



# Understanding Long-term Respiratory Morbidity Among Former Styrene-Exposed Workers: Medical Survey

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Month XX, 2020

# Objectives

- Review previous industrial hygiene and mortalities studies from boatbuilders exposed to styrene
- Review the known health effects from styrene exposure
- Introduce a new NIOSH study involving workers with previous styrene exposure

# Who is NIOSH?

- National Institute for Occupational Safety and Health (NIOSH) is a federal public health agency and is a part of the Centers for Disease Control and Prevention (CDC)
- NIOSH is responsible for conducting research and making recommendations for the prevention of work-related illnesses and injuries
- NIOSH is not part of the Occupational Safety and Health Administration (OSHA) and does not enforce workplace health and safety laws

# Why has NIOSH invited me?

- You worked at either Uniflite or Tollycraft during 1959 and 1978
- You are part of the NIOSH boatbuilder cohort




# What is styrene?

- Synthetic chemical used in the manufacturing of reinforced plastics and synthetic rubbers
- In 2008, over 12 billion pounds of styrene were produced in the U.S.
- 90,000 workers are exposed to styrene at 5,000 U.S. manufacturing plants
- NIOSH recommended exposure limit is 50 parts per million

# How are workers exposed to styrene?

- Inhalation
- Skin absorption
- Ingestion

# What are known health effects of styrene exposure?

- Color vision changes
  - Hearing loss
  - Cognitive impairment
  - Cancer
  - Non-malignant respiratory diseases
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# What have previous studies told us?

- Mortality analyses for a boatbuilder cohort of 5,204 workers
  - 2,063 had high styrene exposure
  - 3,141 had minimal styrene exposure
  - Individuals who worked in Fibrous glass or Lamination department had high styrene exposure
  - Mean 8-hour styrene concentrations for all high-exposure jobs in the two plants were 42.5 and 71.7 parts per million
  - High styrene-exposed workers had two times higher death rate from COPD compared with general population




# What have previous studies told us?

- Analyzed 157 decedents from the boatbuilder cohort
  - Investigated workers who died at age <55 years
  - Identified one worker who died from bronchiolitis in early 30's
  - Identified nine workers who died from COPD at age <55 years
- Published a paper that identified multiple cases of respiratory disease among styrene-exposed workers

# What's next?

- Conducting a research study to understand the long-term respiratory health effects among styrene-exposed workers
- Developing effective prevention strategies for current and future styrene-exposed workers

# What will I be asked to do if I participate?

- Questionnaire
  - Color Vision Test
  - Blood Test
  - Breathing tests
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- A decorative horizontal bar at the bottom of the slide, composed of several colored rectangular segments: brown, dark red, cyan, light green, orange, and blue.

# When, where, for how long will you need me?

- Month XX, 20XX or Month XX, 20XX
- Location
- Two and a half hours

# What are the benefits?

- Results beneficial to current and future styrene-exposed workers


## Will I be reimbursed or paid?

- \$50 gift card

# What are the risks?

- Discomfort due to medical tests
- Recommendations for further medical tests by your personal healthcare provider
- Unintentional disclosure of personal identifiable information

# What precautions will NIOSH take to minimize risks?

- Confirm participants' contradiction to any medical procedures
  - Use trained phlebotomists for blood draw
  - Provide list of free and income-based clinics
  - Store personal identifiable information securely
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# Is my participation voluntary?

- Your participation is voluntary
- You may participate in some or all study procedures offered
- You may drop out of the study at any time without penalty



# What will happen with the results of the study?

- Present study findings
  - Boat builder cohorts
  - Labor unions
  - Scientific research communities
- Develop effective prevention strategies for current and future styrene-exposed workers

# Will my personal information be kept private?

- Certificate of Confidentiality
- Not reveal information without consent
- Store personal identifiable information securely

# Questions?

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