eNews: Volume 21, Number 6 (October 2023)

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From the Director's Desk

John Howard, M.D., Director, NIOSH

Advancing Nanotechnology Worker Safety for 20 Years

Since 2004, the NIOSH Nanotechnology Research Center (NTRC) has kept NIOSH at the forefront of research and hazard prevention for nanotechnology safety in the workplace. On October 9, we celebrate National Nanotechnology Day. Let's take this occasion to look back at almost two decades of NTRC achievements in protecting workers exposed to engineered nanomaterials.

Nanotechnology is the manipulation of matter on a near-atomic scale to produce new structures, materials, and devices. Engineered nanomaterials are produced to have at least one dimension between about 1 and 100 nanometers. These materials offer the possibility to advance many industries, such as medicine, energy, transportation, and environmental science.

Many consumer products, like clothing, electronics, and coatings, already use engineered nanomaterials. At the nanoscale size, materials begin to exhibit unique properties that differ from larger forms of the same material. These properties can affect biological systems differently, creating novel worker safety and health challenges.

NIOSH was one of the first U.S. federal agencies to study the effects of workplace exposures to engineered nanomaterials and to propose guidance to ensure worker safety. In 2005, NIOSH engaged the scientific and industrial communities to develop safe approaches to nanotechnology . NTRC scientists were also among the first to conduct research to develop occupational exposure limits for certain nanomaterials. Based on this research, NIOSH published guidance documents for worker safety for titanium dioxide, carbon nanotubes and carbon nanofibers , and silver nanomaterials .

Large numbers of engineered nanomaterials are constantly emerging. This makes it challenging to keep up with the development of recommended exposure limits for organizations or employers. Despite these challenges, NTRC has made important contributions to protect workers.

NTRC assesses workplace processes, materials, and control technologies associated with nanotechnology and additive manufacturing processes including 3D printing. Since 2004, the Center has provided over 140 cost-free, on-site exposure assessments at advanced manufacturing facilities.

In 2017, NTRC researchers established a nationwide registry. They aim to recruit companies to provide workplace records in facilities where carbon nanofibers are handled to better evaluate worker health over time. In addition, NIOSH has published numerous guidance documents on nanomaterial worker health and safety. These include recommendations for laboratories and small businesses, workplace design, and risk assessment.

Looking to the future, we expect nanotechnology will continue to evolve and transform many industries. NTRC will continue identifying possible new hazards and risks to workers. They will focus their research on high priority areas and communicate their results. These results will lay the scientific foundation for policy and standards to protect workers from nanomaterial exposures.

In 2024, NIOSH kicks off its yearlong recognition of NTRC's 20-year anniversary. NIOSH Science blogs throughout the year will highlight achievements and factors influencing possible future research areas in this rapidly changing technology. Don't miss out! Subscribe to the NIOSH Science Blog, if you do not already. If you have any questions about the NTRC or its activities, contact us at nano@cdc.gov.

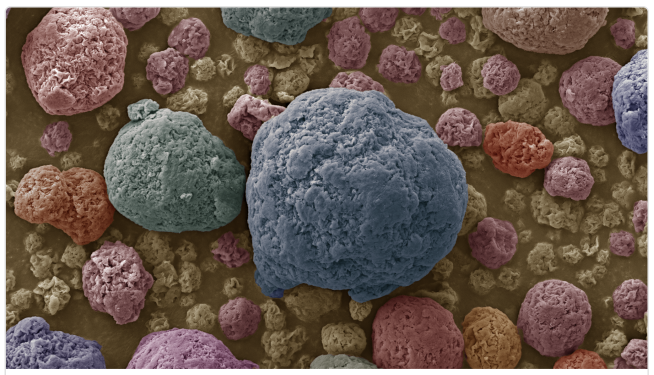
Research Rounds

Paid Sick Leave Among U.S. Healthcare Personnel, April 2022

Study authors: Marie A. de Perio, MD, NIOSH; Anup Srivastav, PhD, Leidos; Hilda Razzaghi, PhD, CDC; A. Scott Laney, PhD, NIOSH; and Carla L. Black, PhD, CDC

Why is this study important?

Paid sick leave is critical for all workers. For healthcare workers, who may face exposure to infectious diseases, paid sick leave enables them to stay home when ill and avoid infecting others. In public health, it is important to understand how many healthcare workers have paid sick leave and which occupational or other factors affect the likelihood of having it.



This image shows nanoclay particles magnified at 2100x using a scanning electron microscope.

Photo by NIOSH

In This Issue:

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Anne Blank, Research Rounds
Kiana Harper, Highlights & Monthly Features

How did you do the study?
We looked at the results of a March 29–April 19, 2022, internet survey of healthcare workers designed to estimate flu and COVID-19 vaccination rates. As part of the survey, respondents answered the question "Does your employer offer paid sick leave?" We then applied statistical methods to estimate the percentage of healthcare workers reporting paid sick leave by occupation, work setting and type, as well as flu and COVID-19 vaccination status.

What did you find?
Overall, most (73%) survey respondents in healthcare reported paid sick leave. However, differences occurred by occupation, type of work, sex, and region. The greatest percentage of paid sick leave was among non-clinical healthcare workers at 81%, and the lowest was among assistants and aides at 64%. By work setting, the greatest percentage was among hospital workers at 79%; the lowest was among long-term care and home healthcare workers at 65%. Female workers, licensed independent healthcare workers, and workers in the Midwest and South were less likely than other groups to report paid sick leave. Additionally, paid sick leave was linked to a greater likelihood of vaccination for flu and COVID-19.

What are the next steps?
Increasing healthcare workers' access to paid sick leave may help prevent the spread of infectious diseases in healthcare settings.

Health Conditions Among Male Workers in Mining and Other Industries Reliant on Manual Labor Occupations: National Health Interview Survey, 2007–2018

NIOSH study authors: Tashina Robinson, MS; Aaron Sussell, PhD; Kenneth Scott, PhD; and Gerald Poplin, PhD

Why is this study important?
Mining is well recognized as dangerous work with many potential hazards. To protect workers, it is important to understand how often illness and injury occur in mining compared to other manual occupations.

How did you do the study?
Using the National Health Interview Survey 2007–2018, we calculated the frequency of health issues among miners and manual workers in other industries. Due to a small number of female survey respondents, our study included 105,409 male participants in diverse manual, as well as nonmanual, industries:

- Mining (337)
- Oil and gas (795)
- Construction (12,494)
- Manufacturing (13,934)
- Transportation and material moving workers (6,426)
- Agriculture, forestry, and fishing (2,564)
- Nonmanual (68,859)

We used a statistical method, known as weighting, so that each industry group represented a larger population of workers in that industry.

What did you find?
Compared with other workers, miners reported more health issues. High blood pressure affected nearly one third (27.9%) of miners—the highest percentage found. Compared with nonmanual workers, miners younger than 55 years reported more high blood pressure. Hearing loss was most frequent among miners, with nearly 11% reporting moderate-to-deaf hearing loss. Compared with nonmanual workers, miners reported 24% more lower back pain and nearly two times more leg pain related to lower back pain in the past 3 months. Similarly, miners reported 26% more joint pain in the past 30 days. Compared to nonmanual workers, construction workers also reported experiencing more pain.

What are the next steps?
More research is needed to understand work-related hazards that increase the risk of high blood pressure and long-term pain among miners and other manual workers.

Highlights

NIOSH is Seeking a Director for World Trade Center Health Program Division
NIOSH seeks qualified candidates to serve as the Director of the World Trade Center Health Program Division. Follow the links for General Health Science or Medical Officer for more information and to apply. The deadline to apply is October 9.

National Occupational Injury Research Symposium Papers Available
Read all about it! A special issue of the Journal of Safety Research featuring select papers from National Occupational Injury Research Symposium (NOIRS) 2022 is available. Access to this issue is available through February 2024. Bookmark the NOIRS webpage for future related events.

NIOSH and the Loss Prevention Research Council Sign New Partnership Agreement
NIOSH and the Loss Prevention Research Council signed an agreement, combining their expertise to promote best practices for the retail industry. For more information about the partnership or the NIOSH Wholesale and Retail Trade Program, contact Adrienne Eastlake.

Monthly Features

New Communication Products & Reports

FACE Reports

- Foreman Falls 17 Feet From Leading Edge of Roof Deck—Washington (slideshow)
- Roadside Safety Hazard Alert—Oregon
- Two Workers Killed in Boom Lift Rollover—Oregon

Health Hazard Evaluations

- Evaluation of Potential Exposures to Railway Hazardous Materials Inspectors

Safety and Health Advisory

- Personal Protective Equipment Recommendations for Response to Chemical Suicide Incidents

Toolkit

- How Can Fire Departments Support the National Firefighter Registry for Cancer?

Workplace Solutions

- Preventing Deaths and Injuries to Firefighters Working at Strip Mall Fires

NIOSH Science Blog

Sign up to receive updates about new NIOSH Science Blogs delivered directly to your inbox! Here are the blogs from last month:

- Labor Day 2023: Statement by NIOSH Director, John Howard, MD
- Respiratory Protection Week 2023: Filling in the Gaps
- 2023 Day of Service and Remembrance: Statement From Program Administrator, John Howard, MD
- Promoting Best Practices for Clinical Care of 9/11-Exposed Members
- Family Farms: When Working From Home Can Put Children at Risk
- Clearing Up Myths About Older Workers While Understanding and Supporting an Aging Workforce
- When Data Are Not There, What Do We Do? A Multi-step Approach to Occupational Health Inequity Research
- Safety Culture in Healthcare Settings

Federal Register Notices

Advisory Board on Radiation and Worker Health, National Institute for Occupational Safety and Health
The notice was posted on August 28. Comments must be received by October 5. The meeting will be held October 12.

Proposed Data Collection Submitted for Public Comment and Recommendations: Exposures, Health Effects, and Controls of Chemicals From Thermal Spray Coating
The notice was posted on August 7. Comments must be received by October 6.

Request for Public Comment on the Draft Immediately Dangerous to Life or Health (IDLH) Value Document for Hydrogen Chloride
The notice was posted on August 10. Comments must be received by October 10.

World Trade Center Health Program; Notices of Funding Opportunities Public Information Sessions
The notice was posted on September 25. Public information sessions will be held on October 17 and 18.

Proposed Data Collection Submitted for Public Comment and Recommendations: Fire Fighter Fatality Investigation and Prevention Program (FFFIPP) Survey
The notice was posted on August 21. Comments must be received by October 20.

Proposed Data Collection Submitted for Public Comment and Recommendations: Assessing Fatigue and Fatigue Management in U.S. Onshore Oil and Gas Extraction
The notice was posted on August 21. Comments must be received by October 20.

World Trade Center Health Program; Youth Research Cohort; Request for Information
The notice was posted on August 18. Comments must be received by October 23.

Advisory Board on Radiation and Worker Health, Subcommittee on Procedures Reviews, National Institute for Occupational Safety and Health
The notice was posted on August 28. Comments must be received by November 9. The meeting will be held November 16.

NORA

Transportation, Warehousing & Utilities NORA Council Meeting
Join the Transportation, Warehousing and Utilities NORA council meeting for a discussion on October 10, 1:00–4:00 p.m. (ET). This title of the talk is "Safety and Health Among Courier and Delivery Drivers." Contact Mary O'Connor for the meeting invitation.

Immune, Infection, and Dermal Disease Prevention NORA Council Webinar
Join the Immune, Infection, and Dermal Disease Prevention NORA council meeting for a discussion on October 19, 12:00–1:30 p.m. (ET). The title of the talk is "Occupational Risks to Infectious Agents Among Wastewater Workers: Prevention, Challenges, and Research Opportunities." Contact Marissa Alexander-Scott for the meeting invitation.

Healthy Work Design & Wellbeing NORA Council Meeting
Join the Healthy Work Design & Wellbeing NORA council for their quarterly meeting on October 26, 3:00–4:30 p.m. (ET). Contact Naomi Swanson for the meeting invitation.

News from Our Partners

OSHA Announces Compliance Initiative to Protect Workers from Silica Exposure in Stone Fabrication Installation
OSHA recently launched a new initiative focused on enhancing enforcement and providing compliance assistance to protect workers in the engineered stone fabrication and installation industries. As part of the initiative, OSHA is sending affected employers and stakeholders information on the initiative, including fact sheets on dust control methods and safer work practices for engineered stone manufacturing, finishing and installation operations.

Conferences, Meetings, Webinars, & Events

This page provides a list of publicly available occupational safety and health-related conferences, meetings, webinars, and events sponsored by NIOSH as well as other government agencies, and nongovernment agencies, such as universities, professional societies, and organizations.

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Last Reviewed: September 29, 2023
Source: National Institute for Occupational Safety and Health (NIOSH)