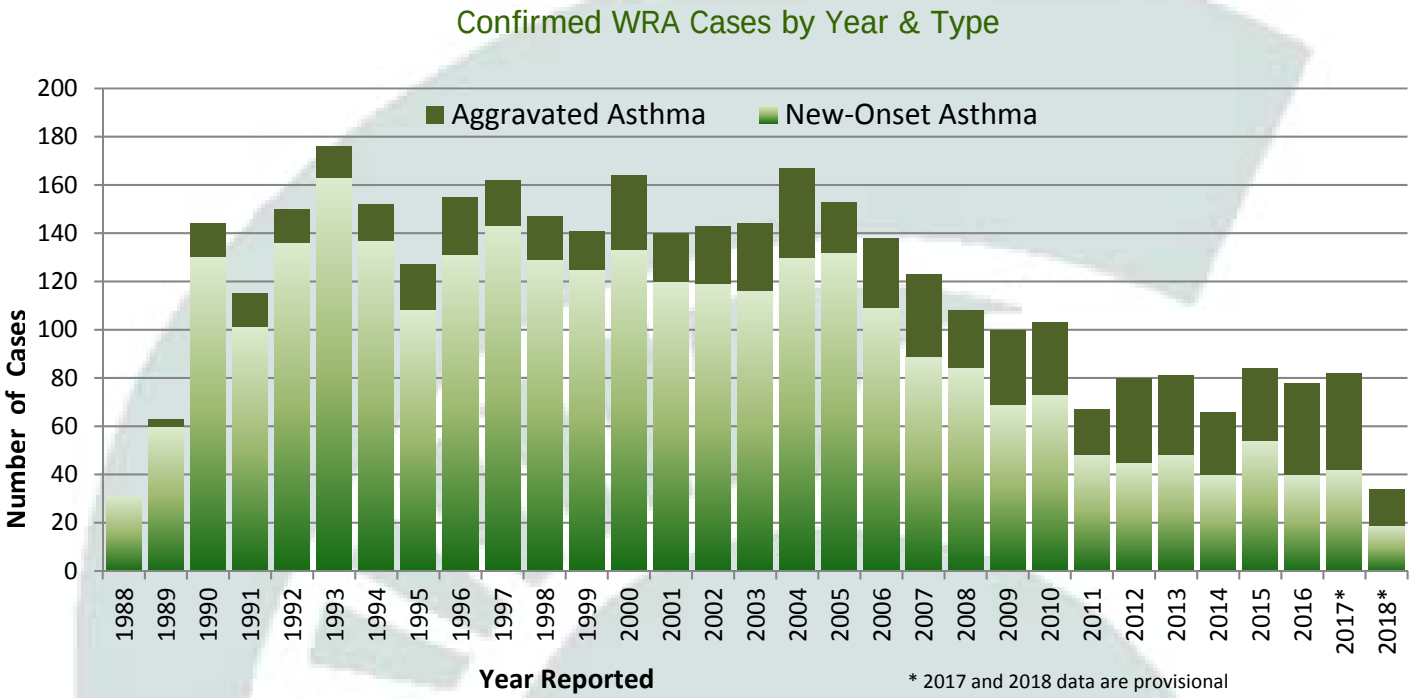
Tracking Work-Related Asthma (WRA) in Michigan

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 (2.79 and 1.36 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	12.5
Diisocyanates	12.2
Metal Working Fluids	9.3
Unknown Mfg.	7.3
Unknown Office	5.8
Smoke/Fume	4.8
Welding Fume	4.4
Solvents	3.2
Paint Fume	2.5
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	63	7.6	31,900
323	Printing & Related Support Activities	19	3.6	20,200
325	Chemical Mfg	101	11.5	33,800
326	Plastics & Rubber Products Mfg	102	9.0	43,700
327	Nonmetallic Mineral Product Mfg	18	3.9	17,600
331	Primary Metal Mfg	66	9.0	28,300
332	Fabricated Metal Product Mfg	109	5.0	84,500
333	Machinery Mfg	144	6.9	79,700
334	Computer & Electronic Product Mfg	14	2.6	21,100
336	Transportation Equipment Mfg	1,134	14.7	296,900
337	Furniture & Related Product Mfg	14	1.7	31,000
	All Other Mfg	135	7.1	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 3.8% 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 male in his 50s developed WRA after working in an automotive interior parts manufacturer for five years. He was exposed to isocyanates used for gluing fabrics. He developed wheezing, cough, shortness of breath and chest tightness. He was prescribed Flovent and Singulair. On spirometry, FVC was 74% of predicted, FEV1 was 67% of predicted and FEV1/FVC was 70% of predicted. He was treated once in an emergency department. Five months after his diagnosis, he was reassigned. His symptoms improved and he required less medication. He previously smoked one pack of cigarettes a day for 40 years.
- A female in her 40s developed WRA after working as a nurse. She had been working this job for 9 years when she was exposed to bleach. She developed wheezing, cough, chest tightness and shortness of breath. She was prescribed Pro Air, Spiriva, Qvar and Prednisone. She was awarded workers' compensation. Her symptoms remained unchanged and she required the same amount of medication. She was a lifelong non-smoker.
- A male developed WRA in his 30s from exposure to metalworking fluids at an auto parts manufacturer. He did not wear a respirator. He had worked at the company for several months before he developed a cough and shortness of breath. He was prescribed an inhaler and was given several breathing treatments. He was subsequently fired from this job for a non-medical reason. Since that time, his asthma improved and he no longer required asthma medication. He was a lifelong non-smoker.