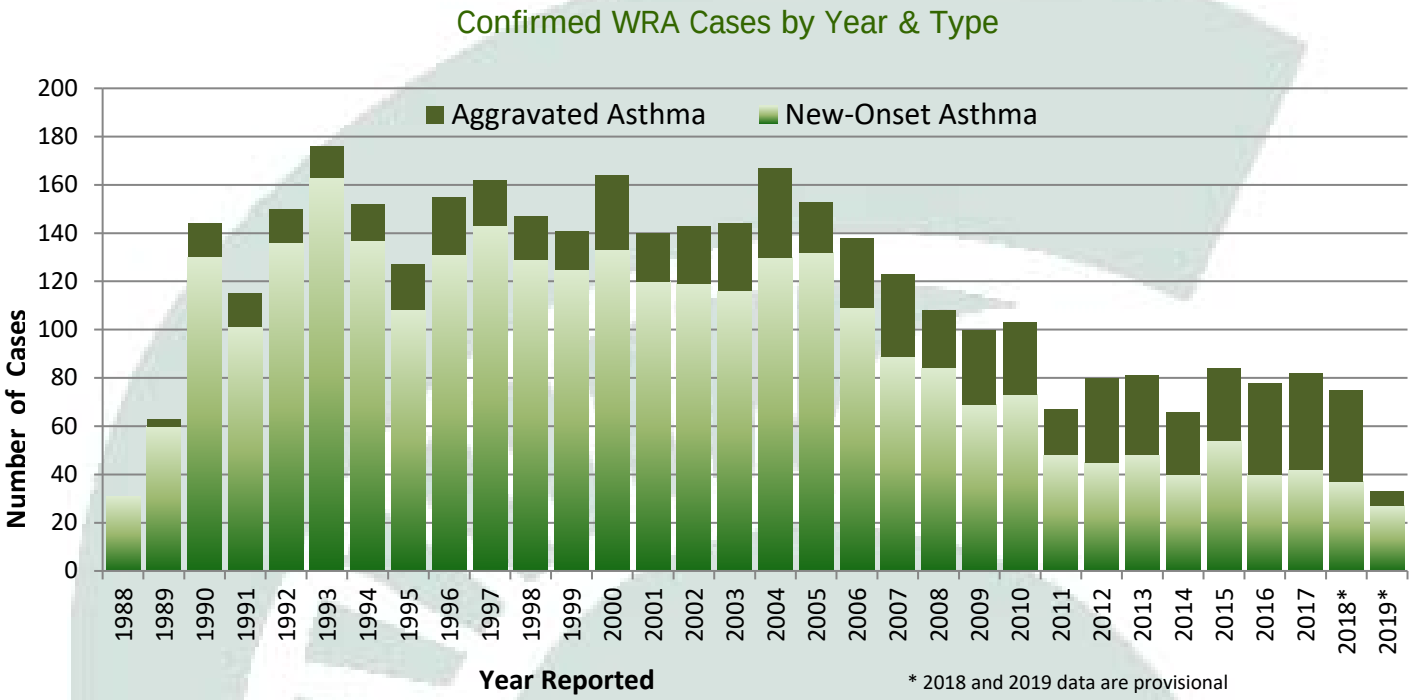
# Tracking Work-Related Asthma (WRA) in Michigan

Additional Information Available at: www.oem.msu.edu

## Summary Statistics




The Association of Occupational & Environmental Clinics (AOEC) provides an on-line asthma-causing agent look-up tool to identify agents associated with asthma, including work-related asthma. The link to the AOEC website is: http://www.aoecdata.org/ExpCodeLookup.aspx Thousands more substances have not been evaluated for their asthma-causing potential. There are two subgroups of WRA, new onset asthma and preexisting asthma that is exacerbated by an exposure at work. The average incidence of WRA among African Americans is 2 times greater than among Caucasians (2.61 and 1.27 cases per 100,000, respectively). The most commonly reported exposures in Michigan are cleaning agents and diisocyanates. These exposures reflect the manufacturing and service industry base in our state.

## Top 10 Exposure Agents in MI

| Exposure Agent | % WRA Cases |
|---|---|
| Cleaning Agents | 12.6 |
| Diisocyanates | 12.0 |
| Metal Working Fluids | 9.2 |
| Unknown Mfg. | 7.3 |
| Unknown Office | 5.8 |
| Smoke/Fume | 4.7 |
| Welding Fume | 4.3 |
| Solvents | 3.1 |
| Paint Fume | 2.4 |
| Fungus | 2.2 |

**Federal OSHA has a number of resources on Protecting Temporary Workers at:**

**https://www.osha.gov/temp_workers/index.html**

## Background

In 1988 Michigan instituted a tracking program for work-related asthma (WRA) with financial assistance from the National Institute for Occupational Safety and Health. This is a joint project of the Michigan Occupational Safety and Health Administration (MIOSHA) and the Michigan State University (MSU) Department of Medicine. The reporting of a sentinel case may lead to the identification of employees from the same facility who are at risk of developing asthma. The goal of the project is to prevent WRA through the identification of these sentinel patients.

### Annual Average Rate of WRA: Manufacturing Industries

| 2002 NAICS | Industry | # Cases | Ann Avg Rate | # Ees |
|---|---|---|---|---|
| 311 | Food Mfg | 65 | 7.5 | 31,900 |
| 323 | Printing & Related Support Activities | 19 | 3.5 | 20,200 |
| 325 | Chemical Mfg | 104 | 11.4 | 33,800 |
| 326 | Plastics & Rubber Products Mfg | 104 | 8.8 | 43,700 |
| 327 | Nonmetallic Mineral Product Mfg | 18 | 3.8 | 17,600 |
| 331 | Primary Metal Mfg | 68 | 8.9 | 28,300 |
| 332 | Fabricated Metal Product Mfg | 113 | 5.0 | 84,500 |
| 333 | Machinery Mfg | 149 | 6.9 | 79,700 |
| 334 | Computer & Electronic Product Mfg | 14 | 2.5 | 21,100 |
| 336 | Transportation Equipment Mfg | 1,139 | 14.2 | 296,900 |
| 337 | Furniture & Related Product Mfg | 14 | 1.7 | 31,000 |
| | All Other Mfg | 141 | 7.2 | 72,700 |

## Program Highlights

- A survey in 2005 found that 52.5% of Michigan adults who were employed and currently have asthma reported that a health care provider told them or they told the health care provider that their asthma was caused or made worse by exposures at work.
- MIOSHA enforcement inspections at the workplaces of the WRA patients reveal that, on average, 1 out of every 6 fellow workers has asthma or respiratory symptoms compatible with asthma.
- Air sampling for allergens during MIOSHA inspections reveals only 3.7% of the facilities have exposures above the MIOSHA enforceable permissible exposure limit. This suggests that employees can become sensitized to workplace allergens at levels within permissible limits.
- Cessation of exposure is the most important aspect of treatment once an employee has become sensitized to a substance at work; patients removed from exposure the soonest have the best prognosis.

## WRA Narratives

- A female in her 50s developed WRA from exposure to MDI after working 21 years at an automotive manufacturing facility. She developed a cough and shortness of breath and sought medical treatment in the emergency department. She was prescribed Advair, Combivent, Spiriva, and Ventolin. On spirometry, her FVC was 94% of predicted, FEV1 65% of predicted, and FEV1/FVC 69% of predicted. She continued to work this job. She smoked a half of a pack of cigarettes per day for 40 years.
- A hospital worker in her 30s experienced an exacerbation of her pre-existing asthma from exposure to a spill of disinfectants. She developed chest tightness and sought medical treatment in the emergency department. The hospital adopted new engineering controls to prevent further exposures. She was a lifelong non-smoker.
- A female in her 40s developed WRA after the metal stamping plant where she worked for five years increased the use of metal working fluids. She developed a cough, chest tightness, and shortness of breath and sought medical treatment in the emergency department. On spirometry, her FVC was 70% of predicted, FEV1 76% of predicted, and FEV1/FVC 107% of predicted. After she quit this job her asthma improved. She was a lifelong non-smoker.