Chapter 10:
Substance Abuse

Substance Abuse

Substance abuse involves the excessive use of alcohol or illicit substances (e.g., marijuana, cocaine, heroin, methamphetamine, ecstasy), or the use of licit substances (e.g., prescription drugs such as Vicodin and OxyContin) in a non-prescribed manner to achieve an altered physiological state.

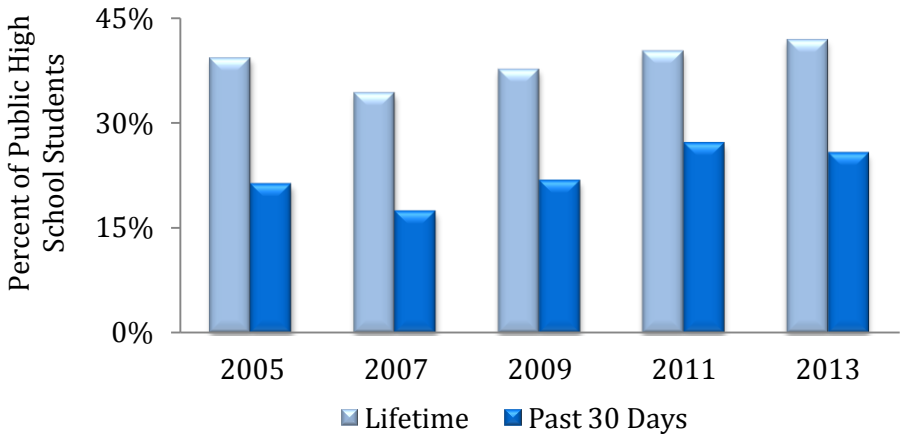
In 2012, an estimated 22.2 million people ages 12 or older were classified with substance dependence or abuse in the United States (1). A person is said to have an addiction to a substance when the nature and intensity of the cravings for the substance contributes to a pattern of unhealthy or self-destructive behaviors in order to satisfy the perceived need for the substance. Individual-level risk factors such as socioeconomic status, family history, incarceration, and stressful life events (e.g., psychological distress, death of a loved one) are associated with drug use (2). Increasingly, evidence suggests that social factors may contribute to one's decision to initiate drug use and shape other substance use behaviors (3). For example, the lack of a supportive social network or circumstances related to neighborhood poverty may influence substance use behaviors (3).

Abuse of alcohol or other drugs over time can lead to physical and/or psychological dependence on these substances, despite negative consequences. Substance abuse alters judgment, perception, attention, and physical control (4), which can lead to the repeated failure to fulfill responsibilities and increase social and interpersonal problems (5). There is a substantial increased risk of morbidity and death associated with alcohol and drug abuse (3). The effects of substance abuse are cumulative, significantly contributing to costly social, physical, mental, and public health problems. These problems include: teenage pregnancy, human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), other sexually transmitted infections (STIs), domestic violence, child abuse, motor vehicle crashes, physical fights, crime, homicide, and suicide (4).

Depending on the substance(s) involved, treatment of substance abuse and addiction may include medications, behavioral treatments, or a combination of both. A doctor, substance abuse counselor, or other health professional can determine the right treatment for an individual (6).

From 2005 to 2013, there was an increase in the percentage of Boston public high school students who reported using marijuana within the past 30 days. Lifetime use of marijuana during this same period did not change significantly.

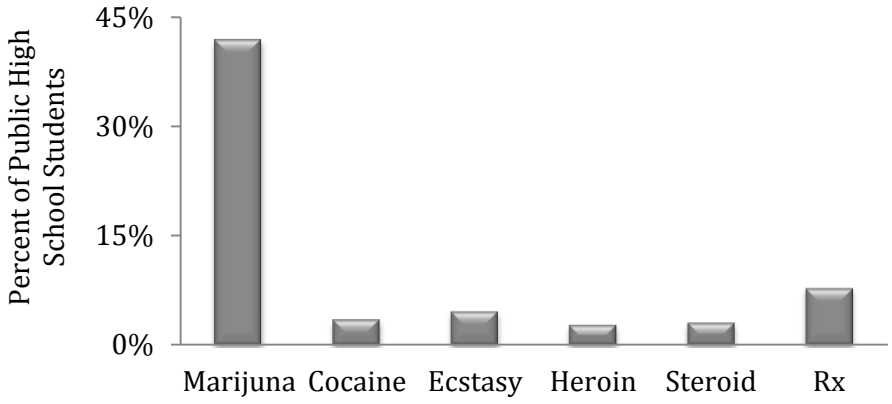
Figure 10.1 Lifetime and Past 30 Day Use of Marijuana by Public High School Students by Year



	2005	2007	2009	2011	2013
Lifetime Use	39.3% (35.6-43.0)	34.3% (31.1-37.6)	37.7% (33.7-41.6)	40.3% (36.9-43.7)	41.9% (37.6-46.2)
Past 30 Days Use	21.2% (18.8-23.7)	17.4% (15.0-19.8)	21.7% (18.6-24.8)	27.0% (24.1-30.0)	25.6% (22.0-29.2)

DATA SOURCE: Youth Risk Behavior Survey (2005, 2007, 2009, 2011 and 2013), Centers for Disease Control and Prevention

Figure 10.2 Lifetime Drug Use Among Public High School Students by Type, 2013

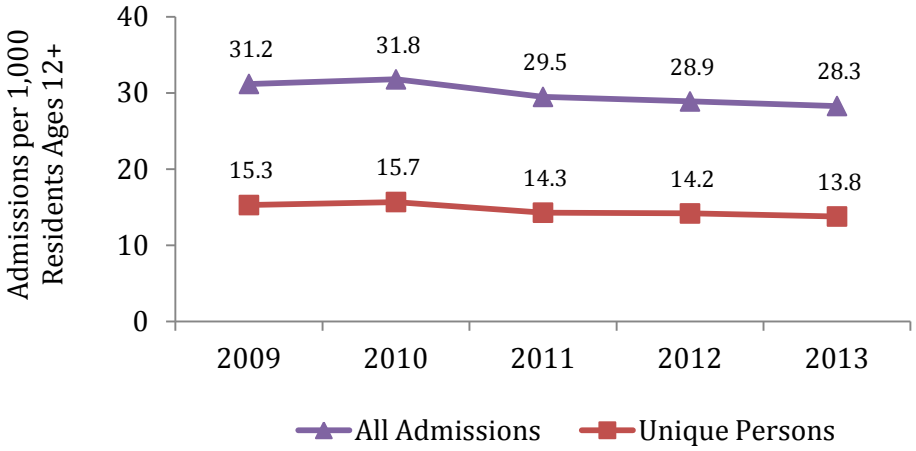


In 2013, 42% of Boston public high school students reported ever having used marijuana during their lifetime. Rx (prescription drugs used without a prescription or not as prescribed) and ecstasy (MDMA) were the next most commonly tried drugs among public high school students.

Marijuana	Cocaine	Ecstasy	Heroin	Steroid	Rx
41.9% (37.5-46.3)	3.5% (2.0-5.0)	4.6% (3.3-6.0)	2.8% (1.5-4.1)	3.1% (2.0-4.3)	7.8% (6.0-9.6)

DATA SOURCE: Youth Risk Behavior Survey (2005, 2007, 2009, 2011 and 2013), Centers for Disease Control and Prevention

Figure 10.3 Treatment Admissions by Year*



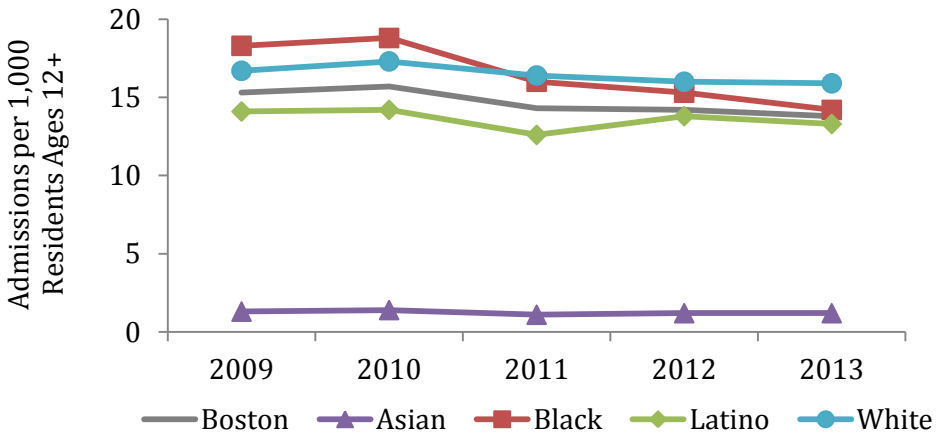
*Age-adjusted rates

DATA SOURCE: Bureau of Substance Abuse Services, Massachusetts Department of Public Health

The rate of total substance abuse treatment admissions (alcohol and/or drugs) among Boston residents decreased significantly from 31.2 admissions per 1,000 residents 12 years of age and older in 2009, to 28.3 admissions in 2013. The rate of unique-person admissions also decreased significantly.

Between 2009 and 2013, unique-person substance abuse treatment admission rates varied by race/ethnicity. In 2013, rates for Asian, Black, and Latino residents were significantly lower than for White residents.

Figure 10.4 Unique-Person Treatment Admissions by Race/Ethnicity and Year*

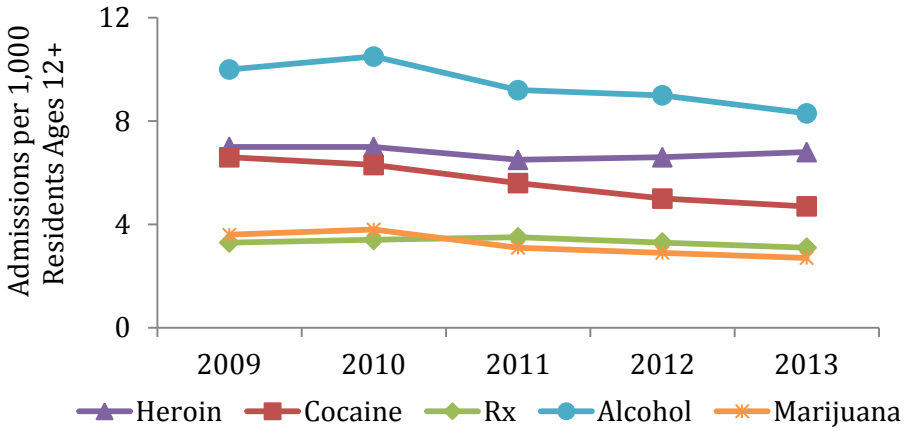


*Age-adjusted rates

DATA SOURCE: Bureau of Substance Abuse Services, Massachusetts Department of Public Health

In 2013, unique-person treatment admission rates for substances identified as primary, secondary, or tertiary drugs of abuse were highest for alcohol, followed by heroin, and cocaine. For heroin, cocaine, prescription drugs, alcohol, and marijuana, unique treatment admission rates decreased significantly between 2009 and 2013.

Figure 10.5 Unique-Person Treatment Admissions* by Drug† and Year

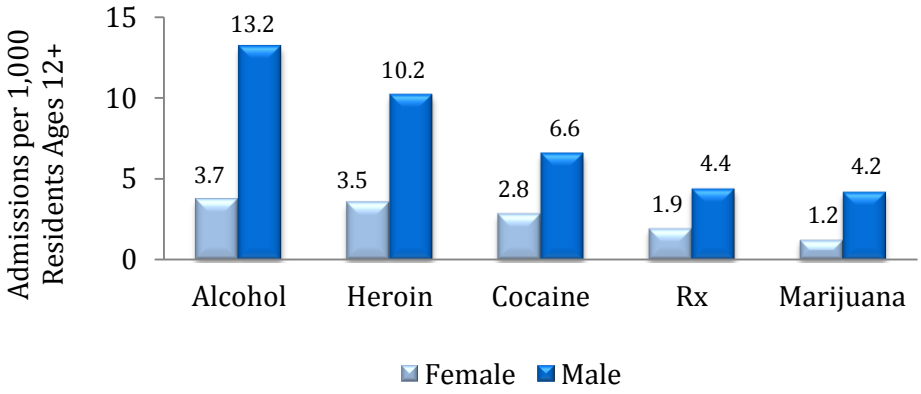


*Age-adjusted rates

†Self-identified as primary, secondary, or tertiary drug of abuse.

DATA SOURCE: Bureau of Substance Abuse Services, Massachusetts Department of Public Health

Figure 10.6 Unique-Person Treatment Admissions* by Drug† and Gender, 2013



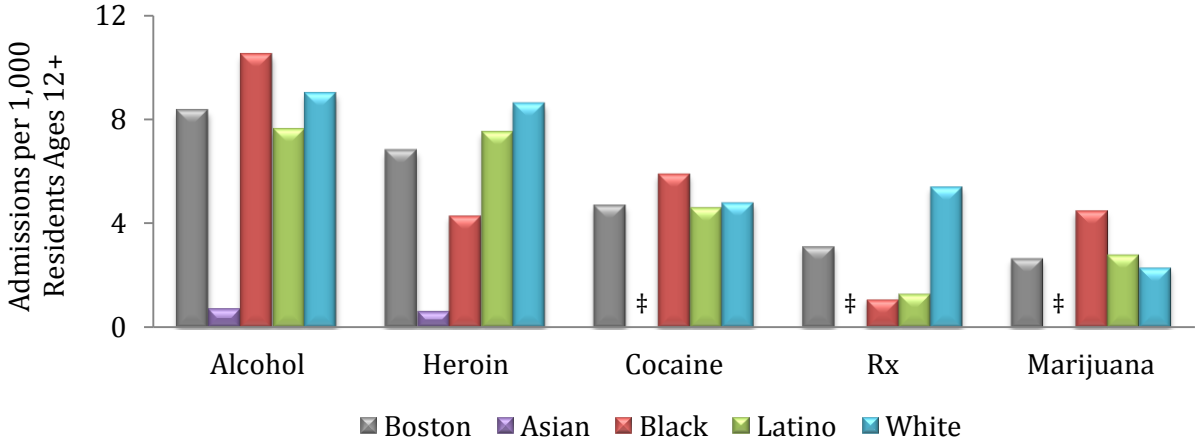
*Age-adjusted rates

†Self-identified as primary, secondary, or tertiary drug of abuse.

DATA SOURCE: Bureau of Substance Abuse Services, Massachusetts Department of Public Health

In 2013, the average age of Boston residents admitted for substance abuse treatment varied by type of drug. The highest average age was 39.3 years, for clients citing alcohol as a primary, secondary, or tertiary drug of abuse (data not shown). Treatment admission rates for individuals were also different by gender. Unique-person treatment admission rates for males were significantly higher than females for alcohol, heroin, cocaine, prescription drugs, and marijuana.

Figure 10.7 Unique-Person Treatment Admissions* by Drug† and Race/Ethnicity, 2013



*Age-adjusted rates

†Self-identified as primary, secondary, or tertiary drug of abuse

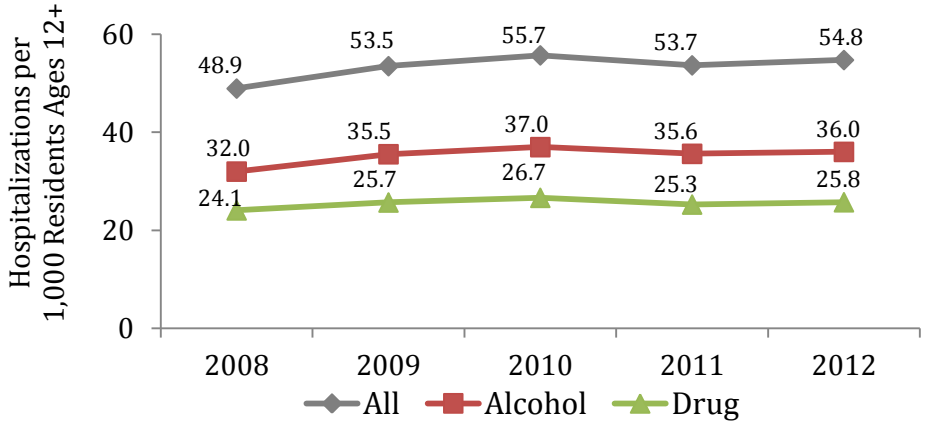
‡ Rates are not presented for Asian residents for cocaine, Rx, and marijuana due to the small number of cases

DATA SOURCE: Bureau of Substance Abuse Services, Massachusetts Department of Public Health

In 2013, unique-person treatment admission rates for alcohol were significantly higher for Black residents compared to White residents, but rates were significantly lower for Asian and Latino residents compared to White residents. Unique-person treatment admission rates for heroin were significantly lower for Asian, Black, and Latino residents compared to White residents. Rates for prescription drugs were significantly lower for Black and Latino residents compared to White residents. Rates for cocaine were significantly higher for Black residents compared to White residents as were rates for marijuana. Additionally, rates for marijuana were significantly higher for Latino residents compared to White residents.

Substance abuse hospital patient encounters rates (including emergency department visits, observational stays, and inpatient hospitalizations) significantly increased from 48.9 hospitalizations per 1,000 residents in 2008 to 54.8 hospitalizations per 1,000 in 2012. In 2012, there were more hospitalizations for alcohol abuse than drug abuse.

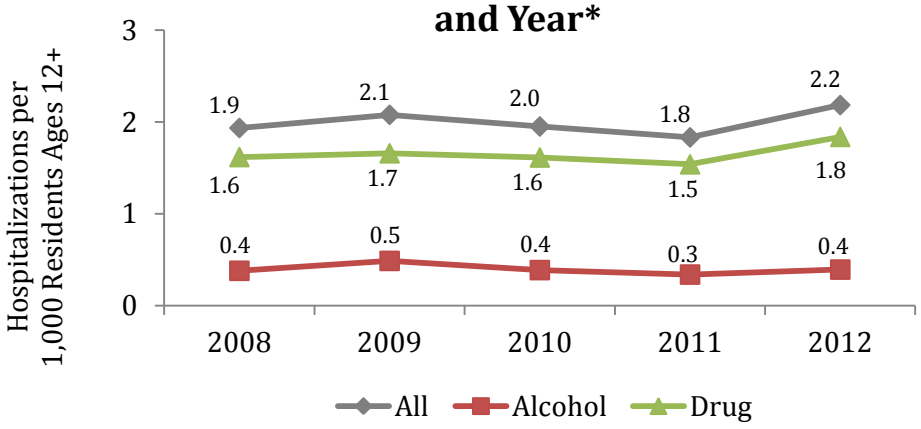
Figure 10.8 Substance Abuse Hospital Patient Encounters by Type (Overall, Alcohol, Drug) and Year*



*Includes emergency department visits, observational stays and inpatient hospitalizations; Age-adjusted rates

DATA SOURCE: Acute Hospital Case Mix Databases, Massachusetts Center for Health Information and Analysis

Figure 10.9 Unintentional Overdose/Poisoning Hospital Patient Encounters by Type (Overall, Alcohol, Drug) and Year*

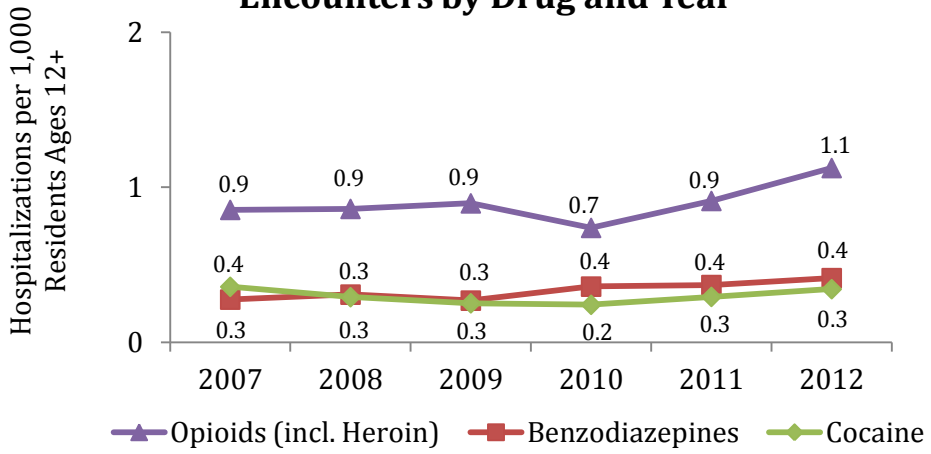


*Includes emergency department visits, observational stays and inpatient hospitalizations; Age-adjusted rates

DATA SOURCE: Acute Hospital Case Mix Databases, Massachusetts Center for Health Information and Analysis

Unintentional overdose/poisoning hospital patient encounter rates significantly increased among Boston residents from 2008 to 2012. There were fewer unintentional alcohol related overdose/poisoning hospital patient encounters than drug related.

Figure 10.10 Unintentional Overdose/Poisoning Hospital Patient Encounters by Drug and Year*

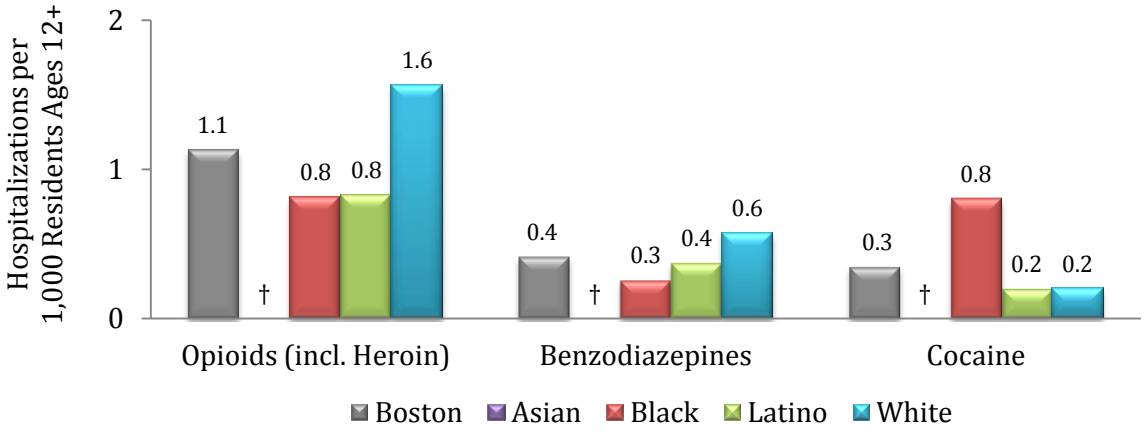


*Includes emergency department visits, observational stays and inpatient hospitalizations; Age-adjusted rates

DATA SOURCE: Acute Hospital Case Mix Databases, Massachusetts Center for Health Information and Analysis

From 2007 to 2012, unintentional overdose/poisoning hospital patient encounter rates among Boston residents significantly increased for opioids (incl. heroin) and for benzodiazepines. There was no significant change over time in the hospital patient encounter rate for cocaine.

Figure 10.11 Unintentional Overdose/Poisoning Hospital Patient Encounters by Drug and Race/Ethnicity*, 2012



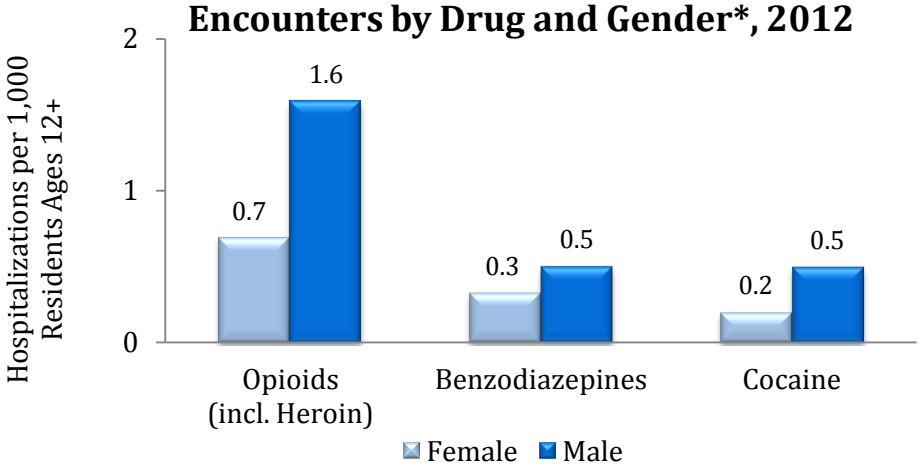
*Age-adjusted rate

†Rates are not presented for Asian residents for opioids (incl. heroin), benzodiazepines, or cocaine due to the small number of cases.

DATA SOURCE: Acute Hospital Case Mix Databases, Massachusetts Center for Health Information and Analysis

In 2012, unintentional overdose/poisoning hospital patient encounter rates for opioids (incl. heroin) and for benzodiazepines were significantly lower for Black residents and Latino residents compared to White residents. The rate for cocaine was significantly higher for Black residents compared to White residents.

Figure 10.12 Unintentional Overdose/Poisoning Hospital Patient Encounters by Drug and Gender*, 2012



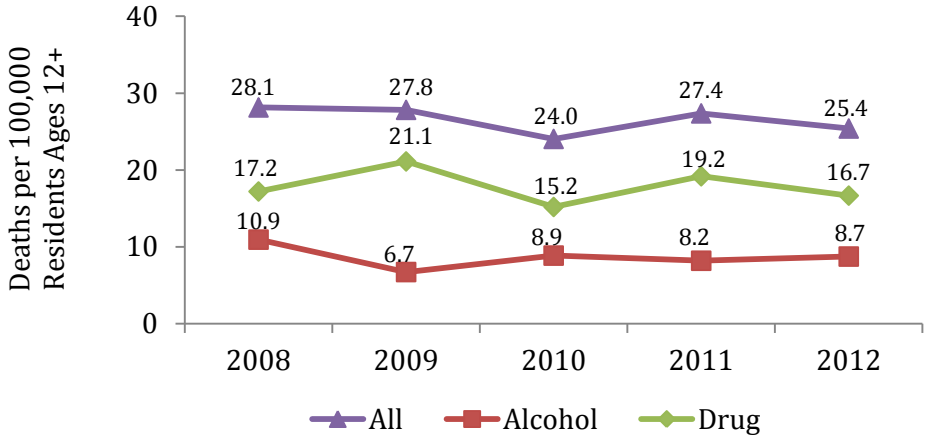
*Age-adjusted rate

DATA SOURCE: Acute Hospital Case Mix Databases, Massachusetts Center for Health Information and Analysis

In 2012, the average age of Boston resident hospital patient encounters for unintentional overdose/poisoning differed depending on the type of drug. The highest average age was 44.9 for residents seen for cocaine overdose/poisonings, followed by 43.6 for benzodiazepines and 40.0 for opioids (including heroin) (data not shown). The rates for all three drug types were higher for males than for females.

The overall substance abuse age-adjusted mortality rate for Boston residents was 28.1 deaths per 100,000 residents in 2008 and 25.4 deaths in 2012. However, there was no significant decrease in rates between 2008 and 2012. Also, there was no significant decrease in mortality rates for alcohol and for drugs separately.

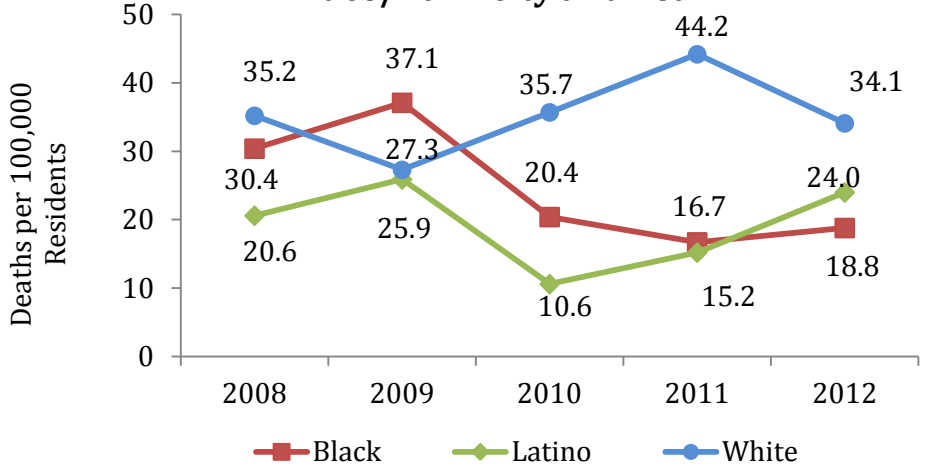
Figure 10.13 Substance Abuse Deaths by Type (Overall, Alcohol, Drug) and Year*



*Age-adjusted rates

DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health

Figure 10.14 Substance Abuse Deaths by Race/Ethnicity and Year*



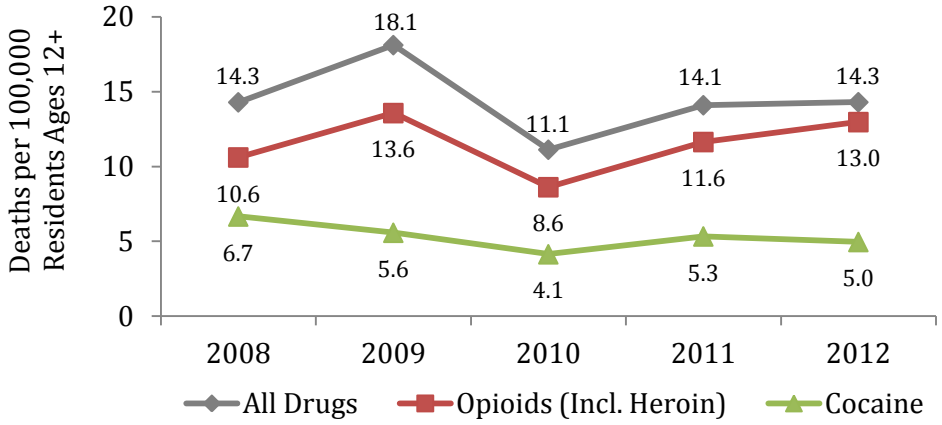
*Age-adjusted rates per 100,000 residents 12 years of age and older

NOTE: Asian residents death rates cannot be presented as the number of deaths for each year was too few to present a rate.

DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health

From 2008 to 2012, the overall substance abuse age-adjusted mortality rate for Black Boston residents decreased significantly, from 30.4 deaths per 100,000 residents in 2008 to 18.8 deaths in 2012. There was no significant change in the White and Latino rates between 2008 and 2012.

Figure 10.15 Unintentional Drug Overdose Deaths by Drug and Year*

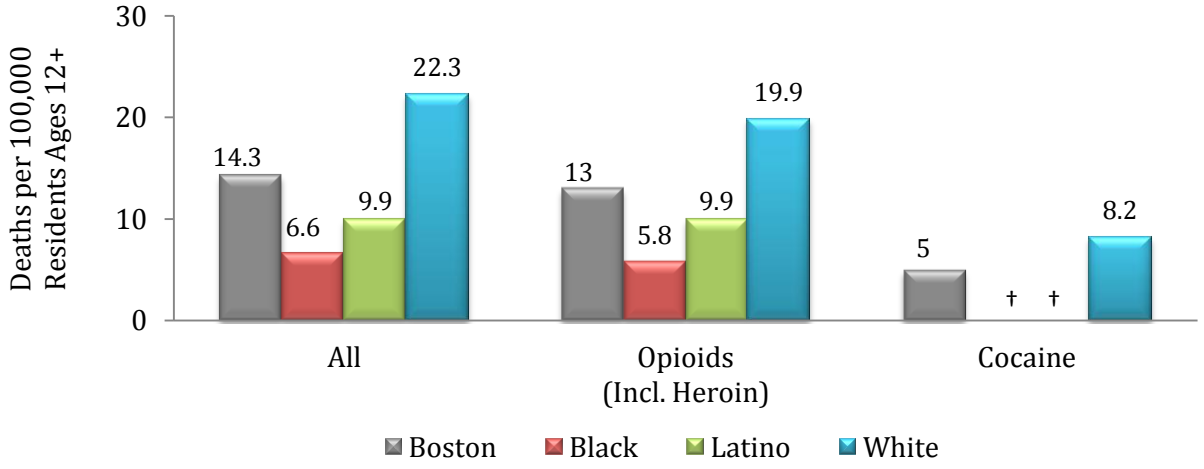


*Age-adjusted rates

DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health

The unintentional drug overdose death rate for Boston residents ages 12 and older fluctuated between 2008 and 2012, from 14.3 deaths per 100,000 residents in 2008 to 18.2 in 2009, and then back to 14.3 in 2012. However, overall there was no significant trend in unintentional drug overdose rates in Boston between 2008 and 2012. The same is true for rates specific for cocaine and opioids (incl. heroin).

Figure 10.16 Unintentional Drug Overdose Deaths by Drug and Race/Ethnicity*, 2012



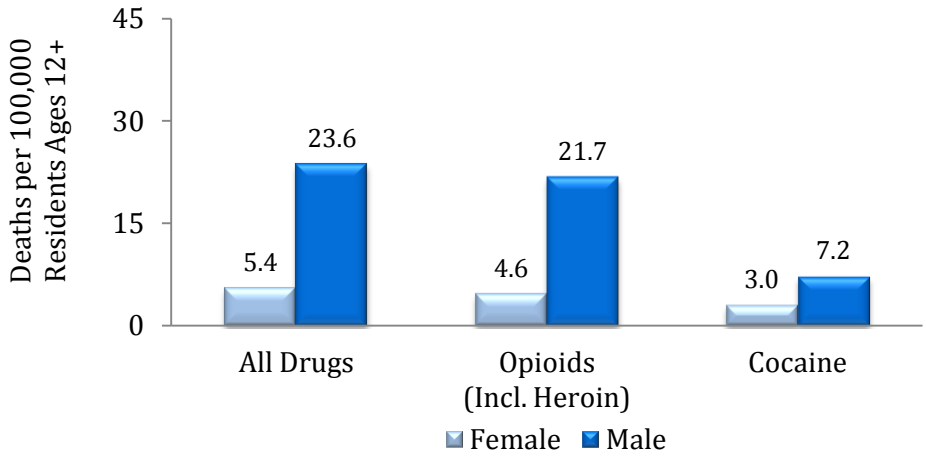
*Age-adjusted rates

†Rates are not presented for Asian by drug, and for Black and Latino in cocaine overdose mortality due to the small number of cases.

DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health

In 2012, the overall and opioid unintentional drug overdose mortality rates were significantly lower for Black residents than for White residents. Overall unintentional drug overdose mortality rates were significantly lower for Latino residents than for White residents.

Figure 10.17 Unintentional Drug Overdose Deaths by Drug and Gender*, 2012



*Age-adjusted rates

DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health

The average age for unintentional drug overdose mortality was 43.3. However, for opioids (including heroin) and for cocaine, the average ages were 42.3 and 42.6, respectively (data not shown). The unintentional overdose mortality rate for opioids, cocaine, and all drugs combined for females was lower than for males.

References

1. Substance Abuse and Mental Health Services . Results from the 2012 National Survey on Drug Use and Health: Summary of National Findings. Rockville : s.n., 2013.

2. Drug Use, Misuse and the Urban Environment. Galea, S., Rudenstine, S. and Vlahov, D. 2, s.l. : Drug and Alcohol Review, 2005, Vol. 24.

3. The Social Epidemiology of Substance Use. Galea, S., Nandi, A. and Vlahov, D. 1, s.l. : Epidemiologic Reviews, 2004, Vol. 26.

4. Center for Substance Abuse Treatment. Substance Abuse Treatment for Persons With Co-Occurring Disorders. Rockville : Substance Abuse and Mental Health Services Administration (US), 2005.

5. WebMD. Substance Abuse. Mental Health Center. [Online] [Cited: January 29, 2014.] http://www.webmd.com/mental-health/substance-abuse.

6. National Institute on Aging. Prescription and Illicit Drug Abuse. [Online] [Cited: January 29, 2014.] http://nihseniorhealth.gov/drugabuse/treatingsubstanceabuse/01.html.