



Kent County Medical Examiner

2000 Annual Report

Office of the Medical Examiner

700 Fuller N.E., Grand Rapids, MI 49503

2000 Annual Report

To the Kent County Board of Commissioners,
and to the Citizens of Kent County:

As you may be aware, this will be the last annual report issued under my direction as Chief Kent County Medical Examiner. Following my retirement, the oversight of the Medical Examiner program will be the responsibility of someone else, who I am confident will maintain the standards of excellence we have achieved in this program.

The responsibility of determining the cause and manner of unexpected deaths in Kent County is one that the Medical Examiner staff have always taken very seriously. Through rigorous investigation of the scene of death, the medical and personal history of the deceased, as well as the physical pathology revealed through autopsy, Medical Examiners and Medical Examiner Investigators are able to find answers where before there were only questions. Our investigations yield valuable information – data that can inform the development of public policy, evidence that can assist in the prosecution of a crime, and insight that can bring peace of mind to families of the deceased.

Because the work done by Medical Examiners is so important to our community, we have worked diligently to develop and maintain exceptionally high standards for our program. I am proud to say, we have succeeded. The Kent County Medical Examiner program has been recognized nationally as a model medical examiner program, and several of our staff are similarly recognized. Kent County program staff were integral in the development of national standards for medicolegal death investigations by the U.S. Department of Justice, and three of our staff have been certified by the American Board of Medicolegal Death Investigators.

However, while the high standards to which we adhere provide the foundation for quality investigative practices, it is the practitioners – Medical Examiners and Medical Examiner Investigators – who ultimately yield results. Within the framework of investigative protocols, Medical Examiners and Investigators must have latitude for judgment and the discretion to exercise it accordingly. I have always sought to direct our Medical Examiner program in a manner that takes full advantage of the professional training and experience of the Kent County Medical Examiners and Investigators, and continue to be an advocate for their expertise as a critical component of a quality program.

In closing, I would like to thank the Kent County Board of Commissioners for their continued support of this program which enables the Medical Examiner staff to provide this valuable and necessary service for the citizens of Kent County. I also wish to express my deepest gratitude to the excellent staff of the Kent County Medical Examiner program – the Medical Examiners, Medical Examiner Investigators, and the administrative support staff who keep this program running smoothly. It is my pleasure to present the Kent County Medical Examiner's 2000 Annual Report.

Sincerely,



Douglas A. Mack, M.D., M.P.H.
Chief Medical Examiner

Office of the Kent County Medical Examiner

700 Fuller N.E., Grand Rapids, Michigan 49503
 phone (616) 336-3021, fax (616) 336-3943
 Medical Examiner Exchange (616) 242-6700

Medical Examiner Program Personnel

Douglas A. Mack, M.D., M.P.H.
 Chief Medical Examiner

Larry J. Stalsonburg, D.O., ABMDI
 Deputy Medical Examiner

Stephen D. Cohle, M.D.
 Deputy Chief Medical Examiner, Forensic Pathologist

David A. Start, M.D.
 Deputy Medical Examiner, Forensic Pathologist

Jason Chatman
 Medical Examiner Investigator

Richard Washburn
 Kent County Conveyance Specialist and Scene Investigator

John T. Connolly
 Medical Examiner Investigator

Susan Atwood
 Administrative Assistant, Spectrum Health - Blodgett

Paul R. Davison, ABMDI
 Medical Examiner Investigator

Carmen M. Perez
 Medical Transcriptionist

Ramon B. Lang, M.D.
 Deputy Medical Examiner

Camilla M. Fulvi
 Administrative Assistant

Martha J. Scholl, ABMDI
 Medical Examiner Investigator

Board Certification

The American Board of Medicolegal Death Investigators (ABMDI) sets quality and process standards for death investigations. Though death investigations are not by law required to comply with ABMDI standards, the standards provide important guidelines for quality forensic investigation. In addition to death investigation standards, the ABMDI in 2000 began a certification program for medical examiners and medical examiner investigators. Individuals who pass the certification requirements of the American Board of Medicolegal Death Investigators are designated as Diplomats and use the letters "D-ABMDI" following their names.

Medical Examiner Program Expenditures, 1990 and 2000

	1990		2000	
	Amount	Percentage	Amount	Percentage
Medical Examiner (compensation)	\$ 82,600	16.0%	\$113,570	13.1%
Autopsies	374,948	73.3%	620,257	71.1%
Cadaver transportation	34,515	6.7%	58,531	6.7%
Support services	19,453	3.8%	34,379	3.9%
Administration	0	0.0%	37,700	4.6%
Total	\$511,516	100.0%	\$864,437	100.0%
Average cost per case investigated	\$450		\$808	

Medical Examiner Reportable Deaths and Autopsy

The Michigan County Medical Examiners Law, P.A. 181 of 1953, as amended, and the Michigan Public Health Code, P.A. 368 of 1978, as amended, mandates that specific types of deaths (listed below, left) be referred to the Medical Examiner for investigation. Medical Examiner investigation of a death may also be ordered by the County's prosecuting attorney, the Michigan Attorney General, or upon the filing of a petition signed by six (6) electors of a county.

Not all deaths referred to the Medical Examiner for investigation necessarily result in an autopsy, however, an autopsy is generally ordered in certain types of cases (listed below, right) to determine cause and manner of death.

Types of Deaths Reportable to the Medical Examiner, P.A. 368 of 1978

1. Sudden deaths and unexpected deaths (all deaths occurring in operating room, in recovery room, anesthesia-related, natural death but not expected, occupational related death, etc.)*
2. Accidental deaths (motor vehicle, burns, drowning, drug overdose, drug toxicity, etc.)*
3. Violent deaths (i.e. homicide, gunshot, stabbing)*
4. Suspicious circumstances surrounding a death.*
5. Death of a mother due to an abortion.
6. Death of a prisoner in any county or city jail who dies while so imprisoned.
7. Fetal death occurring without medical attendance at or after the delivery.

In terms of physician attendance in these matters for the purpose of the Medical Examiner program, we consider that an investigation is required when:

- A. The deceased was last seen by a physician more than ten (10)** days before his or her death, if the cause of death appears to be other than the illness or condition for which the deceased was being treated.
- B. The attending physician cannot accurately determine the cause of death.
- C. When the deceased has not received any medical attendance during the 48 hours*** prior to the hour of death and the attending physician is unable to accurately determine the cause of death.

* All trauma-related deaths regardless of when trauma occurred.

** The ten (10) day requirement relates solely to physician attendance.

*** The 48 hour requirement triggers an investigation when there has been no medical attendance of any kind.

Types of Medical Examiner Cases for which Autopsy is Generally Ordered

1. Sudden deaths and unexpected deaths only when, in the Medical Examiner's judgement, sufficient medical history is not available to determine cause of death.
2. Accidental deaths (motor vehicle, burns, drowning, drug overdose, drug toxicity, etc.) If an individual has been hospitalized for a prolonged time, it is the Medical Examiner's decision to order an autopsy.
3. Violent deaths (homicide, suicide, gunshot, etc.)
4. Suspicious circumstances surrounding death, including unidentified bodies.
5. Death of a mother due to an abortion.
6. All sudden infant deaths (SIDS).
7. Death of a prisoner in any county or city jail who dies while so imprisoned.
8. In a fetal death occurring without medical attendance at or after delivery.
9. An autopsy may be ordered at the discretion of the Medical Examiner when death occurs more than ten days after the deceased was last seen by a physician, if the cause of death appears to be other than the illness or condition for which the deceased was being treated.
10. Death for which the attending physician cannot accurately determine the cause.
11. Anesthesia-related and unexpected deaths of patients in health care institutions.
12. Work-related deaths or deaths which occur in the workplace.

Introduction

The role of the Medical Examiner (ME) Program is to investigate sudden, unexpected, or medically unattended deaths in the county. Whether through natural, violent, or accidental means, understanding the underlying causes can contribute important public health information that can be used to aid in planning preventive programs. The Michigan Public Health Institute's Medical Examiner Data Base, now in its second full year of utilization, contains detailed information about all cases investigated (since September 1998) by Kent County Medical Examiners and Medical Examiner Investigators. The Kent County Health Department provides administrative support to the Kent County Medical Examiner Program, which operates through contractual relationships with Spectrum Health – Blodgett, as well as with private practitioners and investigators. The Kent County Chief Medical Examiner directs the Medical Examiner Program and provides oversight through a medical review of all cases.

After two decades as Chief Medical Examiner and Public Health Director, Douglas Mack, M.D., M.P.H. announced his retirement at the end of 2000. An ad hoc task force appointed by the County Commission recognized the need to continue oversight and administrative support by the Kent County Health Department and has created a new position dedicated to the medical direction of Health Department clinical programs as well as the ME program. (Dr. Mack has served in the interim in this new position until a national search is completed.)

While it will be difficult to replace Dr. Mack, his vision and years of dedication have set the Kent County Medical Examiner's program on solid ground, allowing the development of unique ME data that can be used for a variety of community health planning purposes. The county's Child Death Review Team and the Fetal and Infant Mortality Review Team, for example, both use data and information collected through ME case investigations. On the national level, medical examiner data has helped increase under-

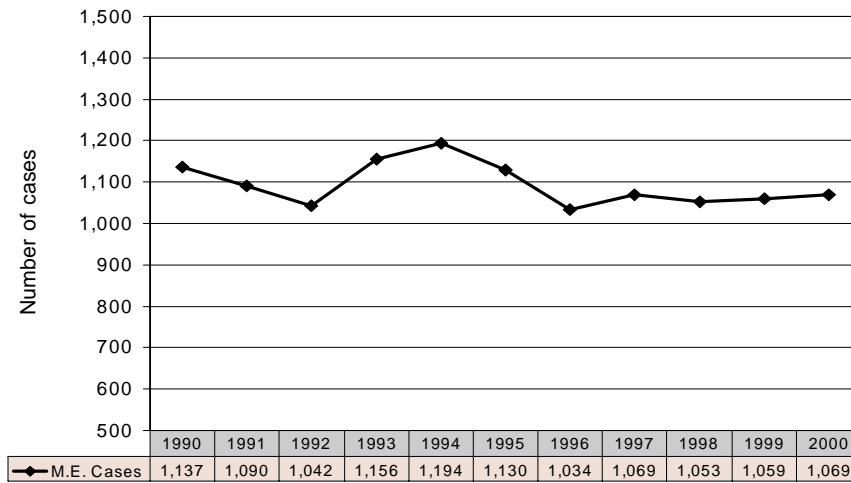
standing of the possible causes of Sudden Infant Death Syndrome (SIDS), and contributed to the development of appropriate prevention messages (e.g. "Back to Sleep"). As a result, SIDS deaths, nationally and locally, have declined significantly over the past decade. Kent County ME data are also shared with academic, state, and federal programs on all work-related deaths, asthma deaths, and deaths where a (consumer) product may be involved. This data sharing allows for the analysis of events (deaths) that occur infrequently in most communities by aggregating data across counties or states.

However, inasmuch as aggregated data can be useful for understanding mortality trends, different program models and investigation criteria limit the usefulness of ME data for making comparisons from one jurisdiction to the next. In addition, Medical Examiner data is not a random nor representative sample of all deaths that occur in Kent County, and, indeed, may represent a segment of our population that is more vulnerable to accidental, violent, drug-related, or otherwise medically unattended deaths. However, while ME cases tend to represent the *distribution* of all deaths (i.e., all causes of death) in Kent County, they are weighted to the younger end of the age spectrum (90 to 95% of children's deaths are investigated whereas approximately 50% of deaths to older adults become ME cases).

Medical Examiner data can be thought of most accurately as the "population of all sudden or unexpected deaths." As such, ME data can provide unique insights into mortality patterns over time (e.g., over months, seasons, or years), as well as for several causes and manners of death. For example, all traffic fatalities, homicides, and suicides (among others) are investigated by the Medical Examiner; therefore, ME data represent a complete sample of all Kent County deaths that fall within these categories. Toward that end, this report includes expanded information on drug-related deaths and vehicular deaths, information that will

Demographics of Medical Examiner Cases

Kent County Medical Examiner Cases, 1990-2000

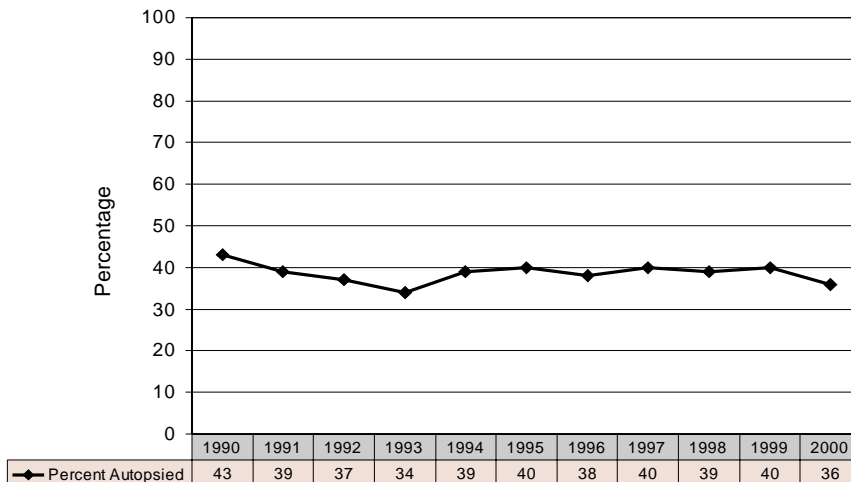


likely provide feedback for law enforcement agencies, substance abuse prevention efforts, maternal and child health advocates, as well as health care providers and assessment groups in Kent County.

Caseload

The Kent County Medical Examiner Program investigated 1,069 cases (deaths) in 2000, slightly lower than the previous 10-year average of 1,096. During the past 10 years, the highest number of cases was in 1994 (1,194), while the lowest was in 1996 (1,034). The Medical Examiner typically investigates approximately 25% of deaths that occur in Kent County every year.

Percentage of Medical Examiner Cases with Autopsy, 1990-2000



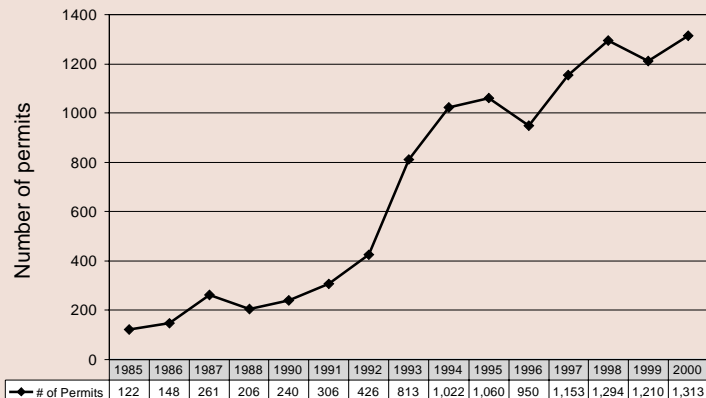
A Medical Examiner will investigate a death when 1) the cause and manner of death cannot be determined by a medical history; 2) when it is necessary to confirm the presence of legal and illegal substances (e.g., alcohol or “street drugs”) and determine if they contributed to the death; and 3) when an autopsy is necessary as part of a criminal investigation (e.g., homicide) to gather evidence for the prosecution of a crime. Autopsies were ordered on 36% of Kent County Medical Examiner cases in 2000, slightly lower than the previous 10-year average.

Examining the distribution of ME cases

Cremation and Burial

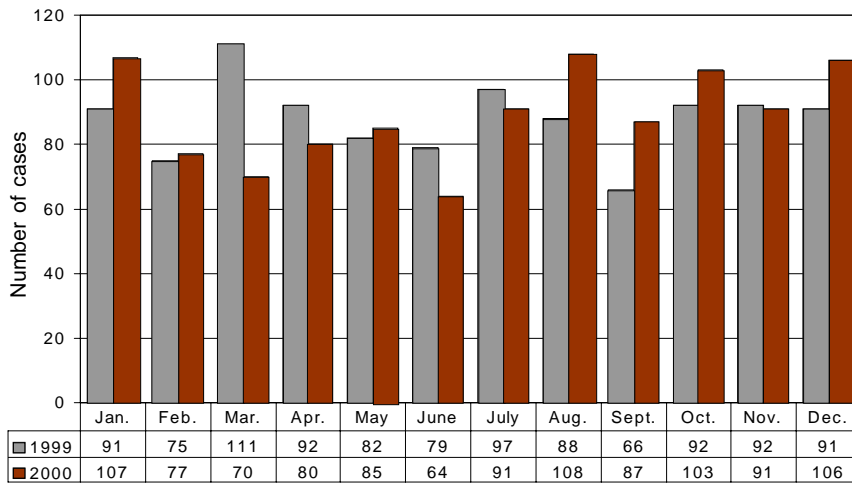
For many, cremation has become an acceptable alternative to more traditional burial methods. All cremations in Michigan must have a permit, and the ME of office issues cremation permits to Funeral Directors in accordance with Michigan law. Since 1985 the number of cremation permits issued by the Medical Examiner’s Office has increased tenfold, with the largest increases occurring between 1992 and 1995. However, although family members of 30% of ME cases now choose cremation, the majority (66%) still choose burial/entombment for deceased family.

Cremation Permits Issued, 1985-2000



Demographics: Race/Ethnicity and Marital Status

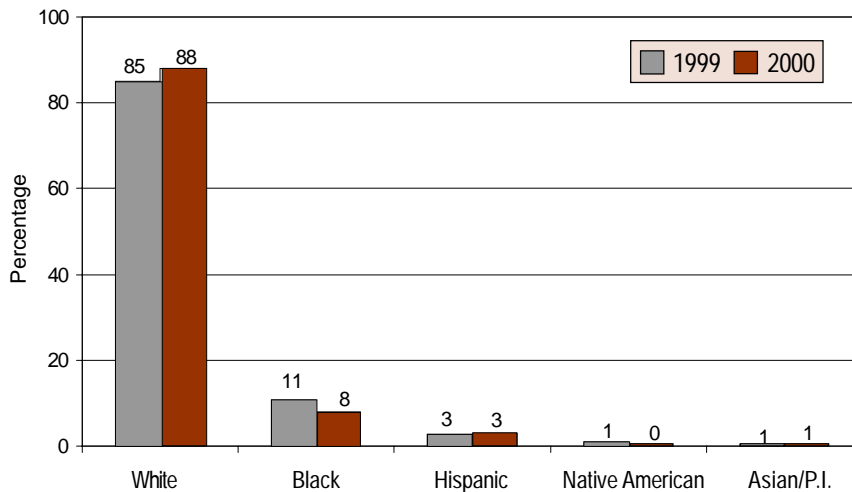
Kent County Medical Examiner Caseload by Month, 1999-2000



over months allows for improved surveillance of seasonally relevant deaths (e.g., influenza deaths tend to occur from mid-December through March), and is a critical step to developing timely and appropriate prevention messages. The average monthly caseload for 2000 was similar to 1999 at 89, as the graph indicates, while there were higher monthly totals for 2000 in January, August, September, October and December.

Kent County residents represented 85% of the ME cases in 2000, and 92% of the incidents that caused the death occurred in Kent County. Residents of 23 other Michigan counties were represented in Kent County ME cases in 2000.

Percentage of Medical Examiner Cases by Race/Ethnicity, 1990-2000



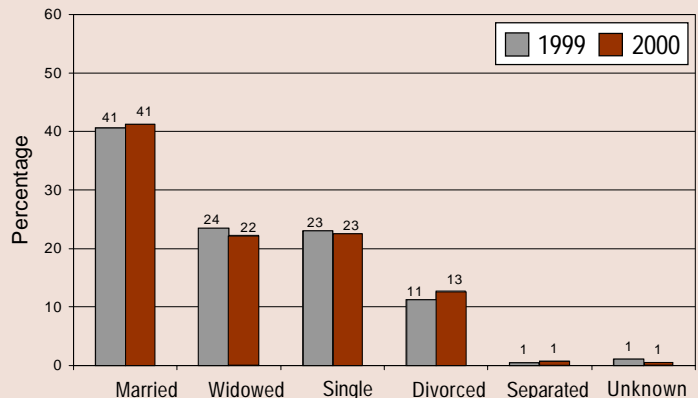
Race and Ethnicity

The distribution of the decedents by race/ethnicity is generally similar to the race/ethnicity distribution for Kent County as a whole. Whites represented the majority (88%) of Medical Examiner cases in 2000, and were somewhat over-represented based on 2000 census data that shows Whites account for just over 80% of the Kent County population. African Americans, who according to the 2000 census make up 9% of Kent County's population, were slightly under-represented at

Marital Status

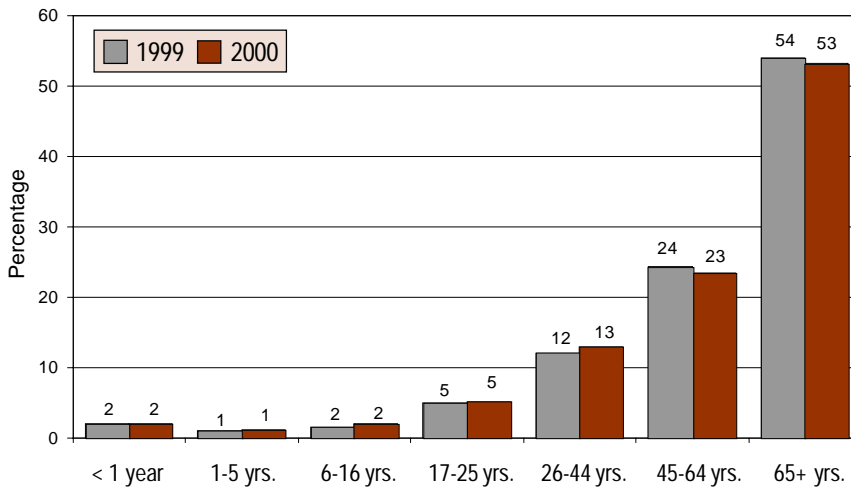
Some studies have suggested that being married is beneficial to health, and that married people may live longer than people who are not married. While research is still inconclusive on this point, Kent County ME data shows some interesting trends in marital status. Although the distribution of ME cases by marital status shows that married people make up single largest group (41%), individuals who are not married – those who are single, widowed, divorced, or separated – combined made up 58% of ME cases in 2000. A similar distribution was seen in 1999.

ME Cases by Marital Status, 1999 and 2000



Demographics: Age and Sex

Medical Examiner Caseload by Age, 1999 and 2000



8% of the 2000 ME caseload. Similarly, persons of Hispanic descent accounted for only 3% of Medical Examiner cases in 2000 though they comprise 7% of Kent County's population according to the census.

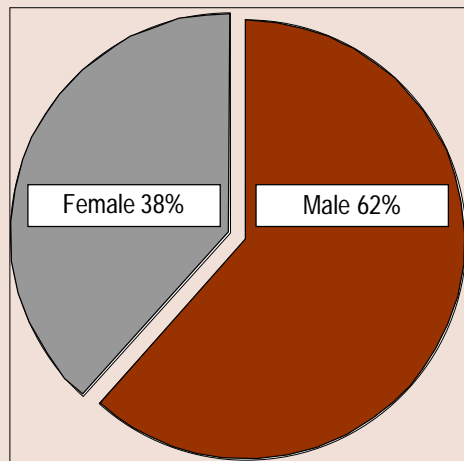
Age of Deceased

The age distribution for 2000 is very similar to 1999, though with higher values for the 6-16 and 26-44 year old age groups, and somewhat lower values for the oldest age groups (45-64 and 65+). As noted in the introduction, deaths investigated by the Medical Examiner are somewhat skewed by the nature of the program: deaths to older adults where medical history and/or recent circumstances are suggestive of the cause and manner of death are less likely to warrant an investigation. (Note that numbers on the graph bars have been rounded to whole numbers, so small changes in the percentage of a particular age group may

Sex of Deceased

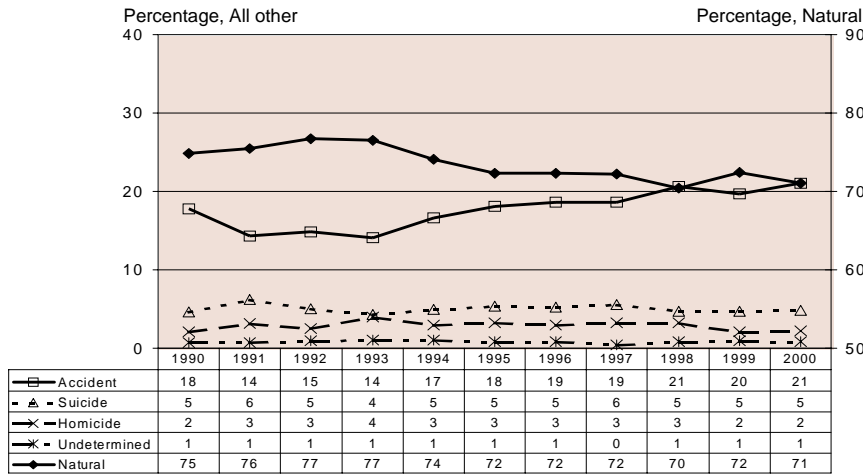
Historically and consistently, males have represented the majority of Medical Examiner cases in Kent County. Although the birth rate for males is slightly higher than for females (approximately 106 males are born for every 100 females), males have higher rates of sudden, unexplained, or medically unattended deaths. Males are more likely to commit suicide, be a victim of homicide, die in a car accident, or die as a result of drug use than females. In 2000, males again represented the majority of Kent County Medical Examiner cases (62%), a slight increase in the distribution of male cases from 1999 (58% male).

Medical Examiner Cases by Sex, 2000



Manner of Death

Medical Examiner Cases by Manner of Death, 1990-2000

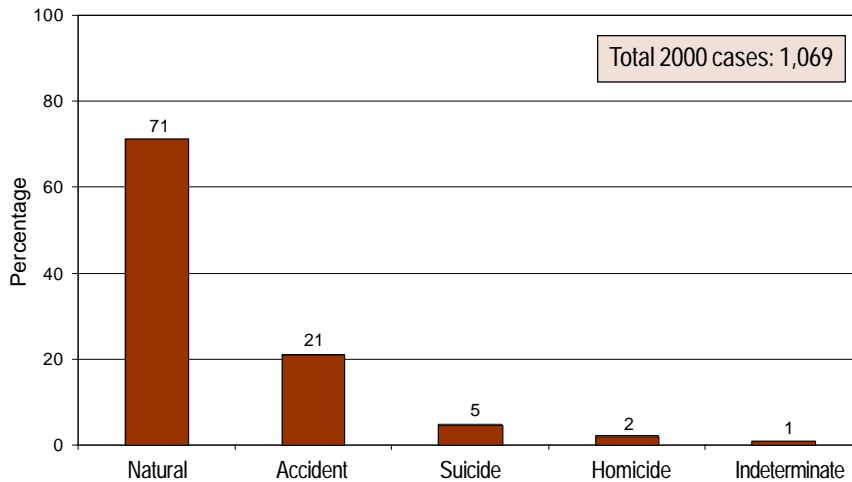


show up as the same number. For example, in 1999, the 6-16 year old age group accounted for 1.6% of ME cases, and in 2000, for 2.1%; both of these values are rounded to 2, but the latter bar is slightly higher.)

Determining the Manner of Death

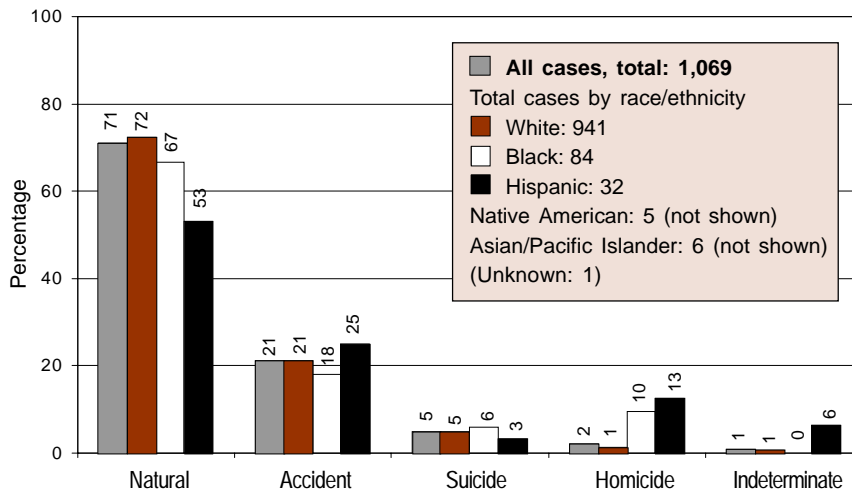
One of the most important duties of the Medical Examiner is to determine both the cause and manner of death in cases of sudden, unexpected, or medically unattended deaths. Cause of death refers to the actual "event" that precipitated the death (e.g., heart attack or stroke), while manner of death refers to what precipitated the "event." Manner of death can be categorized as natural, accidental, suicide, homicide, or if medical history and autopsy are inconclusive, indeterminate. For deaths where a chronic disease (heart disease, cancer, diabetes, etc.) is listed as the cause, the manner is generally categorized as "natural." Because chronic diseases are responsible for over 65% of all deaths, the "natural" category is always the highest percentage of ME cases.

Medical Examiner Cases by Manner of Death, 2000



There have been minor changes in the distribution of manner of death over the past decade. While investigations of natural deaths have decreased to 71% of all ME cases, accidental deaths have consistently increased, from a low of 14% of ME cases in 1993, to 21% in 2000. This finding is generally corroborated by an increase in the number of ME investigations in which police were also in attendance. In 2000, 71% of ME cases (deaths) were also investigated by local police agencies (68% in 1999); 39 different law enforcement agencies are represented in 2000 Medical Examiner data.

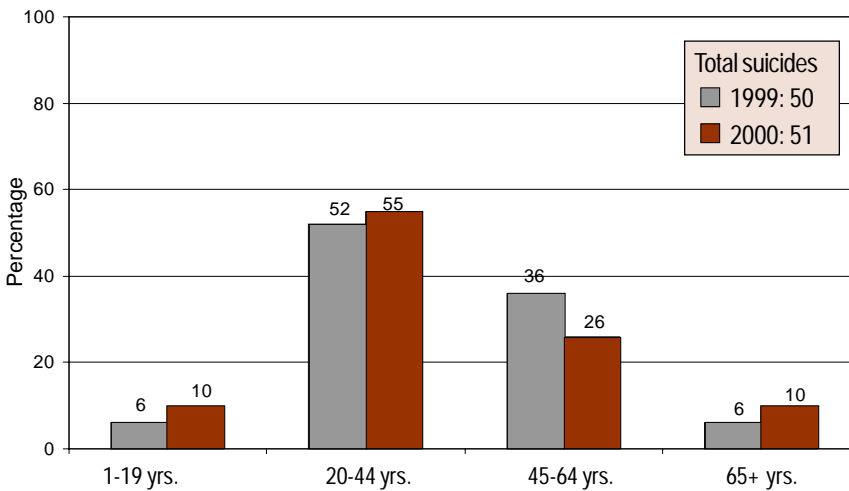
Manner of Death by Race/Ethnicity, 2000



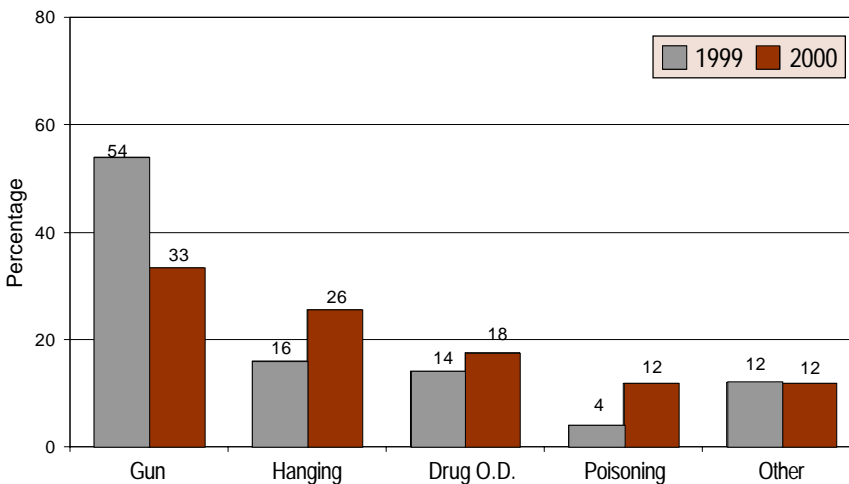
Manner of death across racial and ethnic populations was similar for both 1999 and 2000. African Americans accounted for 35% of all homicides in 2000, and African American males 22% of all homicides. Persons of His-

Manner of Death: Suicide and Homicide

Suicide Cases by Age, 1999 and 2000



Suicide Cases by Method Used, 1999 and 2000



panic descent accounted for 17% of homicides, while 48% of homicides investigated were White. As in 1999, Hispanics were over-represented in accidental deaths when compared to Whites or African Americans.

Suicide

There were 51 suicides in Kent County in 2000, slightly lower than the average for the past decade (56). Whites make up the vast majority of cases in this category (88%), followed by African Americans (10%), and persons of Hispanic descent (2%). Males are also over-represented in this category, comprising 82% of suicide cases in 2000.

With respect to age at time of suicide, trends are similar to last year with the majority (55%) of cases occurring in the 20-44 year-old age group. When compared to 1999, there were slight increases at each end of the age spectrum in 2000, and a substantial decrease in suicides in the 45-64 year-old age group.

There were also several differences in the method used to commit suicide. Most prominent among these is a significant decrease in suicides where a firearm was the instrument of choice in 2000. This decrease met with con-

Homicide

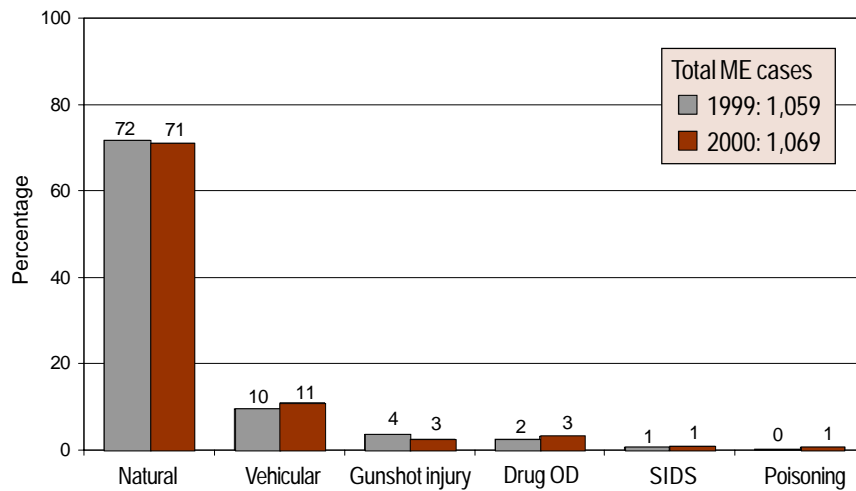
There were 23 homicides investigated by the Kent County Medical Examiner in 2000. As noted earlier, while the majority of homicide victims are White, African Americans and persons of Hispanic ancestry are over-represented in Kent County homicides. There are, however, some positive trends over the past two years, with a 34% decrease in all homicides (from a 10 year average of 35 homicides), and a 62% decrease in homicides to African American males (when compared to 10-year annual average of 13 homicides of African American males).

Homicides, Kent County, 1990-2000



Cause of Death

Medical Examiner Cases by Cause of Death, 1999 and 2000



comitant increases in other methods, particularly suicides by hanging (asphyxiation), and by poisoning (most often carbon monoxide – exhaust from a car or other combustion engine).

Determining the Cause of Death

The Medical Examiner records cause of death on the death certificate of the deceased. Most determinations of cause of death, without autopsy, are based upon the medical history of the deceased and the events surrounding the death. Natural causes (heart disease, stroke, lung disease, etc.) have typically accounted for over 70% of Medical Examiner cases. Beginning

Sudden Infant Death Syndrome

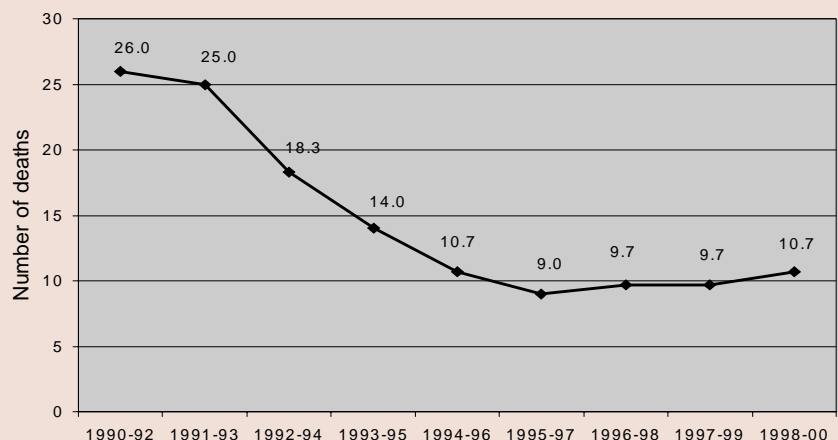
Sudden Infant Death Syndrome (SIDS) is the “sudden death of an infant under one year of age which remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene, and review of the clinical history” (Willinger, et al., 1991). There were 11 SIDS deaths in Kent County in 2000, slightly higher than the 1997–99 three-year average of 9.7. (For 2000, three of the 11 SIDS deaths investigated by the Kent County Medical Examiners were to infants whose primary residence was outside Kent County.) However, during the past decade there has been a significant (59%) reduction in SIDS deaths in Kent County. This trend mirrors both state and national trends for SIDS deaths, and suggests that several important public health messages have had an impact on preventing this cause of infant death (i.e., the Back to Sleep Campaign which encourages parents to place infants on their backs to sleep; and discouraging “co-sleeping,” infants sleeping in the same bed with adults).

The distribution of SIDS deaths by race/ethnicity shows that SIDS has disproportionately affected African Americans and persons of Hispanic descent in preceding years (in 1999 55% percent of SIDS deaths in Kent County were African American). Data from 2000, however, suggests this trend may be moderating, with 73% White, 18% African American and 9% Hispanic SIDS deaths.

Nationally, SIDS deaths are more common in male infants (60%), and a similar phenomenon is observed in Kent

County. In 2000, 91% of Kent County SIDS deaths were to male infants. However, it is important to keep in mind that because of the limited number of deaths due to SIDS, small yearly changes in the demographic characteristics of these deaths are difficult to interpret. For that reason, (three-year) moving averages are used to smooth the effects of wide yearly variation in number of cases on trend data, and to provide a more valid representation of the overall trend.

SIDS Deaths in Kent County, 1990-2000 (three-year averages)



Cause of Death: Drug-Related Deaths

with last year's annual report, selected causes of death are examined in more detail. This report features expanded information on Sudden Infant Death Syndrome, deaths due to drug overdose, and vehicle-related deaths.

Drug Deaths

For 2000, there were 33 Medical Examiner cases where drugs (including alcohol) were identified as the primary cause of death (3% of all cases). An additional 32 cases were identified with drugs or alcohol as a contributing (but not primary) cause of death. In all, 6% of Medical Examiner case investigations in 2000 identified drugs or alcohol as contributing factor to death.

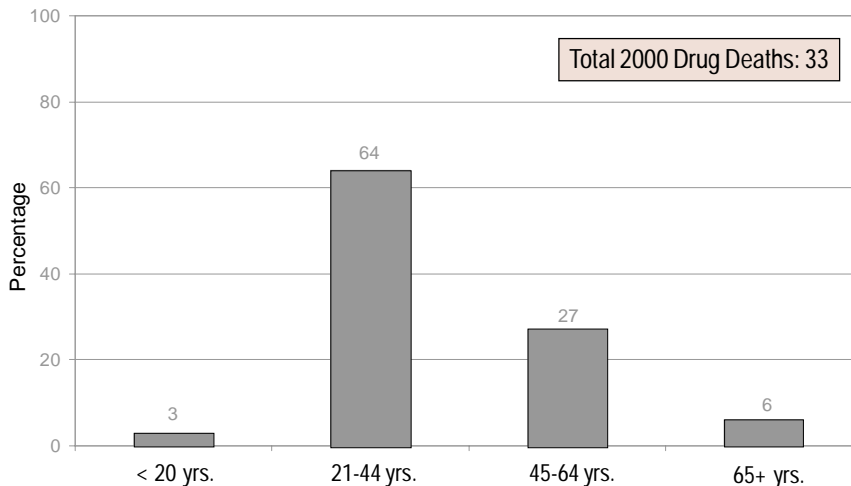
Generally, sudden deaths due to drugs may be as the result of an accidental overdose, an intentional overdose, a vehicular accident, or, in some cases, systemic failure due to chronic substance abuse.

In cases where drugs were determined to be the *primary* cause of death, 67% were ruled accidental, 27% intentional (suicide), and 3% were deemed natural (most likely due to chronic substance abuse). The average age for the deceased was 41.5 years old, with a range of 20 to 76 years old. The distribution of drug deaths by marital status was significantly different from all ME

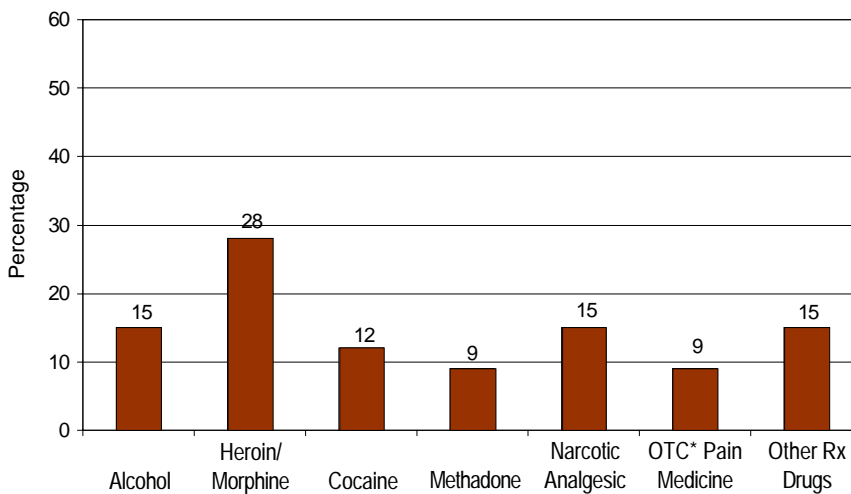
cases: only 12 % were married, while 39% were divorced, and 36% single.

The majority of drug deaths were the result of mixed drug intoxication; 67% of the deceased had more than one drug in their system at the time of their death. In 40% of these cases, alcohol was also listed as a contributing factor in the death. In such cases, assessing which drug was most likely to have caused death is difficult. Drugs are listed in the order that they occurred on autopsy toxicology reports, and the graph presented represents the drug of first mention.

Medical Examiner Drug Deaths by Age, 2000



Drug Deaths by Drug of First Mention (on Toxicology Report), 2000



According to a recent release from the Drug Abuse Warning Network (DAWN), heroin/morphine mentions in drug overdose deaths increased 11% between 1998 and 1999 nationally. In addition, heroin/morphine were ranked as the leading cause of drug overdose deaths in 14 metropolitan areas, and second in an additional nine, including Detroit (34% of drug overdose deaths) and Chicago (52% of drug deaths). In preliminary estimates of 2000 data, DAWN reported an additional 22% increase in heroin/morphine mentions when comparing the first half of 2000 to the same period in 1999. The average age of heroin/morphine overdoses (35.4 years old) was younger than the average age for all drug deaths with a range of 24 years old to 64 years old.

In Kent County, there were 10 deaths where heroin/morphine were identified as the primary cause, accounting for 28% of ME drug deaths in 2000. This is an increase from 1999 when there were four heroin/morphine deaths that accounted for 15% of drug deaths. However, because of the small number of these deaths, it is difficult to assess if this increase is a statistical fluctuation or signals a growing trend. The distribution of cases where

*Over the counter pain medications.

Cause of Death: Vehicular Deaths

heroin/morphine were identified is still somewhat lower in Kent County than in other DAWN reporting sites. Continued monitoring of these and all drug deaths will allow more accurate identification of potential trends.

Vehicular Deaths

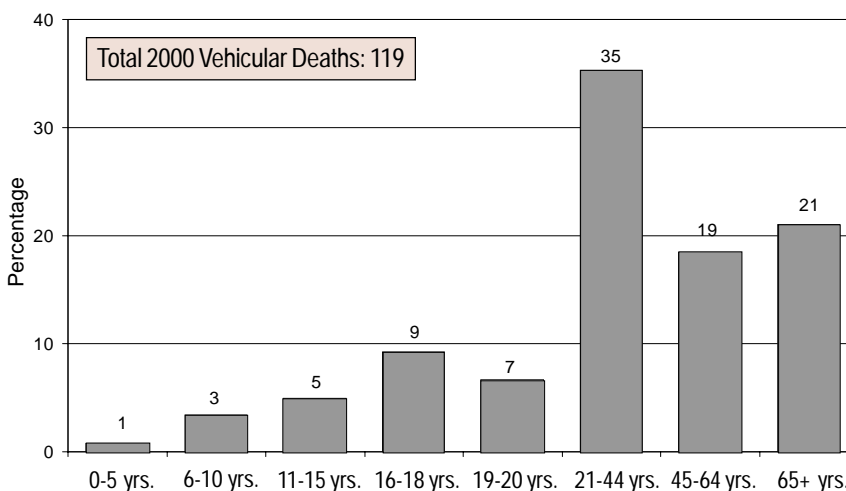
There were 119 Medical Examiner cases in which a vehicle was a contributing factor in the death in 2000. The majority of vehicular deaths (65%) occurred while the decedent was driving, or was a passenger in, a motor vehicle (car, truck, etc.); motorcycles and bicycles accounted for 16% of ME vehicular fatalities in 2000.

While the average age of bicycle deaths in 2000 was 25 years old (with a range of 8 years old to 61 years old), children 13 years old and younger accounted for 70% of bicycle deaths. The average age of motorcycle fatalities was 43.4 years old, with a range of 26 years old to 57 years old.

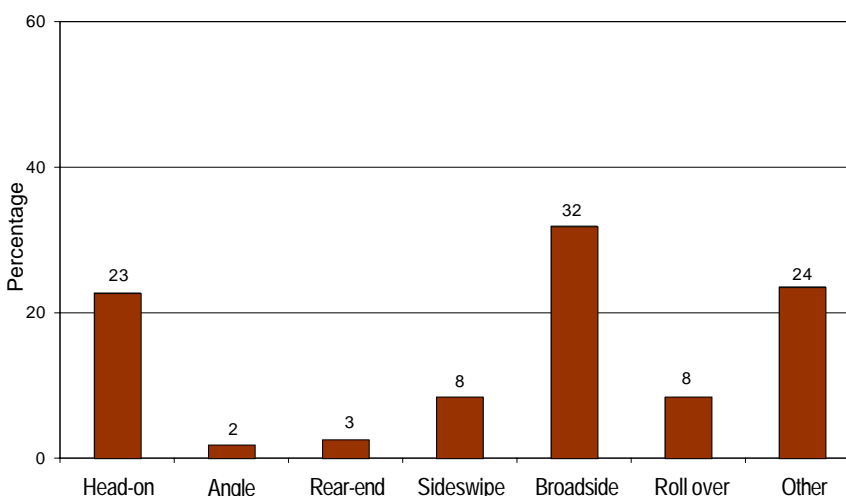
Safety helmets have been shown to decrease the likelihood of serious head injury resulting from a fall or collision while cycling. Motorcyclists are required by law to wear an approved safety helmet, however, there is no law requiring a helmet while bicycling. Although investigations of motorcycle deaths revealed high compliance with the law — 90% of those who died were wearing helmets — the same is not true for deaths involving bicycling. In 2000, only 20% of all ME bicycle fatalities were wearing a safety helmet; none of the children was wearing a helmet. While a helmet is not protective in all crash situations, all children should have and use protective headgear while engaging in activities for which helmets have been developed because of the risk of head injury (e.g., cycling, in-line skating, skateboarding).

The distribution of vehicular fatalities by age shows the highest percentage of deaths in the 21 to 44 year old age

Kent County Vehicular Deaths by Age, 2000



Vehicular Deaths by Type of Collision, 2000



group (35%), followed by fatalities to those less than 19 years old (23%). For those less than 19, the majority of deaths occurred to those between 16 and 18 years old (9% of all fatalities were in this age group, somewhat lower than for 1999 with 11% of fatalities 16–18 years old). Because the graduated system of drivers licensing is relatively new, it is difficult to assess its impact on deaths to this age group. Evaluating vehicular fatality data over the next few years will show whether or not this law has effectively reduced traffic fatalities in this age group.

As is the case with other Medical Ex-

aminer data characteristics, vehicular-related deaths are heavily skewed towards males. In 2000, 71% of fatalities were male (significantly higher than 1999 when 54% of fatalities were male). Alcohol was also identified as a factor in 21% of the vehicular deaths (slightly lower than for 1999, where 24% of vehicular fatalities were found to have alcohol in their systems).

Finally, examining the data for site of impact suggests that the majority of fatalities (32%) occur in broadside collisions (collisions where one vehicle strikes the second vehicle in a perpendicular plane). Following broadside collisions, 23% of fatalities were the result of head-on collisions. Neither of these types of collisions is likely to occur on interstate (divided) highways,

Kent County Medical Examiner, 2000 Annual Report

©2001 Kent County Medical Examiner
Grand Rapids, Michigan

Produced by:

Tim Bolen, Epidemiologist
Cam Fulvi, Medical Examiner Administrative Assistant
Michael Mullet, Community Relations Coordinator

This publication may be reprinted or reproduced
without permission.

Copies of this report are available on the World Wide Web at:
www.kentcounty.org/health

Kent County Medical Examiner
700 Fuller N.E.
Grand Rapids, Michigan 49503
(616) 336-3021

Notes on this PDF publication

The report contained in this PDF file was published in print by the Kent County Medical Examiner's Office in July 2001. The colors used in this PDF file vary slightly from the colors used in the printed version, however the content is identical, with the exception of this paragraph. This page is the inside of the back cover. The content of this report is public information and may be downloaded, stored, printed, copied, and distributed, in print or via e-mail or other electronic means, without permission.

Kent County Medical Examiner, 2000 Annual Report
printed and electronic versions © 2001 Kent County
Medical Examiner, Grand Rapids, MI.