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EXECUTIVE SUMMARY

Background

Dana-Farber Cancer Institute (DFCI) is one of the world’s leading cancer treatment and research centers. In addition to providing expert clinical care, DFCI is committed to educating the community and raising awareness about the importance of cancer prevention, outreach, screening, early detection, and clinical trials. To this end, DFCI’s Community Benefits Office provides education and outreach across Boston and beyond, offers support services and resources, and conducts a broad scope of research and evidence-based interventions through its collaborative work in local neighborhoods as well as through its national and international public and professional education initiatives. The mission of DFCI’s community benefits and outreach activities contributes to the larger goal of advancing the diagnosis, care, treatment, cure, and prevention of cancer and related diseases. The DFCI Community Benefits Internal Committee, the Trustee Community Programs Committee, and the Dana-Farber/Harvard Cancer Center (DF/HCC) Community Engagement Committees all provide input and guidance to DFCI’s Community Benefits initiatives and programming.

To ensure that DFCI’s outreach activities and programs are meeting the health needs in the community, the DFCI Community Benefits Office retained Health Resources in Action (HRiA), a non-profit public health consultancy organization in Boston, to undertake a comprehensive community assessment effort. The 2016 community health needs assessment (CHNA) builds off of previous efforts to gain a greater understanding of the health issues facing Boston residents and its specific communities of Dorchester, Roxbury, Mission Hill, Jamaica Plain, and Mattapan, how those needs are currently being addressed, and where there are opportunities to address these needs in the future. In addition to identifying broad health issues facing residents, the 2016 CHNA delves deeper into behaviors and health outcomes across the cancer continuum of care, exploring behaviors and health outcomes around prevention, screening, treatment/health care utilization, and survivorship. This effort not only complies with the IRS and Massachusetts Attorney General’s mandates for conducting community health needs assessments, but aligns with DFCI’s approach of utilizing data to inform the development of its initiatives and strengthening of collaborative partnerships.

Methods

This CHNA aims to identify the health-related needs and strengths of DFCI’s priority communities through a social determinants of health framework, which defines health in the broadest sense and recognizes numerous factors at multiple levels—from lifestyle behaviors (e.g., healthy eating and active living) to clinical care (e.g., access to medical services) to social and economic factors (e.g., poverty) to the physical environment (e.g., air quality)—which have an impact on the community’s health. Existing social, economic, and health data were drawn from national, state, county, and local sources, such as the National Cancer Institute, the U.S. Census, U.S. Bureau of Labor Statistics, Massachusetts Department of Public Health, Boston Public Health Commission, and the Boston Police Department. Over 60 individuals, representing healthcare providers, community stakeholders, and residents were engaged in focus groups and interviews to gauge their perceptions of the community, priority health concerns, and identify services or resources that are most needed to address these concerns.

Health Equity

In addition to considering the social determinants of health, it is critical to understand how these characteristics disproportionately affect vulnerable populations. Health equity is defined as all people having the opportunity to “attain their full health potential” and entails focused societal efforts to address avoidable inequalities by
equalizing conditions for health for all groups, especially for those who have experienced socioeconomic disadvantages or historical injustices. When examining the larger social and economic context of the population (e.g., upstream factors such as housing, employment status, racial or ethnic discrimination, the built environment, and neighborhood-level resources), a robust assessment should capture the disparities and inequities that exist for traditionally underserved groups. Thus, a health equity lens guided the CHNA process to ensure data comprised a range of social and economic indicators and were presented for specific population groups. Understanding factors that contribute to health patterns for these populations can facilitate the identification of data-informed and evidence-based strategies to provide all residents with the opportunity to live a healthy life.

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

Community Social and Economic Context

- **Demographic Characteristics:** The approximately 17 neighborhoods had approximately 639,594 residents as of 2014. Two of Boston’s most populated neighborhoods are DFCI’s priority neighborhoods—Dorchester with 122,598 residents, followed by Roxbury with 49,028. The median age of Boston residents was 31 years, compared to the state median of 39 years. Quantitative data indicate that the largest segment of Boston’s population was between the ages of 20 and 54 years, making up 59% of the population.

- **Demographic Diversity.** Participants engaged in the assessment described their communities as “very diverse”, mentioning wide racial, linguistic, and cultural diversity. As seen in the quantitative data, there is substantial variation in the racial and ethnic diversity by DFCI priority neighborhood, with nearly three-quarters of Mattapan residents and half of Roxbury residents identifying as Black or African American. Among DFCI priority neighborhoods, Roxbury and Jamaica Plain have the largest Hispanic populations with 29% and 24% respectively, while Mission Hill and Dorchester have the largest Asian populations among the priority neighborhoods with 14% and 10% respectively.

- **Income and Poverty.** With poverty reported as a concern across all focus groups and interviews, participants indicated that poverty was the root cause of stress in their lives, reporting challenges meeting basic needs, such as food and shelter, and difficulty balancing multiple low-wage jobs. The median incomes of DFCI’s priority communities are generally much lower than Boston overall, with Roxbury at a median income of $25,254, Mission Hill at $35,020, and Mattapan at $42,206, compared to the city average of $55,448.

- **Employment.** There has been an overall downward trend in unemployment rates in the city of Boston, from 12.9% in 2010 to 8.3% in 2014. Yet underemployment, the stagnation of wages, and insufficient benefits were reported by focus group and interview participants as major barriers to economic mobility and a factor of negative health outcomes.

“I love how diverse my neighborhood is; there are so many cultures to learn about.”
-Focus group participant
• **Education.** Census data show high educational attainment among Boston’s adult residents aged 25 years and older, with 45% having earned a college degree or more. Among DFCI’s priority neighborhoods, Jamaica Plain has a high percentage of residents with a college degree (63%). Other neighborhoods such as Mattapan and Roxbury have lower proportions of residents who have completed college, but do have one quarter of residents with some college education or an associate’s degree. However, nearly one-quarter of residents in Roxbury, Mattapan, and Dorchester have not completed high school.

• **Housing.** Similar to the 2013 CHNA, focus group participants and key informants overwhelmingly expressed concern about housing in Boston being unavailable or unaffordable. As residents spoke about the middle class being squeezed out of the city, they attributed housing costs to being one of the main contributors to this trend.

• **Crime and Safety.** While overall counts of crimes and specific violent crimes such as assault and robbery were slightly lower in Boston in 2015 compared to 2014, DFCI priority neighborhoods of Mattapan and Roxbury experienced three times the rate of violent crime as the city overall.

Cancer Prevention: Perceptions and Surveillance Data

• **Perceptions of Cancer Prevention.** When CHNA participants were asked about their perceptions of cancer prevention, they were most likely to discuss the relationship between lifestyle behaviors and cancer prevention and how the social determinants of health are critical factors. However, several residents also mentioned environmental hazards related to cancer as well as how they viewed mental health and cancer. The following section describes these findings in more detail.

• **Smoking Behaviors.** Overall, Boston adult smoking rates have remained steady over time while youth smoking rates have declined. Among DFCI priority neighborhoods, nearly one-quarter of residents in North Dorchester and Roxbury indicated that they were current smokers.

• **Alcohol Misuse.** Alcohol was discussed among focus group participants more in relation to substance abuse being a concern in their community and a negative coping mechanism for stress, and less as a risk factor for cancer. Binge drinking rates tend to hover around 20-21% among DFCI’s priority neighborhoods. When looking at data by different demographic groups, 32% of males and 33% of white residents indicated that they have engaged in binge drinking, the highest rates among all groups.

• **Obesity.** Across all focus group and interviews, obesity was identified as a major health concern for residents, and surveillance data indicate that more than one in five Boston adult residents is considered obese. Nearly 4 in 10 Mattapan residents and 3 in 10 Roxbury residents are considered obese. Figure 21 shows the variation by neighborhood over the last several years, with every neighborhood and Boston overall seeing a slight uptick since 2010.

• **Physical Activity and Health Eating.** Compared to 2013, participants in the 2016 CHNA focused more on what they saw as an important link between healthy diet, physical activity, and
cancer risk; surveillance data indicate that many Boston residents are meeting recommended guidelines in this area. Since 2006, nearly 6 in 10 adults in Boston reported meeting CDC guidelines for aerobic physical activity, defined as 150 minutes in the past week, which is above the state (55%) and national (49%) average.

Data on fruit and vegetable consumption indicate that 75% of Boston residents reported that they had have one or more servings of vegetables daily and 62% have one or more servings of fruits.

Cancer Screening: Perceptions and Surveillance Data

- **Perceptions of Cancer Screening.** While cancer screening was deemed important by focus group participants and residents served by key informant interviewees, they cited a number of challenges including confusing screening guidelines, uncertainty about insurance coverage, discomfort, opportunity, cost of time and money for lengthier screening tests, and gender-based negative perceptions. A recurring theme in many discussions was confusion of what the cancer screening guidelines currently were and which tests pertained to which individuals.

- **Breast Cancer Screening.** Screening rates for breast cancer are high in Boston, overall as well as in many populations of color. As screening guidelines differ depending on the recommending agency, many analyses examine mammography rates among women 50-74 years old rather than 40+ years old. Among women 50-74 years old only, data indicate that 90% of Boston women reported having received a mammogram, higher than the 84% seen in Massachusetts overall for this age group.

- **Cervical Cancer Screening.** Cervical cancer screening rates are generally high across Boston and in DFCI’s priority neighborhoods, although much lower among Asian women in Boston. Among women 21-65 years old in Boston, 87% reported receiving a pap test to screen for cervical cancer in the past three years.

- **Prostate Cancer Screening.** The proportion of men in Boston who have ever had a Prostate Specific Antigen (PSA) blood test or who have had a PSA test in the past year is lower than the proportion of men in Massachusetts overall. Among adult men 40 years old and over in Boston, 56% reported ever having had a PSA blood test, whereas 39% reported having the test done within the past year. Compared to Boston, a higher percentage of men in Massachusetts overall reported ever having a PSA blood test (64%) and having had the test within the past year (48%).

- **Colorectal Cancer Screening.** Focus group participants indicated that longer screening tests such as colonoscopies have greater challenges for many residents, which is validated in the quantitative data that indicate that only 65% of Boston residents ages 50-75 years old have had a colonoscopy or sigmoidoscopy in the past five years.

Health Care Utilization, Cancer Incidence, and Mortality: Perceptions and Surveillance Data

**Overall Perceptions of Cancer**

- **Cancer as a Community Concern.** Among participants without direct experience with cancer or among key informants not working with cancer patients directly, cancer was not described as a pressing community health concern unless prompted. Mental health,
substance abuse, diabetes, and community violence were named as top health concerns in the community when participants were asked unprompted.

- **Level of Concern around Cancer.** Similar to the 2013 CHNA findings, focus group participants without any direct experience with cancer expressed a tremendous amount of fear associated with cancer and the high risk of death from the disease. They recognized that people survived the condition, but they indicated that they were incredibly fearful of a cancer diagnosis for them or a family member.

- **Cultural Norms and Beliefs.** When discussing how they viewed cancer, both key informant interviewees and focus group participants acknowledged that there are many cultural beliefs that shape their perceptions. As one interviewee said, “There are different cultural approaches to care that need to be taken into consideration such as religion, language, and social norms.” Many of these beliefs and norms are rooted not only in culture but by gender. Given that certain cancer-related issues focus on the reproductive system, comfort levels vary by culture on how patients discuss these issues with their providers.

- **Perceptions of the Local Health Care System.** Overall, participants reported positive perceptions about health services in the city of Boston, citing ample medical services, hospitals, and community centers in the city. Focus group participants recognized the multitude of services and health care institutions in the city and noted that this is a world-class city with regards to quality of care both in primary and specialty care.

**Barriers and Challenges to Accessing Health Care Services**

- **Insurance Barriers and Cost-Related Barriers.** While interviewees and focus group participants generally stated that it seemed that most community members have access to health insurance, there was much confusion about the details of coverage, deductibles, which providers were covered, and the co-pays required. These themes were slightly different than in the 2013 CHNA, where lack of insurance was a prominent issue. In 2016, the conversations focused more on uncertainty of what insurance actually covered.

- **Navigating a Complex Health System.** A common theme among assessment participants was the difficulty navigating the complex health system, especially when dealing with a chronic disease. Residents described confusion around insurance coverage as well as being overwhelmed by the number of appointments they needed to make and steps that had to be taken. These issues were especially prominent for cancer patients, who described feeling deeply emotional after a cancer diagnosis to then “somehow figure out what cancer is, what hospital I should go to, what doctors I qualify for, and finally how I’m supposed to pay for it all. It’s exhausting.”

- **Culturally Competent Care.** Navigating a complex health system is especially challenging when English is not a patient’s first language; key informants working with patients and Spanish-speaking cancer survivors described language and cultural barriers as particularly challenging. While provider interviewees reported that they have access to interpretation services and some have bilingual staff (Spanish-speaking), language and cultural barriers still remain a concern.

- **Transportation.** Transportation barriers to accessing health care were a common theme across focus groups and interviewees, with residents indicating that public transportation was not a viable option, especially in...
Mattapan and some parts of Dorchester. Parking was also cited as a daily stressor for many residents in these neighborhoods saying, “Parking in Mattapan is terrible. I’ve lived here for 35 years and each year is worse than the last.”

- **Perceived Disparities in Cancer Treatment and Care.** Across all focus groups, communities of color were identified as traditionally underserved, yet some focus group participants saw this as changing. Nearly all focus group participants were African American or Hispanic and many discussed the inequities that communities of color face overall and in the health care system. However, the English-speaking cancer survivor focus group, comprised of all African American women above the age of 50, noted that they saw improvements in the last decade as far as the availability of care offered and interactions with providers that they have had.

- **Information and Access to Clinical Trials.** Several key informant interviewees described the need for improved access to clinical trials for communities of color as an important step for improving disparities. As one participant said, “having access to clinical trials is hugely important, especially for those in different and racial and ethnic backgrounds, because we don’t know what treatments work for these populations.”

- **Awareness of Services.** While the community has substantial health and social services resources, several respondents reported that people are not always aware of the range of services that are available to them. As one focus group participant noted, “I’ve been a case manager in Mattapan for five years, and I know of so many underutilized resources because residents simply don’t know about them.” Other residents felt that services were duplicative and said, “I know of some organizations that provide the same service. If they put their resources together they could help more community members.”

### Incidence and Mortality

- **Overall Cancer Mortality.** Cancer and heart disease remained the top two leading causes of death for all racial/ethnic groups from 2008 to 2013. While there has been an overall downward trend in cancer mortality since 2005, the rate of cancer deaths in the city of Boston increased from 171.1 per 100,000 in 2011 to 186.3 per 100,000 in 2012.

- **Breast Cancer Incidence and Mortality.** There is variation in breast cancer incidence in Boston across the last decade with a generally slow decline since 2007; the rate of new cases is lowest among Latina women in Boston. While the mortality rate in Boston was 17.9 deaths per 100,000 population, rates were 23.6 and 20.9 deaths per 100,000 population in Roxbury and Jamaica Plain respectively. Black and Latina women have lower average ages of death from breast cancer compared to White women. Latinas in Boston are on average 57.3 years old and Blacks are on average 62.1 years old at age of death from breast cancer, compared to an average age of 72.5 years old for White women in Boston.
• **Cervical Cancer Incidence and Mortality.** Cervical cancer incidence rates have seen a steady decline since 2004, with the most current data indicating the rate of new cases of cervical cancer in Boston as 5.9 cases per 100,000 population. While Latinas have a 10.9 cervical cancer incidence rate per 100,000 population, data should be interpreted with caution given the small number of cases that comprise these rates. Cervical cancer mortality data are unavailable due to the small number of cases. Despite these sample limitations, these data raise concerns and understanding the impacts of cervical cancer is a priority for DFCI that will be further explored in the future.

• **Prostate Cancer Incidence and Mortality.** Overall, there has been a downward trend in prostate cancer incidence rates from 215.3 cases per 100,000 in 2001, to 171.0 cases per 100,000 population in 2011, although there have been fluctuations throughout the decade. However, there continues to be great disparity in prostate incidence for Black men compared to all other race and ethnic groups. Black men have higher prostate cancer mortality rates compared to other groups. Prostate cancer mortality rate for Black men in Boston is nearly three times the prostate cancer mortality rate among White men.

• **Colorectal Cancer Incidence and Mortality.** Overall, there has been a downward trend in colorectal cancer incidence rates from 63.1 per 100,000 in 2001, to 43.6 per 100,000 population in 2011, and there appears to be little variation by race/ethnicity in current colorectal cancer incidence rates. Mortality rates for colorectal cancer appear to vary by neighborhood and race/ethnicity. Residents in North Dorchester (29.8 deaths per 100,000 population) and Roxbury (25.5 deaths per 100,000 population) experienced higher rates of colorectal cancer death than the city of Boston overall (16.4 deaths per 100,000 population).

• **Lung Cancer Incidence and Mortality.** The rate of cancer incidence in the city of Boston has experienced a gentle decline from 81.4 per 100,000 residents in 2004 to 69.2 cases per 100,000 residents in 2012. In 2011 and 2012 combined, White residents (78.9 per 100,000 population) experienced the highest lung cancer incidence rate among all racial and ethnic groups. While mortality rates from lung cancer are highest among Whites across the city, when examining data by neighborhood, Mattapan, a predominantly African American neighborhood, still has the highest lung cancer mortality rate.

Cancer Survivorship: Perceptions and Surveillance Data

• **Perceptions of Cancer Survivorship.** The cancer survivors who participated in the CHNA focus groups were optimistic about their future ahead. They had a positive outlook on their health and prognosis for the future and hoped others in the community could see cancer as something that could be overcome. Many indicated that they felt strong and were eager to be engaged with work, their community, and their family. They were grateful to not only their health care providers for the care they received, but also the support staff such as patient navigators, that helped them through their cancer journey.

• **Use and Access to Cancer Survivor Resources.** Cancer survivors reported utilizing a number of different resources from multiple venues during their cancer journey and now as a survivor, but they still saw many gaps in resources needed.

> **“Cancer doesn’t just affect the person diagnosed; it’s a heavy toll for everyone in the family, too.”**
> -Focus group participant

Several participants indicated that information on resources was available for cancer survivors through resource centers, local hospitals, and the Internet. Interestingly, several cancer survivors reported utilizing support services from multiple hospitals simultaneously saying, “I get care at one hospital, but I attend support groups from multiple places across the city.”
like the diversity and different kinds of groups available...whether it’s sewing or peer groups, they all help.”

Cancer Survivorship Surveillance Data

- **Breast Cancer Survivorship.** Based on SEER statistics on five-year survivorship, 89.7% of total women diagnosed with breast cancer survive for five years, yet rates vary by race. In 2006-2012, 90.8% of White women diagnosed with breast cancer survived after five years, while the rate was 80.3% for Black women. While Boston-specific survivorship data are not available, in 2011, 376 women were diagnosed with breast cancer in Boston. Using these data and assuming a similar incidence rate for the subsequent years, we can roughly estimate that during the five-year period of 2011-2016, 1,686 women will have survived/be living with breast cancer in Boston.

- **Cervical Cancer Survivorship.** For cervical cancer, 67.5% of women across the SEER sites had a five-year survival rate, with a nearly 12% difference in five-year survival rates between White and Black women. In 2011, 17 Bostonian women were diagnosed with cervical cancer. Assuming a similar care rate across five years, we estimate that 57 women will have survived/be living with cervical cancer in Boston during the five-year period of 2011-2016.

- **Prostate Cancer Survivorship.** Prostate cancer had a 98.9% five-year survival rate across the SEER sites, with somewhat similar survival rates between White and Black men. In 2011, 406 men in Boston were diagnosed with prostate cancer. Using this figure and assuming a consistent incidence rate over subsequent years, we expect that 2,008 men in Boston will have survived/be living with prostate cancer from 2011-2016.

- **Colorectal Cancer Survivorship.** The five-year relative colorectal cancer survival rate was 65.1% for 2006-2012, yet these rates varied by race and gender. Overall, White men and women had similar five-year survival rates at approximately 66%, while 59.6% of Black women and 56.5% of Black men survived for five years after a colorectal cancer diagnosis. In 2011, 230 men and women in Boston were diagnosed with colorectal cancer. Based on these figures and assuming a consistent colorectal cancer incidence rate for the subsequent years, we estimate that 661 Bostonians will have survived/be living with colorectal cancer during the five-year period of 2011-2016.

- **Lung Cancer Survivorship.** For lung cancer, 17.7% of men and women across the SEER sites had a five-year survival rate, but rates varied most by gender and then by race. Five-year survival rates were highest among White women (20.9%) and Black women (18.1%), but lowest among men (White: 15.1%; Black: 12.0%). Black women also saw the biggest increase in survival rates from 1999-2005 to 2006-2012. In 2011, 361 Bostonians were diagnosed with lung cancer. Using this figure and assuming a consistent lung cancer incidence rate for the next four years, we estimate that over the five-year period of 2011-2016, only 319 Boston residents will have survived/be living with lung cancer.
Community Strengths and Assets

- **Diversity.** Focus group participants generally described their communities as vibrant and active neighborhoods that were demographically diverse in terms of age, class, race, and ethnicity. “Our diversity makes us stronger,” shared one participant. Residents indicated that they enjoyed sharing and learning about different cultures through community events.

- **Engaged Community.** When asked what residents viewed as a strength in their communities, many participants agreed that residents are actively engaged through neighborhood associations and faith-based groups. As one participant shared, “People in Mattapan want to improve the conditions of their neighborhood, and they’re willing to work hard for it.” Cancer survivors described wanting to “give back to their communities” through volunteering and sharing their experiences with cancer to promote awareness.

- **Community Cohesion and Social Networks.** A consistent theme across focus groups and interviews was the strong sense of cohesion among community residents. For example, an interview participant stated that, “People watch out for each other around here. Whether it’s keeping an eye out on their kids, sharing a meal, or giving someone a ride, we try and help out where we can.” Participants in the Spanish-speaking focus group explained the importance of a collective approach to health, involving family and loved ones in important discussions.

- **Organizations and Services.** Another asset discussed by participants was the number of community programs and services present in the community. Interview and focus group participants described many local amenities including churches, social service organizations, and local businesses. Public transportation is available in most neighborhoods, although some participants commented that it can be unreliable and is less accessible in certain neighborhoods. In addition to the large number of small “mom and pop shops” that have fostered a connection to home country for many immigrant families, ethnic-based service organizations such as Inquilinos Boricuas en Acción (IBA) meet the needs of a diverse community.

Community Vision for the Future

- **Greater Focus on the Social Determinants of Health.** When discussing their vision for the future, many focus group participants discussed the importance of interventions to address environmental factors such as poverty and built environment issues. Issues such as enhancing financial assistance and improving the built environment including greater access to healthy foods and improved transportation options were discussed in several focus groups. Interview participants cited supporting more employment opportunities in the community as an important element to improving overall community health. Addressing the issue of affordable housing overall in Boston was also cited as an issue that would ease residents’ day-to-day burden.

- **Greater Information and Health Literacy.** Across focus groups and interviews, participants noted the need to demystify cancer and increase awareness of prevention and screening practices via improved information-sharing in the form of engaged, interactive venues. Several areas for which additional education and support were identified included: smoking cessation, diabetes education, healthy eating/cooking, and cancer.

“The key to having a healthy community is having an educated community.”

-Focus group participant
• **Information on Less Common Cancers.** Focus group participants in both survivor groups reported that many resources were devoted to more common cancers such as breast cancer, but few were available for less typical cancers such as oral and liver cancer. A Spanish-speaking focus group participant shared the story of challenges regaining her speech after treatment for oral cancer and said, “I felt like there was no one else going through the things I had to go through. I couldn’t talk, open my mouth, or eat properly, and it felt like there were no resources to help me figure out how to regain my life.” A few participants also stated that a greater focus on support and funding for men’s cancers (including testicular and prostate cancer) is needed.

• **Follow-up Care and Survivorship Programming.** When asked where residents believed the gaps in services were, many noted that there were limited resources for cancer survivors particularly in the area of emotional support for families, job retraining for cancer survivors, and supports in general for non-English speakers. Groups in the cancer survivor meetings frequently discussed feeling that services “fell off after a few years after treatment”, and wished to see more opportunities to engage in post-treatment support services. More emotional and economic support, specifically for family members of cancer patients, should be offered, survivors suggested.

• **Expand Patient Navigators.** Survivors reported patient navigators as a tremendous asset to patients, especially those who were bilingual and/or bicultural, and encouraged hospitals to expand the effort. Currently, there is not enough of a supply of patient navigators for the range of cancer patients. Focus group participants stressed the importance of increasing the number of navigators and ensure that they “look and sound like the community,” suggesting that the hospital be focused on diversity initiatives when recruiting navigators. When asked where the hospital should focus recruitment efforts to ensure a diverse staff, participants suggested hosting events at faith-based organizations and places of worship.

• **Community Engagement and Reach.** Across many focus groups and interviews, participants discussed the importance of engaging community members in different aspects of programs and services. Community members wanted to be part of the planning process and feel a sense of ownership of community-based programs. Participants suggested several ways to involve the community in the hospital’s efforts. One interviewee recommended that the hospital partner with faith-based organizations to conduct periodic seminars or “open houses” for community members. The primary recommendation from residents and key informants was to engage a broader cross-section of the community more through group dialogues and outreach, specifically peer-to-peer learning.

• **Capacity Building and Collaboration.** A common suggestion that interview participants mentioned was leveraging resources and investing in capacity building for local organizations throughout Boston. As one interviewee shared, “we have the opportunity to not only reach out and engage the community, but provide technical assistance and training to health centers, coalitions, and other community groups. Health care and social service stakeholders frequently noted that, while many local services exist, there are opportunities to improve communication and coordination between institutions. Focus group and interview participants described a “competitive, not collaborative” health system in the city of Boston and wished to see more collaborative efforts among hospitals, academic institutions, and local organizations.
Key Themes and Conclusions

1. As discussed in the 2013 CHNA, there are great disparities on several social, economic, and health indicators in DFCI’s specific priority neighborhoods, but these neighborhoods also possess numerous strengths and assets.
   - Issues related to poverty and violence underscore all aspects of daily life for residents of many Boston neighborhoods, although these neighborhoods also possess several strengths. Limited employment opportunities and low education levels among residents have significantly impacted the social and economic context of these areas. Employment challenges were especially prominent among cancer survivors, who indicated a need for more resources for survivors to be “retrained and re-enter the job force” after treatment.

2. Among participants without direct experience with cancer or among key informants not working with cancer patients directly, cancer was not described as a pressing community health concern unless prompted. Mental health, substance abuse, diabetes, and community violence were named as top health concerns in the community when participants were asked unprompted.
   - Similar to 2013 findings, for community members not directly affected by cancer, cancer was of relatively low priority compared to the daily concerns of meeting basic needs. Although when asked about the topic, it was evident that there is a tremendous amount of fear surrounding the risk of diagnosis.

3. Similar to the data reviewed in the 2013 CHNA, cancer screening rates are high in many of DFCI’s priority neighborhoods, but cancer mortality rates also are high.
   - Surveillance data indicate that continually Blacks in particular have higher mortality rates than Whites for many cancers. Similar patterns emerge by neighborhood, with Mattapan and Roxbury, two predominantly African American neighborhoods, consistently see higher mortality rates from many common cancers. However, screening rates among these groups are strong.

4. There is a need for additional support services for cancer survivors and their families, specifically around health literacy and financial resources.
   - Focus group participants indicated ample resources for cancer patients, but explained that survivor-specific services were limited, especially in languages other than English. Residents wanted more information regarding ways to prevent cancer reoccurrences, how to rejoin the workforce, and workforce retraining for the future. Interestingly, several participants reported participating in services offered by multiple hospitals in the area despite only receiving care from one.

5. Patient Navigators and social workers were seen as “critical resources” in helping patients navigate the complex health system.
   - Across all groups, a common challenge that emerged was the difficulty navigating the complex health system, especially after receiving a cancer diagnosis. Patient navigators and social workers, said participants, were vital in connecting patients with resources and providing support throughout their cancer journey. Assessment participants strongly encouraged the expansion of patient navigator programs and encouraged DFCI to continue efforts to expand diversity initiatives within these areas.
6. Strengthening internal and external partnerships through capacity building and technical assistance was a common theme among interview participants.
   - Assessment participants suggested increased capacity building and technical assistance for community-based organizations, additional funding for scaling up existing programs, and a more coordinated effort across programs and organizations could help current efforts reach a larger audience. Specific suggestions included virtual lunch-hours for providers at FQHCs, community “open houses,” and seminars held at faith-based and social service organizations. Further, several participants described a need for additional resources for language services, including translating materials and bi-lingual case management.

7. There are ample resources in the community, but a competitive health care and organizational system creates resources that are fragmented and duplicative. Greater collaboration, coordination, and alignment are critical for future work.
   - Similarly noted in the 2013 CHNA, several key informants described a fragmented and uncoordinated health system in the city of Boston, noting that “the system here is competitive instead of collaborative, and that makes services duplicative.” Stakeholders and staff indicated that coordinating or expanding existing programs would be more effective than developing new programming. Further, suggestions for a shared platform to exchange data and information among institutions was viewed as an opportunity to promote collaborations.
BACKGROUND

Overview of Dana-Farber Cancer Institute
Founded originally in 1947, Dana-Farber Cancer Institute (DFCI) aims to provide expert, compassionate care to children and adults with cancer, while advancing the understanding, diagnosis, treatment, cure, and prevention of cancer and related diseases. As an affiliate of Harvard Medical School and a Comprehensive Cancer Center designated by the National Cancer Institute, Dana-Farber also provides training for new generations of physicians and scientists, designs evidence-based programs that promote public health, particularly among high-risk and underserved populations, and disseminates innovative patient therapies and scientific discoveries to its target communities across the United States and throughout the world. Reinforcing DFCI’s exceptional model, U.S. News & World Report ranked Dana-Farber/Brigham and Women’s Cancer Center New England’s top cancer hospital and the 4th best cancer hospital in the nation for adults, as well as the top ranked hospital for pediatric cancer treatment (with Boston Children’s Hospital) in the nation.

DFCI Community Benefits Office
In addition to providing expert clinical care, DFCI is committed to educating the community and raising awareness about the importance of cancer prevention, outreach, screening, early detection, and clinical trials. To this end, DFCI’s Community Benefits Office provides education and outreach across Boston and beyond, offers support services and resources, and conducts a broad scope of research and evidence-based interventions through its collaborative work in local neighborhoods, as well as through its national and international public and professional education initiatives. The DFCI Community Benefits Internal Committee, the Trustee Community Programs Committee, and the Dana-Farber/Harvard Cancer Center (DF/HCC) Community Engagement Committees all provide input and guidance to DFCI’s Community Benefits initiatives and programming.

The mission of DFCI’s community benefits and outreach activities contributes to the Institute’s goal of advancing the understanding, diagnosis, care, treatment, cure, and prevention of cancer and related diseases by:

- Ensuring that patients from diverse backgrounds receive equitable cancer care and treatment, including education about the importance of clinical trials participation
- Establishing quantifiable, evidence-based, and sustainable programs in cancer prevention focusing on at-risk, underserved, and diverse populations
- Providing expertise in cancer care to city and state health departments, community-based agencies, and health care providers.

The DFCI Community Benefits Office participates in numerous outreach efforts and planning through ongoing partnerships with a range of diverse agencies including: the Massachusetts Department of Public Health Chronic Disease Prevention and Control Unit to collaborate on cancer control priorities; Boston Public Health Commission to implement cancer prevention, screening, and survivorship initiatives; United Way/Jimmy Fund Collaborative to provide direct support to community-based agencies that focus on low-income, underserved, and at-risk communities; Center for Community-Based Research to conduct research focusing on effective intervention strategies at the community level; Dana-Farber/Harvard Cancer Center (DF/HCC) to recruit and engage minority faculty and staff; the City of Boston to provide mobile breast cancer screening, health education, and follow-up tracking for the city’s underserved women through the Boston Mammography Van (BMV); the Blum Van to offer cancer education and screenings throughout the region, including local Boston neighborhoods; and the Prostate Health Education Network (PHEN) to provide outreach and advocacy efforts around prostate cancer. A multitude of specific activities and programs have been developed under these larger collaborative relationships.
Dana-Farber Cancer Institute is conducting a community health needs assessment (CHNA) to build off of previous efforts and gain a greater understanding of the health issues facing Boston residents and its specific communities of Dorchester, Roxbury, Mission Hill, Jamaica Plain, and Mattapan (Figure 1), how those needs are currently being addressed, and where there are opportunities to address these needs in the future. In addition to identifying broad health issues facing residents, the 2016 CHNA will delve deeper into behaviors and health outcomes across the cancer continuum of care, exploring behaviors and health outcomes around prevention, screening, treatment/health care utilization, and survivorship. This effort not only complies with the IRS and Massachusetts Attorney General’s mandates for conducting community health needs assessment, but aligns with DFCI’s approach of utilizing data to inform the development of its initiatives and strengthening of collaborative partnerships.

Figure 1. DFCI Priority Neighborhoods
Previous 2013 Dana-Farber Community Health Needs Assessment

To ensure that Dana-Farber’s community outreach activities and programs are meeting the health needs in the community, the Community Benefits Office undertook a comprehensive community health needs assessment (CHNA) ending in 2013. This earlier effort incorporated a two-phased process focusing on Dana-Farber’s priority neighborhoods for community benefits work. The 2013 CHNA used a social determinants of health perspective to examine how larger social and economic factors are associated with good and ill health specifically across the cancer continuum.

In **Phase 1** of the previous Dana-Farber CHNA process, social, economic, and epidemiological data at the community level were reviewed and analyzed to provide a health portrait of these communities. Local and national data were compiled to provide a comprehensive portrait of the city and Dana-Farber’s priority neighborhoods during this preliminary assessment phase. Data analyses were generally conducted by the original data source (e.g., U.S. Census, Massachusetts Department of Public Health). To tap into local resources as well as gather perspectives on Dana-Farber’s engagement with the community, 11 brief interviews were conducted in Phase 1 with several staff members from related organizations in academic, governmental, and nonprofit sectors. All information from these discussions allowed for the exploration of additional data sources and provided further background on Dana-Farber’s programs.

**Phase 2** of the CHNA involved a comprehensive qualitative study, where Dana-Farber staff, community leaders, and residents provided feedback in focus groups and interviews to identify community needs and assets as well as areas for further community engagement and program expansion. This process included four focus groups and seventeen in-depth interviews with internal Dana-Farber staff and leadership; one discussion group with the Community Benefits External advisory committee; three focus groups with community members (one of which was in Spanish) and one focus group with community-based organization (CBO) staff in the priority neighborhoods. A total of 86 individuals participated in qualitative data collection to discuss their perceptions of their neighborhood, their health concerns, what programming or services are most needed to address these concerns, and the role of Dana-Farber in these efforts.

**Focus Area Prioritization Process**

Identifying key areas of focus for this plan was conducted through an iterative, multi-phased process. Between phases I and II of the CHNA, 37 Dana-Farber internal staff and stakeholders participated in a day-long retreat. This event included a discussion of quantitative data from CHNA, followed by small group and large group discussions focused on identifying initial key priority areas to build upon Dana Farber’s existing portfolio of community benefits activities.

Upon completion of the 2013 CHNA, over a dozen presentations were conducted to internal and external stakeholders, including the Dana-Farber Board of Trustees, Community Benefits External Advisory Committee, and community coalitions among others. The prioritization of focus areas included a number of considerations:

- Alignment with Dana-Farber’s mission and current work;
- Potential impact and the ability to demonstrate measurable outcomes;
- Feasibility including technical and financial capacity and strength of partnerships; and
- The magnitude and severity of the issue

As a result of the process described above, Dana-Farber identified key priority areas based on the institution’s potential to demonstrate measurable outcomes in reducing cancer incidence and mortality through programmatic enhancements in these areas.
Three focus area priorities were identified:
1. Addressing the cancer burden
2. Reducing access barriers; and
3. Addressing the community perceptions of cancer.

These areas reflect a commitment to meeting the health needs of the medically underserved in DFCI’s priority neighborhoods and leveraging the hospital’s unique role in the continuum of care as a comprehensive cancer center. In addition, they provide the umbrella under which DFCI’s community outreach activities are organized and have guided the approach to the 2016 DFCI community needs assessment.

Review of Initiatives
Since the 2013 CHNA, DFCI has provided a variety of services and programming to address these specific prioritization areas in the community. Appendix A details the priority areas, strategy, and the progress and reach of the initiatives listed in the 2013 CHNA. Among these initiatives, services such as the Dana-Farber Mammography van and patient navigator program were frequently mentioned in focus groups and key informant interviews as strong community assets provided by the hospital. For an overview of the health priorities and programming identified in the previous CHNA, please see the 2013 Implementation Plan on the DFCI website: http://www.dana-farber.org/uploadedFiles/Library/about-us/community-outreach/chna-implementation-plan.pdf

2016 DFCI Community Health Needs Assessment
The 2016 DFCI community health needs assessment is part of an iterative, dynamic process of reviewing and collecting data to inform the program and initiative planning and implementation process. As in 2013, Dana-Farber Cancer Institute partnered with Health Resources in Action (HRiA), a non-profit public health organization, to conduct the most recent 2016 community health needs assessment. The 2016 CHNA focuses on building off of the 2013 process to further advance DFCI’s community efforts and priority areas with the main goals as:

- Updating the previous CHNA data to provide a portrait of Boston and DFCI’s priority neighborhoods as well as the area’s needs and assets
- Delve deeper into specific areas to advance and elevate existing Dana-Farber initiatives, and identify strategic opportunities for the future
- Probe deeply into specific challenges, opportunities, and communication/outreach strategies

With the DFCI’s three large umbrella areas of addressing the cancer burden, reducing access barriers, and addressing perceptions of cancer, the 2016 CHNA made a concerted effort to delve deeper into issues related to access and availability of services across the cancer continuum and to experiences and suggestions for resources and supports specifically for cancer survivors.

Aligned with the focus of the DFCI Community Benefits office, the 2016 CHNA focuses on the geographic neighborhoods of Dorchester, Jamaica Plain, Mattapan, Mission Hill, and Roxbury, as well as Boston overall. The DFCI Community Benefits office has identified these neighborhoods as priority focus given DFCI’s service area and that they include many of the city’s most underserved populations.
APPROACH AND METHODS

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

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

Social Determinants of Health Framework
It is important to recognize that multiple factors affect health and there is a dynamic relationship between people and their environments. Where and how we live, work, play, and learn are interconnected factors that are critical to consider. That is, not only do people’s genes and lifestyle behaviors affect their health, but health is also influenced by more upstream factors such as employment status and quality of housing stock. The social determinants of health framework, depicted in Figure 1, addresses the distribution of wellness and illness among a population—its patterns, origins, and implications. While the data to which we have access are often a snapshot of a population in time, the people represented by that data have lived their lives in ways that are constrained and enabled by economic circumstances, social context, and government policies. Building on this framework, this assessment utilizes data to examine community-level influences, including social and economic factors that have an impact on health and health outcomes.

Figure 1. Social Determinants of Health Framework

Health Equity
In addition to considering the social determinants of health, it is critical to understand how these characteristics disproportionally affect vulnerable populations. Health equity is defined as all people having the opportunity to “attain their full health potential” and entails focused societal efforts to address avoidable inequalities by equalizing conditions for health for all groups, especially for those who have experienced socioeconomic disadvantages or historical injustices. When examining the larger social and economic context of the population (e.g., upstream factors such as housing, employment status, racial or ethnic discrimination, the built environment, and neighborhood-level resources), a robust assessment should capture the disparities and inequities that exist for traditionally underserved groups. Thus, a health equity lens guided the CHNA process to ensure data comprised a range of social and economic indicators and were presented for specific population groups. Understanding factors that contribute to health patterns for these populations can facilitate the identification of data-informed and evidence-based strategies to provide all residents with the opportunity to live a healthy life.

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

The Boston Redevelopment Authority (BRA) report is the predominant source of demographic data, and the Boston Public Health Commission’s (BPHC) Health of Boston report is the predominant source of health data for the city and its neighborhoods. Since these data are publicly accessible, selected secondary data were incorporated to help guide and inform the assessment’s larger themes. Additional quantitative data can be found in the Health of Boston report located here: http://www.bphc.org/healthdata/health-of-boston-report/Documents/HOB-2014-2015/FullReport_HOB_2014-2015.pdf, and in the BRA Boston in Context: Neighborhoods report located here: http://www.bostonredevelopmentauthority.org/getattachment/7b9b1201-8b4f-4fa9-b0f2-4acbde083198

It should be noted that in many cases, population group names in the CHNA’s graphs reflect the usage by the secondary data source. For example, demographic data pulled from the U.S. Census uses the term Hispanic, while health data from the Boston Public Health Commission uses the term Latino. These different terms by the original and analytical sources are reflected in the DFCI CHNA.

Qualitative Data: Focus Groups and Interviews
While social and epidemiological data can provide a helpful portrait of a community, it does not tell the whole story. It is critical to understand people’s health issues of concern, their perceptions of the health of their community, the perceived strengths and assets of the community, and the vision that residents have for the future of their community. Secondary data were supplemented by focus groups and interviews. In total, three focus groups and fifteen key informant individual and group discussions were conducted with members of DFCI’s community from March 2016 through June 2016.
Focus groups were held with 39 community residents drawn from the region representing the following population segments:

- English-speaking adult cancer survivors
- Spanish-speaking adult cancer survivors
- Community members residing in DFCI priority neighborhoods

A total of 22 individuals representing the DFCI community as well as the region at large were engaged in key informant and group discussions. Key informants represented a number of sectors including academic research, health care, public health, social service, and city government. Discussions explored participants’ perceptions of their communities, priority health concerns, perceptions of cancer and related services across the cancer continuum (prevention, screening, treatment, survivorship), and suggestions for future services and resources to address these issues.

A semi-structured moderator’s guide was used across all discussions to ensure consistency in the topics covered. Each focus group and interview was facilitated by a trained moderator and detailed notes were taken during conversations. On average, focus groups lasted 90 minutes and included 9-18 participants, while interviews lasted approximately 30-60 minutes. Participants for the focus groups were recruited by Health Resources in Action, YMCA of Dorchester, the DF/HCC Faces of Faith Campaign, and Dana-Farber Cancer Institute. Eligible participants (cancer survivors and community members residing in priority neighborhoods), were identified by partner organizations and contacted by phone and email and invited to participate. Flyers were also mailed to community residents previously involved in programming at host organizations. The focus groups were intended to be inclusive, so partner organizations did not exclude participants if they did not live in the particular neighborhood. It was also a priority to recruit adults from traditionally underserved populations, including individuals with low-income and those who do not speak English as a primary language. Similar to the demographic of DFCI priority neighborhoods, the majority of focus group participants were African American or Hispanic. As an incentive, focus group participants received a $35 gift card.

Collaboration with Partnering Teaching Hospitals
In addition to the primary data collection, Conference of Boston Teaching Hospitals (COBTH), of which DFCI is an active member, partnered with the Boston Alliance of Community Health (BACH), the city-wide coalition comprising of neighborhood coalitions, to conduct three focus groups with community residents in early Spring 2016 delving into people’s experiences with the social determinants of health. The outputs of the neighborhood-level meetings are included in the findings of Dana-Farber’s 2016 CHNA and reflect the commitment of Dana-Farber and other COBTH member hospitals to work together in addressing the social, economic, and environmental factors that impact health, well-being, and more specifically, cancer outcomes in our surrounding communities.

Stakeholder Engagement
Towards the final weeks of data analysis, four separate groups were engaged in June 2016 to discuss the CHNA’s preliminary data findings. In these sessions, HRIIA presented key qualitative and quantitative findings in a 45-minute presentation each to DFCI’s: External Advisory Committee, Board of Trustees’ Community Programs Committee, Internal Community Benefits Committee, and Community Benefits Office staff. A total of 38 individuals were engaged in this process. During these sessions, HRIIA provided an overview of the data findings followed by a discussion with the audience to identify questions, gaps, areas for further exploration, and potential implications. Those discussions helped refine the development of the CHNA report and will guide the planning process.
Analyses
The collected qualitative information was coded and then analyzed thematically for main categories and sub-themes. Analyses identified key themes that emerged across all groups and interviews as well as the unique issues that were noted for specific populations. Frequency and intensity of discussions on a specific topic were key indicators used for extracting main themes. While neighborhood differences are noted where appropriate, analyses emphasized DFCI’s priority neighborhoods of Dorchester, Jamaica Plain, Mattapan, Mission Hill, and Roxbury. Selected paraphrased quotes – without personal identifying information – are presented in the narrative of this report to further illustrate points within topic areas.

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

In addition, multiple sources with differing time periods were used to generate this report. In several instances, neighborhood level data were not available and/or population estimates were based on the most stable and accurate population counts. For example, the Boston Behavioral Risk Factor Survey (BBRFS), neighborhood-level data generally do not include people who are homeless or people whose neighborhood of residence was not reported in the survey (except in the Boston overall numbers). Additionally, the age- and race-adjusted cancer mortality rates—which are calculated using cancer-related mortality data and the U.S. decennial census total population counts—are sensitive to the U.S. census reporting on age and race distributions within the population. Because of this, mortality rates reported between 2005 and 2011 are reflective of the age and race distribution of the Boston population in the 2000 decennial census, while mortality rates reported in 2012 are adjusted to the standard population used in the 2010 decennial census. This methodological approach is used in calculating many of the findings presented in this report and should be taken into account when reviewing. Ultimately, between the 2000 and 2010 decennial census, there has been a change in age and racial make-up of the city which is reflective of the rates reported.

Since the 2013 CHNA, the Boston Public Health Commission has adopted the use of new population data for rate generation, thus impacting earlier data reported by DFCI. Specifically, mortality rates reported in the 2013 CHNA were generated by using the 2000 U.S. Census, which were considered the most stable population data for age-adjusted rates at the time. Data from the 2014-2015 Health of Boston report were reanalyzed using newer population estimates that reflect a shift in the White and Black age distribution across the city of Boston.

Further, it should be noted that some indicators are not comparable year to year. In particular, cancer screening guidelines have changed with regard to time periods or ages recommended for screening. While there may not be consensus among some screening guidelines, analyses by government agencies of who follows different guidelines have changed and thus rates year to year may not be directly comparable. This is also the case for the BBRFS data, where some indicators have changed in accordance with CDC guidelines (e.g. regular physical activity and fruit and vegetable consumption). Additionally, some indicators are no longer being collected and therefore, comparisons between past and current data cannot be made. In particular, the Boston Public Health
Commission stopped collecting Boston-level data about the prostate specific antigen test (PSA) in 2008. At this time, only state-level data are available.

It is also worth mentioning that when examining Boston-level data, in some cases, sample sizes are not large enough to stratify cancer screening by sub-populations. For example, sample sizes are not large enough to stratify cancer screening by Asian ethnicity such as Chinese, Vietnamese, Cambodian, etc.

In terms of examining Boston-level data by demographic factors, in many cases sample sizes are not large enough to stratify cancer screening by sub-populations within racial groups. For example, data are not available by subpopulation within the race categories, as samples are too small. I would mention the Asian community in particular.

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

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

The following section highlights key data points on the demographic, social, and economic indicators of DFCI’s priority neighborhoods and those upstream factors that have a significant impact on population health. When asked about the pressing health issues in the community, a number of focus group and interview participants discussed issues related to the social determinants of health. Several participants observed that the health challenges in the community were closely related to the poverty and violence in the area. For example, homelessness was brought up multiple times and the health consequences were noted by residents. Several focus group participants also discussed how housing, employment, and violence were related to community health and are significant risk factors for disease. The section below provides an overview of the socioeconomic context of the city of Boston and DFCI priority neighborhoods.

Demographics
The health of a community is associated with numerous factors including the demographic distribution of age, race/ethnicity, employment status, income, and educational attainment, among others. Who lives in a community is significantly related to the rates of health outcomes and behaviors of the area. The following section highlights key data points related to the demographic composition of DFCI’s priority neighborhoods.

Population
Table 1 presents the overall population of Boston and DFCI’s priority neighborhoods, which comprise 39.3% of Boston’s population overall. Since the 2013 CHNA, the population of the city continues to increase, from 617,594 in 2010 to 639,594 in 2014. Two of Boston’s most populated neighborhoods are DFCI’s priority neighborhoods—Dorchester with 122,598 residents, followed by Roxbury with 49,028.

<table>
<thead>
<tr>
<th>Location</th>
<th>Total Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>639,594</td>
</tr>
<tr>
<td>Dorchester</td>
<td>122,598</td>
</tr>
<tr>
<td>Jamaica Plain</td>
<td>38,425</td>
</tr>
<tr>
<td>Mattapan</td>
<td>24,043</td>
</tr>
<tr>
<td>Mission Hill</td>
<td>16,987</td>
</tr>
<tr>
<td>Roxbury</td>
<td>49,028</td>
</tr>
</tbody>
</table>

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

Age Distribution
As with many demographic characteristics, DFCI’s priority neighborhoods vary in the age distribution of their population (Figure 2). Roxbury has the largest proportion of younger residents with nearly 3 in 10 residents being 19 years old or younger, whereas Mattapan has the highest proportion of older residents, with 13% being 65+ years old. According to American Community Survey 2010-2014 data, the median age of Boston residents was 31 years, compared to the state median of 39 years.
Figure 2. Age Distribution for Boston City-Wide and by Priority Neighborhood, 2010-2014

Demographic Diversity

Participants engaged in the assessment described their communities as “very diverse”, mentioning wide racial, linguistic, and cultural diversity, which most focus group participants viewed as a strength in their community. Table 2 shows the increasingly diverse population of the city of Boston and its neighborhoods, with White residents now making up less than half of the city’s racial and ethnic composition (46%). Black or African American residents were the second largest racial and ethnic group (23%), followed by Hispanics (18%) and Asians (9%). As seen in the quantitative data, there is substantial variation in the racial and ethnic diversity by DFCI priority neighborhood, with nearly three-quarters of Mattapan residents and half of Roxbury residents identifying as Black or African American. Among DFCI priority neighborhood, Roxbury and Jamaica Plain have the largest Hispanic populations with 29% and 24% respectively, while Mission Hill and Dorchester have the largest Asian populations among the priority neighborhoods with 14% and 10% respectively.

Table 2. Racial/Ethnic Composition by City and Neighborhoods, 2010-2014

<table>
<thead>
<tr>
<th>Neighborhood</th>
<th>White, non-Hispanic</th>
<th>Black or African American, non-Hispanic</th>
<th>Hispanic or Latino</th>
<th>Asian, non-Hispanic</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>46%</td>
<td>23%</td>
<td>18%</td>
<td>9%</td>
<td>4%</td>
</tr>
<tr>
<td>Dorchester</td>
<td>22%</td>
<td>44%</td>
<td>17%</td>
<td>10%</td>
<td>8%</td>
</tr>
<tr>
<td>Jamaica Plain</td>
<td>54%</td>
<td>12%</td>
<td>24%</td>
<td>6%</td>
<td>3%</td>
</tr>
<tr>
<td>Mattapan</td>
<td>6%</td>
<td>74%</td>
<td>15%</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Mission Hill</td>
<td>51%</td>
<td>17%</td>
<td>16%</td>
<td>14%</td>
<td>2%</td>
</tr>
<tr>
<td>Roxbury</td>
<td>11%</td>
<td>54%</td>
<td>29%</td>
<td>3%</td>
<td>4%</td>
</tr>
</tbody>
</table>

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

Note: 'Other Race' consists of American Indians/Alaskan Natives and Some Other Races. Hispanic is not a racial category reported by the US Census Bureau. Instead, data for the Hispanic population were obtained by subtracting out all individuals from each racial category who self-identify as Hispanic and aggregating them.
Nativity and Language

With nearly 4 in 10 Boston residents speaking a language other than English at home, focus group and interview participants cited language barriers as a challenging factor not only in seeking health care services, but in navigating the day-to-day life of accessing goods and various systems around the city. The table below shows the distribution of languages spoken across Boston and DFCI’s priority neighborhoods. As noted in Table 3, other than English, Spanish is the most commonly spoken language at home among residents in the city. Approximately one-quarter of Roxbury and Jamaica Plain residents indicated that they speak Spanish at home. However, in Mattapan, French or Haitian Creole is the most commonly spoken non-English language at home, with nearly one in five residents speaking it at home.

Table 3. Nativity and Language Spoken at Home by City-Wide and by Priority Neighborhood, 2010-2014

<table>
<thead>
<tr>
<th>Languages spoken at home</th>
<th>Boston</th>
<th>Dorchester</th>
<th>Jamaica Plain</th>
<th>Mattapan</th>
<th>Mission Hill</th>
<th>Roxbury</th>
</tr>
</thead>
<tbody>
<tr>
<td>% US-Born</td>
<td>69.5%</td>
<td>62.7%</td>
<td>73.9%</td>
<td>61.3%</td>
<td>70.2%</td>
<td>68.4%</td>
</tr>
<tr>
<td>% English</td>
<td>63.4%</td>
<td>58.6%</td>
<td>64.1%</td>
<td>63.7%</td>
<td>61.6%</td>
<td>58.3%</td>
</tr>
<tr>
<td>% Spanish</td>
<td>16.1%</td>
<td>14.5%</td>
<td>22.5%</td>
<td>12.8%</td>
<td>13.0%</td>
<td>26.6%</td>
</tr>
<tr>
<td>% Chinese</td>
<td>3.9%</td>
<td>1.0%</td>
<td>1.9%</td>
<td>0.3%</td>
<td>7.3%</td>
<td>1.0%</td>
</tr>
<tr>
<td>% French or Haitian Creole</td>
<td>5.4%</td>
<td>9.5%</td>
<td>3.1%</td>
<td>19.1%</td>
<td>3.4%</td>
<td>5.1%</td>
</tr>
<tr>
<td>% Portuguese or Cape Verdean Creole</td>
<td>1.7%</td>
<td>3.8%</td>
<td>1.2%</td>
<td>1.0%</td>
<td>0.4%</td>
<td>2.5%</td>
</tr>
<tr>
<td>% Vietnamese</td>
<td>1.9%</td>
<td>8.1%</td>
<td>0.1%</td>
<td>1.8%</td>
<td>1.1%</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

DATA SOURCE: U.S. Census Bureau, 2010-2014 5-Year American Community Survey
DATA ANALYSIS: Boston Redevelopment Authority, as reported in Boston in Context- Neighborhoods, 2016
NOTE: Spanish includes Spanish Creole. French includes Patois, Cajun, and French Creole. Portuguese includes Portuguese Creole

Income and Poverty

With poverty reported as a concern across all focus group and interviews, participants indicated that poverty was the root cause of stress in their lives, reporting challenges meeting basic needs such as food and shelter and difficulty balancing multiple low-wage jobs. Participants also indicated their concern with the wealth disparity in the city. As one participant shared, “You’re either very rich or very poor in Boston; there’s usually no middle.”

This bears out in the quantitative data. Figure 3 shows the median household income in Boston is generally high, at $55,448. However, the median incomes of DFCI’s priority communities are generally much lower than Boston overall, with Roxbury at a median income of $25,254, Mission Hill at $35,020, and Mattapan at $42,206. More
so, the distribution of income across the city varies greatly and clusters on the higher and lower ends of the income spectrum. Table 4 shows that 20% of Boston residents live in a household earning under $15,000, while 28% make $100,000 or more. These distributions are different in many of DFCI’s priority neighborhoods, in particular Roxbury and Mattapan, which are more likely to have a greater population at the lower end of the income spectrum. However, Jamaica Plain’s income distribution is more likely to mirror Boston overall. This was discussed in more detail in the focus groups as participants talked about the “two Jamaica Plains” – one comprised of young professional, upwardly mobile families and the other of mainly lower income Hispanic immigrants.

Figure 3. Median Household Income for Boston City-Wide and by Priority Neighborhood 2010-2014

Table 4. Household Income for Boston City-Wide and by Priority Neighborhood, 2010-2014

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Boston</th>
<th>Dorchester</th>
<th>Jamaica Plain</th>
<th>Mattapan</th>
<th>Mission Hill</th>
<th>Roxbury</th>
</tr>
</thead>
<tbody>
<tr>
<td>$14,999 and under</td>
<td>20%</td>
<td>21%</td>
<td>14%</td>
<td>19%</td>
<td>29%</td>
<td>35%</td>
</tr>
<tr>
<td>$15,000-$34,999</td>
<td>17%</td>
<td>19%</td>
<td>12%</td>
<td>24%</td>
<td>21%</td>
<td>26%</td>
</tr>
<tr>
<td>$35,000-$49,999</td>
<td>10%</td>
<td>12%</td>
<td>9%</td>
<td>16%</td>
<td>12%</td>
<td>11%</td>
</tr>
<tr>
<td>$50,000-$74,999</td>
<td>15%</td>
<td>17%</td>
<td>14%</td>
<td>18%</td>
<td>15%</td>
<td>12%</td>
</tr>
<tr>
<td>$75,000-$99,999</td>
<td>11%</td>
<td>11%</td>
<td>14%</td>
<td>10%</td>
<td>8%</td>
<td>7%</td>
</tr>
<tr>
<td>$100,000-$149,999</td>
<td>14%</td>
<td>12%</td>
<td>19%</td>
<td>9%</td>
<td>8%</td>
<td>7%</td>
</tr>
<tr>
<td>$150,000 +</td>
<td>14%</td>
<td>7%</td>
<td>17%</td>
<td>5%</td>
<td>7%</td>
<td>3%</td>
</tr>
</tbody>
</table>

DATA SOURCE: U.S. Census Bureau, 2010-2014 5-Year American Community Survey
DATA ANALYSIS: Boston Redevelopment Authority, as reported in Boston in Context- Neighborhoods, 2016
The federal poverty line is a standard measure used across the U.S. and is adjusted by household size, although it is not geographic dependent. Across the U.S., the federal poverty level is $11,770 for a single individual and $24,250 for a family of four, as an example. As seen in Figure 4, residents in DFCI’s priority neighborhoods appear to experience higher rates of poverty than Boston overall. Female headed households are especially vulnerable, with 45% of Roxbury female-headed households living below the poverty line.

Figure 4. Poverty for Individuals by Boston City-Wide and by Priority Neighborhood, 2010-2014

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

Children are especially vulnerable to living in poverty. As seen in Figure 5, 44% of children in Mission Hill and 52% of children in Roxbury were living in families earning below the federal poverty line.

Figure 5. Poverty by Age for Boston City-Wide and by Priority Neighborhood, 2010-2014

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

According to the U.S. Census Bureau, there has been an overall downward trend in unemployment rates in the city of Boston, from 12.9% in 2010 to 8.3% in 2014 (Figure 6). Yet underemployment, the stagnation of wages, and insufficient benefits were reported by focus group and interview participants as major barriers to economic mobility and a factor of negative health outcomes. As seen in Figure 7, 18% of Mattapan residents and 17% of Roxbury residents indicated they were unemployed in 2010-2014, above the percent across the city at 10% in the same time period, and higher than what was seen in the five-year period earlier in 2005-2009.

Figure 6. Percent Unemployed, Ages 16+, Boston, 2005-2014

![Image of Figure 6](image-url)


Figure 7. Percent Unemployed, Ages 16+, by City and Neighborhoods, 2005-2009 and 2010-2014

![Image of Figure 7](image-url)

DATA SOURCE: U.S. Census Bureau, 5-Year American Community Survey, 2005-2009 and 2010-2014
DATA ANALYSIS: Boston Redevelopment Authority, as reported in ACS 2005-2009 Estimate by Neighborhood and Boston, 2011; and Boston in Context- Neighborhoods, 2016
NOTE: Population 16 and over. Unemployment rates calculated from the 5-year American Community Survey will differ from city, state, or national unemployment rates from the Bureau of Labor Statistics due to differences in timeframe and data collection methods.
Education

Boston is considered a highly educated city, with focus group and interview participants noting the multiple prestigious institutions throughout the region; however, they also remarked that many of the institutions are not necessarily targeted to residents in their community. Focus group participants were proud of the academic rigor that Boston offered, but also were interested in greater outreach and engagement into the communities by local higher educational institutions.

Census data show high educational attainment among Boston’s adult residents aged 25 years and older, with 45% having earned a college degree or more. Among DFCI’s priority neighborhoods, Jamaica Plain has a high percentage of residents with a college degree (63%). Other neighborhoods such as Mattapan and Roxbury have lower proportions of residents who have completed college, but do have one quarter of residents with some college education or an associate’s degree. However, nearly one-quarter of residents in Roxbury, Mattapan, and Dorchester have not completed high school.

Table 5. Educational Attainment of Adults 25 Years and Older by Boston City-Wide and by Priority Neighborhoods, 2010-2014

<table>
<thead>
<tr>
<th>Neighborhood</th>
<th>Less than High School</th>
<th>High School Graduate</th>
<th>Some College or Associates</th>
<th>Bachelor’s Degree or Higher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>15%</td>
<td>22%</td>
<td>18%</td>
<td>45%</td>
</tr>
<tr>
<td>Dorchester</td>
<td>22%</td>
<td>32%</td>
<td>25%</td>
<td>22%</td>
</tr>
<tr>
<td>Jamaica Plain</td>
<td>8%</td>
<td>14%</td>
<td>15%</td>
<td>63%</td>
</tr>
<tr>
<td>Mattapan</td>
<td>23%</td>
<td>35%</td>
<td>27%</td>
<td>15%</td>
</tr>
<tr>
<td>Mission Hill</td>
<td>14%</td>
<td>24%</td>
<td>19%</td>
<td>43%</td>
</tr>
<tr>
<td>Roxbury</td>
<td>25%</td>
<td>30%</td>
<td>25%</td>
<td>20%</td>
</tr>
</tbody>
</table>

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

“We’re surrounded by the best schools and institutions in the world here in Boston.” -Focus group participant
Housing and Built Environment

Similar to the 2013 CHNA, focus group participants and key informants overwhelmingly cited housing affordability and availability as the biggest financial challenge to living in Boston. As residents spoke about the middle class being squeezed out of the city, they attributed housing costs to being one of the main contributors to this trend. With housing ownership seemingly out of reach for many Boston residents, Figure 8 shows the variation by neighborhood in housing occupancy in the city. Overall one-third of housing units are owner-occupied in the city, while only 12% of Mission Hill units and 18% of Roxbury units are. However, owner-occupancy rates are high in Jamaica Plain and Mattapan, with 46% and 37% respectively.

However, housing costs are a large percentage related to cost of living in the city. As Figure 9 shows, 30% of home-owners and 41% of renters in the city pay more than 35% of their household income to housing costs, a high percentage relative to what is earned.

Figure 8. Percent Housing Units Owner- or Renter-Occupied, by Boston City-Wide and by Priority Neighborhoods, 2010-2014

<table>
<thead>
<tr>
<th>Neighborhood</th>
<th>Owner-Occupied</th>
<th>Renter-Occupied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>34%</td>
<td>66%</td>
</tr>
<tr>
<td>Dorchester</td>
<td>33%</td>
<td>67%</td>
</tr>
<tr>
<td>Jamaica Plain</td>
<td>46%</td>
<td>54%</td>
</tr>
<tr>
<td>Mattapan</td>
<td>37%</td>
<td>63%</td>
</tr>
<tr>
<td>Mission Hill</td>
<td>12%</td>
<td>88%</td>
</tr>
<tr>
<td>Roxbury</td>
<td>18%</td>
<td>82%</td>
</tr>
</tbody>
</table>

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

Figure 9. Percent of Residents Whose Housing Costs are 35% or more of Household Income, Boston, 2010-2014

<table>
<thead>
<tr>
<th>Category</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owners with Mortgage</td>
<td>30%</td>
</tr>
<tr>
<td>Renters</td>
<td>41%</td>
</tr>
</tbody>
</table>

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

Concerns over rising homelessness were mentioned in almost all focus groups and interviews. Key informants identified elders, residents in recovery, and those suffering from mental illness among the most vulnerable for becoming homeless. Quantitative data show that the number of homeless individuals in Boston has increased by 32% since 2011 to approximately 7,248 individuals in 2013 (Figure 10).

Figure 10. Homeless Count by Year in Boston, 2010-2013

![Homeless Count by Year in Boston, 2010-2013](image)

DATA SOURCE: Emergency Shelter Commission, Boston Public Health Commission

Transportation

While Boston has a comprehensive public transportation system, with more than 30% of residents taking public transportation to work (Table 6), focus group and interview participants indicated that some residents—particularly those living in Mattapan—deal with challenges to accessing transportation on a daily basis. Focus group participants discussed the challenges to finding transportation near them or having to take several bus or train lines to their destination, contributing to several hours of their day comprised of being “en route.” Residents who used public transportation from their neighborhood described issues of limited routes, schedules, and stops. Participants in the cancer survivor groups cited several hospital-led initiatives that helped patients with transportation, although a few residents reported living outside of the service area, thus having to rely on friends or family for rides or use taxis when public transit options were not available. Further, residents indicated that more transportation assistance was needed for day-to-day errands, especially for the elderly.

Table 6. Means of Commuting by Boston City-Wide and by Priority Neighborhoods, 2010-2014

<table>
<thead>
<tr>
<th></th>
<th>Worked at home</th>
<th>Car, truck, or van</th>
<th>Bus or trolley bus</th>
<th>Subway or elevated</th>
<th>Bicycle</th>
<th>Walked</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>3.7%</td>
<td>45.5%</td>
<td>13.5%</td>
<td>17.6%</td>
<td>1.9%</td>
<td>14.7%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Dorchester</td>
<td>1.7%</td>
<td>56.3%</td>
<td>19.0%</td>
<td>15.9%</td>
<td>0.7%</td>
<td>4.1%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Jamaica Plain</td>
<td>4.7%</td>
<td>41.2%</td>
<td>12.1%</td>
<td>27.9%</td>
<td>6.3%</td>
<td>5.2%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Mattapan</td>
<td>2.3%</td>
<td>55.5%</td>
<td>22.0%</td>
<td>13.9%</td>
<td>0.1%</td>
<td>3.3%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Mission Hill</td>
<td>2.6%</td>
<td>24.6%</td>
<td>17.3%</td>
<td>19.0%</td>
<td>6.9%</td>
<td>26.8%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Roxbury</td>
<td>2.6%</td>
<td>45.0%</td>
<td>25.8%</td>
<td>12.3%</td>
<td>1.6%</td>
<td>10.6%</td>
<td>1.6%</td>
</tr>
</tbody>
</table>

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

While the overall crime rate in the city of Boston has decreased, many focus group participants reported concerns about personal safety in their communities. As one participant said, “I worry about my kids getting to school safely or walking home at night. I see people on the streets just waiting to mug them or try and get them involved in drugs.” Further, interview participants reported communities of color being the most vulnerable to community violence saying, “There is violence everywhere, but you see concentrated community violence in certain areas where there are more community residents of color, and that has a profound impact on long-term trauma and negative health outcomes.” Focus group and interview participants cited crime and community violence as one of the biggest concerns in their communities, and discussed issues of violence in relation to drugs, poverty, and mental illness.

While overall counts of crimes and specific violent crimes such as assault and robbery were slightly lower in Boston in 2015 compared to 2014 (Figure 11), DFCI priority neighborhoods of Mattapan and Roxbury experience three times the rate of violent crime as the city overall (Table 7).

**Figure 11. Crime Counts by Year, Boston, 2014-2015**

![Crime Counts by Year, Boston, 2014-2015](image)

**Table 7. Violent Crime and Property Crime Rate per 100,000 Population by Boston City-Wide and by Priority Neighborhoods, 2015**

<table>
<thead>
<tr>
<th></th>
<th>Violent Crime Rate</th>
<th>Property Crime Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>752.0</td>
<td>2554.1</td>
</tr>
<tr>
<td>Dorchester (C-11)</td>
<td>512.5</td>
<td>1170.6</td>
</tr>
<tr>
<td>Jamaica Plain (E-13)</td>
<td>686.4</td>
<td>2573.4</td>
</tr>
<tr>
<td>Mattapan (B-3)</td>
<td>2542.8</td>
<td>4052.9</td>
</tr>
<tr>
<td>Roxbury/Mission Hill (B-2)</td>
<td>2373.7</td>
<td>4875.8</td>
</tr>
</tbody>
</table>

DATA SOURCE: Boston Police Department, Year End Crime Statistics, 2015
CANCER PREVENTION: PERCEPTIONS AND SURVEILLANCE DATA

Cancer prevention is defined as action taken to lower the chance of getting cancer. Many factors in our genes, our lifestyle, and our environment may increase our risk of getting cancer. The prevention-related information in this section includes CHNA participants’ perceptions around cancer prevention as well as self-reported data for risk behaviors that have been associated with cancer including tobacco use, obesity, physical activity and healthy eating, and substance use and abuse.

Perceptions of Cancer Prevention
When CHNA participants were asked about their perceptions of cancer prevention, they were most likely to discuss the relationship between lifestyle behaviors and cancer prevention and how the social determinants of health are critical factors. However, several residents also mentioned environmental hazards related to cancer as well as how they viewed mental health and cancer. The following section describes these findings in more detail.

Perceived Relationship between Lifestyle Behaviors and Cancer Risk
Participants frequently cited smoking, obesity, and sedentary lifestyles as potential contributors to cancer, and were more likely than 2013 CHNA participants to specifically name healthy diet and physical activity as important protective factors. They described avoiding “red meat, soda, and alcohol” and how eating healthy meals including fruits and vegetables were important for reducing one’s risk of cancer. Community residents involved in the focus group recommended investing resources in local community gardens and neighborhood associations to expand access to healthy food. Similar to the 2013 CHNA, participants in the 2016 CHNA also were well aware of the relationship between smoking and cancer, and consequently that smoking cessation was a method for preventing cancer.

Social Determinants of Health and Cancer Risk
When asked about contributors to cancer or what could be done to lessen cancer risk, participants shared several suggestions, with many focusing on the social determinants of health. Although focus group participants did not use this terminology, they noted that the built environment and structural access to resources were significant factors related to trends in cancer disparities. Specifically, they discussed access to affordable healthy foods and availability of supermarkets in their neighborhood as issues. They also discussed availability of financial assistance to low income families as an important contributor to improving access to protective goods and services. Several participants also cited second-hand smoke exposure as an issue. They viewed the smoke free-housing policies enacted across the city as positive steps, but many believed that second-hand smoke was still a major concern. As one participant said, “There are signs all over the place that say the building is smoke-free, but I still see people day and night smoking in front of my window.”

Environmental Risks and Cancer
Several focus group participants talked about how they believed that their environmental surroundings have a negative impact on their community’s health and could possibly increase the risk of cancer. Specifically, participants mentioned air pollution and their concern of living close to a train or bus station. As one participant said, “The trains and buses start early in the morning and run non-stop all day, every day. That’s a lot of fumes to breathe in one lifetime.” Another resident agreed and described having to frequently wash her walls because of the “yellow fade that appears every few months,” which she thought was caused by the fumes emitted by the T stop three block away.
Mental Health

*Mental health, especially depression and stress, was a prominent theme across all group and several participants attributed mental health and stress as factors related to cancer.* One male focus group participant with Hodgkin’s Disease reported that stress played a significant role in his getting cancer. Multiple low-wage jobs, poverty, and family issues, he said, were the main causes of day-to-day stressors that he felt exacerbated his declining health. Another male resident with cancer agreed and added, “And the environment around us isn’t helping either. We’re breathing in chemicals at every corner in Dorchester...of course we’re going to get cancer.”

Awareness of Cancer Prevention-Related Programs and Services

*When asked about specific programs targeting cancer prevention, focus group participants cited several types of initiatives and services ranging from DFCI efforts to activities sponsored by community health centers to large city-wide initiatives.* Specifically, community members in all three focus groups reported that the DFCI Mammography Van offered free prevention services. However, there was some confusion about what services were offered, with some residents asking if vaccinations and prostate screenings were also available. The same was true for community health centers. Some participants reported knowing about health education in local community health centers as well as the partnership between DFCI and Whittier Street Health Center, but were unsure about the details or what was available for them specifically. Smoke-free building policies enacted by the city and smoking cessation classes offered at community health centers were also mentioned by a few participants as important prevention-related initiatives.

Cancer-Related Risk Factors and Behaviors

*The following section describes a snapshot of cancer-related risk factors and behaviors of smoking, obesity, healthy eating, physical activity, and alcohol use across Boston and by neighborhood, revealing the variation by neighborhood across the city.* The following data were captured by the Boston Behavioral Risk Factor Surveillance Survey (BBRFS) and analyzed by the Boston Public Health Commission. Additional findings from the qualitative discussions on these topics are highlighted where appropriate.

Smoking Behaviors

*Overall, Boston adult smoking rates have remained steady over time while youth smoking rates have declined.* The Boston Behavioral Risk Factor Surveillance Survey (BBRFS) regularly assesses the number of adults who said they currently smoke cigarettes, defined as adults who have smoked at least 100 cigarettes in their life and report smoking every day or some days. Figure 12 shows self-reported cigarette smoking among adults in Boston from 2005-2013 which has been steady and is currently at 19%. For Massachusetts, the statewide percentage of adult smokers is 16% while it is 17% for the U.S. overall.

“I’m most concerned about preventable cancers like lung cancer. People know they shouldn’t be smoking but they still are.” -Focus group participant

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office
NOTE: The BBRFSS dataset was reweighted after the publication of Health of Boston 2012-2013. The rates included in Health of Boston 2014-2015 are from the reweighted BBRFSS and cannot be compared to BBRFS smoking data in previous Health of Boston Reports

Figure 13 shows the percent of current adult smokers by neighborhood. Among DFCI priority neighborhoods, nearly one-quarter of residents in North Dorchester and Roxbury indicated that they were current smokers. When looking at smoking status by various demographic groups,

Table 8 shows that 22% of men in Boston, 30% of adults with less than a high school degree, and 29% of residents earning under $25,000 are considered current smokers.

Figure 13. Percent of Current Smoking among Adults by City and Priority Neighborhood, 2008, 2010, 2013

DATA SOURCE: Boston Behavioral Risk Factor Survey (2013)
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office
Table 8. Percent of Adults Who Smoke by Select Sociodemographic Indicators, Boston, 2013

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Boston</strong></td>
<td>18%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>15%</td>
</tr>
<tr>
<td>Male</td>
<td>22%</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>15%</td>
</tr>
<tr>
<td>Black</td>
<td>19%</td>
</tr>
<tr>
<td>Latino</td>
<td>16%</td>
</tr>
<tr>
<td>White</td>
<td>19%</td>
</tr>
<tr>
<td><strong>Educational Attainment</strong></td>
<td></td>
</tr>
<tr>
<td>Less than High School</td>
<td>30%</td>
</tr>
<tr>
<td>High School Diploma or GED</td>
<td>23%</td>
</tr>
<tr>
<td>At Least Some College/Bachelor's Degree or Higher</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;$25,000</td>
<td>29%</td>
</tr>
<tr>
<td>$25,000-$49,999</td>
<td>18%</td>
</tr>
<tr>
<td>$50,000+</td>
<td>11%</td>
</tr>
</tbody>
</table>

DATA SOURCE: Boston Behavioral Risk Factor Survey (2013)

In focus groups, participants discussed what they saw as a strong relationship between cigarette smoking and cancer risk. They also mentioned—and had differing opinions about—smoking alternatives such as electronic cigarettes (e-cigarettes) and chewing tobacco. City-wide e-cigarette and chewing tobacco data were not available for this assessment. However, in August 2014, the Centers for Disease Control and Prevention (CDC) reported that more than a quarter million youth who had never smoked a cigarette used e-cigarettes in 2013, three times the number of users since 2011. Adult e-cigarette data are not available.

When examining youth smoking rates in Boston, data indicate that the percent of Boston high school students who smoke has declined dramatically in more than a decade. Figure 14 show that the percent of Boston high school students who self-reported smoking has declined by almost half (47%) from 15% in 2001 to 8% in 2013. Among Boston high school students reporting smoking status, 23% of white high school students indicated that they are current smokers compared to 10% of Latino students, 5% of Black students, and 4% of Asian students.

DATA SOURCE: Youth Risk Behavior Survey, Centers for Disease Control and Prevention
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Table 9. Percent of Public High School Students Who Smoke by Select Sociodemographic Indicators, 2011 and 2013 Combined

<table>
<thead>
<tr>
<th>Category</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>9%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>8%</td>
</tr>
<tr>
<td>Male</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Age of Student</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;16 yrs.</td>
<td>6%</td>
</tr>
<tr>
<td>16-17 yrs.</td>
<td>11%</td>
</tr>
<tr>
<td>18+ yrs.</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>4%</td>
</tr>
<tr>
<td>Black</td>
<td>5%</td>
</tr>
<tr>
<td>Latino</td>
<td>10%</td>
</tr>
<tr>
<td>White</td>
<td>23%</td>
</tr>
</tbody>
</table>

DATA SOURCE: Youth Risk Behavior Survey (2011 and 2013), Centers for Disease Control and Prevention
As noted earlier, focus group participants cited secondhand smoke as a concern and potential contributor to cancer. Self-reported data on exposure to secondhand smoke show that 16% of Boston residents have been exposed to secondhand smoke at home for 1+ hours in the past week, yet that number is 24% among North Dorchester residents and 21% among Roxbury residents.

**Figure 15. Percent of Adults Reported to Be Exposed to Secondhand Tobacco Smoke at Home One or More Hours per Week in Past Seven Days by Boston Neighborhood, 2010 and 2013 Combined**

*Includes Beacon Hill, Downtown, the North End, and the West End; **Includes Chinatown

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

**Alcohol Misuse**

*Alcohol was discussed among focus group participants more in relation to substance abuse being a concern in their community and a negative coping mechanism for stress, and less as a risk factor for cancer.* As part of the Boston Behavioral Risk Factor Survey (BBRFSS) and Youth Risk Behavior Survey (YRBS), respondents were asked about their consumption of alcohol in the past month. A drink of alcohol was defined as one can or bottle of beer, one glass of wine, one can or bottle of wine cooler, one cocktail, or one shot of liquor. Binge drinking was defined as consumption of five or more drinks on any one occasion in the past month. The following figures present the percent of Boston adults and youth who reported binge drinking between the years 2006-2013. Figure 16 shows that a quarter of adults in the city of Boston reported binge drinking, defined as consumption of five or more drinks on any one occasion in the past month.

*People often use drugs and alcohol as a coping mechanism for things like stress and depression.* -Focus group participant
Figure 16. Percent of Boston Adults Who Reported Binge Drinking by Year 2006, 2008, 2010, 2013

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 17 and Table 10 indicate that binge drinking rates tend to hover around 20-21% among DFCI’s priority neighborhoods. When looking at data by different demographic groups, 32% of males and 33% of white residents indicated that they have engaged in binge drinking, the highest rates among all groups.

Figure 17. Percent of Boston Adults Who Reported Binge Drinking by Boston City-Wide and by Neighborhood, 2013

*Includes Back Bay, Beacon Hill, West End, and the North End
†Includes Chinatown

DATA SOURCE: Boston Behavioral Risk Factor Surveillance Survey (BBRFSS), 2013;
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office
Table 10. Percent of Boston Adults Who Reported Binge Drinking by Select Sociodemographic Indicators, 2013

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>25%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>19%</td>
</tr>
<tr>
<td>Male</td>
<td>32%</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>11%</td>
</tr>
<tr>
<td>Black</td>
<td>17%</td>
</tr>
<tr>
<td>Latino</td>
<td>22%</td>
</tr>
<tr>
<td>White</td>
<td>33%</td>
</tr>
<tr>
<td><strong>Educational Attainment</strong></td>
<td></td>
</tr>
<tr>
<td>Less than High School</td>
<td>14%</td>
</tr>
<tr>
<td>High School Diploma or GED</td>
<td>21%</td>
</tr>
<tr>
<td>At Least Some College</td>
<td>29%</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;$25,000</td>
<td>21%</td>
</tr>
<tr>
<td>$25,000-$49,999</td>
<td>25%</td>
</tr>
<tr>
<td>$50,000+</td>
<td>31%</td>
</tr>
</tbody>
</table>

DATA SOURCE: Boston Behavioral Risk Factor Survey (2013)

For youth binge drinking, rates are back to 2005 levels after a rise in 2007 and slow decline back to 15% of Boston high school students reporting having engaged in binge drinking in the past year (Figure 18). Among different groups, 22% of white high school students and 19% of Latino high school students reported binge drinking (Table 11).

Figure 18. Percent of Boston Public High School Students Who Reported Binge Drinking by Year

Table 11. Percent of Boston Public High School Students Who Reported Binge Drinking by Selected Sociodemographic Indicators, 2013

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>15%</td>
</tr>
<tr>
<td>Male</td>
<td>14%</td>
</tr>
<tr>
<td><strong>Age of Student</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;16 yrs.</td>
<td>13%</td>
</tr>
<tr>
<td>16-17 yrs.</td>
<td>15%</td>
</tr>
<tr>
<td>18+ yrs.</td>
<td>18%</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>7%</td>
</tr>
<tr>
<td>Black</td>
<td>11%</td>
</tr>
<tr>
<td>Latino</td>
<td>19%</td>
</tr>
<tr>
<td>White</td>
<td>22%</td>
</tr>
</tbody>
</table>

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

Obesity

Across all focus group and interviews, obesity was identified as a major health concern for residents, and surveillance data indicate that more than one in five Boston adult residents is considered obese. Focus group participants in Dorchester reported limited access to healthy food options, indicating that they often purchased food from convenient stores. Concern about youth obesity was especially prominent, with residents wishing to see more activities that encouraged physical activity for youth, especially during the winter season.

In the BBRFS, all respondents were asked to report their height and weight. Respondents were categorized based on their Body Mass Index (BMI), which equals weight in kilograms divided by height in meters squared. An adult who has a BMI of 30 or higher is considered obese, as defined by the Behavioral Risk Factor Survey. Figure 19 shows that the percent of obese adults declined from 24% in 2008 to 20% in 2010. However, there was a slight increase in obesity among Boston adults from 2010 to 2013.
However, data indicate that there is variation in obesity by neighborhood. Nearly 4 in 10 Mattapan residents and 3 in 10 Roxbury residents are considered obese (Figure 20). Figure 20 shows the variation by neighborhood over the last several years, with every neighborhood and Boston overall seeing a slight uptick since 2010.

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

*Includes Back Bay, Beacon Hill, West End, and the North End
†Includes Chinatown
Figure 21. Percent Obesity among Boston Adults, 2008, 2010 and 2013

Table 12 shows percent of Boston adults considered obese by different demographic groups. The percent of Black residents (33%) who are considered obese was more than double the percent of White residents (16%) and Asian residents (15%). Latino residents had the second highest proportion of obese adults (27%) of all race and ethnic groups. Latino participants in focus groups discussed how acculturation has affected their own obesity struggles, as one participant illustrated, “It wasn’t until after we moved to the United States that we began struggling with weight. We eat more fried and processed food here.”

Table 12. Percent Obesity by Selected Socioeconomic Indicators, 2013

<table>
<thead>
<tr>
<th>Category</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>22%</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>23%</td>
</tr>
<tr>
<td>Male</td>
<td>20%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>18-24 yrs.</td>
<td>13%</td>
</tr>
<tr>
<td>25-44 yrs.</td>
<td>19%</td>
</tr>
<tr>
<td>45-64 yrs.</td>
<td>30%</td>
</tr>
<tr>
<td>65+ yrs.</td>
<td>27%</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>15%</td>
</tr>
<tr>
<td>Black</td>
<td>33%</td>
</tr>
<tr>
<td>Latino</td>
<td>27%</td>
</tr>
<tr>
<td>White</td>
<td>16%</td>
</tr>
<tr>
<td>Educational Attainment</td>
<td></td>
</tr>
<tr>
<td>Less than High School</td>
<td>22%</td>
</tr>
<tr>
<td>High School Diploma or GED</td>
<td>25%</td>
</tr>
<tr>
<td>At Least Some College/Bachelor's Degree or Higher</td>
<td>19%</td>
</tr>
<tr>
<td>Income</td>
<td></td>
</tr>
<tr>
<td>&lt;$25,000</td>
<td>26%</td>
</tr>
<tr>
<td>$25,000-$49,999</td>
<td>18%</td>
</tr>
<tr>
<td>$50,000+</td>
<td>17%</td>
</tr>
</tbody>
</table>

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office
Focus group and interview participants were particularly concerned about youth obesity, indicating that they thought it was a growing problem among today’s students. However, data from the Youth Risk Behavioral Survey show that obesity rates among high school students have remained steady over the past several years at around 14% (Figure 22).

**Figure 22. Percent Obesity among Boston Public High School Students by Year**

![Graph showing percent obesity among Boston Public High School Students by Year](image)


**Physical Activity and Healthy Eating**

*While in the 2016 CHNA, participants focused more than in 2013 on what they saw as an important link between healthy diet, physical activity, and cancer risk; surveillance data indicate that many Boston residents are meeting recommended guidelines in this area.* Since 2006, nearly 6 in 10 adults in Boston reported meeting CDC guidelines for aerobic physical activity, defined as 150 minutes in the past week, which is above the state (55%) and national (49%) average.

Among DFCI priority neighborhoods, 69% of Jamaica Plain residents reported participating in enough activity to meet the recommended guidelines, while Roxbury and Dorchester were around the overall Boston rate. Approximately half of Mattapan residents reported this level of activity.

Among different demographic groups, higher percentages of higher educated and higher income adults in Boston reported physical activity levels meeting recommended guidelines (Table 13).
Figure 23. Adults Who Met CDC Guidelines for Aerobic Physical Activity (150 Minutes in the Past Week), 2013


Figure 24. Percent of Adults Who Met CDC Guidelines for Aerobic Physical Activity (150 Minutes in the Past Week) by Priority Neighborhoods, 2013

DATA SOURCE: Boston Behavioral Risk Factor Surveillance Survey (BBRFSS), 2013
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office
Table 13. Percent of Adults Who Met CDC Guidelines for Aerobic Physical Activity (150 Minutes in the Past Week) by Selected Sociodemographic Indicators, 2013

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

Data on fruit and vegetable consumption indicate that 75% of Boston residents reported that they had have one or more servings of vegetables daily and 62% have one or more servings of fruits. For Jamaica Plain residents, self-reported behaviors are higher, at 84% and 69% for vegetables and fruits respectively. Other DFCI priority neighborhoods report slightly less fruit and vegetable consumption than Boston overall.

Figure 25. Percent Adults Who Ate One or More Servings per Day of Vegetables and Fruits, by Priority Neighborhood, 2013

NOTE: CDC recommended guidelines are new and were implemented beginning with 2013 BBRFSS data
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Youth risk behavior survey data show the percent of Boston high school students who had an inadequate consumption of fruits and vegetables, defined as eating less than one serving of fruits or vegetables daily in the past seven days. Rates have declined since 2009, indicating improved fruit and vegetable consumption among high school students (Figure 26); however, Latino and Black students are most likely to have an inadequate consumption of fruits and vegetables (Table 14).

Figure 26. Inadequate Fruit and Vegetable Consumption for Boston Public High School Students by Year

DATA SOURCE: Boston Behavioral Risk Factor Survey (2013), Boston Public Health Commission
Table 14. Inadequate Fruit and Vegetable Consumption for Boston Public High School Students by Select Sociodemographic Indicators, 2013

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>17%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>19%</td>
</tr>
<tr>
<td>Male</td>
<td>16%</td>
</tr>
<tr>
<td><strong>Age of Student</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;16 yrs.</td>
<td>17%</td>
</tr>
<tr>
<td>16-17 yrs.</td>
<td>18%</td>
</tr>
<tr>
<td>18+ yrs.</td>
<td>16%</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>6%</td>
</tr>
<tr>
<td>Black</td>
<td>19%</td>
</tr>
<tr>
<td>Latino</td>
<td>22%</td>
</tr>
<tr>
<td>White</td>
<td>11%</td>
</tr>
</tbody>
</table>

DATA SOURCE: Boston Behavioral Risk Factor Survey (2013), Boston Public Health Commission

**HPV Vaccination**
Nationally, HPV vaccination coverage continues to fall behind other adolescent vaccination coverage estimates and remains below Healthy People 2020 targets of 80% coverage. According to the Centers for Disease Control, four out of ten adolescent girls and six out of ten adolescent boys have not started the HPV vaccine series, and are vulnerable to cancers caused by HPV infections. However, CDC reports that vaccination coverage of ≥2 dose coverage for females in Massachusetts significantly increased from 2013 to 2014 from 48.7% to 62.5%, exceeding the national average of 50.3%
The following section provides an overview of qualitative themes of perceptions of cancer screenings and key findings from surveillance data on behaviors and practices. Cancer screenings are a test or procedure used to look for cancer prior to the development of symptoms. They are a secondary prevention measure critical for early detection and prompt intervention when the disease is easier to treat. Knowledge of and equal access to comprehensive screening services is essential to improving cancer morbidity and mortality in Boston.

The screening-related information in this section includes self-reported data on cancer screening for breast cancer (mammograms and clinical breast exams), cervical cancer (Pap test), prostate cancer (prostate-specific antigen or PSA test) and colorectal cancer (colonoscopy/sigmoidoscopy). When available, the data are presented by neighborhood (especially for the DFCI priority neighborhoods of Mattapan, Roxbury, Jamaica Plain, Mission Hill and Dorchester), race/ethnicity, education status, and gender.

**Perceptions of Cancer Screening**

While cancer screening was deemed important by focus group participants and residents who key informant interviewees served, they cited a number of challenges including confusing screening guidelines, uncertainty about insurance coverage, discomfort, opportunity, cost of time and money for lengthier screening tests, and gender-based negative perceptions. Overall, in focus group discussions, there appears to be an awareness of the importance of regular cancer screenings, but this perception did not always translate into action due to barriers. A recurring theme in many discussions was confusion about what the cancer screening guidelines currently were and which tests pertained to which individuals. Focus group participants indicated that they were uncertain, and they sometimes heard differing media reports about screening which were sometimes inconsistent with provider messages.

Several participants also noted confusion about insurance coverage. While participants had insurance, it was not clear to them what their insurance covered, who they could go to for specific services, and how often. A few participants also commented that some screening tests were physically uncomfortable and that they would rather avoid them if they could. Additionally, focus group participants and key informant interviewees noted that for many residents, going to screening tests and other non-urgent health care appointments were challenging from an economic perspective. Residents might work hourly wage jobs and not be able to take time off work for lengthier screening tests or would need to find childcare during the time away.

Another key theme that emerged during discussions around screening tests was the gender differences in perspectives. Several key informants and male focus group participants themselves noted that men are more likely to feel emotionally uncomfortable talking about different screening tests with their provider and may be more likely to avoid certain tests—such as screenings for prostate cancer or colorectal cancer—altogether. A
prostate cancer survivor described unique challenges that men face noting, “I’ve noticed that men tend to deal with cancer and cancer screenings very differently, meaning no one likes to talk about it. Even among close friends, what I’ve found is that they don’t want to expose their piece of whatever they’re dealing with because they’re embarrassed.”

Breast Cancer Screening

**Screening rates for breast cancer are high in Boston, overall as well as in many populations of color.**

Mammograms, or an x-ray of each breast used to look for cancer, are among the most common breast cancer screening tests. Mammography rates have generally remained steady in Boston, with 84% of women ages 40+ years old reported receiving a mammogram in the past two years (Figure 27). Screening rates among race and ethnic groups have also remained steady over time. With data aggregated among years for a large enough sample size, Figure 28 illustrates that the percentages of women reporting having a mammogram in the past two years are highest among Black and Latina women (88% and 86% respectively) and lowest among Asian women (75%).

**Figure 27. Percent Females Ages 40 and Over Reported to Have Had Mammogram Within Past 2 Years by Priority Neighborhood, 2008, 2010, and 2013**

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2010</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>83%</td>
<td>86%</td>
<td>84%</td>
</tr>
<tr>
<td>Dorchester</td>
<td>84%</td>
<td>84%</td>
<td>92%</td>
</tr>
<tr>
<td>Jamaica Plain</td>
<td>89%</td>
<td>*</td>
<td>79%</td>
</tr>
<tr>
<td>Mattapan</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Roxbury</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>


**DATA SOURCE:** Boston Behavioral Risk Factor Surveillance Survey (BBRFSS), 2008, 2010, and 2013

**DATA ANALYSIS:** Boston Public Health Commission Research and Evaluation Office

**Figure 28. Percent of Mammogram within the Past 2 Years by Race/Ethnicity, Boston Women Ages 40+**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian</td>
<td>75%</td>
<td>76%</td>
</tr>
<tr>
<td>Black</td>
<td>89%</td>
<td>88%</td>
</tr>
<tr>
<td>Latina</td>
<td>86%</td>
<td>86%</td>
</tr>
<tr>
<td>White</td>
<td>83%</td>
<td>83%</td>
</tr>
</tbody>
</table>


**DATA ANALYSIS:** Boston Public Health Commission Research and Evaluation Office
As mentioned above, confusion about screening guidelines was a common theme among assessment participants. Relative to breast cancer screening guidelines specifically, recommendations have changed over the past several years and differ depending on the recommending agency. Comparing screening guidelines issued by the US Preventive Services Task Force between 2009 and 2016 for women with average risk of breast cancer, the Task Force continues to recommend biennial screenings for women ages 50 to 74. However, in 2016, it recommends that only women aged 40 to 49 have mammograms on a case by case basis depending on individual health history and personal values as opposed to all women under 50 based on individual health history. The American Cancer Society (ACS) on the other hand, changed their May 2003 to October 2015 recommendation of annual screening mammograms for women aged 40 and older with regular breast cancer risk to separate recommendations by age category. In these new guidelines issued in October 2015, ACS recommends that 40-44 year old women have the choice to begin annual screening with mammograms if they desire, 45 to 54 year old women should have annual mammograms and that women aged 55 and older should receive mammograms every two years but should have the choice to continue annual screening.

Given the variation in recommendations about what age regular breast cancer screening should begin, many analyses examine mammography rates among women 50-74 years old rather than 40+ years old. Among women 50-74 years old only, data indicate that 90% of Boston women reported having received a mammogram, higher than the 84% seen in Massachusetts overall for this age group. Among this age group, screenings are highest among Latina women, followed by Black and White women (Table 15).

Table 15. Percent of Mammogram within the Past 2 Years by Selected Sociodemographic Indicators, Females 50-74 yrs., 2013

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Boston</strong></td>
<td>90%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>50-59 years</td>
<td>91%</td>
</tr>
<tr>
<td>60-69 years</td>
<td>88%</td>
</tr>
<tr>
<td>70-74 years</td>
<td>88%</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>*</td>
</tr>
<tr>
<td>Latina</td>
<td>96%</td>
</tr>
<tr>
<td>Black</td>
<td>91%</td>
</tr>
<tr>
<td>White</td>
<td>88%</td>
</tr>
<tr>
<td><strong>Educational Attainment</strong></td>
<td></td>
</tr>
<tr>
<td>Less than High School</td>
<td>93%</td>
</tr>
<tr>
<td>High School Degree/GED</td>
<td>90%</td>
</tr>
<tr>
<td>Some College/ Bachelor’s or Higher</td>
<td>89%</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
</tr>
<tr>
<td>Below $25,000</td>
<td>89%</td>
</tr>
<tr>
<td>$25,000-$49,999</td>
<td>94%</td>
</tr>
<tr>
<td>$50,000 and more</td>
<td>87%</td>
</tr>
<tr>
<td><strong>Insurance Status</strong></td>
<td></td>
</tr>
<tr>
<td>Insured</td>
<td>90%</td>
</tr>
</tbody>
</table>

“Getting breast cancer screenings are painful and uncomfortable. I avoid them if I can.”
-Focus group participant

DATA SOURCE: Boston Behavioral Risk Factor Surveillance Survey (BBRFSS), 2013
Cervical Cancer Screening

Cervical cancer screening rates are generally high across Boston and in DFCI’s priority neighborhoods, although much lower among Asian women in Boston. Among women 21-65 years old in Boston, 87% reported receiving a pap test to screen for cervical cancer in the past three years. Percentages were even higher in many of DFCI’s priority neighborhoods, where, for example 92-93% of women in Jamaica Plain, North Dorchester, and Roxbury reported receiving this screening. Among different demographic groups, rates are highest among 30-44 year old women at 95% and White women at 92%. However, only 62% of Asian women in Boston ages 21-65 years old reported receiving a pap test in the past three years.

Figure 29. Percent Females Ages 21-65 Reported to Have Had a Pap Test Within Past 3 Years by Neighborhood, 2013

There are contradictory opinions about who should be screened and how often.” -Focus group participant
Table 16. Percent of Females 21-65 yrs. Who Received a Pap Test Within the Past 3 Years by Selected Sociodemographic Indicators, 2013

<p>| | |</p>
<table>
<thead>
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<tbody>
<tr>
<td></td>
<td>87%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>21-29 yrs.</td>
<td>80%</td>
</tr>
<tr>
<td>30-44 yrs.</td>
<td>95%</td>
</tr>
<tr>
<td>45-59 yrs.</td>
<td>86%</td>
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<tr>
<td>60-65 yrs.</td>
<td>76%</td>
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<tr>
<td><strong>Race/Ethnicity</strong></td>
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<tr>
<td>Asian</td>
<td>62%</td>
</tr>
<tr>
<td>Black</td>
<td>86%</td>
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<tr>
<td>Latino</td>
<td>84%</td>
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<tr>
<td>White</td>
<td>92%</td>
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<td><strong>Educational Attainment</strong></td>
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<tr>
<td>Less than High School</td>
<td>82%</td>
</tr>
<tr>
<td>High School Degree/GED</td>
<td>85%</td>
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<tr>
<td>At Least Some College/Bachelor’s or Higher</td>
<td>87%</td>
</tr>
<tr>
<td><strong>Income</strong></td>
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<tr>
<td>&lt;$25,000</td>
<td>78%</td>
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<tr>
<td>$25,000-$49,999</td>
<td>89%</td>
</tr>
<tr>
<td>$50,000+</td>
<td>93%</td>
</tr>
<tr>
<td><strong>Insurance Status</strong></td>
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<tr>
<td>Insured</td>
<td>87%</td>
</tr>
<tr>
<td>Uninsured</td>
<td>*</td>
</tr>
</tbody>
</table>

*Insufficient Sample Size

DATA SOURCE: Boston Behavioral Risk Factor Surveillance Survey (BBRFSS), 2013

As with breast cancer screening recommendations, cervical cancer screening recommendations vary by age group and this may contribute to some of the confusion about screening expressed by focus group participants. The USPSTF recommends screening for cervical cancer in women age 21 to 65 years with a Pap test every three years. For women age 30 to 65 years who want to lengthen the screening interval, they recommend screening with a pap test and a human papillomavirus (HPV) DNA test every five years.

**Prostate Cancer Screening**

*The proportion of men in Boston who have ever had a PSA test or who have had a PSA test in the past year is lower than the proportion of men in Massachusetts overall.* As shown in Figure 30, among adult men 40 years old and over in Boston, 56% reported ever having had a Prostate Specific Antigen (PSA) blood test, whereas 39% reported having the test done within the past year. Compared to Boston, a higher percentage of men in Massachusetts overall reported ever having a PSA blood test (64%) and having had the test within the past year (48%). When looking across race and ethnicity in Boston, a higher proportion of White men reported to have
ever had a PSA blood test (60%) than Black (57%) and Latino (49%) men (Figure 31). The comparisons among race and ethnicity were similar when looking at Massachusetts overall.

Figure 30. Percent Males 40 Years Old and Over Reported to Have Ever Had a Prostate Specific Antigen (PSA) Blood Test and Have Had a PSA Within the Past Year, by Boston and Massachusetts, 2011-2013

![Graph showing data for Boston and Massachusetts](image)

DATA SOURCE: Massachusetts Behavioral Risk Factor Surveillance Survey (BRFSS), Massachusetts Department of Public Health, MassCHIP, 2011-2013

Figure 31. Percent Boston Males 40 Years Old and Over Reported to Have Ever Had a Prostate Specific Antigen (PSA) Blood Test and Have Had a PSA Within the Past Year, by Race/Ethnicity, 2011-2013

![Graph showing data for Black, Latino, and White](image)

* Insufficient sample size (insufficient sample sizes also for Asian)

DATA SOURCE: Massachusetts Behavioral Risk Factor Surveillance Survey (BRFSS), Massachusetts Department of Public Health, MassCHIP, 2011-2013

Data about shared decision making between patient and provider relative to the PSA test are not available at the city/town-level however, data are available for the state overall. According to Behavioral Risk Factor Surveillance Survey (BRFSS) from the Massachusetts Department of Public Health, in 2014, nearly four in ten (37.0%) men in Massachusetts reported discussing the advantages and disadvantages of the prostate specific antigen test to screen for prostate cancer with their health care provider. Black non-Hispanic men (53.4%) were more likely to discuss the advantages of PSA test with their providers than White non-Hispanic men (35.0%) or Hispanic men (30%).

Similar to breast and cervical cancer screenings, assessment participants discussed confusion around prostate cancer screening guidelines. Changing recommendations and differing screening recommendations between
guideline issuing institutions may be a contributing factor to this lack of clarity. The USPSTF recommended against prostate specific antigen based screening tests for prostate cancer in 2012. This was a stronger recommendation than it had made in previously in 2008 when it concluded that men over 75 should not be screened and that there was not enough evidence to recommend for or against screening in younger men. The USPSTF recommendation differs slightly from those of many other expert groups, including the American Cancer Society. The American Cancer Society recommends men make an informed decision about whether to be tested after learning about the potential risks and benefits of testing.

**Colorectal Cancer Screening**

*As discussed previously, focus group participants indicated that longer screening tests such as colonoscopies have greater challenges for many residents, which is validated in the quantitative data that indicate that only 64% of Boston residents ages 50-75 years old have had a colonoscopy or sigmoidoscopy in the past five years.*

For data by neighborhood, 74% of Mattapan residents and 69% of Jamaica Plain residents in this age group indicated receiving a colonoscopy/sigmoidoscopy in the past five years (Figure 32). Table 17 shows the breakdown of the data by demographic group, indicating rates are somewhat equally distributed although 67% of those with at least some college education reported receiving a colonoscopy/sigmoidoscopy while 56% with those less than a high school education did.

**Figure 32. Colonoscopy/Sigmoidoscopy within Past 5 Years, Adults Ages 50-75 by Neighborhood, 2013**

![Colonoscopy/Sigmoidoscopy within Past 5 Years, Adults Ages 50-75 by Neighborhood, 2013](image)

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

**DATA ANALYSIS:** Boston Public Health Commission Research and Evaluation Office

*Includes Beacon Hill, Downtown, the North End, and the West End

†Includes Chinatown
Screening guidelines for colorectal cancer have not changed drastically in the past several years with similar recommendations being issued by different institutions. In their most recent guidelines issued in 2016, the USPSTF recommends screening for colorectal cancer starting at age 50 and continuing until age 75. For adults aged 76 to 85, the Task Force recommends that the decision whether or not to screen should be an individual one, taking into account the patient’s overall health and prior screening history. Similarly, the American Cancer Society since 2008 continues to recommend that adults aged 50 and older get a colonoscopy every ten years or a flexible sigmoidoscopy every five years.
HEALTH CARE UTILIZATION, CANCER INCIDENCE, AND MORTALITY: PERCEPTIONS AND SURVEILLANCE DATA

The following section describes the focus group and key informant participants’ overall perceptions of cancer, the health care system, barriers, and experiences along with key quantitative findings, following by quantitative and qualitative findings related to cancer incidence and mortality in Boston.

Perceptions of Cancer Incidence
Focus group and interview discussions asked participants about the issues in their community that were most concerning and where cancer fell on that list. The following section describes the key themes regarding participants’ overall levels of concern around cancer in their community. The sections that follow detail the findings from the qualitative discussions and surveillance data specifically related to cancer prevention, screening, treatment, and survivorship.

Cancer as a Community Concern
Among participants without direct experience with cancer or among key informants not working with cancer patients directly, cancer was not described as a pressing community health concern unless prompted. Mental health, substance abuse, diabetes, and community violence were named as top health concerns in the community when participants were asked unprompted. When the facilitator asked focus group and interview participants specifically about whether cancer was a critical health concern in their community, most participants agreed that it was. Types of cancers frequently mentioned by focus group participants included breast, colon, prostate, and stomach cancers. Residents were also concerned about the perceived increase of less typical cancers such as oral cancer, liver cancer, and Hodgkin’s Disease. Residents wondered whether there was a gradual increase in cancer diagnoses among youth and young adults, indicating that they have heard more about cancers in younger populations recently. As one focus group participant shared, “My niece is in her early twenties and was just diagnosed [with cancer]. It seems like people are getting cancer younger and younger these days; rare ones at that.”

Participants also noted that cancer is not just a condition in their neighborhoods but across the city, state, and country. They noted that cancer can affect anyone. As one participant shared, “Cancer doesn’t discriminate. People in all communities regardless of age, gender, or race are vulnerable.”

Level of Concern around Cancer
Similar to the 2013 CHNA findings, focus group participants without any direct experience with cancer expressed a tremendous amount of fear associated with cancer and the high risk of death from the disease. They recognized that people survived the condition, but they indicated that they were incredibly fearful of a cancer diagnosis for them or a family member. In the 2016 CHNA, discussions also explored perceptions among cancer survivors. Cancer survivors who were part of the conversations reported a positive outlook on their cancer diagnosis agreeing that “cancer is no longer the big C.” They were optimistic about their health and life ahead and did not want others to think that a cancer diagnosis would end that.

Cultural Norms and Beliefs
When discussing how they viewed cancer, both key informant interviewees and focus group participants acknowledged that there are many cultural beliefs that shape their perceptions. As one interviewee said, “There are different cultural approaches to care that need to be taken into consideration such as religion, language, and social norms.” Many of these beliefs and norms are rooted not only in culture but by gender. Given that certain cancer-related issues focus on the reproductive system, comfort levels vary by culture in how
patients discuss these issues with their providers. Additionally, many participants remarked that men often avoid doctors and diagnoses out of fear and further delay these activities (e.g., colonoscopy, PSA exam) when the focus is related to certain organs. Similarly, participants reported that they preferred having a provider that matched their gender, claiming that it was easier to connect and feel comfortable asking questions.

Perceptions of the Local Health Care System

*Overall, participants reported positive perceptions about health services in the city of Boston, citing ample medical services, hospitals, and community centers in the city.* Focus group participants recognized the multitude of services and health care institutions in the city and noted that this is a world-class city with regards to quality of care both in primary and specialty care. Participants viewed the academic medical centers in the city as incredible institutions with a wealth of expertise. When asked about where they received their primary care, most focus group participants reported obtaining their primary care from community health centers, which were viewed as important anchors in the community who provided high quality of care. However, there were varying opinions of how easy it was to receive care from local centers. Some focus group participants, many of whom participated in the Spanish-speaking focus group, described challenges to accessing services at local health centers, citing long wait times, insufficient interpretation services, and limited face-to-face interactions with providers. Other participants disagreed and indicated that they received high-quality care at local health centers saying, “When I was diagnosed with prostate cancer, I had a primary care provider who went above and beyond to help me. This made things relatively easy for me, but I dread to think about those without a good health plan or who don’t have a sensitive and knowledgeable PCP.”

Barriers and Challenges to Accessing Health Care Services

*While focus group participants and key informant interviewees noted the quantity and prestige of the health care institutions in the city, they also recognized that there was not necessarily equal access for all patients.* Participants discussed a number of barriers and challenges that they have encountered or community members they know have experienced in accessing health care services in the city. Key themes included the following:

**Insurance Status and Cost-Related Barriers**

*While interviewees and focus group participants generally stated that it seemed that most community members have access to health insurance, there was much confusion about the details of coverage, deductibles, which providers were covered, and the co-pays required.* These themes were slightly different than in the 2013 CHNA, where lack of insurance was a prominent issue. In 2016, the conversations focused more on uncertainty of what insurance actually covered. Many focus group participants described “being treated differently if you have MassHealth,” perceiving longer wait times, less access to specialty care, and fewer access to support services. Further, there were several assumptions that specialty hospitals in Boston did not take MassHealth, with residents indicating that they did not seek out more information because “I know you need to have the best insurance to go to the best hospitals.”

Several interviewees and focus group participants discussed confusion related to high deductibles and co-pays. They were not clear what types of services were covered and which were not. If there were high deductibles or co-pays, then this presented an additional barrier to patients. The consequence, several shared, is that people decide not to get health care or had trouble affording medications.

“We’re limited in what hospitals or doctors we can see because of our health insurance coverage.”

-Focus group participant
As seen in Figure 33, the majority of Boston residents reported having health insurance in 2013. Since 2005, Latinos have had the lowest rates of insurance coverage among all other racial/ethnic groups in the city of Boston (Table 18).

Figure 33. Percent Adults with Health Insurance Coverage by Boston City-Wide and Priority Neighborhood, 2013

![Chart showing health insurance coverage by neighborhood in 2013.]

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

Table 18. Trends in Adults with Health Insurance Coverage by Race/Ethnicity in Boston, 2005-2013

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<tbody>
<tr>
<td>Boston</td>
<td>90.6%</td>
<td>92.5%</td>
<td>97.1%</td>
<td>95.3%</td>
<td>94.0%</td>
</tr>
<tr>
<td>Asian</td>
<td>89.6%</td>
<td>92.7%</td>
<td>-</td>
<td>-</td>
<td>94.8%</td>
</tr>
<tr>
<td>Black</td>
<td>88.9%</td>
<td>91.1%</td>
<td>96.3%</td>
<td>93.8%</td>
<td>93.6%</td>
</tr>
<tr>
<td>Latino</td>
<td>83.6%</td>
<td>88.1%</td>
<td>93.0%</td>
<td>89.4%</td>
<td>87.0%</td>
</tr>
<tr>
<td>White</td>
<td>93.4%</td>
<td>94.7%</td>
<td>98.9%</td>
<td>97.5%</td>
<td>96.4%</td>
</tr>
</tbody>
</table>

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

Navigating a Complex Health System

A common theme among assessment participants was the difficulty navigating the complex health system, especially when dealing with a chronic disease. Residents described confusion around insurance coverage as well as being overwhelmed by the number of appointments they needed to make and steps that had to be taken. These issues were especially prominent for cancer patients, who described feeling deeply emotional after a cancer diagnosis to then “somehow figure out what cancer is, what hospital I should go to, what doctors I qualify for, and finally how I’m supposed to pay for it all. It’s exhausting.” Patient navigators and social workers were described as “critical” throughout one’s cancer journey, with cancer survivors saying, “I honestly don’t know what I would have done if social workers hadn’t connected me to financial help and support groups. I felt like they helped me carry some of the weight of this very heavy burden.”

“Navigating the health care system is daunting when you have cancer.” -Focus group participant
Culturally Competent Care

Navigating a complex health system is especially challenging when English is not a patient’s first language; key informants working with patients and Spanish-speaking cancer survivors described language and cultural barriers as particularly challenging. While provider interviewees reported that they have access to interpretation services and some have bilingual staff (Spanish-speaking), language and cultural barriers still remain a concern. Residents indicated this was especially problematic when calling for information or administrative services. Key informants noted that it is challenging enough for well-educated, English-speaking patients to navigate the complex health system in America. The frustration and confusion are compounded when the patient does not speak English and has trouble obtaining the logistical and administrative information on top of a challenging diagnosis.

Spanish speakers explained that they could not participate in many educational programs because they were not offered in their language. As one interviewee shared, “I am grateful for all of the services provided by the hospitals, and I would like to participate in more, but I wish more groups were available in Spanish.” Further, focus group participants explained that there are many cultural approaches to care, and providers should consider language, cultural norms, and religion when caring for patients. This rapport could be established, suggested residents, by engaging in healthcare providers in community dialogues focused on cultural exchanges.

Transportation

As previously mentioned, transportation barriers to accessing health care were a common theme across focus groups and interviewees, with residents indicating that public transportation was not a viable option, especially in Mattapan and some parts of Dorchester. Parking was also cited as a daily stressor for many residents in these neighborhoods saying, “parking in Mattapan is terrible. I’ve lived here for 35 years and each year is worse than the last.” Focus group participants and internal interviewees reported several hospital-led initiatives to address the transportation challenges, but indicated that there were gaps in services to assist patients with day-to-day chores such as grocery shopping.

Perceived Disparities in Cancer Treatment and Care

Across all focus groups, communities of color were identified as traditionally underserved, yet some focus group participants saw this as changing. Nearly all focus group participants were African American or Hispanic and many discussed the inequities that communities of color face overall and in the health care system. However, the English-speaking cancer survivor focus group, comprised of all African American women above the age of 50 noted that they saw improvements in the last decade as far as the availability of care offered and interaction with providers that they have had. As one participant said, “I remember being treated so much differently than White patients back in the 80’s. It was very hard to come by support services or therapy. We’ve come a long way since then, but there’s still some ways to go [in improving cancer care for people of color].”

Information and Access to Clinical Trials

Several key informant interviewees described the need for improved access to clinical trials for communities of color as an important step for improving disparities. As one participant said, “having access to clinical trials is hugely important, especially for those in different racial and ethnic backgrounds, because we don’t know what treatments work for these populations. We should be training community health workers and patient navigators to tell residents about clinical opportunities and who to contact.” Several key informant interviews discussed the importance of improving outreach and trust in the communities as well as training providers and researchers on engagement strategies.
Awareness of Services

While the community has substantial health and social services resources, several respondents reported that people are not always aware of the range of services that are available to them. As one focus group participant noted, “I’ve been a case manager in Mattapan for five years, and I know of so many underutilized resources because residents simply don’t know about them.” Other residents felt that services were duplicative and said, “I know of some organizations that provide the same service. If they put their resources together they could help more community members.” Across all groups the Mammography Van was cited as a strong presence in their communities, but some residents were unaware of the services offered saying, “I see the van come every Tuesday, but I’m not sure if it’s for women only or if men can get services too.” In these conversations, access to services was not the issue, but instead, promotion and increasing awareness of existing services—as well as coordination across services—were seen as important to improving the quality of care.

Overall Cancer Mortality

Cancer is the leading cause of death in Boston, followed by heart and cerebrovascular disease (including stroke). Cancer and heart disease remained the top two leading causes of death for all racial/ethnic groups from 2008 to 2013 (data not shown). Since 2005 there has been an overall downward trend in cancer mortality; in 2012 however, the rate of cancer deaths in the city of Boston increased from 171.1 per 100,000 in 2011 to 186.3 per 100,000.

Figure 34. Age-adjusted Cancer Mortality Rate per 100,000 Population, Boston 2005-2012

As shown in Figure 35, lung, prostate, female breast, and colon cancers were the leading types of cancer deaths in Boston from 2010-2015. The five leading age-adjusted cancer death types stayed relatively stable from 2008-2012. Death rates increased slightly for all five cancers (lung, prostate, female breast, colon, pancreas) from 2011 to 2012.
Figure 35. Leading Types of Cancer Death Rate per 100,000 Boston Residents by Year, 2008-2012

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
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<tbody>
<tr>
<td>1</td>
<td>Lung</td>
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<tr>
<td></td>
<td>45.1</td>
<td>45.7</td>
<td>43.2</td>
<td>42.1</td>
<td>45.2</td>
</tr>
<tr>
<td>2</td>
<td>Prostate</td>
<td>Female Breast</td>
<td>Prostate</td>
<td>Prostate</td>
<td>Prostate</td>
</tr>
<tr>
<td></td>
<td>26.5</td>
<td>21.6</td>
<td>27.3</td>
<td>24.8</td>
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<tr>
<td>3</td>
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<td>Colon</td>
<td>Female Breast</td>
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</tr>
<tr>
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<td>22.1</td>
<td>15.8</td>
<td>21.2</td>
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</tr>
<tr>
<td>4</td>
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<td>Pancreas</td>
<td>Colon</td>
<td>Colon</td>
<td>Colon</td>
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<tr>
<td></td>
<td>20.6</td>
<td>12.0</td>
<td>17.6</td>
<td>15.4</td>
<td>16.8</td>
</tr>
<tr>
<td>5</td>
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<td>Liver</td>
<td>Liver</td>
<td>Pancreas</td>
<td>Pancreas</td>
</tr>
<tr>
<td></td>
<td>13.6</td>
<td>9.0</td>
<td>9.5</td>
<td>9.8</td>
<td>13.2</td>
</tr>
</tbody>
</table>

*Age-adjusted Rates

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

Similar to 2013 findings, Black residents had the highest age-adjusted cancer death rates of from 2010-2012, followed by White residents. Asian and Latino residents had the lowest age-adjusted cancer rates from 2010-2012.

As discussed in the Limitations section, the Boston Public Health Commission has adopted the use of new population data for rate generation, thus impacting earlier data reported by DFCI. Specifically, mortality rates reported in the 2013 CHNA were generated by using the 2000 U.S. Census, and data from the 2014-2015 Health of Boston report were reanalyzed using newer population estimates that reflect a shift in the White and Black age distribution across the city of Boston. As a result of the change in age and racial make-up of the city, updated cancer mortality rates by race show less variation by race than originally reported in 2013.

Breast Cancer Incidence and Mortality

While breast cancer incidence has remained steady and mortality has declined, mortality rates due to cancer are still disproportionately higher among Black women in Boston. The following section describes the data in greater detail.

Breast Cancer Incidence

There is variation in breast cancer incidence in Boston across the last decade with a generally slow decline since 2007; the rate of new cases is lowest among Latina women in Boston. Figure 36 shows the age-adjusted rate of new cases of breast cancer per 100,000 population among females in Boston from 2001-2011.
Figure 36. Age-Adjusted Breast Cancer Incidence Rate per 100,000 Population, Boston, 2001-2011

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Cancer Registry, BPHC Health of Boston 2009 Report; 2006-2010 data from Massachusetts Cancer Registry, MassCHIP

Figure 37 shows the 2011-2012 aggregated rate by race/ethnicity in Boston, illustrating that Latinas experienced the lowest rate of breast cancer incidence in the city of Boston with 91.1 cases per 100,000 population. Conversely, White and Black residents experienced the highest breast cancer incidence rates of 133.4 cases per 100,000 and 131.3 per 100,000 population, respectively.

Figure 37. Age-Adjusted Breast Cancer Incidence Rate per 100,000 Population by Race/Ethnicity, Boston 2011 and 2012 Combined

DATA SOURCE: Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office
Breast Cancer Mortality

Breast cancer mortality has significantly declined in the past decade in Boston, yet rates vary by racial/ethnic group. Figure 38 illustrates the breast cancer mortality rate per 100,000 population among female Boston residents from 2001-2012 and indicates a steady decline in those years particularly since 2002.

Figure 38. Female Breast Cancer Mortality Rate* per 100,000 Population, Boston Residents, 2001-2012

*age-adjusted rates. 4.5% year to year decrease p<.001
NOTE: Death data for 2012 are preliminary and should be interpreted with caution. Until data are final, some changes in data values may occur during data quality processes.
DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 39 provides data on the breast cancer mortality rate in Boston and by neighborhood aggregated for 2011-2013 to ensure a robust sample size. While the mortality rate in Boston was 17.9 deaths per 100,000 population, rates were 23.6 and 20.9 deaths per 100,000 population in Roxbury and Jamaica Plain respectively. As shown in Figure 40, breast cancer mortality using 10-year aggregated data was significantly higher among Black women as compared to their White, Latina, and Asian counterparts.

Figure 39. Age-Adjusted Female Breast Cancer Mortality Rate per 100,000 Population by Neighborhood, 2011, 2012, and 2013 Combined

NOTE: Insufficient data to calculate rate for Charlestown
DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office
*Includes Beacon Hill, Downtown, the North End, and the West End; †Includes Chinatown
When examining breast cancer deaths by age group and overall mean age of death by race/ethnicity, the figures below indicate that minority women in Boston are more likely to die at a younger age from breast cancer compared to White women. For example, mortality rates among White women in the 45-54 year age range and 55-64 year age range were 24.1 deaths per 100,000 population and 35.5 deaths population per 100,000 respectively, compared 40.4 deaths per 100,000 and 50.6 deaths per 100,000 for Black women (Figure 41).

Similarly, 2001-2012 aggregated data across races/ethnicities indicate that the Black and Latina women have lower average ages of death from breast cancer compared to White women. Latinas in Boston are on average 57.3 years old and Blacks are on average 62.1 years old at age of death from breast cancer, compared to an average age of 72.5 years old for White women in Boston (Figure 42).

Figure 40. Female Breast Cancer Mortality Rate* per 100,000 Population by Race/Ethnicity, 2001-2012

![Figure 40](chart)

*average annual (i.e., annualized 12-year) age-adjusted rates. B >A,L,W
NOTE: Death data for 2012 are preliminary and should be interpreted with caution. Until data are final, some changes in data values may occur during data quality processes.
DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 41. Female Breast Cancer Mortality Rate* per 100,000 Population by Age Group 2007-2012

![Figure 41](chart)

* Average annual (i.e., annualized 6-year) age-specific rates.
NOTE: Death data for 2012 are preliminary and should be interpreted with caution. Until data are final, some changes in data values may occur during data quality processes.
DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office
Figure 42. Mean Age of Female Breast Cancer Mortality by Race/Ethnicity, 2001-2012

NOTE: Death data for 2012 are preliminary and should be interpreted with caution. Until data are final, some changes in data values may occur during data quality processes.
DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Cervical Cancer Incidence

Cervical cancer incidence rates have seen a steady decline since 2004. As seen in Figure 43, the most current data indicate the rate of new cases of cervical cancer in Boston as 5.9 cases per 100,000 population.

Figure 44 shows aggregated cervical cancer incidence data for 2011-2012 by race/ethnicity. WhileLatinas have a 10.9 cervical cancer incidence rate per 100,000 population, data should be interpreted with caution given the small number of cases that comprise these rates. A small change in the actual case number can alter the rate dramatically given that cervical cancer is not as common as other cancers in Boston. Cervical cancer mortality data are unavailable due to the small number of cases.

Figure 43. Age-Adjusted Cervical Cancer Incidence Rate per 100,000 Population, Boston, 2001-2011

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Cancer Registry, MassCHIP
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation, as Reported in Health of Boston 2013
Prostate Cancer Incidence and Mortality

For both prostate cancer incidence and mortality, rates appear to be disproportionately higher among Black men in Boston compared to other groups. The following sections provide more detailed data on these trends.

Prostate Cancer Incidence

Overall, there has been a downward trend in prostate cancer incidence rates from 215.3 cases per 100,000 in 2001, to 171.0 cases per 100,000 population in 2011 (Figure 45), although there have been fluctuations throughout the decade. However, there continues to be great disparity in prostate incidence for Black men compared to all other race and ethnic groups. In 2012, Black men were more than twice as likely to be diagnosed with prostate cancer than their White counterparts, and more than four times as likely than Asian men (Figure 46).

Qualitative discussions mirrored these findings, with male African American cancer survivors describing perceived disparities in cancer screening and treatment among African American men. As one participant described, “The evidence suggests that African American men and other high-risk groups are not getting screened [for prostate cancer] in the same way. There are conflicting opinions around screening guidelines and protocols.” Several African American prostate cancer survivors remarked that dealing with prostate cancer for men is challenging—from screening confusion and embarrassment, to health care access issues, to their own delay in seeking care.

Figure 44. Age-Adjusted Cervical Cancer Incidence Rates per 100,000 by Race/Ethnicity, Boston, 2011 and 2012 Combined

![Cervical Cancer Incidence Rates](chart)

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Cancer Registry, MassCHIP
DATA ANALYSIS: Massachusetts Department of Public Health
*Insufficient Sample
Note: All rates by race/ethnicity have very small counts of less than 20 each and should interpreted with caution

Figure 45. Age-Adjusted Prostate Cancer Incidence Rate per 100,000 Population, Boston, 2001-2011

![Prostate Cancer Incidence Rate](chart)

DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health; 2006-2010 data from Massachusetts Cancer Registry, MassCHIP
Prostate Cancer Mortality

Similar to trends in incidence, Black men have higher prostate cancer mortality rates compared to other groups. Table 19 indicates that the prostate cancer mortality rate for Black men in Boston is nearly three times the prostate cancer mortality rate among White men. Similarly, as Figure 47 shows mortality rates by neighborhood, Mattapan, a predominantly African American neighborhood, has a prostate mortality rate three times that of Boston overall.

Table 19. Age-Adjusted Prostate Cancer Mortality Rate per 100,000 Population, by Race and Ethnicity and Year, Boston, 2008-2012

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
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<td>32.3</td>
<td>66.7</td>
<td>52.2</td>
<td>58.9</td>
</tr>
<tr>
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<td>†</td>
<td>†</td>
<td>45.6</td>
<td>23.7</td>
<td>†</td>
</tr>
<tr>
<td>White</td>
<td>22.7</td>
<td>26.1</td>
<td>†</td>
<td>†</td>
<td>20.1</td>
</tr>
</tbody>
</table>

†Not calculated, n<5; *Age-adjusted rates

“In my opinion prostate cancer survivors carry the heaviest burden as far as needing to know information and navigating the system.” -Interview participant
Figure 47. Age-Adjusted Prostate Cancer Mortality Rate per 100,000 Population by Neighborhood, 2011, 2012, and 2013 Combined

NOTE: Data insufficient to calculate rates for Fenway, South End, and West Roxbury
DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office
*Includes Beacon Hill, Downtown, the North End, and the West End; †Includes Chinatown

Colorectal Cancer Incidence and Mortality
While colorectal cancer screening rates is a bit lower compared to other cancers, colorectal cancer incidence and mortality has seen a general trend downward over many years. The following section provides more detailed data on incidence and mortality for this type of cancer.

Colorectal Cancer Incidence
Overall, there has been a downward trend in colorectal cancer incidence rates from 63.1 per 100,000 in 2001, to 43.6 per 100,000 population in 2011, and there appears to be little variation by race/ethnicity in current colorectal cancer incidence rates. Figure 48 presents data on age-adjusted colorectal cancer incidence rates in Boston from 2001-2011, while Figure 49 illustrates the most current colorectal cancer incidence rate data (2011-2012 combined) per 100,000 population by race/ethnicity.
Figure 48. Age-Adjusted Colorectal Cancer Incidence Rate per 100,000 Population, Boston, 2001-2011

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Cancer Registry, BPHC Health of Boston 2009 Report; and Department of Public Health, MassCHIP, 2011

Figure 49. Age-Adjusted Colorectal Cancer Incidence Rates per 100,000 by Race/Ethnicity, Boston 2011 and 2012 Combined

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

*Mortality rates for colorectal cancer appear to vary by neighborhood and race/ethnicity.* Residents in North Dorchester (29.8 deaths per 100,000 population) and Roxbury (25.5 deaths per 100,000 population) experienced higher rates of colorectal cancer death than the city of Boston overall (16.4 deaths per 100,000 population) (Figure 50).

Figure 51 shows that both Whites and Blacks in Boston have lower colorectal cancer mortality rates over time from 2008-2012. Fluctuations from year to year should be interpreted with caution given that small case numbers can exaggerate the change in mortality rate per 100,000 population.

**Figure 50. Age-Adjusted Colorectal Cancer Mortality Rate per 100,000 Population by Neighborhood, 2011, 2012, and 2013 Combined**

**Figure 51. Age-Adjusted Colorectal Cancer Mortality Rate per 100,000 Population by Race/Ethnicity and Year 2008-2012**

*Not calculated, n<5 for Latino residents in 2008 and Asian residents in 2009
DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office
Lung Cancer Incidence and Mortality

Lung cancer is one of the only cancers in Boston where the standardized rates are higher among White residents in the city. The following section provides more details on these data.

Lung Cancer Incidence

The rate of cancer incidence in the city of Boston has experienced a gentle decline from 81.4 per 100,000 residents in 2004 to 69.2 cases per 100,000 residents in 2012 (Figure 52). In 2011 and 2012 combined, White residents (78.9 per 100,000 population) experienced the highest lung cancer incidence rate among all racial and ethnic groups (Figure 53). Latino and Asian residents had the lowest lung cancer incidence rates at 40.1 per 100,000 Boston residents and 54.7 per 100,000, respectively.

Figure 52. Age-Adjusted Lung Cancer Incidence Rate per 100,000 Population, Boston, 2001-2011

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Cancer Registry, MassCHIP

Figure 53. Lung Cancer Incidence Rate per 100,000 Population by Race/Ethnicity, Boston 2011 and 2012 Combined

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Cancer Registry, MassCHIP

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office
Lung Cancer Mortality

While mortality rates from lung cancer are highest among Whites across the city, when examining data by neighborhood, Mattapan, a predominantly African American neighborhood, still has the highest lung cancer mortality rate. The mortality rate from lung cancer in Mattapan (75.4 deaths per 100,000 population) is nearly twice that of Boston overall (43.2 deaths per 100,000 population) (Figure 54). South Boston, while not a DFCI priority neighborhood, has a similar lung cancer mortality rate to Mattapan. Latinos have the lowest lung cancer mortality rate among racial/ethnic groups, although the Latino mortality rate from lung cancer has climbed from 2008-2012 (Figure 55).

Figure 54. Age-Adjusted Lung Cancer Mortality Rate per 100,000 Population by Neighborhood 2011, 2012, and 2013 combined

![Age-Adjusted Lung Cancer Mortality Rate by Neighborhood](chart1.png)

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

Figure 55. Age-Adjusted Lung Cancer Mortality Rate per 100,000 Population by Race/Ethnicity, Boston 2008-2012

![Age-Adjusted Lung Cancer Mortality Rate by Race/Ethnicity](chart2.png)

DATA SOURCE: Boston Resident Deaths, Massachusetts Department of Public Health
DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office
CANCER SURVIVORSHIP: PERCEPTIONS AND SURVEILLANCE DATA

In the 2016 CHNA, two focus groups were conducted specifically with cancer survivors, one with English speakers and one with Spanish speakers. Additionally, several key informant interviews worked with cancer patients and cancer survivors and discussed the experiences they had during their cancer journey and beyond. This section discusses the perceptions and experiences with cancer survivorship as well as surveillance data on five-year survivor rates for the most common cancers.

Perceptions of Cancer Survivorship

As discussed earlier, the cancer survivors who participated in the CHNA focus groups were optimistic about their future ahead. They had a positive outlook on their health and prognosis for the future and hoped others in the community could see cancer as something that could be overcome. Many indicated that they felt strong and were eager to be engaged with work, their community, and their family. They recognized that they went through an emotionally and physically grueling time. They were grateful to not only their health care providers for the care they received, but also the support staff such as patient navigators that helped them through their cancer journey. They looked forward to a bright future ahead.

Use and Access to Cancer Survivor Resources

Cancer survivors reported utilizing a number of different resources from multiple venues during their cancer journey and now as a survivor, but they still saw many gaps in resources needed. Several participants indicated that information on resources was available for cancer survivors through resource centers, local hospitals, and the Internet. Interestingly, several cancer survivors reported utilizing support services from multiple hospitals simultaneously saying, “I get care at one hospital, but I attend support groups from multiple places across the city. I like the diversity and different kinds of groups available...whether it’s sewing or peer groups, they all help.”

While the English-speaking cancer survivor participants could name a number of survivor resources in the city, the Spanish-speaking survivor participants could not. They described challenges to accessing the many services provided by local institutions due to language barriers. They looked forward to the future of having more language-appropriate and culturally-appropriate survivor resources that they could feel comfortable accessing.

When asked about gaps in survivor resources and support services, participants across both groups noted that they would like to see more support for caretakers and family members saying, “My daughter dropped everything to take care of me. I may be the one with cancer, but her life changed just as much, if not more, than mine.” Another cancer survivor described the burden her diagnosis had on her young children saying, “I don’t know how to explain to a seven and a four-year-old why their mommy can’t play with them. They see me deteriorating, and I worry about how it will affect them in the future.”

Additionally, a common theme among cancer survivors was the importance rejoining the job force after completing treatment. Focus group participants described the challenges of obtaining employment after cancer...
treatment, noting that “Many times we can’t go back to our old jobs dealing with chemicals or cleaning supplies, but there are no opportunities to learn new skills or be trained.” Many described the inability to find work causing them to feel “useless” and “dependent”. They were interested in seeing more survivor resources and supports related to job re-training for employment that may be more appropriate for them at this stage in their lives.

Lastly, one’s faith was also a considerable source of support for survivors—several participants mentioned the role of faith or their church in providing emotional support throughout their cancer journey. Several cancer survivors described seeing a decline in support services after completing treatment, but indicated that they supplemented those gaps by engaging in faith-based organizations. In addition to engaging with their faith-based organization, many cancer survivors in the focus groups discussed that they felt more engaged in the community. They wanted to use their time to “give back to the community” by volunteering and sharing their experience as cancer survivors and looked forward to greater opportunities for this work.

Cancer Survivorship Surveillance Data
The overall five-year cancer survivor rate for all cancers was 66.9% for 2006-2012, a similar rate to what was seen in 1999-2005; however, rates vary greatly by cancer and by race/ethnicity as discussed in this section. The following section describes the five-year relative cancer survival rates from 1999-2005 and 2006-2012 for overall cancer diagnoses as well as for specific cancers. These data are drawn from the Surveillance, Epidemiology, and End Results (SEER) Program of the National Cancer Institute (NCI). SEER collects and publishes cancer incidence and survival data from population-based cancer registries covering approximately 26% of the U.S. population. The SEER Program is the only comprehensive source of population-based information in the United States that includes stage of cancer at the time of diagnosis and patient survival data. The SEER program includes the following 17 sites: San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Arizona Indian Registry, Rural Georgia, Kentucky, Louisiana, and New Jersey. These data were not available for Massachusetts, Boston, or Boston neighborhoods. When possible, rough calculations approximate the five-year cancer survival rate for Boston by cancer type.

The survival rates presented here are based on the relative survival rate, which is a measure of net survival that is calculated by comparing observed (overall) survival with expected survival from a comparable set of people that do not have cancer to measure the excess mortality that is associated with a cancer diagnosis. All statistics in this section are based on SEER incidence and NCHS mortality statistics.

Figure 56 presents data on the five-year survival rates for the most common cancers. Prostate cancer had an almost 100% five-year survival rate (98.9%) while only 17.7% of those diagnosed with lung cancer survived after five years.
Breast Cancer Survivorship

Based on SEER statistics on five-year survivorship, 89.7% of total women diagnosed with breast cancer survive for five years, yet rates vary by race. In 2006-2012, 90.8% of White women diagnosed with breast cancer survived after five years, while the rate was 80.3% for Black women. While Boston-specific survivorship data are not available, in 2011, 376 women were diagnosed with breast cancer in Boston. Using these data and assuming a similar incidence rate for the subsequent years, we can roughly estimate that during the five-year period of 2011-2016, 1,686 women will have survived/be living with breast cancer in Boston.

NOTE: Relative survival rates are expressed as percentages.
Cervical Cancer Survivorship

For cervical cancer, 67.5% of women across the SEER sites had a five-year survival rate with a nearly 12% difference in five-year survival rates between White and Black women. In 2011, 17 Bostonian women were diagnosed with cervical cancer. Assuming a similar care rate across five years, we estimate that 57 women will have survived/be living with cervical cancer in Boston during the five-year period of 2011-2016.

Figure 58. Five-Year Relative Survival Rate for Cervical Cancer by Race, 1999-2005 and 2006-2012

NOTE: Relative survival rates are expressed as percentages.

Prostate Cancer Survivorship

Prostate cancer had a 98.9% five-year survival rate across the SEER sites, with somewhat similar survival rates between White and Black men. In 2011, 406 men in Boston were diagnosed with prostate cancer. Using this figure and assuming a consistent incidence rate over subsequent years, we expect that 2,008 men in Boston will have survived/be living with prostate cancer from 2011-2016.

Figure 59. Five-Year Relative Survival Rate for Prostate Cancer by Race, 1999-2005 and 2006-2012

NOTE: Relative survival rates are expressed as percentages.
Colorectal Cancer Survivorship

The five-year relative colorectal cancer survival rate was 65.1% for 2006-2012, yet these rates varied by race and gender. Overall, White men and women had similar five-year survival rates at approximately 66%, while 59.6% of Black women and 56.5% of Black men survived for five years after a colorectal cancer diagnosis. In 2011, 230 men and women in Boston were diagnosed with colorectal cancer. Based on these figures and assuming a consistent colorectal cancer incidence rate for the subsequent years, we estimate that 661 Bostonians will have survived/be living with colorectal cancer during the five-year period of 2011-2016.

Figure 60. Five-Year Relative Survival Rate for Colorectal Cancer by Gender and Race, 1999-2005 and 2006-2012

NOTE: Relative survival rates are expressed as percentages.

Lung Cancer Survivorship

For lung cancer, 17.7% of men and women across the SEER sites had a five-year survival rate, but rates varied most by gender and then by race. Five-year survival rates were highest among White women (20.9%) and Black women (18.1%), but lowest among men (White: 15.1%; Black: 12.0%). Black women also saw the biggest increase in survival rates from 1999-2005 to 2006-2012.

In 2011, 361 Bostonians were diagnosed with lung cancer. Using this figure and assuming a consistent lung cancer incidence rate for the next four years, we estimate that over the five-year period of 2011-2016, only 319 Boston residents will have survived/be living with lung cancer.

Figure 61. Five-Year Relative Survival Rate for Lung Cancer by Gender and Race, 1999-2005 and 2006-2012

NOTE: Relative survival rates are expressed as percentages.
COMMUNITY STRENGTHS AND ASSETS

In addition to discussing concerns and health needs, CHNA focus group and interview participants were also asked about the strengths, assets, and resources in their community. Discussions covered both concrete factors, such as specific organizations, to less tangible concepts, such as resilience and cohesion. The following section highlights key themes from these discussions.

Diversity
Focus group participants generally described their communities as vibrant and active neighborhoods that were demographically diverse in terms of age, class, race, and ethnicity. “Our diversity makes us stronger,” shared one participant. Residents indicated that they enjoyed sharing and learning about different cultures through community events. Health centers, community-based organizations, and local businesses were also viewed as contributing to the activity and cultural richness of neighborhoods. Focus group participants described a perceived increase in immigrants from Asia and the Middle East, and with that, the need for more language services for these communities. Cancer survivors who reported seeking support services from multiple institutions across the city said they liked the diversity of the various groups and “wanted to take advantage of everything out there.”

Engaged Community
When asked what residents viewed as a strength in their communities, many participants agreed that residents are actively engaged through neighborhood associations and faith-based groups. As one participant shared, “People in Mattapan want to improve the conditions of their neighborhood, and they’re willing to work hard for it.” Cancer survivors described wanting to “give back to their communities” through volunteering and sharing their experiences with cancer to promote awareness. Residents also indicated that youth were especially engaged and curious about new initiatives happening in the neighborhood, and suggested that targeted outreach be focused on youth in the future.

Community Cohesion and Social Networks
A consistent theme across focus groups and interviews was the strong sense of cohesion among community residents. For example, an interview participant stated that, “People watch out for each other around here. Whether it’s keeping an eye out on their kids, sharing a meal, or giving someone a ride, we try and help out where we can.” Participants in the Spanish-speaking focus group explained the importance of a collective approach to health, involving family and loved ones in important discussions.

Organizations and Services
Another asset discussed by participants was the number of community programs and services present in the community. Interview and focus group participants described many local amenities including churches, social service organizations, and local businesses. Public transportation is available in most neighborhoods, although some participants commented that it can be unreliable and is less accessible in certain neighborhoods. In addition to the large number of small “mom and pop shops” that have fostered a connection to home country for many immigrant families, ethnic-based service organizations such as Inquilinos Boricuas en Acción (IBA) meet the needs of a diverse community. In addition, residents shared that there are many social service organizations serving the community, including the Greater Boston Food Bank, the YMCA, the Boston Public Health Commission, and The Prostate Health Education Network (PHEN). Across all groups, participants agreed that Boston offers “the best healthcare around” and indicated that they felt “lucky” to live in close proximity to several world-class institutions.
Focus group and key informant participants were asked about their vision for the future and ideas for future services in their community. Several overarching issues were discussed in relation to the programming and service environment in content related areas as well as approaches. Key themes and suggestions by focus group and key informant participants are discussed below.

**Greater Focus on the Social Determinants of Health**

*When discussing their vision for the future, many focus group participants discussed the importance of interventions to address environmental factors such as poverty and built environment issues.* Issues such as enhancing financial assistance and improving the built environment including greater access to healthy foods and improved transportation options were discussed in several focus groups. Interview participants cited supporting more employment opportunities in the community as an important element to improving overall community health. Addressing the issue of affordable housing overall in Boston was also cited as an issue that would ease residents’ day-to-day burden.

**Greater Information and Health Literacy**

*Across focus groups and interviews, participants noted the need to demystify cancer and increase awareness of prevention and screening practices via improved information-sharing in the form of engaged, interactive venues.* Several areas for which additional education and support were identified included: smoking cessation, diabetes education, healthy eating/cooking, and cancer. Interview participants reported the need for more targeted health literacy initiatives, especially related to cancer screenings, saying “there is still a lot of misinformation about what screenings are about and what body parts need to be checked.” Residents expressed confusion about prevention and screening guidelines saying, “I think you’re supposed to get a blood test to see if you have cancer, but I don’t know how often you need it.”

While some participants agreed that print information (i.e., brochures and flyers) were readily available, they did not consider it the most effective method for educating their communities. Rather, participants expressed a desire to have these conversations face-to-face with providers, whether doctors, nurses, or community health workers, in order to feel comfortable. Several participants also discussed learning from their peers or community leaders as they were trusted sources of information. A few participants suggested alternative forms of media, such as television and advertisements on public transit, while others felt that because resources were readily available, the community had a personal responsibility to seek information. It was also noted that it was important to leverage existing known resources—such as the Mammography Van or well-known community organizations such as YMCAs or place of worship—to broaden their reach and increase awareness of cancer prevention and screening to a larger population.

**Information on Less Common Cancers**

*Focus group participants in both survivor groups reported that many resources were devoted to more common cancers such as breast cancer, but few were available for less typical cancers such as oral and liver cancer.* A Spanish-speaking focus group participant shared the story of challenges regaining her speech after treatment for oral cancer and said, “I felt like there was no one else going through the things I had to go through. I couldn’t talk, open my mouth, or eat properly, and it felt like there were no resources to help me figure out how to regain...”

*“The key to having a healthy community is having an educated community.”*

-Focus group participant
my life.” A few participants also stated that a greater focus on support and funding for men’s cancers (including testicular and prostate cancer) is needed.

Follow-up care and Survivorship Programming

When asked where residents believed the gaps in services were, many noted that there were limited resources for cancer survivors particularly in the area of emotional support for families, job retraining for cancer survivors, and supports in general for non-English speakers. Groups in the cancer survivor meetings frequently discussed feeling that services “fell off after a few years after treatment”, and wished to see more opportunities to engage in post-treatment support services. More emotional and economic support, specifically for family members of cancer patients, should be offered, survivors suggested. As one resident said, “I’m the one with cancer, but it affects the entire family and they need support too.” Residents noted that community organizations such as the YMCA offered cancer-programming described as extensions to traditional cancer treatment that focused on survivorship issues. Some suggested sustaining and expanding these initiatives before creating new programs.

Expand Patient Navigators

Survivors reported patient navigators as a tremendous asset to patients, especially those who were bilingual and/or bicultural, and encouraged hospitals to expand the effort. Currently, there is not a sufficient supply of patient navigators for the range of cancer patients. Focus group participants stressed the importance of increasing the number of navigators and ensure that they “look and sound like the community,” suggesting that the hospital be focused on diversity initiatives when recruiting navigators. When asked where the hospital should focus recruitment efforts to ensure a diverse staff, participants suggested hosting events at faith-based organizations and places of worship.

Community Engagement

Across many focus groups and interviews, participants discussed the importance of engaging community members in different aspects of programs and services. Community members wanted to be part of the planning process and feel a sense of ownership of community-based programs. Participants suggested several ways to involve the community in the hospital’s efforts. One interviewee recommended that the hospital partner with faith-based organizations to conduct periodic seminars or “open houses” for community members. Continuous partnering with the community through group discussions and focus groups were described as ways to keep community members engaged. Others reported that community members should be included on committees. For example, one interviewee suggested that, “We have very active neighborhood associations. I bet people would be interested in a special committee on health.” Focus group and interview participants also stressed the importance of identifying community champions that can engage residents in health initiatives.

Broaden the Community Reach

The primary recommendation from residents and key informants was to engage a broader cross-section of the community more through group dialogues and outreach, specifically peer-to-peer learning. As one participant noted, “I’m very grateful for discussions like these where we can share and learn from each other. I wish there was more of this in Dorchester.” Youth were viewed as a critical audience to target for programming and services related to economic development (e.g., job training) and disease prevention (e.g., increasing opportunities for physical activity). Participants reported the importance of meeting residents in familiar spaces, saying “You have to meet the people where they’re at. The hospitals should be going into the communities and churches and teaching them preventative measures there.”
Capacity Building

A common suggestion that interview participants mentioned was leveraging resources and investing in capacity building for local organizations throughout Boston. As one interviewee shared, “we have the opportunity to not only reach out and engage the community, but provide technical assistance and training to health centers, coalitions, and other community groups.” Specific suggestions for the format of these sessions included virtual lunch hours where health experts presented topics such as best-practices in cancer screening. Further, several interview participants indicated that there is a need for sustained support for language services, noting financial challenges to providing adequate services such as bi-lingual case management, and printing translated materials in more than one language.

Collaboration

Health care and social service stakeholders frequently noted that, while many local services exist, there are opportunities to improve communication and coordination between institutions. Focus group and interview participants described a “competitive, not collaborative” health system in the city of Boston and wished to see more collaborative efforts among hospitals, academic institutions, and local organizations. Informants suggested that developing a common agenda, including defining clear scopes and roles for partners, is a needed next step to improving population health for Boston residents. Many described the need for a system to share city-wide information and data noting, “We are all collecting similar information...can you imagine the impact we could have if we deliberately built off each other’s efforts?” Participants also recommended strengthening “clinical linkages” so specialty providers like oncologists were in frequent communication with primary care providers in order to prevent cancer reoccurrences. As one participant said, “The hospitals can use their reputations and make sure warm hand-offs, from specialists back to PCPs, are common practice, in order to continuously monitor high-risk patients.”
CONCLUSIONS

Residents in DFCI’s priority communities encounter numerous social and economic challenges, including poverty, neighborhood violence, and limited employment opportunities, which have a significant impact on population health. However, residents are resilient and there are numerous assets and strengths. In addition to organizational programs and services, a diverse, engaged and cohesive community are considered strengths of these communities. The following section provides an overview of key findings of the 2016 assessment:

1. As discussed in the 2013 CHNA, there are great disparities on several social, economic, and health indicators in DFCI’s specific priority neighborhoods, but these neighborhoods also possess numerous strengths and assets.
   • Issues related to poverty and violence underscore all aspects of daily life for residents of many Boston neighborhoods, although these neighborhoods also possess several strengths. Limited employment opportunities and low education levels among residents have significantly impacted the social and economic context of these areas. Employment challenges were especially prominent among cancer survivors, who indicated a need for more resources for survivors to be “retrained and re-enter the job force” after treatment. Despite considerable socioeconomic challenges, social cohesion and residents’ resiliency were considered important neighborhood assets. Existing organizations and resources were also viewed as strengths. As previously discussed, communities of color were described as the most vulnerable for negative health outcomes with many residents perceiving less access to resources and institutional racism as contributing factors.

2. Among participants without direct experience with cancer or among key informants not working with cancer patients directly, cancer was not described as a pressing community health concern unless prompted. Mental health, substance abuse, diabetes, and community violence were named as top health concerns in the community when participants were asked unprompted.
   • Similar to 2013 findings, for community members not directly affected by cancer, cancer was not a top of mind concern compared to the daily challenges of meeting basic needs. Although when asked about the topic, it was evident that there is a tremendous amount of fear surrounding the risk of diagnosis. However, cancer survivors were optimistic about their health and future ahead. They were eager to share their viewpoint with others and be engaged in future community efforts.

3. Cancer-prevention behaviors are a significant challenge, particularly among Blacks and Latino residents.
   • Obesity and concerns related to maintaining a healthy lifestyle emerged as challenges for priority neighborhoods, with residents indicating that environmental factors such as community violence and access to healthy foods made living a healthy lifestyle challenging. Smoke-free policy initiatives were mentioned as an effort to improve environmental conditions, but according to participants, second-hand smoke is still a major problem in their communities.

4. Similar to the data reviewed in the 2013 CHNA, cancer screening rates are high in many of DFCI’s priority neighborhoods, but cancer mortality rates also are high.
   • Surveillance data indicate that continually Blacks in particular have higher mortality rates than Whites for many cancers. Similar patterns emerge by neighborhood, with Mattapan and Roxbury, two predominantly African American neighborhoods, consistently see higher mortality rates from many common cancers. However, screening rates among these groups are strong. It is unclear why this pattern emerges. The larger cancer literature indicates that there could be a multitude of reasons.
including that overall Blacks are more likely to have comorbid conditions that complicate cancer treatment, are being diagnosed at a later or more invasive stage of cancer when receiving initial diagnosis, and face disproportionate barriers to care due lower socioeconomic status, discrimination, and cultural factors. Disentangling the issues within DFCI’s priority neighborhoods in more detail in the future may help understand better the complicated relationship between screening, health care access, and survivorship.

5. There is a need for additional support services for cancer survivors and their families, specifically around health literacy and financial resources.
   - Focus group participants indicated ample resources for cancer patients, but explained that survivor-specific services were limited, especially in languages other than English. Residents wanted more information regarding ways to prevent cancer reoccurrences, how to rejoin the workforce, and workforce retraining for the future. Interestingly, several participants reported participating in services offered by multiple hospitals in the area despite only receiving care from one.

6. Patient Navigators and social workers were seen as “critical resources” in helping patients navigate the complex health system.
   - Across all groups, a common challenge that emerged was the difficulty navigating the complex health system, especially after receiving a cancer diagnosis. Patient navigators and social workers, said participants, were vital in connecting patients with resources and providing support throughout their cancer journey. Assessment participants strongly encouraged the expansion of patient navigator programs, and encouraged DFCI to continue efforts to expand diversity initiatives within these areas.

7. Strengthening internal and external partnerships through capacity building and technical assistance was a common theme among interview participants.
   - Assessment participants suggested increased capacity building and technical assistance for community-based organizations, additional funding for scaling up existing programs, and a more coordinated effort across programs and organizations could help current efforts reach a larger audience. Specific suggestions included virtual lunch-hours for providers at FQHCs, community “open houses,” and seminars held at faith-based and social service organizations. Further, several participants described a need for additional resources for language services, including translating materials and bi-lingual case management.

8. There are ample resources in the community, but a competitive health care and organizational system creates resources that are fragmented and duplicative. Greater collaboration, coordination, and alignment are critical for future work.
   - Similarly noted in the 2013 CHNA, several key informants described a fragmented and uncoordinated health system in the city of Boston, noting that “the system here is competitive instead of collaborative, and that makes services duplicative.” Stakeholders and staff indicated that coordinating or expanding existing programs would be more effective than developing new programming. Further, suggestions for a shared platform to exchange data and information among institutions was viewed as an opportunity to promote collaborations.
PRIORITIZATION OF NEEDS
In Spring of 2016, HRiA led a facilitated conversation with Dana-Farber Cancer Institute to discuss priority areas and strategies for the future. This conversation included a presentation of the priorities identified by the community health needs assessment (CHNA), including the magnitude and severity of these issues and their impact on DFCI priority neighborhoods. As a result of this process, Dana-Farber identified the following key priority areas based on the hospital’s potential to demonstrate measurable outcomes in reducing cancer incidence and mortality through programmatic enhancements in these areas:

1. Addressing the cancer burden
2. Reducing access barriers
3. Advancing survivorship
4. Addressing community perceptions of cancer

Specific strategies to address the identified needs above are detailed in the 2016-2019 Community Health Needs Assessment Implementation Plan that accompanies this report.
The following tables highlight the major priority areas, strategies, and key activities undertaken since the 2013 CHNA.

## ADDRESSING THE CANCER BURDEN

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<th>STRATEGIES</th>
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| Enhancing the community-based clinical care program at Dana-Farber Community Cancer Care (DFCCC) at Whittier St Health Center (WSHC). | • Through a comprehensive program approach, medical oncologists, a geneticist, a genetic counselor, and a program nurse navigator provide consultations in collaboration with primary care physicians at WSHC. The physicians perform consultations, aid in the diagnosis and work-up of suspected oncologic issues, and provide guideline-based cancer screening services. Patients diagnosed with cancer are offered a referral to Dana-Farber for potential treatment and diagnostic procedures. Patient navigation services are provided to each patient to ensure seamless movement through various systems as well as coordination of care.  
• Launched a smoking cessation program in November 2013 for WSHC patients and staff, which receives approximately 100 referrals per year.  
• Launched lung cancer screening pilot program at WSHC which provides free low-dose chest CT scans to patients who are at greater risk for developing lung cancer. |
| By leveraging the nurse patient navigator model, enhance relationships between primary care physicians and oncologists to facilitate care coordination across settings | • DFCCC at WSHC continues to provide streamlined diagnosis, treatment, and education for medically underserved patients with suspected malignancies throughout the continuum of care. In addition to clinic services, DFCI staff participate in existing WSHC programs, grandrounds, lectures, health fairs, and ongoing educational forums focused on men and women’s health.  
• Tracking time from initial appointment to resolution with a goal of ≤21 days as a measure of clinic and navigation efficacy. The median # of days to resolution for patients at the WSHC clinic is 13 days, which exceeds the goal of 21 days to resolution, set at the program’s launch.  
• Working with internal stakeholders to update Dana-Farber’s patient navigation model across the Institute. |
| Establish metrics to measure impact                                        | • Launch of data collection and reporting tool – Red Cap – to monitor the impact of DFCCC at WSHC.  
• Data collection tool has been integrated between DFCCC at WSHC and the tobacco cessation program. |
| Implement operational improvements to streamline referral and insurance eligibility processes | • Partnering with Access Management to identify barriers and implement solutions to ensure timely access to care.  
• Created processes for ongoing monitoring and evaluation of referral and insurance eligibility, particularly for patients served on Dana-Farber’s Mammography Van. |
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| Launch the Dana-Farber Mammography Suite at WSHC | • Opened a mammography suite at WSHC in 2013 offering digital mammography to patients served at the health center’s Roxbury site.  
  • Since inception, the suite has provided more than 1500 mammograms to community residents. |
| Continue to develop and expand Dana-Farber’s long history of comprehensive community-based programming and partnerships | • Leveraged partnerships with Sociedad Latina, the Boston Public Health Commission, Boston Public Schools, and Team Maureen (a cervical cancer prevention focused advocacy group) to increase education and awareness among youth about HPV and the link to cancer, as well as increasing youth vaccine uptake in Boston.  
  o Launched HPV cancer prevention and peer youth education program with Sociedad Latina in Mission Hill.  
  o Completed 3 HPV vaccine clinics held at 2 Boston Public School Based Health Centers.  
  o Launched and held the first 3 Annual HPV Summits at Dana-Farber, which included approximately 350 attendees  
• Launched text message reminder system for mammography van patients to reduce appointment no-show rate.  
• Engaged more than 4100 community residents in sun safety education/skin cancer screening.  
• Reached over 4300 community residents in Community Benefits programs and initiatives at community outreach events and health fairs. |
| Develop a CBO program evaluation plan | • Created logic models, identified impact indicators and metrics, and developed data collection instruments, including the Red Cap database.  
  • An evaluation of the youth HPV education curriculum demonstrated efficacy.  
  • Ongoing data-collection and analysis of Community Benefits programs and activities. |
| Seek DFCI representation on cancer-related and health disparities committees at the state and local level. | • In collaboration with BPHC, Dana-Farber convened a coalition of health care providers, public health experts, researchers and community residents to determine future action steps to address the persistent female breast cancer disparities in the City of Boston. The group has formally become the Boston Breast Cancer Equity Coalition, which includes representatives from over 40 organizations and continues to meet quarterly to advance this health equity work.  
  o Launched workgroups on patient navigation and data analysis focused on the City of Boston.  
  o Developing applications for grant funding to sustain and expand current efforts.  
• DFCI is actively involved in developing and implementing community health improvement strategies through representation on a variety of committees and coalitions including the Massachusetts Comprehensive Cancer Prevention and Control Network Advisory Committee, Massachusetts Comprehensive Cancer Prevention and Control HPV Working Group, Boston Alliance for Community Health, and the Conference of Boston Teaching Hospitals Community Benefits Data Collection Workgroup, among others. |
## ADDRESSING COMMUNITY PERCEPTIONS OF CANCER

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| Develop an Ambassador Program: Recruit and train cancer survivors in our priority neighborhoods who can share their cancer experience with members of their own social networks | • Completed program development in articulating overall goals and purpose of the program, identifying key staff, recruitment strategies, success metrics, and the Ambassadors’ role including responsibilities and time commitment.  
• Completed training curriculum and manual for Community Ambassadors.  
• Ongoing collaboration with Volunteer Services on diversity in recruitment of Ambassadors and Volunteers across the Institute. |
| Educating our target community about cancer prevention, early detection, and screening. | • Developing a robust Community Benefits brochure to raise awareness about Dana-Farber’s community programs and activities.  
• Continue to partner with ethnic media to deliver language-appropriate cancer prevention messages.  
• Ongoing marketing and media efforts to highlight DFCI’s community outreach activities and ensure DFCI is visible in our surrounding communities.  
  o Over 55 community support ads and flyers  
  o Public cancer awareness campaigns on the MBTA  
  o Advertorials and features in ethnic media including El Mundo and Salud y Familia, among others.  
  o Features in other local media outlets including the Bay State Banner, Sampan, CBS Boston, Charlestown Patch, Boston Globe, Boston.com, WCVB Channel 5, US News, and the Boston Metro, among others.  
• Ongoing cancer prevention education with schools, community groups, local prisons and other partnering organizations, including over 100 students at Fenway High School who participated in school-based events led by Dana-Farber faculty and staff.  
• DFCI participates in a program to train lay individuals and key community health stakeholders on how to deliver information about clinical trials to their respective community partners, including faith-based networks. |