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HealthAlliance-Clinton Hospital

Community Health Needs Assessment 2018

JSI

Acknowledgements

UMass Memorial HealthAlliance-Clinton Hospital's 2018 Community Health Needs Assessment (CHNA) and Community Health Improvement Plan (CHIP) were developed under the direction of the hospital's Director of Community Health and Volunteer Services, Rosa Fernandez-Peñaloza, along with Senior Leadership The CHNA and CHIP were developed through a collaborative process involving both administrative and clinical staff at the Hospital, as well as a diverse CHNA Advisory Committee made up of health and social service providers, public health officials, advocates, and community leaders. The Advisory Committee met periodically throughout the assessment and planning process to review the assessment and planning approach, oversee progress, and provide feedback on preliminary and final results. The Advisory Committee's support and input was essential to the success of the CHNA and CHIP development process.

Since the beginning of the assessment in September 2017, more than 100 individuals participated in interviews, focus groups, community forums, and CHNA review sessions. These participants included representatives from health and social service organizations, public health departments, community groups, and the public at-large. The information gathered in these efforts allowed the Hospital to engage the community and gain a better understanding of community capacity, strengths, and barriers to care, and helped characterize community health status, service gaps, underlying determinants of health, and overall community need.

UMass Memorial HealthAlliance-Clinton Hospital would like to thank everyone who was involved in this effort, but particularly the region's service providers, health departments, advocacy groups, and community members who invested their time to ensure the development of a comprehensive, thoughtful, and quality CHNA and CHIP. While it was not possible for this assessment to involve all of the community's stakeholders, care was taken to ensure that a representative sample of the population was engaged. Those involved showed a commitment to strengthening the regions health system, particularly for those who are most at-risk.

Special thanks and consideration should go to Rosa Fernandez-Peñaloza, who worked tirelessly to shepherd the CHNA and CHIP process from beginning to end. The Hospital was supported in this work by John Snow, Inc. (JSI), a public health management consulting and research organization dedicated to improving the health of individuals and communities in the United States and around the world. The Hospital appreciates the contributions that JSI has made in analyzing data, interviewing stakeholders, and conducting research throughout CHNA and CHIP development process.

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I. About UMass Memorial HealthAlliance-Clinton Hospital

UMass Memorial HealthAlliance-Clinton Hospital is a not-for-profit, full service, acute care hospital that serves the communities in North Central Massachusetts and Southern New Hampshire, though its primary service area is the cities and towns of Ashburnham, Ashby, Clinton, Fitchburg, Gardner, Leominster, Lunenburg, Townsend, and Westminster. As a member of UMass Memorial Health Care, HealthAlliance-Clinton Hospital offers direct access to a broad range of advanced medical technology and specialty services that are part of the region's academic medical center. The HealthAlliance-Clinton system includes a 163-bed community hospital with services on three campuses in Clinton, Fitchburg (Burbank) and Leominster, as well as the Simonds-Sinon Regional Cancer Center, the Simonds-Hurd Complementary Care Center, outpatient physical therapy centers, and a home health and hospice agency. In total, HealthAlliance-Clinton Hospital has more than 1,600 employees and 400 physicians, providing more than 40 health care specialties.

UMass Memorial HealthAlliance-Clinton Hospital provides services to residents across the demographic and socio-economic spectrum, but with respect to its community benefits efforts, focuses its activities on improving the health status of the low income, underserved, and otherwise vulnerable populations. The hospital recognizes its role as a tertiary resource in a larger health system and knows that to be successful it must collaborate with its community partners and those they serve. This Community Health Needs Assessment (CHNA) and the associated Community Health Implementation Plan (CHIP) was completed in collaboration with the hospital's staff, health and social service partners, and 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 the hospital's mission.

HealthAlliance-Clinton Hospital currently supports dozens of educational, outreach, and community health-strengthening initiatives targeting those living in its service area. In the course of these efforts the hospital collaborates with many of the service area's leading healthcare, public health, and social service organizations.

UMass Memorial HealthAlliance-Clinton Hospital Mission and Vision

Mission: UMass Memorial Health Care is committed to improving the health of the people of our diverse communities of Central New England through culturally sensitive excellence in clinical care, service, teaching and research.

Vision: As one of the nation's most distinguished academic health care systems, UMass Memorial Health Care will provide leadership and innovation in seamless health care delivery, education and research, all of which are designed to provide exceptional value to our patients.

II. Assessment Background, Purpose, and Approach

BACKGROUND AND PURPOSE

Not-for-profit hospitals, like HealthAlliance-Clinton Hospital, play essential roles in our health care system and, as a result, are afforded a range of benefits, including State and Federal tax-exempt status. With this status comes certain fiduciary and public obligations. The primary obligation of tax-exempt hospitals is that they provide charity care to all qualifying individuals. As a not-for-profit hospital, HealthAlliance-Clinton Hospital is required by the Federal Internal Revenue Service (IRS), and encouraged by the Massachusetts Attorney General ‘s Office through voluntary Hospital Community Benefit Guidelines, to make good on their commitment to address the health and social needs of the residents in the communities they serve. More specifically, the Hospital is expected to offer a range of preventive and acute care services and should work in cooperation with other community health stakeholders to implement programs that aim to improve the health and overall well-being of the residents in their service area. Finally, per the Commonwealth and Federal guidance, HealthAlliance-Clinton Hospital is expected to work in close collaboration with service providers, public health departments, and other community-based organizations as well as the public at-large.

As part of this Federal and Commonwealth guidance, HealthAlliance-Clinton Hospital is expected to develop a comprehensive community health improvement plan (CHIP) every three years, which in turn must be updated and reported on annually. The primary purpose of the CHIP is to serve as a roadmap for the development of a comprehensive, accessible, equitable health care system capable of providing the highest quality services to those who live and work in their service area. Furthermore, the CHIP must be informed by a comprehensive community health needs assessment (CHNA) that clarifies the unmet health needs of those living in the hospital’s primary service area. The CHNA includes analysis of available public health data, community perspectives, and health system capacity. The CHNA should identify the leading barriers to care, social determinants, and health-related conditions or diseases, as well as service or capacity gaps, across all health-related service categories.

HealthAlliance-Clinton Hospital’s charge in this process is to identify specific strategic actions that they can take to address unmet community health needs, but also to facilitate cooperation between public and private sector organizations. The CHIP and the associated CHNA should be used as a source of information and guidance to:

- Prioritize and promote certain community need- or service-related issues for investment
- Clarify issues related to community characteristics, community need, barriers to care, existing service gaps, unmet need, and other health-related factors
- Guide a comprehensive, collaborative community health improvement plan.

HealthAlliance-Clinton Hospital recognizes the merit and importance of these activities and has made efforts to that extend beyond Commonwealth expectations or federal regulatory requirements. A robust, comprehensive, and objective assessment of community health need and service capacity, conducted collaboratively with key stakeholders, not only allows the hospital to fulfill its public expectations and requirements, but also allows them to explore ways to leverage and align community benefits activities and resources with the organization's broader business and strategic objectives.

This report, along with the associated CHIP, is the culmination of nearly a year of work. It summarizes the findings from HealthAlliance-Clinton Hospital's assessment activities and provides key CHNA findings. HealthAlliance-Clinton Hospital's Community Benefits Department, with the full support of the Hospital's Board of Directors and Senior Leadership, looks forward to working with local health departments, CHNA 9, clinical and non-clinical community partners, and with community residents throughout its service area to address the issues that arose from the CHNA and to implement the CHIP.

Included below are further details regarding HealthAlliance-Clinton Hospital's approach to the CHNA, as well as the characteristics of their community benefits service area (CBSA). Also included below are detailed descriptions of how the CHNA was conducted and the CHIP was developed.

ASSESSMENT APPROACH

Over the past decade, there has been an increased understanding among policy-makers, public officials, and providers of the importance of developing broad system wide plans that guide how public and provider agencies and service providers should work collectively to strengthen regional health systems. To be effective these plans, along with their associated assessments and recommendations, must be:

- **Comprehensive,** involving the full range of health and health, social service, and public health providers;
- **Data-driven**, applying quantitative and qualitative data from primary and secondary sources in ways that allow for sound decision making;
- **Collaborative**, engaging all relevant stakeholders - including policy-makers, public agencies, service providers, and the community at-large – in a transparent, inclusive process;

- **Action-oriented, Measurable, and Justifiable** - providing a clear path or roadmap that guides action in clear, specific, measurable ways and allows for the implementation of short-term and long-term strategies; and
- **Evidence-based,** implementing projects and strategies that are proven, rooted in clinical or service provider experience, and take into consideration the interests and needs of the target population.

The CHNA and the CHIP described in this report were developed with these principles in mind and identify a series of community health priorities that will be used by HealthAlliance-Clinton Hospital and community health stakeholders across the region to guide community health improvements over the next 3 years. Each priority area has a series of associated goals. HealthAlliance-Clinton Hospital and stakeholders throughout the region can use the CHNA and the CHIP to identify the interventions that are likely to show true "public health value" and/or promote investments in particular types of services or initiatives geared to specific communities or segments of the population.

Broader Context of the CHIP

The purpose of the CHIP is to serve as a roadmap for the development of a comprehensive, accessible, equitable health care system capable of providing the highest quality services in a cost-effective manner to those who live and work in their service area. With this in mind, the CHNA and the CHIP provide vital information that will be used by HealthAlliance-Clinton Hospital and other stakeholders to help drive the region's community health improvement plan and identify community health strategies that will address community need and show public health value.

Despite HealthAlliance-Clinton Hospital's focus on clinical services, and the overall health system's traditional emphasis on disease burden and physical health, it is important to note that the overall approach of this assessment is broader and more inclusive. For example, the Massachusetts Attorney General's Office, through the Community Benefits Guidelines, have established a set of priorities that should be used to focus the community benefit work of hospitals. These priorities include:

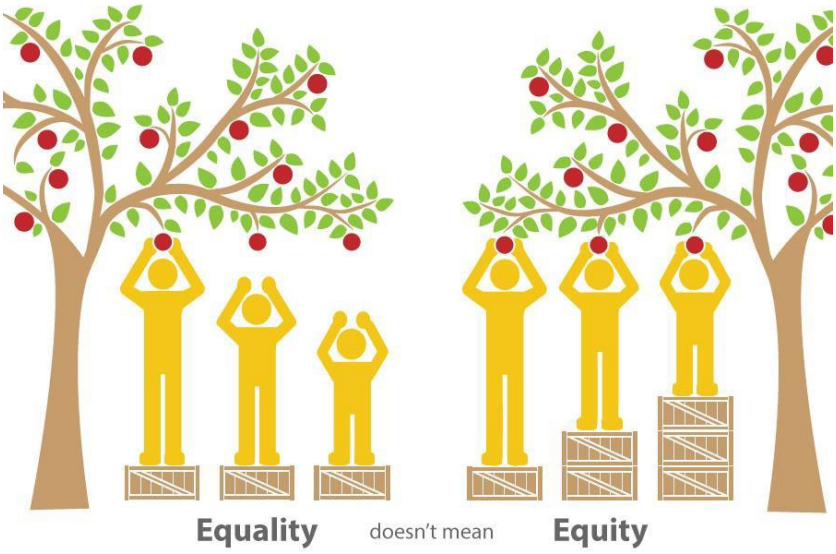
- Support of the Commonwealth's Health Care Reform Agenda
- Chronic Disease Management in Disadvantaged Populations
- Reducing Health Disparities,
- Promoting Wellness of Vulnerable Populations

There is a growing appreciation that health system improvements related to access and the quality of health care services have a relatively limited impact on overall health status, at least on their own; research shows that only a small portion of one's overall health can be attributed

directly to access to and quality of clinical care. The remainder is linked to genetics, health behaviors, social and economic factors, and physical environments. In order to have real and sustained impact on overall well-being and the health disparities that exist in HealthAlliance-Clinton Hospital's service area, the Hospital and its partners must address the underlying social determinants, inequities, and injustices that are at the root of the health status issues that exist.

In providing guidance related to the development of the CHIP, the Hospital was clear that the assessment needed to consider a more extensive array of quantitative and qualitative data related to the underlying social determinants of health. Furthermore, HealthAlliance-Clinton Hospital was clear that these issues needed to be considered when identifying community health priorities and developing the strategic action steps that would be at the heart of the CHIP.

Figure 1: HEALTH EQUITY



For the CHNA and the CHIP to be aligned with region's broader agenda, with respect to promoting health and well-being and addressing health disparities, the CHNA should be conducted and the CHIP developed in the context health equity. Health equity is the attainment of the highest level of health for all people. Achieving health equity requires valuing everyone equally with focused and ongoing societal efforts to address avoidable inequalities, underlying socioeconomic factors, and historical and contemporary injustices. Ultimately, the goal of health equity is the elimination of health and health care disparities.

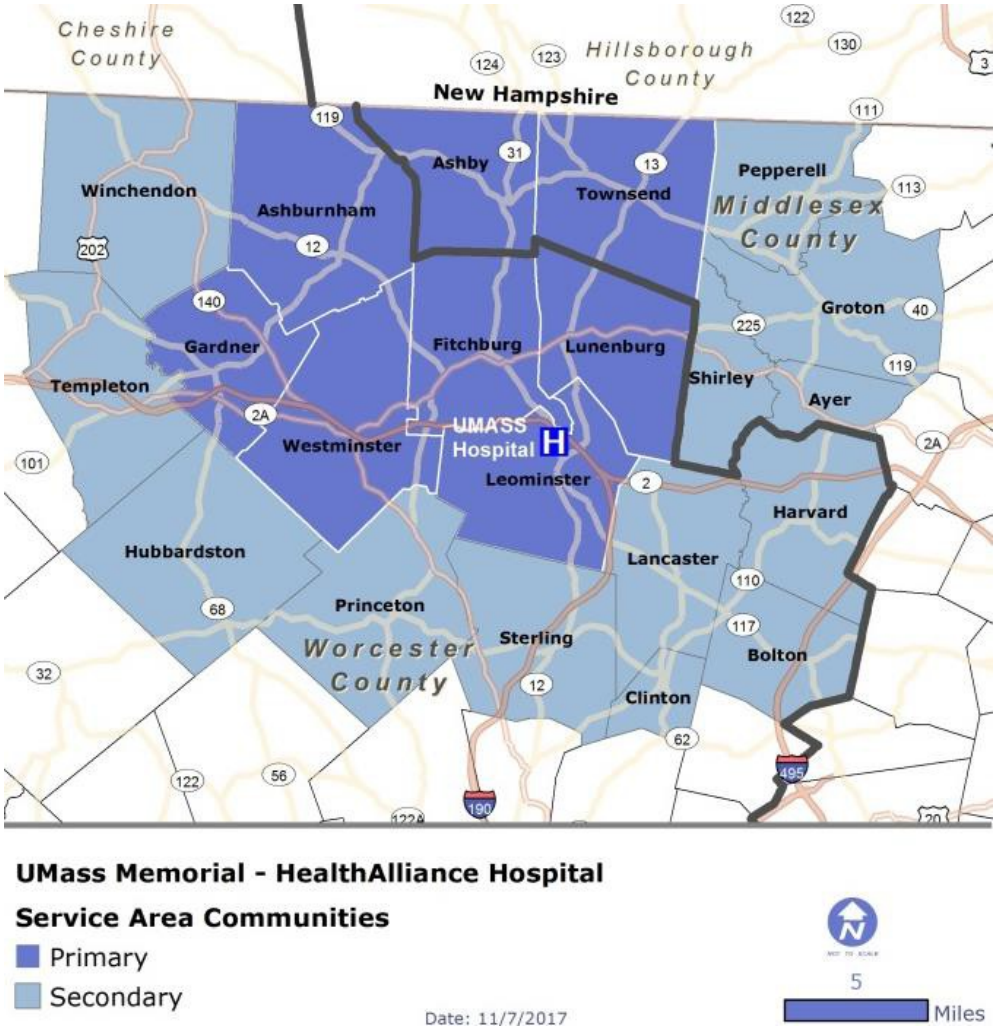
Description of the Service Area

HealthAlliance-Clinton Hospital's primary service area includes the quasi-urban municipalities of Clinton, Fitchburg, and Leominster, and the more rural towns of Ashburnham, Ashby, Gardner, Lunenburg, Townsend, Sterling, and Westminster. The Hospital's secondary service area includes an additional twelve towns, as seen in Figure 2. While great efforts are made to improve health status, provide diagnostic screening, and address access barriers for all residents within these communities, special attention is given to address the needs of vulnerable segments of the population. Census data and qualitative information from interviews and focus groups showed that many of the cities/towns in the Hospital's service area have significant proportions

of low income, racially and ethnically diverse, foreign born, and/or geographically isolated residents. The challenges that these cohorts face with respect to social determinants of health and access to care are often intense and are at the root of the challenges and poorer health outcomes faced in these communities.

Historically, HealthAlliance-Clinton Hospital's support of these cities and towns has been largely funneled through the local health departments or other municipal departments, Community Health Network Area (CHNA) 9, and community-based organizations. A Community Resource Inventory, including a list of public and private community organizations that the Hospital has partnered with, is included in Appendix A.

Figure 2: HOSPITAL SERVICE AREA

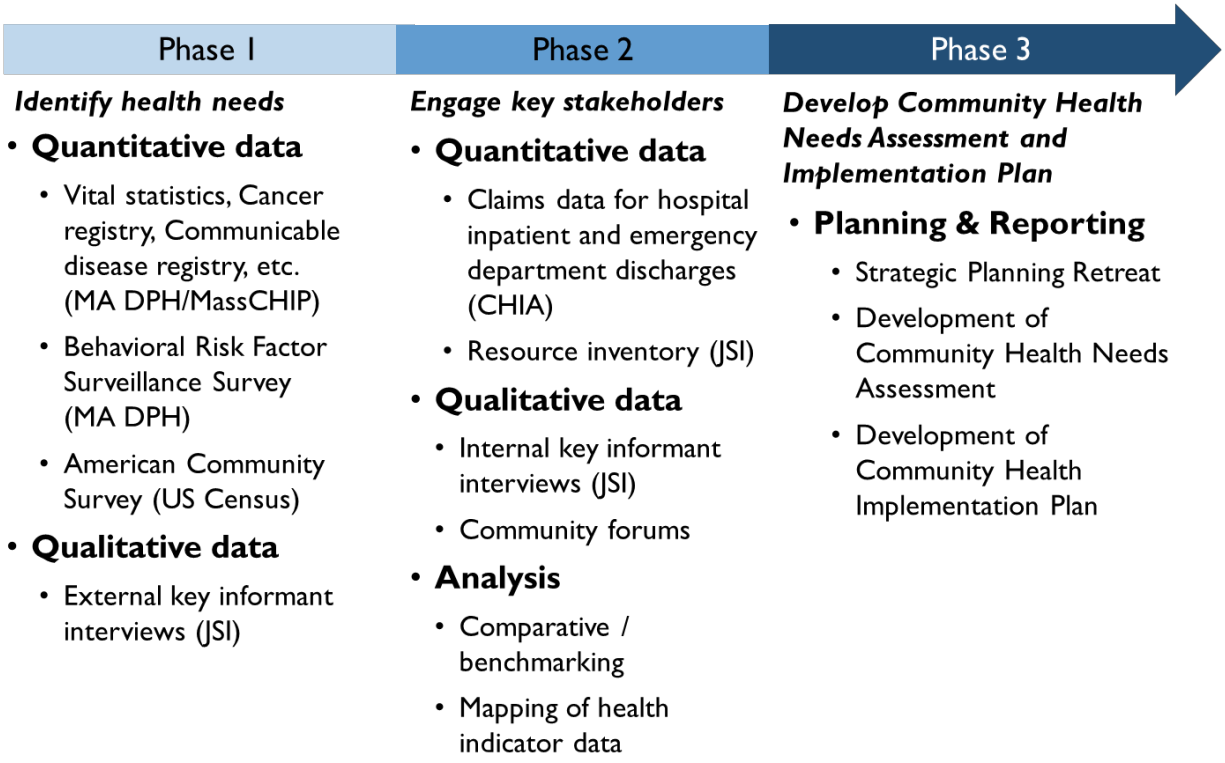


Methods

The first step in the assessment process was the creation of an internal Steering Committee made up of senior staff. A broadly represented Advisory Committee was also created, made up of internal hospital staff and clinicians. The Steering Committee, led by HealthAlliance-Clinton Hospital's Community Benefits Department, was responsible for day-to-day project management and tracking the progress of the assessment and planning efforts. This Committee met with JSI every two weeks to oversee project activities and provide input to ensure that the assessment met Hospital, Commonwealth, and Federal expectations. The Advisory Committee met several times over the course of the assessment. It met at the outset of the project to ensure that the overall approach and methods were appropriate, and to provide insights on data sources, key community contacts, and community engagement activities. The Advisory Committee also provided insight on the broad scope of health-related issues that JSI and the Steering Committee should include in the assessment. The Advisory Committee met at the mid-point of the project to provide input on how the project was progressing and to review preliminary quantitative and qualitative findings with respect to priority populations and the leading social determinants, barriers to care, service gaps, and health-issues. Finally, the Advisory Committee met to provide insight on the full range of quantitative and qualitative data, to identify a series of community health priorities, and to review and provide feedback on the Hospital's CHIP.

With respect to the assessment, the CHNA was conducted through a three-phased process. Phase I involved a rigorous and comprehensive review of existing quantitative data along with a series of interviews with community stakeholders. Phase II involved a more targeted assessment of need and broader community engagement activities that included focus groups with health, social service, and public health service providers. Phase III involved a series of strategic planning and reporting activities that involved a broad range of internal and external stakeholders. This phase also included a range of community forums, whereby HealthAlliance-Clinton Hospital communicated the results of the CHNA to the community at large and solicited input on major health issues, target populations, and community assets and resources. Included below is a detailed explanation of activities included in this methodology.

Figure 3: PROJECT PHASES



Quantitative, Community-Specific Health Data Analysis

JSI characterized health status and need at the town level. JSI collected data from a number of sources to ensure a comprehensive understanding of the issues. The primary source of secondary data was through the Massachusetts Department of Public Health. Tests of significance were performed, and statistically significant differences between HealthAlliance-Clinton Hospital's service area and the Commonwealth overall are noted when applicable. The list of secondary data sources included:

- U.S. Census Bureau, American Community Survey 5-Year Estimates (2011-2015)
- MA Hospital Inpatient Discharges (2008-2012)
- MA Hospital ED Discharges (2008-2012)
- MA Bureau of Infectious Disease and Laboratory Sciences (2015, 2016)
- Massachusetts Vital Records (2015)
- Massachusetts Bureau of Substance Abuse Services (BSAS) (2014)

Key Informant Interviews with Internal and External Stakeholders

JSI conducted key stakeholder interviews with approximately 20 community leaders and staff members at HealthAlliance-Clinton Hospital. A list of key informants is included in Appendix B. These individuals were chosen to amass a representative group of people who had the experience necessary to provide insight on the health of communities in the Hospital's service area. Interviews were conducted on the phone or in person using a standard interview guide.

Interviews focused on identifying major health issues, including possible strategies to address those concerns, and target populations.

Focus Groups and Community Forums

JSI conducted four community and provider focus groups in HealthAlliance-Clinton Hospital's service area to gather input from service providers, community leaders, and residents. These focus groups were organized in collaboration with the Hospital's existing community health partners to leverage their community connections and to ensure community participation. In addition, JSI conducted three Community Forums which were open and marketed to the public at-large. These forums took place in Fitchburg, Leominster, and Clinton. HealthAlliance-Clinton Hospital made every effort to promote these events to the community at large in order to recruit participants. During the community forums, JSI discussed findings from quantitative data and posed a range of questions to solicit input on community ideas, perceptions and attitudes, including:

- What are the leading social determinants of health (e.g., housing, poverty, food access, transportation, etc.)?
- What are the leading health conditions (e.g., diabetes, hypertension, asthma, respiratory disease, etc.)?
- Which segments of the population are most vulnerable (e.g., immigrants, LGBTQ, older adults, etc.)?
- What strategies would be most effective to improving health status and outcomes in these areas?

As discussed above, the Advisory Committee was also involved in providing input on community need and prioritizing community health issues. The Advisory Committee met three times over the course of the assessment. Figure 4 provides a summary of all focus groups, community forums, and advisory committee meetings. A full listing of the Community Engagement Approach, including descriptions of each method, is included in Appendix B.

Figure 4: COMMUNITY ENGAGEMENT ACTIVITIES

Event	Audience(s)
FOCUS GROUPS	
Community Health Connections	Community Health Connections (FQHC) Board Members
Montachusett Public Health Network	Representatives from health departments in the Hospital's service area
Community Health Network Area 9 (CHNA 9)	Community stakeholders, advocates, and health providers
CHART Team	Behavioral health providers from HealthAlliance-Clinton Hospital
COMMUNITY FORUMS	
UMass HealthAlliance-Clinton Hospital	Community residents
WHEAT Community Connections	Community residents
Salvation Army at Fitchburg	Community residents
ADVISORY COMMITTEE MEETINGS	
Kick Off Meeting	UMass HealthAlliance-Clinton Hospital (September 19, 2017)
Advisory Committee Meeting	UMass HealthAlliance-Clinton Hospital (December 13, 2017)
Advisory Committee Meeting/Strategic Planning	UMass HealthAlliance-Clinton Hospital (March 22, 2018)

Collecting Feedback and Prioritizing Health Issues

The main objectives of Phase III of the assessment were to:

- Review the assessment's major findings
- Identify HealthAlliance-Clinton Hospital's community benefits priority populations and community health priorities
- Review HealthAlliance-Clinton Hospital's existing community benefits activities
- Determine if the current range of community benefits activities needed to be augmented or changed to respond to this year's assessment.

During Phase III, JSI facilitated a Strategic Planning Retreat that included staff from HealthAlliance-Clinton Hospital's Community Benefits Department, other internal staff, and representatives from the Hospital's community partners. During this retreat, participants reviewed the full range of findings by community health domains (e.g. social determinants and barriers to care, health status, and health system issues). This group then participated in a polling process that prioritized key population segments and health-related issues that they believed should be prioritized in HealthAlliance-Clinton Hospital's CHIP to best address findings from the assessment. Once priorities were identified, this group discussed a number of community health/community benefit activities that were currently being implemented, as well as emerging strategic ideas that they believed should be included in the hospital's updated CHIP.

Equipped with this information, JSI, along with the Steering Committee, developed a draft CHNA and CHIP. These documents were vetted and approved by senior staff at Hospital before it was finalized and presented to the HealthAlliance-Clinton Hospital Board of Directors.

DATA LIMITATIONS

Assessment activities of this nature nearly always face data limitations with respect to both quantitative and qualitative data collection. With respect to the quantitative data compiled for this project, the most significant limitation is the availability of timely data. Relative to most states and commonwealths throughout the United States, Massachusetts does an exemplary job at making comprehensive data available at the commonwealth-, county- and municipal-level. This data is made available through the Massachusetts Department of Public Health (MDPH). The breadth of demographic, socio-economic, and epidemiologic data that was made available was more than adequate to facilitate an assessment of community health need and support the implementation plan development process. One major challenge was that much of the epidemiologic data that is available, particularly at the sub-county, municipal-, neighborhood-, or zip code-level data was at least five years old. The list of data sources included in this report provides the dates for each of the major data sets provided by the Commonwealth. The data was still valuable and allowed the identification of health needs relative to the Commonwealth and specific communities. However, older datasets may not reflect recent trends in health statistics. The age of the data also hindered trend analysis, as trend analysis required the inclusion of data that may have been up to ten years old, which challenged any current analysis.

With respect to qualitative data, information was gathered through stakeholder interviews and community forums, which engaged service providers, community leaders/advocates, and community residents. These interviews and forums provided invaluable insights on major health-related issues, barriers to care, service gaps, and at-risk target populations. However, given the relatively small sample size and the nature of the questioning the results are not necessarily generalizable to the larger population. While every effort was made to promote the community forums to the community at-large and to identify a representative sample of interviewees, the selection or inclusion process was not very large, scientific, or random.

III. Key Findings: Community Characteristics and Social Determinants of Health

The assessment captured quantitative and qualitative data related to demographics, social determinants of health, morbidity and mortality, and access to health-related resources. This data provided valuable information that characterized the population and provided insights into barriers to care, leading determinants of health, and health inequities. Qualitative information gathered through stakeholder interviews and community forums was critical to assessing health status, clarifying health-related disparities and determinants of health, identifying community health priorities, and identifying health system strengths and weaknesses.

Population characteristics such as age, gender identity, race, ethnicity, sexual orientation, and language were examined to characterize community composition, needs, and health status. Social, economic, and environmental factors that impact health status and health equity, like income, education, housing, and mobility, were also examined. Finally, epidemiologic and morbidity/mortality related data was used to characterize disease burden and health inequities, identify target populations and health-related priorities, and to target strategic responses.

This section outlines key findings related to community characteristics and the social determinants of health. For additional information, please see the UMass HealthAlliance-Clinton Hospital Databook in Appendix C.

COMMUNITY CHARACTERISTICS

Population characteristics such as age, gender identity, race, ethnicity, and language were examined to characterize community composition, needs, and health status. Social, economic, and environmental factors that impact health status and health equity, like income, education, and housing were also examined. Finally, epidemiologic and morbidity/mortality related data was used to characterize disease burden and health inequities, identify target populations and health-related priorities, and to target strategic responses.

The following is a summary of key findings of this review. Conclusions were drawn from quantitative data and qualitative information collected from interviews, focus groups, and community forums. Summary data tables and graphs are included below.

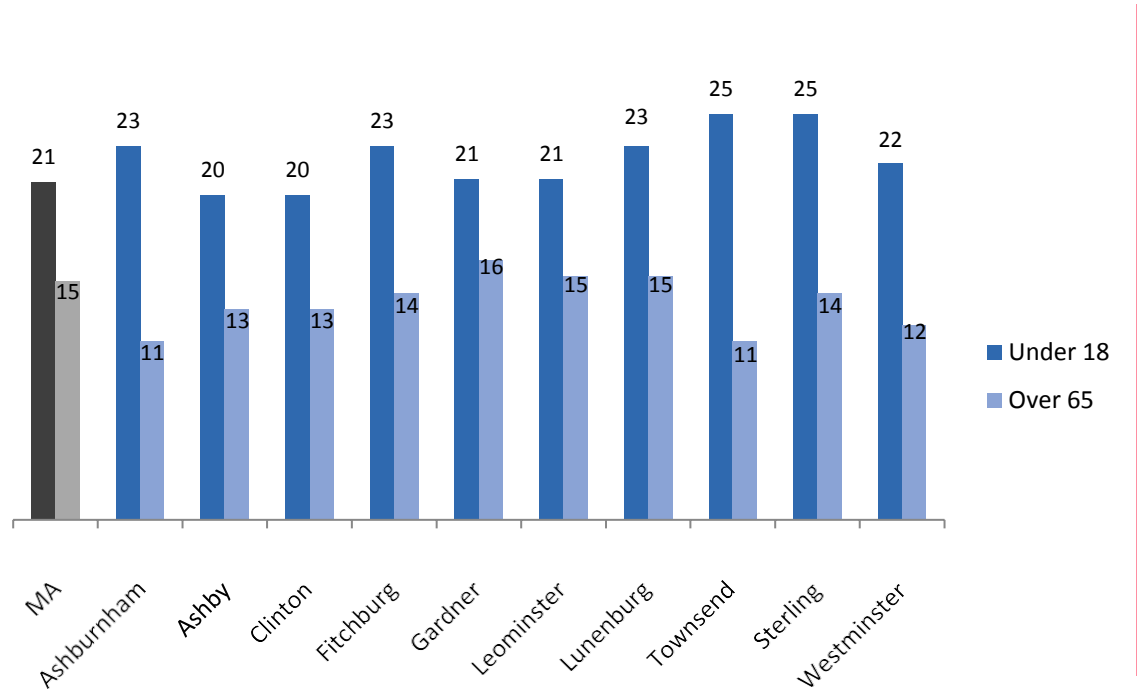
Age and Gender

Age and gender are fundamental factors to consider when assessing individual and community health status, as women, men, and people in different age categories face different health

concerns have various levels of connection to health resources. For some chronic and complex conditions, gender is a risk factor (e.g. breast cancer is 100 times more common among women than men), as is age (age-related diseases include heart disease, cancer, and stroke.) Men tend to have a shorter life expectancy and more chronic illnesses than women, and 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.[1,2] In HealthAlliance-Clinton Hospital's service area, gender breakdowns in each of the municipalities mirror that of the Commonwealth. However, among municipalities in the primary service area, there is variation in demographic make-up. According to the US Census Bureau:

- In looking at the percentage of the population under 18, Townsend (25%), and Sterling (25%) have a significantly higher percentage compared to the Commonwealth overall (21%).
- Compared to the Commonwealth (15%) overall, none of the municipalities have a significant percent of the population over the age of 65.

Figure 5: PERCENT OF POPULATION UNDER 18 AND OVER 65, 2011-2015



SOURCE: US Census Bureau, American Community Survey 2011-2015 5-Year Estimates

RACE/ETHNICITY, LANGUAGE, AND CULTURE

An extensive body of research illustrates the health disparities that exist for racial/ethnic minorities and foreign-born populations. According to the CDC, non-Hispanic Blacks have

1 Linda Lyons, "Age, Religiosity, and Rural America," Gallup Web Site, http://www. gallup.com/poll/7960/age-religiosity-rural-america.aspx., (March 11, 2013)

2 Harvard Men's Health Watch, "Mars vs. Venus: The Gender Gap in Health," Harvard Health Publications Web Site, http://www.health.harvard.edu/newsletter_article/ mars-vs-venus-the-gender-gap-in-health, (January 2010)

higher rates of premature death, infant mortality and preventable hospitalization than non-Hispanic Whites.[3] Individuals with limited English proficiency (LEP), defined as the ability to read, speak, write or understand English "less than very well," have lower levels of medical comprehension. This leads to higher rates of medical issues and complications, such as adverse reactions to medication.[4,5] 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. Stakeholders report that race, ethnicity, country of origin and immigration status are key predictors and drivers of major health disparities in the region. The impacts of racism and discrimination—and the linkage between geographic disparities and where one lives, or their "place"—are clear. Interviewees and community forum participants alluded to issues of overt and discreet racism, prejudice and discrimination both within and outside the health care system, especially for non-English speakers and new immigrants and refugees.

According to the US Census Bureau:

- Compared to the Commonwealth (80%), the percentage of White residents is significantly high in all municipalities with the exception of Fitchburg.
- Compared to the Commonwealth (11%), the percentage of Hispanic/Latino residents is significantly high in Fitchburg (24%) and Leominster (15%).
- The percentage of residents identifying as "some other race" besides White, Black or African American, Asian, American Indian/Alaska Native, or Native Hawaiian/Pacific Islander is significantly high in Fitchburg (8%) and Leominster (7%) compared to the Commonwealth overall (4%).

[3] 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

[4] E Wilson, AH Chen, K Grumbach, F Wang, and A Fernandez, "Effects of Limited English Proficiency and Physician Language on Health Care Comprehension," *Journal of General Internal Medicine* 20, no. 9 (Sep 2005): 800-806.

[5] Joshua S. Coren, Frank A. Filipetto, and Lucia Beck Weiss, "Eliminating Barriers for Patients with Limited English Proficiency," *Journal of the American Osteopathic Association* 109, no. 12 (December 2009): 634-640.

Figure 6: RACE/ETHNICITY (%) AND FOREIGN BORN (%), 2011-2015

	MA	ASH	ASHBY	CLI	FIT	GAR	LEO	LUN	TOW	STE	WES
White alone	79.6	97.0	97.6	89.5	79.6	90.0	83.2	93.0	95.8	96.1	98.1
Black or AA alone	7.1	1.0	0.7	2.1	4.1	2.2	4.7	2.4	0.1	1.2	0.8
Asian alone	6.0	0	1.1	1.7	4.6	1.8	2.3	1.7	1.6	0.9	0
NH/OPI	0	0	0	0	0	0	0	0	0	0	0
AI/AN	0	0	0.1	0.1	0.3	0.5	0.2	-	0.2	0.4	0
Some Other Race	4.2	0.7	0.4	2.3	8.1	2.8	6.5	1.1	1.4	0.3	0.2
Two+ Races	2.9	1.5	0.1	4.3	3.3	2.6	3.1	1.8	0.9	1.1	0.8
Hispanic/Latino of Any Race	10.6	0.6	1.9	14.7	23.9	8.0	15.3	3.7	1.1	3.5	3.4
Foreign Born	15.7	1.1	4.9	10.9	11.4	7.9	10.9	7.5	2.6	4.9	4.5

SOURCE: US Census Bureau, American Community Survey 2011-2015 5-Year Estimates
NOTE: Figures highlighted in red indicate that the figure is significantly higher than the Commonwealth, while figures highlighted in blue are significantly lower than the Commonwealth. Figures that are not highlighted are not statistically significant from the Commonwealth.

According to the US Census Bureau:

- In Fitchburg (6%), a significantly greater percentage of residents speak Spanish at home and English "less than very well" compared to the Commonwealth overall (4%).

Figure 7: POPULATION OVER 5 – LANGUAGE SPOKEN AT HOME (%), 2011-2015

	MA	ASH	ASHBY	CLI	FIT	GAR	LEO	LUN	TOW	STE	WES
Speak another language at home and speak English less than "very well"	8.9	2.5	1.1	5.0	8.8	3.2	8.5	2.1	1.5	2.0	0.5
Speak Spanish at home	8.4	0	0.8	3.1	6.1	1.2	4.6	0.8	0	0.8	0
Speak other Indo-European languages at home	8.8	0	0	0.3	1.4	0.5	0.5	0.2	0.8	0.4	0
Speak Asian/Pacific Islander languages at home	4.0	0	0	1.5	1.0	1.4	2.1	1.1	0.6	0.8	0.5

SOURCE: US Census Bureau, American Community Survey 2011-2015 5-Year Estimates
NOTE: Figures highlighted in red indicate that the figure is significantly higher than the Commonwealth, while figures highlighted in blue are significantly lower than the Commonwealth. Figures that are not highlighted are not statistically significant from the Commonwealth.

Foreign born residents, especially recent immigrants or refugees and even more specifically those who are not permanent residents or who are not specifically authorized to be in the United States, face enormous barriers to care. These segments struggle to access services due to lack of health insurance, limited understanding of the local culture, lack of trust, or lack of understanding of the health care system. Those who speak or read a language other than English or who do not speak or read English well struggle to access services; fear of detainment and deportation prevents individuals from seeking vital community services and health care—and from engaging in their communities.

These issues were discussed as major barriers in many of the interviews and focus groups that were conducted for this assessment. These issues were thought to be particularly acute in Fitchburg and Leominster – gateway cities where there are substantial populations of racial/ethnic minorities, recent immigrants, and non-English speakers. Interviewees and community residents stated that many of these individuals had limited ability to communicate in English, often struggled with low income status, were less trusting of clinicians and service providers, and simply struggled to navigate the health care system.

Broader issues of immigration status and culture were major themes in interviews and community forums, and many interviewees identified immigrant and migrant populations as cohorts that require specialized health care services and resources: Hispanic/Latinos, Portuguese/Brazilians, Arabic speakers and those from the Middle East, Haitians, Hmong, and West and East Africans were referenced specifically. Immigrants are less likely to visit doctor's offices and emergency rooms than low-income native residents.[6] According to the Centers for Disease Control and Prevention (CDC), immigrants are less likely than the general population to receive breast, cervical, and colorectal cancer screenings due to limited access to care and cultural barriers.[7] Prejudice and discrimination, mistrust, and cultural differences deter many immigrants and refugees from seeking health services, and it is common for immigrants and refugees to self-isolate due to trauma and stress.[8] These issues are further compounded by the trauma and stress experienced by those fleeing their home countries as a result of natural disaster, conflict and war, and religious/political persecution.

According to the US Census Bureau:

- ☐ The percentage of the population that is foreign born is significantly lower in all municipalities compared to the Commonwealth (16%). Rates were highest in

[6] L Ku and M Jewers, "Health Care for Immigrant Families: Current policies and issues," Migration Policy Institute Web Site, http://www.migrationpolicy.org/research/health-care-immigrant-fami-lies-current-policies-and-issues. Published 2013.
[7] Centers for Disease Control and Prevention, "Cancer Screening," Centers for Disease Control and Prevention Website, https://www.cdc.gov/immigrantrefugeehealth/guidelines/domestic/general/discussion/cancer-screening.html, June 21, 2016
[8] Lake Snell Perry Mermin/Decision Research, "Living in America: Challenges Facing New immigrants and Refugees," Sponsored by the Robert Wood Johnson Foundation, http://www.rwjf.org/content/dam/farm /reports/reports/2006/rwjf3807, January 2006

Fitchburg, Leominster, and Clinton (all 11%).

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

Lesbian, gay, bisexual, transgender, and queer/questioning (LGBTQ) individuals face a number of health disparities linked to discrimination and stigma, though the severity of these disparities is often difficult to quantify since questions around gender identity and sexual orientation are left off of most population-based surveys. Though there are no LGBTQ-specific diseases, members of this community are more likely to experience barriers in accessing and maintaining care than heterosexuals and cis-gendered individuals. For some segments of the LGBTQ population, sexually transmitted infections, like HIV, are a major concern. LGBTQ individuals are more likely to experience behavioral health issues, such as depression and substance abuse, which may be tied to high rates of stress.[9]

The Williams Institute, a think tank within the UCLA School of Law, has conducted a number of research studies on sexual orientation, gender identity law, and public policy.[10] According to the Institute:

- In Massachusetts, 5% of the population identifies as LGBT (48% male and 52% female). The average age of LGBT individuals in Massachusetts is 40. Within this population, 26% are raising children.
- In Massachusetts, 74% of LGBT individuals identify as white, 9% as Hispanic, 6% as African American, 3% as Asian/Pacific Islander, 1% as American Indian/Alaska Native, and 7% as other race.
- Looking at socioeconomic factors, 51% of LGBT individuals in Massachusetts have a college education compared to 47% of non-LGBT individuals; 8% of LGBT individuals in Massachusetts are unemployed, compared to 7% of non-LGBT individuals in Massachusetts, and 27% of LGBT individuals have an income below $24,000 compared to 19% of non-LGBT individuals.
- In Massachusetts, 95% of both LGBT and non-LGBT individuals have health insurance.

SOCIAL DETERMINANTS OF HEALTH AND BARRIERS TO CARE

The quantitative and qualitative data show clear geographic and demographic differences related to the leading social determinants of health (e.g. socioeconomic status, housing, and transportation). These issues influence and define quality of life for many segments of HealthAlliance-Clinton Hospital's service area. A dominant theme from key informant interviews and focus groups was the tremendous impact that underlying social determinants, particularly housing, poverty/income, access to healthy foods, and transportation, have on low-income and vulnerable segments of the population.

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9 Kevin L. Ard and Harvey J. Makadon, "Improving the Health Care of Lesbian, Gay, Bisexual and Transgender (LGBT) People: Understanding and Eliminating Health Disparities," *The National LGBT Health Education Center, The Fenway Institute*, 2012.
10 https://williamsinstitute.law.ucla.edu/visualization/lgbt-stats/?topic=LGBT&area=25#economic

Socioeconomic Status

Socio-economic status, as measured by income, employment status, and education, has long been recognized as a critical determinant of health. Research shows that communities with lower socio-economic status bear a higher disease burden and have lower life expectancy.[11] Low income populations, as defined as those living at below 200% of the federal poverty level (FPL), are less likely to be insured, less likely to have a usual source of primary care for urgent, routine, and preventive services (including cancer screenings), more likely to delay health care services, and more likely to use emergency department for both emergent and non-emergent care. Moreover, children born to low income families are, as they move into adulthood, are less likely to be formally educated, less likely to have job security, and less likely to rise and move up to higher socio-economic levels, thus perpetuating the barrier.[12]

There are substantial segments of the population across all of the service area's communities that are in low income brackets, are on fixed-incomes, or who are considered "house poor", who struggle to pay for safe housing, transportation, health care services, food, utilities, and other essential items. This issue, along with the cyclical nature and consequences of "generational poverty," was brought up as a major factor and barrier to care in nearly every key informant interview and focus group. Specifically, poverty or low income status, as well as lack of gainful, reliable employment was cited as a barrier as it was linked to a range of underlying factors such lack of health insurance, inability to pay health care co-pays, inability to pay for needed medications, inability to pay for childcare service so that individuals/family members can access health care services, and inability to pay for transportation.

Education

Higher education is associated with improved health outcomes and social development at the individual and community level.[13] Compared to individuals with more education, people with lower educational attainment are more likely to experience a number of health issues, including obesity, substance misuse, and injury.[14] The health benefits of higher education typically include better access to resources, healthier and more stable housing, and better engagement with providers. Proximate factors associated with low education that affect health outcomes include the ability to navigate the health care system, educational disparities in personal health

[11] 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.

[12] K Alexander, "Family Background, Disadvantaged Urban Youth and the Transition to Adulthood," New York, NY: Russel Sage Foundation; 2014.

[13] 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

[14] 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

behaviors, and exposure to chronic stress.[15] It is important to note that while education affects health, poor health status may also be a barrier to education.

Figure 8: EDUCATIONAL ATTAINMENT (%), 2011-2015

	MA	ASH	ASHBY	CLI	FIT	GAR	LEO	LUN	TOW	STE	WES
High school degree or higher	89.8	96.1	92.8	90.4	82.2	84.4	86.5	92.3	96.3	94.7	93.8
BA or higher	40.5	41.3	24.3	33.9	20.7	16.5	27.0	35.3	34.5	46.6	42.7

SOURCE: US Census Bureau, American Community Survey 2011-2015 5-Year Estimates
NOTE: Figures highlighted in red indicate that the figure is significantly higher than the Commonwealth, while figures highlighted in blue are significantly lower than the Commonwealth. Figures that are not highlighted are not statistically significant from the Commonwealth.

In terms of educational attainment, there was significant variation across the service area. According to the US Census Bureau:

- Compared to the Commonwealth overall (90%), the percentage of adult residents who have attained a high school degree or higher was significantly low in Fitchburg (82%), Gardner (84%), and Leominster (87%), and significantly high in Ashburnham (96%), Townsend (96%), Sterling (95%), and Westminster (94%).
- Compared to the Commonwealth overall (41%), the percentage of adult residents who have attained a bachelor's degree or higher was significantly low in all municipalities with the exception of Ashburnham, Sterling, and Westminster, where the percentage was higher than the Commonwealth, though not significantly.

Employment, Income, and Poverty

Employment, income, and poverty is another area where there was significant variation within the service area. According to the US Census Bureau:

- Compared to the Commonwealth overall ($68,563), the median household income was significantly lower in Clinton, Fitchburg, Gardner, and Leominster, yet significantly higher in all other municipalities in the service area.
- The percentage of residents that live below the federal poverty line is significantly high in Fitchburg (19%) and Gardner (19%) compared to the Commonwealth (12%).
- Compared to the Commonwealth (24%), a significantly high percentage of residents live below 200% of the federal poverty line in Gardner (38%) and Leominster (28%).
- The percentage of families, individuals under 18, individuals over the age of 65, and female-headed households living in poverty was significantly high in Fitchburg compared to the Commonwealth overall (Figure 9).

[15] Zimmerman, *Population Health*

Figure 9: POPULATIONS LIVING BELOW FEDERAL POVERTY LINE (%), 2011-2015

	MA	ASH	ASHBY	CLI	FIT	GAR	LEO	LUN	TOW	STE	WES
All individuals	11.6	7.4	8.0	9.1	19.4	19.1	13.1	9.2	3.7	4.9	3.4
Under 18	15.2	4.5	12.3	10.6	29.1	32.9	16.9	15.8	1.2	5.8	3.2
Over 65	9.2	7.3	5.6	14.1	13.5	8.2	9.0	6.6	6.1	10.3	-
Families	8.2	2.4	4.7	4.7	14.5	16.1	11.3	7.3	2.2	2.8	1.5
Female head of household, no husband present	25.5	0	28.2	22.0	36.8	41.8	34.2	38.1	14.8	3.5	-

SOURCE: US Census Bureau, American Community Survey 2011-2015 5-Year Estimates

NOTE: Figures highlighted in red indicate that the figure is significantly higher than the Commonwealth, while figures highlighted in blue are significantly lower than the Commonwealth. Figures that are not highlighted are not statistically significant from the Commonwealth.

Housing and Homelessness

Lack of affordable housing, compounded by limited increase in wages and high cost of living, has made housing a critical concern for people living in UMass HealthAlliance-Clinton Hospital's area. 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.[16] 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.[17]

According to the US Census Bureau:

- Compared to the Commonwealth overall (38%), a significantly high percentage of homes are renter-occupied in Clinton (46%), Fitchburg (46%), Gardner (49%), and Leominster (45%).
- In Ashburnham (38%) and Gardner (40%), a substantial percentage of homeowners are considered "house-poor," with housing costs that exceed 30% of income. Though these percentages are high, they are not significantly high compared to the Commonwealth overall (35%).

While availability of housing is critical, the safety and accessibility of housing is just as important to maintaining good health. Studies have linked substandard housing to a number of chronic illnesses. Pest infestations, mold and water intrusion, old carpeting, and inadequate ventilation all contribute to higher rates of asthma and respiratory diseases, allergies,

[16] 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.

[17] 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.

neurological disorders and hematologic illnesses. Rental households with children are more likely to have asthma triggers (e.g., mold, smoke, water leaks) in their home and more likely to have at least one child with asthma than owner households.[18]

Transportation

Lack of transportation was a theme from the assessment's key informant interviews and focus groups. Lack of transportation was cited not only for its significant impact on access to health care services, but as a determinant of whether individuals and families have the ability to access basic resources that allow them to live productive and fulfilling lives. Access to affordable and reliable transportation expands opportunities and is essential to addressing poverty and unemployment, and improving access to work, school, healthy foods, recreational facilities, and a myriad of other community resources, including health care services. Many focus group participants and interviewees identified transportation as an issue for those living in the larger quasi-urban areas (Fitchburg, Leominster, Clinton) and for those in rural areas that do not have access to personal vehicles. Secondary to ability to access modes of transportation, interviewees expressed frustration with the expense of public transportation, followed by lack of timely, reliable, flexible, or convenient services. In the more rural towns in the service area, residents are much more likely to have access to personal vehicles but there are still large numbers of people in these communities, especially older adults and low-income segments of the population, that face significant transportation barriers.

Food Access

Issues related to food insecurity, food scarcity, hunger, and the prevalence and impact of obesity are at the heart of the public health discourse in urban and rural communities. While there is very limited data on food access, lack of access to healthy foods was cited as a concern in interviews, focus groups, and community forums, particularly for low-income individuals and families. Despite these comments, a number of interviewees referenced the numerous and well-organized food programs offered by community partners throughout the service area; however, it seems, at least anecdotally, that these resources do not address the full breadth of the region's food access issues.

- Compared to the Commonwealth overall (13%), the percentage of individuals receiving Food Stamps/SNAP benefits was significantly high in Fitchburg (21%) and Gardner (24%), and was significantly low in Ashburnham (1%), Ashby (5%), Lunenburg (5%), Sterling (7%), Townsend (8%), and Westminster (3%).

Health Literacy and Cultural Competency

Health literacy is the degree to which individuals have the capacity to obtain, process and understand basic health information needed to make appropriate health decisions. Low health

[18] Bhargavi Ganesh, Corianne Payton Scally, Laura Skopec, Jun Zhu, *The Relationship Between Housing and Asthma Among School-Age Children*, The Urban Institute, October 2017.

literacy can have a major impact on health, as patients can have difficulty locating providers, following doctors' instructions, understanding medication directions and managing chronic conditions, among other issues. Populations most likely to experience low health literacy are older adults, racial/ethnic minorities, people with low levels of education, low-income individuals, non-native speakers of English, and people with compromised health status.[19]

During community forums and interviews, the need for improved health literacy arose as a key priority, especially for new immigrants, refugees, and asylees. Immigrants experience higher rates of morbidity and mortality than other segments of the population, and disproportionately suffer from a number of serious diseases. It is important for health providers and support staff to adopt culturally sensitive communication practices to improve the health literacy of immigrant populations.[20]

[19] Office of Disease Prevention and Health Promotion, "Quick Guide to Health Literacy Fact Sheet: Health Literacy Basics," https://health.gov/communication/literacy/quickguide/factsbasic.htm

[20] GL Kreps and L Sparks, "Meeting the Health Literacy Needs of Immigrant Populations," Patient Education and Counseling 71, no. 3 (2008): 328-332.

IV. Key Findings: Health Status

At the core of the assessment process is an understanding of access-to-care issues, the leading causes of morbidity and mortality, and the extent to which population segments 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 interview, focus groups, community forums, and survey of community members, informed this section by providing perceptions on the confounding and contributing factors of illness, health priorities, barriers to care, service gaps, and possible strategic responses to the issues identified. Furthermore, this data augmented the quantitative data and allowed for the identification of demographic and socioeconomic population segments most at-risk. Traditionally, barriers to care often disproportionately impact minority groups and result in disparities in health outcomes.[21]

The following are key findings related to health insurance coverage, health risk factors, mortality, chronic disease, cancer, infectious disease, behavioral health (mental health and substance use), elder health, and maternal and child health.

RISK FACTORS

Insurance Status

Access to health insurance that helps to pay for needed preventive, acute, and disease management services, as well as access to comprehensive, timely accessible primary care has shown to have a profound effect on one's ability to prevent disease and disability, increase life expectancy, and perhaps most importantly, increase quality of life.[22] Nationally, disparities in access and health outcomes exist for many population segments, including those in low income brackets, immigrant populations (especially new arrivals without permanent resident status), racial/ethnic diverse segments, and LGBT populations, to name a few. Due to a range of mostly social factors, these groups 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 high blood pressure and certain cancers. Data also suggests that those that face disparities are more likely to use hospital emergency departments and inpatient services for care that could be avoided or prevented altogether with more accessible primary care services. [23]

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[21] Kathryn A. Phillips, Michelle L. Mayer, and Lu Ann Aday, "Barriers to Care Among Racial/Ethnic Groups Under Managed Care," *Health Affairs* 19, no. 4 (2000).

[22] Healthy People 2020, "Access to Health Service," https://www.healthypeople.gov/2020/leading-health-indicators/2020-lhi-topics/Access-to-Health-Services, June 2, 2016

[23] Institute of Medicine, "Coverage Matters: Insurance and Health Care," http://iom.edu/~/media/Files/Report%20Files/2003/Coverage-Matters-Insurance-and-Health-Care/Uninsurance8pagerFinal.pdf

While Massachusetts has had the lowest rates of uninsured in the nation for years, reported at 2.8% in September 2016 based on US Census Bureau estimates, considerable numbers of people still struggle due to lack of health insurance or health insurance with adequate coverage. There are still large numbers of people in the service area who are uninsured or under-insured with limited benefits. Community Health Connections (CHC), for example, is a federally qualified health center (FQHC) with sites in Fitchburg, Gardner, and Leominster, that serves large number of low income and vulnerable individuals within the area. In 2016, approximately 17% of CHC's patients were uninsured.[24]

An important aspect of the CHNA is characterizing the extent to which population segments and communities participate in activities that are considered "high-risk." It is well understood that certain health risk factors, such as obesity, tobacco use, lack of physical exercise, and poor nutrition have effects on the burden of cancer, physical chronic conditions, and behavioral health.

Across indicators, UMass HealthAlliance-Clinton Hospital's service area fares similarly or better than the Commonwealth. The rates of current smokers, exposure to environmental tobacco smoke, and overweight/obesity are all significantly lower than the Commonwealth, and people reported significantly more leisure time physical activity.

Nutrition, Physical Activity, and Overweight/Obesity

Good nutrition, physical activity, and a healthy body weight are essential parts of a person's overall health and well-being. Together, these can help decrease a person's risk of developing serious health conditions, such as high blood pressure, high cholesterol, diabetes, heart disease, stroke, and cancer. Physical inactivity and poor nutrition are the leading risk factors associated with obesity. Adequate nutrition helps prevent disease and is essential for the healthy growth and development of children and adolescents. Physical inactivity is a risk factor for many chronic conditions, while being active is linked to good emotional health. A healthful diet, regular physical activity, and achieving and maintaining a healthy weight also are paramount to managing health conditions so they do not worsen over time.[25]

- Across all municipalities in the Hospital's service area, the rate of hospitalizations due to obesity were similar to the Commonwealth overall (67 per 100,000), except in Sterling where the rate was significantly lower (39 per 100,000).[26]

Tobacco Use

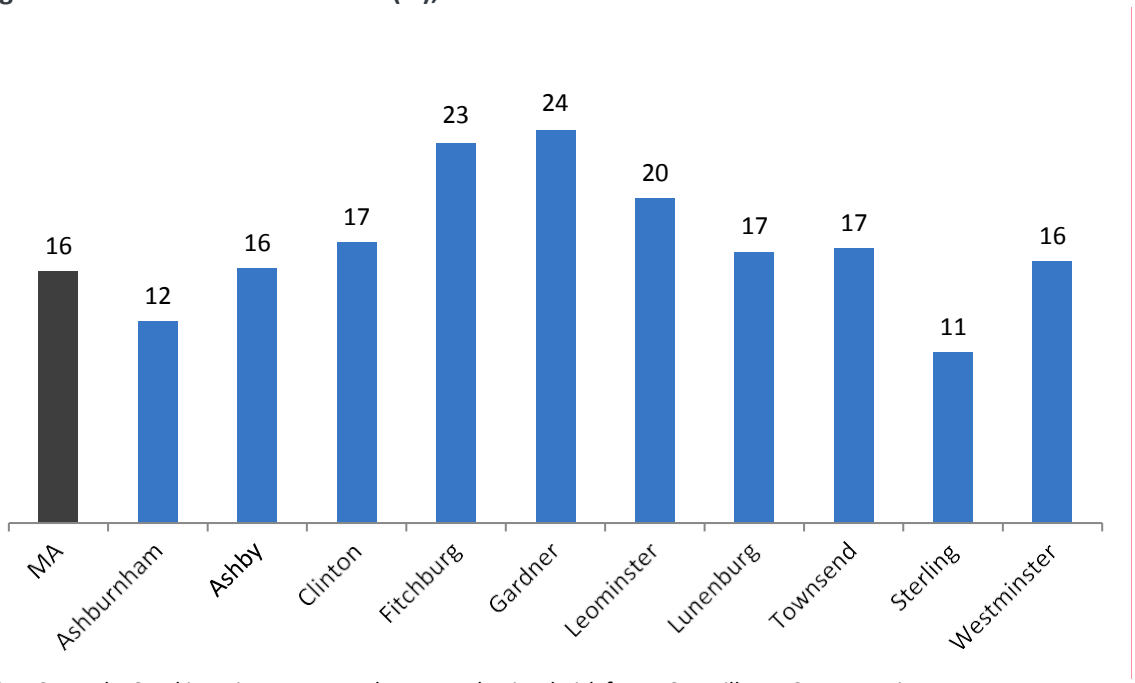
Tobacco use is the single most preventable cause of death and disease in the United States. Each year, approximately 450,000 Americans die from tobacco-related illnesses. For every person

[24] Health Resources & Services Administration, *Health Center Profiles*
[25] Healthy People 2020, "Nutrition, Physical Activity and Obesity," https://www.healthypeople.gov/2020/leading-health-indicators/2020-lhi-topics/Nutrition-Physical-Activity-and-Obesity
[26] MA Hospital Inpatient Discharges (UHDDS), 2008-2012, (accessed through MassCHIP)

who dies from tobacco use, 30 more people suffer with at least one serious tobacco-related illness, such as chronic airway obstruction, heart disease, stroke, or cancer.[27] Today, nearly all adults who regularly smoke started before the age of 26, making adolescents and young adults a key demographic in reducing smoking-related disease and death in the future.[28] Nationally, rates of cigarette smoking for youth and adults have slowed or leveled off in the last decade. In fact, in some areas, like Boston, the rates of youth smoking have declined substantially. Just the same, given the magnitude of the risks and implications related to tobacco use and smoking, it cannot be ignored.

- Compared to the Commonwealth overall (15.8%), the percentage of current smokers was significantly lower in the service area overall (10.9%). The percentage of former smokers was also lower, though not significantly (28.3% compared to 26.2%, respectively).[29]
- Compared to the Commonwealth overall (37.5%), the percentage of residents exposed to environmental tobacco smoke was significantly lower in the service area overall (31.8%).

Figure 10: ADULT SMOKING RATE (%), 2011-2015



SOURCE: Make Smoking History, Massachusetts Behavioral Risk factor Surveillance System estimates

[27] Healthy People 2020, "Tobacco Use," http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=41#five

[28] U.S. Department of Health and Human Services, "Preventing Tobacco Use Among Youth and Young Adults: Fact Sheet" http://www.surgeongeneral.gov/library/reports/preventing-youth-tobacco-use/factsheet.html, December 30, 2013

[29] Source: Behavioral Risk Factor Surveillance System 2007-2009* (MDPH)

CHRONIC AND COMPLEX MEDICAL CONDITIONS

Throughout the United States, chronic and complex conditions such as heart disease, stroke, cancer, respiratory diseases, and diabetes are responsible for approximately 7 out of 10 deaths each year; treating people with chronic conditions accounts for 80% of our nation's health care costs.[30] Half of all American adults have at least one chronic condition, and almost 1 in 3 have multiple chronic conditions. Perhaps most significantly, despite their high prevalence and dramatic impact, chronic disease is largely preventable, which underscores the need to focus on health risk factors, primary care engagement, and evidence-based disease management. There was broad awareness of these pervasive health issues amongst interviewees and focus group/forum participants.

Cardiovascular and Cerebrovascular Disease

While the rates of hospitalizations and deaths due to hypertension, major cardiovascular disease, heart disease, coronary heart disease, heart failure, and cerebrovascular disease (stroke) were generally lower, sometimes significantly, among towns in the service area compared to the Commonwealth overall, there were a number of exceptions, particularly when looking at ED discharges.

- Compared to the Commonwealth, the rates of hypertension-related ED discharges were significantly high in all municipalities in the service area, with the exceptions of Ashburnham and Westminster (see Data Book in Appendix C).[31]
- Hospitalization rates for major cardiovascular disease, heart disease, and coronary heart disease were significantly high in Fitchburg, Gardner, and Townsend compared to the Commonwealth overall (see Data Book in Appendix C).[32]
- Compared to the Commonwealth overall (227 per 100,000), rates of hospitalization due to cerebrovascular disease was significantly high in Ashburnham (298 per 100,000) and Fitchburg (254 per 100,000).[33]

Diabetes and Asthma

As with cardiovascular and cerebrovascular conditions, hospitalization and ED rates related to diabetes and asthma were significantly high in certain municipalities in the service area (Fitchburg, Gardner, and Leominster).

- Compared to the Commonwealth, diabetes hospitalizations and related-hospitalizations are significantly high in Clinton, Fitchburg, and Gardner (see Data Book in Appendix C). Compared to the Commonwealth (133 per 100,000), ED discharge relates related to diabetes was significantly high in Clinton (295 per 100,000), Fitchburg (199 per 100,000) and Leominster (180 per 100,000).

[30] Centers for Disease Control and Prevention, "Chronic Disease Prevention and Health Promotion," Centers for Disease Control and Prevention Web site, https://www.cdc.gov/chronicdisease/, November 14, 2016
[31] MA Hospital Emergency Visit Discharges, (accessed through MassCHIP)
[32] MA Hospital Inpatient Discharges (UHDDS), 2008-2012, (accessed through MassCHIP)
[33] MA Hospital Inpatient Discharges (UHDDS), 2008-2012, (accessed through MassCHIP)

- In Fitchburg and Gardner, asthma hospitalizations, asthma related-hospitalizations, asthma ED discharges, and asthma-related ED discharges were all significantly higher than the Commonwealth overall. Asthma related ED discharges were also significantly higher than the Commonwealth in Clinton, Leominster, Lunenburg, Sterling, and Townsend (see Data Book in Appendix C).

Cancer

Looking across UMass HealthAlliance-Clinton Hospital's service area, specifically at all-types of cancer (Figure 11 below), the rate of hospitalizations and ED discharges were approximately the same or significantly lower compared to the Commonwealth overall. However, the rate of all-cancer mortality was significantly lower in Gardner (244 per 100,000) compared to the Commonwealth overall (155 per 100,000). Municipal data was similar to the Commonwealth overall when looking at hospitalizations, discharges, and mortality across the four most common types of cancer (breast, lung, colorectal, and prostate), with two exceptions: the lung cancer mortality rate was significantly high in Gardner (85 per 100,000) compared to the Commonwealth overall (41 per 100,000), and hospitalizations due to prostate cancer were significantly high in Sterling (116 per 100,000) compared to the Commonwealth overall (58 per 100,000).

Figure 11: CANCER (ALL TYPES COMBINED) DATA

	MA	ASH	ASHBY	CLI	FIT	GAR	LEO	LUN	TOW	STE	WES
Hospitalizations (2008-2012)*	371.3	345.9	438.3	321.4	302.9	370.9	341.3	313.8	359.5	355.2	371.6
ED Discharges(2008-2012)*	15.58	NA	NA	18.61	11.61	19.85	13.7	NA	NA	NA	NA
Mortality (2014)	155.5	139.5	--1	217.2	177.4	244.0	184.9	90.4	203.4	208.3	219.8

SOURCE: Massachusetts Department of Public Health (Hospitalizations), 2008-2012; Massachusetts Department of Public Health (ED Discharges), 2008-2012; Massachusetts Department of Vital Statistics, 2014

*Age adjusted rates per 100,000

NOTE: Figures highlighted in red indicate that the figure is significantly higher than the Commonwealth, while figures highlighted in blue are significantly lower than the Commonwealth. Figures that are not highlighted are not statistically significant from the Commonwealth.

BEHAVIORAL HEALTH

Mental illness and substance use have a profound impact on the health of people living throughout the United States. According to the Substance Abuse and Mental Health Services Administration (SAMHSA), an estimated 44 million adults (18%) in the United States have experienced some form of mental illness, and over 20 million adults (8.4%) had a substance use disorder in the past year.[34] 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.[35]

According to numerous interviewees, many people residents throughout the cities/towns in the service area face challenges and stigma that may greatly affect their ability to access health services or be treated in the same way as other segments of the population. The segments of the population most often cited in this regard, according to interviewees and focus group participants, were those in the service area with mental health issues or substance use disorders. These segments were said to face enormous barriers and did not have adequate support networks or advocates who made sure that they received the care they needed, including health education, screening, and navigation services. In this regard, there is a great need to provide tailored and targeted services to ensure adequate access to care and case management.

Mental Health

There was a clear sentiment among key informants and focus group/community forum participants that mental health affects all segments of the population, from children and youth, to young and middle-aged adults, to elders. With respect to youth, interviewees and meeting participants discussed the stress that youth face related to school and social issues, including bullying and social media. These stresses may lead to depression, low self-esteem, isolation, as well as substance use and risky behaviors. A number of stakeholders also discussed issues for students with developmental delays, which have a major impact on a small, but very high need, group of children and families. On the opposite end of the age spectrum, stakeholders and meeting participants cited depression and social isolation as critical issues for older adults. These issues are often exacerbated by lack of family/caregiver support, lack of mobility and sociability, and physical health conditions. Interviewees cited gaps in services, specifically outpatient treatment and treatment for those with serious mental illness.

[34] Substance Abuse and Mental Health Services Administration, "Mental Health and Substance Abuse Disorders," Substance Abuse and Mental Health Services Administration Web site, https://www.samhsa.gov/disorders, March 8, 2016.
[35] National Institute of Mental Health , "Chronic Illness and Mental Health," National Institute of Mental Health Web site, https:// www.nimh. nih.gov/health/publications/chronic-illness-mental-health/index.shtml

Figure 12: MENTAL HEALTH DISORDERS

	MA	ASH	ASHBY	CLI	FIT	GAR	LEO	LUN	TOW	STE	WES
Hospitalizations (2008-2012)*	837.85	576.0	692.1	723.07	1038.0	1591.0	697.1	637.4	509.5	568.9	525.3
Related Hospitalizations (2008-2012)*	3839.51	3057.1	3100.5	3586.3	4329.5	5857.2	3356.8	2941.3	2662.4	2860.4	2523.4
ED discharges (2008-2012)*	2091.86)	1642.0	1330.1	2135.8	2760.2	3048.8	1971.9	1496	1286.8	1510.9	1347.6
Related ED discharges (2008-2012)*	4990.42	4106.0	4314.2	7406.3	9091.6	7065.8	7555.6	5036.7	4590.8	4303.3	3513.2
Mortality (2014)*	59.89	--1	--1	61.8	38.2	23.6	61.3	50.7	104.0	--1	60.4
Suicide Deaths (2014)*	8.5	--1	0.0	--1	--1	--1	11.9	0.0	--1	--1	0.0

SOURCE*:* Massachusetts Department of Public Health (Hospitalizations), 2008-2012; Massachusetts Department of Public Health (ED Discharges), 2008-2012; Massachusetts Department of Vital Statistics, 2014

*Age adjusted rates per 100,000

NOTE: Figures highlighted in red indicate that the figure is significantly higher than the Commonwealth, while figures highlighted in blue are significantly lower than the Commonwealth. Figures that are not highlighted are not statistically significant from the Commonwealth.

Substance Use

The connection between mental health and substance use is well known; people who suffer from mental health disorders often self-medicate with drugs and/or alcohol, and it is critical that, for those with dual diagnoses, both issues are treated in tandem to achieve full recovery.[36] While mental health was the health issue cited as most critical by key informants and meeting participants, substance use was a very close second.

Opioid and prescription drug abuse is at the forefront of our national and regional dialogue, and this was certainly mentioned by individuals over the course of this assessment; individuals struggling with these issues often have very serious and acute needs that must be addressed quickly and comprehensively. However, it is important to note that alcohol and tobacco use, though certainly not as high-profile, were also identified as significant issues for large swaths of the population in the service area. Below are several data points comparing substance-use related morbidity, mortality, and substance use treatment among municipalities in UMass HealthAlliance-Clinton Hospital's service area.

[36] Rehab After Work, "Recognizing the Relationship Between Mental Health and Substance Abuse," https://rehabafterwork.pyramidhealthcarepa.com/recognizing-the-relationship-between-mental-health-and-substance-abuse/, April 28, 2016

Figure 13: PEOPLE SERVED IN BUREAU OF SUBSTANCE ABUSE SERVICES CONTRACTED/LICENSED FACILITIES (FY2014)

	MA	ASH	ASHBY	CLI	FIT	GAR	LEO	LUN	TOW	STE	WES
Total number of people served	85,823	255	100 or less	176	728	284	543	100 or less	100 or less	100 or less	100 or less
Homeless (%)	17.6	Unknown	Unknown	10.2	16.9	13.6	10.6	Unknown	Unknown	13.6	10.9
Unemployed (%)	76.3	63.9	68.0	76.2	82.1	85.8	74.5	68.6	50.0	74.4	69.8
Had prior mental health treatment (%)	43.9	30.2	29.6	37.9	40.4	44.2	42.1	46.3	26.7	36.4	54.7

SOURCE: Massachusetts Bureau of Substance Abuse Services (2014)

Figure 14: ALCOHOL/OPIOID STATISTICS

	MA	ASH	ASHBY	CLI	FIT	GAR	LEO	LUN	STE	TOW	WES
Alcohol related hospitalizations (2008-2012)*	337.6	159.3	299.9	328.3	333.8	404.3	273.8	293.1	148.3	204.5	185.3
Alcohol related ED discharges (2008-2012)*	858.8	512.5	493.0	838.3	695.1	783.7	509.6	547.9	444.7	538.1	361.4
Opioid hospitalizations (2008-2012)*	315.6	201.3	158.2	192.0	335.7	373.2	194.8	170.5	116.4	176.0	141.2
Opioid ED discharges (2008-2012)*	259.6	154.2	333.2	229.2	363.1	166.2	259.8	186.4	192.2	279.5	127.0
Fatal opioid overdoses (2014)*	16.3	--1	0.0	--1	32.9	24.5	19.7	--1	0.0	--1	--1

SOURCE: Massachusetts Department of Public Health (Hospitalizations), 2008-2012; Massachusetts Department of Public Health (ED Discharges), 2008-2012; Massachusetts Department of Vital Statistics, 2014

*Age adjusted rate per 100,000

NOTE: Figures highlighted in red indicate that the figure is significantly higher than the Commonwealth, while figures highlighted in blue are significantly lower than the Commonwealth. Figures that are not highlighted are not statistically significant from the Commonwealth.

MATERNAL AND CHILD HEALTH

Maternal and child issues are of critical importance to the overall health and well-being of a geographic region and are at the core of what it means to have a healthy, vibrant community. Statistics indicate that low birth weight, prematurity, and lack of adequate prenatal care are some of the factors associated with the critical indicators of maternal and child health, such as infant mortality. Maternal and child health was discussed as an area of major concern amongst

interviewees and forum participants, along with issues related to child abuse and neglect. Though data to support these sentiments is limited, assessment participants shared that these issues have plagued the North Central area for several years. Data collected is shown in Figure 15 below.

Figure 15: MATERNAL/CHILD HEALTH

	MA	ASH	ASHBY	CLI	FIT	GAR	LEO	LUN	STE	TOW	WES
Infant mortality, 2014 (rate per 1000)	4.5	0.0	0.0	27.5	9.9	--1	15.4	0.0	0.0	0.0	0.0
Low birth weight (<5.5 lbs), 2014 (%)	7.5	NA	NA	7.7	8	8	9	8	NA	NA	NA
Adequate prenatal care*, 2015 (%)	6001	-	-	25	45	17	32	8	5	2	5
Resident births to mothers 15-19 (#), 2015	2140	5	NA	6	44	11	22	NA	NA	NA	NA
Percent of All Children with Substantiated Allegations of Maltreatment After Investigation (Dup. Counts)	6.0	82.86	NA	62.39	62.38	64.71	68.95	48.84	61.11	59.46	57.14

SOURCE: Massachusetts Department of Vital Statistics, 2014 and 2015
NOTE: Figures highlighted in red indicate that the figure is significantly higher than the Commonwealth, while figures highlighted in blue are significantly lower than the Commonwealth. Figures that are not highlighted are not statistically significant from the Commonwealth.

INFECTIOUS DISEASE

Infectious diseases remain a major cause of illness, disability, and even death. Sexually transmitted diseases, diseases transmitted through intravenous drug use, influenza, and pneumonia are among the infectious diseases that have an impact on the population. Figure 16 compares municipalities in the service area to the Commonwealth across a number of infectious disease indicators.

Figure 16: INFECTIOUS DISEASE

	MA	ASH	ASHBY	CLI	FIT	GAR	LEO	LUN	STE	TOW	WES
Chlamydia cases (lab confirmed), 2016	26448	8	<5	50	177	53	112	28	12	20	21
Gonorrhea cases (lab confirmed), 2016	4617	<5	-	<5	22	<5	11	<5	<5	-	<5
Syphilis cases (probable and confirmed), 2016	1033	<5	-	<5	10	<5	<5	<5	<5	-	-
Lyme Disease Cases (confirmed and probable), 2015	4352	5	<5	<5	11	7	12	9	7	8	<5
Pneumonia/Influenza hospitalizations, 2008-2012	322.1	370.2	226.8	363.2	369.3	551.1	325.6	277.7	358.8	355.4	270.7
HIV/AIDS Hospitalizations, 2008-2012	12.4	NA	0	NA	6.39	15.11	6.87	NA	NA	0	0

SOURCE: MDPH Bureau of Infectious Disease and Laboratory Sciences, Office of Integrated Surveillance and Informatics Services; Massachusetts Department of Public Health (Hospitalizations), 2008-2012

NOTE: Figures highlighted in red indicate that the figure is significantly higher than the Commonwealth, while figures highlighted in blue are significantly lower than the Commonwealth. Figures that are not highlighted are not statistically significant from the Commonwealth.

V. Priority Populations and Community Health Priorities

Once all of the assessment's findings were compiled, The CHNA Steering Committee and the Advisory Committee participated in a strategic retreat that allowed them to review the full-breadth of quantitative and qualitative findings from Phases I and II, as well as to begin the CHIP development process. More specifically, the Steering and Advisory Committees discussed the full range of findings by community health domain (e.g., chronic/complex conditions, behavioral health, elder health, domestic interpersonal violence, etc.) and then participated in a process that identified the population segments as well as the health-related issues that they believed should be prioritized with respect to the Hospital's CHIP. Once the priorities were identified the Advisory Committee then discussed the range of community health/community benefit activities that were currently being implemented as well as the emerging strategic ideas that they believed should be included in UMass HealthAlliance-Clinton Hospital's updated CHIP to respond to the prioritized community health issues.

Following is a summary discussion of the priority populations and community health issues that were prioritized by the Steering Committee with input from the Advisory Committee and other stakeholders at UMass HealthAlliance-Clinton Hospital and in the Community. Also included below are the goals, objectives, and core strategies that are included in the Hospital's CHIP.

PRIORITY POPULATIONS

UMass HealthAlliance-Clinton Hospital, along with its other health, public health, social service, and community health partners, 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 access to care and regardless of age, race/ethnicity, income, family history, or health-related characteristics, no-one can completely avoid being impacted by health issues or risk factors, or perhaps more fundamentally escape the impacts of aging. The Hospital's CHIP includes activities that will support residents throughout its service area and from all segments of the population. However, based on the assessment's quantitative and qualitative findings, including discussions with a broad range of community participants, there was broad agreement that the Hospital's CHIP 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 can put them at greater risk. More specifically, the assessment identified low-income populations, African Americans and other racial/ethnic minority populations, recent immigrants, non-English speakers, and older adults as priority populations that deserve special attention.

COMMUNITY HEALTH PRIORITIES

UMass HealthAlliance-Clinton Hospital's CHNA approach and process provided ample opportunity to vet the quantitative and qualitative data compiled during the assessment. Based on this process, the Steering Committee with the support of the Hospital's staff, CHNA Advisory Committee, PFAC, and other stakeholders has framed the community health needs into five priority strategic domains, which together encompass the broad range of health issues facing residents living in UMass HealthAlliance-Clinton Hospital's Service Area. These five broad strategic domains are:

- Health Equity, Social Determinants of Health, and Health System Strengthening
- Behavioral Health (Mental Health and Substance Use)
- Chronic/Complex Conditions and Risk Factors
- Domestic and Interpersonal Violence
- Healthy Aging

In addition, the assessment and the Steering Committee identified two cross-cutting issues that underlie the leading health priorities and that they believe needed to be addressed to improve overall health status and reduce existing disparities. These two cross-cutting issues are: 1) the Leading Social Determinants of Health (e.g., housings, poverty, transportation, food access, etc.) and Health System Issues (e.g., health literacy, care coordination, information sharing, workforce issues, etc.).

At the Strategic Retreat, automated polling was conducted to identify at a broad level, which of the cross-cutting and topical areas should be prioritized. Overall the Advisory Committee believed that among the strategic domains referenced above, behavioral health, including mental health and substance use) should be prioritized, with 46% of participants selecting this issue as the number one priority. Health equity was identified as the second leading priority, with 29% of the participants selecting this issue. Chronic/complex conditions and their risk factors was selected as the third highest priority, with 25% of the vote. Elder health and domestic/interpersonal violence, though recognized as priority issues in discussions, were not chosen as the leading health issues by any members of the Advisory Committee.

The Hospital's CHIP process took the prioritization process even further and identified a more detailed set of priorities within each strategic domain, which has further guided and will continue

to guide UMass HealthAlliance-Clinton Hospital and its partners in the development and implementation of the Hospital's CHIP. Following is a summary of the polling results from the strategic retreat by domain, which provides a good understanding of which sub-issues within these major domains, the Steering and Advisory Committees thought should be prioritized.

Figure 17: COMMUNITY BENEFIT PRIORITY AREAS (POLL RESULTS)

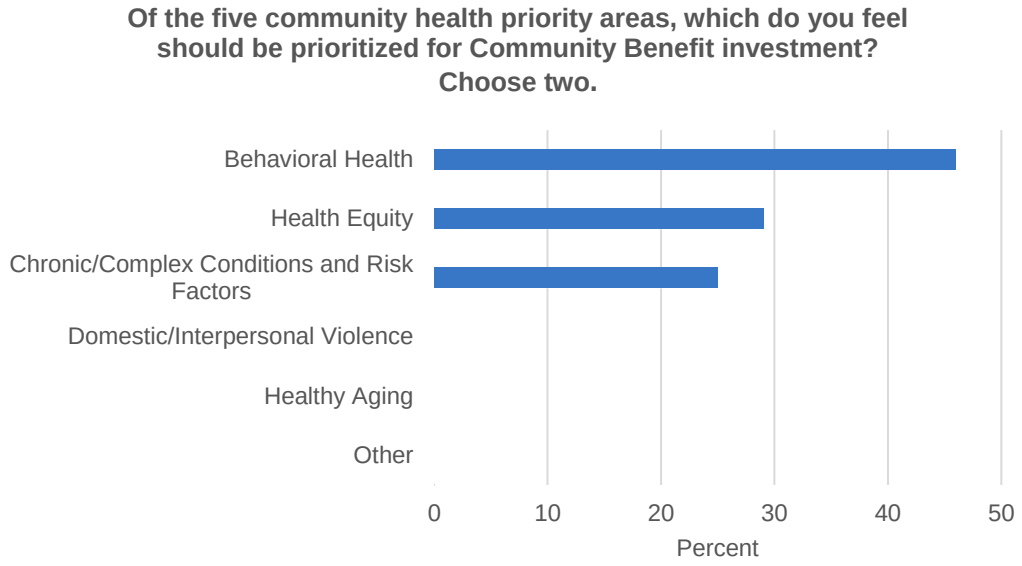


Figure 18: SOCIAL DETERMINANTS PRIORITY AREA (POLL RESULTS)

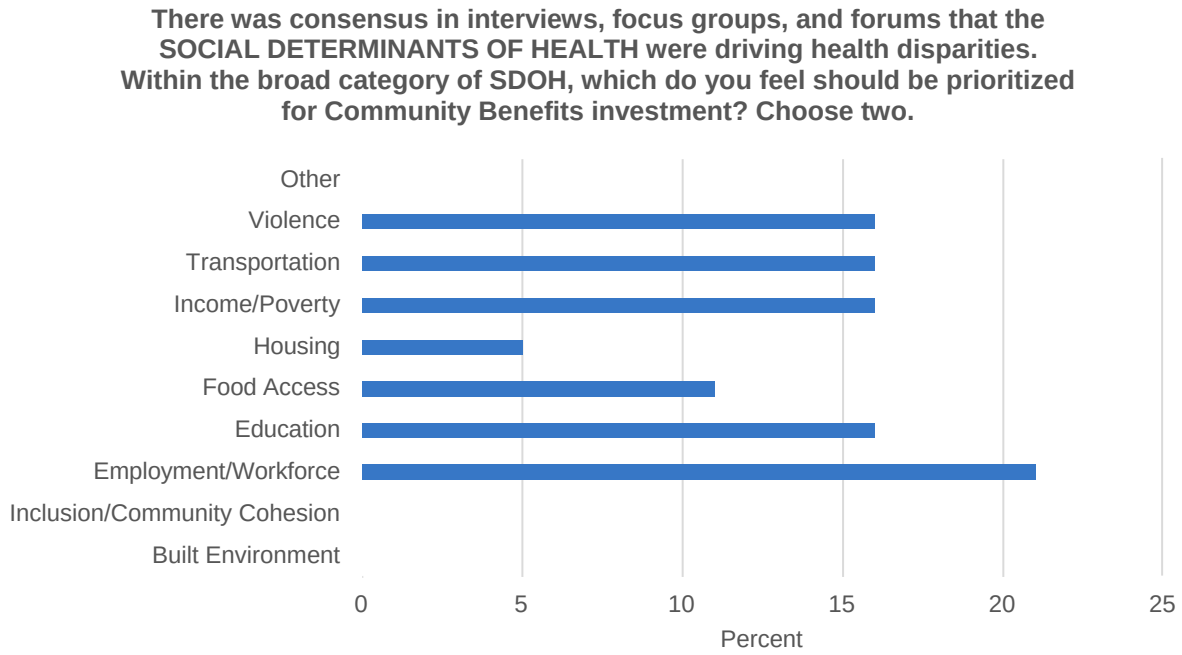


Figure 19: HEALTH EQUITY PRIORITY AREA (POLL RESULTS)

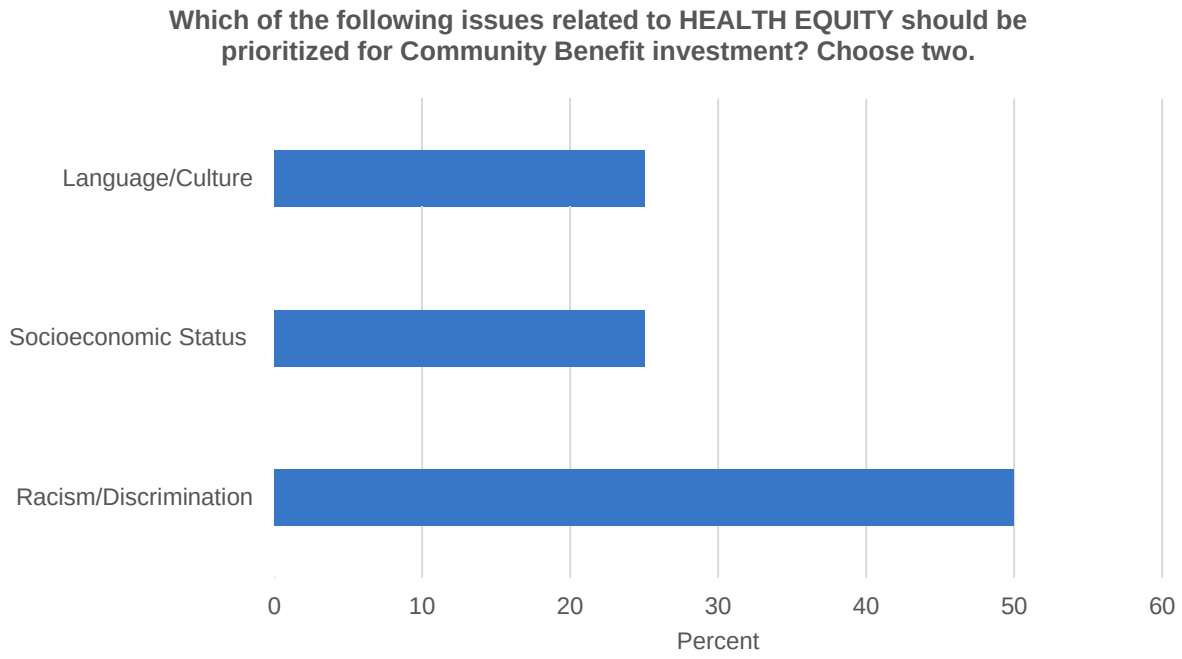


Figure 20: BEHAVIORAL HEALTH PRIORITY AREA (POLL RESULTS)

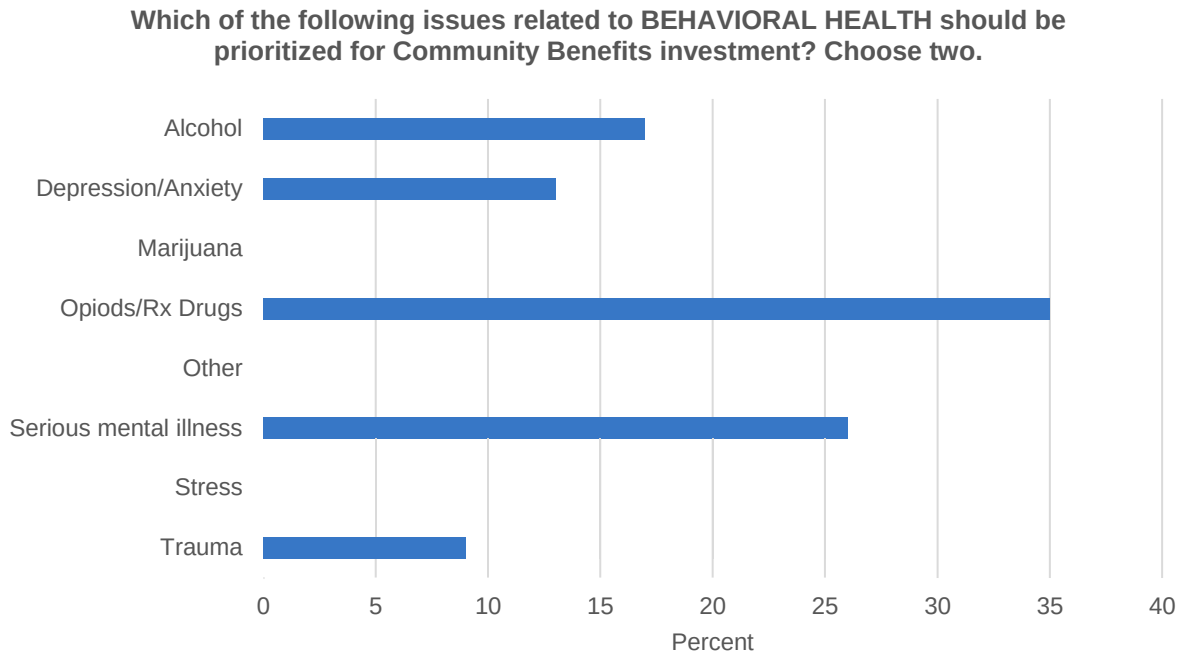


Figure 21: CHRONIC/COMPLEX CONDITIONS RISK FACTORS PRIORITY AREA (POLL RESULTS)

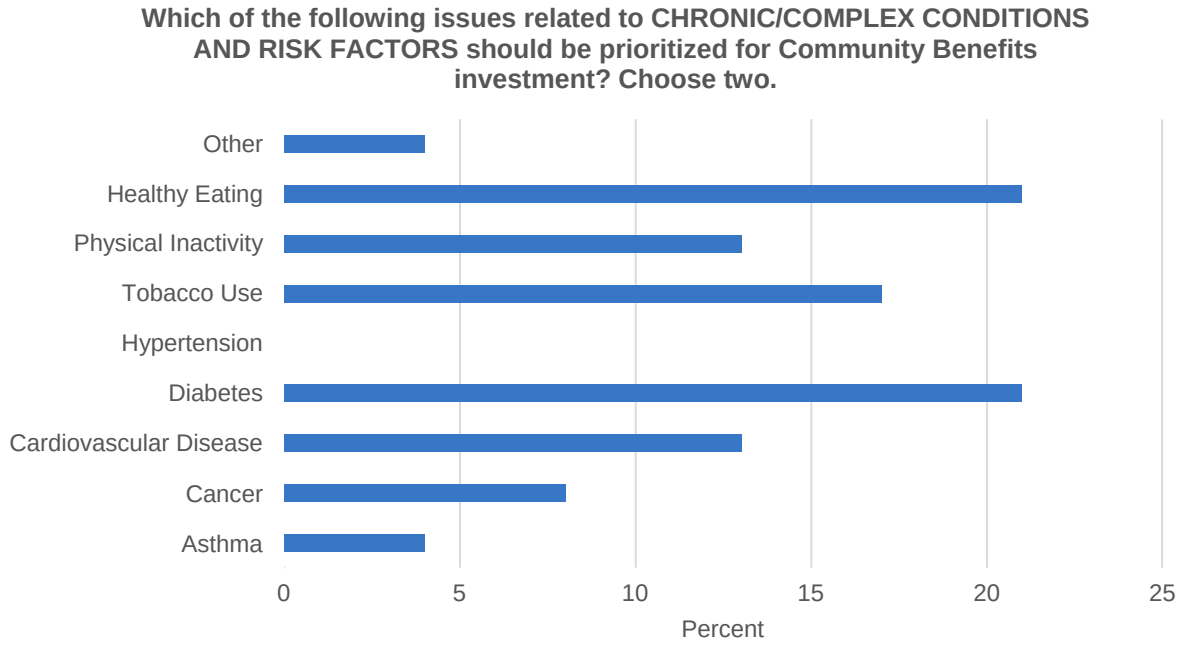


Figure 22: HEALTHY AGING PRIORITY AREA (POLL RESULTS)

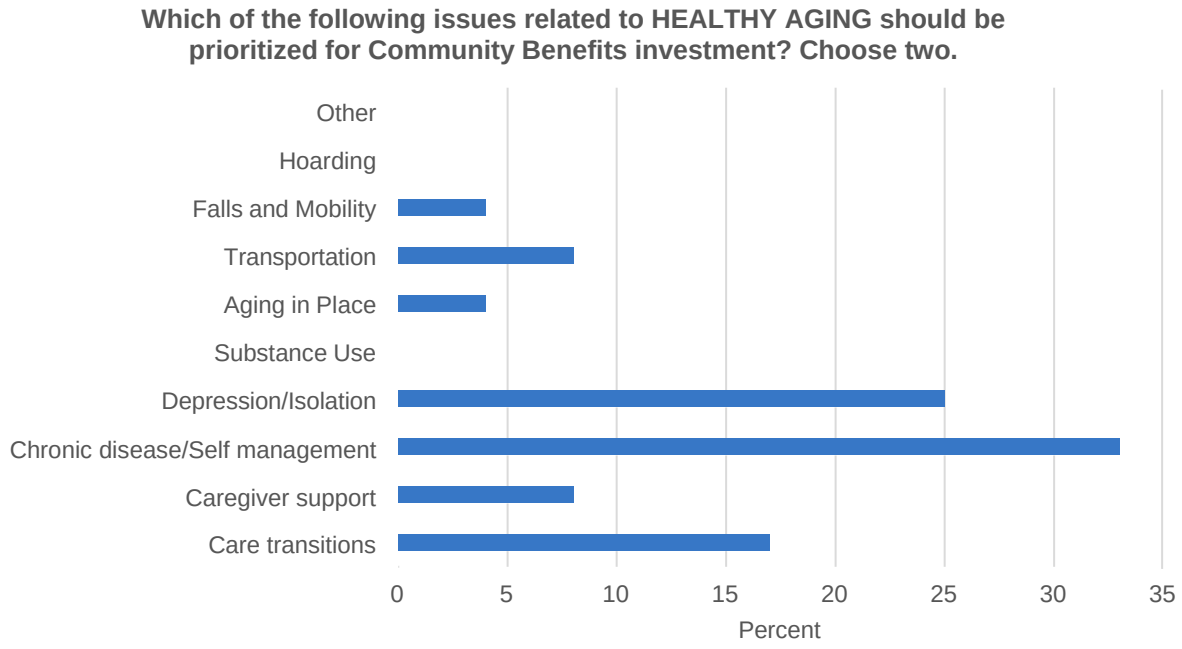


Figure 23: VIOLENCE PRIORITY AREA (POLL RESULTS)

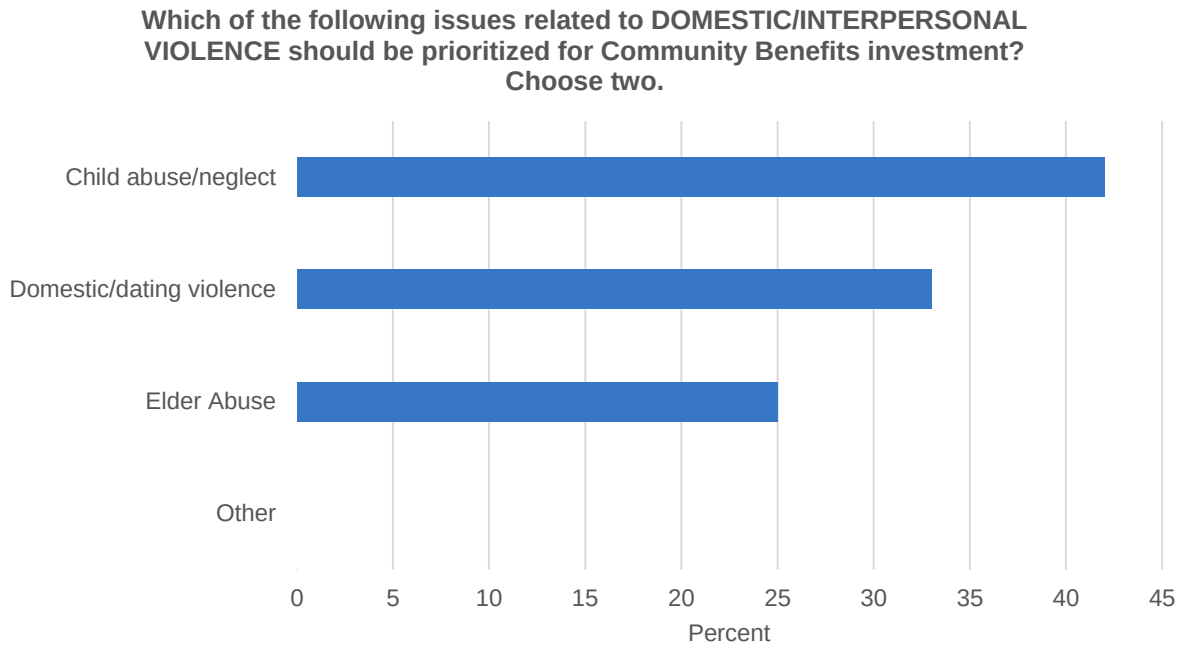
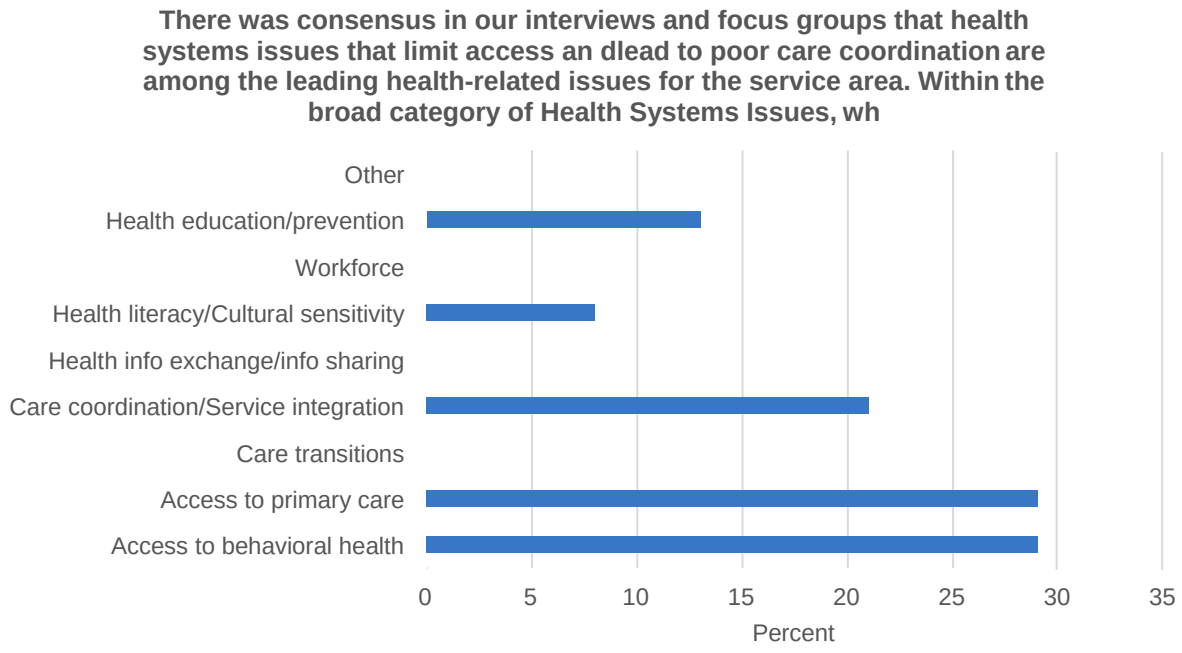


Figure 24: HEALTH SYSTEMS ISSUES (POLL RESULTS)



IV. Community Health Improvement Plan

UMass HealthAlliance-Clinton Hospital already has a robust community health implementation plan that has been working to address many of the identified issues. However, this CHNA has provided new guidance and invaluable insight on the characteristics of the population, risky behaviors, and disease burden (quantitative data), as well as the community attitudes and perceptions (qualitative data) that have informed and allowed UMass HealthAlliance-Clinton Hospital to refine its CHIP. The following are the core elements of UMass HealthAlliance-Clinton Hospital's updated Community Health Improvement Plan (CHIP).

The plans outlined below, per the discussion above, are designed to address the underlying social determinants of health / barriers to care, promote health equity, and strengthen the health system. They are also designed to address the topical community health priorities, including activities geared to health education and wellness (primary prevention), identification, screening, and referral (secondary prevention), and disease management and treatment (tertiary prevention (e.g., self-management support, harm reduction, treatment of acute illness, and recovery). The following are brief summaries of each of the major strategic domains that have been identified, including a discussion of the priority community health sub-issues that have been prioritized within each of the domains.

PRIORITY AREA 1: HEALTH EQUITY, SOCIAL DETERMINANTS OF HEALTH, AND HEALTH SYSTEM STRENGTHENING HEALTH SYSTEM ISSUES

Priority Area 1: Health Equity, Social Determinants of Health, and Health System Strengthening
Goal 1: Promote health equity and reduce disparities for those facing racism and discrimination
Goal 2: Promote equitable care and support for those with limited English proficiency
Goal 3: Promote health equity and reduce disparities in access for LGBTQ populations
Goal 4: Develop partnerships with low income housing facilities
Goal 5: Support workforce development and creation of employment opportunities
Goal 6: Promote transportation equity
Goal 7: Promote healthy eating and active living
Goal 8: Increase access to health insurance and other public assistance programs
Goal 9: Promote resilience and emergency preparedness
Goal 10: Promote cross-sector collaboration and partnership
Goal 11: Increase access to medical services

One of the leading findings from the qualitative findings (interviews, focus groups, and forums was the impact that racism, discrimination and social injustice had on major segments of the population, especially African Americans/Blacks, Hispanics/Latinos, Muslims, recent immigrants, and LGBTQ groups. The assessments findings also showed clear geographic and demographic disparities related to the leading social determinants of health (e.g., economic stability, housing, education, and community/social context). These issues influence and define quality of life for many segments of the population in the Hospital's service area. A dominant theme from key informant interviews and community forums was the tremendous impact that the underlying social determinants, particularly housing, poverty, transportation and food access, have on residents in the service area.

Eastern Massachusetts, North Central Massachusetts and UMass HealthAlliance-Clinton Hospital's service area has one of the strongest and most comprehensive healthcare systems in the world. This system is expansive and while one may have to travel long distances for some highly specialized services, spans the full healthcare continuum, including outreach and screening services, primary care medical and medical specialty care, behavioral health, long-term care, post-acute, and hospital-based services. There are no absolute gaps in services across the continuum, even for low income and racially/ethnically diverse populations that often struggle with access to health care services. This does not mean, however, that everyone in the Hospital's service area receives the highest quality services when they want it and where they want it. In fact, despite the overall success of the Commonwealth's heath reform efforts, data captured for this assessment shows that segments of the population, particularly low income and racially/ethnically diverse 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, uninsured patients.

Among the service areas safety net primary care clinics, the uninsured rates range up to nearly 30%. Community Health Connections, one of the Hospital's leading community health / community benefits partners serves the largest proportion of uninsured patients in the regions.

The following goals were established by the UMass HealthAlliance-Clinton Hospital Steering Committee to respond to the CHNA and the strategic planning process. Please refer to the CHIP for more details.

PRIORITY AREA 2: BEHAVIORAL HEALTH

Priority Area 2: Reduce Prevalence and Burden of Behavioral Health

Goal 1: Increase access to mental health and substance use education, screening, referral, navigation, support, and treatment services

There is a deep and growing appreciation for the impact that mental health and substance use, collectively called behavioral health, are having on individuals, families and communities. Behavioral health issues impact all segments of the population across the Hospital's service area and across all demographic segments. No segment is left untouched, although different illnesses and substances are of lesser or greater concern among some segments. From a review of the quantitative and qualitative information, depression, anxiety, and stress as well as those with bipolar disorder and other serious mental illnesses are the leading issues with respect to mental health. Attention deficit hyperactivity disorder, autism, and other undefined behavioral issues in children also were highlighted quite often in our interviews, focus groups, and forums. With respect to substance use, alcohol, opioids, and marijuana were thought to be the leading issues. Prevalence, incidence, and service utilization rates (inpatient hospitalization, emergency department visits, and public program utilization) relative to behavioral health are higher in a number of cities/towns in the Hospital's service area when compared to the Commonwealth.

Despite increased community awareness and sensitivity about the underlying issues and origins of mental health as well as substance use and addiction, there is still a great deal of stigma related to these conditions and there is a general lack of appreciation for the fact that these issues are often rooted in genetics, physiology, and one's environment, rather than any inherent, controllable character flaw. There is also a deep appreciation and a growing understanding for the role that trauma plays for many of those with mental health and substance use/misuse issues, with many people using illicit or controlled substances to self-medicate and cope with loss, violence, abuse, discrimination, and other unresolved traumatic events. Many of those who have experience trauma suffer acutely from formally diagnosed post-traumatic stress disorder (PTSD), while others either have milder, less substantial impacts, or have undiagnosed PTSD. Racism and discrimination has also been shown to play a substantial role with respect to behavioral health issues and access to preventive, treatment, and recovery services. Isolation and depression in older adult segments was brought up in nearly every discussion that touched on elder health.

Finally, there is a dramatic gap in capacity when it comes to mental health and substance use services, particularly for those who are low income, Medicaid insured, uninsured, or underinsured. Even for those who are insured and have comprehensive benefits, it can be challenging to find behavioral health professionals willing to take insurance, so care can be extremely costly, presenting a barrier for all except those who are very affluent.

Large proportions of the population are substantially impacted by mild to moderate behavioral health issues such as mild/moderate depression, anxiety, and acute stress, as well as mild to

moderate alcohol and marijuana use/misuse. Smaller segments struggle acutely with severe mental illnesses like severe bipolar condition, schizophrenia, and dementia or severe substance use issues alcoholism and opioid addiction.

The following goals were established by the UMass HealthAlliance-Clinton Hospital Steering Committee to respond to the CHNA and the strategic planning process. Please refer to the CHIP for more details.

PRIORITY AREA 3: CHRONIC / COMPLEX CONDITIONS & THEIR RISK FACTORS

Priority Area 3: Reduce Prevalence and Burden of Chronic/Complex Conditions

Goal 1: Improve chronic disease management

Goal 2: Reduce the prevalence of tobacco use

Goal 3: Increase access to education, screening, and referral programs

Goal 4: Reduce cancer disparities (access to screening and treatment)

Overall, substance use and mental health were perceived by those who participated in the assessment as the leading health issues facing those in UMass HealthAlliance-Clinton Hospital's service area. Nonetheless, one cannot ignore the fact that heart disease, stroke and cancer are by far the leading causes of death in the nation, the Commonwealth, and the Hospital's service area. Roughly 7 in 10 deaths can be attributed to these three conditions. If you include respiratory disease (e.g., asthma, Congestive heart failure, and COPD) and diabetes, which are in the top 10 leading causes across all geographies than one can account for the vast majority of causes of death. All of these conditions are generally considered to be chronic and complex and can strike early in one's life, quite often ending in premature death. In this category, heart disease, diabetes, and hypertension were thought to be of the highest priority, although cancer was also discussed frequently in the focus groups and forums. There are also a number of cities and towns in the service area who have higher rates of certain types of cancer than Commonwealth overall. HIV/AIDS, other sexually transmitted diseases and Hepatitis C were also mentioned in numerous frequently in the assessment's interviews and focus groups and are should certainly be included in the chronic/complex condition domain. It is also important to note that the risk and protective factors for nearly all chronic/complex conditions are nearly all the same, including tobacco use, lack of physical activity, poor nutrition, obesity, and alcohol use.

Although treating these illnesses requires a range of clinical interventions, there is a great deal of overlap with respect to the potential community interventions. Population-level responses to chronic and complex conditions all require community-based education, screening, self-management support, timely access to treatment, and seamless coordination of follow-up services.

UMass HealthAlliance-Clinton Hospital, in collaboration with public health officials, community-based organizations and other clinical providers is already fully engaged on these issues and the Hospital has a broad range of existing programs that work to address prevention, service coordination, improve follow-up care, and ensure that those with chronic and complex conditions are engaged in the services they need. However, these efforts need to be enhanced and refined based on data from this assessment. Moving forward, it is critical that these issues be addressed and perfected so that UMass HealthAlliance-Clinton Hospital, other clinical providers, and the broad range of key community-based organizations can work collaboratively to address

community need, especially for those facing disparities in access and outcomes.

The following goals were established by the UMass HealthAlliance-Clinton Hospital Steering Committee to respond to the CHNA and the strategic planning process. Please refer to the CHIP for more details.

PRIORITY AREA 4: DOMESTIC AND INTERPERSONAL VIOLENCE

Priority Area 4: Domestic and Interpersonal Violence
Goal 1: Identify and support victims of trauma, domestic violence, and emotional distress

Interpersonal violence, often referred to as intimate partner violence, domestic violence or battering, is a pattern of behavior used to establish power and control over another person through fear and intimidation, often including the threat or use of violence. The abuse can take several forms: physical, emotional, sexual, and economic as well as threats, stalking/surveillance, isolation and intimidation. Although women are more likely to be targeted, anyone can be a victim of interpersonal violence including those in the LBTQ communities, men, disabled persons, seniors, and elders. In Massachusetts, 1 in 3 women and 1 in 5 men have experienced some form of physical or sexual violence or stalking at the hands of an intimate partner.[37]

One of the leading findings from our qualitative interviews, focus groups, and community forums was the impact that domestic and interpersonal violence had on major segments of the population, particularly women, children, and older adults. Many participants in our interviews and group sessions talked passionately about the challenges that many individuals and families experience due to spousal abuse, elder abuse, and child abuse. The impacts of these issues can have a ripple effect within families and across generations overtime.

The following goal was established by the Steering Committee to respond to the CHNA and the strategic planning process. Please refer to the CHIP for more details.

[37] Boston University, "Domestic and Interpersonal Violence," https://www.bu.edu/fsao/resources/interpersonal-violence/

PRIORITY AREA 5: HEALTHY AGING

Priority Area 5: Healthy Aging
Goal 1: Promote healthy aging and independent living
Goal 2: Reduce falls and improve mobility

In the United States, in the Commonwealth, and in UMass HealthAlliance-Clinton Hospital's service area, older adults are among the fastest-growing age groups. The first baby boomers (adults born between 1946 and 1964) turned 65 in 2011, and over the next 20 years these baby boomers will gradually enter the older adult cohort. Older adults are much more likely to develop chronic illnesses and related disabilities such as heart disease, hypertension, and diabetes as well as congestive heart failure, depression, anxiety, Alzheimer's, Parkinson's disease, and dementia. The older you get the more likely it is that you have one or more chronic conditions: 80% of people 65 and older live with one or more chronic conditions. [38] Many experience hospitalizations, nursing home admissions, and low-quality care. They also may lose the ability to live independently at home.

According to qualitative information gathered through interviews and community forums, elder health is one of the highest priorities chronic disease, depression and isolation, elder abuse, and fragmentation of services, as well as poverty, transportation, food access, and the impacts of poverty were identified as leading issues facing the area's older adult population.

The following goals were established by the UMass HealthAlliance-Clinton Hospital Steering Committee to respond to the CHNA and the strategic planning process. Please refer to the CHIP for more details.

[38] Jessie Gerteis, David Izrael, Deborah Deitz, Lisa LeRoy, Richard Ricciardi, Therese Miller, and Jayasree Basu,"Multiple Chronic Conditions Chartbook," AHRQ Publications No, Q14-0038. Rockville, MD: Agency for Healthcare Research and Quality. April 2014.

APPENDIX A

Inventory of Regional Partners and Community Resources

UMass HealthAlliance-Clinton Hospital
Community Health Needs Assessment 2018
Inventory of Regional Partners and Community Resources

*Indicates organization is a partner of UMass HealthAlliance-Clinton Hospital.

Regional Health-Related Coalitions
Community Health Network of Central Massachusetts (CHNA 9) and Membership*
Joint Coalition on Health and Membership*
Montachusett Public Health Network*

Municipal Health
Fitchburg Wellness Committee*
Local Boards of Health and Public Health*
Leominster Wellness Committee*

Hospitals
Heywood Hospital*
UMass HealthAlliance-Clinton Hospital

Primary Care / Specialty Care
Active Life Adult Day Health Care
Community Health Connections
GVNA Health Care
Montachusett Home Care*

Philanthropic and Charitable Organizations
Health Foundation of Central Massachusetts*
United Way of North Central Massachusetts*

Mental Health and Substance Use
Alyssa's Place Peer Recovery and Resource Center
Central Massachusetts Tobacco Free Community Partnership*
GAAMHA*
Leominster Opioid Task Force*
Leominster Police Substance Abuse Outreach Program*
LUK, Inc.*
Montachusett Suicide Prevention Taskforce*
National Alliance on Mental Health (NAMI)*
Recovery Centers of America*
The SHINE Initiative*
YOU, Inc.

Regional Planning and Transportation

Massachusetts Department of Transitional Assistance
Montachusett Regional Planning Commission*
Montachusett Regional Transit Authority

Elder Services

Councils on Aging*
Senior Centers*

Education

Fitchburg State University*
Local Public Schools*
Montachusett Regional Vocational Technical School*
Mount Wachusett Community College*
Sizer School*

Children & Youth Services

Boys & Girls Club of Fitchburg and Leominster*
Clinton Community Partnership*

First Responders

Local Fire Departments*
Local Police Departments*

Housing and Homeless Services

Habitat for Humanity of Central Massachusetts*
Montachusett Interfaith Hospitality Network*
Our Father's House*

Food Access

Growing Places*
Loaves and Fishes*

Multi-Service Organizations

Community Healthlink*
Salvation Army*
United Way of Tri-County WHEAT Community Connections*

Economic Opportunity/Workforce Development

Montachusett Opportunity Council*
Nashoba Valley Chamber of Commerce*
North Central Massachusetts Chamber of Commerce
North Central Massachusetts Development Council*

Domestic and Sexual Violence

Pathways for Change*

Cultural Advocacy

Indigenous People's Network
Minority Coalition/Three Pyramids*
Spanish American Center*
United Hmong of Central Massachusetts

Disabilities

ARC of Opportunity*
New England Amputee Association*
Seven Hills Foundation Family Support Center*

Legal Assistance

District Attorney Joseph D. Early's Office*

APPENDIX B

Community Engagement Approach and Methods

UMass HealthAlliance-Clinton Hospital CHNA/CHIP 2017-2018
Summary of Community Engagement Activities

Key Informant Interviews (18) **Purpose:** Key informant interviews are done to collect qualitative information from key health and social service providers, city/town officials, representatives from community organizations or advocacy groups, and other community leaders to (1) confirm and refine findings from secondary data, (2) provide community context, (3) clarify needs and priorities of the community. **Methods:** JSI worked with the Hospital to identify a representative group of key informants. Interviews were approximately 30-60 minutes long and were conducted in-person and by-phone using a structured interview guide created by the JSI Project Team. Detailed notes were taken for each interview and findings were compiled to identify emerging themes.	18 key stakeholder interviews complete (see list attached)
Focus Groups (4) **Purpose:** Focus groups are conducted with key segments of the population and/or key types of service providers. This activity allows for the collection of more targeted and nuanced information from segments of the population who are deemed most at-risk and the key service providers who serve these populations and are critical to community health improvement. Focus groups (1) augment findings from secondary data and key informant interviews and (2) allow for exploration of strategic and programmatic options to address identified health issues, service gaps, and/or barriers to care. **Methods:** Focus groups were conducted using a structured guide developed by the JSI Project Team. Each group lasted approximately 60-90 minutes depending on the size of the group. Specific populations and/or provider groups were recruited to participate based on specific demographic and/or sociodemographic characteristics, population segments struggling with particular health issues, or critical service provider groups identified as emerging target populations. Participants were recruited in collaboration with the Hospital and key informants.	**1. Community Health Connections** *Safety-Net Providers* November 27, 2017 **2. Montachusett Public Health Network** *Health Departments* December 13, 2017 **3. CHNA 9** *Stakeholders, Advocates, and Providers* December 14, 2017 **4. CHART Team** *Behavioral Health Providers (Internal)* February 6, 2018

Community Forums (3)	
Purpose: Community forums allow for the capture of information directly from community residents and, to some extent, representatives from local service providers or community organizations. Input is captured from residents on (1) community health needs and priorities, (2) service system gaps, (3) barriers to care across a wide array of health-related service and community resource domains (e.g., health, housing, transportation, safety, food access). Forums are critical to fulfilling a comprehensive community engagement plan and will support the development of a sound and objective health needs assessment that will be used to develop programs that reduce disparities and improve health status. **Method:** The JSI Project Team worked the Hospital and key informants to determine appropriate hosts for Community Forums to ensure that residents have an accessible and safe space to gather and share their thoughts. JSI designed forum materials to fully engage the community in a way that both educated on findings from secondary data and fostered a true spirit of engagement. Forums took place over a 90 minute period and involved a structured and interactive set of plenary and group activities (when appropriate) to maximize opportunities for engagement and information gathering. Findings were presented through a PowerPoint presentation that allowed target audiences to fully digest, understand, and interact with assessment findings.	**Host:** UMass Health Alliance-Clinton Hospital *Leominster Campus* **Target populations:** *Community at-large* **----------** **Host:** WHEAT Community Connections **Target populations:** *Low-income; Spanish speakers; Community at-large* **----------** **Host:** The Minority Coalition/Three Pyramids *Salvation Army, Fitchburg* **Target populations:** *Hispanic/Latinos; Black/African Americans; Portuguese; Hmong; Indigenous Peoples*

Key Informant Interviewees

Beth Barto, *LUK, Inc.*
Susan Buchholz, *Joint Coalition on Health of North Central MA*
Christine Cernak, *UMass Memorial Health Care*
Maritza Cruz, *YWCA*
Stephen Curry, *Montachusett Public Health Network*
Philip Duffy, *Town of Clinton Community and Economic Development Office*
Adrian Ford, *Three Pyramids, Inc./Minority Coalition*
Tina Grosowsky, *Central MA Tobacco Free Community Partnership*
Shawn Hayden, *GAAMHA*
Irene Hernandez, *Three Pyramids, Inc./Minority Coalition*
Kendra Lawson, *UMass Memorial Health Care*
Donata Martin, *Boys and Girls Club of Leominster and Fitchburg*
Barbara Nealon, *Heywood Health Care*
Chelsey Patriss, *CHNA 9*
Jeremy Roche, *Fitchburg High School*
Joyce Ryan, *Montachusett Home Care*
Lynnette Valentine, *Salvation Army of Fitchburg*
Theresa Wilson, *Loaves and Fishes*

APPENDIX C

Community Health Needs Assessment Databook

Key

Statistically higher than statewide rate

Statistically lower than statewide rate

		Primary Service Area									
	MA	*Ashburnham*	*Ashby*	*Clinton*	*Fitchburg*	*Gardner*	*Leominster*	*Lunenburg*	*Townsend*	*Sterling*	*Westminster*	*Source*
Social Determinants of Health												
Population												
Age under 18 (%)	20.8	23.0	19.5	19.5	22.7	21.0	20.8	22.8	24.7	24.6	21.6	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Age over 65 (%)	14.7	11.3	13.4	13.1	13.5	15.7	14.9	15.0	11.2	13.9	12.0	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Race / Ethnicity / Culture												US Census Bureau, 2011-2015 ACS 5-Year Estimates
White alone (%)	79.6	96.8	97.6	89.5	79.6	90.0	83.2	93.0	95.8	96.1	98.1	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Black alone (%)	7.1	1.0	0.7	2.1	4.1	2.2	4.7	2.4	0.1	1.2	0.8	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Asian alone (%)	6.0	0	1.1	1.7	4.6	1.8	2.3	1.7	1.6	0.9	-	US Census Bureau, 2011-2015 ACS 5-Year Estimates
American Indian/Alaska Native (%)	0.2	0	0.1	0.1	0.3	0.5	0.2	-	0.2	0.4	-	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Native Hawiian/Other Pacific Islander (%)	0	0	-	-	-	-	-	-	-	-	-	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Some other race (%)	4.2	0.7	0.4	2.3	8.1	2.8	6.5	1.1	1.4	0.3	0.2	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Two or more races (%)	2.9	1.5	0.1	4.3	3.3	2.6	3.1	1.8	0.9	1.1	0.8	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Hispanic / Latino (%)	10.6	0.6	1.9	14.7	23.9	8.0	15.3	3.7	1.1	3.5	3.4	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Foreign Born (%)	15.5	1.1	4.9	10.9	11.4	7.9	10.9	7.5	2.6	4.9	4.5	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Language Spoken at Home by Population 5 Years and Older												
Speaks another language at home and speaks English less than "very well" (%)	8.9	2.5	1.1	5.0	8.8	3.2	8.5	2.1	1.5	2.0	0.5	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Speaks Spanish at home; Speaks English "less than very well" (%)	3.5	-	0.8	3.1	6.1	1.2	4.6	0.8	-	0.8	-	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Speaks Asian and Pacific Islander languages at home; Speaks English less than "very well" (%)	1.9	-	-	0.3	1.4	0.5	0.5	0.2	0.8	0.4	-	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Speaks Indo-European languages at home and speaks English less than "very well" (%)	3.0	-	-	1.5	1.0	1.4	2.1	1.1	0.6	0.8	0.5	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Household												US Census Bureau, 2011-2015 ACS 5-Year Estimates
Total households	2,549,721	2,216.0	1,048.0	5,644.0	14,842.0	8,142.0	16,772.0	42,887.0	3,276.0	2,748.0	2,779.0	
Family households (families) (%)	63.6	72.8	81.3	59.1	63.6	60.6	62.8	68.9	74.6	78.0	74.3	
In married couple family (%)	46.9	22.2	67.5	41.9	41.9	37.9	43.6	54.4	61.5	61.7	59.6	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Average family size	3.2	3.2	3.3	3.2	3.1	3.0	3.0	3.0	3.3	3.2	3.1	US Census Bureau, 2011-2015 ACS 5-Year Estimates

	Primary Service Area										
	MA	*Ashburnham*	*Ashby*	*Clinton*	*Fitchburg*	*Gardner*	*Leominster*	*Lunenburg*	*Townsend*	*Sterling*	*Westminster*	*Source*
Social Determinants of Health												
Income and Unemployment (past 12 months)												US Census Bureau, 2011-2015 ACS 5-Year Estimates
Civilian Labor Force - Unemployment Rate (%)	7.6	6.3	7.2	7.1	12.6	10.1	9.2	4.8	5.2	5.7	3.8	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Median household income (dollars)	68,563.0	87,615.0	82,019.0	62,805.0	48,724.0	43,905.0	58,955.0	80,572.0	81,047.0	87039	88,902.0	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Population for whom poverty status is determined (#)	6,506,029.0	6,026	3,176	13,752	38,443	19,188	40,797	10,897	9,203	7,823	7368	
Below 200% of federal poverty line (individuals) (%)	24%	0.1	0.2	0.2	0.4	0.4	0.3	0.2	0.1	0.2	0.1	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Below 300% of federal poverty line (individuals) (%)	37%	24%	32%	40%	56%	57%	44%	29%	29%	34%	21%	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Below federal poverty line - all residents (%)	11.6	7.4	8.0	9.1	19.4	19.1	13.1	9.2	3.7	4.9	3.4	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Below federal poverty line - under 18 (%)	15.2	4.5	12.3	10.6	29.1	32.9	16.9	15.8	1.2	5.8	3.2	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Below federal poverty line - age 65+ (%)	9.2	7.3	5.6	14.1	13.5	8.2	9.0	6.6	6.1	10.3	-	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Families below federal poverty line (%)	8.2	2.4	4.7	4.7	14.5	16.1	11.3	7.3	2.2	2.8	1.5	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Families below federal poverty line - female head of household, no husband present (%)	25.5	0	28.2	22.0	36.8	41.8	34.2	38.1	14.8	3.5	-	US Census Bureau, 2011-2015 ACS 5-Year Estimates
With cash public assistance income (%)	3.0	0.6	3.5	2.2	5.1	5.7	3.4	1.4	1.3	0.9	1.2	US Census Bureau, 2011-2015 ACS 5-Year Estimates
With Food Stamp/SNAP benefits (%)	12.5	1.4	5.3	10.3	20.9	23.5	13.5	4.8	7.4	7.6	3.3	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Free and Reduced Lunch Enrollment (%)	44.0											US Census Bureau, 2011-2015 ACS 5-Year Estimates
Education												
High school degree or higher (%)	89.8	96.1	92.8	90.4	82.2	84.4	86.5	92.3	96.3	94.7	93.8	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Bachelor's degree or higher (%)	40.5	41.3	24.3	33.9	20.7	16.5	27.0	35.3	34.5	46.6	42.7	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Housing												
Vacant housing units (%)	9.8	19.4	7.3	9.1	12.9	11.2	5.8	6.1	6.5	2.6	8.9	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Owner-occupied (%)	62.1	92.8	88.2	54.1	54.3	50.6	55.1	76.5	81.9	84.6	87.7	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Over 30% of income spent on housing costs	34.5	37.6	14.1	18.2	35.0	39.8	30.7	33.1	29.4	27.8	31.9	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Renter-occupied (%)	37.9	7.2	11.8	45.9	45.7	49.4	44.9	23.5	18.1	15.4	12.3	US Census Bureau, 2011-2015 ACS 5-Year Estimates
Over 30% of income spent on rent	50.6	0	36.8	37.5	52.1	45.5	49.6	45.6	49.2	72.1	22.1	US Census Bureau, 2011-2015 ACS 5-Year Estimates

		Primary Service Area										
	MA	*Ashburnham*	*Ashby*	*Clinton*	*Fitchburg*	*Gardner*	*Leominster*	*Lunenburg*	*Townsend*	*Sterling*	*Westminster*	*Source*
Social Determinants of Health												
Crime												
Population in 2015	6,794,422	6206			40,467	20,444	41,261	11,384	9,520		7,511	FBI Uniform Crime Reports 2015
Violent crime counts												FBI Uniform Crime Reports 2015
Overall	26,562	11			340	197	372	22	11		23	FBI Uniform Crime Reports 2015
Murder/non-negligent manslaughter	128	-			1	-	1	-	-		-	FBI Uniform Crime Reports 2015
Forcible rape	2,075	3			26	16	36	3	2		2	FBI Uniform Crime Reports 2015
Robbery	5,288	-			66	8	26	2	-		-	FBI Uniform Crime Reports 2015
Aggravated assault	19,071	8			247	173	309	17	9		21	
Property crime counts												FBI Uniform Crime Reports 2015
Overall	114,871	65			1,055	346	1,093	340	96		16	FBI Uniform Crime Reports 2015
Burglary	21,890	16			315	54	154	59	49		79	FBI Uniform Crime Reports 2015
Larceny-theft	84,912	48			677	286	873	274	43		6	FBI Uniform Crime Reports 2015
Motor vehicle theft	8,069	1			63	6	66	7	4		-	
Violent crime rates (per 100,000)												
Overall rate	391	177			840	964	902	193	116		306	FBI Uniform Crime Reports 2015
Murder/non-negligent manslaughter rate	2	-			2	-	2	-	-		-	FBI Uniform Crime Reports 2015
Forcible rape rate	31	48			64	78	87	26	21		27	FBI Uniform Crime Reports 2015
Robbery rate	78	-			163	39	63	18	-		-	FBI Uniform Crime Reports 2015
Aggravated assault rate	281	129			610	846	749	149	95		280	FBI Uniform Crime Reports 2015
Property crime rates (per 100,000)												
Overall rate	1,691	1,047			2,607	1,692	2,649	2,987	1,008		213	FBI Uniform Crime Reports 2015
Burgulary rate	322	258			778	264	373	518	515		1,052	FBI Uniform Crime Reports 2015
Larceny-theft rate	1,250	773			1,673	1,399	2,116	2,407	452		80	FBI Uniform Crime Reports 2015
Motor vehicle theft rate	119	16			156	29	160	61	42		-	FBI Uniform Crime Reports 2015

Key

Statistically higher than statewide rate

Statistically lower than statewide rate

		Primary Service Area										
	Massachusetts	Ashburnham	Ashby	Clinton	Fitchburg	Gardner	Leominster	Lunenburg	Sterling	Townsend	Westminster	Source
Overall Morbidity and Mortality (age-adjusted rate per 100,000) (2008-2012)												
All cause												
Hospitalizations (2008-2012)	11569.7	10353.3	9923.43	11390.72	12022.2	14032.63	10500.18	10023.95	9273.93	10464.78	8856.36	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
ED discharges (2008-2012)	36897.6	27681.61	24951.9	51252.06	39321.44	45106.79	38897.12	28442.16	29538.91	28390.51	25761.78	MA Hospital Emergency Visit Discharges, 2008-2012 (accessed through MassCHIP)
Mortality (2014)	662.057	813.0	805.4	857.0	788.8	873.0	760.2	633.8	682.7	893.7	688.7	MA Vital Records 2014
Premature mortality for <75 yr population	274.9	286.1	358.7	449.2	393.5	509.0	358.1	205.0	217.1	382.2	316.3	MA Vital Records 2014
Injuries and Poisonings												
Hospitalizations (2008-2012)	109.31	102.82	117.44	127.53	179.76	213.41	145.53	108.88	63.75	89.93	78.71	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
Mortality - Accidents (2014)	51.7	--1	--1	38	57.7	83.6	55.8	61.1	--1	134.8	--1	MA Vital Records 2014
Mortality - Self Inflicted (2014)	8.5	--1	0.0	--1	--1	--1	11.9	0.0	--1	--1	0.0	MA Vital Records 2014
Motor Vehicle												
Hospitalizations, 2008-2012	59.32	85.19	74.49	79.64	67.92	60.66	50.46	87.67	41.91	92.8	51.53	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
Mortality (2014)	5.4	--1	--1	0.0	--1	--1	--1	0.0	--1	--1	0.0	MA Vital Records 2014
Assaults												
Mortality (2014)	2.2	0.0	0.0	0.0	--1	0.0	0.0	0.0	0.0	0.0	0.0	MA Vital Records 2014
Behavioral Health (age adjusted rate per 100,000)												
Total number of people served in BSAS Contracted/Licensed		255.0	100 or less	176.0	728.0	284.0	543.0	0-100	0-100	0-100	0-100	
Facilities in FY2014	85,823											MA Bureau of Substance Abuse Services
Client Characteristics												
White (%)	81	93.0	92.9	80.7	77.9	93.1	84.3	91.8	100.0	94.4	98.4	MA Bureau of Substance Abuse Services
Black of African American (%)	6.6	Unknown	Unknown	Unknown	2.7	Unknown	2.7	Unknown	0.0	Unknown	Unknown	MA Bureau of Substance Abuse Services
Multi-Racial or Other (%)	12.4	Unknown	Unknown	17.5	19.3	6.5	12.9	Unknown	0.0	Unknown	Unknown	MA Bureau of Substance Abuse Services
Hispanic (%)	11.7	0.0	Unknown	20.3	20.7	7.7	13.3	Unknown	0.0	Unknown	Unknown	MA Bureau of Substance Abuse Services
Completed High School (%)		65.0	44.4	62.5	49.9	43.6	45.1	58.7	56.7	51.7	44.4	MA Bureau of Substance Abuse Services
Under 18 (%)	1.6	Unknown	Unknown	Unknown	1.8	Unknown	2.2	Unknown	Unknown	Unknown	Unknown	MA Bureau of Substance Abuse Services
18-25 (%)	21.4	16.3	Unknown	37.0	19.4	27.7	29.1	27.1	40.0	35.2	43.8	MA Bureau of Substance Abuse Services
26-30 (%)	20.9	41.9	37.0	20.4	22.3	22.9	27.4	17.6	Unknown	28.4	23.4	MA Bureau of Substance Abuse Services
31-40 (%)	25.9	Unknown	Unknown	29.4	32.6	29.5	22.1	31.8	20.0	17.0	18.8	MA Bureau of Substance Abuse Services
41-50 (%)	18.7	18.6	22.2	8.1	16.8	14.0	10.3	11.8	Unknown	12.5	Unknown	MA Bureau of Substance Abuse Services
51 and older (%)	11.6	Unknown	Unknown	5.2	7.2	5.2	9.1	9.4	Unknown	Unknown	9.4	MA Bureau of Substance Abuse Services
Homeless (%)	17.6	Unknown	Unknown	10.2	16.9	13.6	10.6	Unknown	Unknown	13.6	10.9	MA Bureau of Substance Abuse Services
Unemployed (%)	76.3	63.9	68.0	76.2	82.1	85.8	74.5	68.6	50.0	74.4	69.8	MA Bureau of Substance Abuse Services
Had Prior Mental Health Treatment (%)	43.9	30.2	29.6	37.9	40.4	44.2	42.1	46.3	26.7	36.4	54.7	MA Bureau of Substance Abuse Services
Primary Drug of Use												
Alcohol (%)	31.9	37.2	40.7	18.5	26.0	28.1	28.7	36.6	63.3	23.9	37.5	MA Bureau of Substance Abuse Services
Heroin (%)	53.1	44.2	51.9	63.5	59.9	54.7	54.0	51.2	Unknown	62.5	45.3	MA Bureau of Substance Abuse Services
All Other Opioids (%)	5.8	Unknown	Unknown	11.8	5.3	5.8	10.0	Unknown	Unknown	Unknown	10.9	MA Bureau of Substance Abuse Services
Crack/Cocaine (%)	3.4	Unknown	Unknown	3.8	3.8	6.2	2.9	Unknown	Unknown	Unknown	Unknown	MA Bureau of Substance Abuse Services
Marijuana (%)	4	Unknown	Unknown	Unknown	3.6	2.2	2.6	Unknown	Unknown	6.8	Unknown	MA Bureau of Substance Abuse Services
Other (%)	1.7	Unknown	Unknown	Unknown	1.1	2.9	1.7	Unknown	Unknown	Unknown	Unknown	MA Bureau of Substance Abuse Services
Alcohol/Substance Use Related												
Hospitalizations (2008-2012)	337.58	159.35	299.97	328.33	333.86	404.33	273.82	293.12	148.39	204.52	185.36	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
ED discharges (2008-2012)	858.83	512.51	493	838.34	695.01	783.73	509.66	574.79	444.7	538.14	361.48	MA Hospital Emergency Visit Discharges, 2008-2012 (accessed through MassCHIP)
Opioids												
Hospitalizations (2008-2012)	315.55	201.37	158.24	192.06	335.76	373.29 \	194.89	170.51	116.46	176.04	141.23	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
Related ED discharges (2008-2012)	259.63	154.23	333.23	229.23	363.16	166.26	259.89	186.45	192.26	279.54	127	MA Hospital Emergency Visit Discharges, 2008-2012 (accessed through MassCHIP)
Mortality (2014)	16.3	--1	0.0	--1	32.9	24.5	19.7	--1	0.0	--1	--1	MA Vital Records 2014
Mental Disorders												
Hospitalizations (2008-2012)	837.85	576.06	692.1	723.07	1038.07	1591.04	697.14	637.4	509.5	568.97	525.31	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
Related Hospitalizations (2008-2012)	3839.51	3057.16	3100.58	3586.3	4329.58	5857.24	3356.84	2941.37	2662.45	2860.4	2523.49	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
ED discharges (2008-2012)	2091.86	1642.03	1330.16	2135.89	2760.26	3048.85	1971.98	1496	1286.85	1510.98	1347.62	MA Hospital Emergency Visit Discharges, 2008-2012 (accessed through MassCHIP)
Related ED discharges (2008-2012)	4990.42	4106.05	4314.21	7406.38	9091.68	7065.82	7555.69	5036.76	4590.87	4303.32	3513.2	MA Hospital Emergency Visit Discharges, 2008-2012 (accessed through MassCHIP)
Mortality (2014)	59.89	--1	--1	61.8	38.2	23.6	61.3	50.7	104.0	--1	60.4	MA Vital Records 2014
Suicide Deaths (2014)	8.5	--1	0.0	--1	--1	--1	11.9	0.0	--1	--1	0.0	MA Vital Records 2014

		Primary Service Area										
	Massachusetts	Ashburnham	Ashby	Clinton	Fitchburg	Gardner	Leominster	Lunenburg	Sterling	Townsend	Westminster	Source
Chronic Disease (age-adjusted rate per 100,000) (2008-2012)												
Diabetes												
Hospitalizations (2008-2012)	135.03	117.97	141.64	127.45	163.92	171.97	112.84	110.76	132.91	101.52	86.59	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
Related Hospitalizations (2008-2012)	1845.55	1420.83	1397.49	1984.83	2279.24	2344.22	1749.15	1443.15	1517.22	1685.2	1223.96	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
ED discharges (2008-2012)	133.4	77.57	95.59	295.22	199.46	127.49	180.49	101.41	76.84	112.9	91.71	MA Hospital Emergency Visit Discharges, 2008-2012 (accessed through MassCHIP)
Mortality (2014)	14.6	--1	--1	--1	27.4	1.0	23.3	--1	0.0	--1	--1	MA Vital Records 2014
Chronic Liver Disease												
Hospitalizations (2008-2012)	29.07	NA	NA	59.7	34.94	65.41	25.27	NA	NA	NA	NA	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
Mortality (2014)	8.3	0.0	--1	--1	--1	--1	--1	--1	0.0	0.0	0.0	MA Vital Records 2014
Hypertension												
Hospitalizations (2008-2012)	45.49	NA	NA	28.99	23.28	53.11	16.63	24.88	NA	NA	NA	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
Related Hospitalizations (2008-2012)	4025.13	3268.6	3305.67	3915.92	4227.29	4566.32	3593.28	3542.81	3408.37	4039.05	3022.12	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
ED discharges (2008-2012)	121.49	77.36	NA	182	118.13	121.21	102.75	78.01	61.13	81.97	66.46	MA Hospital Emergency Visit Discharges, 2008-2012 (accessed through MassCHIP)
Related ED discharges (2008-2012)	2831.29	2592.02	3218.81	6586.93	5922.48	3715.51	5639.5	3972.31	3360.53	4191.46	2680.28	MA Hospital Emergency Visit Discharges, 2008-2012 (accessed through MassCHIP)
Mortality (2014)	5.6	0.0	0.0	0.0	--1	--1	--1	0.0	0.0	--1	0.0	MA Vital Records 2014
Major cardiovascular disease												
Hospitalizations (2008-2012)	1343.98	1407.04	1262.89	1383.78	1421.32	1647.99	1279.76	1329.25	1338.92	1579.13	1275.38	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
ED discharges (2008-2012)	402.11	521.07	322.68	678.09	571.77	580.32	513.52	518.04	395.18	503.5	483.14	MA Hospital Emergency Visit Discharges, 2008-2012 (accessed through MassCHIP)
Mortality (2014)	178.6	259.3	--1	258.5	194.7	291.5	200.5	232.5	126.3	237.8	177.0	MA Vital Records 2014
Heart Disease												
Hospitalizations (2008-2012)	980.37	997.42	999.8	1004.23	1054.29	1246.6	943.35	999.19	931.65	1256.64	908.12	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
ED discharges (2008-2012)	214.98	323.24	195.67	354.22	345.86	336.95	321.11	351.69	224.84	311.09	304.54	MA Hospital Emergency Visit Discharges, 2008-2012 (accessed through MassCHIP)
Mortality (2014)	137.4	209.6	1.0	222.6	143.6	193.2	127.4	152.0	108.9	183.3	159.7	MA Vital Records 2014
Coronary Heart Disease												
Hospitalizations (2008-2012)	320.8	403.55	372.35	369.52	377.35	500.1	325.72	319.07	269.25	420.37	327.12	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
Mortality (2014)	84	112.8	1.0	136.5	98.3	128.2	80.4	93.9	76.8	109.6	138.2	MA Vital Records 2014
Heart Failure												
Hospitalizations (2008-2012)	273.09	246.22	249.13	288.94	291.5	282.03	252.98	231.24	266.91	353.66	203.21	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
Related Hospitalizations (2008-2012)	1191.58	1189.02	1102.8	1243.68	1282.08	1628.62	1068.82	959.74	1177.22	1500.88	910.89	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
Cerebrovascular												
Hospitalizations (2008-2012)	227.67	298.95	154.58	224.39	254.18	254.51	233.95	226.73	256.31	208.11	259.49	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
Mortality (2014)	28.8	--1	0.0	--1	42.4	94.7	55.2	80.5	--1	--1	--1	MA Vital Records 2014
COPD												
Hospitalizations (2008-2012)	364.35	349.52	355.79	392.12	481.21	590.45	347.77	370.62	238.46	411.64	216.37	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
Mortality (2014)	31.4	--1	--1	--1	58.7	44.9	34.8	--1	--1	--1	--1	MA Vital Records 2014
Asthma												
Hospitalizations (2008-2012)	151.92	175.18	NA	122.4	215.58	214.41	151.64	146.85	97.75	106.89	103.59	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
Related Hospitalizations (2008-2012)	899.18	939.55	591.75	745.48	1251.37	1518.18	953.9	710.24	619.43	655.15	656.5	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
ED discharges (2008-2012)	573.49	404.87	257.57	871.04	701.77	833.73	629.47	287.34	468.44	327.37	363.31	MA Hospital Emergency Visit Discharges, 2008-2012 (accessed through MassCHIP)
Related ED discharges (2008-2012)	1443.98	1093.92	1505.83	3812.13	4217.5	2139.41	3605.08	2029.27	2058.25	1785.75	1260.55	MA Hospital Emergency Visit Discharges, 2008-2012 (accessed through MassCHIP)
Mortality (2014)	1	0.0	0.0	0.0	--1	--1	--1	0.0	0.0	0.0	0.0	MA Vital Records 2014
Obesity Hospitalizations	66.92	59.89	NA	77.17	78.57	77.43	77.42	70.15	38.69	70.42	63.52	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
Cancer (age-adjusted rates per 100,000)												
Cancer (all types)												
Hospitalizations (2008-2012)	371.3	345.97	438.33	321.49	302.95	370.9	341.39	313.87	359.51	355.25	371.6	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
ED discharges (2008-2012)	15.58	NA	NA	18.61	11.61	19.85	13.7	NA	NA	NA	NA	MA Hospital Emergency Visit Discharges, 2008-2012 (accessed through MassCHIP)
Mortality (2014)	155.6	139.5	--1	217.2	177.4	244.0	184.9	90.4	203.4	208.3	219.8	MA Vital Records 2014
Breast cancer - women only												
Hospitalizations (2008-2012)	39.08	NA	NA	29.11	28.05	29.95	30.96	NA	48.65	NA	53.89	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
ED discharges (2008-2012)	1.93	0	NA	NA	NA	NA	NA	0	0	0	0	MA Hospital Emergency Visit Discharges, 2008-2012 (accessed through MassCHIP)
Mortality (2014)	10.2	0	0	--1	--1	--1	13.6	0	--1	--1	--1	MA Vital Records 2014
Colorectal cancer												
Hospitalizations (2008-2012)	38.41	NA	NA	32.6	33.59	38.73	27.07	43.14	23.42	51.94	NA	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
ED discharges (2008-2012)	0.83	0	0	NA	0	NA	NA	NA	0	0	0	MA Hospital Emergency Visit Discharges, 2008-2012 (accessed through MassCHIP)
Mortality (2014)	12.6	0	0	--1	--1	--1	12	--1	--1	--1	--1	MA Vital Records 2014
Lung cancer												
Hospitalizations (2008-2012)	47.86	NA	NA	48.22	43.75	45.81	42.16	29.21	43.66	54.22	39.78	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
ED discharges (2008-2012)	2.66	NA	0	NA	NA	NA	NA	0	NA	0	NA	MA Hospital Emergency Visit Discharges, 2008-2012 (accessed through MassCHIP)
Mortality (2014)	40.7	--1	0	44.7	59.9	85.4	47.1	--1	--1	57.9	105.7	MA Vital Records 2014
Prostate cancer												
Hospitalizations (2008-2012)	58.1	72.96	NA	55.25	38.91	52.33	68.66	82.37	116.09	NA	52.08	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
ED discharges (2008-2012)	1.18	NA	0	0	NA	NA	NA	0	0	0	0	MA Hospital Emergency Visit Discharges, 2008-2012 (accessed through MassCHIP)
Mortality (2014)	7.4	0	0	0	--1	--1	12.9	0	--1	0	0	MA Vital Records 2014
Maternal and Child Health												
Infant Mortality, 2014 (rate per 1,000)	4.5	0.0	0.0	27.5	9.9	--1	15.4	0.0	0.0	0.0	0.0	MA Vital Records 2014
Low Birth Weight (<2500 grams/5.5 lbs), 2014 (%)	7.5	NA	NA	7.7	8	8	9	8	NA	NA	NA	MA Vital Records 2014
Preterm births (<37 weeks), 2015	6001	-	-	25	45	17	32	8	5	2	5	MA Vital Records 2015
Number of resident births to mothers 15-19, 2015	2140	5	NA	6	44	11	22	NA	NA	NA	NA	MA Vital Records 2015
Percent of All Children With Substantiated Allegations of Maltreatment Following an Investigation (Duplicated Counts)	60.2	82.86	NA	62.39	62.38	64.71	68.95	48.84	61.11	59.46	57.14	Massachusetts Department of Public Health, 2008-2012 (accessed through MassCHIP)

		Primary Service Area										
	Massachusetts	Ashburnham	Ashby	Clinton	Fitchburg	Gardner	Leominster	Lunenburg	Sterling	Townsend	Westminster	Source
Infectious Disease												
Chlamydia cases (lab confirmed), 2016	26448	8	<5	50	177	53	112	28	12	20	21	MDPH Bureau of Infectious Disease and Laboratory Sciences, Office of Integrated Surveillance and Informatics Services
Gonorrhea cases (lab confirmed), 2016	4617	<5	-	<5	22	<5	11	<5	<5	-	<5	MDPH Bureau of Infectious Disease and Laboratory Sciences, Office of Integrated Surveillance and Informatics Services
Syphillis cases (probable and confirmed), 2016	1033	<5	-	<5	10	<5	<5	<5	<5	-	-	MDPH Bureau of Infectious Disease and Laboratory Sciences, Office of Integrated Surveillance and Informatics Services
Hepatitis C cases (confirmed and probable), 2015	8986											MDPH Bureau of Infectious Disease and Laboratory Sciences, Office of Integrated Surveillance and Informatics Services
Lyme Disease Cases (Confirmed and probable), 2015	4352	5	<5	<5	11	7	12	9	7	8	<5	MDPH Bureau of Infectious Disease and Laboratory Sciences, Office of Integrated Surveillance and Informatics Services
Pneumonia/Influenza												
Confirmed Influenza cases, 2015	15869											MDPH Bureau of Infectious Disease and Laboratory Sciences, Office of Integrated Surveillance and Informatics Services
Hospitalizations (2008-2012)	322.16	370.2	226.87	363.28	369.3	551.14	325.6	277.73	358.83	355.4	270.73	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
Mortality (2014)	15.7	0.0	0.0	--1	24.9	23.3	9.1	--1	0.0	--1	0.0	MA Vital Records 2014
HIV/AIDS (age-adjusted rate per 100,000) (2008-2012)												
Hospitalizations (2008-2012)	12.43	NA	0	NA	6.39	15.11	6.87	NA	NA	0	0	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
HIV/AIDS Related hospitalizations (age-adjusted rate)	42.76	NA	0	41.66	32.09	27.47	24.14	NA	NA	NA	0	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
Mortality (2014)	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	MA Vital Records 2014
Infectious and Parasitic Disease (age-adjusted rate per 100,000) (2008-2012)												
Hospitalizations (2008-2012)	396.88	221.51	255.89	372.48	348.48	439.75	313.87	232.58	375.45	292.29	233.77	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
Mortality (2014)	17.5	--1	0.0	--1	10.8	--1	16.0	--1	--1	--1	--1	MA Vital Records 2014
Elder Health (age-adjusted rate per 100,000) (2008-2012)												
Falls												
Hospitalizations (2008-2012)	366.9	305.56	335.43	353.33	380.93	434.36	329.46	339.56	285.61	361.53	336.02	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
ED discharges (2008-2012)	2763.94	2307.06	1956.79	3932.73	2583.14	3429.18	2897.69	2374.03	2732.26	2507.13	2296.9	MA Hospital Emergency Visit Discharges, 2008-2012 (accessed through MassCHIP)
Hip fracture hospitalizations (2008-2012)	83.77	74.96	NA	90.38	95.58	78.64	89.03	107.77	88.88	107.24	78.48	MA Hospital Inpatient Discharges (UHDDS), 2008-2012 (accessed through MassCHIP)
Alzheimers deaths (2014)	19	--1	0.0	--1	52.4	16.9	30.5	--1	--1	--1	--1	MA Vital Records 2015
Parkinson's deaths (2014)	7	0.0	0.0	0.0	--1	--1	11.4	0.0	0.0	--1	--1	MA Vital Records 2014

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. Crime: FBI Uniform Crime rates are accompanied by the upper and lower bounds of the 95 percent confidence interval, calculated by John Snow, Inc. using the following formula:

d= number of events upon which the rate is based
n= population

Upper Limit: (100,000/n)(d+(1.96 x square root of d))
Lower Limit: (100,000/n)(d-(1.96 x square root of d))

3. 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 D

UMass Memorial HealthAlliance-Clinton Hospital

2015-2018 Evaluation of Impact

UMass Memorial HealthAlliance-Clinton Hospital 2015-2018 Evaluation of Impact

				Priority Areas				
	UMass Memorial HealthAlliance - Clinton Hospital developed and approved an Implementation Strategy to address significant health needs identified in the 2015-2018 Community Health Needs Assessment (CHA). These programs support the North Region Community Health Improvement Plan (CHIP) which was developed collaboratively with the Community Health Network Association 9. The Implementation Strategy closely aligns the CHIP and addresses the following health needs through a commitment of Community Benefit programs and resources	**Target Populations:** • Elderly • Youth/children • Populations living in poverty • Underserved/uninsured • Ethnic and Linguistic Minorities		Healthy Eating and Active Living	Individuals and Families in Healthy and Safe Relationships	Mental/Behavioral Health/Substance Use/Suicide prevention	Access to Health Care	Transportation and Access

Community Benefits Programs	Intended to reach a target population?	Aligned with need or priority area?	Aligned with CHIP?	Healthy Eating and Active Living	Individuals and Families in Healthy and Safe Relationships	Mental/Behavioral Health/Substance Use/Suicide prevention	Access to Health Care	Transportation and Access	Strategy & Goal	Reach	Evidence based?	Can impact be measured?	Achieved positive impact?
Community Garden Program Clinton campus allows the use of hospital land for garden beds to be planted and cultivated by needy families to feed themselves in a healthy manner. The garden project provides low-income families the tools needed to harvest their own healthy foods, reduce their food budgets, stimulates social interactions, and educate the gardeners on nutrition.	Underinsured/ Uninsured and Medically Underserved populations living in poverty	Increase Access to Healthy Eating by Addressing Access to Food Security	☒	X		X			Create an environment that supports people's ability to make healthy eating and active living choices in their community. CHIP Strategy 1.1.3: Support the efforts of local groups to develop and implement educational curricula to teach residents the skills to grow, harvest, and prepare healthy and culturally relevant foods.	The garden project provides low income families with the tools needed to grow and harvest their own healthy foods and educate them on healthy eating. Clinton campus provides the space letting participants of the project grow food in 33 planting beds. Hospital Facilities helps maintain the garden. The hospital's partners Growing Places and Parent Guild program provide each participant with gardening knowledge, lessons on how to grow, harvest, maintain and prepare their own fresh produce. A minimum of 40 people served between 2015-2018. The garden is a collaborative project on shared open spaces where participants share in the maintenance and products of the garden, including healthful and affordable fresh fruits and vegetables. Gardens offer physical and mental health benefits by providing			☒

										opportunities to: Eat healthy fresh fruits and vegetables, engage in physical activity, skill building, improves social well-being through strengthening social connections and creating green space. (CDC)			
UMass Memorial HealthAlliance - Clinton Hospital implemented the **Walk with a DOC national initiative. (2nd hospital to implement program in MA)** *Walk with a Doc's Mission is: Encourage healthy physical activity in people of all ages, reverse the consequences of a sedentary lifestyle, and improve the health and well-being of the United States.*	Target Populations: • Youth/children • Populations living in poverty • Underserved/uninsured • Ethnic and Linguistic Minorities • Elderly	Increase Access to Active Living by Addressing healthy weight	☒	X		X	X		Strategy 1.1.2: Increase access to healthy weight • Organize, coordinate, and support an exercise program	Established a "Walk with a Doc" Program in Fitchburg and Clinton. Program began in September 2017 with Dr. Jill Tirabassi at HealthAlliance Fitchburg Family Practice and in March 2018 at Clinton with Dr. Joshua Orabone. Walk with a Doc is a national grassroots movement devoted to encouraging healthy physical activity and improving the health and well-being of our country and local communities. A minimum of 35 members participated in the program.		☒	☒
WHEAT Community Connections Feeding program for families that are food insecure. The hospital partnered with Morrison Health Care Food Services and WHEAT Community Services to provide hot, nutritious meals to families in need free of charge. Employees from the hospital help with this effort by serving meals to community members served at the WHEAT Café. WHEAT is a nonprofit organization whose mission is "to support individuals and low income families who are experiencing economic and personal challenges by providing emergency services and programs that promote self-sufficiency".	Target Populations: • Youth/children • Populations living in poverty • Underserved/uninsured • Ethnic and Linguistic Minorities • Elderly	Increase Access to Healthy Eating by Addressing Access to Food Security	☒	X		X			Strategy 1.1.3: Increase access to healthy nutrition	This effort serves between 60-80 people monthly. Served over 500 hot nutritious meal to populations in need between 2015-2018.			☒

Health Insurance/Food Security enrollment program Massachusetts has made health insurance mandatory in the state, nearly 4% remain uninsured. At Health Alliance-Clinton Hospital, the financial counselor's department promotes and provides insurance enrollment and other entitlement related program assistance.	Underinsured/ Uninsured and Medically Underserved populations living in poverty	Increase Access to Healthy Eating by Addressing Access to Food Security	☒	X		X			CHIP Strategy 1.1.4: Increase participation of eligible North Central residents in federal nutrition programs and health insurance. Increase participation of hospital's catchment area residents in federal nutrition programs, including school meals, summer meals, SNAP, WIC, etc.	Hospital's financial councilors enrolled over 3,000 people in health insurance and 1,500 in supplemental nutrition program SNAP between 2015-2018.			☒
HealthAlliance-Clinton serves on the CHNA 9 Coalition and Steering Committee as part of a statewide effort to develop, implement, and integrate community projects to effectively utilize community resources to create healthier communities. CHNA 9 is a partnership between the Massachusetts Department of Public Health, the Central MA Center for Healthy Communities, residents, hospitals, local service agencies, schools, faith communities, businesses, boards of health, municipalities, and other concerned citizens working together to: * Identify the health needs of member communities * Find ways to address those needs * Improve a broad scope of health in these communities **Leading efforts - North Central MA Working Group(s):** (UMass Memorial HealthAlliance -Clinton Community Benefits is a participating member of these work group)	Target Populations: • Youth/children • Populations living in poverty • Underserved/uninsured • Ethnic and Linguistic Minorities • Elderly	Healthy Eating and Active Living Behavioral/Mental Health, Substance Abuse, and suicide prevention/Racial Justice	☒	X		X	X		CHIP Objective 1.1: Assess barriers to accessing affordable fruits and vegetables in North Central and implement a plan to reduce these barriers by 2020. CHIP Strategy 1.1.1: By 2018, create a food access assessment for North Central using available regional data as well as input from community members, organizations, policy makers, and other stakeholders and develop a regional community food access plan based on the assessment. 1.1.2: Work with Worcester County Food Bank, Community Harvest Project, local farmers, farmers' markets, and supermarkets to increase the consistent availability of fresh fruits and vegetable donations to food pantries in the North Central area. 1.1.3: Support the efforts of local groups to develop and implement educational curricula to teach residents the skills to grow, harvest, and prepare healthy and culturally relevant foods. .	1.1.1 The Healthy Eating working group developed the North Central Community Food Assessment (CFA) overview outlining the overall goal and objectives of the CFA. Working with the Metro Area Planning Commission, the working group outlined a workplan for the CFA. 1.1.1 The Healthy Eating working group designed a CFA food access survey in English and Spanish, developed a stakeholder list, with the assistance of MOC, for deployment of the survey, and has begun disseminating the survey. 1.1.1 The Healthy Eating working group designed and tested a food market survey to assess availability of fresh fruits and vegetables in regional retail food markets. 1.1.3 The Bigelow Public Library in Clinton used the CHIP to receive a Library Services & Technology Act grant from the Institute of Museum & Library Service to offer health programs like low-glycemic cooking, Cooking Matters, and sponsoring outreach presentations locally. 1.2.1/1.3.1 Fitchburg State University partnered with the Active Living working group to implement a grant-funded research project on recreational spaces, physical activity, health, and attitudes/perceptions on healthy lifestyles in Fitchburg. While limited in geographic scope, the project can be replicated, with changes discovered in the small scale project, in other CHNA9 communities. 1.2.3 The UMass Memorial Healthcare Wellness Coordinator presented to the Active Living working group on the workplace wellness			☒

											initiative happening in the UMass Memorial Healthcare system and shared community wellness best practices. 1.2.4 A UMass Medical School intern mapped active living resources available in the Clinton area and these resources were published in the Clinton Parks and Recreation Department and Bigelow Public Library.			

										CHIPS Objective 3.1: By 2020, increase the number of bridge services for behavioral health and substance abuse and the numbers of youth and adults in North Central accessing those services by 10%.	3.1.1 The Mental and Behavioral Health and Substance Abuse working group discovered that wait list information is not readily available and that when it is available, it is highly individual depending on several factors, making it a poor indicator. The working group will instead establish a baseline for the number of bridge services available, and the traffic those services see on average. Increases in the number of services, as well as increased traffic to those services, will be the new measures of successful outcomes. 3.2.1/3.3.1 The Mental and Behavioral Health and Substance Abuse working group created a survey to gauge community awareness of signs, symptoms, and resources for mental and behavioral health and substance abuse. 3.2.3/3.3.3 The Mental and Behavioral Health and Substance Abuse working group has taken steps to create an inventory of evidence based trainings and best practices. Several working group partners have information that will be combined and included in the final product.			☒
				X	X	X		X	CHIP Strategy 3.1.3: Support the work of the Regional Behavioral programs and bridge services to facilitate registration and training of agencies with an identified Community Resource Finder.	CommunityHELP: a collaborative effort with UMass Memorial Healthcare system and Reliant Health, the CommunityHELP IT platform was developed and links community resources and social determinants with patient's needs and allows community to seek information on services. The pilot focuses on improving the connections of health resources of the community. The platform will be linked to the Medical Record in EPIC.			

									Objective 5.1: By 2020, establish a network of public health stakeholders with a common language for and capacity to address racial justice in North Central Mass. CHIP Strategy 5.1.3: Provide opportunities for ongoing discussions of racial justice in North Central MA to continue to engage trained community members.	5.1.3 Multiple partners including the hospital participated every year (2015-2018) in the YWCA Stand Against Racism events held in several locations throughout North Central. A minimum of 300 community members participated between 2015-2018.			☒
									CHIP Strategy 3.1: Provide support services for community members about Mental Health and provide resources to accommodate mental health interest	The hospital's community support programs are designed to inform the community at large of preventative methods, treatment of depression, how to manage the symptoms, and allocate community resources to help with mental health conditions. Help raise awareness of mental health resources through community lectures and support groups. A minimum of 250 people served between 2015-2018.			☒
Effective Intervention for our victims: The hospital hosted a Lunch and Learn Lecture with the YWCA Domestic Violence program for Service and Health Care providers: This workshop looked at various proven intervention techniques to provide victims with safety and hold batterers accountable. The director of the YWCA of Central MA Domestic Violence program, discussed prevention strategies, safety plans and threat assessments.	Service and Health Care Providers	Individuals and Families in Healthy and Safe Relationships	☒		X				Conduct presentations for community members in the CHNA-9 geographic area, ensuring that at least one training takes place in hospital catchment area	The hospital ensured two trainings take place in the hospital catchment area, 20 providers increase their knowledge on the Domestic Violence resources and tools to address the safety of the families served.			☒

YWCA (Daybreak) Display: "Empty Place at the Table" displayed at each HealthAlliance- Clinton campuses. "The Empty Place at the Table is an art exhibition which features dinner place settings, representing real victims of domestic violence missing from their family's lives. It presents a sobering picture of the lethality of domestic violence, including stories about the lives of our community victims. These victims lost their lives at the hands of an intimate partner. The display allows our community to mourn the loss of these victims together."	Community At-large	Individuals and Families in Healthy and Safe Relationships	☒		X				Goal: Improve and sustain the safety and overall security of the region's children, families, and individuals.	Raised awareness to over 300 community members 2015-2018.			
Health educational activities: The hospital promoted a series of wellness programs, health education lectures on health-related diseases, supporting nonprofit community base organizations and health fairs responding to community needs.	Target Populations: • Youth/children • Populations living in poverty • Underserved/uninsured • Ethnic and Linguistic Minorities • Elderly	Increase Access to Health Care Promote Health Equity by Addressing Health Disparities	☒	X		X			Goal: Develop and support strategies and wellness initiatives that enhance the health of the hospital service area.	• A quarterly educational series called "What's Up doc" was created which allows community members to meet with physicians to learn more about their specialty. All sessions focus on helping the patient to be mindful and key stake holders in their own health. • Annual family day has been organized to allow the community to visit the campus, meet with hospital staff, and community stakeholders to learn more about community health services, resources offered. • As a regional organization, we have created walking/running team of employees who attend local 5k races to support nonprofits. • Several annual health fairs and health screenings are done both in the business community and with local school partners.			☒
Implemented an evidence-based program in Spanish "Mi Vida, Mi Salud" My Life, My Health - Chronic Disease Self Management- A series of 2 1/2 hour workshops held weekly for six consecutive weeks. The program was developed to benefit individuals with ongoing health problems or those caring for people with chronic conditions.	Populations living in poverty Underserved/uninsured Ethnic and Linguistic Minorities	Increase Access to Health Care Promote Health Equity by Addressing Health Disparities	☒	X		X			Strategy 1.2.2: Provide community evidence-based education on Cardiovascular disease, Smoking, Stroke, Diabetes, and Nutrition	This was an ideal learning experience for 40 Spanish-speaking individuals who have a diagnosis that impacts their physical or emotional health; this included congestive heart failure, arthritis, emphysema, macular degeneration, obesity, mental health issues, high blood pressure, and a host of other illnesses. Participants found ways to deal with pain and fatigue; understood nutrition and exercise options; learn to communicate more effectively with health care professionals and became a stronger advocate for them. Program focused on goal setting and action plans accomplished in within the hospital supportive environment.	☒	☒	☒

In collaboration with Oriol Health Care, Clinton campus offered a **falls prevention evidence base program entitled, A Matter of Balance**. This eight-week session aims to teach participants how to lower their risk of falling through strength and balance exercises, by making healthier choices, assessing their homes and making small changes to help prevent falls. The program also provides tips on how to control falls and minimize fall-related injuries.	Elderly	Increase Access to Health Care Promote Health Equity by Addressing Health Disparities	☒						Goal: Reduce the fear of falling and increase activity levels among elder population.	60 Elders participated in "A Matter a Balance" an evidence base program managing concerns about falls emphasizing practical coping strategies to reduce the concerns and remain active and independent.	☒	☒	☒
Mental/Behavioral Health and Substance Community Support Efforts. These community support programs are designed to inform the community at large of preventative methods, treatment of depression, how to manage the symptoms, and allocate community resources to help with mental/behavioral and substance abuse conditions. Help raise awareness of mental health resources through community lectures and support groups.	Target Populations: • Youth/children • Populations living in poverty • Underserved/uninsured • Ethnic and Linguistic Minorities • Elderly	Individuals and Families in Healthy and Safe Relationships	☒		X	X			CHIP Strategy 3.1.2: Using the Community Hospital Acceleration, Revitalization, and Transformation (CHART) program as a best practice model, increase the capacity of inpatient and outpatient mental and behavioral health and substance abuse providers by training staff on shorter term treatments and improving access to complementary wellness programs.	• UMass Memorial HealthAlliance-Clinton Hospital was the recipient of a $3.7 million grant from the Health Policy Commission to help fund a full sale behavioral health program within our emergency Department. • More than 2000 patients received services which include mental health counseling, access to primary care physicians, application for health insurance, inpatient beds for addiction /and or mental health. • An Opioid Task force was created to address substance abuse at a regional level and to bring community partners together. With three work streams we look to put strategies in place for education, prevention and education. • HAH has funded a program through the Shine Initiative which created conversation groups in the schools around depression and suicide • The UMass Memorial HealthAlliance – Clinton Hospital Doyle Community Fund established a round of funding to community partners to address Prevention, Intervention and education as it relates to Opioid addiction. This funding went directly to the nonprofits to assist with community-based strategies.			☒
Youth Development Programming: The hospital works to address basic, social and personal needs to improve their communities' health. The workforce development program described illustrates one of the approaches the hospital is taking to meet the basic needs of everyday life that will ultimately improve the long-term health of the communities it serves.	Youth	Promote Positive Youth Development	☒		X	X			Goal: Increase the educational component of workforce development for youth with an emphasis on the role of educational attainment in future healthcare career pathways.	The Hospital provided 60 high school students with the opportunity of a health career preparation program during 2015-2018. The program exposes students to health career possibilities, role models and how health organizations operate; it is also an opportunity for practical experience to learn by doing and applying the knowledge. The students learn new skills and develop their own personal and professional interests.			☒

										They also expand their educational opportunities, personal network and make connections.			