2002

Annual Summary of Occupational Disease Reports to the Michigan Department of Consumer and Industry Services

Summary of 2002 Occupational Disease Reports to the Michigan Department of Consumer & Industry Services

A Joint Report
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SUMMARY

There were 14,938 occupational disease reports submitted to the Michigan Department of Consumer and Industry Services (MDCIS) in calendar year 2002 as required under the Michigan Occupational Disease Reporting Law. These reports were submitted by company medical departments or clinics under contract to companies to provide occupational health services to their employees, as well as health practitioners not associated with a particular company. The most frequent types of occupational diseases reported were repetitive trauma (42%), toxic effects of substances (19%), respiratory disease (16%) and diseases of the nervous system and sense organs (10%). The number of reports represents a continued downward trend of reports received since 1999 when 21,538 reports were received. The reason for this trend could represent an actual reduction in occupational diseases occurring in the state or poorer compliance with the reporting law. Further work to ensure compliance with the reporting law is needed to determine if this trend actually reflects fewer occupational illnesses.

There were differences in the types of reports submitted by companies compared to those submitted by independent health practitioners. For example, there were 2,302 reports from health care providers and hospitals for diseases of the respiratory system while only 65 such reports were received from employers (Table 4).

The average age of individuals reported was 44 years with a range from 12 to 98. Seventy-eight percent of individuals reported were between the ages of 25 and 55. Seventy-one percent of all reports submitted were for male workers.

An initiative begun two years ago to combine all reports from nine programs that track Michigan occupational injuries and illnesses to present a more comprehensive overview of work-related injuries and illnesses in our state is still in progress. Preliminary data suggest the true number of work-related conditions is 25% greater than estimates provided by the Bureau of Labor Statistics.

A new initiative began this past year involves the collection of information on work-related illnesses from the two Michigan Poison Control Centers. Approximately 1,400 reports were received from the two Poison Control Centers in 2002. Given the complementary nature of all the existing programs, we envision that by combining the data across these systems we will be able to better characterize and understand the extent and distribution of individuals who become sick and injured at work. This is an essential first step in reducing the burden of these preventable injuries and illnesses in our state.

INTRODUCTION

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 diseases. Until 1996, these reports were submitted to the Michigan Department of Public Health (MDPH). Reports are now submitted to the Michigan Department of Consumer and Industry Services (MDCIS). During the initial years after the reporting law was enacted, the number of reports received by the MDPH was generally less than one hundred each year. Following the 1988 implementation of the Sentinel Event Notification System for Occupational Risks (Project SENSOR), a statewide initiative for occupational disease surveillance, active solicitation of occupational disease (OD) reports began.

Computerization of the OD report data, which began in 1991, allows for more efficient handling of the high volume of reports submitted and facilitates the use of these reports to direct surveillance, intervention and prevention efforts. This is the eleventh annual report on occupational diseases in Michigan, and is based upon the reports submitted to the MDCIS in calendar year 2002.

Figure 1 is a copy of the occupational disease (OD) report that is submitted to MDCIS by companies and health care providers. The form requests medical and demographic information on the affected employee and information about both the employer and the facility at which the employee became ill. This information is used to monitor occupational diseases within the state, and to assist in directing intervention and prevention efforts.

On-line occupational disease reporting has been available since 2001 through the Michigan State University Occupational and Environmental Medicine website: www.chm.msu.edu/oem. A secure server is used to maintain the confidentiality of the information submitted on-line. Submission of audiogram results has recently been added to on-line reporting, for cases of occupational noise-induced hearing loss. The health professional electronically submitting occupational disease reports is first given a choice between submitting an occupational disease report for hearing loss or for any other illness. If hearing loss is selected, the user is directed to a screen to report the standard occupational disease report information. Next, the user is asked whether audiogram results will be submitted electronically or via fax or mail. If submitted electronically, a screen to enter audiogram results can be used to report right and left ear hearing thresholds ranging from 250 Hz to 8000Hz. In addition to completing the OD report form (Figure 1) on-line, information can be submitted by:

*Email: ODReport@msu.edu
*Postage paid envelopes: call 1-800-446-7805 to request
*Fax: (517) 432-3606
*Phone-in: 1-800-446-7805
*Mail directly to: MDCIS, Occupational Health Division
Bureau of Safety & Regulation
7150 Harris Drive
PO Box 30649
Lansing, MI 48909-8149

METHODS

The computerized OD records contain: 1) the affected employee's name, age, sex, race, zip code and social security number; 2) the employer's name, work site address, city, zip code, number of persons employed at the facility and the company's standard industrial classification code (SIC)[1]; 3) details of the illness, including date of diagnosis, suspected causative agent(s), whether the employee died, and diagnosis or clinical impression coded according to the International Classification of Diseases (ICD-9th Revision[2]); and 4) information about the individual who submitted the report, including company affiliation (i.e., whether the reporter is a practitioner employed by the company, or an outside medical department contracted by the company, or a private practice health professional). An OD report is initiated when a clinician knows or suspects that a patient's illness is work-related. Reports are submitted by physicians, audiologists, employers, hospitals, clinics, laboratories, the 3rd Judicial Court of Michigan (which processes the majority of the asbestos-related claims in Michigan), the two Michigan Poison Control Centers and the Federal Mine Safety and Health Administration. Additional reports are generated through annual review of death certificates and the Michigan Health and Hospital Association inpatient database.

Since October 11, 1997, all clinical laboratories doing business in Michigan have been required to report all blood lead analysis results for both adults and children, to the Michigan Department of Community Health. The blood lead results of 10 μg/dL or greater for adults are incorporated into the Occupational Disease reports submitted each year to the MDCIS. Many of the adults reported through this system have had blood lead testing as part of their company's monitoring program. However, it is the clinical laboratories that actually submit the results to the state, not the employers. In fact, aside from the clinical laboratory reports of blood lead analysis, employers themselves almost never submit an elevated blood lead level report to the MDCIS, even though they would be required to do so under the Michigan Occupational Disease Reporting Law. In light of this, blood lead reports submitted by the clinical laboratories are all considered as non-company reports, even though the company may have initially ordered the blood lead test.

A new initiative that started in 2002 involves the collection of information on work-related illnesses from the two Michigan Poison Control Centers. On a monthly basis, the work-related reports are incorporated into the occupational disease reporting database. In 1999, for example, 1,406 (1.6%) of the 87,604 human exposure-related PCC calls were related to occupational exposures.

More than one report on a given individual with different work-related diseases may be submitted to the MDCIS within a given year and across multiple years. 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. Further, if multiple reports are submitted over several years on that individual's chronic disease, only the earliest report is included in our statistics. In contrast, if several reports are submitted for acute illnesses for a single individual, all of the reports are included in our statistics. Appendix A lists the chronic disease categories for which duplicate reports within and across years are removed.

RESULTS

A total of 14,938 occupational disease reports were submitted to the MDCIS in calendar year 2002. Figure 2 shows the number of reports received each year since 1985.

Source of Reports

Fifty-eight percent of the reports (8,657 cases) were submitted by company or contract medical departments. The remaining 42% (6,281 cases) were submitted by non-company health practitioners (Figure 3). Most patients worked in large companies (Table 1) with 94% of the 9,754 reports that listed company size coming from businesses with more than 500 employees. A larger proportion of reports involving smaller companies (fewer than 500 employees) come from non-company health practitioners. Just over twenty-four percent of the 1,485 reports with known company size that were submitted by non-company practitioners involved companies with fewer than 500 employees, while only three percent of the 8,269 reports with known company size that were submitted by company practitioners involved facilities with fewer than 500 employees.

Five hundred forty private practice clinicians (non-company affiliated) reported 4,627 incidents of occupational disease. In addition, the two Michigan Poison Control Centers reported 1,399 incidents of work-related poisonings. Two hundred seventeen of the clinicians who reported in calendar year 2002 (67%) reported only one patient each (Table 2), while four clinicians reported more than one hundred patients each. The number of reports submitted by these four clinicians in the year 2002 ranged from 117 to 1,241. Two of these clinicians are physicians certified by the federal government to interpret chest x-rays for dust-related lung disease ("B" readers); one is an occupational medicine physician who practices at a hospital based clinic; and one is an occupational medicine physician in private practice. 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 4 years. Currently, there are eleven Michigan physicians who are "B" readers.

Demographics

Table 3 shows the age, gender and race distribution of the workers with occupational diseases reported in the year 2002. The mean age of reported patients was 44 ± 15 years (range, 12 to 98 years) with over three quarters of the patients (78%) between the ages of 25 and 55 years. One hundred fifty-eight reports were submitted for patients under age 20, and 198 reports were submitted for patients over age 79.

Seventy-one percent of all reports submitted were for male workers. Eighty-four percent of the submitted reports (12,568 cases) did not indicate the worker's race. Of the 2,370 reports that did indicate race, 86% were Caucasian, 9% were African American, 2% were Hispanic and 3% were listed as "other."

Younger workers . Of the 92 workers age 18 and younger, the youngest was 12 years old, four were 15 years old, 20 were 16 years old, 33 were 17 years of age, and 34 were 18 years old. Seven of the reported patients under age 19 were women, 42 were men, and gender was unknown for 43 individuals.

Two of the younger workers were employed in manufacturing, one worked in construction , one worked in trade and two worked in educational services. Place of employment was unknown for 86 of the reported workers.

Four of the younger workers were reported by company affiliated clinicians or contract medical clinics. Three reports were for repetitive trauma (sprains and strains), 65 for unspecified poisonings (reported from the Poison Control Centers), 21 for elevated blood lead levels, one for respiratory symptoms, one for noise-induced hearing loss and one for heat stress. No fatalities were reported for any workers under age 19. Of the 21 cases of elevated lead levels, seventeen had serum lead levels between 10 and 24 micrograms per deciliter, and four had serum lead levels between 25 and 40 micrograms per deciliter.

Older workers . Of the 198 workers age eighty and older, 177 were between the ages of 80 and 89, and 21 were between 90 and 98 years old. One hundred seventy-four were men, seven were women and gender for 17 individuals was unknown. Only one of these patients was reported by a company-affiliated clinician or contract medical clinic.

One hundred sixty-eight of the older workers were reported for dust-related lung disease (including 29 with asbestosis, 121 with pleural thickening, 17 with silicosis, and one with pneumoconiosis, unspecified), 18 for noise-induced hearing loss, three for cancer, one for other respiratory conditions, four for elevated blood lead levels, one for a nonspecific illness and three for unspecified poisonings.

Twenty-five of the older patients worked in (or were retired from) manufacturing, five in construction, two worked in utility services, one in wholesale trade, two in services, and one in mining. Occupation or former occupation was not indicated in 162 reports.

Illness Information

Table 4 shows the distribution of diagnoses or clinical impressions by reporting source. Diagnoses are grouped by major International Classification of Diseases categories (ICD-9th Revision). Overall, repetitive trauma illnesses (ICD-9 categories 800-999 except 940 and 980-989) were the most frequently reported conditions, with 6,279 cases representing 42% of all OD reports submitted. The majority of reports were for sprains and strains of the wrist, hand and finger.

Toxic effects of substances were the second most frequently reported conditions, with 2,812 cases representing 19% of all reports. Diseases of the respiratory system were third, with 2,367 cases representing 16% of all reports submitted. There were 938 reports of musculoskeletal and connective tissue disease (6%), 502 reports of skin and subcutaneous tissue disease (3%), 72 reports of mental disorders (0.5%), 40 reports of cancer (<1%), and 50 burns to the eye (<1%). Infrequently reported conditions included infectious and parasitic diseases, diseases of the digestive system, diseases of the genitourinary system, and diseases of the circulatory system.

Two hundred sixty-four reports of symptoms, signs and ill-defined conditions were also submitted, which suggests that physicians and other health care providers are reporting both *known* and *suspected* cases of occupational disease.

Reporting source differences . Company affiliated and non-company affiliated practitioners differ markedly in the types of occupational diseases they report (Table 4). Sixty-eight percent of submissions by company health care providers are reports of repetitive trauma illnesses, while only six percent of submissions by non-company providers represent these diagnoses. Conversely, forty-four percent of non-company submissions are reports of poisonings, compared to less than one percent of company submissions. The second, third and fourth most frequently reported diagnoses for company providers

are diseases of the nervous system and sense organs (12%), diseases of the musculoskeletal system and connective tissue (10%), and skin and subcutaneous tissue (5%). Respiratory diseases are the second most frequently reported diagnoses by non-company providers (37%). The third and fourth most frequently reported diagnoses for non-company providers are diseases of the nervous system and sense organs (8%) and repetitive trauma disorders (6%).

Company and non-company practitioners also differ in the types of industries represented in their reports (Table 5). Ninety-two percent of patients reported by company affiliated health care providers are employed in manufacturing, primarily automobile production. In contrast, only 60% of patients reported by non-company affiliated providers are employed in manufacturing. The second and third industry types most frequently reported by company providers are service industries (primarily education, 2% and hospitals, 2%). The second and third industry types most frequently reported by non-company providers are construction (14%) and educational services (6%). The type of industry was missing on 3,768 non-company and 95 company reports.

***Gender differences*.** Repetitive trauma illnesses were the most frequently reported diagnoses for both men and women, with 38% of submissions on men and 56% of submissions on women reporting one of these diagnoses (Table 6). The second, third and fourth most frequently submitted diagnoses for men were toxic effects of substances (21%), diseases of the respiratory system (18%), and diseases of the nervous system and sense organs (12%). For women, the second, third and fourth most frequently submitted diagnoses were toxic effects of substances (13%), diseases of the musculoskeletal system and connective tissue (10%), and diseases of the nervous system and sense organs (6%). Five hundred ninety-four reports did not indicate gender.

Fatalities. Fatalities related to occupational illnesses were reported for 36 workers. None of the fatalities reported were for acute traumatic fatalities. The state also conducts surveillance for acute traumatic fatalities. There were an additional 151 acute work-related traumatic fatalities in Michigan in 2002 (provisional data).

All but one of the 36 individuals with occupational illnesses who died were reported by non-company clinicians. Gender was unknown for 34 of the 36 cases; of the two with known gender, one was male and one was female. The workers who died ranged in age from 44 to 86. Twenty-six died from asbestos-related cancer and eight died from asbestosis. One died from silicosis and one from a physical agent. Twenty of the deceased workers had been employed in manufacturing, six were utility workers and one worked in mining. Former occupation was not specified for nine workers.

Comparison With Other Data Systems

Data Linkage Initiative. We have been working on a project to obtain a better estimate of the true number of occupational illnesses and injuries in Michigan. One of the main objectives of this project is to combine data across several reporting systems and look at the overlap of patients reported. Using a capture-recapture methodology, we have been developing estimates for the number of work-related conditions not tracked in any of the reporting systems.

Preliminary data from this effort is available. For example, in 1999 there were 11,407 individuals reported to the Bureau of Labor Statistics (BLS) with days away from work from the 5,934 Michigan facilities that were sampled. After weighting, BLS estimates there were 68,400 lost work day cases and

a total of 296,700 injuries and illnesses in Michigan for 1999. Three thousand eight hundred and four names matched in BLS and Workers' Compensation (WC), 7,603 names were in BLS but not WC, and 1,283 names were in WC but not BLS. After weighting, 22,960 matched, 45,203 were in BLS but not WC, and 9,749 were in WC but not BLS. Using capture-recapture, we estimated that 7,983 weighted cases were missed by both systems. This totals to an estimate of 85,895 days away from work cases. Our estimate is 25.6% greater than the official BLS estimate of days away from work cases.

Published Data in Michigan at a Disease Category Level. Prior to the new data linkage initiative, the best picture of occupational disease in our state was to compare data from the OD reporting system with Workers' Compensation Claims and the MDCIS Annual Survey (Table 8). Those data also suggest that the magnitude of occupational conditions among Michigan workers is greater than what currently gets reported.

The most recent data that is available from the MDCIS Bureau of Workers' Compensation (BWC) at a disease-category level is from 1990[3]. In that year, there were 8,851 claims for compensation due to occupational illnesses and 70,829 claims for occupational injuries. Although not available at a disease-category level, in 2002 the BWC reported 40,611 claims for both occupational injuries and illnesses.

The other major data on occupational injuries and illnesses available in Michigan comes from the MDCIS annual survey of company injury and illness logs. For this data source, the most recent published data available at a disease category level is from 1994 with an estimate of 52,098 occupational illnesses in the state[4]. Table 8 compares occupational disease reports received by MDCIS with this and the BWC reports.

Hospital Discharge Data – Workers' Compensation. Figures 4 and 5 show the number and percentage of hospitalizations paid for by Workers' Compensation for the years 1992 through 2001. The number of hospitalizations per year that are paid for by Workers' Compensation from 1998 - 2001 are decreased as compared to the years 1992-1997. In 2001, 0.43% of the 1,298,783 Michigan hospitalizations were paid for by Workers' Compensation.

Mesothelioma/Asbestosis. The association between exposure to asbestos and the risk of developing mesothelioma was first reported in the medical literature in 1943[5]. The only other exposure associated with the risk of developing mesothelioma has been the therapeutic use of x-rays. The percentage of patients with mesothelioma who have a history of occupational asbestos exposure is lower in studies that are based on review of medical records compared to studies based on a complete work history where 90% of mesothelioma has been attributed to asbestos exposure[6]. Among cohorts of asbestos-exposed workers, up to 10% of deaths have been attributed to mesothelioma.

Asbestos-related lung disease is the most common of the dust diseases reported to the Michigan Department of Consumer and Industry Services. The number of reports of asbestosis has been decreasing since 1999, from a high of 3,384 reports in 1999 to a low of 677 reports in the year 2002. The number of reports of pleural thickening decreased from 2001 to 2002, from 2,397 to 1,269 reports. The reports for asbestos-related x-ray changes are largely from one of Michigan's B-readers as well as an occupational medicine physician.

We have used data from the Michigan Cancer Registry to describe the demographics of mesothelioma in Michigan. From 1985 through the year 2000 there were 1,471 Michigan residents reported to the

Michigan Cancer Registry with invasive mesothelioma. Figure 7 shows the number of men and women diagnosed with mesothelioma by year, from 1985 to 2000. Approximately one quarter (25.5%) of the reports of mesothelioma occurred in women. Mesothelioma occurred predominantly among Caucasians (93.5%) compared to African Americans (5.6%). Thirteen (0.9%) were classified as "other."

Figure 8 shows the age at diagnosis separately for men and women. The peak age of occurrence was for individuals 65 years and older for both men and women.

Figure 9 shows the distribution of the number of cases of mesothelioma among Michigan residents, by county. Figure 10 shows the average annual incidence rates of mesothelioma among Michigan residents, by county. The counties with the highest rates are: Presque Isle (4.6 per 100,000); Bay (4.2 per 100,000); Alger (4.1 per 100,000); Mackinac (3.7 per 100,000); Ontonagon (3.6 per 100,000); and Midland (3.5 per 100,000).

Poison Control Center Data. In 2002, a total of 1,399 calls to one of the two Michigan Poison Control Centers were identified as work-related. Table 9 reports the available demographic characteristics of the individuals reported. There were more reports for males (61%) than females (39%). The individuals ranged in age from 12 to 89 years. Almost 90% of these individuals were less than age 50. More detailed information about the nature of these poisonings is available, but not in a format that is readily analyzable.

DISCUSSION

There were 14,938 Occupational Disease Reports sent to the MDCIS in calendar year 2002. The most frequent types of occupational diseases reported to the MDCIS were repetitive trauma illnesses (42%), toxic effect of substances (19%), respiratory disease (16%), and diseases of the nervous system and sense organs (10%). From 1988 through 1999, the number of reports sent to the MDPH/MDCIS has increased substantially. Figure 2 shows the number of occupational disease reports received each year since 1985. Since 1999 the number of reports has decreased. This year, in 2002, there were approximately 3,000 fewer reports received than in 2001. It reflects fewer reports from company medical departments, while the number of reports from private practitioners has remained relatively unchanged the last four years (Figure 2). The cause for this decrease is unknown. The actual number of companies reporting in 2002 increased to 227 from 191 in 2001.

We used the ICD-9 codes to classify the diagnosis or clinical impression recorded on the occupational disease reports submitted to the MDCIS. In the ICD-9 coding system, sprains and strains are classified as injuries. Employers are only required to report *illnesses* on the OD reporting form, not injuries. 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.

Many employers, physicians and other health care providers do not report patients with occupational diseases either because they are unaware of the reporting law or choose not to report for a different reason. We currently receive reports from approximately 227 companies and 322 non-company physicians. There were approximately 239,355 companies in the year 2001 (the most recent year for which this information is available) and 25,583 practicing physicians in Michigan in the year 2002.

Accordingly, we are receiving reports from 0.1% of companies and 1.3% of physicians. Over the last several years, these percents have remained largely unchanged. We have continued our efforts to remind employers of the requirement to report by routinely distributing reporting forms during MIOSHA inspections. Also, all new physicians receive information on the requirement to report when they apply for medical licensure in Michigan. There are discussions underway about enforcing the reporting law, after providing further notification to health care providers about the regulations related to occupational diseases.

We know that the approximately 20,000 reports received each year do not represent the actual incidence of occupational disease in Michigan. Using capture-recapture analysis we have previously estimated that 29,193 to 60,968 individuals are diagnosed with occupational diseases each year in Michigan[7]. Even this range is an underestimate because it assumes 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.

The type of illness and the type of industry where occupational diseases occur as reported by non-company health practitioners differs from company-based health practitioners (Tables 1, 4 and 5). These differences vary depending on the specialties of the private practice physicians who submit reports. For example, the non-company health practitioners who reported patients in the year 2002 were more likely to report patients with respiratory disease who work in small, non-manufacturing companies. A large percentage of the year 2002 reports from non-company health practitioners were from physicians who are specialists in the radiographic interpretation of mineral and dust-related lung disease. Without these reports the increased diagnosis of asbestos related lung disease would be missed (Figure 6). However, regardless of the mix of non-company specialists reporting, the data illustrate that relying on company based reports alone would cause occupational illness statistics to markedly under-count certain work-related conditions. For the years 1992-1994, only 9.6% of the workers for whom an Occupational Disease Report was submitted had definitely filed a Workers' Compensation reference claim, although an additional 36% may have filed a claim for a total of 45.6%[8]. To determine the true burden of occupational disease in our state, multiple reporting sources must be used. Efforts to develop a comprehensive surveillance system for Michigan as well as the nation are needed.

We are continuing to work on a project that began last year to combine the reports of occupational injuries and illnesses from nine databases, eliminating duplicate reports. The nine databases are:

- Michigan Adult Blood Lead Epidemiologic Surveillance System (ABLES)
- Michigan Bureau of Workers' Disability and Compensation First Injury and Illness Reports
- Michigan Census of Fatal Occupational Injuries (CFOI)
- Michigan Hospital Inpatient/Outpatient Database
- Michigan Occupational Disease Reports
- United States Department of Labor Bureau of Labor Statistics Annual Survey
- United States Department of Labor Mine Safety and Health Administration Injury and Illness Reports
- United States Department of Labor Occupational Safety and Health Administration Annual Survey
- United States Department of Labor Occupational Safety and Health Administration Integrated Management Information System

Preliminary estimates show little overlap between these systems. We have added a new source for occupational disease reports, the two Poison Control Centers in Michigan. They added 1,399 new

reports to the 2002 total.

In addition to tracking the incidence of occupational disease, such a comprehensive system would allow us to prioritize and evaluate the effectiveness of interventions designed to prevent occupational disease.

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Michigan Department of Consumer and Industry Services — Occupational Health Division

Known or Suspected Occupational Disease Report

(Information will be held confidential as prescribed in Act.)

EMPLOYEE AFFECTED

Name (Last, First, Middle)	Age	Sex M F	Race: ◯ White ◯ Black ◯ Hispanic ◯ Other
Street	City	State	Zip
Home Phone Number	Social Security Number		

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 ◯ < 25 ◯ 25-100 ◯ 100-500 ◯ > 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 ◯ No ◯ — 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?
If yes, record information below. Yes ◯ No ◯ Don't Know ◯

Physician's Name	Phone		
Office Address	City	State	Zip
Name of Person Submitting Report	Physician ◯ Non-Physician ◯		
Address	City	State	Zip
Signature	Phone		Date

The Michigan Department of Consumer and Industry Services is an equal opportunity, affirmative action employer, service provider and buyer.

Return completed form to:

Michigan Department of Consumer and Industry Services
Occupational Health Division
Bureau of Safety and Regulation
7150 Harris Drive, P.O. Box 30649
Lansing, MI 48909-8149

OH - 51 (02/02)

Authority: P.A. 368 of 1978
Completion: Required
Penalty: Misdemeanor

Figure 2. Occupational Disease Reports to the Michigan Department of Consumer and Industry Services: 1985 - 2002

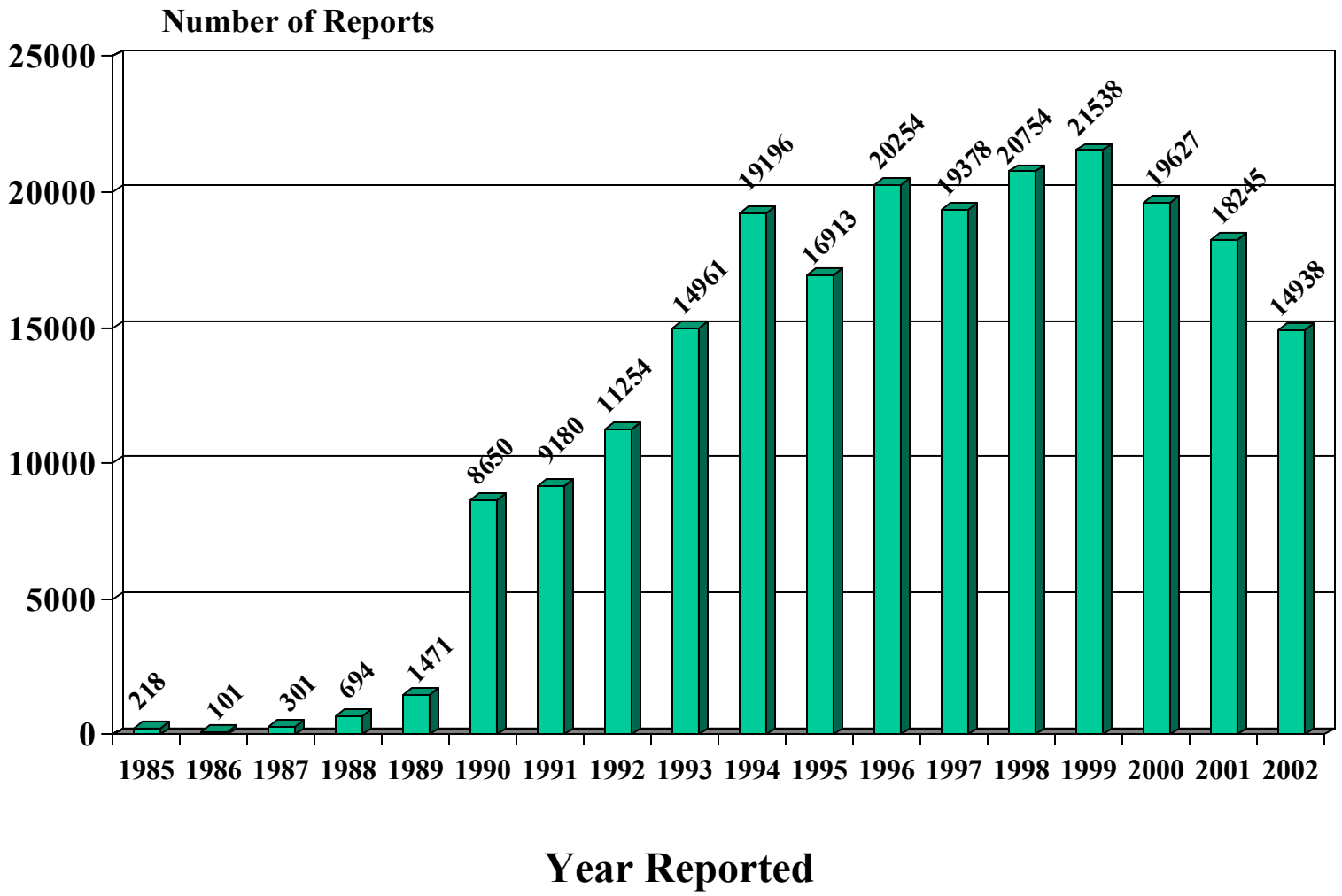
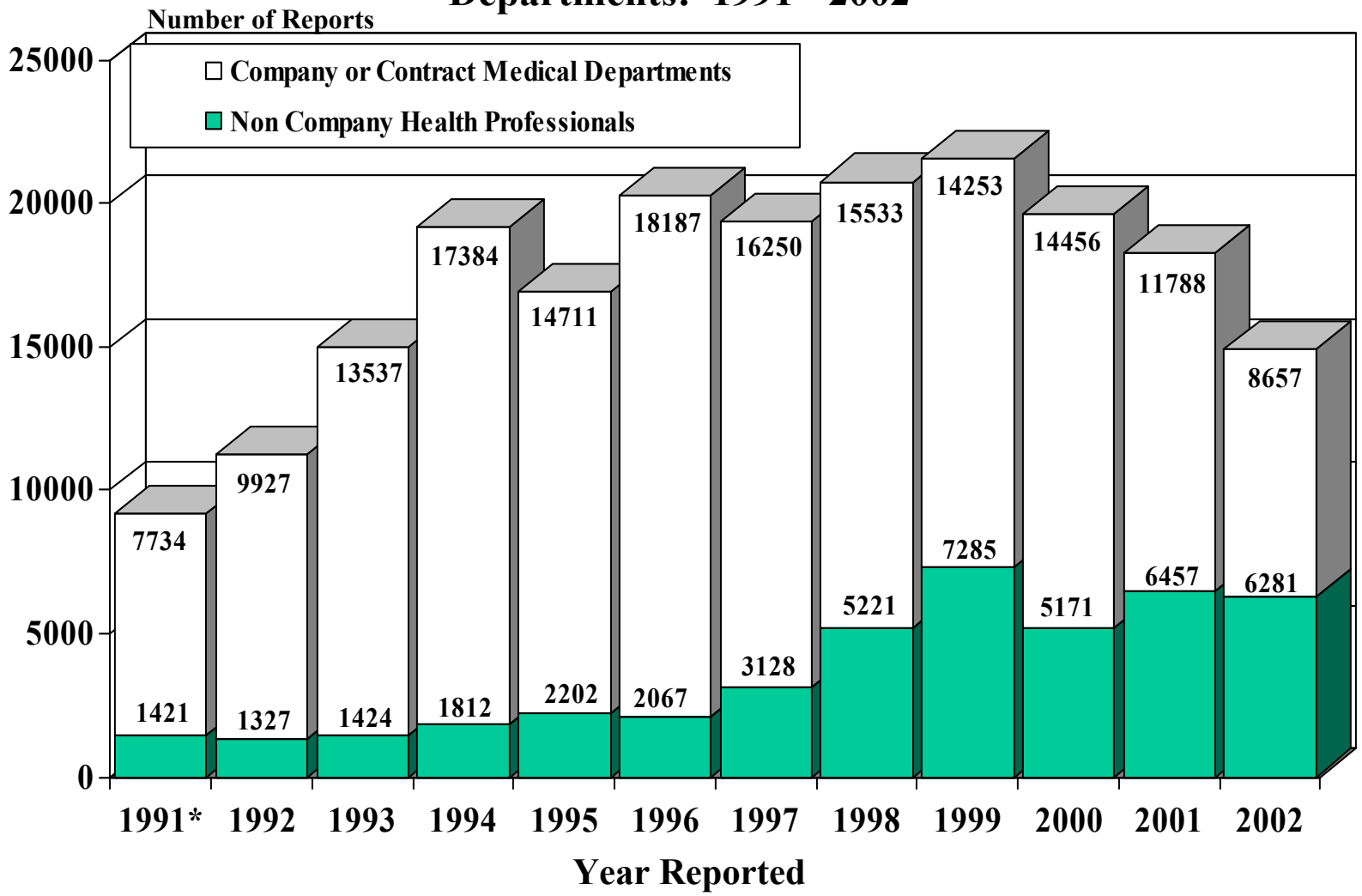


Figure 3. Occupational Disease Reports by Reporting Source, Non-Company Health Professionals and Company or Contract Medical Departments: 1991 - 2002



*Reporting source was unknown for 25 reports.

Figure 4. Number of Hospitalizations Paid for by Workers' Compensation in Michigan: 1992 - 2001

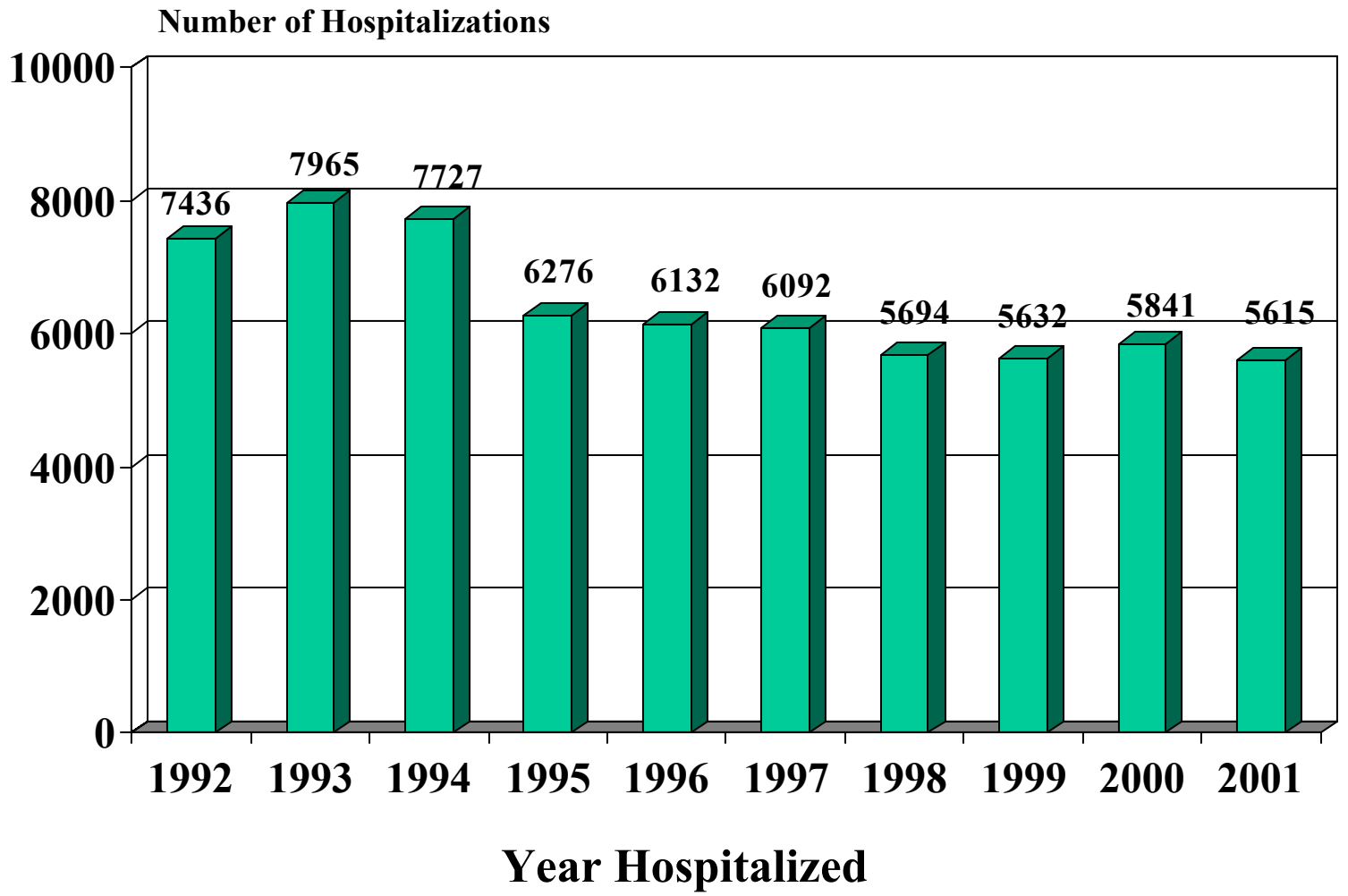


Figure 5. Percent of Total Michigan Hospitalizations Paid for by Workers' Compensation: 1992 - 2001

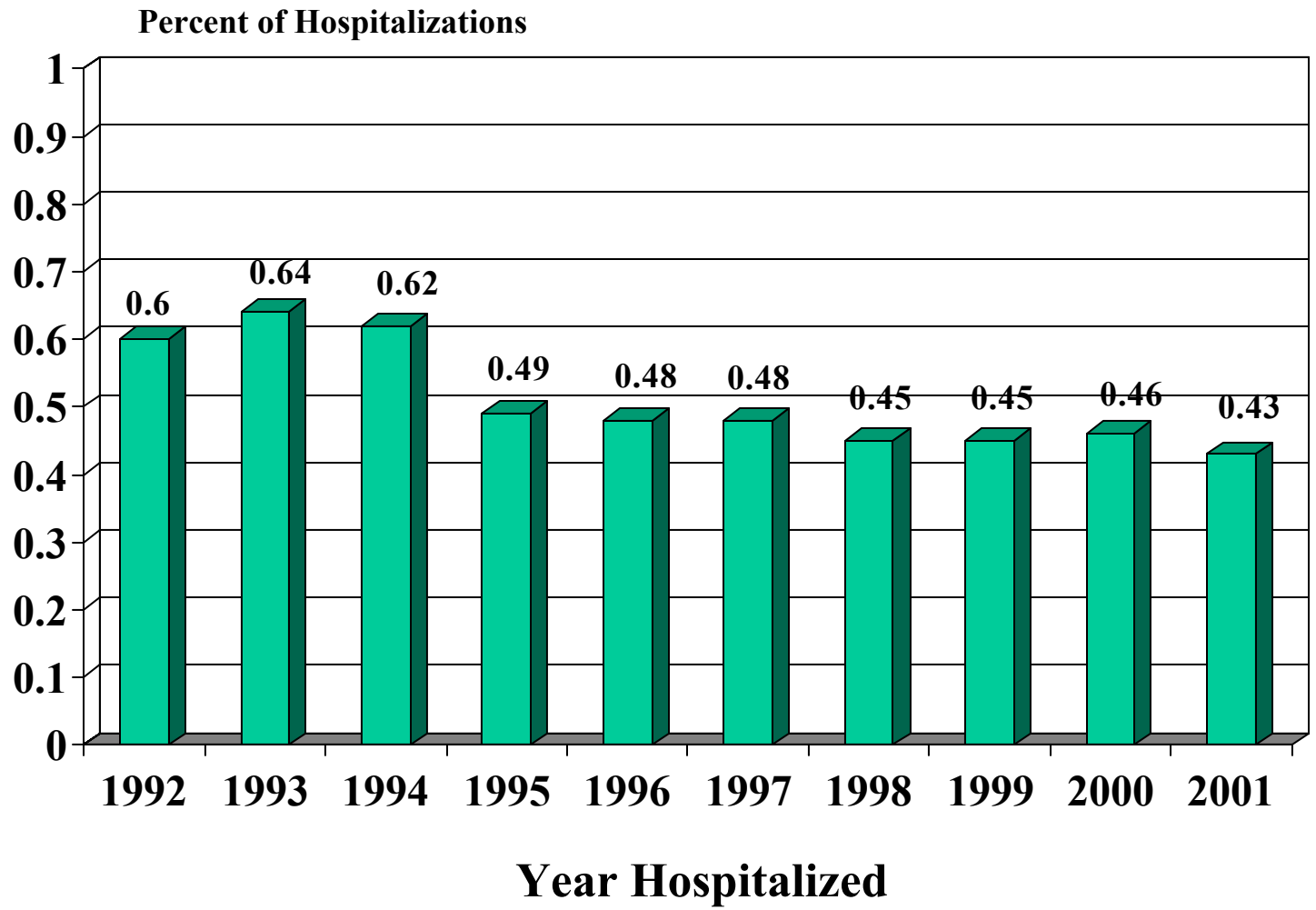


Figure 6. Asbestos-Related Cases Reported to the Michigan Department of Consumer and Industry Services: 1989 - 2002

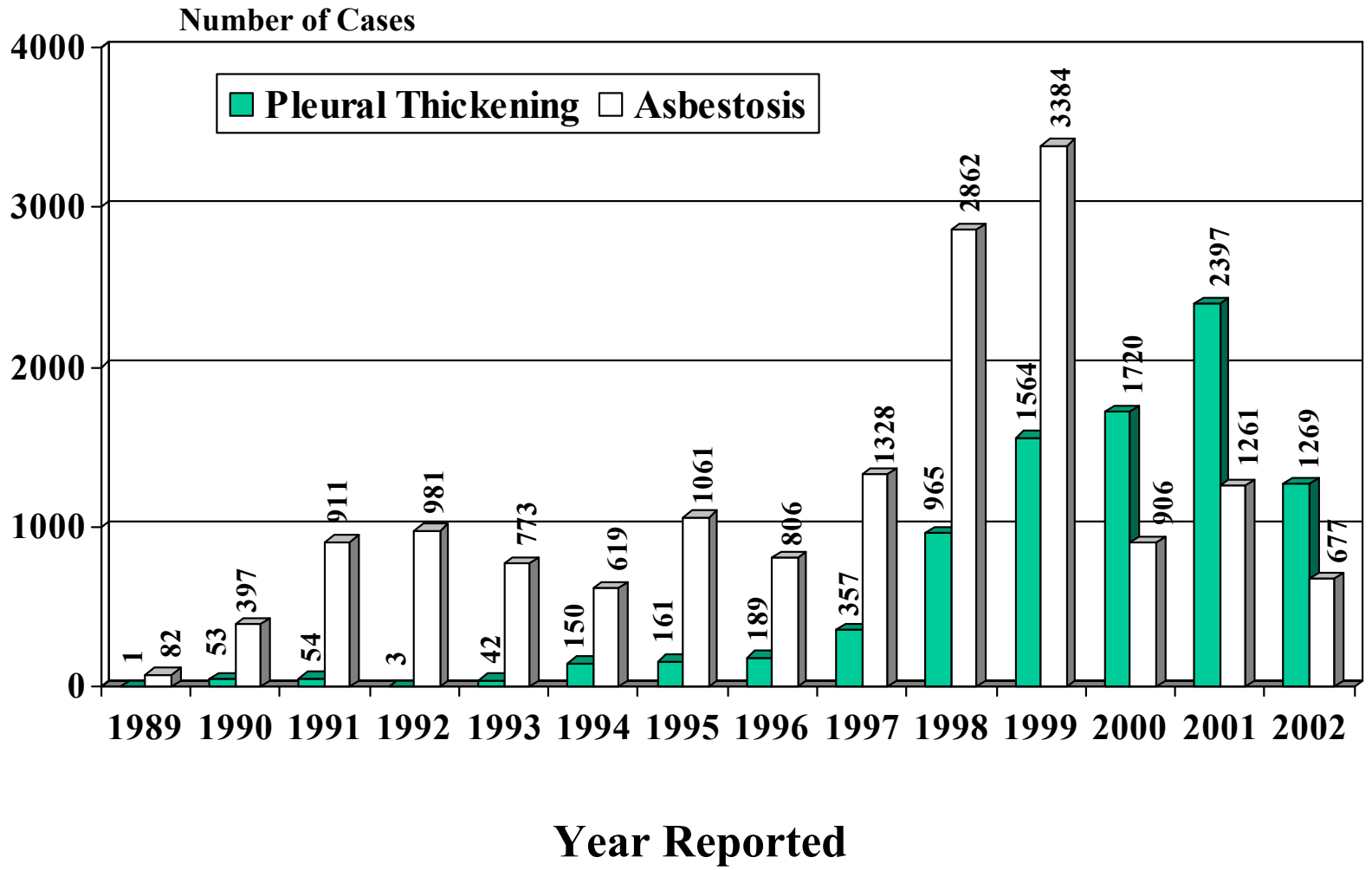


Figure 7. Number of Men and Women in Michigan Diagnosed with Mesothelioma: 1985-2000

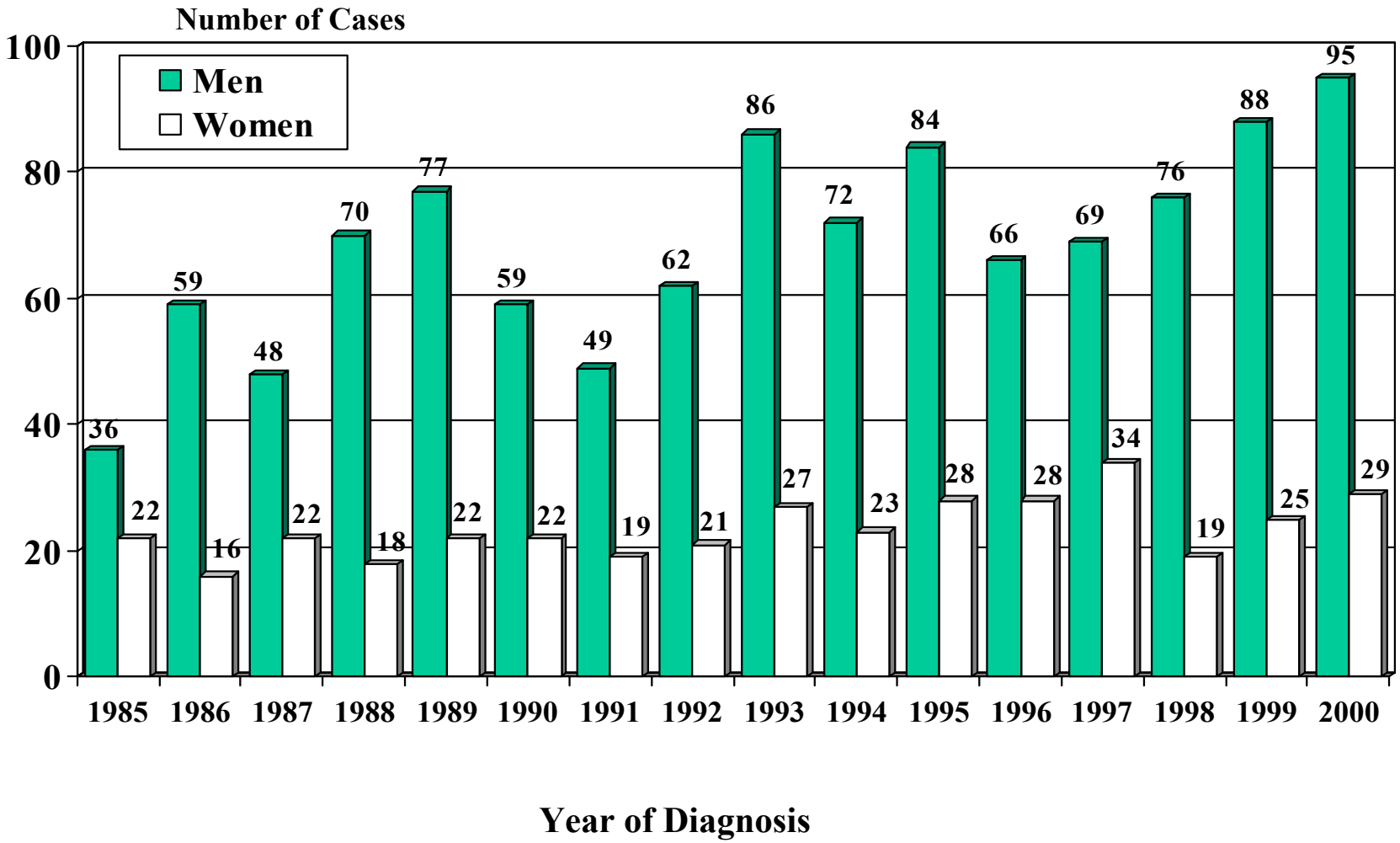
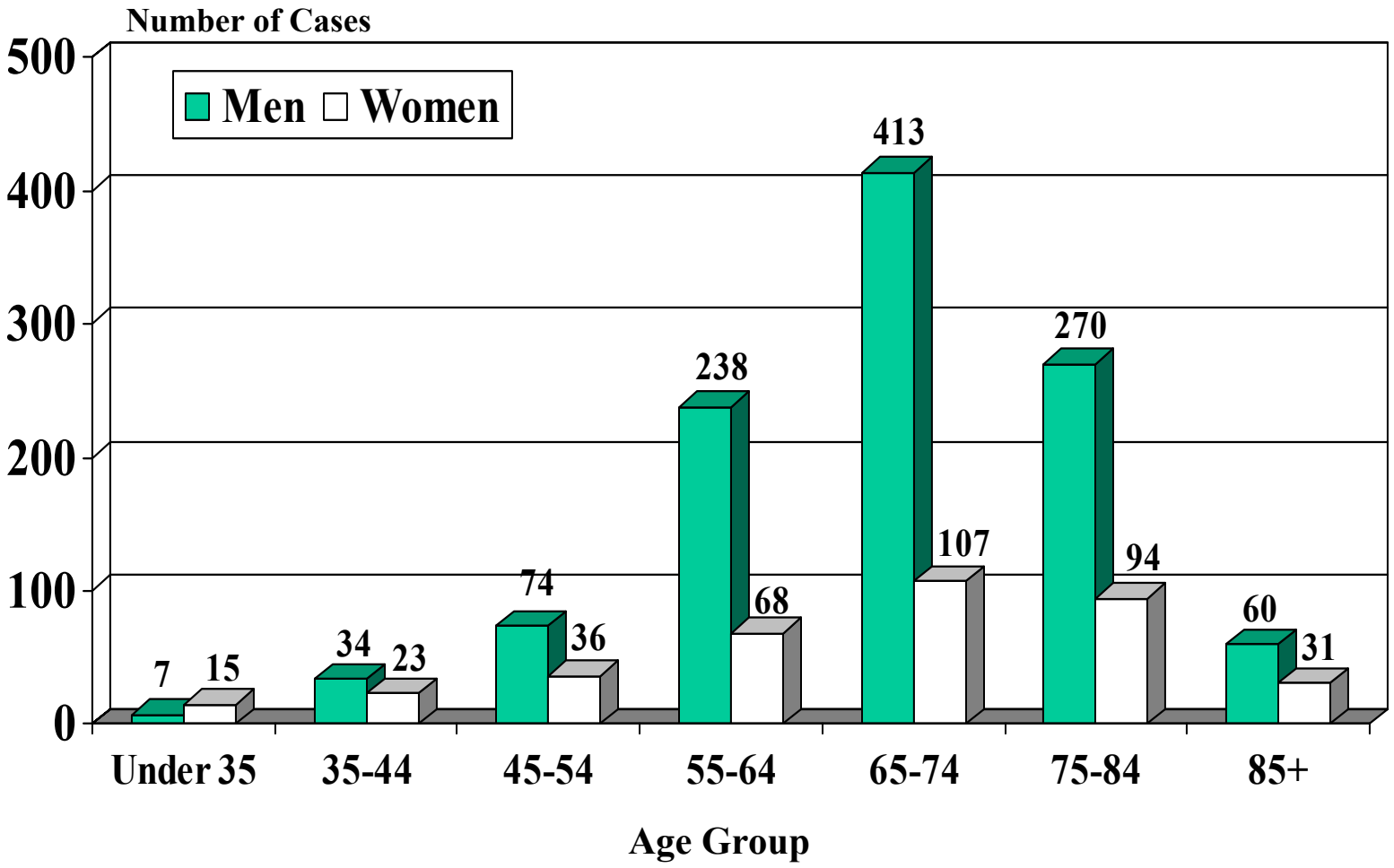


Figure 8. Cases of Mesothelioma in Michigan by Gender and Age at Diagnosis*: 1985-2000



* For one female, age at diagnosis was unknown.

Figure 9. Distribution of Michigan Residents Diagnosed with Mesothelioma by County: 1985-2000

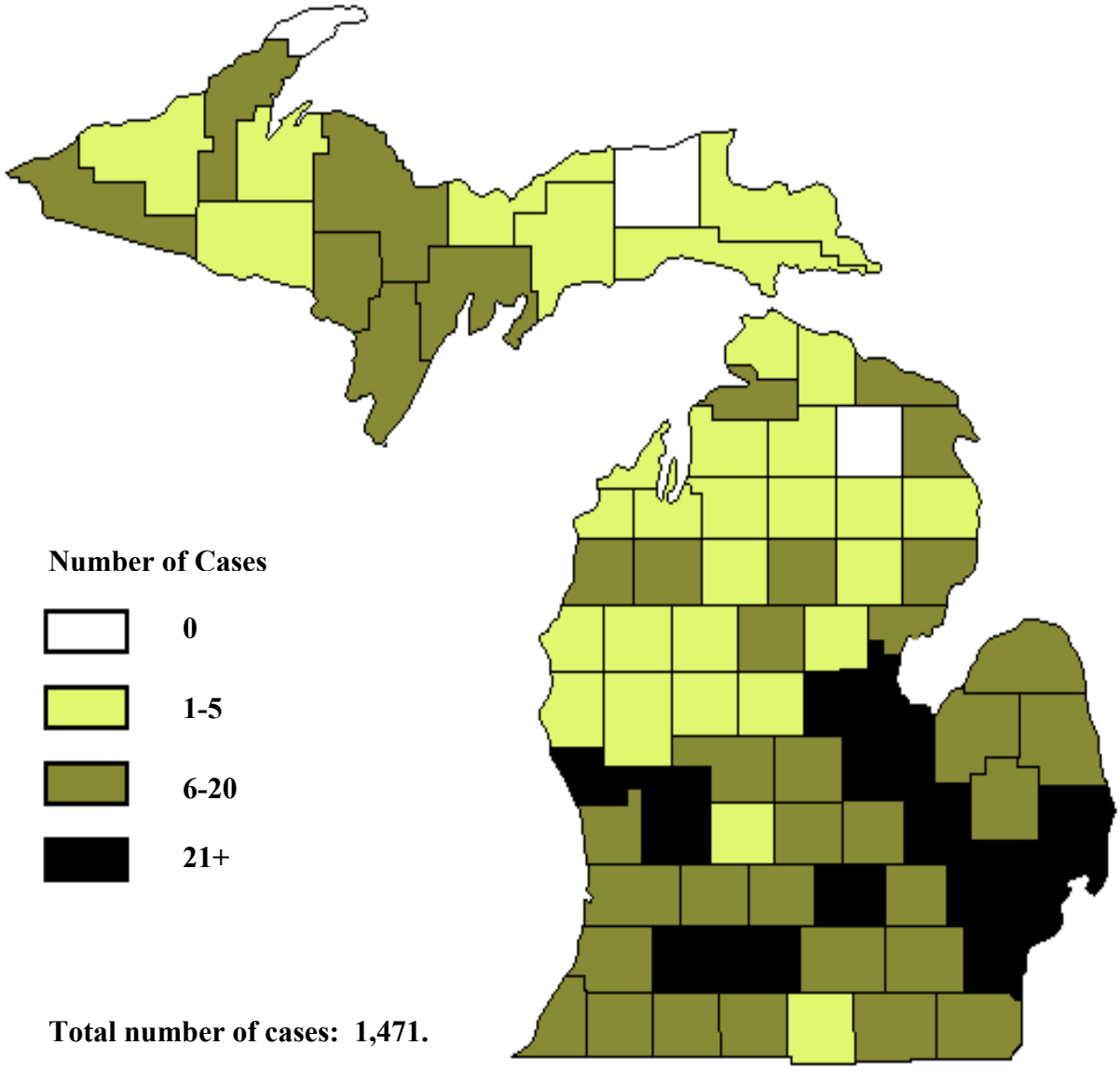
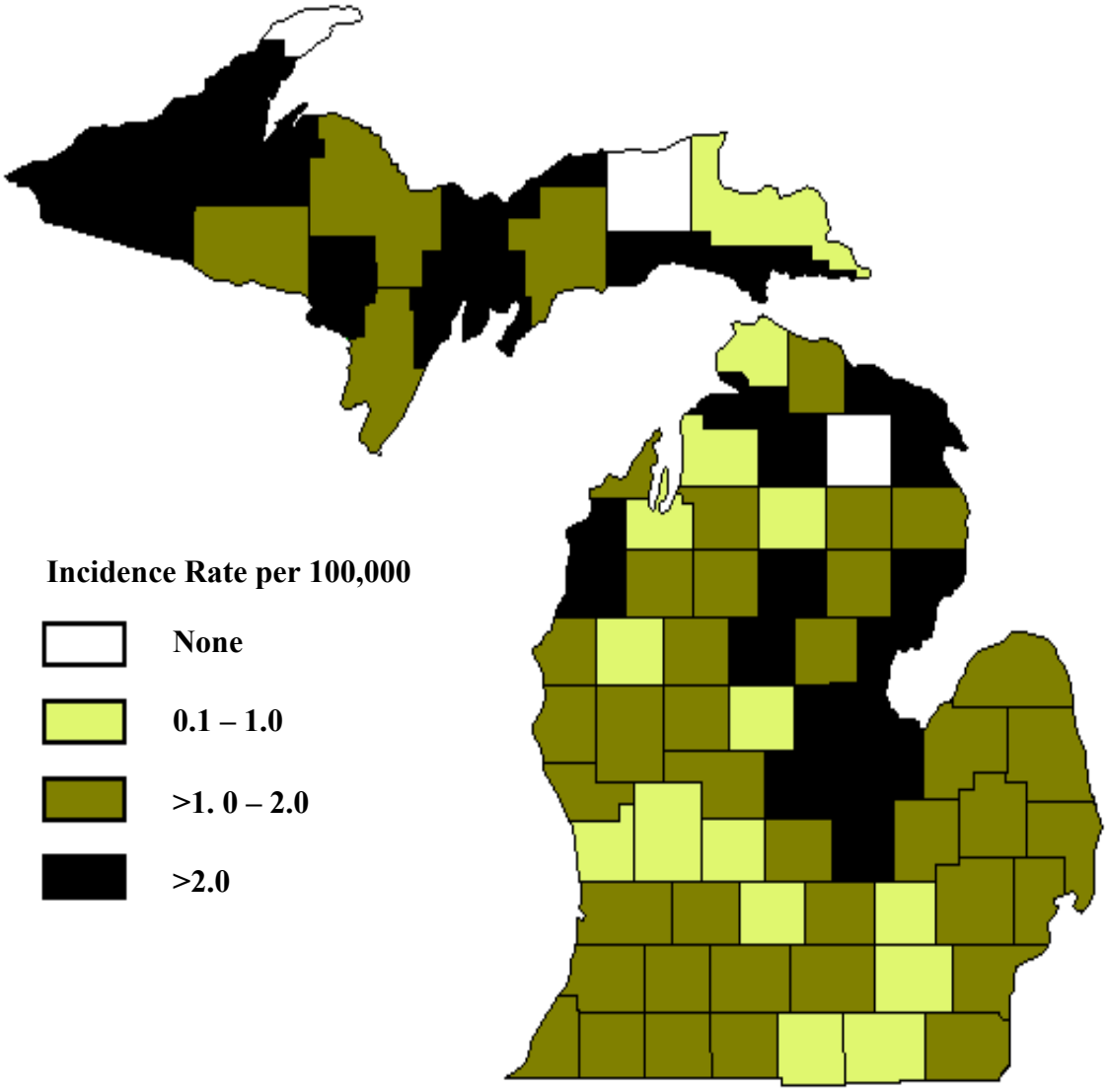


Figure 10. Average Annual Incidence Rates of Mesothelioma Among Michigan Residents, by County*



*Numerator is the average number of Michigan residents by county, diagnosed with mesothelioma from 1985-2000. Denominator is the estimated number of Michigan residents age 16+ by county, from the United States Census Bureau for July 1, 1993.

Table 1. Number of Employees at Facilities Where an Occupational Illness Occurred By Reporting Source: Company vs. Non-Company Clinician

NUMBER OF EMPLOYEES	Reports from Non-Company Practitioners		Reports from Companies		Total Reports	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
<25	28	1.9	7	0.1	35	0.4
25-100	77	5.2	54	0.7	131	1.3
100-500	256	17.2	159	1.9	415	4.3
>500	1,124	75.7	8,049	97.3	9,173	94.0
Total	1,485[a]	100.0	8,269[b]	100.0	9,754	100.0

[a] The number of employees was missing on 4,796 reports.
[b] The number of employees was missing on 388 reports.

Table 2. Number of Occupational Disease Reports Submitted by Non-Company Health Practitioners

Number of Reports	Health Practitioners		Number of Patients Represented
	Number	Percent	
1	217	67.4	217
2-5	67	20.8	191
6-10	16	5.0	124
11-20	7	2.2	101
21-100	11	3.4	469
101+	4	1.2	2,173
Total[a]	322	100.0	3,275

[a] 1,352 reports were submitted by labs for lead poisoning, representing 218 clinicians. These are not included in the above statistics. 1,399 reports were submitted by Michigan's two Poison Control Centers, and are not included in the above statistics. In addition, a total of 255 reports did not list physician name and are not included in the above statistics.

Table 3. Demographic Characteristics of Reported Occupational Disease Cases

	Number of Reports	*Percent of Reports*
AGE		
≤19	158	1.2
20-24	834	6.3
25-29	1,366	10.3
30-34	1,795	13.5
35-39	1,518	11.5
40-44	1,515	11.4
45-49	1,730	13.0
50-54	1,382	10.4
55-59	1,025	7.7
60-69	1,060	8.0
70-79	676	5.1
80+	198	1.5
Total	13,257[a]	
GENDER		
Male	10,108	70.5
Female	4,236	29.5
Total	14,344[b]	
RACE		
Caucasian	2,034	85.8
African American	221	9.3
Hispanic	51	2.2
Other	64	2.7
Total	2,370[c]	

[a]Age was missing on 1,681 reports. Mean age = 44± 15 years.
[b]Gender was missing on 594 reports.
[c]Race was missing on 12,568 reports.

Table 4. Number of Occupational Disease Reports by Disease Type and Reporting Source

DISEASE TYPE	Non-Company		Company		Total	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Infectious and Parasitic Diseases (ICD 001-139)	13	0.2	7	0.1	20	0.1
Neoplasms (ICD140-239)	40	0.6	0	--	40	0.3
Metabolic and Immunity Disorders (ICD 270-279)	1	<0.1	0	--	1	<0.1
Mental Disorders (ICD 290-319)	0	--	72	0.8	72	0.5
Diseases of the Nervous System and Sense Organs (ICD 320-389)	490	7.8	1,045	12.1	1,535	10.3
Diseases of the Circulatory System (ICD 390-459)	1	<0.1	11	0.1	12	0.1
Diseases of the Respiratory System (ICD 460-519)	2,302	36.7	65	0.8	2,367	15.8
Diseases of the Digestive System (ICD 520-579)	5	0.1	38	0.4	43	0.3
Diseases of the Genitourinary System (ICD 580-629)	1	<0.1	2	<0.1	3	<0.1
Diseases of the Skin and Subcutaneous Tissue (ICD 680-709)	103	1.6	399	4.6	502	3.4
Diseases of the Musculoskeletal System and Connective Tissue (ICD 710-739)	110	1.8	828	9.6	938	6.3
Symptoms, Signs and Ill-Defined Conditions (ICD 780-799)	86	1.4	178	2.1	264	1.8
Repetitive Trauma: Sprains and Strains (ICD 800-999 except ICD 940 & ICD 980-989)	367	5.8	5,912	68.3	6,279	42.0
Burn Confined to Eye (ICD 940)	3	<0.1	47	0.5	50	0.3
Toxic Effects of Substances Chiefly Non-Medicinal (ICD 980-989)	2,759	43.9	53	0.6	2,812	18.8
Total	6,281	99.9[a]	8,657	100.0	14,938	100.0

[a]Percent does not add to 100 due to rounding

Table 5. Number of Reports by Industry Type and Reporting Source

INDUSTRY TYPE	Non-Company		Company		Total	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Agricultural and Forestry Services (SIC 01,07,08)	6	0.2	1	<0.1	7	0.1
Mining (SIC 10-14)	10	0.4	9	0.1	19	0.2
Construction (SIC 15-17)	343	13.6	29	0.3	372	3.4
Manufacturing (SIC 20-39)						
Food and Kindred Products (SIC 20)	30	1.2	24	0.3	54	0.5
Furniture (SIC 25)	23	0.9	172	2.0	195	1.8
Paper and Allied Products (SIC 26)	4	0.2	1	<0.1	5	<0.1
Printing and Publishing (SIC 27)	9	0.4	0	--	9	0.1
Chemicals and Allied Products (SIC 28)	133	5.3	138	1.6	271	2.4
Rubber and Misc. Plastics Products (SIC 30)	14	0.6	214	2.5	228	2.1
Stone, Clay, Glass & Concrete Products (SIC 32)	23	0.9	3	<0.1	26	0.2
Primary Metal Industries (SIC 33)	601	23.9	243	2.8	844	7.6
Fabricated Metal Products (SIC 34)	263	10.5	1,163	13.6	1,426	12.9
Industrial & Commercial Machinery & Computer Equipment (SIC 35)	57	2.3	84	1.0	141	1.3
Electronic Equipment and Components (SIC 36)	4	0.2	344	4.0	348	3.1
Transportation Equipment (SIC 37)	291	11.6	5,490	64.1	5,781	52.2
Miscellaneous Manufacturing (SIC 23,24,29,38,39)	45	1.8	22	0.3	67	0.6
Transportation, Communications, Electric, Gas & Sanitary Services (SIC 40-49)	114	4.5	40	0.5	154	1.4
Wholesale and Retail Trade (SIC 50-59)	68	2.7	45	0.5	113	1.0
Insurance & Real Estate (SIC 60-67)	18	0.7	0	--	18	0.2
Services						
Hospitals (SIC 80)	113	4.5	135	1.6	248	2.2
Schools (SIC 82)	143	5.7	197	2.3	340	3.1
Misc. (SIC 70,72,73,75,76,79,83,86,87,88)	126	5.0	185	2.2	311	2.8
Public Administration (SIC 90-97)	75	3.0	23	0.3	98	0.9
Total	2,513	100.1[b]	8,562	100.0	11,075[a]	100.1[b]

[a]Type of industry was unknown in 3,768 non-company reports and 95 company reports.
[b]Percent does not add to 100 due to rounding

Table 6. Number of Occupational Disease Reports by Disease Type and Gender[a]

DISEASE	MALES		FEMALES	
	Number	*Percent*	*Number*	*Percent*
Infectious and Parasitic Diseases (ICD 001-139)	6	<0.1	14	0.3
Neoplasms (ICD 140-239)	1	<0.1	1	<0.1
Metabolic and Immunity Disorders (ICD 270-279)	1	<0.1	0	--
Mental Disorders (ICD 290-319)	32	0.3	40	0.9
Diseases of the Nervous System and Sense Organs (ICD 320-389)	1,253	12.4	273	6.4
Diseases of the Circulatory System (ICD 390-459)	11	0.1	1	<0.1
Diseases of the Respiratory System (ICD 460-519)	1,836	18.2	198	4.7
Diseases of the Digestive System (ICD 520-579)	42	0.4	1	<0.1
Diseases of the Genitourinary System (ICD 580-629)	3	<0.1	0	--
Diseases of the Skin and Subcutaneous Tissue (ICD 680-709)	251	2.5	247	5.8
Diseases of the Musculoskeletal System and Connective Tissue (ICD 710-739)	519	5.1	414	9.8
Symptoms, Signs and Ill-Defined Conditions (ICD 780-799)	151	1.5	112	2.6
Repetitive Trauma Injuries (ICD 800-999 except ICD 940 and ICD 980-989)	3,843	38.0	2,382	56.2
Burn Confined to Eye (ICD 940)	46	0.5	4	0.1
Toxic Effects of Substances Chiefly Non-Medicinal (ICD 980-989)	2,113	20.9	549	13.0
Total[a]	10,108	99.9[b]	4,236	99.8[b]

[a] Gender was missing on 594 reports.
[b] Percent does not add to 100 due to rounding.

Table 7. Number of Reported Occupational Disease Fatalities

	Number	*Percent*
Fatal	36	0.2
Non-Fatal	14,902	99.8
Total[a]	14,938	100.0

Table 8. Comparison of 1994 Occupational Illness Survey Data and 1990 MDCIS Workers' Disability Compensation Claims with 1992-2002 Occupational Disease Reports

DISEASE CATEGORY	MDCIS Survey & Compensation Claims				MDCIS Occupational Disease Reports[a]											
	1994 Survey[b]		1990 Claims[c]		1992-1993		1994-1995		1996-1997		1998-1999		2000-2001		2002	
	#	%	#	%	Mean#[d]	%	Mean #[d]	%	Mean #[d]	%	Mean #[d]	%	Mean #[d]	%	#	%
Occupational Skin Disease or Disorders	6,336	12.2	372	4.2	776	6.0	1,034	5.9	1,405	7.3	1,307	6.3	953	5.1	502	3.5
Dust Diseases of the Lung	186	0.4	12	0.1	914	7.1	966	5.5	1,159	6.0	3,225	15.6	1,165	6.3	777	5.5
Respiratory Conditions Due to Toxic Agents	2590	5.0	87	1.0	290	2.3	570	3.0	799	4.1	1,481	7.2	2,334	12.5	1,590	11.2
Poisoning	765	1.5	403	4.6	207	1.6	315	1.8	631	3.3	1,120	5.4	1,246	6.7	2,812	19.9
Disorders Due to Physical Agents	1,944	3.7	80	0.9	469	3.6	419	2.4	414	2.1	328	1.6	231	1.2	144	1.0
Disorders Due to Repeated Trauma	36,994	71.0	3,425	38.7	7,151	55.8	10,601	60.3	11,293	58.3	9,644	46.7	9,068	48.7	6,334	44.7
All Other Occupational Illnesses	3,283	6.3	4,475	50.5	2,972	23.2	3,680	20.9	3,668	18.9	3,541	17.2	3,639	19.5	2,004	14.1
Number of Reports Per year	52,098		8,854		12,779[e]		17,585		19,369		20,646		18,636		14,163	

[a]Counts published in previous years' OD reports for 1992-1997 have been corrected here.
[b]1994 is the last year this report was generated. Combines public and private sector reports.
[c]1990 is the last year this report was generated.
[d]Number of reports per year (averaged over the 2 years).
[e]Type of occupational disease was missing on 97 reports.

Table 9. Demographic Characteristics of Individuals Reported by the Two Michigan Poison Control Centers in 2002

	Number of Reports	*Percent of Reports*
AGE		
12-19	116	10.8
20-29	346	32.2
30-39	274	25.5
40-49	228	21.2
50-59	84	7.8
60-69	23	2.1
70-79	2	0.2
80+	3	0.3
Total	1,076[a]	
GENDER		
Male	840	61.0
Female	537	39.0
Total	1,377[b]	

[a]Age was missing on 323 reports.
[b]Gender was missing on 22 reports.

APPENDIX A

Chronic Occupational Diseases

Multiple reports for an individual patient with one of the following diseases may be submitted within and across years, but only one of these submissions is counted in our statistics.

ICD-9 Code	Description
011	Pulmonary Tuberculosis
015	Tuberculosis of the bones and joints
135	Sarcoidosis
137	Tuberculosis , Late Effects of
140-239	Neoplasms (Cancers)
250-259	Diseases of Other Endocrine Glands
260-269	Nutritional Deficiencies
270-279	Metabolic and Immunity Disorders Except 276, Dehydration
280-289	Disease of the Blood and Blood Forming Organs
290-319	Mental Disorders Except 308:Acute Reaction to Stress, and 309: Adjustment Reaction
320-340	Selected Diseases of the Nervous System and Sense Organs
388-389	Disorders of the Ear: Noise Induce Hearing Loss, Tinnitus
390-409	Selected Diseases of the Circulatory System
491-505	Selected Diseases of the Respiratory System
509	Pleural Plaques with no parenchymal abnormality marked on the ILO Form
515	Interstitial Lung Disease, Pulmonary Fibrosis
517	Connective Tissue Lung Disease
520-579	Diseases of the Digestive System
580-629	Diseases of the Genitourinary System