Boston Medical Center
Community Health Needs Assessment
Final Report

July 2016

Boston Medical Center

Health Resources in Action
Advancing Public Health and Medical Research

Contents

EXECUTIVE SUMMARY

Background

Boston Medical Center (BMC) is a private, not-for-profit, 496-bed academic medical center located in Boston's historic South End. The hospital is the primary teaching affiliate for Boston University School of Medicine. The largest safety net hospital in New England, BMC provides a full spectrum of pediatric and adult care services, from primary care and family medicine to advanced specialty care. It is also the largest and busiest provider of trauma and emergency services in New England. Emphasizing community-based care, BMC is committed to providing consistently excellent and accessible health services to all.

In 2015, BMC partnered with Health Resources in Action (HRiA), a non-profit public health organization, to conduct its community health needs assessment. This report describes the process and findings from this effort. The 2016 community health needs assessment was undertaken to achieve the following goals:

- To identify the perceived health needs and assets in the community
- To gain an understanding of people's barriers to health and how these barriers can be addressed
- To understand to what extent cancer is a concern in the community and perceived risks, behaviors, and barriers regarding cancer prevention and screening

Although BMC serves residents from across the City of Boston, the largest proportion of its population represents the traditionally underserved, including low-income residents, the homeless population, and those who do not speak English as a primary language. For this CHNA, the community served by BMC was defined as the vulnerable populations residing in the approximately 17 neighborhoods of the city of Boston, highlighting specific neighborhood differences where appropriate.

Process and Methods

This CHNA aims to identify the health-related needs and strengths of BMC's priority communities through a social determinants of health framework, which defines health in the broadest sense and recognizes numerous factors at multiple levels— from lifestyle behaviors (e.g., healthy eating and active living) to clinical care (e.g., access to medical services) to social and economic factors (e.g., poverty) to the physical environment (e.g., air quality)—which have an impact on the community's health. Existing social, economic, and health data were drawn from national, state, county, and local sources, such as the National Cancer Institute, the U.S. Census, U.S. Bureau of Labor Statistics, Massachusetts Department of Public Health, Boston Public Health Commission, and the Boston Police Department. Over 62 individuals, representing healthcare providers, community stakeholders, and residents were engaged in focus groups and interviews to gauge their perceptions of the community, priority health concerns, and what programming, services, or initiatives are most needed to address these concerns.

Findings

The following provides a brief overview of key findings that emerged from this assessment:

Community Social and Economic Context

Demographic Characteristics.

Population. The approximately 17 neighborhoods of Boston vary by size, wealth, and diversity of residents. The most populated neighborhood in Boston was Dorchester (122,598 residents), followed by Roxbury (49,028), Brighton (44,883), and East Boston (44,512).

- *Age Distribution.* The median age of Boston residents was 31 years, compared to the state median of 39 years. Quantitative data indicate that largest segment of Boston's population was between the ages of 20 and 54 years, making up 59% of the population.
- *Demographic Diversity.* Participants engaged in the assessment described their communities as "*very diverse*", mentioning wide racial, linguistic, and cultural diversity. While White residents comprise less than half of the city's racial and ethnic composition (46%), there is substantial variation in the racial and ethnic diversity by neighborhood; Jamaica Plain, Mission Hill, and Roslindale exhibited greater resident diversity than other neighborhoods, including the North End (91% White) and Beacon Hill (86% White).
- *Language.* According to the U.S. Census the most common non-English language spoken in Boston homes was Spanish (16%), followed by French, and Chinese (5% and 4%, respectively). Focus group participants in East Boston and Dorchester reported language barriers that made it difficult to navigate the health system and city resources such as public transportation.

Education and Employment.

> *"I want to work, but since I got cancer I can't use my hands in the same way, and I haven't found any programs to help re-train me for other jobs." –Focus group participant*

- *Employment.* There has been an overall downward trend in unemployment rates in the city of Boston, from 12.9% in 2010 to 8.3% in 2014. Yet underemployment, the stagnation of wages, and insufficient benefits were reported by focus group and interview participants as major barriers to economic mobility and a factor of negative health outcomes.
- *Education.* Focus group participants described Boston as a "*mecca of education and medicine,*" though quantitative data show that some neighborhoods have much higher educational attainment than others. U.S. Census data show high educational attainment among Boston's adult residents aged 25 years and older, with 45% having earned a college degree or more.

Poverty and Income. In 2014, the median household income in Boston was $55,448. Yet, the median income in communities with more residents of color including, Roxbury ($25,254), Mission Hill, ($35,020) and Mattapan ($42,206), were much lower than the city median. Boston was described as the land of "*have and have-nots*" by several participants.

> *"You see communities like the South End and Back Bay that are well-off and flourishing, but within those communities you see large amounts of people who are homeless sleeping in doorways." –Interview participant*

Housing. Similar to the 2013 CHNA, focus group participants and key informants overwhelmingly expressed concern about housing in Boston being unavailable or unaffordable.

- Quantitative data show that 41% of residents spend more than a third of their household incomes on rent, a slight decrease from 2011 data reported in the 2013 CHNA (42.4%).
- Quantitative data also show that the number of homeless individuals in Boston has increased by 32% since 2011 to approximately 7,248 individuals in 2013. Residents identified elders, residents in recovery, and those suffering from mental illness among the most vulnerable for housing insecurity.

Violence and Neighborhood Safety. The overall crime rates in the city of Boston decreased from 2014 to 2015. However, many focus group participants –across all language groups–reported concerns about personal safety in their communities, namely affecting youth.

Community Health Issues

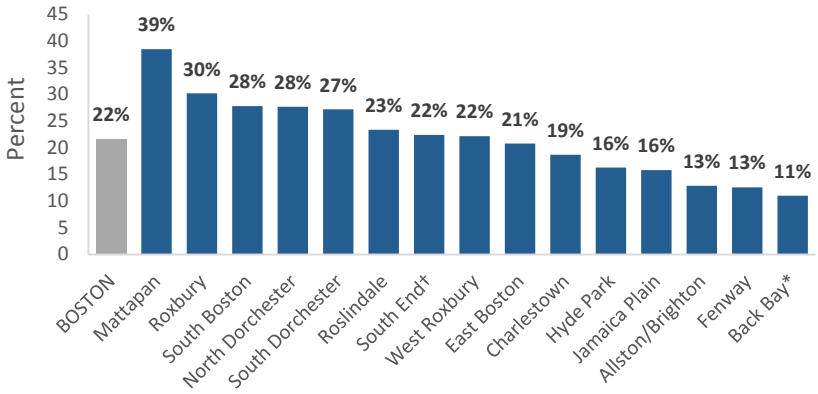
Leading Causes of Mortality. Quantitative data indicate that cancer is the leading cause of death in Boston, followed by heart and cerebrovascular disease (including stroke). Cancer and heart disease remained the top two leading causes of death for all racial/ethnic groups from 2008 to 2013.

> *"We hear a lot about the opioid epidemic, but when you look at cancer the numbers are much more daunting."–Interview participant*

Chronic Disease and Health Related Risk Factors. Similar to the 2013 CHNA results, chronic diseases and their risk factors—specifically stress, obesity, cancer, and cardiovascular disease— were mentioned in all focus groups and interviews.

- *Cancer Mortality.* While there has been overall downward trend in cancer mortality since 2005, the rate of cancer deaths in the city of Boston increased from 171.1 per 100,000 in 2011 to 186.3 per 100,000 in 2012. Lung, prostate, female breast, and colon cancers were the leading types of cancer deaths in Boston from 2010-2012.
- *Heart Disease.* In Boston, heart disease is the second leading cause of death, with 133.6 deaths per 100,000 Boston residents in 2013. Black and White residents were more than three times as likely to die from heart disease than Asian residents in 2012 (155.9 and 144.5 deaths per 100,000 population, respectively.
- *Hypertension.* Quantitative data show that the prevalence of hypertension has remained consistent since 2005, ranging from 23%-25%. The percent of Black adults that reported suffering from hypertension (37%) was more than double that of Asian adults (16%).
- *Obesity.* Twenty-two percent of Boston residents reported being obese in 2013, a slight increase from 2010 (20%). Focus group and interview participants reported youth obesity as a major concern in their communities. In 2012, over half of Latino children (52%) and 42% of Black children in the city of Boston were overweight or obese, which was more than double that of White children (20%).
- *Physical Activity and Healthy Eating.* Since 2006, nearly 60% of adults in Boston reported meeting CDC guidelines for aerobic physical activity, defined as 150 minutes in the past week, which is above the state (55%) and national (49%) average. One in four adults did not meet CDC guidelines for vegetable consumption. Focus group participants expressed the need for

Percent Obesity among Boston Adults by Neighborhood, 2013



DATA SOURCE: Boston Behavioral Risk Factor Surveillance Survey (BBRFSS), 2013
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office
*Includes Back Bay, Beacon Hill, West End, and the North End, †Includes Chinatown

more health literacy initiatives and organized events that promoted physical activity, especially for youth.

- *Diabetes.* Diabetes was an issue mentioned in most focus groups and interviews, particularly as it related to the growing trend of obesity. Key informants described the importance of focusing on pre-diabetes management, saying "*We see services in place for diabetes management, but what's missing is more emphasis on diabetes prevention."* Black and Latino residents experienced diabetes at more than double the proportion of White and Asian residents (5% and 6%, respectively).
- *Asthma.* In 2013, 11% of Boston adults reported having asthma, which has remained consistent since the previous CHNA findings (12% in 2010). The highest estimated asthma prevalence rates were in North Dorchester (18%), followed by Jamaica Plain (16%), and Roxbury (14%).

Mental Health. Consistent with 2013 CHNA findings, assessment participants discussed mental health, especially depression and stress, as a significant concern facing the community. Interview participants described how chronic trauma—especially for youth—exacerbated mental health issues among Boston residents.

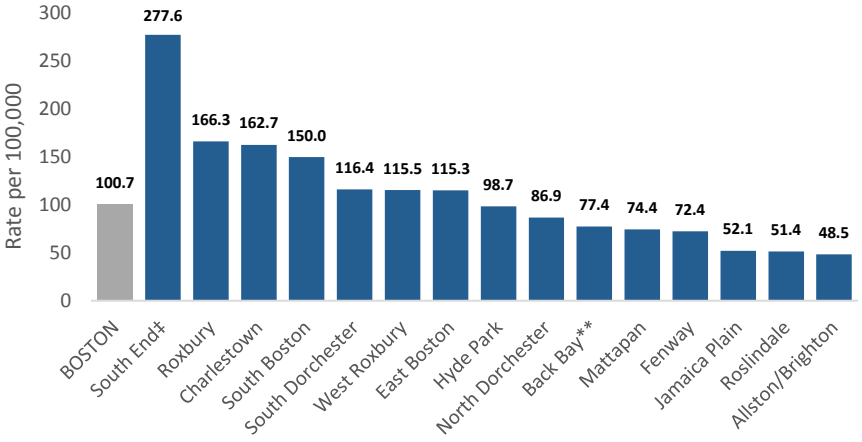
> *"Schools do huge amounts of crisis response work. We see many students suffering from mental illness which is often amplified by exposure to chronic trauma like community violence." –Interview participant*

- *Persistent Sadness.* Quantitative data show there was an increase in self-reported persistent sadness among public high school students from 25% in 2011 to 30% in 2013.
- *Persistent Anxiety*. According to the Boston Behavioral Risk Factor Survey, one in five Boston residents reported having persistent anxiety, defined as 15 or more days of anxious feelings during the last month (20%).
- *Suicide Mortality.* The South End experienced the highest rates of suicide mortality (12.8 deaths per 100,000)—more than double the rate of Boston overall (6.7 deaths per 100,000 residents).

Substance Use. As with mental health, substance abuse was identified as a major issue in the community and was raised repeatedly in focus group and interview discussions. Participants mentioned a variety of substances including heroin, cocaine, and prescription drug abuse as being among the most concerning.

- *Smoking.* Quantitative data show that smoking among Boston adults has decreased slightly from 2008 to 2013, though smoking prevalence among Boston adults is higher than the state and national average (16% and 17%, respectively). Though smoking rates among youth have declined by almost half (47%) from 15% in 2001 to 8% in 2013.
- *Binge Drinking*. A quarter of adults in the city of Boston reported binge drinking, defined as consumption of five or more drinks on any

Age-adjusted Unintentional Opioid Overdose/Poisoning Hospital Patient Encounters* of Residents Ages 12+, 2010- 2013 Combined



* Includes ED visits, observational stays and inpatient hospitalizations, **Includes Beacon Hill, Downtown, the North End, and the West End, ‡ Includes Chinatown
DATA SOURCE: Hospital Case Mix Database, MA Center for Health Information and Analysis (CHIA)
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

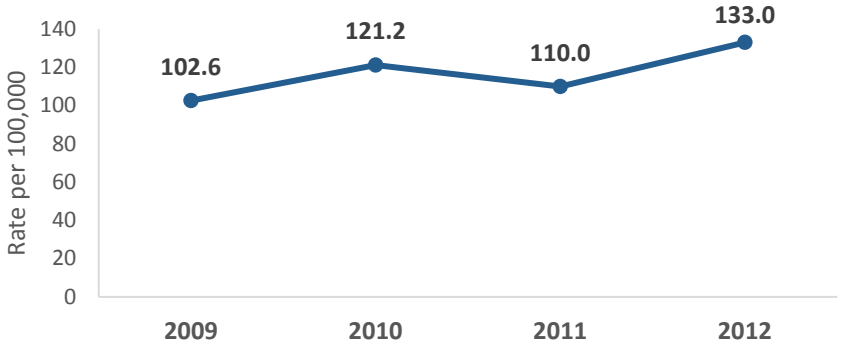
one occasion in the past month, in 2013. From 2007 to 2013, binge drinking among Boston public high school students decreased 21%; however, many focus group participants described concerns over the perceived increase of substance use among teens.

- *Opioids.* While, the rate of total substance abuse treatment admissions (alcohol and/or drugs) in Boston has decreased, the number of opioid-related deaths in Massachusetts increased by 33% from 2012 to 2013, the highest rate ever recorded in the state. Unintentional opioid overdose rates are highest in the South End, which is more than twice the rate compared to Boston overall (277.6 patient encounters per 100,000 population).

Sexual Health, Teen Pregnancy, and Birth Outcomes. Similar to the 2013 CHNA findings, sexual health was not a common theme across assessment participants. However, participants who did mention sexual health voiced specific concerns related to youth, namely unprotected sex and teen pregnancy.

- *Chlamydia.* Chlamydia rates have increased, with 677.5 new cases of chlamydia per 100,000 residents in 2009 to 779.2 per 100,000 residents in 2012.
- *Gonorrhea.* Rates of gonorrhea in the city of Boston have also increased over time, with 102.6 new cases per 100,000 residents in 2009 to 133.0 news cases per 100,000 residents in 2012.
- *Syphilis.* While syphilis rates climbed between 2009 and 2011, there was a slight decrease in new cases between 2011 and 2012 (41.1 and 38.8 new cases per 100,000 residents).

Rates of Gonorrhea per 100,000 Population by Year, Boston



DATA SOURCE: Division of STD Prevention, Massachusetts Department of Public Health as Reported in Health of Boston 2014-2015

- *Teen Pregnancy.* The birth rate among Boston teens (ages 15-19) has steadily dropped since the 2013 CHNA assessment from 15.4 per 1,000 women in 2011 to 12.2 per 1,000 women in 2013. These rates are consistent with state of Massachusetts, where teen birth rates have been consistently lower than the United States (12.0 per 1,000 vs 26.6 per 1,000 in 2013).
- *Birth Outcomes.* There were 8% of low birthweight births in 2012. Black women had the highest percent of low birthweight births (11%), almost twice the amount of Asian residents (6%).
- *HIV.* There were 30.3 per 100,000 new cases of HIV in the city of Boston between 2009 and 2013. In 2013, Black residents accounted for 31% of all HIV/AIDS cases, and Latino residents comprised 21% of all HIV/AIDS cases.
- *Hepatitis C* rates significantly decreased in the city of Boston between 2010 and 2014 (172.4 and 148.0 per 100,000, respectively). White residents (51%) represented the greatest proportion of hepatitis C cases in 2013, followed by Black (17%) and Latino residents (14%).

Health Care Access. Overall, participants reported positive perceptions about health services in the city of Boston. Though when asked about access to those services, participants perceived that resources were not equally available to everyone.

- *Access and Utilization.* Overall, participants reported positive perceptions about health services in the city of Boston, citing ample medical services, hospitals, and community centers in the City. Though when asked about access to those services, participants perceived that resources were not equally available to everyone—namely people of color, elders, homeless residents, and those suffering with mental illness. Quantitative data show that the percent of Boston residents with health insurance increased from 91% in 2005 to 94% in 2013. Approximately 90%, reported receiving a routine check-up within the past two years since 2006.
- *Challenges to Accessing Health Care Services.* Several themes emerged related to health care access and barriers to obtaining care including cost, cultural and language barriers, care for comorbidities, and stigma and fear.

> *"There are many cultural approaches to care, and providers should be well-informed about patient's cultural context and the implications for treatment." –Interview participant*

<u>Existing Health Resources and Community Recommendations</u>

Community Engagement. Focus group and interview participants stressed the importance of identifying community champions that can engage residents in health initiatives. Participants reported strong trust in faith-based organizations and community nonprofits. Further, residents recommended that local hospitals consider leveraging community partnerships to increase community engagement in priority neighborhoods, saying *"we should be working with churches, FQHCs, and YMCAs to do more prevention work."*

Community Outreach and Marketing. While Boston was viewed as a city providing excellent clinical care, residents involved in the assessment knew little about hospital-led community programming, especially in regards to cancer-specific programming. This suggests that marketing and communication efforts should be increased to promote services. The primary recommendation from residents and key informants was to engage the community more through group dialogues and outreach.

Culturally-competent Care. Having culturally-competent provider training was a common theme among focus group and interview participants. Culturally-responsive approaches, including language and culinary norms should be considered when disseminating health-related information. For example, participants reported enjoying Zumba and nutrition classes that focused on Latin American cuisine.

> *"You have to know how to talk to different people and know ahead of time how to deliver these health messages and ask questions. Otherwise, they will get defensive and not want to be honest*." *–Interview Participant*

Healthy Living and Disease Prevention. One theme that emerged frequently was the need for more community education, at the appropriate health literacy level, on health and prevention, and specifically around diabetes, obesity, and cancer prevention. Another prominent theme was a desire for more wellness programming. Worksites were seen as key partners in this. Respondents also expressed a need for more low-cost physical activity opportunities for youth not involved in school sports.

Health Literacy. A prominent theme across focus groups and interviews was the need to provide Boston residents with more information about how to navigate the health system as well as on health topics on healthier living. Many topics for health education were suggested including healthy lifestyles, living with a chronic condition, how to speak with doctors, teen health, and substance abuse.

> *"We need to be creating feedback loops between clinical providers, community providers, and patients because these linkages are vital to prevention and disease management. It's also cheaper, more accessible, and more convenient."*
> *–Interview Participant*

Enhanced Collaboration and Greater Awareness of Existing Services. Although not a prominent theme broadly, a few community organizational interviewees spoke about a desire for greater collaboration across the many health and human service organizations that work in Boston, especially for those working with high risk populations. Respondents also mentioned a need for raising awareness about already existing services, such as free screening services. Focus group and interview participants described a "*competitive, not collaborative*" health system in the city of Boston and wished to see more collaborative efforts among hospitals. Participants reported collaborations led by the Boston Public Health Commission, the Boston Alliance for Community Health, and Boston Public Schools that can be leveraged and strengthened to improve community collaboration.

Conclusions

The following section provides a broad overview of the key findings from this assessment. While a large range of epidemiological, social, and economic data were reviewed, some important main themes emerged that are important to bring to the forefront of this report. Many of the 2016 themes resonate with the 2013 CHNA findings and validate the existing work of BMC's Implementation Plan:

Health Care Access: The communities served by BMC continue to encounter numerous social and economic challenges, which affect access to care.

- *There are great disparities on several social, economic, and health indicators between Boston overall and specific neighborhoods.* Across the board, residents in certain neighborhoods consistently encounter more difficulties related to income and poverty, lifestyle behaviors, and mortality rates than residents city-wide.
- *There are ample resources in the community, but a competitive system creates resources that are fragmented and duplicative.* As discussed in the 2013 CHNA, several key informants described a fragmented and uncoordinated health system in the city of Boston, noting that "*the system here is competitive instead of collaborative, and that makes services duplicative."*

Chronic Diseases and Risk Factors: Chronic diseases and their risk factors – especially maintaining healthy lifestyle behaviors – remain important health issues in the community.

- *There are numerous challenges that exist to maintaining healthy lifestyle behaviors*, including limited access to fruits and vegetables, high density of fast food establishments, safety concerns related to outdoor recreational spaces (e.g., parks, sidewalks, etc.), community norms around physical activity and healthy eating, and individual-level characteristics such as negative attitudes, lack of time, and other factors.
- *While Boston is perceived to be a health-conscious city, more can be done to encourage physical activity and healthy eating, especially around youth.* Respondents praised recreational opportunities and green space in many neighborhoods, but a need was expressed for more physical activity opportunities for youth. Respondents also cited a high density of fast food restaurants and

a lack of time for meal preparation as barriers to healthy eating, and expressed a desire for more education around healthy eating.

Mental Health and Substance Abuse: Behavioral health persists as a pressing and pervasive community health concern.

- *Mental health and substance abuse issues were considered priority health issues, and a need for additional services, namely post-detox and transitional housing, were noted.* A majority of participants stated that behavioral health issues are of key concern for the area. Abuse of opioids, alcohol, prescription drugs, and atypical drugs such as K2 were described as the most concerning. Many participants also described concerns related to mental health, which many times co-occur with substance abuse disorders.

Violence: Violence-based trauma emerged as a key health issue affecting the communities served by BMC.

- *Trauma is a major factor of poor community health outcomes, and there is a need for more trauma-informed care throughout the city. A* prominent theme across participants was the need to better understand how trauma affects all aspects of community health including prevention, violence, and behavioral health.

BACKGROUND

Overview of Boston Medical Center

Boston Medical Center (BMC) is a private, not-for-profit, 496-bed academic medical center located in Boston's historic South End. The hospital is the primary teaching affiliate for Boston University School of Medicine. The largest safety net hospital in New England, BMC provides a full spectrum of pediatric and adult care services, from primary care and family medicine to advanced specialty care. It is also the largest and busiest provider of trauma and emergency services in New England. Emphasizing community-based care, BMC is committed to providing consistently excellent and accessible health services to all. In alignment with its mission to provide the best in health care to all, BMC reaches the community as a founding partner of Boston HealthNet, a network affiliation of the medical center, Boston University School of Medicine, and 15 community health centers throughout Boston.

BMC conducted a community health needs assessment (CHNA) to gain a greater understanding of the health issues facing Boston residents and its specific communities, how those needs are currently being addressed, and where there are opportunities to address these needs in the future. In addition to identifying broad health issues facing residents, the 2016 CHNA delved deeper into behaviors and health outcomes across the cancer continuum of care, exploring behaviors and health outcomes around prevention, screening, treatment/health care utilization, and survivorship. The 2016 CHNA ensures that BMC is compliant with the IRS community benefits guidelines as well as requirements set-forth by the Commission on Cancer standards.

Previous CHNA

BMC conducted a CHNA in 2013 to prioritize health issues, provide a foundation for the development of a community health implementation plan, and to inform the hospital's program planning. The CHNA was conducted between October 2012 to March 2013 with the overall goal of identifying the major healthcare needs, barriers to access, and health priorities for Boston residents. The process culminated in the development of an implementation plan to address the needs of residents identified through the CHNA.

Review of Initiatives

As a result of the key findings from the 2013 CHNA, BMC identified four priority areas, each of which aligned with an identified community health need, that included: access to and utilization of health care; chronic diseases and conditions; violence; and mental health and substance abuse. Since the 2013 CHNA, BMC has provided a variety of services and programming to address these specific needs in the community. Appendix A details the priority areas and reach of the initiatives listed in the 2013 CHNA. Among these initiatives, services such as the Child Protection Team and Pediatric Comprehensive Care Program (CCP) increased capacity in FY '15 to serve at least double the patients served in FY '13 and '14.

For an overview of the health priorities and programming identified in the previous CHNA, please see the 2013 Implementation Plan on the BMC website: http://www.bmc.org/Documents/Implementation-Strategy.pdf

Purpose and Scope of Assessment

Boston Medical Center has partnered with Health Resources in Action (HRiA), a non-profit public health organization, to conduct its community health needs assessment. The 2016 CHNA builds upon 2012-2013 process to further advance BMC's community efforts and priority topic areas. This report describes the process and findings from this effort to achieve the following goals:

2016 CHNA Goals:

- To identify the perceived health needs and assets in the community
- To gain an understanding of people's barriers to health and how these barriers can be addressed
- To understand to what extent cancer is a concern in the community and perceived risks, behaviors, and barriers regarding cancer prevention and screening

Definition of the Community Served by BMC

Although BMC serves residents from across the City of Boston, the largest proportion of its population represents the traditionally underserved, including low-income residents, the homeless population, and those who do not speak English as a primary language. For this CHNA, the community served by BMC was defined as the vulnerable populations residing in the approximately 17 neighborhoods of the city of Boston, highlighting specific neighborhood differences where appropriate. BMC engaged a variety of organizations representing the local, city, and state level to ensure a wide-range of perspectives were captured for the 2016 CHNA (Table 1).

Table 1. Organizations Engaged in 2016 CHNA

Community	City	State
• YMCA of Greater Boston • Codman Square Health Center • Upham's Corner Community Health Center • South End Community Health Center • East Boston Neighborhood Health Center • Bay Cove Human Services • Victory Programs	• Boston Public Health Commission • Boston Public Schools • Roxbury Community College	• Massachusetts Cancer Registry • Massachusetts Department of Public Health

PROCESS AND METHODS

The following section describes how the data for the CHNA were compiled and analyzed, as well as the broader lens used to guide this process. This CHNA defines health in its broadest sense, recognizing that multiple factors—from lifestyle behaviors (e.g., diet and exercise) to clinical care (e.g., access to medical services) to social and economic factors (e.g., employment opportunities)—impact a community's health. The beginning discussion of this section describes the larger social determinants of health framework which helped guide this overarching process.

The CHNA was guided by a participatory, collaborative approach, integrating existing secondary data on social, economic, and health issues in the region with qualitative information from four focus groups with community residents and nine interviews with community stakeholders.

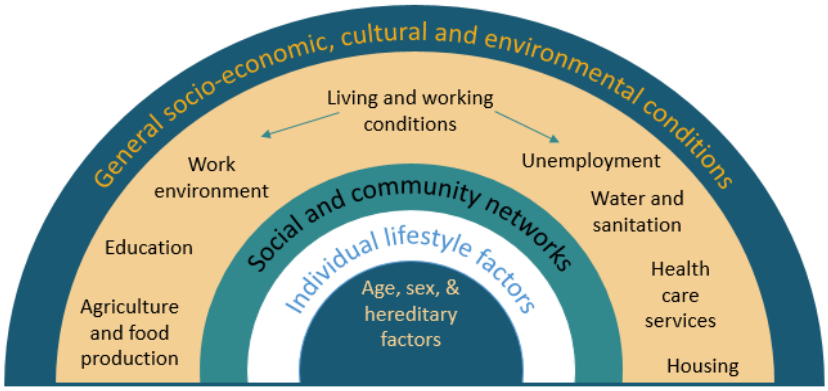
The Boston Redevelopment Authority (BRA) report is the predominant source of demographic data, and the Boston Public Health Commission's (BPHC) Health of Boston report is the predominant source of health data for the city and its neighborhoods. Since these data are publicly accessible, selected secondary data were incorporated to help guide and inform the assessment's larger themes. Additional quantitative data can be found in the Health of Boston report located here: http://www.bphc.org/about/research/Pages/HOB2012-2013.aspx, and in the BRA *Boston in Context: Neighborhoods* report located here: http://www.bostonredevelopmentauthority.org/getattachment/290cae05-72b0-47ba-a214-4a6645d43b01

Social Determinants of Health Framework

It is important to recognize that multiple factors affect health and there is a dynamic relationship between people and their environments. Where and how we live, work, play, and learn are interconnected factors that are critical to consider. That is, not only do people's genes and lifestyle behaviors affect their health, but health is also influenced by more upstream factors such as employment status and quality of housing stock. The social determinants of health framework address the distribution of wellness and illness among a population—its patterns, origins, and implications. While the data to which we have access are often a snapshot of a population in time, the people represented by that data have lived their lives in ways that are constrained and enabled by economic circumstances, social context, and government policies. Building on this framework, this assessment utilizes data to discuss who is healthiest and least healthy in the community as well as to examine the larger social and economic factors associated with good and ill health.

The following diagram provides a visual representation of this relationship, demonstrating how individual lifestyle factors, which are closest to health outcomes, are influenced by more upstream factors such as employment status and educational opportunities (Figure 1). This report provides information on many of these factors, as well as reviews key health outcomes among the residents of Boston.

Figure 1. Social Determinants of Health Framework



Quantitative Data: Reviewing Existing Secondary Data

To develop a social, economic, and health portrait of BMC's priority communities, through a social determinants of health framework, existing data were drawn from national, state, county, and local sources. Sources of data included, but were not limited to, the National Cancer Institute, the U.S. Census, U.S. Bureau of Labor Statistics, Massachusetts Department of Public Health, Boston Public Health Commission, and the Boston Police Department. Types of data included self-report of health behaviors from large, population-based surveys such as the Behavioral Risk Factor Surveillance System (BRFSS), public health disease surveillance data, as well as vital statistics based on birth and death records.

Qualitative Data: Focus Groups and Interviews

While social and epidemiological data can provide a helpful portrait of a community, it does not tell the whole story. It is critical to understand people's health issues of concern, their perceptions of the health of their community, the perceived strengths and assets of the community, and the vision that residents have for the future of their community. Secondary data were supplemented by focus groups and interviews. In total, four focus groups and nine key informant discussions were conducted with individuals from BMC's service area October 2015 through February 2016. Focus groups were held with 54 community residents representing the following population segments:

- Spanish language speaking adults in East Boston
- Cape Verdean Creole language speaking adults in Dorchester
- English language speaking adults in the South End and Roxbury

Nine key informant discussions were conducted with individuals representing the local, regional, and statewide level. Key informants represented a number of sectors including non-profit/community service, city government, hospital or health care, education, housing, substance abuse, and emergency preparedness. Focus group and interview discussions explored participants' perceptions of their communities, priority health concerns, perceptions of public health, prevention, and health care services, and suggestions for future programming and services to address these issues. All focus groups and interviews included standard questions exploring behaviors and health outcomes across the cancer continuum of care. In addition, two cancer-specific key informant interviews were conducted with statewide representatives in order to delve deeper into health outcomes around prevention, screening, treatment/health care utilization, and survivorship.

A semi-structured moderator's guide was used across all discussions to ensure consistency in the topics covered. Each focus group and interview was facilitated by a trained moderator, and detailed notes were taken during conversations. On average, focus groups lasted 90 minutes and included 8-15 participants, while interviews lasted approximately 30-60 minutes. Participants for the focus groups were recruited by BMC affiliated community health centers located in Dorchester, East Boston, the South End, and Roxbury, which were compensated $150 per group for their efforts. The focus groups were intended to be inclusive, so health centers did not exclude participants if they did not live in the particular neighborhood. It was also a priority to recruit adults from traditionally underserved populations. As an incentive, focus group participants received a $30 gift card.

Qualitative Analyses

The collected qualitative information was coded and then analyzed thematically for main categories and sub-themes. Analyses identified key themes that emerged across all groups and interviews as well as the unique issues that were noted for specific populations. Frequency and intensity of discussions on a specific topic were key indicators used for extracting main themes. While neighborhood differences are noted where appropriate, analyses emphasized findings common across neighborhoods. Selected paraphrased quotes – without personal identifying information – are presented in the narrative of this report to further illustrate points within topic areas.

Information Gaps

As with all data collection efforts, there are several limitations related to these data that should be acknowledged. A number of secondary data sources were drawn upon for quantitative data in creating this report. Although all the sources used for this purpose (e.g., U.S. Census, Massachusetts Department of Public Health) are considered highly credible, sources may use different methods and assumptions when conducting analyses. For example, how sources define neighborhood boundaries may vary (e.g., the Boston Public Health Commission combines Roxbury and Mission Hill together, while the Boston Redevelopment Authority defines them separately). Similarly, the Boston Redevelopment Authority defines Dorchester by zip codes 02122, 02124, 02125, while the Boston Public Health Commission defines North Dorchester by zip codes 02121, 02125, and South Dorchester as 02122 and 02124.

Also, due to the collection of data from multiple sources, data presented in this report cover a variety of time periods. Therefore, figures and tables may not be directly comparable with each other. It should be noted that for the secondary data analyses, in several instances, current neighborhood level data were not available. In regard to the Boston Behavioral Risk Factor Survey (BBRFS), neighborhood-level data generally do not include people who are homeless or people whose neighborhood of residence was not reported in the survey (except in the Boston overall numbers).

While efforts were made to talk to a diverse cross-section of individuals, demographic characteristics were not collected from the focus group participants or key informants, so it is not possible to confirm whether they reflect the composition of the community. The focus group findings represent a sub-set of community residents, with more women participants than men, and may be limited in their generalizability.

While the focus groups conducted for this study provide valuable insights, results are not statistically representative of a larger population due to non-random recruiting techniques and a small sample size. Lastly, it is important to note that data were collected at one point in time, so findings, while directional and descriptive, should not be interpreted as definitive.

FINDINGS

Community Social and Economic Context

The health of a community is associated with numerous factors including the demographic distribution of age, race/ethnicity, employment status, income, and educational attainment, among others. Who lives in a community is significantly related to the rates of health outcomes and behaviors of the area. Focus group and interview participants were asked to describe the strengths and challenges of their communities and how these affect their daily lives.

Diversity, both culturally and linguistically, was the most frequently reported community strength. Focus group participants indicated that poverty and a lack of affordable housing were among the most pressing concerns in their daily lives, reporting that the elderly and those suffering with mental illness faced particular challenges. Other environmental factors such as community violence were also reported to contribute to stress and anxiety, which many residents described as negatively impacting their health. The following section further highlights the social and economic context of BMC's service area.

Demographic Characteristics

Population

Table 2 presents the overall population of Boston and its neighborhoods. Since the 2013 CHNA, the population of the city continues to increase, from 617,594 in 2010 to 639,594 in 2014 (Data not shown). The most populated neighborhood in Boston was Dorchester (122,598 residents), followed by Roxbury (49,028), Brighton (44,883), and East Boston (44,512).

Table 2. Total Population by City and Neighborhood, 2010-2014

Location	Total Population
Boston	**639,594**
Allston	19,892
Back Bay	17,759
Beacon Hill	9,097
Brighton	44,883
Charlestown	17,954
Dorchester	122,598
Downtown	16,410
East Boston	44,512
Fenway	32,399
Hyde Park	35,399
Jamaica Plain	38,425
Longwood	5,202
Mattapan	24,043
Mission Hill	16,987
North End	9,229
Roslindale	28,670
Roxbury	49,028
South Boston	33,876
South End	31,742

Location	Total Population
West End	6,096
West Roxbury	32,373

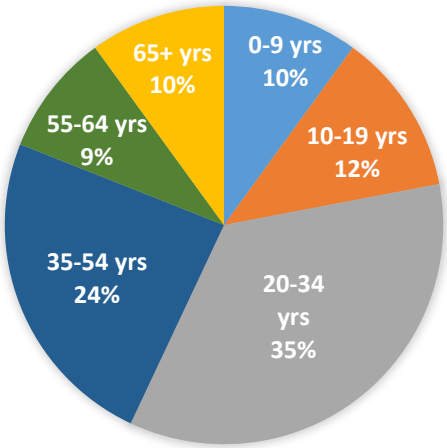
DATA SOURCE: U.S. Census Bureau, 2010-2014 5-Year American Community Survey
DATA ANALYSIS: Boston Redevelopment Authority, as reported in Boston in Context- Neighborhoods, 2016
Note: China Town, the Leather District, and Downtown are combined into 'Downtown'; the South End and Bay Village

Age Distribution

Quantitative data illustrate that the largest segment of Boston's population was between the ages of 20 and 54 years, making up 59% of the population (Figure 2).

- According to American Community Survey 2010-2014 data, the median age of Boston residents was 31 years, compared to the state median of 39 years (Data not shown).
- The youth population (under 20 years) comprised almost a quarter (22%) of the total population.
- Neighborhoods with the youngest median ages include Allston (21 years), Fenway (20 years), and Mission Hill (23 years) (Data not shown).

Figure 2. Age Distribution in Boston, 2010-2014



DATA SOURCE: U.S. Census Bureau, 2010-2014 5-Year American Community Survey
DATA ANALYSIS: Boston Redevelopment Authority, as reported in Boston in Context- Neighborhoods, 2016

Demographic Diversity

Participants engaged in the assessment described their communities as "*very diverse*", mentioning wide racial, linguistic, and cultural diversity. Table 3 shows the increasingly diverse population of the city of Boston and its neighborhoods, with White residents now making up less than half of the city's racial and ethnic composition (46%). While many focus group participants described diversity as a community strength, many residents also voiced concerns about gentrification, notably in the neighborhoods of the South End, Jamaica Plain, and East Boston.

- Table 3 shows that there is substantial variation in the racial and ethnic diversity by neighborhood with Jamaica Plain, Mission Hill, and Roslindale exhibiting greater resident diversity than other neighborhoods including the North End (91% White) and Beacon Hill (86% White).
- Black or African American residents were the second largest racial and ethnic group (23%), followed by Hispanics (18%) and Asians (9%).

Table 3. Racial/Ethnic Composition by City and Neighborhoods, 2010-2014

Neighborhood	White Only	Black or African American Only	Hispanic or Latino	Asian Only	Other
Boston	**46%**	**23%**	**18%**	**9%**	**4%**
Allston	60%	6%	15%	16%	4%
Back Bay	79%	4%	6%	9%	2%
Beacon Hill	86%	2%	4%	7%	1%
Brighton	67%	4%	10%	16%	3%
Charlestown	71%	8%	11%	8%	2%
Dorchester	22%	44%	17%	10%	8%
Downtown	59%	3%	6%	28%	4%
East Boston	32%	3%	58%	3%	4%
Fenway	64%	4%	10%	19%	3%
Hyde Park	27%	45%	23%	2%	3%
Jamaica Plain	54%	12%	24%	6%	3%
Longwood	70%	6%	8%	11%	5%
Mattapan	6%	74%	15%	2%	3%
Mission Hill	51%	17%	16%	14%	2%
North End	91%	1%	3%	4%	2%
Roslindale	48%	21%	24%	3%	3%
Roxbury	11%	54%	29%	3%	4%
South Boston	78%	6%	10%	5%	2%
South End	56%	13%	13%	16%	3%
West End	60%	5%	9%	23%	3%
West Roxbury	74%	8%	10%	6%	2%

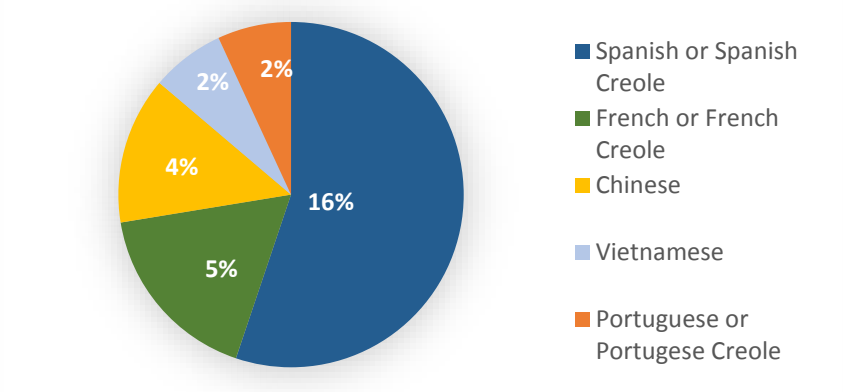
DATA SOURCE: U.S. Census Bureau, 2010-2014 5-Year American Community Survey
DATA ANALYSIS: Boston Redevelopment Authority, as reported in Boston in Context- Neighborhoods, 2016
Note: 'Other Race' consists of American Indians/Alaskan Natives and Some Other Races. China Town, the Leather District, and Downtown are combined into 'Downtown'; the South End and Bay Village
Hispanic is not a racial category reported by the US Census Bureau. Instead, data for the Hispanic population were obtained by subtracting out all individuals from each racial category who self-identify as Hispanic and aggregating them.

Language

Focus group participants in East Boston and Dorchester reported language barriers that made it difficult to navigate the health system and city resources such as public transportation. Residents who did not speak English as their first language described having to rely on friends and family members for interpretation, which many described as burdensome and inconvenient. Quantitative data show that approximately 64% of Boston residents speak English at home (data not shown).

- According to the U.S. Census the most common non-English language spoken in Boston homes was Spanish (16%), followed by French, and Chinese with 5% and 4%, respectively (Figure 3).

Figure 3. Most Frequently Reported Non-English Languages Spoken at Home in Boston, 2010-2014



DATA SOURCE: U.S. Census Bureau, 2010-2014 5-Year American Community Survey
DATA ANALYSIS: Boston Redevelopment Authority, as reported in Boston in Context- Neighborhoods, 2016
NOTE: Spanish includes Spanish Creole. French includes Patois, Cajun, and French Creole. Portuguese includes Portuguese Creole. Percentages will not sum to 100% because only the top non-English languages are reported.

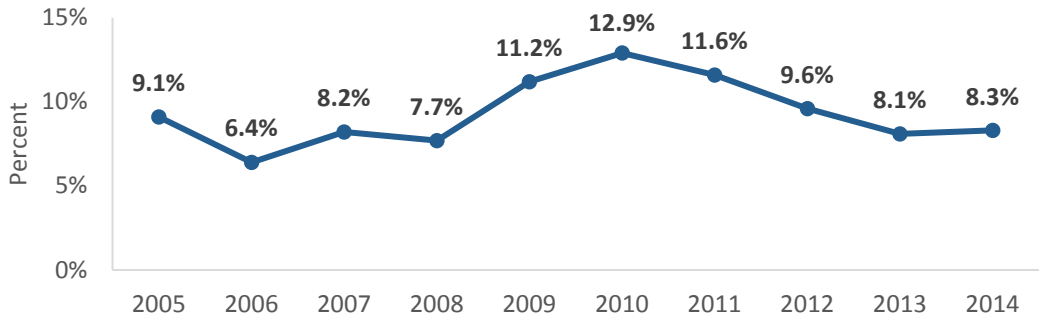
Education and Employment

Employment

According to the U.S. Census Bureau, there has been an overall downward trend in unemployment rates in the city of Boston, from 12.9% in 2010 to 8.3% in 2014 (Figure 4). Yet underemployment, the stagnation of wages, and insufficient benefits were reported by focus group and interview participants as major barriers to economic mobility and a factor of negative health outcomes. Further, assessment participants who suffered from chronic diseases such as cancer described significant challenges to re-entering the job force after completing treatment, saying, *"I want to work, but since I got cancer I can't use my hands in the same way, and I haven't found any programs to help re-train me for other jobs."*

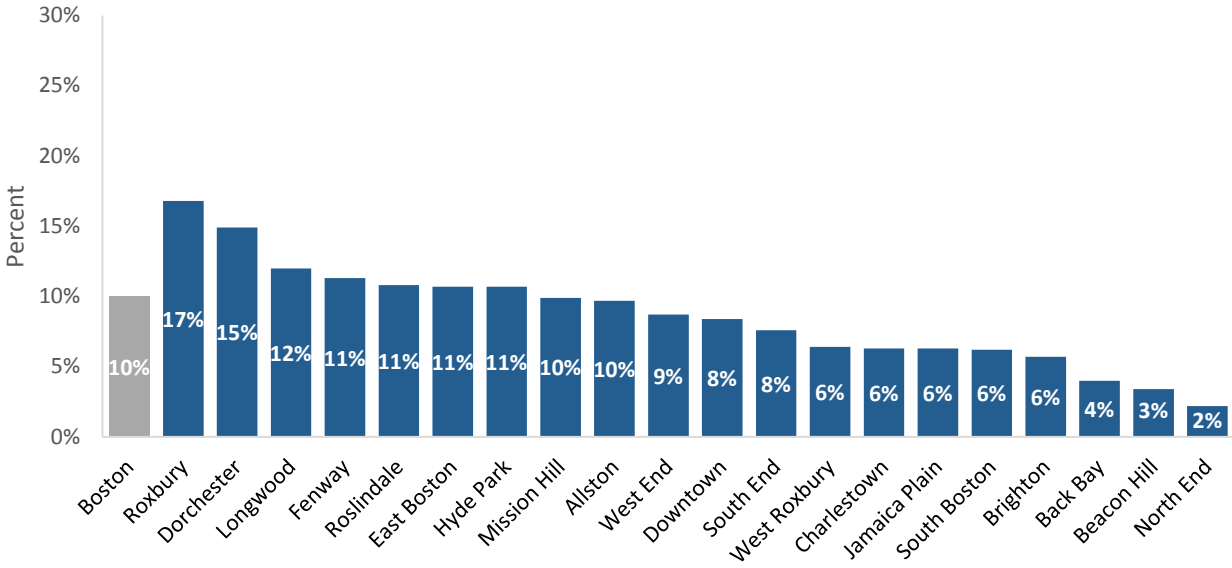
- As seen in Figure 5, unemployment rates were the highest in Roxbury (17%) and Dorchester (15%), above the city rate of 10%.

Figure 4. Unemployment Rate, Boston, 2005-2014



DATA SOURCE: American Community Survey, 2005-2014 2014 U.S. Census Bureau
NOTE: Population 16 and over. Unemployment rates calculated from the 5-year American Community Survey will differ from city, state, or national unemployment rates from the Bureau of Labor Statistics due to differences in timeframe and data collection methods.

Figure 5. Unemployment Rate by City and Neighborhoods, 2010-2014



DATA SOURCE: U.S. Census Bureau, 2010-2014 5-Year American Community Survey
DATA ANALYSIS: Boston Redevelopment Authority, as reported in Boston in Context- Neighborhoods, 2016
NOTE: Population 16 and over. Unemployment rates calculated from the 5-year American Community Survey will differ from city, state, or national unemployment rates from the Bureau of Labor Statistics due to differences in timeframe and data collection methods.

> ***"It's hard to come by good paying jobs around here if you don't have an education." –Focus Group Participant***

Education

Focus group participants described Boston as a "*mecca of education and medicine,*" though quantitative data show that some neighborhoods have much higher educational attainment than others (Table 4). For example, the majority of residents in the neighborhoods of Beacon Hill and Back Bay had a bachelor's degree or higher (87% and 90%, respectively); whereas much fewer residents in Mattapan (15%), East Boston (19%), and Roxbury reported completing at bachelor's degree or higher.

- U.S. Census data show high educational attainment among Boston's adult residents aged 25 years and older, with 45% having earned a college degree or more.
- Nearly a third of East Boston residents have less than a high school diploma (32%), followed by Roxbury (25%) and Dorchester (22%).

Table 4. Educational Attainment of Adults 25 Years and Older by City and Neighborhoods, 2010-2014

Neighborhood	Less than High School	High School Graduate	Some College or Associates	Bachelor's Degree or Higher
Boston	**15%**	**22%**	**18%**	**45%**
Allston	9%	14%	13%	63%
Back Bay	2%	4%	7%	87%
Beacon Hill	1%	2%	7%	90%
Brighton	10%	17%	14%	60%
Charlestown	10%	16%	13%	62%
Dorchester	22%	32%	25%	22%
Downtown	20%	11%	10%	59%
East Boston	32%	31%	17%	19%
Fenway	5%	8%	13%	73%
Hyde Park	13%	31%	29%	27%
Jamaica Plain	8%	14%	15%	63%
Longwood	4%	15%	11%	70%
Mattapan	23%	35%	27%	15%
Mission Hill	14%	24%	19%	43%
North End	6%	8%	9%	77%
Roslindale	13%	24%	20%	43%
Roxbury	25%	30%	25%	20%
South Boston	10%	20%	14%	56%
South End	12%	12%	11%	65%
West End	5%	8%	14%	73%
West Roxbury	7%	20%	22%	51%

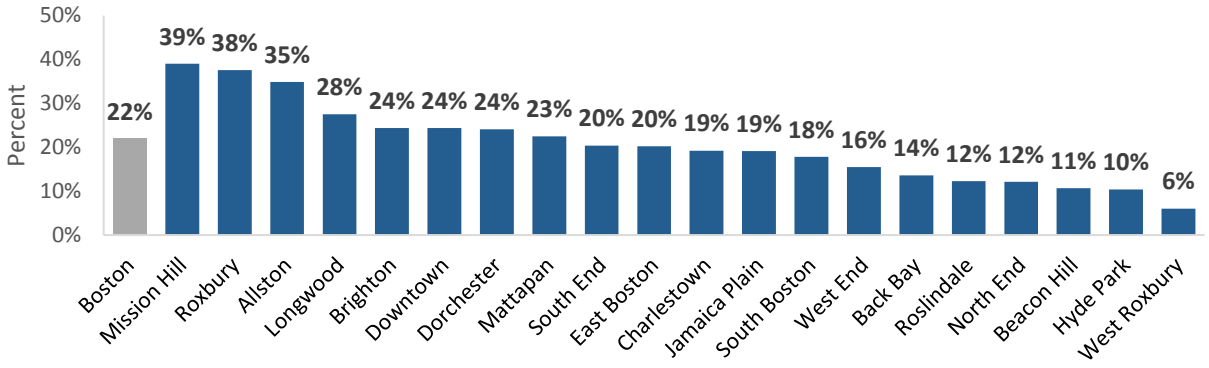
DATA SOURCE: U.S. Census Bureau, 2010-2014 5-Year American Community Survey
DATA ANALYSIS: Boston Redevelopment Authority, as reported in Boston in Context- Neighborhoods, 2016

Poverty and Income

Poverty was reported as a concern across all focus group and interviews, with residents increasingly concerned about the wealth disparity in the city. As one participant shared, *"You have a clash of classes in many neighborhoods where you have the "haves" and "have-nots" walking around together, and we need to bridge that."* Participants indicated that poverty was the root cause of stress in their lives, reporting challenges meeting basic needs such as food and shelter and difficulty balancing multiple low-wage jobs. Economic data confirm that considerable proportions of neighborhood residents were living below the poverty line between 2010 and 2014 (Figure 6).

- In 2014, the median household income in Boston was $55,448. Yet, the median income in communities with more residents of color including, Roxbury ($25,254), Mission Hill, ($35,020) and Mattapan ($42,206)—much lower than the city median (Figure 6).
- The percent of families below the poverty line in Boston from 2010-2014 was 22%. Over a third of Mission Hill (39%), Roxbury (38%), and Allston (35%) families lived below the poverty line.
- When stratified by neighborhood, the data show female-headed households, were particularly vulnerable to poverty. Charlestown (59%), South Boston (47%), and Roxbury (45%) had the highest proportion of female-headed households living below the federal poverty line compared to the city over all (Data not shown).

Figure 6. Percent of Families below Poverty Line by City and Neighborhoods, 2010-2014



DATA SOURCE: U.S. Census Bureau, 2010-2014 5-Year American Community Survey
DATA ANALYSIS: Boston Redevelopment Authority, as reported in Boston in Context- Neighborhoods, 2016
China Town, the Leather District, and Downtown are combined into 'Downtown'; the South End and Bay Village

Housing

Similar to the 2013 CHNA, focus group participants and key informants overwhelmingly expressed concern about housing in Boston being unavailable or unaffordable. As one participant said, "*You see communities like the South End and Back Bay that are well-off and flourishing, but within those communities you see large amounts of people who are homeless sleeping in doorways."* Many participants reported difficulty finding subsidized housing, with some describing waiting more than four years on the Section 8 housing waitlist before being contacted. Further, many residents reported concerns about gentrification in their communities, noting that "*We are being pushed out and soon our neighborhoods will be taken from us and given to only those with money."*

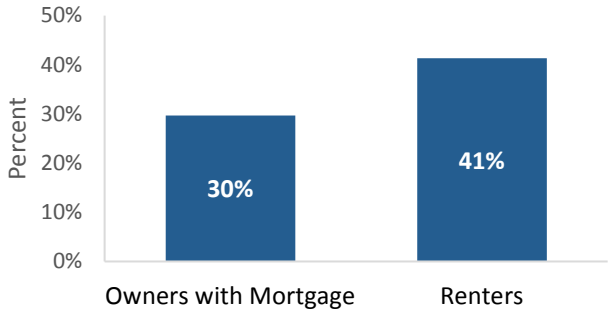
- As shown in Table 5, over half of Boston residents lived in renter-occupied housing (56%) in 2013.
- Owner-occupied housing was most common in the neighborhoods of West Roxbury (67%), Jamaica Plain (51%), Roslindale (47%), and Charlestown (44%).
- Residents in Roxbury, East Boston, and North Dorchester—which have higher proportions of residents of color—were least likely to own their homes (19%, 20%, and 66% respectively).
- Fenway and Allston/Brighton, which are heavily populated by students, also had higher proportions of renter-occupied housing.
- As seen in
- Figure **7**, quantitative data show that 41% of residents spend more than a third of their household incomes on rent, a slight decrease from 2011 data reported in the 2013 CHNA (42.4%) (Data not shown).

Table 5. Housing Tenure by City and Neighborhoods, 2013

Neighborhood	Owner-Occupied	Renter-Occupied
Boston	**36%**	**56%**
Allston/Brighton	27%	67%
Back Bay*	40%	53%
Charlestown	44%	46%
East Boston	20%	72%
Fenway	16%	80%
Hyde Park	45%	46%
Jamaica Plain	51%	42%
Mattapan	43%	45%
North Dorchester	25%	66%
North End	28%	72%
Roslindale	47%	40%
Roxbury	19%	75%
South Boston	37%	55%
South Dorchester	38%	53%
South End†	35%	52%
West Roxbury	67%	21%

NOTE: Other living arrangements such as group home, staying with friends or family without paying rent, not show *Includes Back Bay, Beacon Hill, West End, and the North End; †Includes Chinatown
DATA SOURCE: Boston Behavioral Risk Factor Surveillance Survey (BBRFSS), 2013
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7. Percent of Residents Whose Housing Costs are 35% or more of Household Income, Boston, 2010-2014



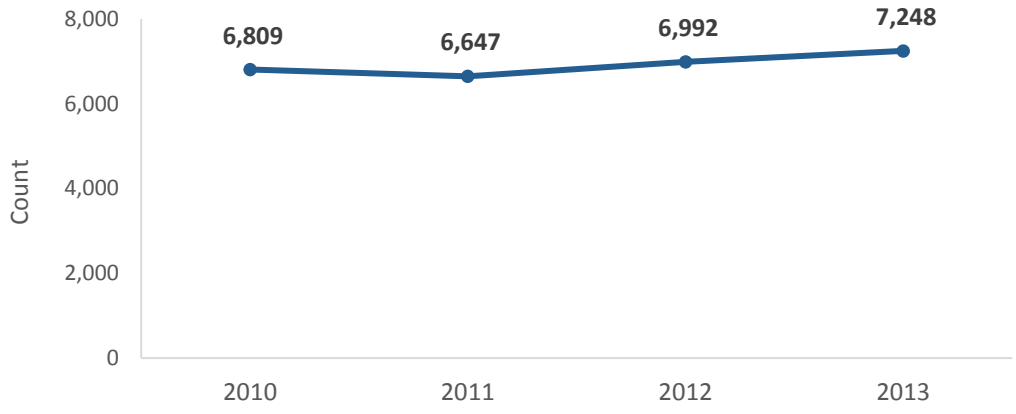
DATA SOURCE: U.S. Census Bureau, 2010-2014 5-Year American Community Survey

Homelessness

Concerns over rising homelessness were mentioned in almost all focus groups and interviews. Key informants identified elders, residents in recovery, and those suffering from mental illness among the most vulnerable for becoming homeless. Interviewees explained that patients with substance abuse issues faced significant challenges qualifying for housing because of restrictive eligibility and criminal records, which resulted in the overutilization of the emergency room and crisis services. Social service providers described "*seeing 3-4 patients a day for suicidal statements but what they really needed was shelter.*"

- Quantitative data show that the number of homeless individuals in Boston has increased by 32% since 2011 to approximately 7,248 individuals in 2013 (Figure 8).

Figure 8. Homeless Count by Year in Boston, 2010-2013



DATA SOURCE: Emergency Shelter Commission, Boston Public Health Commission

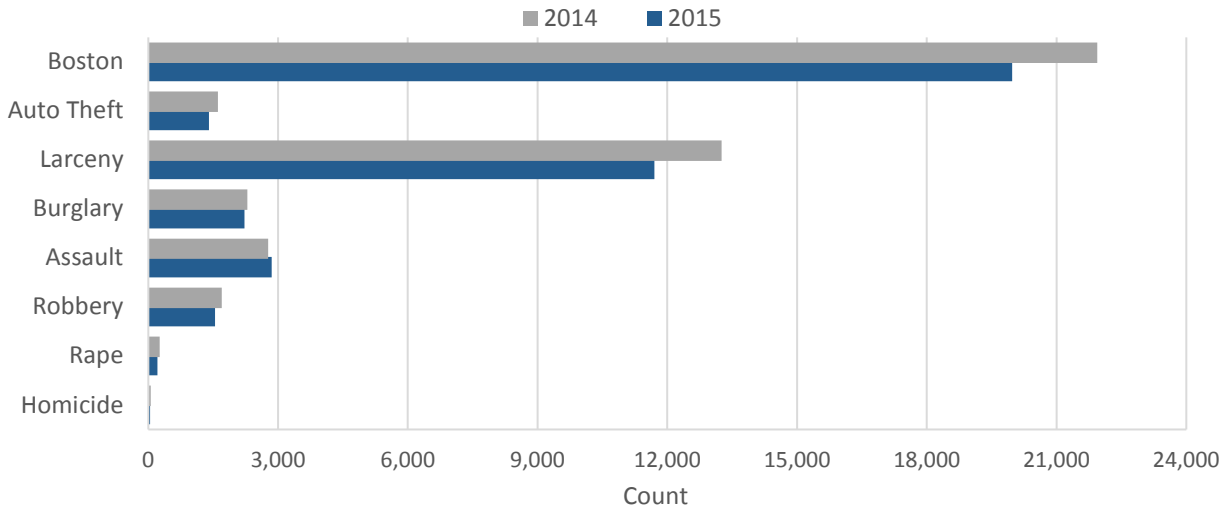
Violence and Neighborhood Safety

As seen in Figure 9, the overall crime rates in the city of Boston decreased from 2014 to 2015. Yet many focus group participants –across all language groups–reported concerns about personal safety in their communities, namely affecting youth. As one participant said, *"It's worrisome because if you don't have children who feel safe at home, walking to school, or in the classroom, there's no way they will be able to stay healthy."* Many interview participants described trauma as an unintended consequence of community violence, noting that *"Many of our students have suffered from traumatic events, either by witnessing community violence or being a part of it, which becomes a huge burden when left unaddressed."*

Further, interview participants reported communities of color being the most vulnerable to community violence saying, "*Violence is a response to a number of environmental and systemic factors such as racism and other forms of oppression."* These responses are consistent with quantitative data that show Asian, Black, and Latino children in Boston were five times as likely to live in households reported unsafe by their caregivers, compared to White children (7%) (Figure 10).

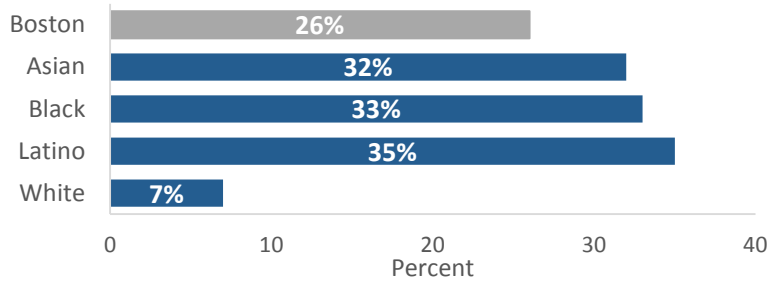
- Between 2014 and 2015, the majority of crimes in the city of Boston were classified as larceny, followed by assault and burglary.
- Yet residents perceived an increase in crime and violence in their communities due to a variety of factors including the prevalence of drugs, poverty, and mental illness.

Figure 9. Crime Counts by Year, Boston, 2014-2015



DATA SOURCE: Boston Police Department, Year End Crime Statistics, 2015

Figure 10. Percent of Caregivers Who Felt Child was Unsafe* in Neighborhood by Race, Ages 0-7, 2012



*Caregivers reported that they felt that child is either sometimes or never safe in community or neighborhood.
DATA SOURCE: Boston Survey of Children's Health, 2012 Boston Public Health Commission as Reported in Health of Boston 2014-2015

Long-term exposure to violence leads to chronic trauma that is very destabilizing to families and communities.

–Interview Participant

Community Health Issues

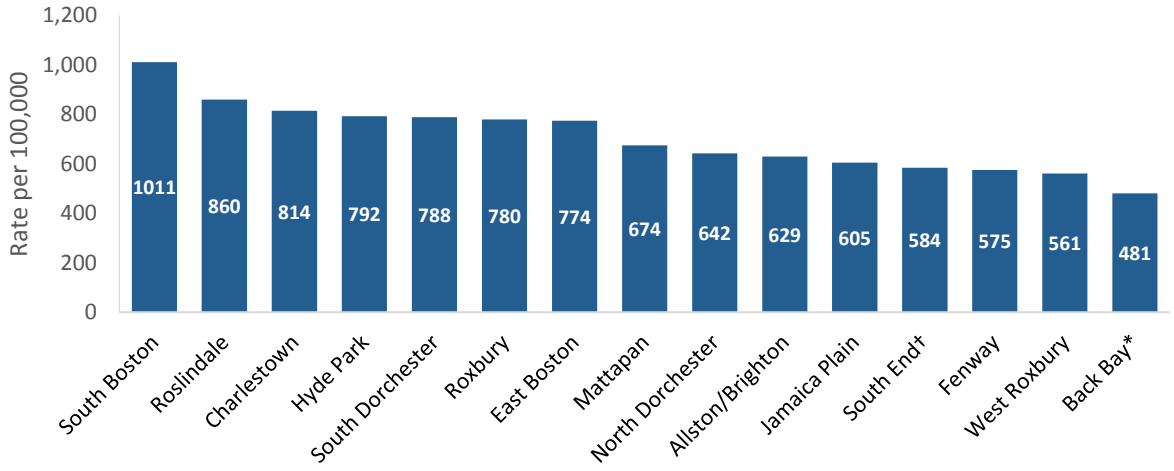
This section of the report provides an overview of leading health conditions in Boston examining incidence and mortality data as well as discussing the pressing concerns that residents and leaders identified during in-depth conversations. Similar to the 2013 CHNA results, chronic diseases and their risk factors—specifically stress, obesity, cancer, and cardiovascular disease— were mentioned in all focus groups and interviews. Mental health and substance use were also prevalent themes, with many participants attributing unaddressed trauma to the perceived increase.

Leading Causes of Mortality

Quantitative data indicate that cancer is the leading cause of death in Boston, followed by heart and cerebrovascular disease (including stroke). Cancer and heart disease remained the top two leading causes of death for all racial/ethnic groups from 2008 to 2013 (Data not shown). Each of these health outcomes will be elaborated upon further in the sections below.

- The average life expectancy in Boston is 80 years of age, and is higher for female than male residents.
- As seen in Figure 11, residents in South Boston experienced the highest death rates of all neighborhoods, (1011 deaths per 100,000 population), more than double that of Back Bay (481 deaths per 100,000).
- South Boston residents also had the highest age-adjusted cancer and heart disease deaths (270 and 186 deaths per 100,000 population, respectively).

Figure 11. Age-Adjusted Death Rates by Neighborhood per 100,000 Population, 2013



DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation

Chronic Diseases and Related Risk Factors

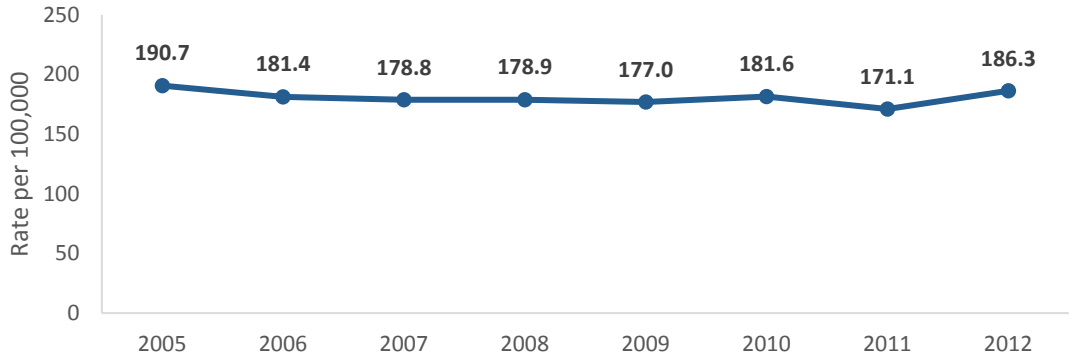
As in the 2013 CHNA, chronic diseases and their related risk factors—including cancer, cardiovascular disease, and obesity— emerged as a pressing health concern among participants.

Cancer

As stated previously, cancer is the leading cause of death in Boston. A cancer mortality rate is the number of deaths, with cancer as the underlying cause of death, occurring in a specified population during a year. Figure 12 shows the age-adjusted rates per 100,000 population for Boston residents from 2005-2012.

- While there has been overall downward trend in cancer mortality since 2005, the rate of cancer deaths in the city of Boston increased from 171.1 per 100,000 in 2011 to 186.3 per 100,000 in 2012.

Figure 12. Age-adjusted Cancer Mortality Rate per 100,000 Population, Boston 2005-2012



DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation as reported in Health of Boston 2012-2013. 2014-2015

As shown in Figure 13, lung, prostate, female breast, and colon cancers were the leading types of cancer deaths in Boston from 2010-2012. The five leading age-adjusted cancer death types stayed relatively stable from 2008-2012. Death rates increased slightly for all five cancers (lung, prostate, female breast, colon, pancreas) from 2011 to 2012.

Figure 13. Leading Types of Cancer Death Rate per 100,000 Boston Residents by Year, 2008-2012

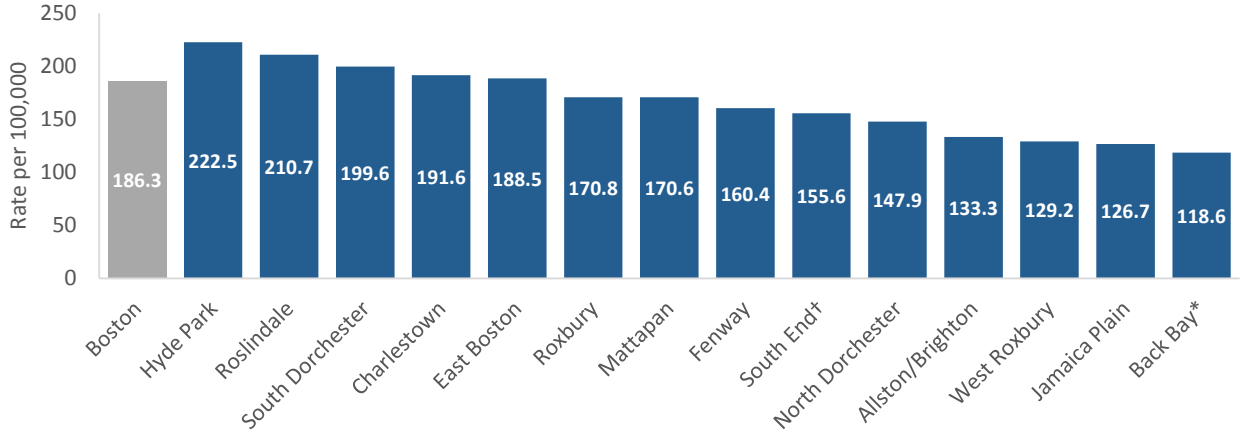
	2008	2009	2010	2011	2012
1	Lung 45.1	Lung 45.7	Lung 43.2	Lung 42.1	Lung 45.2
2	Prostate 26.5	Female Breast 21.6	Prostate 27.3	Prostate 24.8	Prostate 27.4
3	Female Breast 22.1	Colon 15.8	Female Breast 21.2	Female Breast 17.4	Female Breast 17.7
4	Colon 20.6	Pancreas 12.0	Colon 17.6	Colon 15.4	Colon 16.8
5	Pancreas 13.6	Liver 9.0	Liver 9.5	Pancreas 9.8	Pancreas 13.2

*Age-adjusted Rates
DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office as reported in Health of Boston 2014-2015

In 2013, the city of Boston experienced a cancer death rate of 186.3 deaths per 100,000 population. Death rates were higher in the following neighborhoods than the city of Boston overall (Figure 14):

- Hyde Park (222.5 per 100,000)
- Roslindale (210.7 per 100,000)
- South Dorchester (199.6 per 100,000)
- Charlestown (191.6 per 100,000)
- East Boston (188.5 per 100,000)

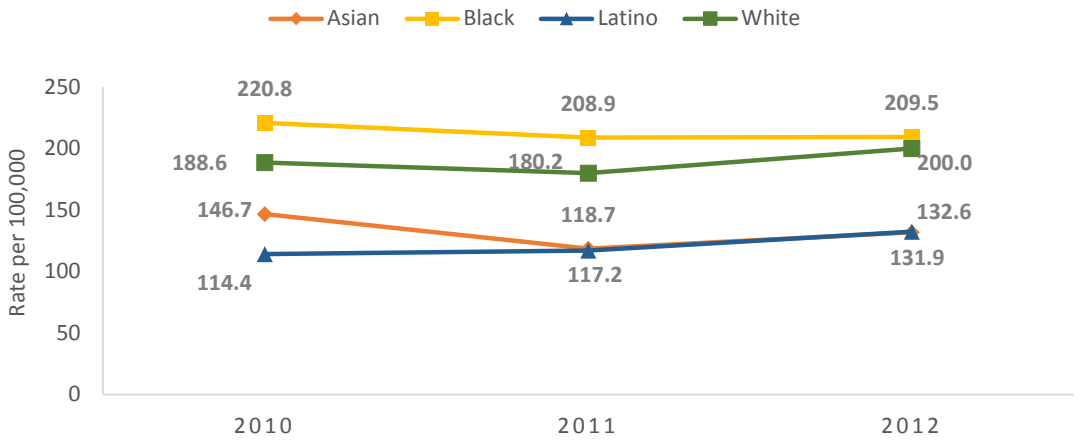
Figure 14. Age-Adjusted Cancer Death Rate per 100,000 Population by City and Neighborhood, 2013



DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

- As seen in Figure 15, Black residents had the highest age-adjusted rate of cancer deaths from 2010-2012 (209.5 per 100,000 population, followed by White residents (200.0 per 100,000 population).
- Asian and Latino residents had the lowest age-adjusted cancer rates from 2010-2012 (132.6 and 131.9 per 100,000 population, respectively).

Figure 15. Age-adjusted Cancer Death Rate per 100,000 Population by Race/Ethnicity, Boston, 2010-2012



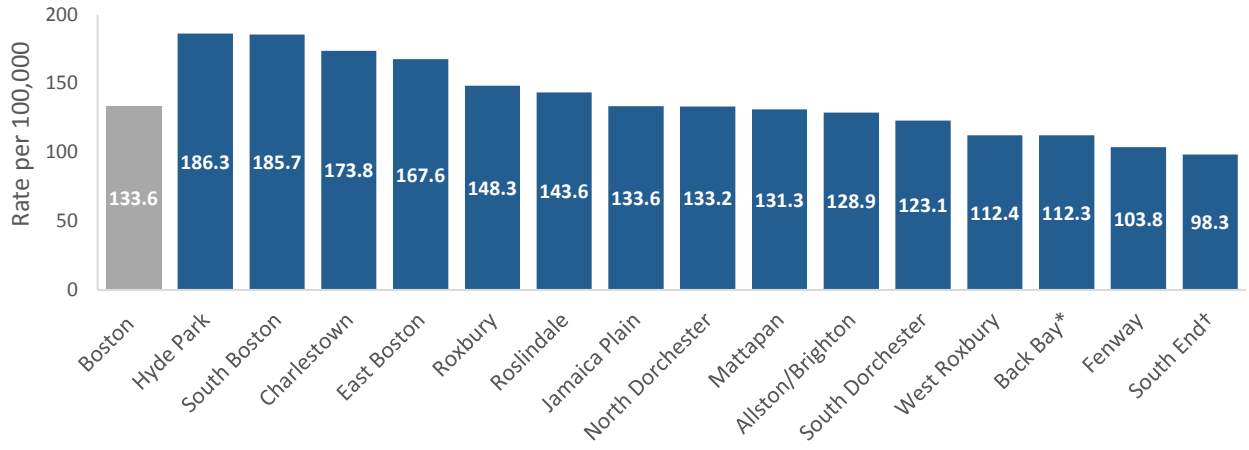
DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation as reported in Health of Boston 2012-2013, 2014-2015

Heart Disease

Heart disease is the leading cause of death for Black, Latino, and White populations in the United States, and the second leading cause of death for Asian Americans. In Boston, heart disease is the second leading cause of death, with 133.6 deaths per 100,000 Boston residents in 2013 (Figure 16). Focus groups and interview participants reported a perceived increase in heart attacks saying, "*It seems like everyone is suffering from heart failure these days…I don't remember it being this prevalent ten years ago."* As seen in Figure 16, residents in Hyde Park and South Boston experienced the highest heart disease death rates of all neighborhoods, (186 deaths per 100,000 population), almost double that of the South End (98 deaths per 100,000).

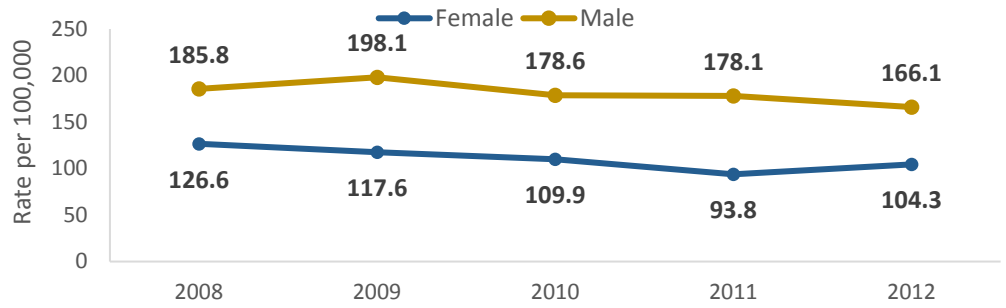
- In 2012, there were 104.3 deaths per 100,000 female residents—lower than the rate for male residents (166.1 deaths per 100,000) (Figure 1).
- Black and White residents were more than three times as likely to die from heart disease than Asian residents in 2012 (155.9 and 144.5 deaths per 100,000 population, respectively) (Figure 18).

Figure 16. Age-Adjusted Heart Disease Death per 100,000 Population, by City and Neighborhood 2013



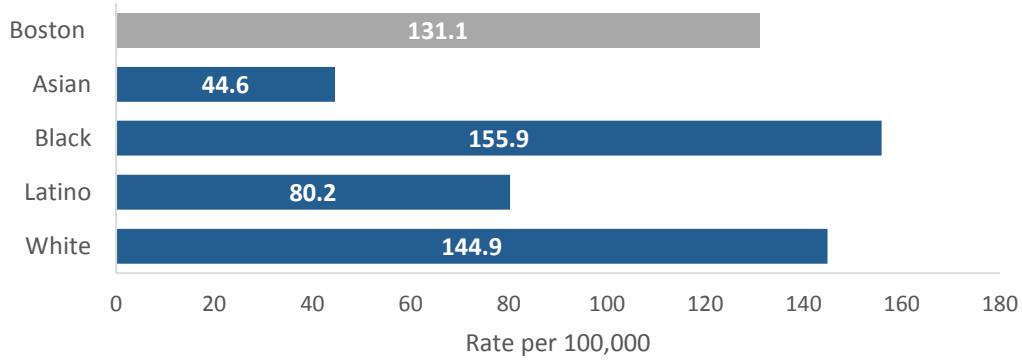
*Includes Back Bay, Beacon Hill, West End, and the North End
†Includes Chinatown
DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation

Figure 17. Age-adjusted Heart Disease Deaths per 100,000 Population by Gender and Year



DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health as Reported in Health of Boston 2014-2015

Figure 18. Age-adjusted Heart Disease Deaths per 100,000 Population by Race/Ethnicity and Year*



DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health as Reported in Health of Boston 2014-2015

Hypertension

Hypertension, or high blood pressure, was mentioned as a concern across the majority of focus groups and interviews. Quantitative data show that the prevalence of hypertension has remained consistent since 2005, ranging from 23%-25%. As seen in Table 6, approximately a quarter of Boston residents reported suffering from hypertension in 2013, which was lower than state and national average (29%).

Table 6. Percent of Hypertension among Boston Adults by Year

2005	2006	2008	2010	2013
23%	23%	25%	25%	24%

DATA SOURCE: Boston Behavioral Risk Factor Survey (2013), Boston Public Health Commission
DATA ANALYSIS: Boston Public Health Commission as Reported in Health of Boston 2014-2015

Table 7. Percent of Hypertension among Adults by Selected Sociodemographic Indicators, 2013

Boston	24%
Gender	
Female	24%
Male	25%
Age of Student	
18-24 yrs.	7%
25-44 yrs.	10%
45-64 yrs.	38%
65+ yrs.	65%
Race	
Asian	16%
Black	37%
Latino	26%
White	19%
Educational Attainment	
Less than High School	44%
High School Diploma or GED	27%
At Least Some College/ Bachelor's or Higher	19%
Income	
<$25,000	33%
$25,000-49,999	25%
$50,000+	18%

DATA SOURCE: Boston Behavioral Risk Factor Survey (2013), Boston Public Health Commission
DATA ANALYSIS: Boston Public Health Commission as Reported in Health of Boston 2014-2015

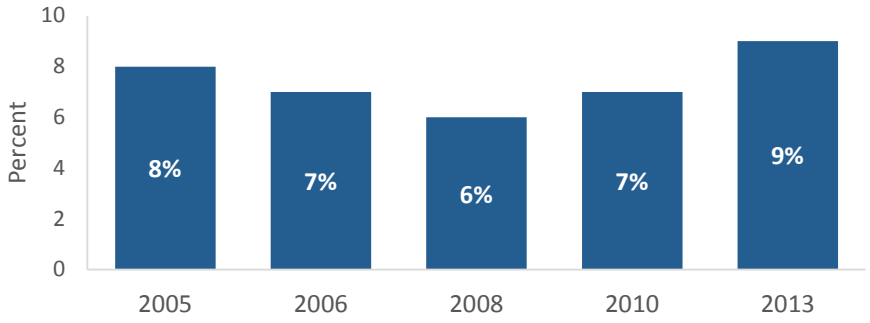
- Hypertension prevalence in Boston was similar between males (25%) and females (24%) in 2013.
- Residents who were 65 years or older reported the highest percent of hypertension compared to all other age groups.
- The percent of Black adults that reported suffering from hypertension (37%) was more than double that of Asian adults (16%).
- Residents with lower levels of educational attainment and income were the most likely to report having hypertension 2013.

Diabetes

Diabetes was an issue mentioned in most focus groups and interviews, particularly as it related to the growing trend of obesity. Key informants described the importance of focusing on pre-diabetes management, saying "*we see services in place for diabetes management, but what's missing is more emphasis on diabetes prevention. I can't tell you how many people I see who say, 'I wish my doctor told me when I was pre-diabetic so I could've done something about it earlier. '*As show in Figure 19, the prevalence of diabetes increased slightly from 7% in 2010 to 9% in 2013.

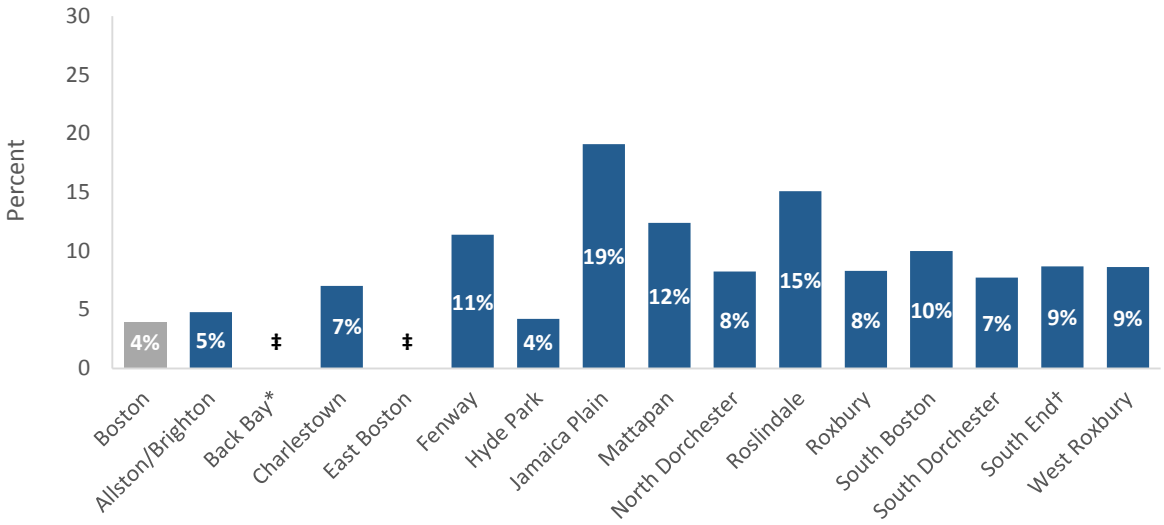
- The percent of Mattapan (19%), Roxbury (15%), and North Dorchester (12%) residents who reported having diabetes was three times higher than residents in Allston/Brighton (4%), Jamaica Plain (4%), and Back Bay (5%) (Figure 20).
- Roxbury (34.0 deaths per 100,000), Mattapan (32.0 deaths per 100,000), and South Boston (29.0 per 100,000), had the highest diabetes death rates in 2013 (Data not shown).

Figure 19. Percent of Diabetes among Boston Adults by Year



DATA SOURCE: Boston Behavioral Risk Factor Survey
DATA ANALYSIS: 0Boston Public Health Commission Research and Evaluation Office

Figure 20. Percent of Diabetes among Adults by City and Neighborhood, 2013



‡ Insufficient sample
*Includes Back Bay, Beacon Hill, West End, and the North End ; †Includes Chinatown
DATA SOURCE: Boston Behavioral Risk Factor Surveillance Survey (BBRFSS), 2013
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Table 8. Percent of Diabetes among Adults by Selected Sociodemographic Indicators, 2013

Boston	9%
Gender	
Female	8%
Male	9%
Age of Student	
18-24 yrs.	*
25-44 yrs.	2%
45-64 yrs.	17%
65+ yrs.	25%
Race	
Asian	6%
Black	14%
Latino	13%
White	5%
Educational Attainment	
Less than High School	18%
High School Diploma or GED	12%
At Least Some College/ Bachelor's or Higher	6%
Income	
<$25,000	14%
$25,000-49,999	9%
$50,000+	4%

* Insufficient sample size
DATA SOURCE: Boston Behavioral Risk Factor Survey (2013), Boston Public Health Commission
DATA ANALYSIS: Boston Public Health Commission as Reported in Health of Boston 2014-2015

- In 2013, similar proportions of males (9%) and females (8%) reported having diabetes.
- Adults ages 65+ were the most likely (25%) to report having diabetes.
- Black and Latino residents experienced diabetes at more than double the proportion of White and Asian residents (5% and 6%, respectively).
- Those with at least some college education reported having diabetes (6%) at half the proportion of residents with a high school diploma (12%) or less (18%).
- Residents who made less than $25,000 reported having diabetes at more other than higher income groups combined (13%).

Asthma

In 2013, 11% of Boston adults reported having asthma, which has remained consistent since the previous CHNA findings (Table 9). Focus group participants identified environmental conditions such as second hand smoke and pests as triggers for asthma, especially among children. In Boston, the disease burden of asthma is distributed differently by neighborhood.

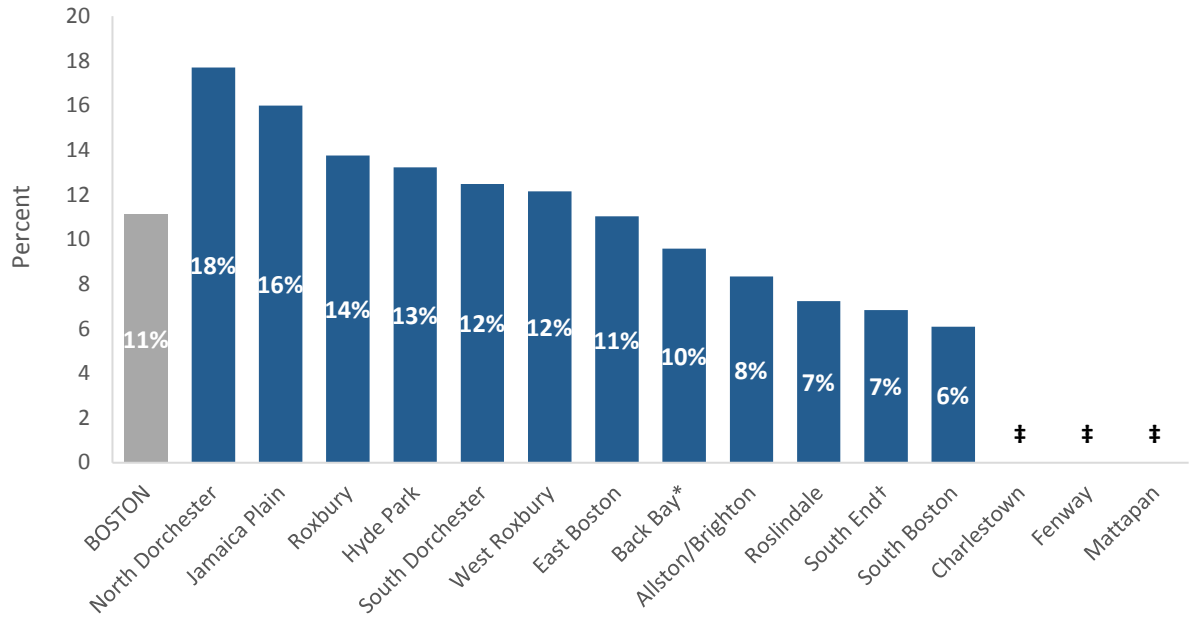
- As seen in Figure 21, the highest estimated asthma prevalence rates were in North Dorchester (18%), followed by Jamaica Plain (16%), and Roxbury (14%). Similar to data from the 2013 CHNA, residents in these neighborhoods reported experiencing asthma at much higher rates than residents in Boston overall (11%).

Table 9. Percent of Asthma among Boston Adults by Year

2006	2008	2010	2013
12%	11%	12%	11%

DATA SOURCE: Boston Behavioral Risk Factor Survey, Boston Public Health Commission
DATA ANALYSIS: Boston Public Health Commission as Reported in Health of Boston 2014-2015

Figure 21. Percent of Asthma among Adults by City and Neighborhood, 2013



‡ Insufficient sample
*Includes Back Bay, Beacon Hill, West End, and the North End; †Includes Chinatown
DATA SOURCE: Boston Behavioral Risk Factor Surveillance Survey (BBRFSS), 2013
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Table 10. Percent of Asthma among Adults by Selected Sociodemographic Indicators, 2013

Boston	11%
Gender	
Female	13%
Male	9%
Age	
18-24	11%
25-44	12%
45-64	11%
65+	10%
Race	
Asian	3%
Black	12%
Latino	12%
White	12%
Income	
<$25,000	16%
$25,000-49,999	12%
$50,000+	9%

DATA SOURCE: Boston Behavioral Risk Factor Survey (2013),
Boston Public Health Commission
DATA ANALYSIS: Boston Public Health Commission as Reported in Health of Boston 2014-2015

- A higher percent of females (13%) reported having asthma than males (9%) in 2013.
- The prevalence of asthma was similar across all age groups. On average, 11% of all residents reported having asthma in 2013.
- Though the prevalence of asthma in Black, Latino, and White (12%) residents was four times the rate of Asian residents (3%)
- Those who made less than $25,000 were the most likely to report having asthma in 2013.

- In 2013, nearly a quarter of Boston public high school students reported having being diagnosed with asthma (24%), which decreased from 29% in 2011 (Table 11).

Table 11. Percent of Asthma among Boston Public High School Students by Year

2007	2009	2011	2013
25%	26%	29%	24%

DATA SOURCE: Youth Risk Behavior Survey (2007, 2009, 2011, 2013)
DATA ANALYSIS: Boston Public Health Commission Office of Research and Evaluation

Table 12. Percent of Asthma among Public High School Students by Selected Sociodemographic Indicators, 2013

Boston	24%
Gender	
Female	22%
Male	27%
Age of Student	
<16 yrs.	24%
16-17 yrs.	26%
18+ yrs.	19%
Race	
Asian	27%
Black	24%
Latino	27%
White	21%

DATA SOURCE: Youth Risk Behavior Survey (2013), Centers for Disease Control and Prevention
DATA ANALYSIS: Boston Public Health Commission as Reported in Health of Boston 2014-2015

- In 2013, more male public high school students reported having asthma than females (22%).
- Students under the age of 18 were the most likely to have reported having asthma.
- A lower percent of White residents reporting having asthma compared to Asian, Latino, and Black residents.

Obesity

Numerous comorbid conditions have been associated with obesity and weight control including diabetes, hypertension, and cancer. In the BBRFS, all respondents were asked to report their height and weight. Respondents were categorized based on their Body Mass Index (BMI), which equals weight in kilograms divided by height in meters squared. An adult who has a BMI of 30 or higher is considered obese, as defined by the Behavioral Risk Factor Survey.

Residents mentioned obesity as a key concern in the community, reporting that the issue was pervasive among both adults and youth. Competing time commitments, the availability of accessible and affordable healthy food, and cultural norms were attributed as challenges to maintaining a healthy weight. Quantitative data in Table 13 demonstrate that obesity continues to be a major health concern in Boston, with 22% of Boston adults reporting being obese or overweight in 2013, a slight increase from 2010 (20%).

Table 13. Percent Obesity among Boston Adults by Year

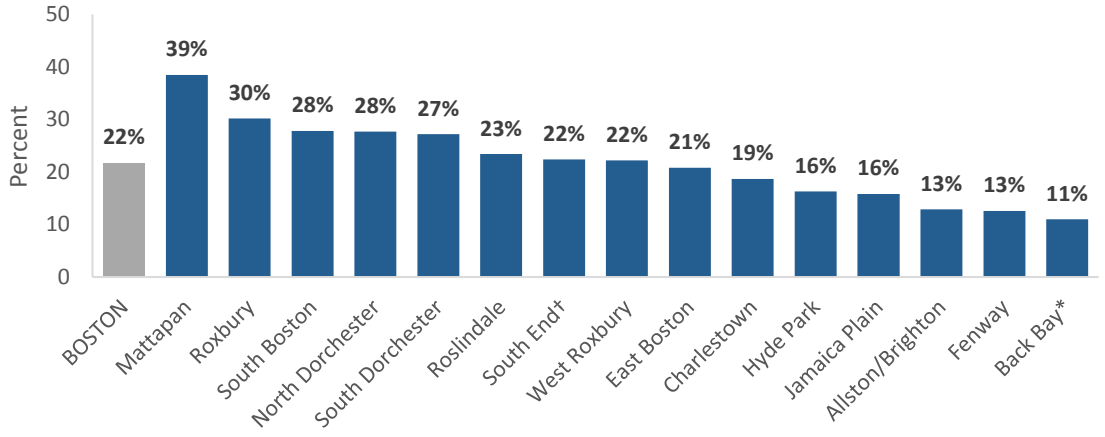
2005	2006	2008	2010	2013
19%	21%	24%	20%	22%

DATA SOURCE: Boston Behavioral Risk Factor Survey (2003, 2005, 2006, 2008, 2010 and 2013), Boston Public Health Commission Research and Evaluation Office

When stratified by neighborhood, BBRFSS data show the following neighborhoods reported a higher prevalence of self-reported obesity compared to Boston overall in 2013 (Figure 22).

- Mattapan (39%)
- Roxbury (30%)
- South Boston (28%)
- North Dorchester (28%)
- South Dorchester (27%)
- Roslindale (23%)

Figure 22. Percent Obesity among Boston Adults by Neighborhood, 2013

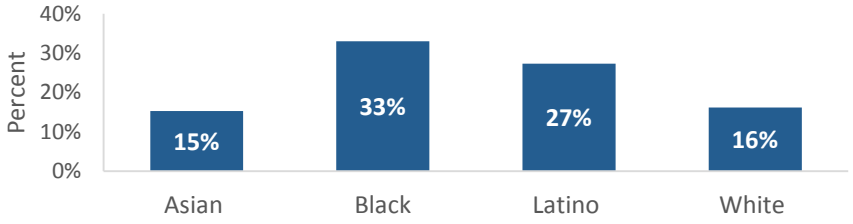


*Includes Back Bay, Beacon Hill, West End, and the North End, †Includes Chinatown
DATA SOURCE: Boston Behavioral Risk Factor Surveillance Survey (BBRFSS), 2013
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 23 shows that the percent of Black residents (33%) and who reported being obese was more than double the percent of White residents (16%) and Asian residents (15%).

- Latino residents had the second highest proportion of obese adults (27%) of all race and ethnic groups.
- Focus group participants attributed cultural norms around food to high obesity rates saying, "*Our food isn't the healthiest; we like a lot of fried foods."*

Figure 23. Percent Obesity among Boston Adults by Race/Ethnicity, 2013

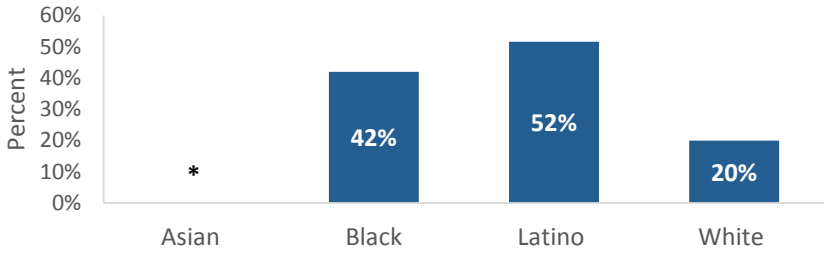


DATA SOURCE: Boston Behavioral Risk Factor Survey, 2013
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Focus group participants described youth obesity as a major concern saying, "*both of my kids are overweight, and many of their friends are too; I worry about it getting out of control.*" Residents in East Boston cited programs like *Let's Get Moving* as resources to keep kids healthy, but wished to see more structured activities in the winter time.

- Figure 24 shows that in 2012, over half of Latino children (52%) and 42% of Black children in the city of Boston were overweight or obese, which was more than double that of White children (20%).
- Nearly 14% of Boston public high school students were obese in 2013 (Table 14).

Figure 24. Percent of Boston Children (10-17 yrs.) who are Currently Overweight or Obese, 2012



* Insufficient Sample
DATA SOURCE: Boston Survey of Children's Health 2012
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Table 14. Percent Obesity among Boston Public High School Students by Year

2007	2009	2011	2013
15%	15%	14%	14%

DATA SOURCE: Youth Risk Behavior Survey (2007, 2009, 2011, and 2013), Centers for Disease Control and Prevention as reported in Health of Boston 2014-2015

> *"There's a social stigma attached to obesity; people are perceived as lazy when they're obese and that contributes to problems with their mental and emotional health." –Interview Participant*

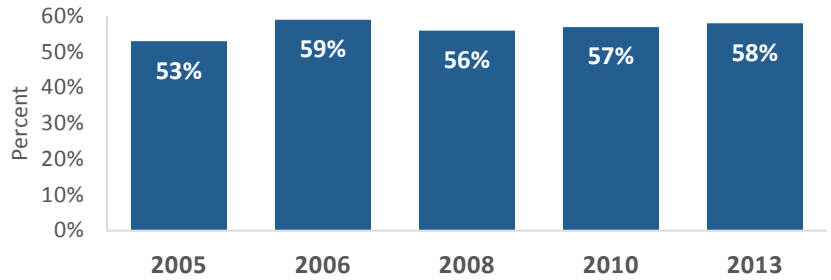
Physical Activity and Healthy Eating

Physical activity and healthy eating are also important risk factors for maintaining a healthy weight and reducing one's risk of certain diseases. Focus group and interview participants reported that exercise and healthy eating were ways to prevent chronic diseases such as obesity and cancer. However, residents described competing priorities, such as work and child care, and cultural norms as barriers to maintain a healthy lifestyle. As one resident said, *"I know I should exercise and eat healthy foods, but sometimes there's no time so you choose the easy route."*

Further, several focus group participants described having to travel long distances for healthy produce and chose to purchase food at convenient stores instead. These findings were consistent with barriers described in the 2013 CHNA, namely a lack of time, cultural norms, and limited access to healthy food.

- Since 2006, nearly 60% of adults in Boston reported meeting CDC guidelines for aerobic physical activity, defined as 150 minutes in the past week, which is above the state (55%) and national (49%) average.

Figure 25. Adults Who Met CDC Guidelines for Aerobic Physical Activity (150 Minutes per Past Week), 2013



DATA SOURCE: Boston Behavioral Risk Factor Survey, 2001, 2003, 2005, 2006, 2008, and 2010, 2013
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office as Reported in Health of Boston 2014-2015

Table 15. Percent of Adults Who Met CDC Guidelines for Aerobic Physical Activity (150 Minutes in the Past Week) by Selected Sociodemographic Indicators, 2013

Boston	58%
Gender	
Female	58%
Male	57%
Age	
18-24 yrs.	54%
25-44 yrs.	56%
45-64 yrs.	61%
65+ yrs.	59%
Race/Ethnicity	
Asian	60%
Black	53%
Latino	47%
White	62%
Educational Attainment	
Less than High School Diploma	43%
High School Diploma or GED	52%
At Least Some College/Bachelor's Degree or Higher	62%
Income	
<$25,000	49%
$25,000-$49,999	54%
$50,000+	68%

DATA SOURCE: Boston Behavioral Risk Factor Surveillance Survey (BBRFSS), 2013
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office as reported in Health of Boston 2014-2015

- Similar proportions of males (57%) and females (58%) reported 150 minutes of physical activity in the past week.
- Residents between the ages of 45-64 years were the most likely to meet CDC guidelines for aerobic physical activity.
- A higher percent of White (62%) and Asian (60%) residents reported meeting CDC guidelines for aerobic physical activity than Latino (47%) and Black residents (53%).
- Residents with at least some college education (62%) reported meeting physical activity guidelines more often than residents with a high school diploma (52%) or less (43%).
- Those who reported an income of $50,000 or more were more likely to meet physical activity guidelines than those who earned less.

Table 16. Adults Who Consume Vegetables Less Than Once Per Day by Select Sociodemographic Indicators, 2013

Boston	25%
Gender	
Female	21%
Male	29%
Age	
18-24 yrs.	34%
25-44 yrs.	21%
45-64 yrs.	23%
65+ yrs.	28%
Race/Ethnicity	
Asian	21%
Black	34%
Latino	25%
White	22%
Educational Attainment	
Less than High School	34%
High School Diploma or GED	35%
At Least Some College/Bachelor's Degree or Higher	20%
Income	
< $25,000	30%
$25,000-$49,999	28%
$50,000+	17%

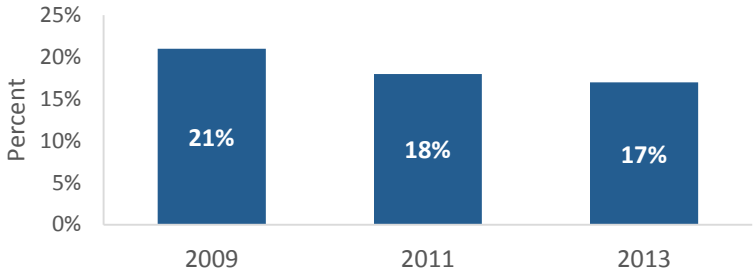
- In 2013, males (29%) were more likely than females (21%) to report consuming less than one daily serving of vegetables per day.
- Young adults ages 18-24 reported not meeting CDC guidelines for vegetable consumption more than all other age groups (34%).
- More than a third of Black residents (34%) reported consuming less than one serving of vegetables per day, followed by Latinos and Whites (25% and 22%, respectively).
- Residents with higher levels of educational attainment were more likely to report meeting CDC guidelines for daily vegetable consumption.

DATA SOURCE: Boston Behavioral Risk Factor Survey (BBRFSS), 2010 and 2013
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

"We see higher rates of obesity in food deserts, so it's really an issue of access to healthy food." –Interview Participant

- As seen in Figure 26, the percent of Boston students who reported consuming less than one daily serving of fruits and vegetables decreased from 21% in 2009 to 17% in 2013.
- Table 17 shows that a higher percent of Black and Latino students reported consuming less than one daily serving of fruits and vegetables compared to Asian and White students (6% and 11%, respectively).

Figure 26. Public High School Students Who Consume Less Than One Daily Serving of Fruits and Vegetables by Year



DATA SOURCE: Boston Behavioral Risk Factor Survey (2013), Boston Public Health Commission
DATA ANALYSIS: Boston Public Health Commission as Reported in Health of Boston 2014-2015

Table 17. Boston Public High School Students Who Consume Less than One Daily Service of Fruits and Vegetables by Select Sociodemographic Indicators, 2013

Boston	17%
Gender	
Female	19%
Male	16%
Age of Student	
<16 yrs.	17%
16-17 yrs.	18%
18+ yrs.	16%
Race	
Asian	6%
Black	19%
Latino	22%
White	11%

DATA SOURCE: Boston Behavioral Risk Factor Survey (2013), Boston Public Health Commission
DATA ANALYSIS: Boston Public Health Commission as Reported in Health of Boston 2014-2015

Mental Health and Substance Abuse

Focus group and interview participants discussed mental health, especially depression and stress, as a significant concern facing the community. As one interview participant stated, "*stress gets so much into people's psyche that it manifests in real, physical ways."* These findings are consistent with mental health concerns reported in the 2013 CHNA. Participants in both the 2013 and 2016 CHNA attributed rising mental health issues to poverty and related factors such as violence, trauma, and substance abuse.

Trauma was another prominent theme related to mental health issues. Interview participants described how chronic trauma—especially for youth—exacerbated mental health issues among Boston residents. As one participant said, "*Schools do huge amounts of crisis response work. We see many students suffering from mental illness which is often amplified by exposure to chronic trauma like community violence. It's a huge burden on communities and schools that have to navigate these issues."*

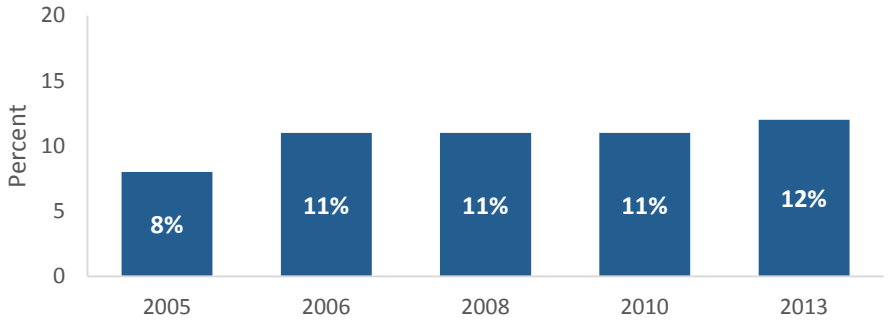
Further, key informants perceived that those suffering from mental illness were the most vulnerable to poor health outcomes, stating that providers often overlooked medical symptoms because of psychiatric issues. As one participant said, *"There are well-intended medical providers that are so distracted by psychiatric symptoms that they don't take a patient's medical complaint seriously. If someone is talking to themselves or showing other psychiatric symptoms, it doesn't mean that they aren't experiencing the chest pain that they originally came into the ER for."*

Mental Health

Persistent Sadness

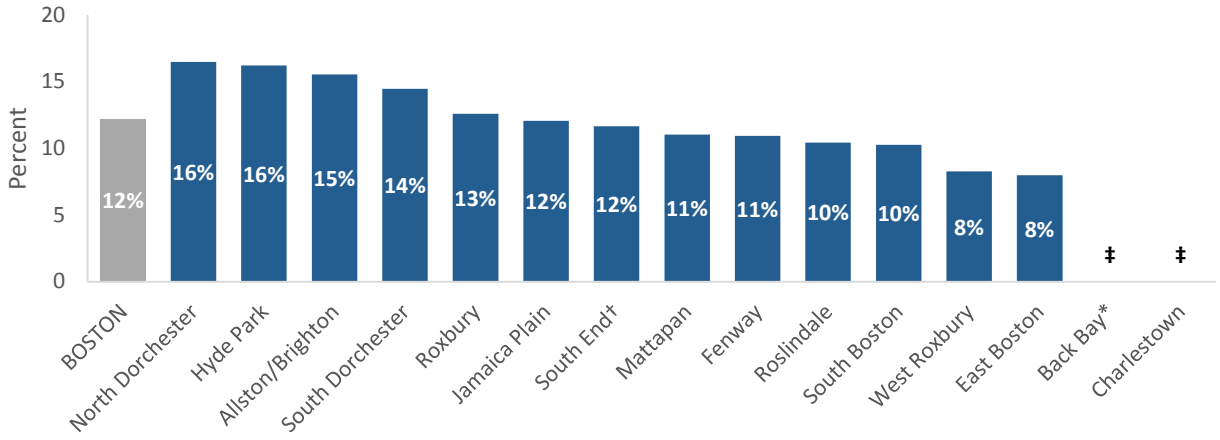
- Quantitative data show that 12% of Boston adults experienced persistent sadness, defined as feeling sad or hopeless every day for two weeks or more during the past month, a gradual increase since 2005 slight (8%) (Figure 27).
- As seen in Figure 28, residents in North Dorchester (16%) and Hyde Park (16%) reported persistent sadness twice as often as residents in East Boston (8%) and West Roxbury (8%).

Figure 27. Percent of Boston Adults Reporting Persistent Sadness (15+ days during past 30 days) by Year



DATA SOURCE: Boston Behavioral Risk Factory Survey (2005, 2006, 2008, 2010, 2013)
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office as Reported in Health of Boston 2014-2015

Figure 28. Percent of Adults Reporting Persistent Sadness (15+ days during past 30 days) by City and Neighborhood, 2013



‡ Insufficient sample
*Includes Back Bay, Beacon Hill, West End, and the North End †Includes Chinatown
DATA SOURCE: Boston Behavioral Risk Factor Surveillance Survey (BBRFSS), 2013
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Table 18. Percent of Adults Reporting Persistent Sadness (15+ days during past 30 days) by Selected Indicators, 2013

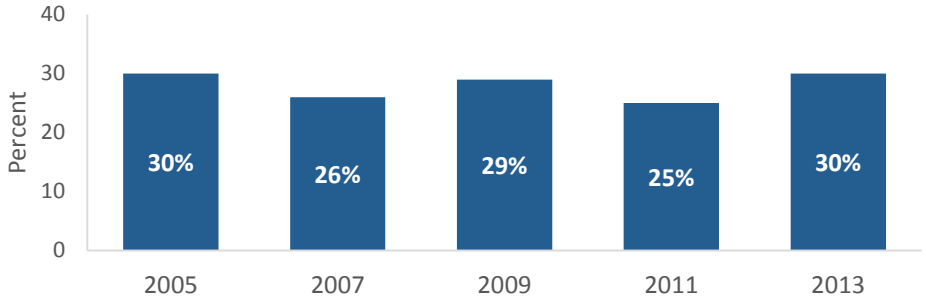
Boston	12%
Gender	
Female	14%
Male	10%
Race/Ethnicity	
Asian	9%
Black	13%
Latino	17%
White	11%
Sexual Orientation	
Heterosexual	12%
Lesbian, Gay, Bisexual and 'Not Sure'	14%
Income	
<$25,000*	22%
$25,000-$49,000*	9%
$50,000+*	%

DATA SOURCE: Boston Behavioral Risk Factor Survey (2013), Boston Public Health Commission
DATA ANALYSIS: Boston Public Health Commission as Reported in Health of Boston 2014-2015

- Females were more likely to report persistent sadness (14%) than males (10 %) in 2013.
- Latino students were most likely to report persistent sadness (17%), followed by Black (13%), White (11%) and Asian (9%) students.
- Lesbian, gay, and bisexual adults reported persistent sadness at a slightly higher percent than heterosexual residents (12%).
- The percent of residents with an income less than $25,000 reporting persistent sadness was more than three times that of residents with an income of $50,000 or more.

- Quantitative data show an increase in self-reported persistent sadness among public high school students from 25% in 2011 to 30% in 2013 (Figure 29).

Figure 29. Percent of Boston Public High School Students Reporting Persistent Sadness by Year



DATA SOURCE: Youth Risk Behavior Survey (2005, 2007, 2009, 2011, 2013)
DATA ANALYSIS: Boston Public Health Commission as Reported in Health of Boston 2014-2015

Table 19. Percent of Boston Public High School Students Reporting Persistent Sadness by Selected Indicators, 2013

Boston	30%
Gender	
Female	37%
Male	23%
Race/Ethnicity	
Asian	7%
Black	11%
Latino	19%
White	22%
Sexual Orientation	
Heterosexual	27%
Lesbian, Gay, Bisexual or 'Not Sure'	48%

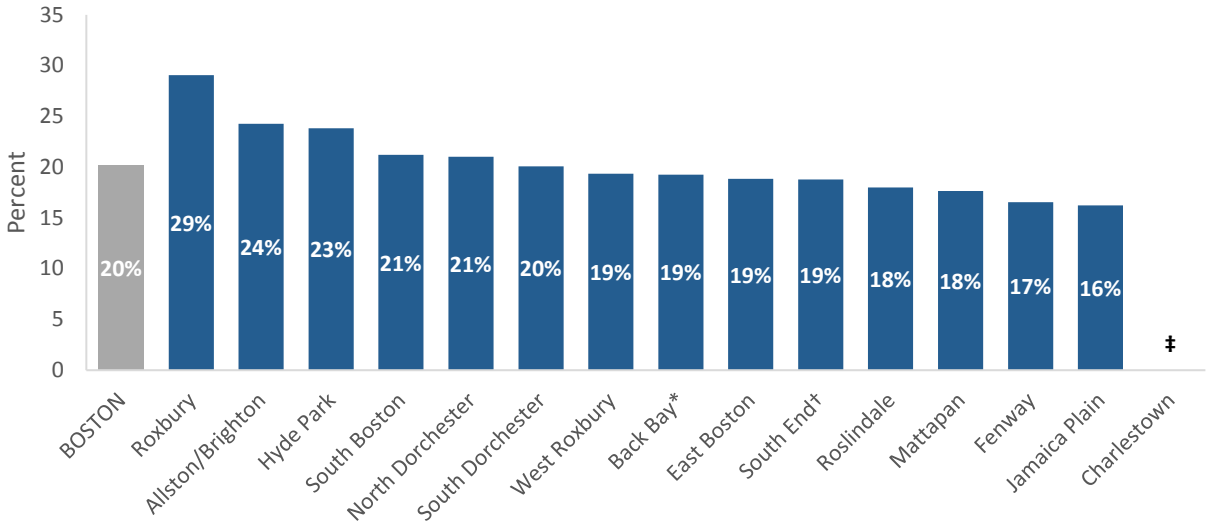
DATA SOURCE: Youth Risk Behavior Survey (2013), Centers for Disease Control and Prevention
DATA ANAYLSIS: Boston Public Health Commission as Reported in Health of Boston 2014-2015

- Female high school students (37%) reported persistent sadness more often than males in 2013 (23%).
- White (22%) and Latino (19%) students were more likely to report persistent sadness followed by Black and Asian students (11% and 7%, respectively).
- A higher percent of public high school students who identified as Lesbian, Gay, Bisexual or 'Not Sure' reported persistent sadness nearly double compared to heterosexual students (48% and 27%, respectively).

Persistent Anxiety

- According to BBRFSS data, 20% of Boston residents reported having persistent anxiety, defined as 15 or more days of anxious feelings during the last month.
- When stratified by neighborhood, the data show that Roxbury (29%), Allston/Brighton (24%), and Hyde Park (23%) had the highest proportion of residents self-reporting anxiety compared to the city over all.

Figure 30. Percent of Adults Who Were Tense or Anxious (15+ days during past 30 days), by City and Neighborhood



‡ Insufficient sample
*Includes Back Bay, Beacon Hill, West End, and the North End
†Includes Chinatown
DATA SOURCE: Boston Behavioral Risk Factor Surveillance Survey (BBRFSS), 2013
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Table 20. Percent of Persistent Anxiety among Adults by Selected Indicators, 2013

Boston	20%
Gender	
Female	23%
Male	17%
Race/Ethnicity	
Asian	11%
Black	19%
Latino	18%
White	23%
Sexual Orientation	
Heterosexual	20%
Lesbian, Gay, Bisexual or 'Not Sure'	30%
Income	
<$25,000*	29%
$25,000-$49,000*	18%
$50,000*	16%

*15-20% of unweighted sample was missing data
DATA SOURCE: Boston Behavioral Risk Factor Survey (2013), Boston Public Health Commission
DATA ANALYSIS: Boston Public Health Commission as Reported in Health of Boston 2014-2015

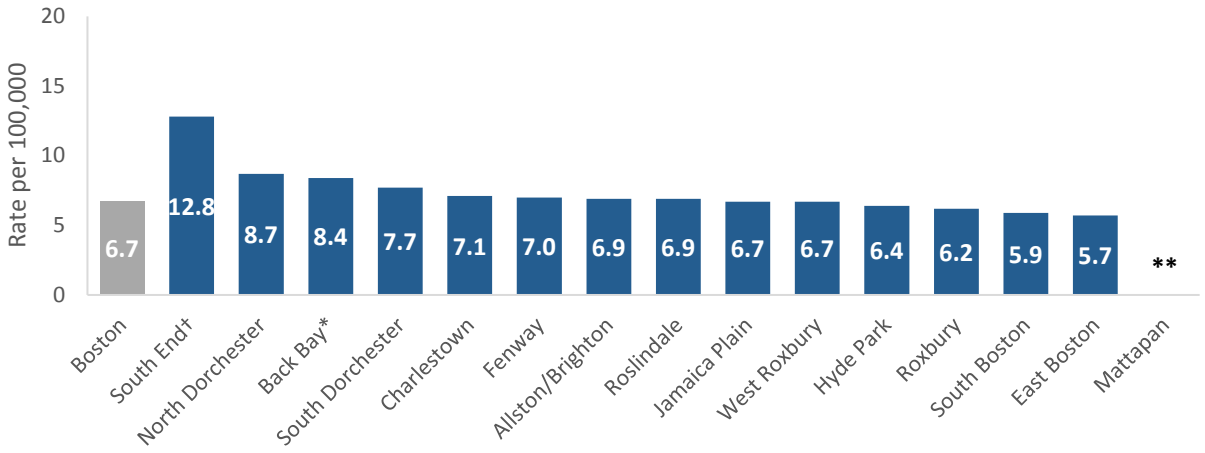
- As seen in table 21, females (23%) were more likely to report persistent anxiety than males (17%).
- White residents reported the highest prevalence of persistent anxiety (23%) in 2013, more than double that of Asian residents (11%).
- Similar to other mental health indicators, residents who identified as Lesbian, Gay, Bisexual or 'Not Sure' reported persistent anxiety more often than heterosexual residents.
- Residents with lower incomes had higher prevalence of self-reported persistent anxiety compared to residents with higher incomes.

Suicide Mortality

From 2009-2013, the rate of suicide mortality in the city of Boston was 6.7 deaths per 100,000 residents, lower than the state average of 8.7 deaths per 100,000 residents (Data not shown).

- South End residents experienced the highest rates of suicide mortality (12.8 deaths per 100,000)—more than double the rate of Boston overall (Figure 31).
- The majority of suicides in 2013 were male (76%) and 57% were among people ages 35-64 (Data not shown).

Figure 31. Age-Adjusted Rates of Suicide Mortality per 100,000 Population, by Neighborhood, 2009-2013



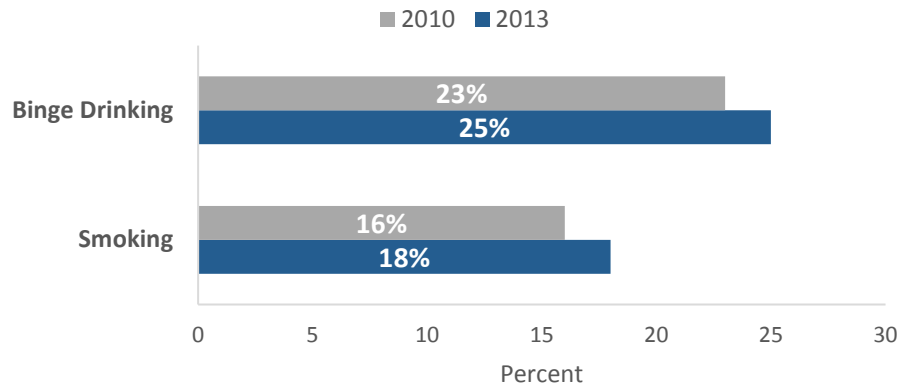
NOTE: Average annual age-adjusted rates shown
*Includes Back Bay, Beacon Hill, West End, and the North End
†Includes Chinatown
**n<5
DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation

Substance Abuse

Similar to 2013 findings, substance abuse was identified as a major issue in the community and was raised repeatedly in focus group and interview discussion. Participants mentioned a variety of substances including heroin, cocaine, and prescription drug abuse as being among the most concerning. Marijuana use among youth was noted as a particular problem in the community. As one focus group participant described, *"People are smoking marijuana everywhere these days, so kids think its normal behavior. It's hard to tell them not to do something when it's constantly around."*

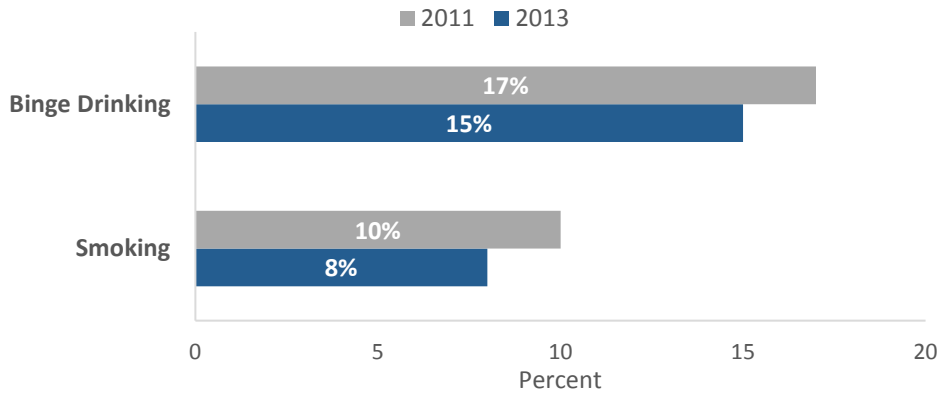
- As seen in Figure 32, the proportion of Boston adults who reported binge drinking and smoking slightly increased from 2010 to 2013. On the contrary, youth substance abuse has decreased from 2011 to 2013 (Figure 33).

Figure 32. Percent of Substance Use among Adults in Boston, 2010 and 2013



DATA SOURCE: Boston Behavioral Risk Factor Survey (2009, 2010, 2011, 2012, 2013), Boston Public Health Commission
DATA ANALYSIS: Boston Public Health Commission as Reported in Health of Boston 2014-2015

Figure 33. Percent of Substance Use among Public High School Students in Boston, 2011 and 2013



DATA SOURCE: Youth Risk Behavior Survey (2011 and 2013), Centers for Disease Control and Prevention
DATA ANAYLSIS: Boston Public Health Commission Research and Evaluation Office

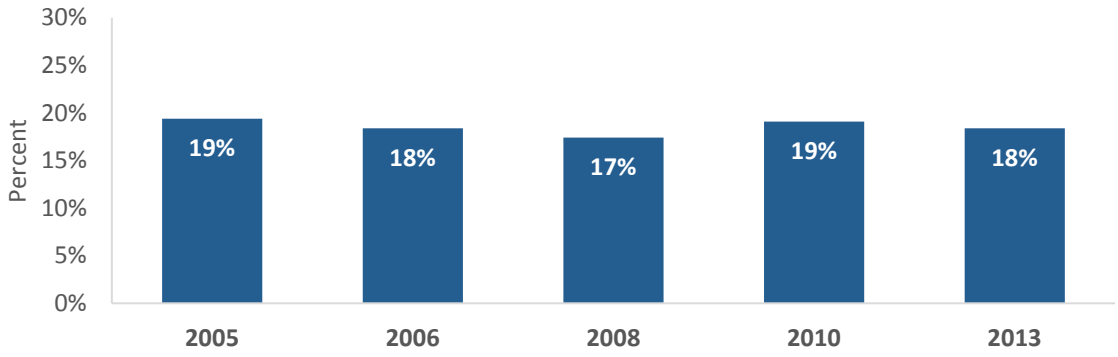
Smoking

The Boston Behavioral Risk Factor Surveillance Survey (BBRFS) regularly assesses the number of adults who said they currently smoke cigarettes, defined as adults who have smoked at least 100 cigarettes in their life and report smoking every day or some days.

Focus group participants acknowledged that smoking led to negative health outcomes, but there were mixed opinions about ordinances banning smoking in housing development. Participants also had differing opinions about smoking alternatives such as electronic cigarettes and chewing tobacco. Those participants who reported smoking, considered the alternatives as a way in which to gradually quit cigarettes. Others disagreed and said, *"Keep reading, there's still chemicals in e-cigs that give you cancer."* City-wide electronic cigarette data were not available for this assessment. Though in August 2014, the Centers for Disease Control (CDC) reported that more than a quarter million youth who had never smoked a cigarette used e-cigarettes in 2013, three times the number of users since 2011.

- Figure 34 shows self-reported cigarette smoking among adults in Boston from 2005-2013, which decreased slightly from 19% in 2010 to 18% in 2013. Smoking prevalence among Boston adults is higher than the state and national average (16% and 17%, respectively).

Figure 34. Trends in Self-Reported Cigarette Smoking Among Adults in Boston 2005, 2006, 2008, 2010, and 2013



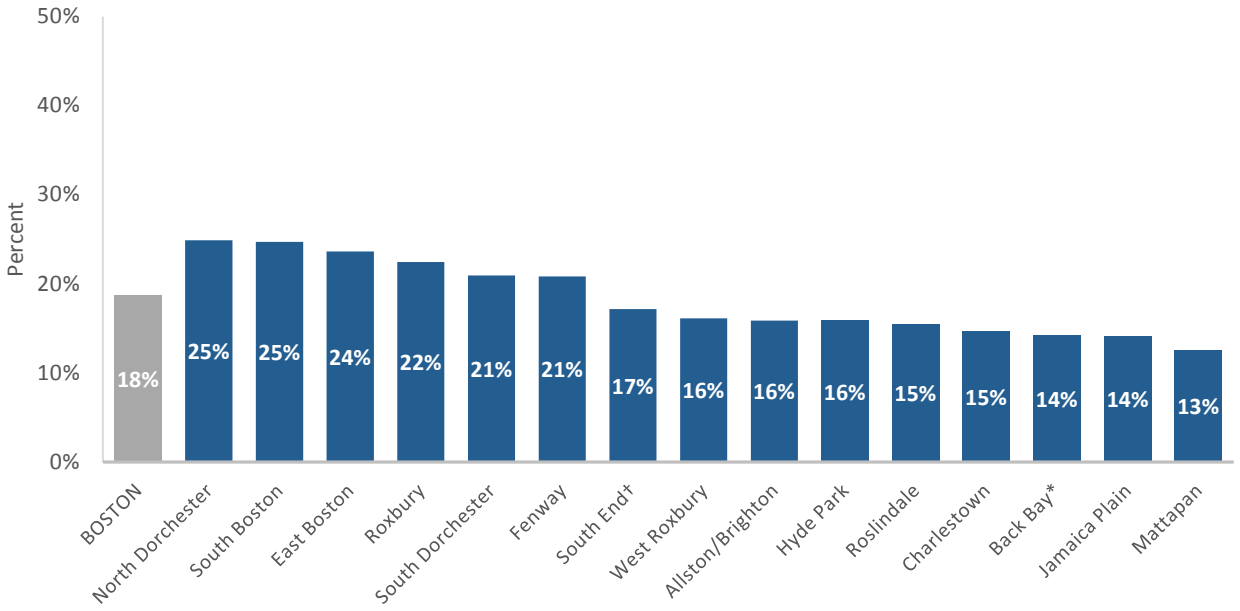
DATA SOURCE: Boston Behavioral Risk Factor Surveillance Survey (BBRFS) 2005, and 2006, 2010, 2013 Boston Public Health Commission (BHPC) Health of Boston 2014-2015 Report
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office
NOTE: The BBRFSS dataset was reweighted after the publication of Health of Boston 2012-2013. The rates included in Health of Boston 2014-2015 are from the reweighted BBRFSS and cannot be compared to BBRFS smoking data in previous Health of Boston Report

"Smoking is a coping mechanism for stress; higher stress levels translate to more negative coping mechanism like smoking and substance abuse." -Interview Participant

Figure 35 shows the percent of current adult smokers by neighborhood. The following neighborhoods reported a higher prevalence of smokers compared to Boston overall (18%):

- North Dorchester (25%)
- South Boston (25%)
- East Boston (24%)

Figure 35. Percent of Current Smoking among Adults by City and Neighborhood, 2013



DATA SOURCE: Boston Behavioral Risk Factor Survey (2013)
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Table 21. Percent of Adults Who Smoke by Select Sociodemographic Indicators, Boston, 2013

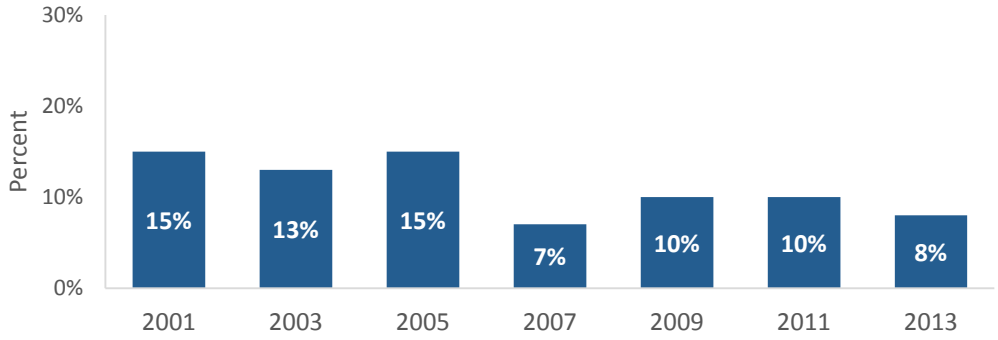
Boston	18%
Gender	
Female	15%
Male	22%
Race/Ethnicity	
Asian	15%
Black	19%
Latino	16%
White	19%
Educational Attainment	
Less than High School	30%
High School Diploma or GED	23%
At Least Some College	15%
Income	
<$25,000	29%
$25,000-$49,999	18%
$50,000+	11%

DATA SOURCE: Boston Behavioral Risk Factor Survey (2013)

- More adult males were self-reported smokers (22%) than females (15%) in 2013.
- A higher percent of White (19%) and Black adults (19%) reported smoking than Asian (15%) and Latino (16%) adults.
- The percent of adults with less than a high school degree who smoke (30%) was double that of adults with some college education (15%).
- Those who reported an income of less than $25,000 reported smoking at higher rates than residents who earned more.

- The percent of youth who self-reported smoking has declined by almost half (47%) from 15% in 2001 to 8% in 2013 (Figure 36).

Figure 36. Trends in Self-Reported Cigarette Smoking Among Youth in Boston, 2001, 2003, 2005, 2007, 2009, 2011 and 2013



DATA SOURCE: Youth Risk Behavior Survey (2005, 2007, 2009, 2011, and 2013), Centers for Disease Control and Prevention
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Table 22. Percent of Public High School Students Who Smoke by Select Sociodemographic Indicators, 2011 and 2013 Combined

Boston	9%
Gender	
Female	8%
Male	10%
Age of Student	
<16 yrs.	6%
16-17 yrs.	11%
18+ yrs.	10%
Race/Ethnicity	
Asian	4%
Black	5%
Latino	10%
White	23%

- More male (10%) than female public high school students (8%) reported smoking in 2011 and 2013.
- Public high school students between the ages of 16-17 were more likely (11%) to smoke than youth under 16 years. (6%).
- A higher percent of White public high school students reported smoking (23%) than Latino (10%), Black (5%), and Asian students (4%) (19%).

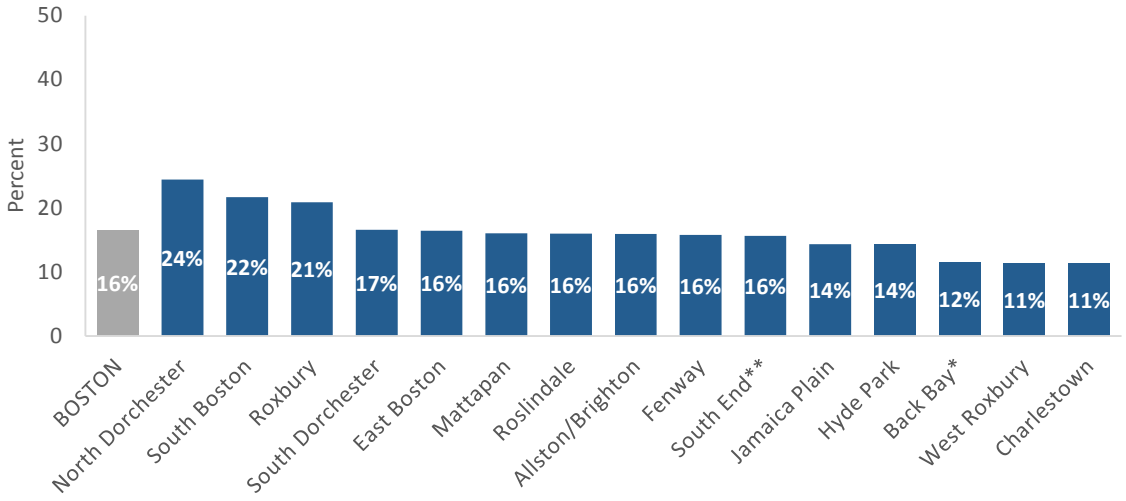
DATA SOURCE: Youth Risk Behavior Survey (2011 and 2013), Centers for Disease Control and Prevention
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office as Reported in Health of Boston 2014-2015

Focus group participants mentioned the smoke-free housing policies emerging in the city of Boston, but reported that despite these policies, secondhand tobacco smoke was a community concern. As one participant said, "*It doesn't matter if we have signs saying smoke-free or not. I live on the first floor and people are right outside my window smoking all day and night."* Another participant disagreed and said, "*People live to be a hundred and smoke, that's not the main issue. I like to smoke, if I'm going to pay my rent, I should be able to smoke."*

Nearly one in four North Dorchester residents reported being exposed to secondhand smoke one or more hours per week (24%), which was more than double that of residents in Charlestown, West Roxbury, and Back Bay (12%, 11%, and 11%, respectively). Residents in the following neighborhoods reported being exposed to second hand smoke more often than residents in Boston overall (Figure 37):

- North Dorchester (24%)
- South Boston (22%)
- Roxbury (21%)

Figure 37. Percent of Adults Reported to Be Exposed to Secondhand Tobacco Smoke at Home One or More Hours per Week in Past Seven Days by Boston Neighborhood, 2010 and 2013 Combined



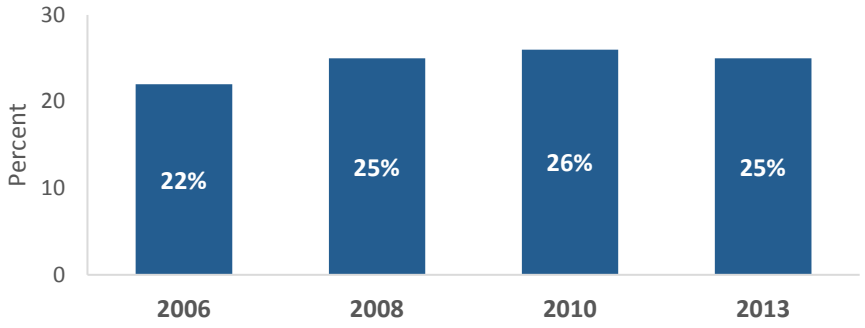
DATA SOURCE: Boston Behavioral Risk Factor Survey (BBRFSS), 2010 and 2013
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office
*Includes Beacon Hill, Downtown, the North End, and the West End
**Includes Chinatown

Alcohol Misuse

As part of the Boston Behavioral Risk Factor Survey (BBRFSS), and Youth Risk Behavior Survey (YRBS), all respondents were asked about their consumption of alcohol in the past month. A drink of alcohol was defined as one can or bottle of beer, one glass of wine, one can or bottle of wine cooler, one cocktail, or one shot of liquor. Binge drinking was defined as consumption of five or more drinks on any one occasion in the past month. The following figures present the percent of Boston adults and youth who reported binge drinking between the years 2006-2013.

- Figure 38 shows that a quarter of adults in the city of Boston reported binge drinking, defined as consumption of five or more drinks on any one occasion in the past month.

Figure 38. Percent of Boston Adults Who Reported Binge Drinking by Year 2006, 2008, 2010, 2013



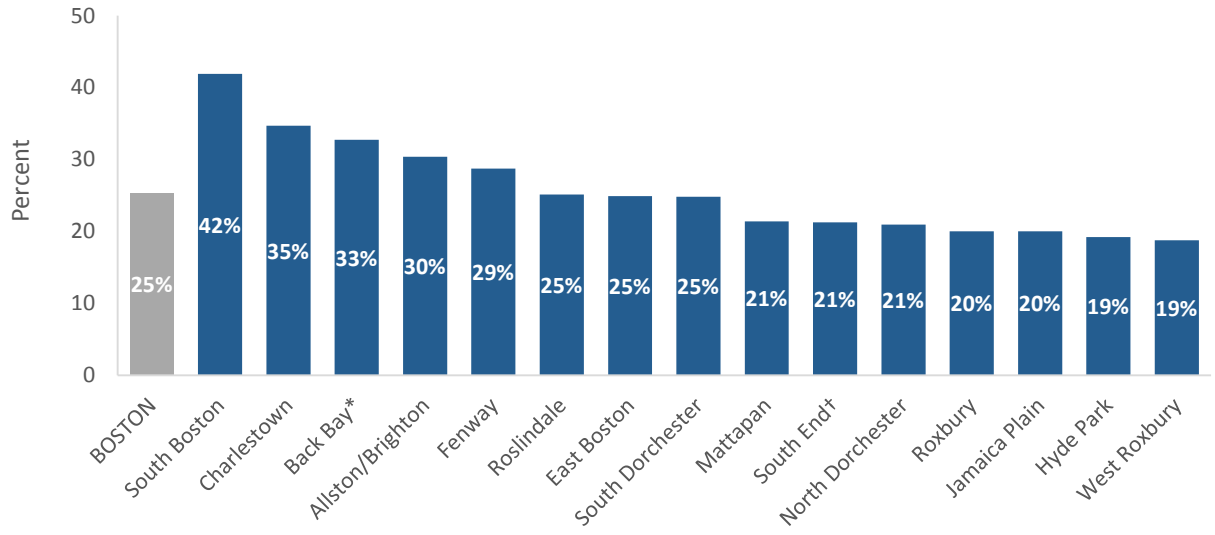
DATA SOURCE: Boston Behavioral Risk Factor Survey (2006, 2008, 2010 and 2013)
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

"What I find concerning is that residents with alcohol dependency are moving to harder drugs like opioids that they're exposed to in shelters." -Interview Participant

The following neighborhoods had a higher percent of self-reported binge drinking compared to Boston overall (25%) (Figure 39):

- South Boston (42%)
- Charlestown (35 %)
- Back Bay (33%)
- Allston/Brighton (30%)
- Fenway (29%)

Figure 39. Percent of Boston Adults Who Reported Binge Drinking by Neighborhood, 2013



*Includes Back Bay, Beacon Hill, West End, and the North End
†Includes Chinatown
DATA SOURCE: Boston Behavioral Risk Factor Surveillance Survey (BBRFSS), 2013
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Table 23. Percent of Boston Adults Who Reported Binge Drinking by Select Sociodemographic Indicators, 2013

Boston	25%
Gender	
Female	19%
Male	32%
Race/Ethnicity	
Asian	11%
Black	17%
Latino	22%
White	33%
Educational Attainment	
Less than High School	14%
High School Diploma or GED	21%
At Least Some College	29%
Income	
<$25,000	21%
$25,000-$49,999	25%
$50,000+	31%

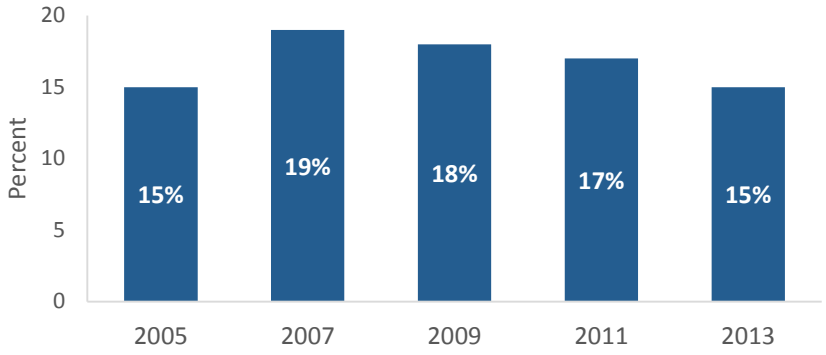
DATA SOURCE: Boston Behavioral Risk Factor Survey (2013)
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office as Reported in Health of Boston 2014-2015

- Males were more likely to report binge drinking than females (32% and 19%, respectively).
- White (33%) and Latino (22%) residents were more likely to report binge drinking than Black and Asian residents (17% and 11%, respectively).
- Residents with at least some college education were more likely to report binge drinking (29%) than those with less than a high school degree (14%).
- Self-reported binge drinking was highest among residents with incomes of $50,000 or more.

Participants across all focus groups and several key informant interviewees reported concern about increased substance use among youth. As one participant said, "*A lot of young people are going around smoking pot and drinking because they think it's no big deal. Peer pressure probably has a lot to do with it.*"

- Though as seen in Figure 40, self-reported binge drinking among Boston public high school students has decreased every year since 2007; from 2007 to 2013, binge drinking among high school students decreased 21%.

Figure 40. Percent of Boston Public High School Students Who Reported Binge Drinking by Year



DATA SOURCE: Youth Risk Behavior Survey (2005, 2007, 2009, 2011, 2013), Centers for Disease Control and Prevention
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office as Reported in Health of Boston 2014-2015

"Getting substance treatment support for kids is so challenging; there just aren't enough beds."

-Interview participant

Table 24. Percent of Boston Public High School Students Who Reported Binge Drinking by Selected Sociodemographic Indicators, 2013

Boston	15%
Gender	
Female	15%
Male	14%
Age of Student	
<16 yrs.	13%
16-17 yrs.	15%
18+ yrs.	18%
Race/Ethnicity	
Asian	7%
Black	11%
Latino	19%
White	22%

- The percent of female public high school students who reported binge drinking (14%) was relatively similar to that of males (15%) in 2013.
- Students 18 years and older reported binge drinking more often than younger public high school students.
- The percent of White students that reported binge drinking (22%) was more than three times that of Asian students (7%) and double that of Black students (11%).

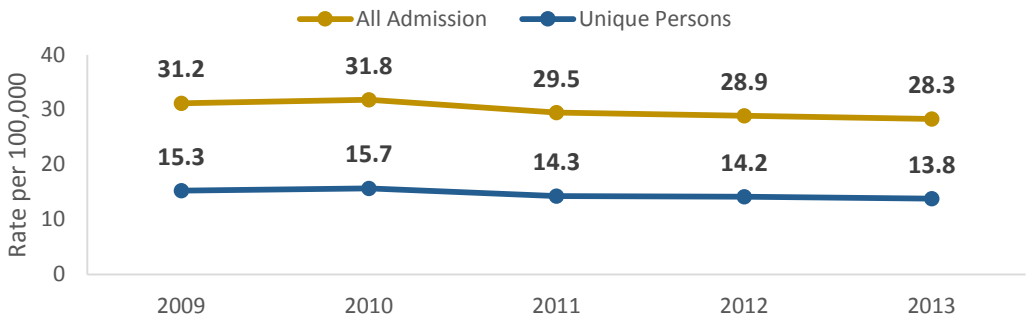
DATA SOURCE: Youth Risk Behavior Survey (2013), Centers for Disease Control and Prevention
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office as Reported in Health of Boston 2014-2015

Treatment Admissions

Another common theme among interview participants was the perception of a fragmented health system that did not address the complexities of substance abuse. Participants reported a lack of transitional resources for patients discharged from detox services. As one participant said, "*housing services don't overlap with detox services, and that's hugely problematic."* There was also concern around detox protocols for drugs such as crack and K2, which participants described as being "*highly addictive but experiencing no withdrawal symptoms,"* which affected treatment eligibility for detox services.

- Overall, the rate of total substance abuse treatment admissions (alcohol and/or drugs) in Boston has decreased since 2009 (31.2 admissions per 100,000 residents 12 years of age and older) to 28.3 admissions per 100,000 residents in 2013. (Figure 41).
- The rate of unique-person admissions also decreased from 15.3 admissions per 100,000 residents in 2009 to 13.8 per 100,000 residents in 2013.

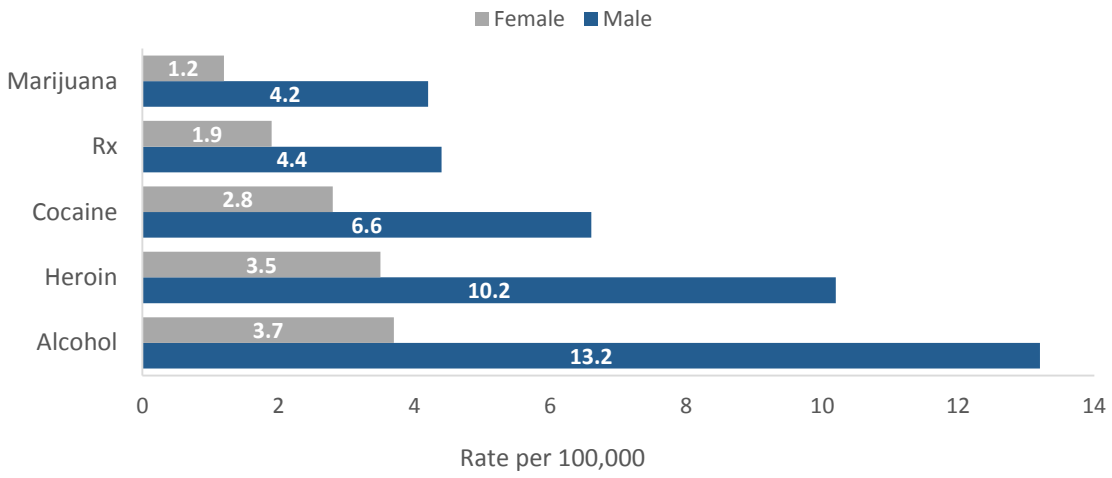
Figure 41. Age-adjusted Treatment Admissions per 100,000 Population by Year



DATA SOURCE: Boston Behavioral Risk Factor Survey (2009, 2010, 2011, 2012, 2013), Boston Public Health Commission
DATA ANALYSIS: Boston Public Health Commission as Reported in Health of Boston 2014-2015

- As seen in Figure 42, alcohol was the most common self-identified drug of abuse by unique-person treatment admissions (13.2 male admissions per 100,000 and 3.7 female admissions per 100,000), followed by heroin, and cocaine.

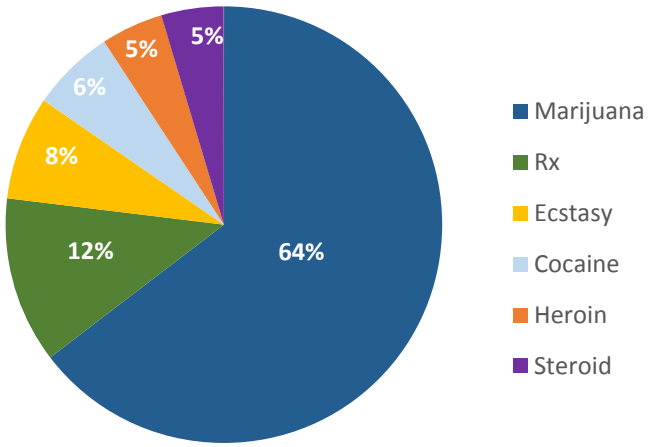
Figure 42. Age-Adjusted Unique- Person Treatment Admissions* per 100,000 Population by Drug† and Gender, 2013



* 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

- As seen in Figure 43, marijuana was the most commonly reported drug used by high school students (64%), followed by prescription drugs (12%), and ecstasy (8%).

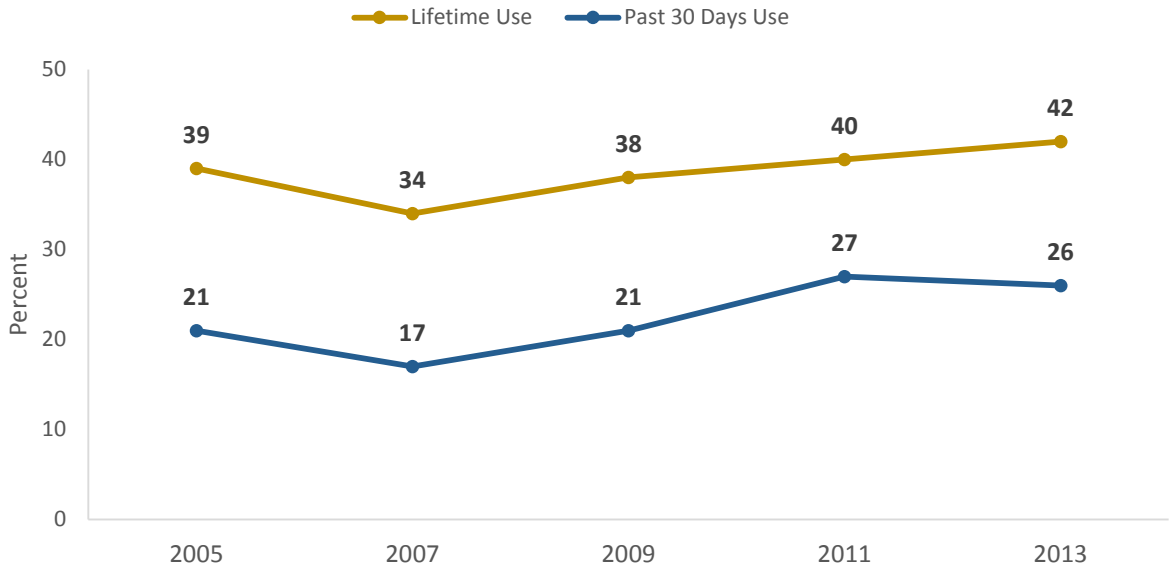
Figure 43. Percent of Lifetime Drug Use among Public High School Students by Type, 2013



DATA SOURCE: Youth Risk Behavior Survey (2013), Centers for Disease Control and Prevention
DATA ANALYSIS: Boston Public Health Commission as Reported in Health of Boston 2014-2015

- From 2005 to 2013, there was an increase in the percent of Boston public high school students who reported using marijuana in their lifetime from 34% in 2007 to 42% in 2013 (Figure 44).

Figure 44. Percent of Lifetime and Past 30 Day Use of Marijuana by Public High School Students by Year



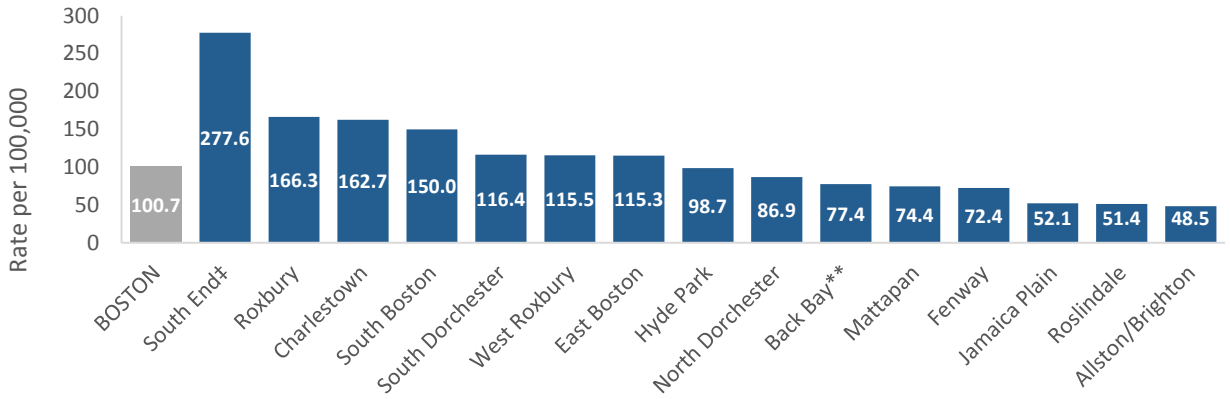
DATA SOURCE: Youth Risk Behavior Survey, Centers for Disease Control and Prevention
DATA ANALYSIS: Boston Public Health Commission as Reported in Health of Boston 2014-2015

Opioids

Nearly two years ago the state of Massachusetts declared prescription drug and heroin addiction a public health emergency. The number of opioid-related deaths in Massachusetts increased by 33% from 2012 to 2013, the highest rate ever recorded in the state (Data not shown). Across all focus groups and interviews, participants reported high-rates of prescription drug abuse in their communities, which was not as much of a concern in the 2013 CHNA. As one interview participant noted, "*What's most troubling to me is that we're seeing more alcoholics who are getting into opioid[1]s who have never tried it before because they've been prescribed pain medication or are being introduced to it in homeless shelters."*

- In the city of Boston, the number of non-overdose opioid dependence and abuse hospital discharges increased by 13% from 2011 to 2012 (Data not shown).
- Heroin-specific calls to Boston Emergency Medical Service [1] increased 25% between January and mid-November 2013 (Data not shown).
- As seen in Figure 45, unintentional opioid overdose rates are highest in the South End (277.6 patient encounters per 100,000 population) --more than twice the rate of Boston overall (100.7 patient encounters per 100,000 population) -- followed by Roxbury and Charlestown (166.3 and 162.7 patient encounters per 100,000 population, respectively).

Figure 45. Age-adjusted Unintentional Opioid Overdose/Poisoning Hospital Patient Encounters* of Residents Ages 12+, 2010- 2013 Combined

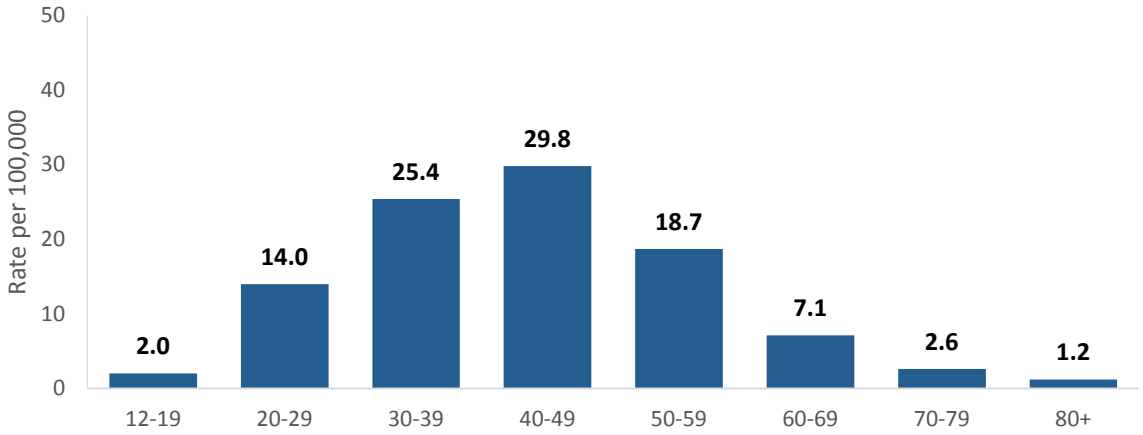


* Includes ED visits, observational stays and inpatient hospitalizations
**Includes Beacon Hill, Downtown, the North End, and the West End
‡ Includes Chinatown
DATA SOURCE: Hospital Case Mix Database, MA Center for Health Information and Analysis (CHIA)
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

- From 2010-2013, the majority of unintentional opioid overdoses were experienced by 40-49 year olds (29.8 patient encounters per 100,000), followed by 30-39 year olds (25.4 patient encounters per 100,000).
- Figure 46 shows that White residents experience a higher prevalence of unintentional opioid overdoses (141.6 encounters per 100,000)—double the rate of Latino and Black residents (73.9 and 71.6 encounters per 100,000 respectively).

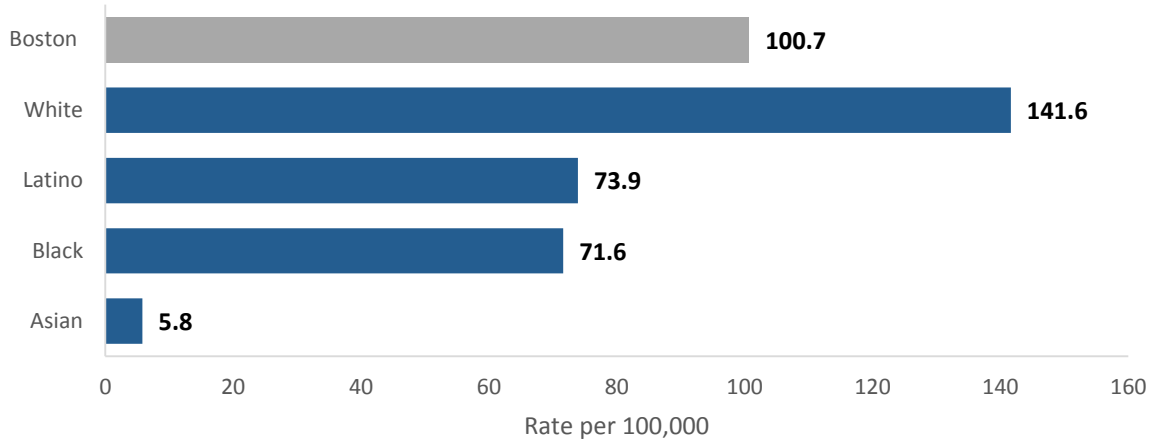
[1] Boston Public Health Commission Bureau of Substance Abuse Services

Figure 46. Unintentional Opioid Overdose/Poisoning Hospital Patient Encounters* of Residents Ages 12+ by Age, 2010- 2013 Combined



* Includes ED visits, observational stays and inpatient hospitalizations
DATA SOURCE: Hospital Case Mix Database, MA Center for Health Information and Analysis (CHIA)
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 47. Age-adjusted Unintentional Opioid Overdose/Poisoning Hospital Patient Encounters* of Residents Ages 12+ by Race/Ethnicity, 2010- 2013 Combined



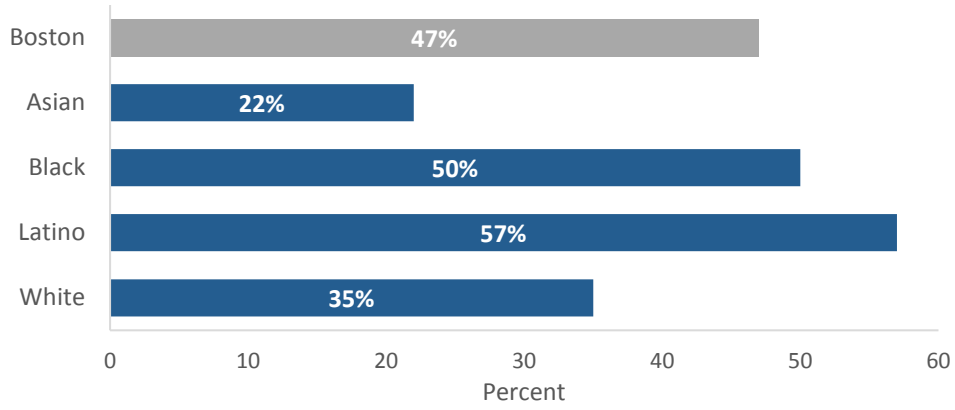
* Includes ED visits, observational stays and inpatient hospitalizations
**Includes Beacon Hill, Downtown, the North End, and the West End
‡ Includes Chinatown
DATA SOURCE: Hospital Case Mix Database, MA Center for Health Information and Analysis (CHIA
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Sexual Health, Teen Pregnancy, and Birth Outcomes

Similar to the 2013 CHNA findings, sexual health was not a common theme across assessment participants. However, participants who did mention sexual health voiced specific concerns related to youth, namely unprotected sex and teen pregnancy. As one participant said, "*You see more kids having kids these days. That's why we need to be teaching kids about sex at home; we can't rely on teachers and doctors to tell them that having sex without a condom can give them STDs and get them pregnant.*"

- Nearly half of all Boston public high school students (47%) reported ever having sex in 2013 (Figure 48).
- Though a higher percent of Latino (57%) and Black (50%) students reported ever having sex compared to White and Asian students (25% and 22%, respectively).

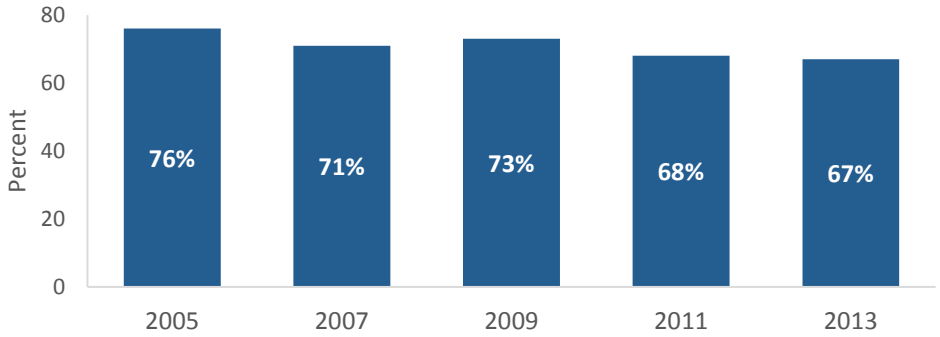
Figure 48. Percent of Boston High School Students Who Have Ever Had Sex by Race/Ethnicity, 2013



DATA SOURCE: Youth Risk Behavior Survey (2013), Centers for Disease Control and Prevention
DATA ANALYSIS: Boston Public Health Commission, as Reported in Health of Boston 2014-2015

As seen in Figure 49, the percent of sexually active high school students who reported using a condom during their last sexual encounter has decreased 12% since 2005.

Figure 49. Percent of Boston High School Students Reporting Condom Use During Last Sex by Year



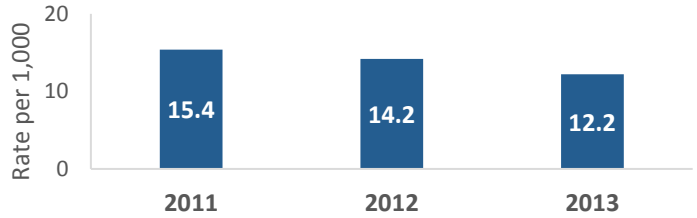
DATA SOURCE: Youth Risk Behavior Survey (2005, 2007, 2009, 2011, and 2013), Centers for Disease Control and Prevention
DATA ANALYSIS: Boston Public Health Commission, as Reported in Health of Boston 2014-2015

Teen Pregnancy

As previously mentioned, participants who raised concerns regarding sexual health voiced issues related to youth including teen pregnancy and unprotected sex. The birth rate among Boston teens (ages 15-19) has steadily dropped since the 2013 CHNA assessment from 15.4 births per 1,000 women in 2011 to 12.2 births per 1,000 women in 2013 (Figure 50). These rates are similar to the state rate (12.0 births per 1,000 women) where teen birth rates have been consistently lower than the national rate (26.6 births per 1,000 women in 2013).

- In 2013, the teen birth rate for Hispanics was almost seven times that of Whites (40.8 vs. 6.1 births per 1,000 women ages 15-19 years) and the rate for Blacks (18.7 births per 1,000 women ages 15-19 years was over three times the rate of Whites (Data not shown).

Figure 50. Teen Birth Rate, Boston 2011-2013

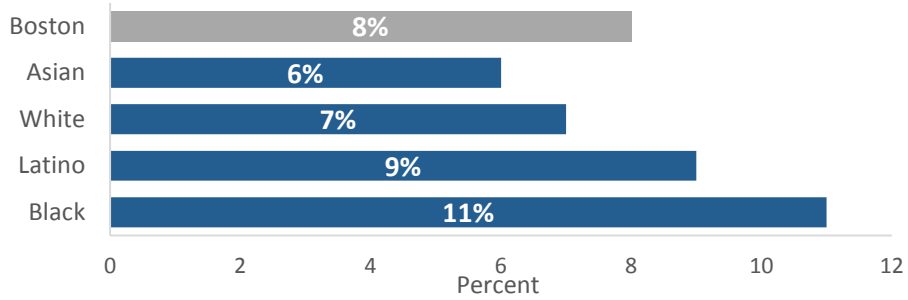


DATA SOURCE: Office of Data Management and Outcomes Assessment, Massachusetts Department of Public Health

Birth Outcomes

- Figure 51 illustrates that Black women had the highest percent of low birthweight births in 2012 (11%), almost twice that of Asian residents (6%).

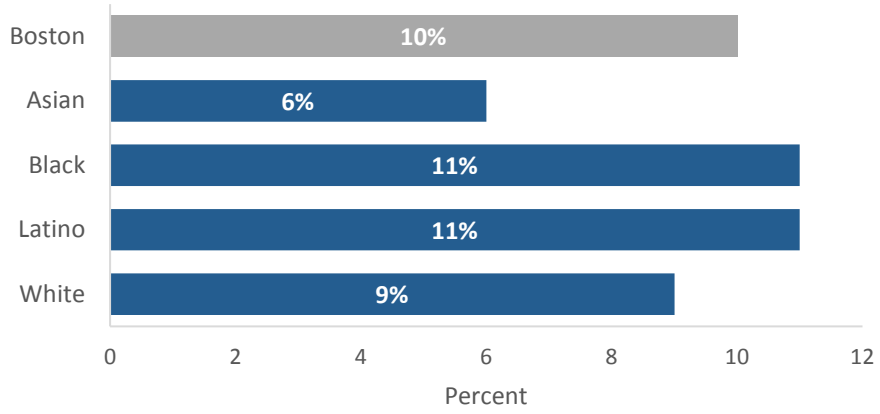
Figure 51. Percent of Low Birthweight Births by Race/Ethnicity and Year, 2012



DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health as Reported in Health of Boston 2014-2015

- In 2012, 10% of births were preterm, which was consistent with preterm births to Boston women from 2008-2011.
- The percent of preterm births among Black and Latino women were the highest (11%), followed by White (9%) and Asian women (6%).

Figure 52. Percent of Preterm Births by Race/Ethnicity and Year, 2012

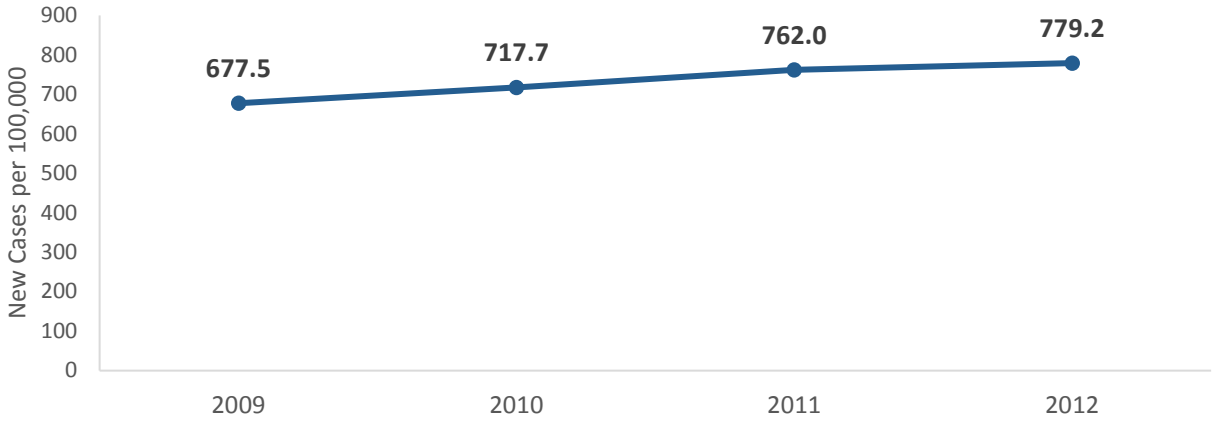


DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health as Reported in Health of Boston 2014-2015

Chlamydia

- Chlamydia rates have increased from 677.5 new cases of chlamydia per 100,000 residents in 2009 to 779.2 new cases per 100,000 residents in 2012 (Figure 53).
- The rate of new Chlamydia infections was highest among Boston females ages 15 to 19 (Data not shown).

Figure 53. Rates of Chlamydia per 100,000 Population by Year, Boston

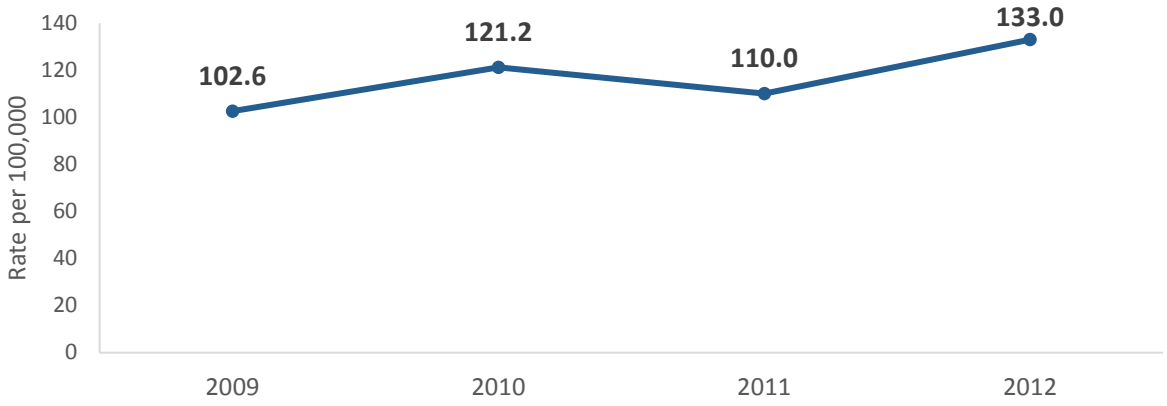


DATA SOURCE: Division of STD Prevention, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission Office of Research and Evaluation Office

Gonorrhea

- Rates of gonorrhea in the city of Boston have also increased over time, from 102.6 new cases per 100,000 population in 2009 to 133.0 new cases per 100,000 population in 2012.
- Males and females between the ages of 20-24 years experienced the highest rates of gonorrhea compared to all other age groups (323.1 and 247.0 cases per 100,000 population, respectively) (Data not shown).

Figure 54. Rates of Gonorrhea per 100,000 Population by Year, Boston

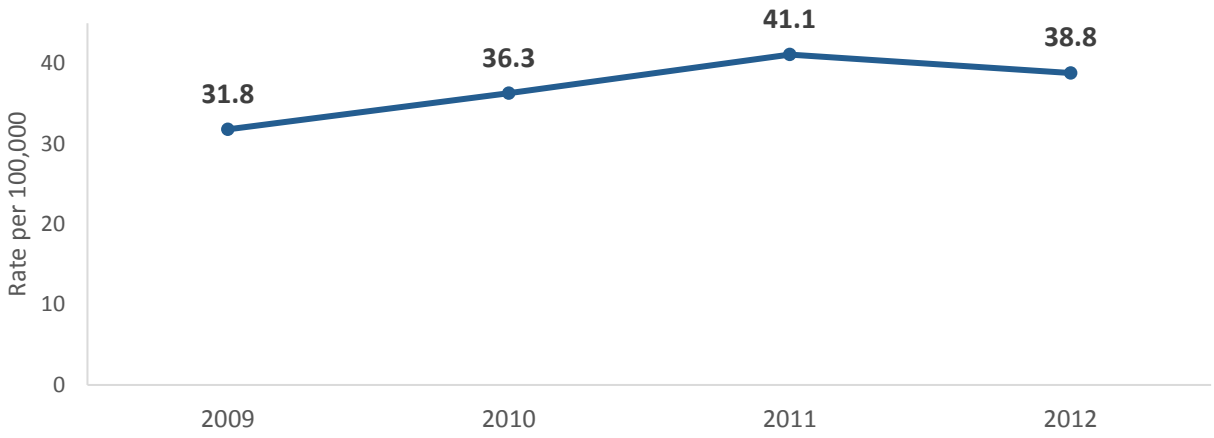


DATA SOURCE: Division of STD Prevention, Massachusetts Department of Public Health as Reported in Health of Boston 2014-2015

Syphilis

- While syphilis rates climbed between 2009 and 2011, there was a slight decrease in new cases between 2011 and 2012 (41.1 and 38.8 new cases per 100,000 residents, respectively).
- Males between the ages of 30-39 years had syphilis at more than four times the rate (158.6 new cases per 100,000) of Boston residents overall (38.8 new cases per 100,000 population).

Figure 55. Rates of Syphilis per 100,000 Population by Year, Boston



DATA SOURCE: Division of STD Prevention, Massachusetts Department of Public Health as Reported in Health of Boston 2014-2015

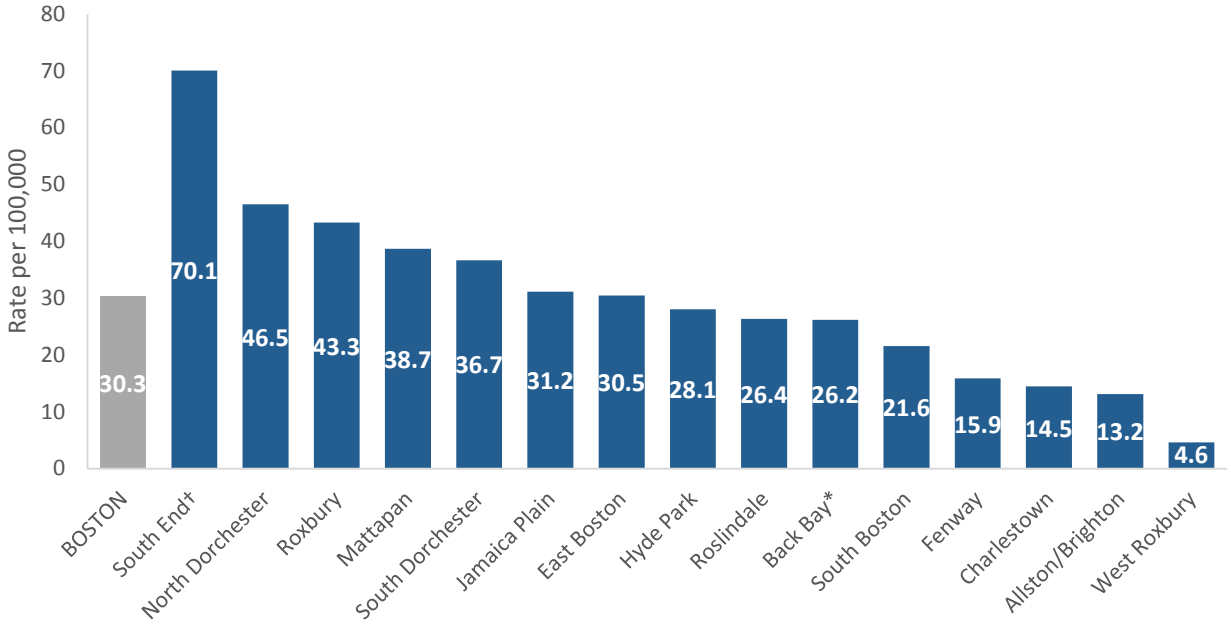
Infectious Disease

HIV

As seen in Figure 56, there were 30.3 new HIV cases per 100,000 population in the city of Boston between 2009 and 2013. The majority of cases (61%) were diagnosed at ages 20-44 years (Data not shown).

- In 2013, Black residents accounted for 31% of all HIV/AIDS cases, and Latino residents made up 21% of all HIV/AIDS cases (Data not shown).
- The South End had the highest rate of newly diagnosed cases of HIV (70.1 per 100,000), more than double the rate of Boston overall (30.3 per 100,000).

Figure 56. Newly Diagnosed Cases of HIV Infection per 100,000 Population by City and Neighborhood, 2009-2013

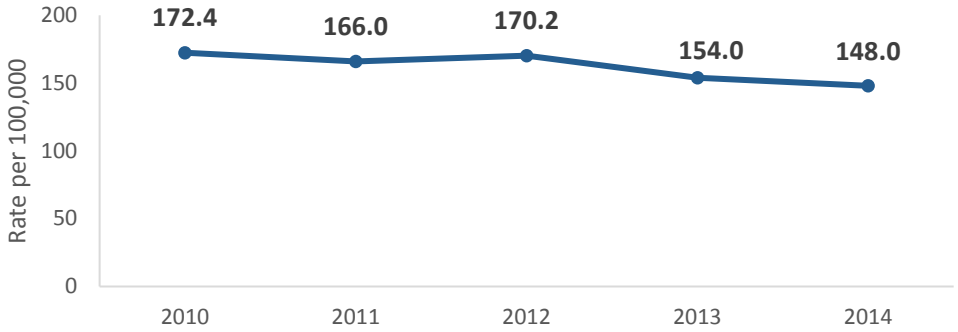


*Includes Back Bay, Beacon Hill, West End, and the North End
†Includes Chinatown
DATA SOURCE: HIV/AIDS Surveillance Program, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Hepatitis C

- Hepatitis C rates decreased in the city of Boston from 172.4 cases per 100,000 population 2010 to 148.0 cases per 100,000 population in 2014 (Figure 57).
- White residents (51%) represented the greatest proportion of hepatitis C cases in 2013, followed by Black (17%) and Latino residents (14%) (Data not shown).

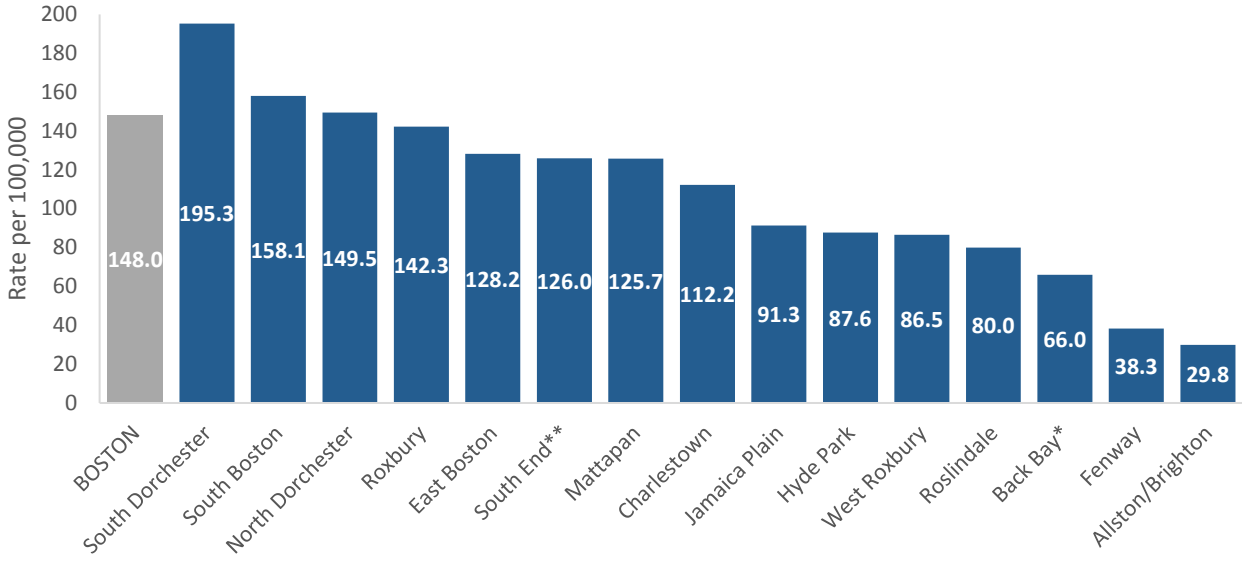
Figure 57. Age-Adjusted Rates of Hepatitis C Incidence per 100,000 Population, Boston, 2010-2014



DATA SOURCE: Communicable Disease Control Division, Boston Public Health Commission
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

- As seen in Figure 58, South Dorchester residents experienced the highest rates of hepatitis C in 2014 (195 cases per 100,000 population), followed by South Boston (158 cases per 100,000 population), and North Dorchester (150 cases per 100,000 population).

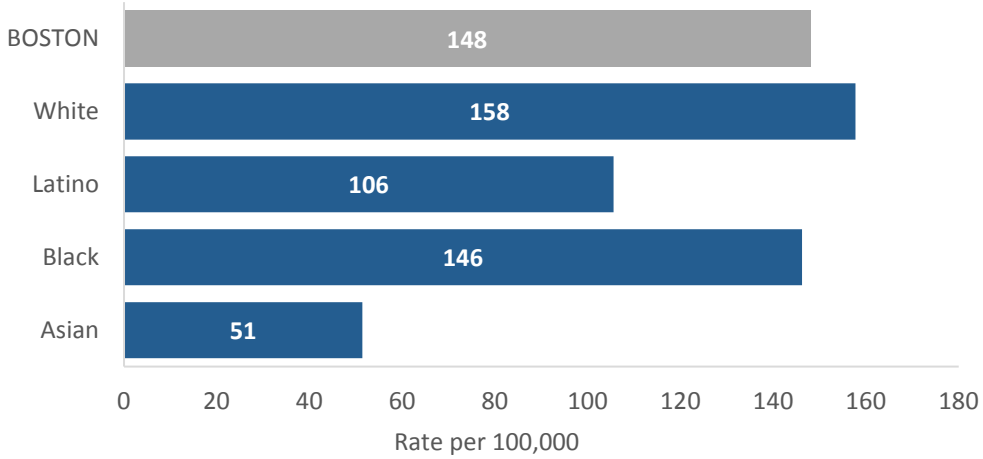
Figure 58. Age-Adjusted Hepatitis C Incidence per 100,000 Population by City and Neighborhood, 2014



DATA SOURCE: Communicable Disease Control Division, Boston Public Health Commission
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

- White residents had the highest rate of Hepatitis C in 2014 (158 cases per 100,000 population), followed by Blacks (146 cases per 100,000 population), Latinos (106 cases per 100,000 population), and Asians (51 cases per 100,000 population).

Figure 59. Age-Adjusted Hepatitis C Incidence per 100,000 Population by Race/Ethnicity, 2014



DATA SOURCE: Communicable Disease Control Division, Boston Public Health Commission
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Health Care Access

Access and Utilization

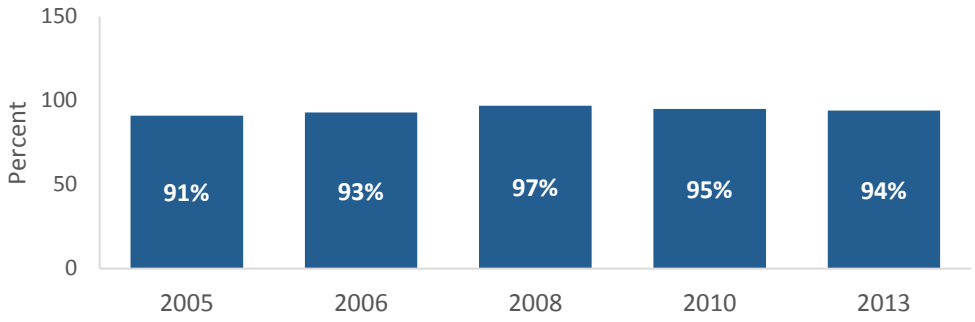
Overall, participants reported positive perceptions about health services in the city of Boston, citing ample medical services, hospitals, and community centers in the City. Though when asked about access to those services, participants perceived that resources were not equally available to everyone—namely people of color, elders, homeless residents, and those suffering with mental illness.

Most focus group participants reported obtaining health care from local community health centers in their communities. While many participants described receiving high-quality care at community health centers, several themes emerged related to health care access and barriers to obtaining care including cost, timeliness of care, and cultural and language barriers. Two participants described insurance challenges for children with special needs like Autism and Attention Deficit Disorder and wished to better understand the resources available to them.

- Quantitative data show that since 2005 over 90% of Boston residents have reported having health. The percent of residents with health insurance increased from 91% in 2005 to 94% in 2013.
- Latinos were least likely to report having of health insurance (87%), compared to White (96%), Asian (94%) and Black residents (94%) (Data now shown).
- Residents between the ages of 18-24 years were least likely to report being uninsured compared to all other age groups (Data not shown).

Health Insurance

Figure 60. Percent of Adults with Health Insurance by Year, Boston



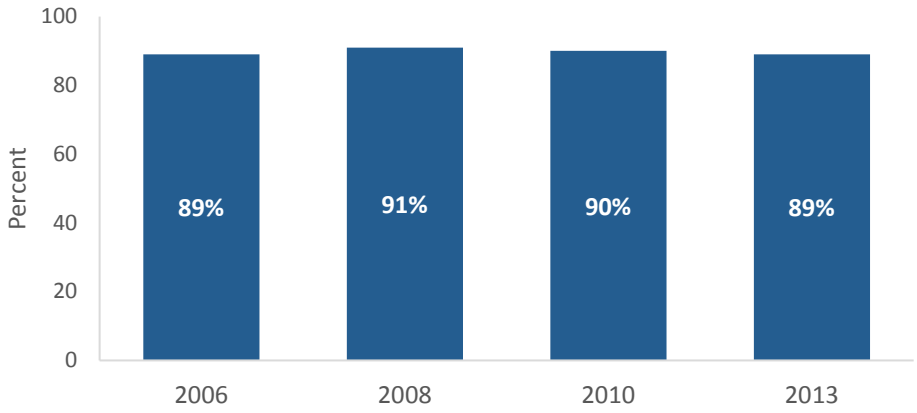
DATA SOURCE: Boston Behavioral Risk Factor Survey (2005, 2006, 2008, 2010, 2013)
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Routine Check Up

Figure 61 shows that since 2006, the majority of Boston residents (approximately 90%), have reported receiving a routine check-up within the past two years.

- A higher percent of female residents (95%) reported having a routine check-up compared to males (84%) (Data not shown).
- When stratified by race, Black residents were most likely to report routine checkups, (95%), followed by Latino (90%), Whites (88%), and Asians (84%) (Data not shown).

Figure 61. Percent of Routine Check-up Within the Past 2 Years by Year, Boston



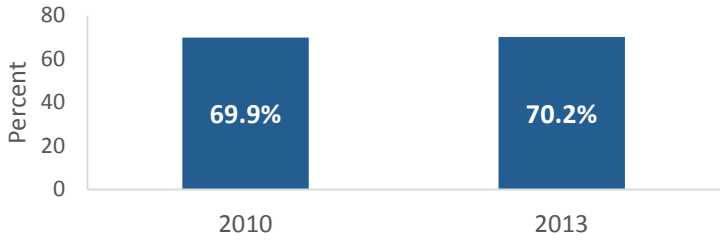
DATA SOURCE: Boston Behavioral Risk Factor Survey (2006, 2008, 2010, 2013)
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Oral Health

The percent of Boston residents who reported having their teeth cleaned within the past year has stayed consistent since 2010 (approximately 70%).

- Less than two-thirds of adults ages 65 years and older reported routine dental cleanings (62%), compared to 72% of 18-24 year olds.

Figure 62. Percent of Teeth Cleaned in the Past Year, Boston, 2010 and 2013



DATA SOURCE: Boston Behavioral Risk Factor Survey (2005, 2006, 2008, 2010, 2013)
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Challenges to Accessing Health Care Services

While the focus groups and interviews focused on community health issues external to the health care system, several themes emerged related to health care access and barriers to obtaining care. Residents reported favorably about the care they receive from Boston Medical Center and surrounding hospitals. However, they also discussed barriers to accessing health care including health insurance, cost, quality of care, and fear and stigma. Below is a summary of themes that emerged from these discussions.

Vulnerable Populations

As previously mentioned, focus group and interview participants reported that some populations, especially communities of color, elders, homeless residents, and those suffering with mental illness, face challenges to accessing health care services.

- The most significant challenge noted by both external and internal interviewees was the considerable and complex needs of the population BMC serves. Interview participants described substantial health and non-health challenges among the patient population; in many cases, these issues have been neglected due to competing priorities, and by the time the patients arrive at the hospital, have grown to be more serious and complex.
- Among the challenges mentioned by residents, affordability, provider communication, timeliness, and care for comorbidities—especially for mental health and substance abuse-- were the most prominent. As one participant said, "*We hardly see anyone who has a substance abuse who doesn't have an overlapping mental health issue—whether it's trauma or psychosis—they go hand in hand."*
- Unlike the 2013 CHNA findings, communities of color were frequently cited as populations most affected by access barriers. While there are no quantitative data to support the reason for this shift in specificity, there have been major city-wide initiatives led by the Boston Public Health Commission to address health inequity of communities of color in the last three years. The Commission describes this as "*an organizational transformation process, which aims to integrate health equity and racial justice principles and practices into all Commission work, both internal and external, in order to measurably reduce inequities in Boston*." This new focus suggests that more organizations are discussing race as it relates to health equity in 2016 compared to 2012-2013.

Affordability of Health Care Services

When asked about challenges to accessing health care, health insurance and the high cost of health care were frequently mentioned as barriers.

- Several interviewees and focus group participants discussed high deductibles and co-pays, or confusion around insurance coverage. The consequence, several shared, is that people decide not to get health care or have trouble affording medications.
- Length and quality of insurance coverage are additional challenges related to accessing health care, according to participants. Those with private insurance reported being satisfied with their health coverage, while those on MassHealth perceived to be offered lower quality care. As one participant noted, *"If you have MassHealth you're treated differently than if you have private insurance. You can tell by time it takes to get an appointment, how they talk to you and how they treat you…*"

- Further, participants described the burden that the cost of treatment could have—especially for diseases such as cancer—saying, "*The cost of cancer treatment is phenomenal and can really bankrupt those living with it and their families.*" As a result, some participants described instances of skipping or sharing medications due to cost.

Provider Communication and Cultural Competency

The need for more culturally-competent provider training was also a common theme among focus group and interview participants. As one participant noted, "*There are many cultural approaches to care, and providers should be well-informed about patient's cultural context and the implications for treatment."*

- While a couple of provider interviewees reported that they have bi-lingual staff (Spanish-speaking) and access to interpretation services, language access was reported to be a concern among some interviewees and focus group members, though there were mixed perspectives as to whether language services were adequate. Some focus group participants reported few language barriers, describing a plethora of interpretation services offered at BMC. Others disagreed and shared, "*sometimes there are signs but it doesn't help if you can't read what it says or feel comfortable asking questions."* In particular, participants of the Haitian-Creole speaking focus group noted language challenges, both at BMC and when seeking care in their local community.
- Further, a common theme that emerged was the need to integrate more trauma-informed care in health services. The impacts of trauma, according to several interviews, greatly affect health outcomes for youth and adults. Participants cited the need for more provider training around trauma, saying "*Providers need to be trained on how to engage in trauma-informed care, matching services to the correct needs of those exposed to trauma from violence and abuse.*" One participant also noted the impacts of immigration trauma in neighborhoods like East Boston, saying, "*We are seeing many families who are experiencing separation trauma from immigrating. There are neighborhoods like East Boston experiences high-levels of this kind of trauma but are going unnoticed because of language and cultural barriers."*

Care for Comorbidities

Interviewees and focus group participants generally reported the need for improved care for dual diagnoses and comorbidities—especially for mental health and behavioral services. Participants described a high prevalence of co-occurring issues of substance abuse and mental illness but reported barriers to address both issues simultaneously. As one participant said, "*There's been a long history of folks with mental illness who can't access detox, or even medical services. The notion of splitting treatment in half where providers can't take someone with co-occurring schizophrenia and alcoholism makes no sense."*

- Additionally, length and quality of insurance coverage for detox services was an additional challenge related to accessing health care, according to interviewees and focus group members. The most frequently mentioned challenge was coverage for services like mental health where the number and type of visits is often limited by health insurance companies. Participants expressed a need for more targeted transitional care services such as post-detox and transitional housing.

Stigma and Fear

Respondents reported that many people avoid going to the doctor for fear of being diagnosed with an illness. Denial, participants said, was sometimes easier to handle than a serious diagnoses like cancer or diabetes. As one participant said, "*If you have young kids, you're always afraid about receiving bad news. Nobody wants to hear test results because they're scared about the outcome."*

- When asked about cancer screening, participants also cited skipping screenings like mammograms and colonoscopies due to fear of discomfort and pain the tests caused.

Existing Health Resources and Community Recommendations

Despite poor health outcomes, assessment participants described assets in their communities including community cohesion, diversity, resilience, and civic engagement. As one participant said, "*Boston is full of neighborhoods that are vibrant with rich cultures… neighborhoods packed with people who are very rooted and active in their communities."* In addition, focus group and interview participants discussed organizational assets at the city and state level including programming from the Boston Public Health Commission and the Department of Public Health.

The subsequent section highlights potential next steps to consider, given the findings of community resources and recommendations from the assessment study. These suggestions focus on the role of Boston hospitals in the community and how institutions may want to approach future community initiatives. Key considerations for next steps are as follows:

Community Engagement

In describing their interactions with the health care system, several respondents expressed frustration over the lack of communication and engagement they felt with their providers and the health system. Most prominent was the short amount of time doctors often spend with patients, which may mean patients are not fully aware of their health issues or how to take better care of themselves. Residents suggested bridging these gaps by focusing on more targeted community-engagement, including specific neighborhoods and populations. As one participant said, "*Every neighborhood in Boston is different, and the same goes for their health needs. We have to narrow the focus of who we're reaching out to and make sure specific communities are fully engaged instead of taking such a broad approach."*

- Focus group and interview participants stressed the importance of identifying community champions that can engage residents in health initiatives
    - Use positive peer and community models as influencers
    - "*Neighbors should be going door-to-door and saying 'I'm going to a smoking cessation class. Come with me."*
- Participants reported strong trust in faith-based organizations and community nonprofits. Further, residents recommended that hospitals consider leveraging community partnerships to increase community engagement in priority neighborhoods, saying "*we should be working with churches, FQHCs, and YMCAs to do more prevention work."*
- Participants described the importance of engaging family members in discussions around health and new treatment options.
- Communities of color were reported as underserved and participants noted the need for more grassroots organizing efforts.
- Continuous partnering with the community through group discussions and focus groups were described as ways to keep community members engaged throughout the cancer treatment

process. One interview participant recommended, "*The people who are most at-risk for these health factors should continuously be guiding and providing input for initiatives."*

Community Outreach and Marketing

While Boston was viewed as a city with institutions providing excellent clinical care, residents involved in the assessment knew little about local hospital community programming, especially in regards to cancer-specific programming. This suggests that marketing and communication efforts should be increased to promote services. The primary recommendation from residents and key informants was to engage the community more through group dialogues and outreach. As one participant noted, "*I'm very grateful for discussions like these where we can share and learn from each. I wish there was more of this in Dorchester."* Further, Participants reported the importance of meeting residents in familiar spaces, saying *"You have to meet the people where they're at. The hospitals should be going into the communities and churches and teaching them preventative measures there."*

- Some focus group participants acknowledged sufficient resources in the community, noting that "*BMC has a plethora of groups including knitting, yoga, cooking, etc. We have to ask questions. You can't blame the hospitals for not knowing. If we care about our communities, it's important to share this information*."
- Other participants agreed that the issue isn't about the number of resources in the community, but the *"the problem is that the messages aren't getting to the community*."
- Residents described the importance of a mixed communication strategy, noting in-person interactions, and the internet as especially important. Further, patient navigators and community health workers were described as trusted resources in the community.

Healthy Living and Disease Prevention

One theme that emerged frequently was the need for more community education, at the appropriate health literacy level, on health and prevention, and specifically around diabetes, obesity, and cancer prevention. Another prominent theme was a desire for more wellness programming. Worksites were seen as key partners in this. As one interviewee stated, "*I think employers have a big part in promoting health in the community. It's in their best interest to keep employees healthy."* Respondents also expressed a need for more low-cost physical activity opportunities for youth not involved in school sports.

- Focus group participants recommended investing in community gardens and culturally-appropriate nutrition classes for healthy eating that promote wellness.
- Residents reported positive and negative opinions about E-cigarettes with some agreeing that "*if it's FDA approved, it's a good alternative to cigarettes*," while others disagreed and said *"keep reading, there's still chemicals in e-cigs that give you cancer."*
- Early childhood education and interventions were seen as important initiatives for the future, with one participant saying "*I can't emphasize enough how important it is for young people to have good role-modeling related to aspects of health in their early years."*

Culturally-competent care

The need for more culturally-competent provider training was a common theme among focus group and interview participants. Participants perceived that many providers were not taking into cultural aspects of health including religion, stigma, language, and culinary norms. As one participant noted, "*There are*

many cultural approaches to care, and providers should be well-informed about patient's cultural context and the implications for treatment."

- Residents described barriers to understanding health information due to literacy and language barriers. Some respondents mentioned a need for more language access for non-English speakers. This includes increasing the number of bi-lingual providers and available interpreters in health care settings, and offering more health education programs for Spanish speakers.
- Communities of color were described as underserved and the most at-risk for negative health outcomes. Multiple interviewees described the need for improved access to clinical trials for communities of color. As one participant said, "*having access to clinical trials is hugely important, especially for those in different racial and ethnic backgrounds, because we don't know what treatments work for these populations. We should be training community health workers and patient navigators to tell residents about clinical opportunities and who to contact."*
- Culturally-responsive approaches, including language and culinary norms should be considered when disseminating health-related information. For example, participants reported enjoying Zumba and nutrition classes that focused on Latin American cuisine. "*You have to know how to talk to different people and know ahead of time how to deliver these health messages and ask questions. Otherwise, they will get defensive and not want to be honest*."
- Community health workers and patient navigators were described as highly trusted among focus group and interview participants. As one participant said, "*community health workers do a tremendous job in helping those who can't access or don't access screening services. The more we can integrate them into the mix, the better."*

Health Literacy

As discussed earlier, a prominent theme across focus groups and interviews was the need to provide Boston residents with more information about how to navigate the health system as well as on health topics on healthier living. Many topics for health education were suggested including healthy lifestyles, living with a chronic condition, how to speak with doctors, teen health, and substance abuse.

- Reaching youth with messages about healthy lifestyles and nutrition, substance use, and sexual activity was mentioned by a number of residents.
- For seniors, information about aging, housing services, patient navigation, and caregiving was needed. As one interviewee shared, *"Seniors are often overlooked when it comes to health outreach strategies because there's so much focus on youth initiatives, but there's a real need to educate older adults as they age."*

Enhanced Collaboration and Greater Awareness of Existing Services

Although not a prominent theme broadly, a few community organizational interviewees spoke about a desire for greater collaboration across the many health and human service organizations that work in Boston, especially for those working with high risk populations. Respondents also mentioned a need for raising awareness about already existing services, such as free screening services. Focus group and interview participants described a "*competitive, not collaborative*" health system in the city of Boston and wished to see more collaborative efforts among hospitals.

- Participants recommended strengthening "*clinical linkages*" so clinical and community providers can improve communication to not duplicate efforts. As one participant said, "*We need to be creating feedback loops between clinical providers, community providers, and patients because*

these linkages are vital to prevention and disease management. It's also cheaper, more accessible, and more convenient."

- Trusted organizations, whether faith-based or community-based, were described as gatekeepers between healthcare providers and community residents, and should be engaged in future dissemination strategies.
- Participants reported collaborations led by the Boston Public Health Commission, the Boston Alliance for Community Health, and Boston Public Schools that can be leveraged and strengthened.

CONCLUSIONS

Through a review of secondary data and discussions with community residents and key informants, this assessment report provides an overview of the health needs and strengths of the community served by Boston Medical Center. The 2016 CHNA findings build upon the foundation laid by the 2013 CHNA and delve deeper into specific areas to further enhance current work.

The following section provides a broad overview of the key findings from this assessment. While a large range of epidemiological, social, and economic data were reviewed, some important main themes emerged that are important to bring to the forefront of this report. Many of the 2016 themes resonate with the 2013 CHNA findings and validate the existing work of the Implementation Plan. These include:

Health Care Access: The communities served by BMC continue to encounter numerous social and economic challenges, which affect access to care.

- *There are great disparities on several social, economic, and health indicators between Boston overall and specific neighborhoods.* Across the board, residents in certain neighborhoods consistently encounter more difficulties related to income and poverty, lifestyle behaviors, and mortality rates than residents city-wide. Whether it is because of limited community resources, individual characteristics, or neighborhood level factors, statistics reveal that those living in Mattapan, Dorchester, and Roxbury, in particular, face more difficult living conditions than those in other Boston neighborhoods, all of which can present numerous challenges in achieving better health. This outcome is seen in lower health status across these neighborhoods as more residents in these communities have lower engagement in health-promoting activities and higher mortality rates from cancer.

- *There are ample resources in the community, but a competitive system creates resources that are fragmented and duplicative.* As discussed in the 2013 CHNA, several key informants described a fragmented and uncoordinated health system in the city of Boston, noting that "*the system here is competitive instead of collaborative, and that makes services duplicative."* Focus group participants agreed that communication needed to be improved between the community, hospitals, and health centers, citing that it was difficult to coordinate services between different providers in the region.

Chronic Diseases and Risk Factors: Chronic diseases and their risk factors – especially maintaining healthy lifestyle behaviors – remain important health issues in the community.

- *There are numerous challenges that exist to maintaining healthy lifestyle behaviors*, including limited access to fruits and vegetables, high density of fast food establishments, safety concerns related to outdoor recreational spaces (e.g., parks, sidewalks, etc.), community norms around physical activity and healthy eating, and individual-level characteristics such as negative attitudes, lack of time, and other factors. Rates of obesity, physical inactivity, and low fruit and vegetable intake consistently are highest among Mattapan, South Boston, and Dorchester neighborhoods. When examining rates by race/ethnicity, Blacks and Latinos are least likely to engage in many of these practices; however, Whites are more likely to be current smokers. Considering these challenges through the lens of the socio-ecological model, can help identify the upstream factors related to the built environment and community-related norms which can be addressed through future environmental and policy approaches.

- *While Boston is perceived to be a health-conscious city, more can be done to encourage physical activity and healthy eating, especially around youth.* Respondents praised recreational opportunities and green space in many neighborhoods, but a need was expressed for more physical activity opportunities for youth not involved in organized sports, especially during the winter season. Respondents cited a high density of fast food restaurants and a lack of time for meal preparation as barriers to healthy eating, and expressed a desire for more education around healthy eating.

Mental Health and Substance Abuse: Behavioral health persists as a pressing and pervasive community health concern.

- *Mental health and substance abuse issues were considered priority health issues, and a need for additional services, namely post-detox and transitional housing, were noted.* A majority of participants stated that behavioral health issues are of key concern for the area. Abuse of opioids, alcohol, prescription drugs, and atypical drugs such as K2 were described as the most concerning. Many participants also described concerns related to mental health, which many times co-occur with substance abuse disorders. Participants described issues of anxiety, stress and depression for adults, and also noted that seniors and young children have unique mental health needs. Stigma and a lack of mental health services, especially those with comorbidities, prevent residents from obtaining the mental health care they need.

Violence: Violence-based trauma emerged as a key health issue affecting the communities served by BMC.

- *Trauma is a major factor of poor community health outcomes, and there is a need for more trauma-informed care throughout the city. A* prominent theme across participants was the need to better understand how trauma affects all aspects of community health including prevention, violence, and behavioral health. Interviewees described youth and the immigrant community as the most vulnerable groups impacted by trauma. Chronic trauma such as community violence and abuse were described as especially concerning. Lastly, interview participants expressed the need to better understand how systemic issues such as racism and other forms of oppression impact trauma in communities of color.

HEALTH NEEDS OF THE COMMUNITY

In July 2016, members of Boston Medical Center's Mission Advisory Group reviewed the needs identified in the community health needs assessment, including the magnitude and severity of these issues and their impact on the most vulnerable populations. This session included mapping current and emerging programs and initiatives against these needs. The process determined that all of the needs identified in the CHNA are being addressed by Boston Medical Center and will be addressed in the Implementation Strategy in the following clustered priority categories:

- Health Care Access
- Chronic Diseases and Risk Factors
- Mental Health and Substance Abuse
- Violence

APPENDIX A-REVIEW OF INITIATIVES

Programs listed in 2013 Implementation Strategy	FY 2013	FY 2014	FY 2015
Priority Area: Access and Utilization			
Birth Sisters	833 patients	879 patients	998 patients
Elders Living at Home	213 clients	222 clients	140 clients
Grow Clinic	240-250 children	200-250 children	200-250 children
Pediatric Comprehensive Care Program (CCP)	414 children	372 children	600 children
Preventive Food Pantry	85,913 Greater Boston residents	81,554 Greater Boston residents	74,631 Greater Boston residents
Shuttle Buses/Taxis	204,199 patients	204,070 patients	204,070 patients
SPARK	~60 children	~60 children	~60 children
Priority Area: Chronic Diseases			
bWell	200 families monthly	500 families monthly	500 families monthly
Patient Navigators	1,250 patients	1,250 patients	1,250 patients
Priority Area: Violence			
Child Protection Team	873 children	907 children	2,610 children
Child Witness to Violence	250 families	291 families	325 families
Domestic Violence	400 individuals	350 individuals	338 individuals
Violence Intervention Advocate Program	421 individuals	384 individuals	414 individuals
Priority Area: Mental Health			
Mental Health Diversion Initiative	103 participants	131 participants	178 participants
Project ASSERT	5,267 visits	4,260 visits	4,346 visits