

A photograph of a man and a woman sitting together in what appears to be a clinical or counseling setting. The man, in the center, is wearing a light blue t-shirt and has a tattoo on his left forearm. He is looking down at his hands, which are clasped together. The woman, on the left, is wearing a grey sweater and has her hand near her face, looking towards the man. The background is softly blurred, showing some greenery and a white chair.

# Chapter 14

## Substance Use Disorders



# Substance Use Disorders

Substance misuse and substance dependence are classified as substance use disorders. In 2015, an estimated 20.8 million people ages 12 or older were classified with substance dependence or misuse 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 with the purpose of satisfying the perceived need for the substance. Individual-level risk factors such as socioeconomic status, family history, incarceration, and stressful life events are associated with drug use (2). Increasingly, evidence suggests that the social determinants of health 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). Additionally, addiction is a chronic neurological disorder and needs to be treated as other chronic conditions (4).

## Substance use disorders and mental health

In 2015, among the 19.6 million adults ages 18 years and over in the U.S. who experienced a substance use disorder, 41% also had had a mental illness in the past year (1). Causality and connection cannot always be proved; however, research shows that some mental illnesses are risk factors for substance use disorders (5). Some of the same areas that are disrupted in the brain due to mental illnesses are also disrupted due to changes in the brain caused by substance use disorders (5). Additionally, people will often use substances as self-medication for their mental illness which can result in substance misuse (5).

## Connection to physical health

Misuse of alcohol or other drugs over time can lead to physical and/or psychological dependence on these substances, despite negative consequences. Substance misuse alters judgment, perception, attention, and physical control (6), which can lead to the repeated failure to fulfill responsibilities and can increase social and interpersonal problems (7). There is a substantially increased risk of morbidity and death associated with alcohol and drug misuse (3). The effects of substance misuse are cumulative, significantly contributing to costly social, physical, mental, and public health challenges. Examples of these include domestic violence, child abuse, motor vehicle crashes, physical fights, crime, homicide, suicide, human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), and other sexually transmitted infections (6). Substance misuse can also impact one's social determinants of health, such as employment, income, social network, and housing (4).

## Fentanyl and opioids

The U.S. drug overdose death rate was 16.3 per 100,000 population in 2015 with 18% of all drug overdose deaths in 2015 involving synthetic opioids other than methadone (i.e. pain relievers including fentanyl) (8). Fentanyl is a strong synthetic (man-made) opioid often used as a cutting agent (i.e., adulterant) in combination with other drugs sold on the street (9). The rate of drug overdose deaths involving synthetic opioids other than methadone increased by 72% from 1.8 in 2014 to 3.1 in 2015 (10). Massachusetts residents experienced a 109% increase in the rate of drug overdose deaths involving synthetic opioids other than methadone from 6.9 in 2014 to 14.4 in 2015 (10).

From January to September of 2016, opioid overdose deaths among Massachusetts residents occurred disproportionately more often among White residents and males. Seventy-four percent of the population were White residents, yet White residents made up 82% of opioid deaths. Forty-eight percent of the population were male, yet males comprised 75% of opioid deaths. Additionally, nearly two-thirds of opioid overdose deaths were among residents under age 45, yet deaths in this age group account for only 6% of deaths overall (11). The number of fentanyl-related deaths in Massachusetts continues to increase. Among the 1,374 residents in Massachusetts whose deaths in 2016 were opioid-related and where a toxicology screen was also available, 1,031 of them (75%) had a positive screen result for fentanyl (12).

## Substance misuse response and treatment

In November 2016, the U.S. Department of Health and Human Services released a call to action report, "Facing Addiction in America: The Surgeon General's Report on Alcohol, Drugs, and Health", which asks Americans to "change the way we address substance misuse and substance use disorders in our society. Now is the time to acknowledge that these disorders must be addressed with compassion and as preventable and treatable medical conditions" (4). Reflecting these sentiments, the response to the current opioid epidemic, which disproportionately impacts White residents has been quite different than the response to the past crack cocaine epidemic, which disproportionately impacted communities of color. The crack cocaine epidemic was predominately managed with a "War on Drugs" approach, which included a heavy criminal justice response, while the current opioid epidemic is being addressed with increased funding for prevention, intervention, treatment, rehabilitation, and recovery (12-15).



In 2015, it was estimated that of the individuals who needed treatment for substance use disorders in the U.S., 89% did not receive treatment (16). While Massachusetts has services to treat substance use disorders, there are many barriers to accessing these services. The 2015 report "Access to Substance Use Disorder Treatment in Massachusetts" describes barriers that exist for those who need treatment (17). These barriers to treatment include:

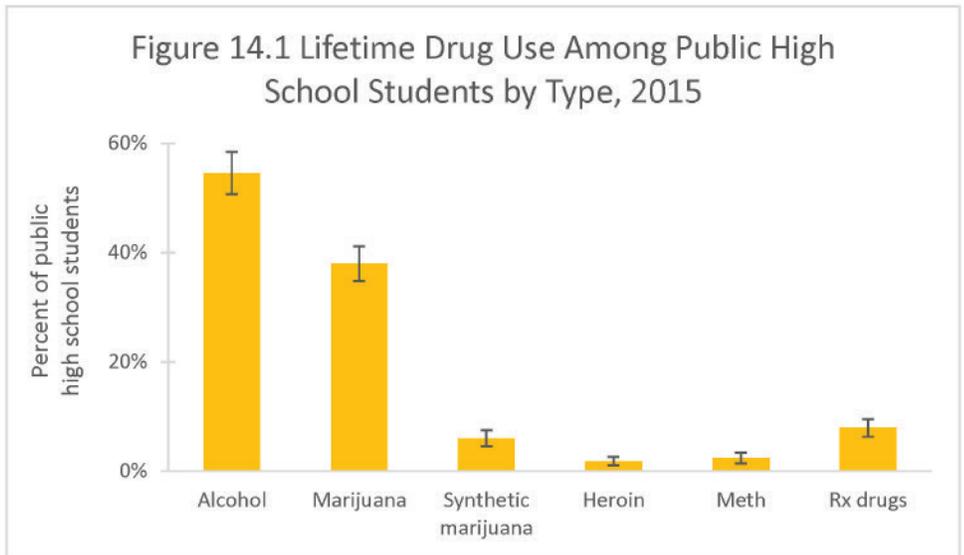
- Not enough counselors to keep up with demand;
- Not enough beds to keep up with demand;
- Lack of coordination between primary care, substance use treatment providers, and mental health professionals;
- Long wait times to access services;
- Difficulty understanding what services are available;
- Varying health insurance coverage (treatment intensity can vary based on health insurance plan type), and;
- Lack of sufficient cultural competency (racial and ethnic groups who need treatment are less likely to access services when controlling for socioeconomic status and criminal justice history)



Additionally, stigma related to substance misuse and addiction can often dissuade people with a substance misuse problem from seeking treatment (4). Depending on the substance(s) involved, treatment may include medications, behavioral treatments, or a combination of both. A doctor, substance use treatment counselor, or other health professional can determine the right treatment based on an individual's needs (19).

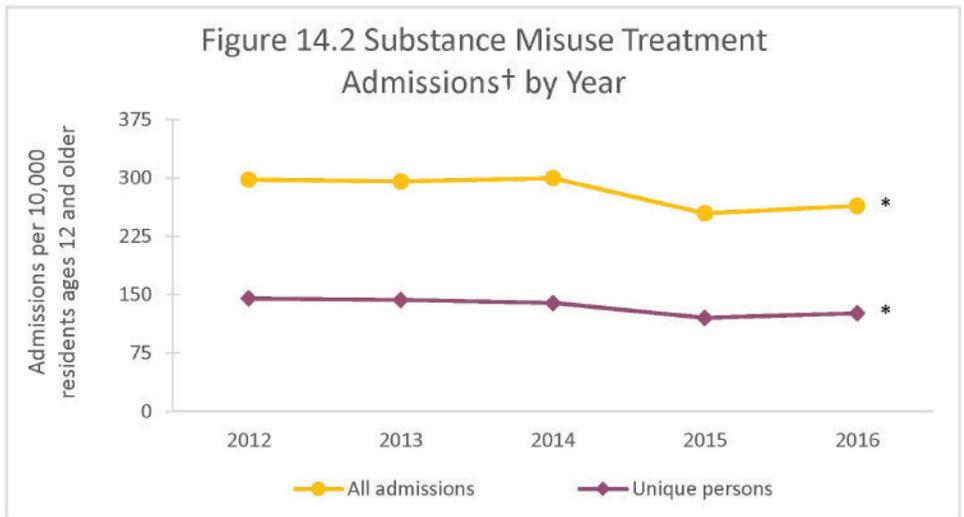
In this section, we will examine the following indicators related to substance use disorders: drug and alcohol use among high school students, substance misuse treatment admissions, hospital patient encounters for substance dependence, misuse and unintentional drug overdose/poisonings, and death rates for substance misuse, including unintentional drug overdose/poisonings.

In 2015, a large portion of Boston public high school students reported ever using drugs such as alcohol (55%), marijuana (38%), synthetic marijuana (6%), heroin (2%), methamphetamines (2%), and prescription drugs used without a prescription or not as prescribed (8%).



DATA SOURCE: Youth Risk Behavior Survey (2015), Centers for Disease Control and Prevention and Boston Public Schools

In 2016, the rate of all substance misuse treatment admissions, including duplicate visits by the same individual, was 264.1 admissions per 10,000 residents ages 12 and older. The rate of unique-person visits was 126.3. Between 2012 and 2016, these rates decreased by 14% and 17%, respectively.

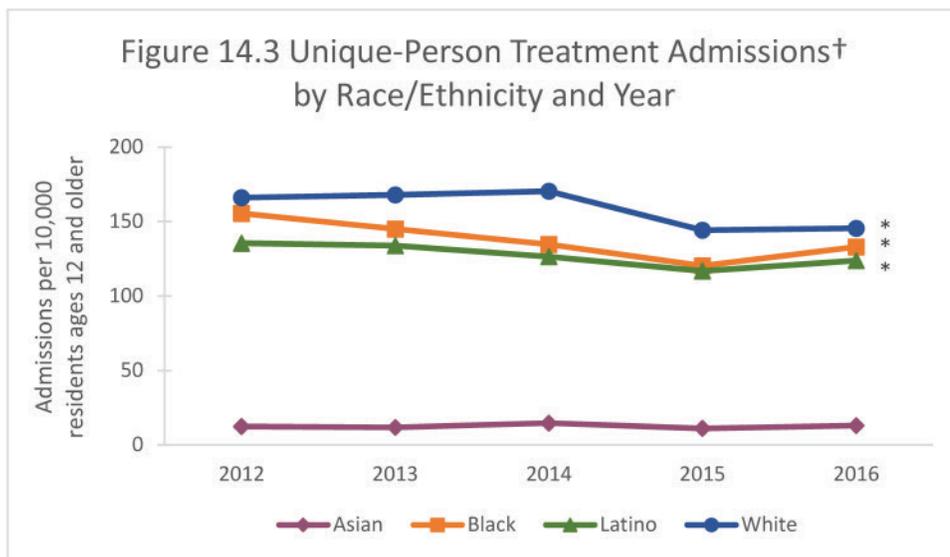


\* Statistically significant change over time

† Age-adjusted rates per 10,000 residents ages 12 and older

DATA SOURCE: Bureau of Substance Abuse Services, Massachusetts Department of Public Health (data as of December 2016)

Figure 14.3 Unique-Person Treatment Admissions† by Race/Ethnicity and Year



\* Statistically significant change over time

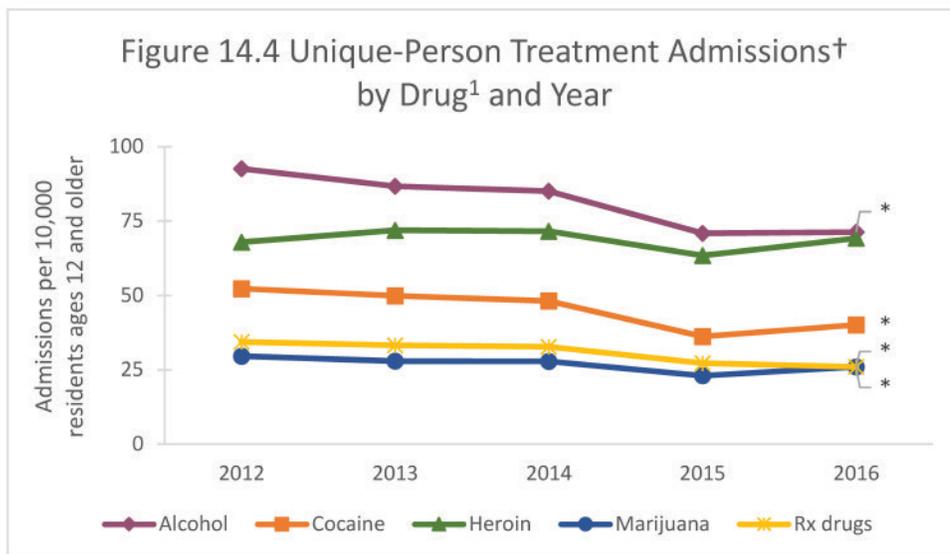
† Age-adjusted rates per 10,000 residents ages 12 and older

DATA SOURCE: Bureau of Substance Abuse Services, Massachusetts Department of Public Health (data as of December 2016)

Between 2012 and 2016, the rate of unique-person substance misuse treatment admissions decreased by 18% for Black residents, 12% for Latino residents, and 15% for White residents. There was no significant change over time for Asian residents.

In 2016, unique-person treatment admission rates were lower among Asian (13.0 admissions per 10,000 residents ages 12 and older), Black (132.9), and Latino residents (123.7) compared with White residents (145.3). These rates were 91%, 9%, and 15% lower, respectively.

Figure 14.4 Unique-Person Treatment Admissions† by Drug<sup>1</sup> and Year



\* Statistically significant change over time

† Age-adjusted rates per 10,000 residents ages 12 and older

<sup>1</sup> Self-identified as primary, secondary, or tertiary drug of misuse

DATA SOURCE: Bureau of Substance Abuse Services, Massachusetts Department of Public Health (data as of December 2016)

In 2016, alcohol was cited most often as a primary, secondary, or tertiary drug of misuse among unique-person treatment admissions in Boston, with a rate of 71.3 admissions per 10,000 residents ages 12 and older. Between 2012 and 2016, the rates of unique-person treatment admissions decreased by 25% for alcohol, 29% for cocaine, 17% for marijuana, and 26% for prescription drugs.

In 2016, the rates of unique-person treatment admissions for alcohol as primary, secondary, or tertiary drug of misuse were 92% lower for Asian residents (5.9 admissions per 10,000 residents ages 12 and older), 18% lower for Latino residents (62.9), and 22% higher for Black residents (93.9) compared with White residents (77.0).

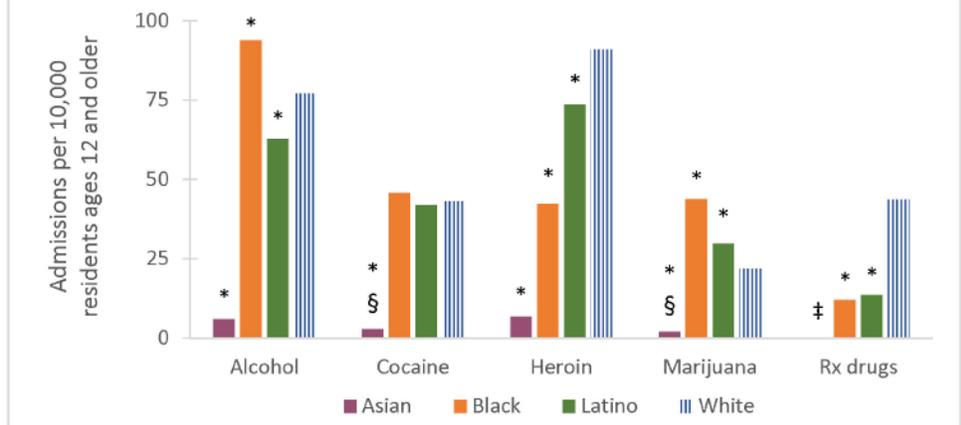
For cocaine-related treatment admissions, the rate was 93% lower for Asian residents (2.8) compared with White residents (43.0).

The rate of treatment admissions for heroin were lower for Asian (6.6), Black (42.3), and Latino residents (73.6) compared with White residents (91.0). These rates were 93%, 54%, and 19% lower, respectively.

For marijuana-related treatment admissions, rates were 91% lower for Asian residents (2.0), 99% higher for Black residents (43.9), and 35% higher for Latino residents (29.7) compared with White residents (22.0).

The rate of treatment admissions for prescription drugs was 73% lower for Black residents (12.0) and 69% lower for Latino residents (13.6), compared with White residents (43.6).

Figure 14.5 Unique-Person Treatment Admissions† by Drug<sup>1</sup> and Race/Ethnicity, 2016



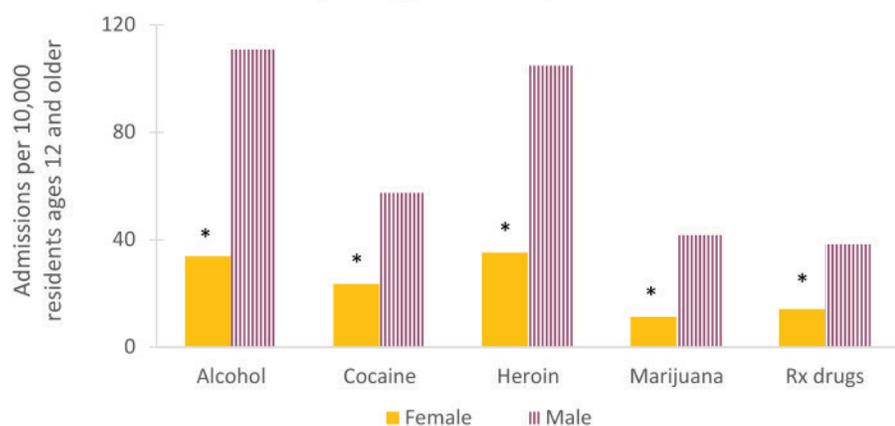
\* Statistically significant difference when compared to reference group  
 † Age-adjusted rates per 10,000 residents ages 12 and older  
 ‡ Rates not presented due to a small number of cases  
 § Rates are based on 20 or fewer cases and should be interpreted with caution  
<sup>1</sup> Self-identified as primary, secondary, or tertiary drug of misuse

NOTE: Bars with patterns indicate the reference group within each selected indicator.  
 DATA SOURCE: Bureau of Substance Abuse Services, Massachusetts Department of Public Health (data as of December 2016)





Figure 14.6 Unique-Person Treatment Admissions† by Drug<sup>1</sup> and Sex, 2016



\* Statistically significant difference when compared to reference group

† Age-adjusted rates per 10,000 residents ages 12 and older

<sup>1</sup> Self-identified as primary, secondary, or tertiary drug of misuse

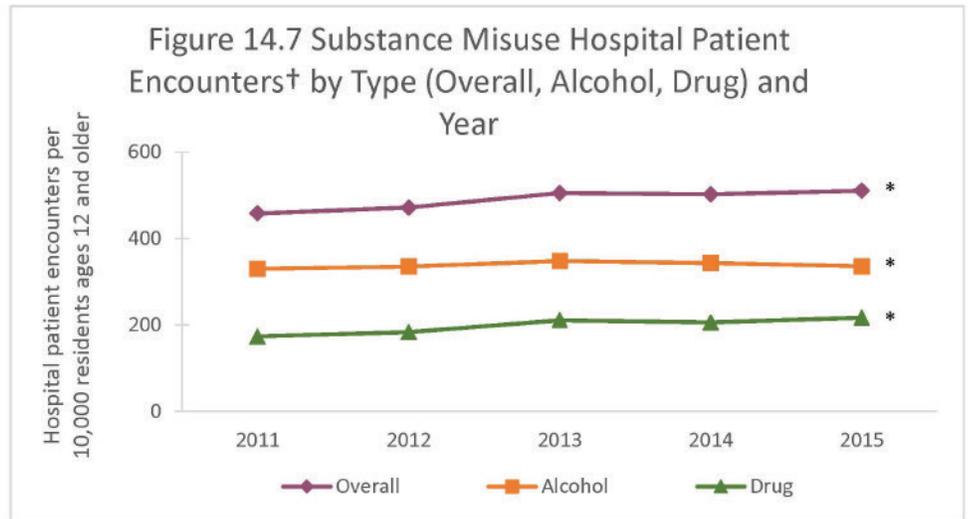
NOTE: Bars with patterns indicate the reference group within each selected indicator.

DATA SOURCE: Bureau of Substance Abuse Services, Massachusetts Department of Public Health (data as of December 2016)

In 2016, the rates of unique-person treatment admissions for alcohol, cocaine, heroin, marijuana, and prescription drugs as primary, secondary, or tertiary drug of misuse were lower for female residents compared with male residents. The largest differences between the rates for females and males occurred for treatment admissions related to alcohol, heroin, and marijuana.

For alcohol, the rate for females (33.8 admissions per 10,000 residents ages 12 and older) was 70% lower than the rate for males (110.8). For heroin, the rate for females (35.2) was 66% lower than the rate for males (104.8). For marijuana, the rate for females (11.2) was 73% lower than the rate for males (41.6).

In 2015, the rate of hospital patient encounters (including emergency department visits and in-patient hospitalizations) for substance misuse was 510.4 per 10,000 residents ages 12 and older. From 2011 to 2015, the rate increased by 12%. During this same time period, the rates for drug and alcohol misuse encounters increased by 25% and 2%, respectively.



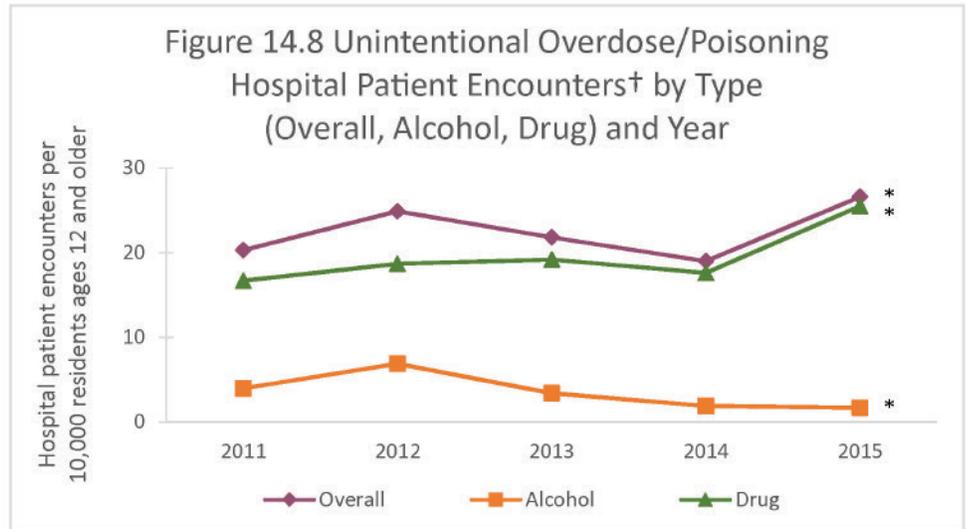
\* Statistically significant change over time

† Age-adjusted rates per 10,000 residents ages 12 and older

NOTE: Hospital patient encounters include in-patient hospital and emergency department discharges but exclude observational stay discharges.

DATA SOURCE: Acute hospital case-mix databases, Massachusetts Center for Health Information and Analysis

In 2015, the rate of hospital patient encounters for substance misuse-related unintentional overdoses/poisonings was 26.6 encounters per 10,000 residents ages 12 and older. From 2011 to 2015, the rate increased by 13%. The rate for drug-related unintentional overdoses/poisonings increased by 40%, while the rate for alcohol-related overdoses/poisonings decreased by 68%.



\* Statistically significant change over time

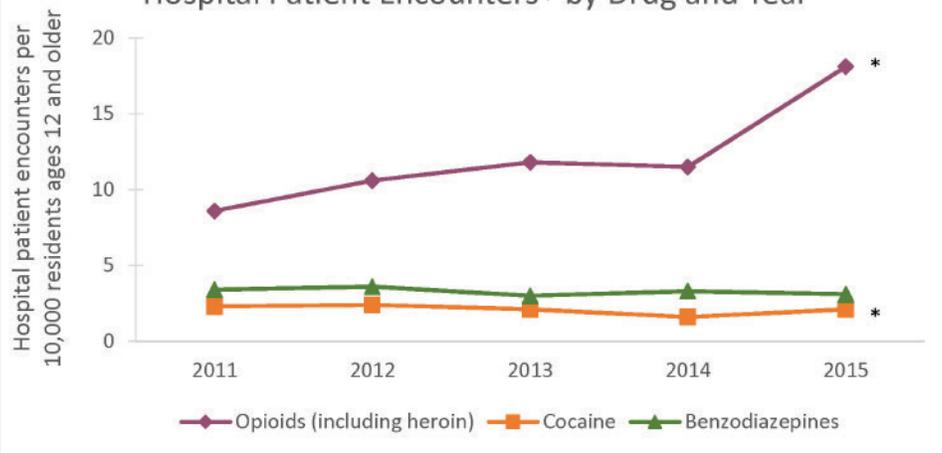
† Age-adjusted rates per 10,000 residents ages 12 and older

NOTE: Hospital patient encounters include in-patient hospital and emergency department discharges but exclude observational stay discharges.

DATA SOURCE: Acute hospital case-mix databases, Massachusetts Center for Health Information and Analysis



Figure 14.9 Unintentional Overdose/Poisoning Hospital Patient Encounters† by Drug and Year



\* Statistically significant change over time

† Age-adjusted rates per 10,000 residents ages 12 and older

NOTE: Hospital patient encounters include in-patient hospital and emergency department discharges but exclude observational stay discharges.

DATA SOURCE: Acute hospital case-mix databases, Massachusetts Center for Health Information and Analysis

By drug type, the rates of hospital patient encounters for unintentional overdoses/poisonings in 2015 were 18.1 per 10,000 residents ages 12 and older for opioids, 2.1 for cocaine, and 3.1 for benzodiazepines. From 2011 to 2015, the rate increased by 94% for opioids and decreased by 21% for cocaine. There was no significant change over time for benzodiazepines.

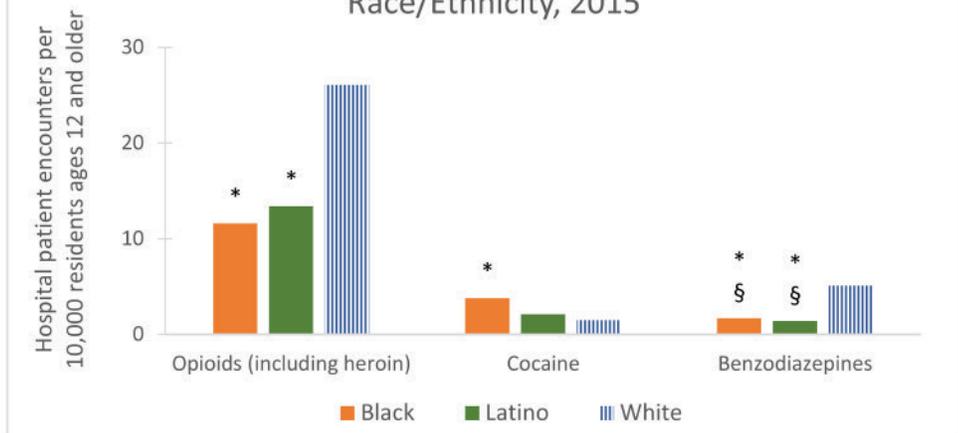
In 2015, the rates of hospital patient encounters for unintentional overdose/poisoning from opioids and benzodiazepines were lower for Black and Latino residents compared with White residents.

For opioids, the rates were 55% lower for Black residents (11.6 hospital patient encounters per 10,000 residents ages 12 and older) and 49% lower for Latino residents (13.4) compared with White residents (26.1), respectively.

For benzodiazepines, the rates were 67% lower for Black residents (1.7) and 72% lower for Latino residents (1.4) compared with White residents (5.1).

In contrast, the rate of cocaine-related overdose/poisoning hospital patient encounters for Black residents (3.8) was 2.5 times the rate for White residents (1.5).

Figure 14.10 Unintentional Overdose/Poisoning Hospital Patient Encounters† by Drug and Race/Ethnicity, 2015



\* Statistically significant difference when compared to reference group

† Age-adjusted rates per 10,000 residents ages 12 and older

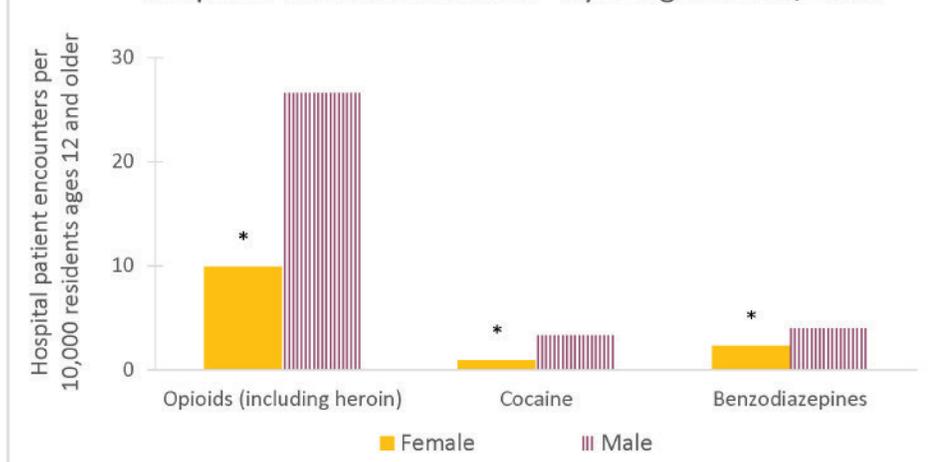
§ Rates are based on 20 or fewer cases and should be interpreted with caution

NOTE: Bars with patterns indicate the reference group within each selected indicator. Rates not presented due to a small number of cases for Asian residents. Hospital patient encounters include in-patient hospital and emergency department discharges but exclude observational stay discharges.

DATA SOURCE: Acute hospital case-mix databases, Massachusetts Center for Health Information and Analysis



Figure 14.11 Unintentional Overdose/Poisoning Hospital Patient Encounters† by Drug and Sex, 2015



\* Statistically significant difference when compared to reference group

† Age-adjusted rates per 10,000 residents ages 12 and older

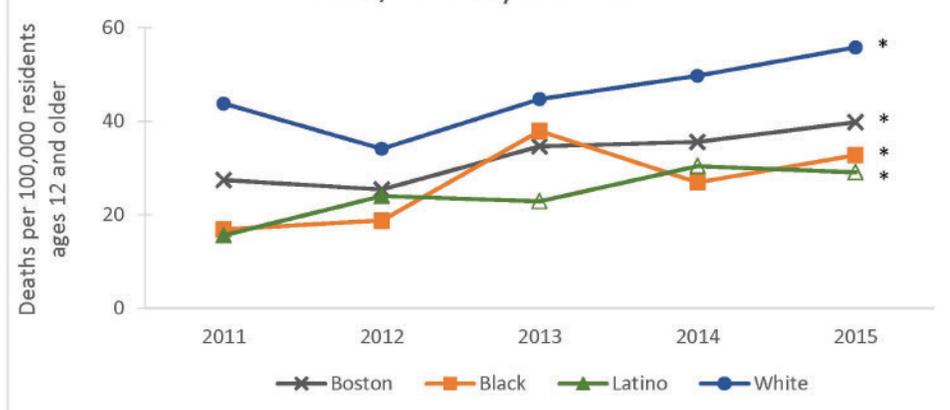
NOTE: Bars with patterns indicate the reference group within each selected indicator. Hospital patient encounters include in-patient hospital and emergency department discharges but exclude observational stay discharges.

DATA SOURCE: Acute hospital case-mix databases, Massachusetts Center for Health Information and Analysis

In 2015, the rates of hospital patient encounters for unintentional overdose/poisoning were lower for females compared with males for opioids (including heroin), cocaine, and benzodiazepines.

For opioids (including heroin), the rate for females (9.9 encounters per 10,000 residents ages 12 and older) was 63% lower than the rate for males (26.6). For cocaine, the rate for females (0.9) was 73% lower than for males (3.3). For benzodiazepines, the rate for females (2.3) was 44% lower than the rate for males (4.0).

Figure 14.12 Substance Misuse Mortality† by Race/Ethnicity and Year



\* Statistically significant change over time

† Age-adjusted rates per 100,000 residents ages 12 and older

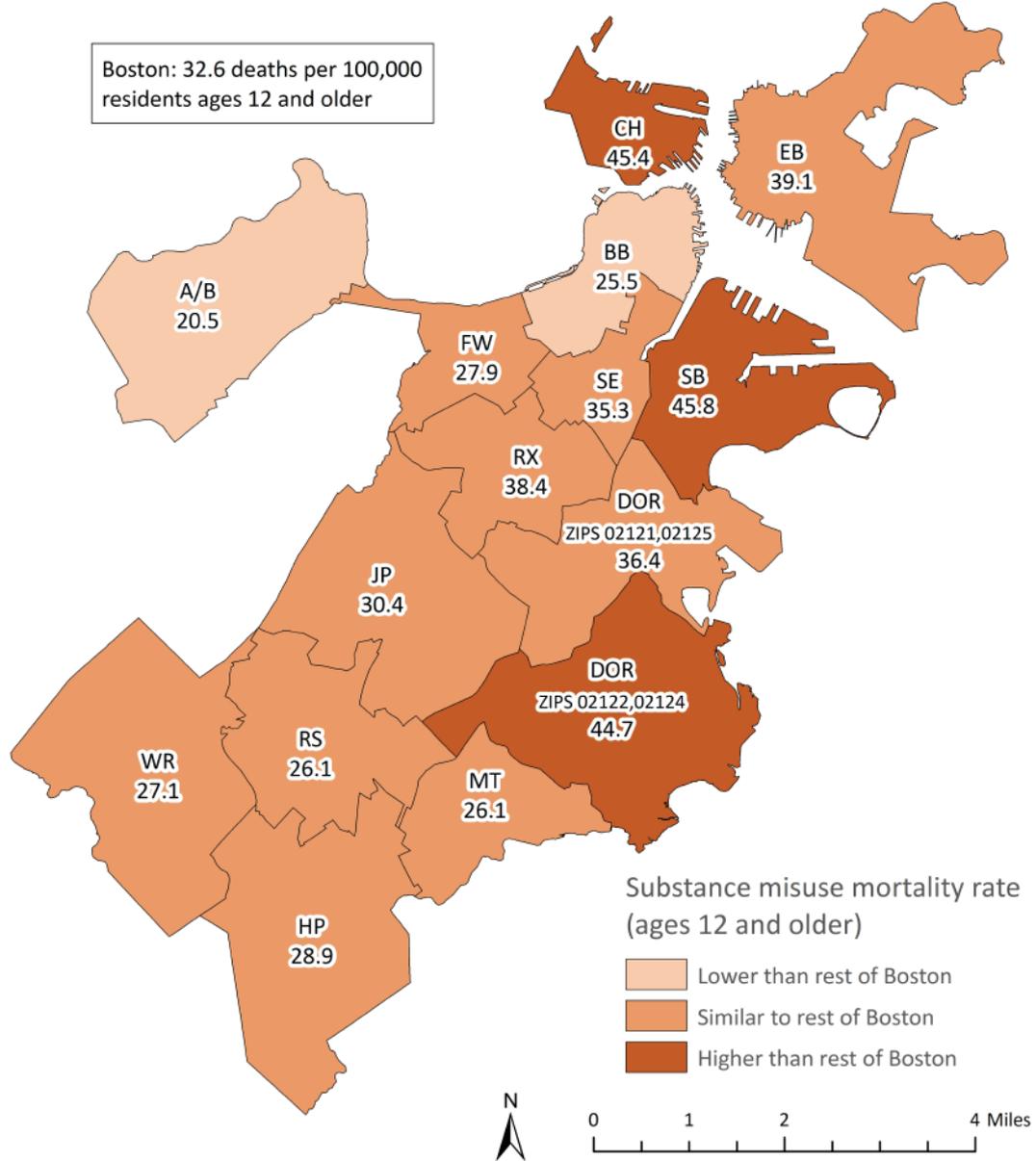
NOTE: Hollowed-out symbols represent rates based on 20 or fewer cases and should be interpreted with caution. Rates not presented due to a small number of cases for Asian residents. Beginning in October 2014, the method for collecting race/ethnicity for mortality data changed. Interpret trends with caution. Unintentional overdose death totals for 2015 are likely an undercount due to deaths awaiting causal determinations. For more information see "Cause of Death Undercount" in the Technical Notes.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health (data as of December 2016). Data will be updated as more information becomes available.

In 2015, the substance misuse mortality rate in Boston was 39.8 deaths per 100,000 residents ages 12 and older. From 2011 to 2015, the rate increased by 54% for Boston overall. Rates also increased by 83% for Black residents, 73% for Latino residents, and 42% for White residents.

In 2015, mortality due to substance misuse was lower for Black (32.7) and Latino residents (29.1) compared with White residents (55.8). These rates were 41% and 48% lower, respectively.

Figure 14.13 Substance Misuse Mortality†  
by Neighborhood, 2011-2015



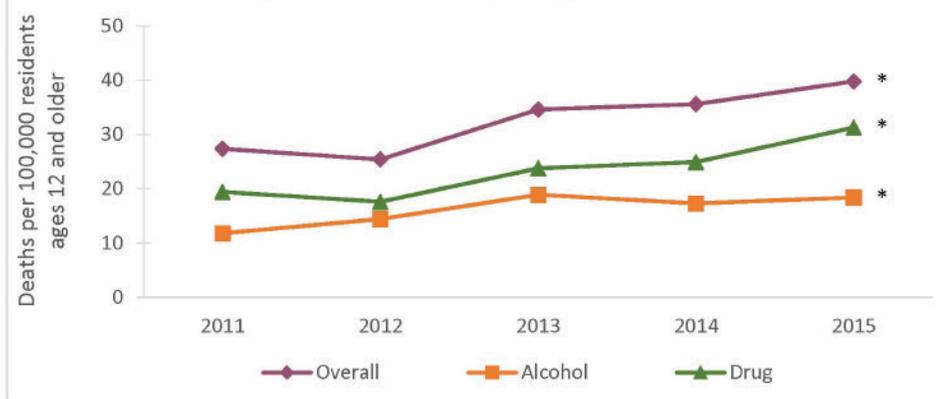
† 5-year average annual age-adjusted rates per 100,000 residents ages 12 and older

NOTE: “BB” includes the Back Bay, Beacon Hill, Downtown, the North End, and the West End. “SE” includes the South End and Chinatown. Unintentional overdose death totals for 2015 are likely an undercount due to deaths awaiting causal determinations. For more information see “Cause of Death Undercount” in the Technical Notes.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health (data as of December 2016). Data may be updated as more information becomes available.

For 2011-2015, the substance misuse mortality rate was higher for Charlestown, Dorchester (zip codes 02122, 02124), and South Boston compared with the rest of Boston. The rate was lower for Allston/Brighton and Back Bay compared with the rest of Boston.

Figure 14.14 Substance Misuse Mortality† by Type (Overall, Alcohol, Drug) and Year



\* Statistically significant change over time

† Age-adjusted rates per 100,000 residents ages 12 and older

NOTE: Unintentional overdose death totals for 2015 are likely an undercount due to deaths awaiting causal determinations. For more information see "Cause of Death Undercount" in the Technical Notes.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health (data as of December 2016). Data will be updated as more information becomes available.

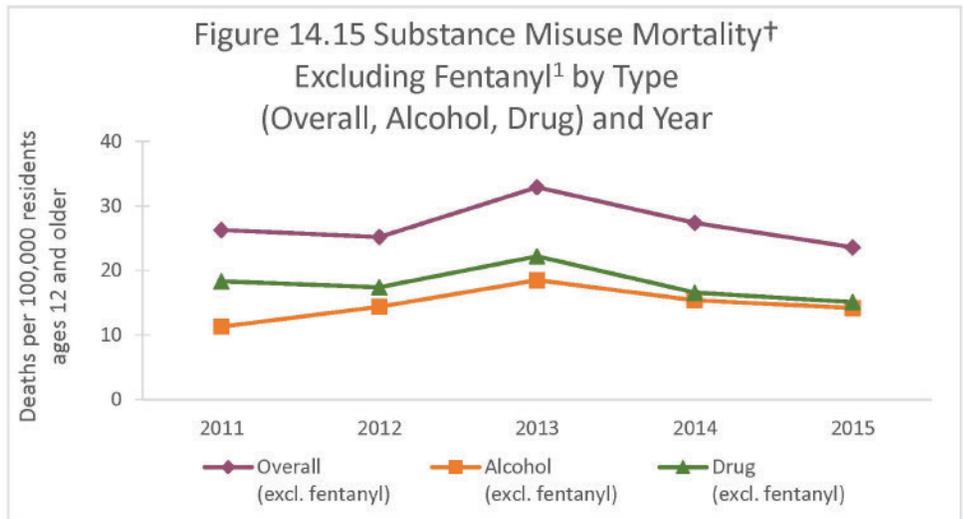
In 2015, the overall substance misuse mortality rate in Boston was 39.8 deaths per 100,000 residents ages 12 and older. The mortality rates for alcohol misuse and drug misuse were 18.4 and 31.3, respectively. From 2011 to 2015, the mortality rates for overall substance misuse, alcohol misuse, and drug misuse increased by 54%, 49%, and 71%, respectively.



According to the National Institute on Drug Abuse (NIDA), “Fentanyl is a powerful synthetic opioid analgesic that is similar to morphine but is 50 to 100 times more potent.” Evidence points to illicit fentanyl increasingly being used as a cutting agent (i.e., adulterant) in street-level heroin and cocaine.<sup>2</sup>

When excluding deaths related to fentanyl use, the 2015 substance misuse mortality rate in Boston was 23.6 deaths per 100,000 residents ages 12 and older. The mortality rates for alcohol and drug misuse when excluding fentanyl were 14.2 and 15.1, respectively. From 2011 to 2015, there was no change in the rates of substance misuse mortality when excluding fentanyl overall or by type of substance used. While increases were observed in overall substance misuse, alcohol, and drug mortality in Figure 14.14, data presented here reveal that these increases were attributable to fentanyl.

<sup>2</sup> <https://www.drugabuse.gov/about-nida/legislative-activities/testimony-to-congress/2017/research-use-misuse-fentanyl-other-synthetic-opioids>



† Age-adjusted rates per 100,000 residents ages 12 and older.

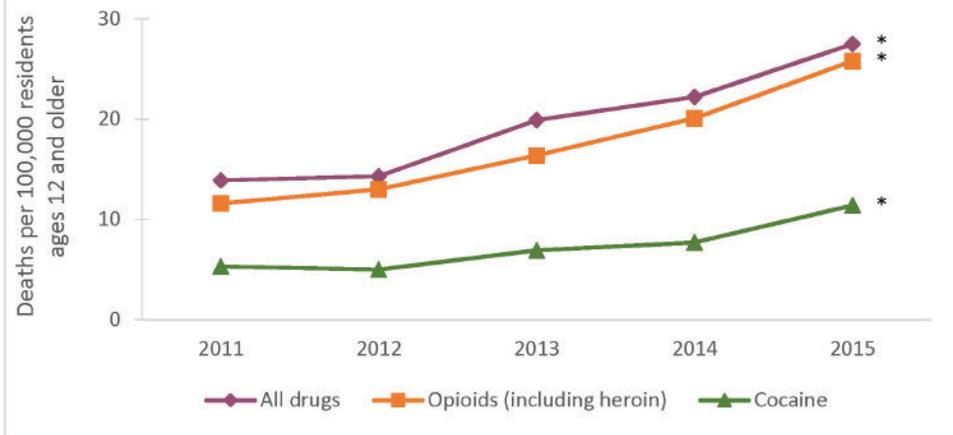
<sup>1</sup> Fentanyl identified by ICD-10 code T40.4. See Fentanyl Identification in Death Data in the Technical Notes for complete methodological description.

NOTE: Unintentional overdose death totals for 2015 are likely an undercount due to deaths awaiting causal determinations. For more information see “Cause of Death Undercount” in the Technical Notes.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health (data as of December 2016). Data will be updated as more information becomes available.



**Figure 14.16 Unintentional Drug Overdose Mortality† by Drug and Year**



\* Statistically significant change over time

† Age-adjusted rates per 100,000 residents ages 12 and older

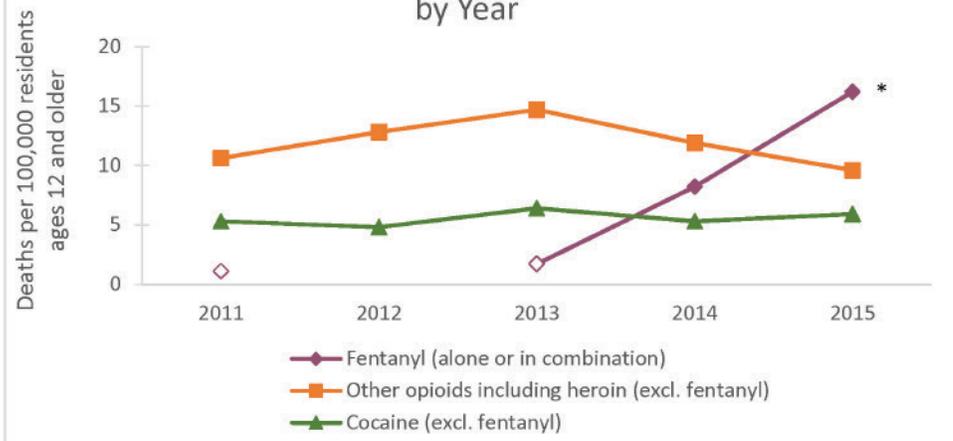
NOTE: Unintentional overdose includes overdose with undetermined intent. Unintentional overdose death totals for 2015 are likely an undercount due to deaths awaiting causal determinations. For more information see “Cause of Death Undercount” in the Technical Notes.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health (data as of December 2016). Data will be updated as more information becomes available.

In 2015, the rate of mortality due to unintentional drug overdose in Boston was 27.5 deaths per 100,000 residents ages 12 and older. The rates of unintentional overdose deaths from opioids (including heroin) and cocaine were 25.8 and 11.4, respectively. From 2011 to 2015, the rates for all drugs, opioids, and cocaine increased by 108%, 130%, and 130%, respectively.

Note: Rates reflect presence of specified drug either alone or in combination with other drugs. Increases in rates over time are likely attributable to combinations including fentanyl and increasing fentanyl-related mortality over time.

**Figure 14.17 Unintentional Drug Overdose Mortality† Due to Fentanyl<sup>1</sup> and Other Drugs by Year**



\* Statistically significant change over time

† Age-adjusted rates per 100,000 residents ages 12 and older

<sup>1</sup> Fentanyl identified by ICD-10 code T40.4. See Fentanyl Identification in Death Data in the Technical Notes for complete methodological description.

NOTE: Hollowed-out symbols represent rates based on 20 or fewer cases and should be interpreted with caution. Rates not presented due to a small number of cases of unintentional overdose deaths due to fentanyl in 2012.

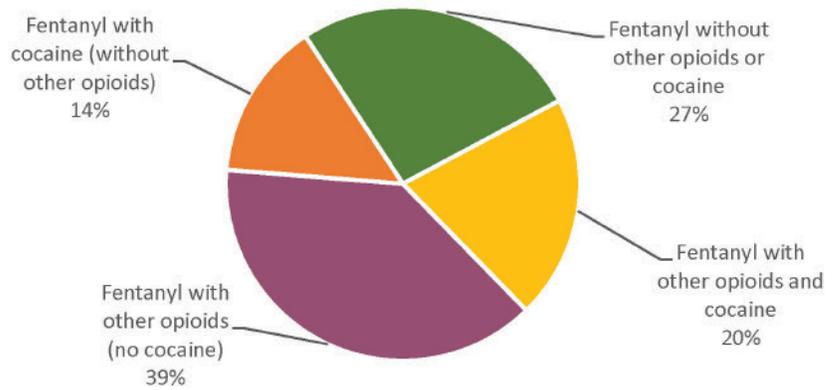
Unintentional overdose includes overdose with undetermined intent. Unintentional overdose death totals for 2015 are likely an undercount due to deaths awaiting causal determinations. For more information see “Cause of Death Undercount” in the Technical Notes.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health (data as of December 2016). Data will be updated as more information becomes available.

In 2015, the rate of unintentional overdose mortality due to fentanyl use alone or in combination with other drugs was 16.2 deaths per 100,000 residents ages 12 and older compared with 1.1 in 2011. From 2011 to 2015, the rate increased by more than 40 times. In contrast, there was no significant change over time for the rates of unintentional overdose death due to the use of other opioids including heroin (excluding fentanyl) or the use of cocaine (excluding fentanyl). While increases in unintentional overdose mortality were observed in opioids (including heroin) and cocaine in Figure 14.16, data presented here reveal that these increases were attributable to fentanyl.

In 2015, 56% of unintentional drug overdose deaths (n=83) were associated with fentanyl use (data not shown). Of these, 27% were due to fentanyl without other opioids (including heroin) or cocaine, 39% were due to fentanyl in combination with other opioids but without cocaine, 20% were due to fentanyl in combination with other opioids and cocaine, and 14% were due to fentanyl with cocaine but no other opioid specified.

Figure 14.18 Unintentional Drug Overdose Mortality Associated with Fentanyl<sup>1</sup> Use, 2015



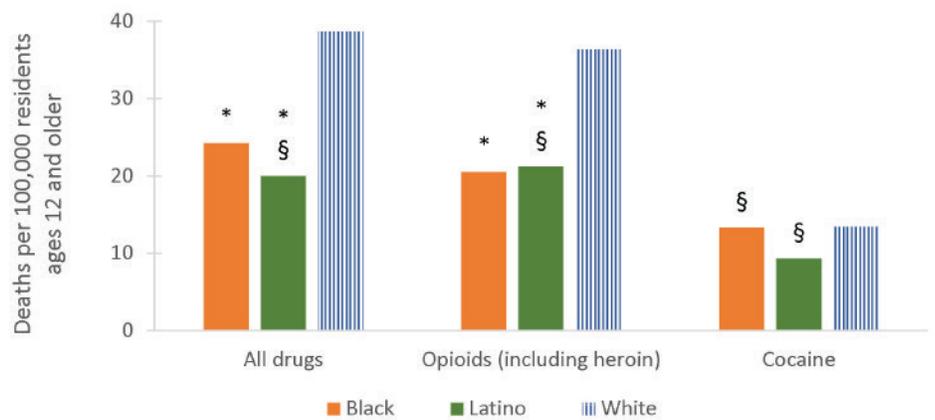
<sup>1</sup> Fentanyl identified by ICD-10 code T40.4 which may include other synthetic opioids. See Fentanyl Identification in Death Data in the Technical Notes for complete methodological description.

NOTE: Unintentional overdose includes overdose with undetermined intent. Unintentional overdose death totals for 2015 are likely an undercount due to deaths awaiting causal determinations. For more information see "Cause of Death Undercount" in the Technical Notes.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health (data as of December 2016). Data will be updated as more information becomes available.

In 2015, the rate of unintentional overdose deaths from all drugs was 38% lower for Black residents (24.2 deaths per 100,000 residents ages 12 and older) and 48% lower for Latino residents (20.0) compared with White residents (38.7). The mortality rate from unintentional opioid overdoses was 44% lower for Black residents (20.5) and 42% lower for Latino residents (21.2) compared with White residents (36.4). There were no significant differences in the rates of unintentional cocaine overdose mortality by race/ethnicity.

Figure 14.19 Unintentional Drug Overdose Mortality† by Drug and Race/Ethnicity, 2015



\* Statistically significant difference when compared to reference group

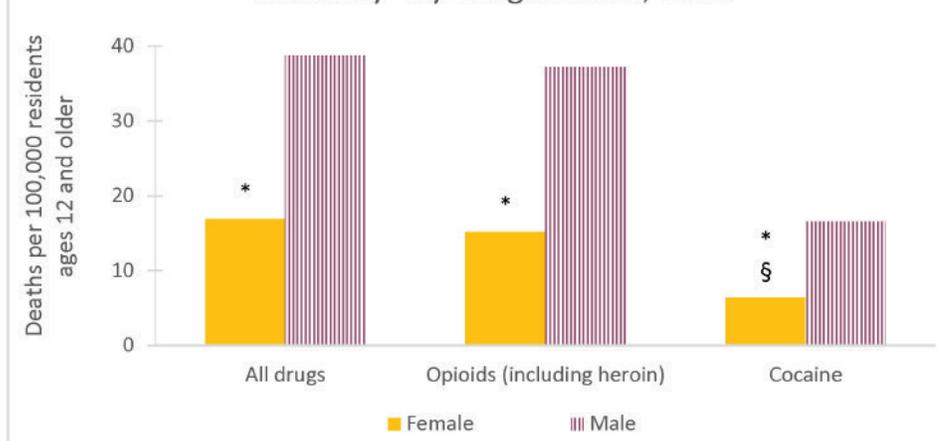
† Age-adjusted rates per 100,000 residents ages 12 and older

§ Rates are based on 20 or fewer cases and should be interpreted with caution

NOTE: Bars with patterns indicate the reference group within each selected indicator. Rates not presented due to a small number of cases for Asian residents. Unintentional overdose includes overdose with undetermined intent. Unintentional overdose death totals for 2015 are likely an undercount due to deaths awaiting causal determinations. For more information see "Cause of Death Undercount" in the Technical Notes.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health (data as of December 2016). Data will be updated as more information becomes available.

Figure 14.20 Unintentional Drug Overdose Mortality† by Drug and Sex, 2015



\* Statistically significant difference when compared to reference group

† Age-adjusted rates per 100,000 residents ages 12 and older

§ Rates are based on 20 or fewer cases and should be interpreted with caution

NOTE: Bars with patterns indicate the reference group within each selected indicator. Unintentional overdose includes overdose with undetermined intent. Unintentional overdose death totals for 2015 are likely an undercount due to deaths awaiting causal determinations. For more information see “Cause of Death Undercount” in the Technical Notes.

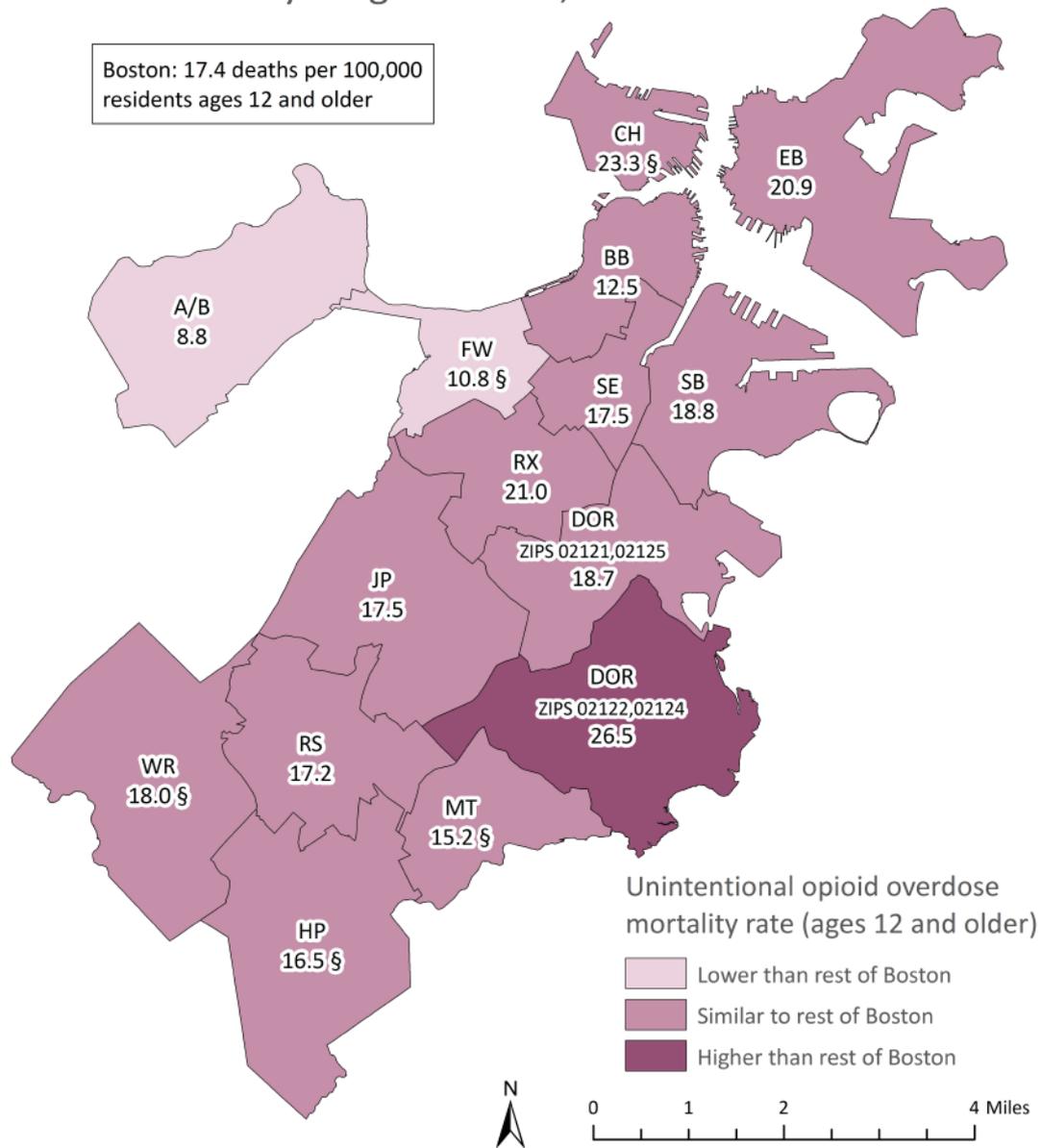
DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health (data as of December 2016).

Data will be updated as more information becomes available.

In 2015, the unintentional drug overdose mortality rate for all drugs was 56% lower for females (16.9 deaths per 100,000 residents ages 12 and older) compared with males (38.8). Similar patterns held for unintentional drug overdose deaths due to opioids (including heroin) and cocaine. The rate for females was 59% lower for opioids (including heroin) and 61% lower for cocaine compared with males.



Figure 14.21 Unintentional Opioid Overdose Mortality† by Neighborhood, 2011-2015



† 5-year average annual age-adjusted rates per 100,000 residents ages 12 and older  
 § Rates are based on 20 or fewer cases and should be interpreted with caution.

NOTE: “BB” includes the Back Bay, Beacon Hill, Downtown, the North End, and the West End. “SE” includes the South End and Chinatown. Unintentional overdose includes overdose with undetermined intent. Unintentional overdose death totals for 2015 are likely an undercount due to deaths awaiting causal determinations. For more information see “Cause of Death Undercount” in the Technical Notes.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health (data as of December 2016). Data may be updated as more information becomes available.

For 2011 to 2015, the unintentional opioid overdose mortality rate was higher for Dorchester (zip codes 02122, 02124) compared with the rest of Boston. The rate was lower in Allston/Brighton and Fenway compared with the rest of Boston.

## Summary

The analysis of Boston resident substance use disorders indicators from 2011 to 2015 found increasing rates of mortality and hospital patient encounters and decreasing rates of treatment admissions.

From 2011 to 2015, Boston and Massachusetts experienced similar levels of and significant increases in unintentional opioid overdose mortality (from 11.6 and 9.3 deaths per 100,000 residents ages 12 and older, respectively, in 2011 to 25.8 for both in 2015) (12). The increase in unintentional opioid overdose mortality appears to be attributable to fentanyl, a highly potent opioid often used as an adulterant (i.e., mixed with street-level heroin, cocaine, and other drugs). In Boston, increases in all of the substance misuse mortality indicators (including alcohol misuse mortality) appear to be attributable to fentanyl, often found to have been used in combination with other drugs and alcohol. The number of fentanyl-related unintentional overdose deaths increased from fewer than 10 per year during the three-year period 2011-2013 to 43 deaths in 2014 and 83 deaths in 2015.

With the exception of alcohol-related and cocaine-related unintentional overdose/poisonings which decreased over time, the rates of hospital patient encounters for drug and alcohol-related substance misuse (which includes dependence, misuse, and overdose), as well as for unintentional drug and opioid overdose/poisoning, increased from 2011 to 2015. In contrast, the rates of total treatment admissions and unique-person treatment admissions decreased during the same time period. With the exception of heroin, for which the rate remained stable over time, the rate of unique-person treatment admissions decreased for alcohol, marijuana, cocaine, and prescription drugs.

For substance misuse indicators evaluated for 2015, inequities across categories of race/ethnicity, sex, and neighborhood were found. The rates of mortality and hospital patient encounters for substance misuse and unintentional overdoses tended to disproportionately affect White residents. However, the overall substance misuse death rate increased almost two-fold from 2011 to 2015 for Black and Latino residents and to a lesser extent for White residents, which suggests the impact of fentanyl was experienced by all three of these racial/ethnic groups and lessened relative inequities as rates increased. Racial/ethnic differences in unique-person treatment admissions varied across drug type. For example, the rates of unique-person treatment admissions for heroin and prescription drugs were higher for White residents compared with Black and Latino residents. For marijuana, the rate was higher for Black and Latino residents compared with White residents. Across most drug types, the rate of unique-person treatment admissions was lowest among Asian residents.

The rates of substance misuse deaths, unintentional drug overdose hospital patient encounters, and unique-person treatment admissions were higher for men than women. At the neighborhood level, the rate of overall substance misuse deaths (including alcohol misuse, drug misuse, and unintentional opioid overdose/poisoning deaths) during the five-year time period 2011-2015 was higher for Charlestown, Dorchester (zip codes 02122, 02124), and South Boston compared with the rest of Boston.

# Substance Use Disorders

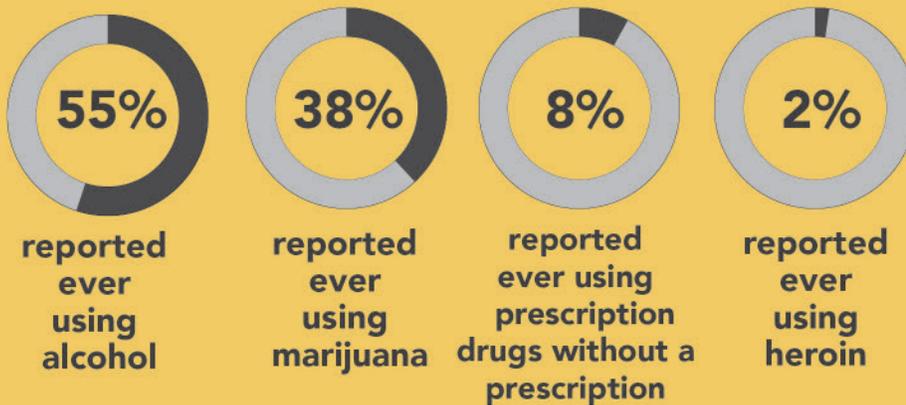
For 2011 to 2015, the unintentional fentanyl drug overdose death rate increased **40 fold**--driving all increases in substance misuse mortality.



From 2011 to 2015, the unintentional opioid overdose death rate increased



## Drug use among Boston public high school students in 2015



# Our Point of View: Thoughts from public health

## Using Medication to Treat Opioid Addiction

By Association for Behavioral Healthcare

Dependence on heroin, fentanyl and opioid-based pain medications has grown to epidemic proportions in Massachusetts. Despite many efforts to curb this rising tide, the overdose death rate continues to climb. The toll of addiction on our citizens, communities and the economy has been devastating with no end in sight. Medication-assisted treatment (MAT), like its name implies, is a whole-patient approach that combines medication, counseling and behavioral therapy. The medications prescribed for opioid treatment include methadone, buprenorphine (Suboxone), and injectable naltrexone (Vivitrol). These medications stabilize brain chemistry, block the euphoric effects of opioids, and stop cravings. Each have their own strengths and are recommended for different populations.

When it comes to treating illness, people rarely hesitate to use medication. Be it allergies or heart disease, depression or strep throat, people rely on medication for relief and for a cure. With addiction, however, there remains deep-rooted stigma, shame and misinformation. Despite overwhelming evidence of its benefits, many patients do not use MAT, even when it is the most clinically appropriate treatment. Every person who is struggling with opioid addiction should be familiar with their options.

Methadone is the most widely studied medication and treatment for any disease in the world. Since its development in 1964, methadone has been studied as a medical response to the post-World War II and the Vietnam opioid epidemics.<sup>1</sup> Methadone maintenance is recommended for chronic, relapsing opioid-addicted individuals including pregnant women, those with heavier use of opioids, concurrent use of alcohol and other drugs, unstable psychiatric disorders, and limited social supports.

Buprenorphine (brand name Suboxone) is another treatment of opioid dependence. It is a preferred formulation for patients with liver disease and those transferring from a methadone clinic, including pregnant women. For individuals already stable on a low to moderate dose of buprenorphine, an implant that delivers a long-lasting dose can be surgically inserted and removed.<sup>2</sup>

Naltrexone (brand name Vivitrol) can be used to treat alcohol and/or opioid dependence. It blocks opioid receptors, reduces cravings, and diminishes the rewarding effects of alcohol and opioids. Extended-release injectable naltrexone is recommended to prevent relapse to opioids or alcohol.

Given the chance, individuals stabilized with the use of medication and counseling can achieve true recovery. Numerous studies show that because MAT reduces drug use, the transmission of viral disease and criminal activity also go down.<sup>3</sup> It's time to think and treat opioid addiction like every other disease out there. Let's use all the tools at our disposal.

<sup>1</sup> Medication-Assisted Treatment for Opioid Addiction in Opioid Treatment Programs, A Treatment Improvement Protocol, TIP 43, Substance Abuse and Mental Health Services Administration, available at <http://store.samhsa.gov/shin/content//SMA12-4214/SMA12-4214.pdf>

<sup>2</sup> Medication-Assisted Treatment For Opioid Addiction: Myths & Facts, Legal Action Center, 225 Varick Street, 4th Floor, New York, NY 10014 | August 2016.

<sup>3</sup> Medication-Assisted Treatment For Opioid Addiction: Myths & Facts, Legal Action Center, 225 Varick Street, 4th Floor, New York, NY 10014 | August 2016

## Our Point of View: Thoughts from a community resident

### **I tried different treatments and found one that is working**

By Consumer of Boston Public Health Commission services

My grandmother raised me and my brother. I never met my biological dad. My mom also struggles with addiction. I was four when my grandmother passed away from a brain aneurysm. It was traumatic. She was my whole world.

I started skipping school, drinking and smoking weed. I moved onto Percocet and OxyContin. The first time I remember being “dope sick” I didn’t know what was happening. A friend offered me heroin. I started sniffing but quickly moved onto needles. At first, everything seemed better, but then I ended up jumping from couch to couch and stealing from family. I was only 16 and I lost everything. Nobody wanted anything to do with me. I ended up with my mom. She taught me how to hit myself with a needle. All I wanted was for her to love me – to be proud of me. But I stole from her too and she kicked me out. I was homeless living on the streets of Boston. It was scary. I was only 21. I should have been in college. I swore I’d never be like my mom. I wanted to be a veterinarian.

The last months of 2016 were the worst – sleeping on loading docks, on concrete bricks and cardboard trying not to freeze to death. I visited AHOPE to get clean needles. The staff there treated me like a human being and helped me get back into a residential treatment program.

I tried Suboxone. It took away the cravings so I didn’t think about getting high as much, but for me, it was too easy to abuse. I’m on methadone now. My mom, who has been on it for ten years now, convinced me to give it a try. Going to the clinic every day provides accountability. There are lots of groups and you have to go to them if you want to get dosed and come up with a treatment plan. I’m only 26. I don’t want to be on it for the rest of my life but I don’t want to rush off either because I know it will lead to relapse.

Right now, my goal is to not stick a needle in my arm. I know I’m here for a purpose – whether it’s God or whatever and that if I do what I have to do –follow my treatment plan and go to groups – I’ll be okay.

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