

# NIOSH HEALTH HAZARD EVALUATION (HHE) PROGRAM

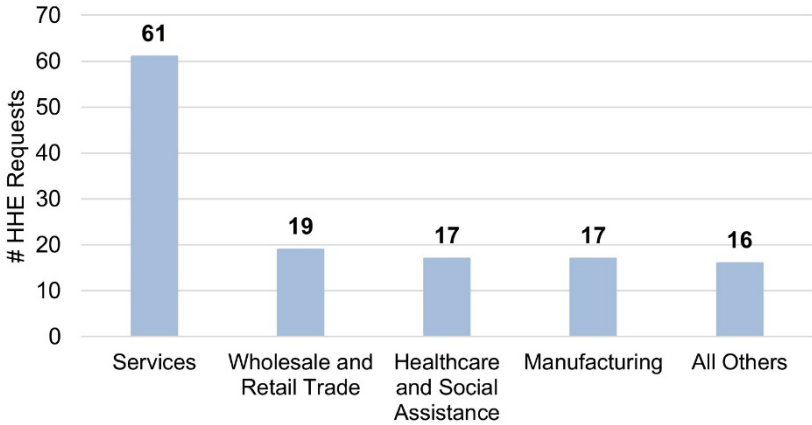
2021 Annual Report



# HHE Requests in 2021

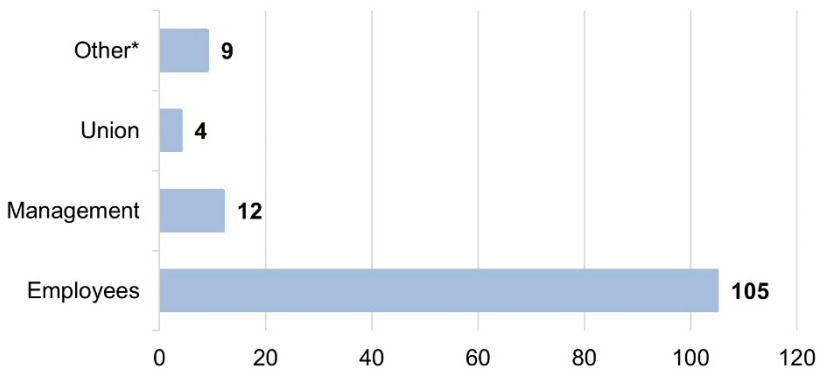
130 Requests

## Top 4 Sectors by HHE Request in 2021



Source: NIOSH HHE Program Records

## HHE Requests by Requestor Type



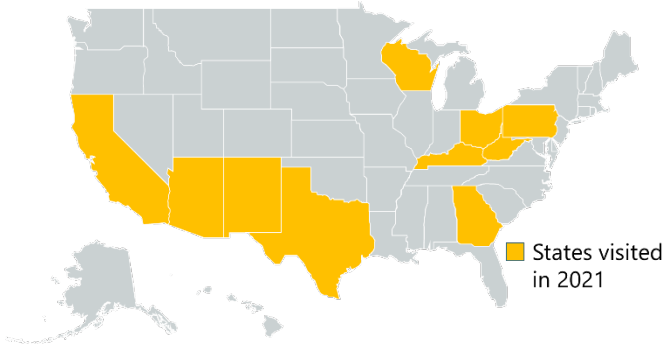
\*Other = anonymous, family member, outside US, other non-emp

Source: NIOSH HHE Program Records

# 19 Site Visits and Emergency Response Deployments



39 Workplaces



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## Outreach



[HHE website](#) viewed **40,689** times

HHE reports downloaded **16,694** times



**7** New HHE reports published



Most downloaded report of 2021 (**680** downloads)

*Evaluation of Metals Exposure in an Architectural Metal Fabrication Shop*



<https://www.cdc.gov/niosh/hhe/reports/pdfs/2019-0215-3371.pdf>



**32** Presentations



**46** Peer-reviewed publications

# Examples from 2021

## Exposure to Lead During Residential Water Line Replacement Activities

A city water department was concerned about lead exposure among crews replacing lead water lines servicing residential homes.

### What NIOSH Did

- Conducted confidential medical interviews.
- Collected personal air samples for lead.
- Conducted colorimetric wipe sampling for lead.



Photo by ©iStock/Getty Images Plus

### Key Findings

- Some employees had elevated blood lead levels.
- Lead was present on employees' hands and work gloves.
- Lead was found on surfaces inside trucks and in the locker room.

### Recommendations



Reduce employees' exposure to lead through improved work practices.

- Improve surveillance, training, and work practices.
- Improve personal protective equipment use/training.
- Implement procedures and further train employees to keep their hands clean and free of lead.
- Improve cleaning procedures.



Consider purchasing colorimetric wipe test kits and periodically test hands, surfaces, and tools for lead.

This report is available at:

<https://www.cdc.gov/niosh/hhe/reports/pdfs/2019-0192-3377.pdf>

# Evaluation of Exposures to Metals and a Perceived Excess of Cancer Cases in a Train Maintenance Facility

A union at a train maintenance facility was concerned about employee exposure to metals and a perceived excess of cancer.

## What NIOSH Did

- Spoke informally to employees in each support shop about health and safety concerns.
- Measured employee exposures to metals in the air.
- Measured blood lead levels of electronics shop employees.
- Administered medical surveys.



Photo by NIOSH

## Key Findings

- NIOSH found no overexposures to metals, and electronic shop employees' blood lead levels were within the normal range.
- Training and hazard communication could be improved.
- Four employees reported cancer, and all four employees were diagnosed with different types of cancers.

## Recommendations



Improve communication and training.



Improve hygiene and cleaning practices.



Address other health and safety issues we identified like:

- Spray paint with parts in the appropriate orientation.
- Follow NIOSH criteria when monitoring for noise.
- Remove latex gloves from the facility.

This report is available at:

<https://www.cdc.gov/niosh/hhe/reports/pdfs/2019-0106-3378.pdf>

## HHE Program and Virtual Site Visits

During the COVID-19 pandemic, the HHE Program used existing resources and new technologies to help perform site visits virtually, allowing for more scalable and flexible use of assets. A virtual hazard assessment could include:

- Performing task-based observations
- Observing work practices
- Assessing hazard controls (e.g., PPE use)
- Conducting medical interviews via teleconferencing
- Administering questionnaires to workers

### Examples

A company that assembles medical devices with an adhesive constructed a small bench-top style exhaust ventilation hood to partially enclose the process. However, they were unsure of its effectiveness. Investigators met virtually with company managers to view the assembly process and homemade benchtop exhaust hood. This virtual approach permitted:

- Better understanding of the process
- More informed guidance on appropriate local exhaust system design for the operation

Investigators virtually toured a pork processing facility as part of an HHE evaluating musculoskeletal risks, peracetic acid exposures, and COVID-19 mitigation strategies. The company had an existing process to use a video conferencing platform connected to a helmet-camera. The virtual tour permitted investigators to:

- Better understand of the scope of the process
- Inclusion of more NIOSH staff than would normally travel to the site (educational opportunity for non-project staff)

### Challenges

- Helmet camera operator could not hear us
- Could not interact with workers
- Hard to converse with facility noise
- Limited Wi-Fi service caused connection issues

# Evaluation of Exposures to Styrene during Cured-in-Place Pipe (CIPP) Liner Preparation and Pipe Repairs using Hot Water and Steam

The company was interested in characterizing and controlling styrene exposures during preparation and installation of CIPP.

## What NIOSH Did

- Observed the work process and personal protective equipment use.
- Assessed exposures and emissions of styrene and other volatile organic compounds during preparation and installation of CIPP liners.



Photo by NIOSH

## Key Findings

- Permit-required confined space entry protocols were not always followed.
- Employees were exposed to styrene emissions from cured liner and other process material.
- Worksite conditions and unexpected process difficulties increased employee exposure to the wet liner.

## Recommendations



Reduce exposures to styrene and other process emissions.



Monitor employee exposure to styrene during short-term tasks.



Continue to educate employees on safe work practices for confined space entry, as well as the safety and health hazards associated with process ingredients.

This report is available at:

<https://www.cdc.gov/niosh/hhe/reports/pdfs/2019-0080-3379.pdf>

# Evaluation of Indoor Environmental Quality and Health Concerns Among Employees of a Public Elementary School

Public elementary school employees were concerned that they might be experiencing a greater burden of general and reproductive medical conditions than was typical.

## What NIOSH Did

- Visually inspected every room in the school and their associated HVAC systems.
- Measured temperature, relative humidity, carbon monoxide, and carbon dioxide levels.
- Interviewed employees about their work and their health.



Photo by NIOSH

## Key Findings

- No evidence of active mold growth in the school.
- Classroom unit ventilators were approaching the end of their expected service life.
- Reproductive medical conditions were not more common among school employees compared with the U.S. population or a previous study of U.S. teachers.

## Recommendations



Prioritize renovating/replacing classroom ventilation systems.



Start an indoor environmental quality management program.



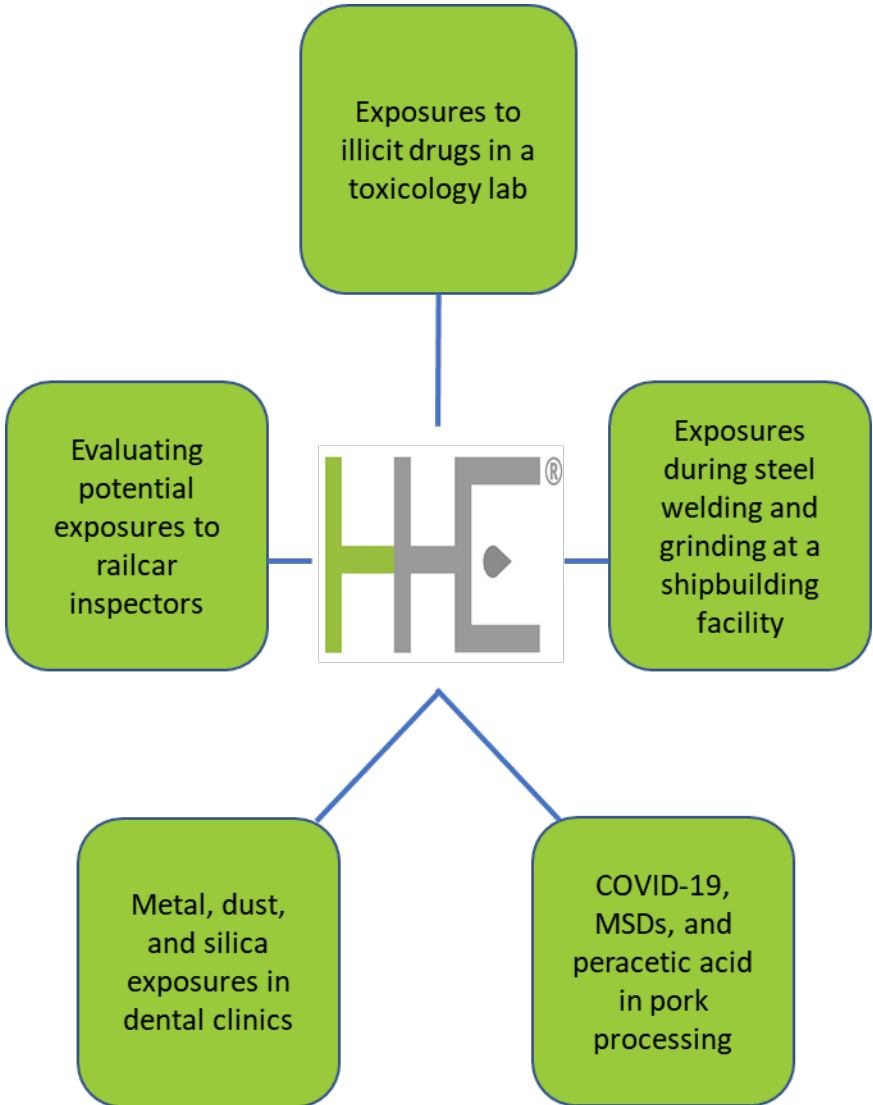
Improve communication to address employee concerns.

This report is available at:

<https://www.cdc.gov/niosh/hhe/reports/pdfs/2019-0156-3382.pdf>



## What NIOSH is Looking at in 2022



## The HHE Program Turns 50!

In 2021, the NIOSH HHE Program turned 50 years old! Here are some of the highlights since the Program began.

### Requests

- Completed evaluations of over 16,700 requests from workers, unions, and employers.
- Conducted evaluations in all 50 states and the U.S. territories of Puerto Rico and the U.S. Virgin Islands.
- Produced over 3,000 final reports, which are available on the [NIOSH HHE Program](#) website and can be searched by title, industry, hazard, health effect, state/region, and date.
- Conducted HHEs in nearly every industry sector in small and medium sized businesses and large corporations.

### Impact

Workplaces, agencies, organizations, researchers, and others use HHEs findings and recommendations to improve worker safety and health. Some NIOSH products with an HHE component include:

- Musculoskeletal Disorders in [construction](#) and [farm workers](#)
- [Latex gloves in healthcare](#)
- [Hypersensitivity pneumonitis and metalworking fluids](#)
- [Flavoring-related lung disease](#)
- [Indoor environmental quality](#) in [general buildings](#) and [schools](#)
- [Carbon monoxide poisonings](#) on and around houseboats using gasoline-powered generators

### Emergency Responses

The HHE Program has provided assistance and expertise to national emergencies like the [Exxon Valdez oil spill, 9/11](#), Anthrax, [Hurricane Katrina](#), [Deepwater Horizon oil spill](#), Ebola, COVID-19, and more.

Find more information on the 50<sup>th</sup> Anniversary of the NIOSH Health Hazard Evaluation Program at:

<https://blogs.cdc.gov/niosh-science-blog/2021/11/18/hhe/>.



**The mission of the NIOSH Health Hazard Evaluation Program is to respond to requests from employees, employers, and union representatives to evaluate potential health hazards in their workplace.**

These evaluations are done at no cost to the requestor. Once the evaluation is complete, recommendations are made on ways to reduce or eliminate identified hazards. Health Hazard Evaluations can help reduce hazards and create healthier workplaces.



If you have questions, please contact the HHE Program  
Monday–Friday, 9 a.m. – 4:30 p.m. EST  
Phone: 1-513-841-4382



[HHERequestHelp@cdc.gov](mailto:HHERequestHelp@cdc.gov)



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