

OFFICE
OF THE
MEDICAL EXAMINER
ANNUAL REPORT
2007

INTRODUCTION

The Office of the Medical Examiner is a division of the Erie County Department of Health, under the direction of the Commissioner of Health. The office is organized into three sections: Pathology, Field Investigation and Laboratory, the last of which encompasses Forensic Toxicology and Histology. The office is headed by three board certified forensic pathologists, the Chief, Deputy Chief and two Associate Chief Medical Examiners, and an Administrative Coordinator. Our Medical Investigator System is comprised of two Medical Investigators and six scene investigators, staffing the office on a continuous basis. An accredited Forensic Toxicology laboratory is affiliated with and located within the Office of the Medical Examiner and is staffed by a Chief County Toxicologist and six toxicologists. Staff also includes one Laboratory Assistant (Histologist), three Pathological Lab Workers (Autopsy Technicians) and two administrative/clerical personnel.

As mandated by law, the Office of the Medical Examiner is responsible for investigating the death of any person who dies within Erie County as a result of “criminal violence, or neglect, or by casualty or by suicide, or suddenly when in apparent health, or when unattended by a physician, or a person confined in a public institution other than a hospital, infirmary or nursing home, or in any suspicious or unusual manner.”¹ It is the responsibility of the office to generate death certificates as to cause and manner of death. Cause of death is anything that results in the cessation of life functions in an individual. Manner of death refers to the way death occurs and is classified as natural, accident, homicide, suicide or undetermined. Full forensic autopsies routinely include an initial investigation, external and internal examination, toxicology and histology. At times, partial directed autopsies or inspections (external examinations) with or without toxicology are performed. The office has entered into agreements with Niagara, Chautauqua and Cattaraugus Counties for forensic autopsy services, and Chautauqua, Cattaraugus and Jefferson Counties for forensic toxicology assistance.

The office participates in training programs for multiple health and human services programs within the area colleges and universities. SUNY at Buffalo medical residents, third and fourth year medical students, fourth year dental students and undergraduates in related fields of study spend from weeks to months training in-house. Buffalo State Forensic Chemistry students, Hilbert College Forensic Science and Criminal Justice students, and EMT students also train at our facility.

The information collected during each death investigation, is archived in the medical examiner data system, Justice Trax R PathAssist™. This data is used to generate statistics to study death trends for Erie County residents and compare our community to the general population.

¹ McKinney’s Consolidated Laws of New York Annotated County Law, Chapter 11 of the Consolidated Laws, Article 17-A-Coroner, Coroner’s Physician and Medical Examiner, NY County § 673.

EXPLANATION OF DATA ACQUISITION

In 2007, there were approximately 9500 deaths in Erie County. In the same year, 2607 cases² were reported to the Office of the Medical Examiner. Deaths were certified by private physicians in 1270 persons. Our office assumed jurisdiction either by county law or contract in 1092 of the cases reported, of which a full autopsy was performed in 982 persons (90%) and an external examination with or without toxicology was performed in 90 cases (8%) of which 5 were non-human bones, and in 20 of these cases (2%), the death certificate was co-signed by our office.

For this report, we analyzed the data by *manner of death, age, gender, race, and month of the year*.

The manner of death was classified as follows: natural, accident, homicide, suicide and undetermined. Manner of death classification followed “A Guide for Manner of Death Classification” issued by the National Association of Medical Examiners (NAME) in 2002.³ The following definitions are verbatim from that document:

- Natural deaths are due solely or nearly totally to disease and/or the aging process.
- Accident applies when an injury or poisoning causes death and there is little or no evidence that injury or poisoning occurred with intent to harm or cause death. In essence, the fatal outcome was unintentional.
- Suicide results from an injury or poisoning as a result of an intentional, self-inflicted act, committed to do self harm or cause the death of one’s self.
- Homicide occurs when death results from a volitional act committed by another person to cause fear, harm, or death.
- Undetermined or “could not be determined” is a classification used when the information pointing to one manner of death is no more compelling than one or more other competing manners of death in thorough consideration of all available information.

² Out of county cases (258), storage cases (104), hospital cases (1) and Toxicology-only cases (123) were included in this total. All out of county cases received a full autopsy. Comparisons of the manner of death and manner of death by gender among counties are presented in a separate report.

³ Hanzlick, Randy, MD, Hunsaker III, John C., MD, JD, Davis, Gregory J., MD, “A Guide For Manner of Death Classification,” First Edition, National Association of Medical Examiners ®

For the purposes of this report, subclassifications are described below.

Natural causes of death are subclassified as cardiovascular, pulmonary, gastrointestinal, neurological, infectious, cancer, deaths in infancy (SIDS, stillborn, premature), metabolic, liver disease, autoimmune, and undetermined.

The methods of accidental deaths are subclassified as transportation (motor vehicle collisions [MVC]), falls, gunshot wounds, asphyxia, drugs, drowning, fire/carbon monoxide (CO), environmental, surgical misadventures and other. Transportation deaths include auto, pedestrian, motorcycle and other categories. Asphyxial deaths include auto-erotic, mechanical/chemical, child (overlay/co-sleeping) and food-related (e.g. choking).

The methods of suicidal deaths are subclassified as asphyxia, drugs, gunshot wounds, blunt force injury, sharp force injury and thermal injury. Asphyxial deaths include hanging, carbon monoxide, drowning and other gas. Blunt force injury includes jumps from motor vehicles or a height.

The methods of homicidal deaths are subclassified as gunshot wounds, blunt force injury, sharp force injury, strangulation, multiple (combination of above) and other.

The bulk of cases in the undetermined category include deaths due to advanced decomposition and drug overdose where circumstances surrounding death are often minimal. As the term implies, this category includes cases that defy placement in one or another manner of death category.

Selected aggregate statistical information is provided in the tables that follow.

GENERAL OVERVIEW

Figure 1 shows that for those persons falling within the Erie County Medical Examiner's Office jurisdiction in 2007, deaths were natural in 48%, accidental in 23%, homicidal in 8%, suicidal in 9% and in 12% the manner of death was undetermined. Thus, almost half of the deaths were of natural causes and accidental deaths made up the next largest category. Suicides outnumbered homicides. The large percentage (12%) of undetermined deaths stems from the inclusion of drug overdoses in this category (see figure 10a). While some counties classify deaths due to drug overdose as accidental, our policy is to classify them as undetermined in that the intent of the drug user is typically unknown.

Figure 2 shows a breakdown of death by manner and gender. Males outnumber females in our caseload by over two times (data not shown). In all categories male deaths markedly outnumber female deaths.

Figure 3a shows a breakdown of death by manner and race. Whites outnumber blacks in our caseload by approximately 3 times (data not shown). Figures 3b and 3c present another view of these data for white and black populations only. Homicidal deaths are most frequent in blacks. For all other manners, whites outnumber other races. The latter reflects the demographics of Erie County where the approximate percentages of the population are Whites 79.6%, Blacks 13.6%, Hispanic 3.7%, Asian 1.9% and Other 1.8 %⁴. Our data agree with the national trend that more whites die by their own hands (suicide)⁵ and blacks die at the hands of another (homicide)⁶. Compared to whites, a disproportionate number of blacks also die of natural disease, 34% versus 16% in the Erie County *population* demographics. While no direct conclusions can be drawn from these ratio disparities and the causes are undoubtedly multifactorial, it can be noted that the poverty levels in the city of Buffalo are some of the highest in the nation⁷. Within the county, the city of Buffalo has the highest black population (see city demographics and reference below)⁸. These data reflect the fact that deaths in the poor, non-white population are more likely to be unattended and therefore fall within the jurisdiction of the medical examiner's office.

Figure 4 shows a breakdown of death by manner and age. The majority of our cases were drawn from the middle-aged population ranging from 36-65 years. The spike in the data of persons over age 76 may represent increased life expectancy together with lack of health care (no insurance, no primary care physician) and/or isolation (unattended deaths). Homicides decrease with age, the proportion compared to other manners being particularly high in those aged 0-24 years. In contrast, persons over age 35 most often died of natural diseases. Accidental deaths spike in those over 76 years, but also are proportionately high in those less than 25 years. As the graph reflects, most persons over the age of 65 years died either naturally or by accident.

Figure 5 shows a breakdown of death by manner and month of the year. In 2007, the peak number of deaths occurred in January, coinciding with the greatest number of natural deaths. In our county, suicidal deaths showed no seasonal trend. Accidental deaths were lowest in February, and there was a slight trend for homicidal deaths to increase in the summer months.

⁴ <http://quickfacts.census.gov/qfd/states/36/36029.html>

⁵ <http://www.suicide.org/suicide-statistics.html#2005>

⁶ <http://www.ojp.usdoj.gov/bjs/homicide/hmrt.htm>

⁷ <http://www.census.gov/prod/2008pubs/acs-09.pdf>

⁸ (Whites 48.7%, Blacks 38.9%, Hispanic 9.1%, and Asian 1.8%)

http://www.muninetguide.com/states/new_york/municipality/Buffalo.php

Figure 1

All 2007 Deaths in Erie County

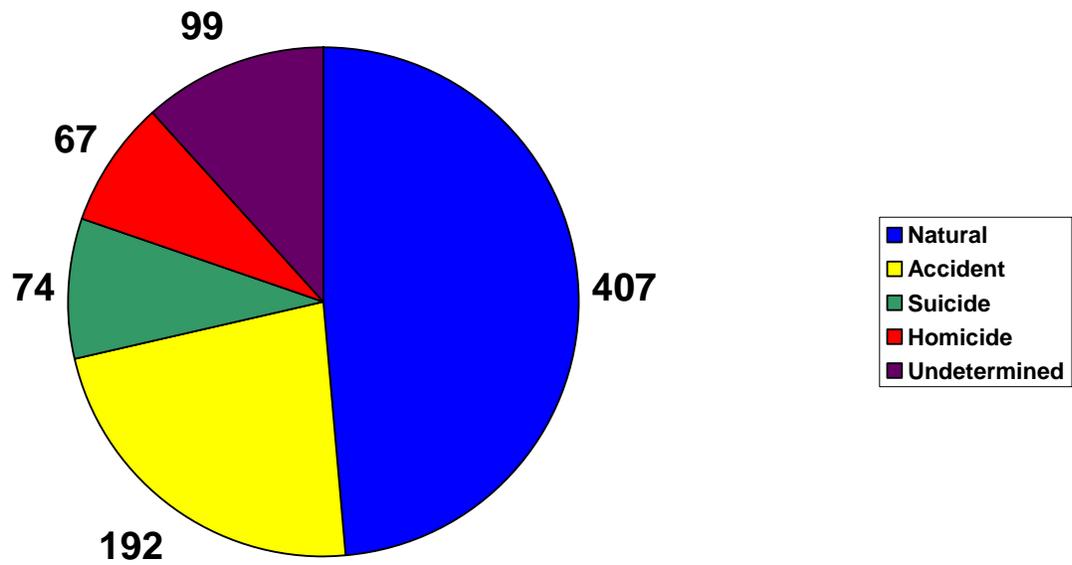


Figure 2

2007 Manners of Death by Gender in Erie

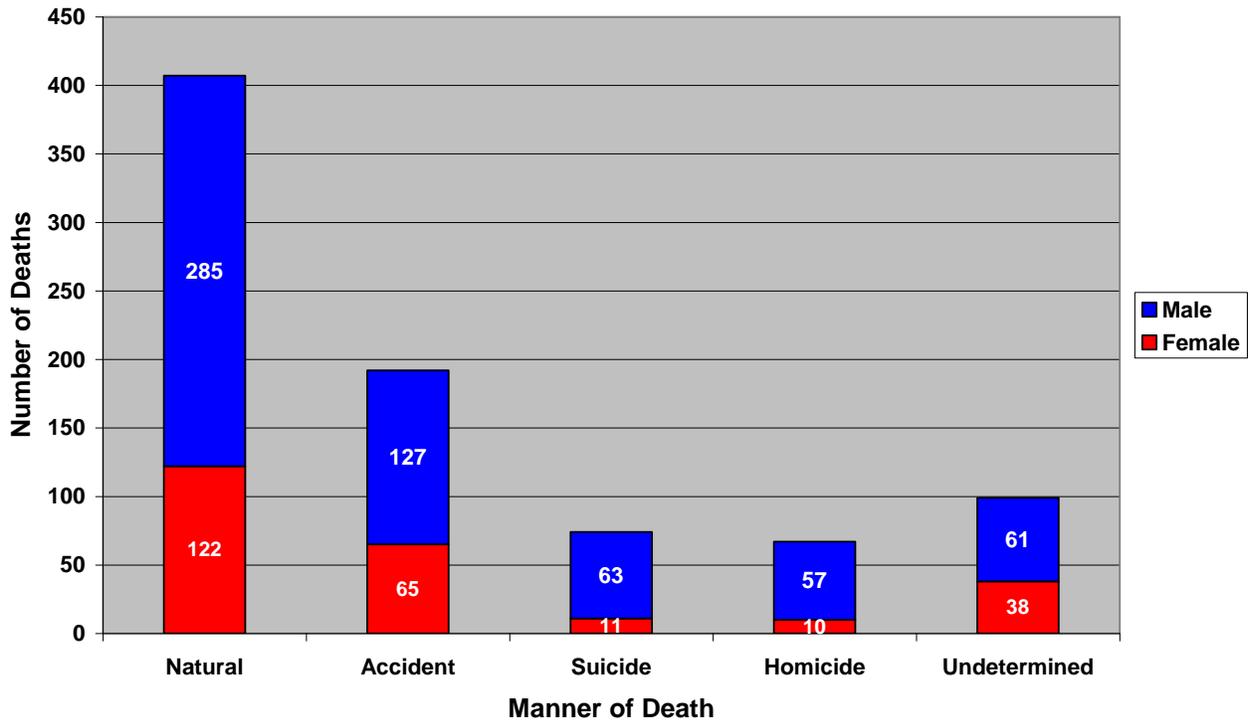


Figure 3a

2007 Manners of Death by Race in Erie

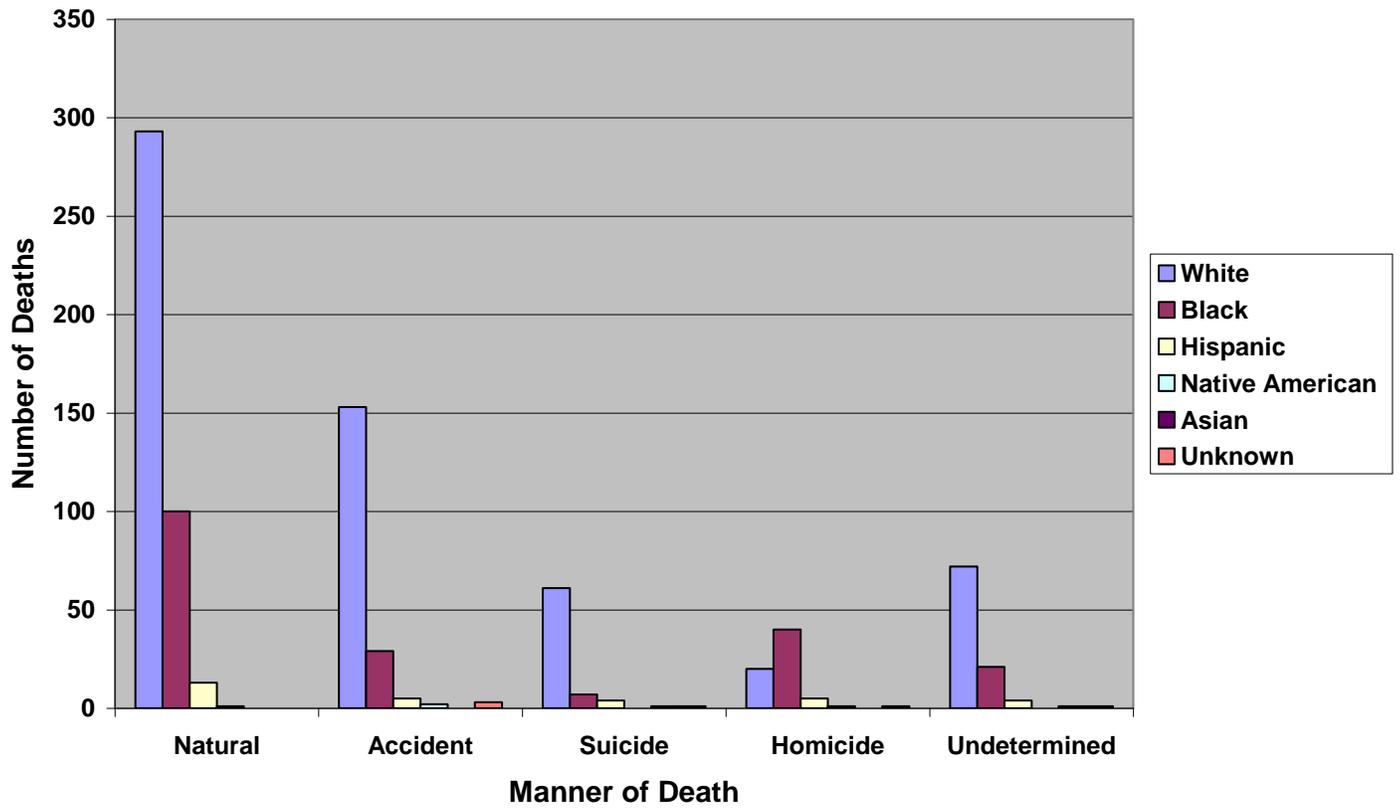


Figure 3b

Race (White) by Manner in 2007

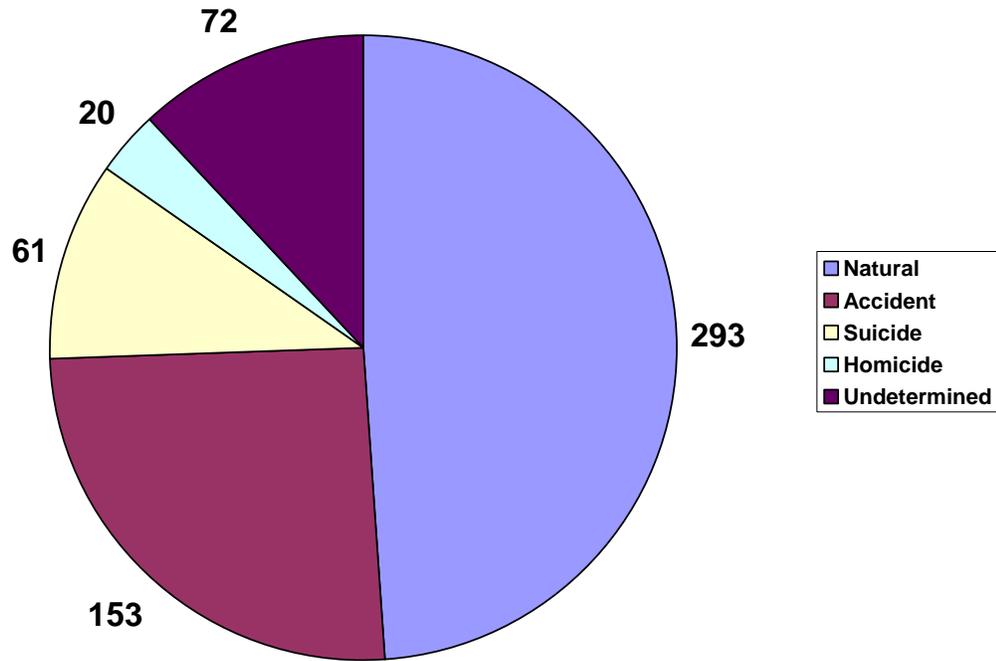


Figure 3c

Race (Black) by Manner in 2007

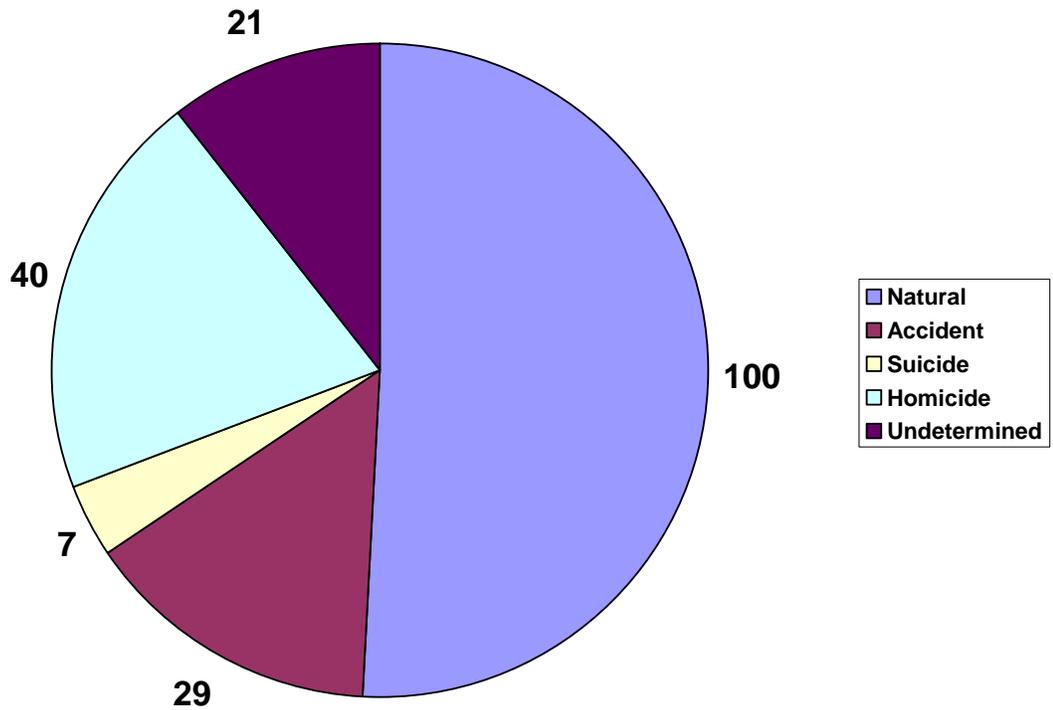


Figure 4

2007 Deaths in Erie County by Manner and Age

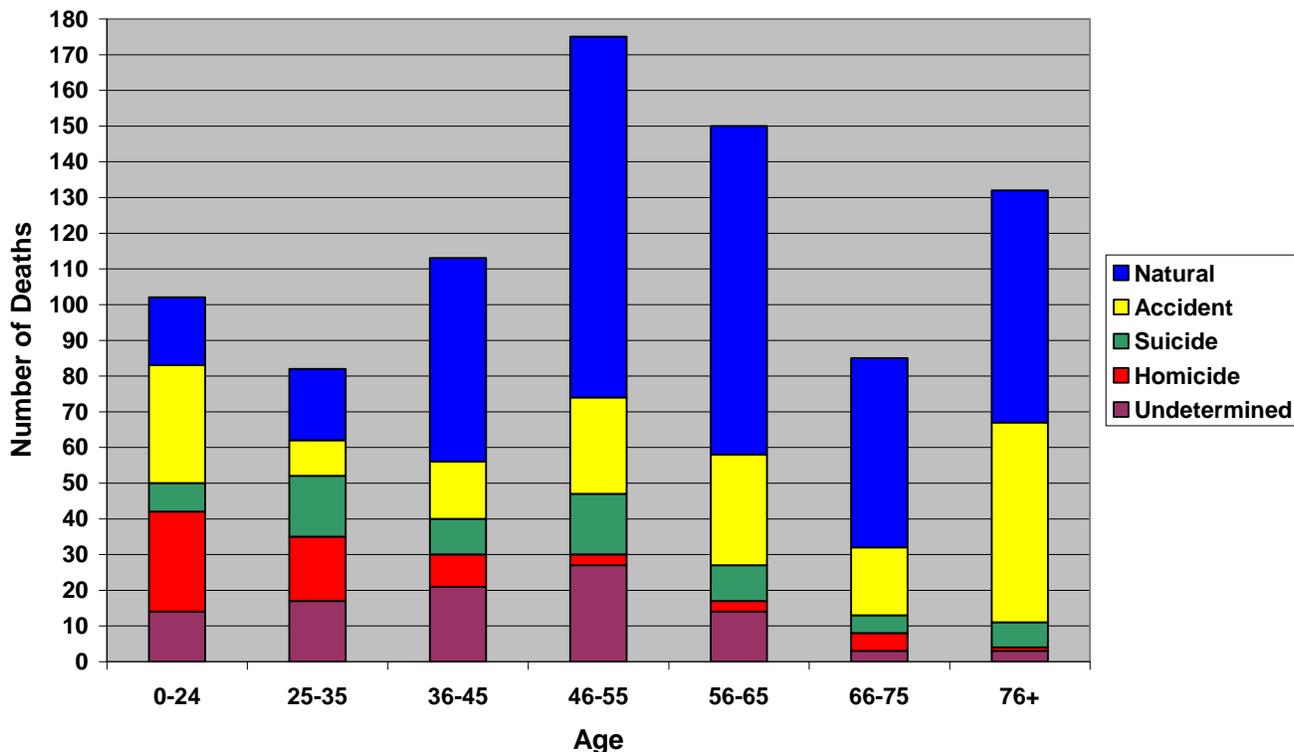
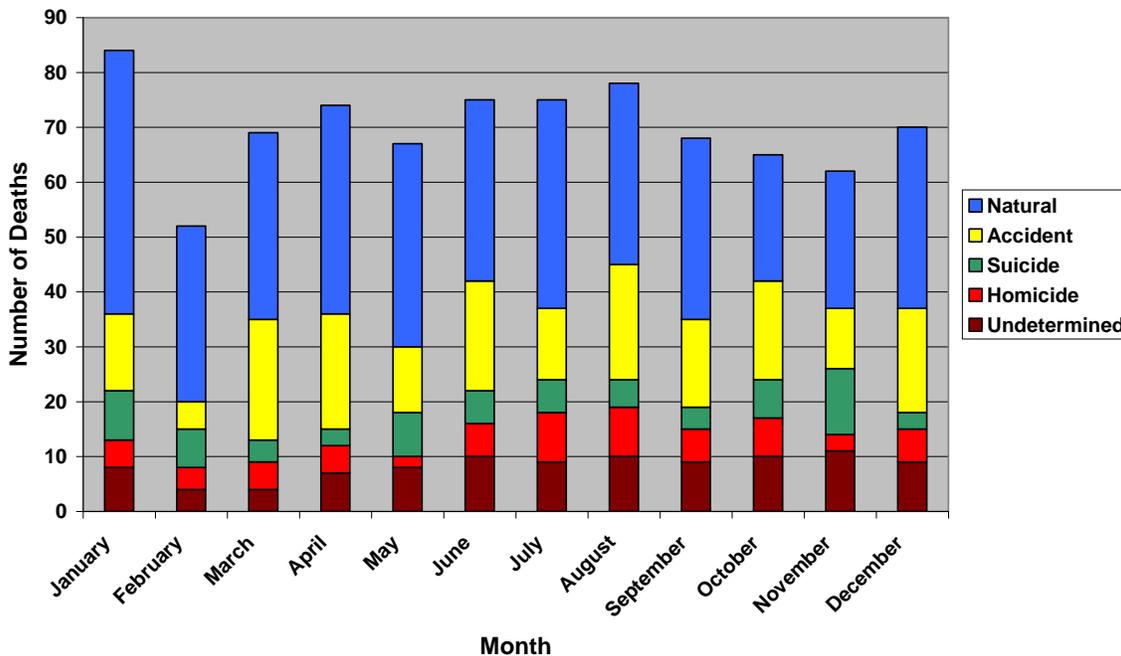


Figure 5

2007 Manner of Deaths In Erie County by Month



NATURAL DEATH OVERVIEW

The statistics generated by our office are not representative of all natural deaths occurring in Erie County because of the bias inherent in the types of cases referred to our office. Natural deaths investigated by our office are those that are sudden, unexpected, unexplained or unattended. Often these persons were not under the care of a primary physician, had not seen a physician in over a year or the physician could not give a reasonable cause of death.

The compilation of data in figures 6a-6c gives an overview of natural deaths categorized by disease type/organ system, age and gender. Cardiovascular disease is the major underlying natural cause of death in our population regardless of sex or age > 25 years. As shown in 6a more than ten times more persons died of cardiovascular disease than either of the next most common disease categories (cancer and liver disease). Cancer (typically undiagnosed prior to autopsy) affected primarily males between 46 and 75 years. In contrast to our older population, cancer is more likely to be diagnosed at the time of death in children or young adults, thus excluding them from our caseload. Even though diagnosed with terminal cancer, autopsy is mandatory in the prison population who make up a large percentage of cases within this category. Liver disease affected middle-aged males and females (36-65 years). Pulmonary deaths tended to increase above 25 years with males and females about equally represented. Infectious causes of death were present in age groups under 65. Of course, Sudden Infant Death Syndrome (SIDS) and related deaths were confined to our lowest age bracket.

Our gender analyses show males outnumbering or about equaling females in all categories of natural death.

Figure 6a

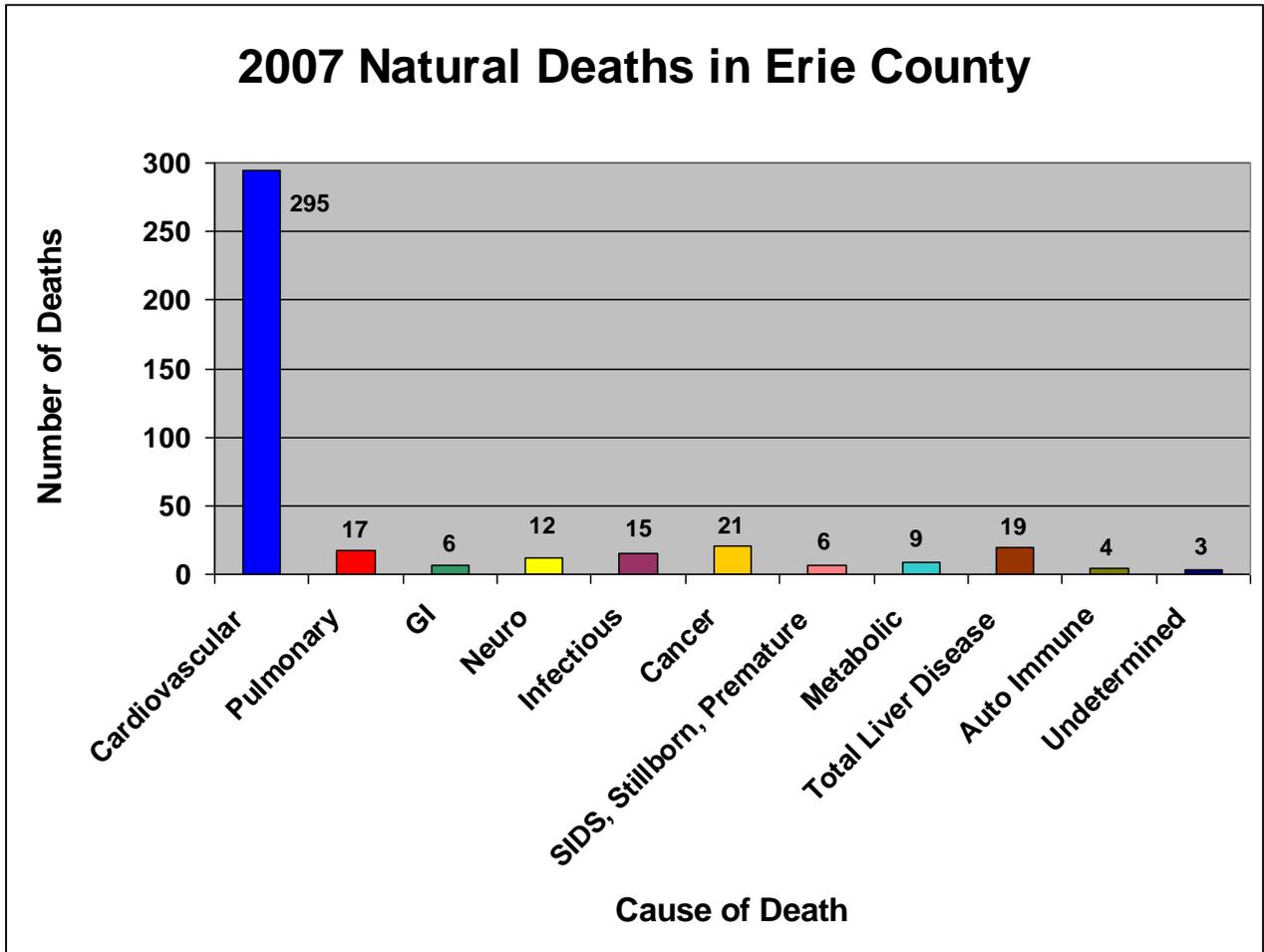


Figure 6b

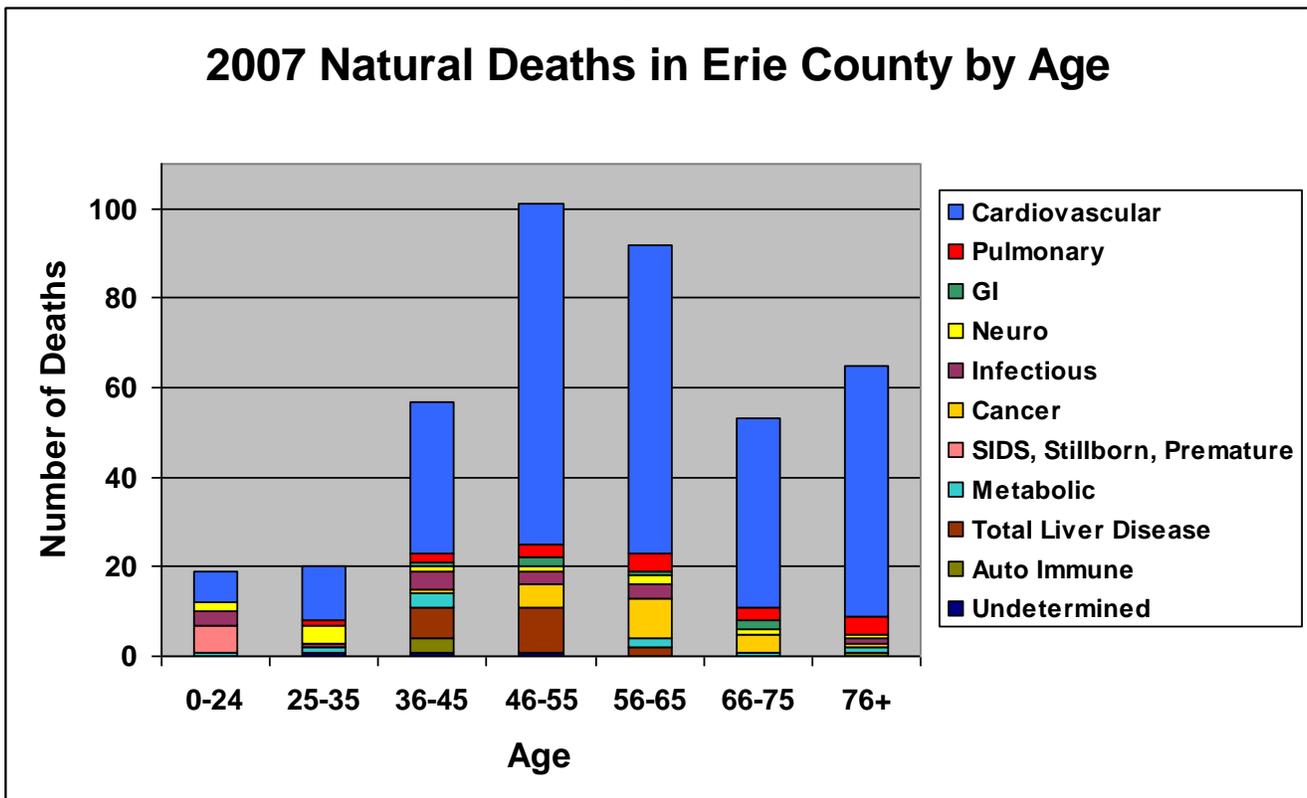
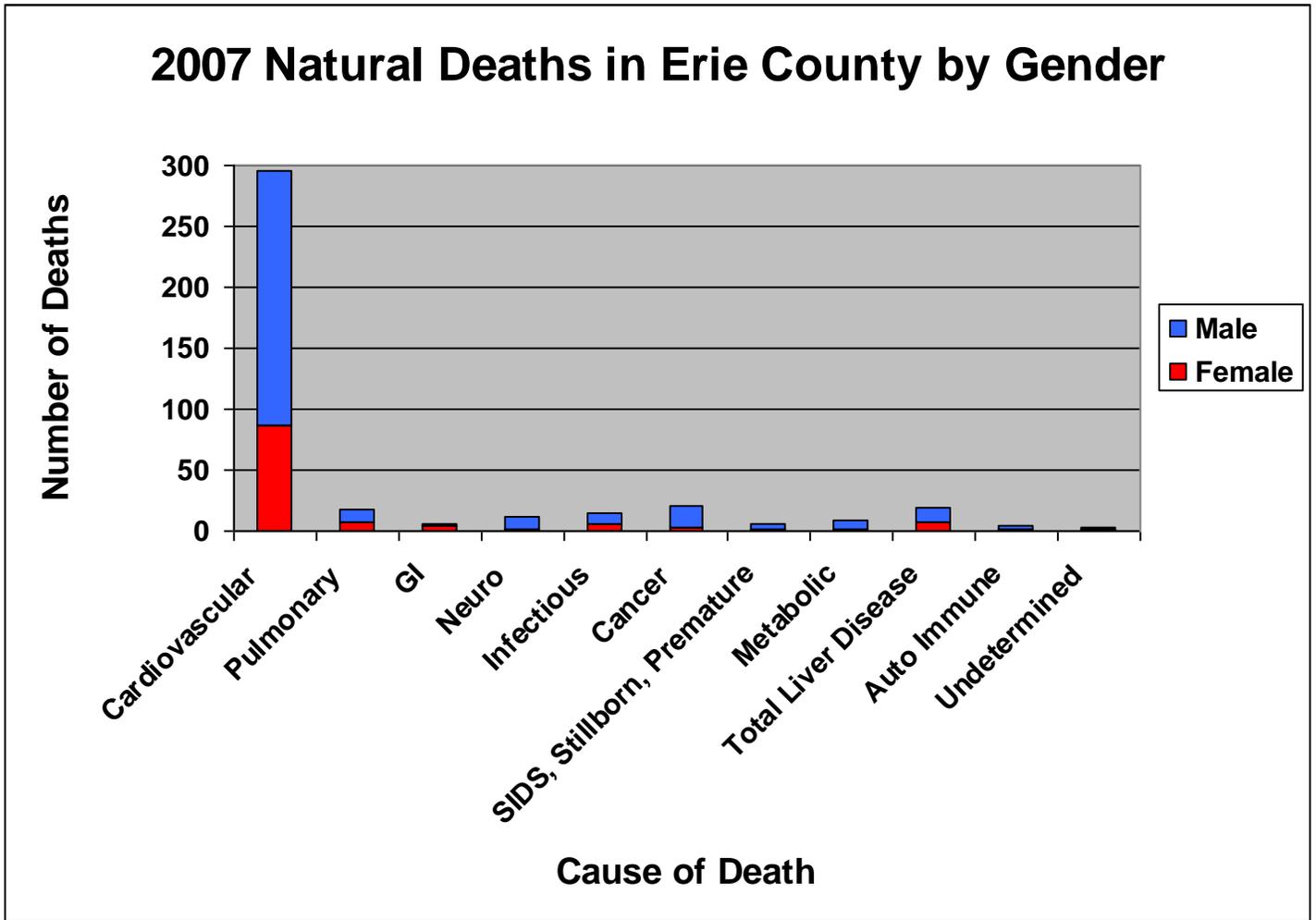


Figure 6c



ACCIDENTAL DEATH OVERVIEW

The compilation of data in figures 7a-7c gives an overview of accidental deaths categorized by type, age and gender. The most common accidental manner of death resulted from motor vehicle collisions (MVC) and occur in all age groups. These include pedestrian deaths as well as all other types of transportation deaths. Falls comprised the second most common accidental cause of death – only 8% fewer than the total MVC category. Asphyxial deaths, if taken together to include not only autoerotic, mechanical, chemical, positional, co-sleeping and choking (total asphyxia) but also drowning and carbon monoxide intoxication, would make up the next largest overall category of accidental death.

As shown in figure 4 and further illustrated in figure 7b accidental deaths peaked in oldest and youngest age brackets. Motor vehicle deaths contributed significantly to the spike in the youngest age group, while falls contributed to the spike in the oldest age group. In the year 2007, motor vehicle crashes were proportionally lowest in the 66-75 and 76 + age groups. Accidental drug deaths occur in all age groups except 66-75. Drownings occurred in the youngest and three oldest age categories. No deaths resulted from accidental gunshot wounds in the year 2007.

As shown by our data in figure 7c, deaths due to accidents were more common in men than women, except in fire/CO fatalities.

Figure 7a

2007 Accidental Deaths in Erie County

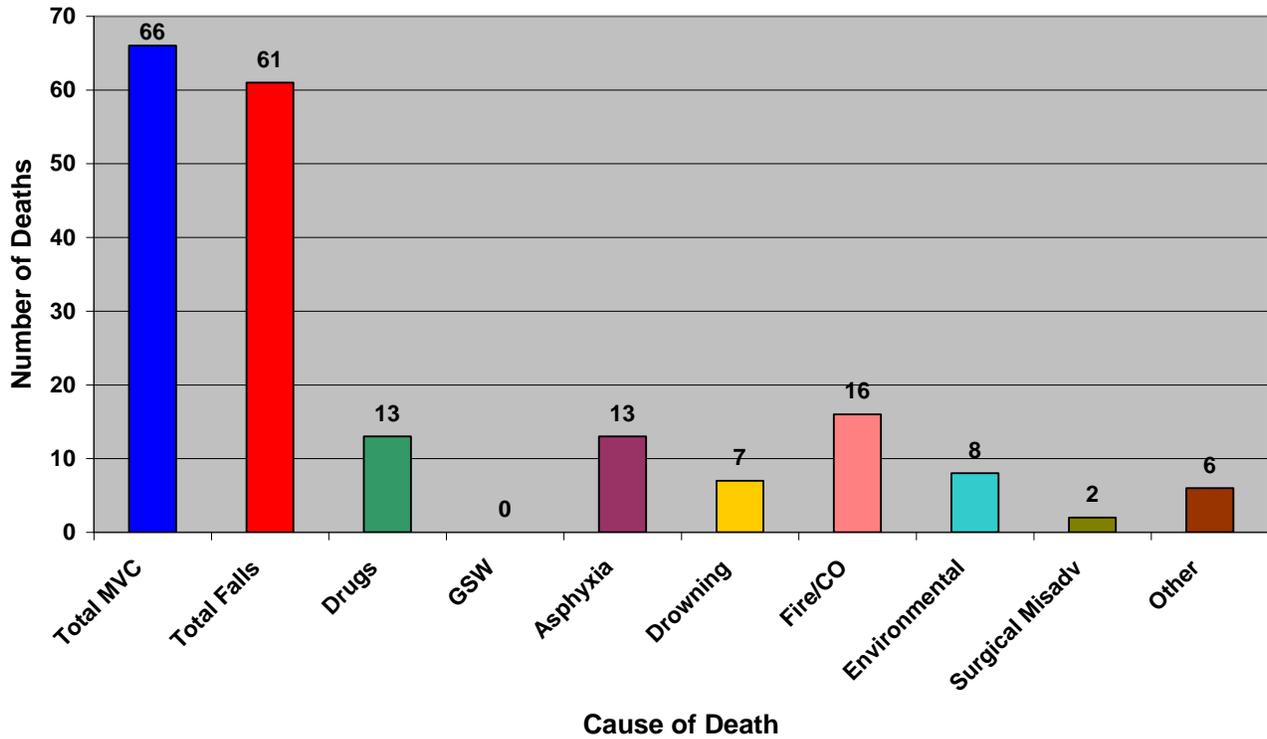


Figure 7b

2007 Accidental Deaths in Erie County by Age

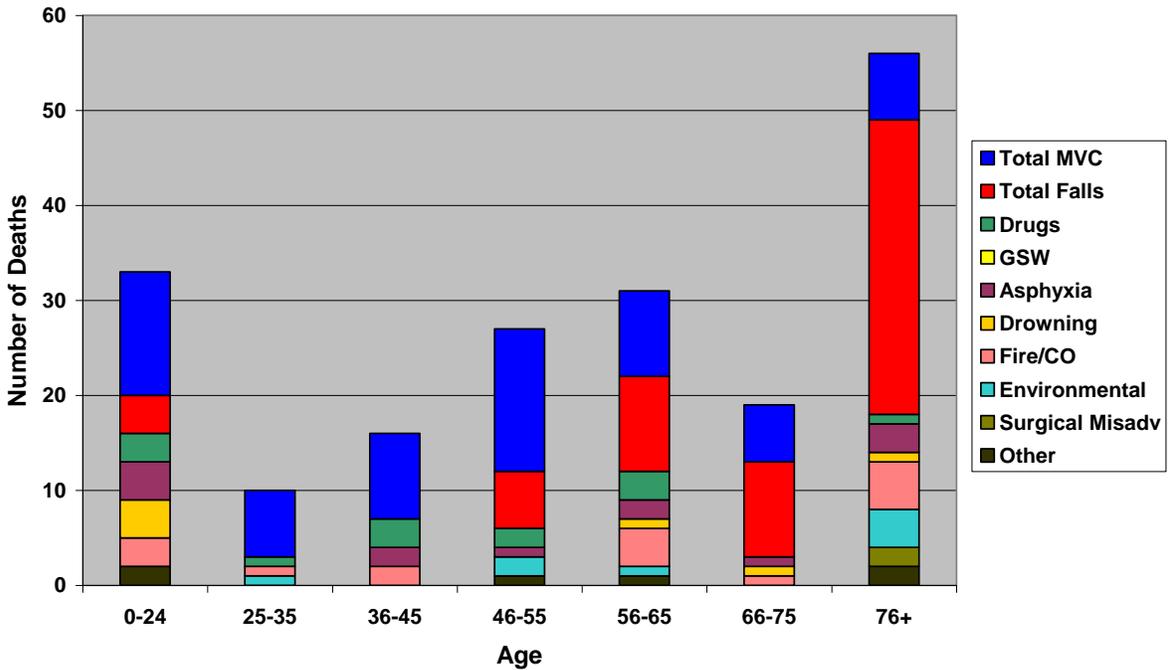
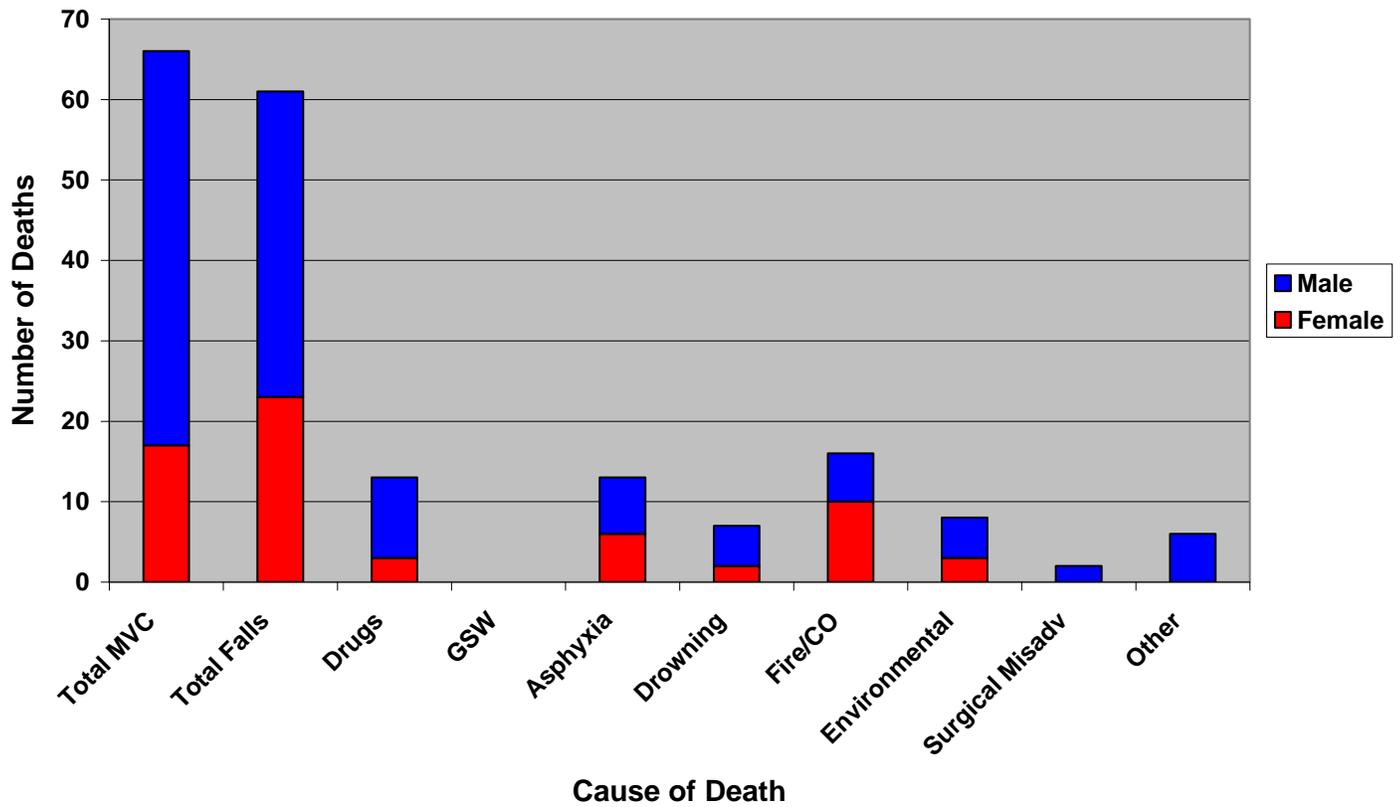


Figure 7c

2007 Accidental Death in Erie County by Gender



SUICIDAL DEATH OVERVIEW

The compilation of data in figures 8a-8c gives an overview of suicidal deaths categorized by type, age and gender. Figure 8a shows that there are three main ways that people took their own lives, namely, by asphyxia (hanging [data not shown]), self-inflicted gunshot wounds and drug overdoses. In order to classify a drug overdose as a suicide, the evidence must be compelling. Such evidence typically consists of a note of intent or excessively high levels of drug. Deaths by more active brutal means (gunshot wounds or hanging) were two to three times more common than the more passive action of taking drugs. In 2007, there were 30% fewer deaths due to gunshot wounds than hanging.

As seen in figure 8b, the greatest number of suicides occurred in the 25-35 and 46-55 year age brackets (see also figure 4). Hanging was proportionately the most common means of suicide in the two lowest and two highest age brackets. Deaths due to drugs were not seen in those over 65 years or under 25. Gunshot wounds occurred across all age groups, reaching its highest proportion in the 56-65 year age bracket.

In considering suicidal deaths by gender (figure 8c), men outnumbered women for all means of suicide – particularly for gun shot and asphyxial deaths.

Figure 8a

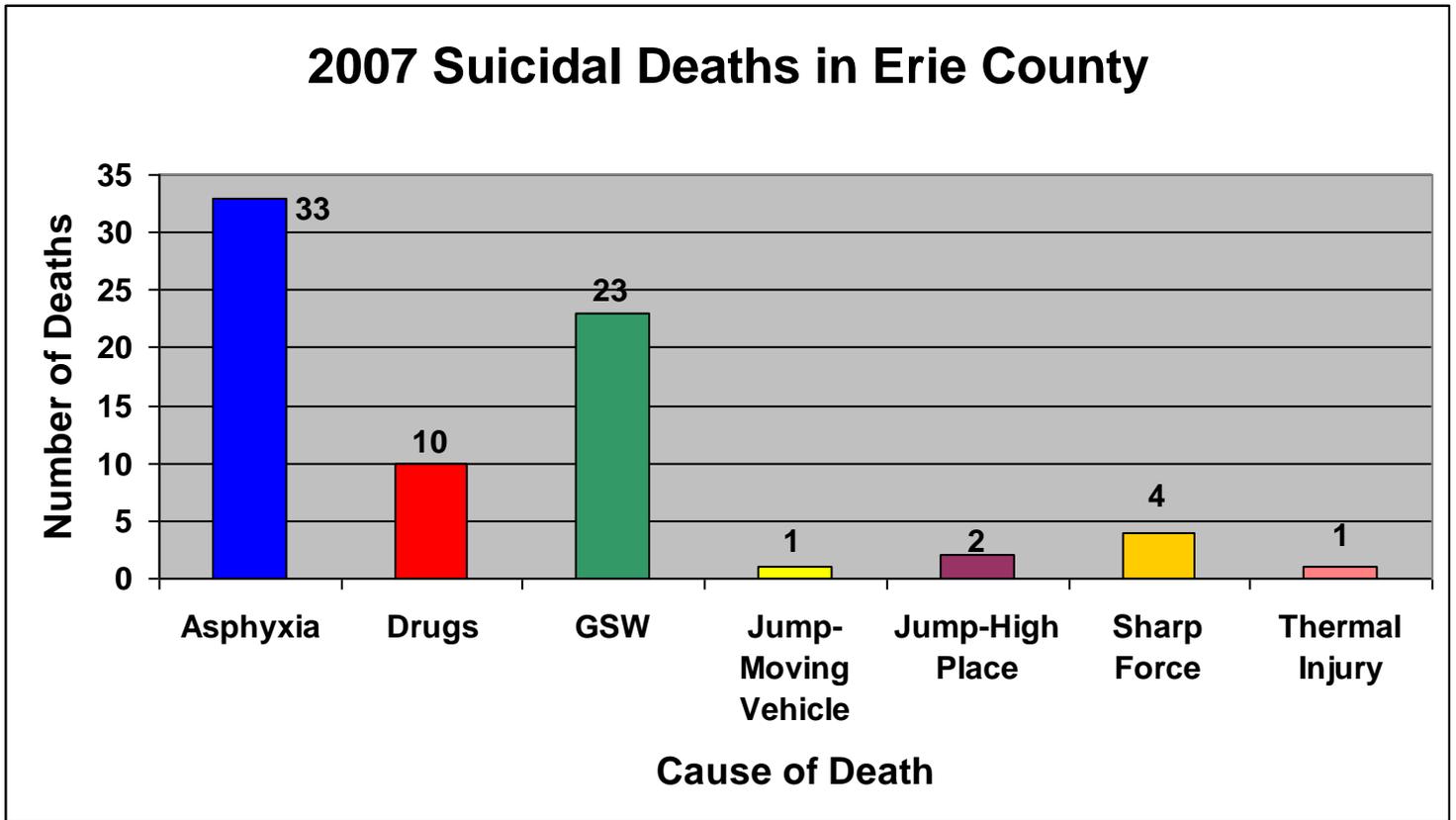


Figure 8b

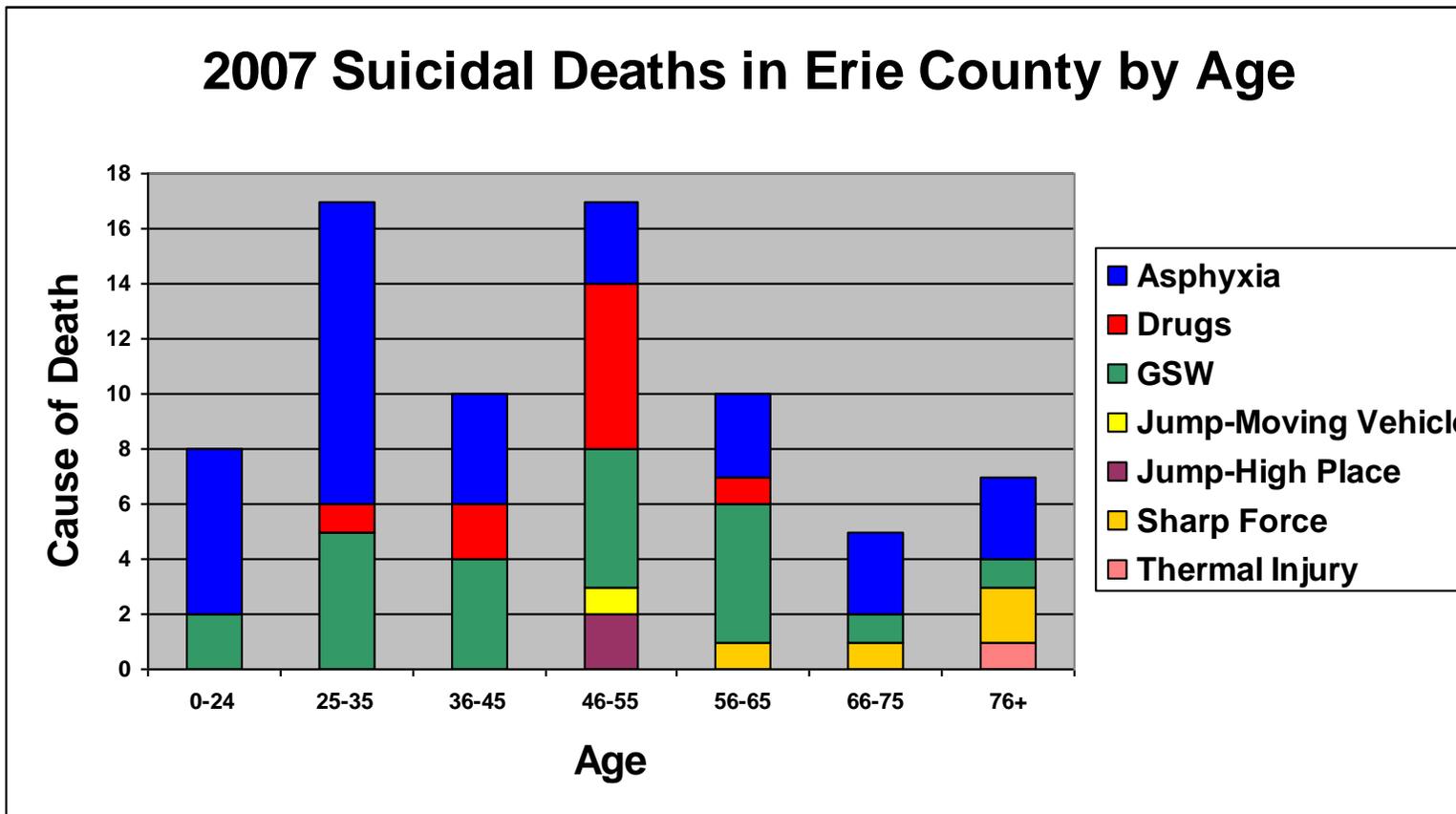
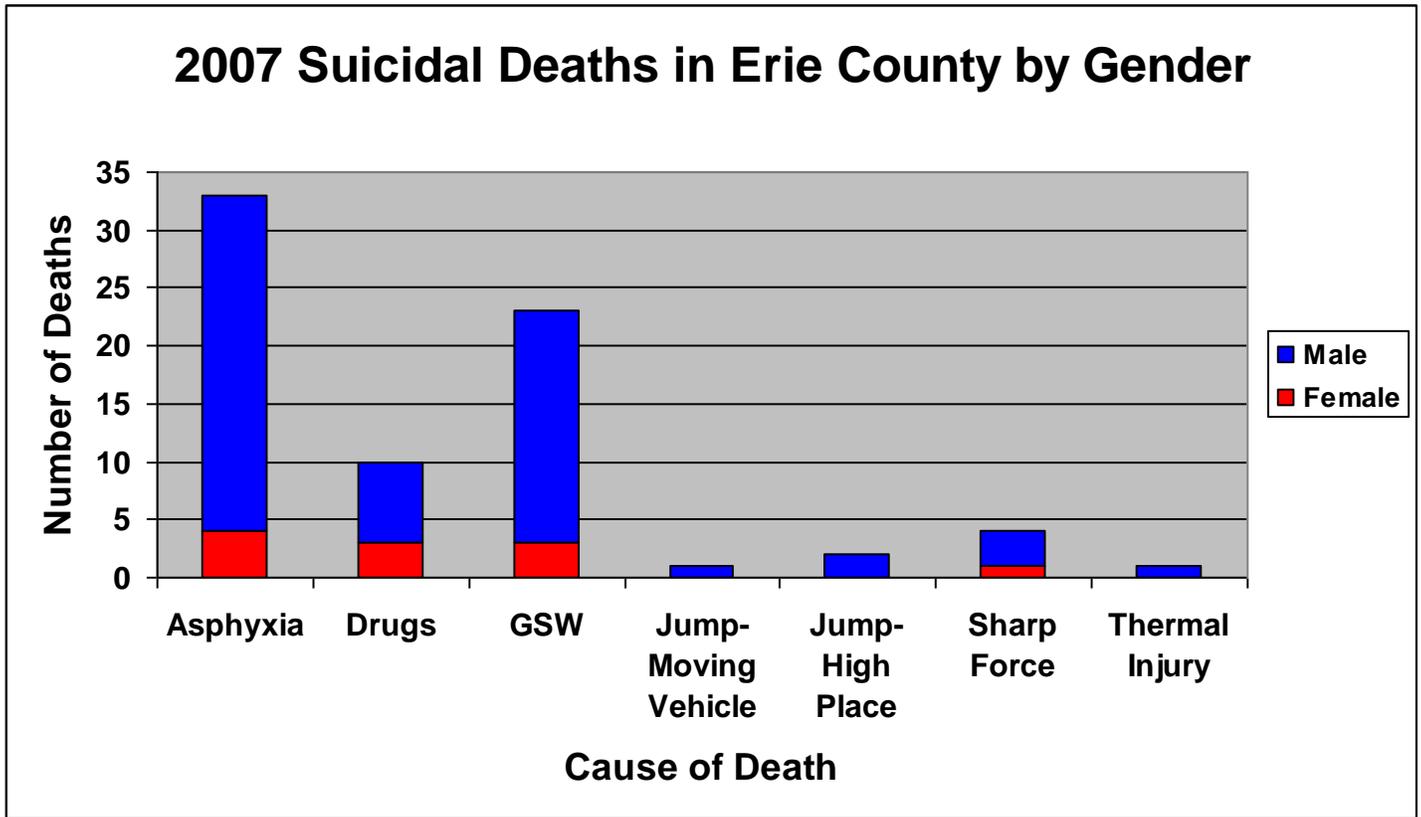


Figure 8c



HOMICIDAL DEATH OVERVIEW

The compilation of data in figures 9a-9c gives an overview of homicidal deaths categorized by type, age and gender. As shown in figure 9a, gunshot wounds were the most common homicidal cause of death, occurring three times more often than blunt force injuries, and about ten times more often than the other causes. Homicidal deaths due to blunt force injuries occurred at least four times more often than deaths due to sharp force injuries or strangulation.

In those 45 years and younger, homicides were most commonly a result of gunshot wounds; for those 56-65 years, homicides were more frequently perpetrated by means of blunt force. The proportion of homicides by blunt force was higher in ages 36-75 years. Strangulation deaths only occurred in the ages ranging from 65-76+; in 2007, strangulation was the only means of homicide amongst those over 76 years.

The data in figure 9c show overall that men were more likely than women to die at the hands of another. In 2007, only women were strangled and many more men than women were shot to death.

Figure 9a

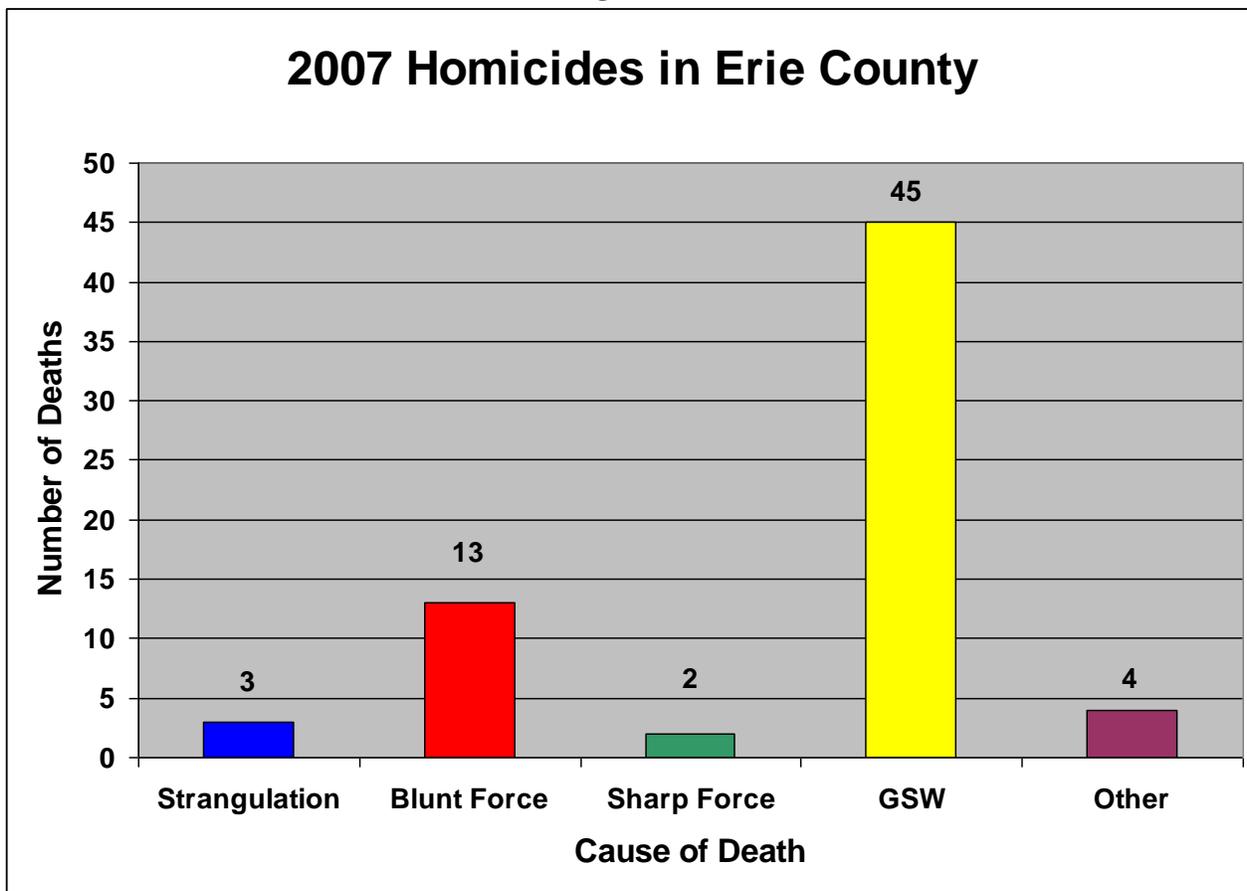


Figure 9b

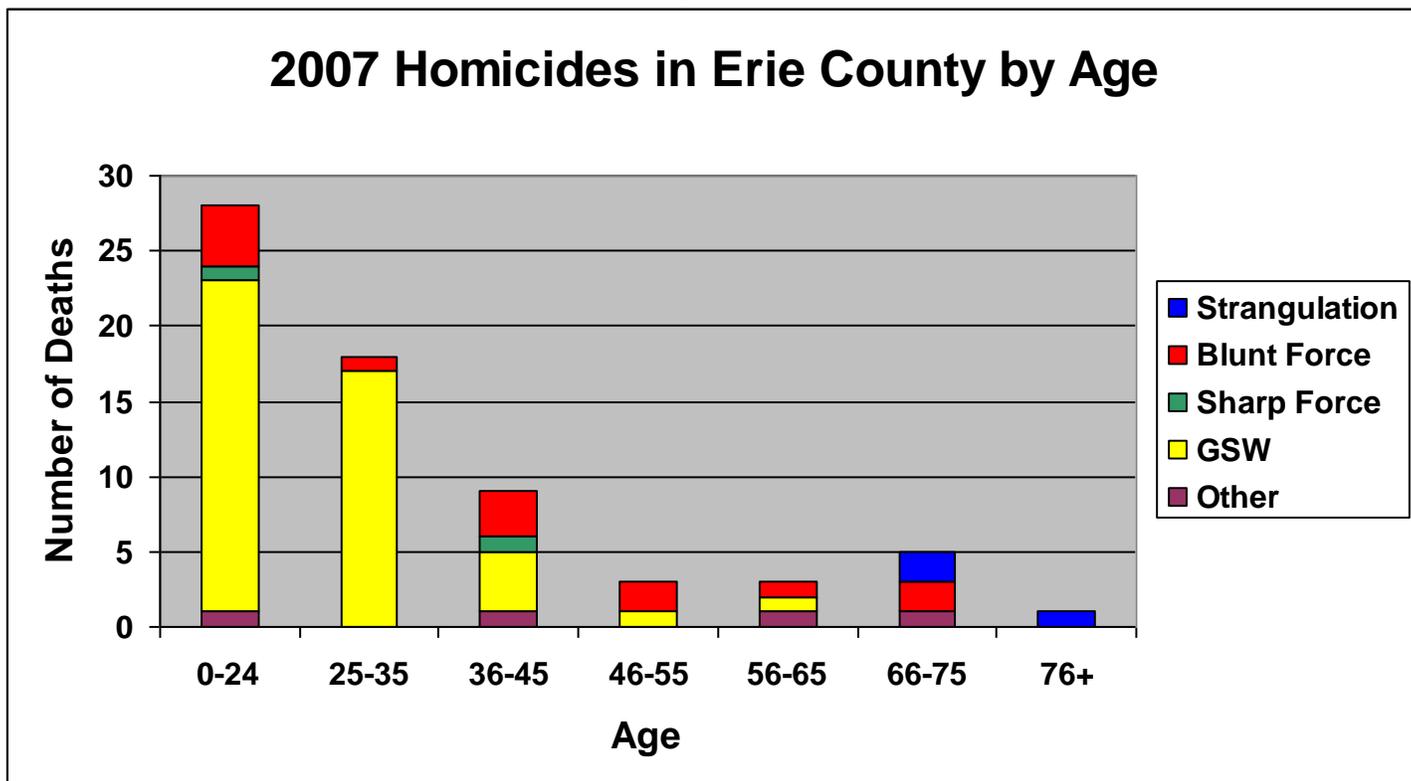
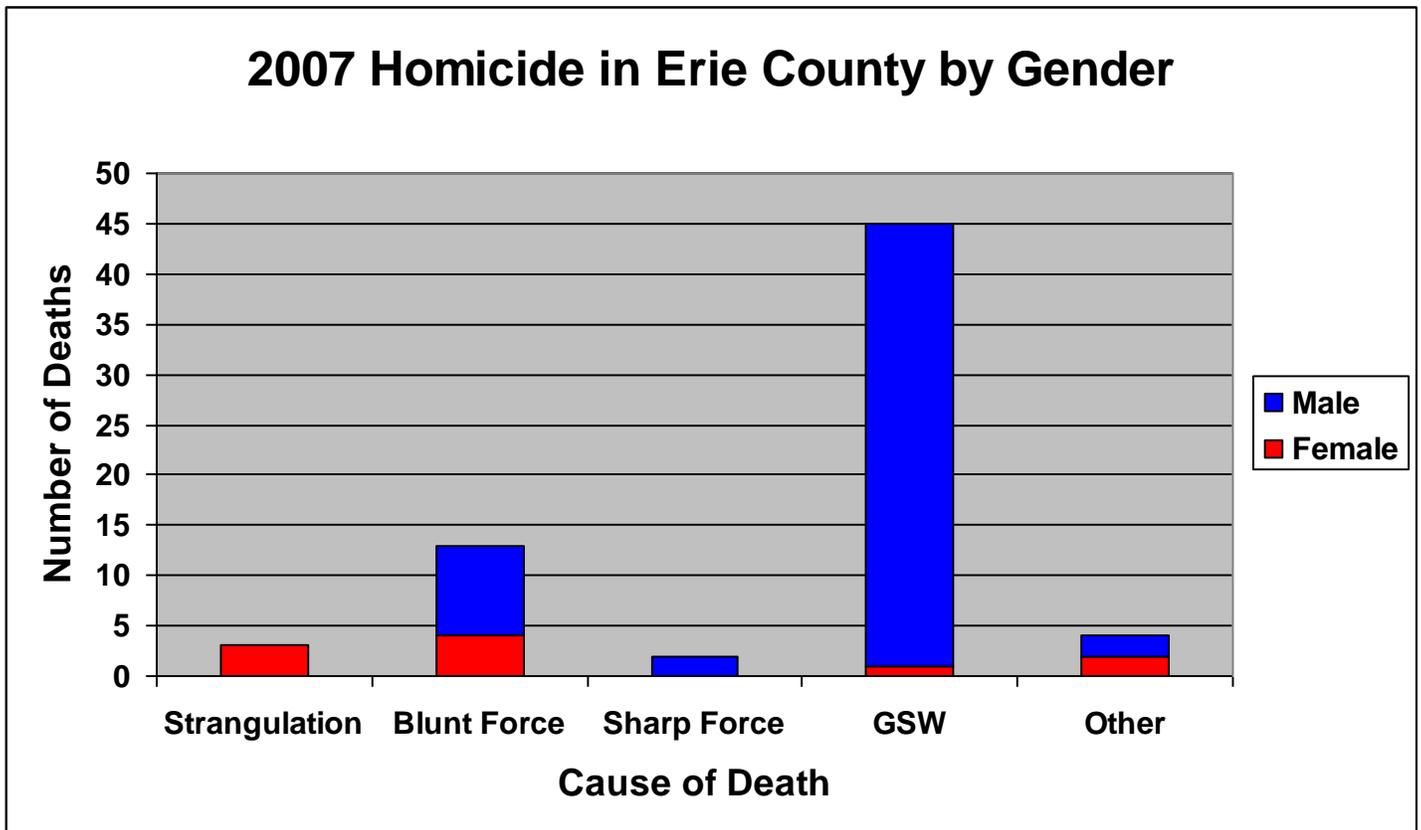


Figure 9c



UNDETERMINED DEATH OVERVIEW

The compilation of data in figures 10a-10c gives an overview of undetermined deaths categorized by type, age and gender. The far most common undetermined death as seen in figure 10a was due to drug overdose, where males outnumbered females (figure 10c). As stated elsewhere in this report, it is the policy of this office to classify deaths as undetermined when drugs are taken in excess - in that the intention of the decedent is not known. If the intent is known, it would be classified as accidental, suicidal or homicidal.

Figure 10b shows that the highest number of drug deaths occurred in the 25-55 age brackets, closely followed by the 56-65 age group. In 2007, no undetermined drug deaths occurred in those aged 76+. The data also show that advanced decomposition was not seen in those aged 0-24 or 66-76+. While the lack of advanced decomposition in the youngest age group is understandable, the latter is surprising. Improved investigation and follow-up may allow persons in this age group to be released without autopsy, generally attributing death to natural causes.

Figure 10a

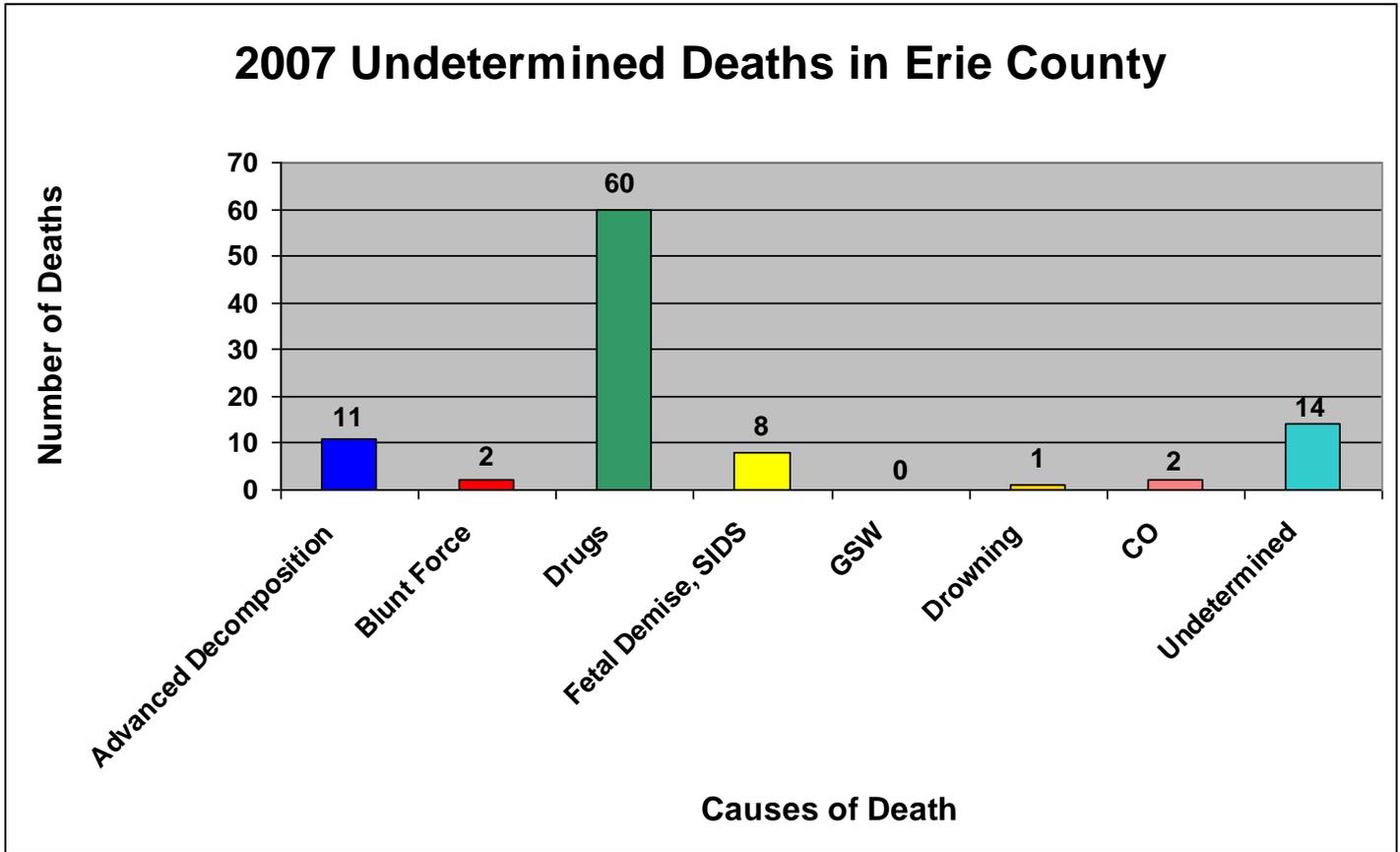


Figure 10b

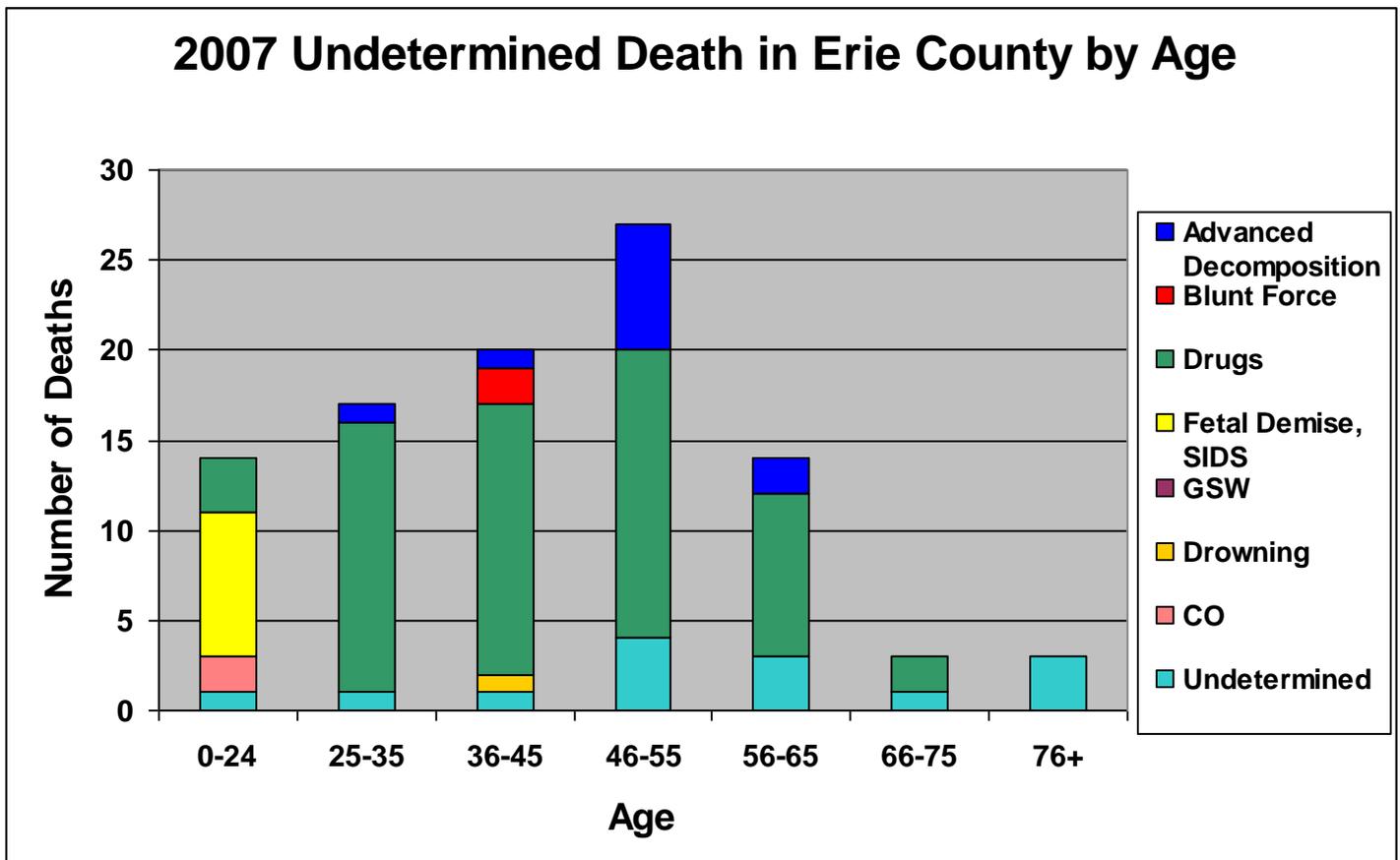
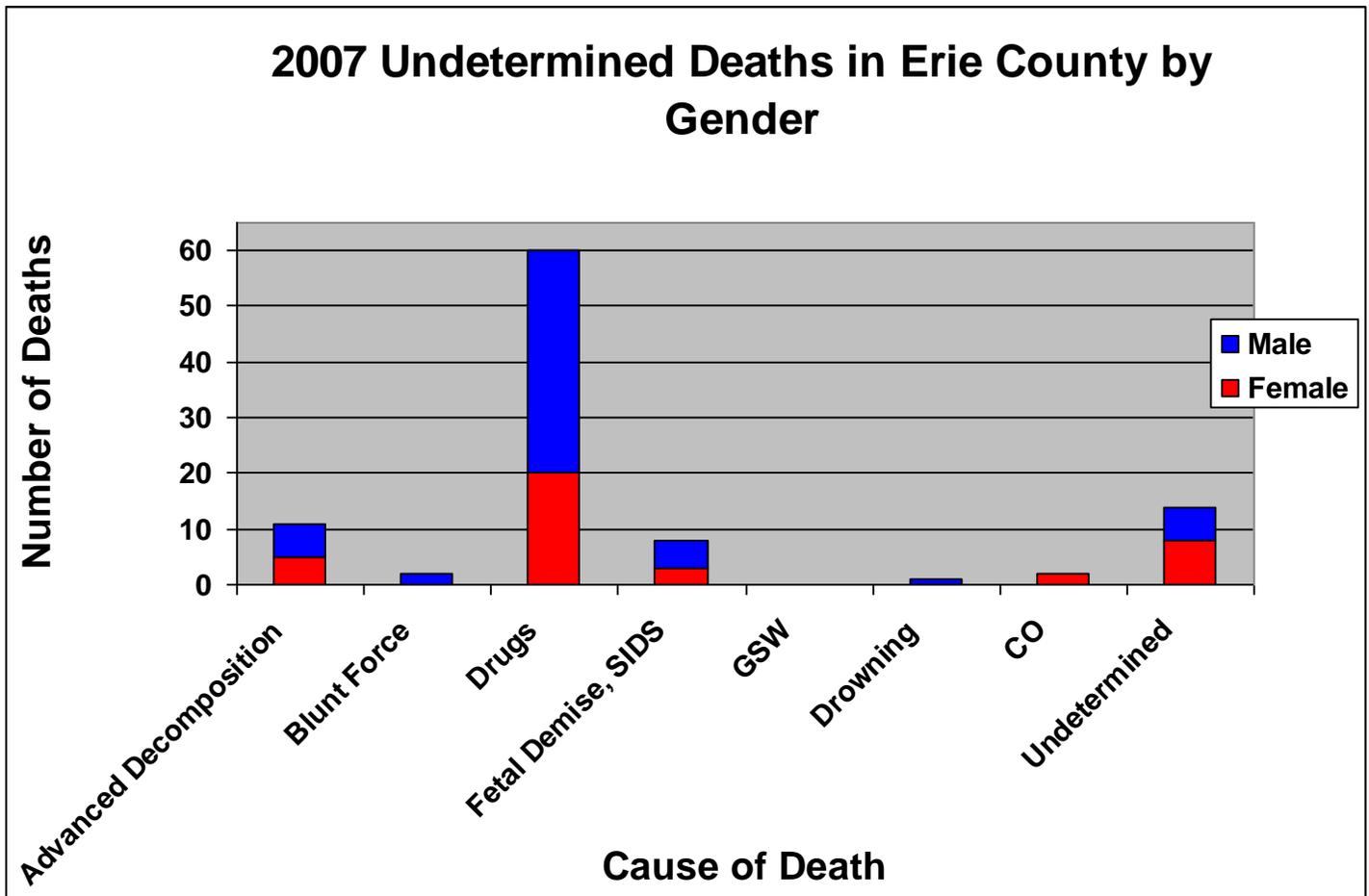


Figure 10c



ANNUAL TRENDS

According to Erie County statistics, there was a slight increase in the death rate from the year 2006 to 2007, with a slight fall in the numbers reported. The overall autopsy rate fell with a corresponding increase in external examinations (inspections increasing to 10%). Cases being referred from outside counties also decreased from 2006 to 2007, contributing to the autopsy rate decrease.

On the whole, our caseload has remained fairly constant since our first annual report, being composed largely of middle aged (36 – 65 years of age) white males most of whom died of cardiovascular disease. The overall stratification of natural and accidental deaths showed no significant trends from 2006 to 2007. Fatalities due to motor vehicle crashes continue to be very significant in Erie County. Suicides increased and homicides decreased from 2006 to 2007, with the net effect that violent deaths remained about constant. Fewer young people died in 2007 from gun shot wounds than in 2006. The elderly continue to die from falls. The trend for more males than females to die of drug overdoses continues.