Hazardous Substances Emergency Events Surveillance in Michigan: 2012

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SUMMARY

This report summarizes the characteristics of hazardous substances emergency events reported to the Michigan Department of Community Health (MDCH) for 2012. The Hazardous Substances Emergency Events Surveillance system (HSEES) was established in Michigan in 2004 with funding from the Agency for Toxic Substances and Disease Registry (ATSDR). This multi-state program followed standardized protocols and definitions for collection and compilation of hazardous substances release events. In late 2009, ATSDR funded a new surveillance program for hazardous substances releases modeled on HSEES, titled the National Toxic Substance Incidents Program (NTSIP), and funded 7 states, not including Michigan. As an unfunded state, Michigan currently uses the NTSIP database for tracking releases in Michigan, but does not follow all of the NTSIP protocols.

Releases tracked by states in the HSEES/NTSIP system include uncontrolled or illegal acute releases of any hazardous substance (except petroleum when petroleum is the only substance released). Some substances require a threshold minimum amount released in order to be included. Information collected about

these events includes the substance(s) released, number of victims, number and types of injuries, and number of evacuations. Reports of releases come from a variety of sources, primarily other state and federal agencies that are mandated to receive reports from industry and the public.

Because of resource constraints, beginning in 2010, the Michigan HSEES program limited the types of events included in its system to include for the most part only those that involved an agency response (e.g. hazmat, public health) and an injury, exposure, or evacuation.

A total of 197 reported events met criteria for inclusion in 2012. One hundred sixty-four of the events occurred at fixed facilities and the remainder were associated with transportation. The most commonly reported substances were mercury and natural gas, 137 (69.5%) of the events involved an injury or evacuation. Sixty-five of the events resulted in an injury, involving a total of 120 victims, 10 of whom died; the most frequently reported injuries were burns and trauma.

INTRODUCTION

Since 1990, the Agency for Toxic Substances and Disease Registry (ATSDR) has supported and maintained a state-based surveillance system through cooperative agreements with state health departments to describe the public health consequences of releases of hazardous substances. The system was titled "Hazardous Substances Emergency Events Surveillance" or HSEES until 2009, and then ATSDR funded a new surveillance program for hazardous substances releases modeled on HSEES, titled the National Toxic Substance Incidents Program (NTSIP), which involved collection of national data and data from seven participating states.

In October, 2004 the Michigan Department of Community Health (MDCH) was funded to establish HSEES in Michigan, joining 13 other states. It was not funded for NTSIP. However, as an unfunded state, Michigan currently uses the NTSIP database for tracking releases in Michigan, but does not follow all of the NTSIP protocols. The name of the Michigan system did not change with the change in the national program; it is still MI-HSEES.

The purpose of the national HSEES/NTSIP system has been to describe the public health consequences of releases of hazardous substances, with the goal being to reduce injury and illness from acute hazardous substance releases by linking the data to prevention programs. The objectives of the surveillance systems in Michigan and nationally are:

- To describe the distribution of hazardous substances emergencies within the participating states, and nationally.
- To describe the types and causes of morbidity and mortality experienced by employees, responders, and the general public as a result of hazardous substances emergencies.
- To analyze and describe risk factors associated with morbidity and mortality.
- To develop strategies to reduce subsequent morbidity and mortality when comparable events occur in the future.

This report summarizes the characteristics of hazardous substance releases and their associated public health consequences of events that occurred in 2012 in Michigan. The appendices include additional details about the data, and a brief narrative of each of the events that involved an injury, evacuation, or shelter-in-place.

Annual reports for MI-HSEES starting with 2005 can be found at http://www.michigan.gov/mdch/0,1607,7-132-2945_5105-110654--,00.html (A report for 2009 was not done because of the mid-year change in funding and event definitions.)

METHODS

The general definition of a HSEES event in Michigan, which is shared with the national NTSIP program is: "An uncontrolled or illegal acute release of a toxic substance."

Beginning in 2010, MI-HSEES altered the specific definition of a release from the definition used in the earlier MI-HSEES system and the current definition used by ATSDR funded states for NTSIP in several ways, because of resource constraints. First, in order to be included as an event in Michigan the released chemical must have resulted in some kind of agency response (e.g. hazmat, fire, public health). In addition, it must have resulted in a human exposure, a human injury, or an evacuation. These events are included regardless of the amount of the chemical released. Second, all carbon monoxide releases/injuries are excluded, regardless of agency response, because they are being tracked in another public health surveillance system[1]. Finally, since 2010 MI-HSEES has been collecting information about natural gas/propane releases/explosions that result in injuries and evacuations.

Various sources are used to identify and obtain information about HSEES-eligible events in Michigan. These include reports to the National Response Center (NRC)[2], the Federal Department of Transportation, the Michigan Department of Environmental Quality (DEQ), the Michigan Department of Agriculture and Rural Development, the Michigan State Police, the Michigan Poison Control Center, the media, and others.

Information collected on Michigan HSEES events includes the following, when available:

- Type of event: Events are classified according to whether they occur at fixed facilities or during transportation. Fixed-facility events involve hazardous substances released at industrial sites, schools, farms, or other permanent facilities. Transportation-related events involve hazardous materials released during transport by surface, air, or water. The type of area or equipment within fixed facilities involved in the release is also recorded (e.g., piping, storage tank, and laboratory).
- Event location: The location of the event is identified by longitude and latitude coordinates where possible, and an ATSDR-maintained Geographic Information System (GIS) uses this information to identify nearby population groups and institutions (e.g. schools). If the exact location is not available, nearby population groups are estimated based on incident information.
- Date and time of the release, and current weather conditions if known and a factor in the incident.
- Responsible party: If the responsible party for the release is a business, it is classified using the North American Industry Classification System (NAICS).

[1] http://www.oem.msu.edu/AnnualReports.aspx

[2] The NRC is the single portal for mandatory reporting of hazardous spills and releases to 16 federal agencies. See: http://www.nrc.uscg.mil/

- Response: Response actions are categorized including what activities were taken to protect public health (e.g., issuance of health advisories, health investigations, and environmental sampling), and the groups responding to the incident (e.g., fire department, HazMat, public health agency).
- Substance(s) released: Released substances are identified by chemical name or chemical category, including “mixture.” Chemical constituents of brand name products are ascertained. The quantity released, type of release (e.g., spill, fire, volatilization), and whether the substance was actually released or a threatened release are also recorded.
- Causes: A primary or root cause of the release is assigned (e.g., human error, equipment failure, bad weather) and, when appropriate, a secondary or immediate cause of the release (e.g., improper mixing, vehicle collision, explosion).
- Victim(s): The number of individuals injured in the event is noted and which population group(s) were involved (e.g., the public, emergency responders, school children). Also recorded are the type(s) of injuries, severity of medical outcome, and demographics (age, gender) of injured individuals.
- Evacuation, sheltering-in-place, and decontamination: The numbers of individuals evacuated, sheltered in place, and decontaminated are recorded.

Because of loss of funding, Michigan HSEES is no longer conducting follow-up interviews to complete data fields where information was missing in the initial report.

All information is entered into a web-based application used by the NTSIP-participating states and maintained by ATSDR.

RESULTS

For 2012, 197 hazardous substance emergency events in Michigan were included in the Michigan MI-HSEES data set. The counties with the most frequent number of events were Wayne with 30 (15.2%) events, Oakland with 26 (13.1%) events and Macomb 11 (5.6%) events. A complete list of counties and event frequencies can be found in Appendix 1.

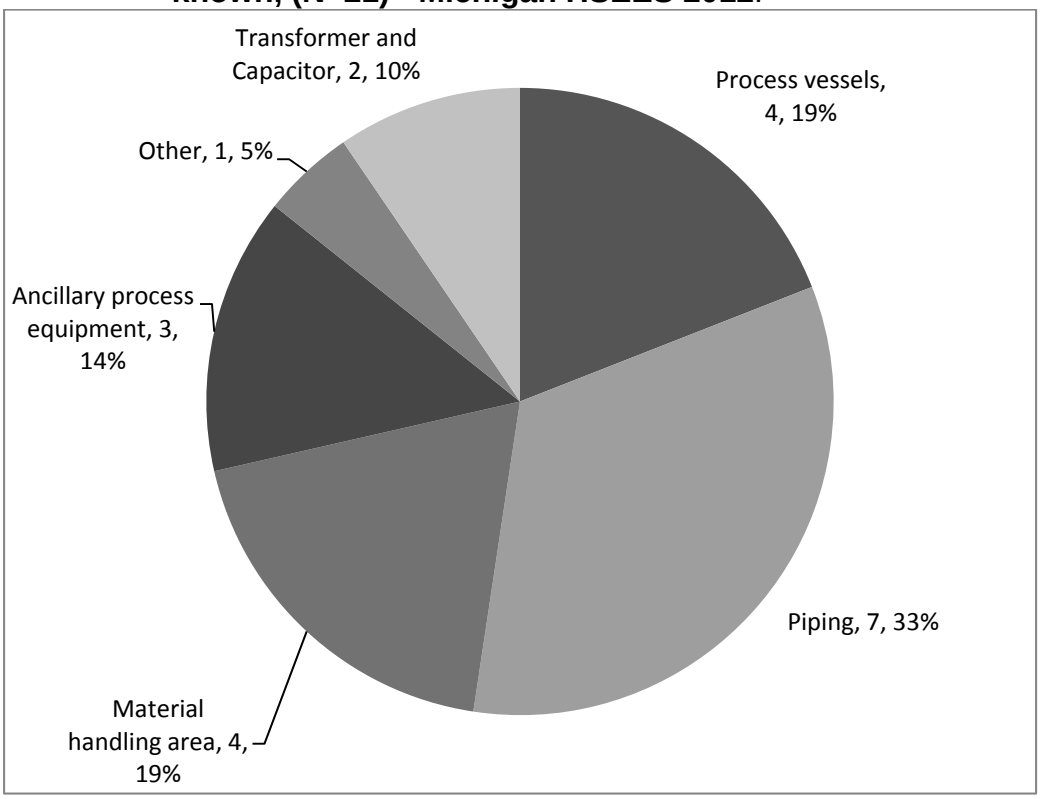
Facility type

A total of 164 (83.2%) events occurred in fixed facilities.

One hundred forty-three (87.1%) of the 164 fixed facility events did not identify an area in the facility where the release occurred. The locations for the 21 events where an area was identified included; process vessels 4 (19%), piping 7 (33.3%), materials handling area 4 (9.5%), ancillary process equipment 3 (14.2%), transformer and capacitor 2 (9.5%) and other 1 (4.8%). (Figure 1)

Of the 33 transportation events, 26 (78.8%) occurred during ground transport, 3 (9.1%) by rail, 2 (6.1%) by water, 1 (3.0%) by air and 1 (3.0%) by pipeline.

Figure 1 – Distribution of fixed facility related events where location was known, (N=21) - Michigan HSEES 2012.



Causes of events

Primary or root cause factors were reported in all 197 events. Of the reported primary factors, human error, 71 (35.9%), and equipment failure, 74 (37.4%) accounted for most of the factors. For transportation incidents human error, 14 (42.4%), was responsible for the most incidents, while equipment failure, 61 (37.0%), accounted for the most fixed facility events. For both transportation and fixed facility events the primary cause of events was equipment failure. (Figure 2 and Table 1)

Figure 2 - Primary Causes of Events - Michigan HSEES 2012 (N=197).

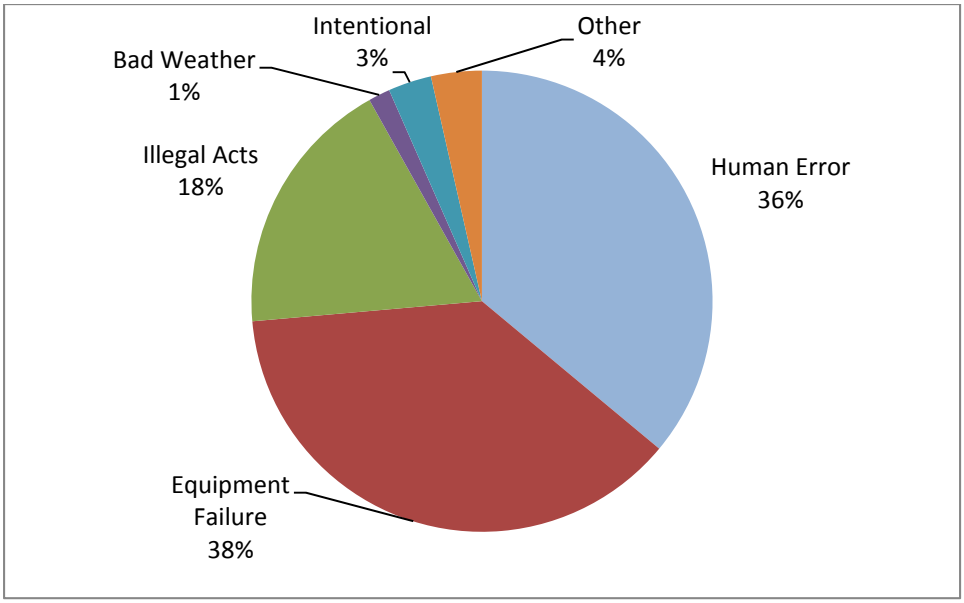


Table 1 – Primary factors associated with events by event type – Michigan HSEES 2012.

Primary Factor	Event Type					
	Fixed Facility*		Transportation		All Events	
	Number of Events	%	Number of Events	%	Number of Events	%
Human Error	57	34.8	14	42.4	71	36.0
Intentional	6	3.7	0	0	6	3.0
Equipment Failure	61	37.1	13	39.4	74	37.6
Illegal Act	33	20.1	3	9.1	36	18.3
Bad Weather	2	1.2	1	3.0	3	1.5
Other	5	3.0	2	6.1	8	4.0
Total	164		33		197	

Substances

A single substance was released in 165 (83.2%) of the 197 events. A mixture of methamphetamine chemicals were reported in 28 (14.2%) events. Four (2.0%) events were a mixture or reaction of two or more chemicals.

A total of 58 substances/mixtures were associated with the 197 events. The substances/mixtures that were released in more than one event and the numbers of events for each of these are listed in Table 2. The list of all 58 substances/mixtures released are in Appendix 2.

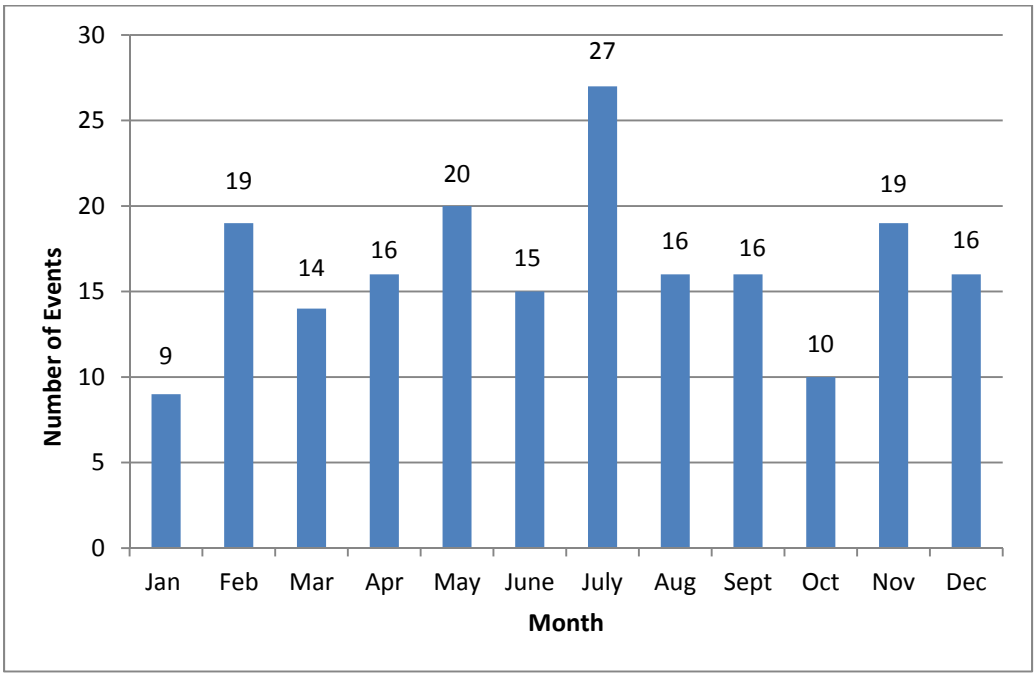
Table 2 - Substances/mixtures involved released in more than one event - Michigan HSEES 2012

Substance	Number of times released
Mercury	31
Natural Gas	33
Methamphetamine Chemicals NOS*	28
Gasoline	15
Ammonia	7
Explosives NOS	7
Propane	5
Flammable Liquid NOS	4
Oil NOS	4
Chlorine	3
Methane	3
Pesticide NOS	3
Sodium Hydroxide	3
Diesel Fuel	2
Metal NOS	2
Oxygen	2
Particulate Matter NOS	2
Polychlorinated Biphenyls NOS	2
Sulfuric Acid	2

Time of release

The number of events by month ranged from 27 (13.7%) in July to 9 (4.6%) in January. (Figure 3)

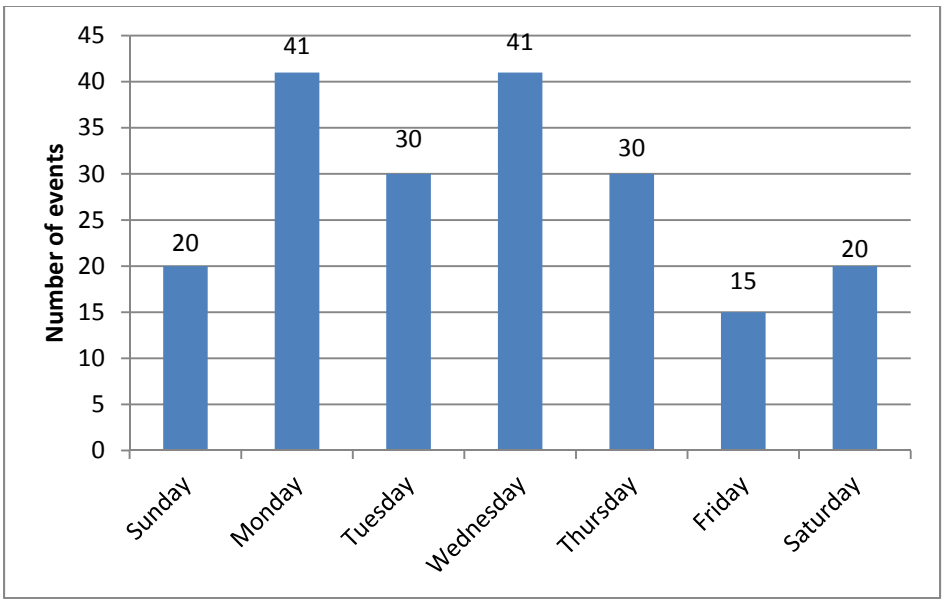
Figure 3 – Month distribution of events - Michigan HSEES 2012.



Day of week of releases

Events were more likely to occur Monday through Thursday. (Figure 4).

Figure 4 – Event day of the week distribution - Michigan HSEES 2012.



Business/industry

Eighty-three (41.2%) of the 197 events were the responsibility of an industry or business. The largest proportion of the industry/business-associated events involved ground/air/rail transportation, with 20 (24.1%) events. (Table 4)

Table 4 – Industries involved in events by 2-digit NAICS codes - Michigan HSEES 2012.

NAICS Code	Industry Category	No. Events	%
22	Utilities	8	9.6
23	Construction	4	4.8
31	Manufacturing - Food/Textiles/Apparel	2	2.4
32	Manufacturing - Paper/Petroleum/Chemicals/Plastics	9	10.8
33	Manufacturing - Metal/Transportation	6	7.2
44	Retail Trade - Motor Vehicle/Building Materials/Gas Stations	3	3.6
45	Retail Trade – Leisure Activities/General Merchandise	3	3.6
48	Transportation - Ground/Air Rail	20	24.1
53	Real Estate and Rental and Leasing	3	3.6
54	Professional, Scientific, and Technical Services	1	1.2
56	Administrative Support/Waste Management and Remediation	2	2.4
61	Education	8	9.6
62	Health Care	1	1.2
71	Art, Entertainment, and Recreation	1	1.2
72	Accommodations/Food Services	6	7.2
81	Other Services	3	3.6
92	Public Administration	3	3.6

Response

Responders: There were 13 categories of responders to the 197 events. Table 5 shows the frequency of responses by responder categories.

Table 5 - Frequency of responses by responder category- Michigan HSEES 2012.

Responder category	Number of events responded	%
Fire	147	74.6
Police	135	68.5
Hazmat	67	34.0
Emergency Medical Technicians	67	34.0
Company Response Teams	57	28.9
Hospital	56	28.4
Dept. Works/Utilities/Transport	38	19.3
Third Party Clean-up Contractor	32	16.2
Public Health	30	15.2
Poison Center	26	13.1
Environmental Agency	7	3.6
Specialized Multi-Agency Team	5	2.5
Emergency Managers	3	1.5

Public health actions

Forty-four (22.3%) of the 197 events resulted in a public health response. Environmental sampling was done in 40 (91%) events and a public health response, was done in 4 (9.1%) of the events.

Victims, evacuations, and sheltering-in-place

One hundred forty (70.7%) of the 197 events involved an injury or evacuation. A brief synopsis of each of the 140 events that included one or more of these public health impacts is included in Appendix 3.

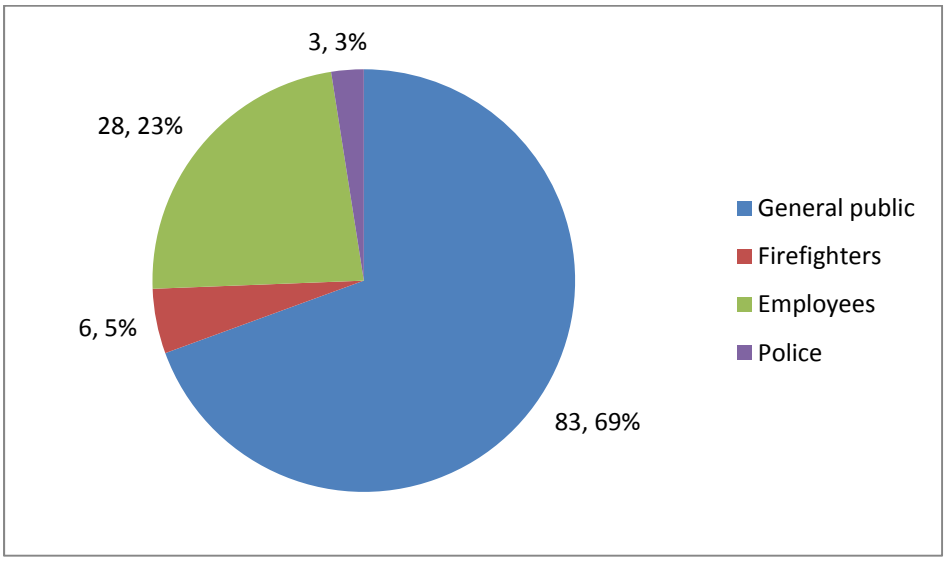
Victims

One hundred twenty victims were reported in 65 events (32.9% of the 197 events) (Table 7). Of the 65 events with victims, 43 (66.2%) involved only one victim, 6 (9.2%) involved two victims, 4 (6.2%) had three victims, and 8 (12.3%) had four or more victims. Of all victims, 111 (92.5%) were injured in fixed facility events (Table 7).

Table 7 - Number of victims per event, by type of events - Michigan HSEES 2012.

Number of Victims	Type of event								
	Fixed Facility			Transportation			All Events		
	No. of Events	%	Total Victims	No. of Events	%	Total Victims	No. of Events	%	Total Victims
1	38	58.4	38	5	7.7	5	43	66.2	43
2	8	12.3	16	2	3.1	4	6	9.2	20
3	4	6.2	12	0	0	0	4	6.2	12
≥4	8	12.3	45	0	0	0	8	12.3	45
Total	58		111	7		9	65		120

Figure 7 – Victims by population group - Michigan HSEES 2012. (N=120)

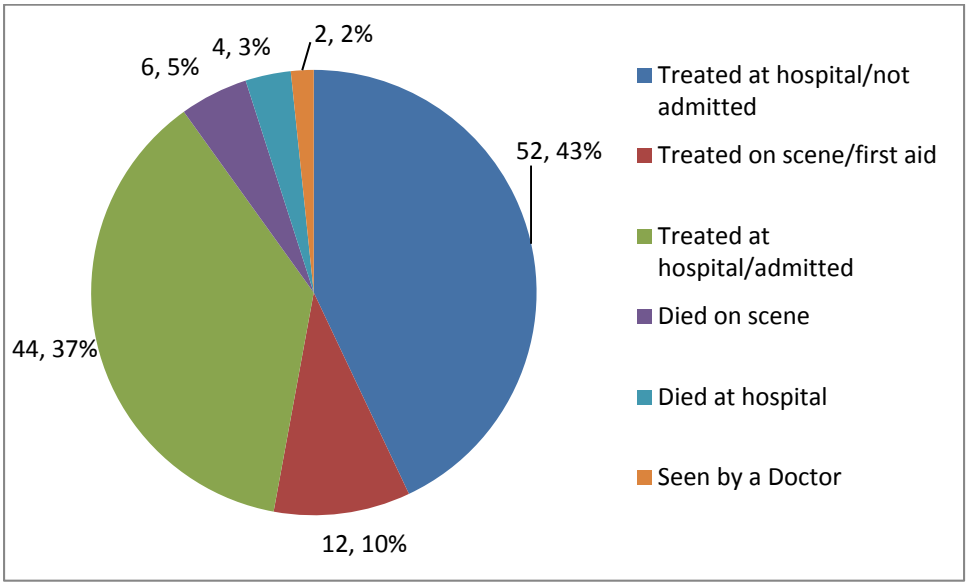


The age group was determined for 32 (26.6%) of the 120 victims: Two (6.3%) were five to 14 years old, 6 (18.8%) were 15 - 20 years old, 14 (43.8%) were 21 – 44 years old, 7 (21.9%) were 45 – 64 years old and 3(9.4%) were older than 65 years.

Sex was known for 51 (42.5%) of the victims; of these, 40(78.4%) were male.

Severity of injuries was known for 120 (100%) of the victims:52 (43.3%) were treated and released from the hospital, 12 (10.0%) were treated on scene, 44 (36.7%) were admitted to the hospital, 2 (1.7%) were seen by a doctor within 24 hours and 10 (8.3%) died (Figure 8).

Figure 8 - Injury outcomes - Michigan HSEES 2012.



Of the 120 victims, 108 injuries or symptoms could be determined (Table 8). Each victim was assigned one injury. (The remaining 12 victims were known to have been injured, but the types of injuries were unknown.) Of all the reported injuries/symptoms the most common were burns with 47 (43.5%), followed by trauma with 27 (25.0%).

Table 8 – Number of Injuries/Symptoms - Michigan HSEES 2012.

Injury/Symptom	No. of injuries	%
Burns	47	43.5
Trauma	27	25.0
Respiratory Irritation	21	19.4
Other	13	12.0
Total	108	

Fatalities

Among the 120 victims there were 10 (8.3%) fatalities. Of the fatalities 3 (30.0%) were from improper use of gasoline, 2 (20.0%) were from explosions and fires from the illegal production of methamphetamine, 1(10%) was from a fire resulting from the use of cigarettes while on oxygen, 1 (10%) was from a car accident hitting a natural gas riser, 1(10%) was from an unknown flammable liquid, 1 (10%) from an explosion of propane stored next to a woodstove, and 1 (10%) was from a fire when filling a butane lighter.

Evacuations and sheltering-in-place

Evacuations were ordered in 107 (54.0%) of the 198 events. Of these evacuations 64 (60%) were of buildings or the affected parts of the building,

9(8.4%) were within a circle or radius of the event, 1 (2%) had no defined criteria, 6(5.6%) were downwind of the event, 3(2.8%) were within a circle and downwind of the event, and for 23 (21.5%) the area of evacuation was unknown.

The number of people evacuated was known for 15 (14%) of the 107 events. Eight of the evacuations were for less than 100 people, 4 events evacuated between 100 to 1,000, 3 events evacuated more than 1000 people.

None of the events with evacuation orders had shelter-in-place orders.

Appendix 1 – Events by county – Michigan HSEES, 2012

County	Event Type				Total	
	Fixed Facility		Transportation		All Events	
	Number	%	Number	%	Number	%
Allegan	1	0.6	0	0	1	0.5
Arenac	2	1.2	0	0	2	1.0
Barry	2	1.2	0	0	2	1.0
Bay	2	1.2	0	0	2	1.0
Berrien	1	0.6	0	0	1	0.5
Branch	3	1.8	0	0	3	1.5
Calhoun	1	0.6	3	0	4	2.0
Cass	3	1.8	0	0	3	1.5
Cheboygan	1	0.6	0	0	1	0.5
Chippewa	1	0.6	0	0	1	0.5
Clinton	1	0.6	0	0	1	0.5
Eaton	3	1.8	0	0	3	1.5
Genesee	6	3.7	1	0	7	3.5
Gogebic	1	0.6	0	0	1	0.5
Grand Traverse	4	2.4	1	0	5	2.5
Houghton	1	0.6	0	0	1	0.5
Huron	1	0.6	0	0	1	0.5
Ingham	5	3.0	2	0	7	3.5
Jackson	6	3.7	1	0	7	3.5
Kalamazoo	4	2.4	1	0	5	2.5
Kent	8	4.9	2	0	10	5.1
Lenawee	4	2.4	0	0	4	2.0
Livingston	2	1.2	0	0	2	1.0
Macomb	10	6.1	1	0	11	5.6
Marquette	2	1.2	0	0	2	1.0
Mason	0	0.6	2	0	2	1.0
Midland	1	0.6	0	0	1	0.5
Monroe	4	2.4	0	0	4	2.0
Montcalm	1	0.6	2	0	3	1.5
Muskegon	7	4.3	0	0	7	3.5
Oakland	19	11.6	7	0	26	13.1
Oceana	2	1.2	0	0	2	1.0
Osceola	0	0	1	0	1	0.5
Ottawa	8	4.9	0	0	8	4.0
Saginaw	3	1.8	0	0	3	1.5
St. Clair	3	1.8	0	0	3	1.5
St. Joseph	3	1.8	0	0	3	1.5
Tuscola	1	0.6	0	0	1	0.5
Van Buren	7	4.3	1	0	8	4.0
Washtenaw	6	3.7	2	0	8	4.0
Wayne	24	14.5	6	0	30	15.2
Total	**164**	**83.3**	**33**	**16.7**	**197**	**100**

Appendix 2 – Complete list of substances released and frequencies – Michigan HSEES, 2012

Chemical Name	Number of Events	Percent
Mercury	31	15.7
Natural Gas	33	16.8
Methamphetamine Chemicals NOS*	28	14.2
Gasoline	15	7.6
Ammonia	7	3.6
Explosives NOS	7	3.6
Propane	5	2.5
Flammable Liquid NOS	4	2.0
Oil NOS	4	2.0
Chlorine	3	1.5
Methane	3	1.5
Pesticide NOS	3	1.5
Sodium Hydroxide	3	1.5
Diesel Fuel	2	1.0
Metal NOS	2	1.0
Oxygen	2	1.0
Particulate Matter NOS	2	1.0
Polychlorinated Biphenyls NOS	2	1.0
Sulfuric Acid	2	1.0
1,3-Butadiene	1	0.5
2,4,6-Trichlorophenol	1	0.5
Acetylene	1	0.5
Asphalt	1	0.5
Asphalt Sealer	1	0.5
Automatic Transmission Fluid	1	0.5
Battery Acid	1	0.5
Butane	1	0.5
Calcium Oxide	1	0.5
Carbon Monoxide	1	0.5
Cleaning Agent NOS	1	0.5
Coal	1	0.5
Crude Oil NOS	1	0.5
Ethyl Ether	1	0.5
Eucalyptus Oil	1	0.5
Flammable Gas NOS	1	0.5
Flammable Solid NOS	1	0.5
Fuel NOS	1	0.5
Glue NOS	1	0.5
Grease NOS	1	0.5
Hydrochloric Acid	1	0.5
Hydrogen	1	0.5
Ink NOS	1	0.5
Jet Fuel	1	0.5
Liquid Chemicals NOS	1	0.5
Lithium	1	0.5
Methanol NOS	1	0.5
Methyl Acrylate	1	0.5
Mixture : Calcium Stearate/Oil NOS	1	0.5
Nitrogen	1	0.5
Plastic Fumes	1	0.5
Potassium Hydroxide	1	0.5
Reaction: Chlorine/Hydrochloric Acid	1	0.5
Reaction: Metal Oxide/Nitric Acid	1	0.5
Reaction Sodium Hypochlorite/Sodium Thiosulfate NOS	1	0.5

Sludge NOS	1	0.5
Sodium Cyanide	1	0.5
Soybean Oil	1	0.5
Steel	1	0.5
Total	**197**	

*NOS – Not Otherwise Specified

Appendix 3- Events resulting in an evacuation, injury or exposure- Michigan HSEES, 2012

MI20120001 - An electrical problem ignited methane gas in manholes causing at least three covers to blow off. The building and street were closed.

MI20120002 - Three workers were treated and released from a hospital after being exposed to methamphetamine residue that was on money from a customer.

MI20120003 - Two people had minor burns from a one pot methamphetamine cook which exploded.

MI20120004 - Fire at a fertilizer and chemical storage building, one fire fighter injured.

MI20120005 - Man refilling a lighter when it caught fire, he was killed, home destroyed.

MI20120006 - A woman was smoking while on oxygen causing fire, apartment building destroyed, woman transferred to burn center.

MI20120007 - A man with a medical emergency while driving hit a gas line, homeowners in the area were evacuated

MI20120008 - Four people were severely burned from a natural gas explosion in a smaller apartment building.

MI20120009 - Two people were making methamphetamine in an apartment when it exploded, chemicals were left in the hallway, apartment building evacuated no reports of injuries.

MI20120011 - Man was arc welding on an old gas tank when it exploded resulting in third degree burns.

MI20120012 - Natural gas leak in home resulting in explosion and fire, house destroyed, 4 people in house not injured.

MI20120014 - Methamphetamine lab exploded in apartment building, one man severely burned, load bearing walls of building moved 8 feet, other apartments evacuated.

MI20120015 - Auto repair shop repairing gas tank when the gasoline vapors ignited burning one worker and destroying the building.

MI20120017 - Three people were in a garage when gasoline was poured on a hot wood burning stove. The gasoline exploded injuring two and fatally injuring one.

MI20120018 - Methamphetamine exploded in house, house was on fire, operator was severely burned.

MI20120019 - Mercury fever thermometer broken in home, residents evacuated area.

MI20120021 - Methamphetamine lab caught on fire severely burning cook who later died of his injuries.

MI20120022 - Natural gas explosion destroyed one home caught two others on fire.

MI20120023 - Woman was killed in a house fire started by smoking while on oxygen.

MI20120024 - A large retail store was evacuated due to a gas leak.

MI20120025 - A methamphetamine lab exploded in a mobile home destroying the home.

MI20120026 - A container of expired diethyl ether was discovered in the chemistry lab, building was evacuated while the bomb squad removed the chemical.

MI20120028 - An employee of a large retail store broke a gas line causing the store to be evacuated.

MI20120029 - A student brought a vial of mercury into a school and it was broken. Students were screened for mercury contamination.

MI20120031 - A natural gas explosion destroyed a home burning two occupants.

MI20120032 - An individual attempted suicide by swallowing sodium cyanide pills. The pills were dropped on the floor requiring evacuation and clean up.

MI20120033 - A gas leak was found in a school's kitchen, all students were evacuated while the leak was repaired.

MI20120034 - A wood burning stove caused a propane tank to explode destroying the house.

MI20120035 - A methamphetamine lab exploded in an apartment building, apartments were evacuated while building was being cleaned

MI20120036 - Police arrested a fugitive and discovered a large methamphetamine lab, one officer was exposed to the chemicals and was treated and released from the hospital.

MI20120037 - A asphalt kettle caught on fire which spread to other roofing materials, extensive smoke was produced, hazmat contractor cleaned scene after fire.

MI20120038 - Natural gas from a faulty space heater exploded leveling the house and causing the occupant to be thrown 15 feet.

MI20120040 - Ammonia refrigerant was released from a fruit processing facility resulting in the evacuation of the business and response by the fire department to disperse the vapor.

MI20120041 - A lithium battery exploded while being tested, two workers were injured.

MI20120042 - A battery in an oxygen concentrator overheated burning an airplane passenger.

MI20120044 - Oily rags caught on fire in a hotel, all residents were evacuated.

MI20120045 - Methamphetamine lab exploded in mobile home causing a small fire.

MI20120046 - Methamphetamine lab exploded in apartment, one individual was treated and released, two first responders were exposed and treated and released.

MI20120049 - Methamphetamine lab exploded in an apartment building destroying a supporting wall. The cook was severely burned, five families were evacuated.

MI20120054 - In the process of defrosting an older refrigerator the coils were broken releasing ammonia, 4 people treated at scene, building evacuated.

MI20120055 - Hydraulic fluid leaked from a press, caught fire and exploded burning operator.

MI20120056 - Methamphetamine lab exploded severely burning operator.

MI20120057 - Apartment building was sprayed for bed bugs, 8 to 10 residents treated and released from hospital for pesticide exposure.

MI20120058 - Pesticide was spilled in apartment, 2 people were sent to the hospital.

MI20120059 - Methamphetamine lab exploded in pickup truck cab severely burning driver.

MI20120060 - Two people were operating a methamphetamine lab that caught the building on fire. The two were injured and checked into a hospital.

MI20120062 - A state worker opened an envelope containing white powder, later went to a hospital where they were treated and released.

MI20120064 - Three residents were making hash oil when the operation exploded, all three had critical burns. House was razed.

MI20120067 - Driver had a medical emergency, hit a natural gas riser pipe resulting in a fire with a fatality.

MI20120068 - Construction workers hit a gas main while installing a tornado siren at an elementary school. The school was evacuated.

MI20120069 - Employee was heating animal fat for use in abrasives when it boiled over and caught on fire. The fire spread through the building burning various chemicals and creating quite a bit of smoke.

MI20120070 - A house was saturated with gasoline, the house exploded and was destroyed.

MI20120071 - A boy was injured while using a microwave when the house exploded from a natural gas leak.

MI20120073 - An employee was injured in a coal dust explosion.

MI20120074 - A chlorine leak occurred at a manufacturing plant, 8 employees were treated, 1600 were evacuated.

MI20120075 - Chlorine was mixed with a pH reducer producing chlorine fumes. Building was evacuated until it could be aired out.

MI20120076 - The axle overheated on a tanker truck causing an explosion of the diesel tank. A passing car was hit with debris.

MI20120077 - Chlorine tanks released to the air at a water treatment plant, 75 residents were evacuated.

MI20120078 - Fireworks were exploded in a cinder block causing the cinder block to disintegrate, sent shrapnel 50 feet. Five people were injured.

MI20120079 - Woman was lighting a firework when it exploded, resulting in second and third degree burns.

MI20120080 - Pool chemicals were mixed incorrectly resulting in the evacuation of 55 people.

MI20120081 - A boat was started and the gasoline onboard exploded resulting in 2 injuries.

MI20120082 - Homeowner lit a mole flare under a deck which caught the deck and house on fire, house was destroyed.

MI20120084 - Lightning struck a grain elevator causing a fire, seven homes were evacuated as a precaution due to the possibility of pesticides in the fire smoke.

MI20120085 - Two people were injured when a methamphetamine lab exploded.

MI20120086 - A man lit a very strong firework and severely injured his leg from the explosion

MI20120087 - Two people were on a jet ski and turned on the ignition. The jet ski exploded injuring both riders, one was hospitalized.

MI20120088 - A man was severely injured from a firework explosion.

MI20120089 - A man was seriously injured from a homemade firework explosion.

MI20120090 - A truck overturned spilling benzene dicarboxylic acid, 1 person was hospitalized, one person decontaminated on scene, road closed.

MI20120092 - A nitrogen tank exploded in a medical clinic. The clinic was evacuated, no reported injuries.

MI20120094 - A methamphetamine lab exploded severely burning operator and catching house on fire.

MI20120095 - A valve broke off a gasoline tanker when it hit a guard rail at a gas station. No fire resulted but nearby businesses were evacuated while the gasoline was flushed from the sewers.

MI20120096 - Two people were found in a home with a natural gas leak that was above explosive levels, neighbor was evacuated while building was vented.

MI20120098 - A house exploded from a natural gas leak.

MI20120099 - Lime was released from a passing train causing roads to be closed until the substance could be identified.

MI20120102 - A steel furnace exploded burning two workers.

MI20120103 - An explosion occurred in a coal dust bunker at a power plant, one employee was treated on scene.

MI20120105 - A fire occurred in the kitchen of a senior complex requiring evacuation of residents.

MI20120106 - A natural gas line was ruptured during construction, a church and library were evacuated.

MI20120107 - Ammonia was spilled from heat treating process, building evacuated.

MI20120108 - Individuals were using gasoline to start a bonfire, the gas exploded 7 were burned, 3 severely.

MI20120109 - Natural gas leak from road construction activities, 25 homes evacuated.

MI20120110 - While fighting a fire, firefighters opened the door to a home and the home exploded injuring four.

MI20120111 - A vehicle caught on fire from a methamphetamine lab that exploded inside the vehicle.

MI20120114 - Eucalyptus oil was poured on heated rocks in a sauna, one individual was hospitalized with burns.

MI20120115 - A reaction was being scaled up and ran out of control releasing acid fumes to the atmosphere. Building was evacuated.

MI20120117 - A very large bonfire was lit with gasoline which exploded fatality injuring two people.

MI20120118 - Contractors broke a natural gas line, neighborhood was evacuated.

MI20120121 - A house caught on fire from a natural gas leak at the meter.

MI20120124 - Children were playing with fire near a fire pit when someone threw a flammable liquid into the fire severely burning one child.

MI20120125 - PCB containing transformer caught fire.

MI20120126 - A refinery worker was burned in a hydrogen fire.

MI20120127 - A methamphetamine lab exploded severely burning operator.

MI20120128 - A man lit a cigarette and his house exploded from a natural gas leak.

MI20120129 - An excavator broke a two inch gas line, an office and an apartment were evacuated.

MI20120130 - A tanker containing 13,000 gallons of jet fuel overturned closing a major interstate. The tanker had a small leak, spilling 300 gallons on the roadway. The tanker was being offloaded to another tanker when that tanker was also discovered to be leaking. A new tanker was brought in and the tanker was offloaded and the site cleared.

MI20120132 - A man set his home on fire, was severely burned and later died at the hospital.

MI20120133 - Vandals cut a natural gas line inside a home when they were stealing metal from the home. The natural gas exploded destroying the home and damaging adjacent structures and vehicles.

MI20120134 - A natural gas leak caused a dispatch center to be evacuated.

MI20120135 - A methamphetamine lab exploded burning and injuring operator who died at the hospital.

MI20120136 - A methamphetamine lab exploded burning the operator who was hospitalized.

MI20120140 - Ammonia was released from a reactor vessel due to equipment failure.

MI20120141 - A contractor drilled an auger into a gas line which burst into flames outside of a school.

MI20120142 - A dumpster containing various waste chemicals caught fire and was removed from the building.

MI20120143 - A man was burning the fur off a squirrel using a propane torch on his apartment balcony. He left the torch lit on the balcony and it caught the apartment complex on fire causing $1.4 million in damage and displacing 29 families.

MI20120144 - An overhead light fell on a gasoline tank starting a fire which destroyed the building.

MI20120145 - A natural gas leak caused a small fire resulting in the evacuation of a residence hall.

MI20120146 - A methamphetamine lab exploded in a house, catching the house on fire, burning the operator who was hospitalized.

MI20120147 - A gasoline tanker overturned on a highway. Residents were evacuated for 1/2 mile in all directions while the accident scene was cleared.

MI20120148 - A methamphetamine lab exploded in a car burning the occupant and destroying the car.

MI20120150 - A Molotov cocktail was thrown in a porch window of an occupied home burning the porch.

MI20120151 - A tanker carrying 4,100 gallons of glue overturned on the freeway causing the freeway to be closed for over eight hours while the load was removed.

MI20120152 - At a food processing plant the refrigeration compressor released ammonia resulting in the evacuation of the plant

MI20120153 - A propane leak caught on fire destroying one home and severely damaging another.

MI20120154 - A methamphetamine lab caught on fire destroying a home.

MI20120155 - A gas pipeline caused an explosion burning 5 buildings in a strip mall.

MI20120156 - House destroyed by a natural gas explosion, one person was injured.

MI20120157 - A truck hauling cleaning chemicals hit the median barrier and exploded.

MI20120159 - A natural gas leak occurred at a court building which was closed for the day to repair the leak and ventilate the building.

MI20120160 - A natural gas leak resulted in an evacuation of a junior high school and nearby residents.

MI20120161 - Sulfuric acid spilled from a drum in a delivery truck and was not noticed. A shipment from the truck was delivered to a school and sulfuric acid was tracked through the hallway. The school was closed while the spill was cleaned.

MI20120163 - A methamphetamine lab exploded burning the operator who was hospitalized.

MI20120164 - A natural gas valve broke leaking gas into a neighborhood which was evacuated.

MI20120166 - Mercury thermometer broken into heat register.

MI20120182 - A mercury monometer was broken in a business.

MI20120184 - Mercury leaked out of a manufacturing machine when it was moved.

MI20120185 - A worker was splashed with ammonia and received burns.

MI20120186 - A gasoline tanker at a gas station spilled 2,500 gallons which entered the sewer system.

MI20120187 - A natural gas explosion destroyed a building housing a printing business.

MI20120188 - A methamphetamine lab exploded catching a house on fire.

MI20120189 - An attached garage exploded catching the house on fire.

MI20120190 - Welding supplies caught fire in a garage causing the acetylene tank to explode, spreading the fire to an adjoining house.

MI20120191 - A valve broke on a sulfuric acid tote on a trailer, the trailer floor and gravel under the trailer were contaminated.

MI20120192 - When unloading sodium hydroxide solution from a trailer the container was punctured releasing the chemical onto the pavement.

MI20120193 - When transporting a carbon monoxide cylinder off a truck, the cylinder fell and the valve broke off leaking to the atmosphere.

MI20120194 - A trailer rolled over spilling a sodium hydroxide solution.

MI20120195 - A drum leaked methyl acrylate while being transported, the driver felt ill and was treated at the hospital.

MI20120196 - A drum of methanol was leaking in a delivery trailer, a contractor was brought in to clean the trailer.

MI20120198 - While unloading a trailer, a drum leaked onto the dock and yard.