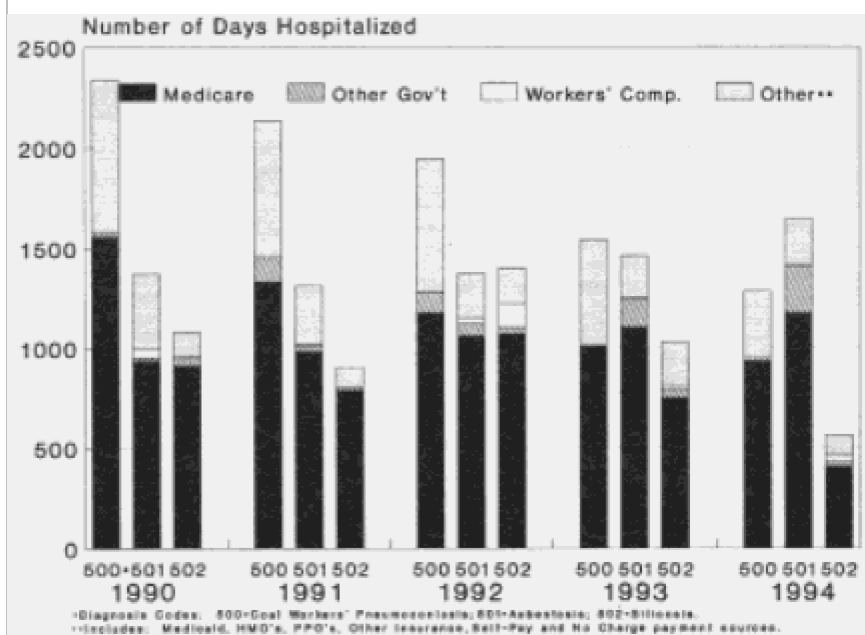


Highlights from the 1996 Annual Reports on Occupational Diseases in Michigan

Four annual reports were released this summer: Occupational Noise-Induced Hearing Loss, Silicosis, Occupational Asthma, and Occupational Diseases. This edition of the Project SENSOR newsletter contains a summary and selected tables. If you would like to receive copies of any of these reports, please give us a call at 1-800-446-7805.

Figure 5. Number of Days Hospitalized by Source of Payment, for Michigan Hospitalizations: Coal Workers' Pneumoconiosis, Asbestosis and Silicosis: 1990-1994



OCCUPATIONAL DISEASES

Medicare pays for most hospitalizations of patients with pneumoconioses even though pneumoconioses almost always occur from occupational exposures.

SILICOSIS

The case definition for silicosis is exposure to silica and x-ray or pathological changes consistent with silicosis. Although inclusion in the state registry does not require decrements in pulmonary function, over 60% of the reported patients had abnormal spirometry results. Although silicosis is classically considered a restrictive disease, the state data is very consistent with the recent medical literature that exposure to silica causes obstructive lung disease. This is true in both

Table 3. Percent Predicted Forced Vital Capacity (FVC) by X-Ray Results and Cigarette Smoking Status for Individuals* Confirmed with Silicosis: 1985-1996

| | Percent FVC** | | | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | ≤60% | | 60-79% | | ≥80% | |
| | Smoking Status: | | Smoking Status: | | Smoking Status: | |
| | Ever | Never | Ever | Never | Ever | Never |
| Biopsy Evidence | 5 (33.3) | 0 -- | 7 (46.7) | 1 (33.3) | 3 (20.0) | 2 (66.7) |
| Unknown Severity | 3 (25.0) | 1 (33.3) | 4 (33.3) | 1 (33.3) | 5 (41.7) | 1 (33.3) |
| Category 1 | 31 (22.6) | 13 (40.6) | 48 (35.0) | 6 (18.8) | 58 (42.3) | 13 (40.6) |
| Category 2 | 24 (30.0) | 14 (40.0) | 25 (31.3) | 10 (28.6) | 31 (38.8) | 11 (31.4) |
| Category 3 | 6 (24.0) | 6 (54.5) | 11 (44.0) | 3 (27.3) | 8 (32.0) | 2 (18.2) |
| PMF | <u>28 (33.3)</u> | <u>13 (34.2)</u> | <u>30 (35.7)</u> | <u>14 (36.8)</u> | <u>26 (31.0)</u> | <u>11 (28.9)</u> |
| Total | 97 (27.5) | 47 (38.5) | 125 (35.4) | 35 (28.7) | 131 (37.1) | 40 (32.8) |

* Total number of individuals: 475. Information was missing for 174 individuals.
 ** Number, percentage in parentheses.

Table 4. Ratio of Forced Expiratory Volume in 1 Second (FEV₁) Divided by Forced Vital Capacity (FVC), by X-Ray Results and Cigarette Smoking Status for Individuals* Confirmed with Silicosis: 1985-1996

| | FEV ₁ /FVC** | | | | | | | |
|-----------------|-------------------------|-----------------|------------------|-----------------|------------------|------------------|------------------|------------------|
| | ≤40% | | 41-59% | | 60-74% | | ≥75% | |
| | Smoking Status: | | Smoking Status: | | Smoking Status: | | Smoking Status: | |
| | Ever | Never | Ever | Never | Ever | Never | Ever | Never |
| Biopsy Evidence | 2 (13.3) | 1 (33.3) | 2 (13.3) | 0 (--) | 5 (33.3) | 2 (66.7) | 6 (40.0) | 0 (--) |
| Unk. Severity | 0 (--) | 0 (--) | 0 (--) | 0 (--) | 1 (11.1) | 2 (66.7) | 8 (88.9) | 1 (33.3) |
| Category 1 | 16 (11.8) | 1 (3.1) | 29 (21.3) | 3 (9.4) | 47 (34.6) | 9 (28.1) | 44 (32.4) | 19 (59.4) |
| Category 2 | 3 (3.9) | 2 (5.7) | 17 (22.4) | 5 (14.3) | 32 (42.1) | 9 (25.7) | 24 (31.6) | 19 (54.3) |
| Category 3 | 1 (4.2) | 0 (--) | 3 (12.5) | 0 (--) | 4 (16.7) | 3 (27.3) | 16 (66.7) | 8 (72.7) |
| PMF | <u>13 (15.9)</u> | <u>4 (10.5)</u> | <u>23 (28.0)</u> | <u>9 (23.7)</u> | <u>25 (30.5)</u> | <u>11 (28.9)</u> | <u>21 (25.6)</u> | <u>14 (36.8)</u> |
| Total | 35 (10.2) | 8 (6.6) | 74 (21.6) | 17 (13.9) | 114 (33.3) | 36 (29.5) | 119 (34.8) | 61 (50.0) |

*Total number of individuals: 464. Information was missing for 185 individuals.
 ** Number, percentage in parentheses.

non-cigarette
and cigarette
smokers.

Table 4. Primary Industrial Exposure for Confirmed Occupational Asthma Patients: 1988-1996

| Industry | Number of Cases 1988-1996 | Number of Employees* | Annual Average Incidence Rate** |
|----------------------|------------------------------|-------------------------|------------------------------------|
| Manufacturing | | | |
| Automobile | 456 | 282,000 | 20.2 (342) |
| Ind. & Comm. Mach. | 48 | 118,000 | 5.8 (41) |
| Fabricated Metals | 48 | 113,000 | 4.4 (30) |
| Chemicals | 44 | 47,000 | 11.3 (32) |
| Rubber | 42 | 51,000 | 9.5 (29) |
| Foundries | 40 | 38,000 | 14.0 (32) |
| Food | 21 | 45,000 | 7.0 (19) |
| Printing | 12 | 45,000 | 4.1 (11) |
| Paper Mills | 10 | 21,000 | 7.9 (10) |
| Lumber | 9 | 14,000 | 6.0 (5) |
| Other Durables | 18 | 25,000 | 10.0 (15) |
| Services | | | |
| Health | 67 | 315,000 | 2.6 (49) |
| Education | 30 | 38,000 | 8.3 (19) |
| Hotels | 8 | 34,000 | 3.4 (7) |
| Construction | | | |
| Special Trade | 22 | 87,000 | 3.4 (18) |
| Other | 8 | 42,000 | 3.2 (8) |

* Source: MESC 1991 civilian labor force and industrial employment estimates.
 ** Average annual incidence rate, total number of cases for 1989-1994 are in parentheses. Rates are based on average number of cases from 1989-1994 per 100,000 adult workers in each industrial category.

OCCUPATIONAL ASTHMA

The incidence of work-related asthma varies by industry. Some of the difference is consistent with the location of known workplace allergens and some with the patient population of the physicians who are conscientious about reporting, based on the reports received. The overall rate of work-related asthma in Michigan is 3.4 per 100,000. This compares with overall rates reported in England, Finland and Sweden that range from 2.3 - 15 per 100,000 and rates as high as 65 per 100,000 in certain industries.

Table 9. Decade Last Worked and Status of Regular Hearing Testing at Most Recent Company Where Hearing Loss Patients with a Fixed Loss Were Exposed to Noise, by Industry Type: Michigan 1992-1996

OCCUPATIONAL NOISE-INDUCED HEARING LOSS

Industries which are required by OSHA to have

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| | Agriculture | Construction | Manufacturing | Transportation |
|--------|-------------|--------------|---------------|----------------|
| Decade | % No HCP* | % No HCP | % No HCP | % No HCP |
| 1940s | 100 | -- | 50 | -- |
| 1950s | 100 | -- | 75 | -- |
| 1960s | -- | 100 | 89 | -- |
| 1970s | -- | -- | 76 | 33 |
| 1980s | 100 | 86 | 45 | 57 |
| 1990s | 91 | 87 | 34 | 36 |
| Total | 88 | 85 | 41 | 38 |

* Percent of companies without a Hearing Conservation Program (HCP).
 -- indicates no patients reported for that decade, or unknown status of HCP.

Industries which are required by OSHA to have a hearing conservation program (manufacturing and transportation) are more likely to have such a program than industries not covered by the OSHA noise standard (agriculture and construction). For manufacturing, there is an increase in companies with hearing conservation programs since the start of OSHA in 1970.

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The Project SENSOR News is published quarterly by Michigan State University-College of Human Medicine with funding from the Michigan Department of Industry Services and is available at no cost. Suggestions and comments are welcome.

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| <p>Michigan Law Requires the Reporting of Known or Suspected Occupational NIHL</p> |
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|--|--|
| Reporting can be done by: | |
| *FAX | (517) 432-3606 |
| *Telephone | 1-800-446-7805 |
| *E-Mail | 21770KDR@MSU.EDU |
| *Mail | Michigan Department of Consumer and Industry Services |
| | Division of Occupational Health |
| | P.O. Box 30649 |
| | Lansing, MI 48909-8149 |
| Reporting forms can be obtained by calling | (517) 335-8240 |
| or | 1-800-446-7805 |