S, Zucki F, Pouyatos B, Venet T, Krieg E, José MR, de Lacerda ABM [2022]. Temporary and permanent auditory effects associated with occupational coexposure to low levels of noise and solvents. Int J Environ Res Public Health *19*(16):9894.
NIOSHTIC-2: 20065999 | NORA: Construction / Manufacturing

Bowers LN, Ranpara AC, Roach KA, Knepp AK, Arnold ED, Stefaniak AB, Virji MA [2022]. Comparison of product safety data sheet ingredient lists with skin irritants and sensitizers present in a convenience sample of light-curing resins used in additive manufacturing. Regul Toxicol Pharmacol *133*:105198.
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