



OPIOIDS

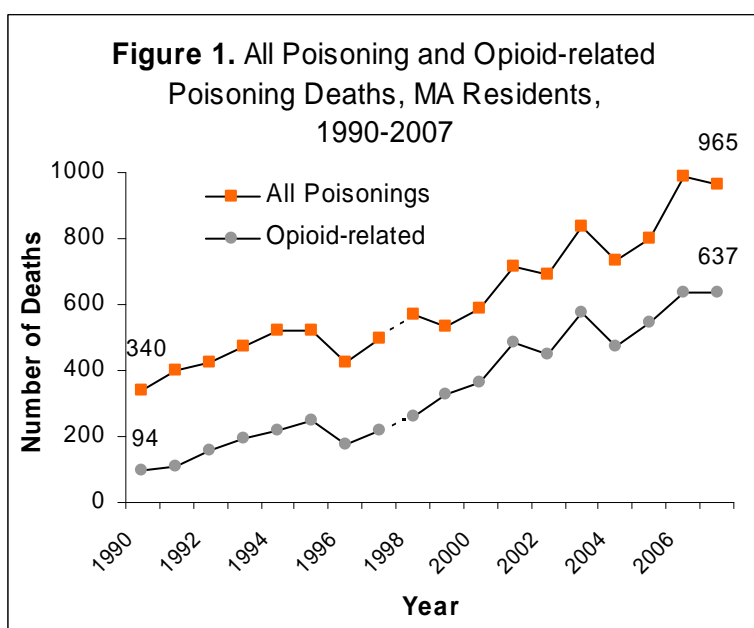
TRENDS AND CURRENT STATUS IN MASSACHUSETTS

Fatal Overdoses, Hospital Discharges, Emergency Department Visits & Treatment Services

Massachusetts Department of Public Health
Bureau of Health Information, Statistics, Research, and Evaluation and the Bureau of Substance Abuse Services

September 2009

OPIOID-RELATED POISONING DEATHS (OVERDOSES)¹



Source: Registry of Vital Records and Statistics, MDPH

WHAT ARE OPIOIDS?

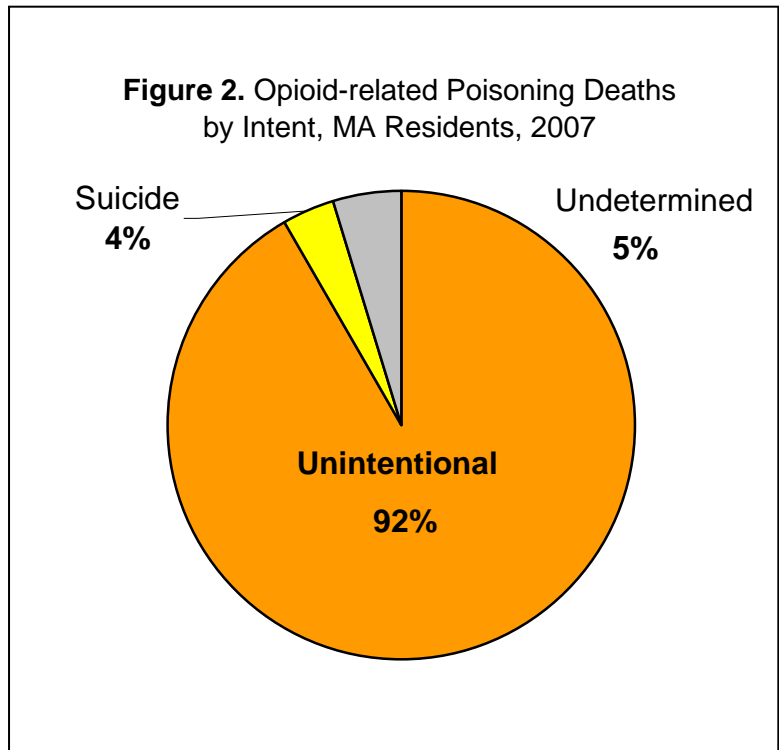
The term “opioid” designates a class of drugs derived from opium or manufactured synthetically with a chemical structure similar to opium. Heroin is a naturally derived opioid. Other opioids such as oxycodone (OxyContin®), fentanyl, morphine, meperidine, methadone, and codeine, are used therapeutically for the management of pain and other conditions. These products may be diverted from pharmaceutical purposes and used illicitly.

MAGNITUDE

- In 2007, deaths due to opioid-related overdoses (n=637) were over 6 times the number in 1990 (n=94).
- The crude rate for opioid-related poisoning deaths increased 156% between 1990 and 1998 (from 1.6 to 4.1 per 100,000), and 90.4% between 1999 and 2007 (from 5.2 to 9.9 per 100,000).
- For every one opioid-related fatal overdose in 2007, there were 47 nonfatal incidents treated at Massachusetts acute care hospitals.

INTENT

- In the vast majority (91.7%) of opioid-related poisoning deaths (Figure 2), the overdose was unintentional.
- Only 3.6% of these deaths were suicides.
- In 4.7% of opioid-related poisoning deaths, the intent of the overdose could not be determined.

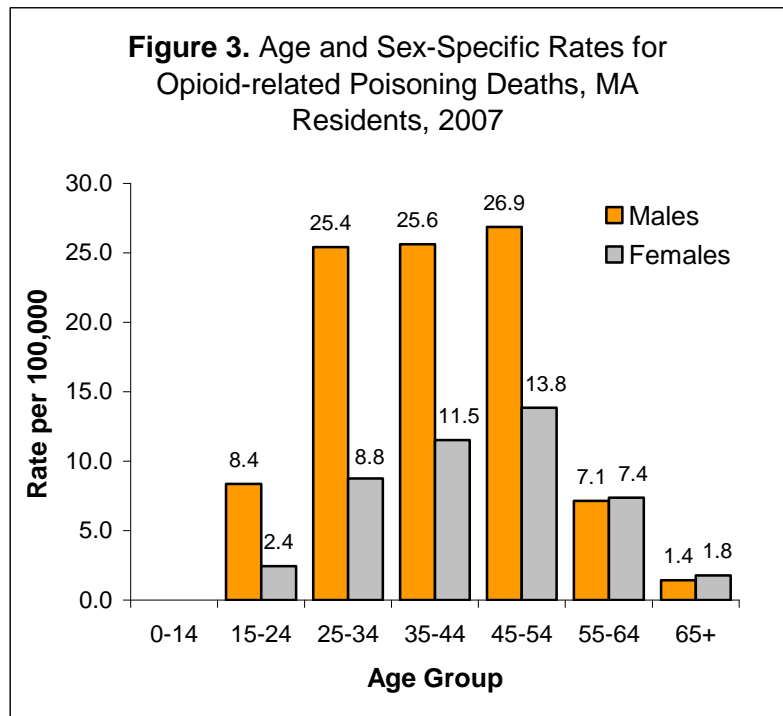


Source: Registry of Vital Records and Statistics, MDPH

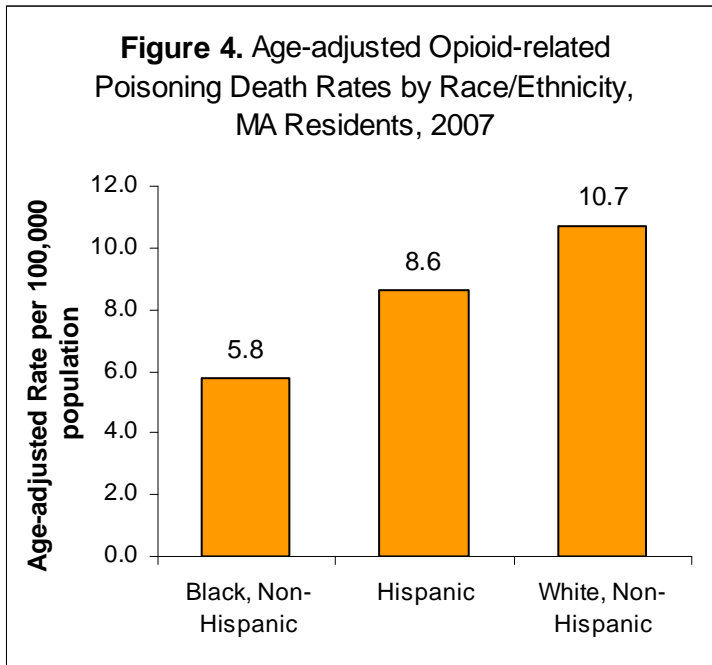
AGE GROUP AND SEX

- Between 1990 and 2007, rates for opioid-related deaths increased for both males and females and among all age groups.
- In 2007, fatal overdoses were highest among males and females ages 45 to 54 (26.9 and 13.8 per 100,000 respectively). The combined rate for this age group was 20.2 per 100,000.
- For ages 15 to 54, fatal overdoses were higher among males than females. In 2007, rates among males were 2.2 times higher than for females (13.6 and 6.3 per 100,000, respectively).
- Deaths among females* increased 150.0% between 1991 and 1998, and 117.2% between 1999 and 2007.
- Among males rates increased by 128.6% between 1990 and 1998, and by 76.6% between 1999 and 2007.

*Due to low case numbers in 1990, percentage increase was reported for rates beginning in 1991.



Source: Registry of Vital Records and Statistics, MDPH



Source: Registry of Vital Records and Statistics, MDPH

RACE AND ETHNICITY

- In 2007, fatal overdose rates were highest among White non-Hispanic (10.7 per 100,000, N=564) and Hispanic residents (8.6 per 100,000, N=44). Black, non-Hispanic residents had a rate of 5.8 per 100,000 (N=23). Other race/ethnicity including American Indian and Asian, Non-Hispanic accounted for six deaths.
- Age-specific rates were highest in the 45-54 year old age group for all racial/ethnic groups.

POISONING AGENTS

Overall in 2007, there were 965 poisoning deaths among Massachusetts residents. Of these, 804 were associated with one or more drugs that are commonly abused. These include opioids, cocaine, benzodiazepines, hallucinogens, cannabis, psychostimulants and ethanol. Different drug classes, combinations, and amounts taken, influence

how the body reacts. Understanding these differences is important for designing effective prevention and treatment programs.

Table 1 describes the frequency for poisoning deaths from 2003 through 2007 in which opioid/s were the only drugs identified as causing death, compared to opioid/s in combination with other commonly abused drugs, and to other commonly abused drugs without the presence of opioid/s.

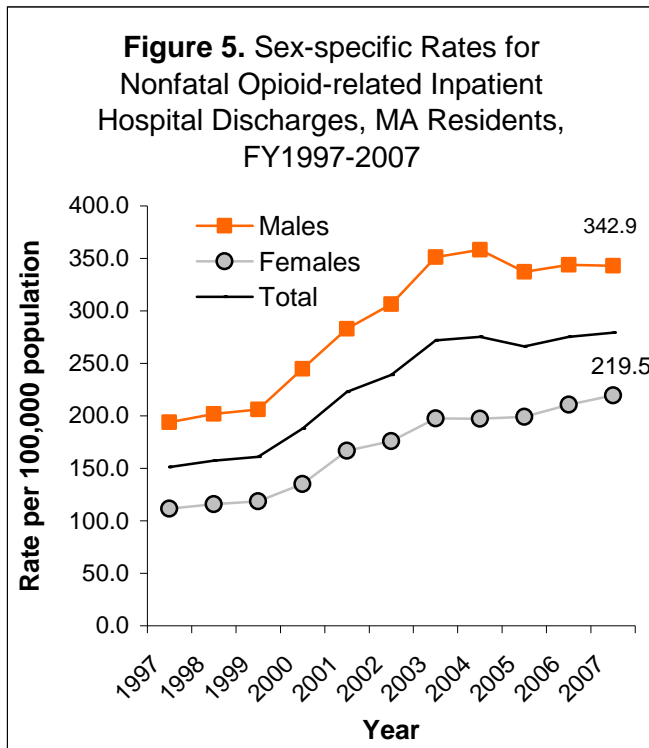
Table 1. Commonly Abused Substances, 2003-2007

Drugs Listed in Cause of Death	Year				
	2003	2004	2005	2006	2007
Opioid(s) alone	382	322	333	391	336
Opioid(s) + Other*	192	153	211	246	301
Other* without Opioid(s)	129	100	115	166	167
Total	703	575	659	803	804

* Other includes drugs frequently abused (excluding opioids) such as Cocaine, Benzodiazepines, Hallucinogens, Cannabis, Psychostimulants with abuse potential, and Ethanol.

- In 2007, 301 (47.3%) of the 637 opioid-related poisoning deaths involved one or more other frequently abused drugs. This was an increase from 33.4% of cases in 2003.
- Cocaine was noted as a contributing cause of death in 27.2% of opioid-related poisoning deaths. This was a slight decrease from 2003.
- The percent of opioid-related poisoning deaths that involved benzodiazepine(s) as a contributing cause of death increased from 1.6% in 2003 to 11.6% in 2007.

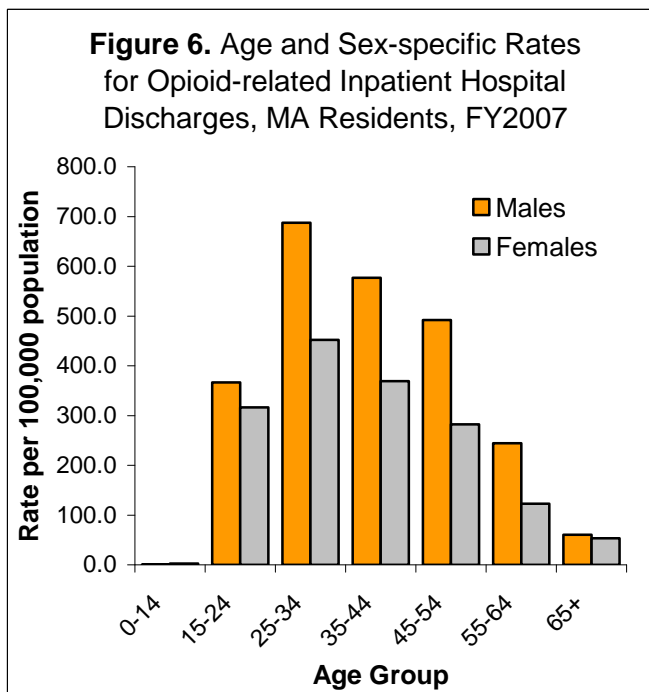
NON-FATAL OPIOID-RELATED INPATIENT HOSPITALIZATIONS²



Source: MA Hospital Discharge Database, MA Division of Health Care Finance and Policy

MAGNITUDE

- Rates of opioid-related inpatient hospital discharges have risen substantially since FY1997, increasing 84.6% from FY1997 to FY2007 (from 151.3 to 279.3 per 100,000)
- In FY2007, there were 18,015 nonfatal opioid-related hospital discharges among Massachusetts residents (279.3 per 100,000).
- Total charges for inpatient hospitalizations associated with opioid dependence, abuse, and/or overdose exceeded \$239 million in FY2007.
- Among males, rates increased 73.9% between FY1999 and FY2004 (from 206.0 to 358.3 per 100,000, and have since leveled off.
- Among females, rates increased 66.8% from FY1999 to FY2003 (from 118.5 to 197.7 per 100,000), and then increased another 11.3% from FY2004 to FY2007 (from 197.3 to 219.5 per 100,000).

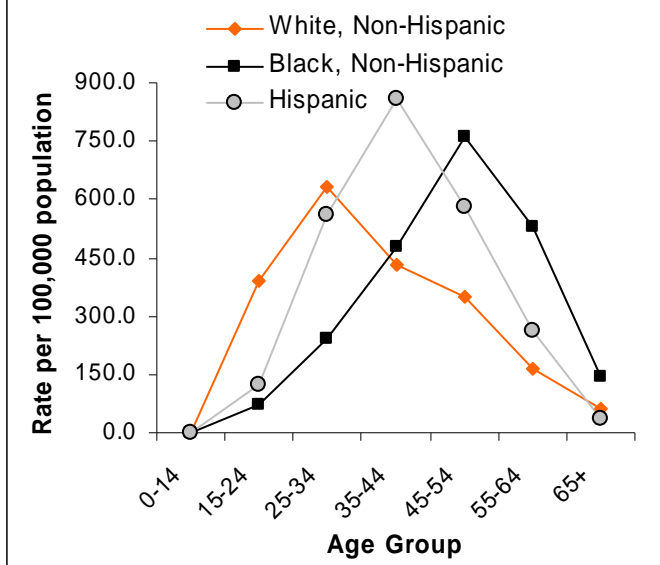


Source: MA Hospital Discharge Database, MA Division of Health Care Finance and Policy

AGE GROUP AND SEX

- In FY2007, the rate of opioid-related inpatient hospital discharges among males was 1.6 times higher than for females (342.9 and 219.5 per 100,000 respectively).
- Among both males and females, rates of opioid-related inpatient hospital discharges were highest among those 25-34 years of age (687.2 and 452.0 per 100,000, respectively)
- Males had higher rates of opioid-related inpatient hospital discharges than females for all age groups except 0-14. The largest disparity was among those aged 55-64, with males having rates 2.0 times that of females (244.5 and 122.8 per 100,000 respectively).

Figure 7. Age-specific Rates of Opioid-related Hospital Discharges by Race/Ethnicity, MA Residents, FY2007



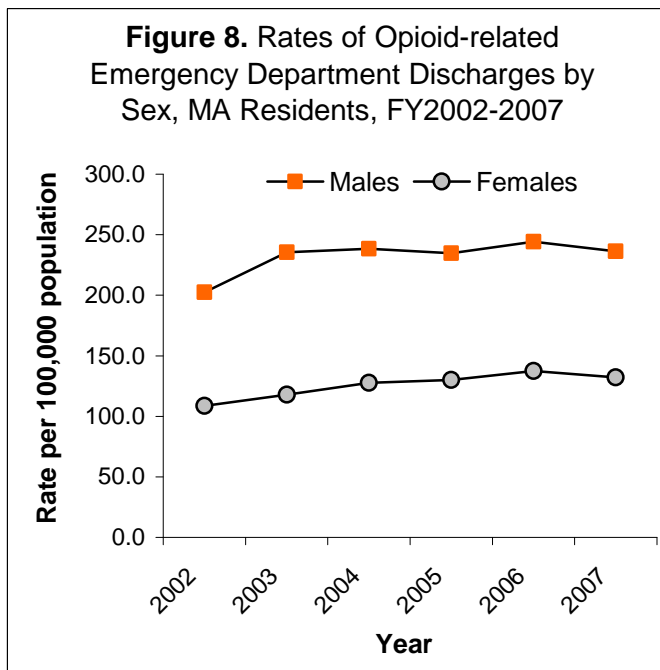
Source: MA Hospital Discharge Database, MA Division of Health Care Finance and Policy

RACE AND ETHNICITY

- Overall, Hispanics had a significantly higher rate of opioid-related hospital discharges than White, Non-Hispanics or Black, Non-Hispanics.
- In FY2007, age-specific rates varied substantially by race/ethnicity:
 - The highest rate among White, Non-Hispanics was in those 25-34 years of age (631.9 per 100,000).
 - Among Hispanics, those aged 35-44 (857.0 per 100,000).
 - For Black, Non-Hispanics, the highest rate was among those 45-54 years of age (760.8 per 100,000).

NON-FATAL OPIOID-RELATED EMERGENCY DEPARTMENT DISCHARGES³

Figure 8. Rates of Opioid-related Emergency Department Discharges by Sex, MA Residents, FY2002-2007

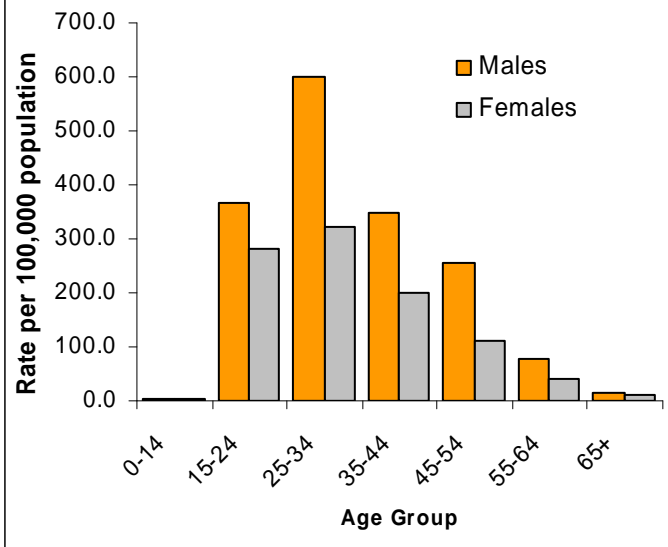


Source: MA Emergency Department Discharge Database, MA Division of Health Care Finance and Policy

MAGNITUDE

- Rates of opioid-related ED discharges increased 18.6% from FY2002 to FY2007.
- In FY2007, there were 11,777 opioid-related ED discharges among Massachusetts residents (182.6 per 100,000).
- Total acute care hospital charges associated with opioid-related ED discharges exceeded \$17 million.
- From FY2002 to FY2007, sex-specific rates increased 16.7% among males (202.5 to 236.3 per 100,000) and 21.5% among females (108.6 to 132.0 per 100,000).

Figure 9. Age and Sex-specific Rates of Opioid-related Emergency Department Discharges, MA Residents, FY2007

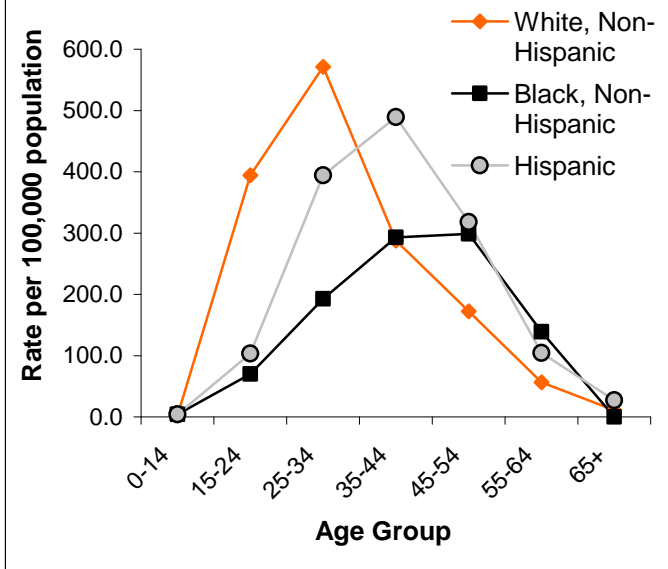


Source: MA Emergency Department Discharge Database, MA Division of Health Care Finance and Policy

AGE GROUP AND SEX

- In FY2007, the rate of opioid-related ED discharges among males was 1.8 times higher than for females (236.3 and 132.0 per 100,000 respectively).
- In FY2007, rates of opioid-related ED discharges were higher for males than females in every age group. The largest disparity in rates was among those 45-54 years of age, among whom males have a 2.3 times higher rate than females (253.9 and 110.7 per 100,000 respectively).
- Between FY2002 and FY2007, rates increased in most age groups. Among those 15-24 years of age, rates increased 31.9% for males (278.4 to 367.1 per 100,000) and 41.1% for females (200.1 to 282.3 per 100,000). Among those aged 25-34, rates increased 35.2% for males (444.8 to 601.2 per 100,000) and 29.2% for females (250.2 to 323.3 per 100,000). Among those 55-64 years of age, rates increased 81.8% for males (42.4 to 77.1 per 100,000) and 142.0% for females (16.9 to 40.9 per 100,000).

Figure 10. Age-specific Rates for Opioid-related Emergency Department Discharges by Race/Ethnicity, MA Residents, FY2007



Source: MA Emergency Department Discharge Database, MA Division of Health Care Finance and Policy

RACE AND ETHNICITY

- Overall, Black, Non-Hispanics had significantly lower rates of opioid-related ED discharges than White, Non-Hispanics or Hispanics.
- In FY2007, age-specific rates varied substantially by race/ethnicity:
 - The highest rate among White, Non-Hispanics was in those aged 25-34 (571.4 per 100,000).
 - For Hispanics, the highest rate was among those 35-44 years of age (489.0 per 100,000).
 - Among Black, Non-Hispanics, the highest rates were in 35-44 and 45-54 year olds (292.8 and 298.9 per 100,000 respectively).

TREATMENT AND PREVENTION⁴

The data presented here clearly demonstrate the need for treatment and prevention of opioid-related dependency as well as overdose prevention strategies. In 2007, there were 637 deaths -- nearly 2 per day -- and almost 30,000 nonfatal incidents treated as inpatient admissions or emergency department discharges.

According to the Department's Bureau of Substance Abuse Services (BSAS), there were 41,722 admissions in 2007 for publicly funded substance abuse treatment services among Massachusetts adults (ages 18 and over) who reported having used heroin in the year prior to admission.

PATIENT CHARACTERISTICS FOR ADULT HEROIN USERS, 2007

- 69.9% (n=29,173) of patients were male and 30.1% (n=12,549) were female.
- The mean age was 32.2 years.
- 76% of patients were White, 5.9% were Black, and 14.9% were Latino.
- 73.9% of patients reported injection drug use during the past year.
- 89.6% were unemployed, 28.4% were homeless, and 26.8% had received prior mental health treatment.

FOOTNOTES:

¹ A change in the coding of Massachusetts and national death data occurred in 1999 (from ICD-9 to ICD-10) and is represented on the graphic by a dotted line. The coding schemes may not be directly comparable across the two periods. Death data were therefore analyzed in two distinct periods. For additional information on data sources and methodology used in this bulletin please refer to Data Sources and Method Notes on page 8.

² Represents all acute-care hospitalizations where opioid abuse, dependence and/or poisoning was reported as one of the diagnoses at discharge. Data excludes hospitalizations at Veterans Affairs, psychiatric, rehabilitative, or long-term care facilities and deaths that occurred during hospitalization.

³ Represents all acute-care ED discharges where opioid abuse, dependence and/or poisoning was reported as one of the diagnoses at discharge. Data excludes ED discharges from Veterans Affairs, psychiatric, rehabilitative, or long-term care facilities and deaths that occurred during the visit. Trends are reported from 2002 onward.

⁴ MA DPH Bureau of Substance Abuse Services Management Information System (SAMIS) includes data provided by all BSAS licensed substance abuse treatment programs. Data reflect admissions, not patients. Patients can have multiple admissions.

DATA SOURCES AND METHOD NOTES

Data Sources:

Deaths to Massachusetts Residents:

MA Registry of Vital Records and Statistics, MA Department of Public Health.

Statewide Acute-care Hospitalizations:

MA Inpatient Hospital Discharge Database, MA Division of Health Care Finance and Policy. Data reported are for fiscal years (October 1 - September 30). Deaths occurring during the hospital stay were excluded except when calculating charges. All hospitalizations and charges discussed refer to acute care hospitals.

Statewide Emergency Department Visits at Acute-care Hospitals:

MA Emergency Department Discharge Database, MA Division of Health Care Finance and Policy.

Data reported are for fiscal years (October 1 – September 30). Deaths occurring during the visit were excluded except when calculating charges.

Statewide Substance Abuse Treatment Data:

Bureau of Substance Abuse Services Management Information System (SAMIS), MA Department of Public Health.

Population Data:

Population numbers used to calculate rates include estimates provided by the Massachusetts Institute for Social and Economic Research (1995-1998 data), DPH estimates for 1999, the U.S. 2000 Census file, and annual estimates provided by the U.S. Census Bureau (2001-2007 data).

Method Notes:

Opioid-related poisoning deaths (overdoses) were defined using the International Classification of Disease (ICD) codes for mortality; ICD-9 for 1995-1998 and ICD-10 for 1999-2005. The underlying cause field in the death file was used to ascertain a poison death (ICD-9 poison codes: E850-E858, E860-E869, E950-E952, E962, E980, E981, E982, and E972) and (ICD-10 poison codes: X40-X49, X60-X69, Y10-Y19, and Y85-X90). All multiple cause of death fields were then used to identify an opioid-related death (ICD-9 code 965.0 and ICD-10 codes: T40.0, T40.1, T40.2, T40.3, T40.4, and T40.6).

Opioid-related inpatient hospital discharges and emergency department visits, which include opioid abuse, dependence and/or poisoning, were defined using the International Classification of Disease Version 9 Clinical Modification (ICD-9-CM) codes for morbidity. All diagnostic fields were used to identify an opioid-related case (ICD-9-CM codes 965.0, 304.0, 304.7, and 305.5).

All rates are per 100,000 residents. Rates for age group and sex are age and sex-specific rates, rates for racial and ethnic groups are age-adjusted, all other rates are crude.

RESOURCES

Massachusetts Department of Public Health
Bureau of Substance Abuse Services
250 Washington Street, 3rd Floor
Boston MA, 02108
Tel. (617) 624-5111
Fax (617) 624-5185
TTY (617) 536-5186
www.mass.gov/dph/bsas/BSAS.htm

Massachusetts Department of Public Health
Injury Surveillance Program
250 Washington Street, 6th Floor
Boston MA, 02108
Tel. (617) 624-5648
Fax (617) 624-5099
www.mass.gov/dph/bhsre/isp/isp.htm

Regional Center for Poison Control and Prevention
Serving Massachusetts and Rhode Island
Children's Hospital Boston
300 Longwood Avenue, IC Smith Building
Boston, MA 02115
Tel. (617) 355-6609
Fax (617) 730-0521
Rhode Island Educator: (401) 222-3425
In an Emergency, call 1-800-222-1222
www.maripoisoncenter.com

Massachusetts Department of Public Health
Injury Prevention and Control Program
250 Washington Street, 6th Floor
Boston MA, 02108
Tel. (617) 624-5413
Fax (617) 624-5075
TTY (617) 624-5992
www.mass.gov/dph/fch/injury/index.htm

Substance Abuse and Mental Health
Services Administration
www.samhsa.gov
Center for Substance Abuse Prevention
Tel. (301) 443-0365
www.samhsa.gov/centers/csap/csap.html
Center for Substance Abuse Treatment
Tel. (301) 443-5700

National Clearinghouse for Alcohol and Drug Information (NCADI)
Tel. 1-800-729-6686

Massachusetts Community Health Information
Profile (MassCHIP)
<http://masschip.state.ma.us/>
Tel. 1-888-MAS-CHIP
(in Massachusetts)

FOR INFORMATION ON SUBSTANCE TREATMENT AND SERVICES

CONTACT

The Department's
Bureau of Substance Abuse Services
on-line at

<http://www.mass.gov/dph/bsas>

(OR)

CALL

The MA Substance Abuse Information and
Education

**HELPLINE @
1-800-327-5050**