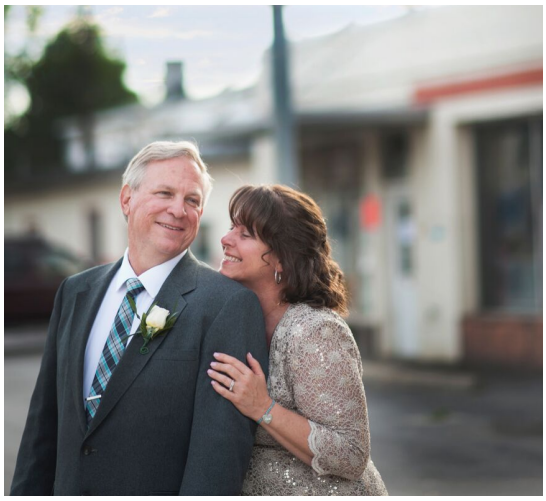
COMMUNITY HEALTH NEEDS ASSESSMENT



Beth Israel Lahey Health

Beth Israel Deaconess Hospital
Plymouth

2019

Executive Summary

Background, Purpose, and Approach

Beth Israel Deaconess Hospital-Plymouth (BID-Plymouth) is a 170-bed, acute care hospital, serving residents from 12 towns in Plymouth and Barnstable counties. BID-Plymouth is recognized for its leadership in providing top-tier quality healthcare and a full continuum of healthcare services to the communities it serves. The Hospital delivers excellent care with compassion, dignity, and respect. We have deep ties to our community and place the experience of our patients at the center of everything we do. Since 1903, the hospital has been a private, not-for-profit community hospital that treats all patients, regardless of their ability to pay for care. In 2019, as part of a merger of two health systems in the greater Boston region, BID-Plymouth became part of Beth Israel Lahey Health (BILH) - a system of academic medical centers, teaching hospitals, community hospitals, and specialty hospitals that employ more than 4,000 physicians and 35,000 staff members combined.

In addition to its commitment to clinical excellence, BID-Plymouth is committed to being an active partner and collaborator with the communities it serves. This Community Health Needs Assessment (CHNA) and the associated Implementation Strategy (IS) were completed in close collaboration with BID-Plymouth's Community Benefits staff, the Hospital's leadership, and the community at-large. All together, the assessment involved hundreds of people from across the service area, including health and social service providers, community advocates, Commonwealth and local public officials, faith leaders, and community residents. The process that was applied to conduct the CHNA and develop the IS exemplifies the spirit of collaboration and community engagement that is such a vital part of BID-Plymouth's mission.

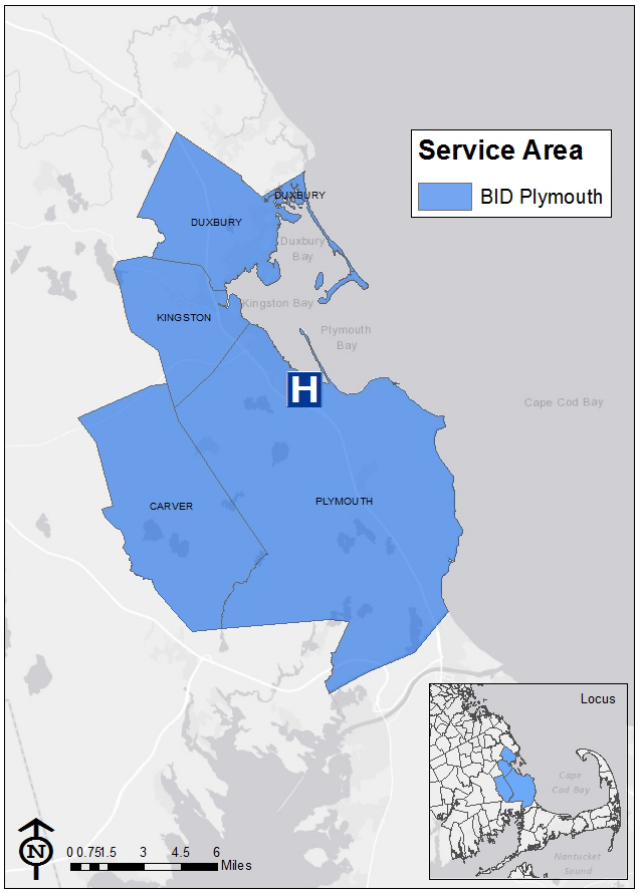
This community health needs assessment report is an integral part of BID-Plymouth's population health and community engagement efforts. It supplies vital information that is applied to make sure that the services and programs that BID-Plymouth provides are appropriately focused, delivered in ways that are responsive to those in its service area, and address unmet community needs. This assessment and the associated prioritization and planning processes also provide a critical opportunity for BID-Plymouth to engage the community and to strengthen the community partnerships that are essential to BID-Plymouth's success now and in the future. Finally, this report allows BID-Plymouth to meet its Commonwealth and Federal Community Benefits requirements per the Massachusetts Attorney General's Office and the Federal Internal Revenue Service (IRS) as part of the Affordable Care Act.

Community Benefits Service Area & Community Benefits Priorities

BID-Plymouth's primary service area includes the communities of Carver, Duxbury, Kingston, and Plymouth, which is also how BID-Plymouth defines it community benefits service area (CBSA). This assessment focused on identifying the leading community health needs and priority populations living within this primary service area.

BID-Plymouth's community benefits activities support all of the people who live in its CBSA, across all geographic, demographic, and socio-economic segments. However, in recognition of the considerable health disparities that exist in some segments of the population in the CBSA, BID-Plymouth focuses the bulk of its community benefits resources on improving the health status of low income, underserved, vulnerable populations living in the more underserved communities of its CBSA, particularly in Plymouth. By prioritizing these population segments, BID-Plymouth is able to maximize the impact of its community benefits resources. BID-Plymouth currently supports and collaborates on many educational, outreach, screening, care management, care coordination, and other community-strengthening initiatives aimed at improving community health for those who live in its CBSA. In the course of these efforts, BID-Plymouth collaborates with many of the area's leading healthcare, public health, and social service organizations.

BID-Plymouth Community Benefits Service Area



Approach and Methods

The assessment began with the creation of a Steering Committee comprised of representatives from BID-Plymouth, Beth Israel Deaconess Medical Center (BIDMC) in Boston, and the other BID affiliate hospitals (BID–Milton and BID–Needham). These organizations worked together to ensure that a collaborative, transparent, and robust process was applied across the BID hospital system. In October 2018, the Steering Committee hired John Snow, Inc. (JSI), a public health research and consulting firm based in Boston, to support their efforts and to work with them to complete the CHNA and IS. Next, BID-Plymouth formed a Community Benefits Advisory Committee (CBAC), made up of community benefits staff, administrative and clinical staff, and representatives from the Board of Directors, local service providers, and key community stakeholders. This group met four times over the course of the assessment; they provided input on the assessment approach, vetted preliminary findings, and helped to prioritize the community health issues and the priority populations, most vulnerable. The Hospital also formed a Community Benefits Leadership Team (CBLT) made up of key hospital leadership and staff. Finally, the CHNA was discussed periodically at the Hospital's Senior Leadership Team (SLT) meetings. The Steering Committee, the CBAC, the CBLT, and the SLT reviewed this CHNA report and the subsequent IS before it was submitted to the Board of Directors for approval.

Substantial efforts were taken to ensure that the assessment activities implemented included efforts to engage community residents, local public health officials, and other community stakeholders. The

assessment was completed in three phases. Below is a summary of the activities that were associated with each Phase of the assessment and planning process. A detailed description of BID-Plymouth's approach to community engagement is included in Appendix A.

Phase One involved preliminary assessment and engagement activities, including:

- Collection and analysis of quantitative data to characterize community characteristics and disease burden
- Key informant interviews with hospital leadership, local service providers, and community stakeholders
- An evaluation of BID-Plymouth's current portfolio of Community Benefits activities

Phase Two involved targeted engagement activities, including:

- Focus groups with hospital leadership, clinical providers, and community stakeholders
- A community meeting with residents, service providers, public health officials, and other community stakeholders from the CBSA
- Dissemination and analysis of a Community Health Survey to capture residents' perceptions of barriers to good health, leading health issues, vulnerable populations, accessibility of health services, and opportunities for the hospital to improve the services they offer to the community

Phase Three involved a series of strategic planning and reporting activities, including:

- Meetings with the BID-Plymouth's CBAC (including members of the Board of Directors), CBLT, and SLT to present CHNA findings, prioritize community health issues, identify vulnerable populations, and discuss potential responses
- Creation of a Resource Inventory to catalogue local organizations, service providers, and community assets that have the potential to address identified needs
- Literature review of evidence-based strategies to respond to identified health priorities
- Development of a final CHNA report and IS

Key Health-Related Findings

The following are brief summaries of some of the assessment's key findings. A full review of the quantitative and qualitative information that was collected for this assessment and that led the CBAC and the CBLT to identify the issues that were prioritized by the assessment, is included in the full body of the report below.

- **Social Determinants of Health Continue to Have a Substantial Impact on Many Segments of the Population.** One of the dominant themes from the assessment's findings was the impact that the underlying social determinants of health are having on those living in the CBSA. The segments of the population most challenged by these issues are older adults, low income individuals/families, racial/ethnic minorities, non-English speakers, and those with disabilities or with chronic/complex conditions. More specifically, these segments struggle with financial insecurity, safe/affordable housing, transportation, access to healthy/affordable food, lack of social support, social isolation, and language access /cultural humility. These issues impact many people's and families' ability to

access or pay for the services, housing, food, or other essential items they need and/or to live a happy, fulfilling, productive life.

- **The Burden of Substance Use and Mental Health Issues.** Mental health and substance use issues continue to be one of the region's most prevalent and challenging issues and are having a profound impact on individuals, families, and communities throughout the CBSA. These issues are also a major burden on the health and social service system. Health and social service providers, public health agencies, first-responders, and community-based organizations are confronted on a daily basis with people struggling with acute or chronic conditions and struggle to provide or link them to the care they need. With respect to mental health issues, depression/anxiety, stress, social isolation, and the impacts of trauma are the leading issues. With respect to substance use, the opioid crisis continues to have a tremendous impact on the region, along with alcohol use, marijuana use, and vaping in youth. The fact that physical, mental health, and substance issues are so intertwined compounds the impact of these issues. Of particular concern are the increasing rates of opioid use and the impacts of trauma.

- **Limited Access to Behavioral Health (mental health and substance use) Services.** Despite the prevalence of mental health and substance use issues and the impact that these issues are having on individuals, families, and communities, the behavioral health service system in the region is extremely limited. There are major shortages of specialized providers - such as psychiatrists, therapists, addiction specialists, and case managers - who are capable of providing the full breadth of preventive, screening, assessment, treatment, and recovery support services that the community needs. This is particularly true for those who have limited English skills or different cultural perspectives that require more specialized care, such as recent immigrants, racial/ethnic minorities, and LGBTQ individuals. Uninsured individuals, those covered by Medicaid, and those in low to moderate income brackets also struggle to access or pay for the services they need or to find providers who are able to take their coverage or insurance.

- **High Rates of Chronic and Acute Physical Health Conditions.** Another major finding from the assessment is the high rates of chronic and complex conditions that exist for many of the leading physical health conditions (e.g., heart disease, hypertension, cancer, and asthma) in the CBSA. In some cases, the rates of illness and death are statistically higher than the rates for the Commonwealth, indicating a particularly significant problem. Even in the communities where the rates are lower than the commonwealth average, chronic physical health conditions, such as heart disease, cancer, stroke, diabetes, and respiratory disease, are still by far the leading causes of death and need to be addressed to improve health status in the region.

- **High Rates of the Leading Health Risk Factors (e.g., Lack of Nutritional Food and Physical Activity, Alcohol/Illicit Drug Use, and Tobacco Use).** Based on information gathered from focus groups, interviews, community meetings, the community health survey, and quantitative sources, the assessment found that there were substantial concerns related to the leading health risk factors, such as healthy eating, physical activity, obesity, tobacco use/vaping, alcohol use, and stress. Many

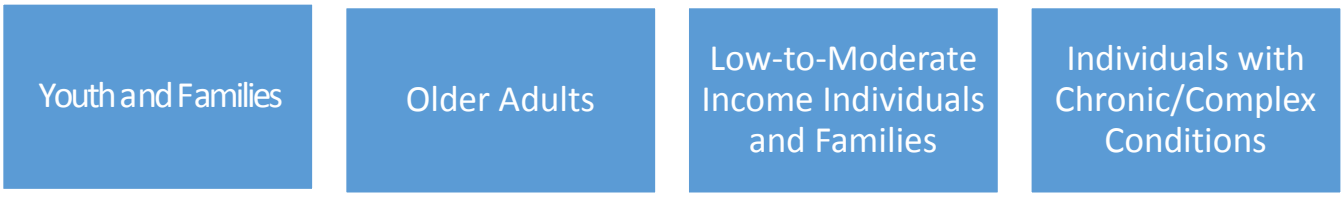
of those who were involved in the assessment believed that there was a need for more health education and a greater emphasis on health promotion and prevention.

- **Challenges Navigating the System and Coordinating Needed Services.** Another major theme from the interviews, focus groups, and community meetings conducted for the assessment was the challenges that many people in the CBSA face navigating the health and social service system. There was a general sense that there was a broad range of health and social services available in the region but that many did not know where to go for services or struggled to access the services even if they knew where to go. Once again, the population segments who struggle most to navigate the system are older adults; low income individuals/families, racial/ethnic minorities, non-English speakers, and those with chronic/complex conditions. Many people said that they wished there was a resource inventory that would help residents access services, along with counselors or case managers who could further assist people to obtain and access the services they needed.

Priority Populations

BID-Plymouth is committed to improving the health status and well-being of all residents living throughout its service area. Certainly all geographic, demographic, and socioeconomic segments of the population face challenges of some kind that can hinder their ability to access care or maintain good health. With this in mind, BID-Plymouth's IS includes activities that will support residents throughout its service area, across all segments of the population. However, based on the assessment's quantitative and qualitative findings, there was broad agreement that BID-Plymouth's IS should prioritize certain demographic and socio-economic segments of the population that have complex needs or face especially significant barriers to care, service gaps, or adverse social determinants of health that put them at greater risk. The assessment identified 1) Youth and families, 2) Older adults, 3) Low to moderate income individuals and families, and 4) Individuals with chronic and complex conditions as priority populations to be included in the IS

BID-Plymouth Priority Populations 2020-2022



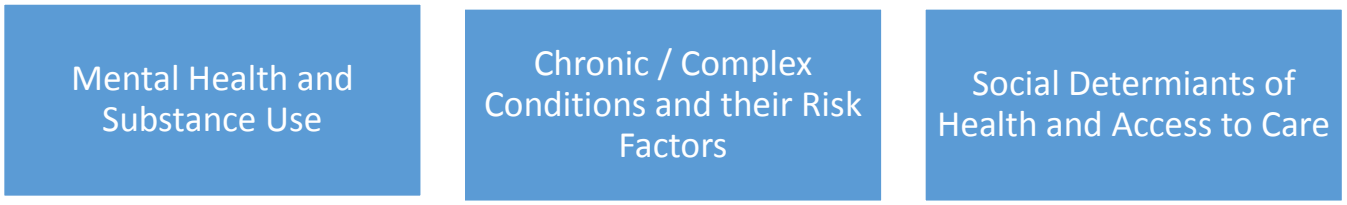
Community Health Priorities

BID-Plymouth's CHNA was conducted as a population-based assessment. The goal was to engage the community and compile quantitative and qualitative information to identify the leading health-related issues affecting individuals in the CBSA, including social determinants of health, service gaps, and barriers to care. The priorities that have been identified have been framed broadly to ensure that the full breadth of unmet needs and community health issues are recognized. These priorities were identified through an integrated and thorough review of all of the quantitative and qualitative

information captured for the assessment. The priorities have been identified to maximize impact, reduce disparities, and promote collaboration and cross-sector partnership.

During the later stages of the CHNA process, significant efforts were made to vet the priority issues with leadership and the community-at large, through meetings with the CBAC, the CBLT, the Hospital Senior Leadership Team, and the community through a public forum. BID-Plymouth is confident that these priorities reflect the sentiments of those who were involved in the assessment and community engagement processes. Based on the findings from the breadth of BID-Plymouth's CHNA activities, the CBAC and the CBLT voted to prioritize 1) Mental health and substance use, 2) Chronic/complex conditions, and their risk factors, and 3) Social Determinants of Health and Access to Care.

BID-Plymouth CHNA Priority Areas 2020-2022



The community health priorities that have been prioritized by the CHNA in the figure above are described in detail in the next section of this report, along with a listing of the goals related to these priority areas that BID-Plymouth's Community Benefits staff, SLT, the CBAC, and CBLT believe will drive achievement. The objectives and strategic initiatives, by priority area, that will be part of BID-Plymouth's IS are included in BID-Plymouth's Summary Implementation Strategy, included in Appendix D.

Community Health Needs not Prioritized by BID-Plymouth's CBAC

It is important to note that there are community health needs that were identified by BID-Plymouth's assessment that, due to the limited burden that these issues present and/or the feasibility of having an impact in the short- or long-term on these issues, were not prioritized for investment. Namely, Built Environment and Violence were identified as community needs but these issues were deemed by the CBAC, SLT, and the CBLT to be outside of BID-Plymouth's primary sphere of influence and have opted to allow others in its CBSA and the Commonwealth to focus on these issues. This is not to say that BID-Plymouth will not support efforts in these areas. BID-Plymouth remains open and willing to work with hospitals across Beth Israel Lahey Health's network and other public and private partners to address these issues, particularly as part of a broad, strong collaborative.

Summary Implementation Strategy

The following outlines BID-Plymouth's goals for addressing the priority populations and community health priorities identified above.

Priority Area 1: Mental Health and Substance Use
Goal 1: Educate about and Reduce the Stigma Associated with Mental Health and Substance Use
Goal 2: Enhance Access to Mental Health and Substance Use Screening, Assessment, and Treatment
Goal 3: Remove prescription drugs and other harmful drugs from the community
Priority Area 2: Chronic/Complex Conditions and their Risk Factors
Goal 1: Enhance Access to Health Education, Screening, Referral, and Chronic Disease Management Services in Clinical and Non-clinical Settings
Goal 2: Reduce the Prevalence of Tobacco Use
Priority Area 3: Social Determinants of Health and Access to Care
Goal 1: Enhance Access to Care and Reduce the Impact of Social Determinants
Goal 2: Reduce Elder Falls and Promote Aging in Place

Acknowledgements

This report is the culmination of nearly a year of work, involving hundreds of community residents, service providers, community advocates, Commonwealth, local public officials, and staff throughout Beth Israel Deaconess Hospital-Plymouth (BID-Plymouth) and many of its community partners. While it was not possible for the assessment to involve all residents and community stakeholders, there were substantial efforts made to ensure that all segments of the community had the opportunity to participate. BID-Plymouth's Community Benefits staff, the Community Benefits Advisory Committee (CBAC), the Community Benefits Leadership Team (CBLT), and the Hospital's Senior Leadership Team (SLT) would like to extend its sincere appreciation to everyone who invested their time, effort, and expertise to ensure the development of BID-Plymouth's Community Health Needs Assessment (CHNA) and its associated Community Health Implementation Strategy (IS).

This assessment was overseen by a Steering Committee, comprised of Community Benefits staff at BID-Plymouth, Beth Israel Deaconess Medical Center, and other BID-affiliate hospitals, as well as the CBAC, the CBLT, and the SLT. The CBAC was newly established by BID-Plymouth in October 2019 to guide and oversee all of BID-Plymouth's Community Benefits efforts moving forward, with respect to the Hospital's periodic community health assessment, ongoing program implementation activities, and its monitoring, evaluation, and performance improvement efforts. The CBAC is comprised of Community Benefits staff, administrative and clinical staff, and representatives from the Board of Directors, local social service providers, community health advocates, and other community leaders. BID-Plymouth would like to extend special thanks to the CBAC membership for their commitment to the Hospital, the community, and to a comprehensive assessment and planning process.

The Community Benefits Leadership Team (CBLT) was also newly established in October 2019 to ensure that BID-Plymouth's leadership was fully apprised of the Hospital's community benefits activities and was given the opportunity to provide their feedback regarding all aspects of the Hospital's program. BID-Plymouth's CBLT is comprised of Community Benefits Department staff, selected senior administrators, and staff at the Hospital. The Steering Committee, CBAC, CBLT, and SLT met periodically to inform the approach, oversee progress, and provide critical feedback on preliminary and final results. BID-Plymouth would like to thank all individuals that served, and will continue to serve, on these vital committees.

BID-Plymouth was supported in this work by John Snow, Inc. (JSI), a public health consulting and research organization dedicated to improving the health of individuals and communities in the United States and around the world. BID-Plymouth appreciates the contributions that JSI has made in collecting and analyzing data, engaging the community, and conducting research throughout the CHNA and IS development process. Finally, BID-Plymouth would like to express immense gratitude to community residents who contributed to this process. Since the beginning of the assessment in September of 2018, hundreds of individuals shared their needs, experiences, and expertise via interviews, focus groups, surveys, and community listening sessions and these proved to be tremendous contributions towards the creation of the CHNA and IS.

Beth Israel Deaconess Hospitals Community Benefits Steering Committee 2019

Andrea Holleran, Vice President of Strategic Planning and External Affairs, BID-Plymouth
Nancy Kasen, Community Benefits Director, Community Care Alliance Director
Alyssa Kence, Community Benefits Director, BID-Needham
Laureane Marquez, Senior Associate, Public Relations
Kelly McCarthy, Program Manager, Beth Israel Deaconess Medical Center
Robert McCrystal, Director of Communications, BID-Milton
Deborah Schopperle, Manager, Marketing and Communications, BID-Plymouth
Ryan Stanton, Marketing and Communications Representative, BID-Plymouth

Beth Israel Deaconess Plymouth Community Benefits Advisory Council 2019

Mike Babini, Hospital Board Member
Lyle Bazzinotti, Hospital Chair of Board of Directors
Michael Botieri, Chief of Police, Plymouth
Nancy Bucken, Executive Director, Harbor Community Health
Dennis Carman, Executive Director, United Way
Sarah Cloud, Beth Israel Deaconess Hospital-Plymouth Director, Social Work
Patrick Flaherty, Rotary Club
Peter Forman, Executive Director, South Shore Chamber of Commerce
Nikki Galibois, Director, Planning & Development, South Shore Community Action Council
Sue Giovanetti, Executive Director, Plymouth Coalition
Nate Horwitz-Willis, Plymouth Director of Public Health
Mike Jackman, Chair, South Shore Community Partners for Prevention
Malissa Kenney, Co-president, Healthy Plymouth
Joanne LaFerrara, Director, Customer Relations, Gatra Bus
Dr. Gary Maestas, Superintendent of Plymouth Schools
Amy Naples, Executive Director, Plymouth Chamber of Commerce
Derek Paiva, Senior Executive Director, YMCA Plymouth
Dennis Primavera, Board Member
Keelas Small, Board Member

Beth Israel Deaconess Hospital - Plymouth Community Benefits Senior Leadership Team 2019

Kevin Coughlin, President & CEO
Mary Chapin, Vice President, Ambulatory Services and Process Improvement
Donna Doherty, Vice President of Patient Care Services and Chief Nursing Officer
Andrea Holleran, Vice President of Strategic Planning & External Affairs
Jason Radzevich, Chief Financial Officer
Ron Rutherford, Vice President and Chief Information Officer
Karen Wood, Vice President of Philanthropy

Acronyms

ACA	Affordable Care Act
BID-Plymouth	Beth Israel Deaconess Hospital-Plymouth
CBAC	Community Benefits Advisory Committee
CBLT	Community Benefits Leadership Team
CBSA	Community Benefits Service Area
CHIA	Center for Health Information and Analysis
CHNA	Community Health Needs Assessment
HMOs	Health Maintenance Organizations
IS	Implementation Strategy
JSI	John Snow, Inc.
LEP	Limited English proficiency
MassCHIP	Massachusetts Community Health Information Profile
MDPH	Massachusetts Department of Public Health
MHPC	Massachusetts Health Policy Commission
PHIT	Population Health Information Tool
SLT	Senior Leadership Team

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Introduction and Purpose

Introduction

Beth Israel Deaconess Hospital-Plymouth (BID-Plymouth) is a 170-bed, acute care, community hospital, serving residents from 12 towns in Plymouth and Barnstable counties. BID-Plymouth is recognized for its leadership in providing top-tier quality healthcare and providing a full continuum of healthcare services to the communities it serves. The Hospital delivers excellent care with compassion, dignity, and respect. We have deep ties to our community and place the experience of our patients at the center of everything we do. Since 1903, the hospital has been a private, not-for-profit hospital that treats all patients, regardless of their ability to pay for care. In 2019, as part of a merger of two health systems in the greater Boston region, BID-Plymouth became part of Beth Israel Lahey Health (BILH) - a system of academic medical centers, teaching hospitals, community hospitals, and specialty hospitals that employ more than 4,000 physicians and 35,000 staff members combined.

In addition to its commitment to clinical excellence, BID-Plymouth is committed to being an active partner and collaborator with the communities it serves. This Community Health Needs Assessment (CHNA) and the associated Implementation Strategy (IS) were completed in close collaboration with BID-Plymouth's staff, more than one hundred health and social service partners, and the community at-large. The assessment efforts that took place over the past year engaged hundreds of community residents, as well as a wide range of other community stakeholders, including service providers, community advocates, Commonwealth and local public officials, faith leaders, and representatives from community-based organizations. The process that was applied to conduct the CHNA and develop the IS exemplifies the spirit of collaboration and community engagement that is such a vital part of BID-Plymouth's mission.

Purpose

This community health needs assessment report is an integral part of BID-Plymouth's population health and community engagement efforts. It provides vital information that is applied to make sure that the services and programs that BID-Plymouth provides are appropriately focused, delivered in ways that are responsive to those in its service area, and address unmet community needs. This assessment and the associated prioritization and strategic planning processes also provide a critical opportunity for BID-Plymouth to engage the community and to strengthen the community partnerships that are essential to BID-Plymouth's success now and in the future. Finally, this report allows BID-Plymouth to meet its Commonwealth and Federal Community Benefits requirements per the Massachusetts Attorney General's Office and the Federal Internal Revenue Service (IRS) as part of the Affordable Care Act. The primary goals for the CHNA and this report are to:

- Assess community health need, defined broadly to include health status, social determinants, environmental factors, and service system strengths and weaknesses;

- Engage the community, including local health departments, service providers across sectors and community residents, as well as BID-Plymouth leadership and staff; and
- Identify the leading health issues and the population segments most at-risk based on a review of the quantitative and qualitative information gathered by the assessment

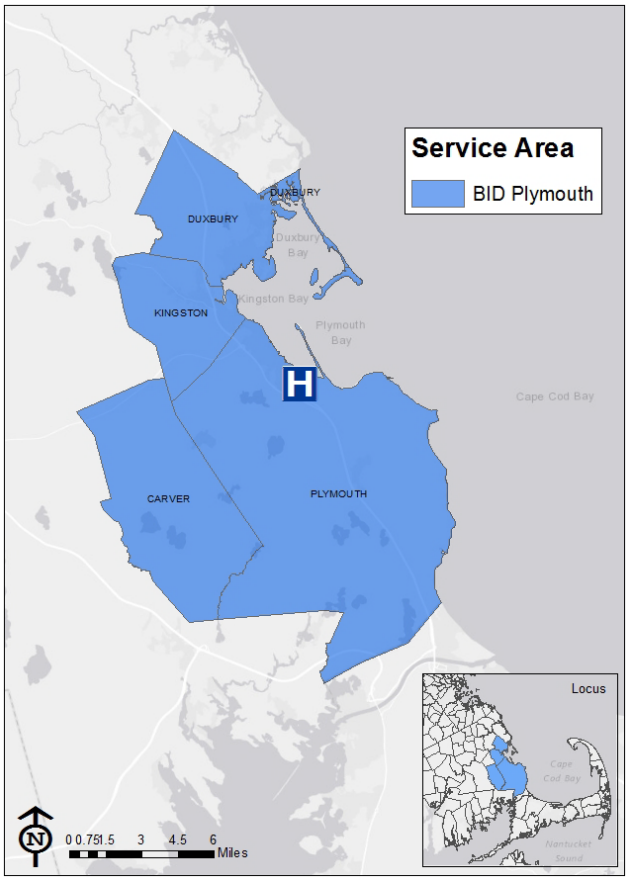
This CHNA is also a vital source of information and guidance to:

- Clarify issues related to community characteristics, barriers to care, existing service gaps, unmet community need and other health-related factors;
- Prioritize and promote community health investment;
- Inform and guide a comprehensive, collaborative community health improvement planning process; and
- Facilitate discussion within and across and sectors regarding community need, community health improvement, and health equity.

Community Benefits Service Area & Community Benefits Priorities

BID-Plymouth's primary service area includes the communities of Carver, Duxbury, Kingston, and Plymouth. (See Figure 1). This assessment focused on identifying the leading community health needs and priority populations within this primary service area, which is how the Hospital defines its Community Benefits Service Area (CBSA).

Figure 1: BID-Plymouth Community Benefits Service Area



BID-Plymouth's community benefits activities support all of the people who live in its CBSA, across all geographic, demographic, and socio-economic segments. However, in recognition of the considerable health disparities that exist in some segments of the CBSA, BID-Plymouth focuses the bulk of its community benefits resources on improving the health status of low income and underserved populations living in the more underserved communities of its CBSA. By prioritizing these population segments, BID-Plymouth is able to maximize the impact of its community benefits resources. BID-Plymouth currently supports and collaborates on many educational, outreach, and community-strengthening initiatives aimed at reaching those who live in its CBSA. In the course of these efforts, BID-Plymouth collaborates with many of the area's leading healthcare, public health, and social service organizations.

Approach and Methods

Approach

The assessment began with the creation of a Steering Committee comprised of representatives from BID-Plymouth, Beth Israel Deaconess Medical Center (BIDMC) in Boston, and the other BID affiliate hospitals (BID–Milton and BID–Needham), which worked together to ensure a collaborative, transparent, and robust process, across the BID hospital system. In October 2018, the Steering Committee hired John Snow, Inc. (JSI), a public health research and consulting firm based in Boston, to support their efforts and to work with them to complete the CHNA and IS. This Steering Committee provided vital oversight of the CHNA approach and methods. This Committee met monthly, in-person and via conference call, to review project activities, vet preliminary findings, address challenges, and to ensure alignment in the CHNA approach and methods across the BID Hospital system.

BID-Plymouth formed a Community Benefits Advisory Committee (CBAC), made up of community benefits staff, administrative and clinical staff, and representatives from the Board of Directors, local service providers, and key community stakeholders. This group met four times over the course of the assessment; they provided input on the assessment approach, vetted preliminary findings, and helped to prioritize community health issues and priority populations, most vulnerable. The hospital also formed a Community Benefits Leadership Team (CBLT) made up of key hospital leadership and staff that met numerous times during the process. Finally, the CHNA was discussed periodically at the Hospital's Senior Leadership Team (SLT) meetings. The Steering Committee, the CBAC, the CBLT, and the SLT reviewed this CHNA report and the subsequent IS before it was submitted to the Board of Directors for approval.

Community engagement is integral to BID-Plymouth's mission towards providing exceptional, personalized care with dignity, compassion, and respect. Substantial efforts were taken to ensure that the assessment activities implemented included efforts to engage community residents, local public health officials, and other community stakeholders. These engagement efforts spanned all phases of the assessment--from assessment planning, to data collection and assessment, to prioritization and planning, to reporting. These engagement efforts will continue during the ongoing monitoring and evaluation activities.

BID-Plymouth recognizes the importance of collaborating with residents, advocates, service providers, Commonwealth and local public officials, representatives from community-based organizations, and other stakeholders when conducting assessment and planning projects of this kind.

The assessment was completed in three phases. Below is a summary of the activities that were associated with each Phase of the assessment and planning process. A detailed description of BID-Plymouth's approach to community engagement is included in Appendix A.

Phase One involved preliminary assessment and engagement activities, including:

- Collection and analysis of quantitative data to characterize community characteristics and disease burden
- Key informant interviews with hospital leadership, local service providers, and community stakeholders
- An evaluation of BID-Plymouth's current portfolio of Community Benefits activities

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- Focus groups with hospital leadership, clinical providers, and community stakeholders
- A community meeting with residents, service providers, public health officials, and other community stakeholders from the CBSA
- Dissemination and analysis of a Community Health Survey to capture residents' perceptions of barriers to good health, leading health issues, vulnerable populations, accessibility of health services, and opportunities for the hospital to improve the services they offer to the community

Phase Three involved a series of strategic planning and reporting activities, including:

- Meetings with the CBAC (including members of the Board of Directors), CBLT, and SLT to present CHNA findings, prioritize community health issues, identify vulnerable populations, and discuss potential responses
- Creation of a Resource Inventory to catalogue local organizations, service providers, and community assets that have the potential to address identified needs
- Literature review of evidence-based strategies to respond to identified health priorities
- Development of a final CHNA report and IS

Methods

Quantitative Data Collection and Analysis

Quantitative data from a broad range of sources was collected and analyzed to characterize communities in BID-Plymouth's CBSA, measure health status, and inform a comprehensive understanding of the health-related issues. Sources included:

- U.S. Census Bureau, American Community Survey 5-Year Estimates (2013-2017)
- Massachusetts Department of Elementary and Secondary Education: School and District Profiles (2017, and 2018-2019)
- FBI Uniform Crime Reports (2017)
- Massachusetts Department of Public Health, Registry of Vital Records and Statistics (2015)
- Massachusetts Department of Public Health, Bureau of Substance Abuse Services (2017)
- Massachusetts Department of Public Health, Annual Reports on Births (2016)
- Massachusetts Bureau of Infectious Disease and Laboratory Sciences (2017)
- Massachusetts Center for Health Information Analysis (CHIA) Hospital Profiles (FY 2013-2017)
- Massachusetts Healthy Aging Collaborative, Community Profiles (2018)

To augment the quantitative data that was compiled from MDPH, JSI worked with the Massachusetts Health Data Consortium (MHDC) and the Massachusetts Center for Health Information and Analysis (CHIA) to obtain 2017 inpatient hospital discharge data for all of the municipalities in BID-Plymouth's

service area. CHIA aggregates detailed hospital inpatient data from all hospitals in Massachusetts and makes it available to hospitals and other researchers to understand morbidity, mortality, and health services utilization trends. These data are made available on an annual basis and allow for both hospital specific analyses based on where the patient was hospitalized as well as patient origin analyses based on the patient's address of residence. Related to the CHNA activities, these data were used to identify the leading causes of illness for adults (18+) by municipality based on a review of selected diagnostic categories.

Whenever possible, confidence intervals were analyzed to test for statistically significant differences between municipal and Commonwealth data points. A comprehensive Data Book is included in Appendix B. In this Data Book, data points are color-coded to visualize which municipal-level data points were significantly higher or lower compared to the Commonwealth overall. Data from the Massachusetts Department of Elementary and Secondary Education, the Bureau of Substance Abuse Services, the Annual Report on Births, and the Bureau of Infectious Disease and Laboratory Sciences did not include confidence intervals and could not be tested for statistical significance.

Quantitative Data Limitations

Relative to most states, Massachusetts does an exemplary job at making comprehensive data available at the Commonwealth, county, and municipal levels through various reports and mechanisms provided by the Massachusetts Department of Public Health (MDPH). Historically, these data have been made available through the Massachusetts Community Health Information Profile (MassCHIP) data system, an automated and interactive resource provided by MDPH; MassCHIP is no longer updated. To replace this system, MDPH is creating the Population Health Information Tool (PHIT), which will include municipal level data stratified by demographic and socioeconomic variables (e.g. gender, age, race/ethnicity, poverty level). At the time this report was produced, community profiles were not available via the PHIT. The most significant limitation this caused was the availability of timely data related to morbidity, mortality, and service utilization. The data sets used in this report are the most up-to-date provided by MDPH. This data was still valuable and allowed for identification of health needs relative to the Commonwealth and specific communities, however, these data sets may not reflect recent trends in health statistics.

Additionally, quantitative data was not stratified by age, race/ethnicity, income, or other characteristics, which limited the ability to identify health disparities in an objective way. Qualitative activities allowed for exploration of these issues, but the lack of objective quantitative data constrained this effort.

Qualitative Data Collection and Analysis

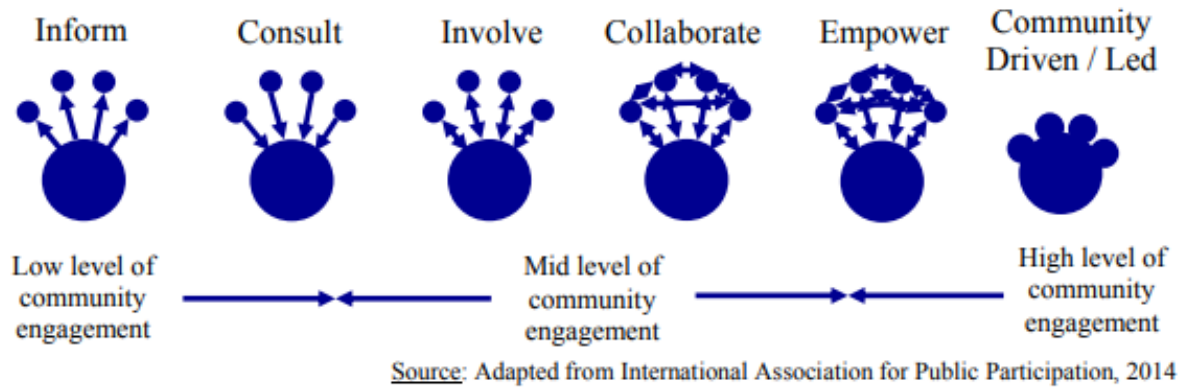
BID-Plymouth recognizes that authentic community engagement is critical to assessing community need, identifying health priorities and priority populations, and crafting a robust IS. BID-Plymouth was committed to engaging the community throughout this process.

In collaboration with its assessment and community engagement partners, BID-Plymouth applied MDPH's Community Engagement Standards for Community Health Planning as a guide.[1] As a result,

[1] https://www.mass.gov/files/documents/2017/01/vr/guidelines-community-engagement.pdf

BID-Plymouth employed a variety of strategies to ensure that community members were informed, consulted, involved, and empowered throughout the assessment process.

Figure 2: Community Engagement Continuum



Source: Adapted from International Association for Public Participation, 2014

Informed: BID-Plymouth informed the community of assessment activities (e.g. Key Informant Interviews, Community Health Survey, focus groups) and provided summary quantitative and qualitative data findings at a public meeting.

Consulted: BID-Plymouth consulted the community by posting its current CHNA for public comment, holding focus groups with service providers, hospital leadership, community stakeholders, and community residents, completing key informant interviews, conducting a community meeting, and disseminating a Community Health Survey.

Involved: BID-Plymouth formed advisory bodies, including the CBAC and CBLT, to provide input and feedback on the assessment approach and to vet preliminary findings. These bodies included hospital leadership, clinical staff, and representatives from the Hospital Board of Directors, representatives from community organizations, social service providers, community advocates, and community residents.

Collaborated: The CBAC, which included many community residents and service providers, collaborated with one another and with staff and leadership at BID-Plymouth to prioritize health needs and vulnerable populations. This advisory body was also consulted in the drafting of the IS.

Below are descriptions of the approach to community engagement activities. Associated tools, lists of participants, and other materials are included in the Detailed Community Engagement Summary in Appendix A.

Key Informant Interviews (12 completed) – JSI conducted key informant interviews with community stakeholders. Interviewees included representatives from hospital leadership, municipal leadership, the business community, health departments, social service providers, schools, service providers, and community health coalitions. Key informant interviews were done to confirm and refine findings from secondary data, to provide community context, and to clarify needs and priorities of the community. JSI worked with BID-Plymouth to identify a representative group of interviewees. Interviews were 30-60 minutes long and were conducted by-phone using a structured interview guide created by JSI. Detailed

notes were taken for each interview. For a list of interviewees and interview dates, sectors represented, and the interview guide, please see Appendix A: Detailed Community Engagement Approach.

Focus Groups (6 completed) – JSI facilitated focus groups with community residents (BID-Plymouth Patient Family Advisory Council), community coalitions (Community Health Network Area 23), representatives from local health and social service organizations (BID-Plymouth CBAC), hospital staff clinical providers (CBLT and BID-Plymouth Department Chiefs), and internal hospital leadership (BID-Plymouth SLT). Focus groups allowed for the collection of information to augment findings from secondary data and key informant interviews, and exploration of strategic and programmatic options to address identified health issues, service gaps, and/or barriers to care. Participants were recruited by BID-Plymouth. Focus groups were approximately 60 minutes and were conducted in-person using a structured guide created by JSI. Detailed notes were taken at each session. Appendix A includes session dates, group descriptions, and a focus group guide.

Community Meeting (1) – JSI presented at a Community Meeting at the Plymouth Yacht Club. JSI presented a summary of key quantitative and qualitative data findings from the CHNA and solicited feedback and input from community members. The community meeting allowed for the capture of information directly from community residents, representatives from local community organizations, and local service providers. Participants were asked to share their reactions to the data presented, their thoughts on community health needs and priorities, barriers to care, and vulnerable populations. BID-Plymouth.

Community Health Survey (1,405 responses) – The Community Health Survey allowed JSI to capture information directly from community residents. Respondents were asked for their opinion on leading social determinants of health, clinical health issues, vulnerable populations, access to care, and opportunities for the hospital to improve community health programming. JSI worked with BID-Plymouth to develop this survey. Surveys were available online, through the SurveyMonkey platform, in English. Hard-copies of the survey were made available in English, Portuguese, Chinese, Spanish, and Haitian-Creole. BID-Plymouth worked with local community organizations, businesses, and stakeholders to distribute the survey to community residents, including those who are typically hard-to-reach (e.g. non-English speakers). Findings from online and hard-copy surveys were integrated for a full analysis. Appendix A contains a copy of the Community Health Survey and a list of survey distribution channels.

Community Benefits Evaluation

JSI reviewed the Fiscal Year 2017 Community Benefits Report to the Attorney General (AG Report) submitted by BID-Plymouth to evaluate the intensity of the hospital's portfolio of Community Benefits activities. Activities reported in the AG Report, defined as "actions undertaken in accordance to the community benefits which contributed to achieving the strategic objective of supporting community health", were abstracted from this report and individually scored by an evaluator at JSI. An activity was scored if it:

- Occurred at least once during FY 2017
- Was defined as a media, event/program, or a policy, systems, or environmental change
- Targeted the hospital's CBSA's

An activity was not scored if it was in the planning phase. JSI determined the intensity of each activity by coding three specific attributes, according to methodology reported in previous research 12:

- Behavioral intention: providing information; enhancing skills, services, or support; modifying access, barriers, and opportunities; modifying policies and broader conditions
- Duration: one-time, occurring more than once, or ongoing
- Reach: proportion-high, medium, low of the total priority population involved in or touched through the activity

Two evaluation team members rated each activity attribute on a scale of 0.1 (minimum) to 1 (maximum) and calculated a single intensity score using the protocol outlined in Table 1. A second trained evaluation team member coded a randomly selected number of activities to ensure inter-rater reliability. Two factors were considered in scoring both the duration and reach. A score of 0.1 – 0.5 was given dependent upon how many times and/or how long the activity was implemented during FY2017. If the duration or reach was unclear, the evaluators scored the attribute the lowest possible score (0.1). The formula used to calculate an intensity score for each activity was:

$$\sum \text{behavioral value} + \text{duration value} + \text{reach value}$$

Scores could range from 0.3 (lowest intensity and least likely to impact long-term outcomes) to 3.0 (highest intensity and most likely to impact long-term outcomes). A total composite score for all activities was then summed across all activities. A full summary of findings can be found in Appendix E.

Table 1: Community Benefits Evaluation scoring protocol

Dimension	Rubric for Scoring Intensity (0=low;1=high)
Behavioral Intervention Strategy	**High (1.0):** Modifying policies, systems and access **Med (0.55):** Enhancing services and support **Low (0.1):** Providing information; enhancing skills
Duration (Yearly)	**High (0.5):** Ongoing, throughout the year **Med (0.275):** More than once per year **Low (0.1):** One time event
Duration (Sustainability)	**High (0.5):** Ongoing, institutional practice **Med (0.275):** Ongoing, demonstrated commitment (e.g., partnership, MOU, multi-organizational involvement) **Low (0.1):** Would end without community-benefits dollars
Reach (Community)	**High (0.5):** >20% or more of the total population* **Med (0.275):** 5-20% of the population **Low (0.1):** 0-<5% of the population
Reach (Priority Population)	**High (0.5):** >20% or more of the total priority population^ **Med (0.275):** 5-20% of the population **Low (0.1):** 0-<5% of the population

*total population was based on the number of people living in the hospital's primary service area or the community within which the activity was implemented
^priority populations were based on the strategy's targeted population and may have been a calculation based on the prevalence of a condition across the U.S. or Massachusetts

Resource Inventory

Federal and Commonwealth requirements indicate that a Resource Inventory should be created to inform the extent to which there are gaps in health-related services. To meet this obligation, JSI compiled a list of resources across the broad continuum of services, including clinical health care services, community health and social services, and public health resources. This was done primarily by compiling information from existing resource inventories and partner lists from BID-Plymouth. Information was also compiled from membership lists of the existing community health coalitions and from CHNA interviews and focus groups. JSI reviewed the hospital's prior annual report of community benefits activities to the MA Attorney General, which included a listing of partners, as well as publicly available lists of local resources. The goal of this process was to identify key partners who may or may not be already partnering with the hospital. A full resource inventory may be found in Appendix C.

Prioritization and Reporting

During Phase II, JSI held a prioritization meeting with the CBAC and CBLT. During this meeting, JSI presented quantitative and qualitative data findings, including key themes from key informant interviews, focus groups, a community meeting, and the Community Health Survey. After the presentation of key findings, the CBAC/CBLT broke into small groups to discuss findings and were asked to prioritize, within their small groups:

- Leading barriers to care (i.e. social determinants of health and issues related to access to care)
- Leading clinical health issues
- Vulnerable populations

JSI aggregated priorities chosen within small groups and presented full lists to the entire group. CBAC/CBLT members were then asked to choose their top three priorities within each category. Final prioritization results from this meeting are included in Table 2.

Table 2: BID-Plymouth CBAC/CBLT Priorities

Leading Barriers to Good Health	Leading Health Issues	Target Populations
Lack of education/health literacy (25%)	Mental health (30%)	Children (Elementary-middle school) (30%)
Cost of care (20%)	Substance use (30%)	Older adults (25%)
Navigation/case management/fragmentation of services (18%)	Cardiovascular disease (15%)	Low income (15%)
TIE: Community cohesion & Access to behavioral health services (13%)	Physical activity, nutrition, and weight (10%)	Those who are isolated (10%)

JSI then presented full assessment results, including key findings from quantitative and qualitative data analysis, and results of the CBAC/CBLT prioritization meeting, to the Senior Leadership Team. Using the

fully integrated analysis and prioritization from the CBAC/CBLT, JSI drafted a set of priority and sub-priorities and presented these to the SLT for review and approval.

Using the priority areas and populations as a guide, JSI worked with BID-Plymouth, the CBAC/CBLT, and the SLT to draft an Implementation Strategy. This Implementation Strategy, including the programs and strategies that would continue from the previous reporting cycle, and new programs and strategies being considered, were presented at a public forum on June 4, 2019. Approximately 40 community members attended and provided feedback on what types of programs and services would be most helpful to the community.

Finally, JSI worked with BID-Plymouth in drafting and finalizing the CHNA report and IS. These documents were presented to the Board of Directors for approval on September 25, 2019. At this meeting, the Board of Directors formally approved this community health needs assessment report and the associated IS.BID-Plymouth will be responsible for reporting on, and if necessary, updating and resubmitting their IS to the Massachusetts Attorney General's Office on an annual basis until the next assessment cycle in 2022.

As required by Federal and Commonwealth guidelines, this CHNA will be posted on BID-Plymouth's website and is available in hardcopy by request. Community members and service providers were encouraged to share their thoughts, concerns, or questions throughout the CHNA process; they are encouraged to continue to share their thoughts and ideas moving forward.

There was no written feedback on BID-Plymouth's previous CHNA or IS since its posting in 2016. There was also no feedback on the Massachusetts Attorney General's website, which publishes the hospital's community benefits reports and provides an opportunity for public comment. Any feedback received will be taken into account when updates and changes are made to the IS or to inform future CHNA processes.

Key Findings: Demographics

To understand community needs and health status for residents of BID-Plymouth's CBSA, we begin with a description of the population's geographic and demographic characteristics, as well as the underlying social, economic and environmental factors that affect health status and equity. This information is critical to recognizing inequities, identifying target populations and health related disparities, and targeting strategic responses.

The CHNA captured a range of quantitative and qualitative data related to age, race/ethnicity, income and poverty, employment, education, and other determinants of health. The following is a summary of key findings related to community characteristics and the social, economic and environmental determinants of health for BID-Plymouth's CBSA. Conclusions were drawn from quantitative data and qualitative information collected through interviews, focus groups, and the Community Health Survey. Summary data is included below; more expansive data tables are included in the BID-Plymouth Data Book (Appendix B).

Age

Age is a fundamental factor to consider when assessing individual and community health status. Older individuals typically have more physical and mental health vulnerabilities and are more likely to rely on immediate community resources for support compared to young people.

- All communities in BID-Plymouth's CBSA have a significantly higher median age compared to the Commonwealth overall.
- The percentage of the population under 18 was significantly high in Duxbury (26.6) and Kingston (23.1) compared to the Commonwealth (20.4).
- The percentage of the population over 65 was significantly high in Carver (19.6), Duxbury (19.3), and Plymouth (20.0) compared to the Commonwealth (15.5).

Table 3: Age Distribution

	Massachusetts	Carver	Duxbury	Kingston	Plymouth
Median age (years)	**39**	47.2	45.5	43.4	45.4
Age under 18 (%)	**20.4**	20.8	26.6	23.1	19.0
Age over 65 (%)	**15.5**	19.6	19.3	17.3	20.0

Source: US Census Bureau, American Community Survey, 2013-2017

Shading represents statistical significance compared to the Commonwealth. Figures highlighted in orange are statistically higher compared to the Commonwealth overall, while figures highlighted in blue are significantly lower.

Race, Ethnicity, and Foreign Born

An extensive body of research illustrates the health disparities and differences in health care access and utilization that exist for racial/ethnic minorities and foreign-born populations. According to the CDC, non-Hispanic Blacks have higher rates of premature death, infant mortality and preventable

hospitalization than non-Hispanic Whites.[2] Hispanic/Latinos have the highest uninsured rates of any racial or ethnic group in the United States.[3] Asians are at a higher risk for developing diabetes than those of European ancestry, despite a lower average BMI.[4] These disparities show the disproportionate and often avoidable inequities that exist within communities and reinforce the importance of understanding the demographic makeup of a community to identify populations more likely to experience adverse health outcomes.

Residents of BID-Plymouth's service area were predominantly white and born in the United States (Table 4), though there were racial/ethnic minorities and foreign born populations in all communities. Key informants and focus group participants identified that access to care was an issue for non-English speakers due to language barriers, health literacy, and cultural competency.

Table 4: Race/Ethnicity and Foreign Born

	Massachusetts	Carver	Duxbury	Kingston	Plymouth
White alone (%)	**78.9**	95.1	97.7	95.9	92.9
Black or African American alone (%)	**7.4**	1.9	0.8	0.9	1.9
Asian alone (%)	**6.3**	0.7	0.8	0.7	1.2
Hispanic or Latino of Any Race (%)	**11.2**	1.1	0.9	1.4	2.7
Foreign Born (%)	**16.2**	3.9	2.2	2.9	6.5

Source: US Census Bureau, American Community Survey, 2013-2017

Shading represents statistical significance compared to the Commonwealth. Figures highlighted in orange are statistically higher compared to the Commonwealth overall, while figures highlighted in blue are significantly lower.

Language

Language barriers pose significant challenges to providing effective and high-quality community services and health care. While many larger health care institutions, including BID-Plymouth, have medical interpreter services available at their facilities, research has found that the health care providers' cultural competency is key to reducing racial and ethnic health disparities.

While most residents of BID-Plymouth's CBSA speak English, there are residents who speak languages other than English in all communities. Some focus group and key informant interviewees identified language and cultural issues as barriers to accessing health care services that meet their needs.

[2] Centers for Disease Control and Prevention, "CDC Health Disparities and Inequalities Report (CHDIR)," Centers for Disease Control and Prevention Web Site, https://www.cdc.gov/minorityhealth/chdireport.html, September 10, 2015

[3] US Department of Health and Human Services: Office of Minority Health. Hispanic/Latino profile. https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=3&lvlid=64

[4] https://asiandiabetesprevention.org/what-is-diabetes/why-are-asians-higher-risk Why are Asians at a Higher Risk?

Key Findings: Social Determinants of Health

The social determinants of health are the conditions in which people live, work, learn and play.[5] These conditions influence and define quality of life for many segments of the population in BID-Plymouth's CBSA. A dominant theme from key informant interviews and community forums was the tremendous impact that the underlying social determinants, particularly transportation, housing, food insecurity, employment/income, and language/cultural barriers to care have on residents in the service area.

Socioeconomic Characteristics

Socioeconomic status (SES), as measured by income, employment status, occupation, education and the extent to which one lives in areas of economic disadvantage. It is linked closely to morbidity, mortality and overall well-being. Lower than average life expectancy is highly correlated with low income status.[6]

Education

Higher education is associated with improved health outcomes and social development at the individual and community levels.[7] Compared to individuals with more education, people with less education are more likely to experience health issues, such as obesity, substance use and injury.[8] The health benefits of higher education typically include better access to resources, safer and more stable housing and better engagement with providers. Proximate factors associated with low education that affect health outcomes include the inability to navigate the health care system, educational disparities in personal health behaviors and exposure to chronic stress.[9] It is important to note that, while education affects health, poor health status may also be a barrier to education.

- The percentage of residents with a high school degree or higher was significantly high in all communities with the exception of Carver compared to the Commonwealth.
- The percentage of residents with a Bachelor's degree or higher was significantly low in Carver (19.9) and Plymouth (35.9) compared to the Commonwealth (42.1).

Table 5: Educational Attainment

	Massachusetts	Carver	Duxbury	Kingston	Plymouth
High school degree or higher (%)	**90.3**	89.6	98.9	95	95.4
Bachelor's degree or higher (%)	**42.1**	19.9	68.6	43.7	35.9

Source: US Census Bureau, American Community Survey, 2013-2017

Shading represents statistical significance compared to the Commonwealth. Figures highlighted in orange are statistically higher compared to the Commonwealth overall, while figures highlighted in blue are significantly lower.

[5] Centers for Disease Control and Prevention, "Social Determinants of Health: Know What Affects Health," Centers for Disease Control and Prevention Web Site, https://www.cdc.gov/socialdeterminants/, January 29, 2018.

[6] Raj Chetty, Michael Stepner, Sarah Abraham, Shelby Lin, Benjamin Scuderi, Nicholas Turner, Augustin Bergeron, and David Cutler, "The Association Between Income and Life Expectancy in the United States, 2001-2014," *Journal of the American Medical Association* 315, no. 16 (April 26, 2016): 1750-1766.

[7] Emily B. Zimmerman, Steven H. Woolf, and Amber Haley, "Population Health: Behavioral and Social Science Insights – Understanding the Relationship Between Education and Health," Agency for Healthcare Research and Quality Web Site, https://www.ahrq.gov/professionals/education/curriculum-tools/ population-health/ zimmerman.html, September 2015

[8] Centers for Disease Control and Prevention, "Adolescent and School Health: Health Disparities," Centers for Disease Control and Prevention Web Site, https://www.cdc.gov/healthyyouth/disparities/index.htm, August 17, 2018

[9] Zimmerman, *Population Health*

The Massachusetts Department of Elementary and Secondary Education provide data on public school enrollment, attendance, retention and student characteristics. Table 6 shows that, in all communities, the dropout rate, percentage of English language learners, and percentage of economically disadvantaged students were lower than the Commonwealth overall. The percentage of students with disabilities was higher than the Commonwealth in Carver and Plymouth.

Table 6: School Enrollment, by District

	Massachusetts	Carver	Duxbury	Kingston	Plymouth
Drop out rate(%), 2017	4.9	3.7	0		3.9
English language learners (%), 2018-19	10.5	1.3	0.3		1.6
Students with Disabilities(%), 2018-19	18.1	19.1	15.3		19.8
Economically disadvantaged(%), 2018-19	31.2	21.9	5.2		23.2

Source: Massachusetts Department of Elementary and Secondary Education School and District Profiles

Employment, Income, and Poverty

Lack of gainful and reliable employment is linked to several barriers to care, including lack of health insurance, inability to pay for health care services and copays, and inability to pay for transportation enable individuals to receive services. In key informant interviews and focus groups, participants stressed that while unemployment may be low across the service area, many live on fixed incomes or are "underemployed." Certain populations struggle to find and retain employment for a variety of reasons—ranging from mental and physical health issues, to lack of childcare, to transportation issues and other factors.

Like education, income impacts all aspects of an individual's life, including the ability to secure housing, needed goods (e.g. food, clothing) and services (e.g. transportation, healthcare, childcare). It may also affect one's ability to maintain good health. While many of the municipalities in BID-Plymouth's CBSA had median household incomes that were significantly higher than the Commonwealth overall, key informant interviewees and focus group participants reported that there were pockets of poverty throughout the service area, even in municipalities that were considered to be affluent.

Housing

Lack of affordable housing and poor housing conditions contributes to a wide range of health issues, including respiratory diseases, lead poisoning, infectious disease and poor mental health.[10] At the extreme are those without housing, including those who are homeless or living in unstable or transient housing situations. They are more likely to delay medical care and have mortality rates four times higher than those who have secure housing.[11]

[10] James Krieger and Donna L. Higgins, "Housing and Health: Time Again for Public Health Action," *American Journal of Public Health* 92, no. 5 (2002): 758-768.

[11] Thomas Kottke, Andriana Abariotes, and Joel B. Spoonheim, "Access to Affordable Housing Promotes Health and Well-Being and Reduces Hospital Visits," *The Permanente Journal* 22, (2018): 17-079.

According to a 2013 study of America's 25 largest cities, lack of affordable housing was the leading cause of homelessness. Adults who are homeless or living in unstable situations are more likely to experience mental health issues, substance use, intimate partner violence and trauma; children in similar situations have difficulty in school and are more likely to exhibit antisocial behavior.[12] Many key informants and participants in forums and focus groups expressed concern over the limited options for affordable housing and how this affects all individuals, but particularly older adults and those living on fixed incomes. Participants also noted that there was a significant homeless population in Plymouth. Individuals who are homeless or unstably housed were identified as the third most vulnerable population in the service area on the Community Health Survey.

Table 7: Housing

	Massachusetts	Carver	Duxbury	Kingston	Plymouth
Vacant housing units (%)	**9.7**	6.1	8.9	6.2	15.9
Owner-occupied (%)	**62.4**	92.5	90.3	79.6	78.9
Monthly owner costs exceed 30% of household income (%)	**31.5**	34.8	30	32.1	36.2
Renter-occupied (%)	**37.6**	7.5	9.7	20.4	21.1
Gross rent exceeds 30% of household income (%)	**50.1**	59.7	35.2	50.3	56.3

Source: US Census Bureau, American Community Survey, 2013-2017

Shading represents statistical significance compared to the Commonwealth. Figures highlighted in orange are statistically higher compared to the Commonwealth overall, while figures highlighted in blue are significantly lower.

Transportation

Lack of transportation has a significant impact on access to health care services and is a determinant of whether an individual or family has the ability to access the basic resources that allow them to live productive and fulfilling lives. Access to affordable and reliable transportation widens opportunity and is essential to addressing poverty and unemployment; it allows access to work, school, healthy foods, recreational facilities and a myriad of other community resources.

There is very limited quantitative data to characterize issues related to transportation. Interviewees, focus group participants, and survey respondents felt that transportation was a critical barrier to health and access to care, especially for those that lack access to a personal vehicle or are without caregivers, family, and/or friends.

Table 8: Transportation

	Massachusetts	Carver	Duxbury	Kingston	Plymouth
Takes car, truck, van (alone) to work (%)	**70.7**	87.6	76.2	85	80.6
Mean commute time (minutes)	**29.3**	35.2	36	32	33
Worked outside county of residence (%)	**30.8**	27.4	38.5	31.7	29.1

Source: US Census Bureau, American Community Survey, 2013-2017

Shading represents statistical significance compared to the Commonwealth. Figures highlighted in orange are statistically higher compared to the Commonwealth overall, while figures highlighted in blue are significantly lower.

[12] Kottke, *Access to Affordable*

Food Access

Issues related to food insecurity, food scarcity and hunger were discussed as risk factors to poor physical and mental health for both children and adults. There is an overwhelming body of evidence to show that many families, particularly low income families of color, struggle to access food that is affordable, high-quality and healthy. While it is important to have grocery stores placed throughout a community to promote access, research shows that there are a number of factors that influence healthy eating, including quality and price of fruits and vegetables and marketing of unhealthy food and cultural appropriateness of food offerings.[13] Food pantries are often used as long-term strategies to supplement monthly shortfalls in food. Pantries and community meal programs have evolved from providing temporary or emergency food assistance to providing ongoing support for individuals, families, seniors living on fixed income, people with disabilities and adults working multiple low-wage jobs to make ends meet. Key informant interviewees and focus group participants mentioned local efforts to combat food insecurity and provide education on healthy choices.

- The percentage of residents who had received food stamp/SNAP benefits in the past 12 months was significantly lower in Duxbury (2.5), Kingston (4.4) and Plymouth (7.1) compared to the Commonwealth overall (12.3).[14]

Crime/Violence

Crime and violence are public health issues that influence health status on many levels, from death and injury, to emotional trauma, anxiety, isolation and absence of community cohesion. Across the service area, violent and property crime rates were similar or lower compared to the Commonwealth (Table 9).

Table 9: Crime Rates, 2017

	Massachusetts	Carver	Duxbury	Kingston	Plymouth
Violent crime rate (per 100,000)	**353**	214	56	198	252
Murder/non-negligent manslaughter	**3**	0	0	0	2
Forcible rape	**30**	43	12	15	35
Robbery	**70**	9	6	22	17
Aggravated assault	**250**	163	37	162	199
Property crime rate (per 100,000)	**1,398**	977	634	1190	988
Burglary	**247**	223	137	206	135
Larceny-theft	**1,041**	737	485	947	813
Motor vehicle theft	**110**	17	12	37	40
Arson	**6**	9	0	7	0

Source: FBI Uniform Crime Statistics, 2017

[13] The Food Trust, "Access to Healthy Food and Why It Matters: A Review of the Research," http://thefoodtrust.org/uploads/media_items/executive-summary-access-to-healthy-food-and-why-it-matters.original.pdf

[14] US Census Bureau, 2013-2017 ACS 5-Year Estimates

Key Findings: Behavioral Risk Factors and Health Status

At the core of the CHNA process is understanding access-to-care issues, leading causes of morbidity and mortality, and of the extent to which populations and communities participate in certain risky behaviors. This information is critical to assessing health status, clarifying health-related disparities and identifying health priorities. This assessment captures a wide range of quantitative data from federal and municipal data sources. Qualitative information gathered from key informant interviews, focus groups, and the community health survey informed this section of the report by providing perspective on the confounding and contributing factors of illness, health priorities, barriers to care, service gaps and possible strategic responses to the issues identified. This data augmented the quantitative data and allowed for the identification of vulnerable population cohorts.

Health Insurance and Access to Care

Whether an individual has health insurance—and the extent to which it helps to pay for needed acute services and access to a full continuum of high-quality, timely and accessible preventive and disease management or follow-up services—has been shown to be critical to overall health and well-being.[15] Access to a usual source of primary care is particularly important, since it greatly affects the individual's ability to receive regular preventive, routine and urgent care and to manage chronic diseases.

While Massachusetts has one of the highest health insurance coverage rates in the U.S., there are still pockets of individuals without coverage, including young people, immigrants and refugees, and those who are unemployed. Many key informants and focus group/forum participants identified issues around navigating the health system, including health insurance, as a critical issue. This was especially an issue for older adults attempting to navigate Medicaid eligibility, costs, and coverage, low-to-moderate income populations—those who do not meet eligibility requirements for public insurance and/or public assistance programs and struggle to afford the rising costs of health care premiums, and non-English speakers who may face language and cultural barriers to accessing coverage. In the Community Health Survey, the high cost of health care was identified as the leading barrier to good health; the cost of co-payments for medication was #3.

- The percentage of the population with public health insurance was significantly low in Duxbury (23.7) and Kingston (26.0) compared to the Commonwealth (35.5).
- The percentage of the population with private health insurance was significantly high in Duxbury (89.9) and Kingston (86.4) compared to the Commonwealth.

[15] National Center for Health Statistics, "Health Insurance and Access to Care." February 2017. Retrieved from https://www.cdc.gov/nchs/data/factsheets/factsheet_hiac.pdf

Table 10: Health Insurance Coverage

	Massachusetts	Carver	Duxbury	Kingston	Plymouth
Uninsured (%)	**3.0**	2.7	1.4	1.5	2.6
Public health insurance (%)	**35.5**	35.1	23.7	26.0	35.4
Private health insurance (%)	**74.2**	78.8	89.9	86.4	76.4

Source: US Census Bureau, American Community Survey, 2013-2017
Shading represents statistical significance compared to the Commonwealth. Figures highlighted in orange are statistically higher compared to the Commonwealth overall, while figures highlighted in blue are significantly lower.

Physical Activity, Nutrition, and Weight

Lack of physical fitness and poor nutrition are among the leading risk factors associated with obesity and chronic health issues. Adequate nutrition helps prevent disease and is essential for the healthy growth and development of children and adolescents, while overall fitness and the extent to which people are physically active reduce the risk for many chronic conditions and are linked to good emotional health. In Massachusetts, adult obesity rates increased from 20.9% in 2007 to 25.9% in 2017.[16] Overall, these trends have carried across most segments of the population, regardless of age, sex, race/ethnicity, or geographic region.

In key informant interviews and focus groups, lack of physical activity, poor nutrition, and obesity were identified as key risk factors for chronic and complex conditions. Physical inactivity/sedentary lifestyle was identified as the second leading barrier to good health amongst those who took the Community Health Survey.

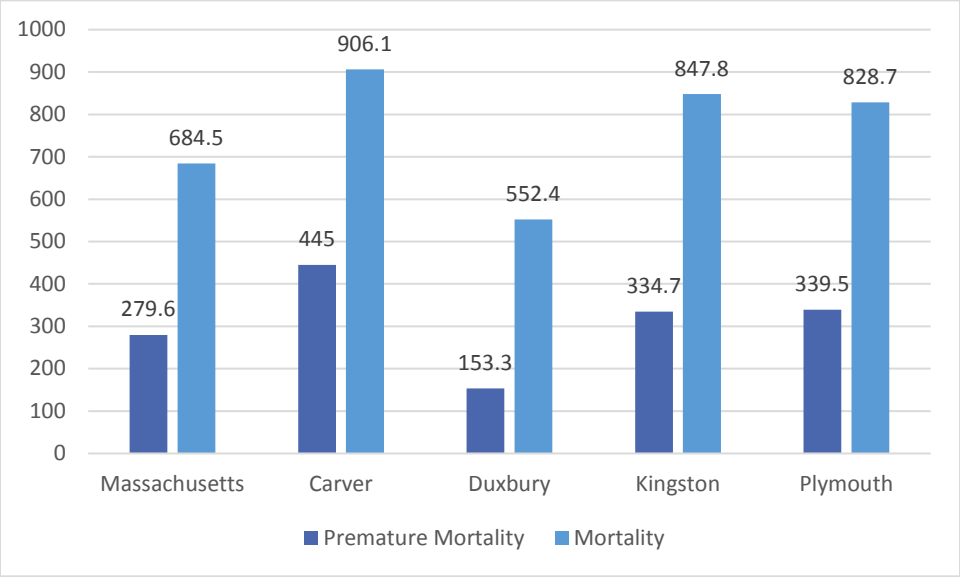
All-cause Hospitalizations, Emergency Discharge, and Mortality

Certain populations face barriers to care that drive inappropriate hospital utilization and high rates of chronic disease. For example, individuals without regular primary care providers often utilize the emergency department more often than those with access to primary care. All-cause hospitalization, emergency discharge, and mortality rates do not indicate that all residents of a municipality have equal or similar access to care simply based on proximity to services. For example, not all residents in Plymouth have better access to health services than those in other municipalities, simply because they live closer to the hospital.

- All-cause and premature mortality rates were significantly high in Carver, Kingston, and Plymouth compared to the Commonwealth overall. Rates were significantly lower than the Commonwealth in Duxbury.

[16] The State of Obesity, "The State of Obesity in Massachusetts," Retrieved from https://www.stateofobesity.org/states/ma/

Figure 3: All-cause and premature (<75) mortality (age-adjusted rates per 100,000)



Source: MDPH Registry of Vital Records and Statistics, 2015

Chronic and Complex Conditions

Chronic conditions such as heart disease, cancer, stroke, Alzheimer's disease, and diabetes are the leading causes of death and disability in the United States, and are the leading drivers of the nation's $3.3 trillion annual healthcare costs.[17] Over half of American adults have at least one chronic condition, while 40% have two or more.[18] Perhaps most significantly, chronic diseases are largely preventable despite their high prevalence and dramatic impact on individuals and society. This underscores the need to focus on health risk factors, primary care engagement and evidence-based chronic disease management. There was broad, if not universal, acknowledgement and awareness of these pervasive health issues among interviewees and forum participants.

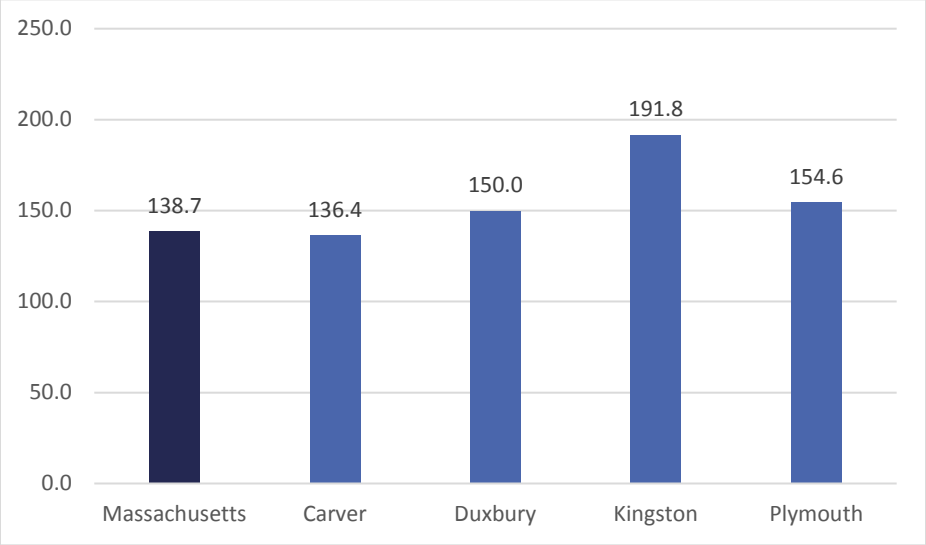
Cardiovascular and Cerebrovascular Diseases

Cardiovascular and cerebrovascular diseases, such as heart disease and stroke, are affected by a number of health and behavioral risk factors, including obesity and physical inactivity, tobacco use, and alcohol use. Hypertension, or high blood pressure, increases the risk of more serious health issues including heart failure, stroke and other forms of major cardiovascular disease. Racial disparities in heart disease and hypertension are well-documented; black/African Americans are two to three times as likely as whites to die of preventable heart disease and stroke.[19] The age of onset for stroke is earlier for African Americans and Hispanics compared to non-Hispanic whites.[20]

[17] Centers for Disease Control and Prevention, "Chronic Diseases in America," US Census Bureau, 2013-2017 ACS 5-Year Estimates, last updated April 15, 2019.
[18] CDC, *Chronic Diseases in America*
[19] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5638710/
[20] https://www.stroke.org/understand-stroke/impact-of-stroke/minorities-and-stroke/

Though the heart disease mortality rate was higher than the Commonwealth in Duxbury, Kingston, and Plymouth, none was significantly higher (Figure 4).

Figure 4: Heart disease mortality (age-adjusted rates per 100,000)



Source: MDPH Registry of Vital Records and Statistics, 2015

Diabetes

Over the course of a lifetime, approximately 40% of adults in the U.S. are expected to develop type 2 diabetes—this number increases to over 50% for Hispanic/Latino men and women.[21] Several factors increase the risk of developing type 2 diabetes, including being overweight, physical inactivity, age, and family history. Having diabetes increases the risk of cardiovascular comorbidities (e.g. hypertension, atherosclerosis), may limit ability to engage in physical activity, and may have negative impacts on metabolism.[22] Key informants and focus group participants identified diabetes as a health issue in the service area, especially for those who are unable to manage the condition or who struggle with other chronic health issues.

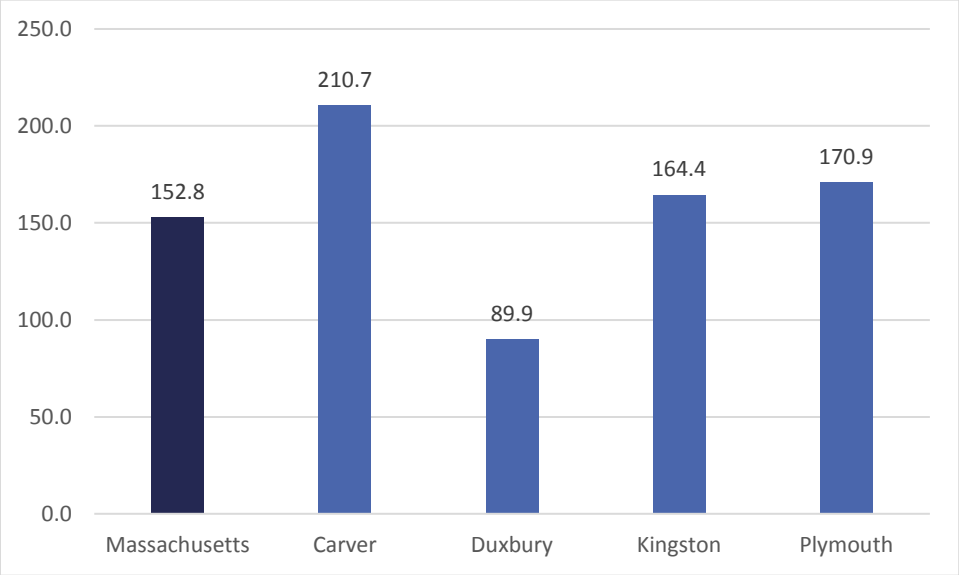
Cancer

The most common risk factors are well known: age, family history of cancer, alcohol and tobacco use, diet, exposure to cancer causing substances, chronic inflammation, and hormones. Among Community Health Survey respondents, cancer was the second leading health issue in the service area. Though the all-cause cancer mortality rate was higher than the Commonwealth in Carver, Kingston, and Plymouth, none of the rates were significantly higher.

[21] [38] Centers for Disease Control and Prevention, "Hispanic Health: Prevention Type 2 Diabetes," Centers for Disease Control and Prevention Web Site, https://www.cdc.gov/features/hispanichealth/index.html, September 18, 2017

[22] http://outpatient.aace.com/type-2-diabetes/management-of-common-comorbidities-of-diabetes

Figure 5: All-cause cancer mortality rate (age-adjusted per 100,000)



Source: MDPH Registry of Vital Records and Statistics, 2015

Respiratory Diseases

Respiratory diseases such as asthma and chronic obstructive pulmonary disorder (COPD) are exacerbated by behavioral, environmental and location-based risk factors, including smoking, diet and nutrition, substandard housing and environmental exposures (e.g., air pollution, secondhand smoke). They are the third leading cause of death in the United States. In many scenarios, quality of life for those with respiratory diseases can improve with proper care and management.[23]

Some key informants and focus group participants prioritized asthma, especially pediatric asthma, as a health issue in BID-Plymouth's service area.

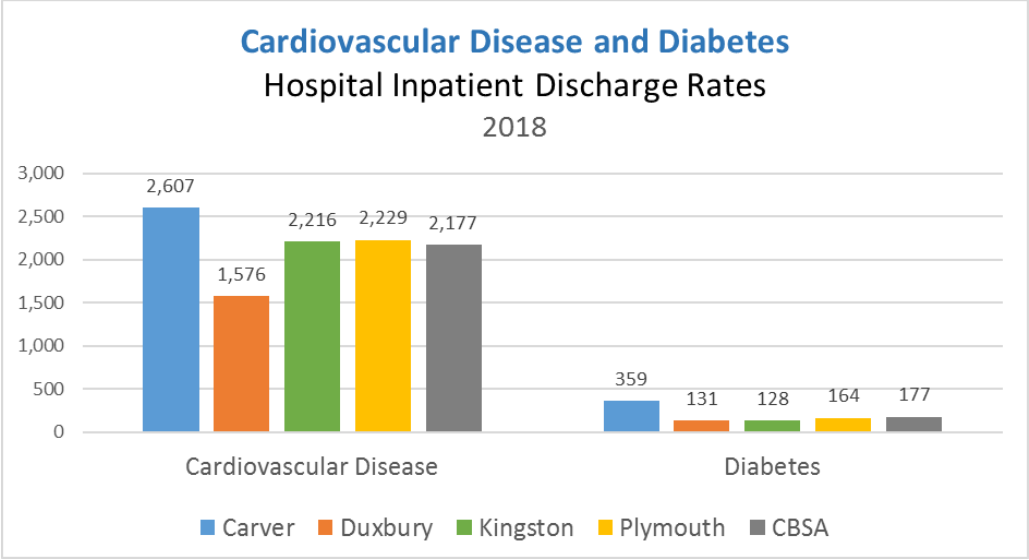
Inpatient Hospital Discharge Data Analysis

Based on a review of hospital inpatient discharge rates per 100,000 adults (18+) for cardiovascular disease, diabetes, cancer, and respiratory diseases by the municipalities in BID-Plymouth's CBSA, there is substantial variation in rates by condition and municipality when comparing the municipality rates to each other and the CBSA average.

- **Cardiovascular Disease and Diabetes.** Relative to the CBSA overall, Duxbury has the lowest rates of discharge per 100,000 adults for Cardiovascular disease and diabetes, while Carver has by far the highest rates. In Carver, the discharge rate for cardiovascular conditions per 100,000 adults is 25% higher than the service area average, and for diabetes, Caver's rate is twice the regional rate.

[23] Office of Disease Prevention and Health Promotion, "Respiratory Diseases," Retrieved from https://www.healthypeople.gov/2020/topics-objectives/topic/respiratory-diseases

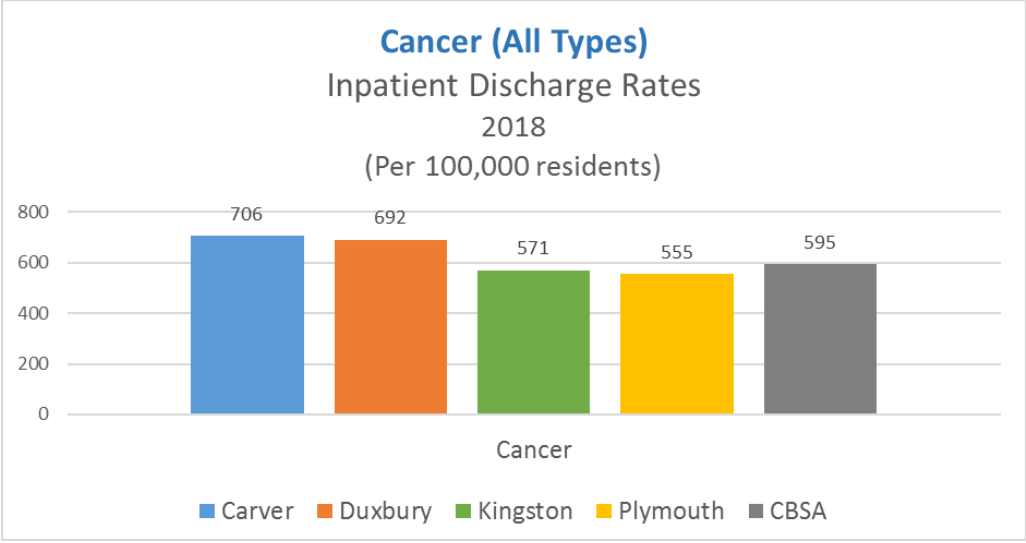
Figure 6: Cardiovascular Disease and Diabetes, Inpatient Hospital Discharge Rates (Crude rates per 100,000 Adult residents – 18+)



Source: Massachusetts Center for Health Information and Analysis, Case Mix Data. Hospital Inpatient Discharge Data. 2018

- **Cancer.** With respect to cancer (All types), there is less variation and the findings are different for heart-related conditions. The rates of hospital inpatient discharge per 100,000 adults for Cancer in Carver and Duxbury are similar and higher, relative to the other towns in the CBSA and the CBSA's average rate. The rates for Kingston and Plymouth are similar to each other and lower than the service area average.

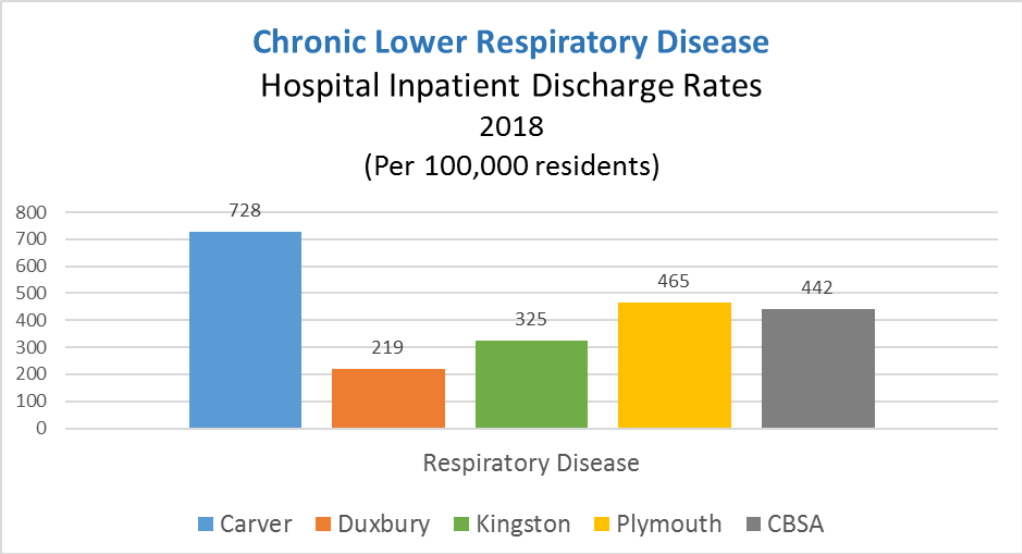
Figure 7: Cancer (All Types), Inpatient Hospital Discharge Rates (Crude rates per 100,000 Adult residents – 18+)



Source: Massachusetts Center for Health Information and Analysis, Case Mix Data. Hospital Inpatient Discharge Data. 2018

- **Respiratory Diseases.** With respect to chronic lower respiratory disease, Carver's rate of hospital inpatient discharge for adults is by far the highest among the towns in the CBSA. It is more than three times the rate of Duxbury and about 70% higher than the CBSA average.

Figure 8: Chronic Lower Respiratory Disease, Inpatient Hospital Discharge Rates (Crude rates per 100,000 Adult residents – 18+)

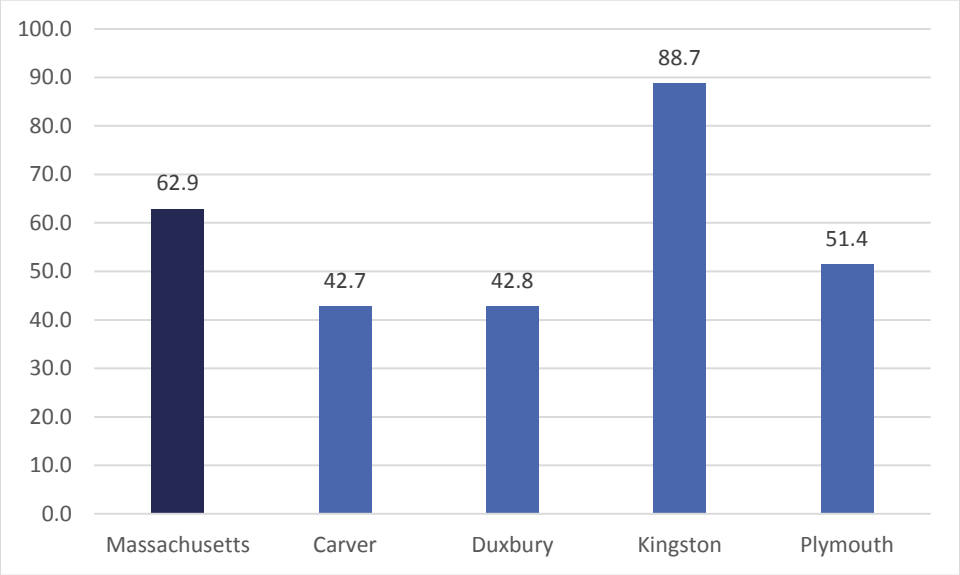


Source: Massachusetts Center for Health Information and Analysis, Case Mix Data. Hospital Inpatient Discharge Data. 2018

Mental Health

Mental health—including depression, anxiety, stress, serious mental illness and other conditions—was identified as a leading health issue for residents of BID-Plymouth's service area. Individuals from across the health service spectrum discussed the burden of mental health issues for all segments of the population, specifically the prevalence of mild to moderate depression and anxiety. Key informants and focus group participants also identified issues of chronic stress and anxiety amongst youth, theorizing that the impact of social media, interpersonal relationships, and the pressure to succeed in school and activities were the main contributors to this issue. Looking across the service area, mortality rates due to mental health disorders were lower than the Commonwealth overall, with the exception of Kingston (Figure 9). Note that this data set is limited to only one year of data and that these rates are not a true reflection of the burden of mental health issues in the CBSA; while mental health disorders underlie many other medical conditions, including substance misuse, they are often not the primary cause of death.

Figure 9: Mental health disorder mortality (age-adjusted rates per 100,000)



The Youth Risk Behavioral Survey (YRBS) is administered bi-annually to students at Duxbury High School. The YRBS asks questions pertaining to substance use, mental health, sexual health, sleep, social media use, and more. Among Duxbury High School students who took the YRBS:

- In 2017, 26% of students reported that they, within the past year, felt so sad or hopeless almost every day for two weeks or more in a row and stopped doing usual activities
- In 2017, 13% of students reported that they had seriously thought about killing themselves

Key informants and focus group participants were also concerned about social isolation and depression amongst older adults, especially frail elders living alone or who did not have a regular caregiver. According to community profiles put together by the Massachusetts Healthy Aging Collaborative, the percentage of older adults with depression and anxiety were similar or significantly lower compared to the Commonwealth overall (Table 11).

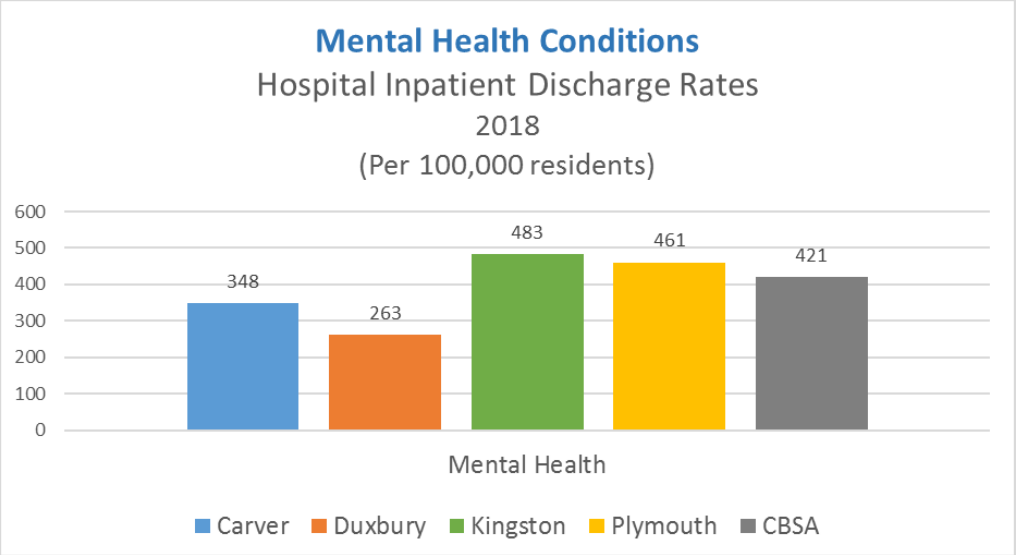
Table 11: Mental health of older adults

	Massachusetts	Carver	Duxbury	Kingston	Plymouth
% 65+ with depression	**31.5**	31.1	27.3	33.6	29.4
% 65+ with anxiety disorders	**25.4**	24.7	22.2	26.6	25

Source: Massachusetts Healthy Aging Collaborative, Massachusetts Healthy Aging Community Profiles, 2018

Based on a review of hospital inpatient discharge rates per 100,000 adults (18+) for the leading mental health diagnoses by municipality across the towns in Plymouth's CBSA, Kingston and Plymouth have the highest rates of discharge, which are similar to the CBSA average, while Duxbury and Carver have the lowest rates

Figure 10: Mental Health Conditions, Inpatient Hospital Discharge Rates (Crude rates per 100,000 Adult residents – 18+)



Source: Massachusetts Center for Health Information and Analysis, Case Mix Data. Hospital Inpatient Discharge Data. 2018

Substance Use

In the Community Health Survey, substance use was identified as the leading health issue in the service area. Along with mental health, substance use was also named as a leading health issue among key informants and focus group/forum/survey participants. Behavioral health providers reported that individuals continue to struggle to access care services, including rehabilitation and detox, outpatient treatment and medication-assisted treatment. As with mental health services, there are a number of community partners working to fill service gaps and address the needs of both individuals and the at-large community, although some individuals may face delays or barriers to care due to limited providers and specialists, limited treatment beds and social determinants that impede access (e.g., housing, employment, transportation, etc.).

Key informants and focus group participants were concerned about the opioid epidemic and the effects it has not only on those struggling with addiction, but on families, communities, and society. Several participants offered that while alcohol misuse is not as "acute" an issue as opioids, it is more prevalent and is a major contributor to rates of chronic disease (e.g. cancer, liver disease, cardiovascular disease). Among those from the service area treated in facilities licensed by the Massachusetts Bureau of Substance Abuse Services (BSAS), heroin was the primary substance of use in Carver and Plymouth, and alcohol was the primary substance of use in Duxbury and Kingston (Table 12).

Table 12: Substance Use

	Massachusetts	Carver	Duxbury	Kingston	Plymouth
Opioid death count (by city/town of residence), 2017	8,188	27	7	14	106
Opioid death count (by city/town of occurrence), 2017	8,349	13	2	9	103
BSAS admissions (#), 2017	80,896	212	108	172	1,026
Primary substance of use (%)	Heroin (53.1)	Heroin (61.2)	Alcohol (39.2)	Alcohol (51.3)	Heroin (48.5)

Source: Massachusetts Bureau of Substance Abuse Services, 2017

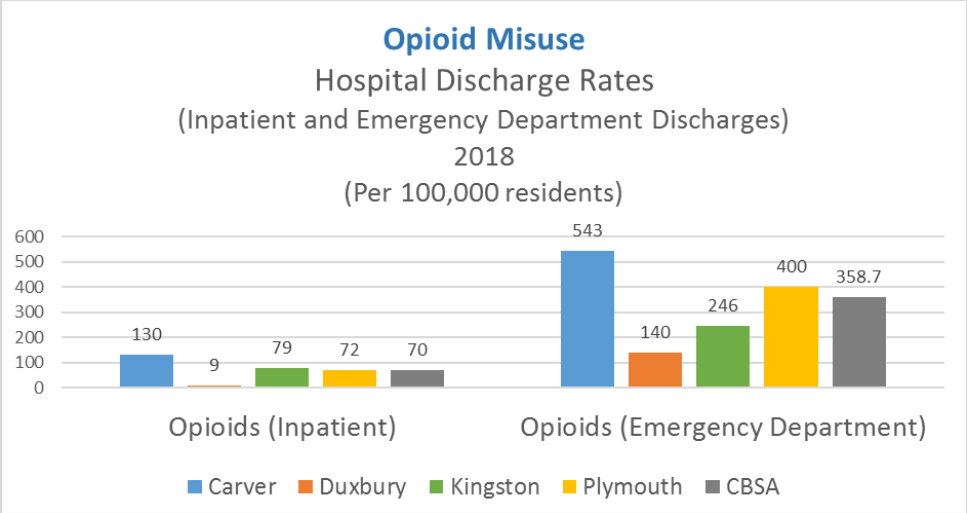
Vaping, or e-cigarette use, was a primary concern for youth. Key informants referred to e-cigarette use as an epidemic and were concerned not only with education and prevention efforts, but treating those who had developed nicotine addictions. Changing community norms around marijuana, especially in light of legalizing in Massachusetts, was also a concern amongst key informants and focus group participants, especially for young people.

Among high school students who took the 2017 Duxbury High School YRBS:

- 31% reported having used alcohol within the past 30 days, compared to 34% of students in Massachusetts overall
- 17% reported having used traditional cigarettes or tobacco products within their lifetime, compared to 28% of students in Massachusetts overall
- 37.5% reported having ever used an electronic vapor (e-cigarette/vaping) product, compared to 45% of students in Massachusetts overall
- 31% reported having ever used marijuana, compared to 41% of students in Massachusetts overall
- 7% reported having ever used prescription pain medicine without a doctor's prescription or differently than how a doctor instructed
- 13% of students reported that they had been sold, offered, or given an illegal drug (of any kind) on school property within the past 12 months

Based on a review of hospital inpatient and emergency department discharge rates per 100,000 adults (18+) for opioid misuse, the findings are similar to the findings for chronic medical conditions. On a per capita basis, Carver has the highest rates of discharge in both the inpatient and emergency department settings, while Duxbury has the lowest rates. When comparing data between the inpatient and hospital setting we see considerable variation. Most notably, Plymouth has much higher rate of emergency department discharge relative to its rate of inpatient discharges. In fact, it is more than four times higher. This dynamic is true for all towns; utilization is always higher in the emergency department setting. However, Plymouth's variation is striking, in comparison to the other municipality and reinforces the finding that opioid misuse are especially concerning in Plymouth.

Figure 11: Opioid Misuse, Inpatient Hospital Discharge Rates (Crude rates per 100,000 Adult residents – 18+)



Source: Massachusetts Center for Health Information and Analysis, Case Mix Data. Hospital Inpatient Discharge Data. 2018

Infectious Disease

Though great strides have been made to control the spread of infectious diseases in the U.S., they remain a major cause of illness, disability and even death. STIs, diseases transmitted through drug use, vector-borne illnesses, tuberculosis, pneumonia and influenza are among the infectious diseases that have the greatest impact on modern American populations. Though not named as a major health concern by interviewees or participants of forums and focus groups, disease burden is tracked to prevent outbreaks and identify patterns in morbidity and mortality. Young children, older adults, individuals with compromised immune systems, injection drug users and those having unprotected sex are most at risk for contracting infectious diseases.

Table 13: Infectious disease

	Massachusetts	Carver	Duxbury	Kingston	Plymouth
Chlamydia cases (lab confirmed), 2017	**29203**	23	29	24	110
Gonorrhea cases (lab confirmed), 2017	**7307**	<5	<5	<5	22
Syphilis cases (probable and confirmed), 2017	**1091**	0	<5	<5	1
Hepatitis A cases (confirmed), 2017	**53**	0	0	0	3
Chronic Hepatitis B (confirmed and probable), 2017	**2023**	0	<5	<5	10
Hepatitis C cases (confirmed and probable), 2017	**7765**	17	<5	9	61
Pneumonia/influenza mortality (age-adjusted per 100,000)*	**17.1**	35.2	--1	39.1	20.7

Source: MDPH Bureau of Infectious Disease and Laboratory Services, 2017 || * MDPH Registry of Vital Records and Statistics, 2015

Community Health Priorities and Priority Population Segments

Between October 2018 and April 2019, BID-Plymouth conducted a comprehensive CHNA that included an extensive review of quantitative data and qualitative information gathered through interviews, focus groups, a community meeting, and a Community Health Survey. A resource inventory was also completed to identify existing health-related assets and service gaps. A detailed review of the CHNA approach, data collection methods, and key findings are included in the body and Appendices of this report.

Once BID-Plymouth's CHNA activities were completed, BID-Plymouth's Community Benefits staff convened the BID-Plymouth CBAC and CBLT and conducted a series of strategic planning meetings. The results of these meetings were then presented to the Hospital's SLT. These meetings allowed Hospital staff and a representative group of external community health stakeholders to review the quantitative and qualitative findings from the CHNA, prioritize the leading community health issues, identify segments of the population most at-risk, review existing community benefits programming, and begin to develop BID-Plymouth's the 2020–2022 Implementation Strategy. After these strategic planning meetings, BID-Plymouth's Community Benefits staff continued to work with the CBAC, CBLT, and other community partners to develop a draft and final version of BID-Plymouth's IS.

The Summary Implementation Strategy, with goals, priority populations, objectives, and strategies may be found in Appendix D.

Core IS Planning Principles and State Priorities

In developing the IS, care was taken to ensure that BID-Plymouth's community health priorities were aligned with the Commonwealth of Massachusetts priorities set by the MDPH and the MA AGO (Table 14). Care was also taken to ensure that the IS was aligned with broader principals drawn from the Commonwealth's Community Benefits Guidelines and the literature on how to best promote community health improvement and prevention efforts.

Table 14: Massachusetts Community Health Priorities

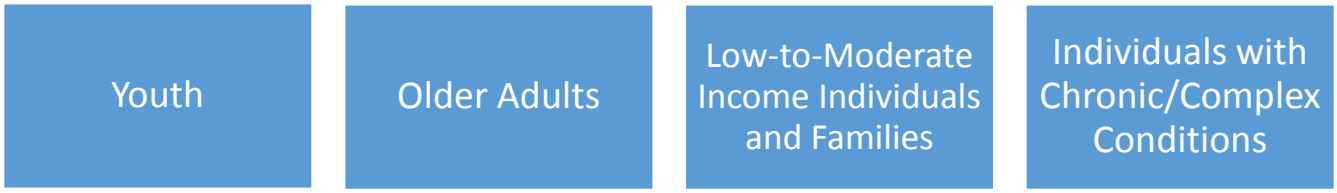
Community Benefits Priorities	*Determination of Need Priorities*
• Housing stability and homelessness • Mental illness and mental health • Substance Use Disorders • Chronic disease, with a focus on cancer, heart disease, and diabetes	• Built environments • Social environments • Housing • Violence • Education • Employment

Priority Populations

BID-Plymouth is committed to improving the health status and well-being of all residents living throughout its service area. Certainly all geographic, demographic, and socioeconomic segments of the

population face challenges of some kind that can hinder their ability to access care or maintain good health. Regardless of age, race/ethnicity, income, family history, or other characteristics, everyone is impacted in some way by health-related risks. With this in mind, BID-Plymouth's IS includes activities that will support residents throughout its service area, across all segments of the population. However, based on the assessment's quantitative and qualitative findings, there was broad agreement that BID-Plymouth's IS should prioritize certain demographic and socio-economic segments of the population that have complex needs or face especially significant barriers to care, service gaps, or adverse social determinants of health that put them at greater risk. The assessment identified 1) Youth, 2) Older adults, 3) Low to moderate income individuals and families, and 4) Individuals with chronic and complex conditions as priority populations to be included in the IS.

Figure 12: BID-Plymouth Priority Populations 2020-2022



Youth

Youth and adolescents were identified as among the most vulnerable and at-risk populations in the region. Participants' reasons for believing this group should be prioritized varied but included the impacts of mental health and substance use. Adolescence is a critical transitional period that includes biological and developmental milestones that are important to establishing long-term identity and independence, but can lead to conflict, isolation and tension between adolescents and parents or caregivers. During this time, young people may struggle to access health education and information, social services, or may be seen by providers that misunderstand the needs of those in this age group. Although adolescents are generally healthy, they do struggle with health and social issues, such as obesity (e.g., poor nutrition and lack of physical activity), mental health (e.g., depression, anxiety, suicide), substance use (e.g., cigarettes/vaping, marijuana, alcohol, opiates), sexually transmitted infectious, and injuries due to accidents.

Older Adults

The challenges faced by older adults came up in nearly every interview and focus group. Chronic disease, social isolation/lack of family support, living on fixed incomes, affordable housing, and transportation were identified as significant issues. In the U.S. and the Commonwealth, older adults are among the fastest growing age groups. The first "baby boomers" (adults born between 1946 and 1964) turned 65 in 2011. Over the next 20 years, these baby boomers will gradually enter the older adult cohort.

Chronic/complex conditions are the leading cause of death among older adults, and older adults are more likely to develop chronic illnesses such as hypertension, diabetes, COPD, congestive heart failure, depression, anxiety, Alzheimer's disease, Parkinson's disease and dementia than younger adult cohorts.

By 2030, the CDC and the Healthy People 2020 Initiative estimate that 37 million people nationwide, 60% of the older adult population ages 65 and over, will need to manage more than one chronic medical condition. Significant proportions of this group experience hospitalizations, are admitted to nursing homes and receive home health services and other social supports in home and community settings. Addressing these concerns demands a service system that is robust, diverse, and responsive.

Low-to-Moderate Income Individuals and Families

Key informants, focus group participants, and hospital leadership discussed the challenges that individuals and families face when they are forced to decide between housing, food, heat, health care services, childcare, transportation or other essentials. These choices often lead to missed care or delays in care, either due to the direct costs of care (co-pays and deductibles) or the indirect costs of transportation, childcare, or missed wages. There was near consensus that lack of affordable low- and middle income housing was a leading issue in the region. Participants also spoke of the intense challenges that many moderate income individuals and families face due to the high cost of living, combined with the fact that most of those in the middle-income group are not eligible for public programs like Medicaid, food stamps, Healthy Start, and other subsidized services. Many participants also commented on the increasing issues of homelessness and/or housing instability, especially in Plymouth; these issues are exacerbated by the opioid crisis.

Individuals with Chronic and Complex Conditions

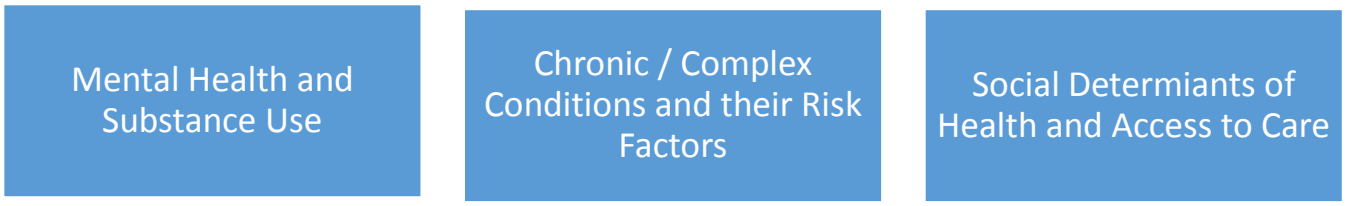
Though substance use and mental health were the focus for many key informants, providers, and residents, one cannot ignore that heart disease, stroke and cancer are the leading causes of death in the nation and the Commonwealth. Along with other conditions, including asthma and diabetes, these conditions are considered to be chronic and complex and can strike early in one's life, possibly ending in premature death. It is also important to note that the risk and protective factors for many chronic/complex conditions are the same, including tobacco use, lack of physical activity, poor nutrition, obesity, and alcohol use. Individuals with chronic/complex conditions often face significant barriers to care (e.g., transportation, lack of health literacy, fragmented care). These issues are exacerbated for older adults and those that are disabled. Many key informants cited a need for care management, navigation, and care coordination for these populations. Several residents also suggested needs for caregiver support and resource programs.

Community Health Priority Areas

BID-Plymouth's CHNA was conducted as a population-based assessment. The goal was to engage the community and compile quantitative and qualitative information to identify the leading health-related issues affecting individuals in the CBSA, including social determinants of health, service gaps, and barriers to care. The priorities that have been identified have been framed broadly to ensure that the full breadth of unmet needs and community health issues are recognized. These priorities were identified through an integrated and thorough review of all of the quantitative and qualitative information captured for the assessment. The priorities have been identified to maximize impact, reduce disparities, and promote collaboration and cross-sector partnership.

During the later stages of the CHNA process, significant efforts were made to vet the priority issues with the Hospital's staff and leadership, as well as the community-at large, through meetings with the CBAC, CBLT, SLT, and a public forum. BID-Plymouth is confident that these priorities reflect the sentiments of those who were involved in the assessment and community engagement processes. Based on the findings from the breadth of BID-Plymouth's CHNA activities, the CBAC, and the CBLT voted to prioritize 1) Mental health and substance use, 2) Chronic/complex conditions, and their risk factors, and 3) Social Determinants of Health.

Figure 13: BID-Plymouth CHNA Priority Areas 2020-2022



The community health priorities that have been prioritized by the CHNA in Figure 13 above are described in detail in the next section of this report, along with a listing of the goals related to these priority areas that BID-Plymouth's Community Benefits staff, the CBAC, and CBLT believe will drive achievement. The objectives and strategic initiatives, by priority area, that will be part of BID-Plymouth's IS are included in BID-Plymouth's Summary Implementation Strategy, included in Appendix D.

Community Health Needs not Prioritized by BID-Plymouth's CBAC

It is important to note that there are community health needs that were identified by BID-Plymouth's assessment that, due to the limited burden that these issues present and/or the feasibility of having an impact in the short- or long-term on these issues, were not prioritized for investment. Namely, built environment and violence were identified as community needs but these issues were deemed by the CBAC and SLT to be outside of BID-Plymouth's primary sphere of influence and have opted to allow others in its CBSA and the Commonwealth to focus on these issues. This is not to say that BID-Plymouth will not support efforts in these areas or other areas that are not prioritized. BID-Plymouth remains open and willing to work with hospitals across Beth Israel Lahey Health's network and other public and private partners to address these issues, particularly as part of a broad, strong collaborative.

BID-Plymouth Implementation Strategy & Community Benefits Resources

BID-Plymouth's current 2017-2019 Implementation Strategy was developed in 2016 and addresses all of the priority areas identified by this CHNA. Certainly, this CHNA has provided new guidance and invaluable insight on the characteristics of the population, social determinants of health, barriers to care, and leading health issues that has informed and allowed BID-Plymouth to update its current IS.

Included below, organized by priority area, are the core elements of BID-Plymouth's 2020-2022 Implementation Strategy. The content of the strategy is designed to address the underlying social determinants of health, barriers to care, and promote health equity. The content is also designed to

address the leading community health priorities, including activities geared toward health education and wellness (primary prevention), identification, screening, and referral (secondary prevention), and disease management and treatment (tertiary prevention) (e.g. access to care, self-management support, harm reduction, treatment of acute illness, and recovery).

Below is a brief discussion of the resources that BID-Plymouth will invest to address the priorities identified by the CBAC and CBLT. Following the discussion of resources are summaries of each of the selected priority areas and a listing of the goals that have been established for each priority area.

Community Benefits Resources

BID-Plymouth expends substantial resources on its community benefits program to drive achievement on the goals and objectives in its current IS. These resources are expended, according to its current IS, through direct and in-kind investments in programs or services operated by BID-Plymouth or its partners to improve the health of those living in its CBSA. Additionally, BID-Plymouth works on its own or with its partners to leverage funds through public or private grants and other funding sources. Finally, BID-Plymouth supports residents in its CBSA by providing "charity" care to low income individuals who are deemed unable to pay for care and services provided at its service sites. Moving forward, BID-Plymouth will commit resources in amounts comparable to if not more than what has historically been expended through the same array of direct, in-kind, leveraged, or “charity” care expenditures.

BID-Plymouth and its leadership are committed to the Community Benefits budget planning which ensures the funds and resources available to carry out its community benefits mission and to implement activities to address the needs identified by this CHNA. Recognizing that community benefits planning is ongoing and will change with continued community input, BID-Plymouth’s IS will evolve. Circumstances may change with new opportunities, requests from the community, community and public health emergencies, and other issues may arise, which may require a change in the IS or the strategies documented within it. The CBAC, SLT, CBLT and BID-Plymouth’s Board of Directors are committed to assessing information and updating the plan as needed.

Following are brief descriptions of each priority area, along with the goals that were established by BID-Plymouth to respond to the CHNA findings and the planning process. Please refer to the Summary Implementation Strategy in Appendix D for more details.

PRIORITY AREA 1: MENTAL HEALTH AND SUBSTANCE USE

As it is throughout the Commonwealth and the nation, the burden of mental health and substance use on individuals, families, communities and service providers in BID-Plymouth’s service area is overwhelming. Nearly every key informant interview, focus group and community forum included discussions on these topics. From a review of the quantitative and qualitative information, depression, anxiety/stress, social isolation, opioids, alcohol, and e-cigarette/vaping were the leading issues in this domain.

Despite increased community awareness and sensitivity about the underlying issues and origins of mental health and substance use issues, there is still a great deal of stigma related to these conditions. There is a general lack of appreciation for the fact that these issues are often rooted in genetics,

physiology and environment, rather than an inherent, controllable character flaw. There is, however, a deep appreciation and a growing understanding for the role that trauma plays for many of those with mental and/or substance use issues, with many people using illicit or controlled substances to self-medicate and cope with loss, stress, abuse, and other unresolved traumatic events.

The following goals were established by BID-Plymouth to respond to the CHNA and the strategic planning process. Please refer to the Summary Implementation Strategy for more details (Appendix D).

Priority Area 1: Mental Health and Substance Use
Goal 1: Educate About and Reduce the Stigma Associated with Mental Health and Substance Use Issues
Goal 2: Enhance Access to Mental Health and Substance use Screening, Assessment, and Treatment Services
Goal 3: Remove prescription drugs and other harmful drugs from the community

PRIORITY AREA 2: CHRONIC/COMPLEX CONDITIONS AND THEIR RISK FACTORS

While mental health and substance use were perceived to be the leading issues in BID-Plymouth's service area, one cannot ignore that heart disease, stroke and cancer are the leading causes of death in the nation and the Commonwealth. Roughly 6 in 10 deaths may be attributed to these three conditions combined. If you include respiratory disease (e.g., asthma, COPD) and diabetes, which are in the top 10 leading causes across all geographies, then one can account for the vast majority of causes of death.

All of these conditions are typically considered to be chronic and complex and can often strike early in one's life, quite often ending in premature death. Within this priority area, according to those who participated in interviews, focus groups, forums, and the Community Health Survey, cardiovascular disease, cancer, diabetes, asthma, and Alzheimer's disease and other dementias were thought to be of the highest priority, although cancer was also discussed frequently. It is also important to note that the risk and protective factors for nearly all chronic/complex conditions are much the same, including lack of physical activity, poor nutrition, obesity, tobacco use, and alcohol use.

The following goals were established by BID-Plymouth to respond to the CHNA and the strategic planning process. Please refer to the Summary Implementation Strategy for more details (Appendix D).

Priority Area 2: Chronic/Complex Conditions and their Risk Factors
Goal 1: Enhance Access to Health Education, Screening, Referral, and Chronic Disease Management Services in Clinical and Non-Clinical Settings
Goal 2: Reduce the Prevalence of Tobacco Use

PRIORITY AREA 3: SOCIAL DETERMINANTS OF HEALTH AND ACCESS TO CARE

A dominant theme from the assessment was the tremendous impact that underlying social determinants of health, particularly housing, navigation of the health system, poverty/employment, access to affordable housing, and food insecurity have on the entire population. The social determinants of health are often the drivers or underlying factors that create or exacerbate mental health issues, substance misuse, and chronic/complex conditions. These social determinants of health, particular poverty, underlie the access to care issues that were prioritized in the assessment: navigating the health system (including health insurance), chronic disease management, and access to culturally and linguistically competent care.

The following goals were established by BID-Plymouth to respond to the CHNA and the strategic planning process. Please refer to the Summary Implementation Strategy for more details (Appendix D).

Priority Area 3: Social Determinants of Health and Access to Care
Goal 1: Enhance Access to Care and Reduce the Impact of Social Determinants
Goal 2: Reduce Elder Falls and Promote Aging in Place

Appendices

Appendix A: Detailed Community Engagement Summary

Appendix B: Data Book

Appendix C: Resource Inventory

Appendix D: Implementation Strategy

Appendix E: Community Benefits Evaluation

Appendix A:

Detailed Community Engagement Approach

Appendix A: Detailed Community Engagement Summary

KEY INFORMANT INTERVIEWS

Name	Title/Affiliation	Sector(s) Represented/Population Served
Nate Horwitz-Willis	Director of Public Health, Town of Plymouth	Public Health/Municipal leadership
Arthur Boyle	Health Agent, Town of Kingston	Public Health/Municipal leadership
Peter Forman	President/CEO, South Shore Chamber of Commerce	Business and community development
Dr. Pedro Bonilla	Psychiatry, BID-Plymouth	Behavioral health/Clinical care
Susan Grassie	Member, BID-Plymouth Patient Family Advisory Council	Community resident/Social services
Angela Harrington	Interpreter Services, BID-Plymouth	Hospital staff/Language and cultural competency
Kelly Macomber	Program Coordinator, Plymouth Youth Development Council	Youth and Adolescents
Anne Ward	Board Member, Duxbury FACTS	Youth and Adolescents; Substance Use
Ami Knight	Director of Resident Services, Algonquin Heights	Housing
Tom Calter	Town Administrator, Town of Kingston	Municipal leadership
Karen Showman	School Nurse, Carver Middle School and High School	Youth and Adolescents
Kevin O'Keefe	Partner, Brabo Benefits	Community resident

Key Informant Interview Guide

Introduction: As you may know, the Hospital is conducting a Community Health Needs Assessment (CHNA) to better understand the health needs of those living in its service area. This assessment, and a subsequent Implementation Strategy, is required of all non-profit hospitals to meet state Attorney General and Federal IRS requirements. The Implementation Strategy will outline how the hospital will work to address health needs and factors leading to poor health, as well as ways in which it will build on the community's strengths. It is therefore extremely important that the Hospital hear from a broad range of people living, working, and learning in the community. JSI has been contracted by the Hospital to conduct the assessment, which will include interviews, a Community Health Survey, and focus groups. This interview is part of the data collection and should take between 30-60 minutes. To ensure our data reflect your community or the community you serve, it is important that you speak openly and honestly. We'll be taking notes during the conversation, but will not link your name or personal information to your quotes without your permission. Do you have any questions before I get started?

- **Question 1:** Could you tell me more about yourself? How long have you worked at [name of organization]? Are you also a resident of a community within the service area? *Probe for information on programs/services offered through their organization, populations they work with, etc.*
- **Question 2:** The assessment is looking at health defined broadly – beyond clinical health issues, we're also looking at the root causes most commonly associated with ill-health (e.g. housing, transportation, employment/workforce, etc.) What do you see as the major contributors to poor health for those in the service area? *Try to identify top 2-3*
- **Question 3:** What clinical health issues (e.g. substance use, mental health, cancer, overweight/obesity, etc.) do you think are having the biggest impact on those in the service area? *Try to identify top 2-3*

- **Question 4:** What segments of the population have the most significant health needs or are most vulnerable? (e.g. young children, low-income, non-English speakers, older adults, etc.) *Do you see this changing in the future? Improving? Getting worse?*
- **Question 5:** How effectively do you think [Hospital] is currently meeting the needs of the community? Are there specific programs offered by [Hospital] that stand out to you as working well to address the needs of the community?
- **Question 6:** Where do you see opportunities for [Hospital] to implement programs/services to address community health needs?
- **Question 7:** Are there programs or services offered by other community organizations that you think are working well to address the needs of the community? *Mention that we will be compiling a list of community organizations/resources for the Resource Inventory*
- **Question 8:** As we explained at the beginning of this interview, we will be making an effort to gather input from community residents as part of this assessment. Can you recommend any strategies to engage hard-to-reach populations? *Any coalitions or advocacy groups that work with hard-to-reach populations? Any existing meeting groups you think it would be appropriate to reach out to?*
- **Question 9:** Finally, we are working to gather quantitative data to characterize health status – this includes demographic and socioeconomic data, and disease-specific incidence, hospitalization, emergency department, and mortality data wherever it is available. Do you know of, or use, any local data sources (e.g. reports, other needs assessments, etc.)?

FOCUS GROUPS

Name of group	Population/Sector Represented	Date	Location	Number of attendees (approx.)
BID-Plymouth Patient Family Advisory Council	BID-Plymouth's Patient Family Advisory Council (PFAC) includes staff and volunteer members that collaborate with BID-Plymouth employees to provide guidance on how to improve patient and family experiences. Participants represent community residents from BID-Plymouth's service area.	November 14, 2018	Beth Israel Deaconess Hospital-Plymouth	8
BID-Plymouth Clinical Leadership	JSI facilitated a focus group at a regularly scheduled meeting of clinical leaders within BID-Plymouth. Participants represented clinical leadership across all specialties, including cardiovascular medicine, psychiatry, oncology, and neurology.	December 4, 2018	Beth Israel Deaconess Hospital-Plymouth	15
South Shore Community Partners in Prevention (Community Health Network Area 23)	CHNA 23 is a partnership of community coalitions, service providers, residents, schools, and other concerned citizens that represent 11 communities in the region, including those in BID-Plymouth's service area. Partners work together to identify and address regional health needs.	November 14, 2018	Beth Israel Deaconess Hospital-Plymouth	40
Community Benefits Advisory Committee (CBAC)	BID-Plymouth's Community Benefits Advisory Committee includes representatives from social services, law enforcement and first responders, transportation, housing, and other sectors. JSI facilitated this session with the CBAC at the beginning of the assessment process to gather initial thoughts on barriers to care, health issues, and leading priority populations.	November 14, 2018	Beth Israel Deaconess Hospital-Plymouth	10
Community Benefits Leadership Team	BID-Plymouth's Community Benefits Leadership Team includes internal hospital stakeholders that work closely with the Community Benefits staff to implement programming throughout the year. JSI facilitated this session with the CBLT at the beginning of the assessment process to gather initial thoughts on barriers to care, health issues, and leading priority populations.	November 14, 2018	Beth Israel Deaconess Hospital-Plymouth	5
Senior Leadership Team and Board of Directors	JSI facilitated a focus group with BID-Plymouth's senior leadership team, including representatives from hospital leadership and the Board of Directors. JSI	November 14, 2018	Beth Israel Deaconess Hospital-Plymouth)	10

	gathered initial thoughts on the assessment methods and approach, leading health issues in the service area, and strategic hospital priorities.			

Focus Group Guide (General)

Introduction & Purpose of Focus Group: Beth Israel Deaconess Plymouth is conducting a Community Health Needs Assessment (CHNA) to better understand the health needs of those living in its service area. This assessment, and a subsequent Implementation Strategy is required of all non-profit hospitals to meet state Attorney General and Federal IRS requirements.

The IS will outline how the hospital will work to address health needs and factors leading to poor health, as well as ways in which it will build on the community's strengths. It is therefore extremely important that the Hospital hear from a broad range of people living, working, and learning in the community. To ensure our data reflect your community or the community you serve, it is important that you speak openly and honestly. We'll be taking notes during the conversation, but will not link your name or personal information to your quotes without your permission.

- **Question 1:** The assessment is looking at health defined broadly – beyond clinical health issues, we're also looking at the root causes of ill-health (e.g. housing, transportation, employment/workforce, poverty), also called the "social determinants of health." What social determinants do people struggle with the most in your community? *Try to identify top 2-3*
- **Question 2:** What clinical health issues (e.g. substance use, mental health, cancer, overweight/obesity) are having the biggest impact on those in your community? *Try to identify top 2-3*
- **Question 3:** What segments of the population have the most significant health needs or are most vulnerable for poor health? (e.g. young children, low-income, non-English speakers, older adults, racial/ethnic minorities) *Do you see this changing in the future? Improving? Getting worse?*
- **Question 4:** How effectively do you think the Hospital is currently meeting the needs of your community?
- **Question 5:** Where do you see opportunities for the Hospital to implement programs/services to address community health needs?
- **Question 6:** Are there programs or services offered by other community organizations that you think are working well to address the needs of the community?
- **Question 7:** We will be making an effort to gather input from community residents as part of this assessment. Can you recommend any strategies to engage hard-to-reach populations?

COMMUNITY HEALTH SURVEY

Distribution channels:

Web-link sent to:	Hard copies delivered to/picked up at:
Community Health Network Area 23 general membership	Councils on Aging: Duxbury, Carver, Kingston, and Plymouth
Plymouth Youth Development Council (Hospital partners and community residents)	Libraries: Duxbury, Carver, Kingston, Plymouth
Patient Family Advisory Council (community residents)	Churches (specifically those that draw Portuguese-speakers)
BID-Plymouth E-newsletter to community residents	Uai Brazil (Brazilian-owned store)
BID-Plymouth Community Benefits Advisory Committee (Hospital partners)	Brazilian restaurants

Healthy Plymouth e-mail list (Hospital partners and community residents)

Community Health Survey Questions

Beth Israel Deaconess Hospital-Plymouth is conducting a Community Health Needs Assessment to better understand the most pressing health-related issues for residents in the communities they serve. It is important that the hospital gathers input from people living, working, and learning in the community. The information gathered will help the hospital to improve its services.

Please take about 10 minutes to complete this survey. Your responses will be anonymous.

This survey has been shared widely. **Please complete this survey only once**.

Please email Madison MacLean (madison_maclean@jsi.com) with questions.

Question 1: Do you live, work, and/or learn in Carver, Duxbury, Kingston, or Plymouth?

__ YES, I live, work, and/or learn in CARVER __ YES, I live, work, and/or learn in DUXBURY

__ YES, I live, work, and/or learn in KINGSTON __ YES, I live, work, and/or learn in PLYMOUTH

__ NO, I do not live, work, and/or learn in any of those towns.

Question 2: What is your age?

__ Under 18 __ 18 to 24 __ 23 to 34 __ 35 to 44

__ 45 to 54 __ 55 to 64 __ 65 to 74 __ 75 or older

Question 3: Are you Hispanic, Latino/a, or of Spanish origin? __Yes __No

Question 4: What race best describes you? Select all that apply.

__ White __ Black or African American __ Asian

__ Native Hawaiian or Pacific Islander __ American Indian or Alaska Native __ Other

Please answer Questions 5-7 with your community and/or the population(s) you serve in mind.

Question 5A: Choose the top three (3) challenges that prevent people in your community from achieving and maintaining good health. Rank your top three (3) answers, with 1 being the greatest challenge.

__ Lack of affordable/safe housing __ Lack of access to transportation

__ Long commute to and from work or school __ Crime or violence

__ Limited or no education __ Lack of social support / social isolation

__ Physical inactivity or sedentary lifestyles __ No or limited health insurance

__ High cost of health care __ Food insecurity / unable to acquire healthy foods

__ Co-payments for medication

__ Social attitudes (e.g. discrimination, racism, distrust of providers)

__ Socioeconomic conditions (e.g. poverty, low wages, limited job opportunities)

__ Lack of health care providers that meet cultural, language, and/or social needs of patients

__ Limited access to health care (lack of providers or availability of appointments)

__ Inability to walk/ride a bike due to bad road conditions and/or no sidewalks

Question 5B: Are there other things that prevent people in your community from achieving and maintain good health? Please specify.

Question 6A: Choose the three (3) health conditions that have the greatest impact on your community. Rank your top three answers, with 1 being the condition that has the most impact.

__ Cancer

__ Cardiovascular conditions (e.g. hypertension/high blood pressure, heart disease, stroke)

__ Respiratory diseases (e.g. asthma, chronic obstructive pulmonary disease [COPD], emphysema)

__ Mental health (e.g. depression, anxiety, stress, trauma)

__ Substance use (e.g. alcohol, opioids, tobacco, e-cigarettes/vaping, marijuana)

__ Physical inactivity, nutrition, and/or obesity

__ Infectious disease (e.g. influenza, HIV/AIDS, sexually transmitted infections, hepatitis C)

__ Maternal and child health issues (e.g. prenatal care, teen pregnancy, infant mortality)

__ Diabetes

__ Oral health

__ Neurological disorders (e.g. Alzheimer's, Parkinson's, dementia)

__ Mobility impairments (e.g. falls, arthritis, fibromyalgia)

Question 6B: Are there other health conditions that impact your community? Please specify.

Question 7A: Choose the top three (3) populations that you think have the most significant health-related needs. Rank your top three (3), with 1 being the group with the most significant needs.

__ Young children (0-5 years of age) __ School age children (6-11 years of age)

__ Adolescents (12-17 years of age) __ Young Adults (18-24 years of age)

__ Older Adults (older than 65 years of age) __ Immigrants/Refugees

__ Racial/Ethnic Minorities __ Non-English Speakers

__ Homeless/Unstably housed __ Low-income populations

__ Those with disabilities (physical, cognitive, development, emotional)

__ Lesbian, Gay, Bisexual, Transgender, Queer/Questioning (LGBTQ)

Question 7B: Are there other populations that have significant health-related needs?

Question 8: Which (if any) programs or services offered by Beth Israel Deaconess Plymouth have you attended? Check all that apply.

__ Diabetes Fair
__ Cancer screenings
__ Cholesterol/blood pressure screenings
__ Community education lectures
__ CPR courses
__ Support groups

Question 9: Which (if any) of these programs do you think works well to address the needs of your community? Check all that apply.

__ Diabetes Fair
__ Cancer screenings
__ Cholesterol/blood pressure screenings
__ Community education lectures
__ CPR courses
__ Support groups
__ None

Question 10: Which health services in your community are hard to access? Check all that apply.

__ Primary care (e.g. family, general practice, internal medicine physicians)

__ Emergency care

__ Urgent care (e.g. immediate care centers, Minute Clinics)

__ Oral health care (e.g. dentists, oral surgeons)

__ Specialty care (e.g. cardiology, dermatology, oncology, endocrinology)

__ OB/GYN (e.g. female reproductive system, maternity care)

__ Pharmacies

__ Inpatient or residential drug and alcohol treatment (e.g. rehabilitation and detoxification)

__ Outpatient drug and alcohol treatment (e.g. medication-assisted treatment, outpatient clinics)

__ Inpatient mental health treatment (e.g. residential treatment, psychiatric hospitals, hospital inpatient units)

__ Outpatient mental health treatment (e.g. community mental health centers, mental health counseling)

__ Long term care (e.g. assisted living, skilled nursing facilities/nursing homes, convalescent homes)

Question 11: Are there other health services in your community that are hard to access? Please specify.

Question 12: What programs or services should Beth Israel Deaconess Plymouth offer or support to improve community health? Please specify.

Question 13: How did you hear about this survey?

__ Beth Israel Deaconess Plymouth

__ Blue Hills Community Health Alliance (CHNA 20)

__ Council on Aging or Senior Center

__Other (Please specify):

Question 14: Please provide any additional thoughts on how Beth Israel Deaconess Plymouth could improve health in your community.

Thank you for your input. Please contact Madison MacLean (Madison_Maclean@jsi.com) with questions.

Appendix B:

Data Book

Appendix B: Beth Israel Deaconess Hospital–Plymouth Data Book

Key

Statistically higher than statewide rate

Statistically lower than statewide rate

				Primary Service Area				
	MA	Plymouth County	Barnstable County	Carver	Duxbury	Kingston	Plymouth	*Source*
Demographics								
Population	6,789,319	509,114	213,900	11617	15572	13210	58695	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Median age (years)	39	43	52	47.2	45.5	43.4	45.4	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Age under 18 (%)	20.4	22.2	15.7	20.8	26.6	23.1	19.0	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Age over 65 (%)	15.5	16.7	28.5	19.6	19.3	17.3	20.0	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Race / Ethnicity / Culture								US Census Bureau, 2013-2017 ACS 5-Year Estimates
White alone (%)	78.9	83.9	92.2	95.1	97.7	95.9	92.9	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Black or African American alone (%)	7.4	9.2	2.7	1.9	0.8	0.9	1.9	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Asian alone (%)	6.3	1.2	1.5	0.7	0.8	0.7	1.2	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Native Hawaiian and Other Pacific Islander (%)	0	0	0.1	0	0	0	0	US Census Bureau, 2013-2017 ACS 5-Year Estimates
American Indian and Alaska Native (%)	0.2	0.1	0.5	0.2	0	0	0.2	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Some Other Race (%)	4.1	3.1	1.0	0.3	0.2	0.6	1.6	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Two or More Races (%)	3.1	2.3	2.0	1.8	0.5	1.9	2.2	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Hispanic or Latino of Any Race (%)	11.2	3.7	2.7	1.1	0.9	1.4	2.7	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Foreign Born (%)	16.2	9.0	7.4	3.9	2.2	2.9	6.5	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Language Spoken at Home by Population 5 Years and Older								
Language other than English	23.1	12.7	8.2	3.5	2.4	4.8	7.9	US Census Bureau, 2013-2017 ACS 5-Year Estimates
speak English less than "very well" (%)	9.1	5.0	2.8	2.1	0.1	0.7	2.4	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Speak Spanish at home (%)	8.8	2.5	1.9	0.4	0.6	1.1	1.4	US Census Bureau, 2013-2017 ACS 5-Year Estimates
speak English less than "very well" (%)	3.6	0.8	0.8	0.1	0	0.2	0.4	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Other Indo-European languages (%)	8.8	9.0	5.1	2.6	1.4	2.5	5.1	US Census Bureau, 2013-2017 ACS 5-Year Estimates
speak English less than "very well" (%)	3.1	3.7	1.5	1.6	0	0.5	1.8	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Asian and Pacific Islander Languages (%)	4.2	0.7	0.7	0.3	0.4	0.5	0.8	US Census Bureau, 2013-2017 ACS 5-Year Estimates
speak English less than "very well" (%)	2.0	0.3	0.3	0.3	0.1	0	0.2	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Household								
Total households	2,585,715	184,195	95,011.0	4460	5427	4758	22468	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Family households (families) (%)	63.7	71.2	61.5	67.9	80	74.6	71.4	US Census Bureau, 2013-2017 ACS 5-Year Estimates
In married couple family (%)	47.2	54.5	49.4	57.2	68.3	62.2	57.4	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Average family size	3.1	3.2	2.8	3.16	3.24	3.14	2.98	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Unemployment Rate among Civilian Labor Force (%)	6.0	6	5.5	5	5.1	5	5	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Median household income (dollars)	74,167.0	82081	68,048.0	73,904	123,613	89796	83,746	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Below federal poverty line - all residents (%)	11.1	8	7.5	4.6	4	6.6	6.4	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Below federal poverty line - families (%)	7.8	5.8	4.6	2.4	3.7	4.6	5	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Below federal poverty line - under 18 years (%)	14.6	11	11.7	5.1	2.6	5.9	9	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Below federal poverty line - age 65+ (%)	9.0	6.5	5.0	6.9	5.4	10.8	4.8	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Below federal poverty line - female head of household, no husband present (%)	24.4	19	15.5	5.8	17.8	16.2	21.6	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Below 200% of poverty level	23.7	18.7	20.5	19.0	10.5	12.6	15.3	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Below 300% of poverty level	36.4	31.3	35.5	34.6	17.3	25.9	28.7	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Below 400% of poverty level	48.6	43.6	49.5	48.4	24.8	35.9	41.0	US Census Bureau, 2013-2017 ACS 5-Year Estimates
With cash public assistance income (%)	2.8	2.6	1.9	0.8	0.8	0.5	2.5	US Census Bureau, 2013-2017 ACS 5-Year Estimates
With Food Stamp/SNAP benefits in the past 12 months (%)	12.3	10.5	7.5	10.8	2.5	4.4	7.1	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Educational Attainment (Population 25 Years and Older)								

				Primary Service Area				
	MA	Plymouth County	Barnstable County	Carver	Duxbury	Kingston	Plymouth	*Source*
Demographics								
High school degree or higher (%)	90.3	92.7	95.6	89.6	98.9	95	95.4	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Bachelor's degree or higher (%)	42.1	35.7	41.7	19.9	68.6	43.7	35.9	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Housing								
Vacant housing units (%)	9.7	10.0	41.6	6.1	8.9	6.2	15.9	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Owner-occupied (%)	62.4	75.9	78.8	92.5	90.3	79.6	78.9	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Avg household size of owner occupied	2.7	2.8	2.3	2.63	2.93	2.8	2.62	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Monthly owner costs exceed 30% of household income (%)	31.5	33.7	40.8	34.8	30	32.1	36.2	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Renter-occupied (%)	37.6	24.1	21.2	7.5	9.7	20.4	21.1	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Avg household size of renter occupied	2.3	2.34	2.1	2.23	2.11	2.42	2.19	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Gross rent exceeds 30% of household income (%)	50.1	52.0	55.8	59.7	35.2	50.3	56.3	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Transportation								
Takes car, truck, van (alone) to work (%)	70.7	80.4	81.1	87.6	76.2	85	80.6	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Takes car, truck, van (carpool) to work (%)	7.5	7	7.2	6.2	4.6	5.6	7.3	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Takes public transportation (excluding cab) to work (%)	10.2	5.7	1.3	0.6	4.6	3.1	4.1	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Mean commute time (minutes)	29.3	33	23.3	35.2	36	32	33	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Worked outside county of residence (%)	30.8	43.3	12.4	27.4	38.5	31.7	29.1	US Census Bureau, 2013-2017 ACS 5-Year Estimates
School Enrollment								
Graduation rate(%), 2017	88.3			92.6	97.8		92.3	Massachusetts Department of Elementary and Secondary Education School and District Profiles
Drop out rate(%), 2017	4.9			3.7	0		3.9	Massachusetts Department of Elementary and Secondary Education School and District Profiles
First language not English, 2018-19	21.9			1.4	1.7		3.9	Massachusetts Department of Elementary and Secondary Education School and District Profiles
English language learners(%), 2018-19	10.5			1.3	0.3		1.6	Massachusetts Department of Elementary and Secondary Education School and District Profiles
Students with Disabilities(%), 2018-19	18.1			19.1	15.3		19.8	Massachusetts Department of Elementary and Secondary Education School and District Profiles
High Needs, 2018-19	47.6			35.7	19.6		36.9	Massachusetts Department of Elementary and Secondary Education School and District Profiles
Economically disadvantaged(%), 2018-19	31.2			21.9	5.2		23.2	Massachusetts Department of Elementary and Secondary Education School and District Profiles
Total Expenditures per Pupil, 2017	$15,911.38			$14,834.36	$14,507.45		$16,541.20	Massachusetts Department of Elementary and Secondary Education School and District Profiles
Crime								
Violent crime counts	23,393			25	9	27	151	FBI Uniform Crime Reports 2017
Murder/non-negligent manslaughter	171			0	0	0	1	FBI Uniform Crime Reports 2017
Forcible rape	2,012			5	2	2	21	FBI Uniform Crime Reports 2017
Robbery	4,643			1	1	3	10	FBI Uniform Crime Reports 2017
Aggravated assault	16,567			19	6	22	119	FBI Uniform Crime Reports 2017
Property crime counts	92,614			114	102	162	591	FBI Uniform Crime Reports 2017
Burglary	16,371			26	22	28	81	FBI Uniform Crime Reports 2017
Larceny-theft	68,955			86	78	129	486	FBI Uniform Crime Reports 2017
Motor vehicle theft	7,288			2	2	5	24	FBI Uniform Crime Reports 2017
Arson	373			1	0	1	0	FBI Uniform Crime Reports 2017
Violent crime rate (per 100,000)	353			214	56	198	252	FBI Uniform Crime Reports 2017
Murder/non-negligent manslaughter	3			0	0	0	2	FBI Uniform Crime Reports 2017
Forcible rape	30			43	12	15	35	FBI Uniform Crime Reports 2017
Robbery	70			9	6	22	17	FBI Uniform Crime Reports 2017
Aggravated assault	250			163	37	162	199	FBI Uniform Crime Reports 2017
Property crime rate (per 100,000)	1,398			977	634	1190	988	FBI Uniform Crime Reports 2017
Burglary	247			223	137	206	135	FBI Uniform Crime Reports 2017
Larceny-theft	1,041			737	485	947	813	FBI Uniform Crime Reports 2017
Motor vehicle theft	110			17	12	37	40	FBI Uniform Crime Reports 2017
Arson	6			9	0	7	0	FBI Uniform Crime Reports 2017

TABLE C16001: LANGUAGE SPOKEN AT HOME BY ABILITY TO SPEAK ENGLISH FOR THE POPULATION 5 YEARS AND OLDER, 2013-2017 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

	CARVER			DUXBURY			KINGSTON			PLYMOUTH		
	Estimate	Margin of Error (+/-)	% of Total Pop 5+	Estimate	Margin of Error (+/-)	% of Total Pop 5+	Estimate	Margin of Error (+/-)	% of Total Pop 5+	Estimate	Margin of Error (+/-)	% of Total Pop 5+
Population 5 years and over	11,232	157		14,849	180		12,470	176		56,184	396	
Speak only English at home	10,839	366	96.50	14,491	229	97.59	11,876	310	95.24	51,734	919	92.08
SPANISH or SPANISH CREOLE	43	41	0.38	83	66	0.56	135	123	1.08	772	194	1.37
Speak English less than "very well"	11	18	0.10	0	19	0.00	23	33	0.18	228	105	0.41
FRENCH (Incl. Haitian, Cajun)	31	34	0.28	50	41	0.34	5	12	0.04	326	140	0.58
Speak English less than "very well"	2	4	0.02	0	19	0.00	3	6	0.02	70	74	0.12
GERMAN or WEST GERMANIC	0	19	0.00	37	24	0.25	21	25	0.17	171	120	0.30
Speak English less than "very well"	0	19	0.00	0	19	0.00	0	19	0.00	0	29	0.00
RUSSIAN, POLISH, OTHER SLAVIC LANGUAGES	0	19	0.00	11	14	0.07	30	38	0.24	103	96	0.18
Speak English less than "very well"	0	19	0.00	0	19	0.00	0	19	0.00	17	25	0.03
OTHER INDO-EUROPEAN LANGUAGES	261	277	2.32	115	70	0.77	251	132	2.01	2275	543	4.05
Speak English less than "very well"	183	272	1.63	4	5	0.03	61	64	0.49	900	377	1.60
KOREAN	0	19	0.00	16	21	0.11	0	19	0.00	0	29	0.00
Speak English less than "very well"	0	19	0.00	11	18	0.07	0	19	0.00	0	29	0.00
CHINESE (Incl. Mandarin, Cantonese)	36	39	0.32	40	52	0.27	11	20	0.09	195	117	0.35
Speak English less than "very well"	36	39	0.32	0	19	0.00	0	19	0.00	89	66	0.16
VIETNAMESE	0	19	0.00	2	4	0.01	7	12	0.06	152	121	0.27
Speak English less than "very well"	0	19	0.00	2	4	0.01	5	11	0.04	21	30	0.04
TAGALOG (Incl. Filipino)	0	19	0.00	0	19	0.00	0	19	0.00	0	29	0.00
Speak English less than "very well"	0	19	0.00	0	19	0.00	0	19	0.00	0	29	0.00
OTHER ASIAN LANGUAGES	0	19	0.00	0	19	0.00	39	63	0.31	76	79	0.14
Speak English less than "very well"	0	19	0.00	0	19	0.00	0	19	0.00	13	22	0.02
ARABIC	22	37	0.20	0	19	0.00	80	130	0.64	372	514	0.66
Speak English less than "very well"	0	19	0.00	0	19	0.00	0	19	0.00	8	14	0.01
OTHER AND UNSPECIFIED LANGUAGES	0	19	0.00	4	13	0.03	15	25	0.12	8	15	0.01
Speak English less than "very well"	0	19	0.00	0	19	0.00	0	19	0.00	0	29	0.00

MAH SERVICE AREA: TOP 5
ANCESTRIES BY TOWN

All data from US Census Bureau American Community Survey, 2013-2017 5-Year Estimates; B04006: People Reporting Ancestry

CARVER	Estimate	MOE	%
Total Pop	11,617	22	
Irish	3,880	495	33.40
English	2,022	459	17.41
Italian	1,686	409	14.51
Portuguese	1,000	278	8.61
German	828	291	7.13

DUXBURY	Estimate	MOE	%
Total Pop	15,572	28	
Irish	6,441	620	41.36
English	3,042	388	19.54
Italian	2,569	410	16.50
German	1,854	406	11.91
Scottish	662	183	4.25

KINGSTON	Estimate	MOE	%
Total Pop	13,210	27	
Irish	4,999	807	37.84
Italian	2,519	458	19.07
English	1,802	404	13.64
German	1,192	408	9.02
French (except Basque)	790	204	5.98

PLYMOUTH	Estimate	MOE	%
Total Pop	58,695	27	
Irish	18,605	1389	31.70
Italian	12,273	1069	20.91
English	8,159	792	13.90
German	4,398	591	7.49
French (except Basque)	3,492	553	5.95

MASSACHUSETTS	Estimate	MOE	%
Total Pop	6,789,319		
Irish	1,403,567	11,116	20.67
Italian	871,822	8,323	12.84
English	647,855	6,278	9.54
French (except Basque)	437,190	5,490	6.44
German	400,519	4,838	5.90

Key

Statistically higher than statewide rate

Statistically lower than statewide rate

				Primary Service Area				
	MA	Plymouth County	Barnstable County	Carver	Duxbury	Kingston	Plymouth	Source
Demographics								
All cause								
Deaths, 2015	684.5	722.3	707.5	906.1	552.4	847.8	828.7	MDPH Registry of Vital Records and Statistics
Premature mortality for <75 yr population, 2015	279.6	294.1	314.4	445	153.3	334.7	339.5	MDPH Registry of Vital Records and Statistics
Hospitalizations								
ED discharges								
Injuries and Poisonings								
Hospitalizations								
ED discharges								
Deaths, 2015	58.0	71.3	80.3	93.5	40.2	--1	77.4	MDPH Registry of Vital Records and Statistics
Motor Vehicle Related								
Hospitalizations								
ED discharges								
Deaths, 2015	5.4	6.8	3.2	--1	--1	--1	--1	MDPH Registry of Vital Records and Statistics
Assault								
Deaths, 2015	2.0	2.2	--1	0	0	0	--1	MDPH Registry of Vital Records and Statistics
Behavioral Health								
Alcohol/substance use (age adjusted per 100,000)								
Related hospitalizations								
Related ED discharges								
Mental Disorders (age adjusted per 100,000)								
Hospitalizations								
ED discharges								
Deaths, 2015	62.9	61.2	43.4	42.7	42.8	88.7	51.4	MDPH Registry of Vital Records and Statistics
Suicide Deaths, 2015	9.0	9.6	16.7	0	0	--1	15.4	MDPH Registry of Vital Records and Statistics
Opioids (age adjusted per 100,000)								
Hospitalizations								
ED discharges								
Fatal Overdoses, 2015	24.6	36.0	42.0	66.6	--1	--1	38.6	MDPH Registry of Vital Records and Statistics
Opioid-related overdose death count by city/town of residence for the decedent, 2014-2018	9,114	825.0	338	27	7	14	106	MDPH Registry of Vital Records and Statistics
Opioid-related overdose death count by city/town of death occurence, 2014-2018	9,443			13	2	9	103	MDPH Registry of Vital Records and Statistics
Admissions to BSAS Contracted/Licensed Programs FY17								MDPH Bureau of Substance Abuse Services
Number of admissions	80,896	6,582		212.0	108	172	1,026	MDPH Bureau of Substance Abuse Services
% White	77.1	86.3		88.5	97.7	95.0	92.4	MDPH Bureau of Substance Abuse Services
% Black of African American	7.3	6.5		5.6	0	Missing/Unknown	3.2	MDPH Bureau of Substance Abuse Services
% Multi-Racial or other	15.6	7.2		Missing/Unknown	Missing/Unknown	Missing/Unknown	1.7	MDPH Bureau of Substance Abuse Services
% Hispanic	14	4.0		2.2	0	Missing/Unknown	1.8	MDPH Bureau of Substance Abuse Services
% Less Than High School Education	25.6	21.0		20.4	9.9	15.8	18	MDPH Bureau of Substance Abuse Services
% Less Than 18	1.3	1.6		Missing/Unknown	4.7	Missing/Unknown	2	MDPH Bureau of Substance Abuse Services
% 18 to 25	14.7	17.5		33.3	27.3	18	21.2	MDPH Bureau of Substance Abuse Services
% 26 to 30	21.7	23.1		18.5	28.1	16.8	24.6	MDPH Bureau of Substance Abuse Services
% 31 to 40	30.9	28.1		19.6	13.3	37.3	24.1	MDPH Bureau of Substance Abuse Services
% 41 to 50	17.6	15.9		15.9	12.5	17.4	13.4	MDPH Bureau of Substance Abuse Services
% 51 and older	13.9	13.8		12.2	14.1	9.9	14.8	MDPH Bureau of Substance Abuse Services
% Employed at Enrollment	44.9	50.9		45.7	55.3	58.5	51.2	MDPH Bureau of Substance Abuse Services
% Homeless at Enrollment	30.1	22.7		18.1	11.1	15.6	21	MDPH Bureau of Substance Abuse Services

				Primary Service Area				
	MA	Plymouth County	Barnstable County	Carver	Duxbury	Kingston	Plymouth	Source
Demographics								
% Prior Mental Health Treatment	46.2	54.8		42.7	55.2	47.4	52.3	MDPH Bureau of Substance Abuse Services
Primary Substance of Use								MDPH Bureau of Substance Abuse Services
% Alcohol	31.9	37.0		26.3	39.2	51.3	35.2	MDPH Bureau of Substance Abuse Services
% Heroin	53.1	47.0		61.2	38.4	33.8	48.5	MDPH Bureau of Substance Abuse Services
% All other opioids*	5.8	6.9		7.5	6.4	7.1	7.2	MDPH Bureau of Substance Abuse Services
% Crack/Cocaine	4.1	3.4		3.5	Missing/Unknown	Missing/Unknown	2.8	MDPH Bureau of Substance Abuse Services
% Marijuana	4	3.2		Missing/Unknown	10.4	Missing/Unknown	3.9	MDPH Bureau of Substance Abuse Services
% Other sedatives/hypnotics, stimulants, and other	2.3	2.4		Missing/Unknown	Missing/Unknown	Missing/Unknown	1.8	MDPH Bureau of Substance Abuse Services
Chronic Disease (age-adjusted rates per 100,000)								
Diabetes								
Hospitalizations								
ED discharges								
Deaths, 2015	16.8	17.2	14.0	--1	--1	--1	17.4	MDPH Registry of Vital Records and Statistics
Hypertension								
Hospitalizations								
ED discharges								
Deaths, 2015	6.9	7.6	6.7	--1	--1	--1	--1	MDPH Registry of Vital Records and Statistics
Major cardiovascular disease								
Hospitalizations								
ED discharges								
Deaths, 2015	180.8	191.0	193.9	193.6	187.2	223.6	194.3	MDPH Registry of Vital Records and Statistics
Heart Disease								
Hospitalizations								
ED discharges								
Deaths, 2015	138.7	150.2	149.8	136.4	150	191.8	154.6	MDPH Registry of Vital Records and Statistics
Coronary Heart Disease								
Hospitalizations								
ED discharges								
Deaths, 2015	82.3	84.8	93.9	81.8	108.8	97.9	93.8	MDPH Registry of Vital Records and Statistics
Heart Failure								
Hospitalizations								
ED discharges								
Cerebrovascular								
Hospitalizations								
Deaths, 2015	28.4	24.4	28.7	--1	23.7	--1	34	MDPH Registry of Vital Records and Statistics
Chronic lower respiratory diseases								
Hospitalizations								
Deaths, 2015	33.0	33.0	28.7	--1	32.1	74.3	49.4	MDPH Registry of Vital Records and Statistics
Asthma								
Hospitalizations								
ED discharges								
Deaths, 2015	1.0	0.7	--1	0	0	0	0	MDPH Registry of Vital Records and Statistics
Chronic Liver Disease								
Hospitalizations								
Deaths, 2015	8.1	10.9	7.4	--1	--1	--1	17.6	MDPH Registry of Vital Records and Statistics
Cancer (age-adjusted rates per 100,000)								
All-cause								
Hospitalizations								

				Primary Service Area				
	MA	Plymouth County	Barnstable County	Carver	Duxbury	Kingston	Plymouth	Source
Demographics								
ED discharges								
Deaths, 2015	152.8	151.3	164.1	210.7	89.9	164.4	170.9	MDPH Registry of Vital Records and Statistics
Breast (invasive, female)								
Hospitalizations								
ED discharges								
Deaths, 2015	9.8	17.4	23.5	--1	--1	--1	15.7	MDPH Registry of Vital Records and Statistics
Colorectal								
Hospitalizations								
ED discharges								
Deaths, 2015	12	10.6	11.4	--1	0	--1	10.4	MDPH Registry of Vital Records and Statistics
Lung								
Hospitalizations								
ED discharges								
Deaths, 2015	39	37.3	34.8	78.9	--1	31.9	49.5	MDPH Registry of Vital Records and Statistics
Prostate								
Hospitalizations								
ED discharges								
Deaths, 2015	7	16.3	21	0	--1	--1	--1	MDPH Registry of Vital Records and Statistics
Maternal and Child Health								
Infant Mortality, 2015 (rate per 1,000)	4.3	2.1	8.8	0	0	0	--1	MDPH Registry of Vital Records and Statistics
Preterm (<37 weeks) births (#), 2016	7.5			11	6	13	32	MDPH, Annual reports on Massachusetts births
Low Birth Weight (<2500 grams/5.5 lbs), 2016 (#)	7.5			9	Missing/Unknown	8	27	MDPH, Annual reports on Massachusetts births
Births to female residents aged 15-19 (#), 2016	8.5			0	0	0	13	MDPH, Annual reports on Massachusetts births
Adequate prenatal care (%)**								
Infectious Disease								
Chlamydia cases (lab confirmed), 2017	29203	2040		23	29	24	110	MDPH Bureau of Infectious Disease and Laboratory Services
Gonorrhea cases (lab confirmed), 2017	7307	462		<5	<5	<5	22	MDPH Bureau of Infectious Disease and Laboratory Services
Syphillis cases (probable and confirmed), 2017	1091	39		0	<5	<5	1	MDPH Bureau of Infectious Disease and Laboratory Services
Hepatitis A cases (confirmed), 2017	53	5		0	0	0	3	MDPH Bureau of Infectious Disease and Laboratory Services
Chronic Hepatitis B (confirmed and probable), 2017	2023	132		0	<5	<5	10	MDPH Bureau of Infectious Disease and Laboratory Services
Tuberculosis (rates per 100,000), 2017								
Hepatitis C cases (confirmed and probable), 2017	7765	493		17	<5	9	61	MDPH Bureau of Infectious Disease and Laboratory Services
Pneumonia/Influenza								
Confirmed Influenza cases, 2017	24278	1017		14	15	9	36	MDPH Bureau of Infectious Disease and Laboratory Services
Hospitalizations								
Deaths, 2015	17.1	22	17.7	35.2	--1	39.1	20.7	MDPH Registry of Vital Records and Statistics
HIV/AIDS (age-adjusted rate per 100,000)								
Incidence, 2017	1870	112		0	0	<5	5	MDPH Bureau of Infectious Disease and Laboratory Services
Hospitalizations								
Deaths, 2015	1.1	1.3	--1	0	0	0	0	MDPH Registry of Vital Records and Statistics
Infectious and Parasitic Disease (age-adjusted rate per 100,000)								
Hospitalizations								
Deaths, 2015	18.9	21.5	17.4	--1	0	--1	19.4	MDPH Registry of Vital Records and Statistics
Elder Health (age-adjusted rate per 100,000)								
Falls								
Hospitalizations								
ED discharges								
Hip fracture hospitalizations								

				Primary Service Area				
	MA	Plymouth County	Barnstable County	Carver	Duxbury	Kingston	Plymouth	Source
Demographics								
Alzheimers deaths	20.2	22.5	29.2	37.2	62	--1	50.5	MDPH Registry of Vital Records and Statistics
Parkinson's deaths	7.7	8.4	8.5	--1	0	--1	12.1	MDPH Registry of Vital Records and Statistics

*All other opioids includes non-prescription Methadone, Oxycodone, non-prescription Suboxone, prescription opiates, and non-prescription opiates

**Based on the Adequacy of Prenatal Care Utilization (APNCU) Index

Key

Statistically higher than statewide rate

Statistically lower than statewide rate

Source: Massachusetts Vital Statistics, 2015

			Primary Service Area			
	MA	Plymouth County	Carver	Duxbury	Kingston	Plymouth
Cancer Mortality (Age-adjusted per 100,000), 2015						
All Types (invasive)	152.8	151.3	210.7	89.9	164.4	170.9
Bladder	4.7	5.2	0.0	--1	--1	7.9
Bone	0.3	0.7	--1	0.0	0.0	0.0
Brain/Central Nervous System	4.7	6.6	0.0	--1	--1	6.9
Breast (female)	9.8	17.4	--1	--1	--1	15.7
Cervical	0.6	1.5	0.0	0.0	0.0	--1
Colorectal	12.0	10.6	--1	0.0	--1	10.4
Esophageal	4.9	4.0	--1	--1	--1	7.0
Kaposi's Sarcoma	0.0	0.0	0.0	0.0	0.0	0.0
Kidney	3.5	2.5	--1	0.0	0.0	--1
Larynx	0.8	0.8	0.0	--1	0.0	0.0
Leukemia	5.7	7.3	0.0	--1	0.0	7.4
Liver	6.0	6.0	0.0	0.0	--1	6.5
Lung	39.0	37.3	78.9	--1	31.9	49.5
Lymphoma (Hodgkin)	0.2	0.0	0.0	0.0	0.0	0.0
Lymphoma (Non-Hodgkin)	5.2	6.3	--1	0.0	--1	--1
Melanoma of Skin	2.3	2.6	0.0	0.0	--1	0.0
Multiple Myeloma	3.1	2.0	--1	--1	0.0	--1
Oral Cavity	2.4	1.0	0.0	0.0	0.0	--1
Ovary	3.9	5.4	--1	0.0	0.0	--1
Pancreatic	11.3	12.0	--1	--1	0.0	15.8
Prostate	7	16.3	0.0	--1	--1	--1
Soft Tissue	1.5	1.0	0.0	0.0	0.0	--1
Stomach	3.2	2.0	0.0	--1	0.0	--1
Testis	0.1	0.0	0.0	0.0	0.0	0.0
Thyroid	0.5	1.0	0.0	0.0	0.0	0.0
Uterine	2.7	4.0	0.0	--1	--1	--1

Massachusetts Healthy Aging Community Profile

Key

Statistically higher than statewide rate

Statistically lower than statewide rate

		Primary Service Area				
	MA	Carver	Duxbury	Kingston	Plymouth	Boston
POPULATION CHARACTERISTICS						
Total population 65 years or older	1049751	2274	2999	2286	11744	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Population 65 years or older (% of total population)	15.5	19.6	19.3	17.3	20	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Population 65-74 years (% of total population)	8.7	11.0	11.6	9.1	12.7	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Population 75-84 years (% of total population)	4.5	6.5	4.5	5.1	5.6	US Census Bureau, 2013-2017 ACS 5-Year Estimates
Population 85 years or older (% of total population)	2.3	2.1	3.1	3.1	1.8	US Census Bureau, 2013-2017 ACS 5-Year Estimates
% of 65+ population living alone	29.9	26.2	22.1	26.7	21.5	US Census Bureau, 2013-2017 ACS 5-Year Estimates
% of only English speakers 65 years or older	17.7	20.5	20.2	18.5	21.4	US Census Bureau, 2013-2017 ACS 5-Year Estimates
% Language other than English over 65 years or older	11.9	13.2	19.6	15.2	14.6	US Census Bureau, 2013-2017 ACS 5-Year Estimates
% of Spanish at home speakers 65 years or older	7.0	0.0	0.0	0.0	6.7	US Census Bureau, 2013-2017 ACS 5-Year Estimates
WELLNESS & PREVENTION						
% 60+ injured in a fall within last 12 months	10.6	8.9	8.5	8.5	8.5	2018 Massachusetts Healthy Aging Community Profile
% 65+ had hip fracture	3.7	3	3.9	3.4	3	2018 Massachusetts Healthy Aging Community Profile
%60+ with self-reported fair or poor health status	18.0	20.3	13.5	13.5	13.5	2018 Massachusetts Healthy Aging Community Profile
% 60+ with physical exam/check-up in past year	89.3	90.9	88.4	88.4	88.4	2018 Massachusetts Healthy Aging Community Profile
BEHAVIORAL HEALTH						
% 60+ with 15+ days poor mental health last month	7.0	10.1	7.7	7.7	7.7	2018 Massachusetts Healthy Aging Community Profile
% 65+ with depression	31.5	31.1	27.3	33.6	29.4	2018 Massachusetts Healthy Aging Community Profile
% 65+ with anxiety disorders	25.4	24.7	22.2	26.6	25	2018 Massachusetts Healthy Aging Community Profile
% 65+ with substance use disorders (drug use +/or alcohol abuse)	6.6	6.4	5	6.2	6.2	2018 Massachusetts Healthy Aging Community Profile
CHRONIC DISEASE						
% 65+ with Alzheimer's disease or related dementias	13.6	11.4	13.6	13.2	11.3	2018 Massachusetts Healthy Aging Community Profile
LIVING WITH DISABILITY						
% 65+ with clinical diagnosis of deafness or hearing impairment	16.1	16.6	17.6	17.2	16.5	2018 Massachusetts Healthy Aging Community Profile
% 65+ with clinical diagnosis of blindness or visual impairment	1.5	1.3	0.8	1.1	0.9	2018 Massachusetts Healthy Aging Community Profile
% 65+ with clinical diagnosis of mobility impairments	3.9	3.9	3.6	3.1	2.9	2018 Massachusetts Healthy Aging Community Profile
ACCESS TO CARE						
% Medicare managed care enrollees	23.1	15.1	11.1	12.1	12.8	2018 Massachusetts Healthy Aging Community Profile
% dually eligible for Medicare and Medicaid	16.7	10.7	5.4	9.8	8.5	2018 Massachusetts Healthy Aging Community Profile
% 60+ with a regular doctor	96.4	94.8	96.9	96.9	96.9	2018 Massachusetts Healthy Aging Community Profile
% 60+ who did not see doctor when needed due to cost	4.1	5.3	3.7	3.7	3.7	2018 Massachusetts Healthy Aging Community Profile
# of nursing homes within 5 miles	399	0	1	2	3	2018 Massachusetts Healthy Aging Community Profile
# of home health agencies	299	25	21	21	30	2018 Massachusetts Healthy Aging Community Profile
# of adult day health centers	131	0	0	0	1	2018 Massachusetts Healthy Aging Community Profile
COMMUNITY VARIABLES & CIVIC ENGAGEMENT						
% of grandparents raising grandchildren	0.8	2.4	0.6	0	0.6	2018 Massachusetts Healthy Aging Community Profile
# of assisted living sites	238	0	1	1	4	2018 Massachusetts Healthy Aging Community Profile
Total of all crashes involving adult age 60+/town	132351	189	223	251	952	2018 Massachusetts Healthy Aging Community Profile
# of medical transportation services for older people	268	20	24	33	42	2018 Massachusetts Healthy Aging Community Profile
# of nonmedical transportation services for older people	252	49	63	77	105	2018 Massachusetts Healthy Aging Community Profile

Notes:

1. Demographics: Each American Community Survey (ACS) estimate is accompanied by the upper and lower bounds of the 90 percent confidence interval. A 90 percent confidence interval can be interpreted roughly as providing 90 percent certainty that the true number falls between the upper and lower bounds.

2. Clinical indicators: All data provided by MassCHIP are estimates associated with some margin of error. Percentages are accompanied by 95% confidence intervals, meaning the true value of the measure falls within the range 95% of the time. The difference between two groups is statistically significant if the 95% confidence intervals surrounding these two estimates do not overlap

For CHIA data, confidence intervals for year over year reflect change within geography rather than difference from statewide benchmark

Appendix C:

Resource Inventory

Appendix C: Resource Inventory

MULTI-SECTOR COLLABORATIVES AND COMMUNITY HEALTH PARTNERSHIPS	
ORGANIZATION	**CITY**
CHNA 23	Plymouth
Healthy Plymouth	Plymouth
Plymouth Taskforce for the Homeless	Plymouth
Plymouth County Suicide Prevention Coalition	Plymouth
LOCAL PUBLIC DEPARTMENTS	
ORGANIZATION	**CITY**
Local Health Departments and Boards of Health	
Local Fire Departments	
Local Police Departments	
BUSINESS AND COMMUNITY DEVELOPMENT	
ORGANIZATION	**CITY**
Local Chambers of Commerce	
VETERANS SERVICES	
Organizations	**City**
MA Department of Veterans' Services	Plymouth
YOUTH AND FAMILY SERVICES	
Organizations	**City**
Kennedy-Donovan Early Intervention	Kingston
South Shore Early Education, Head Start Program	Plymouth
Literacy Program of Greater Plymouth	Plymouth
South Shore Head Start	Plymouth

FOOD SECURITY AND HEALTHY EATING	
Organizations	**City**
WIC Program	Plymouth
WIC Program	Plymouth
Carver Food Pantry - Carver Council on Aging	Carver
Our Lady of Lourdes (Food Vouchers)	Carver
Duxbury Interfaith Council	Duxbury
Duxbury Lions Club Pantry Saint Paul's Church of The Nazarene	Duxbury
Careworks Ministry	Kingston
Pilgrims Hope	Kingston
St. Joseph's Church	Kingston
Catholic Charities Thrifty Pilgrim	Plymouth
Christ Church Outreach	Plymouth
Salvation Army	Plymouth
Terra Cura	Plymouth
HOUSING	
Organizations	**City**
Plymouth Redevelopment Authority	Plymouth
Housing Solutions for Southeastern Massachusetts	Kingston
Pilgrims Hope Family Shelter	Kingston
DOMESTIC VIOLENCE SERVICES	
Organizations	**City**
Support Groups for Sruvivors of Sexual Assault	Plymouth
MULTI SERVICE AGENCIES	
Organizations	**City**
South Shore Community Action Council, Inc	Plymouth
DISABILITY SERVICES	
Organizations	**City**
The ARC of Greater Plymouth	Plymouth

SERVICES FOR OLDER ADULTS	
Organizations	**City**
Duxbury Senior Center	Duxbury
Town of Carver Council on Aging	Carver
Town of Duxbury Council on Aging	Duxbury
Town of Kingston Council on Aging	Kingston
Town of Plymouth Council on Aging	Plymouth
Old Colony Elder Services	Regional
EMPLOYMENT AND CAREER SERVICES	
Organizations	**City**
Plymouth Career Center	Plymouth
HEALTH CARE SERVICES	
Organizations	**City**
Harbor Health Services	Plymouth
Bayview Associates Evaluation and Counseling	Plymouth
High Point Treatment Center	Plymouth
Plymouth Center for Behavioral Health	Plymouth
South Bay Mental Health Services	Plymouth
South Shore Mental Health Center	Plymouth
Vinfen Plymouth Recovery Connection Center	Plymouth
Bay Path Rehabilitation & Nursing Center	Duxbury
ACCESS Program	Plymouth
Beacon Hospice	Plymouth
RECREATION AND COMMUNITY CENTERS	
Organizations	**City**
Kennedy Donovan Center	Kingston
Tarkiln Community Center	Duxbury
Boys and Girls Club	Plymouth
Camp Clark	Plymouth
Camp Wind in the Pines	Plymouth
MA Department of Veterans' Services	Regional

Appendix D:

Implementation Strategy

Appendix D: Summary Implementation Strategy

Beth Israel Deaconess Hospital-Plymouth
Implementation Strategy
2020 - 2022

Between October 2018 and April 2019, Beth Israel Deaconess Hospital-Plymouth (BID-Plymouth) conducted a comprehensive Community Health Needs Assessment (CHNA) that included an extensive review of existing quantitative data as well as the collection of qualitative information through interviews, focus groups and community meetings. A resource inventory was also completed to identify existing health-related assets and service gaps. During this process, the Hospital made substantial efforts to engage administrative and clinical staff at the Hospital (including senior leadership) and community health stakeholders throughout the Hospital's community benefits service area. A detailed review of the CHNA approach, data collection methods, and community engagement activities are included in Appendix A of BID-Plymouth's 2019 CHNA Report.

Once BID-Plymouth's CHNA activities were completed, the Hospital's Community Benefits (CB) Program staff convened the BID-Plymouth Community Benefits Advisory Committee (CBAC) and the Hospital's Senior Leadership Team (SLT) and conducted a series of strategic planning meetings. These meetings allowed Hospital staff and a representative group of external community health stakeholders to review the quantitative and qualitative findings from the CHNA, prioritize the leading community health issues, identify segments of the population most at-risk (Priority Populations), review existing community benefits programming, and begin to develop the Hospital's 2020 – 2022 Implementation Strategy (IS). After these strategic planning meetings, the Hospital's CB staff continued to work with the CBAC, SLT, and other community partners to develop a draft and a final version of BID-Plymouth's 2020-2022 Implementation Strategy (IS). Below is a summary of BID-Plymouth's IS.

CORE IMPLEMENTATION STRATEGY PLANNING PRINCIPLES AND STATE PRIORITIES

In developing the IS, care was taken to ensure that BID-Plymouth's community health priorities were aligned with the Commonwealth of Massachusetts priorities set by the Commonwealth's Department of Public Health (MDPH). The table below outlines the four Community Benefit focus issues identified by MDPH and the Executive Office of Health and Human Services. In addition to the four focus issues, MDPH identified six health priorities to guide investments funded through the Determination of Need Process. The Massachusetts Attorney General's Office encourages hospitals to consider these priorities in the Community Benefits planning process.

Also included below is a brief discussion of a series of guiding principles that informed the Hospital's IS development process.

State Community Health Priorities

Community Benefits Priorities	Determination of Need Priority Areas
Chronic disease with a Focus on Cancer, Heart Disease, and Diabetes	Built Environment
Housing Stability/Homelessness	Social Environment
Mental Illness and Mental Health	Housing
Substance Use Disorders	Violence
	Education
	Employment

The following are a range of programmatic ideas and principles that are critical to community health improvement and have been applied in the development of the IS provided below.

- **Social Determinants of Health:** With respect to community health improvement, especially for low income and disadvantaged populations, there is growing appreciation for the importance of addressing the underlying social determinants of health, "the conditions in which people are born, grow, live, work and age that may limit access, lead to poor health outcomes, and are at the heart of health inequities between and within communities."[1] The leading social determinants of health include issues such as poverty, housing, food access, violence, racism/bigotry, and transportation. It is important that hospital implementation strategies include collaborative, cross-sector initiatives that address these issues.

- **Health Education and Prevention:** Primary prevention aims to prevent disease or injury before it ever occurs by reducing risks, preventing exposures to hazards, or altering unhealthy behaviors that can lead to disease or injury. Secondary and tertiary prevention aims to reduce the

[1] O. Solar and A. Irwin, World Health Organization, "A Conceptual Framework for Action on the Social Determinants of Health," Social Determinants of Health Discussion Paper 2 (Policy and Practice), 2010, available at http://www.who.int/social_ determinants/corner/SDHDP2.pdf.

impact of chronic disease or health conditions through early detection as well as behavior change and chronic disease management geared to helping people to manage health conditions, lessen a condition's impact, or slow its progress. Targeted efforts across the continuum to raise awareness about a particular condition, educate people about risk factors and protective factors, change unhealthy behaviors, and manage illness are critical to improving health status.

- **Screening and Referral:** Early identification of those with chronic and complex conditions following by efforts to ensure that those in need of education, further assessment, counseling, and treatment are critical to preventing illness before it takes hold or managing illness so as to lessen or slow its impacts. A critical component of screening and referral efforts is taking steps to ensure that people are fully engaged in treatment, including linkages to a primary care provider.

- **Chronic Disease Management:** Learning how to manage an illness or condition, change unhealthy behaviors, and make informed decisions about your health can help you live a healthier life. Evidence-based chronic disease management or self-management education (SME) programs, implemented in community-based setting by clinical and non-clinical organizations, can help people to learn skills to manage their health conditions, improve eating and sleeping habits, reduce stress, maintain a healthy lifestyle.

- **Care Coordination and Service Integration:** Efforts to coordinate care and integrate services across the health care continuum are critical to community health improvement. These efforts involve bringing together providers and information systems to coordinate health services, patient needs, and information to help better achieve the goals of treatment and care.

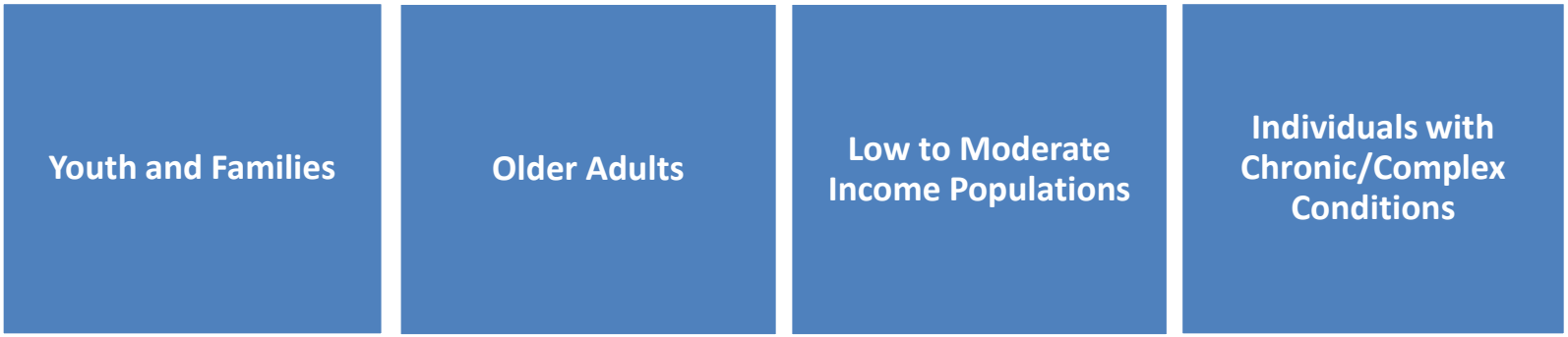
- **Patient Navigation and Access to Health Insurance:** One of the most significant challenges that people face in caring for themselves or their families across all communities is finding the services they need and navigating the health care system. Having health insurance that can help people to pay for needed services is a critical first step. The availability of Insurance enrollment support, patient navigation, and resource inventories are important aspects of community health improvement.

- **Cross-sector Collaboration and Partnership:** When it comes to complex social challenges, such as community health improvement, there is a clear consensus that success will only be achieved through collective action, partnership and collaboration across organizations and health-related sectors. No one organization or even type of organization can have a sustained impact on these types of issues on their own. Hospital implementation strategies need to be collaborative and include partnerships with service providers across multiple sectors (e.g., health, public health, education, public safety, and community health)

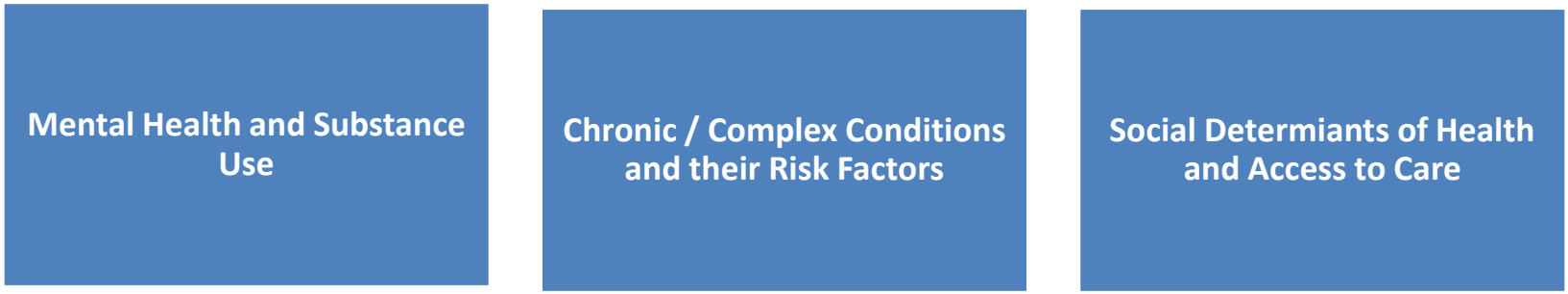
COMMUNITY HEALTH PRIORITY POPULATIONS AND NEEDS

BID-Plymouth is committed to improving the health status and well-being of all residents living throughout its service area. Certainly all geographic, demographic, and socioeconomic segments of the population face challenges of some kind that can hinder their ability to access care or maintain good health. Regardless of age, race/ethnicity, income, family history, or other characteristics, everyone is impacted in some way by health-related risks. With this in mind, BID-Plymouth's IS includes activities that will support residents throughout its service area, across all segments of the population.

However, based on the assessment's quantitative and qualitative findings there was broad agreement that BID-Plymouth's IS should prioritize certain demographic and socio-economic segments of the population that have complex needs or face especially significant barriers to care, service gaps, or adverse social determinants of health that put them at greater risk. More specifically, the assessment identified: 1) Youth and families, 2) Older adults, 3) Low to moderate-income populations, and 4) Individuals with chronic or complex conditions that deserve special attention.



BID-Plymouth's CHNA approach and process provided many opportunities to vet the quantitative and qualitative data compiled during the assessment. Based on this process, the Hospital's Community Benefit Staff, along with the CBAC, SLT, CBLT and other stakeholders identified three community health priority areas, which together embody the leading health issues facing residents living in BID-Plymouth's Community Benefit Service Area. These three strategic domains are: 1) Mental Health and Substance Use, 2) Chronic/Complex Conditions and Risk Factors, and 3) Social Determinants and Access to Care.



Community Health Needs not Prioritized by BID-Plymouth's CBAC

It is important to note that there are community health needs that were identified by BID-Plymouth's assessment that, due to the limited burden that these issues present and/or the feasibility of having an impact in the short- or long-term on these issues, were not prioritized for investment. Namely, built environment and violence were identified as community needs but these issues were deemed by the CBAC and SLT to be outside of BID-Plymouth's primary sphere of influence and have opted to allow others in its CBSA and the Commonwealth to focus on these issues. This is not to say that BID-Plymouth will not support efforts in these areas or other areas that are not prioritized. BID-Plymouth remains open and willing to work with hospitals across Beth Israel Lahey Health's network and other public and private partners to address these issues, particularly as part of a broad, strong collaborative.

The following is BID-Plymouth's Implementation Strategy and provides details on BID-Plymouth's goals, priority populations, objectives, strategic activities, and measures of performance by priority area. Also included is a listing of the state priorities that align with the activities included in the IS as well as a listing of the core partners that BID-Plymouth has been and will continue to work with to implement these activities. With respect to the core community partners listed, this is certainly not a complete list but rather many of its core partners. BID-Plymouth collaborates and partners with dozens of public and private service providers, community-based organizations, and advocacy organizations spanning all sectors and CBSA communities. BID-Plymouth is extremely appreciative of the efforts of all of its partners and looks forward to expanding this list as it implements its community benefits and CHI activities in the years to come.

Community Health Priorities

Priority Area 1: Mental Health and Substance Use

Brief Description: As it is throughout the Commonwealth and the nation, the burden of mental health and substance use on individuals, families, communities and service providers in BID-Plymouth's service area is overwhelming. Nearly every key informant interview, focus group and community meeting included discussions on these topics. From a review of the quantitative and qualitative information, depression, anxiety/stress, social isolation, opioids, alcohol, and e-cigarette/vaping were the leading issues in this domain. Despite increased community awareness and sensitivity about the underlying issues and origins of mental health and substance use issues, there is still a great deal of stigma related to these conditions. There is a general lack of appreciation for the fact that these issues are often rooted in genetics, physiology and environment, rather than an inherent, controllable character flaw. There is, however, a deep appreciation and a growing understanding for the role that trauma plays for many of those with mental health and/or substance use issues, with many people using illicit or controlled substances to self-medicate and cope with loss, stress, abuse, pain, and other unresolved traumatic events.

Resources/Financial Investment: BID-Plymouth will commit direct, community health program investments, and in-kind resources of staff time and materials. BID-Plymouth will also generate leveraged funds through grants from public and private sources on behalf of its own programs or services as well as on behalf of its community partners.

Goal	Priority Populations	Programmatic Objectives	Community Activities / Strategies
Educate About and Reduce the Stigma Associated with Mental Health and Substance Use Issues	• Youth and families • Older Adults • Low to Moderate Income Populations • Individuals with Chronic/ Complex Conditions	• Increase community education and awareness of substance use/misuse and healthy mental, emotional, and social health • Reduce the stigma associated with mental illness/ mental health and substance use/misuse, and addiction	• Support **Mental Health First Aid** trainings in targeted community-based settings to raise awareness, reduce stigma, and educate residents and service providers about mental health and substance use • Explore the possibility of providing **Community Health Mini Grants** to community-based partners to support evidence-based programs that promote mental health and substance use education and prevention • Organize **BID-Plymouth HouseCalls** Program. Free community health lectures conducted by hospital clinical and non-clinical staff to raise awareness and education related to mental health and substance use issues in targeted community-based settings to raise awareness, reduce stigma, and educate residents • Support **Community-based Health Educational Events** with community partners to raise awareness, and educate on risk/protective factors, and services available in the community

Goal	Priority Populations	Programmatic Objectives	Community Activities / Strategies
			• Support **Mental Health and Substance Use Support Groups** for those with or recovering from mental health or substance use and their family/friends/caregivers to raise awareness, reduce stigma, educate, and promote coping/recovery • Continue to support the **Healthy Plymouth Program** and explore how to incorporate mental health and substance use awareness and education events/activities
Enhance Access to Mental Health and substance use Screening, assessment, and treatment services	• Youth and families • Older Adults • Low to Moderate Income Populations • Individuals with Chronic/ Complex Conditions	• Promote cross-sector partnership, collaboration, and information sharing across the broad health system to address access to mental health and substance use services • Increase access to clinical and non-clinical support services for those with mental health and substance use issues, with an emphasis on priority populations • Increase access to Peer Support Groups for those with mental health and substance use and their family, friends, and caregivers • Increase access to screening, education, referral, and patient engagement services for those identified with or at-risk of mental health and substance use issues in clinical and non-clinical settings, with an emphasis on priority populations • Increase access to insurance, patient navigation support, and other enabling/ supportive services for those with mental health and substance use issues, with an emphasis on priority populations	• Community Benefit and other Hospital staff (e.g., social workers) **Participate in Coalition and Other Community Meetings** to promote collaboration, share knowledge, and coordinate community health improvement activities • Explore the possibility of supporting the Plymouth **Interface Mental Health Hotline,** which provides education and referral services for those seeking mental health counseling services • Support **Integrated Behavioral Health Services (mental health and substance use) in Primary Care and Other Specialty Care Settings** (Impact Model) for those with or at-risk of mental health issues, including screening, assessment, and treatment • Explore **Partnerships with Elder Service Providers to Reduce Isolation** and reach out to and serve isolated older adults not currently engaged in Council on Aging activities • Support **Peer Support Groups** for those suffering from or recovering from substance use and mental health issues, possibly including activities for their families, friends, and caregivers • Explore partnerships with Local Health Departments, substance use providers, and BID-Plymouth departments to implement **Peer Recovery Coach Programs** geared to linking those with mental health/substance use/misuse issues to peer recovery coaches who provide recovery, case management, and navigation support • Support the **Plymouth County Outreach (PCO) program,** a partnership between hospital emergency departments, public safety officials, and behavioral health providers geared to reaching out to, referring, and engaging substance users/misusers in treatment.

Goal	Priority Populations	Programmatic Objectives	Community Activities / Strategies
		• Increase access to peer recovery coaches for those with mental health/substance use/misuse issues • Reduce elder health isolation and depression	
Remove prescription drugs and other harmful drugs from the community	• Youth and families • Older Adults • Low to Moderate Income Populations • Individuals with Chronic/ Complex Conditions	• Decrease the availability of unused prescription drugs • Increase the # of opportunities that residents of the service area can give back unused prescriptions	• Organize "Drug Take Back Days" with local law enforcement and other community-based partners (e.g., schools, YMCA, Councils on Aging)

Priority Area 2: Chronic and Complex Conditions and their Risk Factors

Brief Description: While mental health and substance use were perceived to be the leading issues in BID-Plymouth's service area, one cannot lose sight of the fact that heart disease, stroke and cancer are the leading causes of death in the nation and the Commonwealth. Roughly, 6 in 10 deaths may be attributed to these three conditions combined. If you include respiratory disease (e.g., asthma, COPD) and diabetes, which are in the top 10 leading causes across all geographies, then one can account for the vast majority of causes of death. All of these conditions are typically considered to be chronic and complex and can often strike early in one's life, quite often ending in premature death. Within this priority area, according to those who participated in interviews, focus groups, the community meeting, and the Community Health Survey, cardiovascular disease, cancer, diabetes, and Alzheimer's disease and other dementias were thought to be of the highest priority. It is also important to note that the risk factors for nearly all chronic/complex conditions are much the same, including lack of physical activity, poor nutrition, obesity, tobacco use, and alcohol use.

Resources/Financial Investment: BID-Plymouth will commit direct, community health program investments, and in-kind resources of staff time and materials. BID-Plymouth will also generate leveraged funds through grants from public and private sources on behalf of its own programs or services as well as on behalf of its community partners.

Goal	Priority Populations	Programmatic Objectives	Community Activities / Strategies
Enhance Access to Health Education, Screening, Referral, and Chronic Disease Management Services in Clinical and Non-Clinical Settings	• Youth and families • Older Adults • Low to Moderate Income Populations • Individuals with Chronic/ Complex Conditions	• Increase the number of people who are educated about chronic disease risk factors and protective behaviors • Increase the number of residents with chronic and complex conditions who receive education, case management and patient navigation support • Increase the number of residents with HIV/AIDS who receive care/case management and patient navigation services	• Community Benefit and other Hospital staff (e.g., social workers) **Participate in Coalition and Other Community Meetings** to promote collaboration, share knowledge, and coordinate community health improvement activities • Organize ***BID-Plymouth HouseCalls.*** Free community health lectures conducted by Hospital clinical and non-clinical staff to raise awareness, education, and the management of chronic and complex conditions in targeted community-based settings • Provide evidence-based **Health Education on risk/protective factors, and Self-Management Support Programs** through partnerships with community-based organizations with an emphasis on Priority Population Segments • Support **Screening, Education, and Referral Programs** in clinical and non-clinical settings that screen, educate, and refer patients in need of further assessment and chronic disease management supports (e.g., Blood pressure, Stroke, cancer) • Continue the **Cancer Patient Support Program** geared to providing education, case management, and patient navigation support to those with cancer, with an emphasis on those from priority population segments • Continue the **Pediatric Palliative Care Program** geared to providing education, care/case management, patient navigation, and specialty care access support to children with complex conditions and their families/caregivers. • Continue the **HIV ACCESS Program** geared to providing care/case management and patient navigation services to those screened positive for HIV/AIDS.
Reduce the prevalence of Tobacco Use	• Youth and families • Older Adults • Low to Moderate Income Populations • Individuals with Chronic/ Complex Conditions	• Increase the number of people who are able to stop smoking cigarettes, vaping, or using e-cigarettes through educational programs • Increase access to tobacco, vaping/e-cigarette cessation programs	• Organize, facilitate, or support ***Smoking Cessation Programs*** geared to reducing tobacco, vaping and e-cigarette use

Priority Area 3: Social Determinants of Health and Access to Care

Brief Description: A dominant theme from the assessment was the tremendous impact that underlying social determinants of health, particularly access to affordable housing, transportation, poverty/employment, and food insecurity have on the entire population. The social determinants of health are often the drivers or underlying factors that create or exacerbate mental health issues, substance misuse, and chronic/complex conditions. These social determinants of health, particular poverty, underlie the access to care issues that were prioritized in the assessment: navigating the health system (including health insurance), chronic disease management, and access to culturally and linguistically competent care.

Resources / Financial Investment: BID-Plymouth will commit direct, community health program investments, and in-kind resources of staff time and materials. BID-Plymouth will also generate leveraged funds through grants from public and private sources on behalf of its own programs or services as well as on behalf of its community partners.

Goal	Priority Populations	Programmatic Objectives	Community Activities / Strategies
Enhance Access to Care and Reduce the Impact of social Determinants	• Youth and families • Older Adults • Low to Moderate Income Populations • Individuals with Chronic/ Complex Conditions s	• Increase access to primary care and medical specialty care services • Increase access to appropriate, timely urgent and emergent service • Increase partnerships and collaboration with social service and other community-based organizations • Increase educational opportunities related to the importance and impact of social determinants • Increase access to low cost healthy foods with an emphasis on priority population segments • Increase access to affordable, safe transportation options with an emphasis on priority population segments • Increase training and employment opportunities for low to moderate	• Support **primary care and medical specialty care services** at BID-Plymouth's physician practice sites, outpatient clinics, emergency department, and other hospital-based clinical departments • Support the provision of **appropriate, timely urgent and emergent services** at BID-Plymouth's emergency department, inpatient units, and other hospital-based clinical departments • Community Benefit and other Hospital staff (e.g., social workers) **Participate in Coalition and Other Community Meetings** to promote collaboration, share knowledge, and coordinate community health improvement activities • Provide **Enrollment Counseling/ Assistance and Patient Navigation Support Services** to uninsured or underinsured residents to enhance access to care • Support **Food Access and Nutrition Programming** to low and moderate income populations living in public housing, school-based after-school programs, Councils on Aging, and other community venues • Support **Healthy Plymouth Program** to support healthy eating and food access issues with an emphasis on priority population segments • Explore **Transportation Access Partnerships** with regional transportation partners and other community partners to enhance access to affordable, safe, accessible transportation options

Goal	Priority Populations	Programmatic Objectives	Community Activities / Strategies
		income residents with an emphasis on priority population segments • Increase the number of people assisted with insurance and other public program enrollment, and patient navigation • Increase access to social experiences for those who are isolated and lack family/caregiver and other social supports	• Explore **Workforce Mentorship and Training Programs** for youth and adults to job training, skills development, and career advancement with an emphasis on priority populations • Explore partnerships around housing
Reduce Elder Falls and Promote Aging in Place	• Older Adults	• Reduce fear of falling • Increase activity levels • Reduce preventable Emergency Department and inpatient visits • Increase the number of older adults living independently in their homes	• Explore opportunities with local agencies (Matter of Balance workshops) for priority populations

Appendix E:

Community Benefits Evaluation

Appendix E: Summary Community Benefits Evaluation

Evaluation Summary

Multi-component initiatives (MCIs) such as those implemented and supported by Beth Israel Deaconess Hospital-Plymouth's Community Benefits Program (Plymouth CBP) are comprehensive in nature and show promise of being effective, equitable, and sustainable.[1-8,9] Yet, the varying timelines, priorities, implementing departments and organizations, targeted populations, and available resources make evaluations challenging. Further complicating the assessment of an MCI is that population-level health behaviors and outcomes take time to achieve. While it may be hard to detect the impact of MCIs on the desired long-term outcomes, it is important to assess whether the initiative has the attributes known to support and sustain population health in due time.

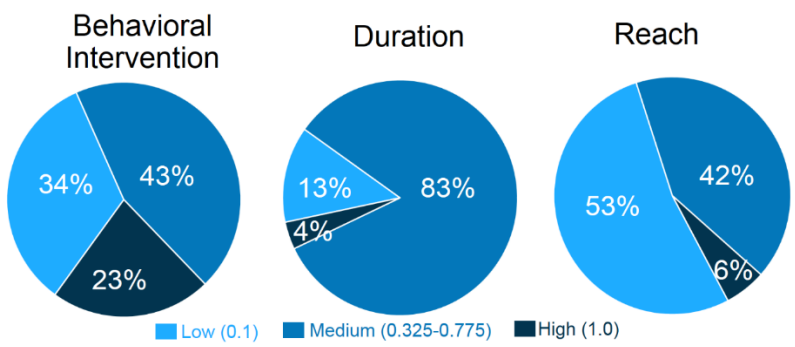
John Snow, Inc. (JSI) employed an evidence-informed approach to evaluate the Plymouth CBP. Systematically, JSI scored three attributes found to be predictors of population health—the behavioral intervention, duration, and reach for each activity summarized in the *Fiscal Year 2017 Community Benefits Report to the Attorney General (AG Report)*. Intention is important because evidence suggests that when an activity improves access, reduces barriers, or changes broader conditions, there is a greater likelihood that individual behavior change will be sustainable (compared to simply enhancing their knowledge or skills).[10-12] Reach and duration are significant because research has found that when more people are exposed to a strategy, and for longer periods of time, there is a greater likelihood that the strategy will support the desired behaviors and outcomes.[10-12]

JSI abstracted and scored all activities defined as an action undertaken in accordance to the community benefits, and reported in the AG Report. An evaluation team member rated each activity attribute as low (0.1), medium (0.55), or high (1.0), and calculated an intensity score (∑ behavioral value + duration value + reach value). Scores could range from 0.3 (lowest intensity and least likely to impact long-term outcomes) to 3.0 (highest intensity and most likely to impact long-term outcomes). All activity scores where then summed to create a total composite score.

Findings

Among Plymouth's activities (n=53), 23% had a high intention score, 4% were scored high in duration, and 6% had a high reach score (Figure 1).

Figure 1. Activity Intensity Scores by Attribute



There were three priority areas within which these 53 activities were implemented: 1) Health Risk Factors; 2) Physical Health and Chronic Disease Management and Prevention; and 3) Behavioral Health. Although there were a few more "Physical Health and Chronic Disease Management and Prevention" activities implemented (20 vs. 16 and 17), the average score per activity was the lowest (1.13 vs. 1.39 and 1.69). This indicates that the activities implemented either aimed to increase awareness/enhance skills, were shorter in duration, and/or reached a smaller percentage of the total population. The Behavioral Health activities had the highest average intensity score (Table 1).

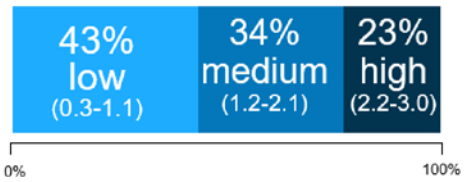
Table 1. Summary of Activities by Priority Area

Goal/Priority Area	Number of Activities	Average Score	Total Score
Health Risk Factors	16	1.39	22.25
Physical Health and Chronic Disease Management and Prevention	20	1.13	22.55
Behavioral Health	17	1.69	28.73

The composite intensity score of the 53 activities was 73.73; the lowest possible score for all activities was a 15.9 (if all activities scored a 0.3) and the highest possible intensity score was an 159.0 (if all activities scored a 3.0). Each individual activity score ranged from 0.3 to 2.78; with a 1.4 average intensity score (Figure 2). About one-quarter (23%) of the activities had a high score (2.2 – 3.0), 34% had a medium score (1.2 – 2.1), and 43% had a low score (0.3 – 1.1) (Figure 3).

Figure 2. Individual Activity Intensity Score

Figure 3. Percentage of Activities with a Low, Medium, High Intensity Score



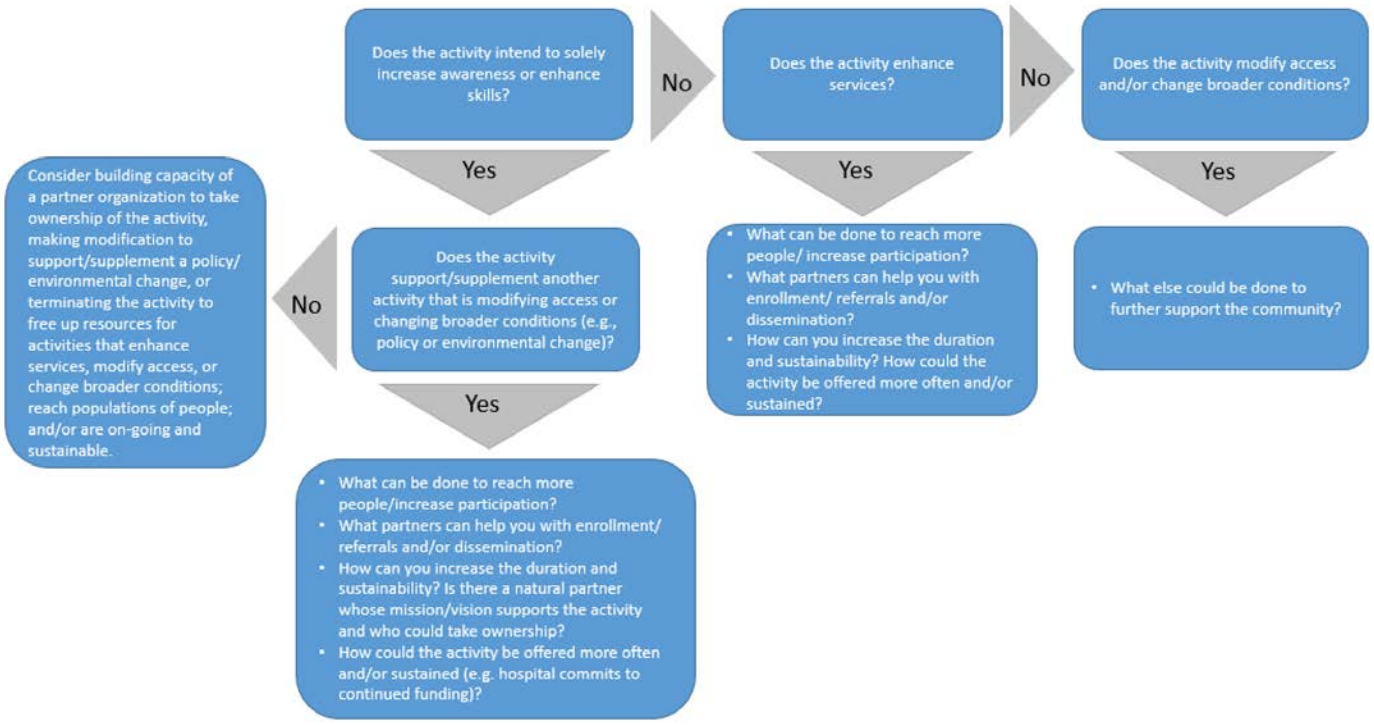
Recommendations

Per the requirements of the AG, Beth Israel Deaconess Hospital-Plymouth contracted with JSI to evaluate the FY17 CBP. The purpose of the evaluation was to understand the likely impact of each of the reported activities on long-term behaviors and outcomes related to the four priority areas, and to identify opportunities to ensure the CBP supports population health most effectively. Using intention, reach, and duration to score the various activities provides a systematic way of assessing the dynamic and evolving activities implemented as part of the Plymouth CBP. It also provides a platform for documenting progress toward the long-term goal of improved health, and differentiating between activities that may have more or less influence on long-term outcomes.

Intensity scores should inform how resources are used most effectively in the future, provide direction for strengthening efforts individually or collectively, and serve as a baseline for measuring change overtime. During FY2017, Plymouth CBP activities included a number of activities that, based on the

higher intensity scores, will lead to the desired long-term behavior changes and improved health outcomes. Lower scoring activities: 1) intended to increase awareness and/or educate/enhance the knowledge or skills of individuals, 2) were offered once or a few times (versus ongoing); and 3) reached a small percentage of the population. In general, it is recommended that each priority have multiple activities that work simultaneously to increase awareness and improve skills; enhance services; modify access; and change broader conditions for populations of people. CBP staff and partners should use Figure 4 to assess each activities' contribution to the overall priority area and for modifications to be made to increase the intensity within which all activities are implemented.

Figure 4. Flow chart for increasing the intensity of the community benefits program



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