



MICHIGAN STATE UNIVERSITY: Prevention of work-related injuries & illnesses through research & investigation

INVESTIGATION/RESEARCH Prevent Work-Related Asthma in the Transportation Manufacturing Industry

From 1988 to 2023, 1,255 cases of work-related asthma (WRA) in the transportation equipment manufacturing industry were identified, accounting for 31% of all confirmed cases in Michigan. In 2023, there were 189,081 transportation equipment manufacturing workers in Michigan (source: BLS QCEW Data Search). Workers in this industry are potentially exposed to a number of asthma-causing agents, including: isocyanates, glues and epoxies, welding fume, metal working fluids, formaldehyde and cleaning agents. Some examples:

- A male in his 40s died from an asthma attack from exposure to welding fume where he worked as a welding technician at an auto parts manufacturer.
- A female in her 60s experienced an exacerbation of her pre-existing asthma after the automotive parts supplier where she worked began using a new detergent to clean metal components.
- A female in her 30s experienced an exacerbation of her pre-existing childhood asthma from working in a hot and dusty environment while working on the assembly line at a car seat manufacturer.
- A male in his 50s was diagnosed with occupational asthma after twenty years of exposure to leather dust, dyes, and paint at an automotive interiors manufacturer, where he worked as a labor team leader.

TO PREVENT THE DEVELOPMENT OF WRA IN THE TRANSPORTATION MANUFACTURING INDUSTRY

- **Employers should recognize** there are many substances that can cause WRA from a variety of activities, including working near but not directly with those substances. Exposures below OSHA-established permissible limits can still cause WRA.
- **Employers should take appropriate steps to minimize employee** exposures based on review of Safety Data Sheets (SDS). Engineering controls (e.g. product substitution, improving ventilation), modification of existing work practices including administrative changes, and personal protection equipment options should be explored.
- **Get involved!** Transportation manufacturing workers should familiarize themselves with their workplace health and safety programs, the health effects of the chemicals they work with or are used near where they work, engineering controls in place (i.e. ventilation) and personal protective equipment.
- **Health care professionals should take a detailed history** of possible workplace triggers of patients who present with adult onset asthma. *Tasks performed*, chemicals patients work with or are used near where the patient works, and any reported exposures (e.g. spill, leaks, etc.) should be thoroughly explored.
- **Health care professionals, employers and employees should also be** aware that exposures in the transportation manufacturing industry can cause other illnesses, such as cancer, metal fume fever, COPD and irritant-based symptoms at concentrations below permissible workplace exposure limits.

DID YOU KNOW?

- Ruptured or disconnected hoses and chemical spills can cause an acute exposure, resulting in RADS.
- Metal working fluids, isocyanates and welding fume are the top exposures associated with WRA in the transportation equipment manufacturing industry in Michigan.
- WRA commonly occurs in work areas that are within OSHA permissible exposure limits.
- 1 in 6 co-workers of a worker with WRA who were interviewed about their health reported breathing symptoms consistent with WRA.

MIOSHA website - regulations and services for employers:
<https://www.michigan.gov/leo/bureaus-agencies/miosha/standards>

National Institute for Occupational Safety & Health (NIOSH) Program Portfolio - Manufacturing:
<https://www.cdc.gov/niosh/research-programs/portfolio/manufacturing.html>

Occupational Safety & Health Administration (OSHA) Industry-Specific Resources:
https://www.osha.gov/dcsp/compliance_assistance/industry.html

MSU Occupational & Environmental Medicine Newsletter
<https://oem.msu.edu/images/newsletter/ProjectSensor/Sv19n2.pdf>