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Community Health Needs Assessment 2018


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Acknowledgements

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For more information about this report and our process, please visit our website https://www.goodsamaritanmedical.org/about-us/community-health-outreach or contact Lynn Cornelius, Director of Marketing, Public Affairs and Community Health at lynn.cornelius@steward.org.

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Executive Summary

This report is a comprehensive analysis of health outcomes and perspectives in the Good Samaritan Medical Center (GSMC) primary service area, which encompasses Abington, Avon, Brockton, Easton, East Bridgewater, Holbrook, West Bridgewater, Randolph, Stoughton and Whitman. Data was gathered by analyzing publicly available information, reviewing feedback gathered from community focus groups, conducting extensive reviews of published articles on the health of the population residing in the region and in Massachusetts, and surveying local health professionals. This data-driven methodology allowed GSMC to investigate the needs of the community in order to better streamline resources and inform community-based initiatives. The information highlights some of the public health needs identified within the community and may be used to develop targeted community health improvement strategies as well as to inform the hospital in the development of its subsequent Implementation Strategy and other Community Benefits programming.

The goal has been to engage and learn from community members, particularly those most at-risk for experiencing health disparities, and develop recommendations for Community Benefits programming that bring about improved health outcomes in high priority populations. For the purpose of this CHNA high priority populations may be defined as members of the community that have been historically marginalized due to racism and/or poverty and have had limited access to health care services. As noted in the *Attorney General's Community Benefits Guidelines for Non-Profit Hospitals*, released February 2018, "*It is well understood that racism – in all of its forms – and institutional bias impact health outcomes, both through their influence on the social determinants of health and also as an independent factor affecting health. The health equity framework illustrates how racism has an independent influence on all the social determinants of health and that racism in and of itself has a harmful impact on health.*"

Through the development and implementation of evidence-based best practices in Community Benefits programming, GSMC seeks to respond to the guidance offered by the Office of the Attorney General and the health equity framework. 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 as well as mental illness and substance use disorder, and addressing social determinants of health.

Social determinants of health, including social, behavioral, and environmental influences have become increasingly prevalent factors in assessing population health. Experts recommend 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 support are areas for cross sector collaboration with local health services.

Maintaining and strengthening community engagement on health promotion, chronic disease prevention, substance abuse prevention, and mental illness services among other critical areas for collaboration is key to the success of population health improvement strategies. Priorities include promoting access to affordable health care and ensuring that those most at-risk have access to basic needs for better health outcomes, like stable affordable housing, low-cost nutritional food choices, and a healthy environment. GSMC is committed to providing Community Benefits programs that support a healthy and thriving community. The information and recommendations are presented as a starting point for discussions and planning with community-based partners to develop truly comprehensive, actionable, and measurable Community Benefits programming.

Introduction

Good Samaritan Medical Center (GSMC), founded in 1968, is part of Steward Health Care – 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.

GSMC is a 267-bed, acute-care hospital providing comprehensive inpatient, outpatient, and Level III Trauma and Emergency services to Brockton and 22 neighboring communities. The hospital offers Centers of Excellence in orthopedics, maternity, oncology and cardiology, and specialized care in robotic surgery, family centered obstetrics with a Special Care Level II Nursery in partnership with neonatologists from MassGeneral Hospital for Children, substance abuse treatment, and advanced diagnostic imaging.

GSMC is committed to providing the highest quality care with compassion and respect to all members of our community. We strive to do so by delivering affordable health care to all in the communities we serve, by being responsible partners to our neighbors, and by serving as advocates for the poor and underserved in our region.

GSMC maintains a Community Health Department, which works closely with a Community Benefits Advisory Committee comprised of hospital leadership, representatives of local health and human service organizations, community groups, and other agencies. This committee guides the planning and implementation of our community health initiatives.

Community Benefits Mission Statement

GSMC is committed to collaborating with community partners to improve the health status of community residents. 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, obesity, diabetes, substance use disorder; and
- Addressing social determinants of health.

Community Benefits Statement of Purpose

The GSMC community benefits purpose is to:

- Improve the overall health status of people in our service area;
- Provide accessible, high-quality care and service 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, preventative health education, screening, wellness programs, community building, and
- Regularly evaluate our community benefits program.

Methods

The 2018 GSMC Community Health Needs Assessment (CHNA) was developed in full compliance with the Commonwealth of Massachusetts Office of 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 the GSMC primary service area was conducted. In accordance with this process, GSMC engaged various community organizations and members 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 data collection process.

Health Indicators and Demographics – Data Analysis

In order to get a broader view of the health and sociodemographic trends in the GSMC primary service area, extensive public data was collected to enable key findings to be derived from the research of online data sources, in partnership with the Massachusetts Department of Public Health (MA DPH). Data sources used by the team included U.S. Census Bureau, Department of Early and Secondary Education (DESE), Uniform Crime Reporting (UCR) Program of the Federal Bureau of Investigation and the Center for Disease Control and Prevention (CDC). Health indicator data such as mortality, disease prevalence, hospitalizations, admissions to substance abuse programs and reproductive health was provided by MA DPH Office of the Commissioner MassCHIP staff.

Key Informant Survey

A Key Informant Survey was developed and distributed electronically to all GSMC staff as well as staff at all affiliated medical practices and Steward Medical Group offices within the service area. The survey was also distributed to members of the Greater Brockton Health Alliance to ensure that the greater health and human service provider community had the opportunity to contribute their view and opinions.

We estimate that about 1,500 individuals received the survey electronically during the four-month survey period. A total of 220 health professionals submitted a response for a response rate of about (15%). However, only 102 completed surveys were used as a basis for further analysis and reporting or (6.8%) of the estimated total population surveyed. A copy of the survey may be found in Appendix B.

Focus Group

A total of three focus groups were conducted with community members residing within the GSMC service area, including Brockton, East Bridgewater (Plymouth County), and Randolph (Norfolk County). Each focus group was conducted in collaboration with a partnering community organization to foster community engagement and collaboration. In total, 20 community members took part in the focus groups. The goal was to collect views and opinions of participants that could be used to inform community health improvement strategies recommended in this report. A copy of the focus group questions can be found in Appendix C.

Resources

A review of recent governmental, public policy, and scholarly works was conducted. The public health information was analyzed and a summary report, which included common themes and public health trends among high-priority populations in the GSMC service area was created to inform this Community Health Needs Assessment.

Summary of Findings

Chronic Disease

Across the GSMC primary service area, chronic diseases mortality account for a large portion of all mortality in the region. In Holbrook, West Bridgewater and East Bridgewater chronic diseases account for nearly 60% of all deaths. Heart diseases and cancer were the leading cause of death among chronic diseases. It is significant that heart diseases were the number one leading cause of chronic diseases in majority of the towns, followed by cancer, chronic respiratory disease, and diabetes.

Mental Health

In the Key Informant Survey, health professionals were presented with the questions "*What do you perceive as the major health concerns of your consumers?"* Respondents perceived "*Behavioral Health*" to be of concern. Behavioral health is a term that is often used interchangeably with mental health to include risky behaviors such as drug use, among other behaviors that may be harmful to individuals. Substance abuse was perceived as the most concerning health issue for consumers and in the community in which health professionals provide services.

Substance Abuse Disorder

Based on the available data, Brockton appears to have had the highest rate of admissions to DPH-funded substance and alcohol abuse programs from 2013 to 2017. Stoughton, Randolph and Abington consecutively had the following highest admission rates to DPH funded programs. There appears to have been a sharp decline in admission to such programs from 2013 to 2014. Admission to such programs appear to have continued to decline from 2014 to 2017.

Housing Stability

Housing Solutions for Southeastern Massachusetts has noted that this region, and Massachusetts in general, has suffered from a chronic undersupply of affordable housing for low- and moderate-income people.

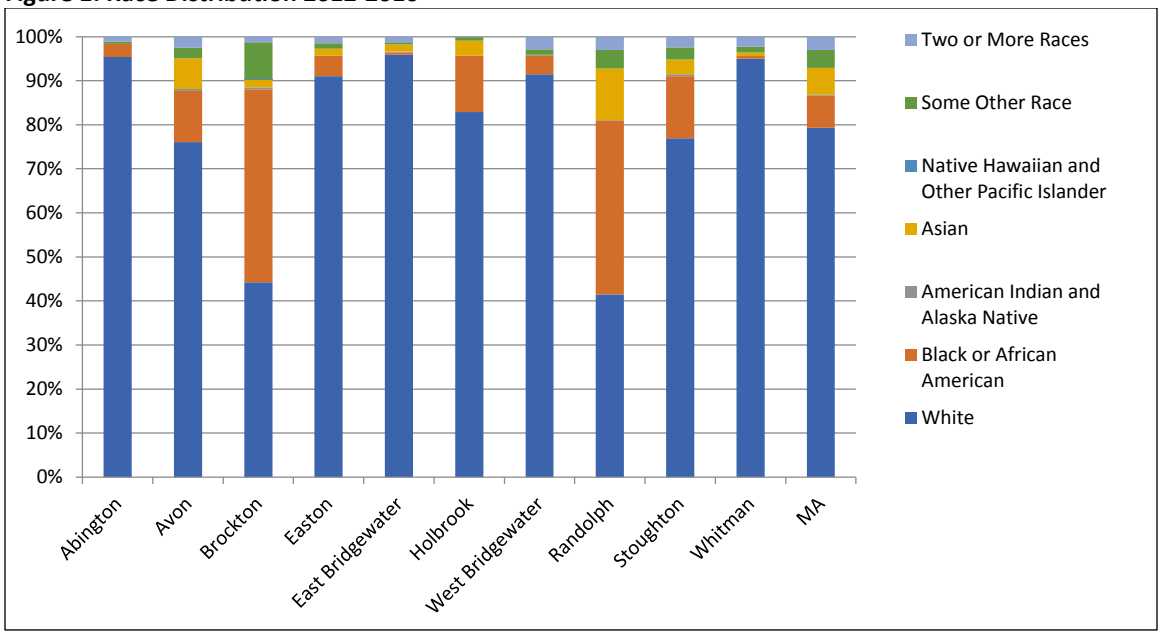
Demographics

There are three levels within the social environment that influence the population and drive community health outreach needs. They are interpersonal, community and societal. Across each level, 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).

Underserved Populations

Medically Underserved Areas (MUAs) and Medically Underserved Populations (MUPs) identify geographic areas and populations with a lack of access to primary care services. MUPs are specific sub-groups of people living in a defined geographic area with a shortage of primary care health services. These groups may face economic, cultural, or linguistic barriers to health care. Examples include, but are not limited to, those who are homeless, low-income, Medicaid-eligible, or recently immigrated to the U.S. from countries facing economic hardship due to war, famine, government oppression, and natural disasters (HRSA, 2018).

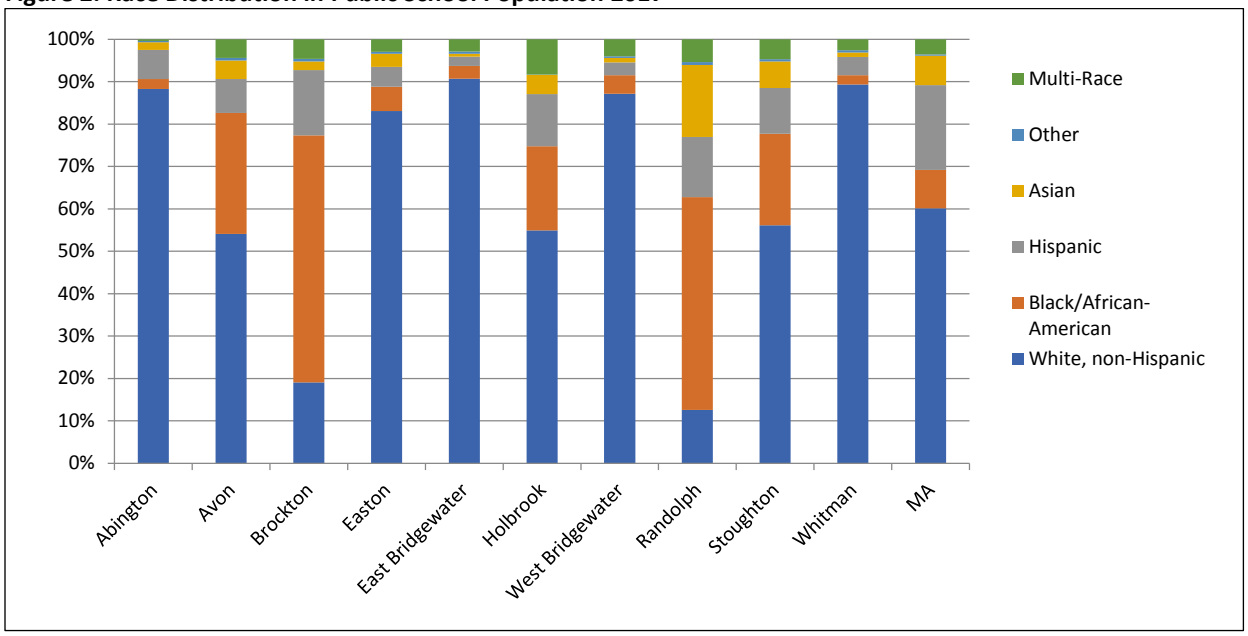
Figure 1: Race Distribution 2012-2016



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

Race distribution within the GSMC primary service area is distinctly different in Brockton and Randolph, Brockton reported that an estimated (44.1%) of the population identified as being Black/African American. Randolph reported (39.5%) of its population as being Black/African American. In comparison, the Black/African American population in the Commonwealth was estimated at (7.3%) during the same time period (2012 to 2016). Randolph and Avon also recorded a higher estimated percentage of its population identifying as Asian, Randolph with (11.7%) and Avon with (7%) of its population respectively, compared with (6.1%) of the state population estimated as identifying as Asian.

Figure 2: Race Distribution in Public School Population 2017



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

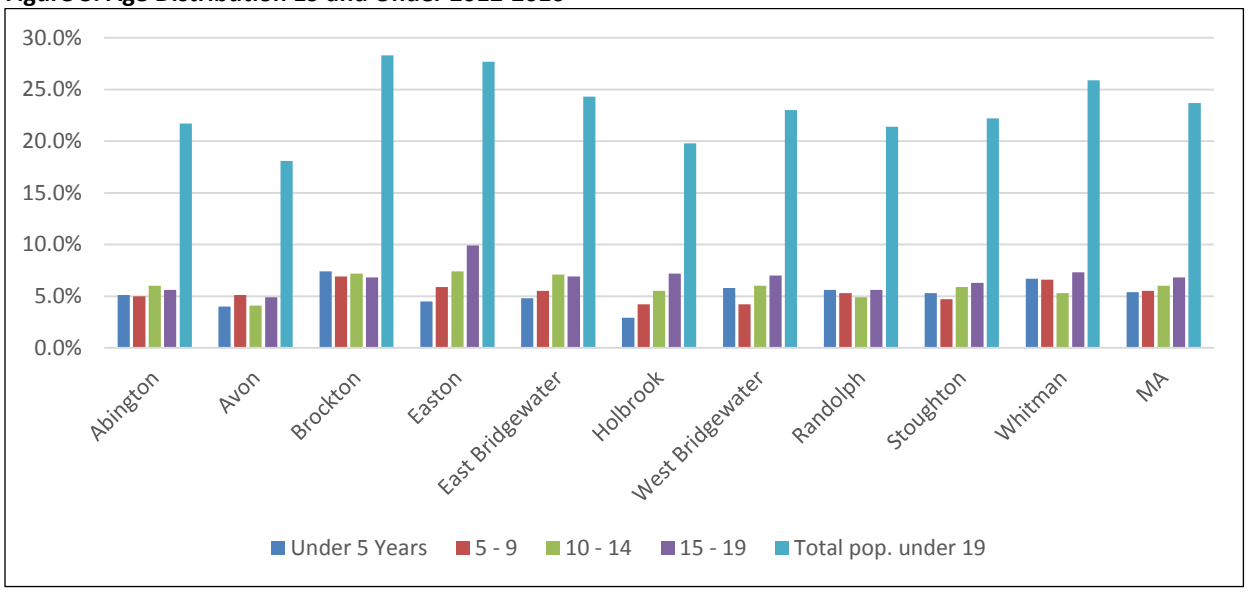
According to the Dept. of Elementary and Secondary Education, the race distribution in the public-school districts within the GSMC service area race varies. Five of the ten school districts are largely White (non-Hispanic), with East Bridgewater at (90.8%), Whitman with (89.3%) and Abington at (88.3%), compared with the Commonwealth, which recorded an estimated (60.1%) of its public-school population being identified as White. In contrast, public school enrollment data for Randolph showed only (12.6%) of its population was identified as White.

Additionally, Brockton (58.2%) and Randolph (50.2%) reported that over half of the public-school population identified as Black/African American, when compared to the state, which recorded only (9%) of the public-school population identifying as Black or African American. Stoughton also recorded a much larger percentage of public-school students identifying as Black/African American (21.5%) than that of the state.

No community in the GSMC service area reported a higher percentage of students identifying as Hispanic in the public-school population than that of the state at (20%). Within the GSMC primary service area, the largest population of students identified as Hispanics in the public-school system was in Brockton with (15.4%) followed by Randolph (14.2%) and Holbrook with (12.3%).

It appears that public-school populations within the GSMC primary service area are highly racially segregated. Brockton, Randolph, and to a lesser extent, Stoughton stand out as more diverse communities whereas the rest of the service area is much more homogeneous, at times even more so than the state. As previously noted, racial segregation, either intentional or not, can lead to an uneven distribution of resources given the historical impact of racist policies across the nation and within the Commonwealth.

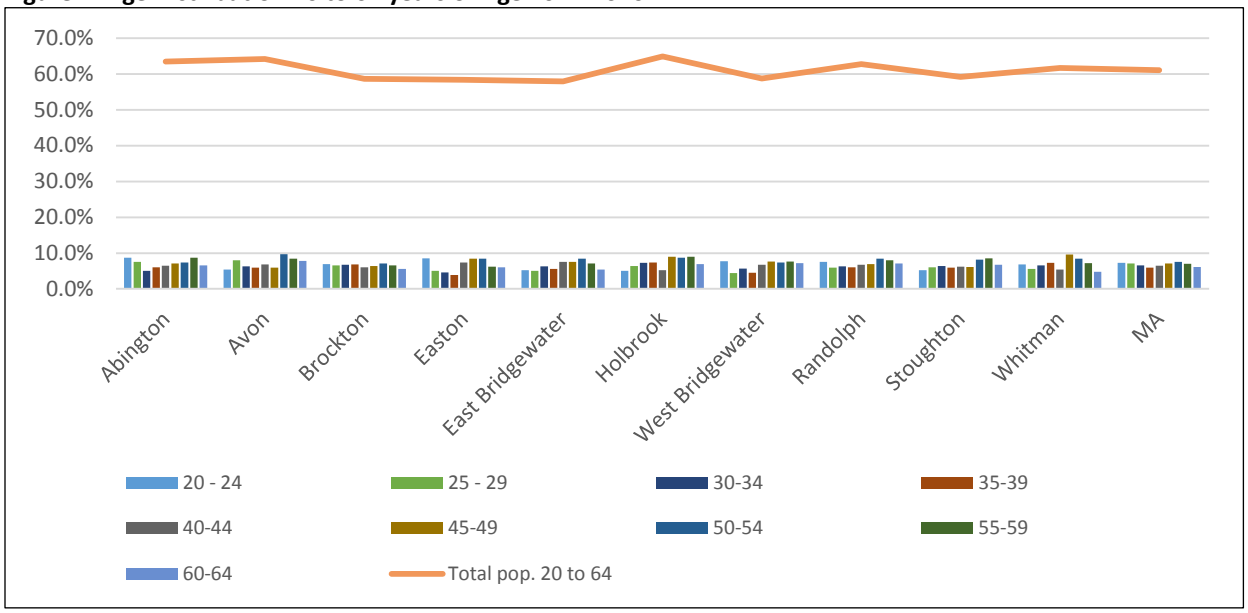
Figure 3: Age Distribution 19 and Under 2012-2016



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

Within the GSMC service area, Brockton had the highest estimated population under 19 years of age with this category making up an estimated (28.3%) of the population. Easton had the second highest population under 19 years of age at (27.7%), followed by Whitman at (25.9%). When each age category is combined across the service area, and including the state, those between 15 to 19 years of age made up the largest category of the population under 19 years of age with the estimated total of that population at (74.3%).

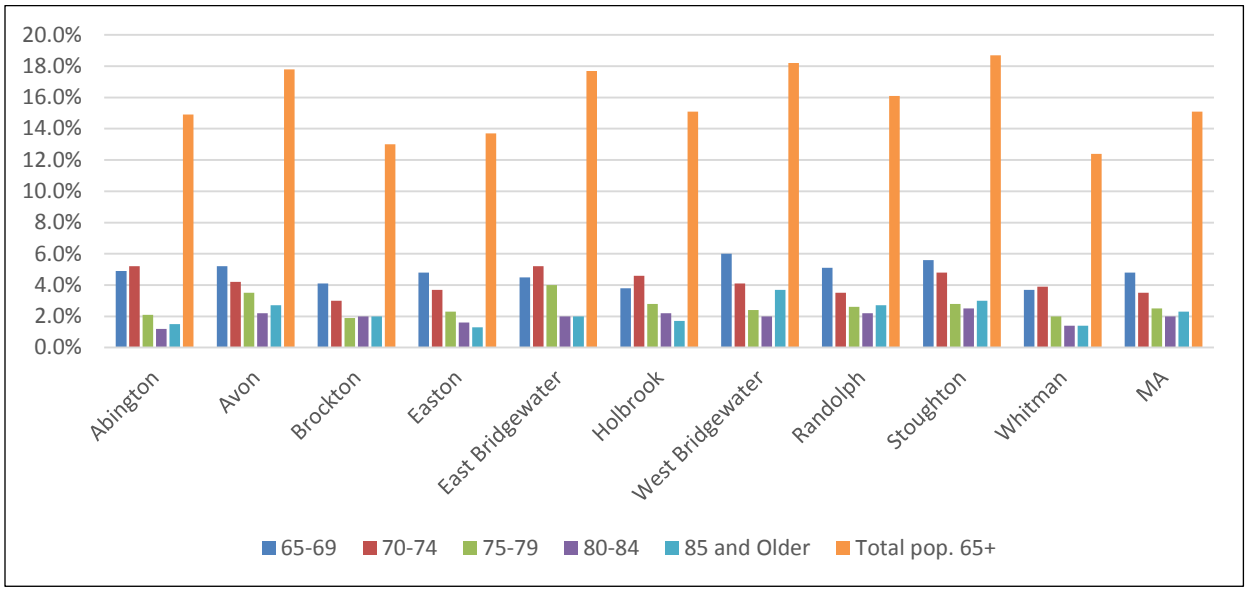
Figure 4: Age Distribution 20 to 64 years of Age 2012-2016



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

Across the GSMC service area, when observing the adult population age 20 to 64 years of age, it is noted that Holbrook reported the largest population of adults ages 20 to 64 at about (65%) of the estimated population. Avon recorded the second largest adult population in the same category at (64.2%) and Randolph the third at (62.8%). When the categories are combined across the service area and include the state, those 50 to 54 years of age make up the largest estimated segment of the adult population at (89.6%), followed by those 45 to 49 years of age at (81.6%).

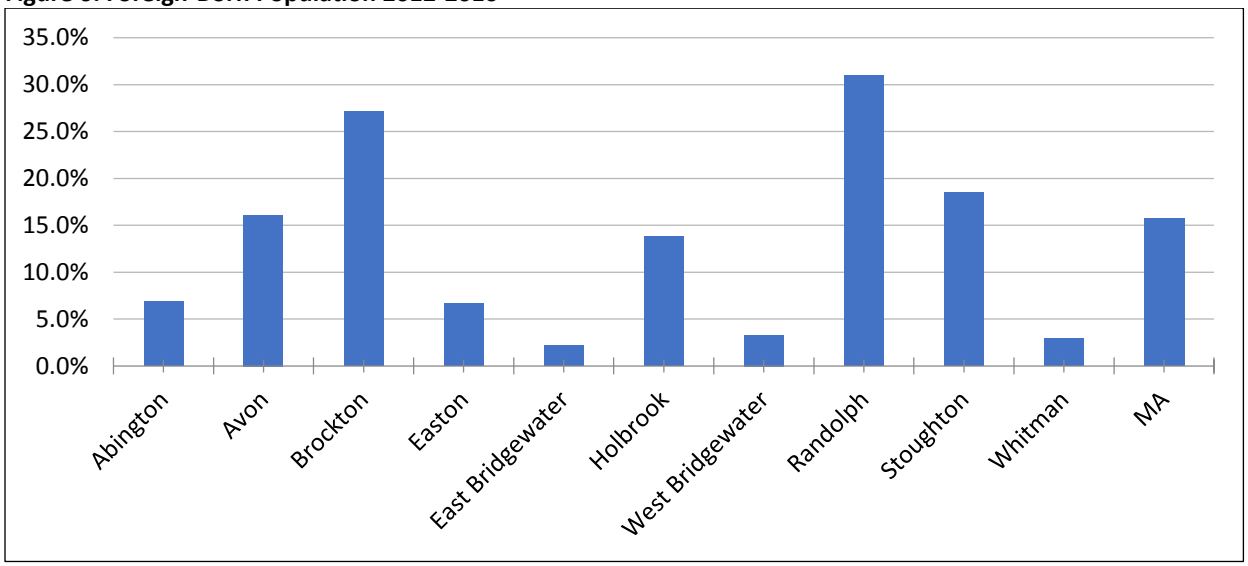
Figure 5: Age Distribution 65 and over 2012-2016



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

When observing the estimated age distribution of those 65 and over, Stoughton reported the largest percentage of its population falling within this category at (18.7%). West Bridgewater recorded the second largest estimated population over 65 years of age at (18.2%), followed by Avon at (17.8%). All of the communities noted above recorded a larger estimated percentage of the population 65 and over above the estimated state percentage for the same category, which was recorded at (15.1%). When combining age distribution categories across the GSMC service area, those 65 to 69 years of age make up the largest estimated segment of the over 65 population at (52.5%), followed by those between 70 to 74 years of age at an estimated (45.7%).

Figure 6: Foreign-Born Population 2012-2016



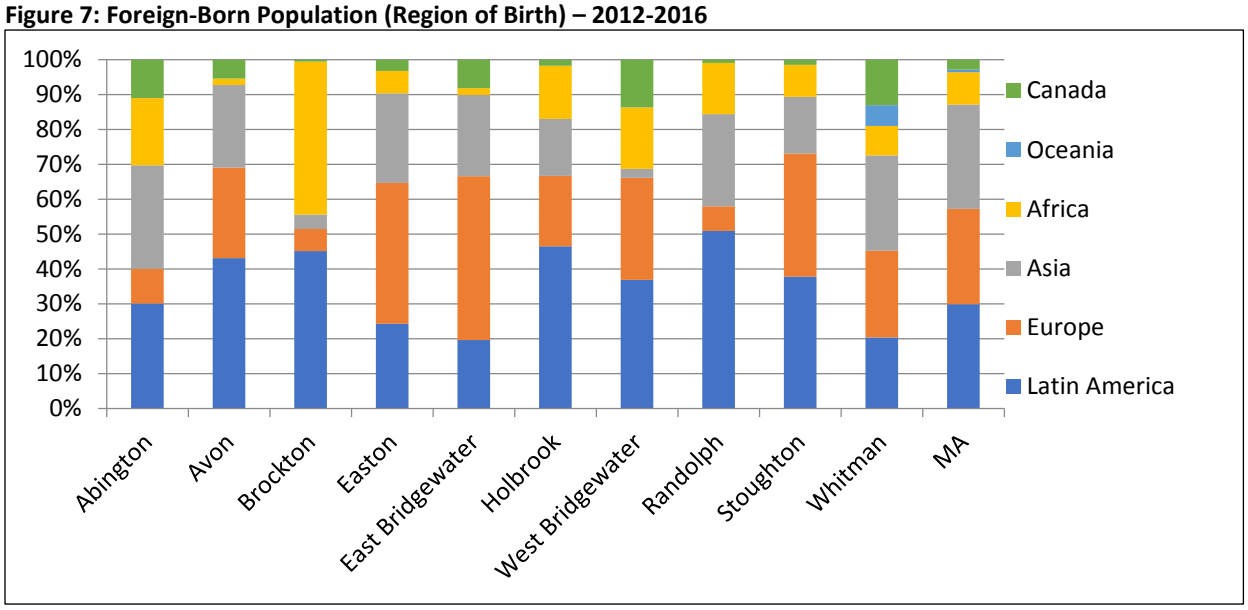
(Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

According to the U.S. Census Bureau, foreign-born is defined as anyone who is not a U.S. citizen at birth, e.g., naturalized U.S. citizens, legal permanent residents, temporary migrants, humanitarian migrants, and unauthorized migrants (U.S. Census, 2011).

It has been reported that the immigrant populations, either documented or undocumented, often face difficulties accessing the health care system either due to cost, health system policies which make accessing care unfeasible, fear of deportation or retaliation by government institutions, and racial bias (Derose, 2007). These challenges brought on by language barriers and cultural differences often make accessing services a daunting task. It is imperative to health systems to understand the size of the immigrant population within the service area and engage community leaders to identify steps that must be taken to remove barriers to care. If health systems are to truly improve health equity within the service area, the needs of foreign-born populations cannot be overlooked.

Within the GSMC primary service area, Brockton, Randolph and Stoughton stand out as having a significantly larger estimated foreign-born population in the 2012-2016 ACS. Randolph had the largest estimated population at (31%), followed by Brockton at (27.1%) and Stoughton at (18.5%). All three communities had an estimated foreign-born population above the state, which reported an estimated (15.7%) of its population as foreign-born during the same time period. East Bridgewater had the smallest estimated foreign-born population at (2.2%), followed by Whitman at (2.9%).

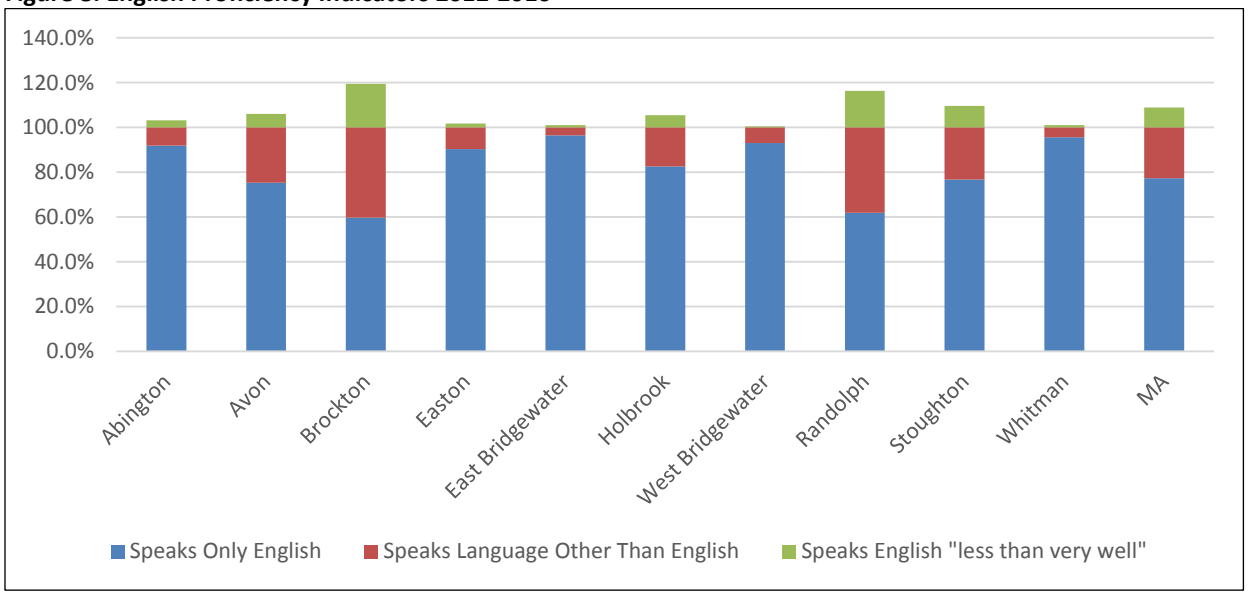
Figure 7: Foreign-Born Population (Region of Birth) – 2012-2016



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

Observing the 2012-2016 population estimates for country of origin, for the foreign-born population within the GSMC service area, it is noted that a majority of population originates from Latin America. The population estimates for those originating from countries in Latin American are highest in Randolph at (50.9%), Holbrook at (46.6%) and Brockton at (45.1%). These three communities had larger foreign-born populations originating from Latin American than the Commonwealth at (15.7%). The second leading region of birth for the foreign-born population, across the service area, was Europe with large populations in East Bridgewater at (47%), Easton at (40.3%) and Stoughton at (35.3%). Asia represents the region of birth with the third largest foreign-born population. Most noticeably, in Abington (29.8%) Whitman (27.4%) and Randolph at (26.4%). Comparatively, Massachusetts recorded an estimated foreign-born population originating from Asia at (15.7%). Brockton stands out within the service area with a much larger foreign-born population originating from Africa at (43.8%) of the foreign-born population, compared to just (4.9%) in Massachusetts.

Figure 8: English Proficiency Indicators 2012-2016



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

Some studies have shown that English language proficiency is linked to poor health literacy due to the extreme difficulty in understanding written medical information. Limited-English proficiency may carry greater health risk than low health literacy, though important racial/ethnic variations exist (Sentell, 2012). Across the GSMC service area, Brockton had the largest 2012-2016 estimated population of individuals that *"Speak a language other than English"* (40.2%), as well as *"Speak English less than very well"* (19.5%). Randolph followed with (38.1%) that "*Speak a language other than English"* and (16.3%) that *"Speak English less than very well."* Stoughton was the community with the third largest population following under the same categories with (22.7%) "*Speak a language other than English"* and (9.6%) that *"Speak English less than very well".*

The most common foreign languages in Plymouth County, where GSMC is located, are Portuguese (19,089 speakers), Spanish (11,498 speakers), and French Creole (10,487 speakers). (Data USA, 2016).

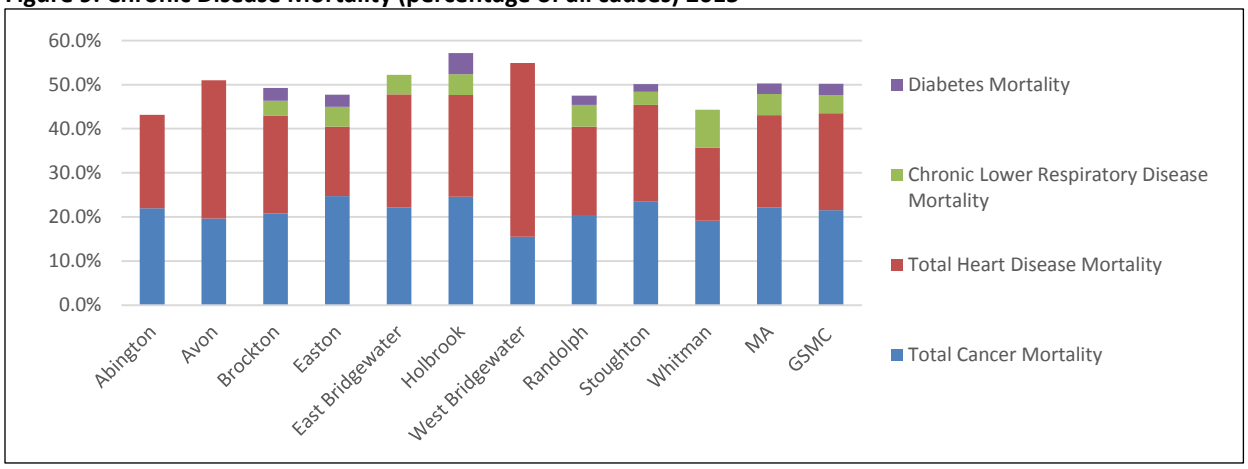
Chronic Disease

Prevention and treatment of chronic disease is a public health concern. Risks factors such as nutrition, the lack of physical activity, and tobacco use and exposure directly impact cancer, diabetes, chronic lower respiratory disease, and cardiovascular disease rates. These chronic conditions together contribute to 56% of all mortality in Massachusetts and over 53% of all health care expenses ($30.9 billion a year). Although the three leading risk factors are modifiable, the inequality of financial resources and the history of policies rooted in structural racism have resulted in environments that restrict access to healthy foods, safe spaces for physical activity, walkable communities, quality education, housing, employment, and health care services (MDPH, 2014).

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. Healthy people cannot exist in unhealthy environments. Because of this, MDPH frames its chronic disease prevention and wellness efforts around addressing the social determinants of health and focusing on policies that ensure that all individuals have the ability to make healthy choices (MDPH, 2017).

The methods of chronic disease management include 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, among other things, 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).

Figure 9: Chronic Disease Mortality (percentage of all causes) 2015



(SOURCE: Massachusetts Department of Public Health) Note: At the time of this report data was not available through DPH for: Diabetes Mortality (Abington, Avon, East Bridgewater, and West Bridgewater), Chronic Lower Respiratory Diseases Mortality (Abington, Avon, and West Bridgewater)

Across the GSMC primary service area, chronic diseases mortality account for a large portion of all mortality in the region. In Holbrook, West Bridgewater and East Bridgewater chronic diseases account for nearly (60%) of all deaths. Heart diseases and cancer were the leading cause of death among chronic diseases. It is significant that heart diseases were the number one lead of chronic diseases in majority of the towns, followed by cancer, chronic respiratory and diabetes.

It was noted in 2015, that heart disease mortality was quite prevalent in the GSMC service area. During this time period Avon (31.4%), Brockton (22.2%), East Bridgewater (25.7%), West Bridgewater (39.4%) and Stoughton (21.8%) registered a higher percentage of health disease mortality than the state at

(21%). Cancer was the second leading cause of death within the GSMC service area in 2015. Communities within the service area that registered a higher cancer mortality percentage as compared to the state at (22.1%) were Stoughton at (23.6%), Holbrook (24.6%), and Easton (24.7%).

Based on available data, in 2015 three communities within the GSMC service area recorded a higher percentage of diabetes mortality over that of the state at (2.4%). Brockton (2.9%), Easton (2.8%) and Holbrook (4.8%) all recorded a higher percentage of diabetes mortality above the state. In fact, Holbrook documented double the percentage of diabetes mortality than that of the state.

Based on the findings in the *Key Informant Survey* conducted on behalf of GSMC in which 102 health professionals responded, in response to the question, "*What do you perceive as the major health concerns of your consumers?*" health professionals ranked heart diseases and diabetes among their top concerns for patient health.

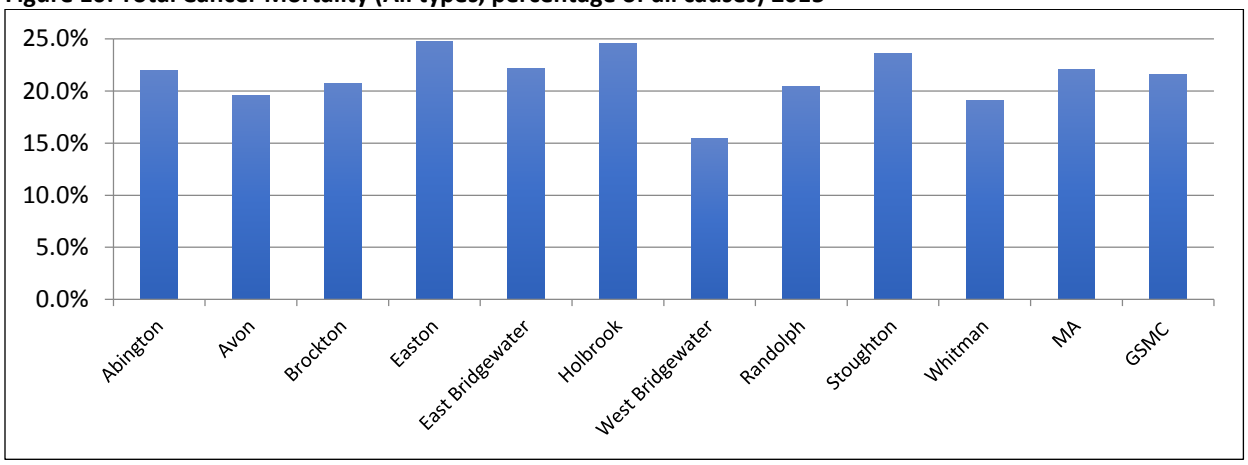
Cancer

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. The age-adjusted cancer incidence rate in Massachusetts was 471.1 per 100,000 population with men having 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).

Black non-Hispanic men and White non-Hispanic women had the highest incidence rate of all cancer types during this period. Across the Commonwealth, breast cancer among women and prostate cancer among men is most common. Lung cancer, colon cancer, and melanoma are 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).

Several socioeconomic factors contribute to the prevalence of cancer and/or late stage cancer diagnoses. Obesity, tobacco use, and tobacco exposure are leading risk factors for many cancers, including lung, colorectal and breast cancer. Additionally, lack of access to healthy foods, limited physical activity, and lack of access to smoking cessation services are also risk factors. 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).

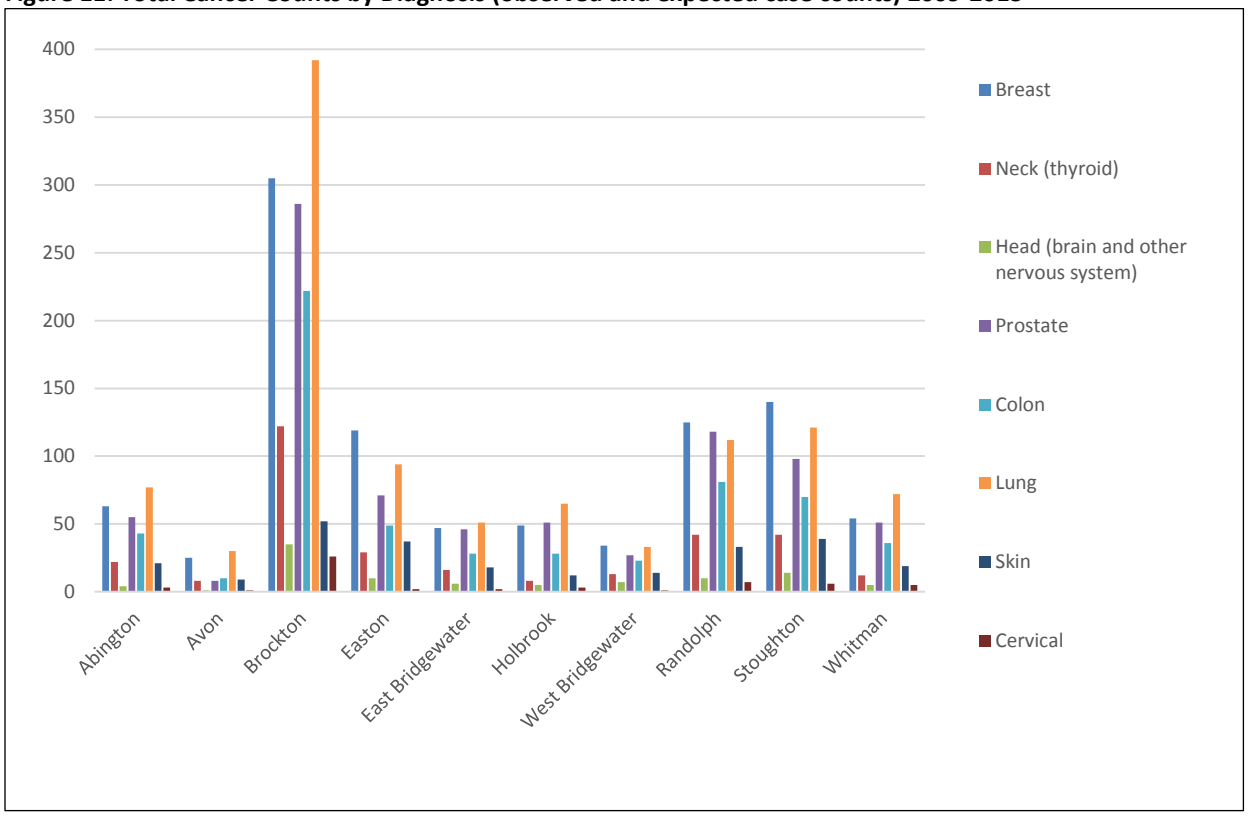
Figure 10: Total Cancer Mortality (All types, percentage of all causes) 2015



(SOURCE: Massachusetts Department of Public Health)

Cancer was the second leading cause of premature mortality in the GSMC service area. The total cancer mortality was greatest in Easton and Holbrook at (24.7%) and (24.6%) respectively. Abington (22%) and Stoughton (23.6%) also recorded a higher percentage of mortality due to cancer than the state at (22.1%). In general, when looking at the GSMC service area as a whole, the service area at (21.5%) was modestly below the state level. West Bridgewater recorded the least amount of cancer death as a percentage of all mortality at (15.5%).

Figure 11: Total Cancer Counts by Diagnosis (observed and expected case counts) 2009-2013



(Source: Massachusetts Department of Public Health)

As noted in (Fig.11) lung and breast cancer diagnosis were the most often diagnosed types of cancer within the GSMC service area. Breast cancer diagnosis appears as the second most frequently diagnosed type of cancer after lung cancer. Prostate cancer appears as the third most frequently diagnosed type of cancer within the GSMC service area. Brockton, Randolph and Stoughton recorded much higher diagnosis counts for the leading types of cancer diagnosed.

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. Hypertension is a critical risk factor for adverse cardiovascular and cerebrovascular outcomes, including stroke, heart attacks, and congestive heart failure. 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).

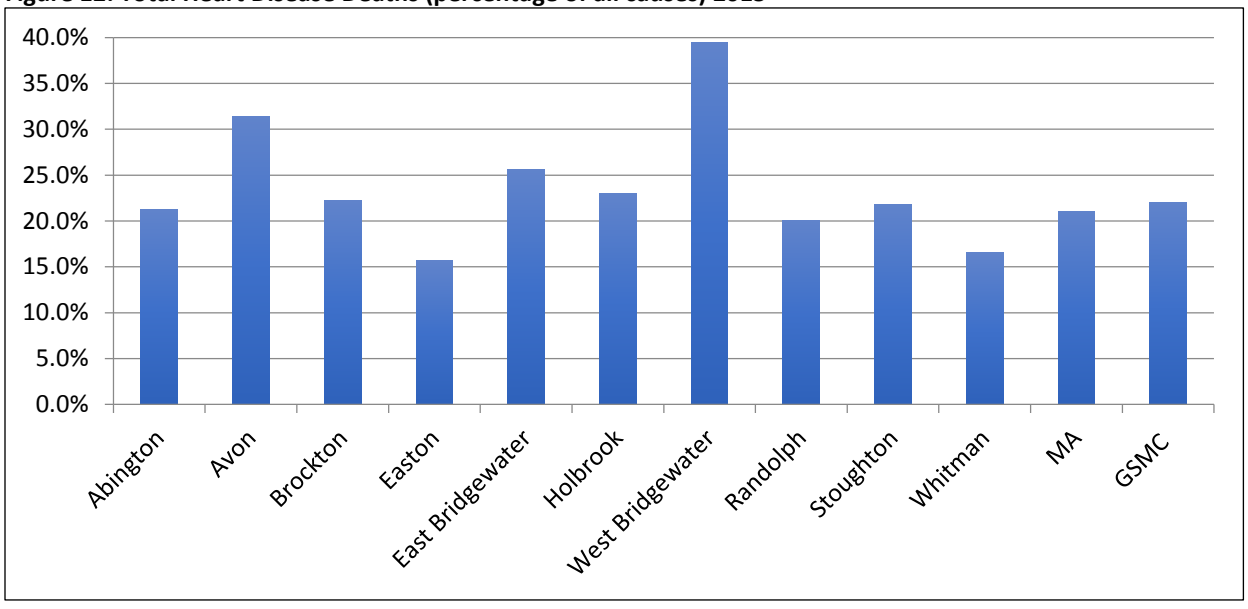
Close to 30% of Massachusetts adults said they had been diagnosed with hypertension, which has been reported to be similar to previous years. A larger percentage of Black non-Hispanic adults were diagnosed with hypertension (39.4%) compared to White non-Hispanic adults (30.7%). Racial/ethnic disparities in hypertension are likely an important contributing factor to hospitalizations for congestive heart failure, myocardial infarction, and stroke (MDPH, 2017).

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 rate 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).

Figure 12: Total Heart Disease Deaths (percentage of all causes) 2015



(Source: Massachusetts Department of Public Health)

In total, five communities in the GSMC primary service area had a higher percentage of heart disease mortality than the GSMC service area as a whole at (22.0%), which is above the state at (21%). West Bridgewater had the highest rate at (39.4%). Avon and East Bridgewater had the second and third highest percentage of deaths due to heart disease at (31.4%) and (25.7%) respectively. Heart disease was the leading cause of death in most towns within the GSMC service area.

Congestive heart failure can be debilitating and challenging for patients to manage. It is also expensive, amounting to $540 million in total hospitalization costs (Center for Health Information and Analysis, 2014). 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).

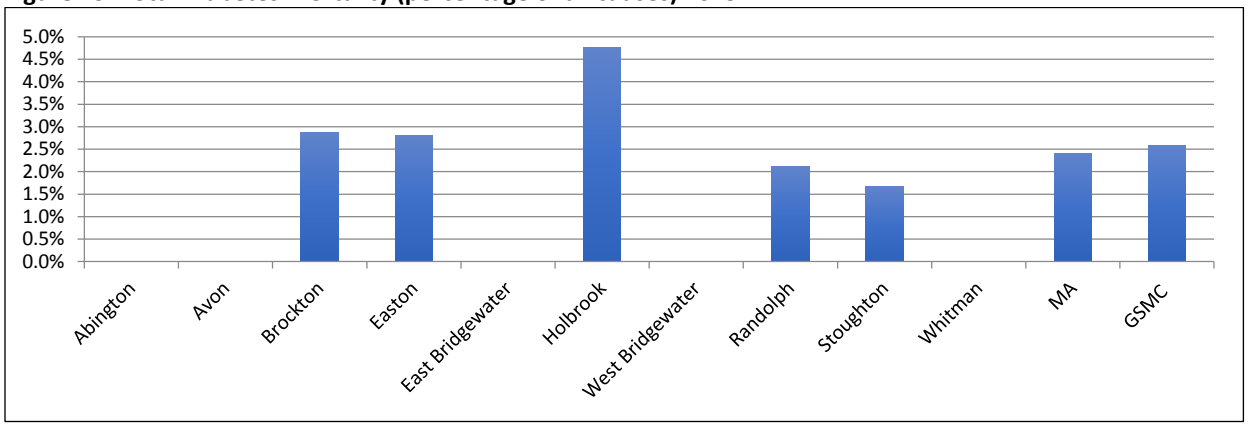
In 2014, the rate of hospitalizations attributed to congestive heart failure for Black non-Hispanic residents (520.5 per 100,000 population) was more than twice as high than that for non-Hispanic White residents (248.4 per 100,000 population). Similarly, Hispanic residents (400.7 per 100,000 population) were hospitalized for congestive heart failure at a rate that was 1.6 times higher than that for non-Hispanic White residents (248.4 per 100,000 population) (MDPH, 2017).

Diabetes

The prevalence of diabetes is projected to increase annually nationwide. Both type 1 and type 2 diabetes is anticipated to increase (54%) by 2030, affecting 54.9 million Americans. In Massachusetts, the prevalence of diagnosed diabetes has more than doubled over a 22-year period. For example, in 1993, an estimated (3.9%) of Massachusetts residents were diagnosed with diabetes. By 2015, the number diagnosed had increased to (8.9%). (MDPH, 2017).

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. The rate 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 higher education. Diabetes diagnosis 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 complications related to diabetes than White non-Hispanic residents (29.5 versus 13.8 per 100,000 population) (MDPH, 2017).

Figure 13: Total Diabetes Mortality (percentage of all causes) 2015



(Source: Massachusetts Department of Public Health) Note: At the time of this report, diabetes mortality data was not available for certain communities within the GSMC primary service area. As a result, the graph above does not display figures for all communities.

In 2015, when considering diabetes mortality as a percentage of all deaths in communities for which data was available, it is noted that Holbrook had the highest diabetes mortality at (4.8%). Across the state that same figure was (2.4%). Brockton at (2.9%) and Easton at (2.8%) also recorded a higher percentage of mortality cause by diabetes above the state figure. When averaging the percentage of diabetes mortality for the GSMC service area, where data was available the figure of (2.6%) emerges as slightly higher than the Massachusetts total at (2.4%).

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

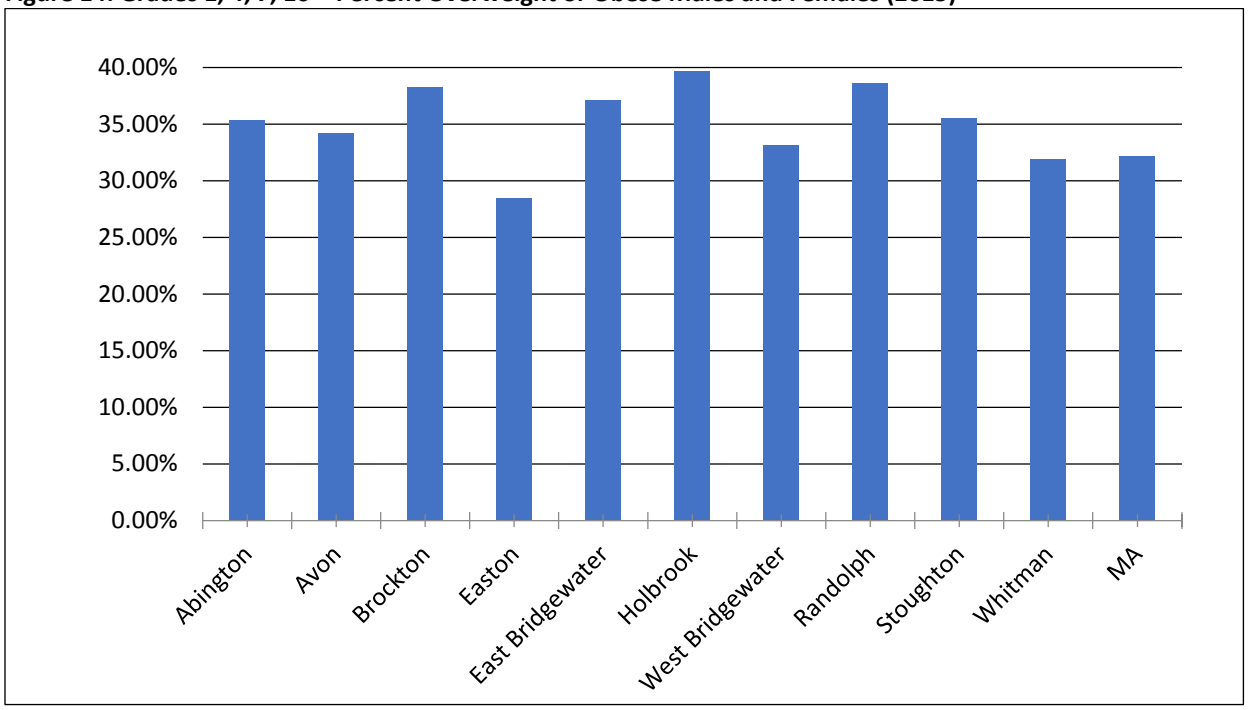
Obesity

Obesity is both a chronic disease and a risk factor for other chronic conditions. Overweight or obese people are more likely to have type 2 diabetes, cardiovascular disease, gall bladder disease, and musculoskeletal disorders. In addition, overweight and obesity are associated with asthma, some forms of cancer, 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 structural barriers to accessing healthy foods and beverages and opportunities to be physically active disproportionately affect people of color in the Commonwealth. As a result, not all Massachusetts residents have the same opportunities to prevent obesity (MDPH, 2017).

In 2015, nearly 60% of Massachusetts adults met the criteria for being overweight and (24.3%) were obese. Overweight is defined as having a body mass index (BMI) of 25.0 to 29.9. Obesity is defined as a BMI greater than or equal to 30. Both conditions are linked to poor nutrition and inadequate physical activity. There has been a shift in the leading cause of death over the past 50 years from acute conditions to chronic diseases. Given the tie between obesity and so many other chronic diseases, the need to address obesity is a public health imperative to control morbidity and mortality as well as ballooning health care costs in an aging population (MDPH, 2017).

Massachusetts is ranked as the fifth worst U.S. state for the prevalence of obesity among children enrolled in the Women, Infant and Children (WIC) program who are two to four years old. A child being overweight is defined as a body mass index (BMI) at or above the 85th percentile for age. Childhood obesity is defined as BMI at or above the 95th percentile expected for age. As in adults, child obesity is linked to poor nutrition and inadequate physical activity; and inequities persist across socioeconomic status and race/ethnicity. BMI screening reports conducted by school districts indicate that the prevalence of overweight and obesity decreased 2.1 percentage points from 2009 (34.3%) to 2015 (31.3%). However, this reduction in was not shared evenly across all school districts. Between 2009 and 2014, school districts with median household incomes greater than $37,000 experienced significant improvements. However, the prevalence of those overweight or obese for the poorest school districts (less than $37,000 median household income) did not change and remained the highest across the state with approximately 40% of students being overweight or obese (MDPH, 2017).

Figure 14: Grades 1, 4, 7, 10 – Percent Overweight or Obese Males and Females (2015)



(Source: Massachusetts Department of Public Health)

In 2015, the percentage of youth that were identified as being either overweight or obese in grades 1, 4, 7, and 10 was larger in eight communities within the GSMC service area than the state at (32.2%). Most notably, Holbrook had the highest percentage at (39.7%) followed by Brockton at (38.3%) and Randolph at (38.60%) as noted in (Fig.14). Easton had the lowest percentage of youth that were overweight or obese at (28.5%). It is also worth noting that the Easton community had a 2016 median household income of ($104,961), well above the median household income in the state at ($75,297) during the same time period. As it has been previously noted, household income has been correlated with increased incidence of overweight and obesity.

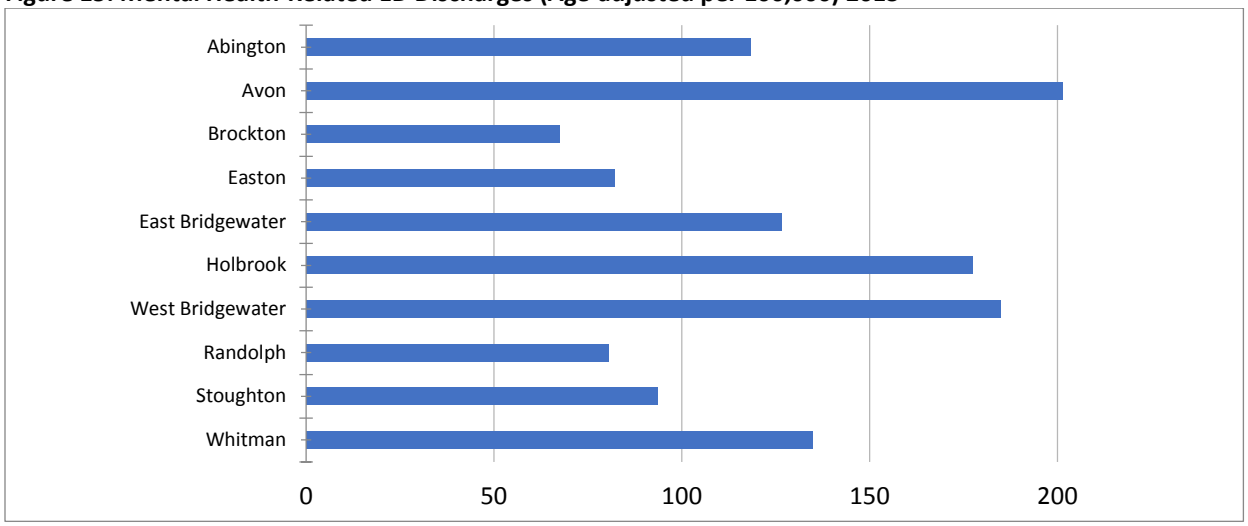
Mental Health

Impaired mental health is common in the United States general population. In 2015, nearly 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, higher than the percentages from 2004-2014. Between 1999 and 2014, the overall suicide rate in the U.S. rose by (24%) to 13.0 per 100,000 population. In 2015, the overall suicide rate was (13.3). 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).

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 early death (SAMHSA, 2016).

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. 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).

Figure 15: Mental Health-Related ED Discharges (Age-adjusted per 100,000) 2013



(Source: Massachusetts Department of Public Health)

The prevalence of mental health disorders in the region can be observed in the rate of mental health visits to emergency departments. As noted in (Fig.15) within the GSMC service area, Avon, West Bridgewater and Holbrook had the highest rates of emergency department discharges for mental health with (201.42 per 100,000), (184.81per 100,000) and (177.3 per 100,000) respectively. Randolph and Brockton recorded the least amount of mental health-related ED discharges in 2013.

Substance Use Disorder

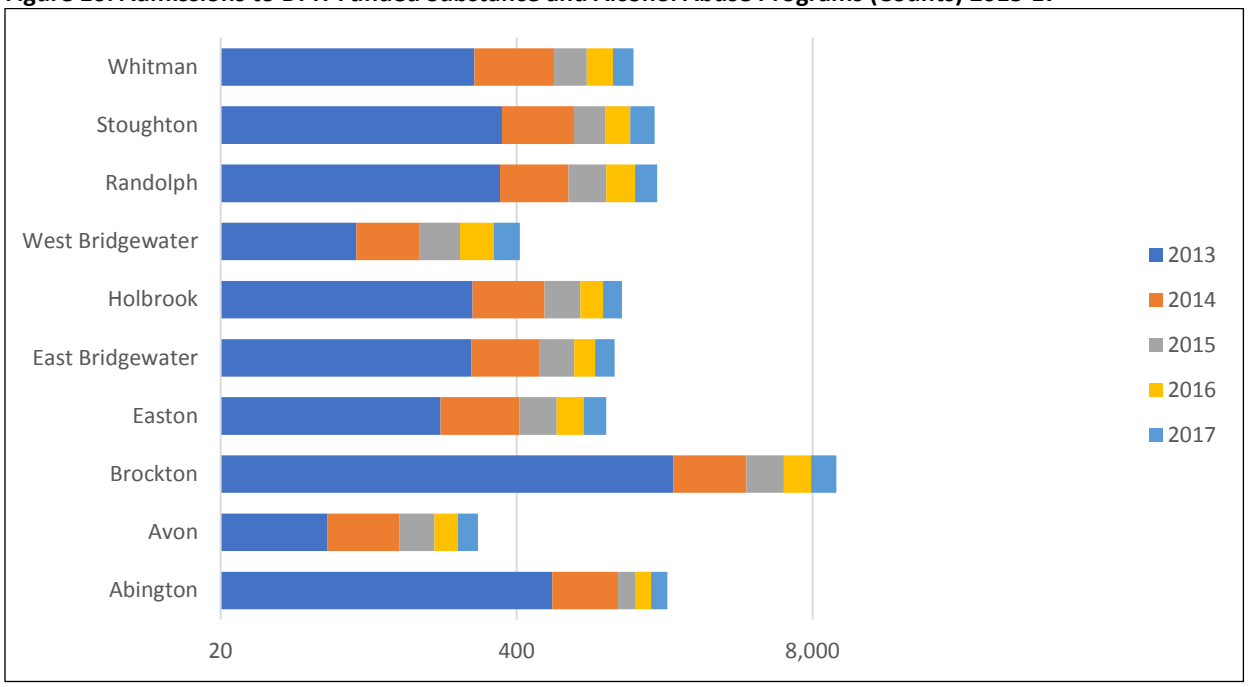
According to the National Survey on Drug Use and Health (NSDUH), in 2015, an estimated 27.1 million people in the U.S. aged 12 and older used illicit drugs in the past month. Of these, a majority (22.2 million) reported using marijuana and 3.8 million misused prescription opioids (SAMHSA, 2015). During the same survey period, an estimated 20.8 million, approximately 1 in 10 people needed substance use treatment (e.g., treatment for problems related to the use of alcohol or illicit drugs) of this population, 10.8 percent received treatment (SAMHSA, 2016). In the 2013 to 2014 NSDUH, (6.7%) of Massachusetts residents 12 years of age or older met the criteria for dependence or abuse of alcohol and (3%) met the criteria for dependence or abuse of illicit drugs. From 2002 to 2015, there was a 2.2-fold national increase in the total number of deaths from all drug overdoses (National Institute on Drug Abuse, 2017).

Each year in the U.S., more than 2,200 overdose deaths are due to alcohol and 5,415 deaths are attributed to cocaine/crack. Drug overdose deaths also occur as a result of the illicit manufacturing and distribution of synthetic opioids, such as fentanyl, and the illegal distribution of prescription opioids. In 2014, there were 17,465 overdoses from illicit drugs and 25,760 overdoses from prescription drugs in the U.S. 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, U.S. overdose deaths totaled 52,404, including 33,091 (63.1%) that involved an opioid (CDC, 2016).

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. Substance misuse can also impact one's social determinants of health, such as employment, income, social network, and housing (BPHC, 2017).

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 to 100 times the potency of morphine, increased from (32%) during 2013 to 2014 to (74%) in the first half of 2016 (MDPH, 2017).

Figure 16: Admissions to DPH-Funded Substance and Alcohol Abuse Programs (Counts) 2013-17



(Source: Massachusetts Department of Public Health, Bureau of Substance Abuse Services)

Based on the available data Brockton appears to have had the highest rate of admissions to DPH-funded substance and alcohol abuse programs from 2013 to 2017. Stoughton, Randolph and Abington consecutively had the following highest admission rates to DPH funded programs. There appears to have been a sharp decline in admission to such programs from 2013 to 2014. Admission to such programs appear to have continued to decline from 2014 to 2017.

Alcohol

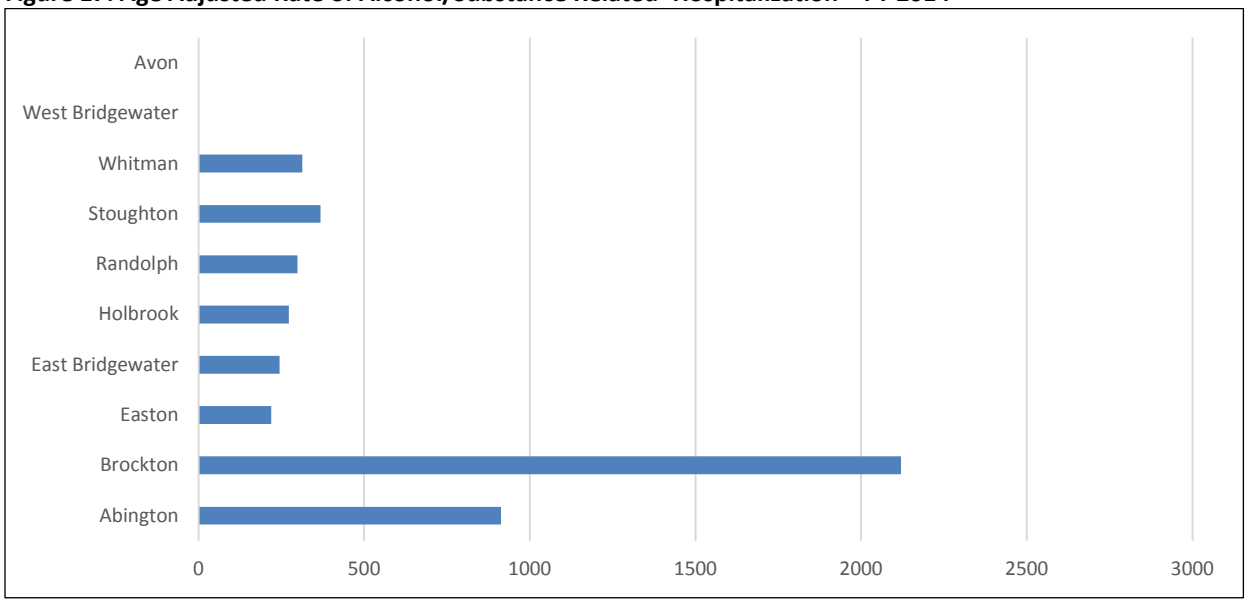
Alcohol is also the most prevalent substance used in the past month by Massachusetts residents 18 to 25 years of age. In 2013 to 2014, (70.2%) of Massachusetts young adults reported using alcohol in the past month and (43.9%) reported binge drinking in the past month, exceeding national averages for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

The number of Bureau of Substance Abuse Services (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).

Rates of substance use and misuse vary by demographics and geographic factors. Variations across population groups are shaped by several factors, including biological, genetic, psychological, familial, religious, cultural, and historical circumstances.

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).

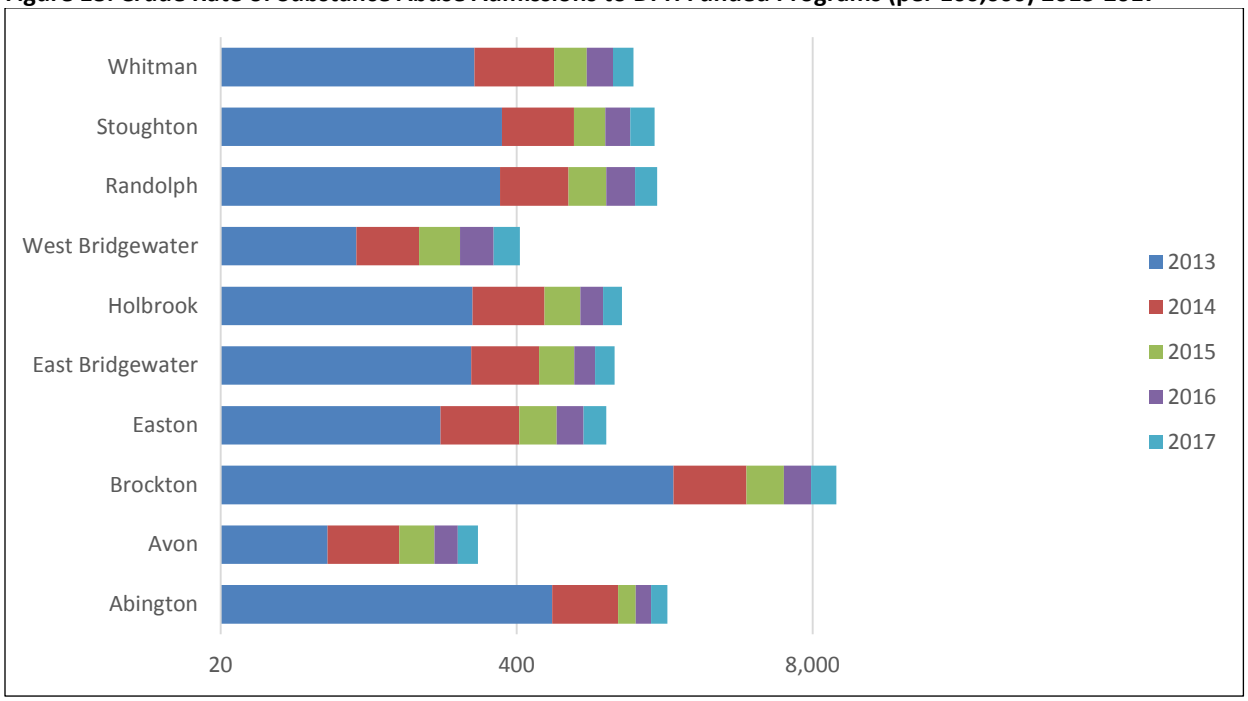
Figure 17: Age Adjusted Rate of Alcohol/Substance Related- Hospitalization – FY 2014



(Source: Massachusetts Department of Public Health - Bureau of Substance Abuse Services FY 2014) Note: At the time of this report, data for Avon and West Bridgewater was not available.

Brockton reported the highest count (2,120) of hospitalizations due to alcohol/substance abuse followed by Abington (913), Stoughton (368), Whitman (313), Randolph (299), Holbrook (273), East Bridgewater (245) and Easton, which recorded the least amount. Easton (220) has the lowest number of hospitalizations due to alcohol/substance abuse.

Figure 18: Crude Rate of Substance Abuse Admissions to DPH Funded Programs (per 100,000) 2013-2017

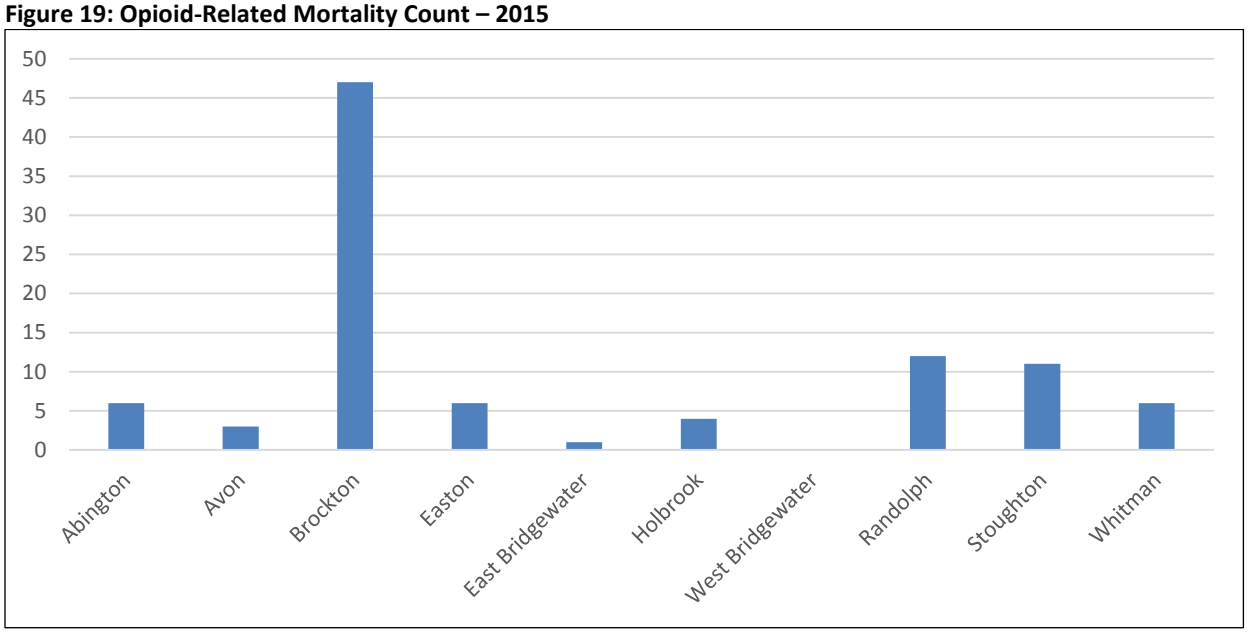


(Source: Massachusetts Department of Public Health, Bureau of Substance Abuse Services)

As noted in (Fig.18), Brockton had the highest crude rate of substance abuse admissions to DPH funded programs (per 100,000) between 2013 through 2017. Abington reported the second highest crude rate over that span of time followed by Stoughton and Randolph.

According to the data collected through the Key Informant Survey, health professionals that responded to the survey identified substance abuse (60.78%) in response to the question, *"What do you perceive as the major health concerns of your consumers."* Furthermore, when prompted with the question, "*In your opinion, what are the major health concerns in the community where you provide services?"* an even larger percentage of health professionals (67.65%) chose substance abuse as their top response.

Figure 19: Opioid-Related Mortality Count – 2015



(Source: Massachusetts Department of Public Health)

Within the GSMC primary service area, Brockton reported the highest number of deaths attributed to opioid overdose in 2015, reporting a total of 47 deaths. Randolph recorded the second largest number of opioid related death with 12 and, Stoughton the third with 11 opioid related deaths. West Bridgewater recorded the least with under 0 opioid related mortalities.

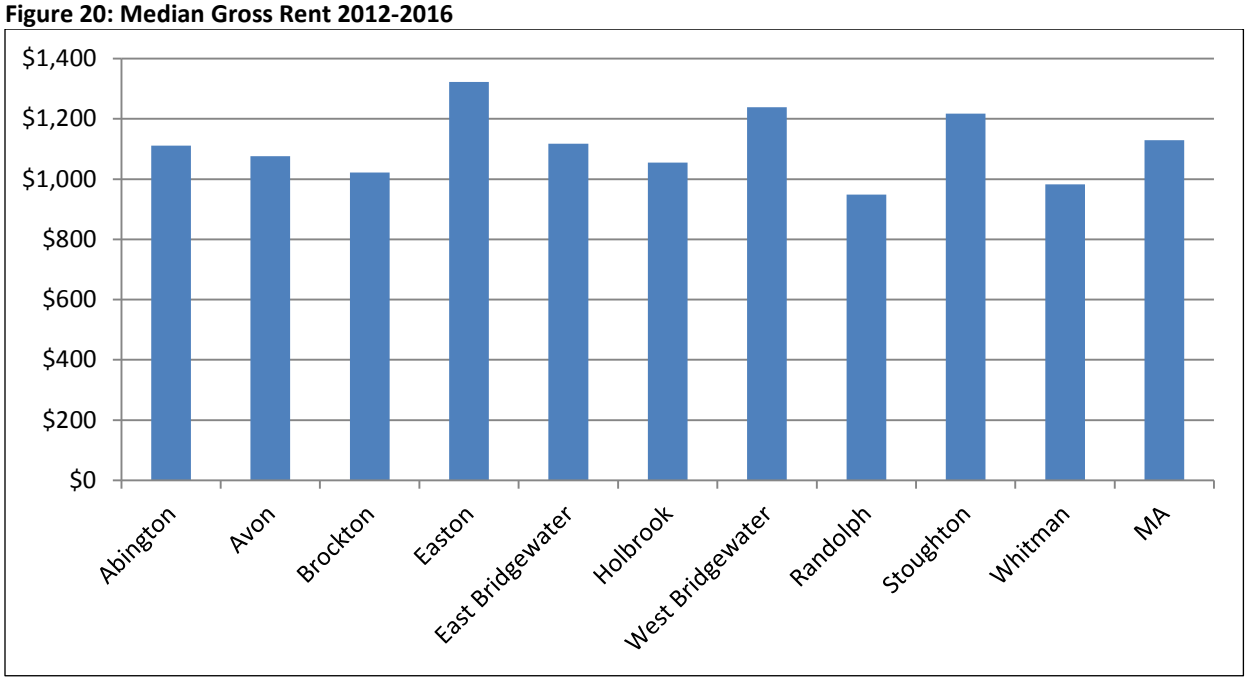
Intervention is an important component of a continuum of services to address substance use disorder. Individuals who have low levels of alcohol and/or drug use and would benefit from prevention and safety messages. Individuals who exhibit a greater degree of SUD and experience problems associated with 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).

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).

As our population grows older, our world class educational institutions and thriving technology companies continue to attract young professionals while simultaneously leaving the state ill prepared to meet the housing needs of a rapidly changing demographic. Baby Boomers (those born between 1946 and 1964) made up (50%) of the state's labor force in 2010. It is expected that 1.4 million boomers will retire or move out of state by 2030, depleting the supply of our most critical asset: a skilled, well-educated workforce. Thus, housing production is an economic imperative for the Commonwealth (MA Legislature, 2016).

Figure 20: Median Gross Rent 2012-2016



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

Several communities within the GSMC service area had median gross rent estimated to be higher than the Commonwealth during 2012 to 2016. Those communities were Easton at ($1,323), the highest in the service area, followed by West Bridgewater at ($1,239) and Stoughton at ($1,217). The median gross rent for the Commonwealth during the same time period was set at ($1,129). Randolph was estimated to have had the lowest median gross rent at ($949) during the same time period.

Housing Solutions for Southeastern Massachusetts has noted that this region, and Massachusetts in general, has suffered from a chronic undersupply of affordable housing for low and moderate income earners (Housing Solutions of Southeastern Massachusetts, 2018). As an example, the website www.rentdata.org, which uses the Fair Market Rents (FMR) set by the Department of Housing and

Urban Development (HUD), noted that rent in Brockton, MA HUD Metro FMR Area (2019), is very high ($1475) for a two-bedroom apartment, compared to the national average.

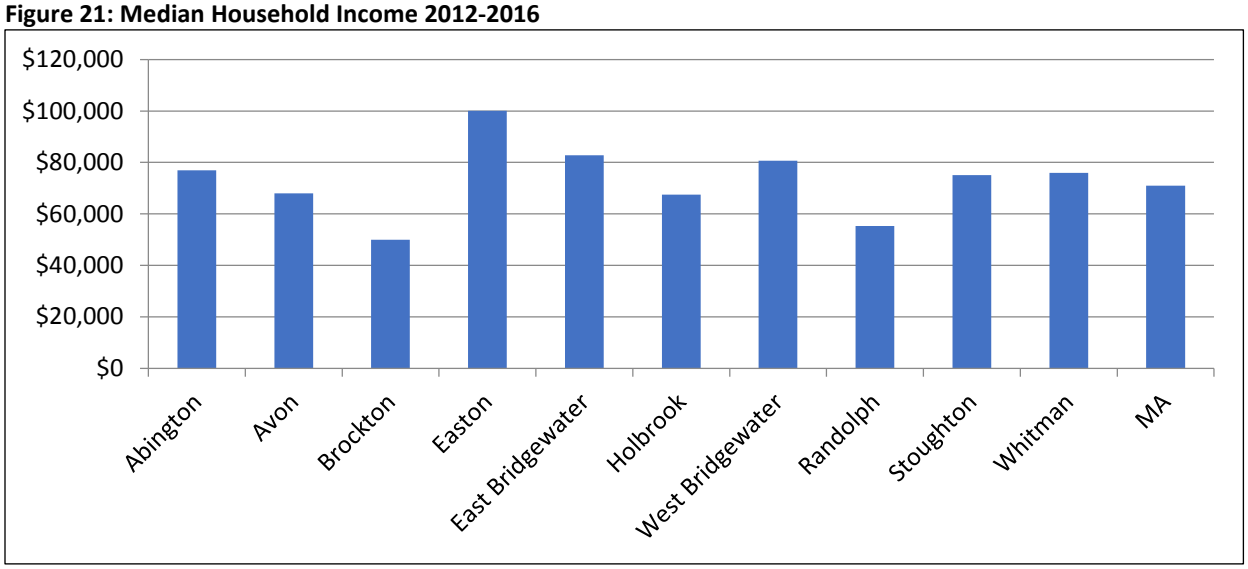
The website notes that this Fair Market Rent area is more expensive than 97% of other FMR areas. FMRs are used to determine standard payment amounts for Section 8 housing, Housing Choice Voucher program, and other government housing assistance programs. FMR prices are the 40th percentile rates in an area. The 50th percentile would be the median price (RentData.org , 2018).

Homelessness

A report by the *National Low-Income Housing Coalition* details how low wages and high rents lock renters out in Massachusetts and all across the country. For 2017, the Massachusetts statewide housing wage is $27.39/hour, meaning that a worker would have to earn that amount per hour in order to afford the fair market rent for a 2-bedroom apartment ($1,424/month), without having to pay more than 30% of their income toward rent. The housing wage is based on a worker working 40 hours/week, 52 weeks/year. For 2016, it was $25.91 and for 2015, it was $24.64/hour. Massachusetts ranked as the 6th least affordable area state in the country, when looking at the 50 states and Washington, D.C. (MCH, 2018).

Poverty contributes heavily to homelessness. According to the U.S. Census Bureau's 2015 American Community Survey report (released in October 2016), the overall poverty rate in Massachusetts was just under 11.5% in 2015. This includes an estimated 752,071 people in Massachusetts living in households that fell below the poverty threshold. This estimate includes 202,513 children under the age of 18 and 92,468 elders age 65 and older. 355,730 people were living in households with incomes under 50% of the federal poverty guidelines (MCH, 2018).

Figure 21: Median Household Income 2012-2016



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

Based on (Fig.21), the median household income in the Commonwealth was $70,954. Though most communities within the GSMC primary area recorded a median household income above that figure, a few communities reported median household income below the state median. Most notably the city of Brockton, which recorded a median household income of just $49, 956 during the same time period, well below the state average. Brockton was followed by Randolph at $55,322 and Holbrook at $67,508. These figures are troubling particularly as we note the rising cost of living in the Commonwealth as well as the noted most recent Fair Market Rent (FMR) for the city of Brockton.

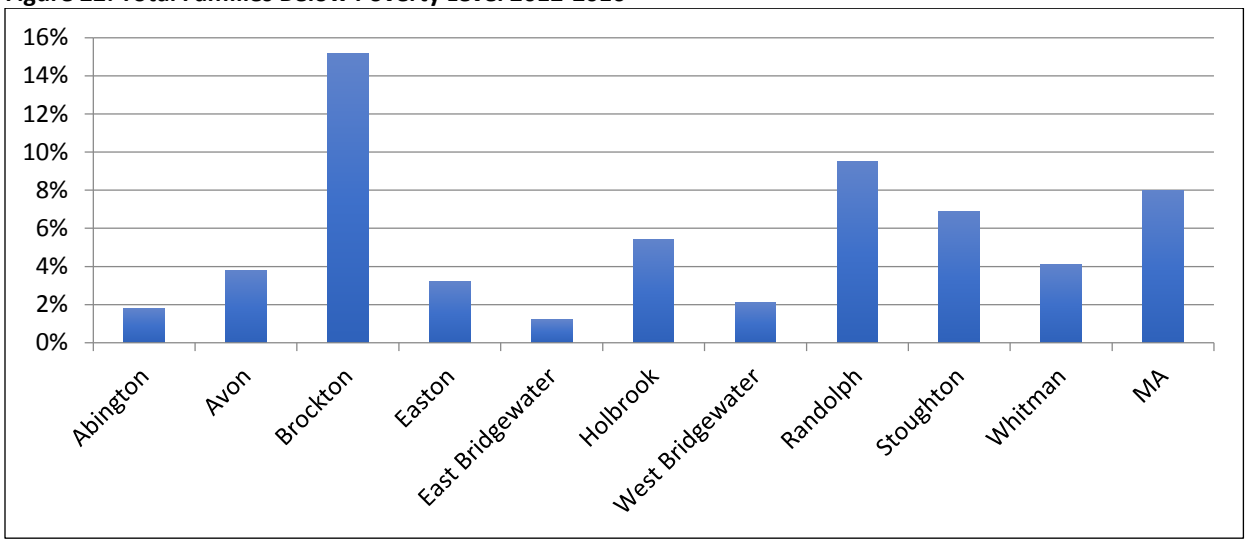
Poverty

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 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).

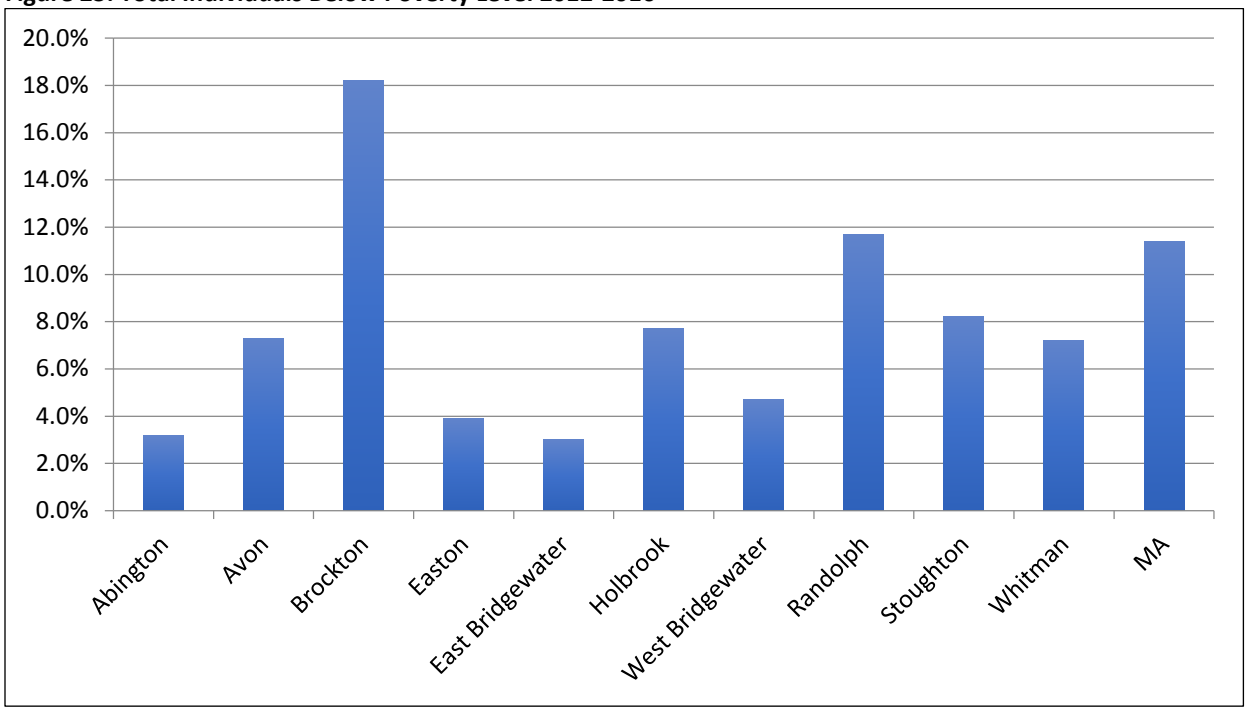
Figure 22: Total Families Below Poverty Level 2012-2016



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

Not surprisingly, given the median household income in the city of Brockton noted above, Brockton recorded the highest percentage of families below the poverty level at (15%) in the 2012 to 2016 ACS five-year estimates. Brockton was followed by Randolph with (10%) of families estimated to be living below poverty. Both communities were above the state median during the same time period, which was recorded at (8%). It is worth noting that Stoughton was just one percentage point away from the state median reporting (7%) of families living below poverty.

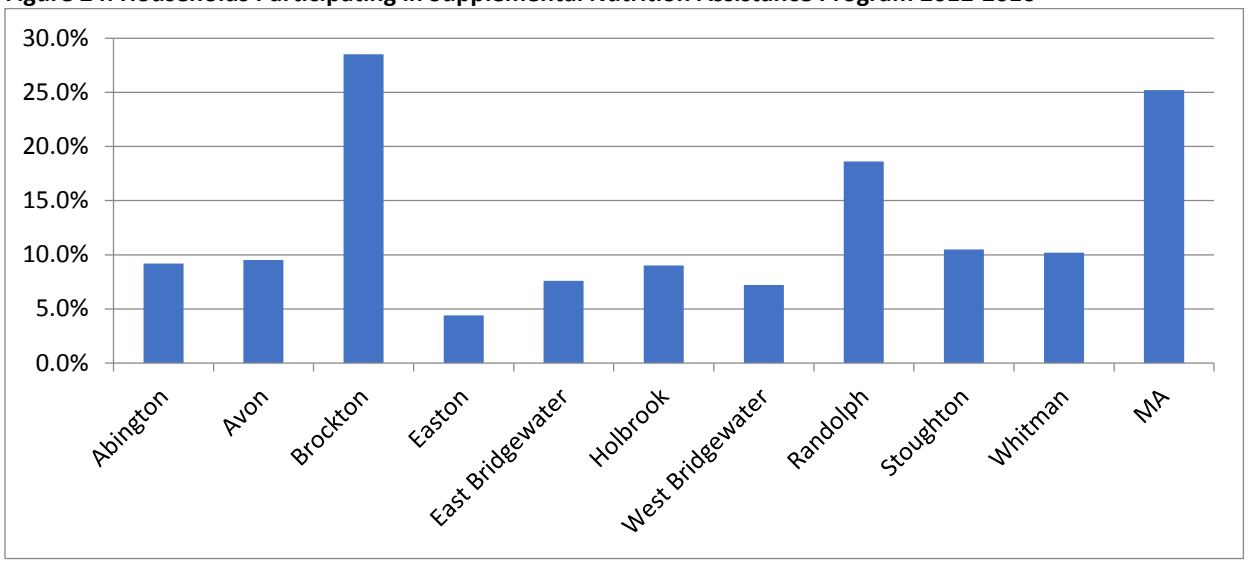
Figure 23: Total Individuals Below Poverty Level 2012-2016



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

The trend of communities most hard hit by poverty, noted above, continues for the percentage of total individuals below poverty level. Brockton recorded the highest percentage at (18.2%), followed by Randolph at (11.7%), both above the state, which reported (11.4%) of individuals below the poverty level. A striking difference can be observed in other communities within the service area, notably East Bridgewater (3%), Abington (3.2%) and Easton (3.9%), all well below the state percentage.

Figure 24: Households Participating in Supplemental Nutrition Assistance Program 2012-2016



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

Given the levels of poverty in the communities noted in this section, the trend in households participating in supplemental nutrition assistance programs is not surprising. Brockton reported an estimated (28.5%) of households participating in such programs, this figure is above the state which recorded (25.2%) of households participating in supplemental nutrition programs. Randolph recorded the second highest percentage at (18.6%), though notably below the state figure.

Recommendations

Good Samaritan Medical Center 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 Disease**
    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, as noted in *The Attorney General's Community Benefits Guidelines for Non-Profit Hospitals* released February 2018, GSMC 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.

GSMC will continue to foster collaborative partnerships with other community-based organizations whose services align with the aforementioned priorities and focus issues. Particular consideration will be given to how strategies impact the lives of the underserved populations identified within the GSMC service area. GSMC recognizes the effectiveness of working together toward the common goal of improving health outcomes among all community members, particularly for underserved populations. Where it is deemed appropriate, GSMC will coordinate with regional public health organizations to ensure our success in addressing community health issues.

Chronic Diseases

Cancer

Several socioeconomic factors contribute to the prevalence of cancer and/or late stage cancer diagnoses. Obesity, tobacco use, and tobacco exposure are leading risk factors for many cancers, including colorectal and breast cancer. Additionally, lack of access to healthy foods, limited physical activity, and lack of access to smoking cessation services are also risk factors. 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).

Cancer was the second leading cause of premature mortality in the GSMC service area. The total cancer mortality was greatest in Easton and Holbrook at (24.7%) and (24.6%) respectively. Abington (22%) and Stoughton (23.6%) also recorded a higher percentage of mortality due to cancer than the state at (22.1%).

In general, when looking at the GSMC service area as a whole, the service area at (21.5%) was modestly below the state level. West Bridgewater recorded the least amount of cancer deaths as a percentage of all mortality at (15.5%).

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 particular attention to lung, prostate and breast cancer.
- Offer a smoking cessation program support group and consider expanding cessation support groups to other community organizations.
- 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

In total, in 2015, five communities in the GSMC primary service area had a higher percentage of heart disease mortality than the GSMC service area as a whole at (22.0%); itself modestly above the state at about (21%). West Bridgewater had the highest percentage of heart disease mortality at (39.4%). Avon and East Bridgewater respectively had the second and third highest percentage of deaths due to heart disease within the service area in 2015 at (31.4%) and (25.7%) correspondingly. It is worth noting that heart disease was the leading cause of death in most towns within the GSMC service area.

In 2015, 29.6% of Massachusetts adults said they had been diagnosed with hypertension, similar to previous 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. 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).

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.

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 health care workers for cardiac education and CPR certification.

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. 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.

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 2015, when considering diabetes mortality as a percentage of all deaths in communities for which data was available, it is noted that Holbrook had the highest diabetes mortality at (4.8%). Across the state that same figure was (2.4%). Brockton at (2.9%) and Easton at (2.8%) also recorded a higher percentage of mortality cause by diabetes above the state figure, as noted above. When averaging the percentage of diabetes mortality for the GSMC service area, where data was available, the figure of (2.6%) emerges as slightly higher than the Massachusetts total at (2.4%).

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 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. 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).

In all three focus groups conducted with community members in Brockton, Randolph and East Bridgewater, mental health was mentioned in the top three health concerns in the community. Community members in Brockton ranked mental health the most concerning community issue, highlighting the need for more social support and a concerted effort to remove the stigma associated with seeking help for mental health disorders.

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 so as 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

- Implement strategic partnerships with community organizations that are able to 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 are able to provide services to community members, particularly high priority populations.

Substance Use

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. Substance misuse can also impact one's social determinants of health, such as employment, income, social network, and housing (BPHC, 2017).

Based on the available data, Brockton appears to have had the highest rate of admissions to DPH-funded substance and alcohol abuse programs from 2013 to 2017. Stoughton, Randolph and Abington consecutively had the following highest admission rates to DPH funded programs. There appears to have been a sharp decline in admission to such programs from 2013 to 2014. Admission to such programs appears to have continued to decline from 2014 to 2017.

Focus group participants in Brockton spoke at length in regards to the need for more substance abuse programs as well as substance abuse prevention programs for youth in schools and community-based programing. One of the recommendations made by participants was to have a mobile clinic to provide services in the community for those who lack access to care or are uninsured and therefore do not seek health care services.

Community-Wide Recommendations

- Advocate for increasing availability of detoxification 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 Solutions for Southeastern Massachusetts has noted that this region, and Massachusetts in general, has suffered from a chronic undersupply of affordable housing for low- and moderate-income people (Housing Solutions of Southeastern Massachusetts, 2018).

Poverty contributes heavily to homelessness. According to the U.S. Census Bureau's 2015 American Community Survey report (released in October 2016), the overall poverty rate in Massachusetts was just under 11.5% in 2015. This includes an estimated 752,071 people in Massachusetts living in households that fell below the poverty threshold. This estimate includes 202,513 children under the age of 18 and 92,468 elders age 65 and older. 355,730 people were living in households with incomes under 50% of the federal poverty guidelines (MCH, 2018).

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 so as 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 GSMC service area, the poverty level has surpassed the state level. It is crucial to address this problem as there is a strong correlation between poverty level and homelessness.

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 provide assistance to those who may present at the hospital with a need for stable housing.

Underserved Populations

There are three levels within the social environment that influence the population and drive community health outreach needs. They are interpersonal, community, and societal. Across each level, 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).

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 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 and assist community members with enrolling 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 report. 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 and correlation, we were limited to currently available datasets.

Researchers 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.

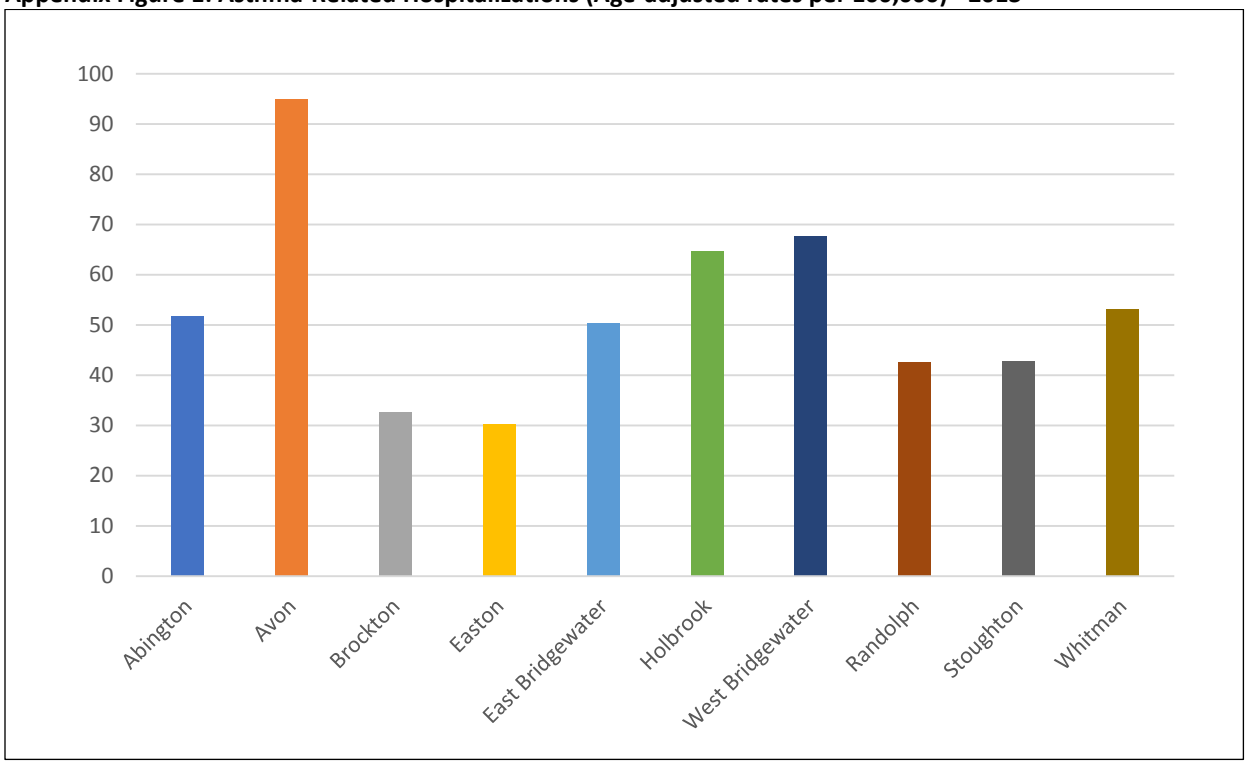
Although the community focus groups provide valuable information, serving as important tools for data collection and community engagement, there are some limitations to consider. Focus group data is qualitative in nature and reflect only the views and opinions of a small sample. Focus groups are limited 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.

Though the intent of this project was to capture the views and opinions of all or most health and human service providers within the GSMC service area, there were also limitations to the survey distribution. The survey was distributed via email by GSMC staff and staff at the Greater Brockton Health Alliance (CHNA 22) that encompass cities and towns in the GSMC service area, to be circulated to its local affiliates. Not all health and human service providers within the service area are members of CHNAs; some may have been excluded due to a lack of access to computer-based technology. Some providers had a longer period of time to access and respond to the survey as the survey distribution was ultimately at the control and discretion of the GSMC staff and the respective CHNA leadership.

Appendix A.
Supplemental Health Indicators and Demographic Data

Health Indicators

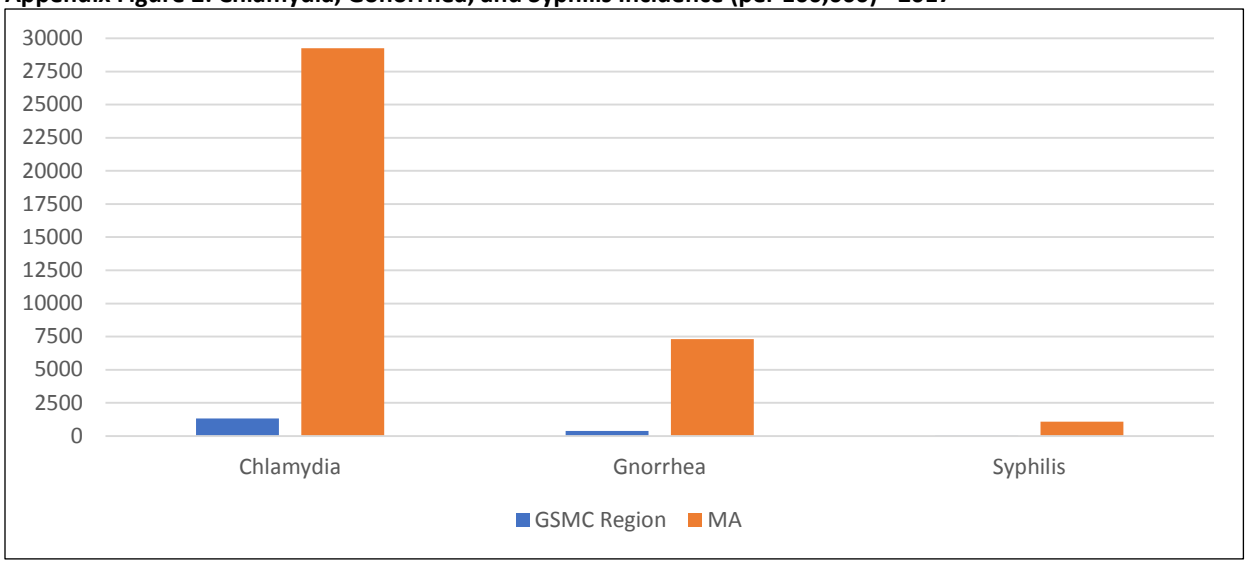
Appendix Figure 1: Asthma-Related Hospitalizations (Age-adjusted rates per 100,000) - 2013



(Source: Massachusetts Department of Public Health)

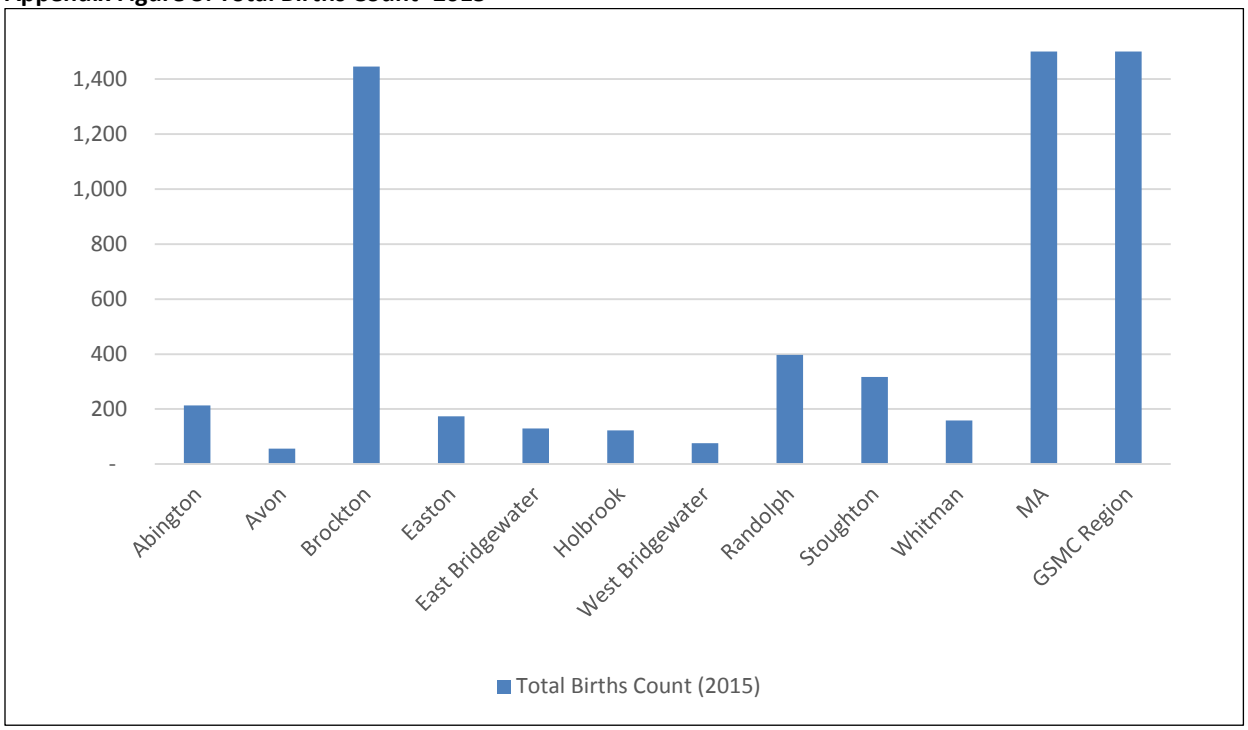
Reproductive and Sexual Health

Appendix Figure 2: Chlamydia, Gonorrhea, and Syphilis Incidence (per 100,000) - 2017



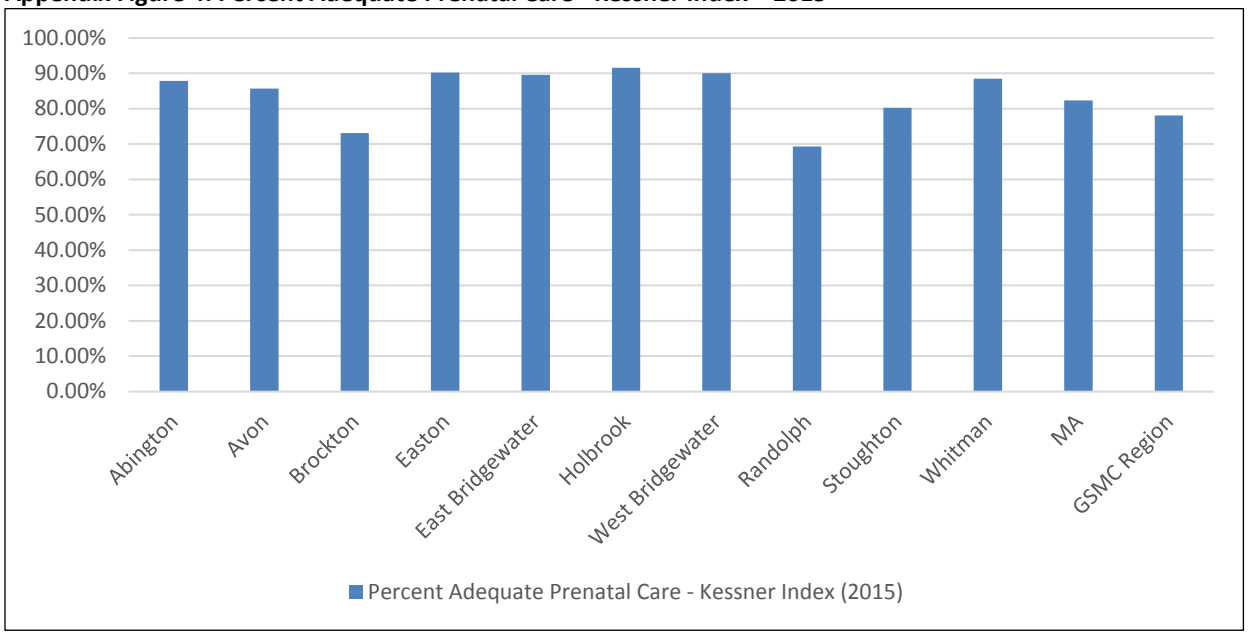
(Source: MDPH Bureau of Infectious Disease and Laboratory Sciences)

Appendix Figure 3: Total Births Count -2015



(Source: Massachusetts Department of Public Health)

Appendix Figure 4: Percent Adequate Prenatal Care - Kessner Index – 2015

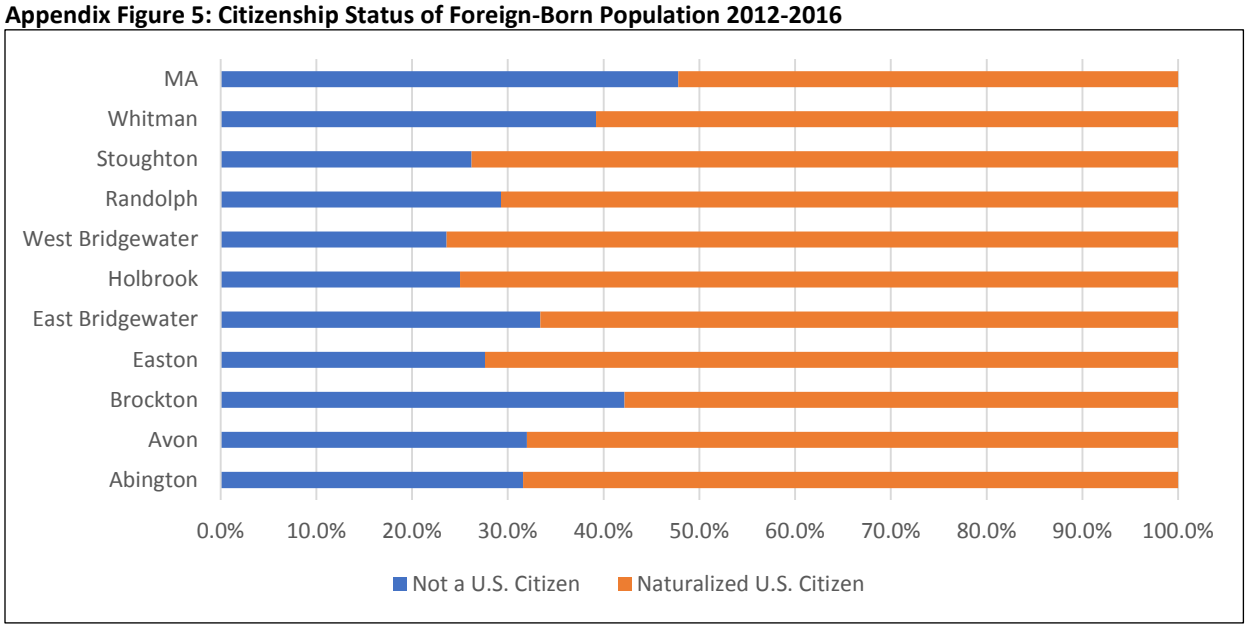


(Source: Kessner Index)

Demographic Data

Social

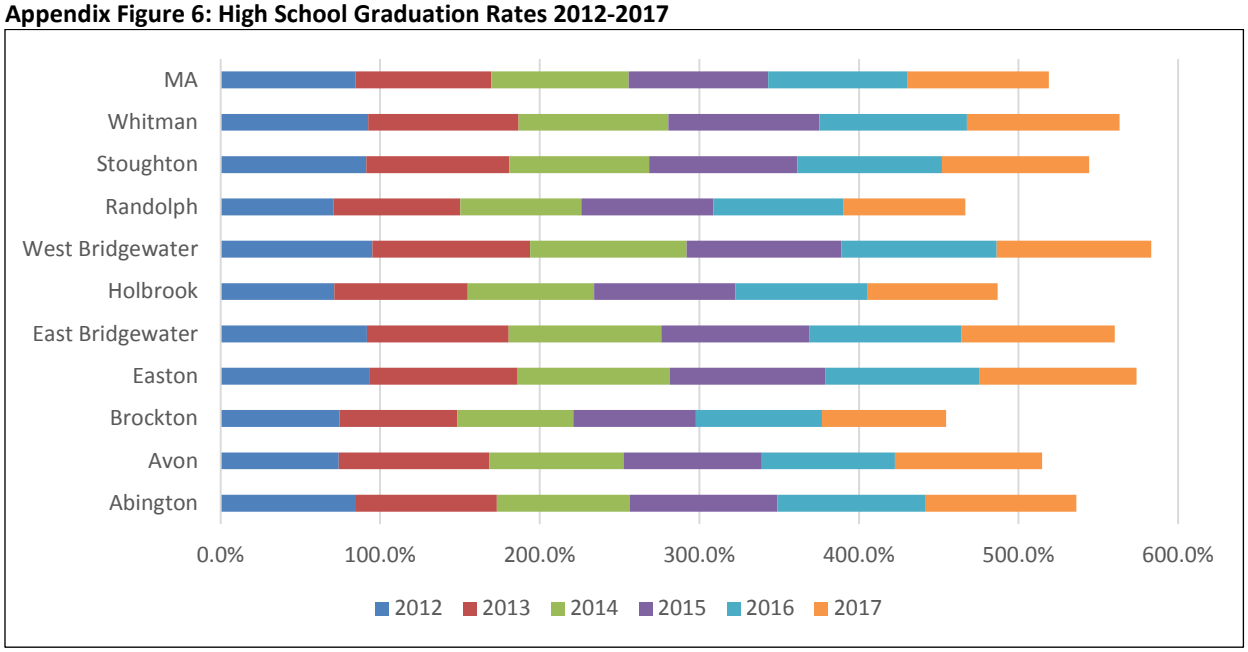
Appendix Figure 5: Citizenship Status of Foreign-Born Population 2012-2016



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

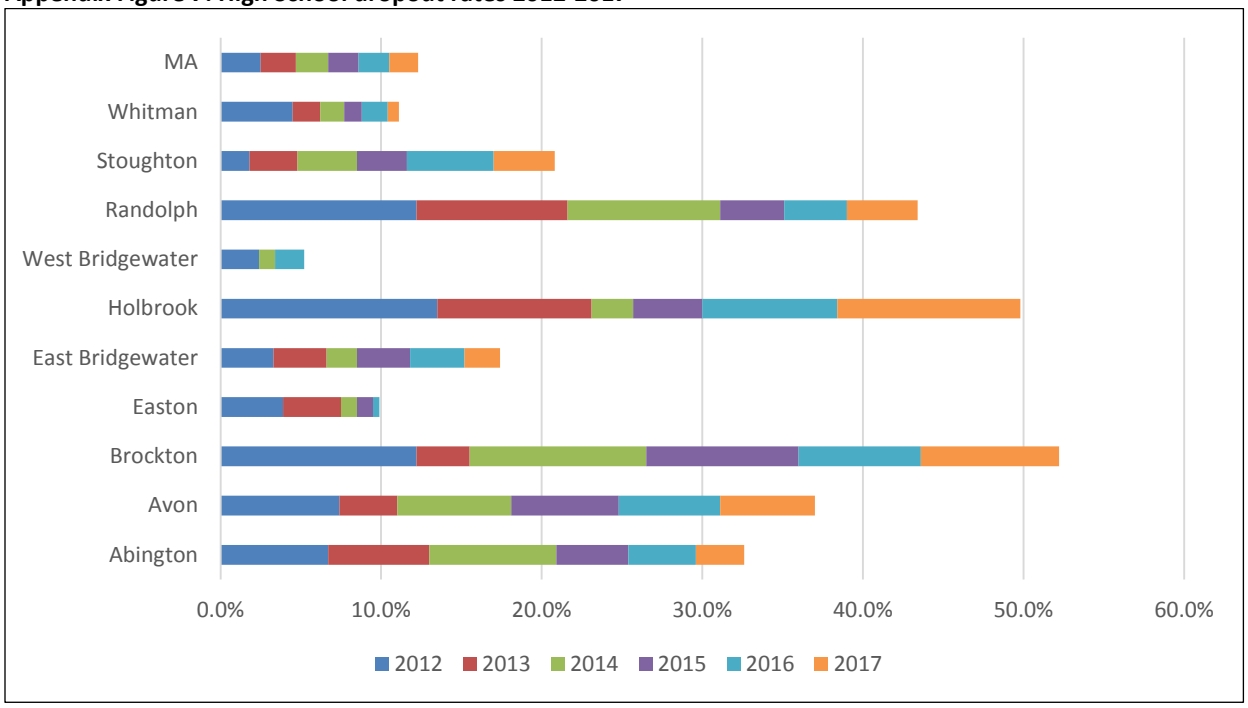
Education

Appendix Figure 6: High School Graduation Rates 2012-2017



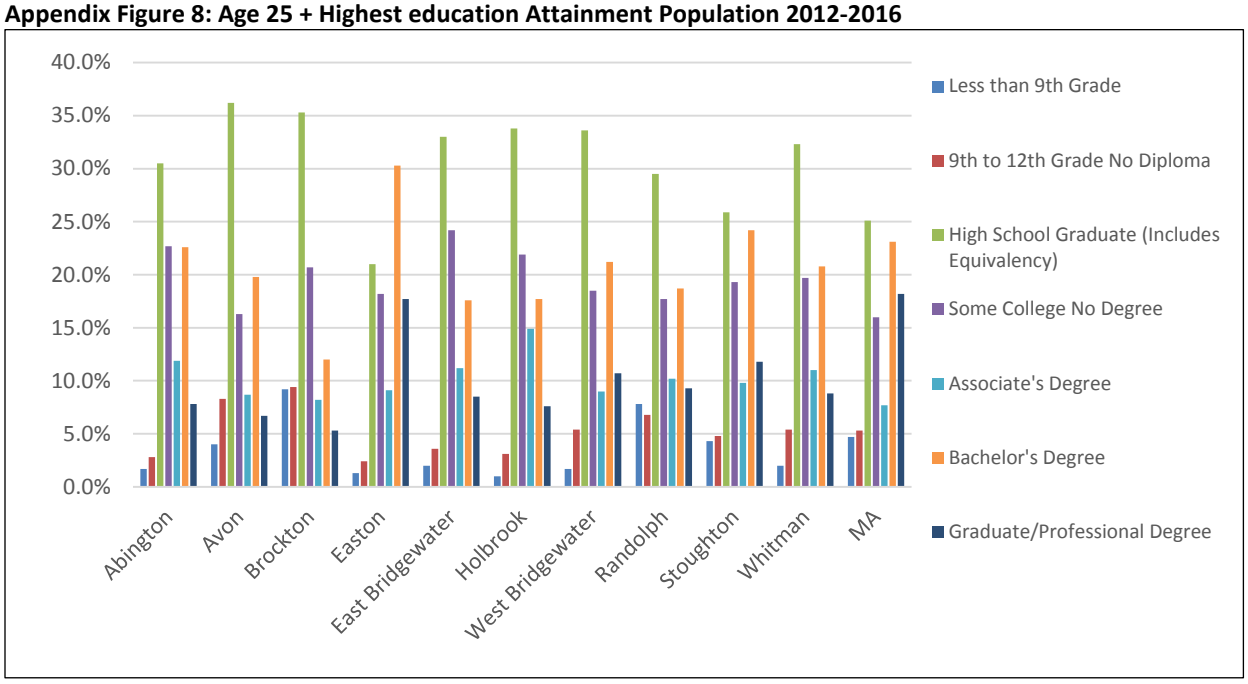
(Source: MA Dept. of Elementary and Secondary Education)

Appendix Figure 7: High School dropout rates 2012-2017



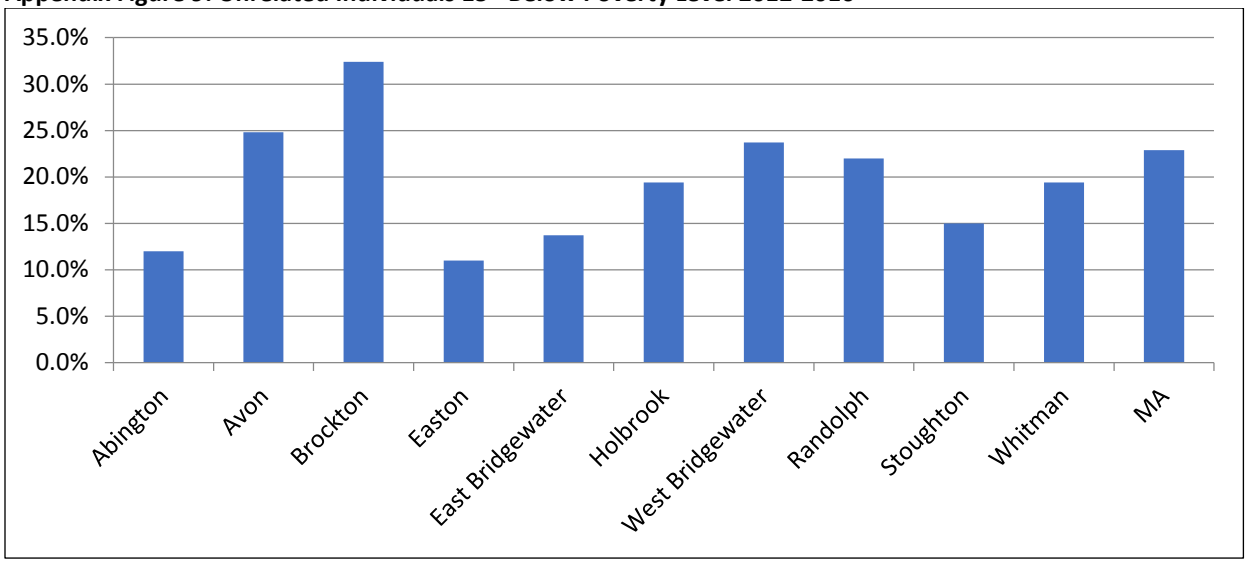
(Source: MA Dept. of Elementary and Secondary Education)

Appendix Figure 8: Age 25 + Highest education Attainment Population 2012-2016



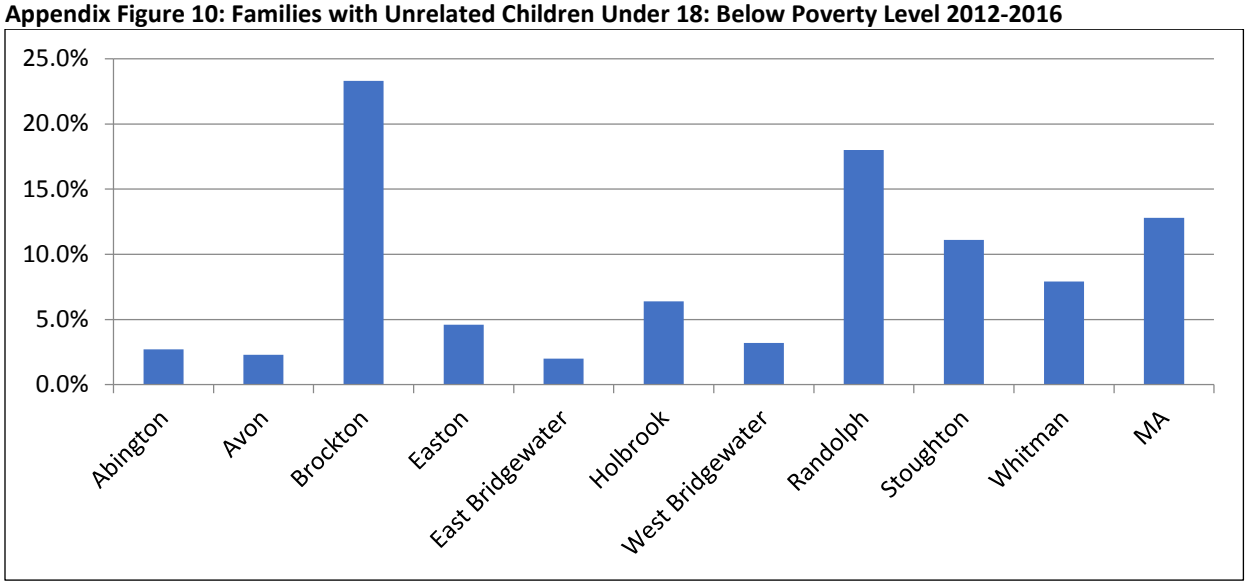
(Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

Appendix Figure 9: Unrelated Individuals 15+ Below Poverty Level 2012-2016



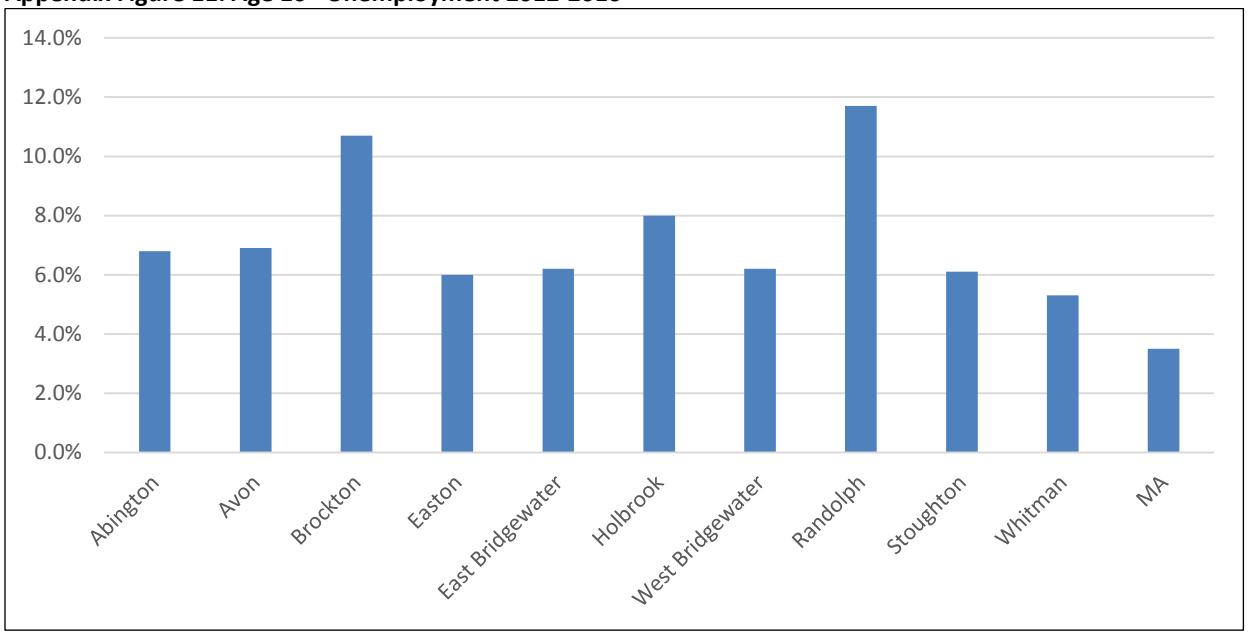
(Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

Appendix Figure 10: Families with Unrelated Children Under 18: Below Poverty Level 2012-2016



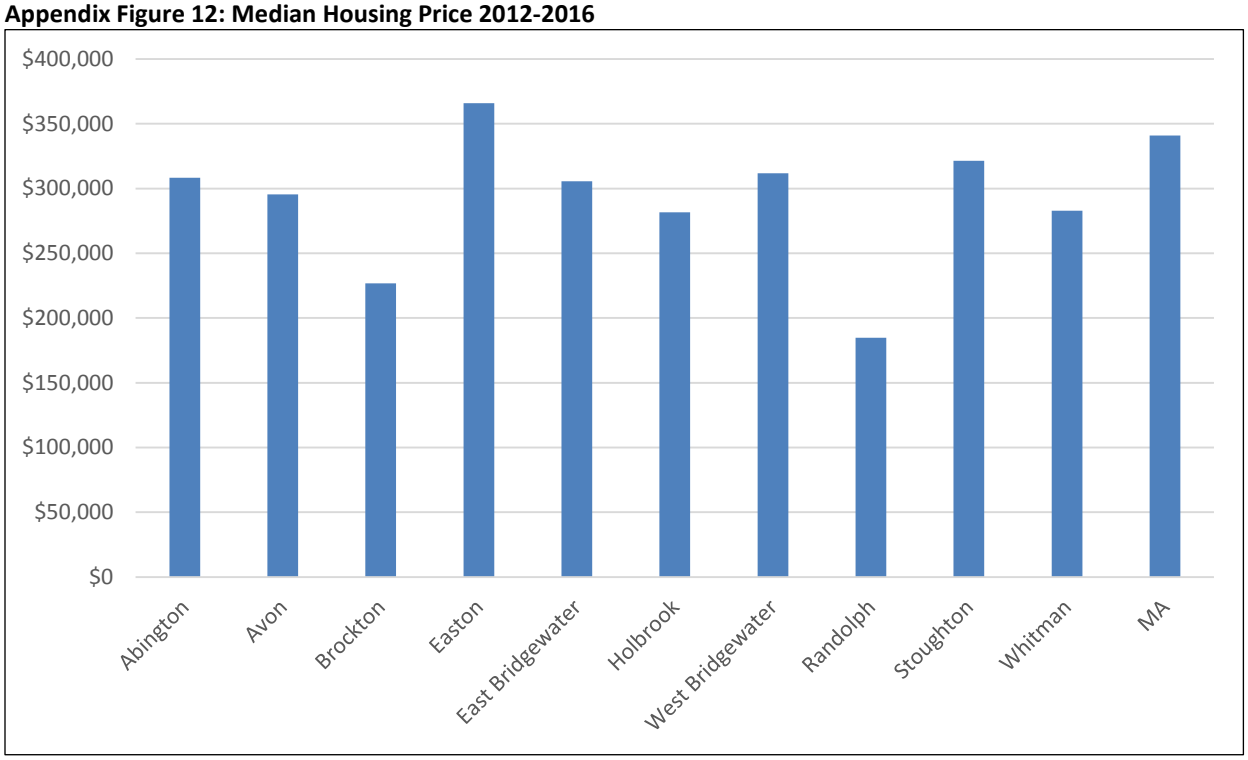
(Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

Appendix Figure 11: Age 16+ Unemployment 2012-2016



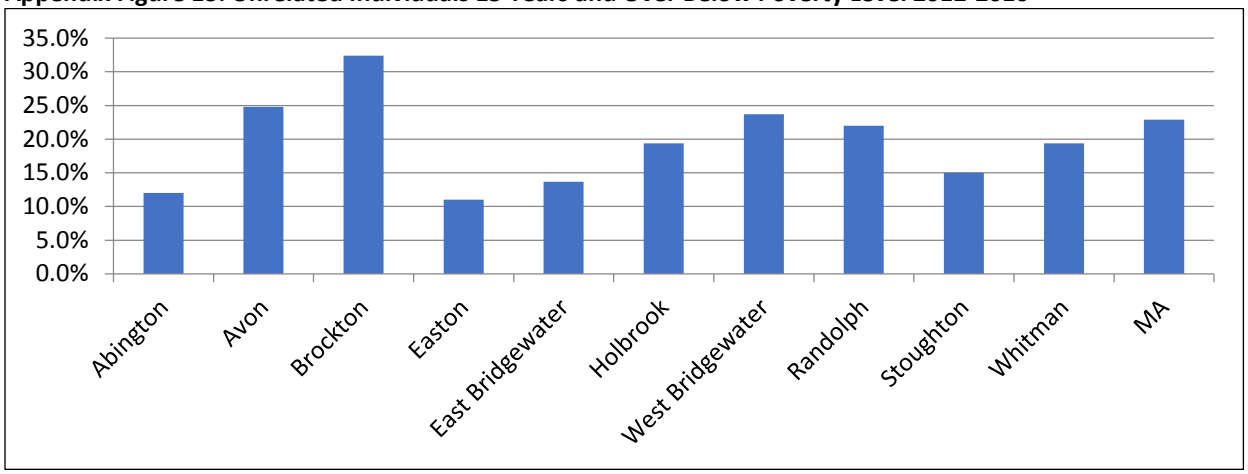
(Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

Appendix Figure 12: Median Housing Price 2012-2016



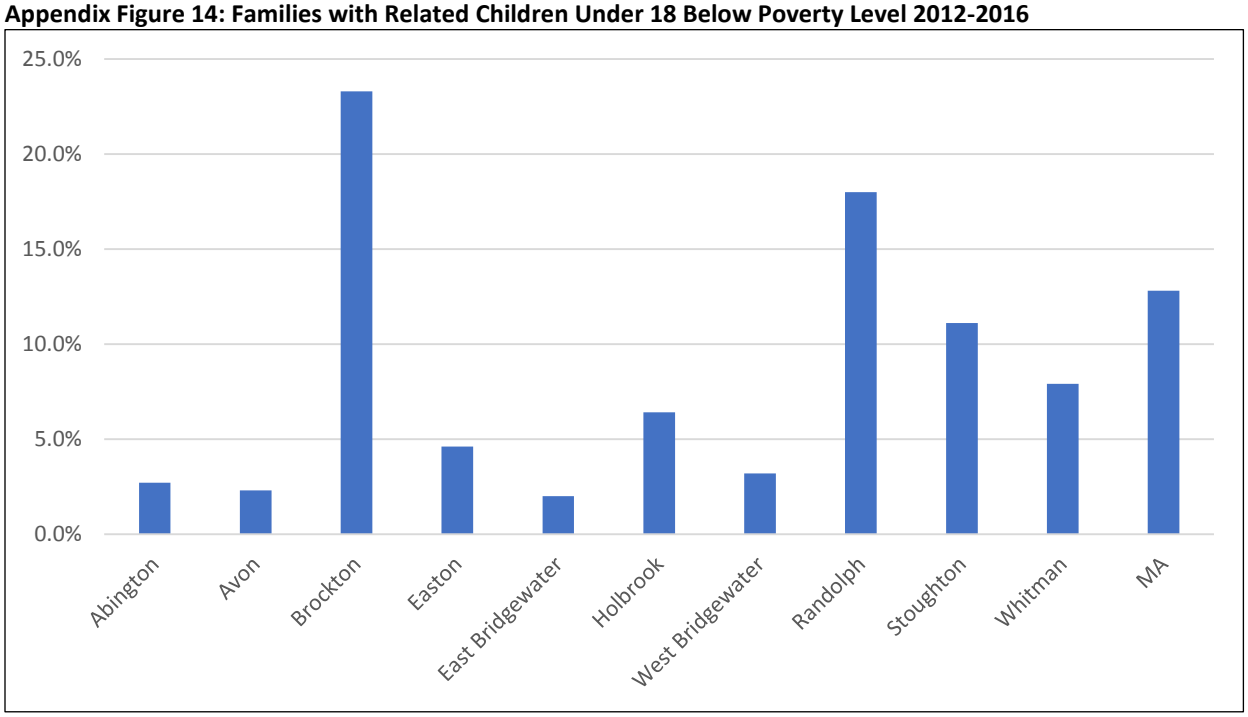
(Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

Appendix Figure 13: Unrelated Individuals 15 Years and Over Below Poverty Level 2012-2016



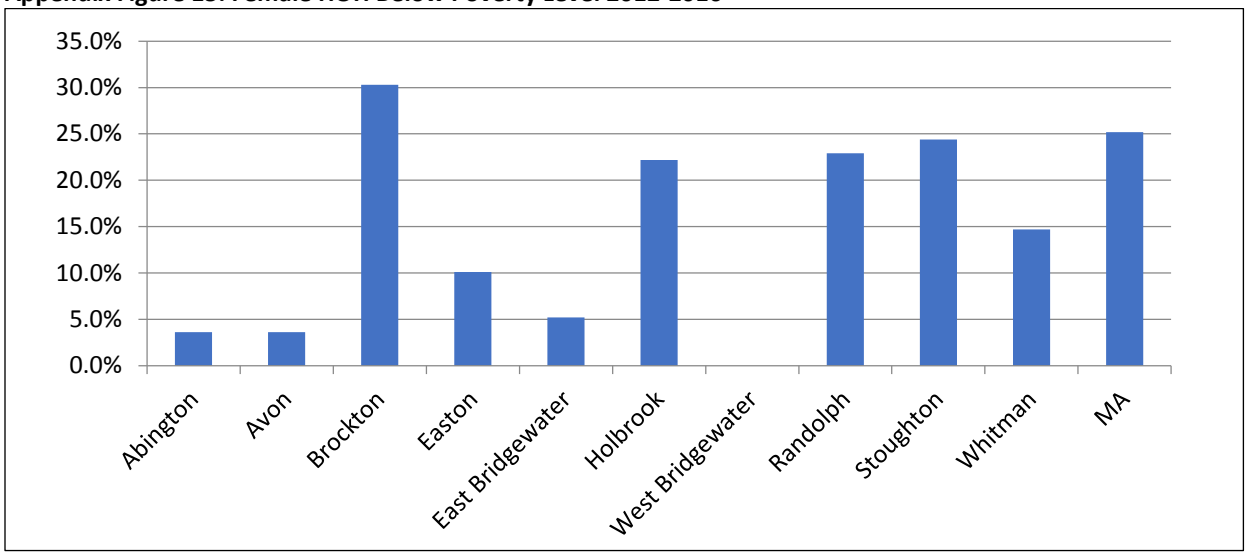
(Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

Appendix Figure 14: Families with Related Children Under 18 Below Poverty Level 2012-2016



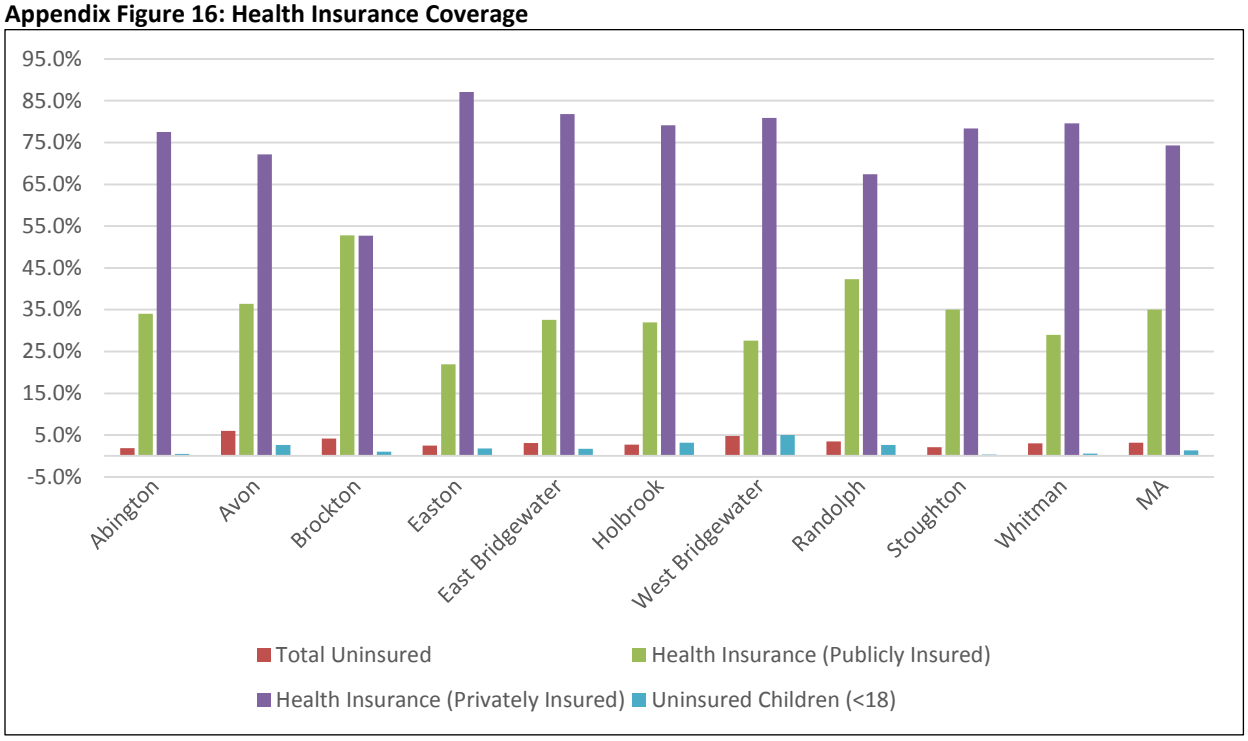
(Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates)

Appendix Figure 15: Female HOH Below Poverty Level 2012-2016



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

Appendix Figure 16: Health Insurance Coverage



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

Crime

Appendix Figure 17: Crime Incident Count 2014, 2016

(U.S. Department of Justice, Federal Bureau of Investigation, Uniform Crime Reporting)

Appendix Table 1: Homicide Count 2013, 2014, 2016

Town	2013	2014	2016
Abington	0	0	0
Avon	NA	NA	0
Brockton	9	12	3
East Bridgewater	0	0	0
Easton	0	0	1
Holbrook	0	NA	NA
Randolph	0	0	1
Stoughton	1	0	1
West Bridgewater	NA	NA	0
Whitman	NA	NA	0
Massachusetts	***138***	***132***	***136***

(U.S. Department of Justice, Federal Bureau of Investigation, Uniform Crime Reporting)

Appendix B.
Key Informant Survey

*Community Health Needs Assessment- Key Informant Survey**

In an effort to continuously improve community health services in the region, Good Samaritan Medical Center (GSMC) is conducting a survey of your perception of community health. For the purpose of this survey we define community health services as, community-level strategies applied to help communities prevent disease and promote healthy living.

The survey is designed to collect community-level information on services currently available, your perceptions on the population served, as well as your opinions on community health concerns that may be present among health services consumers.

Please take a moment to complete this brief survey. The feedback provided will serve to inform next steps as we strive to provide the necessary health and wellness services that will benefit our region.

The information provided through this survey will be kept confidential. Only aggregated responses will be noted in the resulting Community Health Improvement Report. Thank-you

* 1. In what county (or counties) does your organization primarily provide services?

- ☐ Plymouth County
- ☐ Norfolk County
- ☐ Bristol County
- ☐ Other (please specify)

2. In what city does your organization provide the majority of services?

- ☐ Abington
- ☐ Avon
- ☐ Bridgewater
- ☐ Brockton
- ☐ Canton
- ☐ East Bridgewater
- ☐ Easton
- ☐ Hanson
- ☐ Holbrook
- ☐ Mansfield
- ☐ Middleboro
- ☐ Norton
- ☐ Randolph
- ☐ Raynham
- ☐ Sharon
- ☐ Stoughton
- ☐ Taunton
- ☐ West Bridgewater
- ☐ Whitman

Comment

3. What kind of services does your organization primarily provide?

- ☐ Medical
- ☐ Behavioral Health
- ☐ Substance Abuse
- ☐ Social
- ☐ Community-building
- ☐ Educational
- ☐ Other/Comment (provide detail)

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?

- [ ] Plymouth County
- [ ] Norfolk County
- [ ] Bristol County
- [ ] Other (please specify)

6. To the best of your knowledge, what are the general social demographics of consumers served by your organization?

	Age	Gender	Household Income	Race	Language Spoken at Home
*					

7. In what city or town(s) do the majority of your consumers reside?

- [ ] Abington
- [ ] Avon
- [ ] Bridgewater
- [ ] Brockton
- [ ] Canton
- [ ] East Bridgewater
- [ ] Easton
- [ ] Hanson
- [ ] Holbrook
- [ ] Mansfield
- [ ] Middleboro
- [ ] Norton
- [ ] Randolph
- [ ] Raynham
- [ ] Sharon
- [ ] Stoughton
- [ ] Taunton
- [ ] West Bridgewater
- [ ] Whitman
- [ ] Other (please specify)

8. What do you perceive as the major health concerns of your consumers?

- [ ] Asthma
- [ ] Behavioral Health
- [ ] Cancer
- [ ] Diabetes
- [ ] Heart Health
- [ ] High Blood Pressure
- [ ] Obesity
- [ ] Public Safety
- [ ] Stroke
- [ ] Substance Abuse
- [ ] Other (please specify)

9. In your opinion, what are the major health concerns in the community where you provide services?

- [ ] Asthma
- [ ] Behavioral Health
- [ ] Cancer
- [ ] Diabetes
- [ ] Heart Health
- [ ] High Blood Pressure
- [ ] Obesity
- [ ] Public Safety
- [ ] Stroke
- [ ] Substance Abuse
- [ ] Other (please specify)

10. Please rank what you believe to be the biggest obstacles to healthy living among your consumers (1 being the greatest obstacle).

- Cost of care
- Shortage of services
- Distance to services
- Lack of health-management education
- Lack of transportation
- Lack of care coordination services
- Lack of access to a primary care provider
- Lack of focus on social determinants of health

11. Please rank what health and wellness services would most benefit your consumers (1 being of greatest benefit).

- Access to Primary Care Provider
- Access to health-management education
- Access to Community Health Worker
- Care coordination
- Substance abuse treatment
- Behavioral health
- Chronic disease prevention information
- Obesity prevention education
- More information on social services available

12. How knowledgeable are you of the community health services Good Samaritan Medical Center provides in your community?

- ◯ Extremely knowledgeable
- ◯ Very knowledgeable
- ◯ Moderately knowledgeable
- ◯ Slightly knowledgeable
- ◯ Not at all knowledgeable

13. Overall, how satisfied are you with the way Good Samaritan Medical Center is addressing community health in your community?

- ◯ Extremely satisfied
- ◯ Very satisfied
- ◯ Somewhat satisfied
- ◯ Somewhat dissatisfied
- ◯ Very dissatisfied
- ◯ Extremely dissatisfied

14. Please provide any suggestions you may have as to how Good Samaritan Medical Center could best address community health issues.

** For a complete copy of aggregated survey responses contact Good Samaritan Medical Center*

Appendix C.
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 Good Samaritan Medical Center serving the community well?
13. In what ways could Good Samaritan Medical Center serve the community better?
14. What is the number one thing that the Good Samaritan Medical Center can do to improve the health and quality of life of the community?

** For complete copies of the focus group summaries please contact Good Samaritan Medical Center*

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