Injury Mortality in the District of Columbia 2009-2013

Prepared by

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Introduction

The purpose of this report is to describe trends in the number of deaths caused by external injuries among District of Columbia (DC) residents from 2009 through 2013(preliminary)—in some instances, trends include additional years of data. The data are examined by age at time of death, race, gender, and place of residence. These data are based on information from all resident death certificates filed in DC by the Vital Records Division of the Department of Health (DOH) and in other states. Cause-of-death statistics presented in this report are classified in accordance with the *International Classification of Diseases, Tenth Revision* (ICD-10). In addition, the external cause-of-injury mortality matrix, used by the National Center for Health Statistics (NCHS), was employed in these analyses to categorize ICD-10 cause-of-death codes by two essential dimensions: the mechanism of injury and its manner or intent. The mechanism involves the circumstances of the injury, for example, fall, motor vehicle traffic, or poisoning (see Technical Notes). The intent involves whether the injury was purposefully inflicted and, when intentional, whether the injury was self-inflicted (suicide) or inflicted upon another person (assault or homicide). Four major mechanisms of injury during 2009 to 2013—poisoning, firearm, fall, and motor vehicle traffic—accounted for 72.9% of all injury deaths in DC.

Poisoning—during 2009 to 2013, 471 deaths occurred as a result of poisonings, 25.3% of all injury deaths in DC. The majority of poisoning deaths were unintentional (77%) and of undetermined intent (14%), while 9% were suicides. Although the total number of deaths from unintentional poisoning increased 13.7% from 2009 to 2013, the unadjusted death rate was steady, near 12.0 deaths per 100,000 population for these five years.

Firearm—during 2009 to 2013, 432 persons died from firearm injuries in the District, accounting for 23.2% of all injury deaths for the five year period. The two major component causes of firearm injury deaths were homicide (88%) and suicide (10%). The unadjusted death rate from firearm injuries for all intents was 18.3 deaths per 100,000 population in 2009, and decreased to 10.8 in 2013 (preliminary)—a 41% decrease. The unadjusted death rate for firearm homicide decreased 45.1%, however, the rate for firearm suicide increased 11.3%, from 2009 to 2013.

Fall—during 2009 to 2013, 258 persons died as a result of falls, 14.3% of all injury deaths in DC. The overwhelming majority of fall-related deaths (97%) were unintentional. In 2013, the unadjusted death rate for unintentional falls increased 19.4% from 2011.
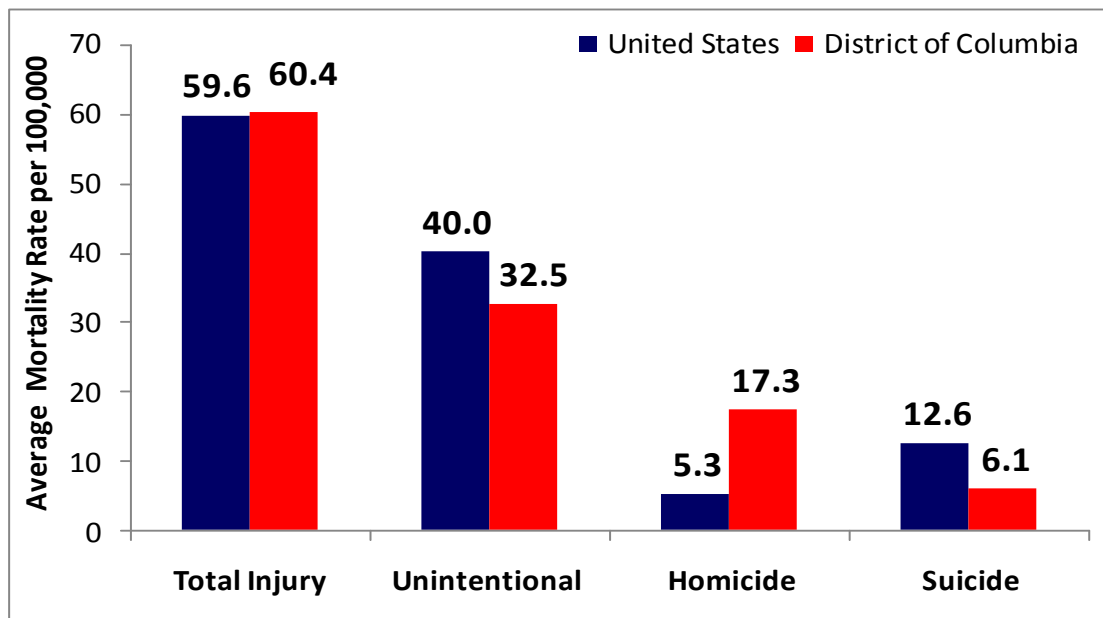
Motor vehicle traffic—during 2009 to 2013, motor vehicle (MV) traffic-related injuries resulted in 174 deaths, accounting for 9.3% of all injury deaths. The unadjusted death rate for MV traffic injuries decreased from 6.6 deaths per 100,000 population in 2012 to 3.6 in 2013 (preliminary), a decrease of 46.4%. All MV traffic deaths are considered unintentional and are subcategorized by the role of the decedent—occupant, pedal cycle, motor cycle, pedestrian, and unspecified. The majority of MV traffic deaths during 2009 to 2013 in DC were pedestrian (43%) and occupant (20%).

This report presents supporting data for nonfatal injuries and other information related to external injury mortality from various DC Government agencies' annual reports, including the District Department of Transportation (DDOT), the DC Metropolitan Police Department (MPD), the Office of the State Superintendent of Education (OSSE), the Office of the Chief Medical Examiner (OCME), the Office of the Chief Technology Officer (OCTO) and the Office of Planning. Together, with data from the DC DOH, these data and analyses are intended to assist DC Government agencies and their stakeholders in the design of strategies, interventions, and policies to reduce fatal and nonfatal injuries among residents of the District.

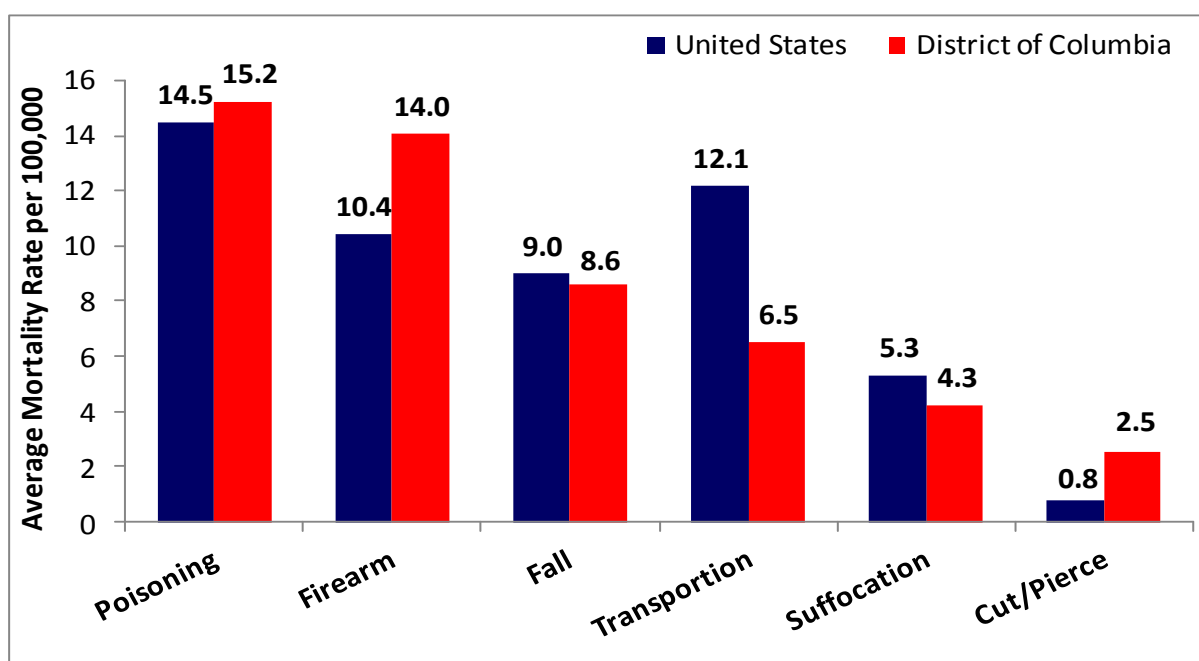# Injury Deaths by Type

Injury Death Rates by Intent
United States and District of Columbia, 2009-2013*

In 2013, unintentional injury was the 3rd leading cause of death and homicide was 8th in DC.

In the U.S. in 2013, unintentional injury was the 4th, and suicide the 10th, leading cause of death.

1 in 5 DC injury deaths are caused by unintentional poisoning, 2009-2013.

1 in 4 DC injury deaths are caused by firearm, 2009-2013.

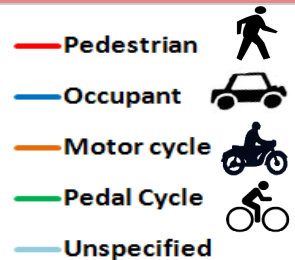**DC rate of transportation-related deaths was 1/2 U.S. rate.**

25% unintentional injury deaths caused by falls in DC, 2009-2013.

Chart: Injury Death Rates by Intent. Average Mortality Rate per 100,000. Legend: United States (blue), District of Columbia (red).

- Total Injury: United States 59.6, District of Columbia 60.4
- Unintentional: United States 40.0, District of Columbia 32.5
- Homicide: United States 5.3, District of Columbia 17.3
- Suicide: United States 12.6, District of Columbia 6.1

Sources: Vital Records, DC DOH, 2009-2013. NCHS Mortality Multiple Cause Files, 2009-2013.

Rates for the Leading Causes of Injury Death by Mechanism
United States and District of Columbia, 2009-2013*

Chart: Average Mortality Rate per 100,000. Legend: United States (blue), District of Columbia (red).

- Poisoning: United States 14.5, District of Columbia 15.2
- Firearm: United States 10.4, District of Columbia 14.0
- Fall: United States 9.0, District of Columbia 8.6
- Transportation: United States 12.1, District of Columbia 6.5
- Suffocation: United States 5.3, District of Columbia 4.3
- Cut/Pierce: United States 0.8, District of Columbia 2.5

Sources: Vital Records, DC DOH, 2009-2013. NCHS Mortality Multiple Cause Files, 2009-2013.

*2013 DC mortality data are preliminary.

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Motor Vehicle (MV) Traffic Deaths

Most DC MV traffic deaths are among pedestrians.
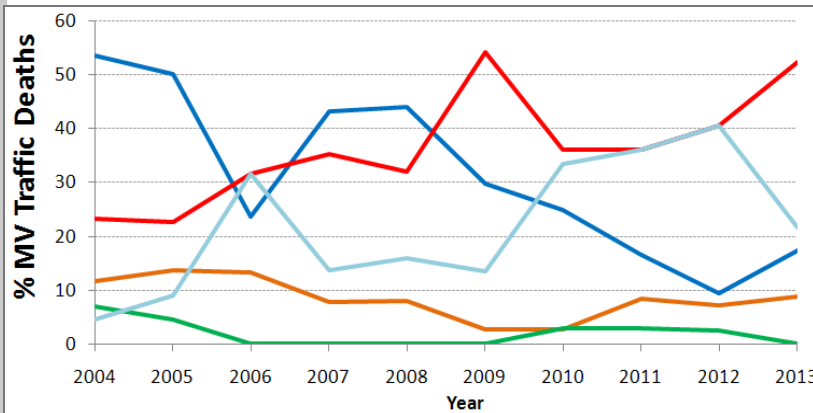
During 2009-2013*, 174 MV traffic deaths occurred: 43% pedestrian, 20% occupant, 6% motor cycle, 2% pedal cycle.

Legend:
- Pedestrian
- Occupant
- Motor cycle
- Pedal Cycle
- Unspecified

Data Source: Vital Records, DC DOH, 2004-2013*.

#4 cause of injury mortality in DC, 2009-2013— #2 in the U.S. in 2012.

Rate of MV traffic deaths in DC, half the U.S. rate, 5.6 and 10.9 per 100,000, 2009-2013, respectively.

43% of MV traffic deaths in DC were pedestrians during 2009-2013—14% in the U.S. in 2013. (DC DOH; NHTSA)

2% of MV traffic deaths were among children aged <15 years in DC during 2009-2013—3 in 4 were pedestrians.
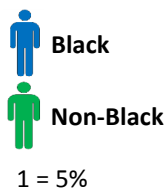
In the U.S. in 2013, 1 in 5 MV traffic deaths among children aged <15 years were pedestrians. (NHTSA)

## Most MV traffic deaths in DC are among Blacks and young adults.
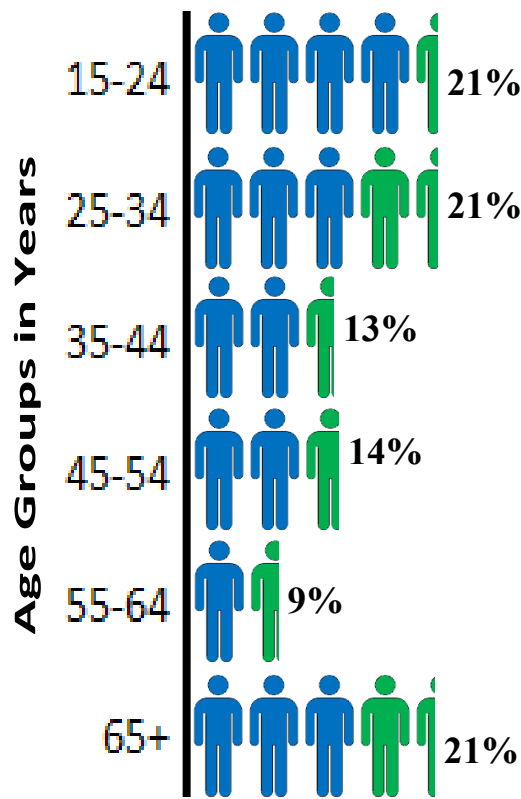
- 15-24: 21%
- 25-34: 21%
- 35-44: 13%
- 45-54: 14%
- 55-64: 9%
- 65+: 21%

Rounded to the nearest whole percentages.

Data Source: Vital Records, DC DOH, 2009-2013*.

Black
Non-Black
1 = 5%

MV traffic death rates among blacks decreased with age, but increased at age 65. Rates among whites increased with age.

Most DC residents who die of MV traffic injuries are men.

36% Women

64% Men
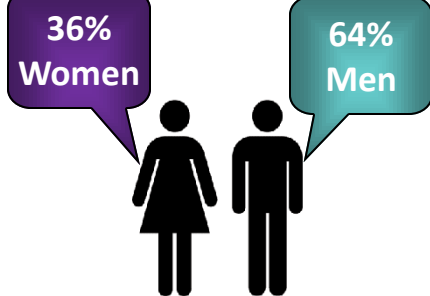
Data Source: Vital Records, DC DOH, 2009-2013*.

20 most hazardous DC intersections (2010-2012) considering crash rate, severity, and frequency.

U Street Corridor

North Capitol St
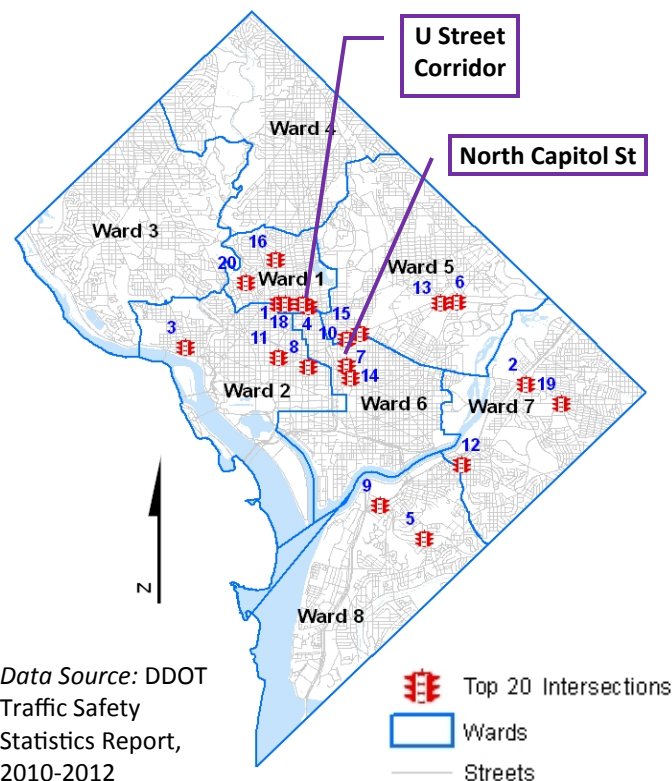
Data Source: DDOT Traffic Safety Statistics Report, 2010-2012

- Top 20 Intersections
- Wards
- Streets

*2013 DC mortality data are preliminary.

MV traffic deaths in DC are lower than in the U.S., but nearly 18,000 non-fatal injuries per year were caused by traffic collisions from 2009 to 2012. (DDOT)

40% increase in traffic collisions involving bicyclists occurred in DC from 2009 to 2012. (DDOT)

28% of DC residents do not own a car for transportation to work, compared with 4% of all U.S. workers. (2009-2013 ACS)

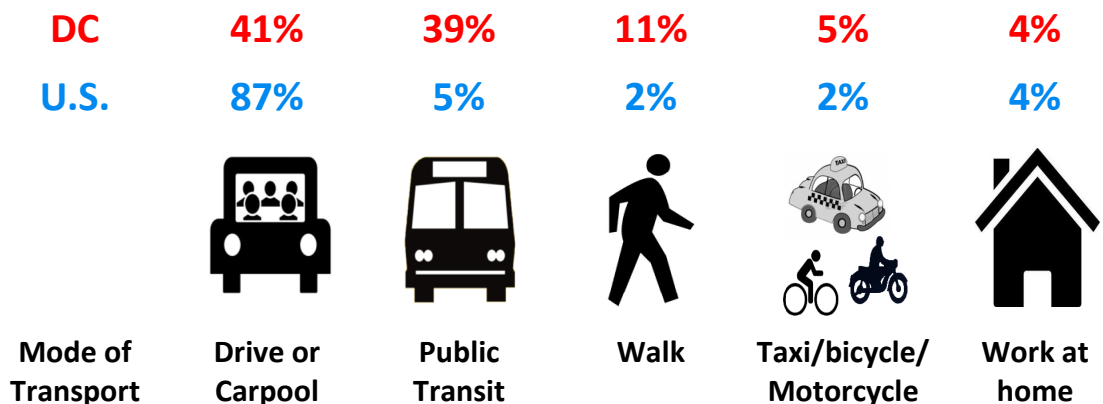## Traffic collisions and non-fatal injuries increased in DC from 2009 to 2012.

Total Collisions ↑ 9%

Non-Fatal Injuries ↑ 11%
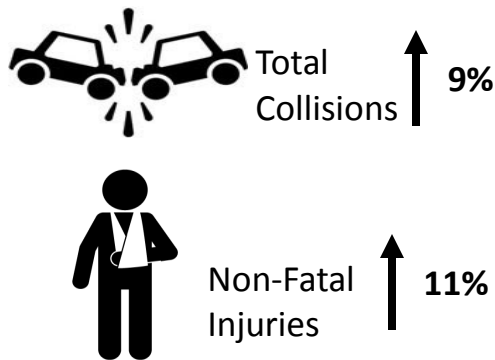
Traffic collisions in DC involving other modes of transportation increased—2009 to 2012.

Bicyclist	↑	2.1 times
Motorcycle	↑	1.8 times
Pedestrian	↑	1.4 times
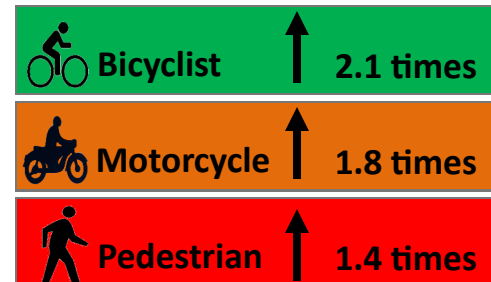
Data Sources: DDOT Traffic Safety Statistics Reports, 2009-2011 and 2010-2012.

More DC workers commute to work using public transportation or by walking, compared to U.S. workers who mostly drive or carpool.

Mode of Transport	Drive or Carpool	Public Transit	Walk	Taxi/bicycle/Motorcycle	Work at home
DC	41%	39%	11%	5%	4%
U.S.	87%	5%	2%	2%	4%

Data Source: 2009-2013 American Community Survey 5-Year Estimates, Workers 16 years and older in households.

What Can Be Done?

Automated Speed Enforcement

- Vehicle speed plays a key role in collisions—higher speeds are more hazardous for pedestrians and cyclists. DC Metropolitan Police Department (MPD) uses red light cameras and photo enforcement of speeding.
- MPD and DDOT together validate speed limits and establish engineering interventions for speeding.

Sustainable DC

- The goals include expanded provisions for safe, secure infrastructure for cyclists and pedestrians.
- In addition, plans include improving access to transit systems.

Injury Deaths by Firearms

Most DC injury deaths caused by a firearm are homicides.

325

17

57

13

6

Data Source: Vital Records, DC DOH, 1993-2013*.
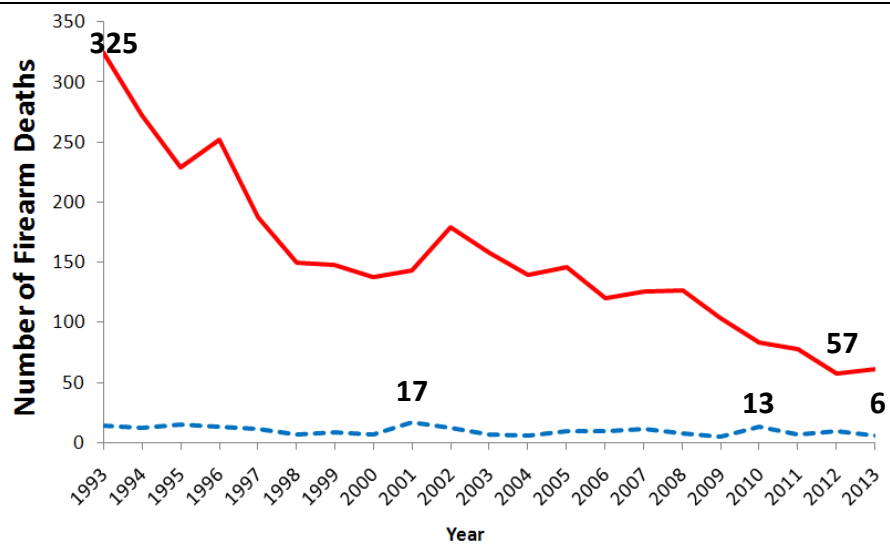
During 2009-2013*, firearms caused 432 deaths: 88% homicide, 10% suicide, and 2% unintentional, undetermined intent, or due to legal intervention or war.

— Homicide
- - - Suicide

DC ranked #1 among states for rate of firearm deaths in 2009, and then ranked 31st in 2013.

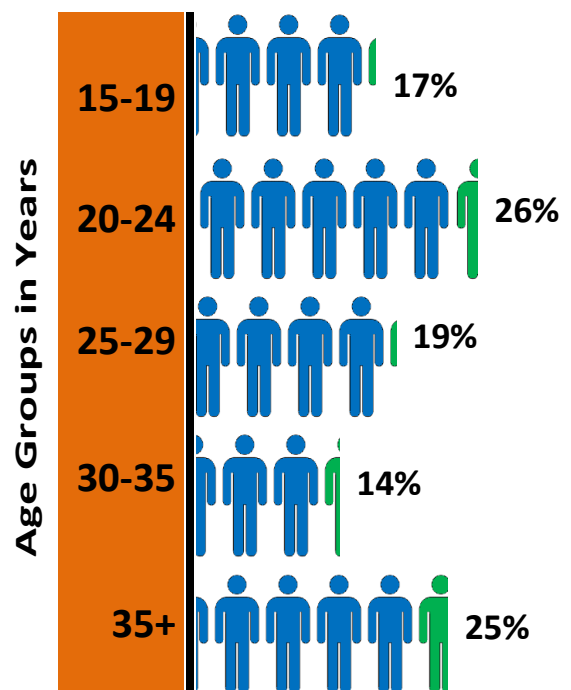1 in 4 injury deaths are caused by a firearm in DC, 2009-2013.

71% of homicides were caused by a firearm in DC, 2009-2013.

87% of firearm deaths in DC were among black males, 2009-2013.

27% of DC resident firearm deaths occurred in Maryland.

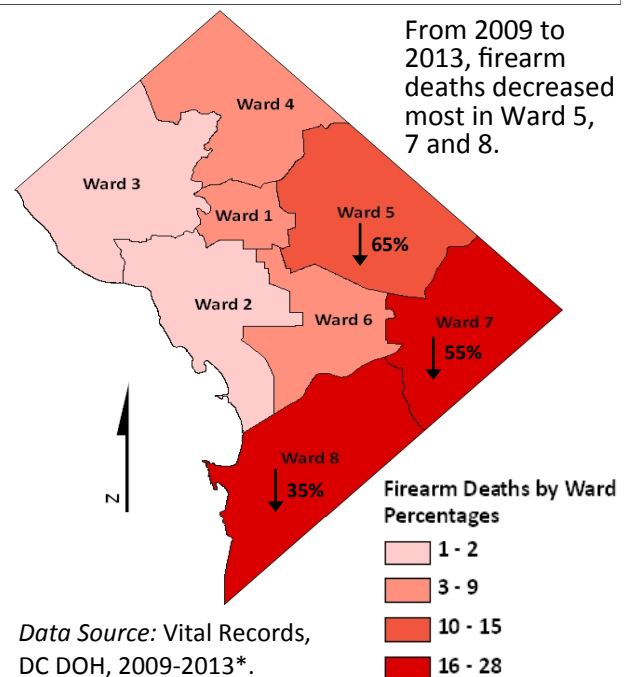## Most DC deaths from firearms are among blacks and young adults aged 20 to 24 years.

Nearly all DC residents who die from an injury caused by a firearm are men.

94% Men

Data Source: Vital Records, DC DOH, 2009-2013*.

Age Groups in Years

15-19	17%
20-24	26%
25-29	19%
30-35	14%
35+	25%

Rounded to the nearest whole percentages.

Data Source: Vital Records, DC DOH, 2009-2013*.

 Black   Non-Black   1 = 5%

Most firearm deaths were among DC residents who lived in Wards 5, 7, and 8.

From 2009 to 2013, firearm deaths decreased most in Ward 5, 7 and 8.

Ward 4
Ward 3
Ward 1
Ward 5 ↓ 65%
Ward 2
Ward 6
Ward 7 ↓ 55%
Ward 8 ↓ 35%

N

Firearm Deaths by Ward Percentages
- 1 - 2
- 3 - 9
- 10 - 15
- 16 - 28

Data Source: Vital Records, DC DOH, 2009-2013*.

37% of DC high school students who received mostly D and F grades, versus 13% who received mostly As, carried a weapon in the past 30 days.
(DC YRBS, 2012)

The number of juvenile homicide offenders in DC has fallen 25% from 2009 to 2013.
(DC MPD)

50% of firearms recovered in DC were in the 6th and 7th Police Districts, which correspond to Ward 7 and 8.
(DC MPD)

20% of high school students in DC carried a weapon one or more times in the past 30 days.

9% of high school students in DC were threatened or injured with a weapon at school within the past year.

Data Source: District of Columbia 2012 Youth Risk Behavior Survey. Office of the State Superintendent of Education (OSSE).
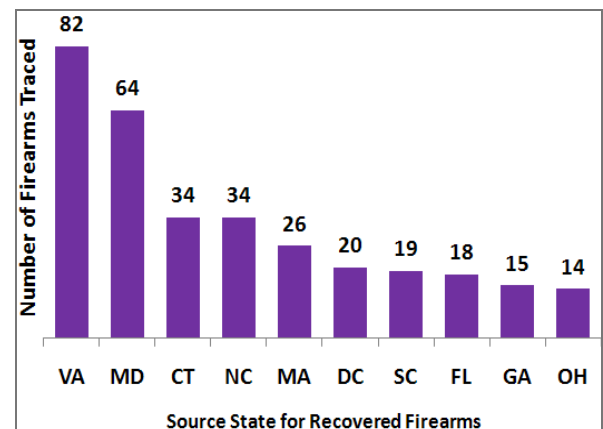
The number of firearms recovered by DC MPD decreased from 2009 to 2013.
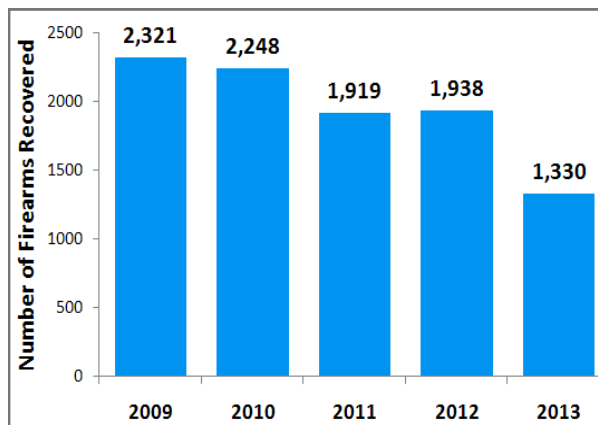
The majority of firearms recovered are guns used to commit crimes.

Data Source: 2013 Metropolitan Police Department (MPD) Annual Report.

Top 10 source states for traced firearms in the District in 2013.

- 45% of successfully traced firearms in DC are from Virginia (VA) or Maryland (MD).

- Not all firearms are traceable to the originating dealer, since many are not bought from Federal Firearms Licensees.

What Can Be Done?
## Gun Control Laws and Regulations
- Inconsistent laws across states impacts crime involving firearms; very strict laws can be undermined by neighboring jurisdictions with permissive laws.
- DC recently introduced a Concealed Carry Pistol License (23 DCMR § 2334.1) and the Comprehensive Homicide Elimination Strategy Task Force (D.C. Code § 22-4251)

Trace Firearms to Source
- Tracing firearms to the originating dealer helps law enforcement monitor patterns of gun dealers engaging in practices that make it easier for criminals to obtain guns. A national registry could help trace guns used in crimes.

Unintentional Poisoning Deaths

Most deaths caused by poisoning are unintentional.

- **All Poisoning Deaths**
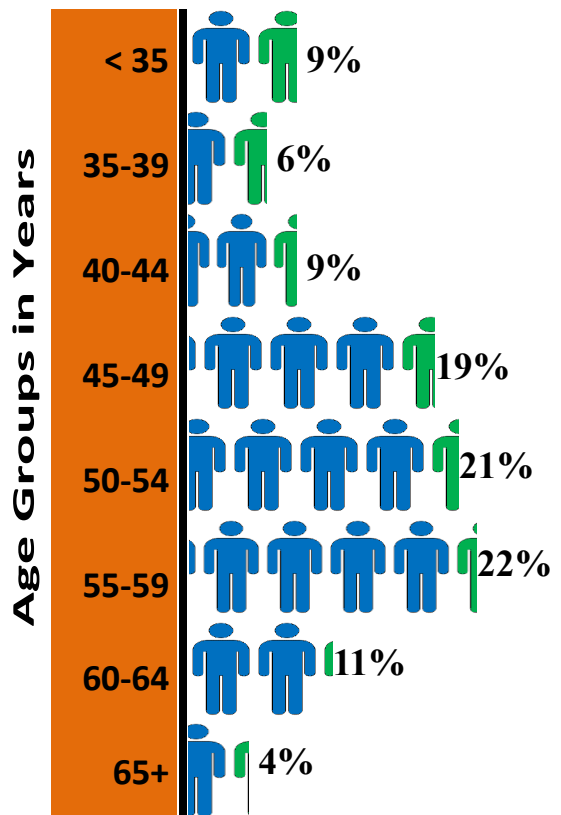- **Unintentional**
- **Suicide**
- **Undetermined Intent**
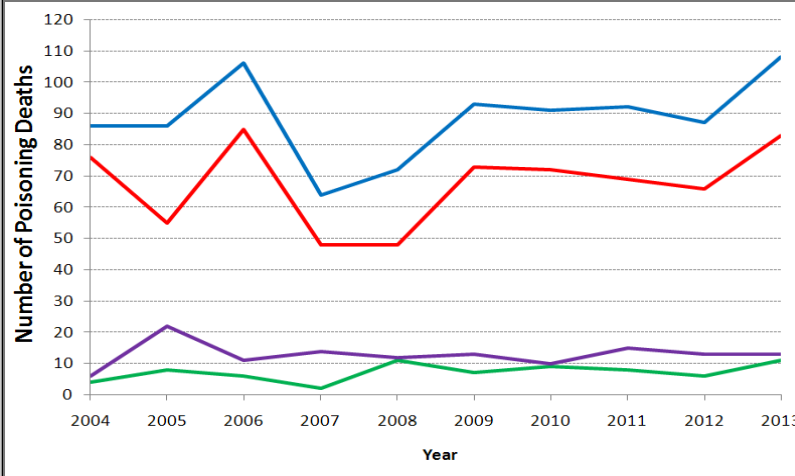
During 2009-2013*, 471 deaths were caused by poisoning: 77% unintentional, 9% suicides, 14% undetermined intent, and fewer than 1% homicides.

Data Source: Vital Records, DC DOH, 2004-2013*.

#1 cause of injury mortality in DC from 2011 to 2013—leading cause of injury death in U.S. in 2012.

90% of unintentional poisoning deaths are caused by drug-poisonings in DC from 2009-2013.

10% of unintentional poisoning deaths are caused by alcohol or other non-drug poisonings.

Fewer than 10% of unintentional poisoning deaths among DC residents are younger than age 35 years.

Most unintentional poisoning deaths are among adults aged 45-59 years and Blacks/African Americans.

Most people who die from unintentional poisoning are men.

33% Women

67% Men

Data Source: Vital Records, DC DOH, 2009-2013*.

Age Groups in Years

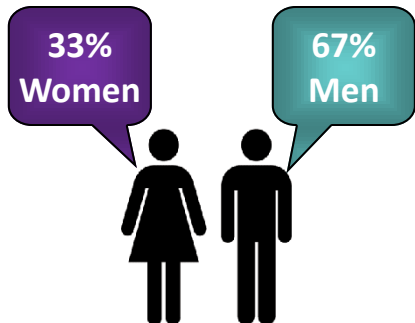| Age	Percent
< 35	9%
35-39	6%
40-44	9%
45-49	19%
50-54	21%
55-59	22%
60-64	11%
65+	4%

Rounded to the nearest whole percentages.

Data Source: Vital Records, DC DOH, 2009-2013*.

Black **Non-Black** 1 = 5%

Most unintentional poisoning deaths are among DC residents in Wards 5, 7, and 8.

Unintentional Poisoning Deaths, Percent by Ward
- 2.2 - 3.6
- 3.7 - 13.5
- 13.6 - 17.9
- 18.0 - 22.0

Data Source: Vital Records, DC DOH, 2009-2013*.

*2013 DC mortality data are preliminary.

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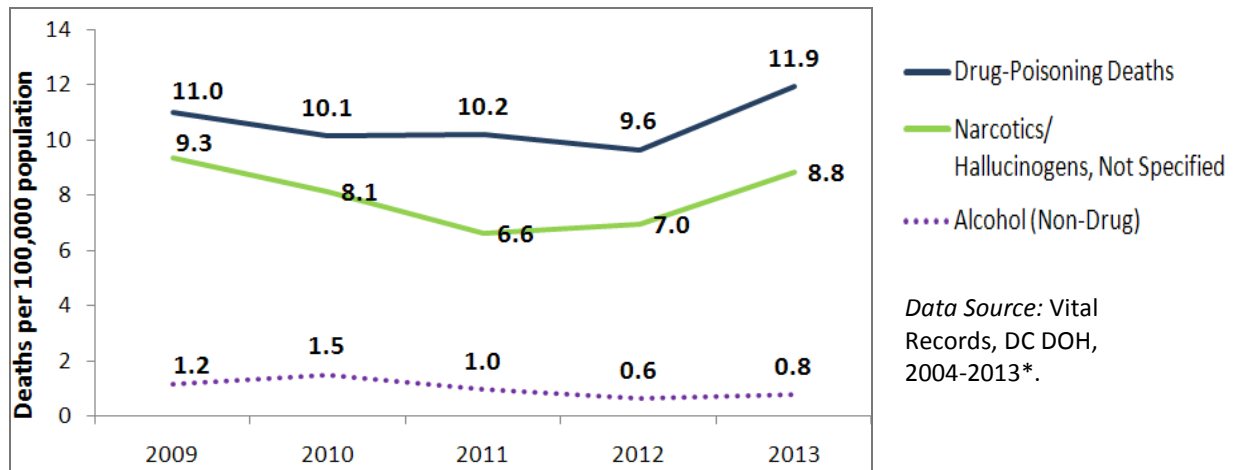## Most unintentional poisoning deaths are caused by drug-poisonings.

73% increase in unintentional poisoning deaths occurred in DC from 2007 to 2013.

75% of unintended drug-poisoning deaths in DC are caused by narcotic or hallucinogenic drugs.

89% of unintended non-drug poisoning deaths in DC are caused by alcohol.

74% of Medical Examiner's drug overdose cases had more than one drug present in toxicology tests.
(DC OCME)

Line chart — Deaths per 100,000 population, 2009-2013:
- Drug-Poisoning Deaths: 11.0, 10.1, 10.2, 9.6, 11.9
- Narcotics/Hallucinogens, Not Specified: 9.3, 8.1, 6.6, 7.0, 8.8
- Alcohol (Non-Drug): 1.2, 1.5, 1.0, 0.6, 0.8

Data Source: Vital Records, DC DOH, 2004-2013*.

National Capital Poison Center
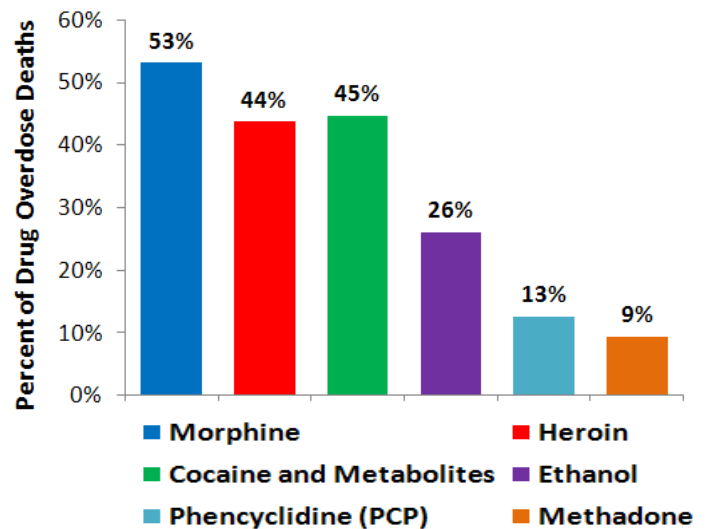

54,534 calls in 2013

77% of calls unintentional poison exposures

Top 5 poison exposures among adults 20 years and older
- Pain relievers
- Sedatives/hypnotics/antipsychotics
- Cleaning substances
- Antidepressants
- Cardiovascular drugs

Data Source: Online Poisoning Statistics Washington, DC metro area, 2013.

Most common drugs found by the DC Medical Examiner in toxicology tests for drug overdose cases in 2013.

Bar chart — Percent of Drug Overdose Deaths:
- Morphine: 53%
- Heroin: 44%
- Cocaine and Metabolites: 45%
- Ethanol: 26%
- Phencyclidine (PCP): 13%
- Methadone: 9%

Data Source: 2013 Annual Report. Government of the District of Columbia, Office of the Chief Medical Examiner.

What Can Be Done?

- Adopt best practices for improving the quality of death certificate information on drug poisoning deaths; including details on the specific drugs involved from toxicology testing, to help monitor mortality trends.

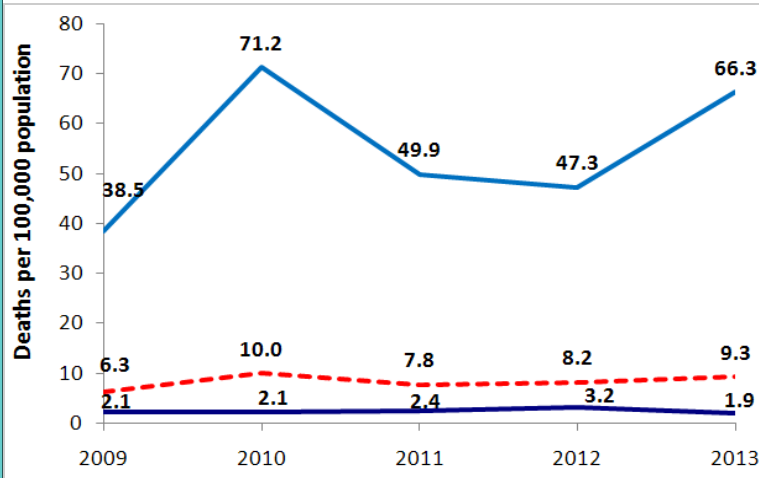## Prescription Drug Monitoring Programs (PDMP)

- Electronic databases used to track the prescribing and dispensing of controlled prescription drugs to patients to monitor suspected abuse or channeling of drugs into an illegal use.

Access to Substance Abuse Treatment

- Effective, accessible substance abuse treatment programs could reduce overdose among people struggling with dependence and addiction.

Unintentional Fall Deaths

Most unintentional fall deaths are among adults aged 65 years and older.

Data Sources: (1) Vital Records, DC DOH, 2009-2013*.
(2) U.S. Census Bureau, Population Division, 2009-2013.

During 2009-2013*, 258 deaths were caused by unintentional falls: rate of 2.3 per 100,000 population under age 65 years, 21.1 per 65-74 years, 53.0 per 75-84 years, and 180.5 per 85 years and older.

#1 cause of injury mortality among DC adults aged 65 years and older.

Leading cause of fatal and non-fatal injuries, U.S. adults aged 65+.

97% of deaths caused by falls in DC are unintentional— 3% suicides or undetermined intent.

19% increase in unintentional fall deaths in DC from 2011 to 2013.

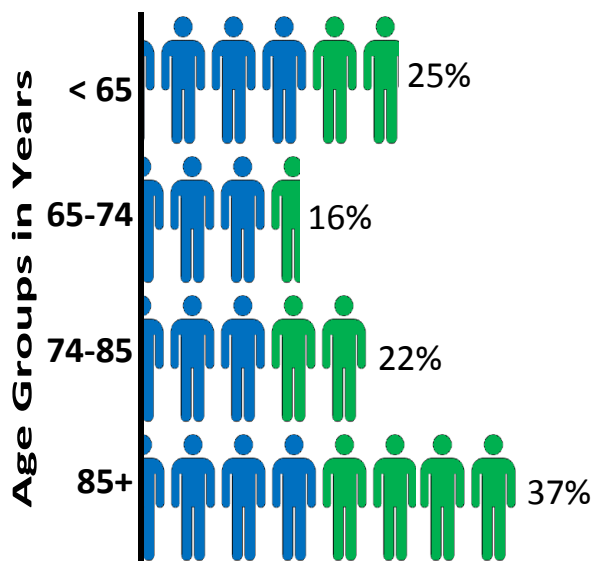Mortality rates among adults 65 years and older increased among men 60% and among women 80%, 2009 to 2013.

From 2009 to 2013, death rates for unintentional falls increased.

Men have higher fall death rates than women.

Deaths per 100,000 population
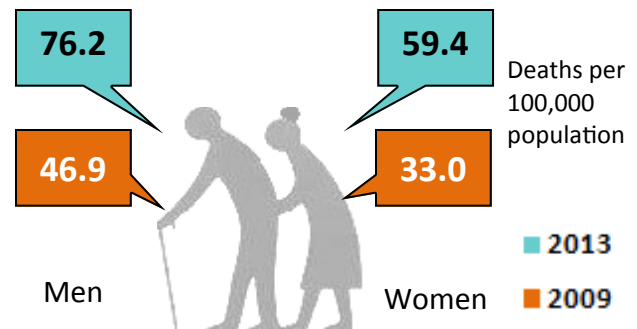
Data Sources: 1) DC Vital Records. 2) U.S. Census Bureau.

Fall deaths are most common among older adults, mainly 85 years and older.

Ward 3 and 4 have the highest death rates for unintentional falls in elderly.
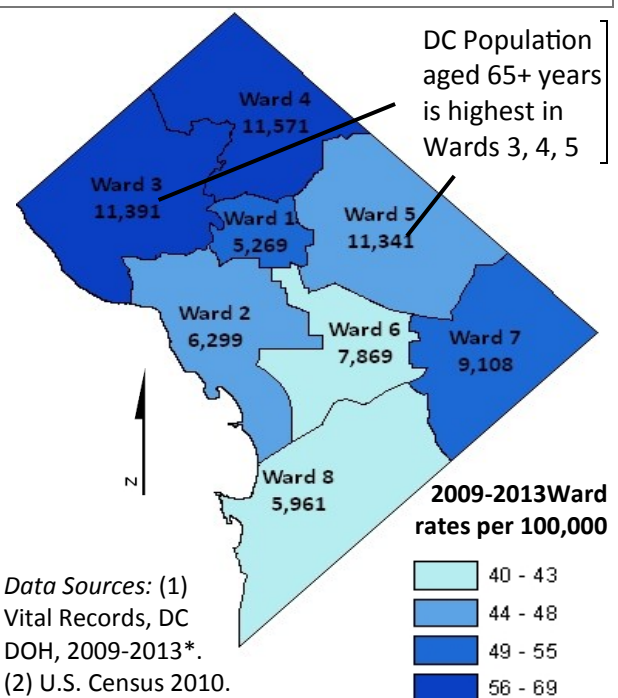
Rounded to the nearest whole percentages.

Data Source: Vital Records, DC DOH, 2009-2013*.

Black   Non-Black   1 = 5%

DC Population aged 65+ years is highest in Wards 3, 4, 5

Data Sources: (1) Vital Records, DC DOH, 2009-2013*. (2) U.S. Census 2010.

2009-2013 Ward rates per 100,000

- 40 - 43
- 44 - 48
- 49 - 55
- 56 - 69

*2013 DC mortality data are preliminary.

Unintentional fall death rates vary with age and race.

1 in 4 older adults experienced a nonfatal fall in the past year.
(2012 BRFSS)

54% of house-holders aged 65 years and older live alone in DC.
(U.S. Census Bureau/DC Office of Planning)

31% of DC residents aged 65 years and older were physically inactive in the past month.
(2012 BRFSS)
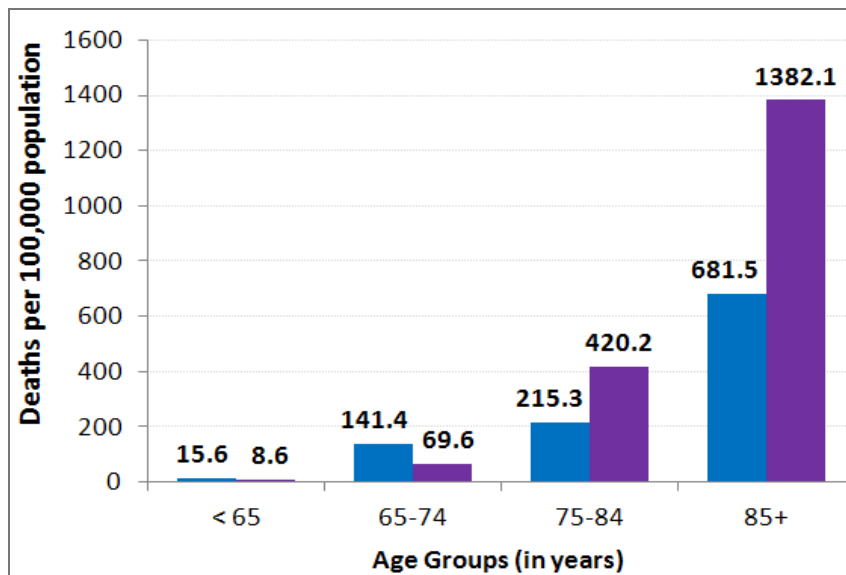
Rates of unintentional fall death are higher among black residents under 75 years old, and higher among white residents 75 years and older.

■ Black   ■ White

Data Sources: (1) Vital Records, DC DOH, 2009-2013*. (2) U.S. Census Bureau, Population Division, 2010.

28% of adults aged 65+ years had one or more nonfatal falls in the last year.

68%

39% of nonfatal falls among adults 65+ years caused an injury.

Most fatal injuries due to falls among elder adults, aged 65+ years, occur in the home.

Data Source: 2012 District of Columbia Behavioral Risk Factor Surveillance Survey.

Data Source: 2013 Elder Accidental Fall Report. DC Office of the Chief Medical Examiner.

What Can Be Done?

Promote Healthy Lifestyle

- Regular, home-based or group exercise reduces falls by improving strength and balance. Additionally, group activities promotes social interactions and in turn, overall wellbeing among older adults.
- DC Office on Aging Senior Wellness Centers provide resources and programs for DC resident seniors.

Medication Management

- Physicians or pharmacists should review individual, older adults' medications to identify any interactions or side effects such as dizziness or drowsiness, that could lead to falls.
- Monitor sedative, hypnotic and opioid drug prescribing patterns using PDMP at the DC DOH.

Technical Notes

This report presents DC resident death statistics according to a number of demographic and medical characteristics. The NCHS external cause-of-injury mortality matrix was used to group ICD-10 cause-of-death codes (U01-U03, V01-Y36, Y85-Y87, Y89) by mechanism and intent of injury. The matrix is advantageous for obtaining a comprehensive list of mechanisms, and for data to be displayed by mechanism with subcategories of intent, or vice versa. Further, the NCHS *List of 113 Selected Causes of Death*, focuses on the manner or intent, with subcategories for the mechanism.

The ICD-10 cause-of-injury death codes that were used in this report for are listed here by mechanism:

Mechanism	ICD-10 Codes
Poisoning	U01[.6-.7], X40-X49, X60-X69, X85-X89, Y10-Y19, Y35.2
Firearm	U01.4, W32–W34, X72–X74, X93–X95, Y22–Y24, Y35.0
Fall	W00-W19, X80, Y01, Y30
Motor Vehicle Traffic	V02–V04[.1,.9], V09.2, V12–V14[.3-.9], V19[.4–.6], V20–V28[.3–.9], V29–V79[.4–.9],V80[.3-.5], V81.1, V82.1, V83–V86[.0–.3], V87[.0–.8], V89.2

Population statistics used to calculate death rates were based on counts for the 2010 Census and subsequent annual population estimates as of July 1. The 2010 Census included an option for individuals to report more than one race as appropriate for themselves and household members. Data shown by race includes persons of Hispanic and non-Hispanic origin and are included in the totals for each race group, according to the decedent's race as reported on the death certificate.

Measures of mortality include death counts, proportions, and rates. Crude death rates and rates by age group or gender are on an annual basis per 100,000 estimated population. Death rates by race and age groups are deaths per 100,000 DC Census 2010 population, in a specified age and race group. Five-year death rates (2009-2013) were calculated using annual rates per 100,000 population in DC or U.S., respectively, and then the average of the rates was computed. Ward-specific death rates represent five-year averages of annual death counts per Ward, with the DC 2010 Census population by 2012 Ward boundaries as the denominator.

This report includes GIS maps with shading to indicate different rates or percentages. Four classes of Ward-specific mortality statistics in the map legend were determined using the ArcGIS "natural breaks" algorithm, in which like values are clustered together automatically. In addition, point locations of the top twenty, ranked most hazardous DC intersections for 2010 to 2012 were determined by DDOT's composite crash index which combines the rankings of crash rates, severity, and frequency. The intersections, listed in the DDOT *Traffic Safety Statistics Report (2010-2012),* were geocoded using the Office of the Chief Technology Officer's (OCTO's) Master Address Repository (MAR).

The DC death data may be affected by random variation, especially when the number of deaths is fewer than 100. Therefore, caution must be observed in interpreting statistics based on small numbers of deaths and when making comparisons to other populations.

References

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Abbreviations

ACS	American Community Survey
BRFSS	Behavioral Risk Factor Surveillance System
CDC	Centers for Disease Control and Prevention
CPPE	Center for Policy Planning and Evaluation
CT	Connecticut
DC	District of Columbia
DDOT	District Department of Transportation
DOH	Department of Health
FL	Florida
GA	Georgia
ICD-10	International Classification of Diseases, Tenth Revision
MA	Massachusetts
MD	Maryland
MPD	Metropolitan Police Department
MV	Motor Vehicle
NC	North Carolina
OCME	Office of the Chief Medical Examiner
OCTO	Office of the Chief Technology Officer
OH	Ohio
OSSE	Office of the State Superintendent of Education
PDMP	Prescription Drug Monitoring Program
PCP	Phencyclidine
SC	South Carolina
NCHS	National Center for Health Statistics
NHTSA	National Highway Transportation Safety Administration
NVSR	National Vital Statistics Reports
U.S.	United States
VA	Virginia
YRBS	Youth Risk Behavior Survey

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