

**2001**

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**Annual Report on  
Traumatic Work-Related  
Fatalities in Michigan**



# **2001 Annual Report On Traumatic Work-Related Fatalities in Michigan**

A Joint Report  
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## Summary

In January 2001, the Division of Occupational and Environmental Medicine at Michigan State University (MSU), in cooperation with Wayne State University, began a special program to track work-related fatalities. This is the first annual report on the results of this surveillance. One hundred seventy four individuals died in 2001 from an acute traumatic injury at work in Michigan. The largest number of deaths occurred in Construction (37), followed by Transportation and Public Utilities (31), Manufacturing (29), Services (27) and Agriculture (24).

The ranking of industries by *risk* of death differed: Agriculture had the highest annual average incidence rate (52.1 deaths per 100,000 workers), followed by Construction (18.3 deaths per 100,000 workers), and Transportation and Public Utilities (17.1 deaths per 100,000 workers).

Most deaths occurred among men (93%) who were white (83%). The average age of death was 43.5 years and ranged from 14 to 85. Eighteen percent of individuals who died had not completed high school. Illegal drugs, alcohol or side effects of prescribed medication was a potential factor in only eight percent of the deaths. The largest number of work-related traumatic events occurred on a Tuesday (43, 24.9%). October was the most common month (28, 16.1%) and 12:00p.m. to 4:00p.m. was the most common time of the day (53, 32.9%) for the occurrence of traumatic incidents.

The most common means of death were from machines (35), followed by motor vehicles (34), falls (27), and homicides (24).

The 174 individuals who died had 164 different employers. Nine employers had a fatal incident where more than one person died.

Fifty-eight of the deaths at fifty-five employers were investigated by Michigan Occupational Safety and Health Act (MIOSHA) staff. Some of these deaths were also investigated by the Federal National Transportation Safety Board and the Environmental Protection Agency (EPA). The police investigated 70 of the deaths (motor vehicle, homicides and suicides). Ten of the deaths were investigated only by Federal agencies (aircraft, boats, and trains). The other 36 deaths were not investigated by a regulatory agency.

Although acute work-related traumatic fatalities represent only a small percentage of the approximately 87,000 deaths that occur annually in Michigan, work-traumatic fatalities are preventable. The descriptions of the acute traumatic work-related deaths in Appendix I highlight these tragedies and the need despite their relatively small number to take action to prevent them. Further efforts to investigate the circumstances leading to these deaths and disseminate information from what we learn are necessary to educate and where applicable, recommend change in regulations to prevent similar deaths from occurring in the future.

## **Background**

The Michigan Fatality Assessment and Control Evaluation (MIFACE) is a joint research project of Michigan State University College of Human Medicine's Occupational and Environmental Medicine Division and Wayne State University. Surveillance and prevention activities of traumatic work-related deaths by MIFACE began January 1, 2001.

The purpose of the MIFACE surveillance project is threefold: 1) identify types of industries and work situations where workers are dying from acute traumatic incidents, 2) identify the underlying causes of the work-related fatality, and 3) formulate and disseminate prevention strategies to reduce work-related fatalities.

MIFACE uses the National Institute for Occupational Safety and Health (NIOSH) Fatality Assessment and Control Evaluation (FACE) program as a model. Since 1982, NIOSH has run a multi-state FACE program. The goal of the FACE program is to "prevent occupational fatalities across the nation by identifying and investigating work situations at high risk for injury and then formulating and disseminating prevention strategies to those who can intervene in the workplace". NIOSH FACE investigations have provided aggregate data to identify high-risk industries and work practices as well as provided the stories or "faces" necessary to make the statistics real and influence change in the workplace. Emphasis on information dissemination and translation of information into user-friendly materials is an important part of both the NIOSH and MIFACE program.

## **Methods**

MIFACE uses numerous sources to identify persons who have died from a work-related injury: (1) MIOSHA, (2) Police Departments, including Fatality Analysis Reporting System (FARS) crash reports, (3) County Clerks, (4) Medical Examiners, (5) Michigan State University County Extension Offices, (6) Newspaper articles, and (7) Emergency Service Providers, including Fire Departments.

Any person who dies from a work-related injury that occurs while performing his/her job is included in the MIFACE program. Deaths from natural causes, such as heart attacks, are not included. Suicides are included, following the protocol established by the NIOSH FACE program as well as that of the United States Department of Labor Bureau of Labor Statistics (BLS) which collects the official statistics of work-related deaths in all states.

Once an individual has been identified and confirmed as an eligible work-related death, various sources of information are used to describe the circumstances associated with the fatal event. Basic information we attempted to collect included: the size of the company; the content of the safety program; the victim's age, gender, and occupation; tasks the victim was performing; tools or equipment the victim was using; the working environment; the energy exchange resulting in the fatality; and the role of management in controlling how these factors interact.

The level of information collected for each fatality depends on the type of incident.

For homicides, suicides and most transportation-related fatalities that occur while the individual is at work, MIFACE collects only source documents.

Source documents include reports from agencies that investigated the death or provided emergency services when the event occurred, death certificates, and, when appropriate, the MIOSHA fatality investigation narrative.

For the remaining work-related fatalities including agricultural fatalities, MIFACE initiates contact with employers or farm family members to request permission for an onsite investigation. Employer participation in the MIFACE program is voluntary and is unrelated to any regulatory or enforcement procedures. It is important to note that MIFACE investigators do not enforce compliance with Michigan Occupational Safety and Health Act (MIOSHA) rules and regulations and do not assign fault or blame. However, to decrease the burden to the employer of multiple investigations MIFACE will, with employer agreement accompany the MIOSHA compliance officer. Also MIFACE will interview the compliance officer about their investigation.

When the MIFACE on-site fatality investigation is completed, MIFACE writes a report based on the facts identified during the investigation and from reviewing the source documents. Neither reports nor educational materials produced by the MIFACE program contain personal identifiers. The MIFACE report contains a summary of the fatal incident, a detailed narrative of the fatal incident, the cause of death and recommendations to minimize the chances of a similar fatality occurring in the future. Before releasing the MIFACE report, the report is reviewed by MIOSHA, and members of the MIFACE advisory board. The MIFACE report is sent to the employer and other groups that can potentially affect work practice changes to eliminate or reduce the chances of a fatality occurring under similar circumstances in the future.

MIFACE has posted completed investigative reports on the MSU Occupational and Environmental Medicine website at [www.chm.msu.edu/oem/](http://www.chm.msu.edu/oem/).

All information collected, whether from on-site investigations or through source documents is maintained in a database. On a yearly basis, the information collected is summarized and issued as an Annual Report.

## **Results**

### ***Demographics***

There were 174 acute traumatic work-related fatalities in 2001. One hundred seventy (97.7%) of the 174 work-related traumatic incidents occurred in 2001. In four cases, the traumatic incidents occurred in a prior year, and the individuals died of complications from their injuries in 2001. The four prior traumatic incidents occurred in 1974, 1996, 1997 and 2000. Two of the four delayed deaths were related to wound infections and 2 were related to paralysis from nerve damage.

### ***Gender***

One hundred sixty two (93.1%) of the individuals who died were men and 12 (6.9%) were women.

### ***Race***

One hundred forty three (83.1%) of the individuals who died were white, 21 (12.2%) were African American, 5 (2.9%) were Hispanic, 2 (1.2%) were Alaskan or American Indian, and 1 (0.6%) was of Middle East descent. Ethnicity was unknown for 2 individuals.

### ***Age***

The age distribution of the individuals who died on the job is shown in Figure 1. The ages ranged from 14 to 85. The average age was 43.5 years. One hundred and sixty-one of the deaths occurred in individuals between the ages of 18-64. The 13 deaths in the young and the elderly are described below.

Two fourteen year-old youths died in work-related incidents. One youth worked on a farm operating a tractor and was pinned between the tractor steering column and a raised gate in a barn. The other fourteen year-old worked at a haunted hayride station that featured a hanging skeleton. The youth placed the noose designated for the skeleton's neck around his neck and was asphyxiated.

Eleven individuals, with ages ranging from sixty-five to eighty-five died from acute work-related events. Nine of the 11 individuals were self-employed workers; four were farm owner/operators and five were the owner/operator of a business (landscaping, woodworking, handyman, heating/cooling and sand/gravel production). One individual was a part-time worker of a family business and one individual was the victim of a homicide.

### ***Marital Status***

Ninety-seven (56.7%) individuals who died from traumatic incidents were married, 34 (19.9%) individuals were divorced, 38 (22.2%) individuals were single or never married, and two (1.2%) individuals were widowed. Marital status was unknown for three individuals.

### ***Educational Level***

Thirty-two individuals (18.7%) had not completed high school, 83 individuals (48.5%) completed high school and received a high school diploma, 46 individuals (26.9%) completed 1-4 years of college, and 10 individuals (5.8%) had 5+ years of college. Educational level was unknown for three individuals.

Among individuals who did not complete high school, a disproportionate percentage died while working in agricultural production as compared to individuals who completed high school or some college.

Two of the individuals not completing high school were youth, one in agriculture and one in a service industry. Among individuals completing high school but no college, the highest proportion of deaths occurred while working in construction.

Among individuals with some college education, the highest proportion of deaths occurred while working in the services industry. (Table 1)

### ***Drug/Alcohol/Medication Use***

Among the non-suicide cases, one hundred twenty three of the 174 individuals (70.7%) had an alcohol screen performed after death. Three individuals (2.4%) had measurable alcohol in their blood.

One hundred fifteen individuals had a drug screen performed after death. Seven individuals (6.1%) tested positive for illegal drugs; one individual tested positive for cocaine, marijuana and amphetamines; one individual tested positive for a cocaine metabolite only, three individuals tested positive for a marijuana metabolite, one individual tested positive for amphetamines, and one individual tested positive for a cocaine cross-reactive.

Eight (7.0%) individuals tested positive for medication metabolites. Medications potentially may have been a factor in the death of four individuals (3.5%). The medications were bromopheniramine, ephedrine/pseudoephedrine, oxazepam, desmethyldiazepam, chlordiazepoxide, diazepam, and hydrocodone. Medications found in 4 individuals were determined not to be a factor in the death were lidocaine, ketamine, fluoxetine/norfluoxetine, venlafaxine, ephedrine/pseudoephedrine/norpseudoephedrine, and acetaminophen.

A total of eighteen individuals had measurable levels of alcohol or other drugs in their system at the time of their death. No individual had an overlap of alcohol, illegal drugs or medications in their blood, urine or other tested body fluid.

### ***Work-Related Event Details***

#### ***Day of Injury***

The largest number of work-related fatalities occurred on a Tuesday (43 of 173, 24.9%).

Friday had the next highest number of work-related fatalities with 28 (16.2%), followed by Thursday with 26 (15.0%) and Wednesday with 25 (14.5%). The day of injury is unknown for one individual. Table 2 shows the distribution of work-related fatalities by day of the week.

Tuesday had the highest number of work-related fatalities (16 of 37; 43%) within the construction industry.

Friday was the day of the week when the most work-related homicides occurred (8 of 24; 33%), as well as the day when the most work-related fatalities in the manufacturing sector occurred (7 of 28 with a known date of injury; 25%). Wednesday was the day of the week when the most agricultural-related deaths occurred (6 of 24; 25%).

The weekend days of Saturday (four fatalities) and Sunday (five fatalities) accounted for nine (37.5%) of the fatalities that occurred in the agricultural sector, six (21.4%) of the fatalities in manufacturing and four (16.7%) of the homicides.

October had the highest number of fatalities with 28 (16.1%), followed by June with 20 (11.5%), July with 18 (10.3%) and February with 17 (9.8%).

In the construction sector, October was the month that had the highest number of work-related fatalities. In the agricultural and manufacturing sectors, July had the highest number of work-related fatalities occur. December was the month in which most work-related homicides occurred (Table 3).

### ***Time of Injury***

The time of the injury was known in 161 of the 174 work-related deaths; the time of the fatal injury was unknown for 13 individuals. The 24-hour day has been divided into the following 4-hour time periods: 12:00a.m.-4:00a.m., 4:00a.m.-8:00a.m., 8:00a.m.-12:00p.m., 12:00p.m.-4:00p.m., 4:00p.m.-8:00p.m., and 8:00p.m.-12:00a.m.

Fifty-three (32.9%) fatal incidents occurred between 12:00p.m.-4:00p.m., 41 (25.5%) fatal incidents occurred between 4:00p.m.-8:00p.m., 33 (20.5%) fatalities occurred between 8:00a.m.-12:00p.m., 16 (9.9%) fatal incidents occurred between 4:00a.m.-8:00a.m., 12 (7.5%) fatal incidents occurred between 8:00p.m.-12:00a.m., and six (3.7%) fatal incidents occurred between the hours of 12:00a.m.-4:00am.

The construction and service industry had the highest number of work-related fatalities between the hours of 4:00p.m.-8:00pm. Twelve (35.3%) of the work-related deaths in construction, and eight (32.0%) fatal incidents in the services industry occurred between 4:00pm. to 8:00pm. (Table 4).

### ***Place of Death***

For 95 (54.6%) individuals, the place of death was at the scene of the traumatic incident. For 67 (38.5%) individuals, the death occurred in the hospital, and eight (4.6%) individuals died enroute to the hospital in the care of emergency personnel. For four (2.3%) individuals, the death certificate indicated that the individual died while at a home.

### ***Geographic Distribution***

Table 5 and Figure 2 show the county in which the victim worked where he/she was fatally injured. The most common locations were: Wayne (41 deaths, 23.8%), Washtenaw (13 deaths, 7.6%), Oakland (11 deaths, 6.4%), Kent and Macomb counties (nine deaths each, 5.2%). The county of injury was unknown for two individuals.

### ***Type of Industry***

The type of Michigan industry was classified using the 1987 Standard Industrial Classification (SIC) manual. The industry sector with the highest number of fatalities was Construction (SIC 15-17) with 37 (21.3%).



Transportation and Public Utilities (SIC 40-49) had the next highest number with 31 (17.8%), followed by Manufacturing (SIC 20-39) with 29 (16.7%). The Service sector (SIC 70-89) had 27 (15.5%) work-related fatalities, Agricultural Production (SIC 01-09) had 24 (13.8%) fatalities, Wholesale Trade (SIC 50-51) had nine (5.2%) fatalities, Retail Trade (SIC 52-59) had eight (4.6%) fatalities, Public Administration (SIC 91-97) had seven (4.0%) fatalities and Finance, Insurance and Real Estate (SIC 60-07) had two (1.1%) fatalities. Table 6 shows the distribution of work-related fatalities by industry.

Agriculture had the highest annual average incidence rate of death (52.1/100,000), followed by Construction (18.3/100,000), Transportation and Public Utilities (17.1/100,000), Wholesale Trade (4.1/100,000), Manufacturing (3.1/100,000), Public Administration (2.7/100,000), Services (2.1/100,000), Finance, Insurance and Real Estate (1.0/100,000) and Retail Trade (0.9/100,000) (Table 6).

### ***Occupations***

The 1990 Census of Population and Housing's Alphabetical Index of Industries and Occupations was used to categorize occupations of the individuals who died. Enough information was available to categorize 171 work-related fatalities; three fatalities could not be categorized.

Of the 171 work-related fatalities categorized, there were 82 different occupations.

The occupational category that had the most work-related deaths was Operators, Fabricators and Laborers with 58 deaths. Within this major grouping Transportation and Material Moving Occupations accounted for 24 of the 58 work-related fatalities. Motor vehicle operators accounted for 15 of the 24 transportation occupation fatalities (truck drivers, taxicab drivers), rail and water work-related deaths accounted for four of the 24 deaths, and material moving equipment operators accounted for five deaths. Handlers, Equipment Cleaners, Helpers and Laborers accounted for 20 of the 58 work related deaths. Eleven of those 20 individuals were non-construction laborers, eight individuals were non-construction laborers, and the remaining individual was a freight, stock and material handler. Machine operators accounted for 10 of the 58 fatalities. The remaining four deaths in the Operators, Fabricators and Laborers occupational category occurred in the fabricators and assemblers subcategory and production inspectors subcategory.

Precision Production, Craft and Repair Occupations had 25 work-related deaths. Within this occupational category, Mechanics and Repairers had 8 work-related deaths, Construction trades had 13 work-related deaths and four deaths occurred in the precision production occupations.

Another category of work is Service Occupations; this category had 24 deaths. Protective Service Occupations experienced 33% of the fatalities in this category of work; 8 individuals died in a work-related incident.

Seven work-related fatalities occurred in cleaning and building services (janitors and cleaners) and seven fatalities occurred in Personal Service occupations (barber, amusement workers, child care providers, etc.). One individual was in food service and one individual was in health services.

Farming, Forestry, and Fishing occupations had 19 work-related deaths. Twelve of these 19 individuals were farm operators/managers, four individuals had occupations classified in Other Agricultural and Related, and three individuals were in the forestry/logging category.

Managerial and Professional Specialty Occupations had 24 deaths. Managers and administrators had the highest number of work-related deaths in this category (nine, 37.5%).

Technical, Sales, and Administrative Support Occupations had 21 deaths. Within this major occupational grouping, the Technicians category had five work-related deaths, the Sales occupation category had 11 work-related deaths and the Administrative Support category had five work-related deaths.

### ***Victim's Activity at the Time of the Fatality***

The activity of the victim at the time of the fatality was known for 128 of the 137 non-homicides/non-suicide related deaths. In these 128 deaths, the individual was the operator in 64 fatal incidents (50.0%), a coworker directly involved in the work activity in 44 fatal incidents (34.4%), a bystander or pedestrian in 13 fatal incidents (10.2%) or a maintenance worker performing maintenance duties in seven incidents (5.5%).

At the time of the fatal injury, the individual who died was working indoors in 54 incidents (32.0%) and outdoors in 115 incidents (68.0%). This includes the homicides and suicides. Location of work was unknown in five cases.

For all deaths, the victim was working alone in 74 fatal incidents (49.7%) and working with a coworker in 75 fatal incidents (50.3%). Whether the victim was working alone or with a coworker could not be identified in 25 fatal incidents.

### ***Means of Work-Related Death***

Table 7 presents the 174 work-related fatalities by means of death. Machine-related deaths accounted for 35 (20.1%) of all work-related deaths in Michigan in 2001, closely followed by motor vehicles 34 (19.5%). Falls accounted for 27 work-related deaths (15.5%). Twenty-four (13.8%) homicides and 13 (7.5%) suicides occurred at work.

An object falling on the individual occurred in 10 (5.7%) instances. There were six (3.4%) individuals who were fatally injured in aircraft-related incidents, six (3.4%) individuals were poisoned, four (2.3%) individuals were electrocuted, four (2.3%) individuals were fatally injured by asphyxiation, three (1.7%) were fatally injured by fire, two (1.1%) individuals drowned, two (1.1%) individuals died during a train collision, and two (1.1%) deaths were heat-related (hyperthermia and rhabdomyolysis).

One (0.6%) individual was fatally injured by a piece of equipment (chain saw), and one (0.6%) fatal injury occurred as a result of an animal.

### ***Machine-Related Deaths***

There were 35 machine-related fatalities. The leading causes of machine related deaths were being crushed (nine, 25.7%), run over (six, 17.1%), or pinned by machine (nine, 25.7%). Four (11.4%) individuals were caught between the machine and another object. Two (5.7%) individuals were struck by a machine. Other causes of a fatal injury caused by a machine were being cut or pierced, entanglement within a moving part, explosion of the machine, an object falling from the machine and striking an individual and an individual trapped in a machine.

### ***Motor Vehicle Related Deaths***

There were 34 motor vehicle related fatalities. One of the fatalities involved an individual who sustained a shoulder injury while exiting the work vehicle, had surgery for the injury, and died from complications from surgery. No other information was available about this incident.

Among the other 33 motor-vehicle related fatalities, work-related deaths involving motor vehicles usually were single unit incidents (12, 36.4%) occurring during the daylight hours (29, 87.9%) and occurred primarily on 2-lane roads (21, 63.6%). The weather was clear in 18 (54.5%) incidents and the pavement was dry in 28 (84.8%) of the cases. The speed limit was 55 miles per hour in 17 (51.5%) incidents; in nine (27.3%) cases, the speed limit was 70 miles per hour. Speed limit signs were posted in 26 (78.8%) locations.

Twelve individuals who were driving (63.2%) were wearing a shoulder and lap belt at the time of the fatal injury.

Seven (36.8%) individuals who were driving were not wearing a shoulder or lap belt.

A restraint system was not applicable (victims were outside of the vehicle) in six incidents. Restraint use was unknown for eight individuals; six drivers and two passengers.

Fifteen (46.9%) vehicles involved in the fatal incidents were not equipped with an airbag; an airbag was present in 11 (34.4%) of the vehicles. The airbag deployed at the time of the crash in eight (72.7%) of 11 crashes, in three (27.3%) instances the airbag did not deploy. Airbag deployment was not applicable in six (18.8%) cases (victims were outside of the vehicle). It was unknown if the airbag was present in one case.

The victim was the driver of the vehicle in 25 cases; in 11 (78.6%) incidents, the driver appeared normal to the responding enforcement agency.

In two (14.3%) incidents, the driver fell asleep while driving, and in one (7.1%) incident, the driver was using a cellular phone. The driver condition was unknown 11 cases. Eight (24.2%) of the individuals fatally injured in a motor vehicle incident were not driving the vehicle.

A passenger car was the vehicle being used at the time of the incident in 13 (39.4%) cases; a pickup truck was involved in eight (24.2%) cases, and a truck/bus was involved in five (15.2%) cases.

Other vehicles involved were vans (four, 12.1%) construction equipment (two, 6.1%) and a fire truck (one, 3.0%).

The 33 motor vehicle work-related fatalities were classified into two broad categories as a non-collision and a collision with a non-fixed object. Thirteen (39.4%) non-collisions occurred. Non-collisions included the driver losing control in three cases, crossing the centerline in one case, running off of the road to the left (one case) or to the right (seven cases). One driver was killed during an overturn of the vehicle. Twenty (60.6%) collisions with a non-fixed object occurred. Collisions with a non-fixed object include collision with another moving motor vehicle 13 cases, the victim was a pedestrian in six cases, and one driver collided with a moving train.

### ***Falls***

Falls accounted for 27 of the work-related fatalities. The reason for the fall was identified in 19 (70.4%) cases and was unknown in eight cases. The individual slipped or tripped in six cases; the structure gave way in six cases. In two cases, the individual was thrown from the equipment. Other reasons for falls are the victim lost his balance, the victim stepped off an unguarded side of a lift, the victim stepped through a hole in the floor and fell to another level, the victim was in an unsecured basket that fell from a forklift, and an individual was riding on the back of a golf cart and fell off the cart.

The distance the worker fell was identified in 23 cases, four cases were unknown. The individual's fall was less than 10 feet in four (17.4%) cases, 10-20 feet in 10 (43.5%) cases, 21- 40 feet in six (26.1%) cases and for three (13.0%) cases, the fall was 50+ feet.

Individuals fell from a vehicle, machine or equipment in eight (30.8%) instances, structural steel in five (19.2%) instances, a scaffold or ladder in four (15.4%) instances, a tree in three (11.5%) instances, a roof edge in two (7.7%) instances. The individual was on the floor or at ground level in two (7.7%) instances.

One (3.8%) individual fell from an unguarded walkway and one (3.8%) individual fell when a utility pole broke at its base. The surface one individual fell from is unknown.

In 11 (47.8%) instances, the individual fell to a concrete, rock or asphalt surface. The individual fell directly to packed dirt in six (26.1%) instances; one (4.3%) individual hit a piece of equipment before landing on packed dirt, and one individual (4.3%) landed on a 3" foam mat that was laying on packed dirt. Other identified surfaces individuals fell to were wood (one, 4.3%), wet sand (one, 4.3%), ice rink surface (one, 4.3%) and lower wall steel supports (one, 4.3%). The surface the victim landed on was undetermined in four of the cases.

The working surface was dry in 13 (76.5%) incidents, snow covered in one (5.9%) incident and slippery in one (5.9%) incident. Two work surfaces were damaged (11.8%).

The condition of the work surface the victim fell from is unknown in ten cases. Other factors that played a role in the work-related deaths resulting from falls were work surfaces were cluttered (one case) or not properly secured (five cases).

### ***Work-Related Homicides***

MIFACE identified 24 work-related homicides. Twenty (83.3%) homicide victims were men and four (16.7%) victims were women.

Twelve (50%) work related homicide victims were Caucasian, ten (41.7%) were African American, one (4.2%) was Hispanic and one (4.2%) was Arabic. Ten of the 21 (47.6%) work-related fatalities among African Americans were caused by homicides.

Guns were the cause of death in 21 (87.5%) cases.

### ***Object Falling on Victim***

Ten individuals died from objects falling on them. Objects falling and striking the victim causing their death included dirt, furnace brick, I-beam, bus roof, landscaping bricks, pickup truck supported by a tire rim, ice dam from a roof, wood log being unloaded from a truck, tree on a logging site, and a tree striking a car while the victim was on duty during a tornado watch.

### ***Aircraft***

There were six individuals fatally injured in aircraft-related fatalities; one individual was exiting a helicopter, two individual were in passenger charter services, one individual was a flight instructor and two individuals, a pilot and co-pilot were flying a plane through test maneuvers.

### ***Poisoning***

There were six individuals who died from exposures; four individuals inhaled chemicals (two inhaled hydrogen sulfide and two inhaled methyl mercaptan), one individual was cooking in a commercial kitchen, returned home, and had an allergic reaction to one or more of the ingredients handled that day; and one individual died after an intravenous injection.

### ***Asphyxiation***

Four individuals were asphyxiated; one individual was caught between a sump pump edge and support bar, two individuals were covered by grain in separate silo incidents, and one individual was covered by dirt during a trench cave-in.

### ***Electrocution***

Four individuals were electrocuted; one individual was installing siding on a residence, one individual was repairing a cooler washer at a farm when he contacted live wires, one individual was on a construction site holding a pipe being lowered when the equipment lowering the pipe contacted an energized wire, and one individual was at a church running non-powered electrical lines when he contacted an energized pipe.

### ***Fire/Burn***

Three individuals died as a result of burns; one individual was emptying propane tanks while on a loading dock and a gas trail from one of the tanks taken indoors ignited and the fire traveled back to the victim, one individual died as a result of a fire at a chemical plant and one individual was fatally injured by a flash fire within the workshop.

### ***Drowning***

Two individuals, the boat's pilot and deckhand died as a result of drowning while transferring other individuals to another boat from their tugboat.

### ***Train Collision***

Two individuals, one engineer and one conductor were involved in a head-on collision with another train. The medical condition, sleep apnea was considered a significant factor in the cause of the collision.

### ***Heat Related***

One individual was working on a roof performing maintenance on an air conditioning unit and one individual was working by a furnace, went for a drink of water and collapsed near the drinking fountain.

### ***Animal***

One individual was gored by a bull.

### ***Piece of Equipment***

One individual was using a chain saw at a logging site when the chainsaw may have "kicked back" causing a fatal injury.

## ***MIOSHA Investigations***

The 174 individuals who died worked for 164 employers. At thirty-nine of the "employers" where an individual died, the individual was either self-employed or the owner. For another 11 individuals we are unsure whether they were employees or self-employed/owners. Companies can be investigated by any of three MIOSHA enforcement divisions: General Industry Safety, Construction Safety or Occupational Health depending upon the activity being performed by the company at the time of the inspection. Fifty-eight of the 174 work-related fatality cases (33.3%) at 55 of the 164 (33.5%) companies were within MIOSHA's jurisdiction and were investigated by MIOSHA.

Nine employers had a fatal incident where more than one person died during the incident.

For each company that had a work-related fatality the Federal OSHA Integrated Management Information System (IMIS) was accessed to determine the previous MIOSHA compliance activity at the company.

The IMIS database identified that 6 (3.7%) of the 164 employers had a work-related fatality occur prior to 2001. Two of these employers were in construction, three were in manufacturing, one was in utilities and one was in public administration. One other construction company had two separate fatality incidents from falls in 2001. Each of the two construction employers with prior fatalities had an individual fatally injured by a fall from a height in 2001. One construction employer had one individual fatally injured by a fall from a height in 2000. The other construction employer had three individuals who were previously fatally injured; two were fatally injured in 1993, one from a fall and one from an electrocution. The third individual was fatally injured as a result of a fall in 2000. Each of the three manufacturing employers with prior fatalities had one individual fatally injured in a machine-related incident in 2001.

One manufacturing employer had a fatal injury occur in a machine-related incident at another manufacturing facility in 1995. The third employer having a previous work-related fatality had an individual die at a different manufacturing facility from a fall in 1995. The utilities employer with prior fatalities had an individual fatally injured in a machine-related incident. This employer had four previous fatalities, all were at different locations; two electrocutions, one each in 1994 and 1995, one individual was fatally injured as a result of a fire/burn in 1993 and one individual fatally injured in a machine-related incident in 1990. The public administration employer with a prior fatality had an individual die during a homicide. A previous work-related homicide occurred in 1999.

Of the 164 employers who had a work-related fatality, the IMIS database identified 52 of the 164 (31.7%) employers as having had a previous MIOSHA Occupational Health, General Industry Safety or Construction Safety compliance inspection. Nineteen (36.5%) of the 52 companies had received an Occupational Health Inspection. Sixteen of 19 (84.2%) companies had previously been inspected 1-5 times, two of 19 (10.5%) companies had been inspected 6-10 times, and one of 19 (5.3%) companies had been inspected greater than 10 times. Citations were issued to 15 of the 19 companies during the previous inspection; if conditions warrant, a company can receive multiple citations as a result of a MIOSHA inspection. For the 15 companies receiving an Occupational Health citation, seven companies received Serious citations, two companies received a Willful citation, one company received a Repeat citation, 13 companies received a citation categorized as "Other".

Forty-nine of the 52 (94.2%) companies were identified as having had a previous MIOSHA General Industry or Construction Safety compliance inspection. Thirty one of the 49 companies that had previously received a General Industry or Construction Safety compliance inspection had been inspected 1-5 times, four companies had been inspected 6-10 times, and 14 companies had been inspected greater than 10 times. Citations were received by 41 of the 49 (83.7%) companies.

For the companies receiving a Safety citation, 39 Serious citations, four Willful citations, 11 Repeat citations, and 38 Other citations were issued.

MIFACE conducted a work-related fatality inspection at 20 locations. MIFACE accompanied the MIOSHA compliance officer to two fatality sites that were located on

public streets, so permission to view the incident site was not requested from these two employers. Of the remaining 18 incident locations, MIFACE requested and received permission to conduct an inspection. MIFACE inspected one incident site that had two deaths; the remaining sites each had one fatality. Copies of the MIFACE reports are on our web site ([www.chm.msu.edu/oem](http://www.chm.msu.edu/oem)).

### ***Case Narratives***

Based on the information collected during MIFACE on-site investigations and/or from source documents, a brief narrative summary of each of the 174 acute traumatic work-related deaths in 2001 is included in Appendix I.

## **Discussion**

There were 174 acute traumatic work-related fatalities in Michigan in the year 2001. Five of the incidents causing death occurred prior to 2001; 1945, 1974, 1996, 1997 and 2000. The major sources for identifying acute traumatic work-related deaths were the 24 hour MIOSHA, a newspaper clipping service, the State Police vehicular data reporting system, and death certificates. We coordinated our surveillance with the Census of Fatal Occupational Injuries (CFOI). CFOI is the surveillance system funded in every state by the United States Department of Labor Bureau of Labor Statistics (BLS). CFOI reported 175 deaths in 2001. The reason our total differs by one death from CFOI is that CFOI counts death by where the individual died and MIFACE counts deaths by the location of the traumatic event. One individual in the CFOI statistics in 2001 who was injured in Virginia but died in Michigan is not included in the numbers presented in this report.

There were on the average 3.3 acute traumatic work-related fatalities per week although the deaths were not evenly distributed throughout the year. October was the most common month for an incident causing a fatal traumatic death and June was the second most common month. October was the most common month for construction-related fatalities and June was the most common month for transportation-related fatalities (Table 3). Tuesday was the most common day of the week for a fatal traumatic incident and Friday was the second most common day. Tuesday was the most common day for construction and service industry-related fatalities. Friday was the most common day for manufacturing and work-related homicides (Table 2). From 12p.m. to 4p.m. was the most common time of the day for an incident causing a fatal traumatic death, and 4p.m. to 8p.m. was the second most common time.

From 12p.m. to 4p.m. was the most common time for agricultural fatalities and work-related homicides. From 4p.m. to 8p.m. was the most common time for the construction and service industries. For the transportation industry 4p.m. to 8p.m. and 4a.m. to 8a.m. were equally common (Table 4).

Individuals who died from an acute traumatic work-related fatality were most likely to be men (93%), white (83%), on the average 43.5 years of age, married (57%) and had at least a high school education (81%).



Although the largest number of deaths occurred in construction (37), agriculture had a much higher risk of acute traumatic work-related fatalities.

The rate in agriculture was 52.1 per 100,000 verses 18.3 per 100,000 in construction (Table 6). Despite the high fatality rate in agriculture, farms with less than 11 employees are exempted from all workplace regulations.

Illegal drugs and/or alcohol were found to have a minimal role in acute work-related fatalities. Alcohol was found in three individuals and another seven tested positive for illegal drugs. In an additional four individuals the side effects of prescribed medications may have been a factor in the death.

There were 36 (20.7%) deaths not investigated by a regulatory agency.

MIOSHA investigated 58 (33.3%) of the deaths, the police investigated 70 (40.2%) and federal agencies including the National Safety Transportation Board, and Coast Guard investigated 10 (5.7%) of the deaths. MIFACE attempted to investigate the 36 deaths not covered by any other agency. MIFACE is a research effort and relies on the voluntary cooperation of employers and for the self-employed, their family members. We were only successful in conducting an onsite investigation of seven of the 36 deaths where no other regulatory agency was involved.

MIFACE investigations completed to date are on our web site [www.chm.msu.edu/oem](http://www.chm.msu.edu/oem). For each report there is a dissemination plan to maximize awareness of the report. Reports are sent to appropriate trade associations, unions, trade journals and in some cases other employers doing the same type of work. A special effort in conjunction with the Michigan Farm Bureau to provide educational sessions to farmers is ongoing.

Traumatic occupational fatalities are an important public health issue in Michigan as they are throughout the United States. Traumatic occupational deaths are not random events. Information about the settings and circumstances in which work-related deaths occur is necessary to prevent their occurrence in the future.

The lessons learned from our first year of investigating work-related fatalities in Michigan are far reaching. Understanding the root cause of these tragic events and then sharing that information with stakeholders - from individuals to groups, is what makes these efforts worthwhile. If what we learn from any of these deaths can help prevent another death, then the surveillance program has been successful in its goal. Each of the 174 deaths in this report could have been prevented. An awareness of the hazards of one's job and an attitude of safety-mindedness on the part of labor and management is critical to prevent future fatal events.

We are extremely appreciative of the support of the MDCIS Safety and Health officers, the employers, the families and the experts we have worked with this past year. We look forward to continuing to work toward preventing work-related traumatic deaths and sharing what we have learned with those who may benefit from this knowledge.

**Table 1. Number and Percent of Acute Traumatic Work-Related Fatalities by Education Level of the Deceased, Michigan 2001**

Industry (SIC)*	Did Not Complete High School		Completed High School No College		Some College	
	Number	Percent	Number	Percent	Number	Percent
Agricultural Production (01-09)	12	(37.5)	7	(8.4)	5	(8.9)
Construction (15-17)	5	(15.6)	23	(27.7)	9	(16.1)
Manufacturing (20-39)	2	(6.3)	22	(26.5)	15	(26.8)
Transportation/Public Utility (40-49)	6	(18.8)	12	(14.5)	0	--
Wholesale Trade (50-51)	2	(6.3)	5	(6.0)	2	(3.6)
Retail Trade (52-59)	2	(6.3)	2	(2.4)	4	(7.1)
Finance (60-67)	0	--	0	--	2	(3.6)
Services (70-89)	3	(9.4)	7	(8.4)	17	(30.4)
Public Administration (91-97)	0	--	5	(6.0)	2	(3.6)
<b>Total**</b>	<b>32</b>		<b>83</b>		<b>56</b>	

\*Standard Industrial Classification

\*\*For three individuals education level of the deceased was unknown; 2 in transportation and 1 in manufacturing.

**Table 2. Number and Percent of Acute Traumatic Work-Related Fatalities,  
for all Deaths; by Industry\*; and for Homicides Separately  
by Day of the Week, Michigan 2001**

Day of Injury	All Deaths		Agricultural Deaths (01-09)**		Construction Deaths (15-17)		Manufacturing Deaths (20-39)		Transportation Deaths (40-49)		Services Deaths (70-89)		Homicides	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Sunday	10	(5.8)	5	(20.8)	0	--	0	--	1	(3.2)	1	(3.7)	1	(4.2)
Monday	22	(12.7)	3	(12.5)	7	(18.9)	3	(10.7)	2	(6.5)	5	(18.5)	3	(12.5)
Tuesday	43	(24.9)	5	(20.8)	16	(43.2)	4	(14.3)	6	(19.4)	7	(25.9)	4	(16.7)
Wednesday	25	(14.5)	6	(25.0)	5	(13.5)	3	(10.7)	5	(16.1)	0	--	2	(8.3)
Thursday	26	(15.0)	1	(4.2)	5	(13.5)	5	(17.9)	10	(32.3)	3	(11.1)	3	(12.5)
Friday	28	(16.2)	0	--	4	(10.8)	7	(25.0)	6	(19.4)	5	(18.5)	8	(33.3)
Saturday	19	(11.0)	4	(16.7)	0	--	6	(21.4)	1	(3.2)	6	(22.2)	3	(12.5)
Total	173***		24		37		28***		31		27		24	

\*Only industries with 20 or more deaths are included in the table.

\*\*Standard Industrial Classification (SIC).

\*\*\*Day of week of injury was unknown for one death.

**Table 3. Number and Percent of Acute Traumatic Work-Related Fatalities,  
for All Deaths; by Industry\*; and for Homicides  
Separately, by Month, Michigan 2001**

Month of Injury	All Deaths		Agricultural Deaths (01-09)**		Construction Deaths (15-17)		Manufacturing Deaths (20-39)		Transportation Deaths (40-49)		Services Deaths (70-89)		Homicides	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
January	9	(5.2)	0	--	1	(2.7)	3	(10.3)	1	(3.2)	2	(7.4)	1	(4.2)
February	17	(9.8)	2	(8.3)	5	(13.5)	2	(6.9)	3	(9.7)	3	(11.1)	1	(4.2)
March	7	(4.0)	3	(12.5)	0	--	1	(3.4)	2	(6.5)	0	--	1	(4.2)
April	11	(6.3)	1	(4.2)	2	(5.4)	1	(3.4)	1	(3.2)	2	(7.4)	2	(8.3)
May	12	(6.9)	2	(8.3)	4	(10.8)	3	(10.3)	2	(6.5)	1	(3.7)	0	--
June	20	(11.5)	1	(4.2)	5	(13.5)	3	(10.3)	7	(22.6)	2	(7.4)	2	(8.3)
July	18	(10.3)	6	(25.0)	2	(5.4)	6	(20.7)	2	(6.5)	2	(7.4)	0	--
August	16	(9.2)	4	(16.7)	3	(8.1)	2	(6.9)	2	(6.5)	3	(11.1)	3	(12.5)
September	9	(5.2)	0	--	6	(16.2)	1	(3.4)	0	--	0	--	2	(8.3)
October	28	(16.1)	2	(8.3)	8	(21.6)	2	(6.9)	5	(16.1)	5	(18.5)	3	(12.5)
November	13	(7.5)	2	(8.3)	0	--	3	(10.3)	3	(9.7)	4	(14.8)	3	(12.5)
December	14	(8.0)	1	(4.2)	1	(2.7)	2	(6.9)	3	(9.7)	3	(11.1)	6	(25.0)
Total	174		24		37		29		31		27		24	

\*Only industries with 20 or more deaths are included in the table.

\*\*Standard Industrial Classification (SIC).

**Table 4. Number and Percent of Acute Traumatic Work-Related Fatalities  
for all Death; by Industry\*; and for Homicides Separately,  
by 4 Hour Time Periods, Michigan 2001**

Time	All		Agricultural Deaths (01-09)**		Construction Deaths (15-17)		Manufacturing Deaths (20-39)		Transportation Deaths (40-49)		Services Deaths (70-89)		Homicides	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
12am-4am	6	(3.7)	0	--	1	(2.9)	0	--	2	(7.1)	1	(4.0)	2	(12.5)
4am-8am	16	(9.9)	0	--	1	(2.9)	4	(15.4)	8	(28.6)	2	(8.0)	1	(6.3)
8am-12pm	33	(20.5)	5	(22.7)	8	(23.5)	9	(34.6)	4	(14.3)	4	(16.0)	1	(6.3)
4pm-8pm	41	(25.5)	6	(27.3)	12	(35.3)	3	(11.5)	8	(28.6)	8	(32.0)	3	(18.8)
8pm-12am	12	(7.5)	2	(9.1)	2	(5.9)	4	(15.4)	0	--	4	(16.0)	0	--
Total	161***		22		34		26		28		25		16	

\*Only industries with 20 or more deaths are included in the table.

\*\*Standard Industrial Classification (SIC).

\*\*\*Time of injury was unknown for 13 deaths

**Table 5. Number and Percent of Acute Traumatic Work-Related Fatalities  
By County of Injury, Michigan 2001\***

County	Number	Percent	County	Number	Percent	County	Number	Percent	County	Number	Percent
Alcona	0	--	Dickinson	0	--	Lake	1	(0.6)	Oceana	0	--
Alger	1	(0.6)	Eaton	0	--	Lapeer	0	--	Ogemaw	0	--
Allegan	5	(2.9)	Emmet	1	(0.6)	Leelanau	0	--	Ontonagon	2	(1.2)
Alpena	0	--	Genesee	2	(1.2)	Lenawee	0	--	Osceola	0	--
Antrim	1	(0.6)	Gladwin	2	(1.2)	Livingston	1	(0.6)	Oscoda	0	--
Arenac	2	(1.2)	Gogebic	1	(0.6)	Luce	0	--	Otsego	0	--
Baraga	0	--	Grand Traverse	1	(0.6)	Mackinac	1	(0.6)	Ottawa	7	(4.1)
Barry	0	--	Gratiot	0	--	Macomb	9	(5.2)	Presque Isle	1	(0.6)
Bay	0	--	Hillsdale	3	(1.7)	Manistee	0	--	Roscommon	0	--
Benzie	0	--	Houghton	0	--	Marquette	0	--	Saginaw	3	(1.7)
Berrien	6	(3.5)	Huron	1	(0.6)	Mason	0	--	St. Clair	3	(1.7)
Branch	1	(0.6)	Ingham	6	(3.5)	Mecosta	1	(0.6)	St. Joseph	1	(0.6)
Calhoun	3	(1.7)	Ionia	2	(1.2)	Menominee	0	--	Sanilac	0	--
Cass	0	--	Iosco	0	--	Midland	1	(0.6)	Schoolcraft	1	(0.6)
Charlevoix	2	(1.2)	Iron	0	--	Missaukee	1	(0.6)	Shiawassee	2	(1.2)
Cheboygan	0	--	Isabella	1	(0.6)	Monroe	3	(1.7)	Tuscola	2	(1.2)
Chippewa	1	(0.6)	Jackson	0	--	Montcalm	3	(1.7)	Van Buren	0	--
Clare	0	--	Kalamazoo	3	(1.7)	Montmorency	0	--	Washtenaw	13	(7.6)
Clinton	2	(1.2)	Kalkaska	1	(0.6)	Muskegon	5	(2.9)	Wayne	41	(23.8)
Crawford	0	--	Kent	9	(5.2)	Newaygo	2	(1.2)	Wexford	0	--
Delta	0	--	Keweenaw	0	--	Oakland	11	(6.4)			

\*County of injury was unknown for 2 individuals.

**Table 6. Industry of Acute Traumatic  
Work-Related Fatalities, Michigan 2001**

<b>Industry (Standard Industrial Classification)</b>	<b>Number of Deaths</b>	<b>Percent</b>	<b>Number of Employees*</b>	<b>Annual Average Incidence Rate per 100,000</b>
<b>Agriculture (01-09)</b>	<b>24</b>	<b>(13.8)</b>	<b>46,027</b>	<b>(52.1)</b>
<b>Construction (15-17)</b>	<b>37</b>	<b>(21.3)</b>	<b>202,000</b>	<b>(18.3)</b>
General Building & Heavy Construction (15-16)	11	(6.3)	62,000	(17.7)
Special Trade Contractors (17)	26	(14.9)	139,000	(18.7)
<b>Manufacturing (20-39)</b>	<b>29</b>	<b>(16.7)</b>	<b>926,000</b>	<b>(3.1)</b>
Food and Kindred Products (20)	3	(1.7)	37,000	(8.1)
Lumber and Wood Products (24)	3	(1.7)	17,000	(17.6)
Furniture and Fixtures (25)	1	(0.6)	43,000	(2.3)
Printing and Publishing (27)	1	(0.6)	41,000	(2.4)
Chemicals and Allied Products (28)	3	(1.7)	46,000	(6.5)
Rubber and Misc. Plastics Products (30)	3	(1.7)	61,000	(4.9)
Primary Metal Industries (33)	3	(1.7)	36,000	(8.3)
Fabricated Metal Products (34)	3	(1.7)	121,000	(2.5)
Industrial Machinery and Equipment (35)	5	(2.9)	123,000	(4.1)
Transportation Equipment (37)	4	(2.3)	274,000	(1.5)
<b>Transportation and Public Utilities (40-49)</b>	<b>31</b>	<b>(17.8)</b>	<b>181,000</b>	<b>(17.1)</b>
Miscellaneous Transportation (40-42, 45)	18	(10.3)	114,000	(15.8)
U.S. Postal Service (43)	3	(1.7)	31,000	(9.7)
Communications (48)	3	(1.7)	34,000	(8.8)
Electric, Gas and Sanitary Services (49)	7	(4.0)	33,000	(21.2)
<b>Wholesale Trade (50-51)</b>	<b>9</b>	<b>(5.2)</b>	<b>221,000</b>	<b>(4.1)</b>
Wholesale Trade – Durable Goods	7	(4.0)	146,000	(4.8)
Wholesale Trade – Nondurable Goods	2	(1.1)	75,000	(2.7)
<b>Retail Trade (52-59)</b>	<b>8</b>	<b>(4.6)</b>	<b>853,000</b>	<b>(0.9)</b>
Food Stores (54)	3	(1.7)	102,000	(2.9)
Automotive Dealers & Service Stations (55)	2	(1.1)	86,000	(2.3)
Eating and Drinking Places (58)	3	(1.7)	296,000	(1.0)
<b>Finance, Insurance, and Real Estate (60-67)</b>	<b>2</b>	<b>(1.1)</b>	<b>209,000</b>	<b>(1.0)</b>
<b>Services (70-89)</b>	<b>27</b>	<b>(15.5)</b>	<b>1,300,000</b>	<b>(2.1)</b>
Miscellaneous Services (72,79)	10	(5.7)	193,000	(5.2)
Business Services (73)	5	(2.9)	312,000	(1.6)
Miscellaneous Repair Services (76)	2	(1.1)	41,000	(4.9)
Health Services & Public Health (80)	4	(2.3)	398,000	(1.0)
Educational Services (82)	2	(1.1)	418,000	(0.5)
Social Services (83)	3	(1.7)	92,000	(3.3)
Membership Organizations (86)	1	(0.6)	122,000	(0.8)
<b>Public Administration (91-97)</b>	<b>7</b>	<b>(4.0)</b>	<b>255,000</b>	<b>(2.7)</b>
<b>Total</b>	<b>174</b>		<b>4,924,930</b>	<b>(3.5)</b>

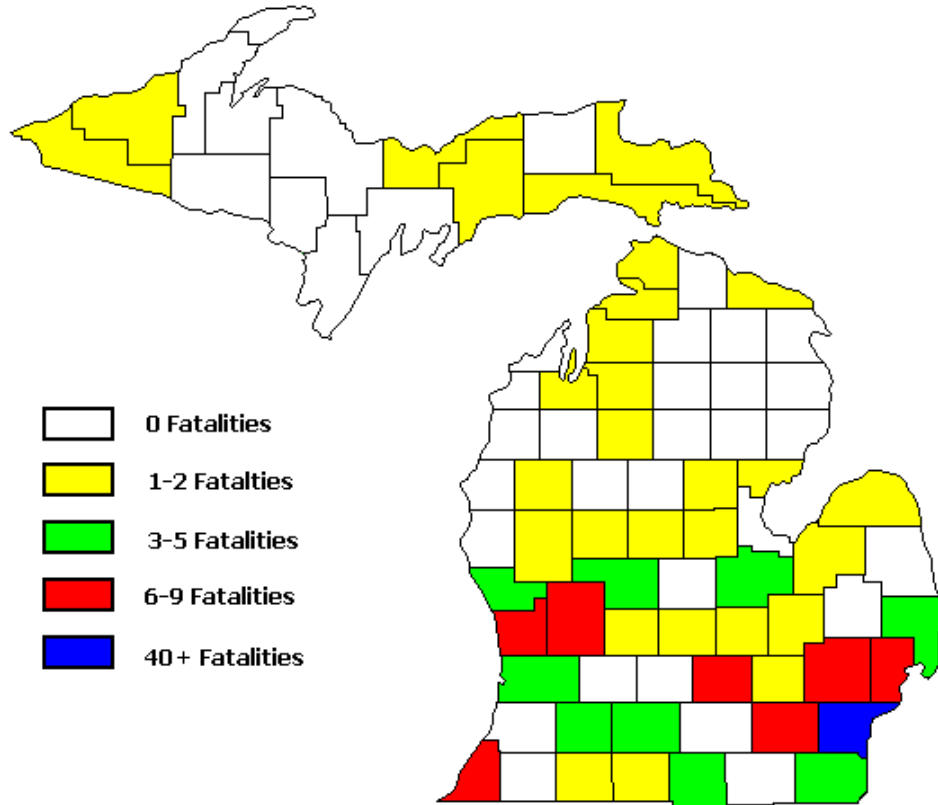
\*Source: For Agriculture: USDA, National Agricultural Statistics Service. 1997 Census of Agriculture AC97-A-51, March 1999. [www.nass.usda.gov/census/](http://www.nass.usda.gov/census/). November 19, 2002. For all other Industry Categories: Michigan Department of Career Development, Employment Service Agency Office of Labor Market Information, Trend Services Table-Form 3221, Michigan 2001. [www.michlmi.org/lmi/lmadata/trend/trendocs/michi-ol.htm](http://www.michlmi.org/lmi/lmadata/trend/trendocs/michi-ol.htm), November 18, 2002.

**Figure 1. Age Distribution of Acute Traumatic Work-Related Fatalities, Michigan 2001**





**Figure 2. County Distribution of 172\* Acute Traumatic Work-Related Fatalities, Michigan 2001**



\* County of injury was missing for 2 individuals.

## **APPENDIX I**

## 2001 MIFACE Case Narratives

<b>Case #</b>	<b>Incident Description</b>
1.	42-year old male handyman was clearing snow from a parking lot using a skid steer loader. The victim was outside the machine under an unsupported raised bucket clearing snow from around the foot pedals on the cab floor. The death occurred at night while the victim was working alone. The bucket came down pinning the victim.
2.	29-year old male mold setter was reaching in between a horizontal injection mold machine's gantry robot mount and the robot. The robot cycled and struck victim's head, crushing it against the robot gantry mount.
3.	18-year-old male machine operator was reaching into a rotating barrel to retrieve a part that did not dump out of the barrel at the barrel unloading station. When he reached inside the barrel, his clothing caught on something inside of the barrel. The limit switch to stop barrel rotation did not work. The barrel continued to rotate, and the operator was pinned between the rotating barrel and the barrel support member.
4.	48-year old male casting operator in a foundry was performing routine maintenance inside a furnace when several bricks fell and crushed him.
5.	37-year old male plumber was working on replacing a residential underground sewer pipe when the trench he was working in collapsed, completely covering him with clay. The 9-foot trench sides were not properly shored or sloped.
6.	48-year old male minister was clearing icicles from a church roof edge that was 12 feet high. He was using a snow shovel to knock off the icicles when an ice dam fell off of the edge and struck him in the shoulder and foot. He died of complications from the injury.
7.	39-year old male builder was constructing a tower when the concrete form platform he was standing on fell away from the wall. He was not wearing or using fall protection. He fell over 30 feet.
8.	40-year old male welder was struck by a steel I-beam frame while standing between the unrestrained frame and an I-beam frame being positioned by a forklift. The unrestrained frame was positioned for attachment to a second I-beam frame. The victim was working with a coworker who was operating a forklift to position the second I-beam frame. During this process, the unrestrained frame fell and struck the victim, pinning him against the frame being positioned.

9. 54-year old male police officer was responding to a domestic call when he was shot in the stomach by a suspected trespasser. He was not wearing a bulletproof vest.
10. 44-year old male janitor drove a motorized scrubber at a warehouse during the midnight shift. He was working alone. The janitors routinely leaned outside the cage with a broom to remove items in the path that the scrubber may have difficulty picking up. The victim is seen on videotape away from his motorized scrubber collapsing to the ground several times while attempting to use a wall phone. On autopsy he had multiple crush injuries to his chest and was presumed to have been caught between a pallet or rack and the scrubber cage when leaning outside of the scrubber cage.
11. 51-year old male field engineer was watching a steam turbine undergoing a trip test when the turbine overran its top speed, causing the turbine to explode. Shrapnel was projected and struck the victim.
12. 58-year old male bowling alley owner was attempting to fix a pin setting machine when he was caught between the pin table and the sorter. The machine was not unplugged or locked out. The table activated and rose vertically, pinning the victim.
13. 38-year old male construction worker was outside of a skid steer loader under an unsupported raised bucket clearing debris from around the foot pedals on the cab floor. The loader bucket collapsed and pinned him between the bucket and the front of the machine.
14. 62- year old male construction worker was working with a coworker to glue a rubber membrane on a roof edge. He fell approximately 14 feet onto the ground. He died two days later from complications of his fall.
15. 40-year old male farmer was using his tractor to pull a pick-up truck stuck in the mud in a field behind his house. The victim hitched the chain above the tractor axle. The tractor did not have a roll over protection bar. The tractor overturned to the rear and pinned the victim.
16. 39-year old male machining supervisor was in his office when an employee entered and shot him in the head.
17. 66-year old male construction worker was the owner of a heating and cooling company. He was at a residential home to bid work. An unguarded floor opening was 1 foot from the front door entrance. The victim entered the house and fell 8½ feet to basement dirt floor. He died one month later from complications of this injury.
18. 41-year old male police officer was on patrol when he heard shots fired outside of a suspected drug house. He went to investigate and was shot.

19. 24-year old male ironworker was climbing down the corner of a 28-foot wall when he lost his grip and fell 15 feet onto an unprotected vertically protruding reinforced steel rod. The victim was not using a ladder to descend from the wall.
20. 55-year old male maintenance worker was repairing a 300-pound punch press. The ram had an inner and outer assembly (inner does work, outer holds part). The press was turned off. The victim did not use die blocks to support the outer ram. The victim went between the inner and outer ram. While removing bolts from the outer ram assembly, the ram fell on him.
21. 29-year old male machine operator was feeding scrap steel from a slitter onto a scrap-rewinding reel. The man was caught and crushed by the oscillating device on the scrap rewinder when he attempted to remove a piece of steel with his hand.
22. 43-year old male excavator was helping to remove an underground fuel tank when a water line broke. He jumped into the unshored, unshored excavation to protect the remaining line. The side of the excavation caved in on top of him, covering him to his waist against the tank.
23. 27-year old male construction worker was riding in a container elevated about 9 feet on a forklift moving about 5 mph. The forklift driver was transporting the victim and another coworker to another work location on a paved road. While traveling, the container struck a parked trailer and broke into pieces. The victim was thrown to the pavement, hitting his head.
24. 43-year old male construction firm owner was building a cement block wall for a basement walkout when one of the large blocks fell and struck him in the head. The entire wall then collapsed onto him, burying him to his waist.
25. 49-year old male delivery driver was driving a delivery van when the van experienced a flat tire on the front passenger side. The victim pulled off on the road shoulder to change the flat tire. He was at the back of the vehicle when he was struck by another vehicle that was involved in a collision.
26. 68-year old male businessman was exiting from a landed helicopter when an updraft lifted his baseball cap from his head. He reached for the hat and stood upright into the whirling main rotor blade.
27. 52- and 23-year old male pilots were co-piloting a twin-engine aircraft carrying  
28. passengers. The plane crashed into trees and terrain, destroying the cockpit.
29. 67-year old male farmer was using a skid-steer loader to pick up manure when the driver left rear truck tire failed. The skid-steer loader did not have a protective cage around the operator's compartment. He leaned outside the cab to look at the truck tire. The lift arm came down and crushed his head against the cab frame.

30. 49-year old male highway construction machine operator was walking between a concrete breaker and a 3½-foot concrete retaining wall. He was operating the breaker via a control box with operator controls on an umbilical cord. The breaker drifted toward the retaining wall, crushing the operator between the breaker and wall.
31. 35-year old male construction worker was working as part of the structural steel crew. A bundle of decking had been placed on bar joists that were not welded. A load of steel angle iron was placed on top of the bundle of decking. The bar joists collapsed and the victim fell approximately 25 feet.
32. 52-year old male digger leader was driving a hole-digger up a steep grade when the ground gave way and the machine rolled over. The machine had a roof hatch door that was hinged in the front and secured on the back by a rubber strap. The victim was unrestrained. As the machine rolled, the weight of the victim's body was thrown against the hatch door, opening it. When the machine came to rest, the victim's head was partially outside of the hatch door and against the doorframe.
33. 56-year old male steamroller operator was driving a hydro roller compacting the ground for a new landfill cell. The victim was backing up a 33-degree incline. He took off his safety belt to reach for his lighter. The hydro roller encountered a 2-foot deep clay tire rut. The victim fell off the side of the roller and was crushed by the roller.
34. 25-year old male garbage collector was unrestrained driver of a garbage truck. The garbage truck ran off the road to the right. The victim overcompensated to the left and the truck flipped over. The victim was ejected. The garbage truck landed on the victim.
35. 30-year old male roofer was involved in a roof tear-off and deck replacement. The roof height was over 50 feet from the ground. He was walking across the roof to get plywood to cover bad decking. The victim fell through a deteriorated portion of the roof deck.
36. 56-year old male farmer was unloading dry corn from a grain bin. He experienced problems during unloading, He entered the grain bin with a 2"x4"x12' to probe the molded corn to make it exit the grain bin faster. He was found within the bin covered and asphyxiated by the corn.
37. 34-year old female payroll clerk was working in her office approximately ½ hour after starting her morning shift. While on the phone to 911, she was shot in the head with a handgun.
38. 39-year old male maintenance worker was emptying a 500-gallon hydraulic oil storage tank into an outside reservoir using compressed air when the tank exploded. A piece of the tank struck the victim in the head.

39. 21-year old male logger was part of a logging crew. A coworker driving a cable skidder to move felled logs to the landing area noticed a 7-inch diameter, 6-foot tall maple log had become caught in the cables. The coworker directed him to cut the maple log so it could be removed from the felled logs. Not wearing any personal protective equipment, he cut the log with a chainsaw. Chainsaw kick back may have occurred and the logger's throat was cut.
40. 43-year old male materials sorter was raking up scrap steel along the railroad track when he was struck by a railcar.
41. 27-year old male laborer was changing a motor on a billboard. He fell between 17-25 feet. He may have fallen from the extension ladder providing access to the billboard or from the billboard's tension beam.
42. 32-year old male construction worker was installing siding to a residence, when he came into contact with a power line entering the house and was electrocuted.
43. 39-year old male business owner was working behind the counter of his store. While on the phone in the early afternoon with a business associate, an individual began to argue with the victim. The victim was shot in the chest.
44. 48-year old male business owner was driving a boom truck on the highway when the tires blew. The victim lost control of the truck and it overturned in the median. The victim was wearing a lap and shoulder belt.
45. 32-year old male farm salesman and route driver was repairing a bulk cooler/washer at a farm when he contacted live electrical wires and was electrocuted.
46. 57-year old male minister/assembly worker had parked a bus in the parking lot and was returning to the bus terminal during the midnight shift. The parking lot lights were not on. It was raining and the victim was wearing a dark uniform. He was struck by a motor vehicle exiting the lot.
47. 40-year old male correction officer was climbing an 18-foot straight ladder to a building roof. The ladder without safety feet was placed on an icy surface. While ascending the ladder and/or stepping to the roof, his foot became entangled in the ladder rungs. The base of the ladder slipped and the victim fell to the pavement. He died 6 months later from complications of his injury.
48. 47-year old male shift superintendent, 41-year old male and 56-year old male  
49. process operators worked at a chemical company. The process operators were  
50. attaching a line to unload methyl mercaptan from a tank car when the unloading pipe separated. One process operator stayed with the leaking pipe, the other operator went for help and returned with the shift superintendent. An explosion and fire occurred. The three men were overcome by the chemical fumes.
51. 43-year old male maintenance worker was driving his work vehicle when he fell asleep and lost control of the vehicle.

52. 46-year old male set-up man was watching a coworker operate a drill press. Part of the drill press broke off and a piece of metal struck victim in the chest.
53. 52-year old male die setter leader was assisting in a die change in a progressive press that utilizes an automated bolster system. He was walking in the bolster area and noticed a piece of scrap material that was in the way of the bolster cars. As he picked up the piece of scrap he was pinched between a moving die and the press.
54. 44-year old male truck driver was unloading a 6-foot high pile of 50-foot wood piling, crane mats and pipe from his flatbed truck. He removed 4 chain binders from the load. He climbed on the wood piling to grab the lowering wood pile pole tongs from the crane. The top pole started to roll. It struck the victim, knocking him from the trailer and landed on him on the ground.
55. 14-year old male farmhand was scraping manure into a pit using a tractor with a scraper, when he mistakenly put the tractor in reverse, causing him to be pinned between a raised gate and the tractor steering column.
56. 63-year old male heavy equipment operator was grading a road when the grader stalled. While standing between the wheels, the victim jumped started grader while in gear. When the grader started, it ran over the victim.
57. 36-year old male maintenance supervisor committed suicide.
58. 58 -year old male farmer was driving a tractor equipped with a front loader and a full manure spreader. While on a downward slope, with the front loader raised, the victim got off the tractor. The victim was run over by his equipment.
59. 55-year old male truck driver was gored in abdomen by a bull.
60. 28-year old male mobile equipment operator was driving a truck talking on a cell phone. He approached a railroad track with an oncoming train. Motorists were warned by flashing lights (no gate). He did not stop prior to the tracks. The oncoming train struck his car.
61. 42-year old and 60- year old male farmers were cleaning a driven point well with uninhibited liquid muriatic acid. The farmers died of hydrogen sulfide poisoning.
- 62.
63. 31-year old male minister/painter placed a ladder on top of a baker scaffold. The victim fell 20 feet when the scaffold collapsed and he landed on his head.



64. 54-year old male maintenance worker was reaching into a restaurant sump pump crock and became wedged between the rim of the crock and a metal pipe support bar. He died of asphyxiation.
65. 35-year old male farmer was using a haybine pulled by horses. The team of horses bolted and the victim was caught under the frame and wheelbase of the haybine.
66. 48-year old male steel worker was working at a construction site on a re-rod operation of a concrete tank when the platform he was working on collapsed. He fell approximately 20 feet and hit his head on the rocks beneath.
67. 45-year old male grain elevator owner climbed into a corn silo to fix a vacuum sweeper and was engulfed and asphyxiated by the corn.
68. 55-year old male maintenance worker was elevated by a forklift on a wooden pallet. The unsecured wooden pallet was used as a personnel lifting platform during the removal of roof fascia boards. While removing the boards, he lost his balance and fell 6 feet to the concrete floor where he hit his head. He died ten days later from the injury.
69. 47-year old male carpenter was painting a building when he fell 14 feet from the unguarded side of a scissor lift and struck his head on the concrete below.
70. 22-year old male laborer was part of a roofing crew at a residence. At the end of the day, he came down from the roof to move the equipment truck. The truck stalled and he went to the rear of the truck to remove a tire block. When he removed the block, the truck rolled in reverse. He attempted to enter the truck to stop the movement. He was pinned between the truck and the house.
71. 44-year old male pipe layer was holding a pipe while it was being lowered by a backhoe into a trench. The backhoe contacted an overhead power line and the man was electrocuted.
72. 36-year old male police officer was working security in a federal building when a visitor to the building shot him.
73. 36-year old male auto salvage yard owner was working under a pickup to retrieve needed parts from the left front wheel area. The pickup was supported by a tire and rim under the left front tire. The pickup bed was loaded with junk material. While removing the part, the truck slid sideways and slipped off the tire and crushed him.

74. 43-year old male apprentice lineman was removing old utility poles. While on the pole, the approximately 66-year old pole broke at its base. The victim fell 31 feet to packed dirt. The pole landed on the victim.
75. 59-year old male farm laborer was tarping a semi-trailer that had been loaded with corn. The semi-trailer was driven into the silo and loaded via a chute. There was a platform above the truck to perform the tarping procedure. The victim climbed over the barrier to maneuver the tarp. He fell approximately 10 feet off of the trailer, hitting the trailer and silo wall as he fell to the concrete surface below.
76. 23-year old male laborer was emptying propane tanks on a loading dock outside of a building. A coworker took one of the tanks and rolled it past a furnace. The coworker could see the gas ignite from the furnace and a gas trail to the loading dock. There was an explosion on the loading dock and the victim was critically burned. He subsequently died from his injuries.
77. 30-year old male laborer was driving a forklift. He was on a slight incline, raising 2 bins to an overhead position. The forklift began to overturn, and victim attempted to jump from the forklift. The forklift crushed him.
78. 47-year old male laborer was working on the soffit from a scissor lift. A coworker was handing the victim materials when the scissor lift was activated, pinning the victim's head between the soffit and the lift.
79. 34-year old male forklift technician was in a basket of a boom truck. He was operating the boom truck from the basket and was loading the boom truck onto a flatbed trailer. The truck slid off the end of the trailer and ejected the victim approximately 10-15 feet in the air. The victim hit his head when he landed on a cement parking lot.
80. 34-year old female road worker was struck by an oncoming car while standing behind a barrel directing traffic to the road shoulder at dawn.
81. 56-year old female quality control auditor was working in her office, when a disgruntled former employee shot her with a handgun.
82. 58-year old male fire chief was en route to a training class. A van did not stop for a stop sign. The van hit a vehicle and became airborne. The airborne van landed on the victim's vehicle. The victim was wearing a shoulder and lap belt.

83. 53-year old male farmer was unloading a tree stump from a semi-trailer bed with a tractor when the tractor tipped off the side of the trailer. He jumped out of the tractor, but was then crushed underneath it.
84. 52-year old male truck driver was driving his freightliner when he rear-ended a dump truck at a stop light. He was pinned inside the cab. The victim was wearing a shoulder and lap belt.
85. 24-year old male truck driver was going around a curve in the road. He ran off the roadway right. When trying to compensate, the truck slid across the center of the road. The tractor hit several trees and the cab separated from the tractor. The driver was thrown from the cab. It is unknown whether the victim was wearing a shoulder or lap belt.
86. 54-year old male truck driver was attempting to avoid hitting a slower moving construction vehicle leaving an expressway shoulder. The victim tried to pass the slower moving vehicle on the right shoulder. He struck the construction vehicle's trailer, his truck flipped on the driver's side and skidded forward. The victim did not use a shoulder or lap belt.
87. 66-year old male self-employed woodworker caught his arm in a sawmill. He died from traumatic complications from the arm amputation; cardiac arrest, sepsis and multisystem failure in an incident occurring in 2000.
88. 14-year old male was working at a haunted hayride station. The station had a skeleton hanging from a tree. The victim placed the noose intended for the skeleton around his own neck and was asphyxiated.
89. 62-year old male shipping and receiving supervisor was supervising the loading of bus shelter roofs onto a truck by a crane. The load struck an object and shifted, and one of the roofs fell on the victim.
90. 48-year old female pilot and a 50-year old male deckhand of a tugboat that  
91. delivers mail to passing ships was being used to transport freighter pilots to another boat. The mail boat sank during the pilot change.
92. 33-year old male construction worker fell 70 feet from an unsecured bar joist that rolled as the victim disconnected the joist from the load line of the crane.
93. 27-year old male excavator was in trench outside of the trench box. An excavator bucket emptying dirt into the trench hit victim's head and pinned his head against the trench box pole.

94. 31-year old male construction worker was painting the underside of a bridge while in an unsecured basket elevated by a telescoping rough terrain forklift. When victim stepped to the side of the basket, the basket fell off the forks. The victim landed on the ground and the basket fell on top of the victim.
95. 45-year old female social worker was the driver of passenger car en route to a client visit when her car was struck head on by another driver crossing the centerline. The victim was wearing a shoulder and lap belt.
96. 54-year old female dental assistant was stabbed by an intruder while taking care of clients in their home.
97. 30-year old female adult foster care worker was accompanying group home residents returning home from a field trip. She was a passenger in the van. The driver of the vehicle went off the roadway, entered the median, the van rolled over several times and the victim was ejected from the vehicle. It is unknown if the victim was wearing a shoulder or lap belt.
98. 68-year old male grain elevator owner was working on top of a grain elevator. There was an unsecured wooden plank lying across the top of the opening of the empty elevator. The victim stepped too close to the end of the board and it upended. The victim lost his balance and fell approximately 30 feet to the bottom of the empty bin.
99. 45-year old male karate instructor committed suicide by a self-inflicted gunshot wound.
100. 67-year-old male farmer was moving dirt on an embankment with his tractor, when the tractor slid down the hill and overturned on him.
101. 49-year old male train engineer and a 58-year old male train conductor were  
102. sitting in the front cab of the train when there was a head-on collision with another freight train. The collision killed both the engineer and the conductor.
103. 65-year old male barber was shot in the head during a robbery.
104. 60-year old male subcontractor was loading railroad ties onto a flatbed truck when he slipped and fell 10 feet off of the truck onto the ground.
105. 30-year old male armored car security officer was ambushed and shot by three armed robbers while transferring money.

106. 47-year old male rural postal worker was delivering mail when he hit the rear end of a stopped semi truck waiting to make a left hand turn. The victim was wearing a shoulder and lap belt.
107. 24-year old male logger cut a maple tree. When it fell, it became lodged in a hemlock snag. The weight of the maple tree broke the hemlock, which struck the victim's head while he was cutting a nearby tree.
108. 62-year-old male storeowner and 28-year old relative were shot during a robbery attempt.
- 109.
110. 35-year old male telephone book service representative was making a service call to a business. He was making a left turn when he was struck from behind by another vehicle forcing him into oncoming traffic. The victim was not wearing a shoulder or lap belt.
111. 44-year old male tree surgeon was contracted to chop down a homeowner's tree. The victim was working approximately 50 feet above ground when making the final cuts with a gas-powered chainsaw. The victim was wearing a harness when he fell.
112. 69-year old male tool and die maker was working part time in an ice arena. He was removing a net from the ice when he fell and hit his head on the ice.
113. 34-year old male tree cutting foreman was refueling a dump truck. To refuel, the dump body of the truck must be raised. During refueling, the victim's head became caught between the dump body of the truck and the frame.
114. 63-year old male laborer sustained significant back trauma from a fall that occurred in 1974. The victim died due to complications from paraplegia.
115. 34-year old male police officer was assisting an emergency medical technician at an automobile accident when a fire truck lost its brakes and hit him.
116. 54-year old female registered nurse was en route to visit a client. The victim ran a stop sign and was hit on the driver's side by an oncoming vehicle. The victim was wearing a shoulder and lap belt.
117. 49-year old male service technician was making a service call. He was slowing for traffic when he was struck in the rear by another vehicle causing his vehicle to strike the rear of the vehicle ahead of him. He was wearing a shoulder and lap belt.

118. 26-year old male newspaper reporter was driving a car returning to the newspaper after covering a story. He left the roadway, rolled over and was ejected from the car. He was not wearing a shoulder or lap belt.
119. 48-year old male tree cutter fell from tree.
120. 39-year old male factory worker was working by a furnace at a metal finishing plant. He suffered heat stroke and died of complications 3 weeks later.
121. 53-year old male assembler was operating a 3-wheeler when he injured his leg. He died of complications of this injury.
122. 61-year old male car salesman was demonstrating a vehicle to potential buyers. The victim was driving on a dirt road. He exceeded the critical curve speed while rounding a curve and entered the oncoming traffic lane where he collided with the side of a dump truck. The driver's side of the victim's car was wedged under the dump truck box. The victim was wearing a shoulder and lap belt.
123. 39-year old male sanitary engineer and his coworker were lifting a cardboard box into the back of the garbage truck in the early morning. The truck was parked on a slight hill with a curve and had all of its warning lights activated. An oncoming vehicle struck the victim while he was at the rear of the garbage truck.
124. 85-year old male landscaping business owner was a self-employed landscaper. He was an operator of a skid steer loader that was placing rocks for a stone wall. The wall was at the top of a hill overlooking a pond. After placing a rock, he backed away from the wall, the skid steer slid off of the embankment and overturned to the rear.
125. 54-year old male delivery driver injured his shoulder. He had surgery related to this injury and a blood clot developed which caused his death.
126. 83-year old male farmer was plowing his field. The tractor went up an embankment and overturned, pinning the victim. The tractor did not have a roll over protection bar.
127. 39-year old male cab driver was shot in head through an open cab window as he parked near a hospital. He was working alone approximately one hour after midnight.
128. 28-year old male barber died of multiple gunshot wounds.
129. 31-year old male baker was shot by a co-worker.
130. 29-year old female store manager was victim of a gunshot wound to chest.

131. 23-year old male computer technician was found hanging in a back room with an electrical cord around his neck.
132. 36-year old male worker was shot at the cellular telephone store where he worked.
133. 33-year old male laborer committed suicide by a self-inflicted gunshot wound.
134. 28-year old female and a 28-year old male schoolteachers were returning from a swim meet. The vehicle they were in was struck in the rear by a semi truck, and  
135. their vehicle caught on fire.
136. 38-year old male computer engineer was driving his truck in the early morning. It was dark and his truck slid on an ice patch in the road and hit a tree. The victim was wearing a shoulder and lap belt.
137. 56-year old male service technician for a computer company was driving a van that left the roadway at a high rate of speed and flipped over several times. The victim was ejected from van during the rollover. His seatbelt use is unknown.
138. 53-year old male doctor committed suicide by a self-inflicted gunshot wound.
139. 36-year old male serviceman for the refrigeration industry was on a building roof performing air conditioning maintenance on a hot day. He died due to exposure to sun and the hot environment.
140. 61-year old male used car dealership co-owner was shot as he interrupted a robbery attempt.
141. 63-year old male was driving an escort vehicle for a wide load tractor-trailer when he suffered a heart attack and went off the road. Victim drove across median and into oncoming traffic. The injuries sustained in the collision were fatal. The victim was not wearing a shoulder or lap belt.
142. 66-year old male teacher was working as a handyman. He fell approximately 30 feet onto a concrete surface while placing shingles on a house roof.
143. 43-year old male bar owner committed suicide by a self inflicted gunshot wound.
144. 43-year old male construction worker drifted off of the roadway, striking a speed sign and a tree. He had a pack of cigarettes in his hand. The victim was not wearing a shoulder and lap belt.

145. 23-year old male truck driver was the driver of semi truck that did not stop during a traffic backup. He struck another truck in the rear, crushing his cab. The victim was wearing a shoulder and lap belt.
146. 28-year old male temporary laborer was struck by another vehicle as he was transferring to another bus. He was returning to the office with coworker.
147. 44-year old male grounds superintendent committed suicide by placing himself in a log splitter.
148. 45-year old male driving a pick up truck on a freeway crossed the median, crossed several lanes of oncoming traffic and crashed into a concrete noise barrier. He was carrying an air compressor, which left the truck bed and was found in front passenger seat. The victim was not wearing a shoulder and lap belt.
149. 51-year old male purchasing agent committed suicide by hanging.
150. 46-year old male volunteer firefighter was hit by tree when performing storm-watch duties while the community was under a tornado warning.
151. 26-year old male bartender was found shot.
152. 41-year old male storeowner committed suicide by hanging.
153. 41-year old male cab driver was found shot in cab working alone shortly after midnight.
154. 49-year old male doctor committed suicide by placing a plastic bag over his head.
155. 29-year old female veterinary technician was driving a pickup truck to pick up supplies. She ran a stop sign and an oncoming van struck the truck on the driver's side door. The truck was pushed into another vehicle, pinning the truck between the two vehicles. The victim was wearing a shoulder and lap belt.
156. 28-year old male pharmaceutical representative was reading a daily planner while driving. He ran off of the roadway to the right and struck a tree. The victim was wearing a shoulder and lap belt.
157. 38-year old male registered nurse worked in a nursing home. He died of an acute drug intoxication administered via injection.



158. 47-year old male convenience store worker was shot during robbery.
159. 44-year old male committed suicide by running a truck inside of a garage.
160. 25-year old male pilot and his passenger, a 19-year old student, were both flight  
161. instructors. They were conducting a touch and go maneuver in a single engine  
experimental plane. As the plane was turning from the upwind to the crosswind  
leg of the traffic pattern, it crashed.
162. 28-year old male garbage collector was driving a pickup and following his  
coworker who was driving a garbage truck. A semi-truck struck the victim's  
pickup in the rear, pushing it into the garbage truck. The pickup truck burst into  
flames and caused the semi truck's fuel tank to explode. It is unknown if the  
victim was wearing a shoulder or lap belt.
163. 61-year old male flight instructor was accompanying a student pilot flying an  
aircraft with 2 passengers from Ohio to Wisconsin. The plane crashed in Lake  
Michigan.
164. 61-year old male mobile equipment operator was trapped in a machine in 1997.  
He died of endocarditis due to a wound infection in 2001.
165. 44-year old male chef was preparing food in a restaurant kitchen when he had a  
fatal allergic reaction to something being cooked.
166. 55-year old female was run over by a farm tractor. She was jumpstarting the  
tractor by shorting the starter terminals with a screwdriver. The tractor was in  
gear, and her feet became entangled in the cords from the battery charger.
167. 48-year old male part owner of a construction company was found shot in the  
company parking lot.
168. 46-year old male truck driver was found shot at a truck stop.
169. 25-year old male barber was found shot in a barbershop.
170. 43-year old male farm hand committed suicide by hanging.
171. 19-year old male apprentice electrician was running non-powered electrical lines  
for a new air conditioning system that was being installed in a church. He was  
electrocuted when he contacted an energized pipe in an upper crawl space.

172. 46-year old male handyman was standing on the rear deck of a moving golf cart holding onto the roof section for balance. He was also holding a live trap retrieved from an orchard. He lost his balance, fell from the cart and hit his head on the cement roadway. He died from his injuries 2 days later.
173. 53-year old male self-employed worker sustained 30+% body burns during an electrical flash fire in his shop. He died in the hospital 8 days later from complications from the injury.
174. 31-year old male asphalt laborer fell from the back of a moving truck five years ago. He died in 2001 from complications of his craniocerebral injury.