

Carney Hospital

A STEWARD FAMILY HOSPITAL



Community Health Needs Assessment 2018

Carney Hospital

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Executive Summary

This report is a comprehensive analysis of health indicators for Carney Hospital. The Carney Hospital service area includes Dorchester (02122), Dorchester (02124), Dorchester (02125), Mattapan, South Boston, Hyde Park, Braintree, Milton, and Quincy. Data was gathered by analyzing publicly available information, by reviewing community feedback gathered through focus groups, by conducting an extensive review of published literature on the health of the population residing in the region and in the Commonwealth of Massachusetts, and by surveying service providers. This data-driven methodology allows Carney Hospital to investigate the resource requirements of the community in order to better streamline resources and inform community-based initiatives. The information from our 2018 Community Health Needs Assessment highlights some of the needs identified within the community and may be used to develop targeted population health improvement strategies.

Our goal has been to learn from community residents, particularly those most at-risk for experiencing health disparities, and implement programming that will give all individuals an opportunity to live a healthy life. This is particularly true for those persons at greatest risk for health inequities, defined by the World Health Organization as, “*avoidable inequalities in health between groups of people within countries and between countries*”, herein identified as high-priority populations. Through community-oriented best practices, Carney Hospital collaborates with community partners to improve the health status of residents within our service area. We accomplish this by: addressing root causes of health disparities; educating community members on prevention and self-care, particularly for chronic diseases such as cancer, heart disease, diabetes, obesity, substance use disorder; and addressing social determinants of health.

This report provides the results of an examination of health conditions and social factors affecting the people living in the Carney Hospital primary service area. Evaluation of both the needs of the community and the strategic goals of the hospital furthers the prospect of working collectively to improve both the health delivery system and the health of the population. Opportunities are realized at the intersection of the hospital’s strengths, the community’s needs, and innovations in health care delivery.

Social determinants of health, including social, behavioral and environmental influences have become increasingly prevalent factors in addressing population health. Literature recommends linking health care and social service agencies in addressing social determinants of health to increase the efficacy of health promotion and chronic disease prevention programs. In particular, services related to housing, nutritional assistance, education, public safety, and income supports are areas for cross sector collaboration with health services in the community. Multicultural communities face particularly complex issues when accessing and receiving treatment in their daily lives.

A key takeaway from this analysis is that collaboration on health promotion and chronic disease prevention among health and social services organizations is critical to the success of population health improvement strategies. From promoting access to affordable health care, creating a stable positive economic environment in the region, ensuring that those most at-risk have access to basic needs for better health outcomes such as stable affordable housing, low-cost nutritional food choices, and a healthy environment, Carney Hospital is well positioned to implement community benefits programs that support a healthy and thriving community. The information and recommendations herein are offered as a tool for guidance for the hospital and the community to implement strategic actions to improve public health outcomes.

Introduction

Since 1863, Carney Hospital has served the City of Boston and neighboring communities. Carney Hospital has received the Joint Commission's Gold Seal of Approval for health care quality and safety and numerous other quality and safety awards, including being designated a Top Hospital for 2014 and 2015 by the Leapfrog Group. The 159-bed hospital has more than 400 physicians and delivers quality care to approximately 140,000 patients annually. Carney Hospital provides Dorchester and surrounding communities with convenient, local access to quality primary care, emergency medicine and a range of specialties and subspecialties including; critical care, family medicine, cardiology, neurology, oncology, orthopedics, ambulatory care and adolescent, adult and geriatric psychiatry. Carney Hospital is part of the Steward Health Care Network. To learn more, please visit www.carneyhospital.org.

Steward Health Care is the nation's largest private, for profit physician led health care network in the United States. Headquartered in Dallas, Texas, Steward operates 36 hospitals in the United States and the country of Malta that regularly receive top awards for quality and safety. The company employs approximately 40,000 health care professionals. The Steward network includes multiple urgent care centers and skilled nursing facilities, substantial behavioral health services, over 7,900 beds under management, and approximately 1.5 to 2.2 million full risk covered lives through the company's managed care and health insurance services. The total number of paneled lives within Steward's integrated care network is projected to reach three million in 2018.

Community Benefits Mission Statement

Carney Hospital is committed to collaborating with community partners to improve the health status of our community residents by addressing the root causes of health disparities and educating community members around prevention and self-care, as well as providing current and potential patients with a general introduction to health care options that are accessible in their community.

Community Benefits Statement of Purpose

The Carney Hospital community benefits purpose is to

- Improve the overall health status of people in our service area;
- Provide accessible, high quality care and services to all those in our community, regardless of their ability to pay;
- Collaborate with staff, providers and community representatives to deliver meaningful programs that address statewide health priorities and local health issues;
- Identify and prioritize unmet needs and select those that can most effectively be addressed with available resources;
- Contribute to the well-being of our community through outreach efforts including, but not limited to, reducing barriers to accessing health care, preventive health education, screenings, wellness programs and community-building

Methods

The 2018 Carney Hospital Community Health Needs Assessment was developed in full compliance of the Commonwealth of Massachusetts Office of Attorney General-*The Attorney General's Community Benefits Guidelines for Non-Profit Hospitals* released in February 2018. In order to accomplish this, a multi-dimensional approach to the collection of health and social demographic information from its primary service area was conducted. In accordance with this process, Carney Hospital engaged various community partners to ensure that varying perspectives on health and social topics were taken into account in order to complete this CHNA. Below is a brief description of the actions taken to gather community data.

Health Indicators and Demographics – Data Analysis

Demographic data was collected using publicly available databases maintained by the *U.S. Census Bureau*, the *MA Department of Early and Secondary Education* with some cross-referencing of *Center for Disease Control and Prevention (CDC)* databases. Health indicator data such as mortality, incidence, prevalence, and hospitalization rates were provided by the Massachusetts Department of Public Health, and by using other state, regional and national information sources (i.e. Uniform Crime Reporting (UCR) Program of the Federal Bureau of Investigation). Supplementary data on health indicators and demographics are available in Appendix A.

Key Informant Survey

A Key Informant Survey was distributed to the Carney Hospital Community Benefits Advisory Board, Carney Hospital and other key community-based organizations. Local health and human service organizations, government agencies, community centers, local businesses and churches were among the organizations who were sent the survey. The survey gathered key opinions about the Carney Hospital community and perceived issues within the community. A detailed overview of the key informant survey questions can be found in Appendix B.

Focus Group

In order to engage community partners in the data collection process a focus group was conducted. The focus groups captured community perspectives on perceived health issues and explored barriers to health resources. In total, 11 individuals participated in the focus group. The goal was to collect information from participants that could be used to inform population health improvement strategies. A detailed overview of the focus group questions can be found in Appendix C.

Literature Review

A literature review was conducted in order to gather information from recent governmental, public policy, and academic works. The relevant information was summarized and synthesized into a comprehensive literature review addressing the priority areas for community benefits, including: chronic disease, cardiovascular disease, cancer, diabetes, behavioral health, substance abuse disorders and housing stability/homelessness.

Findings

Chronic Disease

According to the Massachusetts Department of Public Health (MDPH), prevention and treatment of chronic disease is a public health priority. Nutrition, physical activity, and tobacco use and exposure are three key risk factors that directly impact cancer, diabetes, chronic lower respiratory disease, and cardiovascular disease rates. These chronic conditions in turn contribute to (56%) of all mortality in Massachusetts and over (53%) of all health care expenditures (\$30.9 billion a year (MDPH, 2014).

Various studies have shown that, although the three leading risk factors are modifiable, the conditions in which people live, learn, work, and play do not offer equal access or opportunity to make this possible. For example, a history of policies rooted in structural racism have resulted in environments in which there are inequities in access to healthy foods, safe spaces for physical activity, walkable communities, quality education, housing, employment, and health care services. The health implications of this are evident in the fact that Black and Hispanic residents of Massachusetts are consistently and disproportionately impacted by the high prevalence of all chronic diseases, as well as the related deaths and high acute care service utilization (MDPH, 2017).

Based on the Key Informant Survey conducted by Carney Hospital, respondents agreed that chronic diseases are a major issue in the community. When asked to identify the chronic diseases prevalent in their respective communities, participants noted that diabetes and cardiovascular disease were most common. Respondents noted a very low level of concern regarding cancer. Carney Hospital also conducted a focus group within their service area to engage community members in the data collection process. Diabetes and heart disease were the primary chronic disease concerns of focus group participants.

Mental Health

Data from 2015 reveal inequities across categories of age, sex, and race/ethnicity in mental health hospitalizations. The rate of mental health hospitalizations was higher for those ages 30-65 years compared with those 65 and older, males compared with females, and White residents compared with Asian, Black, and Latino residents. Mental health intersects with many areas of public health, including addiction, cancer, cardiovascular disease, and HIV/AIDS, therefore requiring common services and resource mobilization effort. Integrated treatment is critical for treating people with co-occurring disorders and can ultimately achieve better health outcomes and reduce costs (MDPH, 2017).

To reduce the inequities of mental health conditions in Boston, interventions targeting subpopulations at higher risk of mental illness are needed. It is also necessary to educate the public about the availability of mental health services and to decrease the stigma of seeking such services. Work also needs to be done to stop discrimination, which impacts the mental health of the

person facing the discrimination. Additionally, as the World Health Organization (WHO) suggests, in order to reduce the inequities in the occurrence of mental disorders, the conditions of everyday life, which are the social determinants of health, must improve (BPHC, 2017).

Substance Abuse Disorder

In 2015, there were 1,637 opioid-related deaths in Massachusetts. The rates of substance misuse deaths, unintentional drug overdose hospital patient encounters, and unique-person treatment admissions were higher for men than women. At the neighborhood level, the rate of overall substance misuse deaths (including alcohol misuse, drug misuse, and unintentional opioid overdose/poisoning deaths) during the five-year time period 2011-2015 was higher for Dorchester (zip codes 02122, 02124), and South Boston compared with the rest of Boston (BPHC, 2017).

Individual-level risk factors such as socioeconomic status, family history, incarceration, and stressful life events are associated with drug use. Increasingly, evidence suggests that the social determinants of health may contribute to one's decision to initiate drug use and shape other substance use behaviors. Additionally, addiction is a chronic neurological disorder and needs to be treated as other chronic conditions (BPHC, 2017).

Housing stability

Our data point out that race, ethnicity, and socioeconomic factors are indicators of health outcomes within the region. To take this into consideration and enhance efficacy of Carney Hospital programs, Carney Hospital will focus its efforts toward individuals and families who are at greatest risk for health inequities due to socio-economic and/or sociodemographic status, lack of access to health and social services, and lack of chronic disease self-management support. Providing care coordination services and facilitating access to social services are essential components of a population health improvement strategy, as indicated by participants in the focus groups conducted in the Carney service area, and in responses gathered through the Key Informant Surveys. Increasing awareness and building capacity in service systems are important in helping identify and treat co-occurring disorders. Treatment planning should be client-centered, addressing clients' goals and using agreed upon treatment strategies (MDPH, 2017).

Safe and stable housing provides personal security, reduces stress and exposure to disease, and provides a foundation for meeting basic hygienic, nutritional, and healthcare needs. Average income gains over the past decade have failed to keep pace with rising housing costs, pushing thousands of residents into unstable housing situations. Without consistent access to health care, homeless individuals are less likely to participate in preventive care and are much more likely to utilize the emergency department for non-emergencies. Such patterns of use are not only a burden on the healthcare

Demographics

Who we are directly impacts how we interact with our community and society. Our race, gender identity, age, disability status, etc. influences the social environment that we experience. Our social environment impacts many mental and physical health outcomes, including: mental health, violence, risk behaviors (tobacco and drug use), physical health and well-being, and disease morbidity and mortality. We are influenced by the social environment on three levels: interpersonal, community, and society (MDPH, 2017).

Across all three levels, systems of oppression such as structural racism and gender bias lead to social isolation, social exclusion, poor mental health, increased risk of violence, increased rates of poverty, higher hospitalizations, longer recovery times, and higher mortality rates for many conditions. Social isolation, social exclusion, racism, discrimination and poverty disproportionately affect low-income communities and communities of color and all negatively impact many aspects of health. Communities of color are more likely to have lower levels of resources and connectedness with other neighborhoods and higher levels of racial segregation. They also face more challenges when engaging in group action in neighborhoods to shift these conditions (Hobson-Prater T, 2012).

Improving access to health care today also means we consider language, education, the cost of medical insurance, and other social, economic, and environmental factors. A lack of consistent medical and preventative care leads to sicker individuals who require more resources. This contributes to rising healthcare costs and stressed emergency medical care systems. This pattern further contributes to health inequities (BPHC, 2017).

Although health care providers intend to provide equal treatment to all, bias among providers has been shown to negatively impact patients. For example, studies suggest that physicians unknowingly offer different treatment options based on the patient's race, even when patients have similar symptoms. Patients are accessing care but being treated differently. These race-based differences may be reduced if physicians recognize they are susceptible to unconscious bias, especially when interacting with their patients and writing prescriptions. The bias among providers and the resulting differences in treatment may also contribute to health inequities (BPHC, 2017).

During 2011-2015, Hyde Park, and South Boston had a lower percentage of uninsured residents compared with Boston overall. In the same time period, Dorchester (02125), and Dorchester (02122, 02124) had a higher percentage of residents without health insurance compared with Boston overall (BPHC, 2017).

During 2013 and 2015 combined, (9%) of Boston adult residents reported needing to see a doctor but were unable to do so because of cost. The percentage of adults who could not afford a doctor was higher for the following groups:

- Black (13%) and Latino (16%) adults compared with White adults (5%)
- Adults with less than a high school diploma (19%) or a high school diploma (10%) compared with adults with at least some college education (7%)
- Adults who were out of work (18%) compared with those who were employed (8%)
- Adults living in households with an annual income of less than \$25,000 (15%) or \$25,000-\$49,999 (14%) compared with adults living in households with an annual income of \$50,000 or more (4%)

- Adults who were Boston Housing Authority residents (14%), adults who received rental assistance (17%), adults who rented but did not receive rental assistance (10%), and those with other housing arrangements (12%) compared with home owners (5%)
- Foreign-born adults who lived in the United States for 10 years or less (13%) and foreign-born adults who lived in the United States for over 10 years (14%) compared with U.S.-born adults (7%) (BPHC, 2017)

Racial and ethnic inequities were found in indicators of health care access, particularly for Latino adults. Higher percentages of Latino adults compared with White adults reported both the inability to see a doctor in the past 12 months because of cost and the lack of a doctor or health care provider. Among Boston adults, inequities in percentage of those with inability to see a doctor because of cost and with not having a doctor or health care provider were also found across categories of employment status, education, household income, home ownership, and place of origin. Inequities in these indicators tend to disproportionately affect adults with less than high school diploma or household income less than \$25,000, as well as adults who are non-homeowners or foreign-born residents who lived in the U.S. for 10 or fewer years (BPHC, 2017).

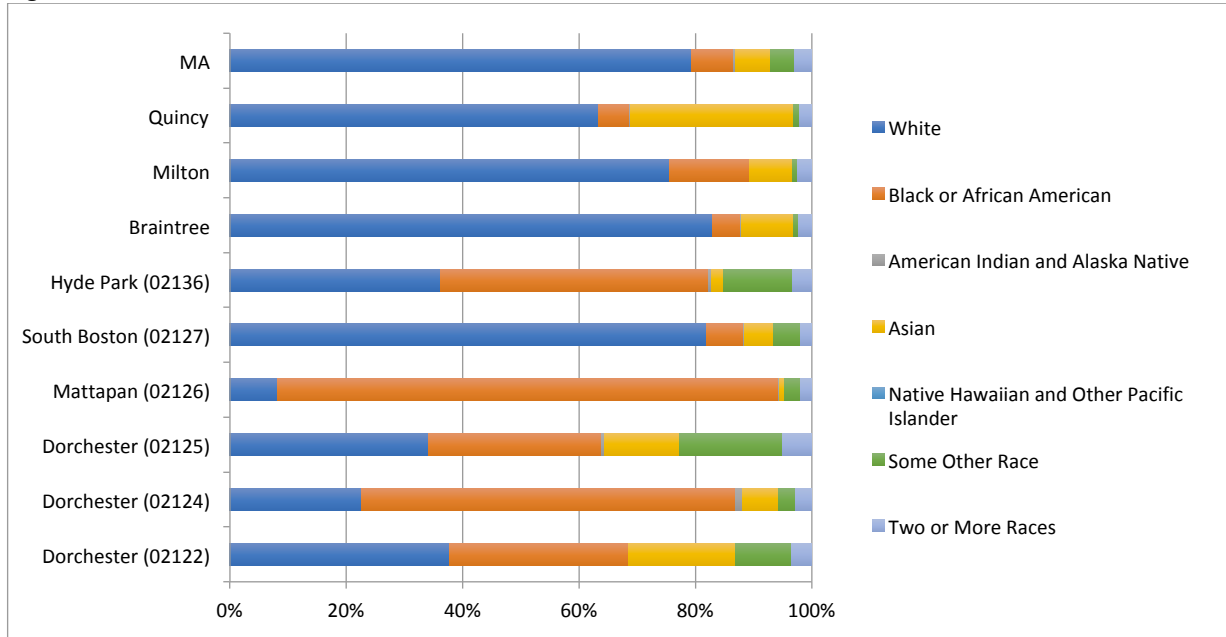
To reduce the inequities in being uninsured or faced with barriers to health care access, multi-sector interventions that target subpopulations at higher risk should address social determinants, (e.g. by improving employment opportunities and wage conditions among vulnerable sub-populations, and sources of structural racism that affect health care provider-patient interactions). Continued funding to support health insurance coverage in Massachusetts will also help maintain the low percentage of uninsured among Boston residents (BPHC, 2017).

Table 1: Race Distribution 2012-2016

	White	Black African American or American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	Other	Two or More Races
Dorchester (02122)	37.70%	30.90%	18.40%	0%	9.60%		3.50%
Dorchester (02124)	22.60%	64.40%	6.20%	0%	2.90%		2.90%
Dorchester (02125)	34.20%	29.70%	12.80%	0%	17.70%		5.10%
Mattapan (02126)	8.20%	86.10%	0.90%	0%	2.70%		2%
South Boston (02127)	81.80%	6.40%	5%	0%	4.60%		2%
Hyde Park (02136)	36.20%	45.90%	2%	0%	11.90%		3.30%
Braintree	82.90%	4.90%	9%	0%	0.80%		2.30%
Milton	75.40%	13.80%	7.30%	0%	0.90%		2.50%
Quincy	63.30%	5.30%	28%	0%	1%		2.20%
MA	79.3%	7.3%	6.1%	0.0%	4.1%		3.0%

(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

Figure 1: Race Distribution 2012-2016



(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

Cities/towns within the Carney Hospital service area generally exhibited greater diversity than the state as a whole. Notably, (86.1%) of all residents in Mattapan identified as Black or African American. With the exception of South Boston, Quincy and Braintree, each service area city/town had a greater percentage of Black or African American residents than the state average. Only Braintree and South Boston had a higher percentage of White residents than the state level. Quincy, Dorchester (02125), and Dorchester (02122) each had a higher than average percentage of Asian residents with the highest percentage being seen in Quincy at (28%).

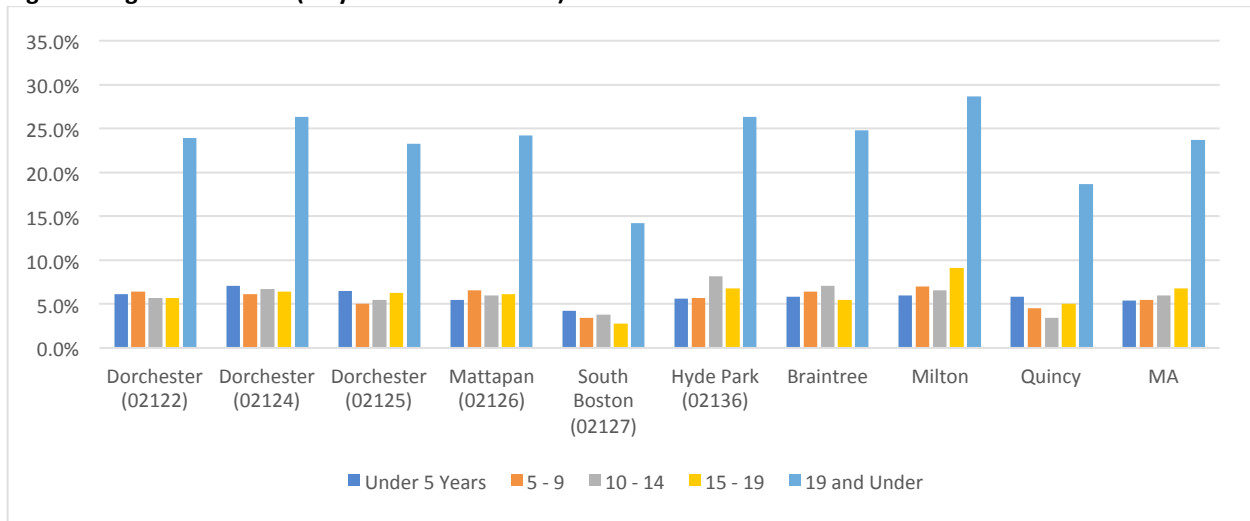
Table 2: Race Distribution in Public School Population 2017 (non-Boston)

	White, non-Hispanic	Black/African-American	Hispanic	Asian	Other	Multi-Race
Braintree	73.6%	4.8%	4.3%	15.7%	0.4%	1.3%
Milton	69.3%	15.0%	4.4%	6.7%	0.3%	4.3%
Quincy	45.1%	6.6%	5.8%	39.0%	0.6%	3.0%
Boston (all)	14.2%	31.5%	41.9%	9.0%	0.5%	3.0%
MA	60.1%	9.0%	20.0%	6.9%	0.3%	3.6%

(Source: MA Dept. of Elementary and Secondary Education 2018) Note: At the time of data collection race distribution data for public schools was unavailable for each individual Boston area zip code

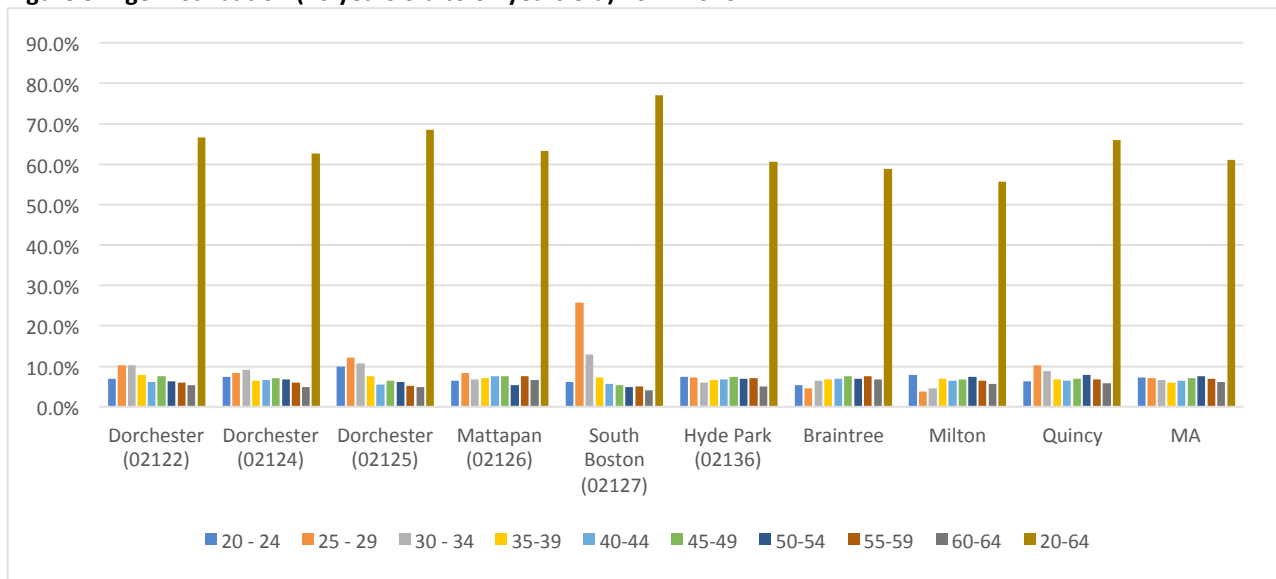
In 2017, (60.1%) of the public-school population in Massachusetts was white. Within the Carney service area, only Braintree and Milton had a greater percentage of White students than the state average. Boston and Quincy each had a lower percentage of White students than the state level with the smallest proportion seen in Boston at just (14.2%) White students. Boston and Milton each had a higher percentage of Black students than the state average. Boston had the highest percentage of Black students with (31.5%), and the highest percentage of Hispanic students at (41.9%). Braintree, Quincy and Boston each had a higher percentage of Asian students than the state average. The largest proportion of Asian students was seen in Quincy where (39.0%) of the public-school student population identified as Asian.

Figure 2: Age Distribution (19 years old and under) 2012-2016



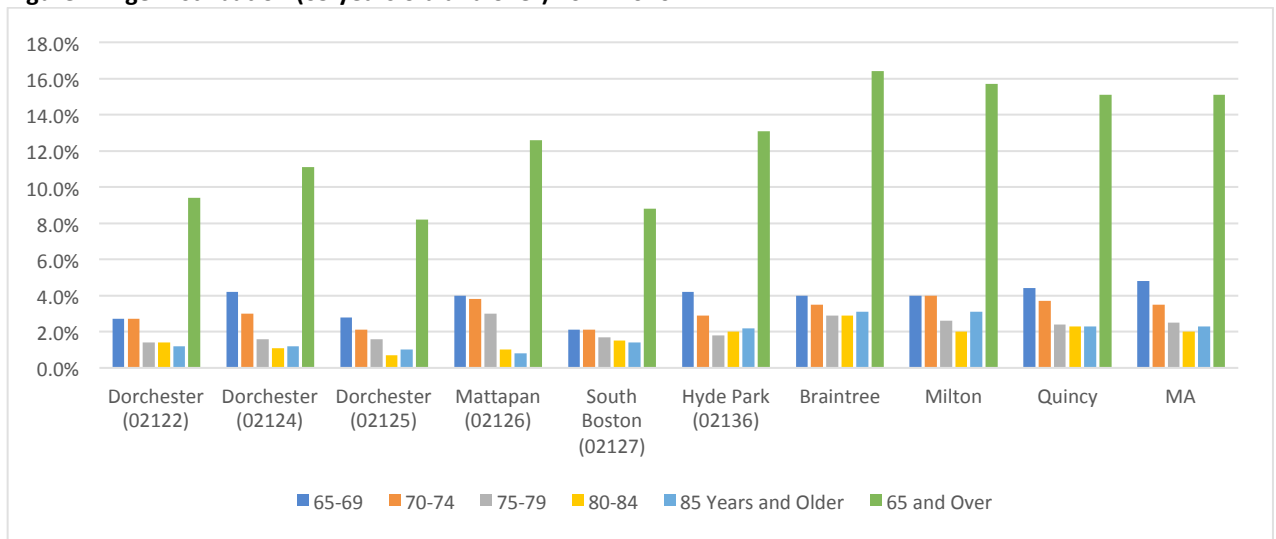
(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

Figure 3: Age Distribution (20 years old to 64 years old) 2012-2016



(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

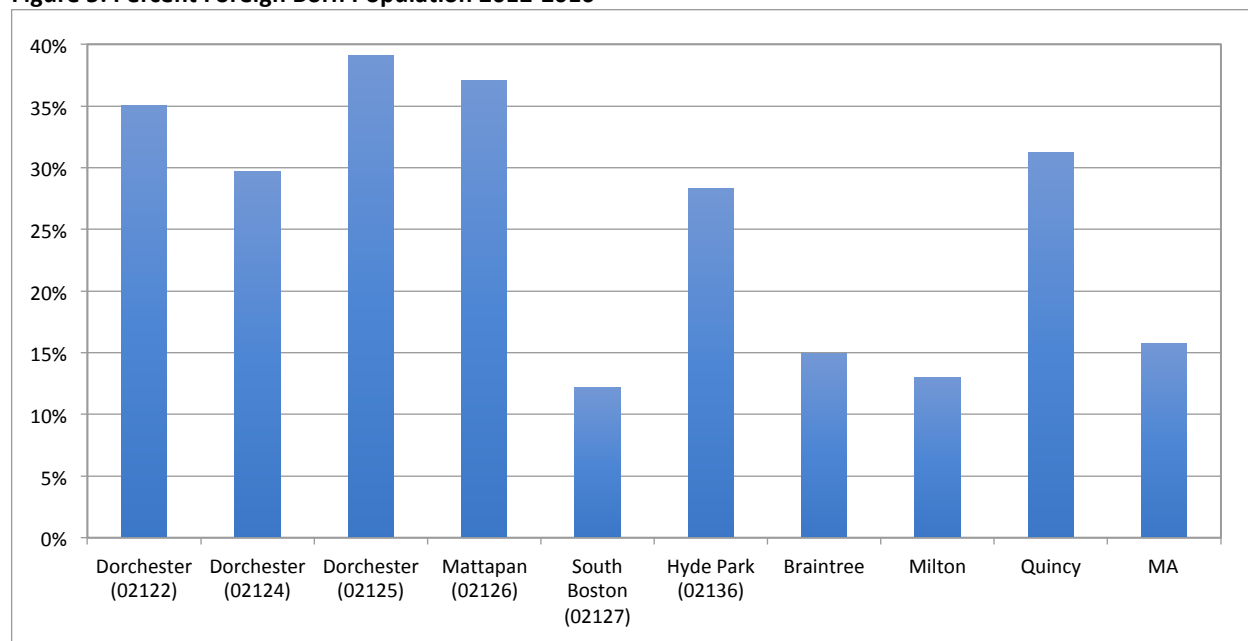
Figure 4: Age Distribution (65 years old and over) 2012-2016



(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

From 2012 to 2016, cities/towns in the Carney Hospital service area generally followed a similar age distribution to that seen at the state level. However, there were a few notable exceptions. In South Boston, only (14.2%) of the population was under the age of 19, this was (9.5%) lower than the state level of (23.7%). South Boston also had a significantly larger proportion of the population ages 25-29 and 30-34 than the state level (25.7% and 13%) compared to (7.1% and 6.6%). Dorchester (02122), Dorchester (02125) and Quincy also had a larger percentage of the population in these age groups. Dorchester (02125) had the smallest percentage of the population over the age of 65 (8.2%). Dorchester (02122) and South Boston also had less than 10% of their population in the over 65 years old group.

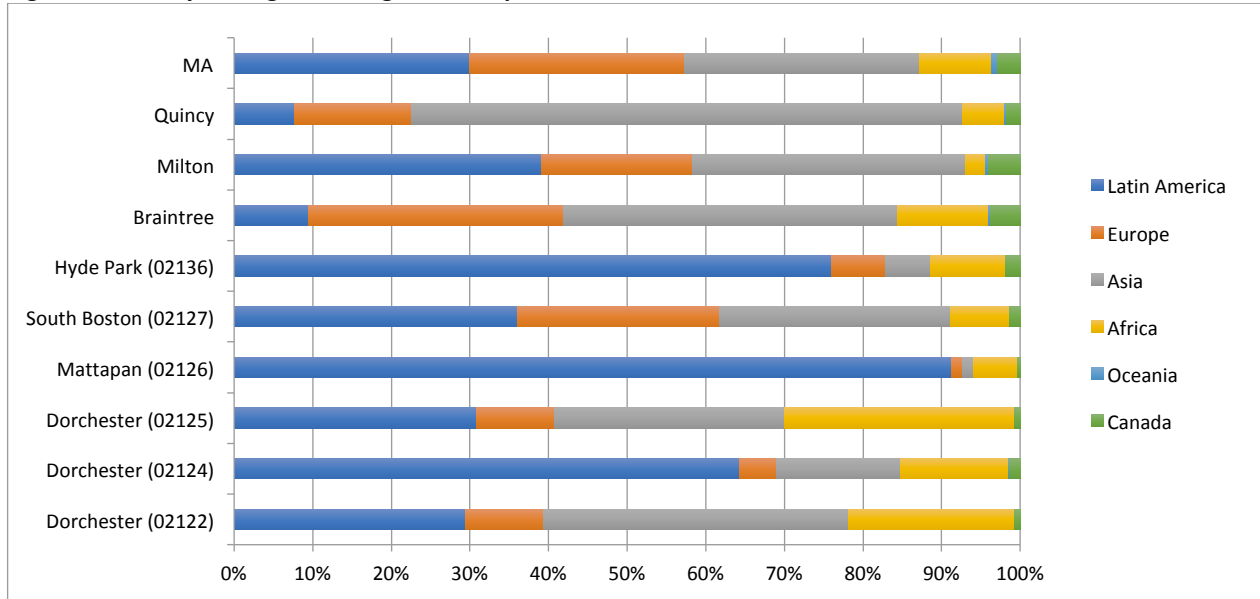
Figure 5: Percent Foreign Born Population 2012-2016



(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

From 2012 to 2016, (15.7%) of the Massachusetts population was foreign born. Six of the nine service area cities/towns had a higher percentage of the population born in a foreign country. The largest proportion of foreign-born individuals was seen in Dorchester (02125) at (39%), followed by Mattapan, and Dorchester (02122) at (37%) and (35%) respectively. South Boston had the smallest percentage of the population born in a foreign country at (12%).

Figure 6: Country of Origin – Foreign-Born Population 2012-2016



(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

From 2012 to 2016, (31.4%) of the foreign-born population in Massachusetts originated in Latin America, the same percentage originated in Asia. Those of European descent accounted for (28.8%) of the foreign-born population in Massachusetts over this period of time. Milton, Hyde Park, South Boston, Mattapan, Dorchester (02125) and Dorchester (02124) each had a higher percentage of the foreign-born population originating in Latin America. In Mattapan (91.2%) of the foreign-born population originated in Latin America. Dorchester (02122), Braintree, and Quincy each had a higher than state average percentage of foreign-born residents originating in Asia, Quincy had the highest percentage at (70%). It is also worth noting that 5 service area cities/towns had a higher percentage of foreign-born residents originating in Africa. Each Dorchester zip code exceeded the state average of foreign residents originating in Africa.

Table 3: Distribution of Language Spoken at Home 2012-2016

	Speaks English Only	Speaks Other English Language Than	Spanish	Other European Languages	Indo-European Languages	Asian and Pacific Islander Languages	Other Languages
Dorchester (02122)	57.0%	43.0%	10.8%	13.4%	16.7%	2.1%	
Dorchester (02124)	66.4%	33.6%	13.1%	12.7%	5.4%	2.3%	
Dorchester (02125)	48.5%	51.5%	17.3%	21.7%	10.9%	1.7%	
Mattapan (02126)	61.3%	38.7%	13.1%	21.7%	0.7%	3.2%	
South Boston (02127)	81.3%	18.7%	9.2%	5.1%	3.8%	0.6%	
Hyde Park (02136)	57.6%	42.4%	21.5%	17.4%	1.1%	2.5%	
Braintree	82.1%	17.9%	1.8%	6.8%	7.1%	2.2%	
Milton	81.9%	18.1%	3.2%	8.9%	5.4%	0.5%	
Quincy	62.7%	37.3%	2.1%	8.9%	24.7%	1.7%	
MA	77.3%	22.7%	8.6%	8.7%	4.1%	1.4%	

(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

From 2012 to 2016, (77.3%) of Massachusetts residents spoke only English at home. Braintree, Milton, and South Boston exceeded this percentage with (82.1%), (81.9%), and (81.3%) respectively. The remaining cities/towns each had a lower percentage of households that only spoke English than the state average. Hyde Park had the greatest percentage of households speaking Spanish at home with (21.5%). Other Indo-European languages were most prominent in Dorchester (02125) with (21.7%) of

households using these languages at home. Asian and Pacific islander languages were most prominently spoken at home in Quincy (24.7%).

Employment

While being employed is important for economic stability, employment affects our health through more than economic drivers alone. Physical workspace, employer policies, and employee benefits all directly impact an individual's health. The physical workplace can influence health through workplace hazards and unsafe working conditions which lead to injuries, illness, stress, and death. Long work hours and jobs with poor stability can negatively impact health by increasing stress, contributing to poor eating habits, leading to repetitive injuries, and limiting sleep and leisure time. Job benefits such as health insurance, sick and personal leave, child and elder services and wellness programs can impact the ability of both the worker and their family to achieve good health (MDPH, 2017).

The proportion of unemployed residents declined from (10.2%) in 2010 to (5.8%) in 2015, reflecting a (43%) decrease over this period. From 2010 to 2015, the percentage of Massachusetts residents who were unemployed was lower than the national average. In 2015, (5.8%) of Massachusetts residents 16 years of age or older were unemployed, compared to (6.3%) for the US. Following national patterns, a greater share of younger individuals was unemployed in 2011-2015. A total of (21.1%) of Massachusetts residents 16-19 years of age were unemployed and (12%) of persons 20-24 years of age were unemployed (MDPH, 2017).

Underemployment is linked to chronic disease, lower positive self-concept, and depression. Workers with incomes below the poverty line are part of the working poor, who are more likely to have low-paying, unstable jobs, have health constraints, and lack health insurance. Discriminatory hiring practices have limited the ability of people of color to secure employment. Those who have been arrested, have a conviction, felony or have been incarcerated are severely limited in their ability to find employment due to policies placing limitations on individuals who have interacted with the criminal justice system (MDPH, 2017).

For 2011-2015, the unemployment rate for Boston residents was higher in Dorchester (zip codes 02121, 02125), Dorchester (zip codes 02122, 02124), Mattapan, and Roxbury compared with Boston overall. The unemployment rate was lower in Allston/Brighton, Back Bay, Charlestown, Jamaica Plain, South Boston, the South End, and West Roxbury compared with Boston overall (BPHC, 2017).

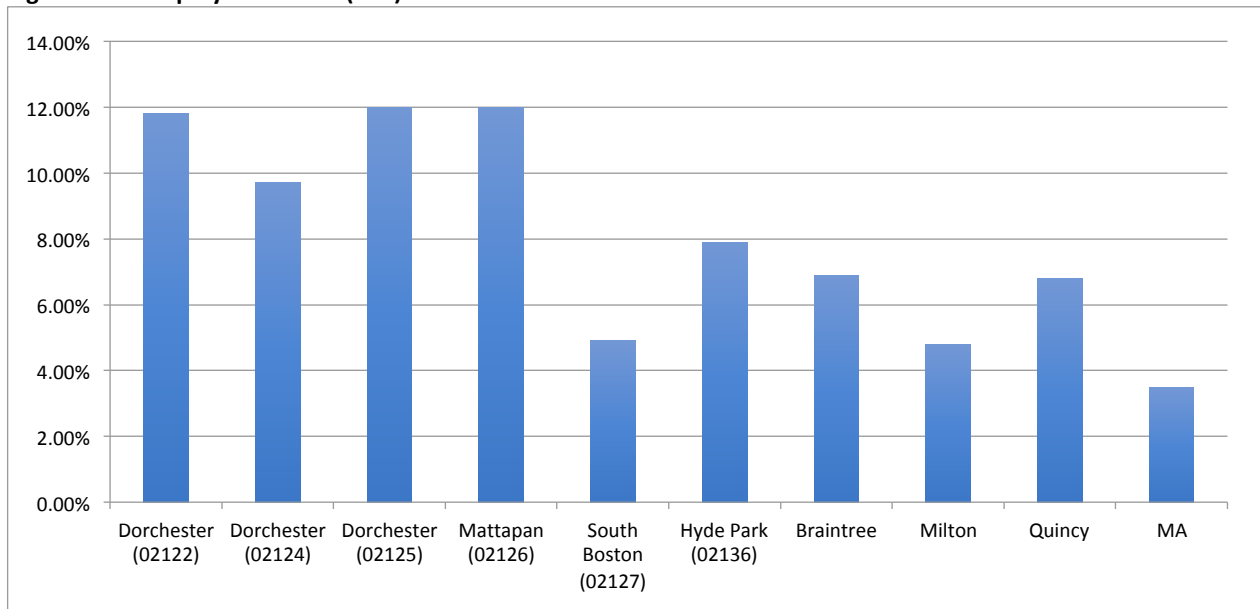
In 2015, the labor force participation rate for Boston residents ages 16 and older was (69%). Labor force participation was lower among Asian (58%), Black (68%), and Latino (66%) residents compared with White residents (73%). The labor force participation rate was lower for Boston female residents (67%) compared with male residents (72%) (BPHC, 2017).

The unemployment rate for Boston residents was higher for Black and Latino residents compared with White residents. We also found inequities in the unemployment rate at the neighborhood level. The unemployment rate for Boston residents was higher in Dorchester (zip codes 02121, 02125), Dorchester (zip codes 02121, 02125), Mattapan, and Roxbury compared with Boston overall. The unemployment rate was lower among Boston female residents compared with male residents. Additionally, a higher percentage of residents ages 18 to 64 with a disability in Boston were unemployed compared with residents who had no disability (BPHC, 2017).

Employment status impacts an individual's overall health. After adjusting for age, race/ethnicity, and sex, we observed that a higher percentage of Boston residents who were out of work had diabetes, persistent anxiety, and persistent sadness compared with those who were employed. A higher percentage of residents whose employment status was "other" (homemakers, students, retirees, and

those unable to work) had asthma, diabetes, hypertension, and persistent sadness compared with those who were employed (BPHC, 2017).

Figure 7: Unemployment Rate (16+) 2012-2016



(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

From 2012 to 2016, unemployment rates in all cities/towns within the Carney Hospital service area were higher than those seen at the state level. The highest unemployment rates were seen in Dorchester (02125) and Mattapan where unemployment was (12%) in both neighborhoods. Dorchester (02122) was the only other service area city/town that had an unemployment rate over 10% (11.8%). The lowest unemployment rates in the Carney service area were found in Milton and South Boston at (4.8%) and (4.9%) respectively.

Educational Attainment

Educational attainment often helps individuals have access to resources that promote good health, such as physical activity breaks, school lunches, after-school programs and health-based resources such as screenings and management of chronic conditions. These programs have been shown to improve health outcomes, like childhood obesity, and mental health as well as school performance and learning outcomes. Unfortunately, not all school systems have the resources to provide these vital programs. As students spend a significant portion of their day in school, schools also provide basic necessities such as shelter, sanitary facilities, food and water, and opportunities for socialization. All of these exposures while in school are directly associated with both better health and learning outcomes. Even after leaving the education system, educational attainment continues to impact individuals' health. Education is associated with better jobs, higher incomes, and economic stability. Education can also provide a greater sense of control over one's life and stronger social networks, which again are linked to ability to engage in healthy behaviors and better overall health (MDPH, 2017).

Unfortunately, educational attainment in Massachusetts is not equitable. Students from low-income communities and communities of color may face challenges in getting to school, differential public-school resources, inequitable discipline practices, resources, and afterschool programming (MDPH, 2017).

During 2011-2015, higher percentages of residents ages 25 and older in Dorchester (zip codes 02121, 02125), Dorchester (zip codes 02122, 02124), East Boston, Mattapan, Roxbury, and the South End had

less than a high school diploma compared with Boston overall. Lower percentages of residents in Allston/Brighton, Back Bay, Charlestown, Fenway, Hyde Park, Jamaica Plain, Roslindale, South Boston, and West Roxbury had less than a high school diploma compared with Boston overall (BPHC, 2017).

In 2015, the median earnings for Boston residents ages 25 and older varied by educational attainment and sex. For males and females, median earnings increased as the level of educational attainment increased. Females at all levels of educational attainment, except those with some college an associate degree, had lower median earnings when compared with their male counterparts. The largest discrepancy was observed among residents with graduate or professional degrees. Females with these degrees had median earnings of \$62,056 while males had median earnings of \$81,428 (BPHC, 2017).

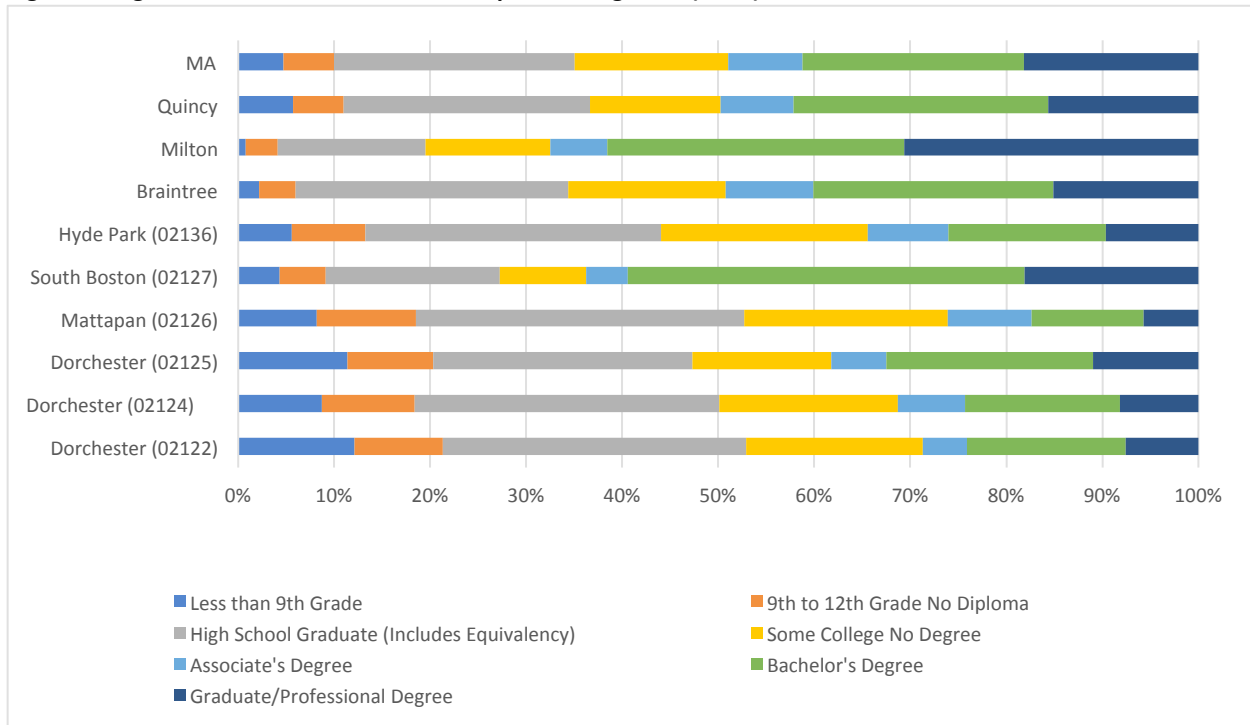
In 2015 the percentage of Boston residents ages 25 and older living below the poverty level varied by educational attainment and sex. Compared with males, higher percentages of females at all levels of educational attainment, except those with some college an associate degree, were living below the poverty level (BPHC, 2017).

Although Boston has a reputation as an education hub, sex and racial/ethnic inequities for residents in educational attainment and related indicators exist. A higher percentage of White residents had a bachelor's degree compared with Black, Latino, and Asian residents, and a lower percentage of White residents compared with Black, Latino, and Asian residents had less than a high school diploma (BPHC, 2017).

At the neighborhood level, we found higher percentages of residents with less than a high school diploma in Dorchester (zip codes 02121, 02125), Dorchester (zip codes 02122, 02124), East Boston, Mattapan, Roxbury, and the South End. Inequities across categories of race/ethnicity were also reflected in the attendance and graduation rates of Boston Public Schools (BPS), and access to technology. A lower percentage of White school-age children attended Boston Public Schools (versus other types of schools) compared with Asian, Black, and Latino school-age children. A higher percentage of White and Asian BPS high school students graduated in four years compared with Black and Latino students. Black and Latino residents were also less likely to have access to a computer or to have internet access at home compared with White residents (BPHC, 2017).

After adjusting for age, race/ethnicity, and sex, we observed that lower educational attainment was associated with higher percentages of adverse health indicators. In comparison with adults with at least some college education, adults with less than a high school diploma had higher percentages of asthma and persistent sadness. Adult residents with a high school diploma had higher percentages of diabetes, hypertension, obesity, and persistent sadness (BPHC, 2017).

Figure 8: Highest Educational Attainment Population Age 25+ (2018)

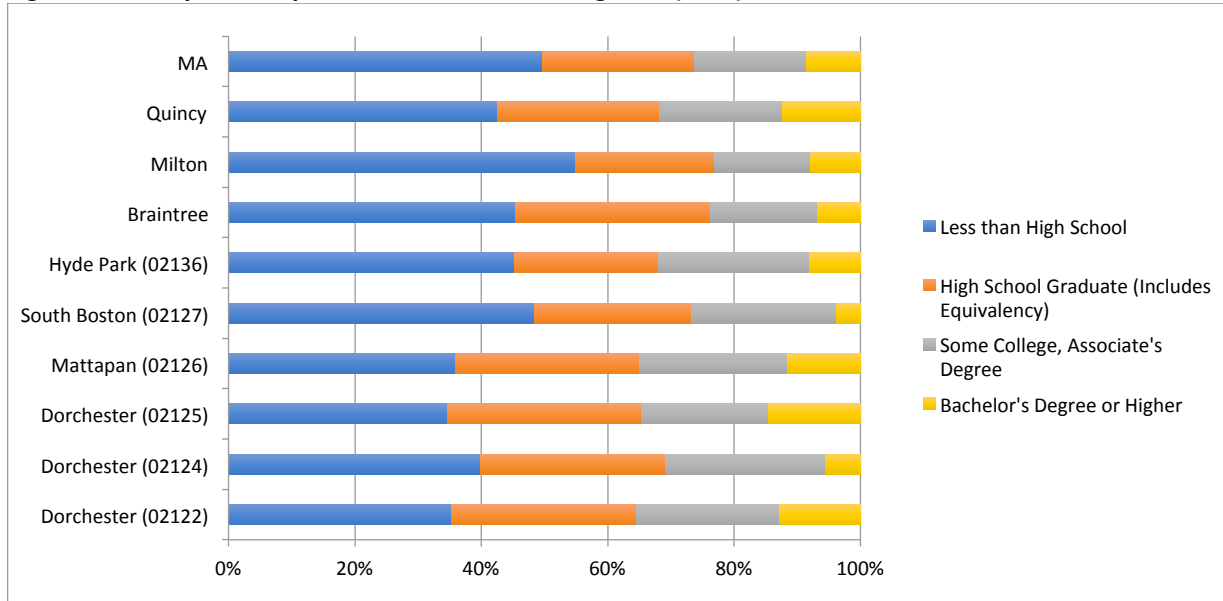


(Source: MA Dept. of Elementary and Secondary Education, 2018)

As of 2018, (10%) of the Massachusetts population had less than a high school education. In Dorchester (02122) and Dorchester (02125), more than 20% of the population had less than a high school education. Dorchester (02124) and Mattapan also had a larger percentage of the population with less than a high school education, (18.4%, 18.5%). With the exception of South Boston, every Boston neighborhood had a higher than average percentage of individuals with less than a bachelor’s degree than the state average. The greatest proportion of the population with a bachelor’s degree is found in South Boston (41.3%), compared to (23.1%) at the state level. Milton had the highest percentage of the population with a graduate or professional degree at (30.6%).

Education is associated with health in many ways. Higher educational attainment is associated with improved working conditions and income, which in turn allows for improved housing, nutrition, control of hazards and stress, as well as direct health benefits, including quality health insurance, retirement benefits, and sick leave (Braveman P, 2011). Educational attainment is also closely linked to improved health knowledge, literacy, and behaviors, which are, in turn, associated with improved disease management (Braveman P, 2011). Individuals with more years of formal education tend to have healthier behaviors and better health outcomes. Education also helps promote and sustain healthy lifestyles and positive choices that support and nurture personal development, relationships, and community well-being (Ross CE, 1993).

Figure 9: Poverty Status by Educational Attainment Age 25+ (2018)



(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

From 2012 to 2016, cities/towns within the Carney Hospital service area generally followed the patterns for poverty status by educational level seen at the state level. However, in Mattapan and Dorchester (02122, 02124, 02125) those with a lower level of education were less likely to be below poverty level than individuals with the same educational attainment in other service area cities/towns.

When asked “*Is there a sense of community where you live?*” focus group participants had mixed responses. Some stated that they felt a strong sense of community where they lived, while others felt that the changing dynamics of their neighborhoods had diminished the sense of community in them. Participants who felt a sense of community cited the diverse groups represented in their neighborhoods and a variety of initiatives that bring community members together. Those who stated that there was a lack of community felt that there was decreasing ethnic and age diversity. When asked “*what are the general social demographics of consumers served by your organization?*”, survey respondents stated that their general consumers were a mix of ages, but primarily older adults (31-64), earning \$20,000-\$40,000 annually, of a variety of racial ethnic backgrounds, speaking a mix of languages at home. Survey respondents believed that the majority of their consumers resided in Dorchester, followed by Mattapan, and then Quincy.

Chronic Disease

According to the Massachusetts Department of Public Health (MDPH), the prevention and treatment of chronic disease is a public health priority. Nutrition, physical activity, and tobacco use/exposure are three key risk factors that directly impact cancer, diabetes, chronic lower respiratory disease, and cardiovascular disease rates. These chronic diseases account for (56%) of all mortality, and over (53%) of all health care expenditures in Massachusetts (\$30.9 billion a year) (MDPH, 2014).

Although these three leading risk factors are modifiable, the environments in which people live, learn, work, and play do not always offer equal access to the necessary resources or opportunities to modify these risk factors. A history of policies rooted in structural racism have resulted in environments where there are inequities in access to healthy foods, safe spaces for physical activity, walkable communities, quality education, housing, employment, and health care services. The health implications of these inequities are evident in the fact that Black and Hispanic residents of Massachusetts are disproportionately impacted by chronic diseases. These inequities are evident in the fact that the Black and Hispanic populations experience increased prevalence of, and mortality related to chronic diseases. Healthy people cannot exist in unhealthy environments. Because of this, MDPH frames its chronic disease prevention and wellness efforts around the social determinants of health with a focus on policies that ensure that all individuals have the ability to make healthy choices (MDPH, 2017).

By their very definition, chronic diseases are “managed” since cures are not available. Management practices extend life; therefore, chronic diseases continue to rise in prevalence. Chronic disease management includes medications, medical procedures, and lifestyle changes. Prevention is the key to reducing the burden of these diseases. To prevent chronic disease, people need opportunities to live a healthy lifestyle which includes, participating in adequate physical activity, eating a balanced diet, managing stress and limiting exposure to chronic stressors, refraining from tobacco use, and limiting alcohol consumption (Adler NE, 2002).

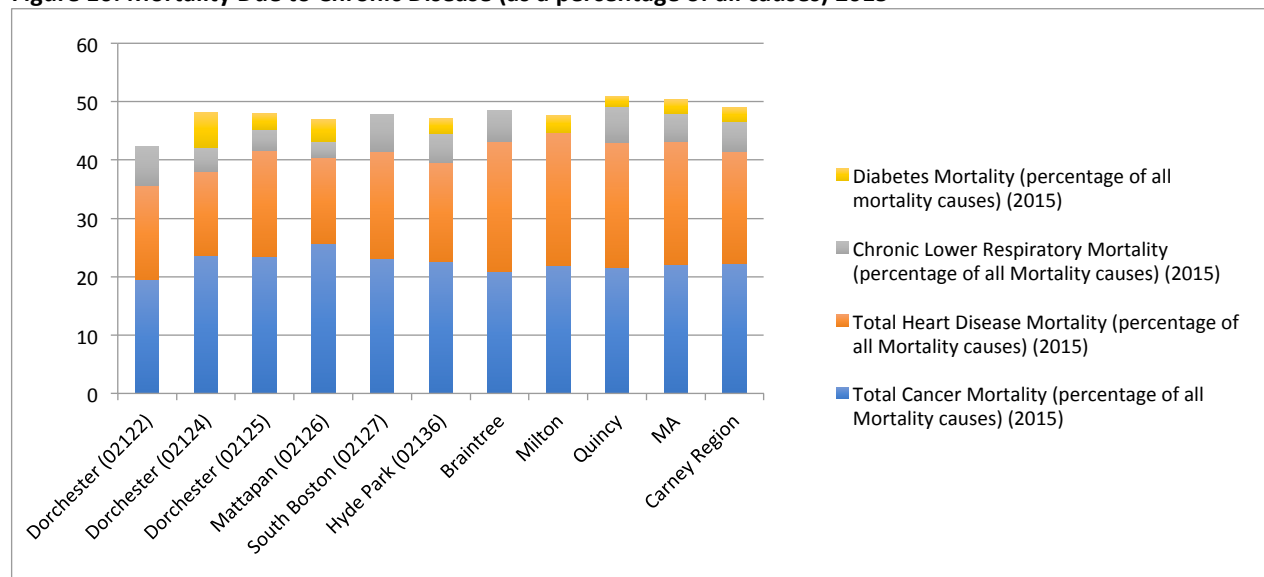
Unfortunately, the modern environment is often not supportive of these healthy habits. Changing the environment to promote healthier behaviors requires strategic planning. Implementing systems and policies that increase opportunities for physical activity, provide support to live tobacco free, and improve access to healthy foods, are strategies that have previously been used to create healthier environments. Systems and policies that address social determinants by improving access to routine preventive medical care and increasing educational and employment opportunities also contribute to healthy environments. A healthier environment can support an individual’s choice to walk or bike instead of drive, to quit smoking, or to limit sugary beverage consumption. Ultimately, building healthier environments will encourage residents to live a healthy lifestyle, greatly improving their health and longevity (BPHC, 2017).

Table 4: Mortality Due to Chronic Disease (as a percentage of all causes) 2015

	Total Cancer Mortality (percentage of all Mortality causes) (2015)	Total Heart Disease Mortality (percentage of all Mortality causes) (2015)	Chronic Lower Respiratory Mortality (percentage of all Mortality causes) (2015)	Diabetes Mortality (percentage of all mortality causes) (2015)
Dorchester (02122)	19.46	16.11	6.71	NA
Dorchester (02124)	23.58	14.47	4.09	5.98
Dorchester (02125)	23.44	18.23	3.65	2.6
Mattapan (02126)	25.68	14.75	2.73	3.83
South Boston (02127)	23.11	18.33	6.38	NA
Hyde Park (02136)	22.69	16.81	5.04	2.52
Braintree	20.94	22.25	5.24	NA
Milton	21.9	22.86	NA	2.86
Quincy	21.64	21.31	6.22	1.78
MA	22.1	21	4.8	2.4
Carney Region	22.27	19.23	5.06	2.37

(Source: Massachusetts Department of Public Health) Note: At the time of data collection, mortality data for diabetes was unavailable for Dorchester (02121), South Boston and Braintree.

Figure 10: Mortality Due to Chronic Disease (as a percentage of all causes) 2015



(Source: Massachusetts Department of Public Health) Note: At the time of data collection, mortality data for diabetes was unavailable for Dorchester (02121), South Boston and Braintree.

In 2015, about (50.30%) of all mortality in Massachusetts was due to cancer, heart disease, chronic lower respiratory disease, and diabetes. The figure above shows that (48.93%) of all mortality in the Carney Hospital service area was attributable to the same causes. Of the cities/towns in the Carney service area, only Quincy had a greater proportion of mortality due to these causes with (50.95%). Dorchester (02124), Dorchester (02125), Mattapan, Hyde Park and Milton each had lower levels of mortality due to chronic disease than the MA state and Carney service area levels.

Chronic diseases were a concern of both the focus group participants and survey respondents alike. When asked “*what are the major health concerns in the community where you provide services?*”, diabetes, heart health, and high blood pressure commonly chosen concerns (69.77%, 50%, 67.44%). Focus group participants ranked both diabetes and heart disease as the second greatest health concern in the community. Only (9.3%) of survey respondents believed that cancer was a major health concern in the community. Focus group participants believed that chronic disease prevalence was on a decline.

Cancer

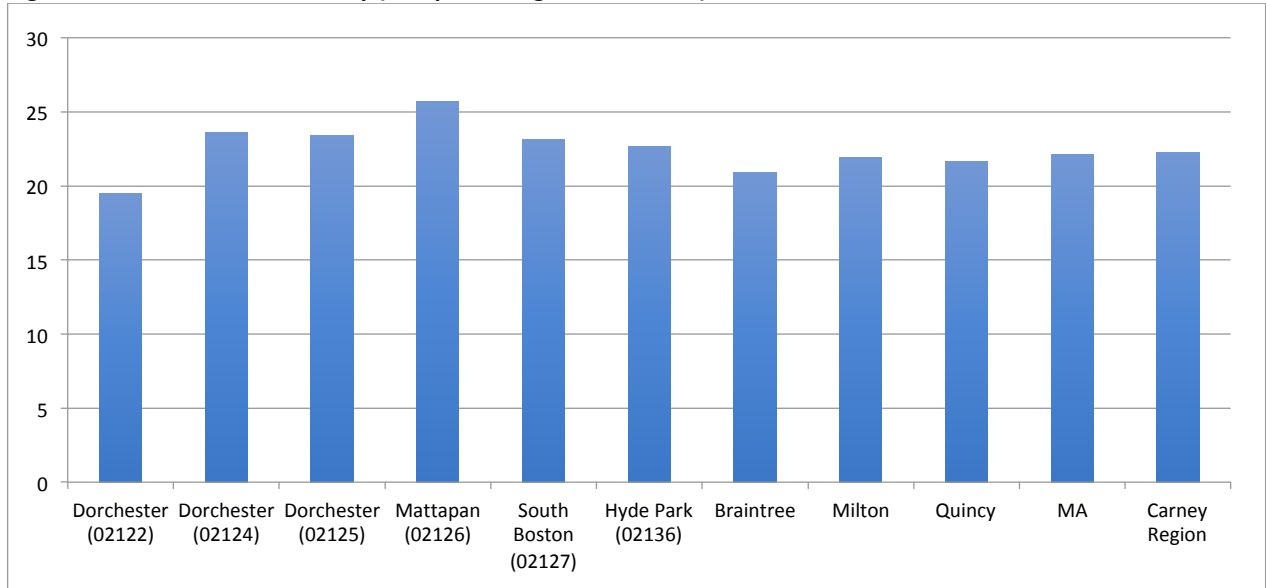
Cancer is the second leading cause of death in the U.S., in 2014, the age-adjusted mortality rate attributable to cancer was 161.2 per 100,000 population. Nationally, the leading types of cancer deaths in 2015 were lung and bronchus, prostate in men, breast in women, colon and rectum, pancreas, and liver and intrahepatic bile duct in men, ovary in women (BPHC, 2017). In 2006, cancer surpassed heart disease as the leading cause of death in Massachusetts and has remained the primary cause of mortality in the Commonwealth since. Although cancer incidence and mortality rates decreased in Massachusetts from 2010 to 2014, there were still more than 36,000 new cancer cases diagnosed annually during this period. During this period the age-adjusted cancer incidence rate in Massachusetts was 471.1 per 100,000 population. Men had a higher cancer incidence rate than women (505.7 versus 450.4 per 100,000 population). From 2010 to 2014, cancer incidence decreased (3.2%) annually among men (MDPH, 2017). Across the Commonwealth, breast cancer among women and prostate cancer among men were most common. Lung cancer, colon cancer, and melanoma were also among the leading types of cancer among both women and men. Together, these five cancers account for more than half of all cancer cases across the Commonwealth (MDPH, 2017)

From 2011-2015 the cancer mortality rate decreased in Boston. Among all Boston resident this figure decreased by (12%) and among black residents by (18%). In 2015 the cancer mortality rate for women was (29%) lower than that of men. In 2015, (85%) of women reported having had received a mammogram in the past two years (BPHC, 2017). The five leading types of cancer deaths among Boston residents were generally consistent with what is observed for the U.S. and state, with lung cancer as the top cause. Some patterns emerge for lung cancer mortality rates across sex and race/ethnicity. Lung cancer mortality rates are generally higher in men than women. Across race/ethnicity, rates were lowest among Latinos (BPHC, 2017). According to the Boston Public Health Commission, prostate cancer is still very common in Boston. Among Black men, prostate cancer deaths occur at two times the rate for White men. The racial inequity for Black men in Boston is the largest for any major cancer. In the United States, 1 in 23 Black men with prostate cancer will die from the disease compared to 1 in 42 White men (BPHC, 2017).

The major known risk factors for cancer are age, family history of cancer, smoking, overweight/obesity, excessive alcohol consumption, excessive exposure to the sun, unsafe sex, exposure to fumes, second hand cigarette smoke, and other airborne environmental and occupational pollutants. Several socioeconomic factors modify these risk factors and contribute to the prevalence of cancer and/or late stage cancer diagnoses. Gaps in health care coverage represent a barrier to covering the costs of diagnostic testing. For examples, individuals with high deductibles, low premiums, or high co-pays must pay for diagnostic tests to confirm a cancer diagnosis, contributing to delays in diagnosis (MDPH, 2017). As with other health conditions, there are major disparities in outcomes and death rates across all forms of cancer, which are directly associated with race, ethnicity, income, and whether one has comprehensive medical health insurance coverage (John Snow Inc., 2016).

Inequities across age, race/ethnicity, insurance coverage, and income were also found for breast, cervical, and colon cancer screening tests. For breast, cervical, and colon cancer screening, inequities tend to disproportionately affect Black and Asian adults as well as adults with no insurance coverage. Adults with household income less than \$25,000 were also less likely to report cervical and colon cancer screening. Across age categories, younger adults in the target population were less likely to report screening for breast (ages 40-49), cervical (ages 21-29), and colon cancer (ages 50-59) (BPHC, 2017).

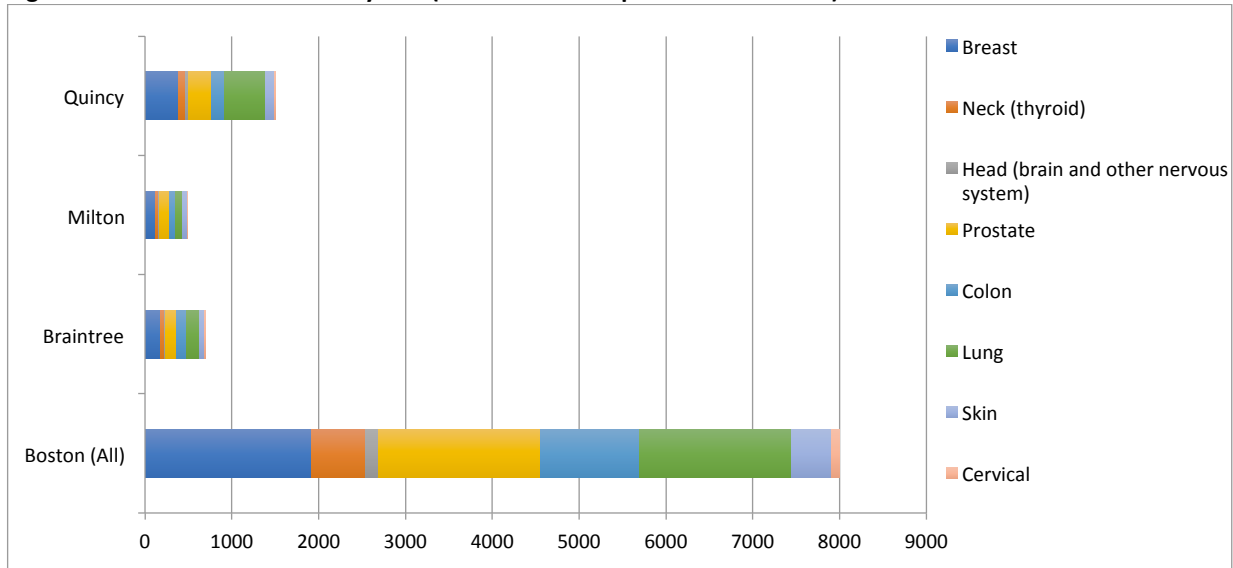
Figure 11: Total Cancer Mortality (as a percentage of all causes) 2015



(Source: Massachusetts Department of Public Health)

In 2015, (22.10%) of total mortality in Massachusetts was due to cancer, the Carney Hospital service area exhibited a slightly higher percentage at (22.27%). Of the cities/towns in the Carney Hospital service area, five had higher percentages of mortality due to cancer than the MA state and Carney service area levels. These included Dorchester (02124), Dorchester (02125), Mattapan, South Boston, and Hyde Park. Mattapan had the highest percentage of mortality due to cancer at (25.68%), followed by Dorchester (02124) and Dorchester (02125) at (23.58%) and (23.44%) respectively. Dorchester (02122) exhibited the lowest percentage of mortality due to cancer at (19.46%).

Figure 12: Total Cancer Counts by Site (observed and expected case counts) 2009-2013



(Source: Massachusetts Department of Public Health, Massachusetts Cancer Registry) Note: At the time of data collection, cancer counts by diagnosis site were unavailable for each individual Boston zip code.

From 2009-2013, breast cancer was the most diagnosed form of cancer in the state followed by lung cancer. Boston and Braintree followed this trend. In Milton there was an equal number of breast and lung cancer diagnoses and in Quincy lung cancer diagnoses exceeded breast cancer diagnoses. After breast and lung cancer, prostate cancer was the third most diagnosed form of cancer in the state and in the Carney Hospital service area.

Cancer was not a major health concern of survey respondent or focus group participants. There was no mention of cancer whatsoever in the focus group. Only (9.3%) of survey respondents believed that cancer was a major health concern in the Carney Hospital community.

Heart Disease

Cardiovascular disease is a broad term that encompasses a number of adverse health outcomes, including congestive heart failure, myocardial infarction, and stroke. In Massachusetts, cardiovascular disease is the second leading cause of death after cancer (MDPH, 2017).

Hypertension is a critical risk factor for adverse cardiovascular and cerebrovascular outcomes including stroke, heart attacks, and congestive heart failure. In 2014, hypertension contributed to \$19 million in total hospitalization costs in Massachusetts. Studies have shown that, hypertension disproportionately impacts people of color. These disparities are grounded in social and economic inequities such as access to health care and poverty (MDPH, 2017).

In 2015, (29.6%) of Massachusetts adults said they had been diagnosed with hypertension, this value has remained relatively stable in recent years. A larger percentage of Black non-Hispanic adults were diagnosed with hypertension (39.4%) compared to White non-Hispanic adults (30.7%). Racial/ethnic disparities in hypertension are likely an important contributing factor to hospitalizations for congestive heart failure, myocardial infarction, and stroke. (MDPH, 2017)

Congestive heart failure can be debilitating and challenging for patients to manage. It also poses an economic burden, costs related to congestive heart failure amounted to \$540 million in total hospitalization costs in Massachusetts in 2014 (Center for Health Information and Analysis, 2014). If not managed properly, congestive heart failure is associated with high readmission rates, poor quality of life, and high health care utilization (Krumholz H, 1997. 157(1):99-104.) (Heo S, 2009)

In 2014, the rate of hospitalizations attributed to congestive heart failure for Black non-Hispanic residents (520.5 per 100,000 population) was more than twice as high than that for non-Hispanic White residents (248.4 per 100,000 population). Hispanic residents also experienced higher rates of hospitalizations due to congestive heart failure (400.7 per 100,000 population) 1.6 times the rate of non-Hispanic White residents. The rate of myocardial infarction-related hospitalizations declined (9.5%) from 2010 (169.9 per 100,000 population) to 2014 (153.7 per 100,000 population). In 2014, the myocardial infarction hospitalization rates for Hispanic residents in Massachusetts (182.5 per 100,000 population) and Black non-Hispanic residents (159.0 per 100,000 population) exceeded the state average (153.7 per 100,000 population) and the average for White non-Hispanic residents (145.6 per 100,000 population) (MDPH, 2017).

Strokes were responsible for \$613 million in total hospitalization costs in Massachusetts in 2014 (Center for Health Information and Analysis, 2014). These hospitalization costs do not include other economic costs of stroke, such as lost productivity or outpatient health care expenditures, nor loss of life, reduced quality of life, and increased disability (MDPH, 2017).

Racial/ethnic disparities continue to exist in stroke-related hospitalizations. In 2014, Black non-Hispanic residents (368.1 per 100,000 population) experienced stroke-related hospitalization at a rate that was nearly twice as high as that for White non-Hispanic residents (201.5 per 100,000 population). Similarly, Hispanic residents (264.9 per 100,000 population) had a stroke hospitalization rate that was 1.3 times that for White non-Hispanic residents (201.5 per 100,000 population) (MDPH, 2017).

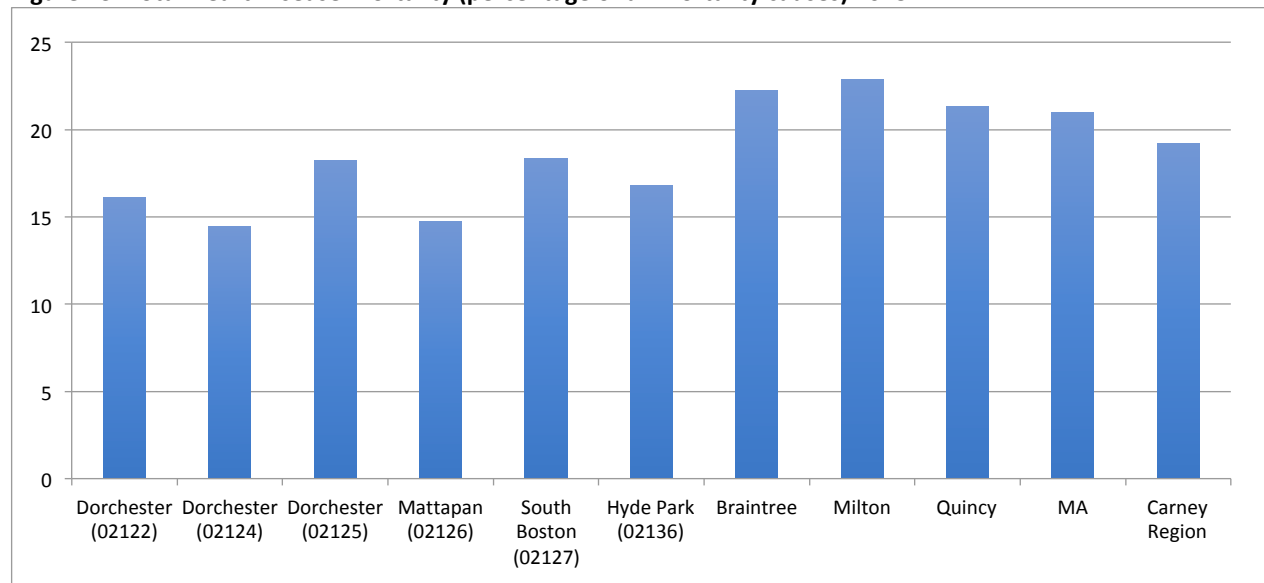
Heart disease is the leading cause of death for Black, Latino, and White individuals in the U.S., and it is the second leading cause of death for Asian individuals. In Boston, it is the second leading cause of death for these groups. Nearly half of Americans have at least one of the three key risk factors for developing

Coronary Artery Disease (CAD): high blood pressure, high LDL cholesterol, or cigarette smoking (19). Other risk factors include diabetes, overweight/obesity, diet with few fruits and vegetables, physical inactivity, and excessive alcohol use. Educational attainment and household income are inversely related with CAD (BPHC, 2017).

In 2015, the rate of heart disease hospitalizations in Boston was (86.5 per 10,000 residents). From 2011-2015, the rate decreased by (9%). The rate also decreased by (8%) for Black residents, (22%) for Latino residents, and (5%) for White residents over the same time period. In 2015, the heart disease hospitalization rate for Asian residents (36.3) was (55%) lower than the rate for White residents (81.3) while the rate for Black residents (117.8) was (45%) higher than the rate for White residents. The rate was (26%) lower for females (74.8) compared with males (100.9). The rate was lower for all age groups compared with those ages 65 and older (467.2) (BPHC, 2017).

In 2015, the heart disease hospitalization rate was higher for both Black females and males, and lower for Asian females and males when compared to White females and males. The heart disease hospitalization rate was (49%) higher for Black females (102.0) and (47%) lower for Asian females (36.2) compared with White females (68.3 hospitalizations per 10,000 residents). The rate was (45%) higher for Black males (139.5) and (62%) lower for Asian males (36.5) compared with White males (96.2) (BPHC, 2017).

Figure 13: Total Heart Disease Mortality (percentage of all mortality causes) 2015



(Source: Massachusetts Department of Public Health)

In 2015, (21%) of total mortality in Massachusetts was due to heart disease. The Carney Hospital service area had a lower percentage at (19.23%). Of the cities/towns in the Carney service area, three exceeded that state and service area levels. These cities/towns included Braintree (22.25%), Milton (22.86%), and Quincy (21.31%). Dorchester (02124) and Mattapan exhibited the lowest levels of mortality due to heart disease of all service area cities/towns with (14.47%) and (14.75%) respectively.

Heart disease was a major concern of both the focus group participants and survey respondents. Focus group participants ranked heart health as their second greatest health concern in the community. Survey respondents supported this. Heart health and high blood pressure were chosen by (50%) and (67.44%) of survey respondents when asked “*what are the major health concerns in the community where you provide services?*”.

Diabetes

Socioeconomic disparities exist in diabetes prevalence. In Massachusetts, adults with an annual household income of less than \$25,000 (15.6%) have three times the prevalence of diabetes as compared to those with an annual household income more than \$75,000 (5%). The prevalence of diabetes also decreases as educational attainment increases. A total of (14.5%) of adults without a high school degree were diagnosed with diabetes compared to (5%) of adults with four or more years of post-high school education (MDPH, 2017).

Diabetes prevalence and mortality in Massachusetts also differs by race/ethnicity. In 2015, a greater proportion of Black non-Hispanic (12.3%) and Hispanic (11.7%) adults reported being diagnosed with diabetes compared to White non-Hispanic adults (8.7%). In 2014, Black non-Hispanic residents were more than 2.1 times more likely to die from diabetes than White non-Hispanic residents (29.5 versus 13.8 per 100,000 population) (MDPH, 2017).

In 2014, Black non-Hispanic residents had more than four times the rate for diabetes-related emergency department visits as White non-Hispanic residents (419.1 versus 99.3 per 100,000 population). Further, the diabetes emergency department visit rate among Hispanic residents was almost four times that for White non-Hispanic residents (376.5 versus 99.3 per 100,000 population) (MDPH, 2014).

Among U.S. adults, people of color are more likely to be diagnosed with type 2 diabetes compared with White adults. Having a close family member with diabetes is also a risk factor for developing type 2 diabetes (15). Socioeconomic disadvantage at the individual and neighborhood level is also associated with higher risk of developing type 2 diabetes (BPHC, 2017).

In 2015, (8%) of Boston adult residents reported having diabetes. There was a significant increase in the percentage of adults with diabetes between 2006 and 2015. The percentage of adults with diabetes was higher for the following groups:

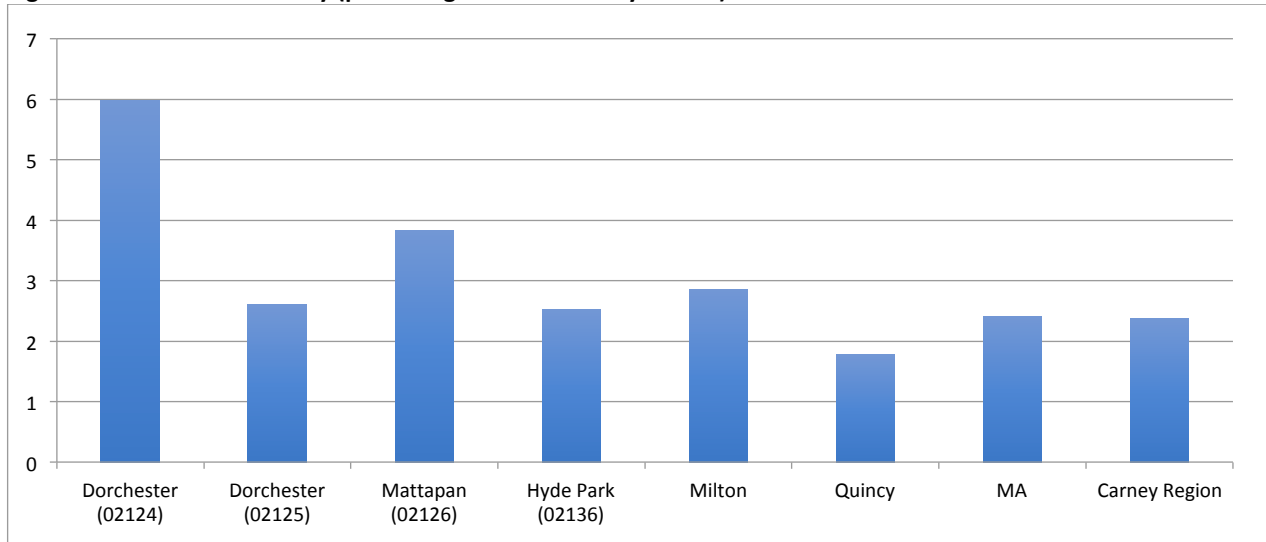
- Black (15%) and Latino (11%) adults compared with White adults (5%)
- Adults ages 45-64 (16%) or 65 and older (24%) compared with adults ages 25-44 (2%)
- Adults with less than a high school diploma (18%) and adults with a high school diploma (11%) compared with adults with at least some college education (6%)
- Adults who were out of work (10%) or whose employment status was “other” (16%) compared with adults who were employed (5%)
- Adults living in households with an annual income of less than \$25,000 (14%) or \$25,000-\$49,999 (9%) compared with adults living in households with an annual income of \$50,000 or more (4%)
- Adults who were Boston Housing Authority residents (18%) and renters who received rental assistance (16%) compared with adults who owned a home (8%)
- Foreign-born adults who lived in the United States for over 10 years (15%) compared with those who were born in the United States (8%)

The percentage of adults with diabetes was lower for the following groups:

- Adults who rented but did not receive rental assistance (6%) compared with adults who owned a home (8%)
- Foreign-born adults who lived in the United States for 10 years or less (3%) compared with those who were born in the United States (8%) (BPHC, 2017)

During 2010, 2013, and 2015 combined, the percentage of adults with diabetes was higher in Dorchester (02121, 02125), Mattapan, and Roxbury compared with the rest of Boston. (BPHC, 2017).

Figure 14: Diabetes Mortality (percentage of all mortality causes) 2015



(Source: Massachusetts Department of Public Health) – Note: At the time of data collection, data for diabetes mortality was unavailable for Dorchester (02122), South Boston (02127) and Braintree

In 2015, (2.40%) of all mortality in Massachusetts was due to diabetes. The Carney Hospital service area had a slightly lower percentage of mortality due diabetes at (2.37%). Data on diabetes mortality was unavailable for three cities/towns within the Carney service area. The highest level of mortality due to diabetes was seen in Dorchester (02124) at (5.98%), the next highest level was seen in Mattapan at (3.83%). Quincy was the only service area city/town below the state and service area level of diabetes related mortality at just (1.78%).

Diabetes was ranked as the second greatest health concern in the Carney Hospital community by focus group participants (along with heart disease and nutrition). When asked “*what are the major health concerns in the community where you provide services?*”, survey respondents agreed. Diabetes was chosen by (67.44%) of survey respondents as a major health concern in the Carney community, this percentage is equal to that of behavioral health and second only to substance abuse (73.26%).

Obesity

Obesity is both a chronic disease and a risk factor for other chronic conditions including type 2 diabetes, cardiovascular disease, some cancers, and many other health problems that interfere with daily living and reduce the quality of life. Engaging in physical activity and maintaining a healthy diet have been proven to lower the incidence of obesity, however not all Massachusetts residents have the same opportunities to prevent obesity. Structural barriers to accessing healthy foods and beverages as well as opportunities to be physically active disproportionately affect people of color in the Commonwealth (MDPH, 2017).

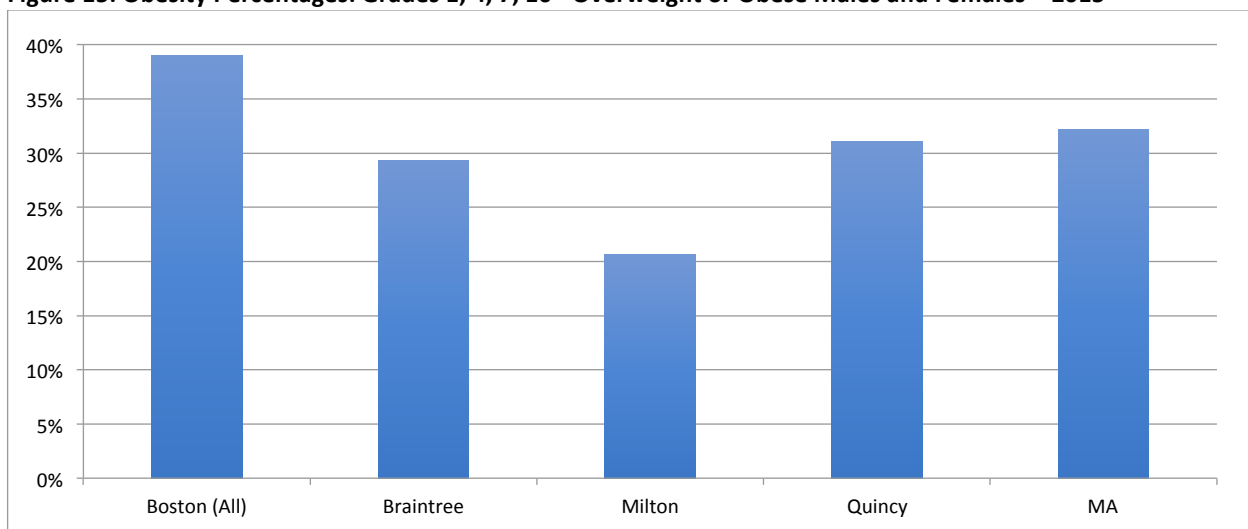
In 2015, nearly (60%) of Massachusetts adults were classified as overweight or obese, (24.3%) had a BMI greater than or equal to 30.0kg/m². More than one-third of Black non-Hispanic adults (35.6%) were obese compared to Hispanic (28.9%), and White non-Hispanics (22.7%). Adults with disabilities (34.3%) were significantly more likely to be obese than adults with no disability (20.7%). Adults who have less than a high school education are almost twice as likely to be obese than adults with four or more years of college (MDPH, 2017).

Childhood obesity has important implications for the physical and emotional well-being of children and youth. Child overweight is defined as a BMI at or above the 85th percentile for age. Child obesity is

defined as BMI at or above the 95th percentile of expected for age. Children who are obese are more likely to develop risk factors for chronic disease early in life, such as high blood sugar, high triglycerides, and high blood pressure. Children who are obese are also more likely to develop chronic diseases and experience bullying related to weight. Childhood obesity is linked to poor nutrition and inadequate physical activity in adulthood; and inequities persist across socioeconomic status and race/ethnicity. Massachusetts is ranked as the fifth worst US state on the prevalence of obesity among children enrolled in the Women, Infant and Children (WIC) program who are two to four years old (MDPH, 2017).

BMI screening reports conducted by school districts indicate that the prevalence of overweight and obesity in school aged children decreased by (2.1%) from 2009 (34.3%) to 2015 (31.3%). However, this reduction in overweight and obesity was not consistent across all school districts. The prevalence of overweight and obesity did not change in school districts where median household income was less than \$37,000. These districts had the highest prevalence across the state with approximately (40%) of students being overweight or obese (MDPH, 2017).

Figure 15: Obesity Percentages: Grades 1, 4, 7, 10 - Overweight or Obese Males and Females – 2015



(Source: Massachusetts Department of Public Health (2015)) Note: At the time of data collection, obesity percentages for each individual Boston zip code were unavailable, Carney Hospital service area data was also unavailable.

In 2015, (32.20%) of Massachusetts males and females (grades 1, 4, 7, 10) were overweight or obese. Braintree, Milton, and Quincy each exhibited obesity percentage below the state average. Milton had the lowest percentage of overweight or obese individuals (grades 1, 4, 7, 10) at (21%). Boston had the highest percentage of overweight or obese individuals (grades 1, 4, 7, 10) at (39%).

Obesity was not mentioned by the focus group participants at any point during the session. When asked “*what are the major health concerns in the community where you provide services?*”, (45.35%) of survey respondents selected obesity as a major health concern in the community. However, when asked to rank health and wellness services that would most benefit the community, survey respondents ranked obesity prevention programs at (3.51) on a scale of 1 to 10. This was the lowest ranking of any suggested program.

Mental Health

Mental health intersects with many areas of public health, including addiction, cancer, cardiovascular disease, and HIV/AIDS. Integrated treatment is critical for treating people with co-occurring disorders and can ultimately lead to better health outcomes and reduced costs. Increasing awareness and building capacity in service systems are important in helping identify and treat co-occurring disorders. Treatment planning should be client-centered, addressing clients' goals and using treatment strategies that are acceptable to them (MDPH, 2017).

Impaired mental health is common in the United States general population. In 2015, one in five adults suffered from a diagnosable mental illness such as depression or anxiety, and about 1 in 7 will have a major depressive episode in their lifetime. In 2015, (12%) of children ages 12-17 reported having a major depressive episode in the past year, higher than the percentages from 2004-2014. From 1999 to 2014, the overall suicide rate in the U.S. rose by (24%) to (13.0 per 100,000). In 2015, the overall suicide rate was (13.3 per 100,000). In 2014, suicide was the tenth leading cause of death in the U.S. and more than (90%) of patients who died because of suicide also had mental illness (BPHC, 2017).

In 2015, (22%) of Boston adult residents reported feeling persistent anxiety (feeling worried, tense, or anxious for more than 15 days within the past 30 days). The percentage of adults with persistent anxiety increased significantly between 2006 and 2015 (BPHC, 2017). The rate of mental health hospitalizations in Boston during this period was (77.1 hospitalizations per 10,000 residents). The rate was (41%) lower for females (57.6) compared with males (97.6). The rate was (24%) and (68%) higher, respectively, for residents ages 30-44 (97.3) and 45-64 (131.7) compared with those ages 65 and older (78.2). The rate was (55%) and (45%) lower, respectively, for residents ages 0-17 (35.2) and 18-29 (43.3) compared with those ages 65 and older (BPHC, 2017).

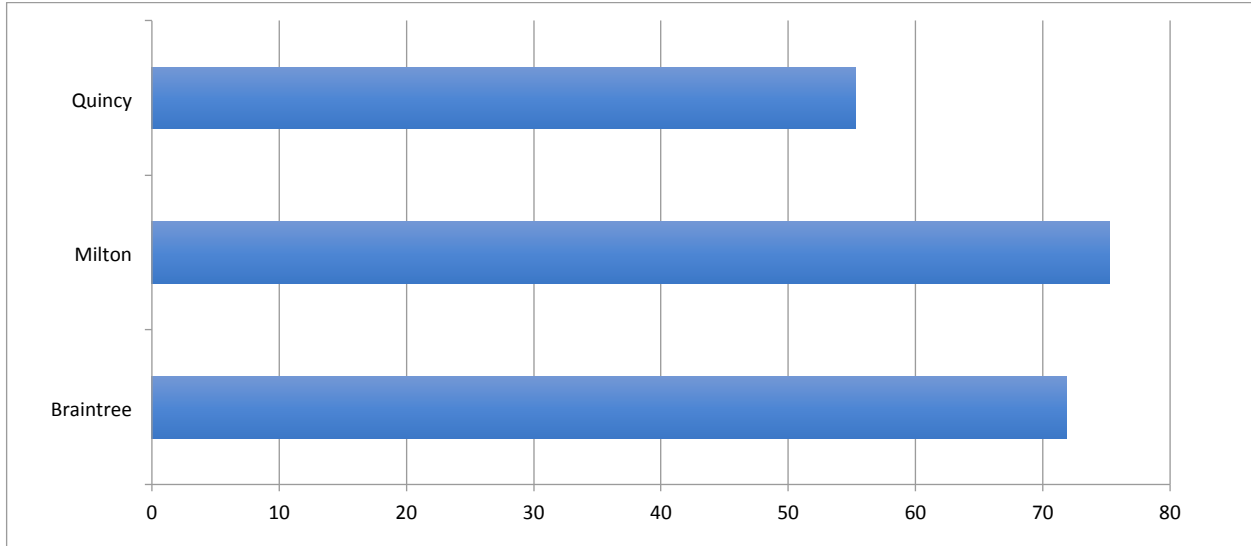
The rate of mental health hospitalizations among all Boston residents decreased by (5%) from 2011 to 2015. In 2015, the rate of mental health hospitalizations was higher in Allston/Brighton, Back Bay, Fenway, and the South End compared with the rest of Boston. However, data from 2015 reveal inequities across categories of age, sex, and race/ethnicity. The rate of mental health hospitalizations was higher for those ages 30-65 years compared with those 65 and older, males compared with females, and White residents compared with Asian, Black, and Latino residents. (BPHC, 2017).

For 2013 and 2015 combined, a higher percentage of Black (16%) and Latino (23%) Boston female residents reported having persistent sadness compared with White females (10%). There were no significant differences for Black and Latino males when compared with White males (BPHC, 2017). The percentage of adults with persistent sadness during this period was higher for Dorchester (zip codes 02121, 02125) and Dorchester (zip codes 02124, 02126) compared with the rest of Boston (BPHC, 2017).

Students were asked if during the past 12 months they felt sad or hopeless every day for 2 weeks or more. In 2015, (27%) of Boston public high school students reported persistent sadness. Between 2007 and 2015, there was no significant change in the percentage of students experiencing persistent sadness (BPHC, 2017). Early detection and intervention to address social and emotional risk factors can greatly improve outcomes for children and adolescents. Promoting emotional wellness and social connectedness across the life course is a Title V priority for MDPH, including during early childhood and adolescence (MDPH, 2017). Emotional well-being is shaped by a variety of factors, including biological factors, life experiences, family and community supports, education, and environmental factors. Social connections are an important source of support for children and adolescents that can buffer the effects of stress, connect children with resources, and shape health behaviors (Robert Wood Johnson Foundation, 2011).

To reduce the inequities of mental health conditions in Boston, interventions targeting subpopulations at higher risk of mental illness are needed. It is also necessary to educate the public about the availability of mental health services and to decrease the stigma of seeking such services. Work also needs to be done to stop discrimination, which impacts the mental health of the person facing the discrimination. Additionally, as the World Health Organization (WHO) suggests, in order to reduce the inequities in the occurrence of mental disorders, the conditions of everyday life, which are the social determinants of health, must improve (BPHC, 2017).

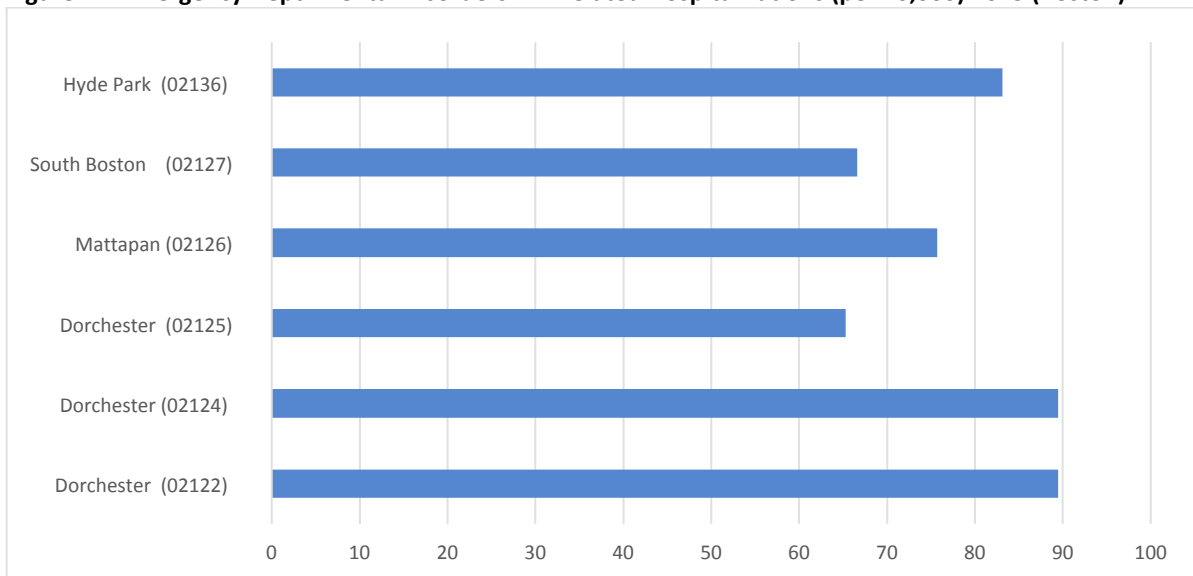
Figure 16: Emergency Dept. Mental Disorders: All Related Hospitalizations (per 100,000) 2013 (non-Boston)



(Source: Massachusetts Department of Public Health)

In 2013, Milton experienced the highest rate of mental health related hospitalizations of all non-Boston service area cities/towns at (75.22 per 100,000). Milton was followed by Braintree and then Quincy with (71.88) and (55.27) respectively.

Figure 17: Emergency Dept. Mental Disorders: All Related Hospitalizations (per 10,000) 2015 (Boston)



(Source: Boston Public Health Commission 2015)

In 2015, Dorchester (02122, 02124) had the highest rate of mental health related hospitalizations (89.5 per 10,000). Hyde Park followed at (83.1 per 10,000). The lowest rates of mental health related hospitalizations in Boston were seen in Dorchester 02125 where the rate was just (65.3 per 10,000).

Mental health was the number one health concern of focus group participants. Survey respondents also ranked mental/behavioral health as a top health concern in the community, (69.77%) of survey respondents selected this when asked “*what are the major health concerns in the community where you provide services?*”. Both the focus group participants and survey respondents believed that more could be done to help those with behavioral/mental health conditions. Focus group participants unanimously agreed that mental health services, especially those for teenagers were inadequate, and that there is a dire need to improve them. Focus group participants believed that individuals with a mental health condition were underserved in the Carney Hospital community. When asked to rank health and wellness services that would most benefit the community, survey respondents ranked behavioral health services at (5.94), the highest of any suggested program.

Substance Use Disorder

According to the National Survey on Drug Use and Health (NSDUH) in 2015, an estimated 27.1 million people in the US aged 12 and older used illicit drugs in the past month. Of these, a majority (22.2 million) reported using marijuana and 3.8 million misused prescription opioids (SAMHSA, 2015). During the same survey period, an estimated 20.8 million, approximately 1 in 10 people needed substance use treatment (i.e., treatment for problems related to the use of alcohol or illicit drugs). Of this population, 10.8 percent received treatment (SAMHSA, 2016). In 2014, there were 17,465 overdoses from illicit drugs and 25,760 overdoses from prescription drugs in the US. For opioid specific-related deaths, there was a 2.8-fold increase in the total number of opioid-related overdose deaths during this time period. In 2015, US overdose deaths totaled 52,404, including 33,091 (63.1%) that involved an opioid (CDC, 2016).

For substance misuse indicators evaluated for 2015, inequities across categories of race/ethnicity, sex, and neighborhood were found. The rates of mortality and hospital patient encounters for substance misuse and unintentional overdoses tended to disproportionately affect White residents. However, the overall substance misuse death rate increased almost two-fold from 2011 to 2015 for Black and Latino residents and to a lesser extent for White residents, which suggests the impact of fentanyl was experienced by all three of these racial/ ethnic groups and lessened relative inequities as rates increased. Racial/ethnic differences in unique-person treatment admissions varied across drug type. For example, the rates of unique-person treatment admissions for heroin and prescription drugs were higher for White residents compared with Black and Latino residents. For marijuana, the rate was higher for Black and Latino residents compared with White residents. Across most drug types, the rate of unique-person treatment admissions was lowest among Asian residents (BPHC, 2017).

The rates of substance misuse deaths, unintentional drug overdose hospital patient encounters, and unique-person treatment admissions were higher for men than women. At the neighborhood level, the rate of overall substance misuse deaths (including alcohol misuse, drug misuse, and unintentional opioid overdose/poisoning deaths) during the five-year time period 2011-2015 was higher for Charlestown, Dorchester (zip codes 02122, 02124), and South Boston compared with the rest of Boston (BPHC, 2017).

In 2015, among the 19.6 million adults ages 18 years and over in the U.S. who experienced a substance use disorder, (41%) also had had a mental illness in the past year. Causality and connection cannot always be proved; however, research shows that some mental illnesses are risk factors for substance use disorders. Some of the same areas that are disrupted in the brain due to mental illnesses are also disrupted due to changes in the brain caused by substance use disorders. Additionally, people will often use substances as self-medication for their mental illness which can result in substance misuse (BPHC, 2017).

The coexistence of both a mental disorder and a substance use disorder (SUD) is known as co-occurring disorders. People with mental health disorders are more likely to experience a SUD. Often, people receive treatment for one disorder while the other disorder remains untreated. Undiagnosed, untreated, or undertreated co-occurring disorders can lead to a higher likelihood of experiencing negative outcomes, such as homelessness, incarceration, medical illnesses, suicide, or even early death (SAMHSA, 2016).

Massachusetts offers a variety of treatment approaches to address the needs of individuals with substance use disorders. However, there are important disparities in the outcomes and effectiveness of substance use treatment for different populations. Treatment needs can differ across populations, suggesting that treatment interventions should be individually tailored and incorporate culturally

competent and linguistically appropriate practices relevant to specific populations and subpopulation groups (MDPH, 2017).

Approximately one in four persons ages 11 and older in the MassHealth patient population were identified as having a serious mental illness. Of these individuals, roughly two in five have been homeless for some period of time between 2011 and 2015. The risk of fatal opioid-related overdose is six times for those with a serious mental illness (SMI) and three times higher for those diagnosed with depression compared to those without any mental health diagnosis (MDPH, 2017).

Alcohol

Alcohol is also the most prevalent substance used in the past month by Massachusetts residents 18 to 25 years of age. In 2013-2014, (70.2%) of Massachusetts young adults reported using alcohol in the past month and (43.9%) reported binge drinking in the past month, exceeding national averages for alcohol use among this population (past month alcohol use: (59.6%); past month binge drinking: (37.8%)) (MDPH, 2017).

Despite the legal drinking age of 21, alcohol is the primary substance used by youth. According to NSDUH (2013-2014), there has been a decrease in past month alcohol use and binge drinking in the US among individuals 12 to 17 years of age. However, the prevalence of alcohol use in Massachusetts exceeded the national average in 2013-2014 (past month alcohol use: (13.3%) in Massachusetts vs. (11.6%) nationally; binge drinking: (7%) vs. (6.2%)). In 2015, (61%) of Massachusetts high school students reported using alcohol in their lifetime: (34%) reported past month use; (18%) reported binge drinking in the past month (DESE) & (DPH), 2015).

The number of BSAS clients who identified as veterans increased (12.1%) from Fiscal Year 2011 (5,095 clients) to Fiscal Year 2016 (5,713 clients). In Fiscal Year 2016, (4%) of the BSAS treatment population identified as veterans. Also, in Fiscal Year 2016, alcohol was the primary drug reported among the BSAS veteran population (48%) (MDPH, 2017).

From 2011 to 2015, the mortality rates for overall substance misuse, alcohol misuse, and drug misuse increased by (54%), (49%), and (71%), respectively. The mortality rates for alcohol misuse and drug misuse were (18.4) and (31.3), respectively. During this period rate for drug-related unintentional overdoses/ poisonings increased by (40%), while the rate for alcohol-related overdoses/poisonings decreased by (68%) (BPHC, 2017).

Marijuana

According to the National Survey on Drug Use and Health (NSDUH) in 2015, an estimated 27.1 million people in the US aged 12 and older used illicit drugs in the past month. Of these, a majority (22.2 million) reported using marijuana and 3.8 million misused prescription opioids (SAMHSA, 2015).

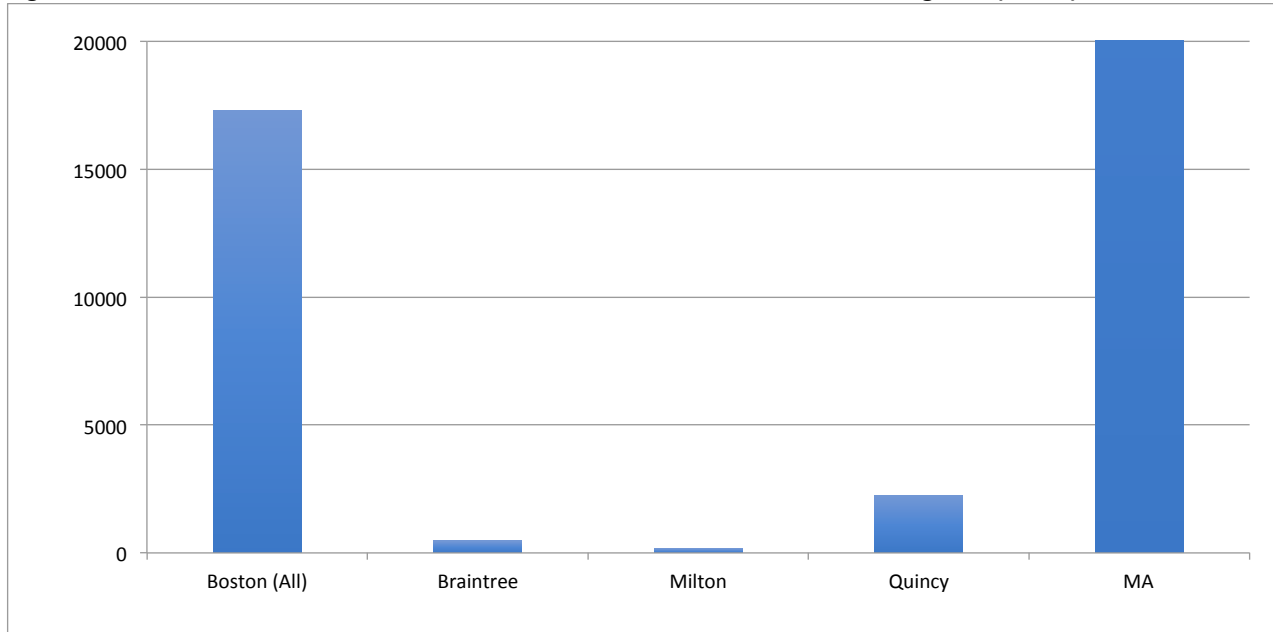
In Fiscal Year 2016, among BSAS treatment program enrollments, (59.9%) of those 13 to 17 years of age reported marijuana as their primary drug (MDPH, 2017). According to 2013-2014 NSDUH estimates, the prevalence of past month marijuana usage among Massachusetts residents age 12 and older exceeded the national level (11.8% vs 8%) (MDPH, 2017).

For marijuana-related treatment admissions, rates were (91%0 lower for Asian residents (2.0), (99% higher for Black residents (43.9), and (35%) higher for Latino residents (29.7) compared with White

residents (22.0). For marijuana, the rate for females (11.2) was (73%) lower than the rate for males (41.6) (BPHC, 2017).

A significant increase in recent marijuana use was observed during from 2007 to 2015, but the percentage of Boston high school students reporting recent marijuana use in 2015 was consistent with U.S. high school students overall (BPHC, 2017).

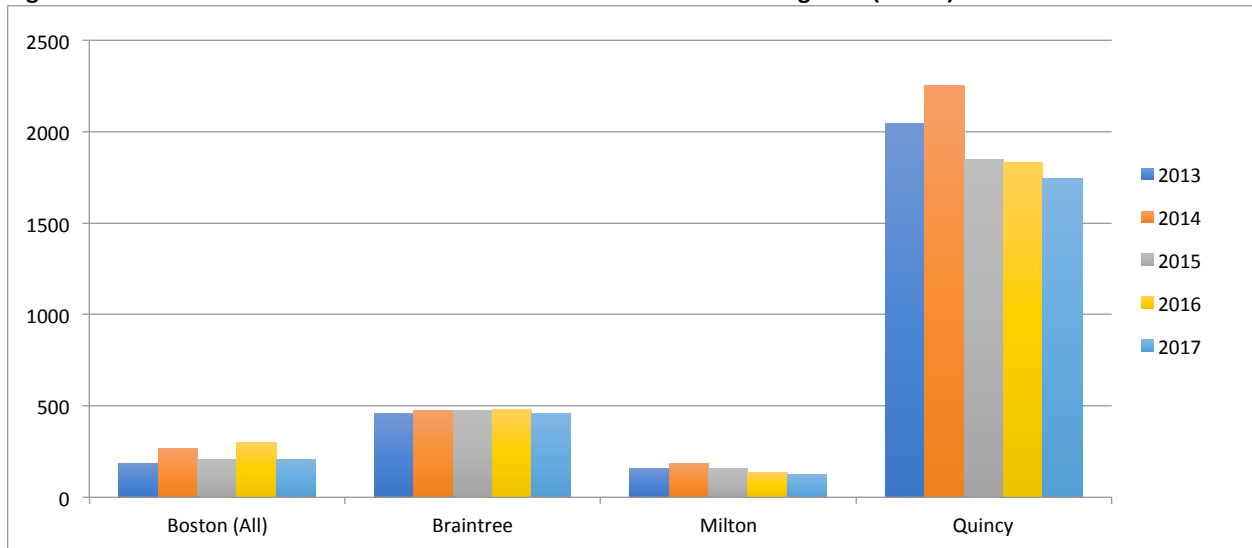
Figure 18: Alcohol-Substance Related Admissions to BSAS Contracted/Licensed Programs (Count) – FY 2014



(Source: Massachusetts Department of Public Health - Bureau of Substance Abuse Services (FY 2014)) Note: At the time of data collection, BSAS admission data was not available for each individual Boston area zip code

In the 2014 fiscal year, there were 107,358 alcohol or substance related admissions to BSAS contracted/licensed programs in Massachusetts. The total count in the Carney Hospital service area was unavailable. Of the service area cities/towns, Boston had the greatest number of alcohol/substance related admissions to BSAS contracted/licensed programs with 17,299. No other service area city/town approached this number likely due to differences in population size. Of the non-Boston service area cities/towns, Quincy had the highest number of alcohol/substance BSAS admissions with 2,254. Milton had the lowest number of admissions at just 182.

Figure 19: Admissions to DPH-Funded Substance and Alcohol Abuse Programs (Count) 2013-2017



(Source: Massachusetts Department of Public Health - Bureau of Substance Abuse Services (FY 2014))

From 2012 to 2017, Quincy had the highest number of admissions to DPH funded substance and alcohol abuse programs with 9,716 over the five-year period. No other service area city/town approached this number. Milton exhibited the lowest number of admissions to DPH funded substance and alcohol abuse programs over the five-year period with just 751 admissions. Admission counts remained relatively stable in Boston and Braintree over this period of time while Milton and Quincy each experienced decreases in admissions over the five-year period. Both Milton and Quincy exhibited the lowest admission count in 2017, the most recent year measured.

Opioids

In Massachusetts, there has been a dramatic increase in opioid-related deaths. The number of opioid-related deaths in 2016 represents a (17%) increase over 2015, and a (450%) increase since 2000. Almost every community in Massachusetts is affected by the opioid epidemic. A key strategy to understanding the opioid epidemic is to improve the timely analysis and dissemination of data on opioid overdoses (MDPH, 2017).

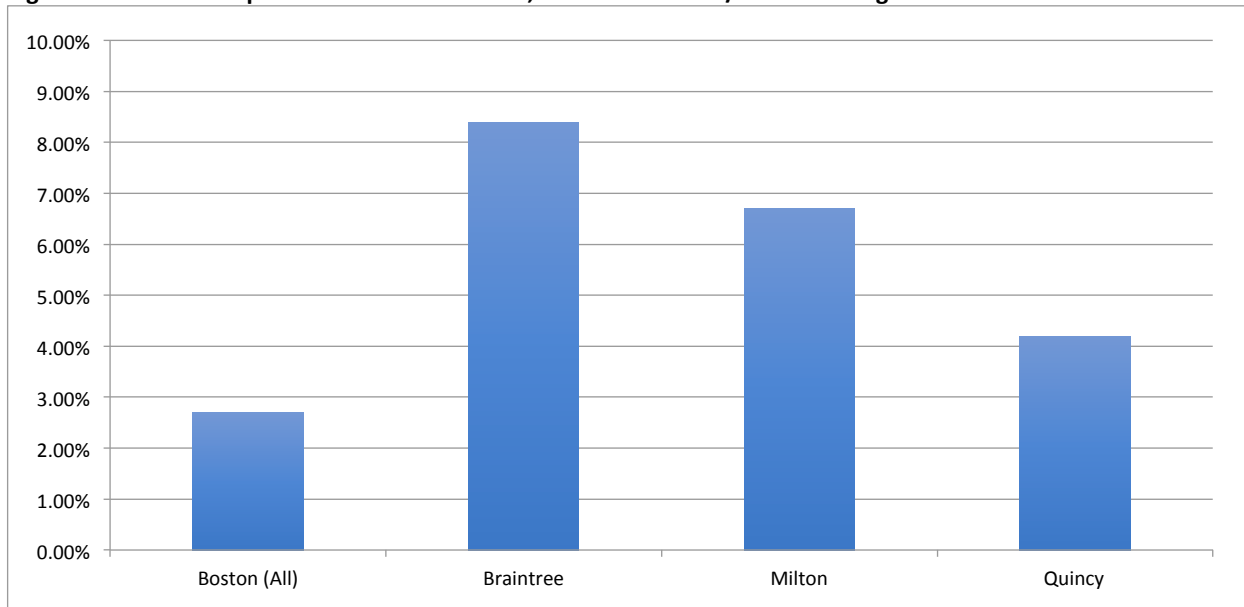
Increasingly, there's evidence suggesting fentanyl is fueling the current opioid epidemic. A Massachusetts- Centers for Disease Control and Prevention (CDC) collaborative epidemiologic investigation identified that the proportion of opioid overdose deaths in the state involving fentanyl, a synthetic, short-acting opioid with 50-100 times the potency of morphine, increased from (32%) during 2013–2014 to (74%) in the first half of 2016 (MDPH, 2017).

Intervention is an important component of a continuum of services to address substance use disorder (SUD) in a community. Intervention can also be referred to as Secondary or Tertiary Prevention, or Harm Reduction. Secondary Prevention targets individuals who have low levels of alcohol and/or drug use and would benefit from prevention and safety messages. Tertiary Prevention targets individuals who exhibit a greater degree of SUD and experience problems associated with their alcohol or drug use and would benefit from prevention and harm reduction messages as well as referrals to treatment. Individuals may experience a range of alcohol and drug use from no use to addiction and can benefit from different levels of service depending on what they are ready to receive at any given time. A person-centered approach includes prevention, safety and harm reduction messages tailored to what the individual is ready to receive (MDPH, 2017).

In 2015, the rates of hospital patient encounters for unintentional overdose/ poisoning were lower for females compared with males for opioids (including heroin), cocaine, and benzodiazepines. For opioids (including heroin), the rate for females (9.9 encounters per 10,000 residents ages 12 and older) was (63%) lower than the rate for males (26.6). For cocaine, the rate for females (0.9) was (73%) lower than for males (3.3). For benzodiazepines, the rate for females (2.3) was (44%) lower than the rate for males (4.0) (BPHC, 2017).

From 2011 to 2015, Boston and Massachusetts experienced similar levels of and significant increases in unintentional opioid overdose mortality (from (11.6) and (9.3) deaths per 100,000 residents ages 12 and older, respectively, in 2011 to (25.8) for both in 2015). The increase in unintentional opioid overdose mortality appears to be attributable to fentanyl, a highly potent opioid often used as an adulterant (i.e., mixed with street-level heroin, cocaine, and other drugs). In Boston, increases in all of the substance misuse mortality indicators (including alcohol misuse mortality) appear to be attributable to fentanyl, often found to have been used in combination with other drugs and alcohol. The number of fentanyl-related unintentional overdose deaths increased from fewer than 10 per year during the three-year period 2011-2013 to 43 deaths in 2014 and 83 deaths in 2015 (BPHC, 2017).

Figure 20: All Other Opioid-Related Admissions, BSAS Contracted/Licensed Programs - FY 2014

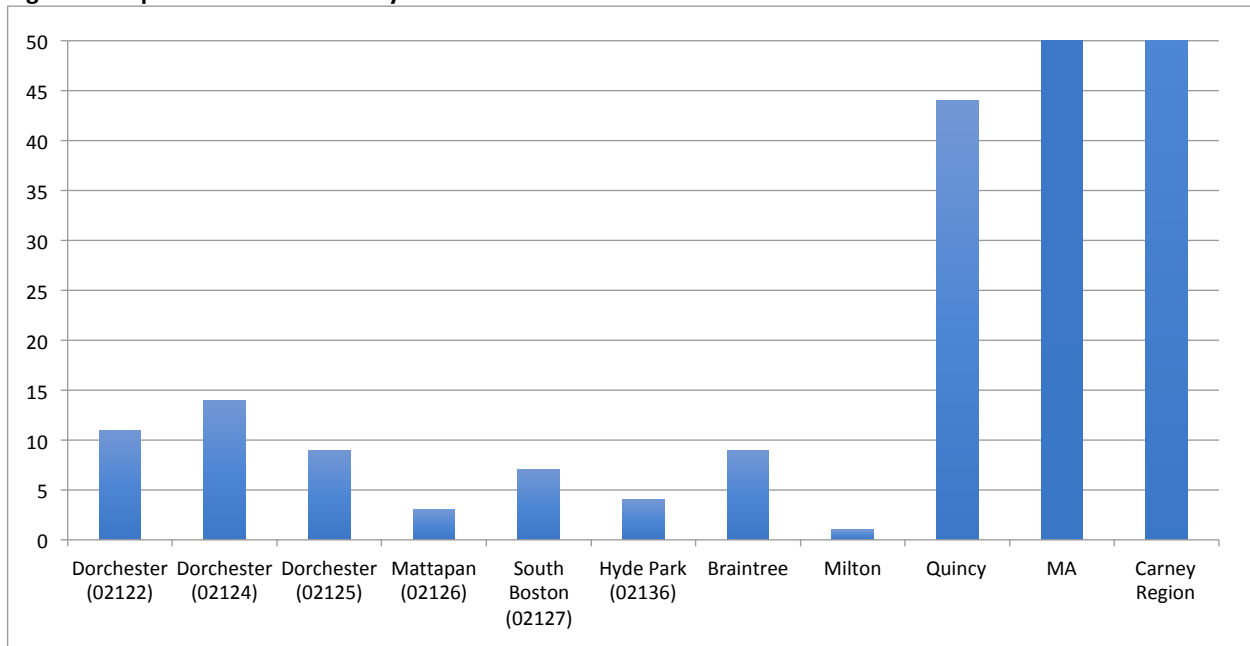


(Source: Massachusetts Department of Public Health - Bureau of Substance Abuse Services (FY 2014)) Note: At the time of data collection, BSAS admission data was unavailable for each individual Boston area zip code.

In 2014, (5.8%) of all admissions to BSAS contracted/licensed programs in Massachusetts were related to opioids. Within the Carney Hospital service area, Braintree and Milton had a higher percentage of BSAS contracted/licensed program admissions related to opioids than the state level with (8.4%) and (6.7%) respectively. Boston had the lowest percentage of BSAS admissions related opioids at just (2.7%).

Misuse of alcohol or other drugs over time can lead to physical and/or psychological dependence on these substances, despite negative consequences. Substance misuse alters judgment, perception, attention, and physical control, which can lead to the repeated failure to fulfill responsibilities and can increase social and interpersonal problems. There is a substantially increased risk of morbidity and death associated with alcohol and drug misuse. The effects of substance misuse are cumulative, significantly contributing to costly social, physical, mental, and public health challenges. Examples of these include domestic violence, child abuse, motor vehicle crashes, physical fights, crime, homicide, suicide, human immunodeficiency virus/ acquired immunodeficiency syndrome (HIV/AIDS), and other sexually transmitted infections (6). Substance misuse can also impact one's social determinants of health, such as employment, income, social network, and housing (BPHC, 2017).

Figure 21: Opioid-Related Mortality Count - 2015



(Source: Massachusetts Department of Public Health)

In 2015, there were 1,637 opioid related deaths in Massachusetts, 102 of these deaths occurred in the Carney Hospital service area. Of the cities/towns in the Carney Hospital service area, Quincy had the highest count of opioid related deaths at 44. No other service area city/town exceeded 15 opioid related deaths in 2015. Milton had the lowest count with just 1 death related to opioids in 2015, followed by Mattapan where only 3 opioid related deaths occurred in 2015.

Focus group participants ranked opioids as the third greatest health concern in the Carney Hospital community. Survey respondents supported the idea that substance abuse was a major health concern in the community. When asked “*what are the major health concerns in the community where you provide services?*”, (73.26%) of survey respondents selected substance abuse as a major concern. Substance abuse had the highest ranking of any suggested health issue. Both the focus group participants and survey respondents believed that there was a need to expand substance abuse offerings within the Carney Hospital community. Substance abuse, specifically the opioid epidemic was viewed as a greater health concern than chronic disease by focus group participants. This was due to the fact that they believed chronic disease prevalence was declining while opioid abuse prevalence was growing rapidly.

Housing Stability

Massachusetts is currently dealing with a severe housing crisis due in large part to a low rate of housing production which has not kept pace with population growth and needs, soaring rents that have outpaced wages, and the lingering effects of the foreclosure crisis. As a result, there is a shortage of suitable and affordable units for young workers, growing families, and the increasing senior population. Overcoming these barriers will require addressing a variety of causes, including high development costs and exclusionary and restrictive zoning, which have made it difficult to keep up with the housing demand, among other factors (MA Legislature, 2016).

In 2015, (66%) of housing units in Boston were occupied by renters compared with (38%) in Massachusetts overall. In Boston, (34%) of housing units were owner-occupied compared with (62%) in Massachusetts overall. Compared with White residents (57%), a higher percentage of Asian (76%), Black (70%), and Latino (83%) residents lived in renter-occupied units. During 2011-2015, a higher percentage of housing units in Allston/Brighton, Dorchester (zip codes 02121, 02125), East Boston, Fenway, and Roxbury were renter-occupied compared with Boston overall. (BPHC, 2017).

Renters in Greater Boston have a fraction of the income of homeowners. In 2015, the median income of homeowners was \$103,267 compared with just \$43,583 for renters. As such, those who face the toughest housing challenge in the region are those who rent rather than own their homes or apartments. More than 52 percent of renter households are now paying more than 30 percent of their gross income in rent—the highest percentage of residents in that situation on record and up from 39 percent in 2000. Homeowners tended to be less cost-burdened than renters, but 36 percent (as with renters, a record high) paid monthly mortgage and tax bills exceeding 30 percent of their gross income. Given all this, housing affordability is a greater problem than ever (The Boston Foundation, 2017).

Where pressure is now highest on home prices is in historically working-class communities. As more middle-income and working-class households move to these lower cost communities in hopes of finding more affordable housing, demand pressure is driving up prices. Home prices are still more affordable the further one moves away from the urban core (The Boston Foundation, 2017).

Average monthly rents have not fallen further despite the increase in housing construction is likely because a disproportionate amount of the new rental units are priced at luxury levels. The price of these units might have declined enough to bring the overall average rent down without much affecting median rent or rents in the lower end of the price spectrum. Hence, even as average rents have fallen, the proportion of renters who are housing cost-burdened continued to rise in 2017 (The Boston Foundation, 2017).

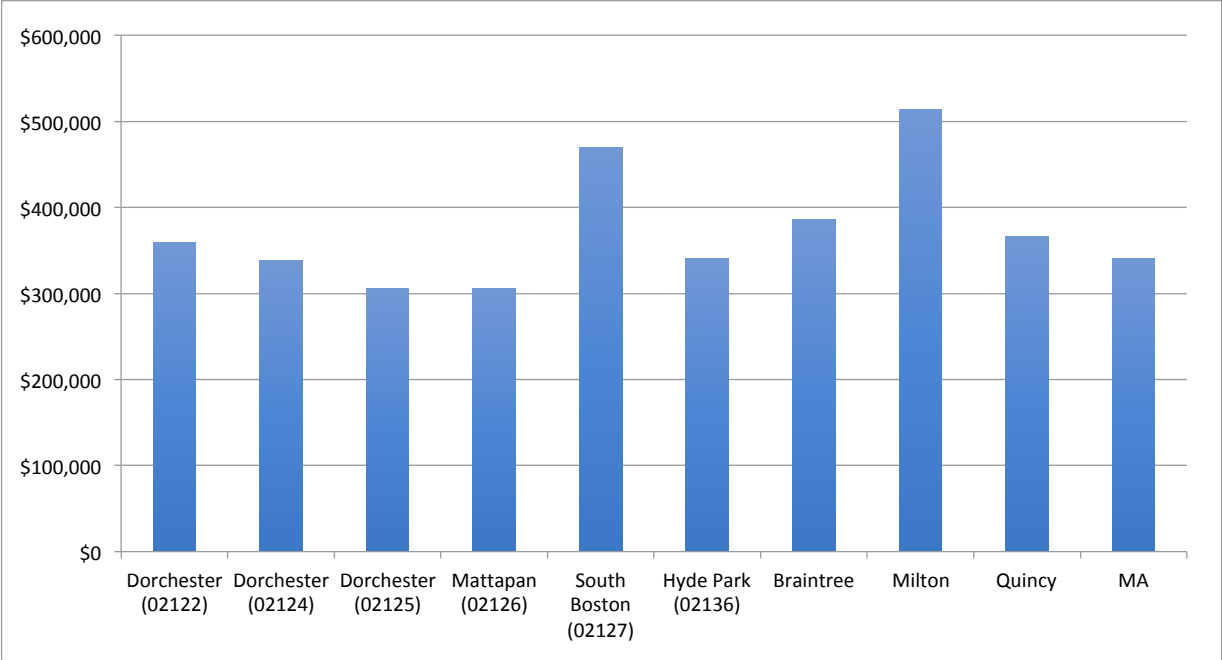
Average rental prices in Boston are among the highest in the U.S., just behind New York, San Francisco, and Silicon Valley, with almost (40%) of residents paying more than \$1,500 a month. Subsidized housing is available on a limited basis to those with incomes ranging from less than 30-80% of the city-wide median income level depending on the program. Programs have a wait ranging from 10 weeks to more than 5 years depending on the application and housing availability. Meanwhile, over half of Boston renters pay more than (30%) of their income toward rent, meaning finances can't go to other necessities such as childcare and food. The benefits of home ownership, including tax deductions, cost savings over time compared to renting, and the ability to build equity, are reserved for higher-income individuals. Lower-income individuals who cannot afford home ownership often struggle with the negative impact that residential instability has on crime, mental health, and social capital (BPHC, 2017).

Compared with Boston overall, a higher percentage of renter-occupied households in Allston/Brighton, Fenway, and Roxbury paid at least (30%) of their income toward rent (BPHC, 2017).

Boston has a higher percentage of renter-occupied units and a lower percentage of owner-occupied housing units compared with Massachusetts overall. We identified differences in housing occupancy by race/ethnicity, neighborhood, and education level. Compared with White residents, a higher percentage of Asian, Black, and Latino residents lived in renter-occupied units. During 2011-2015, a higher percentage of housing units in Allston/Brighton, Dorchester (zip codes 02121, 02125), East Boston, Fenway, and Roxbury were renter-occupied compared with Boston overall, while a lower percentage of housing units were renter-occupied in Charlestown, Dorchester (zip codes 02122, 02124), Hyde Park, Jamaica Plain, Mattapan, Roslindale, South Boston, and West Roxbury compared with Boston overall. In 2015, a higher percentage of Boston residents living in renter-occupied units had less than a high school education and a higher percentage paid about one-third of their income towards housing compared with residents in owner-occupied units. Those putting more than (30%) of their income towards housing are considered “cost burdened” by the U.S. Department of Housing and Urban Development, and may have difficulty affording necessities such as food, clothing, and transportation (BPHC, 2017).

After adjusting for differences in age, race/ethnicity, and sex, we found differences in several health outcomes by housing status. Compared with homeowners, a higher percentage of BHA residents and renters receiving rental assistance had asthma, diabetes, hypertension, obesity, persistent anxiety, and persistent sadness. A higher percentage of renters who did not receive assistance had persistent anxiety and persistent sadness than homeowners. Lastly, a higher percentage of those who had housing arrangements other than renting (with and without rental assistance), being a homeowner, or being a BHA resident, had hypertension and persistent sadness than homeowners (BPHC, 2017).

Figure 22: Median Housing Value 2012-2016

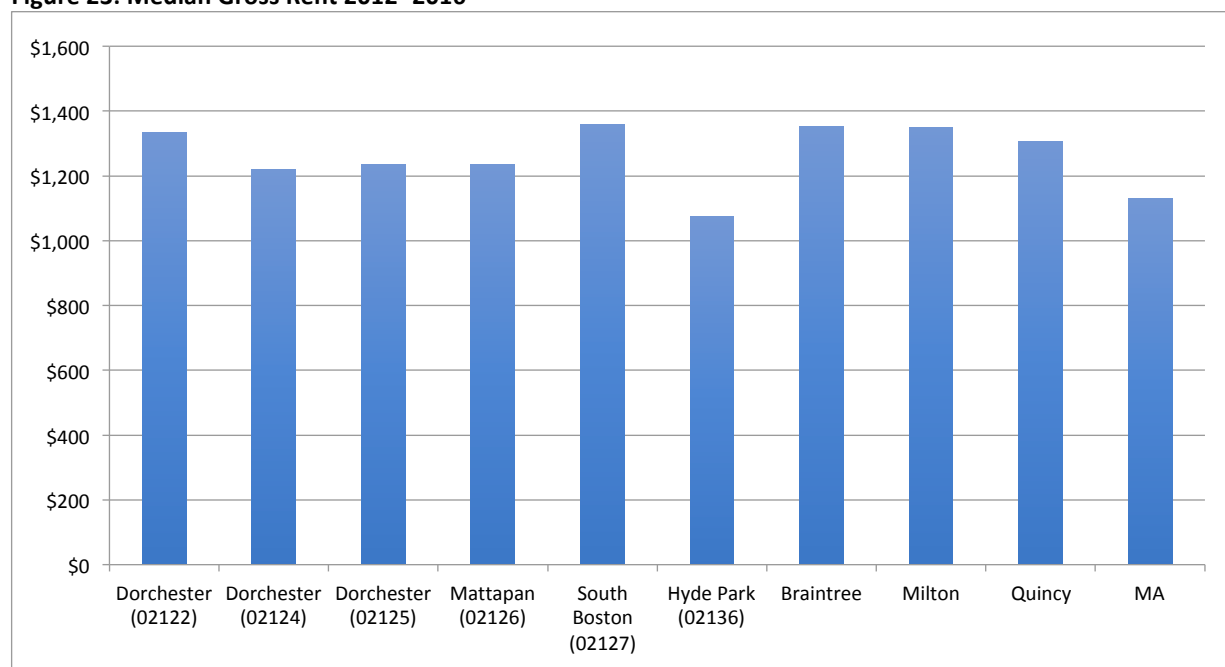


(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

From 2012 to 2016 the median value of a home in Massachusetts was \$341,000. During this period, five Carney Hospital service area cities/towns exceeded this value. The highest median housing value in the service area was seen in Milton (\$513,900) followed by South Boston (\$469,800). The lowest median

housing values in the Carney service area were seen in Dorchester (02125) and Mattapan, where the median housing value from 2012-2016 was \$306,200.

Figure 23: Median Gross Rent 2012- 2016



(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

From 2012 to 2016, the median gross rent in Massachusetts was \$1,129. Within the Carney Hospital service area, every city/town exceeded this value except for Hyde Park where the median gross rent from 2012 to 2016 was \$1,076. Every other service area city/town exceeded \$1,200 for median gross rent during this period. The highest median gross rents were seen in South Boston, Braintree and Milton at \$1,360, \$1,353, and \$1,349.

Homelessness

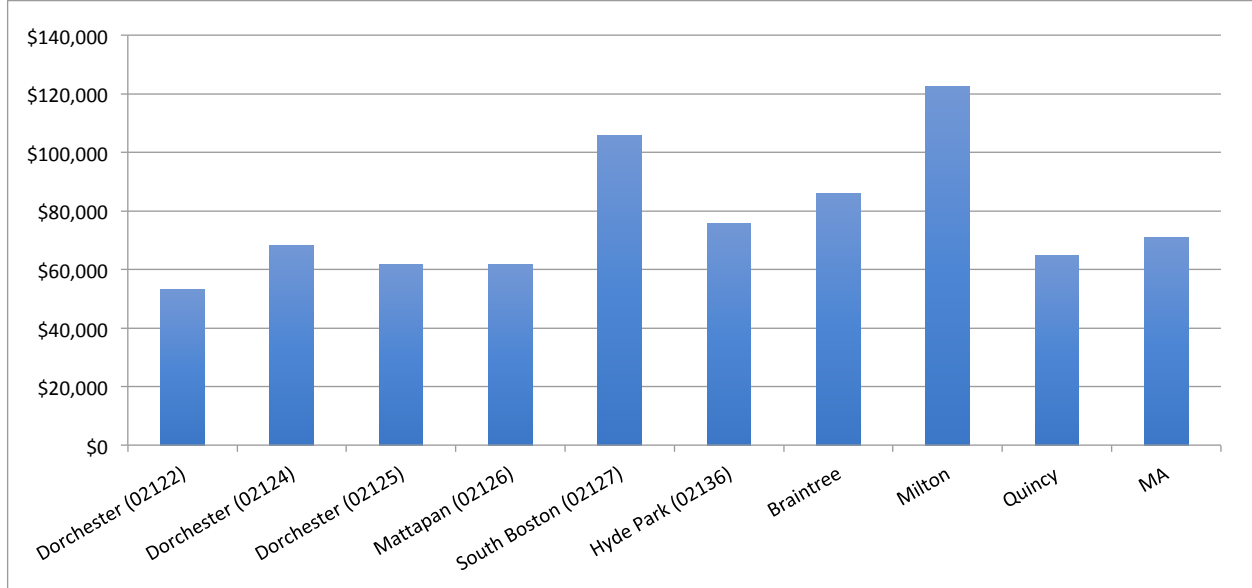
In FY 2018, the Commonwealth will spend from its own resources a total of \$432 million on a series of housing programs plus initiatives aimed at combatting homelessness. Of the total, \$183 million goes to the former with the larger share (\$249) going to homeless programs. However, this amount represents the second annual funding cut in a row so that the state budget for housing related spending is now \$71 million below the amount in the FY 2016 budget, a 14 percent reduction. What makes this cut in state funding even more serious is that it is coming on top of a sharp reduction in federal funding for housing in the Commonwealth. Fiscal year 2018 estimated funds for federal housing programs in Massachusetts are expected to be \$71 million less than in FY 2017. Together, the state and federal cuts in the current fiscal year alone amount to more than \$100 million (The Boston Foundation, 2017).

In 2013, 5,881 homeless individuals were counted in Boston during the annual homeless census, while in 2017, there were 6,135 homeless individuals counted. Forty-eight percent were female, (33%) were under the age of 18, (17%) identified as more than one race, and (38%) identified as Latino (BPHC, 2017).

Safe and stable housing provides personal security, reduces stress and exposure to disease, and provides a foundation for meeting basic hygienic, nutritional, and healthcare needs. Average income gains over the past decade have failed to keep pace with rising housing costs, pushing thousands of residents into unstable housing situations. In 2017, 6,135 individuals in Boston were homeless. Without consistent access to health care, homeless individuals are less likely to participate in preventative care and are much more likely to utilize the emergency department for non-emergencies. Such patterns of

use are not only a burden on the healthcare system, but detrimental to personal health as well (BPHC, 2017).

Figure 24: Median Household Income 2012-2016



(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

From 2012 to 2016, the median household income in Massachusetts was \$70,954. Four of nine service area cities/towns exceeded this level. The highest median household income was seen in Milton at \$122,516, followed by South Boston at \$105,843. The lowest median household income was found in Dorchester (02122) at \$53,103. Dorchester (02125) and Mattapan shared the second lowest median household income over this period at \$61,664.

Poverty

Income, poverty, and unemployment are each profoundly linked with health (Braveman PA, 2010). Income influences where people choose to live, to purchase healthy foods, to participate in physical and leisure activities, and to access health care and screening services. Having a job- and job-related income provide individuals the opportunities to make healthy choices, engage in healthy behaviors, access necessary health care services, and enjoy a long life (MDPH, 2017).

While being employed is important for economic stability, employment affects our health through more than economic drivers alone. Physical workspace, employer policies, and employee benefits all directly impact an individual's health. The physical workplace can influence health through workplace hazards and unsafe working conditions which lead to injuries, illness, stress, and death. Long work hours and jobs with poor stability can negatively impact health by increasing stress, contributing to poor eating habits, leading to repetitive injuries, and limiting sleep and leisure time. Job benefits such as health insurance, sick and personal leave, child and elder services and wellness programs can impact the ability of both the worker and their family to achieve good health (MDPH, 2017).

Unemployment is also associated with poor health, including increased stress, hypertension, heart disease, stroke, arthritis, substance use, and depression; and the unemployed population experiences higher mortality rates than the employed (Robert Wood Johnson Foundation, 2013) (Henkel, 2011).

Stark racial disparities exist in poverty rates across Massachusetts. In 2011-2015 approximately one in three (29.3%) Hispanic residents and one in five Black non-Hispanic (22%), American Indian or Alaska Native (22.9%), or Native Hawaiian or other Pacific Islander (22.4%) residents recorded incomes below the federal poverty level. These patterns stand in dramatic contrast to less than one in 10 (7.8%) White non-Hispanic and one in seven (14.6%) Asian non-Hispanic residents with incomes below the federal poverty level. Some people's housing costs exceed (30%) of their income, leaving less money to cover other necessities (MDPH, 2017).

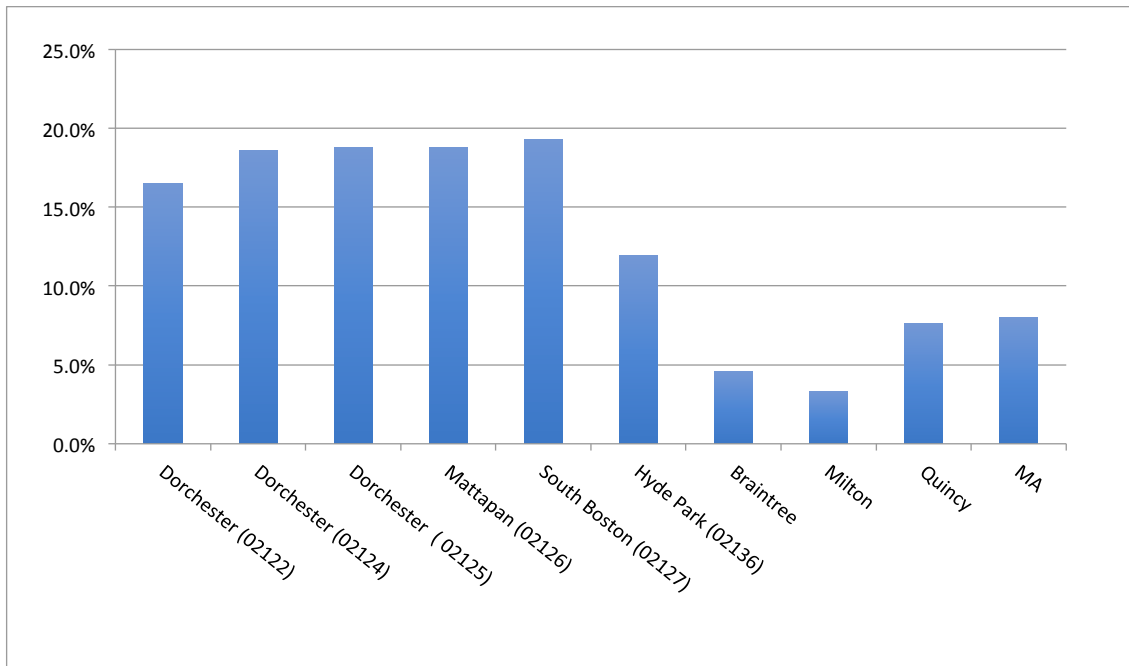
In Massachusetts, (11.9%) of the population lives below the Federal Poverty Line with (5.5%) living in deep poverty and (8.8%) of senior citizens living below the poverty line. However, a greater percentage of children live in poverty in Massachusetts (16.3%) as compared to the United States as a whole. (15.3%) of Massachusetts' population live under 125% of the poverty line, in near poverty. (Under 130% of the Federal Poverty Line qualifies for SNAP benefits of food stamps and (185%) qualify for nutritional assistance for Women, Infants, and Children) (Massachusetts Caucus of Women Legislators, 2015).

In 2015, there was a high level of income inequality in the city of Boston, and the city's poverty level was double that of Massachusetts. The median household income for Boston was about \$58,000 and one in five Boston residents had an income below poverty level. We observed inequities across race for both median household income and poverty level. (BPHC, 2017).

After adjusting for age, race/ethnicity, and sex, it was noted that a higher percentage of Boston residents with a household income less than \$25,000 had diabetes, hypertension, obesity, persistent anxiety, and persistent sadness compared with residents with a household income of \$50,000 or greater. A higher percentage of residents with a household income of \$25,000-49,999 had diabetes, hypertension, and persistent sadness compared with those with a household income of \$50,000 or more. Increasing the median household income for residents would yield more positive health outcomes for these individuals and communities (BPHC, 2017).

During 2011-2015 combined, Allston/Brighton, Dorchester (zip codes 02121, 02125), and Roxbury had a higher percentage of residents living below the poverty level compared with Boston overall. In the same time period, Back Bay, Hyde Park, Jamaica Plain, Roslindale, South Boston, and West Roxbury had a lower percentage of residents living below the poverty level compared with Boston overall (BPHC, 2017).

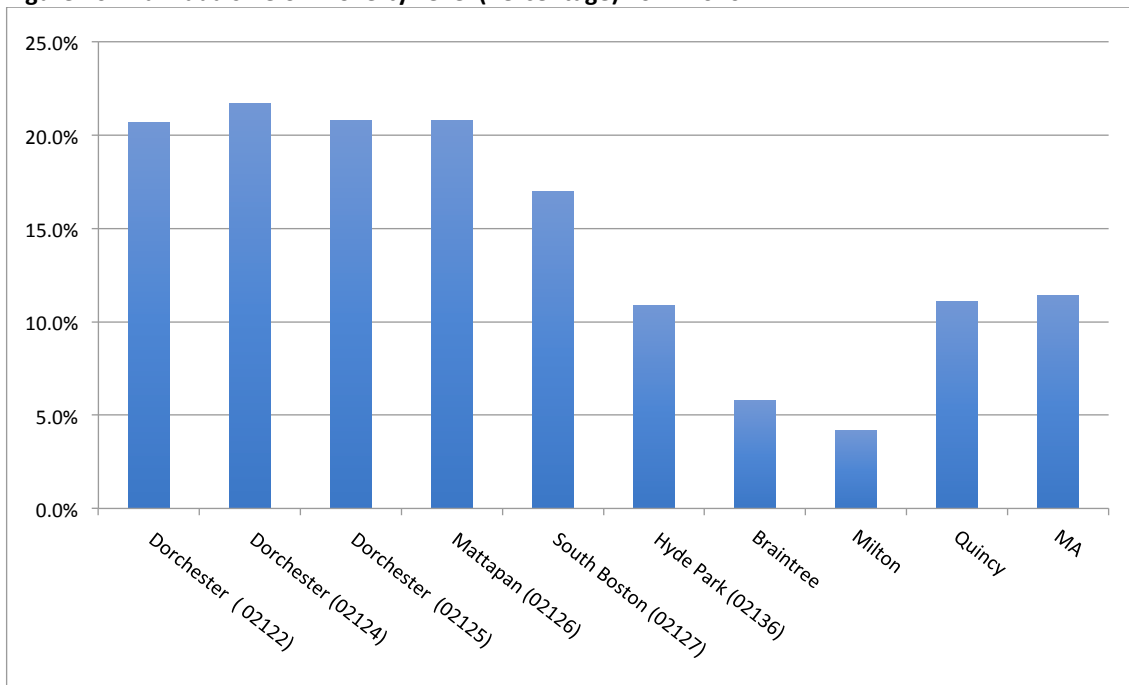
Figure 25: Percent Families Below Poverty Level 2012-2016



(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

From 2012 to 2016, (8%) of Massachusetts families were living below poverty level. Every non-Boston service area city/town had a lower percentage of families living below poverty level during this period. Milton exhibited the lowest levels of families living in poverty at (3.3%). Every Boston neighborhood in the Carney service area exhibited a higher percentage of families living in poverty than the state average. The highest percentage was seen in South Boston where (19.3%) of families were below poverty level from 2012 to 2016. Except for Hyde Park, each Boston neighborhood had more than (15%) of families below poverty during this period.

Figure 26: Individuals Below Poverty Level (Percentage) 2012-2016

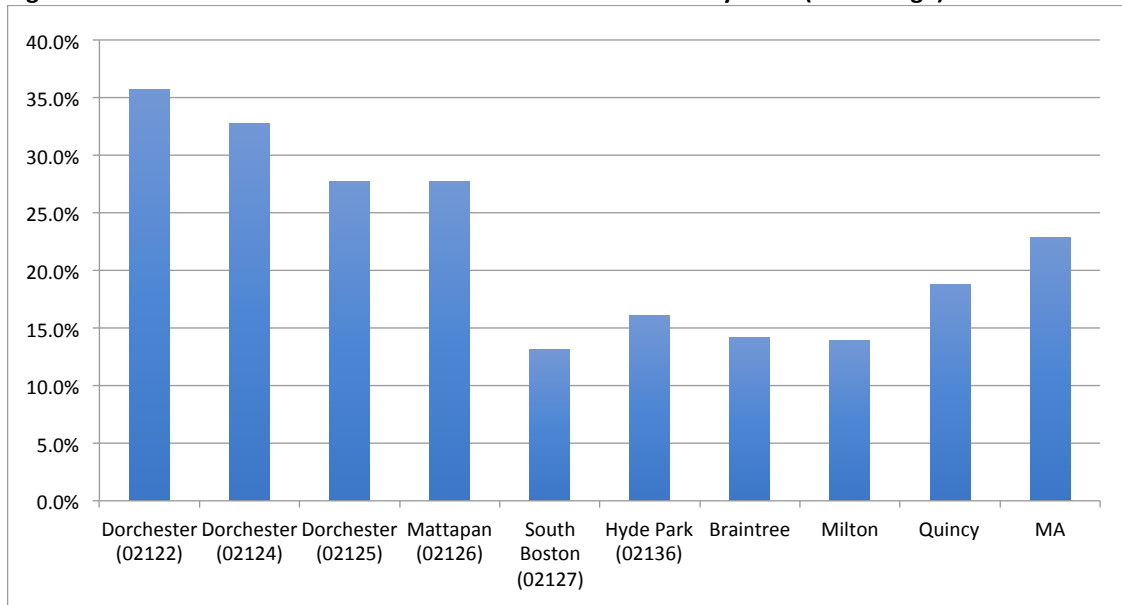


(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

From 2012 to 2016, an estimated (11.4%) of Massachusetts individuals were below poverty level. Milton, Braintree, Hyde Park and Quincy each exhibited a lower percentage of individuals below poverty level than the state average. Milton had the lowest percentage of all service area cities/towns with

(4.2%) of individuals below poverty level. The highest percentage of individuals below poverty level is found in Dorchester (02124) at (21.7%). Dorchester (02122), Dorchester (02124), and Mattapan each had more than (20%) of individuals below poverty level from 2012 to 2016.

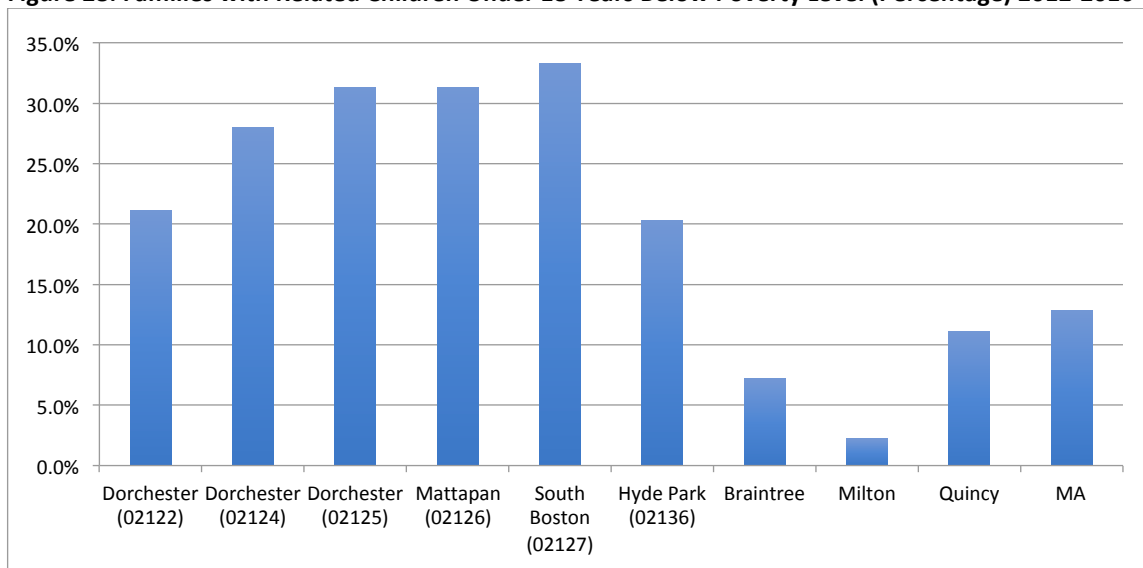
Figure 27: Unrelated Individuals 15 Years and Over Below Poverty Level (Percentage) 2012-2016



(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

From 2012 to 2016, (22.9%) of unrelated individuals over the age of 15 were below the poverty level in Massachusetts. Dorchester (02122), Dorchester (02124), Dorchester (02125) and Mattapan each exceeded this percentage. The highest percentage of unrelated individuals older than 15 and below poverty level was seen in Dorchester (02122) where (35.7%) of these individuals were below poverty level. The lowest percentage of these individuals below poverty level was seen in South Boston where just (13.1%) of unrelated individuals over the age of 15 were living below poverty level.

Figure 28: Families with Related Children Under 18 Years Below Poverty Level (Percentage) 2012-2016

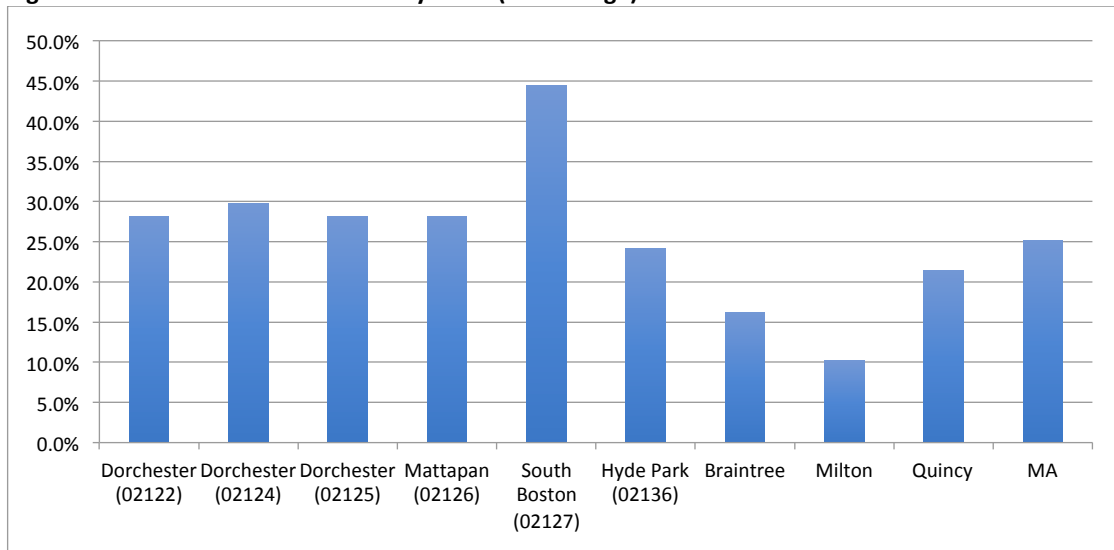


(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

From 2012 to 2016, (12.8%) of families with related children under 18 were below poverty level. No non-Boston service area city/town exceeded this percentage. Milton had the lowest percentage of these families living below poverty level at (2.2%). Every Boston area neighborhood exhibited a higher percentage of these families living below poverty level than the state average. The highest percentage

was found in South Boston where (33.3%) of families with related children under the age of 18 were below poverty level. Each Boston area neighborhood had greater than (20%) of these families living below poverty level.

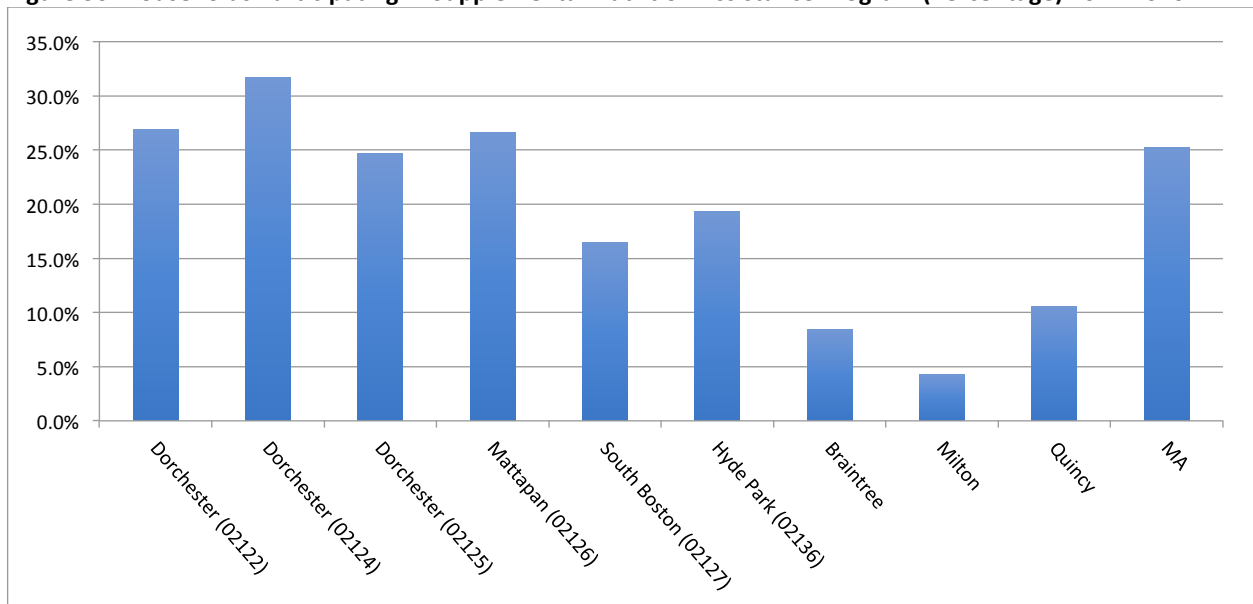
Figure 29: Female HOH Below Poverty Level (Percentage) 2102-2016



(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

From 2012 to 2016, (25.2%) of female head of households were below poverty level. Except for Hyde Park, each Boston neighborhood exceeded this percentage. The highest percentage of female head of households below poverty level is seen in South Boston at (44.5%). Dorchester (02122, 02124, 02125) and Mattapan each had greater than (25%) of female heads of household below poverty level. Milton had the lowest percentage of this female heads of household below poverty level at (10.2%).

Figure 30: Households Participating in Supplemental Nutrition Assistance Program (Percentage) 2012-2016



(Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

From 2012 to 2016, (25.2%) of Massachusetts households participated in SNAP. Three service area cities/towns exceed this percentage, these included Dorchester (02122), Dorchester (02124), and Mattapan. The highest percentage of households participating in SNAP was observed in Dorchester (02124) at (31.7%). Milton had the lowest percentage of households participating in SNAP at just (4.3%).

Housing, homelessness, and poverty were not mentioned by the focus group participants or survey respondents

Recommendations

Carney Hospital is well positioned to partner with other community-based organizations and coalitions to address the following key strategic priorities to improve health outcomes and wellness in the region:

1. **Chronic Diseases**
 - a. Cancer
 - b. Heart Disease
 - c. Diabetes
2. **Mental Health**
3. **Substance Use Disorders**
4. **Housing Stability**
 - a. Homelessness

In recognition of the need for further investments in the social determinants of health, Carney Hospital will also consider these six priorities in Community Benefits planning:

- **Built Environment**
 - The built environment encompasses the physical parts of where we live, work, travel and play, including transportation, buildings, streets, and open spaces.
- **Social Environment**
 - The social environment consists of a community's social conditions and cultural dynamics.
- **Housing**
 - Housing includes the development and maintenance of safe, quality, affordable living accommodations for all people.
- **Violence**
 - Violence is the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, with the behavior likely to cause physical or psychological harm.
- **Education**
 - Education refers to a person's educational attainment – the years or level of overall schooling a person has.
- **Employment**
 - Employment refers to the availability of safe, stable, quality, well-compensated work for all people.

Carney Hospital will continue to foster collaborative partnerships with other community-based organizations whose services align with addressing the aforementioned priorities and focus issues. Consideration will be given as to how strategies impact the lives of the underserved populations identified within the Carney Hospital service area. Carney Hospital recognizes the effectiveness of the collective impact that comes from constructive approach associated with both medical and social partnerships, working together towards a common goal of improving health outcomes among all community members, particularly for underserved populations. Where it is deemed appropriate Carney Hospital will coordinate with regional public health organizations to ensure our success in addressing community health issues. Our data reveals that race, ethnicity and socio-economic factors are indicators of health outcome within the region. Carney Hospital will focus efforts toward individuals and families who are facing critical challenges that perpetuate health inequity.

Chronic Disease

Cancer

Both focus group participants and the key informant survey respondents did not view cancer as a major health concern in the community. Despite, this cancer rates in the Carney Hospital service area are higher than the state average in several communities. Providing partnership with the American Cancer Society and other cancer education to the community is crucial as it could potentially bring awareness to a disease that is prevalent in the service area community but is not perceived to be an issue by community members.

Community-Wide Recommendations

- Pursue partnerships with the American Cancer Society and/or other cancer education and prevention organizations in the community to advance disease prevention and management.
- Partner with civic and/or faith-based community organizations to reach underserved populations and provide appropriate screenings and prevention education.

Health System Recommendations

- Provide free cancer screening programs in communities more susceptible to cancer and with higher disease burden and mortality rates in order to increase early diagnosis of cancers and treatment with attention to Lung, Prostate and Breast Cancer.
- Offer a smoking cessation program support groups and consider expanding cessation support groups to community center.
- Offer cancer prevention education and/or informational materials to high priority populations.
- Participate in community-based cancer awareness campaigns in the region.
- Offer cancer support groups.

Cardiovascular Disease

Cardiovascular disease, including heart health and high blood pressure were of high concern to both focus group participants and survey respondents. Carney Hospital should continue to leverage its resources and medical staff to provide heart disease prevention education to community members. When appropriate, Carney Hospital should provide blood pressure screenings in the community and promote heart health and stroke prevention through partnerships with community-based organizations providing services to target populations in the Carney service area. Carney Hospital should seek to partner with appropriate health care networks and primary care offices to implement chronic disease self-management program to assist community members in learning how to manage their health condition and improve quality of life.

Community-Wide Recommendations

- Pursue partnerships with the American Heart Association and/or other cardiovascular disease education and prevention organizations in the community to advance disease prevention and management.
- Partner with civic and/or faith-based community organizations to reach high priority populations and provide appropriate screenings and prevention education.
- Collaborate with the Charles River Community Health Center.
- Partner with more schools, elderly groups, sponsor sports teams, health fairs, summer jobs.

Health System Recommendations

- Provide free blood pressure screening programs in communities more susceptible to heart disease and with higher disease burden and mortality rates in order to increase early diagnosis and treatment.
- Offer heart attack and stroke prevention education and/or informational materials in target communities.
- Participate in community-based heart health and stroke awareness campaigns in the region.
- Serve as a Community Training Center using American Heart Association standards for employees, physicians, and community professional healthcare workers for cardiac education and CPR certification.
- Provide easier accessibility to central pharmacy and health-screenings on-site and off-site.

Diabetes

Several cities/towns in the Carney Hospital service area recorded a higher percentage of total mortality due to diabetes than the state level. To best address this, Carney Hospital should seek to increase awareness among primary care providers for the diabetes management programs in the community. Working together with the American Diabetes Association, Carney Hospital should promote the use of diabetes type 2 screening tools to foster awareness and prevention. Through the implementation of a chronic disease self-management program, Carney will be able to assist community members learn how best to manage their health and avoid health complications and decrease costly emergency department utilization. Lifestyle changes can prevent or delay the onset of diabetes and help control diabetes once diagnosed. Eating a healthy diet, maintaining a healthy weight, exercising regularly, and avoiding smoking can help prevent diabetes. Carney Hospital should continue to make available diabetes management information in various languages and through various media channels, as appropriate.

Community-Wide Recommendations

- Pursue partnerships with the American Diabetes Association (ADA) and/or other diabetes education and prevention organizations in the community to advance disease prevention and management.
- Partner with civic and/or faith-based community organizations to reach high priority populations and provide appropriate screenings and prevention education.

Health System Recommendations

- Promote use of the ADA and/or CDC diabetes type 2 and prediabetes screening tools within high priority populations.
- Offer diabetes type 2 prevention and self-management programs in communities more susceptible to diabetes type 2 and with higher disease burden and mortality rates in order to increase early diagnosis and management.
- Participate in community-based diabetes awareness campaigns in the region.

Mental Health

Mental health was the number one concern among the focus group participants and the second greatest concern of key informant survey respondents. Both highlighted a lack of adequate mental services in the Carney Hospital service area. Carney Hospital should continue to collaborate with community-based organizations that can provide services to patients with mental health conditions. Carney Hospital should serve as a host site for support groups for community members and caregivers. Carney Hospital should also promote the creation and availability of an inter-agency comprehensive care plan for this population.

Community-Wide Recommendations

- Disseminate educational materials outlining signs of mental health issues (particularly depression and anxiety) at strategic locations targeting high priority populations.
- Provide family members and/or caregivers with educational information on mental health to assist caregivers understand warning signs of mental illness.
- Advocate for inclusion of screenings for mental illness within school system to foster early intervention and access to treatment.
- Promote awareness of mental illness and work to decrease stigma surrounding seeking support.
- Pursue collaboration with the National Alliance on Mental Illness, health insurers, and/or other mental health education organizations in the community to advance disease management.

Health System Recommendations

- Collaborate with health and human service organizations to develop a comprehensive care plan that would be accessible to providers at all points of care.
- Implement strategic partnerships with community organizations that can provide services to community members, particularly high priority populations.
- Maintain Behavioral Health Navigator program in the Emergency Department.
- Engage community-based service providers to learn of and promote services that may be available to community members in need of services.
- Implement strategic partnerships with community organizations that can provide services to community members, particularly high priority populations.

Substance Use

Substance use was the number one concern among survey respondents, opioids in particular were of great concern to focus group participants. Both indicated a lack of availability of addiction center/ rehab services in the Carney Hospital service area. Carney Hospital should promote the use of substance use disorder treatment best practices. The hospital should also continue to partner with community organizations to promote increased access to screening for potential substance abuse. In addition to collaborating with community-based service providers working in various local settings. Carney Hospital should also offer free use of hospital space for a wide variety of support groups including Alcoholics Anonymous and Narcotics Anonymous.

Community-Wide Recommendations

- Advocate for increasing availability of de-tox and long-term treatment facilities, particularly to high priority populations in the region.
- Implement marketing campaign to increase perception of harm of adolescent substance use.
- Collaborate with schools and other organizations to incorporate an evidence-based curriculum that addresses substance use and mental health.
- Implement and promote substance use prevention and harm reduction programs.
- Support community-based substance abuse prevention coalitions.

Health System Recommendations

- Provide support resources for patients for whom illness can cause significant stress and anxiety.
- Promote evidence-based best practices in substance use disorder treatment across the continuum of care.
- Engage community-based service providers to learn of and promote services that may be available to community members in need of services.
- Continue collaborations and expand access to support groups for patients and caregivers.

Housing Stability

Housing stability was not a major concern of focus group participants or survey respondents. That said, housing related issues are prevalent in the Carney Hospital service area and should be addressed by the hospital. Carney Hospital should consider working closely with organizations with a goal of improving housing stability. A partnership with organization like Boston Housing Authority could provide opportunities for individuals and families who are facing challenges in housing.

Community-Wide Recommendations

- Advocate for and support Housing Authority initiatives aimed at keeping low-income individuals and families housed.
- Partner with community organizations working to stabilize housing and/or rental pricing to support high priority populations that have been historically marginalized due to the high cost of housing.
- Challenge housing policies that foster segregation in communities in which segregation has historically contributed to unequal access to health and social supports and perpetuate poverty.

Health System Recommendations

- Partner with community organizations such as Housing Authorities and Shelters to identify ways to support housing first models.
- Consider adopting a housing screening process with patients prior to discharge to ensure patients are discharged to housing that is safe and support recovery.

Homelessness

In most of the Carney Hospital service area, the poverty level has surpassed the state level. It is crucial to encounter this problem as there is a strong correlation between poverty level and homelessness. Carney Hospital should strengthen their partnership with local shelters and address the housing shortage and cost of housing.

Community-Wide Recommendations

- Advocate for and support public policies aimed at addressing housing shortage and the cost of housing.
- Partner with local shelters to support programs aimed at keeping low-income individuals housed.

Health System Recommendations

- Develop and/or maintain partnerships with service agencies that are able to assist those who may present at the hospital with a need for stable housing.

Underserved Populations

As noted above, several social obstacles stand in the way for members of the underserved populations to achieve better health outcomes. Based on feedback collected via the focus groups conducted and key informant survey respondents, access to primary care is a significant issue faced by many due to language/cultural barriers and insurance coverage. Carney Hospital should leverage its physician relations and communications resources to address the identified needs of underserved populations. Wherever possible, informational and/or educational materials should be translated, and community engagement efforts should include various civic venues paying close attention to the social environment.

Community-Wide Recommendations

- Support efforts to improve the health care delivery system through reform.
- Collaborate with organizations working to remove barriers to care for underserved populations.

Health System Recommendations

- Engage members of high priority populations such as low-income individuals, immigrants and minorities to identify needs and priorities for improved service delivery.
- Provide accessible central pharmacy and increase availability of health-screenings to high priority populations.
- Provide assistance to community members seeking to apply for public health insurance coverage provided through public health plans.
- Screen individuals for primary care provider, where appropriate, assist community members enroll with primary care provider of their choice.

Limitations

Data collected for analysis was derived from publicly accessible, governmental sources. Some data sources lacked information on certain towns. Data presented in this report is the most recently available at the time of the creation of this CHNA. As such, some of the relative changes, though classified as increases or decreases, are qualitative valuations relative to state values. Though it would have been preferable to have more recent data with statistical evaluation for significance (p value) and correlation (r value), we were limited to currently available datasets. In previous versions of this CHNA, data had been collected through use of the Massachusetts Community Health Information Profile (MassCHIP). However, at the time of data collection, this resource was unavailable to researchers. Researchers instead relied on datasets provided by the Accreditation Coordinator/Director MassCHIP, Office of the Commissioner, Massachusetts Department of Public Health and guidance provided by the same in order to collect data used to compile this CHNA.

Although the community focus group provide valuable information, serving as important tools for data collection and community engagement, there are some limitations to consider. Focus group data is qualitative in nature and reflect only the views and opinions of a small sample. Focus groups are limited to the views and opinions of the participants and are not all-inclusive of the various perspectives of the larger populations; they do not constitute complete data for the communities in which focus groups were held. Furthermore, only one focus group was conducted. It would have been advantageous to have conducted focus groups in different communities to engage a larger segment of the population within the hospital service area, as this may have garnered more diversified data unique to other communities.

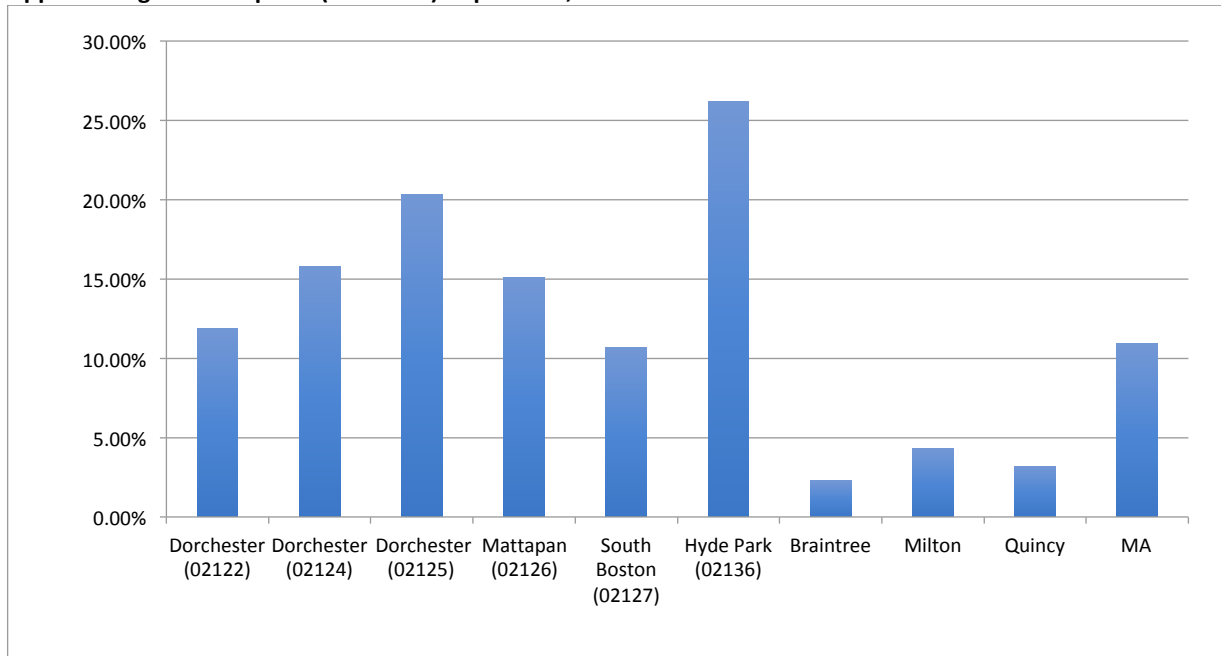
Though the intent of this project was to capture the views and opinions of a broad range of health and human service providers within the Carney Hospital service area, there were also limitations to the survey distribution methodology for the survey. The survey was distributed via email some providers may have been excluded due to a lack of access to computer-based technology. It is reasonable to assume that some providers had a longer period to access and respond to the survey as the survey distribution was ultimately at the control and discretion of the Carney Hospital staff. A total of 145 individuals responded to the survey.

Appendix A. Supplemental Health Indicators and Demographic Data

Health Indicators - Demographic Data

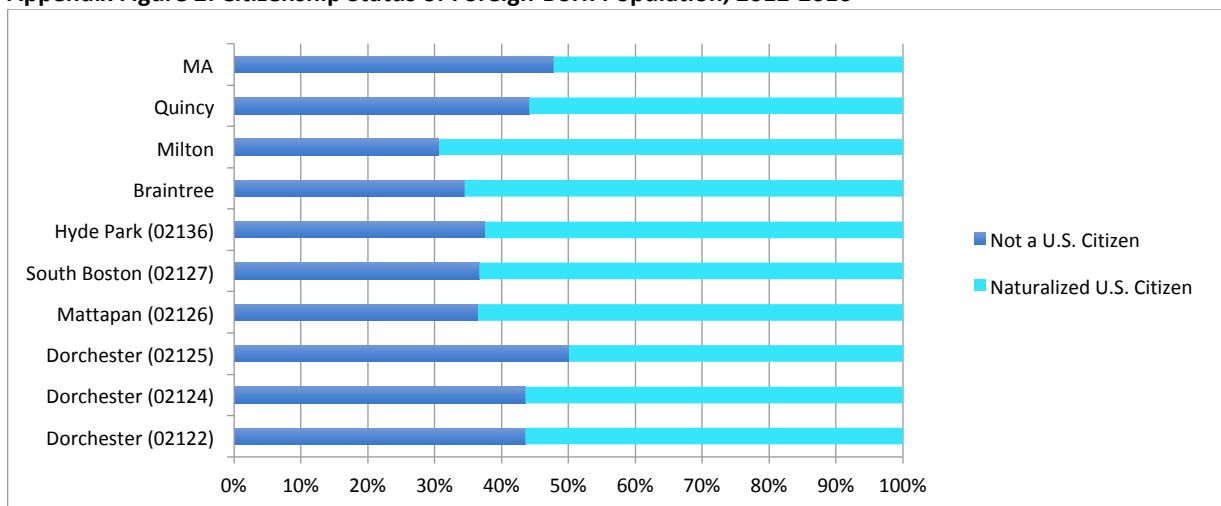
Social

Appendix Figure 1: Hispanic (Not-Race) Population, 2012-2016



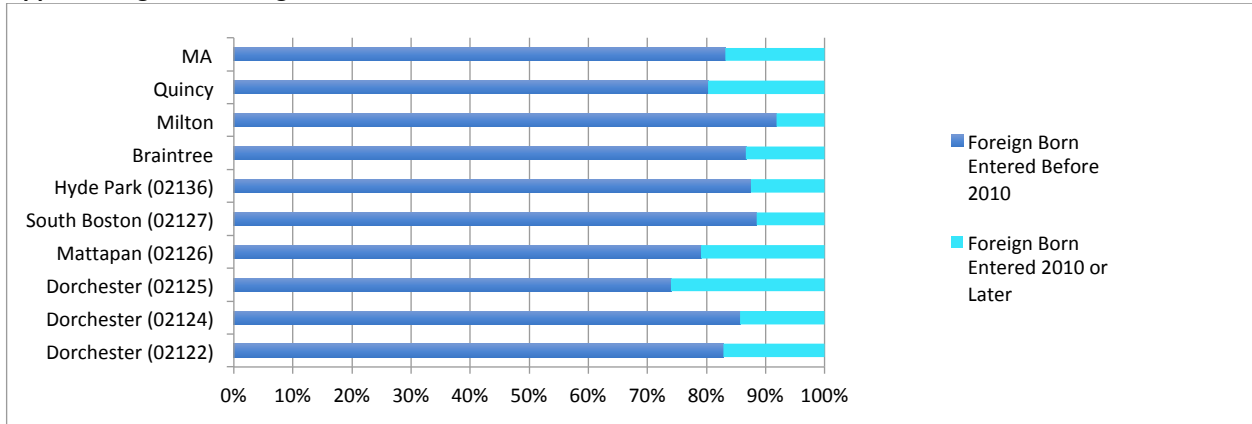
Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

Appendix Figure 2: Citizenship Status of Foreign-Born Population, 2012-2016



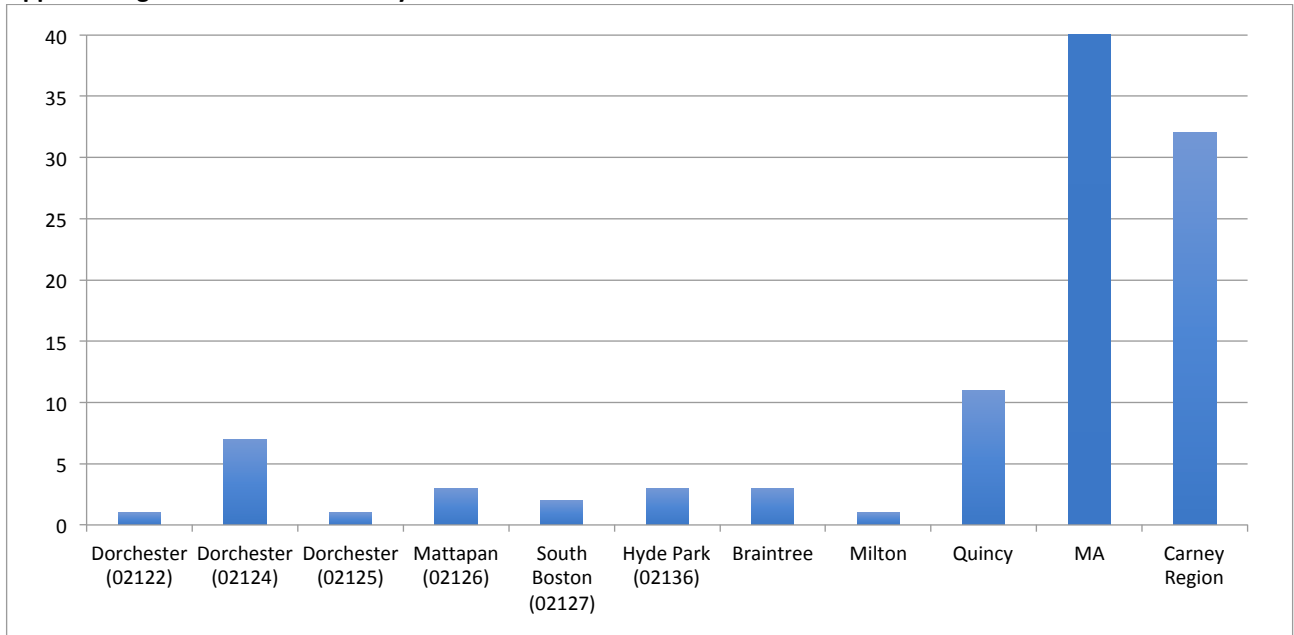
Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

Appendix Figure 3: Foreign Born, Entered Later Than or Before 2010



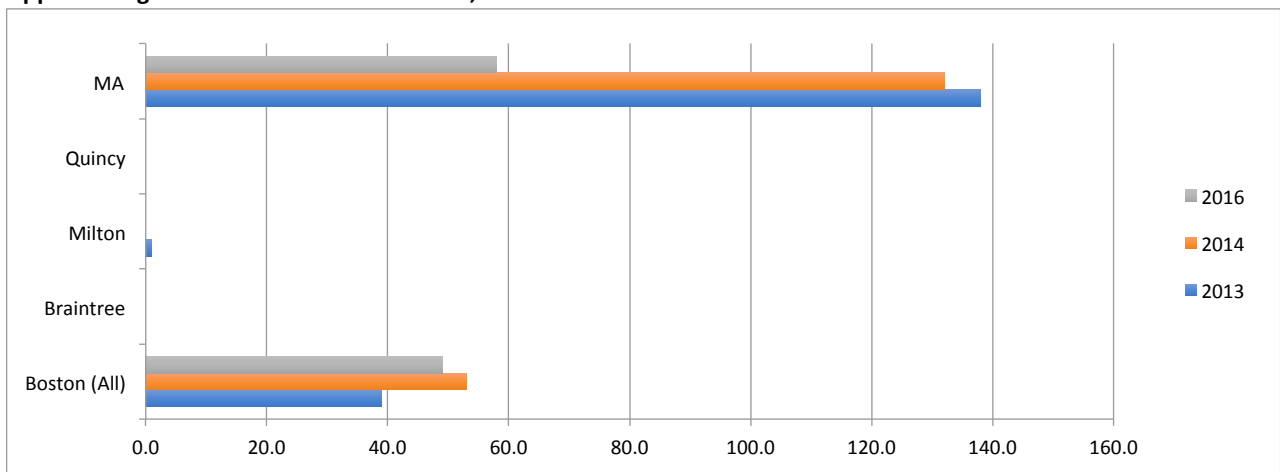
Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

Appendix Figure 4: Suicide Mortality – 2015



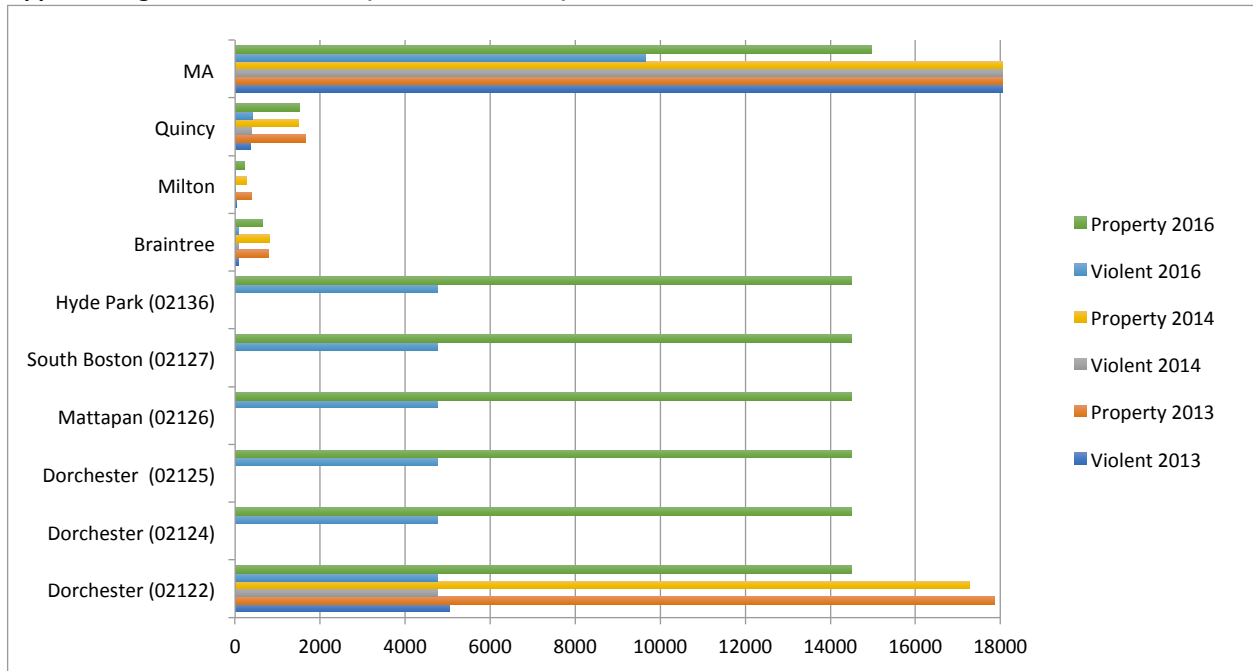
Source: Massachusetts Department of Public Health

Appendix Figure 5: Homicide Death Count, 2013-2016



Source: US Dept. of Justice

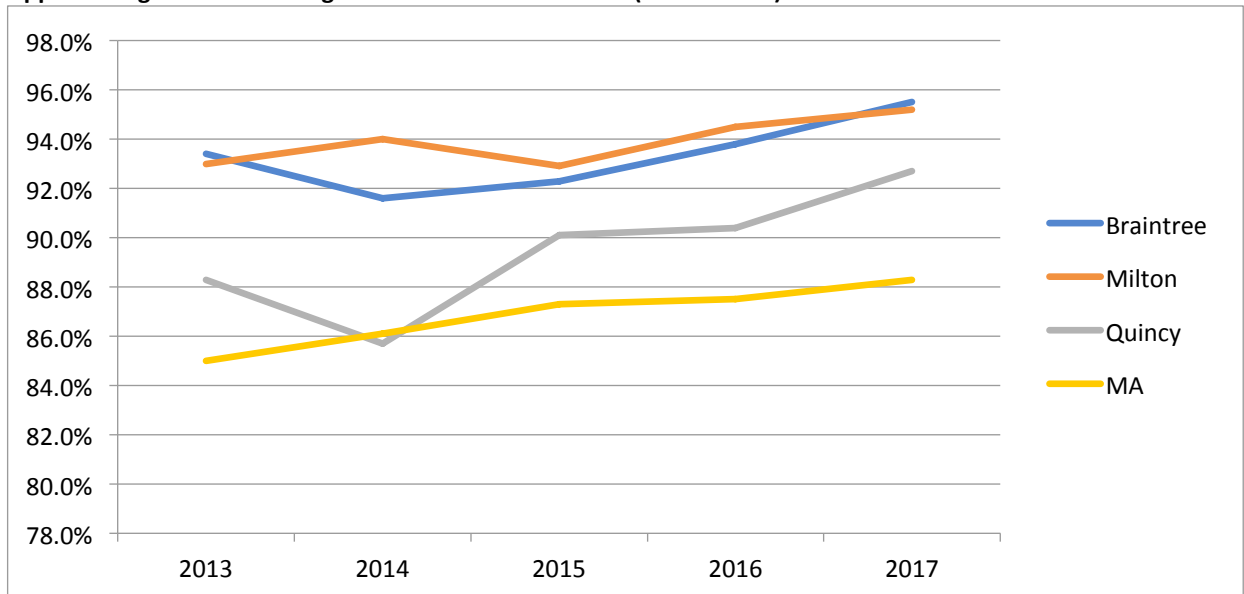
Appendix Figure 6: Crime Count (2013, 2014, 2016)



Source: US Dept. of Justice

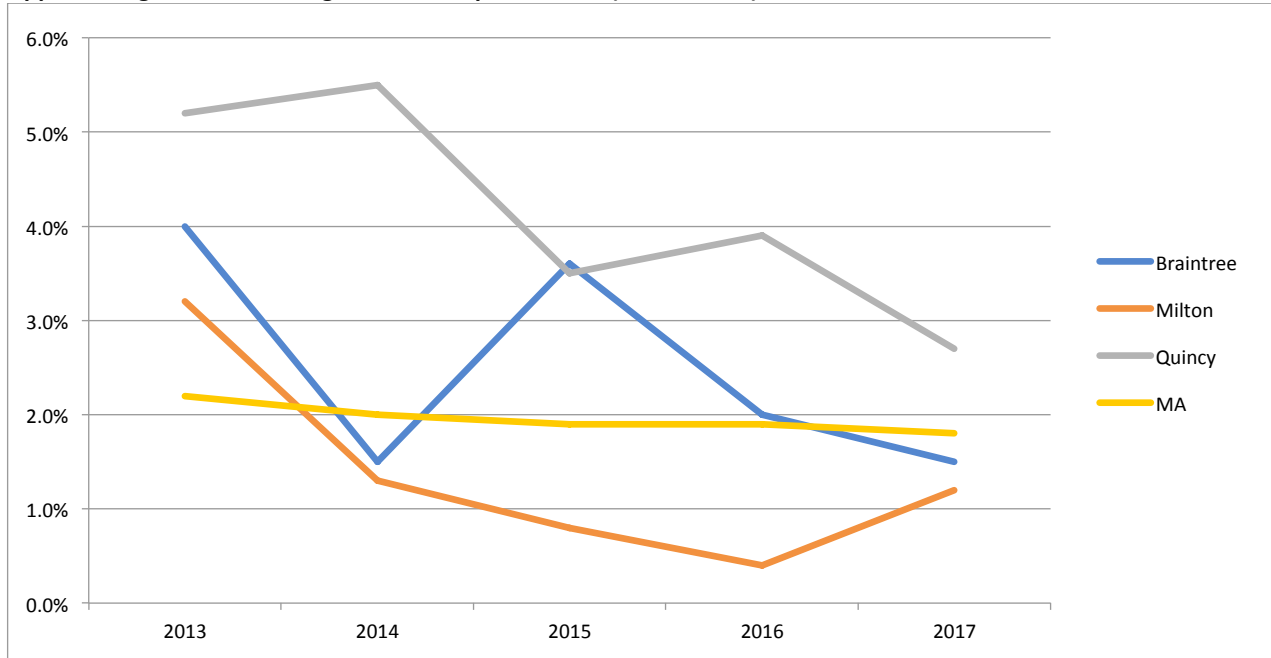
Education

Appendix Figure 7: 4-Year High School Graduation Rates (Non-Boston) 2013-2017



Source: MA Dept. of Elementary and Secondary Education, 2018

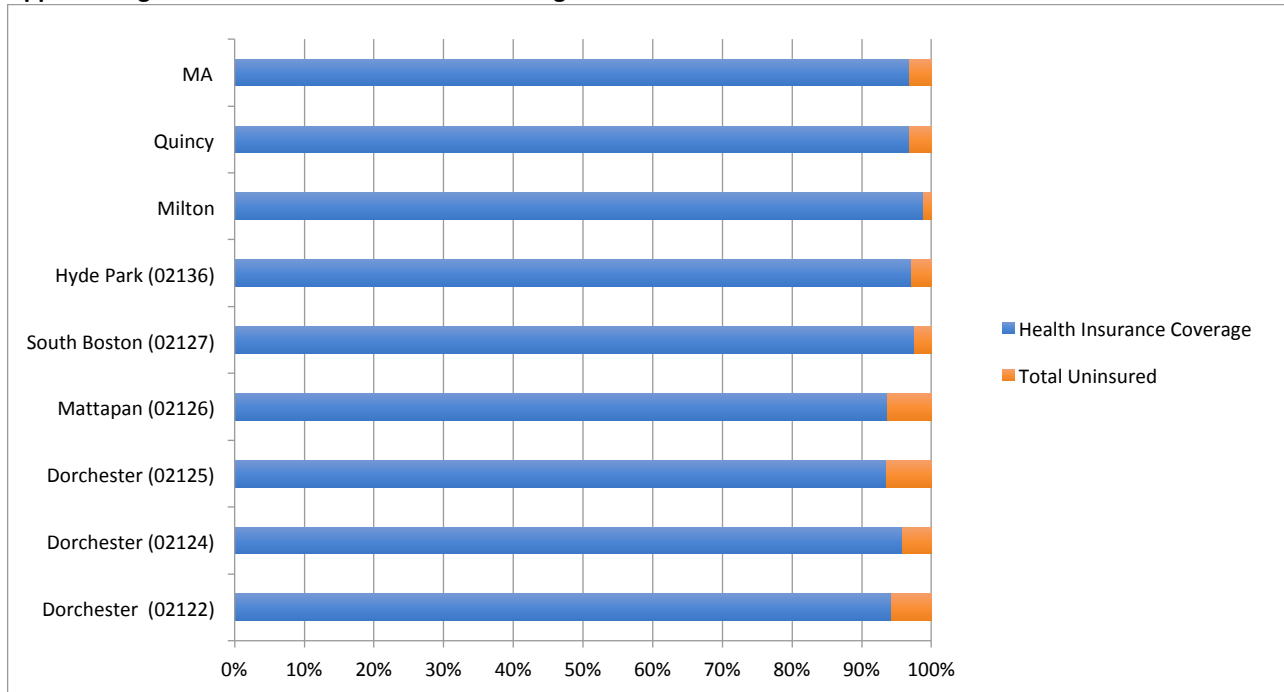
Appendix Figure 8: 4-Year High School Drop Out Rates (Non-Boston) 2013-2017



Source: MA Dept. of Elementary and Secondary Education, 2018

Economics

Appendix Figure 9: Total Health Insurance Coverage 2012-2016



Source: US Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

Appendix B. Key Informant Survey

*Community Health Needs Assessment- Key Informant Survey**

1. In what county (or counties) does your organization primarily provide services?
2. In what city does your organization provide the majority of services?
3. What kind of services does your organization primarily provide?
4. Name of the organization you work for?
5. To the best of your knowledge, from what county (or counties) do the majority of your consumers come from?
6. To the best of your knowledge, what are the general social demographics of consumers served by your organization?
7. In what city or neighborhood do the majority of your consumers reside?
8. What do you perceive as the major health concerns of your consumers?
9. In your opinion, what are the major health concerns in the community where you provide services?
10. Please rank what you believe to be the biggest obstacles to healthy living among your consumers (1 being the greatest obstacle).
11. Please rank what health and wellness services would most benefit your consumers (1 being of greatest benefit).
12. How knowledgeable are you of the community health services Carney Hospital provides in your community?
13. Overall, how satisfied are you with the way Carney Hospital is addressing community health in your community?
14. Please provide any suggestions you may have as to how Carney Hospital could best address community health issues.

* For a complete copy of aggregated survey responses contact Carney Hospital

Appendix C. Focus Group Questions

*Focus Group Questions**

1. Is there a sense of community where you live?
 - a. Why or why not?
2. What is healthy about your community?
3. What kinds of health and human services are easily accessible in the community?
4. What kinds of health and human services do you feel are missing and would be beneficial in the community?
5. In your view, what are the top three areas of health concern within the community?
6. What are some strategies that could address these concerns?
7. What populations would you identify as underserved within the community?
8. What do you feel are the biggest obstacles to health access for your community?
9. Is behavioral health a major issue within your community?
10. Are chronic diseases a major issue in your community? (Chronic disease are health issues that people live with every day like diabetes, hypertension, obesity)
 - a. What is the impact in your community? (to the moderator look for possible issues that chronic disease causes – asthma preventing school attendance, diabetes hindering job prospects)
11. What services do you perceive as being most needed within the community?
12. In what ways is Carney Hospital serving the community well?
13. In what ways could Carney Hospital serve the community better?
14. What is the number one thing that the Carney Hospital can do to improve the health and quality of life of the community?

** For complete copies of the focus group summaries please contact Carney Hospital*

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