

Surveillance for Silicosis — Michigan and New Jersey, 2003–2010

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Preface

CDC's National Institute for Occupational Safety and Health (NIOSH), state health departments, and other state entities maintain a state-based surveillance program of confirmed silicosis cases. Data on confirmed cases are collected and compiled by state entities and submitted to CDC. This report summarizes information for cases of silicosis that were reported to CDC for 2003–2010. The data for this report were final as of December 31, 2010. Data are presented in tabular form on the prevalence of silicosis, the number of cases and the distribution of cases by year, industry, occupation, and the duration of occupational exposure to dust containing respirable crystalline silica (Tables 1–4). The number of cases by year is presented graphically (Figure). This report is a part of the first-ever *Summary of Notifiable Noninfectious Conditions and Disease Outbreaks*, which encompasses various surveillance years but is being published in 2015 (1). The *Summary of Notifiable Noninfectious Conditions and Disease Outbreaks* appears in the same volume of *MMWR* as the annual *Summary of Notifiable Infectious Diseases* (2).

Background

Silicosis, a form of pneumoconiosis, is a progressive occupational lung disease caused by the inhalation, deposition, and retention of respirable dust containing crystalline silica. There is no effective specific treatment, and patients with silicosis can be offered only supportive care. Silicosis is preventable by using non-silica substitution materials, effective dust control measures, and personal protective equipment.* Occupational

*General information concerning the hierarchy of hazard exposure controls is available at <http://www.cdc.gov/niosh/topics/engcontrols>; information on control measures specific to crystalline silica is available at https://www.osha.gov/dsg/topics/silicacrystalline/control_measures_silica.html.

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exposure to respirable dust containing crystalline silica occurs in mining, quarrying, sandblasting, rock drilling, construction, pottery making, stone masonry, and tunneling operations (3). The Occupational Safety and Health Administration (OSHA) estimates that approximately 2.2 million workers are currently exposed[†] to respirable crystalline silica in industries where exposure might occur: 1.85 million workers in the construction industry and 320,000 workers in general industry and maritime workplaces (4,5). Typically a disease of long latency, silicosis usually is diagnosed through a chest radiograph after ≥ 10 years of exposure to respirable crystalline silica dust. Nodular silicosis can also develop within 5–10 years of exposure to higher concentrations of crystalline silica. A clinical continuum exists between the accelerated and the chronic forms of silicosis. Acute silicosis has a different

[†]National compliance standards for silica dust exposure (the Mine Safety and Health Administration [MSHA] and the Occupational Safety and Health Administration [OSHA]) use permissible exposure limits (PELs) based on the American Conference of Governmental Industrial Hygienists threshold limit value. These began to be applied in the early 1970s and included limits on exposure to silica through regulation of respirable mixed mine dust in underground coal mines using the Mine Safety and Health Administration's formula: $(10 \text{ mg/m}^3)/(\% \text{ quartz})$, and direct limits on exposure to crystalline silica as respirable quartz using the formulas: $(10 \text{ mg/m}^3)/(\% \text{ quartz} + 2)$ for metal/nonmetal mining and general industry or $(250 \text{ million particles per cubic foot})/(\% \text{ quartz} + 5)$ for the construction industry (currently for the construction industry, sampling, analysis, and calculations are the same as general industry, except an additional calculation to convert to millions of particles per cubic foot is conducted to determine overexposure according to OSHA's National Emphasis Program – Crystalline Silica, Appendix E at https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=3790). For more information, see Lowering Miners' Exposure to Respirable Coal Mine Dust, Including Continuous Personal Dust Monitors; Final Rule (available at <http://www.gpo.gov/fdsys/pkg/FR-2014-05-01/pdf/2014-09084.pdf>); Criteria for a Recommended Standard: Occupational Exposure to Respirable Coal Mine Dust (available at <http://www.cdc.gov/niosh/docs/95-106/pdfs/95-106.pdf>); Occupational Safety and Health Standards, Toxic and Hazardous Substances, 1910.1000, TABLE Z-3 Mineral Dusts (available at https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9994); Safety and Health Regulations for Construction, Occupational Health and Environmental Controls, 1926.55 App A, Gases, Vapors, Fumes, Dusts, and Mists (available at https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10629); and OSHA Frequently Asked Questions, Silica Advisor (available at <https://www.osha.gov/dsg/etools/silica/faq/faq.html>).

pathophysiology than accelerated or chronic silicosis. It might develop within weeks of initial exposure and is associated with exposures to extremely high concentrations[†] of crystalline silica. Respiratory impairment is severe, and the disease is usually fatal within a year of diagnosis. In addition, occupational exposure to respirable crystalline silica puts workers at increased risk for other serious health conditions including chronic obstructive lung disease, kidney and connective tissue disease, tuberculosis and other mycobacterial-related diseases, and lung cancer (6). In 1997, the International Agency for Research on Cancer classified crystalline silica as carcinogenic to humans (7), and this classification was reconfirmed in 2012 (8).

During 1968–2010, the number of deaths in the United States for which silicosis was listed on the death certificate declined from 1,065 (age-adjusted death rate: 8.21 per million persons aged ≥15 years) in 1968 to 101 (rate: 0.39) in 2010 (9). Analysis of 1968–2005 data indicated that silicosis-attributable years of potential life lost before age 65 years decreased substantially during 1968–2005, but the decline slowed during the last 10 years of that period (10). However, no decline occurred in the number of hospitalizations for which

TABLE 1. Number and percentage of cases of silicosis, by year — Michigan and New Jersey, 2003–2010

Year	Michigan		New Jersey		Total	
	No.	(%)	No.	(%)	No.	(%)
2003	34	(17.9)	7	(8.4)	41	(15.0)
2004	28	(14.7)	16	(19.3)	44	(16.1)
2005	30	(15.8)	8	(9.6)	38	(13.9)
2006	19	(10.0)	10	(12.0)	29	(10.6)
2007	22	(11.6)	11	(13.3)	33	(12.1)
2008	23	(12.1)	16	(19.3)	39	(14.3)
2009	14	(7.4)	7	(8.4)	21	(7.7)
2010	20	(10.5)	8	(9.6)	28	(10.3)
Total	190	(100.0)	83	(100.0)	273	(100.0)

Source: State surveillance data as of January 2014.

silicosis was listed as one of the discharge diagnoses during 1993–2011.[§] Cases of silicosis continue to occur despite the existence of legally enforceable exposure limits.[†] Silicosis in any

[§] Agency for Healthcare Research and Quality. HCUPnet, an on-line query system for National Statistics on All Stays. Available at <http://hcupnet.ahrq.gov>.

TABLE 2. Number and percentage* of primary industries associated with cases of silicosis — Michigan and New Jersey, 2003–2010

Industry (NAICS 2000)	Michigan		New Jersey		Total	
	No.	(%)	No.	(%)	No.	(%)
Agriculture, Forestry, Fishing and Hunting	1	(0.5)	1	(1.2)	2	(0.7)
Mining	15	(7.9)	11	(13.3)	26	(9.5)
Mining (except Oil and Gas) (212)	15	(7.9)	10	(12.0)	25	(9.2)
All other mining industries (213)	— [†]	—	1	(1.2)	1	(0.4)
Construction	32	(16.8)	18	(21.7)	50	(18.3)
Specialty Trade Contractors (238)	30	(15.8)	9	(10.8)	39	(14.3)
Heavy and Civil Engineering Construction (237)	2	(1.1)	5	(6.0)	7	(2.6)
All other construction industries (230, 236)	—	—	4	(4.8)	4	(1.5)
Manufacturing	131	(68.9)	44	(53.0)	175	(64.1)
Primary Metal Manufacturing (331)	99	(52.1)	3	(3.6)	102	(37.4)
Nonmetallic Mineral Product Manufacturing (327)	10	(5.3)	27	(32.5)	37	(13.6)
Transportation Equipment Manufacturing (336)	12	(6.3)	2	(2.4)	14	(5.1)
Miscellaneous Manufacturing (339)	4	(2.1)	3	(3.6)	7	(2.6)
Fabricated Metal Product Manufacturing (332)	3	(1.6)	3	(3.6)	6	(2.2)
All other manufacturing industries (325, 333–335)	3	(1.6)	6	(7.2)	9	(3.3)
Wholesale Trade	1	(0.5)	—	—	1	(0.4)
Retail Trade	1	(0.5)	—	—	1	(0.4)
Transportation and Warehousing	2	(1.1)	2	(2.4)	4	(1.5)
Professional, Scientific, and Technical Services	—	—	1	(1.2)	1	(0.4)
Administrative and Support and Waste Management and Remediation Services	—	—	1	(1.2)	1	(0.4)
Health Care and Social Assistance	1	(0.5)	—	—	1	(0.4)
Arts, Entertainment, and Recreation	—	—	1	(1.2)	1	(0.4)
Other Services (except Public Administration)	4	(2.1)	3	(3.6)	7	(2.6)
Repair and Maintenance (811)	4	(2.1)	3	(3.6)	7	(2.6)
Public Administration	1	(0.5)	—	—	1	(0.4)
Unclassified	1	(0.5)	1	(1.2)	2	(0.7)
Total	190	(100.0)	83	(100.0)	273	(100.0)

Abbreviation: NAICS = North American Industry Classification System.

Source: State surveillance data as of January 2014.

* Percentages might not sum to 100% due to rounding.

[†] Indicates no cases reported.

TABLE 3. Number and percentage* of primary occupations associated with cases of silicosis — Michigan and New Jersey, 2003–2010

Occupation (COC)	Michigan		New Jersey		Total	
	No.	(%)	No.	(%)	No.	(%)
Management (022)	— [†]	—	1	(1.2)	1	(0.4)
Architecture and engineering (145, 150)	1	(0.5)	2	(2.4)	3	(1.1)
Health-care practitioners and technical	1	(0.5)	—	—	1	(0.4)
Protective service (374)	1	(0.5)	—	—	1	(0.4)
Building and grounds cleaning and maintenance	5	(2.6)	2	(2.4)	7	(2.6)
Janitors and building cleaners (422)	5	(2.6)	1	(1.2)	6	(2.2)
Grounds maintenance workers (425)	—	—	1	(1.2)	1	(0.4)
Office and administrative support (561, 562)	2	(1.1)	—	—	2	(0.7)
Farming, forestry, and fishing (605)	—	—	1	(1.2)	1	(0.4)
Construction and extraction	44	(23.2)	26	(31.3)	70	(25.6)
Construction laborers (626)	17	(8.9)	7	(8.4)	24	(8.8)
Brickmasons, blockmasons, and stonemasons (622)	11	(5.8)	1	(1.2)	12	(4.4)
Other extraction workers (694)	6	(3.2)	2	(2.4)	8	(2.9)
All other construction and extraction occupations (620–625, 632, 635, 636, 642, 644, 652, 653, 660, 673, 682, 684)	10	(5.3)	16	(19.3)	26	(9.5)
Installation, repair, and maintenance (712, 715, 722, 733–735, 762)	6	(3.2)	8	(9.6)	14	(5.1)
Production	104	(54.7)	34	(41.0)	138	(50.5)
Production workers, all other (896)	38	(20.0)	2	(2.4)	40	(14.7)
Molders and molding machine setters, operators, and tenders, metal and plastic (810)	24	(12.6)	1	(1.2)	25	(9.2)
Grinding, polishing, and buffing machine tool setters, operators, and tenders, metal and plastic (800)	16	(8.4)	1	(1.2)	17	(6.2)
Crushing, grinding, polishing, mixing, and blending workers (865)	4	(2.1)	4	(4.8)	8	(2.9)
Metal furnace and kiln operators and tenders (804)	7	(3.7)	—	—	7	(2.6)
Molders, shapers, and casters, except metal and plastic (892)	—	—	7	(8.4)	7	(2.6)
First-line supervisors/managers of production and operating workers (770)	5	(2.6)	1	(1.2)	6	(2.2)
Painting workers (881)	2	(1.1)	4	(4.8)	6	(2.2)
Miscellaneous assemblers and fabricators (775)	—	—	5	(6.0)	5	(1.8)
Inspectors, testers, sorters, samplers, and weighers (874)	2	(1.1)	3	(3.6)	5	(1.8)
All other production occupations (801, 803, 813, 814, 822, 831, 876)	6	(3.2)	6	(7.2)	12	(4.4)
Transportation and material moving (913, 920, 961–963)	4	(2.1)	8	(9.6)	12	(4.4)
Unclassifiable	22	(11.6)	1	(1.2)	23	(8.4)
Total	190	(100.0)	83	(100.0)	273	(100.0)

Abbreviation: COC = Census Occupation Code.

Source: State surveillance data as of January 2014.

* Percentages might not sum to 100% due to rounding.

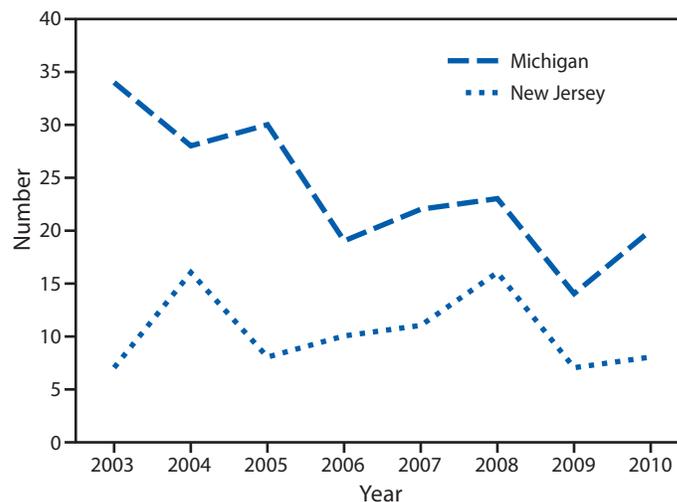
[†] Indicates no cases reported.

TABLE 4. Number and percentage* of cases of silicosis, by number of years of employment in jobs with potential exposure to silica — Michigan and New Jersey, 2003–2010

No. (yrs)	Michigan		New Jersey		Total	
	No.	(%)	No.	(%)	No.	(%)
<10	18	(9.5)	7	(8.4)	25	(9.2)
10–19	19	(10.0)	15	(18.1)	34	(12.5)
20–29	52	(27.4)	10	(12.0)	62	(22.7)
30–39	55	(28.9)	9	(10.8)	64	(23.4)
≥40	25	(13.2)	8	(9.6)	33	(12.1)
Unknown	21	(11.1)	34	(41.0)	55	(20.1)
Total	190	(100.0)	83	(100.0)	273	(100.0)

Source: State surveillance data as of January 2014.

* Percentages might not sum to 100% due to rounding.

FIGURE. Number* of cases of silicosis, by year — Michigan and New Jersey, 2003–2010

Source: State surveillance data as of January 2014.

* N = 273 (Michigan: 190; New Jersey: 83).

of its clinical forms is consistently undercounted by the Survey of Occupational Injuries and Illnesses (SOII), an employer-based surveillance system maintained by the Bureau of Labor Statistics (11). Estimates indicate that 3,600–7,300 new cases of silicosis might be occurring each year (11). In 2008, the National Academy of Sciences recommended that surveillance efforts to prevent silicosis and other interstitial lung diseases be continued and expanded (12).

Cases of silicosis are sentinel events that indicate the need for intervention (13). Silicosis was first designated as a notifiable condition at the national level in 1999[¶] and reconfirmed in 2009.^{**} In 2010, silicosis was a reportable condition in 25 states.^{††}

NIOSH has supported efforts by states to conduct surveillance for silicosis under several cooperative agreements, including the Sentinel Event Notification system for Occupational Risks (SENSOR) and the State-Based Occupational Safety and Health Surveillance agreements. In 1987, states initiated active silicosis surveillance under SENSOR and began providing data voluntarily to NIOSH (14,15). Since 1992, data summaries have been published in a series of reports.^{§§} The number of states^{¶¶} that conduct silicosis surveillance varies by year based on funding support by NIOSH. Currently, Michigan and New Jersey continue to maintain their sentinel case-based silicosis surveillance systems and intervention programs. These two states are the only states that continue to provide data voluntarily to NIOSH.

This report summarizes data for silicosis cases that met the surveillance case definition for a confirmed silicosis case for the period 2003–2010 as reported by Michigan and New Jersey. Data from state programs are updated annually and are available through the CDC's Work-Related Lung Disease Surveillance System (eWoRLD).^{***}

Data Sources

In 1987, states initiated active silicosis surveillance under SENSOR and began providing data voluntarily to NIOSH (13,14). The number of states conducting silicosis surveillance varies by year.^{¶¶} Two states, Michigan and New Jersey, continue to maintain their sentinel case-based silicosis surveillance systems and intervention programs and provide data voluntarily to NIOSH.

Interpreting the Data

In this report, state surveillance data for confirmed silicosis cases are presented by the year of the reporting source, industry, occupation, and duration of exposure. The reporting source year is the year of a silicosis-related clinician report, hospital discharge, death, or year of a workers' compensation claim. If a case is ascertained from multiple data sources over multiple years, the year reported is the first year that the case is ascertained from any data source.

Reporting practices affect how the data should be interpreted. Silicosis frequently is not recognized or reported by clinicians. Although multiple data sources are used, case ascertainment likely is incomplete. The data provided in this report are based on data from two states and might not be generalizable.

Methods for Identifying Silicosis

State sentinel silicosis surveillance programs identify suspected cases of silicosis through health care provider reports, hospital discharge or outpatient data, state death certificate data, and workers' compensation data. Other data sources include the identification by the index case of additional cases among co-workers at a work place, referrals from industrial hygienists conducting inspections at companies, employer screenings, and referrals from other state health departments.

In Michigan and New Jersey, clinicians and hospitals are required to report cases of silicosis directly to the state health department or the state health department's bona fide agent (e.g., Michigan State University). In addition, in Michigan, employers are also required to report silicosis cases.

Cases are confirmed using the surveillance case definition which requires a history of occupational exposure to airborne silica dust and either or both 1) a chest radiograph (or other radiographic image, such as computed tomography) showing abnormalities interpreted as consistent with silicosis; or 2) lung histopathology consistent with silicosis.^{**} Medical record review and follow-up interviews are conducted with the reported case or their surviving next-of-kin, using a standardized telephone-administered questionnaire.

[¶] Source: Council of State and Territorial Epidemiologists position statement ENV 4. Available at <http://c.ymcdn.com/sites/www.cste.org/resource/resmgr/PS/1999-ENV-4.pdf>.

^{**} Source: Council of State and Territorial Epidemiologists position statement 07-EC-02. Available at <http://c.ymcdn.com/sites/www.cste.org/resource/resmgr/PS/09-OH-01.pdf>.

^{††} In 2010, silicosis was a reportable condition in 25 states (Arkansas, California, Connecticut, Delaware, Florida, Illinois, Iowa, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Rhode Island, Texas, Virginia, and Wisconsin); however, only two states, Michigan and New Jersey, submit case data to NIOSH. For more information, see Council of State and Territorial Epidemiologists SRCA query tool available at <http://www.cste.org/group/SRCAQueryRes>.

^{§§} Work-Related Lung Disease (WoRLD) Surveillance Reports are available at <http://www.cdc.gov/niosh/topics/surveillance/ords/NationalStatistics.html>. The most recent data are available at <http://wwwn.cdc.gov/eworld>.

^{¶¶} A list of states conducting silicosis surveillance is available in Table A-1 on page A-7 at <http://www.cdc.gov/niosh/docs/2008-143/pdfs/2008-143.pdf>.

^{***} Available at <http://wwwn.cdc.gov/eworld/Grouping/Silicosis/94#State-based-Case-Data>.

Publication Criteria

De-identified confirmed cases of silicosis case data are reported to NIOSH on an annual basis. All confirmed cases are published.

Highlights

Silicosis is a progressive and preventable occupational lung disease caused by the inhalation, deposition, and retention of respirable dust containing crystalline silica. As a sentinel event, a case of silicosis indicates a failure to prevent exposure to crystalline silica dust.

For the period 2003–2010, silicosis surveillance programs in Michigan and New Jersey identified and confirmed 273 cases; 25 (9.2%) had <10 years of potential exposure to silica dust. The manufacturing, construction, and mining industries accounted for 92% (n = 251) of the cases, with the greatest number of cases (175 [64%]) associated with manufacturing.

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Introduction to the Summary of Notifiable Noninfectious Conditions and Disease Outbreaks — United States

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Preface

With this 2015 *Summary of Notifiable Noninfectious Conditions and Disease Outbreaks — United States*, CDC is publishing official statistics for the occurrence of nationally notifiable noninfectious conditions and disease outbreaks for the first time in the same volume of *MMWR* as the annual *Summary of Notifiable Infectious Diseases* (1).

This two-part publication provides the opportunity for readers to review information on all of the nationally notifiable conditions identified by the Council of State and Territorial Epidemiologists (CSTE) in collaboration with CDC. This combined publication is the result of a February 2013 request by CSTE for CDC to present surveillance data on all nationally notifiable conditions and disease outbreaks in the same publication. In recent years, CSTE formalized and expanded the list of nationally notifiable conditions to include foodborne and waterborne disease outbreaks and four noninfectious conditions: acute pesticide-related illness and injury, cancer, silicosis, and elevated blood lead levels.* After discussion within the organization and with subject matter experts at CDC, CSTE concluded that inclusion of information on all nationally notifiable conditions in the same *MMWR* annual surveillance summary of nationally notifiable conditions would be useful and important for the public and public health professionals.

This *Summary of Notifiable Noninfectious Conditions and Disease Outbreaks* includes six chapters treating the following subjects: acute pesticide-related illness and injury arising from occupational exposure (2), cancer (3), elevated blood lead levels among employed adults (4), elevated blood lead levels among children (5), silicosis (6), and foodborne and waterborne disease outbreaks (7). Information about nonoccupational acute pesticide-related

illness could not be included this year because the data were not ready for publication. However, the CDC programs involved in pesticide-related illness surveillance activities plan to include these data in the 2016 *MMWR* publication of the annual *Summary of Notifiable Noninfectious Conditions and Disease Outbreaks*.

Information on elevated lead exposure is provided in two separate chapters because the sources of lead exposure differ between children and adults. Lead exposure among children is caused principally by deteriorated lead paint found in homes whereas lead exposure among adults occurs principally in the workplace. CDC's National Center for Environmental Health (NCEH) has primary responsibility for preventing disease from environmental (principally nonoccupational) hazards, and CDC's National Institute of Occupational Safety and Health (NIOSH) is responsible for preventing disease from workplace hazards. Because of the separate delegation of responsibilities and differences in sources of lead exposure, CDC has a linked surveillance system for lead exposure with NCEH responsible for the Childhood Blood Lead Surveillance (CBLS) system (5) and with NIOSH responsible for the Adult Blood Lead Epidemiology and Surveillance system (ABLES) (4).

Each of the six chapters in this *Summary (Noninfectious)* presents the most recent statistics available to the CDC program. Local, state, and territorial public health departments and other agencies within those jurisdictions (e.g., departments of labor, environmental protection agencies, cancer registries, and their agents) submit data on these conditions and outbreaks to CDC programs at the National Center for Chronic Disease Prevention and Health Promotion, the National Center for Emerging and Zoonotic Infectious Diseases, NCEH, and NIOSH. Previously, the programs compiled and published surveillance data on these noninfectious conditions and disease outbreaks periodically in multiple venues with variable timeframes and formats.

The Center for Surveillance, Epidemiology, and Laboratory Services (CSELS) coordinated the development and publication of this summary. Comments and suggestions from readers on this new combined publication are encouraged, including ones about whether the information presented could be made more useful. Comments should be sent to NNDSSweb@cdc.gov.

* CDC designated these conditions nationally notifiable as a result of CSTE position statements in the following years: foodborne and waterborne disease outbreaks in 2010, acute pesticide-related illness and injury in 1999, cancer in 1997, silicosis in 2009, and elevated blood lead levels for adults and children in 1995.

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Background

As with nationally notifiable infectious diseases, nationally notifiable noninfectious conditions and disease outbreaks require regular, frequent, and timely information for prevention and control. A brief history of the reporting of nationally notifiable conditions in the United States is available at <http://wwwn.cdc.gov/nndss/case-definitions-history.html>. In 1961, responsibility for the collection of data on nationally notifiable diseases and deaths in 122 U.S. cities was transferred from the National Office of Vital Statistics to CDC.

CDC's collection of data on nationally notifiable noninfectious conditions and disease outbreaks is based on surveillance conducted at the local, state, and territorial levels by health departments and other agencies on reportable conditions in each jurisdiction. Legislation, regulation, or other rules in those jurisdictions require health-care providers, hospitals, laboratories, and others to provide information on reportable conditions to public health authorities or their agents. The list of reportable conditions in each jurisdiction varies over time and across jurisdictions; more information is available at <http://www.cste.org/?SRCA>. Public health surveillance of noninfectious conditions and disease outbreaks at the local, state, and territorial levels protects the public's health by ensuring the proper identification of diseases and health hazards. Public health officials use these data to monitor trends in these conditions, identify populations or geographic areas at high risk, plan prevention and control policies and other interventions, allocate resources effectively, coordinate activities, and assess the effectiveness of their efforts.

A selected set of reportable conditions is designated as nationally notifiable, and case notifications for those conditions are submitted to CDC by state, local, and territorial health departments. Public health officials at state, local, and territorial health departments and CDC collaborate in identifying conditions to consider for national notification. During annual meetings, CSTE, in consultation with CDC, recommends revisions to the list of nationally notifiable conditions. Conditions are added as new pathogens, environmental hazards, or conditions emerge as public health concerns, and conditions are deleted when surveillance is found not to be useful. CDC uses these data to monitor trends at the national level, develops and implements programs, allocates resources, and assesses the effectiveness of national efforts at prevention and control. Current and historic national public health surveillance case definitions used for classifying and counting cases consistently at the national level across jurisdictions are available at <http://wwwn.cdc.gov/nndss/case-definitions.html>. National surveillance case definitions for noninfectious nationally notifiable conditions and disease outbreaks were added to this website in 2010.

Although reporting of conditions at the local, state, and territorial levels is mandated by legislation or regulations at those levels, submission of case notifications to CDC is voluntary. Under-reporting of noninfectious conditions and disease outbreaks to local and state health departments occurs, and completeness of reporting, and therefore of notifications to CDC, varies by condition (2–13). A 2002 publication reported similar findings for reporting and notifications of infectious conditions (14).

Although the sources of data for nationally notifiable infectious diseases and for nationally notifiable noninfectious conditions and disease outbreaks are the same (i.e., local, state, and territorial jurisdictions' data on reportable conditions), and the purpose is the same (i.e., monitoring and responding to the condition to improve population health), there are a number of variations and differences among the conditions in this summary (1–7). Case-based surveillance of such nationally notifiable conditions as acute pesticide-related illness or injury, silicosis, and cancer is focused on detecting persons who have a condition that meets the criteria specified in national disease-specific case definitions and on collecting information about those persons' conditions. In contrast, surveillance of outbreaks of foodborne and waterborne illness seeks to identify clusters of sick persons with a common exposure (as opposed to specific diseases). Foodborne disease outbreaks are defined as two or more cases of similar illness resulting from common ingestion of a food, and waterborne disease outbreaks are defined as two or more cases of a similar illness resulting from common exposure to water or water-associated chemicals volatilized into the air (<http://wwwn.cdc.gov/nndss/conditions/notifiable/2014/outbreaks>). Information is collected about the characteristics of the disease outbreaks, including data from epidemiologic and environmental investigations. Even among conditions for which case-based surveillance methods are used, there is substantial variation in what a condition means. For example, for a condition such as elevated blood lead levels, surveillance identifies persons who have been exposed to a hazard on the basis of a laboratory test, but does not necessarily identify persons with a diagnosis of lead poisoning. In contrast, for many other conditions, a diagnosis is needed to meet the case definition for case notification to CDC (<http://wwwn.cdc.gov/nndss/conditions/notifiable/2014/noninfectious>).

Among the topics treated in this summary, the definitions of the characteristics of the conditions and populations covered also differ. This variability makes it challenging for readers to compare statistics easily across conditions and geographic locations and for public health and medical professionals to develop automated electronic health information systems based on common national standards to improve sharing of information on state-reportable conditions and nationally notifiable conditions.

The meaning of the date of the occurrence of the condition varies among the conditions. For infectious diseases, the meaning of the date varies across jurisdictions as well as by condition, and might be a date of symptom or disease onset, diagnosis, or laboratory result; the date the case was reported to a jurisdiction; the date CDC was notified of a case; the date the criteria in the national surveillance case definition were met; or the date of death (http://wwwn.cdc.gov/nndss/document/MMWR_Week_overview.pdf). For cancer, as for some infectious diseases, including the arboviral diseases, tuberculosis, and human immunodeficiency virus infection diagnosis, it is the date the condition is diagnosed. For silicosis, it is the date of the initial report (e.g., the date of a hospital discharge report, clinician report, or a workers' compensation claim). For lead screening test results, it is the date of a test. For acute pesticide-related illness and injury, it is the date of the pesticide exposure that led to acute illness/injury. For disease outbreaks, it is the date of the illness onset of the first case in the outbreak.

The source and definitions of race and ethnicity vary over time and among conditions. For example, information about race and ethnicity for lead exposure is based on self-report whereas for cancer incidence, it is based on medical records, which might not be based on self-report, or from matching the names of persons with cancer with lists of surnames for different ethnic groups or with tribal registries. For silicosis, race and ethnicity are based on self-report, report from next-of-kin, or from medical records. Race- and ethnicity-specific information among the conditions also might vary depending on differences in the jurisdictions' systems for submitting notifications to CDC and the need to protect confidentiality of private health information.

The chapters in this summary use U.S. Census Bureau data sets for the denominators in the rate estimates. However, there is variation across the chapters in which specific U.S. Census Bureau data sets are used.

There are additional notable differences among the chapters in this annual summary concerning the criteria used by CDC programs to determine which case notifications are summarized and published annually in *MMWR* (i.e., publication criteria). For data on both infectious or noninfectious conditions to be submitted to CDC from states, territories, or cities, the condition or disease must have been designated as a reportable condition in that jurisdiction for the year of notification to CDC. However, CDC publishes information on foodborne and waterborne disease outbreaks in this annual summary even if the outbreak was not on the jurisdiction's reportable conditions list. Additional criteria, based on characteristics that define the conditions and disease outbreaks (<http://wwwn.cdc.gov/nndss/case-definitions.html>), are used in making a final determination on publication in this annual summary (Box).

Data Sources

Final data for nationally notifiable noninfectious conditions and disease outbreaks are derived from the surveillance systems of the CDC Centers listed below. Requests for further information regarding these data should be directed to the appropriate Center or program.

- National Center for Chronic Disease Prevention and Health Promotion
 - National Program of Cancer Registries (cancer)
- National Center for Emerging and Zoonotic Infectious Diseases
 - Foodborne Disease Outbreak Surveillance System (foodborne disease outbreaks)
 - Waterborne Disease and Outbreak Surveillance System (waterborne disease outbreaks)
- National Center for Environmental Health
 - Childhood Blood Lead Surveillance (lead exposure test results in children)
- National Institute for Occupational Safety and Health
 - Sentinel Event Notification System for Occupational Risks (SENSOR)-Pesticides Program (acute pesticide related illness)
 - Adult Blood Lead Epidemiology and Surveillance (ABLES) Program (lead exposure test results in adults)
 - State-Based Silicosis Surveillance (silicosis)

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BOX. Criteria defining nationally notifiable conditions and disease outbreaks used to determine whether notifications to CDC are published in the annual *Summary of Notifiable Noninfectious Conditions and Disease Outbreaks*

Condition/Outbreak	Classification
Acute pesticide-related illness	Definite, probable, possible, and suspicious
Cancer	Confirmed
Lead exposure test results in children	Confirmed
Lead exposure test results in adults	Confirmed
Silicosis	Confirmed
Foodborne disease outbreak	Two or more cases of a similar illness resulting from the ingestion of the same food
Waterborne disease outbreak	Two or more cases of a similar illness linked epidemiologically by time and location to exposure to water or water-associated chemicals volatilized into the air

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Please note: An erratum has been published for this issue. To view the erratum, please click [here](#).

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Summary of Notifiable Noninfectious Conditions and Disease Outbreaks — United States



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

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