

**CENSUS OF FATAL OCCUPATIONAL  
INJURIES  
MICHIGAN 2016**

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## **PREFACE - CENSUS OF FATAL OCCUPATIONAL INJURIES PROGRAM**

The Census of Fatal Occupational Injuries (CFOI) program, part of the U. S. Department of Labor, Bureau of Labor Statistics (BLS) safety and health statistics program, provides the most complete count of fatal work injuries available. The program uses diverse state and federal data sources to identify, verify and profile fatal work injuries. Information about each workplace fatality, including occupation and other worker characteristics, equipment being used, and circumstances of the event, is obtained by cross-referencing source documents, such as death certificates, workers' compensation records, and reports to federal and state agencies. This method assures counts are as complete and accurate as possible.

The Michigan portion of the Census of Fatal Occupational Injuries is conducted by the Michigan Department of Licensing and Regulatory Affairs, MIOSHA, Technical Services Division, Management Information Systems Section in cooperation with the BLS of the U.S. Department of Labor.

## INTRODUCTION

The Census of Fatal Occupational Injuries (CFOI), administered by the BLS in conjunction with participating State agencies, compiles detailed information on all work-related fatalities that occur in the 50 states and the District of Columbia. The program is based upon the 1987 recommendations of the National Academy of Sciences and the Keystone Dialogue Group that emphasized the need for a reliable measure of occupational fatalities. In response to these recommendations, the CFOI program was developed to produce accurate, comprehensive, descriptive, timely, and accessible counts of fatal workplace injuries that occur during a given year.

In an effort to compile counts that are as complete as possible, the fatality census uses diverse sources to identify, verify, and profile fatal work injuries. Source documents such as death certificates, workers' compensation reports, and Federal and State agency administrative records are cross-referenced to gather key information about each workplace fatality, such as the particular occupation in which the fatality occurred, worker demographics, equipment or machinery involved, and circumstances of the event. Two or more independent source documents are used to verify the work relationship of each fatal work injury.

The Occupational Injury and Illness Classification (OIIC) manual provides a classification system for use in coding the case characteristics of injuries, illnesses, and fatalities in the CFOI program. The manual contains the rules of selection, code descriptions, code titles, and indices, for the following code structures: Nature of Injury or Illness, Part of Body Affected, Source of Injury or Illness, Event or Exposure, and Secondary Source of Injury or Illness.

The 2010 Standard Occupational Classification (SOC) system is used by Federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. All workers are classified into one of 840 detailed occupations according to their occupational definition. To facilitate classification, detailed occupations are combined to form 461 broad occupations, 97 minor groups, and 23 major groups. Detailed occupations in the SOC with similar job duties, and in some cases skills, education, and/or training, are grouped together.

Data compiled by the CFOI program are issued annually for the previous calendar year. This data is used by safety and health professionals, policy analysts, and researchers to prevent fatal work injuries in the following six ways:

- Inform workers of life threatening hazards associated with various jobs.
- Promote safer work practices through enhanced job safety training.
- Develop new safety equipment.
- Assess and improve workplace safety standards.
- Identify new areas for safety research.
- Provide data for policy formation.

## OBSERVATION SUMMARY

There were 162 occupational fatalities reported to the Michigan CFOI Program during the year 2016. Various categories related to these fatalities are summarized below.

- Transportation incidents led all fatal events and accounted for 50 (31 percent) of the 162 fatal occupational injuries during 2016. This was followed by Violence and Other Injuries by Persons or Animals with 37 fatalities (23 percent). (Table 1)
- All age groups from 18 to 19 years and 65 years and over reported between 3 and 45 fatalities. The age group of Under 16 years reported 1, and 16 to 17 years reported no fatalities. (Table 2)
- Based on gender, 94 percent of Michigan's fatally injured workers were men. (Table 2)
- 78 percent of fatalities occurred to persons in the ethnicity category White, non-Hispanic. (Table 2)
- Occupations with the largest number of worker fatalities were reported in the category of Construction and Extraction occupations with 38, Transportation and Material Moving occupations with 34 and Management occupations reporting 15 fatalities. (Table 3)
- Industries reporting the largest number of Michigan fatal work injuries during 2016 were Construction with 40, Trade, Transportation, and Utilities with 34, and Agriculture, Forestry, Fishing and Hunting reporting 19. (Table 4)
- Transportation Incidents were identified as the greatest source of fatal injury with 50 reported during 2016. This was followed by Violence and Other Injuries by Persons or Animals with 37 and Falls, Slips & Trips with 31. (Table 5)

**Table 1. Number and Percent Distribution of Fatal Occupational Injuries  
by Event or Exposure, Michigan 2016**

<b>Event or Exposure<sup>1</sup></b>	<b>Fatalities</b>	
	<b>Number</b>	<b>Percent</b>
<b>Total</b>	<b>162</b>	<b>100</b>
<b>Transportation incident</b>	<b>50</b>	<b>31</b>
Aircraft Incidents	1	1
Pedestrian vehicular incident	4	2
Roadway incident involving motorized land vehicle	28	17
Non-roadway incident involving motorized land vehicle	14	9
<b>Violence and other injuries by persons or animals</b>	<b>37</b>	<b>23</b>
Intentional injury by other person	35	22
<b>Falls, slips, trips</b>	<b>31</b>	<b>19</b>
Falls on same level	5	3
Fall to lower level	26	16
<b>Exposure to harmful substances or environments</b>	<b>23</b>	<b>14</b>
Exposure to electricity	5	3
Exposure to temperature extremes	2	1
<b>Contact with Objects and Equipment</b>	<b>19</b>	<b>12</b>
Struck by object or equipment	13	8
Caught in or compressed by equipment or objects	5	3
Caught in running equipment or machinery	5	3
<b>Fires and explosions</b>	<b>2</b>	<b>2</b>

<sup>1</sup>Based on the BLS Occupational Injury/Illness Classification System (OIICS) 2.01.

NOTE: Totals for major categories may include subcategories not shown separately. Due to confidentiality concerns, minimum publication criteria have been established. For this reason, data that does not meet publication criteria are excluded. Data for 2016 are preliminary.

SOURCE: U.S. Dept. of Labor, Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

**Table 2. Number and Percent Distribution of Fatal Occupational Injuries by Selected Characteristics, Michigan 2016**

Worker Characteristics	Number	<u>Fatalities</u>	Percent
<b>Total</b>	<b>162</b>		<b>100</b>
<b>Employee Status</b>			
Wage and salary workers	116		72
Self-employed	46		28
<b>Sex</b>			
Men	153		94
Women	9		6
<b>Age</b>			
Both sexes:			
Under 16 years	1		1
16 to 17 years	--		--
18 to 19 years	3		2
20 to 24 years	6		4
25 to 34 years	23		14
35 to 44 years	32		20
45 to 54 years	45		28
55 to 64 years	34		21
65 years and over	18		11
<b>Race<sup>1</sup></b>			
White (non-Hispanic)	127		78
Black or African American (non-Hispanic)	22		14
Hispanic or Latino	7		4
American Indian or Alaska Native (non-Hispanic)	--		--
Asian (non-Hispanic)	3		2
Native Hawaiian or Pacific Islander (non-Hispanic)	--		--

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<sup>1</sup>Persons identified as Hispanic or Latino may be of any race. The race categories shown exclude data for Hispanics and Latinos.

NOTE: Totals for major categories may include subcategories not shown separately. Dashes indicate no data reported or data that do not meet publication criteria. Due to confidentiality concerns, minimum publication criteria have been established. For this reason, data that does not meet publication criteria are excluded. Data for 2016 are preliminary.

SOURCE: U.S. Dept. of Labor, Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

**Table 3. Number and Percent Distribution of Fatal Occupational Injuries by Occupation, Michigan 2016**

Occupation <sup>1</sup>	Number	<u>Fatalities</u>	Percent
<b>Total</b>	<b>162</b>		<b>100</b>
<b>Management occupations</b>	<b>15</b>		<b>9</b>
Top executives	1		1
Operations specialties managers	1		1
Other management occupations	13		8
<b>Arts, design, entertainment, sports, and media occupations</b>	<b>4</b>		<b>2</b>
Art and design workers	1		1
Entertainers and performers, sports and related workers	3		2
<b>Healthcare practitioners and technical occupations</b>	<b>1</b>		<b>1</b>
Health diagnosing and treating practitioners	1		1
<b>Healthcare support occupations</b>	<b>2</b>		<b>1</b>
Nursing, psychiatric, and home health aides	2		1
<b>Protective service occupations</b>	<b>10</b>		<b>6</b>
Supervisors of protective service workers	2		1
Fire fighting and prevention workers	1		1
Law enforcement workers	5		3
Other protective service workers	2		1
<b>Food preparation and serving related occupations</b>	<b>4</b>		<b>2</b>
Supervisors of food preparation and serving workers	2		1
Other food preparation and serving related workers	1		1
<b>Building and grounds cleaning and maintenance occupations</b>	<b>12</b>		<b>7</b>
Supervisors of building and grounds cleaning and maintenance workers	3		2
Grounds maintenance workers	8		5
<b>Personal care and service occupations</b>	<b>2</b>		<b>1</b>
Supervisors of personal care and service workers	1		1
Personal appearance workers	1		1
<b>Sales and related occupations</b>	<b>13</b>		<b>8</b>
Supervisors of sales workers	3		2
Retail sales workers	4		2
Sales representatives, services	3		2
Sales representatives, wholesale and manufacturing	1		1
Other sales and related workers	--		--



**Table 3. Number and Percent Distribution of Fatal Occupational Injuries by Occupation, Michigan 2016 (Continued)**

Occupation <sup>1</sup>	Number	<u>Fatalities</u>	Percent
<b>Farming, fishing, and forestry occupations</b>	<b>9</b>		<b>6</b>
Agricultural workers	4		2
Forest, conservation, and logging workers	5		3
<b>Construction and extraction occupations</b>	<b>38</b>		<b>23</b>
Supervisors of construction and extraction workers	10		6
Construction trades workers	28		17
<b>Installation, maintenance, and repair occupations</b>	<b>11</b>		<b>7</b>
Vehicle and mobile equipment mechanics, installers, and repairers	6		4
Other installation, maintenance, and repair occupations	5		3
<b>Production occupations</b>	<b>5</b>		<b>3</b>
Supervisors of production workers	1		1
Metal workers and plastic workers	1		1
Other production occupations	2		1
<b>Transportation and material moving occupations</b>	<b>34</b>		<b>21</b>
Supervisors, transportation and material moving workers	2		1
Motor vehicle operators	19		12
Other transportation workers	2		1
Material moving workers	10		6

<sup>1</sup>Occupation data are based on the Standard Occupational Classification System, 2010.

NOTE: Totals for major categories may include subcategories not shown separately. Due to confidentiality concerns, minimum publication criteria have been established. For this reason, data that does not meet publication criteria are excluded. Data for 2016 are preliminary.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, in cooperation with State and Federal Agencies, Census of Fatal Occupational Injuries.

**Table 4. Number and Percent Distribution of Fatal Occupational Injuries by Industry, Michigan 2016**

Industry <sup>1</sup>	Fatalities	
	Number	Percent
<b>Total</b>	<b>162</b>	<b>100</b>
<b>Private Industry</b>	<b>106</b>	<b>65</b>
<b>Government Workers</b>	<b>10</b>	<b>16</b>
<b>Agriculture, forestry, fishing and hunting</b>	<b>19</b>	<b>12</b>
Crop production	12	7
Animal production and aquaculture	3	2
Forestry and logging	4	2
<b>Construction</b>	<b>40</b>	<b>25</b>
Construction of buildings	6	4
Heavy and civil engineering construction	2	1
Specialty trade contractors	31	19
<b>Manufacturing</b>	<b>15</b>	<b>9</b>
Food manufacturing	3	2
Paper manufacturing	1	1
Printing and related support activities	1	1
Chemical manufacturing	2	1
Plastics and rubber products manufacturing	1	1
Nonmetallic mineral product manufacturing	1	1
Fabricated metal product manufacturing	1	1
Transportation equipment manufacturing	3	2
Furniture and related product manufacturing	1	1
<b>Wholesale trade</b>	<b>8</b>	<b>5</b>
Merchant wholesalers, durable goods	4	2
Merchant wholesalers, nondurable goods	4	2
<b>Retail trade</b>	<b>11</b>	<b>7</b>
Motor vehicle and parts dealers	4	2
Food and beverage stores	1	1
General merchandise stores	1	1
Miscellaneous store retailers	3	2
<b>Transportation and warehousing</b>	<b>15</b>	<b>9</b>
Truck transportation	8	5
Transit and ground passenger transportation	2	1
Pipeline transportation	1	1
Support activities for transportation	3	2
Warehousing and storage	1	1

**Table 4. Number and Percent Distribution of Fatal Occupational Injuries by Industry, Michigan 2016 (Continued)**

Industry <sup>1</sup>	Fatalities	
	Number	Percent
<b>Mining</b>	<b>1</b>	<b>1</b>
Mining (except oil and gas)	1	1
<b>Real estate and rental and leasing</b>	<b>5</b>	<b>3</b>
Real estate	4	2
Rental and leasing services	1	1
<b>Professional and technical services</b>	<b>1</b>	<b>1</b>
Professional, scientific, and technical services	1	1
<b>Administrative and waste services</b>	<b>12</b>	<b>7</b>
Administrative and support services	12	7
<b>Educational services</b>	<b>1</b>	<b>1</b>
Educational services	1	1
<b>Health care and social assistance</b>	<b>4</b>	<b>2</b>
Ambulatory health care services	3	2
Nursing and residential care facilities	1	1
<b>Arts, entertainment, and recreation</b>	<b>4</b>	<b>2</b>
Performing arts, spectator sports, and related industries	3	2
Amusement, gambling, and recreation industries	1	1
<b>Accommodation and food services</b>	<b>6</b>	<b>4</b>
Accommodation	1	1
Food services and drinking places	5	3
<b>Other services, except public administration</b>	<b>9</b>	<b>6</b>
Repair and maintenance	5	3
Personal and laundry services	1	1
Religious, grantmaking, civic, professional, and similar organizations	3	2
<b>Public administration</b>	<b>10</b>	<b>6</b>
Executive, legislative, and other general government support	1	1
Justice, public order, and safety activities	9	6

<sup>1</sup> CFOI has used several versions of the North American Industry Classification System (NAICS) since 2003 to define industry. For more information on the version of NAICS used in this year, see our definitions page at <http://www.bls.gov/iif/oshcfdef.htm>

NOTE: Totals for major categories may include subcategories not shown separately. Due to confidentiality concerns, minimum publication criteria have been established. For this reason, data that does not meet publication criteria are excluded. Data for 2016 are preliminary.

SOURCE: U. S. Dept. of Labor, Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

**Table 5. Number and Percent Distribution of Fatal Occupational Injuries  
by Source of Injury, Michigan 2016**

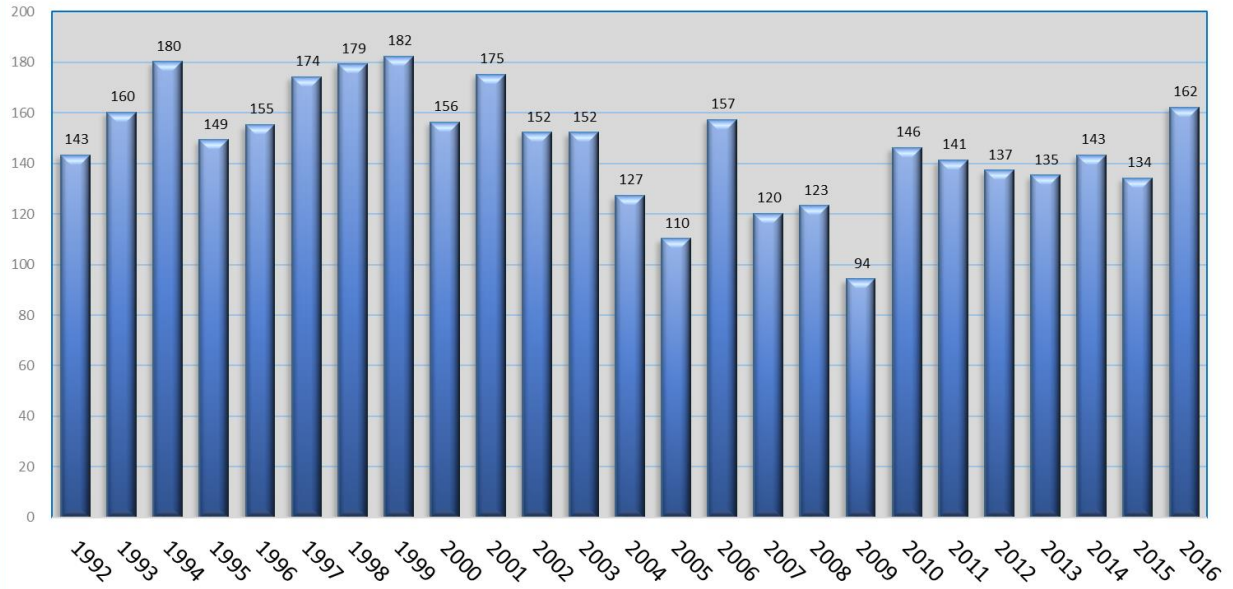
<b>Source of Injury<sup>1</sup></b>	<b>Number</b>	<b>Percent</b>
<b>Total</b>	<b>162</b>	<b>100</b>
<b>Chemicals and chemical products</b>	<b>10</b>	<b>6</b>
<b>Containers, furniture, and fixtures</b>	<b>2</b>	<b>1</b>
<b>Machinery</b>	<b>12</b>	<b>7</b>
Agriculture and garden machinery	–	--
Construction, logging, and mining machinery	5	3
Material and personnel handling machinery	2	1
<b>Parts and materials</b>	<b>3</b>	<b>2</b>
Machine, tool, and electric parts	3	2
<b>Persons, plants, animals, and minerals</b>	<b>49</b>	<b>30</b>
Person-other than injured or ill worker	23	14
Plants, trees, vegetation--not processed	9	6
<b>Structures and surfaces</b>	<b>19</b>	<b>12</b>
Buildings--office, plant, residential	4	2
Structures other than buildings	3	2
Other structural elements	8	5
<b>Tools, instruments, and equipment</b>	<b>4</b>	<b>2</b>
Ladders	3	2
<b>Vehicles</b>	<b>55</b>	<b>34</b>
Highway vehicles, motorized	39	24
Off-road and industrial vehicles--powered	14	9

<sup>1</sup>The primary source of a fatal occupational injury is the object, substance, person, bodily motion, or exposure which most directly led to, produced, or inflicted the injury or illness.

NOTE: Totals for major categories may include subcategories not shown separately. Due to confidentiality concerns, minimum publication criteria have been established. For this reason, data that does not meet publication criteria are excluded. Data for 2016 are preliminary.

SOURCE: U. S. Department of Labor, Bureau of Labor Statistics, in cooperation with the State and Federal Agencies, Census of Fatal Occupational Injuries

## Michigan Historical CFOI Data 1992 through 2016



SOURCE: Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

# **TECHNICAL NOTES ON THE CFOI PROGRAM**

## **Identification and verification of work-related fatalities**

### **Federal/State agency coverage**

The Census of Fatal Occupational Injuries includes data for all fatal work injuries, whether the decedent was working in a job covered by the Occupational Safety and Health Administration (OSHA) or other federal or state agencies or was outside the scope of regulatory coverage. Thus, any comparison between the BLS fatality census counts and those released by other agencies should take into account the different coverage requirements and definitions being used by each agency. Several federal and state agencies have jurisdiction over workplace safety and health. OSHA and affiliated agencies in states with approved safety programs cover the largest portion of the nations' workers. However, injuries and illnesses occurring in certain industries or activities, such as coal, metal, and nonmetal mining, and highway, water, rail, and air transportation, are excluded from OSHA coverage because they are covered by other federal agencies, such as the Mine Safety and Health Administration and various agencies within the Department of Transportation.

### **Acknowledgements**

Michigan and BLS appreciates the efforts of all federal, state, local, and private sector entities that submitted source documents used to identify fatal work injuries. Among these agencies are the Occupational Safety and Health Administration; the National Transportation Safety Board; the U.S. Coast Guard; the Mine Safety and Health Administration; the Employment Standards Administration (Federal Employees' Compensation and Longshore and Harbor Workers' divisions); the Federal Railroad Administration; the Department of Energy; state vital statistics registrars, coroners, and medical examiners; state departments of health, labor and industries, workers' compensation agencies, state and local police reports; and state farm bureaus.