

April 7, 2026

2024 ANNUAL REPORT

**SUMMARY OF OCCUPATIONAL
DISEASE REPORTS TO
THE MICHIGAN DEPARTMENT OF
LABOR & ECONOMIC OPPORTUNITY**



2024 Annual Report

Summary of
Occupational Disease
Reports to the Michigan
Department of Labor &
Economic Opportunity

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2024 ANNUAL REPORT SUMMARY OF OCCUPATIONAL DISEASE REPORTS TO THE MICHIGAN DEPARTMENT OF LABOR & ECONOMIC OPPORTUNITY

Occupational Disease Surveillance Program

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There are many ways to
report occupational
diseases to the state:

ONLINE:

www.oem.msu.edu

EMAIL:

ODReport@msu.edu

FAX:

517.432.3606

TELEPHONE:

1.800.446.7805

MAIL:

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530 W Allegan St
PO BOX 30649
Lansing, MI 48909**

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There are many resources
available to help employers,
employees, healthcare
professionals and others
understand more about work-
related diseases. Links to these
resources can be found at:
www.oem.msu.edu.

Acronyms

BLS Bureau of Labor Statistics
LARA MI Department of
Licensing & Regulatory Affairs
LEO MI Department of Labor
and Economic Opportunity
MDHHS Michigan
Department of Health and
Human Services
MIOSHA Michigan
Occupational Safety and Health
Administration
MSU OEM Michigan State
University Occupational and
Environmental Medicine
NAICS North American
Industrial Classification System
NIOSH National Institute for
Occupational Safety and Health
OHC Occupational Health
Clinic
OD Report Occupational
Disease Report
WDCA Workers' Disability
Compensation Agency



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Background

This is the 33rd annual report on occupational diseases in Michigan and is based upon the reports submitted to the Michigan Department of Labor and Economic Opportunity (LEO, formerly the Department of Licensing and Regulatory Affairs, LARA) in calendar year 2024. Since 1978, physicians, hospitals, clinics, other health professionals and employers have been required by the Michigan Public Health Code (Article 368, Part 56, P.A. 1978, as amended) to report known or suspected cases of occupational disease. LEO designates Michigan State University's College of Human Medicine, Occupational and Environmental Medicine Division (MSU OEM) as its bona fide agent to compile and analyze the occupational disease reports.

Background continued...

A standard form is used to report employees with a known or suspected work-related condition. It requests medical and demographic information on the affected employee as well as information about the facility at which the employee became ill. Figure 1 is a copy of the Known or Suspected Occupational Disease Reporting Form. Reports are reviewed by MSU OEM staff and computerized. In some cases, additional follow-up is conducted. The reported employee may be contacted and interviewed by staff at MSU OEM to obtain more information about their illness. A Michigan Occupational Safety and Health Administration (MIOSHA) enforcement inspection may be initiated at the employee’s workplace to assess current working conditions and determine if other employees are experiencing similar health issues. In some cases where an enforcement inspection will not be initiated, the MIOSHA Consultation Education and Training Division (CET) may offer its non-enforcement consultation services to the employer. Reports are analyzed on a yearly basis and the results are shared with health professionals and other stakeholders.

Figure 1.

Michigan Department of Labor and Economic Opportunity		Technical Services Division	
Known or Suspected Occupational Disease Report			
<small>(Information will be held confidential as prescribed in Public Act 368 of 1978.)</small>			
EMPLOYEE AFFECTED			
Name (Last, First, Middle)	Age	Sex M <input type="radio"/> F <input type="radio"/>	Race: <input type="radio"/> White <input type="radio"/> Black <input type="radio"/> Hispanic <input type="radio"/> Other
Street	City	State	Zip
Home Phone Number	Last Four Digits of Social Security Number (Optional)		
CURRENT EMPLOYER			
Current Employer Name	Worksite County		
Worksite Address	City	State	Zip
Business Phone	If Known, Indicate Business Type (products manufactured or work done)		
Number of Employees <input type="radio"/> <25 <input type="radio"/> 25-100 <input type="radio"/> 100-500 <input type="radio"/> >500			
Employee's Work Unit/Department	Dates of Employment From: Mo Day Year To: Mo Day Year		
Employee's Job Title or Description of Work			
ILLNESS INFORMATION			
Nature of Illness or Health Condition (Examples: Headache, Nausea, Difficulty Breathing, Cough, etc.)		Date of Diagnosis Mo Day Year	
Suspected Causative Agents (Chemicals, Physical Agents, Conditions)	Did Employee Die? Yes <input type="radio"/> No <input type="radio"/>	If Yes, Date of Death Mo Day Year	
If Physician, Indicate Clinical Impression for Suspected Occupational Disease, or Diagnosis of Confirmed Occupational Disease			
ADDITIONAL COMMENTS			
REPORT SUBMITTED BY			
If Report Submitted by Non-Physician, Did Employee See a Physician? <i>If yes, record information below.</i>			
Yes <input type="radio"/> No <input type="radio"/> Don't Know <input type="radio"/>			
Physician's Name	Phone		
Office Address	City	State	Zip
Name of Person Submitting Report	Physician <input type="radio"/> Non-Physician <input type="radio"/>		
Address	City	State	Zip
Signature	Phone	Date	
<small>The Michigan Department of Labor and Economic Opportunity is an equal opportunity, affirmative action employer, service provider and employer. Return completed form to:</small>			
Michigan Department of Labor and Economic Opportunity (LEO) Michigan Occupational Safety and Health Administration (MIOSHA) Technical Services Division (TSD) 530 W. Allegan Street, P.O. Box 30649, Lansing, MI 48909-8149			
MIOSHA-TSD-51 (02/25)		<small>Authority: P.A. 368 of 1978 Completion: Required Penalty: Misdemeanor</small>	

Part 56 of the Michigan Public Health Code requires reporting of all known or suspected occupational illnesses or work-aggravated health conditions to the Michigan Department of Labor and Economic Opportunity within 10 days of discovery.



In 2024, 819 (1.5%) of the 53,093 calls to the Michigan Poison Center were related to exposures at work.

METHODS

An occupational disease (OD) report should be initiated when a clinician knows or suspects that a patient's illness is work-related. Reports are submitted by or requested from a variety of sources, listed below. Additional reports are generated through annual review of the Michigan Health and Hospital Association inpatient database.

SOURCES TO IDENTIFY PATIENTS

- ◆ **Health Care Providers** private practice, working for industry, NIOSH-certified “B” readers, audiologists, clinics
- ◆ **Employers**
- ◆ **Hospitals** for International Classification of Diseases—10th Revision (ICD-10)¹ beginning October 1, 2015 and includes J45, J62, J63, J64, J65, J66, J67, J68, Z57.2, Z57.3, Z57.5 and other select work-related conditions
- ◆ **Workers’ Disability Compensation Agency** for work-related injuries and illnesses resulting in 7 or more consecutive days away from work, and specific loss including amputations, loss of vision, total loss of hearing, or death
- ◆ **Michigan Poison Center** data for work-related poisonings
- ◆ **Reports from Co-Workers or MIOSHA Field Staff** confirmed by a health care provider
- ◆ **Death Certificates** for ICD-10 Cause of Death (COD) or contributing COD J61, J62.8, J63, J64, J65, J67; if Underlying COD J45, J68
- ◆ **3rd Judicial Circuit State Court of Michigan** for asbestos-related disease
- ◆ **Mine Safety and Health Administration**
- ◆ **Michigan Cancer Registry** for mesothelioma
- ◆ **Clinical Laboratories** for blood lead analyses and specific IgE allergy testing
- ◆ **Michigan Emergency Medical Services Information System (MIEMIS)** ambulance runs to workplaces for respiratory conditions and injuries

OD reports are used to direct surveillance, intervention and prevention activities. The computerized OD report information includes: 1) employee name, age, sex, race, zip code and optional partial social security number; 2) employer name, worksite address, city, zip code, number of persons employed at the facility and an assigned North American Industry Classification System (NAICS) code; 3) details of the illness, diagnosis date, suspected causative agent(s), vital status, and assigned ICD-10 code; and 4) information about the report submitter, including whether they are employed on-site by the company, an outside medical department contracted by the company (OHC), or a private practice health professional.

More than one report on a given individual with different work-related diseases may be submitted to LEO within a given year and across multiple years. If several reports are submitted for acute illnesses for a single individual, all of the reports are included in our statistics. In contrast, if more than one report is submitted in a given year for a chronic disease in a single individual, only one of the submissions is included in our statistics. If multiple reports are submitted over several years on that individual's chronic disease, only the earliest report is included in our statistics (see list below for chronic diseases).

CHRONIC OCCUPATIONAL DISEASES COUNTED ONLY ON FIRST REPORT (ICD-10: DESCRIPTION)

A15.0: Pulmonary TB; A18.0: TB of Bones & Joints; D86: Sarcoidosis; B90: TB, Late Effects of; C00-D49: Cancer; E20-E35: Diseases of Other Endocrine Glands; E50-E64: Nutritional Deficiencies; E70-E88: Metabolic & Immunity Disorders except E86.0, Dehydration; D50-D89: Diseases of the Blood and Blood-Forming Agents; F01-F99: Mental Disorders except F43, Reaction to Severe Stress; G00-G99: Select Diseases of the Nervous System and Sense Organs; H90-H91: Noise-Induced Hearing Loss, Tinnitus; I00-I99: Select Diseases of the Circulatory System; J40-J47: Select Diseases of the Respiratory System; J60-J70: Pleural Plaques w/no Parenchymal Abnormality; J80-J84: Interstitial Lung Disease; L94.9: Connective Tissue Lung Disease; K00-K95: Diseases of the Digestive System; and N00-N99: Diseases of the Genitourinary System.

ICD-10 codes were used to classify the diagnosis or clinical impression recorded on the OD reports submitted to LEO. Sprains and strains, except those involving the back, are considered by the Federal and Michigan OSHA programs as illnesses secondary to cumulative trauma and are therefore required to be reported even though in the ICD-10 coding system, sprains and strains are listed under the Injury section of codes (ICD-10 S00-T88 Injury, poisoning and certain other consequences of external causes).

RESULTS

In 2024, 4,141 OD Reports were submitted to LEO. Figure 2 and Appendix 1 show the number of reports since 1985.

Reporting Source

Company or contract medical departments submitted 25% of the reports (1,020 cases); non-company-associated health care practitioners submitted 75% of the reports (3,121 cases). Figure 3 and Appendix 1 show the trends by reporting source (company or non-company associated) since 1991.

Company Size

Of the 2,356 OD reports that listed company size, 49% (1,152 reports) were submitted on individuals who worked in companies with > 500 employees (Table 1). For companies with 500 or fewer employees, a greater proportion of reports came from non-company health practitioners compared to company-associated clinicians. About 73% of the 1,349 reports with known company size that were submitted by non-company practitioners involved companies with ≤ 500 employees, while about 22% of the 1,007 reports with known company size submitted by company-associated practitioners involved companies with ≤ 500 employees.

Non-Company Clinicians

Nine non-company-associated clinicians reported 24 incidents of occupational disease. Twenty labs were responsible for identifying 1,995 reports of elevated blood lead levels.

Figure 2
OD Reports to LEO by Year Reported: 1985-2024

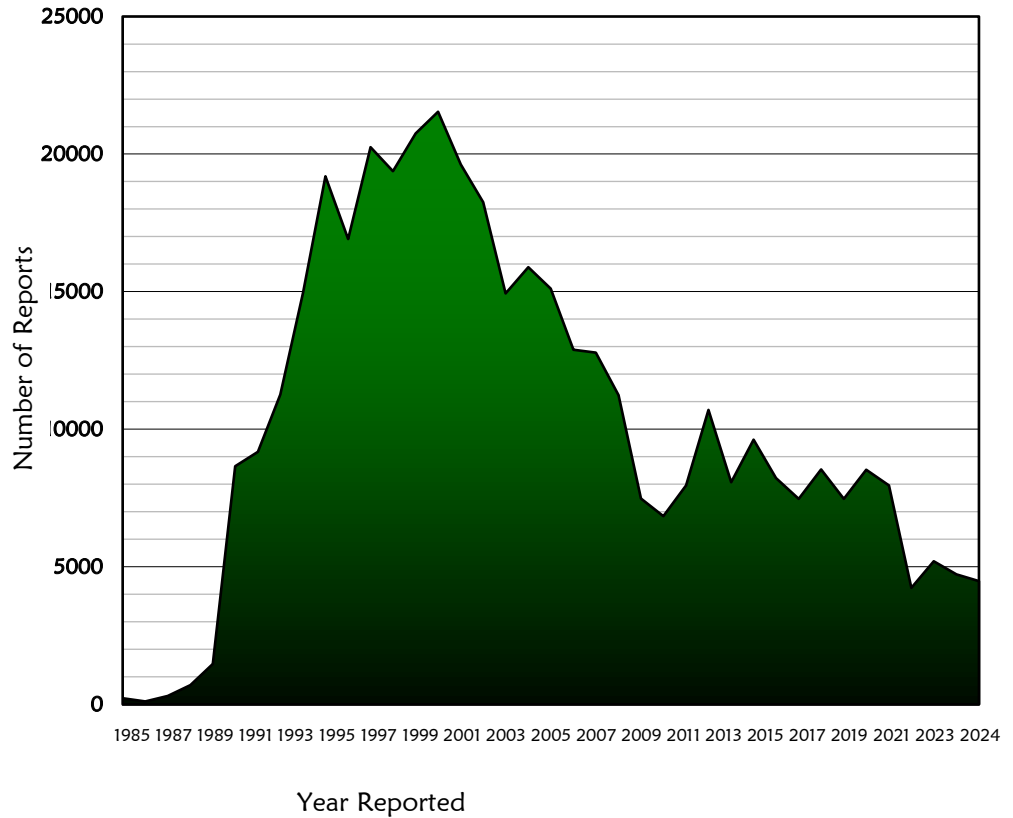
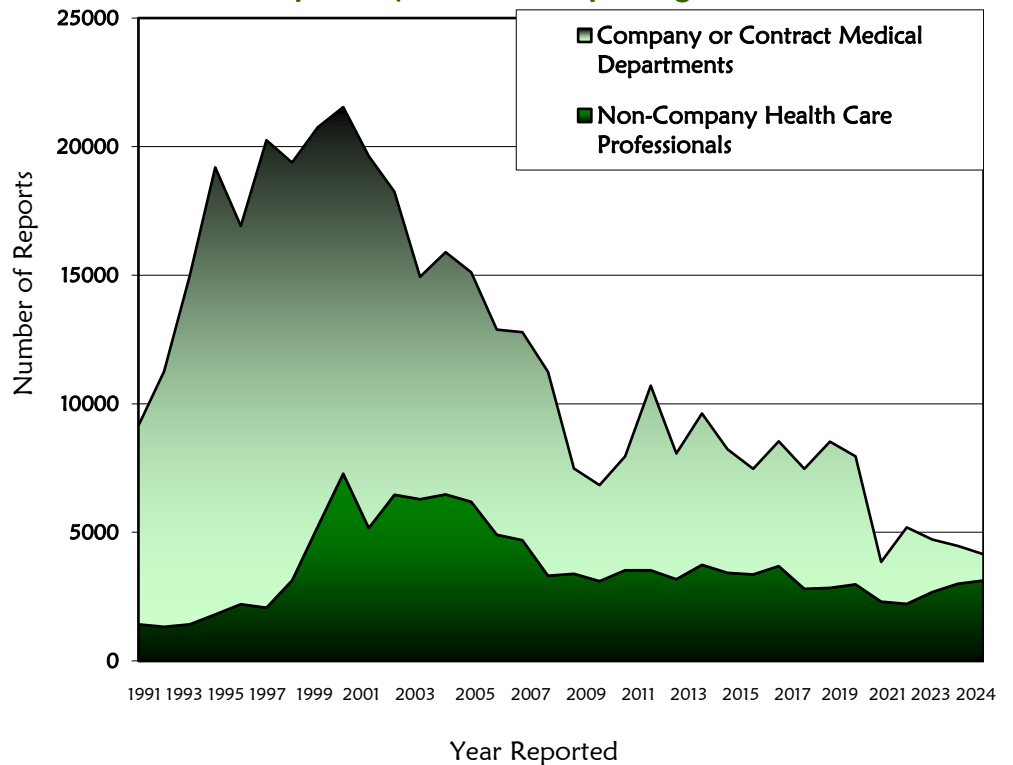


Figure 3
OD Reports by Year and Reporting Source: 1991-2024



RESULTS, continued...

In addition, the Michigan Poison Center reported 819 incidents of work-related poisonings, the 3rd Circuit Court of Michigan reported 179 asbestos-related claims, and hospitals submitted 104 reports of patients with work-related illnesses. Seven (78%) of the clinicians reported only one patient each in calendar year 2024 (Table 2); one (11%) clinician reported two patients; and one clinician reported 15 patients; this clinician is certified to classify chest x-rays for dust-related lung disease (i.e., “B” reader). A “B” reader is a licensed physician who has passed a test on interpreting chest x-rays for pneumoconiosis and maintains certification by passing an additional test every five years. In 2024 there were seven Michigan physicians who were listed as a “B” reader on the NIOSH “B” reader website: https://www.cdc.gov/niosh/chestradiography/php/about/index.html?CDC_AAref_Val=https://cdc.gov/niosh/topics/chestradiography/breader-list-html

Occupational Health Clinics (OHCs)

There are approximately 109 occupational health clinics (OHCs) in Michigan. Calendar year 2009 had the highest number of OHCs reporting, with 69. Calendar years 2005 and 2021 had the lowest number of OHCs reporting, with 21. In 2022 there were 30 OHCs reporting; in 2023 there were 35 OHCs reporting; in 2024 there were 40 OHCs reporting. Appendix 2 shows the number of OHCs reporting cases and the approximate total number of OHCs from 2005 to 2024; an exact number is not available as there is no comprehensive directory of clinics available. An updated and refined list was compiled for 2024. Tracking OD reporting by OHCs began in 2005. Biennial MIOSHA audits of a sample of non-reporting OHCs began in 2009.

Demographics

Table 3 shows the age, sex and race of the employees reported in 2024. The mean age was 46 ± 17 years (range, 12 to 94 years) with approximately 60% of the patients between the ages of 25 and 54 years. Ninety-eight reports were submitted for patients aged 19 or younger, and 96 reports were submitted for patients age 80 and older. Seventy-seven percent of all reports submitted were for male workers. Sixty-eight percent of the submitted reports (2,804 cases) did not indicate the worker’s race. Of the 1,337 reports that did indicate race, 10% were White, 5% were Black, 85% were listed as “other” and <1% were listed as Hispanic.

Younger Workers

Of the 68 workers *aged 18 and younger*, one each were 12, 14 and 15, 31 were 16, 12 were 17, and 22 were 18 years old. Twenty-six (38%) of the patients aged 18 and younger were female and 42 (62%) were male.

Table 1
Company Size at Facilities with an OD Report in 2024: Non-Company v Company Clinicians

Number of Employees	REPORTING SOURCE					
	Non-Company Clinicians		Company Clinicians		Total Reports	
	#	%	#	%	#	%
< 25	361	26.8	62	6.2	423	18.0
25-100	279	20.7	65	6.5	344	14.6
100-500	341	25.3	96	9.5	437	18.5
> 500	368	27.3	784	77.9	1,152	48.9
Total	1,349 ^a		1,007 ^b		2,356	

^a The number of employees was missing on 1,772 reports.

^b The number of employees was missing on 13 reports.

Table 2
OD Reports Submitted by Non-Company Clinicians in 2024

Number of reports	Clinicians		Patients
	#	%	#
1	7	77.8	7
2-10	1	11.1	2
≥11	1	11.1	15
Total ^a	9		24

^a Includes reports only from individual clinicians.

RESULTS, continued...

Table 3
Demographic Characteristics of
Occupational Disease Cases Reported
in 2024

Demographic Characteristic		
Age	#	%
≤ 19	98	2.6
20-24	263	6.9
25-29	443	11.5
30-34	384	10.0
35-39	357	9.3
40-44	364	9.5
45-49	333	8.7
50-54	406	10.6
55-59	294	7.7
60-69	536	14.0
70-79	264	6.9
≥ 80	96	2.5
Total ^a	3,838	
Sex		
	#	%
Male	3,149	76.5
Female	965	23.5
Total ^b	4,114	
Race		
	#	%
White	130	9.7
Black	61	4.6
Hispanic	5	0.4
Other	1,141	85.3
Total ^c	1,337	

^aAge was unknown for 303 reports.

Mean age 46 ±17 yrs.

^bSex was unknown for 27 reports.

^cRace was unknown for 2,804 (68%) reports.

Poisonings were the most frequently reported condition, with 2,321 (56%) cases. Respiratory diseases were the second most frequently reported, with 491 (12%), musculoskeletal diseases were the third most commonly reported diseases, with 342 (8%). Skin diseases were the fourth most commonly reported, with 325 (8%). Noise-induced hearing loss had 238 (6%) cases. There were 219 (5%) reports of signs and symptoms, 124 (3%) reports of eye-related diseases, and 53 (1%) reports of neoplasms. Less frequently reported conditions included nervous system diseases, and COVID-19.

Reporting Source Differences

Company and non-company-affiliated providers differed in the types of occupational diseases reported (Table 4). Toxic effects of substances were the most common reported conditions from non-company health care providers (64%); for company health care providers it was musculoskeletal diseases (34%). The second, third and fourth most frequently reported diagnoses for company providers was toxic effects of substances (31%), noise-induced-hearing-loss (23%) and signs and ill-defined conditions (7%).

Place of employment was unknown for 58 of the 68 younger workers. Of the 10 with known employment, nine worked in manufacturing and one worked in pest control. Fifty-eight of the younger workers were reported by private practice clinicians not associated with any company and 10 were reported by their company medical physician. Fifty-eight were reported with poisonings by the Poison Center, four were reported for sprains and strains, two were for back pain, and one each were reported for headache, an eye disorder, hearing loss and traumatic brain injury. No work-related *fatal illnesses* for workers aged 18 or younger were identified in the 2024 OD reports submitted to LEO.

Older Workers

Of the 96 workers aged eighty and older, 87 (91%) were between 80 and 89 years and nine (9%) were between 90 and 94 years of age. Eight-six were men and 10 were women. One had worked in manufacturing, nine in construction and one in recreational vehicle rentals. Industry or former industry was not indicated in 75 reports.

Private practice clinicians not associated with any company reported 95 of the patients and one was reported by their company medical physician. Forty-four of the older workers were reported for an elevated blood lead level (serum lead levels were between 3.5 and 11 micrograms per deciliter), 48 with asbestos-related diseases, two with a respiratory illness and one each with a skin disease, hearing loss.

Illness Information

Table 4 shows the distribution of diagnoses or clinical impressions by reporting source. Diagnoses were grouped by major International Classification of Diseases categories (ICD-10th Revision).

RESULTS, continued...

Table 4
2024 OD Reports by Disease Type (ICD-10) and Reporting Source

DISEASE TYPE	Non-Company		Company		Total	
	#	%	#	%	#	%
Infectious & Parasitic Diseases (ICD A00 –B99)	0	---	0	--	0	--
Neoplasms (ICD C00-D49)	53	1.7	0	--	53	1.3
Blood and Blood Forming Organs (ICD D50-D89)	0	--	0	--	0	--
Endocrine, Nutritional and Metabolic Disorders (ICD E00-E89)	0	--	0	--	0	--
Mental Disorders (ICD F01-F99)	0	--	0	--	0	--
Nervous System (ICD G00-G99)	1	<0.1	20	2.0	21	0.5
Eye and Adnexa (ICD H00-H59)	123	3.9	1	0.1	124	3.0
Ear and Mastoid Process (ICD H60-H95)	2	0.1	236	23.1	238	5.7
Circulatory System (ICD I00-I99)	0	--	0	--	0	--
Respiratory System (ICD J00-J99)	484	15.5	7	0.7	491	11.9
Digestive System (ICD K00-K95)	0	--	2	0.2	2	<0.1
Skin & Subcutaneous Tissue (ICD L00-L99)	304	9.7	21	2.1	325	7.8
Musculoskeletal System & Connective Tissue (ICD M00-M99)	0	--	342	33.5	342	8.3
Genitourinary System (ICD N00-N99)	0	--	0	--	0	--
Symptoms, Signs & Ill-Defined Conditions (ICD R00-R99), Other Causes of Morbidity (V00-Y99) and Factors Affecting Health (Z00-Z99)	148	4.7	71	7.0	219	5.3
Lead Poisoning (T56)	2,000	64.1	0	--	2,000	48.3
Other Poisonings (T65)	0	--	0	--	0	--
Toxic Effects of Substances - Injury, Poisoning and Certain Other Consequences of External Causes (ICD S00-T88, except T56 and T65)	5	0.2	316	31.0	321	7.8
COVID-19 (U07)	1	<0.1	4	0.4	5	0.1
TOTAL	3,121		1,020		4,141	

Table 5
2024 OD Reports by Industry Type and Reporting Source

North American Industry Classification System	Non - Company		Company		Total	
	#	%	#	%	#	%
11 Ag, Forestry Fishing & Hunting	0	--	1	0.1	1	<0.1
21 Mining	0	--	0	--	0	--
22 Utilities	169	12.0	4	0.4	173	7.2
23 Construction	330	23.5	25	2.5	355	14.7
31-33 Manufacturing	488	34.8	794	78.7	1,282	53.2
42 Wholesale Trade	86	6.1	11	1.1	97	4.0
44-45 Retail Trade	57	4.1	29	2.9	86	3.6
48-49 Transportation & Warehousing	12	0.9	13	1.3	25	1.0
51 Information	2	0.1	0	--	2	0.1
52 Finance & Insurance	0	--	0	--	0	--
53 Real Estate & Rental & Leasing	1	0.1	1	0.1	2	0.1
54 Professional, Scientific & Tech Svcs	9	0.6	22	2.2	31	1.3
55 Mgt of Companies & Enterprises	0	--	0	--	0	--
56 Administrative & Support & Waste Mgt & Remediation Svcs	54	3.8	14	1.4	68	2.8
61 Educational Services	11	0.8	29	2.9	40	1.7
62 Health Care & Social Assistance	65	4.6	41	4.1	106	4.4
71 Arts, Entertainment & Recreation	53	3.8	4	0.4	57	2.4
72 Accommodation & Food Services	0	--	7	0.7	7	0.3
81 Other Services (excl Public Admin)	24	1.7	8	0.8	32	1.3
92 Public Administration	42	3.0	6	0.6	48	2.0
Total ^a	1,403		1,009		2,412	

^aIndustry was unknown for 1,718 non-company reports and 11 company reports.

Respiratory disorders were the second most frequently reported by non-company providers (15%). The third and fourth most frequently reported for non-company providers were skin diseases (10%) and signs and symptoms (5%). Company and non-company practitioners differed by industries represented in their reports (Table 5). The most frequently reported industry from company-affiliated providers was manufacturing (79%). The second, third and fourth most frequently reported industries by company providers were health care and social assistance (4%), and construction and educational services (3% each). The top industry for non-company providers was manufacturing (35%) and the second was construction (24%). The third most frequent industry type reported by non-company providers was utilities (12%). The fourth most frequently reported industry was wholesale trade (6%). Industry type was missing on 1,718 non-company and 11 company reports.

RESULTS, continued...

Table 6
2024 OD Reports by Disease Type (ICD-10) and Sex

DISEASE TYPE	Males		Females	
	#	%	#	%
Infectious & Parasitic Diseases (ICD A00 –B99)	0	--	0	--
Neoplasms (ICD C00-D49)	53	1.7	0	--
Blood and Blood Forming Organs (ICD D50-D89)	0	--	0	--
Endocrine, Nutritional & Metabolic Disorders (ICD E00-E89)	0	--	0	--
Mental Disorders (ICD F01-F99)	0	--	0	--
Nervous System (ICD G00-G99)	8	0.3	13	1.3
Eye and Adnexa (ICD H00-H59)	73	2.3	50	5.2
Ear and Mastoid Process (ICD H60-H95)	210	6.7	24	2.5
Circulatory System (ICD I00-I99)	0	--	0	--
Respiratory System (ICD J00-J99)	358	11.4	130	13.5
Digestive System (ICD K00-K95)	2	0.1	0	--
Skin & Subcutaneous Tissue (ICD L00-L99)	211	6.7	112	11.6
Musculoskeletal System & Connective Tissue (ICD M00-M99)	177	5.6	161	16.7
Genitourinary System (ICD N00-N99)	0	--	0	--
Symptoms, Signs & Ill-Defined Conditions (ICD R00-R99), Other Causes of Morbidity (V00-Y99) and Factors Affecting Health (Z00-Z99)	128	4.1	88	9.1
Toxic Effects of Substances - Poisonings (ICD S00-T88)	1,929	61.3	382	39.6
COVID-19	0	--	5	0.5
TOTAL^a	3,149		965	

^a Sex was not listed for 27 reports.

Table 7
Demographic Characteristics of Reported Occupational Disease Fatalities in 2024

DEMOGRAPHIC CHARACTERISTIC		
VITAL STATUS	#	%
Fatal	60	1.4
Non-Fatal	4,081	98.6
Total	4,141	
AGE	#	%
20 – 39	0	--
40 – 59	2	3.5
60 - 69	16	28.1
70 - 79	25	43.9
≥ 80	14	24.6
Total	57^a	
DISEASE TYPE	#	%
Mesothelioma	12	20.0
Lung Cancer - asbestos exposure	23	38.3
Asbestosis	19	31.7
Respiratory Illness	5	8.3
Acute Respiratory Illness	1	1.7
Total	60	
INDUSTRY	#	%
Construction	14	93.3
Industrial Bldg Clean up	1	6.7
Total	15^b	

^aAge missing: 3 rpts. ^bIndustry missing 45 rpts.

Sex Differences

Toxic effect of substances (poisoning) was the most frequently reported diagnosis for men and women, with 61% and 40%, respectively (Table 6). The second, third and fourth most frequent diagnoses for women were musculoskeletal disorders (17%), respiratory diseases (14%), and signs and symptoms (9%). For men, the second, third and fourth most frequently reported diagnoses were respiratory diseases (11%), skin diseases (7%), and musculoskeletal disorders (6%).

Fatalities

Sixty of the 4,141 OD reports were for fatal occupational illnesses (Table 7). One of the illness-related fatalities reported was from an acute respiratory illness incident. Non-company clinicians reported 59 of the 60 fatalities. The workers who died ranged in age from 44 to 93 years. Twenty-three died from lung cancer due to asbestos exposure, 19 from asbestosis, 12 from mesothelioma, five from a respiratory illness due to gases or fumes and one from an acute respiratory illness. Fourteen of the deceased workers had been employed in construction and one in industrial building cleanup/remediation. Former industry was not specified for 45 workers.

Michigan has a separate program to track acute traumatic fatalities, called MIFACE (Michigan Fatality Assessment and Control Evaluation). Separate annual reports on the traumatic work-related fatalities for injuries can be found at: www.oem.msu.edu.



RESULTS, continued...

Comparison with Other Data Systems

No single reporting system captures the true burden of occupational disease. This section looks at other reporting systems and the contribution each makes to the overall characterization of work-related illness in our state.

Published Aggregate Data in MI

Table 8 compares data from the OD reporting system with Workers' Disability Compensation Agency (WDCA) paid claims and the BLS Annual Survey. These data illustrate the variation of reported disease categories by reporting source and suggest that the magnitude of occupational diseases among Michigan workers is greater than what is currently reported by any one system. The "All Other" illness column in Table 8 for BLS data includes everything but skin diseases, respiratory conditions, poisonings and physical agents. For the WDCA and OD reports, the "All Other" illness column includes every illness that cannot be categorized into one of the first six illness categories.

The most quoted data source on occupational injuries and illnesses available in Michigan is extrapolated from the BLS Annual Employer Survey of a sample of Michigan companies. In 2024, there were a total of 76,700 injuries and illnesses of which 41,900 were severe enough to cause a loss of workdays, job transfer or restriction. Of the 76,700, 5,500 were occupational illnesses, and 71,200 were occupational injuries.

For 2023, WDCA reported 18,940 new paid claims for occupational injuries and illnesses with seven or more consecutive days away from work, and specific loss including amputations, loss of vision, total loss of hearing, or death; 9,667 of those paid claims are for illnesses (Table 8).

Table 8

Comparison of 2024 Bureau of Labor Statistics (BLS) Occupational Illness Survey Data and 2023 Workers' Disability Compensation Agency (WDCA) Claims with 2012—2024 LEO Occupational Disease (OD) Reports

		Disease Category														
		Skin		Lung— Dust		Lung— Toxic		Poisoning		Physical Agents		Repeated Trauma		All Other		Total
BLS Survey																
Year	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	#
2024	900	16.4	ND	--	1,200	21.8	100	1.8	600	10.9	ND	--	2,700	49.1	5,500	
WDCA Claims^a																
Year	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	#
2023	27	0.3	3	<0.1	275	2.8	20	0.2	298	3.1	8,429	87.2	615	6.4	9,667	
LEO OD Reports^a																
Year	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	#
2012	378	5.0	328	4.3	419	5.5	1,442	18.9	46	0.6	2,892	38.0	2,106	27.7	7,611	
2013	347	4.0	274	3.2	439	5.1	2,192	25.5	45	0.5	3,263	37.9	2,041	23.7	8,601	
2014	338	4.5	371	4.9	458	6.1	1,808	23.9	181	2.4	2,547	33.7	1,863	24.6	7,566	
2015	185	2.8	340	5.1	261	3.9	1,826	27.6	99	1.5	2,307	34.9	1,598	24.2	6,616	
2016	259	3.5	341	4.6	427	5.7	2,325	31.3	202	2.7	2,601	35.0	1,280	17.2	7,435	
2017	157	3.7	170	4.0	205	4.8	2,470	58.4	73	1.7	488	11.5	666	15.7	4,229	
2018	153	4.1	384	10.4	33	0.9	1,925	52.0	65	1.8	577	15.6	565	15.3	3,702	
2019	320	7.1	336	7.5	253	5.6	1,920	42.8	78	1.7	552	12.3	1,028	22.9	4,487	
2020	163	4.8	226	6.7	604	17.9	1,330	39.5	72	2.1	204	6.1	768	22.8	3,367	
2021	257	6.9	174	4.7	458	12.3	1,424	38.2	100	2.7	401	10.8	909	24.4	3,723	
2022	326	8.4	161	4.1	338	8.7	1,496	38.5	6	0.2	877	22.6	679	17.5	3,883	
2023	292	7.0	186	4.5	523	12.6	1,803	43.4	1	<0.1	929	22.4	417	10.0	4,151	
2024	325	8.5	203	5.3	355	9.3	2,018	52.6	0	--	604	15.8	329	8.6	3,834	

ND = No data for this disease category.

^a Totals for LEO OD Reports are less than the total number of submitted reports for each year because some of the reports cannot be assigned to the disease categories used by BLS and the WDCA. In 2023, there were 9,273 reports that could not be classified for this table. Appendix 3 shows BLS and LEO counts from 2010-2024, and WDCA counts from 2010-2023.

RESULTS, continued...

The finalized 2024 WDCA counts were not available at the time of this report.

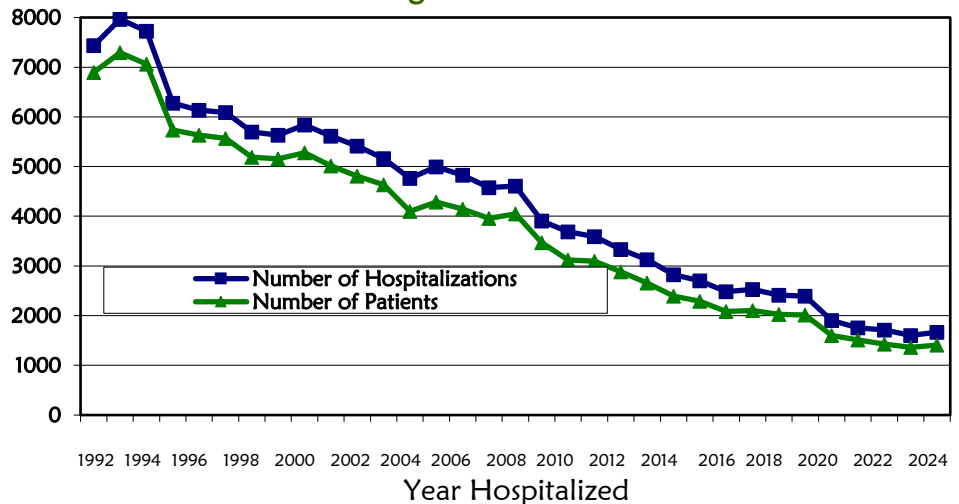
Overall, in 2023, about \$459 million in compensation was paid by insurance companies and self-insured employers on 137,276 claims for both the 18,940 lost work time and specific loss injury claims, and 118,336 medical-only claims. These 137,276 paid claims include new claims for injuries and illnesses filed in 2023, as well as ongoing payments for claims from previous years for workers who continue to lose work time or incur medical costs due to their injury or illness. Sixty-nine percent of the total paid claims in 2023 were for medical procedures or care only and 31% for wage loss (<https://www.michigan.gov/leo/bureaus-agencies/wdca/resources-and-reports>). Finalized WDCA claims were not available at the time of this report.

Other Sources-Hospital Discharge Data from the Michigan Health and Hospital Association

The hospital discharge data from the Michigan Health and Hospital Association (MHA) described in this next section is not part of the 4,141 occupational disease reports described in this 2024 Annual Report of Occupational Diseases. MHA data does not include identifiers; presumably some of the hospitalized patients overlap with those in the 4,141 OD reports. Especially for long latency, chronic diseases like asbestosis, it would be difficult to identify newly diagnosed patients in the hospitalized data set. Therefore, the MHA hospitalization data in this section should be considered as supplemental to the 4,141 OD reports submitted to the State in 2024. The following section looks at hospital data where Workers' Compensation is the expected payer.

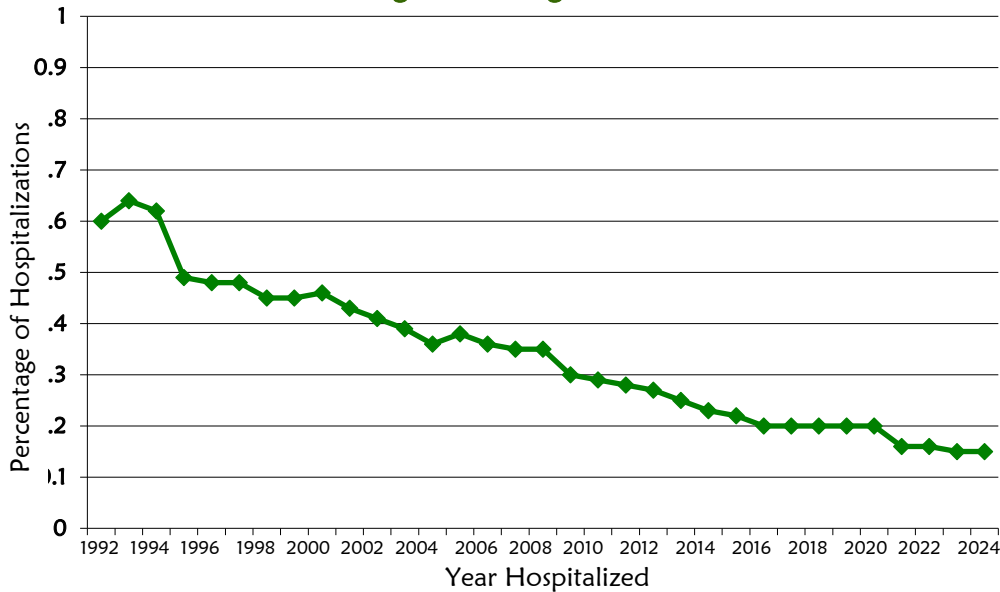
If the source of payment changed after the patient was treated and discharged from the hospital, such as might occur in a disputed workers' compensation case, it is likely that this change would not be captured in the MHA data reported in this section. Figure 4 shows the number of patients, as well as hospitalizations, with Workers' Compensation (WC) insurance designated as the primary payment source at discharge for the years 1992 through 2024; hospitalizations from 1995-2024 decreased compared to the years 1992-1994. In addition, the percentage of hospitalizations with WC insurance designated as the primary payment source at discharge has decreased since 1993 (Figure 5). For both these parameters, there was a plateau in the decrease from 2004 to 2008. However, there was also a decrease in 2009-2016 in both these parameters. In 2009, 0.30% of the 1,305,935 Michigan hospitalizations designated WC insurance as the primary payment source at discharge; in 2024 0.15% of the 1,089,717 Michigan hospitalizations designated WC as the primary payment source at discharge. Table 9 shows the primary discharge diagnosis for hospitalizations from 2017-2024 where WC was designated as the primary payment source at discharge. Data for 2002-2016 can be found in prior reports. WC insurance covers a broad range of conditions, including mental illness, infections, heart disease and cancer. The most common hospitalized conditions covered by WC insurance in 2024 were injuries and poisoning, 68%, and musculoskeletal diseases, 12%.

Figure 4
Hospitalizations and Patients with Workers' Compensation Designated as the Primary Payment Source at Discharge in Michigan: 1992-2024



RESULTS, continued...

Figure 5
Percent of Total Michigan Hospitalizations with Workers' Compensation Designated as the Primary Payment Source at Discharge in Michigan: 1992-2024



In 2024, 0.15% of the 1,089,717 hospitalizations in Michigan were paid for by Workers' Compensation. The percent of hospitalizations paid for by Workers' Compensation in Michigan has declined from the 1990's.

Table 9
Primary Diagnosis of Hospitalizations in Michigan from 2016-2024, with Workers' Compensation Designated as Primary Payment Source at Discharge

	Year of Hospitalization									
	2016	2017	2018	2019	2020	2021	2022	2023	2024	
1^o Discharge Diagnosis ICD-10	%	%	%	%	%	%	%	%	%	
Infectious & Parasitic Diseases (A00 –B99)	2.5	2.4	3.1	2.5	4.4	3.2	2.3	2.7	2.6	
Neoplasms (C00-D49)	0.3	0.3	0.2	0.3	0.3	0.4	0.1	0.1	0.2	
Blood & Blood Forming Organs (D50-D89)	0.2	0.1	0.3	<0.1	0.1	0.1	0.4	0.1	0.2	
Endocrine & Metabolic (E00-E89)	0.5	0.3	0.5	0.8	0.9	0.7	0.6	0.9	0.7	
Mental Disorders (F01-F99)	0.3	0.3	0.4	0.6	0.8	0.6	1.0	0.6	0.9	
Nervous System (G00-G99)	2.1	2.3	1.3	1.9	2.1	1.5	1.5	1.9	1.6	
Eye and Adnexa (H00-H59)	<0.1	<0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	
Ear and Mastoid Process (H60-H95)	<0.1	0.1	--	--	0.1	--	0.1	--	--	
Circulatory System (I00-I99)	3.8	3.4	3.7	4.1	4.3	3.8	4.1	3.6	4.3	
Respiratory System (J00-J99)	2.5	2.4	2.6	1.9	2.6	2.1	2.5	2.2	1.5	
Digestive System (K00-K95)	2.5	2.1	1.5	1.8	1.3	2.3	1.8	1.2	1.3	
Skin & Subcutaneous Tissue (L00-L99)	4.5	5.2	4.4	4.6	2.5	3.1	3.3	3.4	4.0	
Musculoskeletal (M00-M99)	20.6	19.2	18.8	16.5	14.3	14.0	12.5	13.3	11.8	
Genitourinary System (N00-N99)	1.2	0.6	1.1	0.8	0.7	0.8	1.1	1.0	0.5	
Pregnancy and Perinatal (O00-P96)	0.3	0.2	0.2	0.2	0.3	0.5	0.2	0.4	0.4	
Congenital Anomalies (Q00-Q99)	0.1	--	--	<0.1	0.1	0.2	0.2	--	--	
Symptoms, Signs (R00-R99)	1.4	1.9	1.3	1.3	1.5	1.2	1.3	1.1	1.1	
Toxic Effects - Poisonings (S00-T88)	56.1	57.8	59.4	61.0	51.8	60.4	65.0	66.4	67.7	
COVID-19 (U07.1)	--	--	--	--	10.8	4.0	0.6	0.1	--	
Factors Affecting Health (Z00-Z99)	1.1	1.2	1.1	1.5	1.1	1.1	1.3	1.0	0.8	
Total	2485	2531	2412	2396	1903	1756	1713	1604	1664	

The number of hospitalizations and patients with Workers' Compensation as the primary source of payment in Michigan has steadily declined over time.

Table 10 lists the demographics of

patients with WC insurance as the primary payment source at discharge: 70-77% of the hospitalizations were for men, across all years from 2012 to 2024. Data for 2002 through 2011 can be found in prior reports. Among hospitalizations for which race was known, approximately 76-89% were white, 8-12% were Black, <1%-2% were Asian, and 3-11% were listed as “other.”

Most hospitalizations involved workers between 40-59 years. There were no hospitalized workers under the age of 15. The percentage of workers 80 years or older has ranged over time from <1-4%. The percentage of hospitalizations of workers under the age of 20 has decreased slightly over time, from 3% in 1992 to 1% in 2015, increased to 2% in 2016 and 2017, decreased to 1% in 2018 and 2019, to <1% in 2020, increased to 2% in 2021, decreased to 1% in 2022, decreased to <1% in 2023 and increased to 2% in 2024 (1992 data not shown).

Table 10
Demographics of Hospitalizations in Michigan, 2012-2024, with Workers’ Compensation Designated as Primary Payment Source at Discharge

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Gender	%	%	%	%	%	%	%	%	%	%	%	%	%
Male	75	75	76	77	77	77	77	75	70	75	76	76	76
Female	25	25	24	23	23	23	23	25	30	25	24	24	24
Total^a	3333	3127	2823	2701	2485	2531	2412	2396	1903	1756	1711	1604	1664
Race	%	%	%	%	%	%	%	%	%	%	%	%	%
White	87	88	87	86	87	81	80	80	76	81	80	86	82
Black	9	9	8	9	10	11	12	12	12	8	10	9	12
Asian	<1	<1	1	<1	<1	<1	1	<1	2	1	<1	1	1
Other	4	3	4	5	3	8	7	7	11	10	10	5	5
Total^a	2557	2532	2286	2402	2323	2494	2412	2396	1903	1756	1713	1450	1543
Age	%	%	%	%	%	%	%	%	%	%	%	%	%
< 15	<1	<1	<1	<1	<1	<1	--	--	--	<1	--	<1	--
15-19	1	1	1	1	2	2	1	1	1	2	1	2	2
20-39	25	25	27	26	28	25	27	24	23	25	26	28	28
40-59	55	54	54	53	49	50	47	47	48	46	41	40	41
60-79	17	18	17	19	20	23	24	27	26	27	29	29	29
≥ 80	1	1	1	1	1	1	1	1	<1	1	2	2	1
Total^a	3333	3127	2823	2701	2485	2531	2412	2394	1903	1756	1712	1604	1664
Avg Age ± SD	48±13	48±14	47±14	48±14	48±15	49±14	49±15	50±15	50±14	49±15	50±16	49±16	49±15

^aTotals vary due to missing information.

Michigan Poison Center Data

In 2024, 819 calls to the Michigan Poison Center (PC) were identified for individuals with work-related symptoms. Table 11 describes available demographic characteristics and exposures of the individuals reported. There were more reports for males (63%). The individuals ranged in age from 12 to 82 years. Eighty percent of these individuals with known age were less than age 50. Of the 819 calls to the PC in 2024, the most common calls included exposures to: cleaning agents (202, 25%), acids (64, 8%), medications (63, 8%), and fuels/gases/oil (52, 6%).

Adult Blood Lead Epidemiology and Surveillance (ABLES)

Table 12 describes the demographic characteristics of the 1,995 individuals reported with a blood lead level of ≥ 3.5 ug/dL. Most individuals were males between the ages of 30 and 59. Construction and manufacturing were the most frequently reported industries of lead exposure. Comprehensive reports on elevated blood lead levels in Michigan can be found at: www.oem.msu.edu.

Table 11
Demographic Characteristics of 819
Individuals Reported by the Michigan
Poison Center in 2024

Demographic Characteristics		
Age	#	%
<=19	47	5.9
20-29	308	38.8
30-39	175	22.1
40-49	108	13.6
50-59	96	12.1
60-69	48	6.1
≥ 70	11	1.4
Total	793^a	
Sex	#	%
Male	515	63.2
Female	300	36.8
Total	815^b	
Top Exposures at Work	#	%
Cleaning Agents	202	24.7
Medication	63	7.7
Fuel/Gases/Oil	52	6.3
Acids	64	7.8
Building/Construction	47	5.7
Insecticides/Pesticides	49	6.0
Carbon Monoxide	30	3.7
Freon/Refrigerants/Propellants	20	2.4
Metal Fume	16	2.0
Fire Extinguisher powder	12	1.5
Formaldehyde	9	1.1
Automotive-related	44	5.4
All Other Exposures	211	25.8
Total	819	

^aAge was unknown for 26 reports.

^bSex was missing on 4 reports.

Table 12
Demographic Characteristics of
1,995 Individuals Reported by Laboratories with
Elevated Blood Lead in Michigan, 2024

	Blood Lead Level			
	>=3.5 & <10 ug/dL		>=10 ug/dL	
Age	#	%	#	%
16-19	20	1.6	15	2.1
20-29	152	11.8	101	14.2
30-39	279	21.7	143	20.2
40-49	281	21.9	129	18.2
50-59	236	18.4	135	19.0
60-69	178	13.9	136	19.2
≥ 70	139	10.8	50	7.1
Total	1,285^a		709	
Sex	#	%	#	%
Male	1,114	86.6	659	92.9
Female	172	13.4	50	7.1
Total	1,286		709	
Industry	#	%	#	%
Construction	200	24.3	91	17.2
Manufacturing	271	32.9	212	40.0
Utilities	128	15.6	41	7.7
Trade	66	8.0	75	14.2
Public Admin	35	4.3	7	1.3
Arts & Entertainment	15	1.8	38	7.2
Admin & Support	33	4.0	19	3.6
Transportation	7	0.9	5	0.9
Other Services	15	1.8	8	1.5
Prof & Scientific	8	1.0	1	0.2
Educational Services	5	0.6	6	1.1
Health Care	39	4.7	25	4.7
Accomod & Food Svc	0	--	0	--
Mining	0	--	0	--
Real Estate	1	0.1	0	--
Information	0	--	2	0.4
Total	823^a		530^a	

^a Age was missing for one report of a blood lead level >=3.5 and <20 ug/dL.

^b Industry was missing on 463 reports of blood lead levels <10 ug/dL and on 179 reports of blood leads >=10ug/dL.

DISCUSSION

There were 4,141 Occupational Disease Reports submitted to LEO in calendar year 2024. These reports do not include occupational injuries. The most frequent types of occupational diseases reported to LEO were toxic effects of substances (56%), respiratory conditions (12%), musculoskeletal conditions (8%) and noise-induced hearing loss (6%). Figure 2 shows the number of occupational disease reports received each year since 1985. From 1988 through 1999, the number of reports sent to the State increased substantially to 21,538 and then decreased to 7,477 in 2008. From 2008 to 2019, the number of reports plateaued with variations of approximately 600 to 4,000 each year. With the onset of the COVID-19 pandemic in 2020 and many workplaces having to shut down and lay off workers, the number of OD reports in 2020 was less than half the number of reports submitted during 2019. In 2021, the number of OD reports increased to 5,197, in 2022 -2024 the number of OD reports decreased to 4,725 in 2022, 4,476 in 2023, and then 4,141 in 2024. Appendix 1

shows the number and percent of OD reports by Non-Company and Company health care providers from 1985 to 2024. The number of reports from non-company-affiliated practitioners remained relatively unchanged through 2004; however, from 2004 to 2009, there was a large decline of approximately 3,000 reports in the number of non-company-affiliated practitioner reports as compared to 2004 (Figure 3 and Appendix 1). In 2020, 2022, 2023 and 2024, the primary source of OD reports, which typically has been from company-affiliated physicians, reversed so that non-company-affiliated physicians submitted a greater number of OD reports than company-affiliated physicians (Appendix 1).

The WDCA reported that there were 10,127 paid lost work time workers' compensation claims for seven or more consecutive days for COVID-19 in 2020 including 25 deaths, 4,046 paid claims in 2021 including 10 deaths, in 2022 there were 1,529 paid claims for COVID and no deaths, and in 2023 there were 161 paid claims for COVID and no deaths. COVID-19 paid workers' compensation claims were 41.5% of all paid lost work time claims for seven or more consecutive days in 2020, 20.7% of all paid claims in 2021, 10.3% of all paid claims in 2022, and 1.7% of all paid claims in 2023. Finalized data for 2024 from the WDCA was not available at the time of this report.

Employers, physicians and other healthcare providers do not report all patients with an occupational disease either because they are unaware of the reporting law or choose not to report for a different reason. There were 39 unique work locations/facilities associated with on-site company doctors that reported 714 work-related cases, and 40 company-hired occupational health clinics (OHCs) reporting 306 work-related cases from 191 unique work locations; the total number of clients (i.e. work locations/facilities) for these OHCs is unknown. In addition, there were nine non-company-affiliated physicians reporting patients to the state. In 2024, there were 301,161 companies in the year 2024 and 45,981 licensed physicians in Michigan. Accordingly, reports are received from 0.1% of companies and <0.1% of physicians. Over the last several years, these very low percentages have remained largely unchanged. Efforts continue to remind employers of the requirement to report by routinely distributing reporting forms during MIOSHA inspections. In addition, all new physicians receive information on the requirement to report when they apply for medical licensure in Michigan.

The 4,141 occupational disease reports received this past year under-represent the actual incidence of occupational diseases in Michigan. Based on an MSU study matching multiple data bases in Michigan for the years 1999-2001, one could estimate that the BLS survey missed 50% of the total number of occupational illnesses in Michigan². For 2024, the BLS annual survey reported 5,500 illnesses; by extension one would expect 11,000 illnesses in 2024 instead of the approximately 4,100 reported in 2024. Underreporting is probably even greater than that seen in comparing different data systems because these comparisons assume that all physicians recognize work-related illness in their patients and that all employers are informed when work-related conditions are diagnosed. These assumptions often go unmet, given the limited training that healthcare providers receive in diagnosing work-related conditions, and that many individuals never inform their employer when they are diagnosed with a work-related condition. The type of illness and industry where occupational diseases occur as reported by non-company-affiliated healthcare practitioners differs from company-based healthcare practitioners (Tables 1, 4 and 5). The differences vary depending on the specialties of the non-company-affiliated physicians who submit reports. For example, in 2024 the non-company-affiliated health care practitioners were more likely to report patients with respiratory disease who work in small, non-manufacturing companies.

However, regardless of the mix of non-company-affiliated specialists reporting, the data illustrates that relying on company-affiliated reports alone would cause occupational illness statistics to markedly undercount certain work-related conditions. Similarly, one cannot rely on Workers' Compensation data alone for a reliable count of work-related conditions. First, in Michigan, only injuries (18,940 in 2023) or illnesses with seven or more consecutive days away from work or specific loss including amputations, loss of vision, total loss of hearing or death, are computerized. Therefore, all the injuries and illnesses with less lost work time or not one of the specific loss or death injuries or those who received medical care only (87,900 in 2023) cannot be analyzed as to type of injury. Second, in a study covering the years 1992-1994, only 9.6% of the workers for whom an Occupational Disease Report was submitted had definitely filed a WC claim, although an additional 36% may have filed a claim for a total of 45.6%³. In that study, limits of the data did not allow for a more precise estimate of the claims filed, but the range underscores the point that a large number of workers do not file WC claims even though they are seen by a physician, who suspects or diagnoses them with a work-related illness. This is an ongoing issue, as review of hospital discharge data for individuals with a pneumoconiosis shows only

<1% - 8% of hospitalizations are paid by WC (2023 Annual Report: Tracking Silicosis and Other Work-Related Lung Diseases in Michigan, available at: www.oem.msu.edu).

Review of Table 8 shows differences in the distribution of occupational illnesses identified through the state's OD reporting system, compared to both the BLS Annual Survey of Employers and the state's WDCA claims system. For example, poisoning represents approximately 53% (2,018) of the 2024 OD reports, while that category of diseases accounts for 1.8% (100) cases in the 2024 BLS survey and 0.2% (20) cases in the 2023 WDCA paid claims file. Non-employer sources such as from the Poison Center, "B" Readers and laboratories provide additional occupational diseases not being reported by employers or practitioners.

In 2018, the National Academies of Science issued a comprehensive report on the status of occupational injury and illness surveillance in the United States. The report found that the US surveillance system markedly undercounted work-related injuries and illnesses and accordingly missed many opportunities to prevent these conditions⁴. Implementation of the recommendations in this report would markedly improve the tracking of occupational injuries and illnesses nationwide. The report discusses the role of states and makes numerous recommendations for activities at the state level. An October 2023 report by the Council of State and Territorial Epidemiologists (CSTE) outlined an approach to develop a more comprehensive national report on occupational illness⁵. Michigan is currently exploring if the CSTE recommendations can be applied at the state level.

Although it has been reassuring to see the drop in hospitalizations related to work (Figures 4 and 5), our 2015 Annual Report showed that the drop is due to a decrease in minor but not severe injuries (2015 Annual Report—Summary of Occupational Diseases Reported to the MI Department of Licensing and Regulatory Affairs).

Compliance by employers with reporting requirements has repeatedly shown to be incomplete. In 2015 a new regulation was implemented for employers to report acute work-related hospitalizations and amputations directly to MIOSHA (<https://www.michigan.gov/leo/bureaus-agencies/miosha/reporting-fatalities-and-injuries>). Despite comprehensive outreach by MIOSHA to inform employers about the reporting law, only 43.6% of acute work-related hospitalizations and only 42.1% of amputations were reported by the employer from 2016 to 2018^{6,7}. Companies with 250 or more employees were significantly more likely to comply with reporting hospitalizations and amputations (68.4% and 67.9%, respectively) and small companies with 10 or fewer employees were significantly less likely to comply (32.9% and 18.2%, respectively). For hospitalizations, employers in manufacturing (64.7%), wholesale trade (57.5%) and public administration (66.2%) were significantly more likely to comply with the reporting requirement than employers in agriculture, forestry, fishing and hunting (8.2%); construction (38.2%); finance and insurance (21.4%); real estate and rental and leasing (27.3%); administrative and support and waste management and remediation services (33.9%); arts, entertainment and recreation (10.8%); accommodation and food services (20.8%); and other services except public administration (20.3%). For amputations, employers in manufacturing (59.8%) were significantly more likely to comply with the reporting requirement than employers in agriculture, forestry, fishing and hunting (14.6%), construction (27.4%), retail trade (20.7%), arts, entertainment and recreation (7.7%), accommodation and food services (13.0%) and other services except public administration (27.0%).

Disproportionate reporting of hospitalizations in manufacturing, wholesale trade and public administration and of amputations in manufacturing as well as companies with a large number of employees suggests a lack of awareness of the requirement among employers less familiar with workplace safety and health issues, and/or who do not have a dedicated health and safety specialist. Better reporting lays the groundwork to fully characterize the industries where injuries including amputations and acute illnesses result in a hospitalization, which can then be used to target and evaluate preventive interventions in the workplace. Given the usefulness of these reports to identify workplace hazards, it would be beneficial if employer compliance with the reporting requirement improved.

In addition to tracking the overall incidence of occupational disease, a more comprehensive system allows us to identify areas of concern in our state, monitor trends, develop interventions designed to prevent additional occupational disease, and subsequently evaluate the effectiveness of these efforts.

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Appendix 1.						
Number and Percent of Non-Company and Company Occupational Disease Reports to LEO by Year, Michigan 1985-2024						
Year	Non-Company		Company		Total	
	#	%	#	%		
1985 ^a					218	
1986 ^a					101	
1987 ^a					301	
1988 ^a					694	
1989 ^a					1,471	
1990 ^a					8,650	
1991	1,421	16	7,734	84	9,155	
1992	1,327	12	9,927	88	11,254	
1993	1,424	10	13,537	90	14,961	
1994	1,812	9	17,384	91	19,196	
1995	2,202	13	14,711	87	16,913	
1996	2,067	10	18,187	90	20,254	
1997	3,128	16	16,250	84	19,378	
1998	5,221	25	15,533	75	20,754	
1999	7,285	34	14,253	66	21,538	
2000	5,171	26	14,456	74	19,627	
2001	6,457	35	11,788	65	18,245	
2002	6,281	42	8,657	58	14,938	
2003	6,469	41	9,421	59	15,890	
2004	6,185	41	8,920	59	15,105	
2005	4,911	38	7,974	62	12,885	
2006	4,696	37	8,082	63	12,778	
2007	3,318	30	7,922	70	11,240	
2008	3,386	45	4,091	55	7,477	
2009	3,106	45	3,731	55	6,837	
2010	3,525	44	4,429	56	7,954	
2011	3,530	33	7,171	67	10,701	
2012	3,175	39	4,894	61	8,069	
2013	3,738	39	5,885	61	9,623	
2014	3,426	42	4,802	58	8,228	
2015	3,368	45	4,104	55	7,472	
2016	3,690	43	4,849	57	8,539	
2017	2,803	38	4,664	62	7,467	
2018	2,838	33	5,692	67	8,530	
2019	2,972	37	4,981	63	7,953	
2020	2,310	60	1,539	40	3,849	
2021	2,217	43	2,980	57	5,197	
2022	2,677	57	2,048	43	4,725	
2023	2,999	67	1,477	33	4,476	
2024	3,121	75	1,020	25	4,141	

^aReporting source (non-company vs company) was not available for calendar years 1985-1990.

Appendix 2.		
Number of Occupational Health Clinics Reporting Occupational Diseases to LEO and Total Number of Occupational Health Clinics in Michigan, 2005-2024		
	# Occupational Health Clinics Reporting	Total # Occupational Health Clinics^a
Year	#	#
2005	21	300
2006	50	300
2007	50	300
2008	56	270
2009	69	260
2010	44	224
2011	64	169
2012	61	187
2013	66	187
2014	46	187
2015	39	187
2016	37	195
2017	42	195
2018	29	195
2019	38	195
2020	34	190
2021	21	190
2022	30	175
2023	35	172
2024	40	109

^aTotal Number of Occupational Health Clinics (OHCs) is an approximate number, since there is no comprehensive directory of clinics available. Tracking OD reporting by occupational health clinics began in 2005. The number of OHCs was significantly updated and refined in 2024.

Appendix 3.															
Bureau of Labor Statistics (BLS) Occupational Illness Survey Data, LEO Workers' Disability Compensation Agency (WDCA) Claims, and LEO Occupational Disease (OD) Reports, Michigan 2010-2024															
Disease Category															
	Skin		Lung—Dust		Lung—Toxic		Poisoning		Physical Agents		Repeated Trauma		All Other		Total
BLS Survey															
Year	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#
2010	1,200	14.0	ND	--	700	8.1	100	1.2	ND	--	ND	--	6,600	76.7	8,600
2011	1,100	14.7	ND	--	400	5.3	100	1.3	ND	--	ND	--	5,900	78.7	7,500
2012 ^a															
2013	1,100	13.4	ND	--	600	7.3	200	2.4	ND	--	ND	--	6,300	76.8	8,200
2014	900	15.0	ND	--	700	11.7	NS	--	ND	--	ND	--	4,400	73.3	6,000
2015	1,400	21.5	ND	--	700	10.8	100	1.5	ND	--	ND	--	4,300	66.2	6,500
2016	900	14.4	ND	--	400	7.8	0	--	ND	--	ND	--	5,100	79.7	6,400
2017	900	14.8	ND	--	300	4.9	200	3.3	1,000	16.4	ND	--	3,700	60.7	6,100
2018	1,000	18.5	ND	--	600	11.1	NS	--	ND	--	ND	--	3,800	70.4	5,400
2019	800	15.1	ND	--	400	7.5	100	1.9	800	15.1	ND	--	3,200	60.4	5,300
2020	700	2.0	ND	--	29,600 ^b	85.3	200	0.6	600	1.7	ND	--	3,600	10.4	34,700
2021	500	2.3	ND	--	18,100 ^b	82.6	ND	--	700	3.2	ND	--	2,600	11.9	21,900
2022	500	2.8	ND	--	13,700	77.4	100	0.6	800	4.5	ND	--	2,600	14.7	17,700
2023	600	8.3	ND	--	2,900	70.3	100	1.4	800	11.1	ND	--	2,800	38.9	7,200
2024	900	16.4	ND	--	1,200	21.8	100	1.8	600	10.9	ND	--	2,700	49.1	5,500
WDCA Claims^c															
Year	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#
2010	55	0.3	0	--	60	0.3	8	<0.1	28	0.2	14,571	81.9	3,075	17.3	17,797
2011	45	0.3	0	--	107	0.7	9	0.1	34	0.2	12,427	80.2	2,867	18.5	15,489
2012	54	0.3	0	--	103	0.7	13	0.1	27	0.2	11,863	76.7	3,411	22.0	15,471
2013	57	0.4	0	--	110	0.7	4	<0.1	28	0.2	12,062	80.3	2,766	18.4	15,027
2014	30	0.2	0	--	89	0.6	4	<0.1	39	0.3	12,006	80.6	2,734	18.3	14,902
2015	38	0.3	1	<0.1	53	0.4	5	<0.1	36	0.3	10,749	80.2	2,515	18.8	13,397
2016	38	0.3	1	<0.1	93	0.8	3	<0.1	25	0.2	9,976	81.0	2,178	17.7	12,314
2017	25	0.2	1	<0.1	54	0.4	3	<0.1	28	0.2	9,998	80.9	2,246	18.2	12,355
2018	39	0.3	9	0.1	49	0.3	3	<0.1	22	0.2	11,450	81.5	2,480	17.6	14,052
2019	9	0.1	ND	--	22	0.2	ND	--	23	0.2	8,476	85.8	1,353	13.7	9,883
2020 ^d	8	<0.1	0	--	10,062 ^b	55.0	2	<0.1	12	0.1	7,195	39.3	1,012	5.5	18,291
2021	16	0.1	0	--	4,037 ^b	32.0	1	<0.1	7	0.1	7,772	61.7	772	6.1	12,605
2022	12	0.1	0	--	1,539	16.9	0	--	226	2.5	6,290	69.1	1,038	11.4	9,105
2023	27	0.3	3	<0.1	275	2.8	20	0.2	298	3.1	8,429	87.2	615	6.4	9,667
LEO OD Reports^c															
Year	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#
2010	263	3.5	440	5.9	841	11.3	1,750	23.5	190	2.5	2,394	32.1	1,573	21.1	7,451
2011	499	4.9	459	4.5	634	6.3	1,716	17.0	237	2.3	3,974	39.3	2,589	25.6	10,108
2012	378	5.0	328	4.3	419	5.5	1,442	18.9	46	0.6	2,892	38.0	2,106	27.7	7,611
2013	347	4.0	274	3.2	439	5.1	2,192	25.5	45	0.5	3,263	37.9	2,041	23.7	8,601
2014	338	4.5	371	4.9	458	6.1	1,808	23.9	181	2.4	2,547	33.7	1,863	24.6	7,566
2015	185	2.8	340	5.1	261	3.9	1,826	27.6	99	1.5	2,307	34.9	1,598	24.2	6,616
2016	259	3.5	341	4.6	427	5.7	2,325	31.3	202	2.7	2,601	35.0	1,280	17.2	7,435
2017	157	3.7	170	4.0	205	4.8	2,470	58.4	73	1.7	488	11.5	666	15.7	4,229
2018	153	4.1	384	10.4	33	0.9	1,925	52.0	65	1.8	577	15.6	565	15.3	3,702
2019	320	7.1	336	7.5	253	5.6	1,920	42.8	78	1.7	552	12.3	1,028	22.9	4,487
2020	163	4.8	226	6.7	604	17.9	1,330	39.5	72	2.1	204	6.1	768	22.8	3,367
2021	257	6.9	174	4.7	458	12.3	1,424	38.2	100	2.7	401	10.8	909	24.4	3,723

2022	326	8.4	161	4.1	338	8.7	1,496	38.5	6	0.2	877	22.6	679	17.5	3,883
2023	292	7.0	186	4.5	523	12.6	1,803	43.4	1	<0.1	929	22.4	417	10.0	4,151
2024	325	8.5	203	5.3	355	9.3	2,018	52.6	0	--	604	15.8	329	8.6	3,834

ND = No data for this disease category. NS = Data too small to be displayed.

^aData not available.

^bIncludes COVID-19 cases.

^c Includes 4,018 COVID-19 cases reported to the WDCA in 2021. Totals for LEO OD Reports are less than the total number of submitted reports for each year because some of the reports cannot be assigned to the disease categories used by BLS and the WDCA. In 2021, there were 1,474 reports that could not be classified for this table.

^d2020 WDCA numbers have been updated since the 2020 Annual Report, after a data entry backlog was resolved.