Lahey Hospital & Medical Center

COMMUNITY HEALTH NEEDS ASSESSMENT AND COMMUNITY BENEFIT PLANNING PROJECT

Final Report

DECEMBER 31, 2013

Prepared on behalf of:
Lahey Hospital & Medical Center
Board of Trustees by

John Snow, Inc.

ACKNOWLEDGEMENTS

This Community Health Needs Assessment (CHNA) and Community Benefit Planning Project was conducted on behalf of the Lahey Hospital Medical Center's (LHMC) Board of Trustees. The project was overseen by Jeffrey Doran, Chief Operating Officer, Hospital; Mary Iodice, Director of Community and Volunteer Services and Gerald MacKillop, Associate Director of Community Relations, who worked closely with LHMC's Management Team, other senior staff throughout Lahey Health, and LHMC's Community Benefit Committee. LHMC views the CHNA process as an integral part of its commitment to the communities it serves and captured important feedback from community representatives throughout the process.

The project began in May 2013 and culminated in a fully-developed Community Benefit Plan. During the process, the community benefits project team interviewed thirty-two individuals including LHMC administrative and clinical staff, town officials, health and social service providers, and other community stakeholders. The project team also conducted a series of focus groups with community-based providers and public health officials as well as a series of community forums that allowed LHMC to capture information directly from community residents.

The information gathered during these efforts allowed LHMC to engage the community and gain a better understanding of the health status, healthcare priorities, service gaps, and barriers to care of those living throughout LHMC's community benefits service area. These efforts also greatly informed the strategic planning process as they allowed the project team to develop a menu of possible community responses to the issues identified in the CHNA and to explore community partnerships.

LHMC's Board of Trustees would like to thank everyone who was involved in the assessment and planning process, particularly the health and social service providers, the local officials, and the community residents who participated in interviews, focus groups, and the community forums. While it was not possible for the CHNA project team to involve all community residents and stakeholders, hundreds of people were involved. It was truly inspiring to see how committed this group was to strengthening and improving the health of their communities.

LHMC is part of Lahey Health, which is a forward-thinking healthcare institution committed to clinical excellence and designing a system of care that is focused on the needs of its patients and the communities it serves. Lahey Health was created with clear goals: to offer the highest quality healthcare, to provide the best patient experience and outcomes, and to offer great value to the communities we are privileged to serve.

The CHNA process was designed to assist LHMC staff and its Lahey Health partners to better understand the needs of those living in the communities directly adjacent to its hospitals in Burlington and Peabody. The community health improvement plan (CHIP) that was developed in response to the CHNA is an integral of part of LHMC's strategy to foster collaboration, coordinate services, and improve the health status of those living in these communities. LHMC's Board of Trustees is extremely appreciative of the efforts of everyone who was involved in the assessment and planning process.

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I. PURPOSE AND BACKGROUND

Lahey Hospital and Medical Center (LHMC) is part of Lahey Health, which brings together not only award-winning hospitals and nationally-recognized physicians, but also a comprehensive network of community-based providers that offer the broad range of health and social services that the community needs to become and stay healthy. LHMC's integrated outpatient and community-based provider network offers primary care, medical specialty, behavioral health, at-home, skilled nursing, and rehabilitation services, as well as operates and assisted living facility, a community-based adult day health program, and numerous other community health programs.

LHMC recognizes its role as part of a larger system of care and knows that to be successful it needs to collaborate with its community partners and those it serves. This Community Health Needs Assessment (CHNA) and the associated Community Health Improvement Plan (CHIP) was completed in close collaboration with LHMC's staff and its health, social service, and public health partners, as well as the community at-large. This assessment, including the process that was applied to develop the CHIP, exemplifies the spirit of collaboration that is such a vital part of LHMC's and Lahey Health's vision.

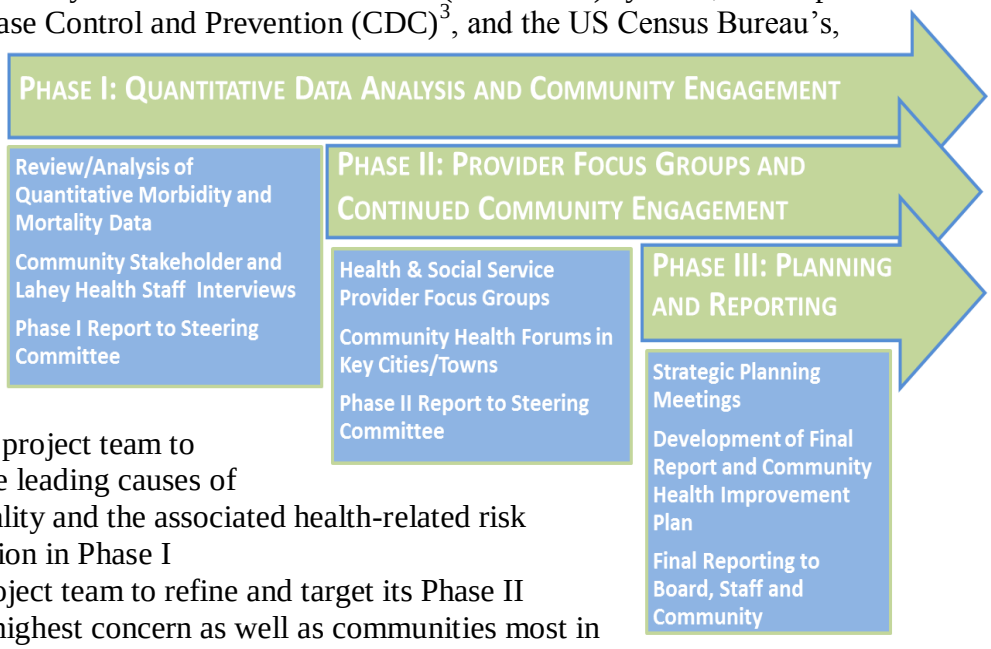
This report along with the associated Community Health Improvement Plan (CHIP) is the culmination of seven months of work. This project was born largely out of LHMC's commitment to better understand and address the health-related needs of those living in its Community Benefits Service Area, which is made up of thirteen (13) cities and towns surrounding its hospitals in Burlington and Peabody. The project also fulfills long-standing requirements of the Massachusetts Attorney General's Office and a new Federal Internal Revenue Service (IRS) requirements, which mandate that all nonprofit hospitals conduct a community health needs assessment (CHNA) and strategic planning process at least every three years.[1] More specifically, the Commonwealth and IRS regulations require that LHMC assess community health need, engage the community, identify priority health issues, and create a community health strategy that describes how the Lahey Hospital and Medical Center, in collaboration with the community and the local health department, will address the needs and the priorities identified by the assessment.

This report summarizes the findings from LHMC's CHNA and provides the core elements of LHMC's CHIP, including the major goals, objectives, community health strategies, key action steps, and evaluation metrics that will guide the plan. LHMC's Community Relations Department, with the full support of LHMC's Board of Trustees, looks forward to working with health and social service providers, local public officials, other community stakeholders, and the community at-large to address the issues that arose from the CHNA and to implement the CHIP.

[1] Massachusetts Community Benefit Guidelines: http://www.mass.gov/ago/docs/healthcare/hospital-guidelines.pdf and IRS Federal Guidelines as summarized by George Washington University with funds from the Robert Wood Johnson Foundation http://www.healthreformgps.org/resources/update-treasuryirs-proposed-rule-on-community-benefit-obligations-of-nonprofit-hospitals/

II. PROJECT APPROACH AND METHODS

The CHNA was conducted in three distinct phases. In Phase I, the LHMC community benefits project team conducted a preliminary needs assessment that relied heavily on quantitative, secondary health-related data drawn from the Massachusetts Department of Public Health's, Massachusetts Community Health Information Profile (MassCHIP) system[2], data reports from the Centers for Disease Control and Prevention (CDC)[3], and the US Census Bureau's, American Community Survey (ACS)[4] as well as other Federal, Commonwealth and local data sources.



These data allowed the community benefits project team to better understand the leading causes of morbidity and mortality and the associated health-related risk factors. Data collection in Phase I
Also allowed the project team to refine and target its Phase II efforts on issues of highest concern as well as communities most in need. Data was compiled from these sources at the city-, and town-level whenever possible, which was an essential aspect of the assessment's approach. This targeted approach allowed the project team to highlight areas at greatest risk, understand the unique differences that exist across neighborhoods/towns/cities, and identify common themes that could be part of a broad, collaborative, effective strategy.

In Phase I, the project team also conducted a series of interviews with LHMC staff and a representative set of the leading community health stakeholders. These interviews allowed the project team to engage the community and capture qualitative data related to community health needs, community priorities, determinants of health, service gaps, barriers to care, and the population groups most at-risk. These interviews were also critical to the development of LHMC's community health improvement plan (CHIP) as they provided important information related to LHMC's strategic response and explored possible partnerships. The culmination of Phase I was a series of meetings with LHMC's senior staff and LHMC's community benefit committee, as well as other key stakeholders, which allowed the community benefits project team to vet its initial findings, capture important feedback, and ensure buy-in regarding emerging themes and the range of possible strategic responses.

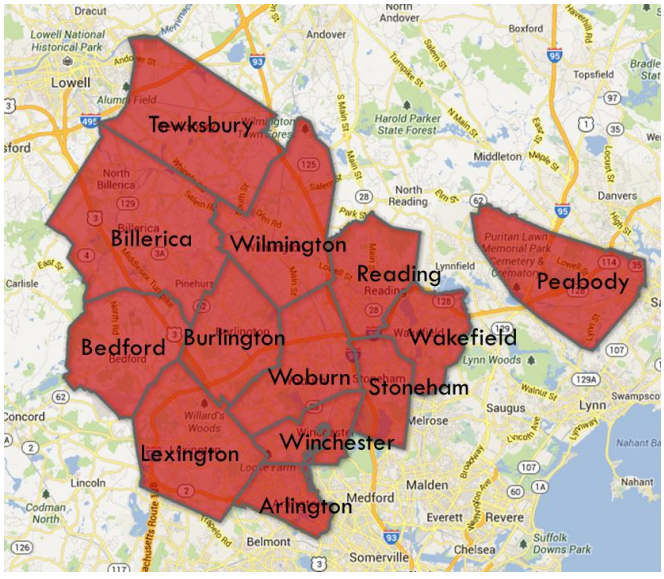
In Phase II, the primary focus was on collecting primary data directly from health and social service providers (including public health officials) and residents through a series of focus

[2] http://www.mass.gov/eohhs/researcher/community-health/masschip/
[3] Department of Health and Human Services Centers for Disease Control and Prevention
[4] The US Census Bureau American Community Survey

groups and community forums. The focus groups captured information from service providers and community health experts, specifically in the areas of chronic disease, elder health, mental health, substance abuse, and general wellness. Based on a review of Phase I findings and confirmed by preliminary results from Phase II, chronic disease, behavioral health (mental health and substance abuse), and elder health were identified as key priority areas. The focus groups were geared to capturing qualitative information that would augment the quantitative data findings as well as on identifying the strategies and programs that would improve health status, promote care coordination, service integration, and more effective chronic disease management across these health priority areas. The culmination of Phase II was a series of summary data tables and a summary presentation of key findings, which facilitated a comprehensive, integrated analysis and guided the strategic planning activities in Phase III.

In Phase III, Gerald MacKillop, Associate Director of Lahey Health System's Community Relations Department, worked with the CHNA Steering Committee, selected community stakeholders, and LHMC's senior leadership to: 1) review all of the data compiled, 2) clarify the LHMC's community health priorities, and 3) identify the strategic ideas that would ultimately be included in LHMC's community health strategy. In Phase III, the project team also developed this report, LHMC's CHIP as well as a series of neighborhood snapshots that rudimentarily summarized the CHNA's key findings for a selection of the cities/towns with the highest need in LHMC's community benefit service area. These snapshots when they have been completed and fully vetted will be shared with cities'/town's leadership and ultimately distributed to the community at-large. The CHNA's key findings, community health priorities, and the CHIP were approved by the LHMC's Board of Trustees on November 11, 2013.

III. LAHEY HOSPITAL & MEDICAL CENTER'S COMMUNITY BENEFITS SERVICE AREA



LHMC community benefits efforts are broad and expansive and have an impact to some extent on all of the communities it serves, however LHMC's community benefit efforts focus primarily on improving the health status and overall well-being of those most in need in the 13 cities and towns that are in close proximity to LHMC's two hospital locations in Burlington and Peabody. While there is a great deal of affluence across these communities, there are large and significant proportions of low income, racial/ethnic minority, and underserved older adults that face disparities in health status and often struggle to access needed health and social services.

LHMC's support of these cities and towns is largely funneled through the local public health departments, the Commonwealth's Community Health Neighborhood Associations, and a broad

network of health and social service providers that serve these communities. LHMC's support is also facilitated through LHMC's own extensive network of affiliated primary care practices, hospital outpatient clinics, and community health programs that are deeply rooted in LHMC's community benefit service area and well connected to the vulnerable populations that were identified by the CHNA and targeted by LHMC's CHIP.

IV. SUMMARY OF COMMUNITY CHARACTERISTICS, DETERMINANTS OF HEALTH, AND FACTORS RELATED TO HEALTH EQUITY

An understanding of community need and health status in LHMC's Community Benefits Service Area begins with knowledge of the population's characteristics as well as the underlying social, economic, and environmental factors that impact health. This information is critical to: 1) recognizing disease burden, health disparities and health inequities; 2) identifying target populations and health-related priorities; and 3) targeting strategic responses. This assessment captured a wide range of quantitative and qualitative data related to age, gender, race/ethnicity, income, poverty, family composition, education, violence, crime, unemployment, access to food, and other determinants of health. These data provided valuable information that characterized the population as well as provided insights into the leading determinants of health and health inequities.

The following is a summary of key findings related to community characteristics and the social, economic, and environmental determinants of health for LHMC's community benefits service area. Summary data tables are included below and more expansive data tables are included in the LHMC CHNA data book that is available upon request[5].

- **Age:** Age is one of the most fundamental factors in determining scope of need. Cities tend to have more families with young children and young adult professionals than more suburban or rural areas and the greater Boston area is no exception. Most of the communities in LHMC's service area are suburban in nature and as a result the median age is slightly older than the Commonwealth's median age. The median age for LHMC's service area would be even older was it not for a handful of very affluent towns with highly respected school districts. These towns tend to have a much larger proportions of school-aged children and young, along with the typical older adult populations, which drives down the specific town and regional average. LHMC's community benefit's service area also has a number of towns that defy the typical trend and have high proportions of established, relatively intransient populations of older adults.

  With respect to age, older adults (65+ years old) across all socio-economic strata are inherently more at-risk. This was a significant theme from the interviews and was also strongly conveyed by the quantitative data findings. Interviewees discussed the challenges that older adults face with respect to accessing services and coordinating care, particularly for

[5] To obtain the LHMC CHNA Databook, please contact Gerald MacKillop, Associate Director of Community Relations at LHMC at gerald.b.mackillop@lahey.org.

frail elders. Older adults are also disproportionately affected by chronic disease and have rates of hospitalizations, which is the root of a great deal of the disease burden in the region.

Interviewees also brought attention to the relatively small but high need population of low income families that reside in the region that struggle with the impacts of poverty, are often not fully engaged in routine primary care, and have higher rates of illness.

- **Race/Ethnicity, Foreign Born Status, and Language:** Another key factor in determining scope of need and health disparity is race/ethnicity. The vast majority of the population in LHMC's community benefit service area is white, non-Hispanic, insured, with very good access to services, and limited disparities in health outcomes. However, it is important to realize that there are significant pockets of racial/ethnic minority, foreign born, and non-English speaking residents LHMC's community benefit service area.

  Research shows that these racial/ethnic minority, often foreign born, segments are more likely to face barriers to access and disparities in health outcomes than their white, non-Hispanic counterparts, regardless of income. It is important to clarify these disparities as this knowledge helps to ensure that programs, strategic interventions, and services are targeted and refined based on these factors.

  The proportions of the ethnic/minority populations in the LHMC's community benefit service area range from 28.6% of the total population in Lexington to 8.3% of the total population in Tewksbury. The towns that have the highest proportions of racial/ethnic minorities are Burlington, Lexington, and Peabody, and Woburn.

  It is important to note that there is a multitude of individual, community and societal factors that work together to create the health disparities that many racial/ethnic minority population's face. Just because you are part of a racial/ethnic minority group does not mean that you face barriers to access and/or disparities in health outcomes. The underlying issue is not necessarily race/ethnicity or foreign born status on its own but rather a more complex web of issues related to poverty, economic opportunity, and education as well as racism, health literacy, cultural capacity, and language.

  On a city/town basis, the dominant ethnic/minority, foreign born, or language group varies, which is strategically significant as many of the key health indicators vary considerably by race/ethnicity and ancestry.

- **Income/Poverty, Employment, and Education:** Socio-economic status has long been recognized as a critical determinant of health. Higher socio-economic status as measured by income, employment status, occupation, education, and the extent to which one lives in areas of economic disadvantage are closely linked to health status, overall well-being, and premature death. Research shows that communities with lower socio-economic status bear a higher disease burden and have lower life expectancy.[6] Residents of these communities are also less likely to be insured, less likely to have a usual source of primary care, more likely to use the emergency room for emergent and non-emergent care, and less likely to access health services of all kinds, particularly routine and preventive services. Moreover, research shows that children born to low income families are, as they move into adulthood, less likely to be

[6] http://www.cdc.gov/minorityhealth/reports/CHDIR11/FactSheets/EducationIncome.pdf

formally educated, less likely to have job security, more likely to have poor health status, and less likely to rise and move up to higher socio-economic levels.[7] Socio-economic status is strongly associated with race/ethnicity with those in racial/ethnic minority groups, particularly African American/black and Hispanic/Latino groups, being much more likely to have low socio-economic status.

LHMC's community benefit service area, is relatively affluent compared to the Commonwealth as a whole. As a result, the health status of the residents of the region in aggregate terms is very good. Many of the communities in LHMC's community benefit service area face no disparities in outcomes, meaning that their rates of morbidity, mortality, and hospitalization are lower compared to their county (Middlesex and Essex counties) and Commonwealth benchmarks, across the board. However, there are cities/towns that face disparities across numerous health issues from cancer, to chronic disease to infectious disease. The towns that face the greatest disparities, have poorer health status, and bear a greater disease burden are those that have higher proportions of low income residents.

In Middlesex County and Essex County overall, 5.1% and 8.1% of the entire County's population is living in poverty, which is lower than or comparable to the Commonwealth average of 7.6%. Among the cities and towns in LHMC's community benefit service area the cities and towns with the largest proportions of individuals in poverty are Peabody (6.2%), Woburn (5.7%), Billerica 4.7%, and Stoneham (4.6%).

- **Crime/Violence:** Rates of crime (burglary, larceny, motor vehicle theft) and violence (murder, homicide, rape, robbery, and assault) are substantially lower across all of the cities/towns in LHMC's community benefit service area. However, domestic violence and its impacts, particularly on women and children was a major theme in the key informant interviews and an issue that LHMC has made significant investments over the years. There is very limited data on the impact and effects of domestic violence, particularly involving adults. However, according to the limited data involving children, a number of towns in LHMC's community benefit service area face disparities in reported and/or substantiated cases of maltreatment of children. These impacts for adults and children include injury, emotional trauma, mental health issues, isolation, and lack of trust.

V. KEY HEALTH-RELATED FINDINGS

At the core of the CHNA process is an understanding of access to care issues, the leading causes of illness and death, and the extent that population segments and communities participate in certain risky behaviors. This information is critical to assessing health status, clarifying health-related disparities, and identifying community health priorities. The assessment captured a wide range of quantitative data from federal, Commonwealth, and local data sources, including from the US Census Bureau, the Massachusetts Department of Public Health, Centers for Disease Control and Prevention, and other federal, Commonwealth, and local data sources. The assessment also compiled valuable qualitative information through interviews, focus groups, and community forums.

[7] http://www.healthypeople.gov/2010/hp2020/advisory/societaldeterminantshealth.htm

These data sources captured valuable information related to access to primary care (e.g., usual source of primary care, routine check-up, and cost as a barrier to primary care), health risk factors (e.g., tobacco use, physical exercise, poor nutrition, and alcohol abuse), chronic disease (e.g., heart disease, diabetes, asthma, and stroke), mental health and substance abuse, maternal and child health (e.g., adolescent birth rate, low birth weight, and infant deaths), and infectious disease, (e.g., pneumonia, Hepatitis B and sexually transmitted disease). Again, qualitative information gathered from interviews and focus groups greatly informed this section by providing community perceptions on the confounding and contributing factors of illness, health priorities, and strategic responses to the issues identified.

The following are key findings related to health insurance coverage and access to primary care, health risk factors, chronic disease, mental health and substance abuse, maternal and child health, and infectious disease. Summary data tables and graphs are included below and more expansive data tables are included in the LHMC CHNA data book that is available upon request.[8]

- **Health Insurance Coverage and Access to Primary Care Medical Services:** The extent to which a person has health insurance that covers or offsets for the cost of medical services as well as access to a full continuum of high quality, timely, accessible health care services has shown to be critical to overall health and well-being. Access to a usual source of primary care is particularly important as it greatly impacts one's ability to receive regular preventive, routine, and urgent care, as well as chronic disease management services.[9] Nationally, low income, racial ethnic minority populations are less likely to have a usual source of primary care, less likely to have a routine check-up, and less likely to be screened for illnesses, such as breast cancer, prostate cancer, or colon cancer. Data also suggests that low income, racial/ethnic minority populations are more likely to use hospital emergency department and inpatient services for care that could be avoided or prevented altogether with better more accessible primary care services.

  The Greater Boston area has one of the strongest and most comprehensive healthcare systems in the world. This system is expansive and spans the full healthcare continuum from outreach and screening services, to primary care medical, medical specialty care, hospital emergency and trauma services, and hospital inpatient care as well as outpatient surgical and long-term care services. Access to dental and behavioral health services are more problematic but still, relative to other geographies, the Greater Boston area including LHMC community benefit service area is well served.

  Massachusetts has the lowest uninsured rates in the nation. In 2012, approximately 3% of the Commonwealth's population lacked health insurance, with the largest single group of uninsured being undocumented immigrants, followed by those struggling with administrative and policy barriers related to retaining coverage.

  This does not mean, however, that everyone in LHMC's community benefit service area receives the highest quality services when they want it and where they want it. In fact,

[8] To obtain the LHMC CHNA data book, please contact Gerald MacKillop, Associate Director of Community Relations at Lahey Health System at gerald.b.mackillop@lahey.org.

[9] http://iom.edu/~/media/Files/Report%20Files/2003/Coverage-Matters-Insurance-and-Health-Care/Uninsurance8pagerFinal.pdf

despite the overall success of the Commonwealth's heath reform efforts, information captured for this assessment shows that while the vast majority of the area's residents have access to care significant segments of the population, particularly low income and racial/ethnic minority populations, face significant barriers to care and struggle to access services due to lack of insurance, cost, transportation, cultural/linguistic barriers, and shortages of providers willing to serve Medicaid insured or low income in addition to uninsured patients.

According to county-level data from the Behavioral Risk Factor Survey System[10] (BRFSS), nearly 10% of the population in Middlesex and Essex County do not have a usual source of primary care, approximately 20% had not had a routine check-up with a primary care provider in the past year, and approximately 10% of residents had not seen a doctor over the past year due to the cost of care. These rates are lower than Commonwealth averages but still show that significant numbers of residents face barriers to care.

While the number of people that face barriers to care is minimal compared to the number of residents in Massachusetts' urban areas, the challenges for those who do face barriers are in cases more extreme given that there is such a limited safety net. Urban areas tend to have larger more robust networks of clinics and provider practices that accept Medicaid and uninsured patients. For those living in more suburban areas the safety net systems are very limited or non-existent. Where they do exist, access can be extremely difficult due to transportation barriers.

BRFSS Data on Access, Prevention, and Risk Behaviors	State	Essex County	Middlesex County
Percent of population <65 yrs old with health insurance	96.9%	97.3%	97.5%
Percent with personal provider	91.0%	91.8%	90.0%
Percent that did not see a doctor in the past year due to cost	9.5%	10.4%	7.0%
Percent with routine checkup with a doctor in the past year	78.8%	80.7%	77.6%

- **Health Risk Factors:** There is a growing appreciation for the effects that certain health risk factors, such as obesity, lack of physical exercise, poor nutrition, and tobacco use have on health status and the burden of chronic disease. Data on these risk factors is not available at the city/town level however a review of data from the Massachusetts Behavioral Risk Factor Survey System (BRFSS) captured at the County levels shows that large numbers and proportions of the residents in LHMC's community benefit service area engage in risky behaviors that have an impact on their overall health and well-being.

  Over the past two decades, obesity rates in the United States have doubled for adults and tripled for children. These trends have spanned all segments of the population, regardless of age, sex, race, ethnicity, education, income, or geographic region. There are certainly segments that have struggled more than others but no segment has been unaffected. According to data from the Massachusetts Behavioral Risk Factor Survey System (BRFSS), nearly 60% of adults in Middlesex County and 56% of adults in Essex County are either obese or overweight. Rates for specific demographic, socio-economic and geographic population segments living in LHMC's community benefits service area are likely dramatically higher, based on Commonwealth data by race/ethnicity and age.

[10] Centers for Disease Control and Prevention Behavioral Risk Factor Survey System (BRFSS)

Lack of physical fitness and poor nutrition are the leading factors associated with obesity and the leading risk factors associated with chronic diseases, such as heart disease, hypertension, diabetes, cancer, and depression. Good nutrition helps prevent disease, and is essential for healthy growth and development of children and adolescents. Overall fitness and the extent to which people are physically active reduce the risk for many chronic diseases, are linked to good emotional health, and help to prevent disease. Once again, according to Massachusetts BRFSS data, only one in five adults in Middlesex and Essex Counties ate the recommended five servings of fruits and vegetables per day, and one in four adults reported getting no physical activity in the past 30 days.

Tobacco use is the single most preventable cause of death and disease in the United States. Each year, approximately 443,000 Americans die from tobacco-related illnesses. For every person who dies from tobacco use, 20 more people suffer with at least one serious tobacco-related illness, such as chronic airway obstruction, heart disease, stroke, or cancer.[11] The rates of smoking for Middlesex and Essex Counties are slightly lower than the Commonwealth average but nonetheless, approximately 15% of residents in these counties are current smokers. Given that tobacco use is still the leading cause of illness and disease in the United States, it is important that work be done to lower these rates even further.

- **Chronic Disease:** Cardiovascular disease (heart disease), cancer, and cerebrovascular disease (stroke) are the three leading causes of death in the United States, Massachusetts, and all of the cities/towns in LHMC's community benefit service area. In addition, diabetes is ranked in the top ten causes across all three of these geographic areas, and asthma and other respiratory diseases have a huge impact on large portions of adults and children. Mental health issues, discussed in more detail below, are chronic conditions for many and are often coupled with other medical conditions. All of these conditions, individually and collectively, have a major impact on people living throughout LHMC's community benefit service area. All of the chronic conditions share the health risk factors cited above (tobacco use, lack of physical exercise, poor nutrition and obesity/overweightness) as leading factors. It should be noted, once again, that there are major health disparities across all of these conditions among racial/ethnic minority and low-income population segments, as well as among older adults.

  Rates of illness and death vary by condition and overall residents in LHMC's community benefit service area are less likely to have a chronic disease than residents in the Commonwealth on average. However, the majority of cities/towns in the region face disparities across at least a few chronic conditions and a number of cities/towns face a dramatic range of disparities across many conditions compared to the Commonwealth and other cities/towns in their region.

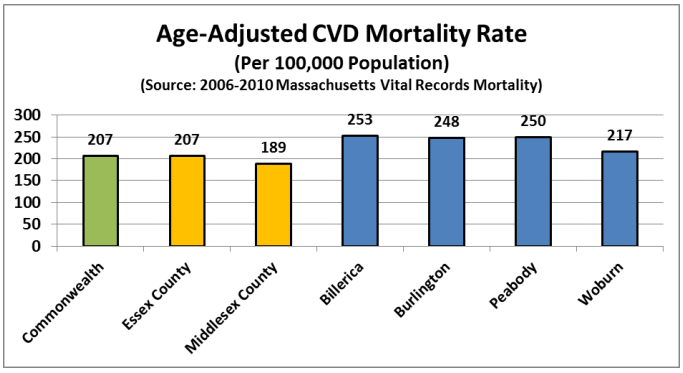
  Data for this section is gathered through the Massachusetts Hospital Inpatient Discharges (UHDDS) database that is available through the Massachusetts Department of Public Health's MassCHIP system. This dataset provides information on hospitalization and mortality rates for the leading chronic diseases or conditions for the targeted communities.

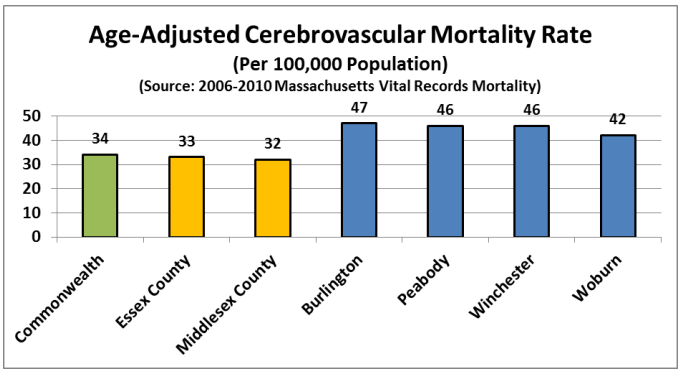
  - Cardiovascular Disease (CVD). Residents of Billerica, Burlington, and Peabody all have higher age-adjusted rates (per 100,000 population) of CVD mortality than residents in

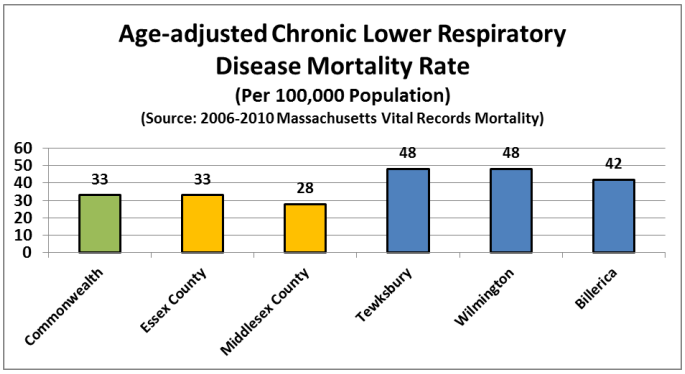
[11] http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=41#five

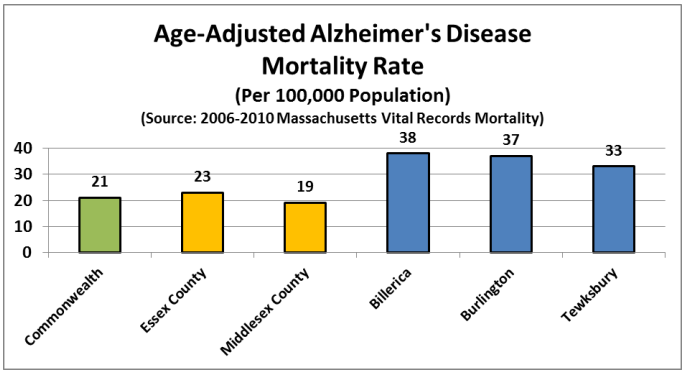
Middlesex County (189) and Essex County (207) as well as residents throughout out the Commonwealth (207). (Billerica - 253, Burlington - 248, and Peabody - 250)

- Cerebrovascular Disease (Stroke). Residents of Peabody and Winchester have higher age-adjusted rates (per 100,000 population) of Stroke mortality than residents in Middlesex County (32) and Essex County (33) as well as residents throughout out the Commonwealth (34). (Peabody - 46, Winchester - 46)
- Chronic Lower Respiratory Disease. Residents of Tewksbury and Wilmington have higher age-adjusted rates (per 100,000 population) of chronic lower respiratory disease mortality than residents in Middlesex (28) and Essex (33) Counties as well as residents throughout out the Commonwealth (33). (Tewksbury - 48, Wilmington - 48)
- Alzheimer's Disease. Residents of Billerica, Burlington, and Tewksbury all have higher age-adjusted rates (per 100,000 population) of Alzheimer's disease mortality than residents in Middlesex County (19) and Essex County (23) as well as residents throughout out the Commonwealth (21). (Billerica - 38, Burlington - 37, and Tewksbury - 33)
- Diabetes, hypertension, and high cholesterol. Diabetes, hypertension and high cholesterol







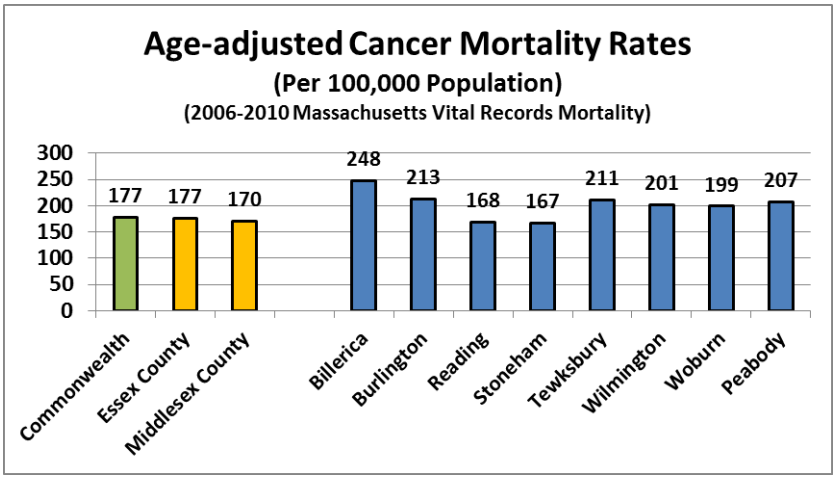


are widely recognized as the leading risk factors for cardiovascular disease and stroke, which are in turn the leading causes of mortality throughout the United States. Local data is not available to assess the prevalence of these conditions for targeted communities, but if one looks at county, Commonwealth, and national data, the proportions of the population that are impacted by these issues are extreme. In the Commonwealth, 8% of the population has been told by their doctor at some point in their life that they have diabetes, 29% has ever been told they have hypertension, and 34% has ever been told they have high cholesterol. The Middlesex and Essex County rates are slightly lower by a few

percentage points across the board, except with respect to the rate of hypertension in Essex County, which is a slightly higher. Nationally, there is clear data that show that racial/ethnic minority, low income, and older adult populations are the primary drivers of these conditions and face significant disparities. Also of concern is that despite the fact that there are medications that can control and ameliorate the impact of these conditions, large proportions of those with these conditions do not receive the necessary medication.

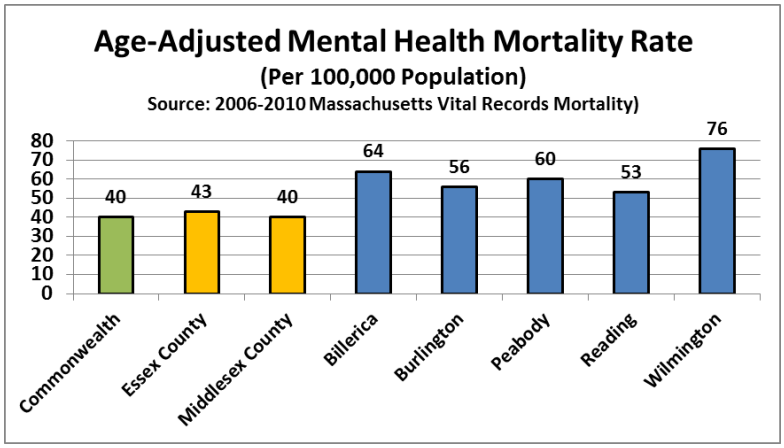
In addition to the County and national data illustrating the impact that these conditions have on the region, nearly all of the interviewees and the focus group and community forum participants cited these issues as among the leading health issues in LHMC's community benefit service area.

- **Cancer:** Cancer is the second leading cause of death in the U.S, the Commonwealth and across all of LHMC's community benefit service area. While experts have an idea of the risk factors and what causes cancer, more research is needed as there are still many unknowns. The majority of cancers occur in people who do not have any known risk factors. The major known risk factors for contracting cancer are age, family history of cancer, smoking, overweight/obesity, excessive alcohol consumption, excessive exposure to the sun, unsafe sex, exposure to fumes, second hand cigarette smoke, and other airborne environmental and occupational pollutants. As with other conditions, there are major disparities in outcomes and death rates across all forms of cancer, which are directly associated with race, ethnicity, income, and whether one has comprehensive medical health insurance coverage.



Cancer is a major issue in many of the cities/towns within LHMC's community benefit service area. The Essex County age-adjusted incidence rate and hospitalization rate for cancer (all types) is statistically higher than the Commonwealth's incidence rates. In addition, the incidence, hospitalization, and mortality rates for Cancer (all types) are higher in Billerica, Burlington, Peabody, and Tewksbury than the rates in both the Commonwealth and the County. Woburn has higher mortality and hospitalization rates than the Commonwealth and the County but not a higher incidence rate. Wilmington has higher incidence and hospitalization rates but not a higher mortality rate. Finally, Stoneham has a higher incidence rate but not higher hospitalization or mortality rates. Lung cancer in both men and women, prostate cancer in men, and breast cancer in women are the main drivers of these high rates.

- **Mental Health and Substance Abuse:** Mental illness and substance abuse have a profound impact on the health of people living throughout the United States. Data from the Centers for Disease Control and Prevention suggests that approximately one in four (25%) adults in the United States has a mental health disorder[12] and an estimated 22 million Americans struggle with drug or alcohol problems.[13] Depression, anxiety, and alcohol abuse are directly associated with chronic disease, and a high proportion of those living with these issues also have a chronic medical condition.



  Mental health and substance abuse hospitalization, emergency department visit, and death rates are higher for a number of cities and towns in LHMC's community benefit service area. Age-adjusted mortality rates (per 100,000 population) due to mental health disorders were higher in Billerica, Burlington, Peabody, Reading, and Wilmington than the same rates for the Commonwealth overall and Essex County. Inpatient hospitalization rates (per 100,000 population) and emergency department visit rates for mental health disorders and substance abuse issues were higher in Peabody than the Commonwealth and County rates. Mental health and substance abuse issues were also major themes among the assessment's key informant interviewees as well as among the assessment's focus group and community forum participants.

- **Maternal and Child Health:** Maternal and child issues are of critical importance to the overall health and well-being of a community and at the core of what it means to have a healthy, vibrant community. Infant mortality, childhood immunization, rates of teen pregnancy, rates of low birth weight, and rates of early, appropriate prenatal care for pregnant women are among the most critical indicators of maternal and child health.

  A review of the maternal and child health indicators for the cities/towns in LHMC's community based service area show that the region fares better than the Commonwealth across all indicators and all cities/towns. Qualitative data findings corroborated these findings as no one said that these issues were among the leading health issues in the region.

- **Infectious Disease**: Increases in life expectancy during the 20th and 21st centuries are largely due to reductions in infectious disease mortality, as a result of immunization. However, infectious diseases remain a major cause of illness, disability, and even death. Sexually transmitted diseases and pneumonia, particularly in older adults, are among the infectious diseases that have the greatest impact on the population. The assessment captured data on a number of sexually transmitted diseases, including chlamydia, gonorrhea, syphilis, and HIV/AIDS as well as Hepatitis B and C, and pneumonia/influenza.

[12] http://www.nimh.nih.gov/health/publications/the-numbers-count-mental-disorders-in-america/index.shtml

[13] http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=40

Sexually transmitted diseases are not a major community health issue for the cities/towns in LHMC's community based service area. The incidence rates for these conditions in the cities/towns in LHMC's community benefit service area are all lower than the Commonwealth and overall County rates. The most significant concern with respect to infectious disease is pneumonia/influenza. The hospitalization rate (per 100,000 population) for residents of Billerica, Peabody, Wilmington, and Woburn are all higher than the Commonwealth and the County rates.

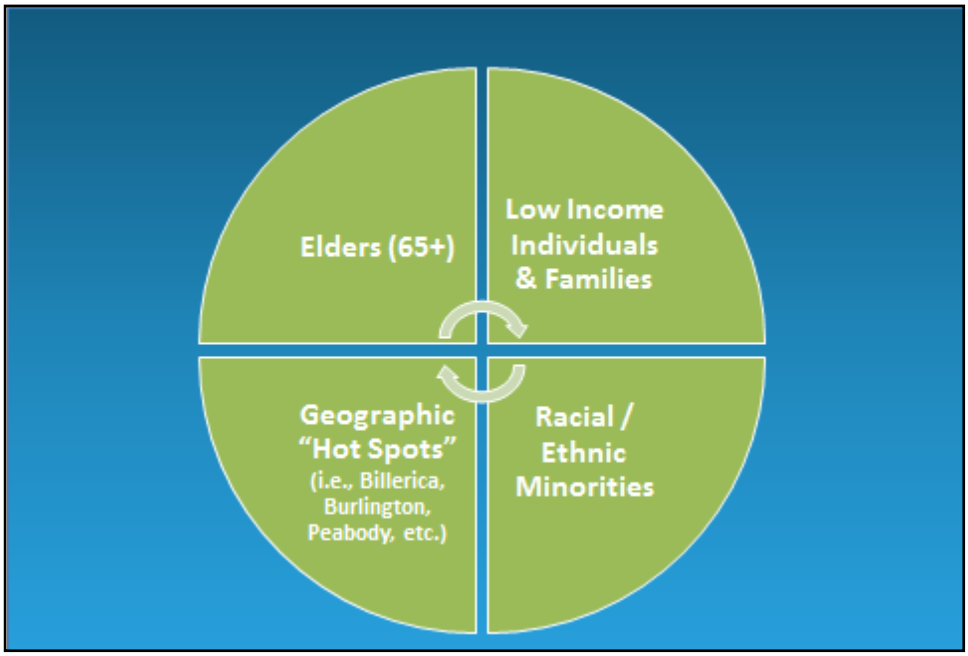
VI. COMMUNITY HEALTH PRIORITIES AND TARGET POPULATIONS

Target Populations and Neighborhoods

LHMC is committed to improving the health status and well-being of those living throughout its community benefits services area. LHMC's Community Health Improvement Plan (CHIP), provided in the next section, includes many activities that will impact all residents. However, the assessment's findings clearly showed that low income and racial/ethnic minority populations living in its community benefits service area are most at-risk and that there are major health disparities for these populations compared to their non-Hispanic, white counterparts and for those who are not living in poverty.

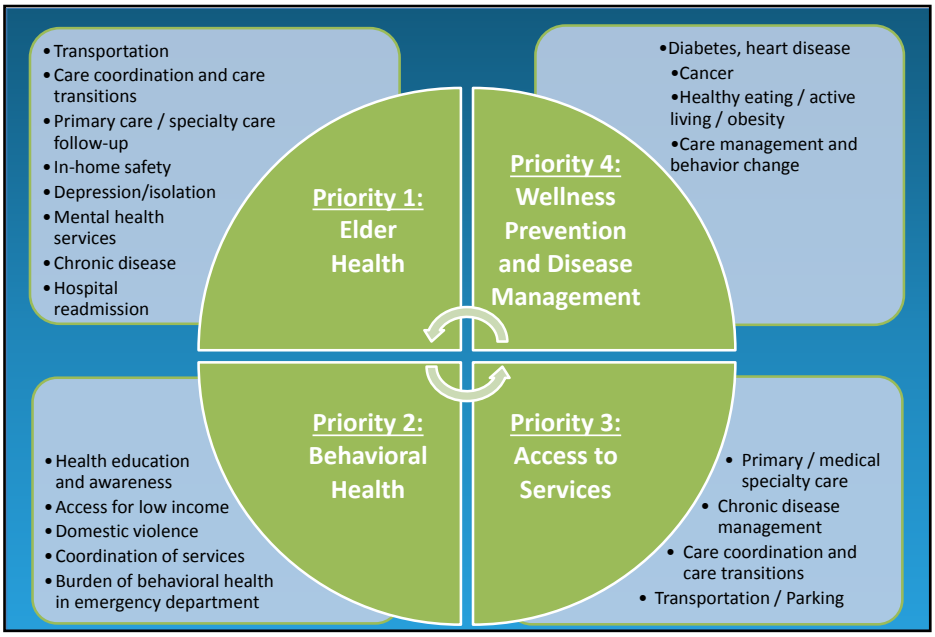
More specifically as discussed above at length, racial/ethnic minorities have poorer health outcomes and are more likely to struggle with health risk factors than their non-Hispanic, white counterparts. The data also suggests a strong link between poor health outcomes and income with those cities/town with higher proportions of the population living in poverty being much more likely to face disparities in health outcomes and access to care measures.

Finally, information gathered from interviewees as well as focus group and community forum participants identified elders (65+) as another target population. This was corroborated by the quantitative data, particularly in light of the high hospital readmission rates and prevalence of chronic disease in elders drawn from the body of evidence nationally.[14]



Community Health Priorities

The Community Health Needs Assessment's (CHNA) approach and process provided ample opportunity to vet the quantitative and qualitative data compiled during the assessment. In addition, interview, focus group, and community forum participants were asked what they perceived to be the leading community health priorities. Ultimately, there was little debate that the most significant health-related issue facing the communities surrounding LHMC were chronic disease the broader social and economic determinants (e.g., poverty, uninsured and under-insurance, unemployment, food insecurity, violence, health literacy/disease literacy), which prevent many residents, particularly low income, racial/ethnic minority, and older adult residents, from maintaining a healthy lifestyle and/or accessing the regular preventive and acute health services they need. In addition to this underlying priority, issues related obesity, lack of physical exercise, poor nutrition, chronic disease, behavioral health, lack of access to care, and lack of health education, health/disease literacy, and other associated factors were identified as priorities. Finally, issues related to older adult health were also seen as a priority.



VII. SUMMARY OF THE COMMUNITY HEALTH IMPROVEMENT PLAN

LHMC'S Community Health Improvement Plan (CHIP) was developed through an extensive and collaborative process based upon the principles listed below, followed by a summary of the plan for implementation.

Guiding Principles of the Planning and Implementation Process

- Develop a **shared agenda** within and across LHMC, Lahey Health, as well as community-based service providers, local health departments, and other community partners
- **Build-on existing** LHMC, health department and community-based **initiatives**
- Develop **targeted, community-based, linked, collaborative, well-integrated efforts** among community partners

[14]Federal Agency on Aging

- Develop **shared evaluative metrics**
- Develop **systems** and an **infrastructure** to guide & monitor activities

Enhancement of Lahey Hospital and Medical Center Community Benefit Infrastructure
Promote Awareness of Community Benefit Impact and Opportunities Internally within Lahey Hospital & Medical Center
Develop and promote community health education, prevention, and community engagement mechanisms (e.g., speaker's bureau, health fairs, participation on community task forces, etc.)
Enhance connections and linkages to communities and community partners
Refine community benefit grant and community health investment process

Priority Area 1: Elder Health
Enhance access to health and wellness services through improved transportation
Promote general health and wellness
Improve chronic care management
Reduce inappropriate hospital readmissions & enhance care transitions, drug management, and follow-up
Reduce falls in elders
Decrease depression and social isolation

Priority Area 2: Behavioral Health (Mental Health, Substance Abuse, and Domestic Violence)
Promote education and awareness of behavioral health, wellness, and engagement in primary care
Improve coordination of existing mental health and substance abuse services across community partners
Increase access and integration of mental health and substance abuse (MH/SA) services in primary care
Promote emergency department diversion/SBIRT programs
Increase awareness and screening for domestic violence (DV) throughout the system

Priority Area 3: Access to Care
Increase access for uninsured residents in order to promote access to health care services
Improve coordination between Lahey Hospital and Medical Center's primary care / medical specialty care and other community health and social service providers
Increase capacity of primary care and medical specialty care in Lahey's outpatient clinics & practices

Increase access and integration of mental health/substance abuse (MH/SA) services in primary care
Develop and expand idealized primary care and care management

Priority Area 4: Wellness, Disease Prevention, and Disease Management
Primary Prevention
Promote general wellness, behavioral change, and engagement in primary care
Increase healthy living, physical activity, and healthy eating
Secondary Prevention
Increase screening for chronic diseases (including cardiovascular disease, diabetes, and cancer)
Promote Stamford Model Chronic Disease Self-Management program
Tertiary Prevention
Develop and expand idealized primary care and care management
Promote mental health and primary care integration

Core Community Benefit / Community Health Strategies

The following strategies were identified by the community benefit project team in partnership with the LHMC Management Team to respond to the health status issues and community needs identified by the assessment. These strategies will impact all of the residents and communities that LHMC services but will be geared specifically to address the needs of the low income, racial/ethnic, minority and older adult target populations that were identified during the CHNA.

VIII. ON-GOING PLANNING, COMMUNITY ENGAGEMENT, AND IMPLEMENTATION

LHMC is committed to being active in its community and knows that to be successful it needs to engage and collaborate with the local health departments and community partners as well community residents and patients. Their Community Health Needs Assessment (CHNA) and the associated Community Health Improvement Plan (CHIP) was completed in close collaboration with LHMC's staff, a broad range of community partners, and the community at-large.

This assessment was meant to assess need, identify priorities, and ensure that LHMC's community health/community benefits program is carefully aligned with and responsive to the needs of those throughout its service area, particularly the communities and population segments most at-risk. All the activities discussed in LHMC's CHIP are aligned with key finding identified during the assessment. There is also clear synergy between the goals and objectives of the CHNA, the core strategies that are part of the CHIP, and LHMC's/Lahey Health's forward thinking vision to create an integrated system of care that works to keep people healthy and well.

The efforts that are part of LHMC's CHIP will be implemented and coordinated by Gerald MacKillop, Associate Director of Lahey Health's Community Relations Department, who will work closely with LHMC's Community Benefit Committee and LHMC's Senior Leadership to ensure that LHMC's CHIP is successfully implemented so as to have the maximum possible impact on its target populations. Mr. MacKillop meets regularly with LHMC's Senior Leadership and works in close collaboration with public health officials, local health and social service providers, and other key community health stakeholders to ensure successful implementation of the CHIP. LHMC's Community Benefits Committee will also continue to meet on a regular basis to assess the progress of the CHIP and explore how the CHIP can be augmented or redirected as LHMC's initiatives evolve.

LHMC's Board of Trustees along with its clinical and administrative staff is committed to improving the health and well-being of residents throughout its community benefit service area. LHMC's Community Relations Department, under the direct oversight of LHMC's Board of Trustees, is dedicated to collaborating with community partners and residents and will continue to work in collaboration with the area's key community health stakeholders and residents to meet its community benefits obligations.