MMEDB News

Saving Lives with Fatality Data

Welcome to the first issue of the quarterly ME Database Newsletter. This issue will mainly cover data findings from the ME Database Initiative's Annual Report.

Look for data collection tips, informative articles and and updates on current events in future issues!

Michigan Medical Examiner Database
2440 Woodlake Circle, Suite 100
Okemos, MI 48864
(517) 324-7372

A collaborative project administered by the Center for Collaborative Research in Health Outcomes & Policy (CRHOP), a program of the Michigan Public Health Institute (MPHI), and funded by the Michigan Department of Community Health and Centers for Disease Control and Prevention. The project uses Internet-based software to enhance operations for medical examiner (ME) offices and to provide standardized data for public health surveillance.

New Feature
File Upload

A brand new feature has been added to the ME Database that will allow counties to upload electronic documents that accompany cases in the database. For each case, toxicology results, photos, autopsy results or any other electronic documents relating to the case can be saved right in the case file for convenient reference at any time.

Log on to www.mmedb.com and check it out! Need a password? Contact Gerry Polverento (517) 324-7372.

www.mmedb.com

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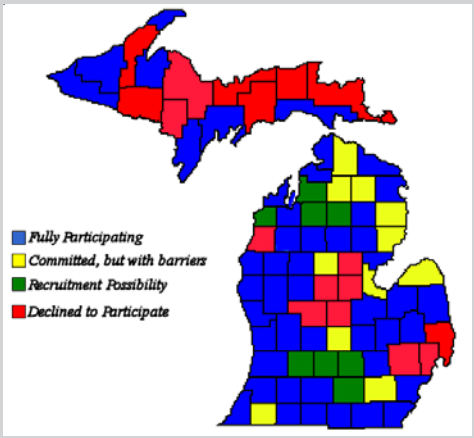
County participation is depicted in the map to the right. Full participation means that counties regularly submit data into the system. A potential county is one that is interested in participating in the MMEDB, but is currently unable due to one or more barriers (e.g., limited time or staff to complete data entry, or no Internet access). CRHOP is working with these counties to overcome such limitations. Some counties in Michigan use other software or databases to track ME cases. CRHOP has established an electronic data sharing agreement with two of these counties that allows data to be imported into the MMEDB. Counties that currently have this agreement are depicted in the map as fully participating. Fifty-five of Michigan's 83 counties utilize the database.



Data Findings

As of July 2004, 6,385 cases from 2002 and 6,137 cases from 2003 have been entered into the MMEDB. These cases represent the counties that entered 2002 and/or 2003 cases into the database, provided case information to CRHOP electronically, or provided case forms to be incorporated into the database by CRHOP. A number of counties began participation in the MMEDB during 2002 or 2003 and either do not plan to enter retrospective data, or have not yet entered all data for the previous year into the database. Also, a few counties are simply behind on data entry and have not entered all past cases. **Please note that the data presented here are not meant to represent the State of Michigan; they represent only cases from participating counties that were entered into the database as of July 2004**. This report will focus mainly on non-natural manners of death and will include a comparison of 2002 and 2003 data.

Wayne County accounts for the largest number of cases from one county in the database for both 2002 and 2003 with 51.3% (n=3,277) and 46.5% (n=2,855) cases respectively. Wayne County has an electronic data sharing agreement with the MMEDB and, as a result, there is some variation in the data fields collected. Wayne County data has been converted to match data fields of the MMEDB to the greatest extent possible. Fields that could not be converted, or that were not available for incorporation into the MMEDB, were not included in the analysis. Any tables or charts that do not include Wayne County data are noted as such.

The ranking of manners of death were the same for 2002 and 2003. The first table below examines the ranking of manners of death among age groups for 2003. Accidents were the leading cause of death for children zero to 15 years of age followed by natural deaths. The youngest person for whom a medical examiner classified the manner of death as suicide was 12 years old. Among zero to 15 year olds, the percent of accidents and suicides increased between 2002 and 2003 from 47% to 53%, while homicides decreased from 13% to 11% and natural deaths decreased from 39% to 31%.

Rank	0-15 years	16-25 years	26-40 years	41-65 years	66+ years
1	Accidents 53%	Accidents 45%	Accidents 31%	Natural 68%	Natural 78%
2	Natural 31%	Homicide 33%	Natural 26%	Accident 20%	Accident 19%
3	Homicide 11%	Suicide 14%	Homicide 25%	Suicide 7%	Suicide 3%
4	Suicide 5%	Natural 8%	Suicide 18%	Homicide 5%	Homicide <1%

The lowest proportion of deaths classified as natural occurred among the 16 to 25 year age group at 8% for both 2002 and 2003. The leading manner of death among 16 to 25 year olds was accidents at 45%. The highest percentage of homicides occurred in this age group with 33% of deaths classified in this manner.

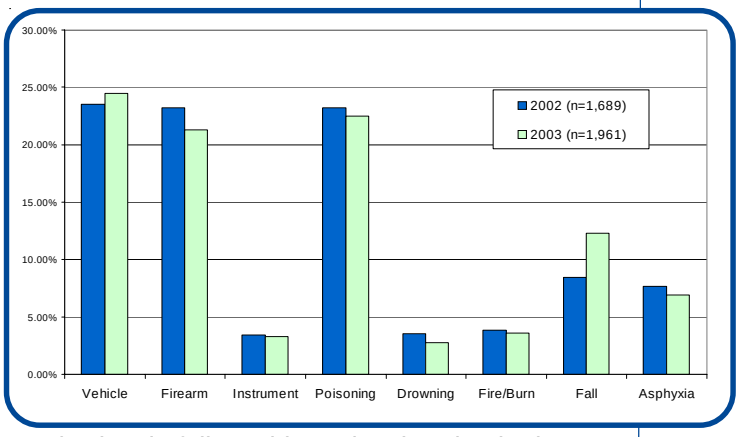
Classification of manner of death was most evenly distributed among the 26 to 40 year age group with accidental deaths leading at 31%. Natural was the leading manner of death for the 41 through 65 age group and the over 65 age group, followed by accidents, suicides and finally homicides for both 2002 and 2003.

Race	Year	Natural	Accident	Suicide	Homicide	Total
Hispanic	2002	43	30	8	15	96
		45%	31%	8%	16%	100%
	2003	39	34	5	11	89
		44%	38%	6%	12%	100%
White	2002	2342	1080	379	90	3891
		60%	28%	10%	2%	100%
	2003	2298	944	349	72	3669
		60%	23%	11%	5%	100%
African American	2002	1115	494	61	421	2091
		53%	24%	3%	20%	100%
	2003	792	294	59	353	1498
		53%	20%	4%	24%	100%

The table below represents medical examiners' classification of manner of death by race/ethnicity. Natural was the most common manner of death among African Americans, Hispanics and Whites, followed by accidental deaths among all races except African Americans in 2003, where homicides (24%) outnumbered accidental deaths (20%). Homicides were more prevalent than suicides among Hispanics and African Americans, while suicides were more prevalent than homicides among Whites in both 2002 and 2003.

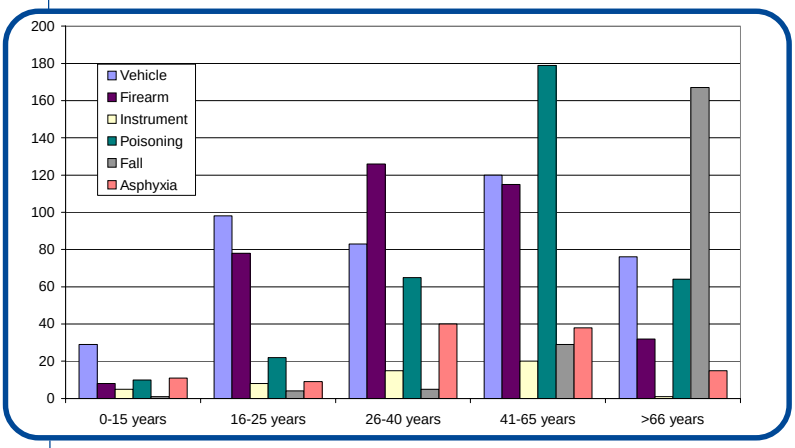
Means of Death

The external cause of non-natural deaths is classified as the means of death. The chart below displays the non-natural deaths by their external cause. Data for Wayne County are included in the analysis of means of death, but are limited as follows: of the cases in the database with a non-natural manner of death (accident, suicide, homicide) from all counties excluding Wayne, 95% have a means of death specified in 2002 and 2003, but of the cases from Wayne County, only 60% in 2002 and 49% in 2003 have a means of death attributed to them. It is likely that all means of death are underrepresented, but the most substantial differences between Wayne County and the rest of the database are among deaths due to vehicle crashes and falls.



Vehicle crashes were the leading non-natural means of death in both 2002 (23.5%) and 2003 (24.5%), closely followed by poisoning deaths in 2002 (23.2%) and 2003 (22.5%) and deaths due to firearms in 2002 (23.2%) and 2003 (21.3%).

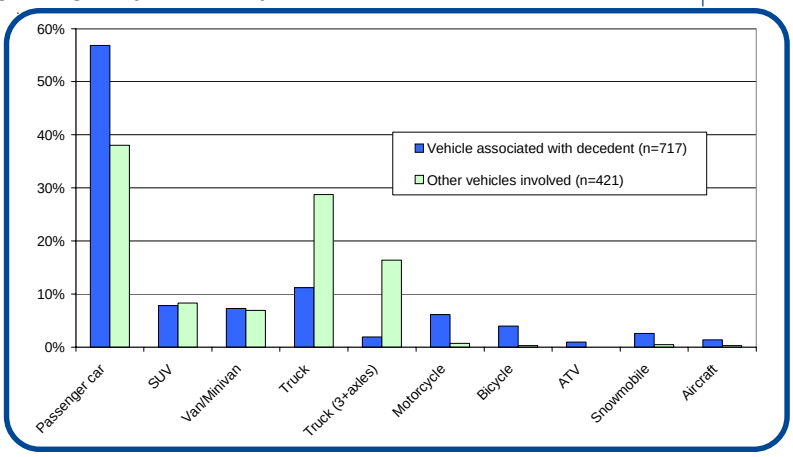
Selected means of death are broken down by age group for 2003 in the chart below. Poisoning deaths are most prevalent among the 41 to 65 year age group. Falls become a leading means of non-natural death among the older age groups, especially the 65 and older group. The general patterns of the means of death are similar between 2002 and 2003; selected means are discussed below.



Vehicle Crashes

Age data were available for 820 cases where death was due to a fatal vehicle crash. In 2002 and 2003, fatal vehicle crashes were most common among the 16 to 25 (30% & 24%) and 41 to 65 year age groups (27% & 30%), closely followed by the 26 to 40 year age group (20% for both years). Males comprised 71% of all deaths due to vehicle crashes in 2002 and 68% in 2003. Only in the 66 and older age group did the number of female decedents (58%) outnumber male decedents (42%) in fatal vehicle crashes.

The types of vehicles involved in fatal crashes are presented below. Data from 2002 and 2003 were combined and do not include information regarding Wayne County fatal vehicle crashes. There were few differences in car types between the two years. The blue bars show the type of vehicle the decedent was driving, or in which the decedent was a passenger. The green bars represent the other types of vehicles that were involved in fatal crashes between two or more cars. Passenger cars were the most frequent vehicle type involved in fatal crashes, followed by two-axle trucks for both categories: vehicles associated with the decedent and other vehicles involved. Although, trucks (both two and three-axles) are more likely to be the "other vehicle involved" rather then the vehicle in which the decedent was driving or riding.

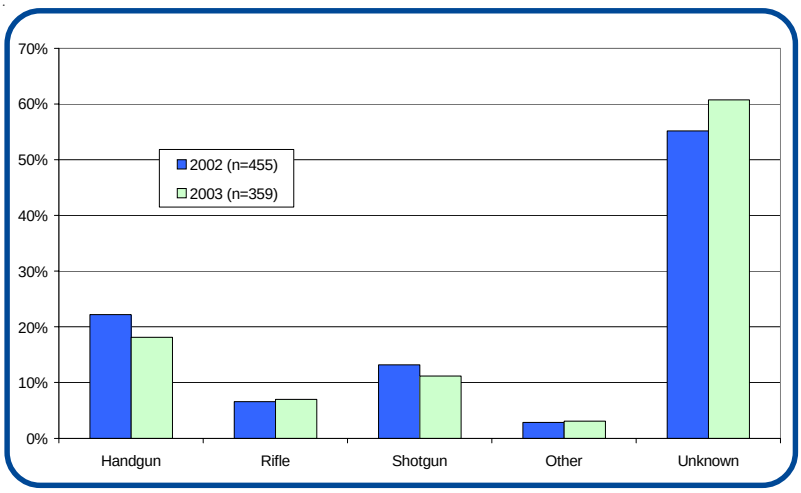


Among the cases in the database, there were 13 pedestrians killed by vehicles in 2002 and 22 in 2003. Data regarding safety device use was entered into the system in 512 instances of fatal vehicle crashes in 2002 and 2003. In 2002, 52% of decedents were wearing a seatbelt or were in a car seat and 11% were wearing a helmet. In 2003, 48% of decedents were wearing a seatbelt or were in a car seat and 10% were wearing a helmet. Of the 512 cases for which safety device usage information was available, 27% of decedents in 2002 and 26% in 2003 were not utilizing a safety device (i.e., seatbelt, helmet or car seat).

Of the 874 total deaths due to vehicle crashes in 2002 and 2003, toxicology results were available for alcohol use in 324 cases (37%) and drug use in 275 cases (31%). Of the 324 cases for which **alcohol** toxicology was performed, 34% were found to be positive for alcohol use. Of the cases for which alcohol use was positive (n=110), 69% of the decedents were drivers of the vehicle, 3% were pedestrians who were hit by a vehicle and the rest were passengers in a vehicle (28%). Of the 275 cases for which **drug** toxicology was performed, 20% were found to be positive for drug use. Of the cases for which drug use was positive (n=55), 70% of the decedents were drivers of the vehicle, 1% were pedestrians who were hit by a vehicle and the rest were passengers in a vehicle (29%). The proportion of positive drug and alcohol use in deaths due to vehicle crashes was similar between 2002 and 2003, but the number of cases for which toxicology was done, and for which results were entered into the database, nearly doubled from 2002 (n=113) to 2003 (n=211).

Firearms

Firearms were the means of death in 455 MMEDB cases in 2002 and 359 cases in 2003. Deaths due to firearms were most common among the 26 to 40 year old age group in both 2002 and 2003 at 37% and 35% respectively. Forty-one to 65 year olds were the second most likely age group to die due to a gunshot wound (25% & 32%) followed by 16 to 25 year olds (24% & 22%). Forty-five percent of MMEDB deaths due to gunshot wounds in 2002 were suicides, and 55% were homicides. There was one accidental firearm death in 2002. In 2003, deaths due to gunshot wounds were evenly split between suicides and homicides at 50% each. When analyzed by age group, the data show that the majority of firearm deaths for persons ages 0 to 40 were due to homicides, while the majority of firearm deaths were due to suicides in the older age groups, 41 years and above.



The type of firearm used in deaths due to a gunshot wound was recorded in the system in 204 cases (45%) in 2002 and 141 cases (39%) in 2003. Data on firearm types used is not included for Wayne County. When gun use was recorded, handguns were the most commonly used type of firearm in 2002 and 2003 followed by shotguns as shown in the chart above. Eighty-five percent of the available information on the type of guns used in fatal shootings was gathered from the scene of a suicide and only 15% from the scene of a homicide. The low reporting of type of guns used for homicides could be due to the fact that the gun is typically not left at the scene of a homicide and results of forensic testing are frequently not entered into the database.

Instrument

There were 65 MMEDB deaths recorded as caused by an instrument in 2002 and 51 deaths in 2003. Deaths caused by a blunt or sharp object, such as a knife, are classified as instrument deaths. Deaths due to an instrument were most common among the 41 to 65 year age group followed by the 26 to 40 year age group in both 2002 and 2003. In 2002, 2% (n=1) of instrument deaths were accidental, 8% (n=5) were suicides and 90% (n=59) were homicides. Similarly, in 2003, 8% (n=4) of instrument deaths were accidental, 10% (n=5) were suicides and 82% (n=42) were homicides.

Poisoning

In 2002 and 2003 combined, poisoning was the third most common means of non-natural death in the database overall with 835 cases. Age data was missing for 45 cases of poisoning, but based on available numbers, poisoning was the most common means of death for the 41 to 65 year age group, accounting for 54% (n=244) of non-natural deaths within this age group in 2002 and 53% (n=179) in 2003. For poisoning deaths with a determined manner of death in 2002, 15% were classified as natural deaths, 72% as accidents, 9% as suicides and 4% as homicides. For poisoning deaths with a determined manner of death in 2003, 41% were classified as natural deaths, 46% as accidents, 11% as suicides and 2% as homicides. Although it is often difficult to determine the true manner of poisoning deaths, especially drug overdoses, it is generally accepted that, if no other manner of death is obvious, poisoning deaths are accidental.

Falls

There were 153 deaths due to falls in 2002 and 185 deaths due to falls in 2003, not including Wayne County data. The largest proportion of fatal falls occurred in the over 65 year old age group in 2002 (49%) and in 2003 (81%) followed by the 44 to 65 year age group in 2002 (42%) and 2003 (14%). In both 2002 and 2003, falls were most often caused by tripping/slipping (63%) followed by medical conditions (16%). Only 7 falls were suicides.

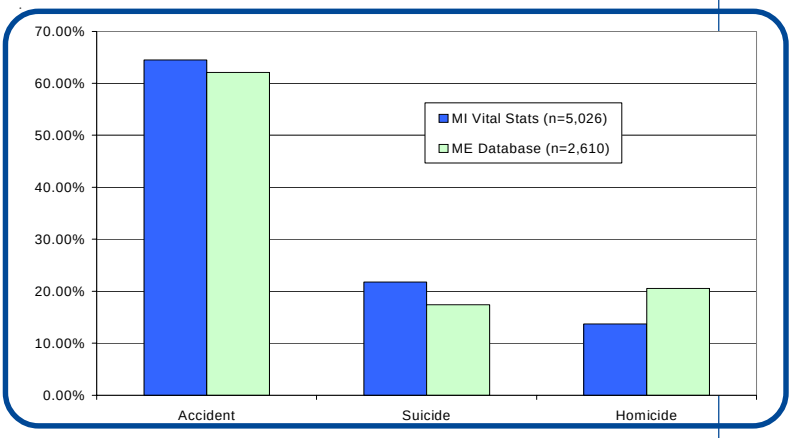
Asphyxia

There were 75 cases where asphyxia was classified as the means of death in 2002 and 75 cases in 2003, not including Wayne County data. Fifty-nine percent (n=89) of all cases of death due to asphyxia were self-induced; 88% of all self-induced asphyxia deaths were due to ligature strangulation. The second most common cause of asphyxia was due to choking on food/drink.

Non-natural manners of death compared to vital statistics data

The MMEDB contains 2002 data from 31 counties representing 48% of Michigan's population (US Census 2000). The chart below illustrates the comparison of vital statistics data for the State of Michigan to data from the MMEDB for 2002 by percent of accidental deaths, suicides and homicides.

The comparison indicates that the proportions of non-natural manners of death in the MMEDB are fairly representative of the proportions of non-natural deaths recorded by vital statistics for the State of Michigan. The lower percentage of suicides, and higher percentage of homicides in the MMEDB is most likely a result of the inclusion of Wayne County data resulting in an over representation of urban manners of death, such as homicides and accidental drug overdoses. The MMEDB team gained participation from several rural counties in 2003 and 2004 in an effort to gain accurate representation of the State.



Future Efforts

In the Fall of 2004, all medical examiners and data entry staff will be asked to complete a survey. The survey will gather information on the use of the new modules and features implemented over the past year. In addition, respondents will have an opportunity to make suggestions for future improvements. The findings from this survey will be made available on the MMEDB website (https://www.mmedb.com) and in next year's annual report.

CRHOP staff will begin distribution of a quarterly newsletter as a means for continuing communication between medical examiners, data entry staff, scene investigators, researchers, other initiatives, and CRHOP staff. Future newsletters will provide instruction for using data collection fields on the DSIR, information on upcoming meetings or conferences targeted at medical examiners and staff, and highlight data being captured by the system.

Conclusion

Success of the MMEDB is attributable to CHROP's mission-centered philosophy and the utilization of Internet technology to provide a practical, low-maintenance tool for medical examiner offices. This enterprise is dedicated to collaboration that facilitates a common vision and resource sharing among its partnering members.

Presentation of the data illustrates the potential of the database as a research and surveillance tool. Enhancing participation and data collection consistency will help the MMEDB to move forward with its goal of impacting the fields of injury and communicable disease prevention.

The MMEDB meets the core needs of most offices because it was built by medical examiners, for medical examiners. Continuous improvements to the database, as well as ongoing outreach, demonstrate the commitment of the MMEDB to provide MEs with the most convenient and useful data management system available. Additionally, the MMEDB team aims to achieve higher levels of communication between medical examiner offices and state and local government.

The efforts of the Michigan Medical Examiners Database Initiative are guided by three principles.

- To offer Michigan Medical Examiners a software tool to help automate their offices,
- To assist the State of Michigan in establishing a set of standardized data elements collected during fatality investigations, and
- To establish a data repository that can be used by researchers and state agencies for injury and communicable disease surveillance and control.

With these principles in mind, the Michigan Medical Examiner Database Initiative's staff welcomes the opportunity to provide technical assistance to medical examiner offices as well as work with researchers and state agencies interested in health surveillance topics.

For additional information on the Michigan Medical Examiner Database Initiative, contact:

Gerry Polverento
Project Coordinator
2440 Woodlake Circle
Suite 100
Okemos, MI 48864
(517) 324-7372
gpolvere@mphi.org
www.mmedb.com