MICHIGAN

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 2013, 1,134 cases of work-related asthma (WRA) in the transportation equipment manufacturing industry were identified, accounting for 35% of all confirmed cases in Michigan. In 2014, there were 176,275 transportation equipment manufacturing workers in Michigan. 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 20s developed asthma after working several months through a temporary employment agency for an auto parts manufacturer. He hand-sanded auto parts. He was exposed to formaldehyde. He left this job because of his breathing problems.
- A female in her 40s worked as an inspector at a bus seat manufacturer. After doing this job for 5 years, she developed WRA from exposure to MDI-containing glue.
- A female in her 50s worked at an airplane parts manufacturer for 10 years before she developed WRA. She was exposed to epoxy and cyanoacrylate. She assembled and tested airplane parts.
- A female in her 20s worked as a CNC machine operator at an auto manufacturer. She developed a type of WRA, Reactive Airways Dysfunction Syndrome (RADS), after an acute exposure to an accidental mixture of cleaning chemicals that occurred near her work area.
- A male in his 40s developed WRA after working more than 10 years as a pipefitter at an auto manufacturer. He had been exposed to metal working fluids while doing maintenance in a machining department.

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:
http://www.michigan.gov/lara/0,4601,7-154-11407---,00.html

National Institute for Occupational Safety & Health (NIOSH) Program Portfolio - Manufacturing:
http://www.cdc.gov/niosh/programs/manuf/default.html

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

MSU Occupational & Environmental Medicine Newsletter:
http://www.oem.msu.edu/userfiles/file/News/Sv19n2.pdf