Community Health Assessment of North Central Massachusetts

May 2015

Developed in Partnership with the Joint Coalition on Health, the Montachusett Public Health Network, Community Health Connections and Center for Health Impact (formerly Central MA AHEC)
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EXECUTIVE SUMMARY

The 2015 Community Health Assessment of North Central Massachusetts is an updated review\(^1\) of health status, issues, and related factors that have an impact on residents living in a very diverse area of the State. The current study was conducted as a collaborative effort between Heywood Healthcare’s Heywood Hospital and Athol Hospital; HealthAlliance Hospital; the Joint Coalition on Health (JCOH); the Montachusett Public Health Network (MPHN); and numerous other community partners that provide health-related services, as well as organizational and individual advocacy, via hospitals, health centers, rehabilitation centers, primary care physician and specialty networks, public health networks, schools, and community-based organizations. The study researchers and report writers were staff and consultants of the Center for Health IMPACT™ (formerly known as the Central Massachusetts Area Health Education Center, Inc.), located in Worcester, Massachusetts.

**Purpose**

Many important initiatives have resulted from past community health assessments of North Central Massachusetts. The current comprehensive study of overall health in the North Central Massachusetts region, including exploration of health status, issues, concerns and assets in communities defined by lines drawn upon a map, as well as the real social issues crossing those invisible lines, is intended to provide up-to-date and salient data to inform stakeholders from every sector of the community in their efforts to improve the health and welfare of persons living in North Central Massachusetts.

**Methodology and Data Sources**

Quantitative data for this study were obtained from many of the same resources used in prior assessments, including MassCHIP data obtained by individual request and configured manually in collaboration with MA DPH; the Youth Risk Behavior Survey (YRBS) data; U.S. Census data; and other authoritative data sources (e.g., state and federal governmental organizations or agencies) subject to rigorous review and data verification processes.

Qualitative data were gathered through 16 Focus Groups with 228 participants and 26 Key Informant interviews with individuals representing diverse communities and populations of North Central Massachusetts.

**Study Area Overview**

The following maps depict the regional configurations in which the data are presented:

\(^1\) The previous report was the 2011 Community Health Assessment of North Central Massachusetts.
Heywood Healthcare – Athol Hospital and Heywood Hospital Service Areas
The Study Area configuration for the current assessment includes the 30 municipalities listed below, including nine (9) cities and towns included for the first time in this report (in italics) and excluding six (6) cities and towns represented in prior reports: Barre, Berlin,Hardwick, New Braintree, Oakham, and Rutland.

| Ashburnham | Clinton | Harvard | New Salem | Princeton | Townsend |
| Ashby      | Erving  | Hubbardston | Orange  | Royalston | Warwick |
| Athol      | Fitchburg | Lancaster | Pepperell | Shirley | Wendell |
| Ayer       | Gardner | Leominster | Petersham | Sterling | Westminster |
| Bolton     | Groton | Lunenburg | Phillipston | Templeton | Winchendon |

Within the Health Status and Outcomes section of the report, some data sets reflect a further distillation of data from the communities of: Princeton/ East Princeton; Lancaster/South Lancaster; Groton/West Groton; Townsend/West Townsend; and Winchendon/Winchendon Springs, resulting in a presentation of data from 35 communities.

The Study Area communities are diverse in many ways, including falling into three counties (Worcester, Franklin and Middlesex), and exhibiting other contrasts that may be broadly considered as: eastern/western geographies; mostly homogenous/more diverse populations; and more affluent/economically struggling residents. Additionally, 80% of the included cities and towns are classified “rural,” defined as having fewer than 500 people per square mile (MacDougall and Campbell, 1995), which comprise 49% of the Study Area population.

Summary of Findings

DEMOGRAPHICS

- Overall, but uneven population growth
- Older population than the State in general
- Slightly more females than males
- 91% of population is non-Hispanic, Caucasians
- 8.5% of population is Hispanic/Latino
- 3% of population is non-Hispanic, Black/African American
- 2% of population is non-Hispanic, Asian
- A few communities have larger percentages of ethnically/racially diverse population than in State overall
- “I think we fall short a little when it comes to diversity and being sensitive to linguistic needs”

Population Growth: In 2010, the Study Area population was 268,539, a 3.96% increase from 2000 and a slightly higher growth rate than the State’s during the same time period (3.1%). However, it should be noted that the five largest cities and towns in the region: Leominster, Fitchburg, Gardner, Clinton and Athol, all experienced growth rates lower than the State’s, and four Study Area communities lost population: Gardner, Leominster, Townsend, and Wendell.

Age and Sex: Different from past assessments, the Study Area population in 2010 was older than in the State overall, with 52% of Study Area residents aged 50 years or older compared to 33.5% in the State. This may reflect not only an aging population, but also the
new configuration of cities/towns in the current study. Similar to the State population of 51.6% females to 48.4% males, the Study Area has slightly more females (50.5%) than males (49.5%).

**Race/Ethnicity:** The Study Area population comprises primarily non-Hispanic, Caucasians (91%). Latinos are the largest racial/ethnic group (8.5%) in the Study Area, representing a slight increase from 2000 to 2010. Notably, three Study Area cities have higher percentages of population that identify as Latino: Fitchburg at 21.6%, Clinton at 15% and Leominster at 14.5%. The percentage of the Study Area population that is non-Hispanic, Black/African American is 3%, as compared with 6.6% in the State overall. Three percent (3%) of the Study Area population identifies as “Some Other Race.” Two percent (2%) of the Study Area population are Asian, compared with the State percentage of 5.3%. Three percent (3%) of the Study Area population identifies as “Two or More Races.”

**SOCIODEMOGRAPHICS**

- Lower incomes than in State overall
- Wide income ranges between cities and towns in area
- Many individuals and families struggling with poverty and unemployment
- Higher percentage of married-couple households than in State, except in five largest cities/towns
- In five largest cities/towns, lower percentages of married-couple households; higher percentages of single women with children under 18; higher percentages of adults aged 65 and older living alone
- Homeless individuals living in temporary hotel housing is a concern
- Decreased unemployment, but income insecurity continues
- Low levels of educational attainment in some areas

**Income:** The estimated average per capita income in the Study Area was lower at $32,679 than in the State overall ($35,763), with the lowest per capita income in Orange at $21,203 and the highest in Bolton at $55,369. The lowest median annual household incomes were between $47,019 and $48,333 in Fitchburg, Athol and Gardner; Clinton, Leominster, and Royalston also reported median household incomes below the State level. The highest median annual household incomes were reported in Sterling and Princeton, both with reported median annual household incomes of more than $100,000.

**Poverty:** One-third of the Study Area cities and towns reported higher percentages of population living in poverty than the overall State percentage of 11.4%, with the highest percentages of poverty, ranging from 14.4% to 15.8% in Gardner, Wendell, Fitchburg, Ayer and Athol. Likewise, the percentage of children living in families below 100% of the poverty level was higher than the State’s (14.9%) in Lancaster, Warwick, Wendell, Athol, Gardner, Shirley, Royalston, most notably Fitchburg at 31.5%. Percentages of persons aged 65 and over living below 100% of the poverty level were also higher than the State’s (9.3%), ranging from 12.5% to 16.8% in Gardner, Fitchburg, Clinton and Templeton.

**Household composition:** The percentage of households comprised of married couples is much higher in the Study Area (77%) than in the State as a whole (46.3%) with many children under the age of 18 living within those households – except for in the area’s five largest cities/towns (Athol, Clinton, Fitchburg, Gardner, and Leominster), where there are lower rates of households composed of married couples; higher rates of households made
up a single woman with children under the age of 18; and high rates of older adults aged 65 and older living alone.

**Unemployment:** Unemployment levels have dropped throughout the Commonwealth to the rate of 8.9% in 2013. In the Study Area, only the town of Orange at 10.6% had a higher rate of unemployment than the State’s. Despite these decreased unemployment rates, there remains great concern among Study Area community members and leaders about the generally poor economy and the significant impacts of poverty upon the health and well-being of individuals and families.

**Homelessness:** 2014 Point in Time HUD data reported 158 known individuals who were homeless in the Study Area, mostly ages 25 and older, with 33% under the age of 18 and 8% between the ages of 18-24. Data regarding the numbers of homeless individuals in rural communities or the numbers of youth experiencing homelessness in specific cities and towns of the Study Area were not publicly available for this report.

**Educational Attainment:** In 2010, 11.3% of Massachusetts residents aged 25 and over did not possess a high school diploma, and 24.9% did not go beyond receiving a high school diploma or equivalent. In the Study Area, there were three municipalities with higher levels of residents with no high school diploma: Athol at 15.3%, Fitchburg at 15.6% and Gardner at 18%. At the opposite end of the spectrum is the town of Harvard where there was a 97.4% 4-year graduation rate in 2013.

**HEALTH STATUS AND OUTCOMES**

**Maternal and Child Health**

*Higher teen birth rates across Study Area than in the State with highest rates among Hispanic/Latinas ● Lower rates of adequate prenatal care among racial/ethnic groups in the Study Area than for the State ● Higher rate of infant mortality than State, twice as high as State in Fitchburg ● Nearly double the rate of women that smoked during pregnancy than in the State*

In 2010, the Study Area fertility rate was slightly higher than in the State overall. Eighty-one percent of births were to White, non-Hispanic mothers; 12.21% to Latino/Hispanic mothers (mostly in Fitchburg, Leominster); 3.09% to non-Hispanic, Black/African American mothers; and 2.6% to non-Hispanic Asian/Pacific Islander mothers. The five largest cities/towns reported the highest birth rates. The teen birth rate in every city and town in the Study Area, except for Pepperell, was higher than the State’s. The teen birth rate was highest among Hispanic/Latina mothers at 49.46 (mostly in Fitchburg and Leominster). There was adequate prenatal care for 77.02% of the Study Area births, similar to the State rate of 78.94%; however, rates for adequate prenatal care among racial/ethnic groups were all lower than for the State. Thirty-eight percent of expectant mothers in the Study Area received publicly-funded prenatal care, with the highest percentages of recipients in the 5 largest cities/towns, and the highest overall, 57.69%, in Orange. Low Birth Weight (LBW) was present in a majority of Study Area communities, though the percentage of LBW at 7.95% was only slightly higher than the State rate of 7.76%. The Study Area infant mortality rate was higher than the State’s rate of 4.38 per 1,000 live births; in Fitchburg, the
rate was more than twice the State rate at 9.17. In 2010, 11.64% of women smoked during pregnancy in the Study Area, nearly double the rate of women who smoked during pregnancy in the State as a whole (6.29%). These rates were even higher, above 20% in three Study Area cities/towns: Athol at 21.21%, Gardner at 22.41% and Orange at 24.36%. The Study Area had a slightly lower percentage of mothers who were either breastfeeding at discharge or planning to breastfeed at 79.84% than the State rate (81.8%); however, in the five largest cities/towns, percentages of mothers who were either breastfeeding at discharge or planning to breastfeed were lower than the Study Area average.

**Lead Poisoning:** Out of the 232 children who reported elevated blood lead levels and the 43 diagnosed with lead poisoning in 2012 in Massachusetts, three (3) were in the Study Area: two (2) in Fitchburg, and one (1) in Leominster.

**Oral Health:** Access to oral health services in the Study Area and a higher rate of total tooth loss than in the State among the older population continue to be challenges; however, many initiatives during the past decade have positively impacted oral health.

**Behavioral Health:**

*Indicators of mental health issues are among highest in State* ● *Psychiatric hospitalization rate, depression prevalence and suicide rates are higher than in State* ● *Alcohol use and binge drinking has decreased* ● *Higher percentage of smokers across all age groups than in State, especially among adult women* ● *Reported heroin use as primary substance used has increased*

**Mental Health:** Indicators of mental health issues in Fitchburg, Gardner, Athol, and Leominster are among the highest in the State. The psychiatric hospitalization rate of 1230.4 per 100,000 in the area is much higher than the State rate of 873.8; prevalence rates for depression and poor mental health are high and the suicide rate is higher than the State rate of 9.0: Orange at 12.8, Gardner at 14.8, Athol at 17.3, and Winchendon at 19.4. The Study Area had a lower Mental Disorder Mortality Rate of 44.64 deaths per 100,000 compared to the State at 54.18, though the rates were higher in nine Study Area communities. Per data from the 2011 YBRS, the percentage of Study Area youth that reported feeling sad or hopeless (27.9%) is less than in the U.S. (28.5%), but more than in the overall State (25%). LGBTQ youth in particular expressed struggling with anxiety, ADHD, sensory processing disorders, and depression. The Study Area’s Suicide Mortality rate 11.65 per 100,000 is notably higher than the State rate of 8.45.

**Substance Use:** The nature of substance use and abuse varies within the Study Area, although community clinicians, social service providers, community leaders and community members all cited it as a significant problem. Alcohol use, including binge drinking has decreased to lower than State rates in most of the Study Area across age groups, as have alcohol/substance related hospitalizations (343.97 per 100,000 for the State and 271.14 for the Study Area), although several communities have higher rates than the State’s. The Study Area has a higher percentage of current smokers than in the State in every age group, except for 65-74 year olds with equal percentages to the State. Notably, adult women in the Study Area had a higher percentage of smokers at 22.3%, which is 4.4
percentage points higher than in the State. Educational attainment did not impact most of the percentages.

**Opioid Use:** In the context of the opioid crisis in Massachusetts, increased opioid use is a major concern in the Study Area. The rate of Opioid-Related Hospitalizations in 2011 was lower in the Study Area than in the State as a whole, although Gardner had a much higher rate than in the overall State. Likewise, the Opioid-Related Mortality Rate was slightly lower in the Study Area at 9.32 per 100,000 than in the State (9.7), although the five largest cities and towns in the Study Area had higher rates, ranging from Gardner at 10.27 to Athol at 19.41, to the highest rates in Ashby at 42.51 and Pepperell at 28.34. Of great concern, there was a 12.7% increase from 2010 to 2014 in the percentage of Study Area individuals admitted to a BSAS-supported treatment program that identified heroin as their primary substance of use. In the five largest cities and towns, the percentage increase was higher at 22% in Clinton, 19% in Gardner and 15.4% in Fitchburg; and two times higher.

**Chronic Disease**

Adults across age groups are more overweight in the Study Area than in the State, especially those aged 45 – 74 ● The percentage of Study Area adults with current or past diabetes has increased since the last report and is higher than in the State ● High blood pressure and high cholesterol are higher in most age groups than in the State ● Adult women report higher rates of disability than men.

In the Study Area, adult respondents reported being overweight at a consistently higher percentage than in the State (59.3%) across all age groups, with reported percentages higher than 70% in the 45-54 age group (71.5%), the 55-64 age group (72.4%) and the 65-74 age group (73.6%). Childhood overweight and obesity is a concern as well, though percentages in children are more comparable to State percentages. However, 56% of Study Area residents report engaging in regular physical activity (defined as a 30 minute session at least 5 times a week), which is equal to the State percentage (though notably fewer college graduates in the Study Area reported regular physical activity, just 55.9% versus the State rate of 63.5%)

The percentage of Study Area adults that currently have or have had diabetes in the Study Area has increased in all age groups since the prior community assessment, and is currently higher at 9.3% than the State percentage (8%). Non-Hispanic, Black/African Americans have the highest percentage of reporting current or prior diabetes in both the State and in the Study Area. The percentage of Study Area adults reporting they have been diagnosed with high blood pressure is lower than the State’s for 35-44 year olds, but higher than the State for every other age group. Likewise, the percentage with high cholesterol was higher than for the State in all age groups except for the 65-74 year old age group. For both the Study Area and the Commonwealth, adult men have higher percentages of having been diagnosed with high diabetes or high cholesterol than adult women.

The percentage of the population diagnosed with asthma during their lifetime in the Study Area at 15.3% is similar to the State’s (15.4%). Broken down by age, however, percentages were lower in the Study Area for all age groups except for in the 25-34 age
group, with 19.9% as compared to the State at 18.5%, and in the 75+ age group at 11.5% compared to the State at 8.7%. In both the Study Area and the State, a higher percentage of women have been diagnosed with asthma than men.

Disability indicators are comparable between the State and the Study Area, at about 23% of respondents, though slightly higher in the Study Area’s 65-74 age group. Adult women in the Study Area reported having a disability at a higher rate (25.2%) than their male counterparts (20%). Reported disability among the Study Area population with less than a high school education was lower at 24.6% than in the State at 34.7%.

Disease-Related Mortality

Mortality rates in the Study Area from all diseases are higher than rates in the overall State, except for the age-adjusted Breast Cancer Mortality rate for women
- Cerebrovascular Disease Mortality and Coronary Heart Disease Mortality are significantly higher in the Study Area than in the State

**Overall Mortality**: The Overall Mortality Rate, defined as the number of deaths per 100,000 people, was 668.82 for the State in 2011 and higher at 737.16 for the Study Area. Three of the five largest cities and towns had even higher rates: Gardner at 802.61, Athol at 868.14 and Fitchburg at 873.16. As in the overall State, the highest rate of overall mortality by race/ethnicity in the Study Area was 948.11 for Black/African American, Non-Hispanics as compared to 735.86 for White, Non-Hispanics. Premature mortality, defined as the number of deaths occurring before the age of 75 per 100,000 persons, was slightly higher in the Study Area in 2011 at 310.42 than the State rate at 273.41.

**Cancer**: The age-adjusted cancer (all types) mortality rate was slightly higher at 169.3 per 100,000 in the Study area than in the State (165.65) and higher in Gardner and Leominster than in the overall Study Area. As in the State, Black/African American, Non-Hispanics in the Study Area had the highest cancer mortality rate of 231.23 as compared with 170.83 for White, Non-Hispanics. The age-adjusted breast cancer mortality rate for women in the Study Area was lower at 17.85 per 100,000 than the overall State rate (19.26). By race/ethnicity, data for the Study Area were available only for White, Non-Hispanic women at an overall rate of 18.91 as compared to 19.82 in the State. However, the highest rates for age-adjusted breast cancer rates in Massachusetts were found in Black/African American, Non-Hispanic women at 25.5 per 100,000. The age-adjusted lung cancer mortality rate in 2011 in the Study Area was higher at 50.23 than in the State (44.63). Three of the five largest cities and towns had higher rates: Fitchburg at 54.19, Gardner at 66.52, and Clinton at 71.62.

**Cerebrovascular Disease Mortality**: In 2011, the Study Area had a significantly higher age-adjusted cerebrovascular disease mortality rate of 54.82 per 100,000 than in the overall State (29.83). Three of the five largest cities and towns had even higher rates: Athol at 61.75, Leominster at 74.36 and Fitchburg at 79.57. By race/ethnicity, Hispanics/Latinos in the Study Area had the highest rate at 69.89; notably, the rate in Leominster was much higher at 106.15.
**Coronary Heart Disease Mortality:** In 2011, the Study Area had a significantly higher age-adjusted coronary heart disease mortality rate of 107.44 per 100,000 than in the overall State (91.44). All of the five largest cities and towns had even higher rates, ranging from 114.8 in Leominster to 134.95 in Gardner. Coronary heart disease mortality rates were similar for all racial/ethnic groups in the Study Area as compared to the State: White, Non-Hispanics at 105.98; Hispanics at 107.15 and Asian/Pacifi Islander, Non-Hispanics at 46.99. However, the rate for Black/African American, Non-Hispanics in the Study Area was much higher than in the State – 280.08 compared to 97.05.

**Chronic Liver Disease Mortality:** In 2011, the Study Area had a slightly higher age-adjusted chronic liver disease mortality rate of 10.54 per 100,000 than the State’s rate (7.45). Of the five largest cities and towns, rates were similar to the Study Area as a whole, except for Athol with a significantly higher rate of 43.41.

**Diabetes Mellitus Mortality:** In 2011, Massachusetts had an age-adjusted diabetes mellitus mortality rate of 14.36 per 100,000, while the Study Area had a higher rate of 19.4. Of the 5 largest cities and towns in the Study Area, Leominster had a similar rate at 16.6, while Gardner and Fitchburg both had higher rates at 23.56 and 28.25, respectively. By race/ethnicity, in the Study Area, Hispanics had the highest rate at 32.24 per 100,000, followed by White, Non-Hispanics at 19.42. Black/African American, Non-Hispanics had the lowest rate at 16.1 per 100,000.

**Parkinson’s Disease Mortality:** In 2011, the Study Area had a higher age-adjusted Parkinson’s Disease Mortality Rate of 8.39 than in the overall State (6.52). Of the 5 largest cities/towns in the Study Area, only Gardner had a rate higher than the Study Area, which was significantly higher at 18.56.

**Injuries and Violence**

*In 2011 the Study Area had a self-inflicted injury rate that was more than 124 times the State rate. • The motor vehicle-related mortality rate was ten times higher in the Study Area than in the State and especially high in Fitchburg, Gardner and Athol • Four cities reported higher rates of child maltreatment than in the State, some with significantly higher rates • The total number of restraining orders has increased in the Study Area, most significantly in Fitchburg*

**Self-Inflicted Injuries:** Defined as injuries judged by hospital staff to be an intentional effort to hurt or kill oneself, in 2011, the Study Area had a self-inflicted injury rate of 72.39 – more than 124 times the State rate of .58 per 100,000. Three of the five largest cities and towns had rates higher than the Study Area’s already high rate: Clinton at 102.95, Athol at 103.59 and Gardner at 133.5. The highest rates of self-inflicted injuries were found in Gardner and Winchendon at 133.5 and 135.92, respectively.

**Homicide:** In 2011, within the Study Area, two homicides in Leominster were the only reported deaths due to homicide.
**Weapons-Related Injuries:** In 2011, there were 1,860 weapons-related injuries in Massachusetts. The Study Area experienced 70 weapons-related injuries during this time. The only municipalities in the Study Area to report numbers of weapons-related injuries in 2011 were Fitchburg (16), Gardner (13), Clinton (10), and Leominster (8).

**Injuries and Poisonings:** The Study Area had a similar age-adjusted injuries and poisonings mortality rate at 46.86 as the State’s (43.7). Three of the five largest cities and towns rates higher than the region: Leominster at 47.51, Fitchburg at 47.57 and Gardner at 50.51.

**Motor Vehicle-Related Mortality:** In 2011, the age-adjusted motor vehicle-related mortality rate for Massachusetts was 5.48 per 100,000. The Study Area had a significantly higher rate of 52.98. The 5 largest cities and towns in the Study Area had the highest rates for motor vehicle-related mortality: Leominster was close to the Study Area rate at 50.81; Fitchburg at 64.61; Gardner at 67.25; and Athol at 91.43. (Data for Clinton were unavailable.)

**Child Maltreatment:** The 2010 reported rate of maltreatment of children (defined as persons less than 18 years old) was 56.3 per 1,000 residents in Massachusetts, representing an increase from 51.9 in 2009. Four cities in the Study Area had rates of maltreatment of children higher than the State. In some instances, the rates were significantly higher: Leominster at 72.2; Fitchburg at 102; Gardner at 110.5; and Athol at 185.4.

**Domestic Violence:** Data on domestic violence (also referred to as “Intimate Partner Violence” or IPV) are limited for various reasons. However, other indicators, such as numbers of restraining orders, can help illuminate the scope of domestic violence occurring in a geographical area. In the Study Area, among selected courts, the total number of restraining orders has increased 39% from 1,786 in 2010 to 2,477 in 2013. These totals represent filings in the towns of Ayer, Clinton, Fitchburg, Gardner, Leominster, Orange, and Winchendon. Most of the increases range from 21% - 41%, but Fitchburg is noteworthy for its 76% increase, representing an increase to 659 orders filed in 2013 from 375 orders filed in 2010.

**Infectious Diseases**

In the Study Area, the cities and towns with the highest rates of Hepatitis C were in Athol (86.33 per 100,000), Shirley (83.25), and Leominster (68.7). The rate of HIV/AIDS in the Study Area was much lower, ranging in the largest cities from 154.42 in Clinton to 250.55 in Fitchburg. Chlamydia data were not available for the Study Area overall; however, among the five largest cities and towns, two had rates higher than the State’s (360.45): Fitchburg at 399.38 and Leominster at 520.19.
Primary Care Manageable Hospitalizations

In 2011, the age-adjusted rate for asthma hospitalizations in Massachusetts was 152 per 100,000. The rate for the Study Area was lower at 134.95. Of the five largest cities and towns in the Study Area, Leominster and Fitchburg had higher rates at 188.45 and 214.85, respectively. The age-adjusted rate for hospitalizations in the Study Area for angina was 10.48 based on 30 hospitalizations, compared with 9.04 per 100,000 in the State based on 696 admissions. The Study Area had a higher age-adjusted rate for bacterial pneumonia hospitalizations at 335.4 than the State rate of 291.49 per 100,000. Three of the five largest cities and towns had even higher rates: Leominster at 346.45, Fitchburg at 390.62 and Gardner at 444.7.

Incarceration and Re-Entry

Incarceration and reentry data for the community are included for the first time in this report as a reflection of its identification by the community health assessment partners as a local priority, as well as a State and national priority. The Study Area contains two Department of Correction facilities – the North Central Correctional Institution at Gardner, and the MCI Shirley Souza-Baranowski Correctional Center in Shirley. In addition, women from the Study Area are also served at the Western Massachusetts Women’s Correctional Center under the Hampden County Correctional system in Chicopee.

More detailed quantitative data may be found throughout this report and in Appendix A: Comprehensive Data Summary

Community Voices: Key Themes from the Qualitative Data

Community Assets: Many community strengths and assets were identified during the course of this Study. Health and social services organizations and other community-based organizations were consistently cited as critically important to the health of their communities. Examples included clinics and hospitals; school-based health programs; senior centers; veterans organizations; churches/faith-based organizations; youth groups and centers; food pantries and community kitchens; Meals on Wheels; libraries; drop-in centers; YMCAs; charity organizations; local banks (help with utility payments); and community colleges. Strong collaboration among service agencies was cited by multiple interviewees and across multiple Focus Groups. Other community strengths that were highlighted included the natural beauty of the Study Area and the willingness of residents to help one another. Several community assets that stood out during the qualitative activities are highlighted in the body of the report.
As part of the Focus Group process, participants were invited to list their responses to the question “What are the three biggest health problems in your community?” Five hundred fifty-three problem statements were submitted – or an average of 2.4 responses (“problems”) submitted per 228 Focus Group participants. Among the statements submitted, 49 different health problems were identified; however, 479 (87%) of them fell into one of the 17 categories as represented in the following chart. *It is important to note that problems were submitted by participants of Focus Groups who resided in multiple cities and towns, and therefore the problems identified are not attributable to any specific cities or towns.*

The top four “problems” identified were: 1) Substance use and a lack of access to adequate treatment resources; 2) Mental health problems and a shortage of mental health providers and services; 3) Obesity and unhealthy eating, including a lack of information about nutrition and other barriers to buying, preparing and serving healthy foods; 4) Lack of adequate public transportation to service the needs of residents in the Study Area, especially in the more rural areas.

![Diagram of health problems]

The problems identified reflected the main themes that emerged across the Focus Group discussions and the Key Informant interviews. More detailed information about themes across Focus Groups, as well as themes that emerged within particular Focus Group and during Key Informant interviews are included in the full report and in Appendix B: *Community Voices.*
Substance Use: “Alcohol and drug use is a real problem, especially access to treatment resources and especially in the rural areas. For example, there are not detox, treatment or stabilization step 1 or step 2 resources in those areas at all.” Substance use has been a consistent concern in past assessments of the health status of the Study Area. In the current study, issues of substance use and abuse were paramount. A lack of adequate treatment resources – both short term and long term – and the related impacts of substance use and abuse on individuals and communities were emphasized by nearly all of the study participants. This may be reflective of the opioid overdose crisis occurring in many parts of Massachusetts, including in the Study Area. However, alcohol use was highlighted as a serious health problem as well.

Mental Health: “The world feels scary and frightening and the services are not enough.” Clinicians, health and social service providers, community adults, and youth across racial and ethnic groups alike stated that untreated mental health problems are increasing among both adults and youth in the communities of the Study Area. There was widespread concern about the shortage of mental health counselors in general, trauma counselors, and specialists to work with specific populations (e.g. pediatric, adolescents, LGBTQ individuals, non-English speaking, and racial/ethnic groups); waiting lists for mental health services; inadequate access to psychiatric care and hospitalization; and insurance coverage issues that limit placements. Depression, stress and trauma were cited as common concerns, as well as a lack of hope for the future – especially among youth, and high rates of suicide ideation and suicides. Descriptions of stigma related to mental illness diagnoses and suicide-related behaviors were mentioned as an ongoing barrier to mental health-seeking behavior.

Obesity and Unhealthy Eating: “We eat too much unhealthy foods because they are cheap or easily accessible (fast foods, cheap snacks/drinks.)” Interestingly, while unhealthy eating, a lack of access to healthy foods, too little exercise and a lack of information or education about nutrition were mentioned during several Focus Groups and by several Key Informants, the topic did not generate as much discussion and did not emerge to be one of the most urgent barriers to good health. However, based on their responses when asked to identify the three biggest health problems in their communities, participants clearly rank obesity and unhealthy eating as high among their health problems.

Transportation: “Because there is little transportation, [people] can’t access quality health care.” Insufficient public transportation and poor transportation infrastructure were widely identified as having a negative impact on community health and safety in every focus group and in multiple interviews with Key Stakeholders. Participants stated that transportation in the Study Area has not improved or has worsened, identifying the condition of roads, bridges and poor street lighting and also a lack of sufficient and affordable public transportation services as major barriers to staying healthy and accessing health services. Participants reported waiting hours to catch a bus, having to push baby carriages in inclement weather in order to make appointments; having to walk to the doctor’s office even when very sick, and ending up in places “you shouldn’t be” because of limited transportation. The impact of insufficient public transportation resources was considered even worse for those residing outside the Study Area’s cities. “Elders in small towns are far away from health services out in the boonies; if you’re in a rural area, you’re pretty much on your own.”
**Poverty**: “We’re all poor.” The economy, unemployment and poverty continue to exacerbate many issues associated with health and access to healthcare in the Study Area, despite decreases in unemployment since the last community health assessment in 2011. The accumulative and ongoing impact of economy-related stressors are considered to have an ongoing impact on mental health, substance use and abuse, violence, healthcare seeking behavior and general health status in Study Area communities. Both community members and community leaders described a common state of resource insecurity among large numbers of community members who are either living in poverty, or have just enough money or resources to get by, but not enough to feel secure or be able to weather new circumstance that might arise and require more. Descriptions of choices between putting food on the table and purchasing prescribed medications; purchasing nutritious foods vs. less expensive “fast food”; or not seeking healthcare because of the high cost of co-pays for each visit, were common.

**Housing and Homelessness**: “The housing stock is old and chopped up.” “Homeless families in hotels… temporary placements are now turning permanent.” Homelessness and insecure housing were themes that arose throughout the qualitative data. Participants identified what they perceived as an increase in homelessness, questioning if there was a relation to the opioid crisis. In addition, service providers and community members alike expressed concern about the unanticipated relocation of homeless families to long term hotel stays in the region with corresponding impacts upon the families as well as on the regional educational and human service systems. The qualitative data reflected serious concerns about the living conditions of renters in the region; problems related to old and inadequately maintained housing stock; and increased conflict between tenants and landlords.

**Child and Adolescent Health**: “Every school system, every school should have a health curriculum from 4th – 12th grade.” Adults and youth alike expressed concern about the health of children and adolescents in the region, in particular about their social/emotional and mental health, and about a lack of adequate resources tailored for children and youth. Examples provided included the need for more pediatric mental health and treatment services, health education, employment opportunities, and encouragement for educational attainment, mentoring and expanded recreational options.

**Social and Cultural Isolation**: “So then they are sitting out there alone with all their problems.” Despite widespread agreement about and appreciation of community members’ willingness to help each other and the positive impact of strong organizational collaboration in the Study area, social and cultural isolation was considered by most Focus Group participants to have worsened in the past few years. Participants expressed concern about the isolation of elders; rural residents; LGBTQ individuals; families living in hotels; recent immigrants; and newcomers to the country. Wintertime was said to increase isolation in the Study Area and participants consistently mentioned a relationship between social and cultural isolation with loneliness, mental health problems, and drug and alcohol use.

More detailed qualitative data, including quotations and concerns expressed within and across qualitative Focus Groups and Key Informant interviews, appears throughout the report, in the Community Voices section of the report and in Appendix B: Community Voices.
STUDY INTRODUCTION

Purpose

This Community Health Assessment of North Central Massachusetts 2015 is a joint effort among Heywood Healthcare, HealthAlliance Hospital, the Joint Coalition on Health (JCOH), the Montachusett Public Health Network (MPHN), all described further below, and a wide range of numerous community partners. The assessment is designed to provide information and analyses relative to the health status, issues, concerns, and assets of the North Central Region of Massachusetts. Funding has been provided by Heywood Healthcare, HealthAlliance Hospital, and the Montachusett Opportunity Council.

The goal of this report is that it can be utilized by stakeholders from every sector of the community to improve the health and welfare of persons living in North Central Massachusetts. Many important initiatives have resulted from past community health assessments. One unique aspect of the assessment is the level of attention paid to “communities within communities,” health disparities, and health equity. In order to reflect the rich diversity of the region, qualitative data for this assessment was collected via Focus Groups and interviews with individual Key Informants. Those responsible for gathering qualitative data made every effort to ensure racial/ethnic, socioeconomic, and geographic diversity in the composition of Focus Groups and with interview participants. The result is a much more comprehensive picture of the health status, issues, concerns, and assets of North Central Massachusetts.

HealthAlliance Hospital

HealthAlliance Hospital is a not-for-profit, full service, acute care hospital that serves the communities in North Central Massachusetts and Southern New Hampshire. As a member of UMass Memorial Health Care, HealthAlliance Hospital offers direct access to the advanced medical technology and specialty services that are part of the region’s academic medical center. The HealthAlliance system is comprised of a 135-bed community hospital with services on two campuses in Leominster and Fitchburg, the Simonds-Sinon Regional Cancer Center, Simonds-Sinon Complimentary Care Center, Burbank Urgent Care, Urgent Care of Leominster, a Cardiac Rehab Center and our Home Health and Hospice Agency.

HealthAlliance Hospital is a member of UMass Memorial Health Care, (the clinical partner of UMMS) and the largest health care system in Central and Western Massachusetts. It is a not-for-profit, integrated health care system designed to provide all levels of health care, from primary to quaternary. UMass Memorial Health Care delivers care through the UMass Memorial Medical Center and its member hospitals (Clinton, HealthAlliance, and Marlborough) as well as 35-bed mental health unit at Worcester State Hospital with health care services further augmented by UMass Memorial Medical Group, Community Healthlink, and the Diversified Visiting Nurses Association. The UMass Memorial Centers of Excellence, in cardiovascular disease, cancer, musculoskeletal diseases and diabetes, concentrate expertise, sophisticated technology and the latest advances in medicine to provide patients with a complete continuum of care. As the tertiary care referral center for Central and Western Massachusetts, UMass Memorial Medical Center offers a broad range
of specialists such as cancer, cardiology, emergency medicine, orthopedics, surgery, women’s health and children’s medical services, including an internationally recognized newborn intensive care unit. It also operates UMass Memorial Medical Center the region’s transplantation center and provides liver, kidney, pancreas and bone marrow transplantation.

**Heywood Healthcare**

Heywood Healthcare is an independent, community-owned healthcare system dedicated to providing quality healthcare services to the residents of North Central Massachusetts. It is comprised of Athol Hospital; Heywood Hospital, a non-profit, 153-bed acute-care hospital in Gardner, MA and Heywood Medical Group with primary care physicians and specialists located throughout the region; Heywood Rehabilitation Center in Gardner, MA; West River Health Center in Orange; and Winchendon Health Center and Murdock School-based Health Center in Winchendon, MA.

Athol Hospital is a Critical Access, non-profit acute care hospital serving the nine communities of the North Quabbin Region. The hospital’s service area includes the towns of Athol, Erving, New Salem, Orange, Petersham, Phillipston, Royalston, Warwick, and Wendell. The hospital opened its doors in 1950, the result of the efforts of community and business leaders to establish a local hospital to serve the healthcare needs of the region. The Athol Hospital campus features acute care treatment facilities, including fully-equipped operating room suites, 24-hour emergency rooms, and a Swing Bed program, which transitions beds from acute care to sub-acute care to accommodate the rehabilitation needs of recovering patients. Outpatient Services includes on-site cardiac specialists, high tech laboratory, cardio-pulmonary testing and a short-stay unit. The radiology department includes a state-of-the-art MRI, accredited digital mammography, Spiral CT scan, ultrasound, fluoroscopy and nuclear medicine. Currently accredited by the Joint Commission (2012-2015).

**Community Health Connections**


>“Federally qualified health centers (FQHCs) include all organizations receiving grants under Section 330 of the Public Health Service Act (PHS). FQHCs qualify for enhanced reimbursement from Medicare and Medicaid, as well as other benefits. FQHCs must serve an underserved area or population, offer a sliding fee scale, provide comprehensive services, have an ongoing quality assurance program, and have a governing board of directors.”

CHC provides high-quality, comprehensive outpatient health services throughout North Central Massachusetts to approximately 25,000 people with 119,000 visits per year. CHC’s five (5) centers include the Fitchburg Community Health Center, Greater Gardner Community Health Center, Leominster Community Health Center, ACTION Health Services and the Fitchburg School-Based Health Center. CHC employs approximately 200 people.
Community Health Connections is one of the leading “go to” destination health providers in North Central MA, providing Primary Care Medical services to adults, adolescents and children; full-service Dental; Behavioral Health; Optometry and Pharmacy services (available directly at our Fitchburg and Gardner Centers). Historically, CHC has added new health services as community need is identified. CHC is committed to quality health care for ALL regardless of income or insurance status. Most commercial health insurances are accepted including Mass Health and Health Safety Net. CHC also actively enrolls the uninsured and offer a “sliding fee discount” to those who qualify.

The Joint Coalition On Health

The Joint Coalition on Health (JCOH) was formed in 1998 with the goal of continually improving the health status of the region by supporting and creating partnerships among MDPH, service providers, local health departments, consumers, community members, the business sector, neighborhood coalitions, faith-based organizations, social service agencies, community health centers, and hospitals.

The JCOH has participated in conducting several important community health assessments designed to provide information and analyses relative to the health status, issues, concerns, and assets of the North Central Region of Massachusetts, with a focus on health equity and addressing and eliminating health disparities. The partnership endorses the Healthy Communities Principles with its broad definition of health encompassing not just the absence of disease, but the full range of quality of life issues, advocating that “community” includes diverse resident participation, particularly those disproportionately affected by disease and negatively impacted by social determinants of health.

The JCOH has a history of leadership and action in tackling challenging issues affecting the health and well-being of the North Central MA region. Many of the issues identified in community health assessments served as catalysts for creating systemic strategies for comprehensively addressing these issues. JCOH has participated in and developed multiple, large scale, systemic and long term initiatives and programs aimed at increasing access to care.

Montachusett Public Health Network

The Montachusett Public Health Network (MPHN) is a public health district created in 2010 under the Massachusetts Department of Public Health District Incentive Grant Initiative with Fitchburg as the lead community. It is a collaboration of the following eleven community Boards of Health: Athol, Clinton, Fitchburg, Gardner, Leominster, Phillipston, Princeton, Royalston, Sterling, Templeton, and Westminster. Using tools such as this community health assessment, the MPHN pursues its stated goal of raising the health status of the residents of our communities to the highest levels that may be found anywhere else in the country. The MPHN also coordinates and assists its member communities’ efforts to enforce State Sanitary and Environmental Codes, swimming beach water quality sampling and analysis, and communicable disease reporting and control; and coordinates annual influenza vaccination clinics in our member communities.
The MPHN has been a leader in: addressing disposal of unwanted and expired medication and sharps disposal (including successfully placing and maintaining medical sharps collection kiosks and unwanted and expired medication collection kiosks in all eleven member communities); opioid abuse prevention; healthy weight initiatives; tobacco control and education; and other health promotion and prevention initiatives. The MPHN communities have partnered with a variety of groups, agencies and initiatives, notably LUK Inc., in several initiatives to address substance abuse in our communities.

It is of note that, in partnership with JCOH, the MPHN conducted and published the *Community Health Assessment of the Montachusett Public Health Network* (2014). The MPHN has graciously allowed this report to draw upon the content of the 2014 report. This has been of significant value to the current report as, in several areas; the data is still the most current and/ or is no longer available through other sources.

**Methodology and Data Sources**

The methodology and scope of this community health assessment contains many of the same elements and principles of prior assessments. However, it also contains several unique assets and challenges including:

- The expanded and newly configured geographic scope of the region. The expanded scope served to strengthen partnerships and to view health issues and assets in a broader and more complex perspective. This may have particular implications for enhanced funding applications to bring greater resources into the region, streamline efforts, and to achieve greater efficiencies. The newly configured regions required additional data reconfiguration. In many cases, this enhanced the richness of the data; however, at times, the overlapping configuration of the regions dilutes the data and provides a less definitive picture of health issues, particularly from Service Area to Service Area. The expanded and newly configured region includes:
  - Thirty cities/towns of which nine have been added to the Study Area since the last community health assessment: Athol; Erving; New Salem; Orange; Petersham; Phillipston; Royalston; Warwick; and Wendell;
  - Five Service Areas: HealthAlliance Hospital Primary Service Area (HA-1); HealthAlliance Hospital Secondary Service Area (HA-2); Athol Hospital; Heywood Hospital; Montachusett Public Health Network; (MPHN);
  - Five largest cities/towns (5 cities/towns): Athol is being included among the five in this report for the first time;
  - The Study Area as a whole;
  - The Commonwealth of Massachusetts as a whole.

- An additional advantage of the expanded region includes access to additional data elements and other recent work, including the *MPHN Community Health Assessment, Athol Hospital Community Health Assessment*. For example, while
2013 Youth Behavior Survey data were not available for this report, these other reports contained selected data from the survey that could be reported here.

- For the first time in recent community health assessments, neither MassCHIP data, nor the latest 2013 Youth Behavior Survey were publicly available.

Data sources for the Study are displayed in the following chart.

<table>
<thead>
<tr>
<th>26 INTERVIEWS with KEY INFORMANTS including:</th>
<th>16 FOCUS GROUPS with 228 participants including:</th>
<th>QUANTITATIVE DATA sources:</th>
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</thead>
<tbody>
<tr>
<td>• Children’s services</td>
<td>• Public health professionals</td>
<td>• MassCHIP</td>
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<td>• Clinical/medical practice</td>
<td>• Social service professionals</td>
<td>• MPHN Community Assessment*</td>
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<td>• Community engagement</td>
<td>• Clinicians and other medical providers</td>
<td>• Athol Community Assessment*</td>
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<td>• Community engagement</td>
<td>• Behavioral health providers</td>
<td>• North Quabbin Community Assessment*</td>
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<td>• Corrections and reentry</td>
<td>• Latino adults and youth</td>
<td>• MA Healthy Aging Report*</td>
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<td>• Criminal justice</td>
<td>• Hmong individuals</td>
<td>• MA Department of Education</td>
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<td>• Disability services</td>
<td>• Black/African American adults</td>
<td>• MA Department of Workforce Development</td>
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<td>• Diverse communities</td>
<td>• Brazilian adult women</td>
<td>• MA Department of Corrections 2013 Annual Report</td>
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<td>• GLBTQ issues and needs</td>
<td>• Veterans</td>
<td>• CDC Behavioral Risk Factor Surveillance System (BRFSS)</td>
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<td>• Health equity</td>
<td>• LGBTQ youth</td>
<td>• US Census/American Community Survey</td>
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<td>• Homecare and hospice</td>
<td>• High school students</td>
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<td>• Hospital administration</td>
<td>• Adults with major mental illness</td>
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<td>• Housing and homelessness</td>
<td>• Homeless individuals</td>
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<td>• Local collaboration and coalitions</td>
<td>• Older Adults</td>
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<td>• Mental health</td>
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<td>• Oral health</td>
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<td>• Other health-related areas of expertise</td>
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<td>• Outpatient behavioral health services</td>
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<td>• Substance Use Treatment</td>
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<td>• Suicide prevention</td>
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<td>• Tobacco cessation</td>
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<td>• Veteran’s services</td>
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<td>• Workforce issues</td>
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Data for the Study was gathered systematically utilizing the following standards or principles guiding the methodologies and source selections:

1. Specificity of data to the Study Area communities;
2. Appropriateness of data collection methodologies to the data source;
3. Broad participation among the stakeholder populations; and
4. Broad range of input from qualitative and quantitative sources.

Several additional recent local data reports and sources have been developed that relate to segments of the Study Area. Information about, and links to these resources may be found in Appendix E: Annotated Data Sources of this report. However, it is important to note that, according to the above-described standards and principles; data were only included in this report if they were from widely recognized authoritative sources (e.g., governmental organizations/agencies) or from sources that underwent rigorous review and data verification processes associated with the data presented. In some cases, data pertaining to specific Service Areas may have met these specifications, but were not included in this report unless there were equivalent or similar data available for the other Service Areas. Finally, qualitative data from other sources (e.g., community member quotations from other reports) were not included in this report.

Whenever available data permitted it, this report presents comparisons of data by all 30 cities/towns; the five largest cities/towns; the five Service Areas, described above; the Study Area overall; and the Commonwealth of Massachusetts overall. For some health conditions, data are also compared to the goals of Healthy People 2020, a set of national objectives designed to reduce the most significant preventable threats to our health.

Quantitative Data Sources

The quantitative data for this assessment were obtained from data sources utilized for prior assessments, including MassCHIP from the MA Department of Public Health; MA Department of Education; and CDC’s Behavioral Risk Factor Surveillance System. In addition, other new data sources were utilized for this report for the first time, including the Montachusett Public Health Network Community Health Assessment; Athol Community Assessment; North Quabbin Community Assessment; 2013 MA Healthy Aging Report; MA Department of Workforce Development; and MA Department of Corrections 2013 Annual Report. For a complete listing of data sources, please refer to Appendix E. Descriptions of the sources drawn upon most frequently for this report are provided below.

**US Census Bureau Decennial Census 2010**

2010 census data are reported in the Demographics and Sociodemographics sections of this report. The decennial census is the only data gathering operation in the United States that is mandated by the Constitution. The first census was taken in 1790 and it occurs every 10 years, in the years ending in "0". The Census Bureau conducted decennial censuses in 2000 and 2010 in the United States, Puerto Rico, American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, and the United States Virgin Islands.
Statistical data from all of these censuses are or will be available through American FactFinder at: http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml

2013 American Community Survey (2009-2013 ACS Survey 5-Year Estimates) available at: http://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml. Data from the 2013 ACS are presented in the Demographics and Sociodemographics sections that follow. The American Community Survey (ACS) is a nationwide survey designed to provide communities a fresh look at how they are changing. The ACS eliminated the need for a decennial census long form in 2010. The ACS collects long form type information throughout the decade, publishing statistics yearly rather than only once every 10 years. The American Community Survey collects data throughout the year in every county in the United States and every municipality in Puerto Rico. Statistics from the ACS are released in the form of 1-year, 3-year and 5-year estimates. For more information about the ACS content, methodology and documentation, refer to the American Community Survey at: http://www.census.gov/acs/www/.

Massachusetts Community Health Information Profile (MassCHIP): The majority of the quantitative data presented in this report was reliant upon MassCHIP. Unless noted, all quantitative data in this report was sourced from MassCHIP. According to the Commonwealth of Massachusetts website (www.mass.gov):

“MassCHIP was developed by the Massachusetts Department of Public Health to assist communities and professionals in health planning. MassCHIP provides access to 36 health status, health outcome, program utilization, and demographic data. MassCHIP is a dynamic, user-friendly information service that provides free, online access to health and social indicators. With MassCHIP, you can obtain community-level data to assess health needs, monitor health status indicators, and evaluate health programs.”

MassCHIP includes information from the following data sources:

- Vital Statistics;
- Communicable Diseases;
- Massachusetts Department of Public Health Program Utilization.
- Additional Data Sets:
  - Childhood Lead Screening
  - Cancer Incidence
  - Weapons Related Injury Surveillance System (WRISS)
  - Behavioral Risk Factor Surveillance System (BRFSS)

The authors of this study would like to extend their great appreciation to the MDPH staff from MassCHIP. As mentioned prior in the Methodology section of this report, MassCHIP data – most notably the custom reporting feature of MassCHIP utilized during prior assessments – were not publically available during this Study as they have been for prior studies. Therefore, all data requests required individual submission by the study authors and tailored calculation by MDPH staff to create the customized data reports needed for this assessment.
Massachusetts Healthy Aging Data Report Community Profiles 2014, Tufts Health Plan Foundation: Created by researchers at the Gerontology Institute of the John W. McCormack Graduate School of Policy and Global Studies at UMass Boston and commissioned by the Tufts Health Plan Foundation, this is the most comprehensive view of healthy aging indicators reported at local geographic levels ever available in Massachusetts (at: [http://mahealthyagingcollaborative.org](http://mahealthyagingcollaborative.org)). Therefore, this is the first time that these data have been utilized for the North Central Massachusetts community health assessment.

Massachusetts Department of Elementary and Secondary Education: The Massachusetts Department of Elementary and Secondary Education website at [www.doe.mass.edu](http://www.doe.mass.edu) was the source of the majority of data in the Education and Educational Attainment content in the Sociodemographics section of this report.

Massachusetts Department of Workforce Development, Division of Unemployment Assistance: The Department of Workforce Development, Division of Unemployment Assistance data, available from the Commonwealth of Massachusetts website at [www.mass.gov](http://www.mass.gov), was the source of the majority of in the Unemployment content of this report.

Behavioral Risk Factor Surveillance System (BRFSS) Data, Centers for Disease Control and Prevention (CDC): The (BRFSS) Data from the CDC ([www.cdc.gov/brfss](http://www.cdc.gov/brfss)) was the source for much of the behavioral health content in this report. BRFSS Data is synthesized and cited throughout the report. It is also included in more detail in Appendix D of this report. According to the CDC website:

“By the early 1980s, scientific research clearly showed that personal health behaviors played a major role in premature morbidity and mortality. Although national estimates of health risk behaviors among U.S. adult populations had been periodically obtained through surveys conducted by the National Center for Health Statistics (NCHS), these data were not available on a state-specific basis. This deficiency was viewed as a critical obstacle to state health agencies trying to target resources to reduce behavioral risks and their consequent illnesses. National data may not be applicable to the conditions found in any given state; however, achieving national health goals required state and local agency participation. About the same time as personal health behaviors received wider recognition in relation to chronic disease morbidity and mortality, telephone surveys emerged as an acceptable method for determining the prevalence of many health risk behaviors among populations. In addition to their cost advantages, telephone surveys were especially desirable at the state and local level, where the necessary expertise and resources for conducting area probability sampling for in-person household interviews were not likely to be available. As a result, surveys were developed and conducted to monitor state-level prevalence of the major behavioral risks among adults associated with premature morbidity and mortality. The basic philosophy was to collect data on actual behaviors, rather than on attitudes or knowledge, that would be especially useful for planning, initiating, supporting, and evaluating health promotion and disease prevention programs.”
**2014 MPHN Community Health Assessment, Athol Hospital Community Health Assessment:** As mentioned prior, this report also draws heavily upon the comprehensive Community Health Assessment produced by the Montachusett Public Health Network in early 2014. In most cases the MPHN assessment continues to be the most current data available for the MPHN Service Area. Prior authorization was graciously provided by the MPHN for the utilization of its report and attribution is provided throughout this document when the MPHN report data were presented.

**Qualitative Methodology**

As in prior community health assessments of the Study Area, qualitative data was elicited from community members and community leaders, to clarify and deepen understanding of the health concerns, assets, and quantitative data with community voices and real life experiences. To gather qualitative data, the study authors convened Focus Groups with community members and community service providers, and conducted individual interviews with Key Informants from multiple communities within the Study Area. In all, 254 individuals participated in one of these activities or the other between October 2014 and April 2015. More extensive information about, and outcomes of, these qualitative activities is provided in the Community Voices section of this report and in Appendix B: Community Voices.

Qualitative data were only included in this report when expressed in multiplicity; concerns or comments that were expressed solely by one participant are not included. Data from the Focus Groups and Key Informant interviews appear throughout this report to provide community perspectives and perceptions about local health assets and challenges and to complement or expand upon related quantitative findings. Community input may be easily identified in the body of the report by the presence of the following icon:

![Focus Group icon]

**Focus Groups:**

*Methodology:* 228 individuals participated in 16 Focus Groups that were convened in multiple locales throughout the Study Area. Participation was voluntarily. Individuals who participated on their personal time received gift cards to local grocery stores after completion of the Focus Group.

*Recruitment:* Community leaders, service providers, and staff of community-based, population-based and/or cultural organizations assisted with identifying and recruiting participants for the Focus Groups and Key Informant interviews. **It is important to note that Focus Group participants were recruited from cities and towns beyond the locales in which the group was convened.** For example, the Black/African American Focus Group was convened in Ayer, but involved participants from not only Ayer, but also from Leominster and Fitchburg; the MPHN Focus Group included health agents and community members of Fitchburg, Leominster, Gardner, Westminster, Sterling, Athol,
Royalston, Phillipston, Templeton, Clinton, Princeton, and of Community Health Connections in Fitchburg, Leominster and Gardner; and, of the 25 participants in the Focus Group at Westwinds Clubhouse, 14 were from Fitchburg, 6 were from Leominster, and 5 were from Ashby, Littleton, Lunenburg, Clinton and Shirley.

The following chart lists collaborating agencies, populations, the language in which the group was facilitated, the number of participants and the meeting place for each group.

<table>
<thead>
<tr>
<th>Collaborating Agency</th>
<th>Participants</th>
<th>Language</th>
<th>Group Size</th>
<th>Meeting Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Joint Coalition on Health of North Central MA (JCOH)</td>
<td>Providers</td>
<td>English</td>
<td>24</td>
<td>Westminster</td>
</tr>
<tr>
<td>2) Westwinds Clubhouse</td>
<td>Adults with major mental illness</td>
<td>English</td>
<td>25</td>
<td>Fitchburg</td>
</tr>
<tr>
<td>3) North Quabbin Community Coalition</td>
<td>Providers, clients, stakeholders</td>
<td>English</td>
<td>5</td>
<td>Athol</td>
</tr>
<tr>
<td>4) Montachusett Public Health Network</td>
<td>Public health professionals</td>
<td>English</td>
<td>13</td>
<td>Fitchburg</td>
</tr>
<tr>
<td>5) Veteran Homestead</td>
<td>Veterans</td>
<td>English</td>
<td>3</td>
<td>Gardner</td>
</tr>
<tr>
<td>6) 15 West Teen Coffeehouse</td>
<td>LGBTQ youth</td>
<td>English</td>
<td>7</td>
<td>Leominster</td>
</tr>
<tr>
<td>7) Clinton Hospital</td>
<td>Latino adults</td>
<td>Spanish</td>
<td>24</td>
<td>Clinton</td>
</tr>
<tr>
<td>8) Montachusett Opportunity Council</td>
<td>Latino youth</td>
<td>Spanish</td>
<td>13</td>
<td>Fitchburg</td>
</tr>
<tr>
<td>9) New Hope Baptist Church</td>
<td>Black/African Americans</td>
<td>English</td>
<td>18</td>
<td>Ayer</td>
</tr>
<tr>
<td>10) Community Health Connections</td>
<td>Brazilian</td>
<td>English w/Brazilian/Portuguese Interpreter</td>
<td>12</td>
<td>Leominster</td>
</tr>
<tr>
<td>11) The Hope Center</td>
<td>Homeless Individuals</td>
<td>English</td>
<td>14</td>
<td>Fitchburg</td>
</tr>
<tr>
<td>12) Senior Center</td>
<td>Older adults</td>
<td>English</td>
<td>11</td>
<td>Fitchburg</td>
</tr>
<tr>
<td>13) Goodrich Academy Alternative High School</td>
<td>High school students</td>
<td>English</td>
<td>13</td>
<td>Fitchburg</td>
</tr>
<tr>
<td>14) Regional Behavioral Health Collaborative</td>
<td>School/Hospital Mental health professionals</td>
<td>English</td>
<td>25</td>
<td>Gardner</td>
</tr>
<tr>
<td>15) Health Alliance</td>
<td>Hospital administrators</td>
<td>English</td>
<td>6</td>
<td>Leominster</td>
</tr>
<tr>
<td>16) Private Residence</td>
<td>Asian (Hmong)</td>
<td>Hmong</td>
<td>15</td>
<td>Fitchburg</td>
</tr>
</tbody>
</table>
Facilitation and Content: The Focus Groups were convened in a variety of community settings that were considered by community leaders to be easily accessible and safe venues for participants. These included neighborhood centers, health and social service agencies or institutions, a school, a hotel conference room and at community-based organizations.

Every group was facilitated by two study researchers, except for the veterans’ group of three participants which was facilitated by one study researcher. The Focus Groups were conducted in languages appropriate for the population of each group; notes recorded in languages other than English were translated into English for analysis. Each group was facilitated by one study researcher while the other researcher kept notes of participants’ comments and input; however, the note keeper was able to enter the discussion as needed, e.g., to ask clarifying questions or ask for repetition.

After introductions, the Focus Group discussions began with presenting the World Health Organization’s definition of health as: “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” For consistency across data sets, the same questions were used with every Focus Group. These questions were developed by the Center for Health IMPACT™ (formerly known as the Central Massachusetts Area Health Education Center, Inc.), to align with the 2011 community assessment.

Focus Group Questions

1. What does “good health” or “feeling healthy” mean to you?
2. What do you see as strengths or assets that contribute to the health and wellbeing of your community?
3. What are the things that negatively impact the health of your community?
4. What one recommendation can you offer for improved health care services (programs, resources, policies)?
5. In the past, community members identified common themes/ issues. Have these issues improved or changed over the past few years?
   - Cost of Accessing and Utilizing Health Care
   - Unemployment and Poverty
   - Transportation
   - Culture
   - Mental Health, Depression, and Stress
   - Health Related Information
   - Social and Cultural Isolation
6. Is there one last thing you’d like to say about the health of the people in your community?

---

\[2\] Preamble to the Constitution of the World Health Organization as adopted by the Internationals Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 State (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948. The Definition has not been amended since 1948.
After discussion of all the Focus Group questions, each participant was given a handout with the question, *what are the three biggest health issues in your community*, followed by three blank lines. Participants were invited to fill in the lines with their own perception of their community’s three biggest problems, and then to return the handouts to the facilitators. Assistance was provided when requested to address potential literacy issues. These handouts were completed anonymously by participants; however, they were sorted and filed by Focus Group for analysis of themes within, as well as across, Focus Groups.

*Analysis and Results:* Focus Group data was collected and analyzed per group and across groups utilizing manual qualitative content analysis and reviewed for consistency by CM AHEC. Data were only reported when expressed in multiplicity (e.g., data were not included in this report if expressed solely by one participant). The analysis of data across Focus Groups produced several strong common themes, including perceptions of the meaning of “good health;” community strengths and assets that support health; worsening health issues; and barriers to good health. Analysis of data from single Focus Groups produced information about population-specific issues and concerns. These findings are reported throughout this report and are included in more detail in the *Community Voices* section of the report and in *Appendix B: Community Voices*.

**Key Informant Interviews**

*Methodology:* Initial outreach to individuals identified as potential Key Informants was conducted electronically by email or by phone. At least three attempts were made to reach each individual; in several cases, more than eight attempts were made. In all, twenty-six (26) individuals participated in an interview. The interviews were conducted either by phone or in person, according to the interviewee’s preference, and lasted approximately 30-45 minutes.

*Recruitment:* Individuals who were invited to participate in Key Informant interviews were identified through a variety of sources. Community leaders from Study partners Heywood Hospital, Athol Hospital, HealthAlliance, and the Joint Coalition on Health recommended individuals to be interviewed. In a few cases, those interviewed suggested other individuals to be added as Key Informants. In the recruitment of Key Informants, great care was taken to interview an array of individuals to most broadly represent the Study Area in terms of its diverse geographic areas, multiple communities’ strengths and needs and racial and ethnic populations, as well as areas of expertise related to community health and wellbeing. Every attempt was made to ensure that as many populations and voices were included as possible, although not everyone identified was able to be interviewed for a variety of reasons.

The Key Informants who completed interviews with study researchers included community members, hospital administrators, medical and dental providers, public health professionals, elected officials and social service providers among others. These individuals possessed diverse and impressive knowledge and expertise in health-related topics as shown in the following table.
### Areas of expertise included among the Key Informants that were interviewed included:

<table>
<thead>
<tr>
<th>Behavioral health</th>
<th>Health equity</th>
<th>Public health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child/adolescent health</td>
<td>Homecare and hospice</td>
<td>Rural health</td>
</tr>
<tr>
<td>Clinical practice</td>
<td>Hospital administration</td>
<td>School health</td>
</tr>
<tr>
<td>Community engagement</td>
<td>Housing and homelessness</td>
<td>Substance use treatment</td>
</tr>
<tr>
<td>Corrections and reentry</td>
<td>Collaboration/Coalition work</td>
<td>Suicide prevention</td>
</tr>
<tr>
<td>Criminal justice</td>
<td>Mental health</td>
<td>Tobacco cessation</td>
</tr>
<tr>
<td>Disability services</td>
<td>Oral Health</td>
<td>Veteran services</td>
</tr>
<tr>
<td>Diverse communities</td>
<td>Policymaking</td>
<td>Workforce issues</td>
</tr>
<tr>
<td>GLBTQ issues and needs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Facilitation and Content:** After making contact with Key Informants and scheduling an interview time, the interviews were conducted one-to-one and facilitated by staff and consultants of the Central Massachusetts Area Education Center, Inc. (CM AHEC). Interview notes were taken by the facilitators; none of the interviews were audio recorded. To ensure consistency, every interviewer used the same set of questions, developed by CM AHEC to align with the 2011 *Community Assessment of North Central Massachusetts.*

The following questions were asked of all Key Informants. Question 7 was the only question that varied in order to tailor it to individual Key Informant’s area of expertise or concern; for example, a Key Informant working to improve oral health access may have been asked if access to oral health services has improved, worsened or remained the same since the previous health assessment completed in 2011. All of the individual interviewees were encouraged to elaborate and were offered an opportunity to share thoughts on other issues impacting the community.

1. Please provide an overview of the work that you do.
2. What are some of the challenges you see in your work?
3. Are there particular barriers that you face as a provider/policymaker? If so, please explain.
4. What are some of the successful strategies being implemented to address the challenges you mentioned (at your agency or nationally)?
5. What one recommendation can you offer for improved services?
6. Is there a particular policy? If so, please explain.
7. In the past, participants in the community health assessment identified [health issues]. Has anything changed?
8. Are there other issues impacting the health of the community that you would like us to focus on?

**Analysis and Results:** Key Informant interview data was collected and analyzed per interview and across interviews utilizing manual qualitative content analysis and reviewed for consistency by CM AHEC, Inc. Analysis of the Key Informant interview data produced themes about community strengths and assets that support health, and worsening health issues and barriers to good health. Themes emerged that were common not only among the Key Informants, but that were also common across and within Focus Groups. Data from Key Informant interviews are synthesized throughout this report. More details about...
Key Informant interview findings can be found in the Community Voices section of this report and in Appendix B: Community Voices.

This icon appears throughout the report to highlight qualitative data that complement quantitative findings and offer descriptive information from community perspectives.

**Study Area Overview**

This assessment includes information about 30 cities and towns in the North Central Region of Massachusetts that are covered by the Service Areas identified by HealthAlliance Hospital; Heywood Hospital; Athol Hospital; and the Montachusett Public Health Network.

The communities represented in the report are extremely diverse. For example, they fall into three counties: Middlesex, Worcester and Franklin counties. Other contrasts among the communities may be broadly considered as: Eastern/Western geographies; mostly homogenous/more diverse populations; more affluent/economically struggling residents; and urban/rural communities.

Throughout the report, data are provided and presented (availability of data permitting) for each city and town listed below. It is important to note that the cities/towns shown in italics below are being included for the first time in this Community Health Assessment of North Central Massachusetts.

<table>
<thead>
<tr>
<th>Ashburnham</th>
<th>Clinton</th>
<th>Harvard</th>
<th>New Salem</th>
<th>Princeton</th>
<th>Townsend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ashby</td>
<td><em>Erving</em></td>
<td>Hubbardston</td>
<td>Orange</td>
<td>Royalston</td>
<td>Warwick</td>
</tr>
<tr>
<td>Athol</td>
<td>Fitchburg</td>
<td>Lancaster</td>
<td>Pepperell</td>
<td>Shirley</td>
<td>Wendell</td>
</tr>
<tr>
<td>Ayer</td>
<td>Gardner</td>
<td>Leominster</td>
<td>Petersham</td>
<td>Sterling</td>
<td>Westminster</td>
</tr>
<tr>
<td>Bolton</td>
<td>Groton</td>
<td>Lunenburg</td>
<td>Phillipston</td>
<td>Templeton</td>
<td>Winchendon</td>
</tr>
</tbody>
</table>

In some instances in the quantitative data of the report, data is presented for 35 cities/towns reflecting a further distillation of data from five of the cities/towns: Princeton/ East Princeton; Lancaster/South Lancaster; Groton/West Groton; Townsend/West Townsend; and Winchendon/Winchendon Springs.

Throughout the report, data are also provided and presented (availability of data permitting) in the groupings described in the following table³.

³ The overlap of some cities/towns among multiple Service Areas precludes the presentation of data in certain configurations included in prior reports; e.g., depictions of each Service Area’s designated percentage, in any given category, of the overall Study Area.
### GEOGRAPHIC AREAS

<table>
<thead>
<tr>
<th>Commonwealth of Massachusetts</th>
<th>State-level data provided for comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Area as a whole</td>
<td>Aggregate data from all cities and towns</td>
</tr>
<tr>
<td>Individual Cities and Towns</td>
<td>Data per city and town (when available)</td>
</tr>
<tr>
<td>Five Largest Cities/Towns</td>
<td>Athol, Clinton, Fitchburg, Gardner, Leominster</td>
</tr>
</tbody>
</table>

### SERVICE AREAS

(Note: the cities/town italicized in the table are part of multiple Service Areas):

<table>
<thead>
<tr>
<th>HealthAlliance Primary (HA-1)</th>
<th>Ashburnham Ashby</th>
<th>Fitchburg Gardner</th>
<th>Leominster Lunenburg</th>
<th>Townsend Westminster</th>
</tr>
</thead>
<tbody>
<tr>
<td>HealthAlliance Secondary (HA-2)</td>
<td>Ayer Bolton Clinton</td>
<td>Groton Harvard Hubbardston</td>
<td>Lancaster Pepperell Princeton</td>
<td>Shirley Sterling Templeton Winchendon</td>
</tr>
<tr>
<td>Heywood Hospital (HH)</td>
<td>Ashburnham Gardner</td>
<td>Hubbardston Templeton</td>
<td>Westminster Winchendon</td>
<td></td>
</tr>
<tr>
<td>Athol Hospital (AH)</td>
<td>Petersham Phillipston</td>
<td>Athol Royalston Warwick</td>
<td>Orange Erving</td>
<td>Wendell New Salem</td>
</tr>
<tr>
<td>Montachussett Public Health Network (MPHN)</td>
<td>Athol Clinton Fitchburg</td>
<td>Gardner Leominster Phillipston</td>
<td>Princeton Royalston Sterling</td>
<td>Templeton Westminster</td>
</tr>
</tbody>
</table>
The following maps depict the regional configurations in which the data are presented:

**The Montachusett Public Health Network (MPHN) Service Area**

**HealthAlliance Hospital Service Area Definition**

**Heywood Healthcare – Athol Hospital and Heywood Hospital Service Areas**
I. DEMOGRAPHICS

Population

As described in the **Introduction**, this report focuses on a Study Area comprising 30 cities and towns in North Central Massachusetts, identified as part of Service Areas of HealthAlliance Hospital; (Heywood Healthcare) Heywood Hospital and Athol Hospital; and the Montachusett Public Health Network. Each city is listed below with its population in 2000 and 2010, and its population growth percent during this time period.

<table>
<thead>
<tr>
<th>City/Town</th>
<th>2000 Population</th>
<th>2010 Population</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ashburnham</td>
<td>5,546</td>
<td>6,081</td>
<td>9.65</td>
</tr>
<tr>
<td>Ashby</td>
<td>2,845</td>
<td>3,074</td>
<td>8.05</td>
</tr>
<tr>
<td>Athol*</td>
<td>11,299</td>
<td>11,584</td>
<td>2.52</td>
</tr>
<tr>
<td>Ayer</td>
<td>7,287</td>
<td>7,427</td>
<td>1.92</td>
</tr>
<tr>
<td>Bolton</td>
<td>4,148</td>
<td>4,897</td>
<td>18.06</td>
</tr>
<tr>
<td>Clinton</td>
<td>13,435</td>
<td>13,606</td>
<td>1.27</td>
</tr>
<tr>
<td>Erving*</td>
<td>1,467</td>
<td>1,800</td>
<td>22.7</td>
</tr>
<tr>
<td>Fitchburg</td>
<td>39,102</td>
<td>40,318</td>
<td>3.11</td>
</tr>
<tr>
<td>Gardner</td>
<td>20,770</td>
<td>20,228</td>
<td>-2.61</td>
</tr>
<tr>
<td>Groton</td>
<td>9,547</td>
<td>10,646</td>
<td>11.51</td>
</tr>
<tr>
<td>Harvard</td>
<td>5,981</td>
<td>6,520</td>
<td>9.01</td>
</tr>
<tr>
<td>Hubbardston</td>
<td>3,909</td>
<td>4,382</td>
<td>12.1</td>
</tr>
<tr>
<td>Lancaster</td>
<td>7,380</td>
<td>8,055</td>
<td>9.15</td>
</tr>
<tr>
<td>Leominster</td>
<td>41,303</td>
<td>40,759</td>
<td>-1.32</td>
</tr>
<tr>
<td>Lunenburg</td>
<td>9,401</td>
<td>10,086</td>
<td>7.29</td>
</tr>
<tr>
<td>New Salem*</td>
<td>929</td>
<td>990</td>
<td>6.57</td>
</tr>
<tr>
<td>Orange*</td>
<td>7,518</td>
<td>7,839</td>
<td>4.27</td>
</tr>
<tr>
<td>Pepperell</td>
<td>11,142</td>
<td>11,497</td>
<td>3.19</td>
</tr>
<tr>
<td>Petersham*</td>
<td>1,180</td>
<td>1,234</td>
<td>4.58</td>
</tr>
<tr>
<td>Phillipston*</td>
<td>1,621</td>
<td>1,682</td>
<td>4.0</td>
</tr>
<tr>
<td>Princeton</td>
<td>3,353</td>
<td>3,413</td>
<td>1.79</td>
</tr>
<tr>
<td>Royalston*</td>
<td>1,254</td>
<td>1,258</td>
<td>3.19</td>
</tr>
<tr>
<td>Shirley</td>
<td>6,373</td>
<td>7,211</td>
<td>13.15</td>
</tr>
<tr>
<td>Sterling</td>
<td>7,257</td>
<td>7,808</td>
<td>7.59</td>
</tr>
<tr>
<td>Templeton</td>
<td>6,799</td>
<td>8,013</td>
<td>17.86</td>
</tr>
<tr>
<td>Townsend</td>
<td>9,198</td>
<td>8,926</td>
<td>-2.96</td>
</tr>
<tr>
<td>Warwick*</td>
<td>750</td>
<td>780</td>
<td>4.0</td>
</tr>
<tr>
<td>Wendell*</td>
<td>986</td>
<td>848</td>
<td>-14.0</td>
</tr>
<tr>
<td>Westminster</td>
<td>6,907</td>
<td>7,277</td>
<td>5.36</td>
</tr>
<tr>
<td>Winchendon</td>
<td>9,611</td>
<td>10,300</td>
<td>7.17</td>
</tr>
<tr>
<td><strong>Study Area Total</strong></td>
<td><strong>258,298</strong></td>
<td><strong>268,539</strong></td>
<td><strong>3.96</strong></td>
</tr>
</tbody>
</table>

* Newly added to this health assessment
### Population by Reporting Areas

<table>
<thead>
<tr>
<th>Reporting Areas</th>
<th>2000 Population</th>
<th>2010 Population</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massachusetts total</td>
<td>6,349,097</td>
<td>6,547,629</td>
<td>3.13</td>
</tr>
<tr>
<td>Region/Study Area as a whole</td>
<td>258,298</td>
<td>268,539</td>
<td>3.96</td>
</tr>
<tr>
<td>Five largest cities: Athol, Clinton, Fitchburg, Gardner, Leominster</td>
<td>125,909</td>
<td>126,495</td>
<td>.47</td>
</tr>
<tr>
<td>MPHN*</td>
<td>153,100</td>
<td>155,946</td>
<td>1.9</td>
</tr>
<tr>
<td>HealthAlliance – 1*</td>
<td>107,395</td>
<td>109,244</td>
<td>1.7</td>
</tr>
<tr>
<td>HealthAlliance – 2*</td>
<td>96,222</td>
<td>103,775</td>
<td>7.85</td>
</tr>
<tr>
<td>Heywood Hospital*</td>
<td>53,542</td>
<td>56,281</td>
<td>5.11</td>
</tr>
<tr>
<td>Athol Hospital*</td>
<td>27,004</td>
<td>28,015</td>
<td>3.74</td>
</tr>
</tbody>
</table>

* The sum of the populations of these Service Areas exceeds the sum of the population of the Study Area as a whole because the population numbers and percent changes of each Service Area includes cities/towns that are counted in multiple Service Areas.

According to the 2010 Census, the overall Study Area has a population of 268,539, representing growth between 2000 and 2010 of 3.96%. For comparative purposes, the Commonwealth of Massachusetts experienced a 3.1% growth rate and Worcester County evidenced a 6.3% growth rate during this time period.

As a whole, the population of the Study Area grew at a rate that was higher than in the Commonwealth as a whole, but approximately half the rate experienced by Worcester County.

The populations of the five largest cities/towns in the region all experienced a growth rate between 2000 and 2010 that was lower than Commonwealth’s as a whole: Leominster (40,759), Fitchburg (40,318) and Gardner (20,228) and the towns of Clinton (13,606) and Athol (11,584).
The three smallest towns in the Study Area are ones being included in this assessment for the first time: Warwick (750), Wendell (986) and New Salem (990).

In addition, there were four communities that experienced a population decrease between 2000 and 2010. These included two of the Study Area’s largest cities: Gardner, with a population percent decrease of -2.61%, and Leominster (-1.32), as well as Townsend (-2.96%) and Wendell (-14%).

Five communities had increases in population between 2000 and 2010 of more than ten percent: Erving (22.7%), Bolton (18.65), Templeton (17.86%), Shirley (13.15%) and Groton (11.51%).

*Some cities/towns are represented in multiple reporting areas*
Please note that the prior 2011 community health assessment report contained a pie chart with each grouping having a designated percentage of the region. However, with the new configuration of reporting regions, the regions represented in the chart above reflect overlapping cities and towns.

**Population Distribution – Rural and Non-Rural**

Among the 30 cities and towns in the Study Area, 24 (or 80%) are designated rural, as shown in the following chart; 50.2% of the Study Area population resides in these rural communities, while the other 49.8% of the Study Area population resides in one of the six non-rural cities/towns: Ayer, Clinton, Fitchburg, Gardner, Leominster and Pepperell.

![Rural communities as defined by density of fewer than 500 people per square mile (2010)](image)

Notably, two of the Service Areas have higher percentages of population living in rural areas than the State as a whole, the Health Alliance – 2 Service Area with nearly 70% of its residents living in rural areas, and the Athol Hospital Service Area with a full 100% of rural residents living in the North Quabbin region of the Study Area (Athol, Erving, New Salem, Orange, Petersham, Phillipston, Royalston, Warwick and Wendell) that contains, with the exception of Athol, many of the most rural locations in the Study Area.

**Community Asset in Focus: The North Quabbin Community Coalition**

“Over 30 years of grass roots community organizing and developing collaborative community-driven solutions.”
Service Areas Include Overlapping Populations

The August 2013 Commonwealth of Massachusetts Executive Office of Health and Human Services Rural Access Commission Report: Improving State-Sponsored Services in Massachusetts Rural Communities, defines “rural” as “a municipality in which there are fewer than 500 people per square mile” (MacDougall and Campbell, 1995) and contends that: “Residents living in rural areas contend with many of the same issues as do individuals and families living in non-rural areas of the state, however, there are several issues unique to rural residents, especially those living in poverty… Rural isolation has significant impacts on the quality of life of rural residents.” (http://www.mass.gov/eohhs/docs/eohhs/rural-services-commission-report.pdf).

For example, according to the 2012 Rural Domestic and Sexual Violence Draft Report by the Services Accessibility Sub-Committee of the Governor’s Council Addressing Sexual and Domestic Violence:

“In rural Massachusetts, domestic and sexual violence continue to be leading health problems exacerbated by social and geographic isolation and the lack of public transportation, housing, employment, child care, anonymity and accessible health and human services. Although domestic and sexual violence crosses all socioeconomic lines, the overwhelming poverty of many rural communities in Massachusetts further limits the choices of victims there, preventing escape and access to assistance.” (More information is available in the Domestic Violence section of this report).

Likewise, the Massachusetts Housing Partnership (MHP) December 2014 White Paper on Rural Housing Issues in Massachusetts: Findings of the Rural Initiative and Recommendations (http://www.nqcc.org/pdfs/rural_housing_white_paper.pdf) maintains that:
“Geographic isolation and lack of public transportation further exacerbate the plight of low- and moderate-income households. For households in rural areas earning below median income, geographic isolation contributes to unsustainable costs of living... the Location Affordability Index (LAI), a data tool released in 2014 as a project of the Partnership for Sustainable Communities, calculates the affordability of a specified place, accounting for housing costs and transportation costs... according to the Center for Neighborhood Technology, an acceptable benchmark for affordability for combined housing and transportation costs is no more than 45 percent of income.”

In all of the cities/towns in the Study Area, combined housing and transportation cost is higher, between 45-60%.

Also included in the 2014 White Paper were goals established by the Rural Access Commission to improve quality of life of rural residents, including: supporting service availability and a more comprehensive service experience in rural areas; Implementing data-driven and evidenced based strategies to address health care worker shortage in rural communities; expanding broadband access to rural communities and service providers; and expanding transportation options for rural residents.

Study participants in the Focus Groups and Key Informant interviews corroborated the challenges cited in the above-mentioned reports, as well as several others.

“Policy is driven by urban areas.”

“Funding is always a challenge. Rural areas always have bigger challenges for funding. Rural areas should be able to collaborate and apply for one grant [to fund health care services or programs].

“We don’t qualify for many things because the County line splits our rural communities. That makes accessing services hard for community members and it is extra difficult to advocate for services.”

“It is difficult to share small pots of money.”

“Youth need more opportunities to get them to stay in town.”

“Recruiting and retaining doctors is a challenge, especially in the rural areas.”

“We don’t have access to specialty treatment for sex abuse or substance abuse, or it is very limited.”

“We need Telehealth – particularly for rural populations – as a way to get the specialist there, for example.”

“You may know that the DTA can help you, but what good is that if you [live in a rural area and] can’t even get there?”
Age and Gender Distribution

The distribution of population by 10 year age groups shows that there is variation among the populations of cities and towns in the Study Area, with the largest percentages of population aged 29 or younger in Fitchburg, Winchendon, Lancaster and Pepperell, and the largest percentages of populations aged 60 or older in Petersham, Erving, Wendell and Warwick.
In 2010, the median age of the population in the Commonwealth overall was 39.1. In 2010, just five of the 30 cities and towns in the current Study Area had a lower median age than in the State as a whole: Ayer (38.2), Clinton (39.0), Fitchburg (34.7), Lancaster (38.9), and Winchendon (38.7). Of the other cities and towns, twelve had populations with a median age of 42 years or older, of which three had median ages that were notably higher, Warwick at 48.1, Petersham at 48, and Wendell at 47.8.

As a whole, the population of the Study Area is older than that of the Commonwealth, which is a change from the data reported in the 2011 Community Health Assessment. This may reflect not only an aging population, but also the addition of cities and towns with higher percentages of older population into the configuration of the Study Area for this current report.
In 2010, overall in the Study Area, 52% of the population was aged 50 or older, compared to the Commonwealth’s percentage of 33.5% of individuals aged 50 or older.

**Persons Aged 65 and Older**

In addition, seven of the Study Area’s 30 cities and towns had equal or higher percentages of individuals aged 65 and older living alone than in the Commonwealth overall (10.7%). These included all five of the Study Area’s five largest cities and towns: Gardner (12.8%), Leominster (11.5%), Clinton (11.4%), Athol (11.3%), and Fitchburg (10.7%).
Persons ages 65 and older living alone (often referred to as elderly persons living alone) has been associated with increased health risks including: falls; malnutrition; poverty; and depression (e.g., http://nihseniorhealth.gov/falls/causesandriskfactors/01.html).

The literature continues to explore this issue (as it contains many, previously understudied sociodemographics variables), particularly given the aging demographics of the United States.
In 2014, the first comprehensive data analysis by city and town was conducted in relation to older adults: *The Massachusetts Healthy Aging Data Report*. This study provides community members, service providers, and policy makers with data to enable them to drill down into the needs, health issues, and challenges facing our older populations. Notably, the population of older adults, aged 60 and older in the Commonwealth, continues to grow, with a projected 20% of the population aged 65 and older by 2030, with many individuals dealing with multiple chronic conditions such as arthritis (28%) and diabetes (25%).

**Gender Distribution**

Overall, the Commonwealth has a population that is 51.6% female and 48.4% male. The Study Area as a whole also has a higher percentage of females (50.5%) than males (49.5%).
Racial/Ethnic Populations

Background

As noted in the Executive Summary and the Introduction sections of this report, this study strove to reflect the rich diversity of the Study Area as well as a diversity of experiences in relation to health: Health conditions; Barriers to care; and Community assets and resources. While Non-Hispanic individuals comprise the racial group with the largest percentage of population in the Commonwealth (80%) and in the Study Area, specific racial and ethnic communities within the Study Area identified specific health conditions affecting themselves and their families, sources of stress, barriers to health and well-being, and resources and sources of support, which are described in further detail in the Community Voices section of this report and in Appendix B – Community Voices.

The names/descriptive terms for the racial and ethnic groups in this report reflect those used by the U.S. Census. In addition, data representing Blacks or African Americans and those representing Asians reflect individuals who represented themselves as one race, this race being either “Black or African American” or “Asian”. It is important to note that the term “Black/African American” when used in this report, does not include individuals that identify as “African,” e.g. African immigrants. Because the Hispanic or Latino designation is considered to be an ethnicity, these figures were taken from the designation of “Hispanic or Latino (of any race)”.

The U.S. Census data also includes other racial/ethnic group breakdowns; however, only the data representing populations of a significant size have been reported here, according to the study methodology of selecting data according to its specificity to the Study Area communities. For example, the category Native Hawaiian and Other Pacific Islander was not utilized throughout this report.

It is also worth noting, that there were additional categories that may be of interest. For the first time, in the 2010 U.S. Census data, individuals could report race differently than in past Census years (e.g., the selection of “Some Other Race”).

For a description of how race is categorized by the U.S. Census, refer to the U.S. Census website at: http://quickfacts.census.gov/qfd/meta/long_RHI125213.htm

Racial/Ethnic Populations in the Study Area

As shown in the chart below, Latinos comprise the racial/ethnic group with the highest percentage of the population within the Commonwealth (9.6%) and in the Study Area (8.5%). Black/African Americans Non-Hispanics comprise 3% of the Study Area population, as do individuals who identify as Some Other Race. Asian individuals comprise 2% of the Study Area population, as do individuals who identify as Two or More Races.

In the 2010, census, 4.7% of the population in the Commonwealth of Massachusetts identified themselves as “Some other race”. Three of the communities in the Study Area
had over 5% of their residents define themselves as “Some other race”, with Fitchburg at 9.1%, Clinton at 5.5% and Leominster at 5.3%.

In addition, in the 2010 census, 2.6% of the population in the Commonwealth of Massachusetts identified themselves as “Two or more races”. In four of the five larger cities/towns of the Study Area, over 2% of their residents define themselves as “Two or more races”, with Fitchburg at 3.7%, Leominster at 2.8%, Clinton at 2.3% and Gardner at 2.2%. (Athol was at 1.8%).

![Percentage of Study Area Populations by Race/Ethnicity (2010)](image)

**Black/African American, Non-Hispanic Population**

In this portion of the **Demographics** section discussing the Black or African American Non-Hispanic Population, the term “Black/African American” is utilized (rather than “Black” or “African American”) when referring to the race of Focus Group and interview participants, as participants may self-identify as either. It is important to note that usage of the term “Black/African American” in this report does not include Africans.

According to the 2010 U.S. Census, in Massachusetts, the Black/African American population increased during 2000 to 2010 from 5.4% of the State’s population to 6.6% of the State’s population. Cities and towns in the Study Area also experienced increases in their Black/African American populations during this time period.
The cities with the most Blacks/African Americans as a percent of total population in 2010 were: Shirley (8%); Lancaster (7.7%); and Leominster and Fitchburg, both at 5.1%.

Overall, Blacks/African Americans made up a smaller percentage of the Study Area population in each of the reporting areas than they did in the Commonwealth as a whole.
Qualitative findings from Focus Groups with Black/African American Study participants, related to health concerns and assets, are summarized below and the text that follows.

Data from Black/African American American Focus Group Participants

### Barriers to Care
(Most frequently identified)
- Intimidated/stigmatized by healthcare system and providers
- High co-pays and cost of medications
- Complicated payment/plan rules
- Lack of transportation

### Social Determinants of Health
(Most frequently identified)
- Race/ethnicity
- Gender
- Age
- Economic status

### Community Resources & Assets
(Most frequently identified)
- Churches
- Family, friends
- Council on Aging
- Teen Challenge
- Hope Center
- MassHealth

### Biggest Problems that Impact Health
(Most frequently identified)
- Substance use and abuse
- Homelessness
- Chronic health conditions
Qualitative Data from Black/African American Study Participants

Black/African Americans (along with Older Adults) who participated in the study indicated that “the church” was an ongoing source of support and socialization with positive health outcomes.

In terms of barriers to good health or “problems,” similar to participants in other groups, Black/African American participants stressed that substance use and the lack of substance abuse treatment resources are major problems.

In the Focus Group with Black/African American participants, homelessness was emphasized as a problem more than in other Focus Groups. Other issues highlighted by participants in this population included social isolation, particularly among older adults; racism; the high out-of-pocket cost of healthcare, especially too-high co-payments; and not understanding and/or being intimidated and sometimes stigmatized by the healthcare system and healthcare providers, e.g., stigmatization of “Black females on MassHealth.”

The importance and often lack of having someone to explain healthcare recommendations, instructions and complicated payment or insurance requirements was mentioned repeatedly.

“When [church] members call you and share with you, that helps you stay healthy because…you are being checked up upon and you feel a sense of self-worth.”

“You’re seeing a rise in heroin usage; pure off the boat, and more overdoses.” “And the drugs they are coming in now with are killer drugs – we have no idea what’s in them.”

“It’s cold, it’s freezing, but people are back out under the bridge.” “People sleeping on tarps like little communities, some of them real good friends of us.”

“Every time I go to the doctor it’s a copayment. Every time I go to the specialist, it’s even more. We live on social security; social security isn’t doing anything, but the copayments keep going up…right now I’m seeing four doctors and I’m concerned about that.”

“One thing that gets to me is the tendency for doctors to be more concerned about whether you have Medicare/Medicaid/Tricare than concerned about the patient.”

“Just having somebody to help you understand even what your doctor is talking about, I believe this helps the community.”
Hispanic/Latino Population

In this portion of the Demographics section discussing the Hispanic population, the study authors would like to note their use of the term “Latino” (rather than Hispanic) when referring to Focus Group participants and interviewees. This reflects participants’ self-identification as Latino (or by their specific country of origin). In contrast, in the quantitative sections of the assessment, the reader will see the term “Hispanic” utilized, as this is the term used by the U.S. Census Bureau and other major data sources.

The authors would also like to emphasize the inherent challenge in identifying Latinos as a single population/group, given the various ethnicities, dialects, races, cultures, socioeconomic backgrounds, immigration statuses, and pathways to the U.S. associated with this group. For example, there are 20 countries in Latin America and two major Latin languages spoken, Spanish and Portuguese. However, numerous other languages are also spoken by the many native peoples within the countries (e.g., a form of Creole that is spoken in the Caribbean and some coastal countries of Central America). Each of these countries of origin has unique challenges, consisting of socioeconomic barriers, political unrest, and historical relationships with the U.S., for example, all of which contribute to social and economic indicators.

Between 2000 and 2010 within Massachusetts, the Latino population increased from 6.8% to 9.6% of the Commonwealth’s population. Cities and towns in the Study Area that also experienced an increase in their Latino populations during this timeframe were: Ayer, Bolton, Lunenburg, New Salem, Orange, Petersham, Phillipston and Warwick.

In 2010, the cities with the largest percent of individuals comprising their populations of Latinos in 2010 were Fitchburg (21.6%), Clinton (15%), Leominster (14.5%), Lancaster (8.1%) and Shirley (7.8%). Overall Latinos comprised a larger percentage of the total population in Fitchburg, Leominster and Clinton in 2010 than they did in Massachusetts as a whole.
Notably, the Latino population, when measured as a percent of the population in Fitchburg, is more than twice than that of in the State as a whole.

The Study Area communities with Latinos as the lowest percent of their total populations – one percent or less – were Ayer, Bolton, Lunenburg, New Salem, Orange, Petersham, Phillipston, Warwick.

Qualitative findings from Focus Groups with Latino Study participants, related to health concerns and assets, are summarized below and in the text that follows.
Data from Latino Focus Group Participants

**Barriers to Care**
(Most frequently identified)
- Language
- Transportation
- Lack of providers
- Cost

**Social Determinants of Health**
(Most frequently identified)
- Poverty
- Unemployment
- Poor housing conditions
- Language/cultural Barriers
- Age

**Community Resources & Assets**
(Most frequently identified)
- Hospitals
- Health insurance
- Medical interpreters
- Free or low cost services (food, clothing, help with utilities cost)
- Youth-specific services (youth)
- Peer groups

**Biggest Problems that Impact Health**
(Most frequently identified)
- Transportation
- Unemployment
- Language and cultural barriers
- Drugs and alcohol (youth)
- Crime (youth)
- Stress

Qualitative Data from Latino Study Participants

Separate Focus Groups were facilitated with Latino adults and Latino youth.

Lack of public transportation was identified as a major problem in the adult Focus Group, especially as it related to be able to travel to other locations for work. Participants also emphasized the lack of: Latino doctors; Spanish-speaking specialists; health materials written in Spanish; and Latino housing personnel. They also pointed to low voter turnout among Latinos as having a negative impact on health, with the caveat that some Latinos are not citizens and therefore cannot vote. Participants expressed that poverty has worsened among their communities. The poor condition of housing was considered to be a problem and participants expressed their fear of getting evicted if they complain about rental property conditions.

“We have zero transportation.”

“If this hospital wasn’t here, we’d be without nothing.”

“There should be Hispanic doctors.” “More education written in Spanish.”

“Poverty has gotten worse. We’re all poor.”
The Focus Group of Latino youth was the only group to mention gangs and abuse (physical, emotional, sexual) as a negative influence on health. They also considered that racism was a problem and emphasized the importance of having places to get together and to go to for tutoring or help with considering their future plans. Like the other Focus Groups comprised of youth, the participants of the Latino youth Focus Group emphasized the negative impact of bullying on youth’s mental health.

“[There’s] peer pressure…drug use, bad influences.”
“Drugs,” “Gangs,” “Bullying,” [are things that negatively impact the health of their community]
“[With limited transportation] you end up in places you shouldn’t be.”
“[Mental health has gotten worse, there’s] worse depression and stress among teens.”
“Worse problems at home.”
“If they improved recreational facilities [people] would go out more.”

Both the Latino youth and adults stated that social isolation in their communities has stayed the same or has gotten worse, and better employment opportunities were desired by both groups.

“People are by themselves and they came for a better life.”
“[We need] more opportunities for youth to work.”

**Asian Population**

The Asian population has grown in Massachusetts, from 4% (in 2000) to 4.8% (in 2005) and to 5.3% in 2010.

In this Study Area, Asians individuals comprise one of the smallest racial/ethnic groups. The largest Asian communities in the Study Area are Fitchburg, where Asian individuals comprise 3.6% of the population (down from 4.3% in 2000), and Leominster, where Asian individuals comprise 2.8% of the population.
The cities/towns with the most Asian individuals as a percent of their populations in were Fitchburg (3.6%), Harvard (3.3%), and Leominster, Groton, and Shirley, all at 2.8%.

Nineteen of the 30 cities/towns in the Study Area (63%) had Asian individuals as one percent or less of their populations.
SOCIODEMOGRAPHICS

Income

Average per Capita Income

An indicator of a community’s financial health is its average per capita income. According to the American Community Survey, the estimated per capita income in the Commonwealth in 2013 was $35,763. Within the Study Area overall, the estimated average per capita income is lower, at $32,679.

Five communities in the Study Area had per capita incomes much lower ($10,000 or more below) the State as a whole: Orange at $21,203; Fitchburg at $22,972; Athol at $23,356; Gardner at $24,321; and Shirley at $24,469.

Just six cities/towns in the Study Area (20%) had average per capita incomes greater than in the State as a whole: Lunenburg at $35,866; Sterling at $40,536; Princeton at $42,921; Groton at $48,248; Bolton at $55,369; and Harvard at $52,258.

The average per capita income in the Service Areas was around $30,000, which was lower than in Massachusetts as a whole ($35,763), with the exception of in HA-2 with a higher per capita income at $37,002 than in the State.
However, it is important to note that there was a wide range of average per capita incomes among the cities and towns within each Service Area, and substantial differences in average per capita income between the cities/towns with the lowest and the cities/towns with highest: a difference of $30,900 in HA-2; $20,301 in MPHN; in HA-1 of $13,266; in AH of $12,600; and in HH of $11,533.

### Average Per Capita Income by Cities/Towns in Service Areas

*Data from 2013 American Community Survey (2009-2013 ACS Survey 5-Year Estimates)*

<table>
<thead>
<tr>
<th>Service Area</th>
<th>City/Town</th>
<th>Per Capita Income</th>
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</thead>
<tbody>
<tr>
<td>MPHN</td>
<td>Athol</td>
<td>23,036</td>
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<tr>
<td></td>
<td>Clinton</td>
<td>31,765</td>
</tr>
<tr>
<td></td>
<td>Fitchburg</td>
<td>22,620</td>
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<tr>
<td></td>
<td>Gardner</td>
<td>23,327</td>
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<td></td>
<td>Leominster</td>
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<td></td>
<td>Phillipston</td>
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<td></td>
<td>Princeton</td>
<td>42,921</td>
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<tr>
<td></td>
<td>Royalston</td>
<td>27,999</td>
</tr>
<tr>
<td></td>
<td>Sterling</td>
<td>40,536</td>
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<tr>
<td></td>
<td>Templeton</td>
<td>27,657</td>
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<td></td>
<td>Westminster</td>
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<td><strong>Average</strong></td>
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<tr>
<th>HealthAlliance - 1</th>
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<tbody>
<tr>
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<td></td>
<td>Winchendon</td>
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<tr>
<td><strong>Average</strong></td>
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</table>

Service Areas Include Overlapping Populations
### Median Annual Household Income

An additional indicator of a community’s financial health is its median annual household income. In Massachusetts, the median household income in 2010 was $64,509. Within the Study Area, five towns: Princeton at $102,853; Sterling at $102,115; Westminster at $79,073; Phillipston at $70,493; and Templeton at $66,138, all had median household incomes greater than that of the Commonwealth as a whole.

In contrast, three of the communities in the Study Area had median household incomes of less than $50,000, with Fitchburg at $47,019, Athol at $47,099 and Gardner at $48,333. Clinton and Leominster had median household incomes in 2010 between $50,000 and $60,000, while Royalston reported median household income of just over $60,000.

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<table>
<thead>
<tr>
<th>Athol Hospital</th>
<th>Heywood Hospital</th>
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<tbody>
<tr>
<td>Athol</td>
<td>Ashburnham</td>
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<td></td>
<td>23,036</td>
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<td>Gardner</td>
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<tr>
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<td>27,875</td>
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*Data from 2013 American Community Survey (2009-2013 ACS Survey 5-Year Estimates)*
Except for the Athol Hospital Service Area with a median income of $58,744, all of the other Service Areas had a higher median household income than in the State as a whole. The HA-2 Service Area had a substantially higher Median Household Income at $86,149.

![Median Household Income by Service Area 2013](Data from 2013 American Community Survey (2009-2013 ACS Survey 5-Year Estimates) Service Areas Include Overlapping Populations)

Poverty

According to data from the American Community Survey (2009-2013 ACS Survey 5-Year Estimates), 11.4% of the population in Massachusetts was estimated to be living below 100% of the poverty level in 2013, an increase of .9% since 2010 (10.5%).

Among the cities and towns within the Study Area, the communities with the largest estimated percentage of population below 100% of the poverty level in 2013, all above 15%, were Athol at 15.8%, Ayer at 15.7%, Fitchburg at 15.6, and Wendell at 15.2%. In Gardner, the percentage of population living below 100% of the poverty level has increased from 11.4% in 2010 to an estimated 14.4% in 2013.

![Percent of Population Living Below 100% of the Poverty Level by Cities/Towns (2013)](Data from 2013 American Community Survey (2009-2013 ACS Survey 5-Year Estimates))
Within all of the Service Areas, the percentage of population living below 100% of the poverty level is lower than in the State as a whole. Among the Service Areas, that of Athol Hospital has the highest percentage of population living below 100% of the poverty level at 10.7% and HA-2 has the lowest percentage at 8.3%.

Eight cities and towns in the Study Area have percentages of population living below 100% of the poverty level that are less than 5% (less than half of the Commonwealth’s at 11.4%); they are: Bolton at 2.8%; Groton and Phillipston, both at 3.7%; Westminster at 4.4%; and Princeton at 4.7%. However, nine communities within the Study Area (30% of the cities/towns) have higher percentages of population living below 100% of the Poverty Level than in the Commonwealth as a whole.
“Until we fix the issue of poverty, we are only putting band aids on the issues.”

“Low income families are not better off. If someone’s on a fixed income, with property value going down and taxes going up, they’re between a rock and a hard place.”

“We’re all poor.”

“Not having enough money, it causes not being able to pay rent, go to job interviews, travel if you have kids, pay hospital bills.”

“Poverty brings a rash of health issues.”

“Bad economy leads to depression; that leads to people trying to escape, self-medicate (and) substance abuse and mental health problems.”

“We need to do something about the economic situation…its worse.”

“The gap between middle and upper class. There is such a big gap and it’s moving in the wrong direction.”

“It all goes back to poverty as the root cause.”

Children living below 100% of the Poverty Level

When considering the percentage of children in families living below 100% of the poverty level, eight communities in the Study Area have higher percentages than the Commonwealth as a whole (14.9%): Fitchburg at 31.5%; Royalston at 26.6 and Shirley at 26.5; Gardner at 24.8%; Athol at 23.3%; Wendell at 21.8%; and Lancaster and Warwick at 16.7%.

![Estimated Percentage of Children in Families Living Estimated Percentage of Related Children Under 18 Years Old in Families Living Below 100% of the Poverty Level in 2013](image)

Data from 2013 American Community Survey (2009-2013 ACS Survey 5-Year Estimates)
“...parents get stressed and take it out on the kids.”

“[There’s] not enough child care and it’s too expensive.”

“Inability [of families] to meet basic needs [is a big problem].”

“[There’s] not enough food at home for families.”

“70% of our children are receiving reduced and free lunch.”

The lowest poverty rate in the region in 2010 for families with related children under the age of 18 was found in Phillipston at 0.0%; (down from 5.5% in 2000); Sterling at 1.2% in 2010 (down from 2.7% in 2000). Athol, Sterling and Templeton all experienced decreases in the poverty rate in 2010 among families with a female head of household and related children.
of 29%, 25% and 28%, respectively, from 2000 rates. Royalston, with a poverty rate of 16% in 2010, is noteworthy due to its 0.0% poverty rate in 2000 for this population.

**Older Adults living below 100% of the Poverty Level**

According to data from the U.S. Census in 2000, 8.9% of persons age 65 and over in Massachusetts were living below 100% of the poverty level. By 2010, that number had increased to 9.3%.

Within the Study Area, there were several communities in which the percentage of persons age 65 and over living below 100% of the poverty level was higher than that of the Commonwealth. The poverty rate among persons age 65 and older in Templeton was 16.8% in 2010, up 25% from 2000. In Clinton, the poverty rate was 16.2% among persons age 65 and older, up 17% from 13.9% in 2000. Fitchburg experienced a poverty rate in 2010 among persons age 65 and older of 12.7% and Gardner had a poverty rate among persons age 65 and older of 12.5% in 2010. Westminster experienced an increase in the percentage of persons age 65 and older living below 100% of the poverty level from 5.1% in 2000 to 8.3% in 2010.

The lowest poverty rates in the region in 2010 for persons age 65 and older age were found in Phillipston at 0% (down from 4% in 2000) and Royalston at 1.9% (down from 6.5% in 2000). Princeton and Sterling experienced decreases in the poverty rate in 2010 among persons age 65 and older of 69% and 46%, respectively from 2000 rates.

![5 Largest Cities Estimated Percent of Population 65 Years and Older Living Below 100% of the Poverty Level in 2013](image)

**Data from 2013 American Community Survey (2009-2013 ACS Survey 5-Year Estimates)**

**Community Voices: Poverty**

The qualitative data collected via Focus Groups and individual interviews consistently identified poverty (and/or lack of resources to purchase health care services, food, housing or other necessarily supplies) as a significant issue facing communities, with few
exceptions, throughout the Study Area across geographic and ethnic and racial communities.

Participants repeatedly described the impact of poverty on multiple aspects of health.

“…if someone’s on a fixed income, with property values going down and taxes going up, they’re between a rock and a hard place.”

“Money is so tight that people [tenants and owners] are becoming manipulators.”

“It’s a lot easier to buy the cheap [unhealthy] foods.”

“[We need] financial aid for families and youth for health services.” (Youth)

“Drug use leads to more poverty and poverty leads to drug use.”

Across the Study Area, participants in the study identified financial barriers to accessing health care less frequently than in previous reports--citing broader access to MassHealth and increased services available through MassHealth as improvements. However, many community members and health and social service providers continue to identify financial barriers to accessing health care as a serious and ongoing problem.

In particular, community members identified issues with insurance, difficulty understanding the requirements and coverage of different plans, the high cost of co-pays, and non-reimbursable services as deterrents to achieving good health and access to healthcare. In addition, community members frequently cited the need for more assistance understanding their health insurance and benefits.

“We need funds to make the work happen…less restrictive funding and bigger amounts…but, foundations give money to Worcester and [other different geographic regions]”… “if [other town in region] gets funds, then [our town] should get funds too.” (Health and social service providers)

“We live on social security; social security isn’t doing anything, but the co-payments keep going up. I can’t handle it on social security.” (Black/African American senior)

“If you don’t have the money to pay the bill, they take you to court…then you got to go out and fight with the court system.”

“[People] don’t want to be [told by health insurance plans] you can’t do this and you can’t do that.”

“Explanations about things are not good.”

“[There is a] lack of understanding of paperwork for Medicare B and C, especially for people who can’t read or write.”
Community Voices: Transportation

An additional barrier to accessing health care repeatedly identified by participants in the qualitative data was transportation. Participants related limited accessibility to transportation as directly impacting their health.

“[It can be] advantageous to go to [Boston area hospitals where there are more cardiologists] but I have no transportation and that’s a problem.”

“Transportation…that’s always been a mess.”

“[We need] help with transportation, like to get to appointments…more money for vans, volunteers to help drive.”

“[There are] long waits for shared transportation…transportation times are not set times, we don’t know when they will arrive.”

“Transportation can be a handicap.”

“Bus doesn’t run on Sundays. If you go to a restaurant and tell them you cannot work on Sunday, they say ‘oh well’.”

“[We need a] bus for work that will pick up at shelters.”

“[We need] buses on Sundays and more during the day.”

“You may know that the DTA can help you, but what good is that if you can’t even get there?”

Although transportation was identified as a significant barrier to accessing health care in the area across groups, access to transportation was noted most often and as a more significant barrier for residents of rural communities, older adults, Latinos and persons with serious mental illness.

Household Composition

Married Couples

In 2010 in the Study Area, 27 of the 30 cities and towns (77%) have more households composed of married couples than in the Commonwealth as a whole (46.3%). The only cities and towns with fewer households composed of married couples were the Study Area’s largest 5 cities: Athol at 44.9%; Clinton at 40.4%; Fitchburg at 39.3%; Gardner at 41.7%; and Leominster at 44.7%; as well as Ayer at 41.3% and Wendell at 42.2%.
Married Couples with Children

In the Commonwealth in 2010, 19.7% of the households comprised married couples with children under the age of 18 (down from 23.2% in 2000). When the individual cities and towns are considered, several of the towns in the Study Area reported percentages of households made up of married couples with children of more than 30%. The highest percentages were found in Bolton at 43.7% of its households composed of married couples with children, followed by Groton at 35.9%, Ashburnham at 34.8% and Ashby at 34.7%. The aforementioned towns had more than twice as many of their households comprising married couples with children than did the 5 largest cities/towns in the Study Area: Athol (16.5%), Clinton (16.8%), Fitchburg (15.6%), and Gardner (15.1%).
In the Study Area, 12 of the 30 cities and towns (40%) reported percentages of households of married couples with children under the age of 18 that were lower than the State average, as shown in the chart below.

### Single Women with Children

In the Commonwealth in 2010, the percentage of households made up of a single woman with children under the age of 18 was 6.8%.

In the Study Area, all 5 of the Largest Cities/Towns had higher percentages of households made up of a single woman with children under the age of 18 that were higher than in the Commonwealth: Athol at 8.2%; Clinton at 7.3%; Fitchburg at 10.3%; Gardner at 9.3%; and Leominster at 8%.

In addition to these cities/towns, other Study Area cities and towns with higher percentages than in the Commonwealth include: Ayer at 7.2%; New Salem at 8.9%; Orange at 7.4%; Shirley at 9.4%; and Winchendon at 7.1%.

Cities and towns in the Study Area with the lowest percentages of households made up of a single woman with children under the age of 18 were: Bolton at 3.5%; Groton at 3.7%; Harvard at 3.5%; Petersham at 3.4%; Phillipston at 3.8%; Princeton at 2.7%; Sterling at 3.5% and Warwick at 2.4%.
All of the Service Areas had lower percentages of households composed of single women and children under the age of 18 than in the State as a whole. Among the Service Areas, HA-1 and MPHN had the highest percentages, both at 6.3%, and HA-2 had the lowest at 5.1%.

“[The economy is especially hard on] elders, single moms, young families and older teens that have just graduated.”

“More housing, for example, for teen parents. It’s harder to get in than for anybody else.”

“[We need] more childcare spots.”
Elderly Household Composition and Housing Issues

“Elders in small towns are far away from health services out in the boonies.”

“Nowhere for elderly to go (no busses) so they sit home…how sad is that?”

“We still see isolated elders…there’s elderly poverty in rural settings and with few services and no transportation.”

“[We need] transportation out of town.”

Persons ages 65 and older living alone (often referred to as elderly persons living alone) has been associated with increased health risks including: falls; malnutrition; poverty; and depression (e.g., [http://nihseniorhealth.gov/falls/causesandriskfactors/01.html](http://nihseniorhealth.gov/falls/causesandriskfactors/01.html)). The literature continues to explore this issue (as it contains many, previously understudied sociodemographics variables), particularly given the aging demographics of the United States.

In 2014, the first comprehensive data analysis by city and town was conducted in relation to older adults: The Massachusetts Healthy Aging Data Report. This study provides community members, service providers, and policy makers with data to enable them to drill down into the needs, health issues, and challenges facing our older populations. Notably, the population of older adults, aged 60 and older in the Commonwealth, continues to grow, with a projected 20% of the population aged 65 and older by 2030, with many individuals dealing with multiple chronic conditions such as arthritis (28%) and diabetes (25%).

As mentioned in the prior section, Age Distribution, seven of the Study Area’s 30 cities and towns (23%) had equal or higher percentages of individuals aged 65 and older living alone than in the Commonwealth overall (10.7%).

These included all five of the Study Area’s five largest cities and towns: Gardner (12.8%), Leominster (11.5%), Clinton (11.4%), Athol (11.3%), and Fitchburg (10.7%).
Healthy Aging

“Mental health – it’s important for people to get connected.”

“If you have the mindset, it has a lot to do with it. You’ll have diabetes, heart problems, but it’s your mindset.”

“Every agency should be informed about benefits [for older adults].”

The *Massachusetts Healthy Aging Data Report: Health Profiles*, was released in 2014. It profiles nearly 100 healthy aging indicators for every city and town in Massachusetts to help residents, agencies, providers and governments understand the older adults who live in their cities and towns, including health status, strengths and vulnerabilities. In Massachusetts overall it is estimated that 13.7% of the population is aged 65 or older.
According to the *Massachusetts Healthy Aging Data Report: Health Profiles*, Leominster, Gardner, and Clinton all have higher percentages of residents aged 65 or older than the State level (14.6%, 14.5% and 14.2% respectively).

Compared to State averages, older residents of these communities have higher rates of tooth loss, glaucoma, diabetes, and Alzheimer’s disease.

In Gardner and Fitchburg, older adults have higher rates of depression. In Gardner, they have a greater than State average number of nursing home stays and in Gardner and Fitchburg, older adults have higher rates of emergency room visits.

<table>
<thead>
<tr>
<th>Category</th>
<th>Northernmost parts of Study Area</th>
<th>Massachusetts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-reported Fair/Poor health status</td>
<td>20.7%</td>
<td>21.7% - 25.3%</td>
</tr>
<tr>
<td>Disabled for one year or more</td>
<td>31%</td>
<td>35% - 38%</td>
</tr>
<tr>
<td>Obesity</td>
<td>22.6%</td>
<td>24.6% - 28.3%</td>
</tr>
<tr>
<td>Alzheimer’s Disease or Related Dementias</td>
<td>16.8% - 24.3%</td>
<td>14.4%</td>
</tr>
</tbody>
</table>

Within the Qualitative data, older adults noted many health-related concerns, as well as identifying community resources that have assisted them to maintain their health and wellbeing. While these issues are discussed at several points in this report, some of these concerns and assets will also be noted in this section.

“Explanations of things are not good.”

“…lack of understanding of paperwork for Medicare B and C, especially for people who can’t read and write.”

“People are afraid to ask questions. Doctors are too busy.”

“They [elders] don’t have any children in the immediate area, so they don’t really have anybody calling them every day, checking in on them…going into a depressive state when they don’t have a social environment around them.”

“Senior citizens [can] have lunch [at a community program for $2.00. That’s good.”

“The Council on Aging is here…has the elderly exercising regularly.”

“Two things that would help seniors is to have local and state businesses put out in plain sight that they offer senior citizen discounts – most places you go you have to ask; and to make sure [medication] samples/discounts are available.”
Unemployment

The financial crisis of 2008 – 2010 took a lasting toll on the financial health of the Study Area, the Commonwealth, and the U.S. After several years of higher unemployment rates, the Commonwealth as a whole experienced an estimated unemployment rate of 8.9% in 2013. In the Study Area, only the community of Orange at 10.6% had a higher unemployment rate than the State rate.

In the 5 largest cities/towns of the Study Area, the unemployment rates were in Athol at 8.5%, Clinton at 7%, Fitchburg at 8.2%, Gardner at 7%, and in Leominster at 7.8%. This represents a marked improvement from higher unemployment rates in 2000.
Despite decreased unemployment rates across the Study Area, many study participants reported negative impacts of the poor economy and stressors of poverty on the health and wellbeing of families. Although a few participants suggested that there are more people entering the workforce and entry wages have improved, most participants across Focus Groups maintained that poverty and unemployment have gotten worse in recent years.

“A large challenge for consumers is income insecurity.”

“Unemployment is worse; all the factories are gone.”

“My guys [veterans] can’t get a decent job.”

“Local businesses have closed down.”

“Poverty is worse. You can’t make a decent living on minimum wage.”

“No jobs [for mentally ill persons]...they used to have a government program for mentally ill individuals to help them find jobs, but not anymore.”

“[Youth need] better employment opportunities.”

“There are more part time jobs with no benefits.”

“Places where you [homeless individuals] want to work, fast-food, they tell you to fill out an application and then you don’t hear from them. People who are trying to get off the street and better themselves.”

“Job security is worse.”
Homelessness

According to January, 2014 HUD Point in time data, there are 21,237 homeless individuals in the Commonwealth. In North Central Worcester County, 158 individuals were homeless, among which 33% were under the age of 18; 8% were ages 18-24; and 59% were over the age of 24. These 158 individuals were either living in emergency shelters (56%); Transitional Housing (33%) or were Unsheltered (11%). A breakdown of homeless individuals’ ages and living situations appear in the chart below.

<table>
<thead>
<tr>
<th></th>
<th>Emergency Shelter</th>
<th>Transitional Housing</th>
<th>Unsheltered</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of households</td>
<td>50</td>
<td>31</td>
<td>18</td>
<td>99</td>
</tr>
<tr>
<td>Total number of persons</td>
<td>88</td>
<td>52</td>
<td>18</td>
<td>158</td>
</tr>
<tr>
<td>Number of persons (under age 18)</td>
<td>32</td>
<td>20</td>
<td>0</td>
<td>52 (33%)</td>
</tr>
<tr>
<td>Number of persons (ages 18 – 24)</td>
<td>9</td>
<td>1</td>
<td>2</td>
<td>12 (8%)</td>
</tr>
<tr>
<td>Number of persons (over age 24)</td>
<td>47</td>
<td>31</td>
<td>16</td>
<td>94 (59%)</td>
</tr>
<tr>
<td>Average household size</td>
<td></td>
<td></td>
<td></td>
<td>1.6</td>
</tr>
</tbody>
</table>

“Because I’m homeless, I have no bathroom.”

“Some people want to be homeless, but for other people who don’t, [we need] more outreach to help people move forward.”

“Who wants to sit at Dunkin Donuts? We want clean, healthy environments.”

“Stop waking me at 6:45 a.m. and sending me [out] on the street.”

 “[We need a] bus for work that will pick us up at shelters [to get us to work]”

“[There are no services for] homeless single people.”

“…or, for [homeless] people trying to get their children back.”

Homeless Students

According to the Massachusetts Department of Elementary and Secondary Education report: Homelessness in Massachusetts Public Schools [http://www.doe.mass.edu/mv/Survey2013.pdf], there are an estimated 37,000 homeless students in Massachusetts public schools. Results from the Youth Risk Behavior Survey (YRBS) administered in randomly selected high schools across the Commonwealth (and which since 2005) has included a housing status question, indicated that “When compared to their housed peers, homeless students have lower access to the protective factors that can help improve their lives. At the same time, homeless students are participating in risk behaviors at a higher rate than their housed peers.”
These included higher rates of alcohol use among homeless students in the past 30 days (53% vs. 35% among housed peers); higher rates of marijuana use in the past month (49% vs. 24%); use of heroin in lifetime (9% vs. 1%); past attempt at suicide that resulted in an injury (8% vs. 2%); sexual contact against one’s will (19% vs. 8%); and having been or gotten someone pregnant (19% vs. 2%).

Within the quantitative data, homelessness was mentioned as a problem in many of the Focus Groups and Key Informant interviews, from public health professionals, to youth, African American Adults and Veterans. When asked to list the “three biggest health issues” in their communities, respondents listed poor housing condition, lack of housing, and/or homelessness as one of the three biggest problems.

“My concern, no place for the homeless to be during the day after 6:45 when people have to leave [shelters]. [Homeless program] opens at 10. That’s a huge concern.”

“The waiting list has increased for housing; many people waiting are living in hotels.”

“Right now there’s no place to go; only one site … that will let you come in and sit.”

“It’s freezing but people are back out under the bridge…it’s gotten worse because the drugs have gotten worse.”

 “[People are] living out of dumpsters,” “…sleeping on tarps like little communities. Some of them real good friends of ours.”

 “[Homeless families in hotels], temporary placements are now turning permanent.”

“Homeless people without access to a phone number have less employment opportunities.”

Housing

Within the qualitative data, across Focus Groups and Key Informant Interviews, participants discussed a lack of affordable housing and stated strongly that old and poor quality housing stock is a problem in many Study Area communities.

“There is a lack of affordable housing and access to it.”

“Housing is old and chopped up into multi-units.”

“There are a lot of old abandoned houses.”

“We have some of the worst decreasing property values.”

Families deserve to live in better neighborhoods; they should all be bright and clean.”

“Outsiders are buying properties and renting [them out] before completing work needed [on the properties].”
“People are afraid to complain about housing violations.”…“Our fear is to get evicted from complaining.”

“We have yearly inspections but the year comes and goes. I needed the help of a social worker because I have a handicapped child.”

“We need more efforts that improve and promote tenant/landlord collaborations to improve housing stock for multi-family dwellings.”

“Factory buildings are being renovated, make them [into affordable housing].

 “[We need] more housing, for teen parents. It’s harder [for them] to get in than for anybody else.”

“[If we had] more flexible health care dollars that could be spent on housing, for example…we could house homeless with health issues in those apartments.”

These concerns, especially among individuals living in rural communities in the Study Area, are consistent with the December 2014 White Paper on Rural Housing Issues in Massachusetts: Findings of the Rural Initiative and Recommendations assertion that:

Many rural areas, especially in Berkshire, Franklin, and Worcester counties, have some of the highest concentrations of homes built prior to 1940 in the state outside of the city of Boston…Older homes are likely to have more costly upkeep or repairs, causing them to be more expensive to operate. Lead paint is still present in many homes dating from before 1978, creating a hazard to families with young children. Older homes with lead paint may be more affordable to low income families with children, but these households typically do not have the funds to pay for lead paint remediation, which typically costs tens of thousands of dollars.

(http://www.nqcc.org/pdfs/rural_housing_white_paper.pdf)

Educational Attainment

An analysis of the educational systems within the region is complex due to the fact that many of the towns within the Study Area belong to regional school systems. The cities/towns in the Study Area comprise a combination of local school systems, regional school districts as well as hybrid school system with both local and regional pieces. All school districts here will be referred to by the names used on the Department of Education website. There are a wide range of types and sizes of school districts represented within the report region, including two major regional vocational technical schools. Because of the intricacies of charter schools, public school choice and private school options, this analysis will focus on the students enrolled in the default local or regional schools associated with their cities and towns. There will also be some discussion of the 2 major regional vocational technical schools with high enrollments from the Study Area’s cities and towns. Study Area Cities/Towns and Corresponding School Districts.
<table>
<thead>
<tr>
<th>City/Town</th>
<th>Grades</th>
<th>Public School District(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ashburnham</td>
<td>PK – 12</td>
<td>Ashburnham-Westminster</td>
</tr>
<tr>
<td>Ashby</td>
<td>K – 12</td>
<td>North Middlesex Regional (also includes Pepperell and Townsend)</td>
</tr>
<tr>
<td>Athol</td>
<td>PK – 12</td>
<td>Athol-Royalston Regional</td>
</tr>
<tr>
<td>Ayer</td>
<td>PK – 12</td>
<td>Ayer-Shirley Regional</td>
</tr>
<tr>
<td>Bolton</td>
<td>PK – 12</td>
<td>Nashoba Regional (also includes Lancaster and Stow)</td>
</tr>
<tr>
<td>Clinton</td>
<td>PK – 12</td>
<td>Clinton</td>
</tr>
<tr>
<td>Erving</td>
<td>PK – 6</td>
<td>Erving Elementary</td>
</tr>
<tr>
<td></td>
<td>7 – 12</td>
<td>Gill-Montague Regional</td>
</tr>
<tr>
<td>Fitchburg</td>
<td>PK – 12</td>
<td>Fitchburg</td>
</tr>
<tr>
<td>Gardner</td>
<td>PK – 12</td>
<td>Gardner</td>
</tr>
<tr>
<td>Groton</td>
<td>PK – 12</td>
<td>Groton-Dunstable Regional</td>
</tr>
<tr>
<td>Harvard</td>
<td>PK – 12</td>
<td>Harvard</td>
</tr>
<tr>
<td>Hubbardston</td>
<td>K – 12</td>
<td>Quabbin Regional</td>
</tr>
<tr>
<td>Lancaster</td>
<td>K – 12</td>
<td>Nashoba Regional (also includes Bolton and Stow)</td>
</tr>
<tr>
<td>Leominster</td>
<td>PK – 12</td>
<td>Leominster</td>
</tr>
<tr>
<td>Lunenburg</td>
<td>PK – 12</td>
<td>Lunenburg</td>
</tr>
<tr>
<td>New Salem</td>
<td>PK – 6</td>
<td>Swift River Schools</td>
</tr>
<tr>
<td></td>
<td>7 – 12</td>
<td>Mahar Regional (also includes Orange, Petersham, Wendell)</td>
</tr>
<tr>
<td>Orange</td>
<td>PK – 6</td>
<td>Orange Elementary</td>
</tr>
<tr>
<td></td>
<td>7 – 12</td>
<td>Mahar Regional (also includes New Salem, Petersham, and Wendell)</td>
</tr>
<tr>
<td>Pepperell</td>
<td>K – 12</td>
<td>North Middlesex (also includes Ashby and Townsend)</td>
</tr>
<tr>
<td>Petersham</td>
<td>PK – 6</td>
<td>Petersham Center School</td>
</tr>
<tr>
<td></td>
<td>7 – 12</td>
<td>Mahar Regional (also includes New Salem, Orange, and Wendell)</td>
</tr>
<tr>
<td>Phillipston</td>
<td>PK – 12</td>
<td>Narragansett Regional (also includes Templeton)</td>
</tr>
<tr>
<td>Princeton</td>
<td>K – 12</td>
<td>Wachusett Regional (also includes Holden, Paxton, Rutland, Sterling)</td>
</tr>
<tr>
<td>Royalston</td>
<td>PK – 12</td>
<td>Athol-Royalston</td>
</tr>
<tr>
<td>Shirley</td>
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<td>Ayer-Shirley Regional</td>
</tr>
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<td>Sterling</td>
<td>K – 12</td>
<td>Wachusett Regional (also includes Holden, Paxton, Princeton, Rutland)</td>
</tr>
<tr>
<td>Templeton</td>
<td>PK – 12</td>
<td>Narragansett Regional (also includes Phillipston)</td>
</tr>
<tr>
<td>Townsend</td>
<td>K – 12</td>
<td>North Middlesex Regional (also includes Ashby and Pepperell)</td>
</tr>
<tr>
<td>Warwick</td>
<td>PK – 12</td>
<td>Pioneer Valley Regional (also includes Bernardston, Leyden, Northfield)</td>
</tr>
<tr>
<td>Wendell</td>
<td>PK – 6</td>
<td>Swift River School</td>
</tr>
<tr>
<td></td>
<td>7 – 12</td>
<td>Mahar Regional (also includes New Salem, Orange, Petersham)</td>
</tr>
<tr>
<td>Westminster</td>
<td>PK – 12</td>
<td>Ashburnham-Westminster</td>
</tr>
<tr>
<td>Winchendon</td>
<td>PK – 12</td>
<td>Winchendon</td>
</tr>
</tbody>
</table>

The regional school districts covering the 17 additional towns are complete PK – 12 systems. Students from towns in the Study Area make up 100% of the student body in 3 of these 7 regional school districts. The Ashburnham - Westminster Regional School District comprises students from the Gardner Area Towns of Ashburnham and Westminster. The North Middlesex Regional School District enrolls students from Ashby, Pepperell and Townsend, while the Quabbin Regional School District has students from Hubbardston and New Braintree.

Eighty percent of the students in the Groton-Dunstable Regional School District are from Groton and 80% of the students in the Narragansett Regional School District reside in Templeton. Bolton and Lancaster students account for 63% of the students in the Nashoba Regional School District, while 47% of the students in the Wachusett Regional School District reside in Princeton, Rutland or Sterling.
Vocational Technical Schools

There are 6 regional vocational technical schools that enroll students from cities/towns in the Study Area. Only 2 of these, Montachusett Regional Vocational Technical School and Nashoba Valley Regional Vocational Technical School have more than 15% of students from this area. Eighty-one percent of students at Montachusett are from Ashburnham, Ashby, Fitchburg, Gardner, Harvard, Hubbardston, Lunenburg, Princeton, Sterling, Templeton, Westminster, and Winchendon, while 46% of students at Nashoba Valley are from the towns of Ayer, Groton, Pepperell, Shirley and Townsend.

Educational Attainment

An important factor in looking at the health of a region is the educational attainment of its residents. For the 2010 census, this information was collected for residents age 25 and over. Within Massachusetts, 11.3% of the residents aged 25 and over had no high school diploma, and 24.9% did not go beyond receiving a high school or equivalent. Among the cities and towns represented in this report, the highest percentages of residents age 25 and over with no high school diploma were found in the cities of Fitchburg (15.6%), Gardner (18%), and Athol (15.3%). The lowest percentages of residents age 25 and over who were lacking a high school diploma were reported in Princeton at 2.2%, Sterling at 4.3% and Royalston at 6.7%.

“Education – if you stay in school it’s your way out.”

“[Improvements would be] “Better teachers,” “More one-on-one,” “More time with the students,” “More activities,” “More awareness [about] alternative schools.”

“[Students have] very low expectations for greater ‘success’ through educational pursuits.”

“Lower educational attainment is impacting health in a negative manner.”

In the qualitative data, community members expressed appreciation for several specific public education improvements and assets: a new school in Athol; school-based clinics; and a popular high school chef in Ayer who “makes all good healthy meals and wants to teach the kids how to eat.”

Participants also identified the essential role that community based organizations continue to play in providing supportive educational services, including providing access to computers and internet access; educational opportunities for veterans at Mt. Wachusett Community College; and making tutoring available at the YMCA and other youth centers.

Among the adult Focus Group participants, especially those comprising social service and public health professionals, participants expressed concern about low rates of educational attainment and high drop-out rates in the region, stating causes that included increased substance use and abuse, a lack of knowledge in the community about educational
opportunities, and a need for increased financial support for continuing education. Their comments included:

“*We have among the lowest education rates in Massachusetts.*

“*Definitely we are down in college graduation rates in this area.*”

“*Housing stability is needed to help kids stay in school.*”

“*Higher abuse also feeds into high dropout rates.*”

“*With school choice, there’s increased numbers of children choosing [to attend school out of the district]…youth need more opportunities to get them to stay in town.*”

Many expressed the need for more and better health education in primary and secondary schools, including topics of sexuality education, life skills, nutrition, and life skills.

“*How can traditional schools prepare our youth? We need new ideas*”

“To teach people how to cope with feelings”

“Health is offered in high school as a requirement only in 9th and 10th grades. It should be required every year from 4th grade and up in every school.”

“And we’ve got PE teachers teaching health.”

“We need more services for older children, to teach them life skills.”

The youth participating in Focus Groups highlighted two problems that were not mentioned by adults: bullying, and a lack of sensitivity and misunderstanding of learning disabilities at school, including misunderstanding/misuse by some teachers of 504 plans (Section 504 of The Rehabilitation Act of The Americans with Disabilities Act), that extends civil rights to students with a physical or mental impairment in order for them to more equitably access their public school curriculum.

“I cut myself because I got so stressed out [from being bullied] and I didn’t know how to deal with it.” (LGBTQ Youth)

*There should be a “hot line for bullying.”* (Latino youth)

“The general education teacher does not “acknowledge,” “appreciate,” “understand” a 504.”

“It would be helpful if the teacher puts it [the 504] to use instead of using it as discipline enforcement versus a coping mechanism.” (LGBTQ Youth)

LGBTQ youth emphasized that sensitivity training should be required for teachers, administrators, and other adults in schools about how to work with, and support, them.
“No one knows what to do with non-binary people…especially ‘new’ LGBTQ youth.”

“Take off ‘gender’ on school attendance sheets. “When I am faced with a box that says M/F, what do I pick, because I am not.”

“Be sensitive to youth transitions, including recognizing name changes.”

Related to community assets, the LGBTQ Focus Group credited GSAs (Gay/Straight Alliances) in schools as important and supportive environments for giving visibility to, and supporting, their needs, stating that GSAs should be started earlier, in middle schools, and not just in high schools.

**Educational Districts**

An analysis of the educational systems within the region is complex due to the fact that many of the towns within the Study Area belong to regional school systems. The cities/towns in the Study Area comprise a combination of local school systems, regional school districts as well as hybrid school systems with both local and regional pieces. All school districts here will be referred to by the names used on the MA Department of Education website. In addition, the intricacies of charter schools, public school choice and private school options, this study will focus on the students enrolled in the default local or regional schools associated with their cities and towns.

“In Massachusetts your child can attend any school in the district (called intradistrict choice) or outside the district (called interdistrict choice). Charter schools are also an option. Under the federal No Child Left Behind law, students attending a Title I school designated as "in need of improvement" have the right to attend a higher performing school in the district.” (Ayer-Shirley Regional School District website at: http://www.asrsd.org/pages/AyerShirleyRSD)

**School District Enrollment by Racial/Ethnic Group**

A review of school enrollment by race/ethnicity shows that within Massachusetts, African Americans\(^4\) made up 8.7% of the students enrolled in public schools for the 2013 – 2014 school year. Of the cities and towns represented in this report, for the 2013 – 2014 school year, Leominster reported the highest percentage of African American students at 7.4, followed by Fitchburg at 5.5, and Ayer at 5.0. All of the public school districts in the region reported lower percentages of African American students than the Commonwealth as a whole. The lowest percentages of African American students were reported in the Erving, New Salem-Wendell, and Petersham school districts all at 0%, followed by Nashoba school district at 0.6%, Groton-Dunstable at 0.7%, and Ashburnham-Westminster at 0.8%.

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\(^4\) In the Educational Attainment section of this report, the terms “African American” and “Black” are used in the same way race and ethnicity are described in State educational data.
The school enrollment percentages for African Americans were higher than the percentages reported for the overall Black, Non-Hispanic population in 2005 for the State as a whole (8.2% of students versus 6.0% of population), as well as for Fitchburg (6.6% of students versus 4.2% of population), Leominster (5.8% of students versus 4.2% of population), Gardner (3.6% of students versus 2.9% of population) and Clinton (3.6% of students versus 2.3% of population). The opposite was true for Shirley, where 2.2% of students were African American while 7.0% of the population was identified as Black, Non-Hispanic, as well as for Ayer (5.4% of students versus 7.3% of population) and Harvard (1.6% of students versus 5.0% of population).

The differences between the student African American percentages and the overall Black, Non-Hispanic percentages may be due to differences in the definitions of African American versus Black, Non-Hispanic; different time periods; the age distribution of Blacks resulting in more/fewer school-age children; or to differences in school enrollment trends leading to disproportionately more/fewer Blacks in certain public school systems.

Within Massachusetts, Hispanics made up 17% of the students enrolled in public schools for the 2013 – 2014 school year. Among the cities and towns represented in this report, several school districts reported percentages of Hispanic students that were higher than that of the State. Fitchburg reported the highest percentage of Hispanic students at 45.8% or 2.7 times the State percentage. Fitchburg was followed by Leominster at 27.8% (1.6 times the State percentage) and Clinton at 21.6% (1.2 times the State percentage). Montachusett Regional Vocational Technical School had a percentage of Hispanic students of 12.9%.

A comparison of the school enrollment percentage for Hispanics versus the percentage reported for the overall Hispanic population in 2010 for Massachusetts, as a whole indicates that the school percentage is 1.7 times the overall population percentage (16.4% of students versus 9.6% of population). Higher percentages of Hispanic students versus the overall Hispanic population were also found in Fitchburg (44.6% of students versus 21.6% of population), Leominster (26.8% of students versus 14.5% of population), Clinton (20.2% of students versus 13.6% of population), and Gardner (11.8% of students versus 7.1% of population).

Asians comprised 6.1% of the public school population within Massachusetts, in 2013 - 2014. Harvard and Fitchburg had the highest percentages of Asian students in the reporting area than the State at 8.6% and 5.6%, respectively. As noted in the Socio Demographic section of this report, one of the limitations of the State and Federal data is the broad definition of race and ethnicity, including a range of groups. It is noteworthy that the Asian student population, like the Hispanic student population, is generally increasing, even in those school districts where there the percentage of the African American student population is statistically negligible. This is an emerging trend that can be noted particularly in smaller, more rural areas such as New Salem-Wendell which reports 0.0% African American, but 1.4% Asian and 5.8% Hispanic students; Petersham again with 0.0% African American, but 0.9% Asian and 3.6% Hispanic students; and Erving which also reported 0.0% African American, but 4.6% Hispanic students. Other examples of this trend include Nashoba at 0.6% African American, but 3.2% Asian and 3.1% Hispanic, and Ashburham-Westminster with 0.8% African American, but 0.8% Asian and 3.7% Hispanic students.
As discussed in a subsequent section entitled *Teacher Race/Ethnicity by School District*, qualitative information contained frequent input about the diversity of the student body within the schools in the Study Area, identifying the need for greater diversity to be reflected in the teachers and administrators in the school districts. Community members also specifically identified that attending the school systems can be particularly challenging for bi-racial students.

School District Enrollment by Gender

In the 2013 – 2014 school year, within Massachusetts, 51.2% of the students were male and 48.8% were female. Most of the school districts in the Study Area had similar distributions, with percentages of males between 46.8% and 53.6% and percentages of females between 46.4% and 53.2%. Both of the regional vocational technical schools enrolled more males than females, with Montachusett at 53% male and 47% female and Nashoba Valley – with a more noticeable gap -- at 60.6% male and 39.4% female. Towns with gender differences beyond the normal range include Gardner and Orange, both with 53.6% males to 46.6% females, and Erving with 45% males to 55% females.

School District Enrollment by English Language Proficiency (LEP)

General Laws c. 71A, §2(d) defines "English learner" as "a child who does not speak English or whose native language is not English and who is not currently able to perform ordinary classwork in English." For purposes of this memorandum, we will use the term "LEP student" to mean "English learner." Districts must have in place a process and a set of criteria to determine whether an LEP student who has been enrolled in the district during the school year is still limited English proficient at the end of the school year and, therefore, whether to continue to designate this student as LEP on the SIMS data collection. Department regulations promulgated under G.L. c. 71A state that school districts shall "establish criteria, in accordance with Department of Elementary and Secondary Education guidelines, to identify students who may no longer be English learners." 603 CMR 14.02(4). (Source: [http://www.doe.mass.edu/ell/news04/0325lep.html](http://www.doe.mass.edu/ell/news04/0325lep.html)).

Within the Commonwealth, 17.8% of the students enrolled during the 2013 – 2014 school year reported that English was not their first language and 7.9% of the students in the 2013 – 2014 school year had Limited English Proficiency (referred to as "English language learner – ELL" within the Massachusetts Department of Elementary and Secondary Education).

There are three school districts within the Study Area with a large percentage of students for whom English is not their first language: Fitchburg, Clinton and Leominster. Fitchburg reported that English was not the first language for 32.1% of its students and reported that 15.2% of its students had Limited English proficiency – nearly twice the percentage reported in the State as a whole. 20.4% of Clinton’s students and 18.2% of Leominster’s students reported that English was not their first language.

Participants identified the local colleges as important resources in supporting the educational status of the area. In particular, individuals identified the ESL resources at the
colleges; however, it was noted that, at times, the GED prerequisite, and/or waiting lists can be a barrier for entrance.

**School District Enrollment by Income Status**

Several of the school districts represented in this report had much higher percentages of low income students in 2013 – 2014 than the State average of 38.3%. Of these, the region’s larger cities/towns had higher percentages of low income students, with notable increases since 2008-2009: Fitchburg at 77%, Gardner at 59%, Clinton at 48.2%, Leominster at 47.5, Winchendon at 44.9%, and Erving at 38.4% - representing an increase in the percentages of low income students in these communities since 2008-2009. The school districts with the fewest low income students were Harvard, with 3.7% of students described as low income, and Groton-Dunstable at 5.6%.

<table>
<thead>
<tr>
<th>School District</th>
<th>% low-income students 2008-2009</th>
<th>% low-income students 2013-2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massachusetts average</td>
<td>38.3%</td>
<td></td>
</tr>
<tr>
<td>Fitchburg</td>
<td>58%</td>
<td>77%</td>
</tr>
<tr>
<td>Gardner</td>
<td>40%</td>
<td>59%</td>
</tr>
<tr>
<td>Clinton</td>
<td>41%</td>
<td>48.2%</td>
</tr>
<tr>
<td>Leominster</td>
<td>38%</td>
<td>47.5%</td>
</tr>
</tbody>
</table>

An additional indicator of the income status of students in a school district is the percent of students who receive a free lunch. In 2013 – 2014, 33.6% of the students in Massachusetts qualified to receive a free lunch.

The school districts serving the larger cities/towns in the Study Area reported higher percentages of students receiving free lunches than the State. Fitchburg had the highest percent of students receiving free lunches at 70.3% (up from 49% in 2008-2009), followed by Gardner at 51.4% (up from 32% in 2008-2009), Leominster at 41% (up from 28% in 2008-2009), and Clinton at 39.5% (up from 31% in 2008-2009). The school districts with the fewest students eligible for free lunches were Harvard, with 2.3% of students eligible for free lunches, Groton-Dunstable with 4.4% and Nashoba with 5.9% of students receiving free lunches.

**Suspensions by School District**

During the 2013 – 2014 school year there were more out-of-school suspensions than in-school suspensions within the State, with overall rates of 4.3 out-of-school suspensions per 100 students and 2.2 in-school suspensions per 100 students. Half of the school districts in the Study Area also had higher out-of-school suspension rates than in-school ones, while other school districts reported a higher in-school suspension rate.
When out-of-school and in-school suspensions are combined, the State had an overall suspension rate of 9.8 per 100 students in 2007 - 2008. Nine of the school districts in the Study Area had a combined suspension rate greater than that of the Commonwealth. The highest suspension rate was reported at Montachusett Regional Vocational School with a rate of 27.8. Fitchburg reported 23.3 suspensions per 100, while Berlin-Boylston had 16.9, Leominster had 16.6 and Winchendon had 16.1 suspensions per 100 students. Berlin, a pre-kindergarten through grade 6 school district, reported zero suspensions. Harvard at 0.7 and Lunenburg at 1.6 reported low suspension rates per 100 students.

The highest in-school suspension rates were reported by Montachusett Regional Vocational School at 23.1, followed by Fitchburg at 10.4, and Winchendon at 10.2 per 100 students. The highest out-of-school suspension rates were reported by Fitchburg at 12.9, Gardner at 11.3, and Berlin-Boylston at 9.2 per 100 students.

**Special Education**

“Emotional Impairment,” as defined under federal law at 34 CFR §300.7, the student exhibits one or more of the following characteristics over a long period of time and to a marked degree that adversely affects educational performance: an inability to learn that cannot be explained by intellectual, sensory, or health factors; an inability to build or maintain satisfactory interpersonal relationships with peers and teachers; inappropriate types of behavior or feelings under normal circumstances; a general pervasive mood of unhappiness or depression; or a tendency to develop physical symptoms or fears associated with personal or school problems. The determination of disability shall not be made solely because the student's behavior violates the school's discipline code, because the student is involved with a state court or social service agency, or because the student is socially maladjusted, unless the Team determines that the student has a serious emotional disturbance.

**Graduation and Dropout Rates by School District**

In 2013, nine of the school districts represented in this report had four year graduation rates higher than the State rate of 85%. Highest among these were Harvard at 97.4%, Montachusett Regional Vocational Technical at 96.6% and Groton-Dunstable at 96.2.

**Graduation Rates**

Five of the report area school districts had graduation rates lower than the State in 2013. The lowest rates were seen in Fitchburg and Gardner, both at 71.6%, and in Athol-Royalston at 77%. The other two districts with graduation rates below the State rate were Ayer at 80% (which formerly had been one of the highest at 95.5% in 2008), and Winchendon at 84.5%.

**Dropout Rates**
Within the Commonwealth, the dropout rate for 2013 was 6.5%. Ten of the school districts represented in this report had dropout rates lower than the State rate, with the most notable being Groton-Dunstable at 0.4%, Lunenburg at 0.8%, and Harvard and Montachusett Regional Vocational Technical both at 0.9%.

In contrast, five of the school districts had dropout rates higher than the State rate. The highest dropout rate was seen in Fitchburg at 14%, over twice the State dropout rate. This was followed by Athol-Royalston at 12%, Gardner at 10.6%, Ayer at 8.4%, and Winchendon at 7.2%.

**Plans of High School Graduates by School District**

Among the 2013 high school graduates within the Commonwealth, 28.6% planned to attend four year private colleges, 29.3% planned to attend four year public colleges, 22% planned to attend two year public colleges, 7.3% planned to go to work, 2.2% planned to attend either a two year public or other post-secondary institution and 2.4% planned to join the military.

Within the school districts in this report, the plans of high school graduates in 2013 varied widely. The school districts with the highest percentage of students planning to attend four year private colleges were Harvard at 58%, followed by Nashoba at 44.9% and Groton-Dunstable at 34.9%. The school districts with the lowest percentage of students planning to attend four year private colleges were Montachusett Regional Vocational Technical at 6.5%, followed by Gardner at 11.5%, and Leominster at 12.3%.

The school districts with the highest percentage of students planning to attend four year public colleges in 2013 were Groton-Dunstable at 51.7%, followed by Lunenburg at 45.1% and Wachusett at 43.7%. The school districts with the lowest percentage of students planning to attend four year public colleges were Athol-Royalston at 9.9%, Winchendon at 14.9% and Fitchburg at 18.2%.

The school districts with the highest percentage of students planning to attend two year public colleges in 2013 were Gardner at 47.9%, Athol-Royalston at 44.2% and Winchendon at 40.2%. The school districts with the lowest percentage of students planning to attend two year public colleges were Harvard at 4.2%, followed by Groton-Dunstable at 6% and Nashoba at 10.6%.

When two year private colleges and other post-secondary institutions are combined, Athol-Royalston has the highest percent of students planning to continue their education at this level at 7.0%, followed by Fitchburg at 6.5%, and Clinton at 6.3%.

The highest percentage of students planning to enter the military in 2013 was reported at Athol-Royalston at 10.5%, followed by Gardner at 6.1%, and Fitchburg and Gardner both at 5.7%.

The Regional Vocational Technical Schools were among the school districts with the highest percentage of graduates reporting plans to enter the workforce. One third, 33.3% of
the Nashoba Valley students and 29.9% of the Montachusett students planned to go to work, as did 20.7% of the Winchendon students.

**Per Pupil Expenditure by School District**

Within Massachusetts, the average per pupil expenditure for 2012 – 20013 was $14,021. Within the reporting area school districts, five School Districts had per pupil expenditures higher than the State, led by Montachusett Regional Vocational Technical at $17,807; Erving at $17,198; Petersham at $15,433; New Salem-Wendell at $15,336; and Harvard at $14,691. The lowest per pupil spending was reported in Wachusett at $10,982, Gardner at $11,344, and Clinton at $11,765.

**Student/Teacher Ratio by School District**

During the 2013 – 2014 school year, there was an average of 13.6 students for every teacher within the school districts in the Commonwealth. A lower student/teacher ratio may be indicative of smaller class sizes and more individualized attention for the students. For this report’s school districts, this student/teacher ratio ranged from 9.1 to 1 in Erving and 9.4 to 1 in Petersham to 16.7 students for every one teacher in Orange. Overall, seven school districts had student/teacher ratios lower than the State, most of which were very close to the State level with the exceptions of Erving and Petersham noted above. The remaining 13 school districts had student to teacher ratios higher than the State. Most notable among these were Orange, as noted above, at 16.7, followed by Wachusett at 16.2, Lunenburg at 15.6, Ashburnham-Westminster at 15.2, and Groton-Dunstable at 15.1.

**Teacher Race/Ethnicity by School District**

Within the Commonwealth, 91.6% of teachers during the 2013 – 2014 school year described themselves as White. The only school district in the reporting area with a lower percentage of White teachers was Fitchburg with 90.8% of its teachers described as White. Every other school district within the Study Area reported higher percentages of White teachers than the State, with two school districts, Orange, and Petersham, reporting that 100% of their teachers were White.

The percentage of teachers who describe themselves as African American was 3.3% for the State overall. All school districts in this report had a lower percentage of African American teachers than the State. The highest percentage of African American teachers was reported in Fitchburg at 2.0%.

Within the Commonwealth, 3.3% of the teachers described themselves as Hispanic. Three school districts reported a higher percentage of Hispanic teachers, with Fitchburg at 6.3%, Montachusett Regional Vocational Technical at 3.8%, and Clinton at 3.4%.

The percentage of teachers who describe themselves as Asian was 1.2% for the State overall. None of the reporting school districts had a higher percentage of Asian teachers.
than the State. Out of a total of 1,560.20 teachers in the State who self-identified as Asian, the total count of such teachers in the reporting area was 20.7.

Within the Commonwealth, 0.3% of the teachers described themselves as being Multi-Race, Non-Hispanic. Two schools were notably higher than the State percentage with Erving at 5%, and Gardner at 3.2% who self-identified as being Multi-Race. As the quantitative data outlined the current section of this report and in previous section entitled School District Enrollment by Racial/Ethnic Group, the demographic profile of the school systems’ teachers differs significantly from the demographics of the diverse student body in the Study Area. This variance arose frequently in the qualitative data as well, with specific concerns related to students receiving differential treatment. Community members also noted that by having more diversity among teachers and school administrators, school faculty could play instrumental roles as advocates and role models for students and would assist in the overall wellbeing and academic achievement of the student population.
Community Voices

Qualitative Data: Themes across Focus Groups

The following chart describes common themes about health assets and concerns identified by participants across the 16 Focus Groups conducted with a total of 228 participants. Data is only included if they were expressed in multiplicity, e.g. issues or concerns expressed by one individual only are not recorded in this report.

Themes from Participants across Focus Groups

Barriers to Care
(Most frequently identified)
- Lack of/shortage of medical and mental health services/providers
- Lack of adequate substance use treatment services and programs
- Long waiting lists for healthcare
- Lack of transportation
- Lack of affordable housing
- Cost of healthcare and co-payments; complicated health plan rules and reimbursement structures
- Crowded emergency rooms
- Intimidated and or feel disrespected by health care system or providers
- Cultural/language barriers and lack of knowledge about and/or sensitivity to clients’ cultures

Social Determinants of Health
(Most frequently identified)
- Poverty as a root cause
- Challenges of locations of residence, e.g. rural; urban; homeless
- Race, ethnicity, other status, e.g. LGBTQ; mental illness diagnosis; formerly incarcerated
- Gender
- Age
- Cross-generation poverty
- Low educational attainment

Community Resources and Assets
(Most frequently identified)
- Community Based Organizations serving groups with specific needs
- Peer groups, peer communities and peer organizations
- Hospitals and community clinics
- Churches
- MassHealth
- Interpreter services
- Community colleges
- Free/low-cost resources and services
- Collaboration among community programs
- Opioid overdose prevention programs

Health Conditions
(Most frequently identified)
- Substance use and addiction (including alcohol consumption)
- Mental health problems, especially depression and stress
- Smoking-related health problems
- Poor nutrition and obesity
Substance Use: “Alcohol and drug use is a real problem, especially access to treatment resources and especially in the rural areas. For example, there are not detox, treatment or stabilization step 1 or step 2 resources in those areas at all.” Substance use has been a consistent concern in past assessments of the health status of the Study Area. In the current study, issues of substance use and abuse were paramount. A lack of adequate treatment resources – both short term and long term – and the related impacts of substance use and abuse on individuals and communities were emphasized by nearly all of the study participants. This may be reflective of the opioid overdose crisis occurring in many parts of Massachusetts, including in the Study Area. However, alcohol use was highlighted as a serious health problem as well.

Mental Health: “The world feels scary and frightening and the services are not enough.” Clinicians, health and social service providers, community adults, and youth across racial and ethnic groups alike stated that untreated mental health problems are increasing among both adults and youth in the communities of the Study Area. There was widespread concern about the shortage of mental health counselors in general, trauma counselors, and specialists to work with specific populations (e.g. pediatric, adolescents, LGBTQ individuals, non-English speaking, racial/ethnic groups); waiting lists for mental health services; inadequate access to psychiatric care and hospitalization; and insurance coverage issues that limit placements. Depression, stress and trauma were cited as common concerns, as well as a lack of hope for the future – especially among youth, and high rates of suicide ideation and suicides. Descriptions of stigma related to mental illness diagnoses and suicide-related behaviors were mentioned as an ongoing barrier to mental health-seeking behavior.

Obesity and Unhealthy Eating: “We eat too much unhealthy foods because they are cheap or easily accessible (fast foods, cheap snacks/drinks.)” Interestingly, while unhealthy eating, a lack of access to healthy foods, too little exercise and a lack of information or education about nutrition were mentioned during several Focus Groups and by several Key Informants, the topic did not generate as much discussion and did not emerge to be one of the most urgent barriers to good health. However, based on their responses when asked to identify the three biggest health problems in their communities (see following section), participants clearly rank obesity and unhealthy eating as high among their health problems.

Transportation: “Because there is little transportation, [people] can’t access quality health care.” “You may know that the DTA can help you, but what good is that if you [live in a rural area and] can’t even get there?” Insufficient public transportation and poor transportation infrastructure were widely identified as having a negative impact on community health and safety in every focus group and in multiple interviews with Key Stakeholders. Participants stated that transportation in the Study Area has not improved or has worsened, identifying the condition of roads, bridges and poor street lighting and also a lack of sufficient and affordable public transportation services as major barriers to staying healthy and accessing health services. Participants reported waiting hours to catch a bus, having to push baby carriages in inclement weather in order to make appointments; having to walk to the doctor’s office even when very sick, and ending up in places “you shouldn’t be” because of limited transportation. The impact of insufficient public transportation resources was considered even worse for those residing outside the Study Area’s cities.
“Elders in small towns are far away from health services out in the boonies; if you’re in a rural area, you’re pretty much on your own.”

**Poverty:** “We’re all poor”: The economy, unemployment and poverty continue to exacerbate many issues associated with health and access to healthcare in the Study Area, despite decreases in unemployment since the last Community Health Assessment in 2011. The accumulative and ongoing impact of economy-related stressors are considered to have an ongoing impact on mental health, substance use and abuse, violence, healthcare seeking behavior and general health status in Study Area communities. Both community members and community leaders described a common state of resource insecurity among large numbers of community members who are either living in poverty, or have just enough money or resources to get by, but not enough to feel secure or be able to weather new circumstance that might arise and require more. Descriptions of choices between putting food on the table and purchasing prescribed medications; purchasing nutritious foods vs. less expensive “fast food”; or not seeking healthcare because of the high cost of co-pays for each visit, were common.

**Housing and Homelessness:** “The housing stock is old and chopped up.” “Homeless families in hotels… temporary placements are now turning permanent.” Homelessness and insecure housing were themes that arose throughout the qualitative data. Participants identified what they perceived as an increase in homelessness, questioning if there was a relation to the opioid crisis. In addition, service providers and community members alike expressed concern about the unanticipated relocation of homeless families to long term hotel stays in the region with corresponding impacts upon the families as well as on the regional educational and human service systems. The qualitative data reflected serious concerns about the living conditions of renters in the region; problems related to old and inadequately maintained housing stock; and increased conflict between tenants and landlords.

**Child and Adolescent Health:** “Every school system, every school should have a health curriculum from 4th – 12th grade.” Adults and youth alike expressed concern about the health of children and adolescents in the region, in particular about their social/emotional and mental health, and about a lack of adequate resources tailored for children and youth. Examples provided included the need for more pediatric mental health and treatment services, health education, employment opportunities, encouragement for educational attainment, mentoring and expanded recreational options.

**Social and Cultural Isolation:** “So then they are sitting out there alone with all their problems.” Despite widespread agreement about and appreciation of community members’ willingness to help each other and the positive impact of strong organizational collaboration in the Study area, social and cultural isolation was considered by most Focus Group participants to have worsened in the past few years. Participants expressed concern about the isolation of elders; rural residents; LGBTQ individuals; families living in hotels; recent immigrants; and newcomers to the country. Wintertime was said to increase isolation in the Study Area and participants consistently mentioned a relationship between social and cultural isolation with loneliness, mental health problems, and drug and alcohol use.
**Qualitative Data: Themes within Focus Groups**

Sixteen Focus Groups were convened in a variety of community settings with a total of 228 participants between October 2014 and April 2015. For a listing of Focus Group populations, sizes and locations, refer to the **Qualitative Methodology** section of this report.

The Focus Group participants were recruited from cities and towns beyond the locales in which the Focus Group meetings were convened in order to best represent the scope and diversity of the Study Area and its residents.

For more detailed information about the Focus Groups methodology and/or results, refer to the prior section of this report: **Qualitative Methodology**, and to **Appendix B - Community Voices**. The following chart represents common themes expressed by participants across Focus Groups.

The following table identifies themes and comments expressed by multiple individuals within population-specific Focus Groups. It includes not only issues raised only within the specific group, but also themes that may have emerged across all the Focus Groups but that were highlighted within the particular group to be of great importance or concern.

<table>
<thead>
<tr>
<th>Population</th>
<th>Concerns</th>
<th>Assets and Ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults with serious mental illness</td>
<td>• Lack of and long waiting lists for mental health services/providers</td>
<td></td>
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<tr>
<td></td>
<td>• Not enough transportation</td>
<td></td>
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<td></td>
<td>• Hard to get jobs</td>
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<td></td>
<td>• Not feeling safe</td>
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<td></td>
<td>• Feeling ignored in the community</td>
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<tr>
<td></td>
<td>• Disrespected due to their mental illness by providers and others</td>
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<tr>
<td></td>
<td>• Not enough funding for community-based services/supports</td>
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<tr>
<td></td>
<td>• Health insurance doesn’t cover enough</td>
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<td></td>
<td></td>
<td>• Westwinds is a good support system.</td>
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<tr>
<td></td>
<td></td>
<td>• Would like more classes, computers and education resources, including</td>
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<tr>
<td></td>
<td></td>
<td>financial support for seeking education.</td>
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<tr>
<td></td>
<td></td>
<td>• Need more places to go for recreation, sports, arts, etc.</td>
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<td></td>
<td></td>
<td>• More education about mental illness for the general population.</td>
</tr>
<tr>
<td>Black/African American individuals</td>
<td>• Isolated elders</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Doctors more concerned with insurance status than the patient;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>decisions about medications, etc., based on insurance status more</td>
<td></td>
</tr>
<tr>
<td></td>
<td>than what patient needs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Complicated health information and health plan rules</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• High cost of co-payments</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Substance use, abuse and lack of treatment resources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Homelessness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Stigma because of race; feeling intimidated by healthcare systems</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and providers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Church community keeps people connected and supported</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Community programs that provide food and other types of assistance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Make information more public about discounts available for senior citizens</td>
</tr>
<tr>
<td>Population</td>
<td>Concerns</td>
<td>Assets and Ideas</td>
</tr>
<tr>
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</tr>
</tbody>
</table>
| Brazilian women     | • Stress, depression, alcoholism, substance use, obesity are biggest community health problems  
  • Leominster ER is overloaded and understaffed  
  • Copays are too expensive and “add up”  
  • Sense of isolation – “socialize with just Brazilian people”  
  • Fibromyalgia is a problem; request for resources/education about how to help friends who have it.  
  • Nowhere for kids to go/nothing to do other than stores/mall; nothing that isn’t too expensive  
  • Streets not lighted well; it is dangerous  
  • Discrimination toward immigrants. Not being treated with respect because of limited English skills | • Other Brazilians and their church communities offer them great support  
  • Would like access to free classes about health, exercise and nutrition, especially for the teens and about women’s health |
| High school youth   | • Not having enough money  
  • High cost of groceries and rent  
  • Need job opportunities  
  • Transportation  
  • Chronic stress  
  • Fear of police  
  • Drugs  
  • Being judged | • Assets: family, peer support, teachers, social service agencies like Planned Parenthood  
  • Need more housing, especially for teen parents  
  • Need more buses during the day and on Sundays  
  • More pro-choice options |
| Hmong individuals    | • People going uncured or getting sicker when only using faith healers and herbal medicines  
  • Healers lack knowledge re: cancer, depression, hypertension, diabetes  
  • High blood sugar/diabetes  
  • Unhealthy eating and drinking  
  • Lack knowledge about food safety  
  • Providers’ lack of understanding of Hmong; need more interpreters  
  • Working overtime; too much work | • Strong cultural identity  
  • Traditional diet is healthy but more people are not eating traditional diet |
| Homeless individuals | • Not enough places to go for shelter  
  • Lack of access to restrooms  
  • Drug use and users  
  • Need more homeless advocates  
  • More access to meals  
  • Lack of jobs and discrimination about hiring homeless  
  • Transportation | • Assets: drop-in centers, churches, AA meetings, YMCA, library, Catholic charities, Salvation Army, thrift stores  
  • Need places to take showers  
  • Need a bus to pick up people at shelters and take them to work |
<table>
<thead>
<tr>
<th>Population</th>
<th>Concerns</th>
<th>Assets and Ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latino adults</td>
<td>• Lack of public transportation, especially for traveling to other locations for work</td>
<td>• Having interpreters for medical services helps, “but having more trained interpreters would be better”</td>
</tr>
<tr>
<td></td>
<td>• Lack of language- and culture-sensitive health services</td>
<td>• The church services the community in important ways.</td>
</tr>
<tr>
<td></td>
<td>• Lack of Latino and/or Spanish-speaking health providers</td>
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<tr>
<td></td>
<td>• “Very bad housing conditions”, and fear of complaining and getting evicted</td>
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<tr>
<td></td>
<td>• Poverty, unemployment, “we’re all poor.”</td>
<td></td>
</tr>
<tr>
<td>Latino youth</td>
<td>• Gangs and crime</td>
<td>• Tutoring at the YMCA, youth center, etc., is an asset.</td>
</tr>
<tr>
<td></td>
<td>• Abuse (sexual, physical, mental)</td>
<td>• Need more for youth to do, e.g. jobs, recreational facilities, youth centers, youth camps, etc.</td>
</tr>
<tr>
<td></td>
<td>• Bullying at school</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Stress and depression among youth</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Need employment opportunities</td>
<td></td>
</tr>
<tr>
<td>LGBTQ youth</td>
<td>• Lack services for LGBTQ youth</td>
<td>• Safe places to meet with others, like the Coffee House, are very important.</td>
</tr>
<tr>
<td></td>
<td>• Lack providers who understand needs</td>
<td>• Gay Straight Alliances (GSA) in school are an asset; should start them earlier, in middle school.</td>
</tr>
<tr>
<td></td>
<td>• Lack of understanding and sensitivity towards LGBTQ in general</td>
<td>• Require education/sensitivity training for teachers, health providers, other adults re: working with LGBTQ youth</td>
</tr>
<tr>
<td></td>
<td>• Feeling unsafe; bullying at school</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Teen suicide and “self-hurting”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Lack gender neutral, multi-stall restrooms</td>
<td></td>
</tr>
<tr>
<td>Older adults</td>
<td>• Isolation – especially in rural areas with limited transportation and services</td>
<td>• Assets: senior centers, food pantries, veteran’s organizations, community health clinics, library, Board of Health, Meals on Wheels, MOC</td>
</tr>
<tr>
<td></td>
<td>• Adult children move away to find work and are unable to care for their elders.</td>
<td>• Need more publicity about how and where to get help, resources, free services</td>
</tr>
<tr>
<td></td>
<td>• Lack of transportation</td>
<td>• Need more transportation</td>
</tr>
<tr>
<td></td>
<td>• Lack of respect from providers</td>
<td>• Every agency should be informed about benefits</td>
</tr>
<tr>
<td></td>
<td>• Lack of primary care providers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Doctors are too busy to communicate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Complicated Medicare paperwork</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• No getting good information or the right information</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Lack of inter-agency communication about resources and benefits for seniors</td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td>Concerns</td>
<td>Assets and Ideas</td>
</tr>
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<td>------------------------------------</td>
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<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
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</tbody>
</table>
| Veterans                           | - Problem drinking.  
- Substance abuse and lack of detox services and long-term support, “Detox at the VA is a 3 day program, but then where are people supposed to go?”  
- Mental health issues and suicide, “Veterans are dropping like flies”  
- Providers lack awareness about veterans’ needs and issues  
- Unaware of programs/services  
- “A lot of people don’t know, and if you are a veteran or veteran’s wife you are entitled to many things.”  
- “It’s hard to get the bean counters and numbers people to listen.” | - The VA is an asset even though veterans don’t use it much  
- Veteran-specific services, especially and free services for veterans (e.g., local gym)  
- If you are a veteran, you should get a piece of paper with benefits listed.  
- Case managers for vets; every veteran should get one right away when they get out (of the service)                                                                                                                     |
| Behavioral health providers and advocates | - Untreated mental health issues  
- Shortage of mental health services, especially “higher level” care  
- Lack of psychiatric care for youth  
- Insurance coverage/payment issues, e.g. limitations of placement for behavioral health concerns  
- Suicide rates; more ideation (youth)  
- Lack of community resources and support for youth (e.g., mentoring programs)  
- Difficulty recruiting therapists to area  
- Lack of primary care options  
- Family difficulties to meet basic needs; financial limitations  
- Transportation  
- Housing stock and homelessness  
- Substance use/lack of treatment | - Collaboration among health and social service providers  
- CHART grant has been successful  
- Caring people, volunteers, clergy |
<table>
<thead>
<tr>
<th>Population</th>
<th>Concerns</th>
<th>Assets and Ideas</th>
</tr>
</thead>
</table>
| Health and social service        | • Homelessness, including prospects for homeless families living in hotels  
| providers; clinicians; and        | • Opioid use and overdose crisis  
| administrators                    | • Comorbidities – serious illnesses, behavioral health, substance use  
|                                  | • Poverty – high number of community members “living on the edge” – making ends meet now, but just barely; poverty impacts all aspects of health  
|                                  | • Low community morale; choice out of local schools; youth leaving area  
|                                  | • Low educational attainment impacts all aspects of health  
|                                  | • Food security; high number of children rely on school meals for nutrition  
|                                  | • Low literacy rates  
|                                  | • Lack of access to funding for community programs and services; Need more funds to make the work happen; “it is difficult to share small pots of money;” the way cities and towns are divided up can impede funding opportunities  
|                                  | • Difficulty recruiting/retaining health providers, especially primary care and behavioral health  
|                                  | • Need for more culturally and linguistically responsive services  
|                                  | • Shortage of mental health services (particularly bilingual services)  
|                                  | • LGBTQ individuals suffer from isolation and “do not feel safe.”  
|                                  | • High rates of suicide or attempts  
|                                  | • Reimbursement structure for services is a barrier  | • Great collaboration among health and social service agencies  
|                                  | | • Willingness of community members, particularly in rural areas, to help one another  
|                                  | | • There is good collaboration among health and social service agencies  
|                                  | | • If the smaller rural communities were able to apply for one larger pot of funding, that would help  
|                                  | | • Area hospitals are actively working on participating and integrating more into community life  
|                                  | | • Quality improvement and focus on innovation at local hospitals  
|                                  | | • Telehealth, especially for rural populations would help  
|                                  | | • We need more community-building activities to improve the perception of the community  
|                                  | | • Natural beauty and green spaces of the area; attract people for outdoor recreation  

Three Biggest Health Problems in Your Community

At each Focus Group, after discussion of all the Focus Group questions, participants were given handouts with the question, *what are the three biggest health issues in your community*, followed by three blank lines. Participants were invited to fill in the lines with their own perception of their community’s three biggest problems, and then to return the handouts to the facilitators. Assistance was provided when requested to address potential literacy issues. These handouts were completed anonymously by participants; however, they were sorted and filed by Focus Group for analysis of themes within, as well as across, Focus Groups.

In all, 553 problem statements were submitted – or an average of 2.4 responses (“problems”) submitted per 228 Focus Group participants. Among the statements submitted, 49 different health problems were identified and 479 (87%) of the problems identified fell into one of the 17 categories as represented in the following chart. *It is important to note that problems were submitted by participants of Focus Groups who resided in multiple cities and towns, and therefore the problems identified are not attributable to any specific cities or towns.*

![Chart](chart.png)

Significantly, 26% of the problem statements submitted identified behavioral health problems (substance use and/or mental health problems), along with a lack of adequate behavioral health providers and treatment resources (especially pediatric/adolescent mental health specialists and trauma specialists) as one of the biggest health concerns.
Other issues that were mentioned more than once, but that did not fit into these categories are represented in the following table.

<table>
<thead>
<tr>
<th>Times mentioned</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>General sickness or illnesses</td>
</tr>
<tr>
<td>5</td>
<td>Bullying</td>
</tr>
</tbody>
</table>
| 4               | Cancer
Isolation
Lack of exercise
Suicide and suicide awareness |
| 3               | Discrimination
Lack of support services in schools |
| 2               | Lack of elder care
Lack of and cost of child care
Lack of mentoring/support services for youth
Lack of recreational activities
Long waits on phone or at medical appointments
Lack of coordination between clinical care providers
Dementia and Alzheimer’s
Trash on streets
Unaware of available resources
Work too much |

**Key Informant Interview Themes**

Community voices were also gathered through 26 Key Informant interviews conducted between September 2014 and April 2015. Individuals who were invited to participate in Key Informant interviews were identified through a variety of sources. Community leaders from Study partners Heywood Hospital, Athol Hospital, HealthAlliance, and the Joint Coalition on Health recommended individuals to be interviewed. In a few cases, those interviewed suggested other individuals to be added as Key Informants. In the recruitment of Key Informants, great care was taken to interview an array of individuals to most broadly represent the Study Area in terms of its diverse geographic areas, multiple communities’ strengths and needs and racial and ethnic populations, as well as areas of expertise related to community health and wellbeing. Every attempt was made to ensure that as many populations and voices were included as possible, although not everyone identified was able to be interviewed for a variety of reasons.

The Key Informants who completed interviews with study researchers included community members, hospital administrators, medical and dental providers, public health professionals, elected officials, criminal justice and social service providers among others. These individuals possessed diverse and impressive knowledge and expertise in health-related topics; for example: clinical care; substance use treatment; oral health; rural health; public health; homelessness; health equity; mental health; tobacco cessation; veteran’s
services; disability services; community engagement; criminal justice; incarceration and re-entry; GLBTQ support; child and adolescent health and more. The following chart represents common themes expressed during the Key Informant interviews.

Themes from across Key Informant Interviews

**Barriers to Care**
(Most frequently identified)
- Transportation
- Cost of care
- Language
- Lack of primary care and behavioral health providers (and difficulty recruiting and retaining them)
- Funding for services and programs, especially in smaller, rural areas

**Social Determinants of Health**
(Most frequently identified)
- Education
- Poverty
- Housing
- Race, ethnicity
- Gender
- Local culture of cross-generational poverty and low educational attainment

**Community Resources and Assets**
(Most frequently identified)
- Health care providers
- Community Based Organizations (Social service agencies, anti-poverty organizations, and age and condition specific related entities)
- Collaboration among agencies
- Natural beauty of the region
- Opioid education and awareness
- Taskforces
- Anti-smoking initiatives

**Health Conditions**
(Most frequently identified)
- Depression and Stress
- Substance Use and Addiction (including alcohol and tobacco)
- Obesity
- Domestic violence and child maltreatment
- Crime

More detailed findings from Community Focus Groups and Key Informant individual interviews may be found in **Appendix B – Community Voices**.
HEALTH STATUS AND OUTCOMES

Introduction

As described prior in the Executive Summary and Methodology and Data Sources section of the report, data on health status and outcomes were obtained primarily from the Massachusetts Community Health Information Profile (MassCHIP), community-level data to assess health needs, monitor health status indicators, and evaluate health programs. It is important to note that, unlike prior reports, MassCHIP data was no longer publically available during the time of the current study. Therefore, the custom reporting feature of MassCHIP utilized during prior assessments was not available for this report, and all data requests were individually submitted and calculated. The study authors would like to express appreciation to the MDPH staff that worked with them to develop the customized data reports needed for this assessment, including information from the following data sources:

- Vital Statistics;
- Communicable Diseases;
- Massachusetts Department of Public Health Program Utilization;
- Childhood Lead Screening; Cancer Incidence;
- Weapons Related Injury Surveillance System (WRISS); and
- The Behavioral Risk Factor Surveillance System (BRFSS) in Massachusetts.

Additional Data Sets:
- Childhood Lead Screening;
- Cancer Incidence;
- Hospital Discharges;
- Hospital Emergency Department;
- Observation Stay;
- Weapons Related Injury Surveillance System (WRISS);
- Department of Education;
- Department of Children and Families; and
- Division of Early Education and Care.

Whenever possible, data from MassCHIP are presented in this report in two data configurations: the 5 largest cities and towns in the Study Area (Athol, Clinton, Fitchburg, Gardner, Leominster); and 5 Service Areas (Health Alliance Primary; Health Alliance Secondary; Heywood Hospital; Athol Hospital; Montachusett Public Health Network). Data

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5 Operated by the Health Survey Program, BRFSS is an annual telephone survey that collects data on emerging public health issues, health conditions, risk factors and behaviors. These data are collected only by Community Health Network Areas (CHNAs). The data in this report is presented for CHNA 9. BRFSS Health Indicators include: Binge Drinking; Smoking; Overweight and Obesity: Adults and Children; Physical Activity; Diabetes; High Blood Pressure; High Cholesterol; Asthma; and Disability.
are also presented, when available, for individual cities and towns. Please note that, in some instances, data is presented for 35 cities/towns of the Study Area, rather than the 30 cities/towns referred to previously in the report. However, the geographic area covered throughout the report is the same; the presentation of data for 35 cities and towns merely reflects a further distillation of the data from: Princeton/ East Princeton; Lancaster/South Lancaster; Groton/West Groton; Townsend/West Townsend; and Winchendon/Winchendon Springs.

Additional data on health conditions was obtained from the Behavioral Risk Factor Surveillance System (BRFSS) in Massachusetts. Operated by the Health Survey Program, BRFSS is an annual telephone survey that collects data on emerging public health issues, health conditions, risk factors and behaviors. These data are presented only for CHNA 9. Health indicators are: Binge Drinking; Smoking; Overweight and Obesity: Adults; Overweight and Obesity: Children; Physical Activity; Diabetes; High Blood Pressure; High Cholesterol; Asthma; and Disability.

Data disclaimer – it is also important to note that certain data provided by MassCHIP was suppressed and thus unable to be presented in the abovementioned configurations. Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. Each data set has specific suppression rules. See Appendix C – Suppression Rules for details.

In addition, several data sets reflect small sample sizes due to the actual number of individuals living in a geographical location. As a result, there are more suppressed values. Even those that are not suppressed have very wide confidence intervals. Hence, data needs to be interpreted cautiously. (Note: This disclaimer was developed by the author in collaboration with MDPH MassCHIP.)

Complementary Data

Qualitative Data: Focus Group and Key Informant data is included throughout the report. An icon is used to easily identify qualitative findings that complement the quantitative data and provide more descriptive information about the topic from members of the Study Area community. These data highlights the complementary themes that were identified often during the analysis.

Healthy People is a federally supported initiative across several federal agencies that is designed to provide science-based, 10-year national data and objectives for improving the health of all Americans. This report includes the Healthy People 2020 goals for specific health indicators (source: https://www.healthypeople.gov/)
Maternal and Child Health

Overall Births

There were 72,835 births in Massachusetts in 2010. Out of the total births in Massachusetts, 3.64% were in the Study Area (n= 2,654). The majority of these births were in Fitchburg, followed by Leominster. The lowest percentage of births in the region was in Athol (.18%).

In comparing the Service Areas, the majority of births in Massachusetts were in the MPHN area (2.48%), followed by HealthAlliance Primary (2.1%). The lowest percentage of births were in the Athol Hospital Service Area (.37%).
Births by Race/Ethnicity

Of the 72,835 births in Massachusetts in 2010, 66.54% were to White, Non-Hispanic mothers, while 14.54% of births were to Hispanic mothers, 9.33% were to Black, Non-Hispanic mothers and 7.99% were to Asian / Pacific Islander, Non-Hispanic mothers. The remaining 1.6% of births were to other, Non-Hispanic mothers, American Indian, Non-Hispanic mothers and to mothers of unknown race/ethnicity.

In the Study Area, the highest percentage of births was to White, Non-Hispanic mothers (81.09%). The lowest percentage of births was to Asian/Pacific Islander, Non-Hispanic mothers (2.56%).

Among the five largest cities, the highest percent of overall births in 2010 to Hispanic mothers was in Fitchburg, at 26.42% of all births. This was followed by Leominster with 22.29% of births to Hispanic mothers and Clinton with 12.89% of births to Hispanic mothers. However, among the five largest cities, most data by race/ethnicity have no reported cases or data are not reported due to suppression rules. The highest percent of overall births in 2010 to Black, Non-Hispanic mothers was in Leominster at 6.28% of all births. This was followed by Fitchburg with 4.95% of births were to Black, Non-Hispanic mothers. The highest percent of overall births in 2010 to Asian mothers was in Ayer at 10.09% of all births with the second highest being in Leominster 5.19% of births to Asian mothers.

For the region, the percentage of births for Other, Non-Hispanic is .75% and for Unknown race/ethnicity is .23%

The chart below does not include data for American Indian, Non-Hispanic; and Other, Non-Hispanic, due to low or not reported numbers for those groups. However, Clinton reported 3.09% of births to Other, Non-Hispanic mothers, and Fitchburg reported .92% births to Other, Non-Hispanic mothers. In the chart below, zero (0) indicates no reported cases; blank indicates data not reported due to suppression rules.
General Fertility Rate or Age-Adjusted Births per 1,000 Women Ages 15 - 44

Fertility rate is defined as age-adjusted births per 1,000 women ages 15-44. Overall, Massachusetts had a fertility rate of 53.75 in 2010. The rate for the Study Area was slightly higher at 54.71. Among the cities and towns in the region, Clinton had the highest at 70.29 age-adjusted births per 1,000 women ages 15-55 and Phillipston had the lowest at 19.35. Rates were not reported for Warwick due to the suppression rules.

In comparison to the overall rate for the region, the 5 largest cities/towns in the Study Area have higher births per 1000 women in 2010: Athol (61.91), Clinton (70.29), Fitchburg (60.93), Gardner (62) and Leominster (57.14).

For the Service Areas, MPHN and HealthAlliance Primary have the highest age-adjusted birth per 1,000 women ages 15-44 at 58.95 and 56.58 respectively. The lowest rate is reflected by Gardner at 52.68.
Teen Births

Teen births are defined as births to young women ages 15-19. There were 3,907 births to young women aged 15-19 in Massachusetts in 2010, yielding an age-specific birth rate of 17.15 per 1,000 young women.

The Study Area reported higher rates of teen births compared to the State – 195 births to young women aged 15-19 in 2010, which was an age-specific birth rate of 21.29 per 1,000 young women ages 15-19.

The cities and towns in the region with the highest rate are Orange (49.18), Gardner (42.9) and Clinton (39.8). The cities and towns in the region with the lowest rate are Winchendon (20.93), Townsend (17.8) and Pepperell (11.76).

Rates of teen birth for the cities/towns of Ashburton and Bolton were reported as N/A, and, data are not reported for the following cities and towns due to suppression rules – Erving, Groton, Lancaster, Lunenburg, Royalston, Shirley, Sterling, Templeton, Warwick and Westminster.

Compared to the State and Study Area, the age-specific births per 1,000 young women ages 15-19 were higher in all 5 largest cities/towns. The rates ranged from 25.97 per 1,000 births to 42.9 per 1,000 births. Gardner had the highest rate and Leominster had the lowest rate.
Four of the five Service Areas had higher rates than the State – HealthAlliance – 1 (26.09), Athol Hospital (31.21), Heywood Hospital (19.98) and MPHN (27.57). HealthAlliance – 2 (11.3) had the lowest births per 1,000 young women ages 15-19.

Teen Births by Race/Ethnicity

Of the 3,907 births to young women aged 15-19 in Massachusetts in 2010, the highest age-specific birth rates per 1,000 young women were Hispanic at 49.29, followed by Black, Non-Hispanic at 28.12 and American Indian, Non-Hispanic at 21.19. The lowest rates were White, Non-Hispanics at 10.22, and Asian/Pacific Islander, Non-Hispanic at 8.66. Rates were not reported for Other, Non-Hispanic and Unknown due to suppression rules.
In the Study Area, the highest age-adjusted birth rate per 1,000 young women was to Hispanic teens (49.46). The lowest age-adjusted birth rate per 1,000 young women was to Asian/Pacific Islander, Non-Hispanic teens. However, the number was not reported due to suppression rules. The age-adjusted birth rate per 1,000 young women for Black, Non-Hispanic is 26.09, which represents six (6) births.

Among the five largest cities, the highest age-specific birth rate per 1,000 young women in 2010 to Hispanic teens was in Fitchburg at 55.67. This was followed by Leominster at 53. However, among the five largest cities, most data by race/ethnicity have no reported cases or data are not reported due to suppression rules. For example, rates for Athol, Clinton and Gardner were not reported due to suppression rules.

The highest age-specific birth rate per 1,000 young women in 2010 to White, Non-Hispanic teens was in Gardner at 40, followed by Athol at 32.54. The lowest age-specific birth rate per 1,000 young women was in Clinton at 12.

Given the low or not reported numbers for Black, Non-Hispanic; American Indian, Non-Hispanic; Other, Non-Hispanic; and Asian/Pacific Islander, Non-Hispanic, the chart below only reports data for White, Non-Hispanic and Hispanic. In the chart below, zero (0) indicates that the geographical area has no reported cases, whereas a blank indicates that data was not reported due to suppression rules.

![Teen Births by Race/Ethnicity by 5 Largest Cities (2010)](chart)

**Adequate Prenatal Care**

One measure of the adequacy of prenatal care used within Massachusetts is the Kessner Index. This measure is based on the trimester in which prenatal care began and the number of prenatal visits. According to the Kessner Index, in 2010 within Massachusetts there was adequate prenatal care for 78.94% of total births. The Study Area was slightly lower than the State at 77.02%.
Within the Study Area, adequate prenatal care was provided for all cases in New Salem and Wendell; however the numbers of births in these cities were also the lowest in the region. The locations with the lowest adequate prenatal care are Orange (61.54) and Petersham (60). Interestingly, Petersham also had a similar number of births as New Salem and Wendell.

Out of the 33 cities with reported data, 14 had a percentage of 80 or higher. The number of births ranged from 6 to 80. Data were not provided for Phillipston and Warwick due to the suppression rules.

Of the 5 largest cities/towns, Athol (74.24%) and Fitchburg (73.03%) were the lowest. Clinton (77.02%) and Leominster (77.27%) had similar percentages for adequate prenatal care, which also matched the overall region percentage.

All of the Service Areas are lower than the State percentage and are within 70% to 80%. Adequate care prenatal care was highest in the HealthAlliance Secondary area at 77.64%. This was followed by HealthAlliance Primary and Heywood Hospital Service Area at 76.85% and 76.42% respectively. The lowest percentage of adequate care was in the area of Athol Hospital at 72.39%.
### Adequate Prenatal Care by Race/Ethnicity

Overall, in Massachusetts in 2010, adequate prenatal care was reported for 81.66% of the White, Non-Hispanic births; 68.36% of the Black, Non-Hispanic births; 70.72% of the Hispanic births; 77.81% of the Asian/Pacific Islander, Non-Hispanic births; 63.83% of American Indian, Non-Hispanic; 74.68% of Other, Non-Hispanic; and 31.03% of the births categorized as having an unknown race/ethnicity.

The Study Area reported lower adequate prenatal care percentages compared to the State for White, Non-Hispanic births (78.86%); Black, Non-Hispanic births (63.41%); Asian/Pacific Islander, Non-Hispanic births (73.53%) and slightly lower for Hispanic births (70.37%). However, the region reported a higher adequate prenatal care percentage compared to the State for Other, Non-Hispanic births (75%). Data for American Indian, Non-Hispanic births were not reported due to the suppression rule.

Among the five largest cities, the highest adequate prenatal care percentage in 2010 for White, Non-Hispanic births was in Clinton and Leominster, both at 80.13%. This is higher than the percentage for the region. However, among the five largest cities, most data by race/ethnicity have no reported cases or data are not reported due to suppression rules.

For Black, Non-Hispanic births, Clinton was highest at 71.43%, followed by Gardner at 66.67%. Fitchburg (59.26%) was lower than the region’s percentage for adequate prenatal care for Black, Non-Hispanic births. For Hispanic births, Fitchburg and Leominster had the highest percentages at 70.83% and 70.87% respectively.

Rates for Asian/Pacific Islander, Non-Hispanic were not reported for Clinton and Gardner due to suppression rules. However, Leominster (87.5%) reported a higher percentage compared to the region and Fitchburg was the lowest reported percentage at 63.16%.
It is important to note that the highest figure for adequate prenatal care for any racial and ethnic group in the 5 largest cities/towns of the Study Area was for Asian/Pacific Islander, Non-Hispanic births in Leominster at 87.5%. Fitchburg and Leominster had at least a 15% difference of adequate prenatal care between Black, Non-Hispanic births and White, Non-Hispanic births. In addition, in Clinton, there was a 24% difference between White, Non-Hispanic births and Hispanic births.

Given the low or not reported numbers for American Indian, Non-Hispanic; and Other, Non-Hispanic, the chart below only reports data for White, Non-Hispanic; Black, Non-Hispanic; Hispanic and Asian/Pacific Islander, Non-Hispanic. However, it is important to note that the births in Clinton to Other, Non-Hispanics reported 100% adequate prenatal care. This represents six (6) births. In the chart below, zero (0) indicates that the geographical area has no reported cases, whereas a blank indicates that data was not reported due to suppression rules.

![Adequate Prenatal Care by Race/Ethnicity by 5 Largest Cities/Towns (2010)](image)

### Prenatal Care Funding

In 2010, approximately 38% of births in the Study Area were to mothers who received publicly-funded prenatal care. Within the Study Area, the 3 cities with the highest percentages of births to mothers who received publicly-funded prenatal care were Orange (57.69%), Athol (54.55%) and Gardner (52.16%). The lowest percentages of births to mothers who received publicly-funded prenatal care were found in Ashburnham (16.07%), Lunenburg (15.79%) and Groton (6.85%). No data was provided for Ashby, Bolton, Harvard, New Salem, Petersham, Phillipston, Royalston and Wendell due to suppression rules.
Four of the 5 largest cities/towns have higher percentages than the overall region ranging from Athol at 54.55% and Leominster at 44.81%. Clinton is similar to the region at 38.14%.

Among the Service Areas, the percentages of births to mothers who received publicly-funded prenatal care range from 26.14% to 49.63%. HealthAlliance Secondary is the lowest and Athol Hospital is the highest.

Service Areas Include Overlapping Populations
Prenatal Care Funding by Race/Ethnicity

Within the Commonwealth, the highest percent of births to mothers who received publicly-funded prenatal care were reported among Hispanics at 73.2%, followed by American Indian Non-Hispanic (60% of 105 births) and Black, Non-Hispanic (59%). Mothers of Unknown race/ethnicity receiving publicly-funded prenatal care had the lowest percent of births at 20.7% representing 18 cases, followed by White, Non-Hispanic mothers (24.5%). Similar to the State, in the Study Area, the highest percent of births to mothers who received publicly-funded prenatal care were Hispanics at 70%. Black, Non-Hispanic mothers were the second highest at 60.9%, followed by similar percentages for White, Non-Hispanic and Asian/Pacific Islander, Non-Hispanic mothers at 32.7% and 33.8% respectively.

Among the five largest cities, the highest percent of births to mothers who received publicly-funded prenatal care were reported in 2010 was among Hispanic in Gardner at 81.2%, followed by Hispanic in Fitchburg and Leominster at 74.3% and 74.7% respectively. The highest percent of births to White, Non-Hispanic mothers who received publicly-funded prenatal care were reported in 2010 was in Athol at 54.7%, followed by Gardner at 49%. The lowest was in Leominster at 32.7%.

The highest percent of births to Black, Non-Hispanic mothers who received publicly-funded prenatal care in 2010 was in Fitchburg at 70.3%, followed by Leominster at 62%. The lowest was in Clinton, but not reported due to suppression rules.

For Hispanic, the highest percent of births to mothers who received publicly-funded prenatal care in 2010 was in Gardner at 81.2% with Fitchburg and Leominster at 74.3% and 74.7% respectively.

For Asian/Pacific Islander, Non-Hispanic, the highest percent of births to mothers who received publicly-funded prenatal care in 2010 was in Leominster at 45.83%.

Given the low or not reported numbers for American Indian Non-Hispanic; and Other Non-Hispanic, the below table only reports data for White, Non-Hispanic; Black, Non-Hispanic; Hispanic and Asian/Pacific Islander Non-Hispanic. Zero (0) indicates that the geographical area has no reported cases, whereas a blank indicates that data was not reported due to suppression rules.
Low Birth Weight

Newborns weighing less than 2,500 grams (5 pounds, 8 ounces) at birth are classified as low birth weight and are at an increased risk for health problems. Within Massachusetts in 2010, 5,650 newborns were categorized as low birth weight, representing 7.76% of births.

The Study Area was slightly higher than the State at 7.95%. The majority of cities and towns in the region had higher percentages of low birth weight infants than the overall State and region percentage.

Ashby was more than three times the region percentage at 26.32%. This was followed by Westminster, Groton and Lancaster at 15.38%, 13.7% and 13.33% respectively. Athol was the lowest at 4.55%. Due to suppression rules, data was not provided for Ashburnham, Bolton, Lunenburg, Petersham, Princeton, Sterling, Townsend and Warwick.

Among the 5 largest cities/towns in the Study Area, Fitchburg reported higher percentages of low birth weight infants at 9.54%. Athol and Clinton reported the lowest percentage of low birth weight infants at 4.55% and 5.67% of births respectively.
Compared to the State, four of the 5 Service Areas have a higher percentage of newborns categorized as low birth weight. MPHN has the highest at 8.25% and Athol Hospital has the lowest at 5.22%.

**Low Birth Rate by Race/Ethnicity**

Within the Commonwealth, the lowest percent of newborns categorized as low birth weight were reported among White, Non-Hispanics at 7%, followed by Hispanic (8.4%); Asian/Pacific Islander, Non-Hispanic (8.6%) and Other, Non-Hispanic (8.4%). White, Non-Hispanics (7.9%) also had the lowest percent of low birth weight in the Study Area. Asian/Pacific Islander, Non-Hispanic had the highest in the region at 10.2%, followed by Black, Non-Hispanic at 9.7%.
Given the low or not reported numbers for American Indian, Non-Hispanic; and Other, Non-Hispanic populations, the below table only reports data for White, Non-Hispanic; Black, Non-Hispanic; Hispanic and Asian/Pacific Islander, Non-Hispanic. However, among the five largest cities, most data by race/ethnicity is not reported due to suppression rules. Zero (0) indicates that the geographical area has no reported cases, whereas a blank indicates that data was not reported due to suppression rules.

The lowest percent of White, Non-Hispanic newborns categorized as low birth weight was in Athol at 4.7%, followed by Clinton at 5.3%. The highest was in Fitchburg at 9.7%. For data that is reported on Hispanic newborns categorized as low birth weight, Leominster has the lowest percentage at 5.8% and Fitchburg has the highest percentage. Either there are no reported cases or suppressed data for Black, Non-Hispanic and Asian/Pacific Islander, Non-Hispanic newborns categorized as low birth weight.

### Infant Mortality Rate

The Infant Mortality Rate (IMR) is defined as the number of deaths of infants (less than one year of age) per 1,000 live births. In 2010, Massachusetts had a 4.38 infant mortality rate per 1,000.

In the Study Area, there are too few rates reported by cities and towns to provide meaningful data, however, the following chart represents the data available at the time of this report. The larger communities of Fitchburg and Leominster experienced the most infant deaths at 5 deaths in each community. The infant mortality rate for Fitchburg was reported to be 9.17 per 1,000 live births, or more than twice the infant mortality rate for the
Commonwealth as a whole. The infant mortality rate for the other cities and towns represented below was listed as “non-applicable.”

![Infant Mortality 2010](image)

In 2010, Massachusetts had a 4.38 infant mortality rate per 1,000. North Central Massachusetts had a rate higher than the State’s, as did each of the Service Areas. Health Alliance Secondary had the highest rate among the four reported Service Areas, followed by Health Alliance Primary at 8.5. The lowest reported rate was Heywood Hospital at 7.31 representing 4 cases. The highest number of cases was in MPHN (14). Data for Athol Hospital were not provided due to suppression rules.

*Please note that the infant mortality rates per Service Area, as shown below, comprises overlapping populations; i.e., data for some cities/towns (including the five largest cities/towns), are represented in multiple Service Areas. A list of cities and towns included in each Service Area may be found in the prior Study Area Overview section of this report.*
Cigarette Smoking During Pregnancy

In Massachusetts, 6.29% of births in 2010 period were to women who smoked during the pregnancy. The percentage was higher in the Study Area at 11.64% and three towns had percentages of more than twenty percent: Orange (24.36%), Gardner (22.41%) and Athol (21.21%). The lowest percentages were for Lunenburg (6.58%), Clinton (6.19%) and Pepperell (6%). Due to suppression rules, data were not provided for Ashby, Ashburnham, Erving, Groton, Hubbardston, Lancaster, Phillipston, Princeton, Royalston and Sterling.

Data for the 5 largest cities/towns showed varied percentages. The percentages range from 6.19% to 22.41%. Gardner has the highest births to women who smoked during pregnancy at 22.41. This is followed by Athol at 21.21%. Clinton has the lowest at 6.19%, followed by 9.31% in Leominster.

The percentage of mothers who smoked cigarettes during the pregnancy was higher in all of the Service Areas than in the State. Athol Hospital is highest at 18.66% and HealthAlliance Secondary is lowest at 7.34%. HealthAlliance Primary and MPHN are similar at 13.08% and 13.07 respectively.
Cigarette Smoking During Pregnancy by Race/Ethnicity

Within the Commonwealth, the lowest percentage of births to women who smoked during the pregnancy was reported among Asian/Pacific Islander Non-Hispanics at 1.3%, and the highest was reported among American Indian Non-Hispanics at 14.3%. The percentage for American Indian, Non-Hispanic women represents 15 cases. In the Study Area, the percentages of births to White Non-Hispanic and Black, Non-Hispanic women who smoked during pregnancy were similar at 12.2%. Asian/Pacific Islander Non-Hispanic women were the lowest, but data was suppressed due to a small number of cases.

Given the low or not reported numbers for American Indian Non-Hispanic; and Other Non-Hispanic, the chart below only reports data for White Non-Hispanic; Black, Non-Hispanic; Hispanic and Asian/Pacific Islander Non-Hispanic. However, among the five largest cities, most data by race/ethnicity have no reported cases or data are not reported due to suppression rules. In the chart below, zero (0) indicates that the geographical area has no reported cases, whereas a blank indicates that data was not reported due to suppression rules.

The lowest percent of births to White Non-Hispanic women who smoked during pregnancy was in Clinton at 7.2%, followed by Leominster at 12.2%. The highest was in Gardner at 23%. Limited data is available for Black, Non-Hispanic and Hispanic women; however, Fitchburg has the highest percentage of births to women who smoked during pregnancy for both races/ethnicities at 18.5% and 13.1%, respectively. Either there are no reported cases or suppressed data for births to Asian/Pacific Islander Non-Hispanic women who smoked during pregnancy.
Breastfeeding

In 2010, mothers were either breastfeeding at discharge or planning to breastfeed for 81.8% of the births in Massachusetts. Within North Central Massachusetts, New Salem and Wendell had 100%; however, the number of births was significantly small at 6 and 5 respectively. Ashburnham was at 94.64% with 53 births where the mothers were either breastfeeding at discharge or planning to breastfeed. Hubbardston (72.73%), Orange (69.23%) and Royalston (66.67%) reported the lowest percentages. Data on Warwick are not provided due to the suppression rule.

Leominster (79.65%) has the highest percentage of mothers either breastfeeding at discharge or planning to breastfeed. It is also similar to the percentage of region. Clinton is slightly lower at 78.87%. Athol (75%), Fitchburg (75.05%) and Gardner (74.14%) are similar in percentages.

The percentages for all 5 of the Service Areas are lower than the State percentage. Athol Hospital’s Service Area has the lowest percentage at 74.25% and HealthAlliance Secondary has the highest percentage at 83.43%.
Breastfeeding by Race/Ethnicity

Within Massachusetts, the highest percentage of births to mothers who were breastfeeding at discharge or planning to breastfeed was found among Asian/Pacific Islander Non-Hispanics at 90%, followed by Other Non-Hispanic at 87.9%. The lowest percentage was found among mothers with Unknown race/ethnicity at 49.4%. This represents 43 cases.

The Study Area data was similar to that of the State as a whole. Asian/Pacific Islander Non-Hispanic mothers also had the highest percentage at 83.8%. However, births to Black, Non-Hispanic mothers who were breastfeeding at discharge or planning to breastfeed was the second highest at 82.9%. The lowest percentage was found among Hispanic mothers at 77.1%.

Among the five largest cities/towns, 100% of (7) Black, Non-Hispanic and (5) Asian/Pacific Islander Non-Hispanic mothers in Clinton and 100% of (5) Asian/Pacific Islander Non-Hispanic mothers in Gardner were breastfeeding at discharge or planned to breastfeed. These highest percentages were followed by Gardner with 88.8% and Leominster with 86.2% of births to Black, Non-Hispanic mothers who were breastfeeding at discharge or planning to breastfeed.

The highest percentage of births to White Non-Hispanic mothers who were breastfeeding at discharge or planning to breastfeed in 2010 was in Leominster at 77.8%, followed by Fitchburg at 77%. The lowest was in Gardner at 74.5% and Athol at 74.6%. The highest percent of births to Black, Non-Hispanic mothers who were breastfeeding at discharge or planning to breastfeed in 2010 was in Gardner at 88.8%, followed by Leominster at 86.2%. The lowest was in Fitchburg at 70.3%. For Hispanic individuals, the highest percentage of births to mothers who were breastfeeding at discharge or planning to breastfeed in 2010 was in Leominster at 84.4% with Clinton second highest at 80%. For Asian/Pacific Islander Non-Hispanic, the highest percentage of births to mothers who were breastfeeding at discharge or planning to breastfeed in 2010 was in Clinton and Gardner, both at 100%.

Given the low or not reported numbers for American Indian Non-Hispanic; and Other Non-Hispanic, the chart below only reports data for White Non-Hispanic; Black, Non-Hispanic; Hispanic and Asian/Pacific Islander Non-Hispanic. However, Clinton reported births to mothers who were breastfeeding at discharge or planning to breastfeed in 2010 at 83.3% among Other Non-Hispanics.

In the following chart, zero (0) indicates that the geographical area has no reported cases, whereas a blank indicates that data was not reported due to suppression rules.
Lead Poisoning

Data are reported as actual numbers due to the small number of cases within the region. In 2012 in Massachusetts, 232 of the children screened for lead paint had elevated blood lead levels (defined as >=1.5 µg/dL). The Study Area had 3 children with elevated blood lead levels and one (1) of them was diagnosed with lead poison (defined as >=25 µg/dL).

### Number of Children Screened who had Elevated Blood Lead Levels and Diagnosed with Lead Poison (2012)

<table>
<thead>
<tr>
<th>Geography</th>
<th>Total Cases of Elevated Blood Lead Levels</th>
<th>Total Poisoned Cases</th>
</tr>
</thead>
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<tr>
<td>Massachusetts</td>
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<td>43</td>
</tr>
<tr>
<td>Study Area</td>
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<td>1</td>
</tr>
<tr>
<td>5 Largest Cities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Athol</td>
<td>0</td>
<td>0</td>
</tr>
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<td>Clinton</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fitchburg</td>
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</tr>
<tr>
<td>Gardner</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Leominster</td>
<td>1</td>
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</tr>
<tr>
<td>Service Areas</td>
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<td></td>
</tr>
<tr>
<td>(Include Overlapping Populations)</td>
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</tr>
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<tr>
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</tr>
</tbody>
</table>
Oral Health

Over the past two *Community Health Assessments*, there has been a dramatic decrease in the identification of oral health as a major health issue in the region. This is not to suggest that there does not continue to be needs related to oral health. *For example, the 2014 Massachusetts Health Aging Data Report*, there continue to be issues related to accessing dental care and a higher than State rate of total tooth loss in this population in several communities in the Study Area.

That being noted, the authors of this report note the likelihood that a reason for such a dramatic decrease in the urgency related to the discussion of oral health may be related to the extensive work, resources, and systemic strategies invested in addressing oral health needs in North Central Massachusetts. In 2002, the Joint Coalition on Health received a multi-year grant (The Oral Health Initiative) from the Health Foundation of Central Massachusetts to address access to oral health services for the underserved. Numerous systemic programmatic, policy, and workforce development strategies were implemented and sustained through the Oral Health Initiative, including the following:

- **Community Health Connections Family Health Center (CHC) Dental Services**
  In 2003, CHC opened a nine chair dental service. CHC has grown to provide a full range of dental services at each of its sites: Fitchburg; Greater Gardner; and Leominster. The offering of dental services through Community Health Connections has been cited by service providers and community members as one of the greatest changes impacting oral health positively in the region.

  As noted by community members,

  “*[Oral health] has improved with CHC and its three locations providing low-cost or free dental services.*”

  “*With MassHealth, in the past few years we’ve gone from 0% to a high % of coverage rates for dental services.*”

  “*They offer dental…for all.*”

- **GHAP Dental Program**
  GHAP Dental Program had been a case-managed program of the provision of dental services. GHAP had also previously supported the increase in the number of dentists accepting MassHealth. The GHAP Dental Program is no longer in existence.

- **Legislative Advocacy**
  As a means of creating sustainable, systemic change, the JCOH worked in collaboration with the Oral Health Initiative, the statewide Oral Health Task Force, and other partners to successful advocate for changes in the MassHealth Dental program and associated regulations that allowed greater flexibility in reimbursement and caseload composition. In particular, the creation of the Third Party Administrator (TPA) allowed dental providers to limit their MassHealth caseloads. As a result of these changes, many local dentists are accepting, and advertising openings for new patients.
This has changed dramatically since 2002 when no dental providers were publically accepting patients with MassHealth. As one key stakeholder noted, “Just the other day I was driving down the street and I passed a clinic that had a sign in front of it that stated ‘MassHealth accepted here’...not only that, it was also advertising ‘accepting new patients.’ That was inconceivable several years ago!”

**Dental Education Programs**

Three years ago, Mount Wachusett Community College, established a part time, evening Dental Assisting Program which complements the full time day Dental Hygiene Program. In May, 2014, the Programs relocated to a new facility at 326 Nichols Road in Fitchburg to continue a strong collaborative partnership with the Community Health Community Health Center. The Mount Wachusett Community College Dental Hygiene program has provided comprehensive preventive services for nearly 1000 patients.

The Programs have also increased the workforce of dental professionals working in North Central Massachusetts. In fact, 5 graduates have gained full time employment in the Community Health Center. As noted by Wachusett faculty, “The partnership continues to be successful and the clinical experience the students receive is invaluable and second to none.” In their final semester, the dental assisting students go through a 15 week rotation through many dental specialty settings in the region and have also gained employment in many of these dental offices. The programs continue to be viewed as very desirable professions for Mount Wachusett students.

**School-based Dental Sealant Program**

A program of Community Health Connections, this school-based dental sealant program was initiated in 2002, providing school based dental services to 2nd grade students. The program has grown tremendously as serves more than 50 schools in North Central Massachusetts. The Mass Coalition for Oral Health notes the link between untreated dental pain and impaired learning, for example. Additional advantages of school based programming include: reduction in lost school time; oral health and nutrition education; and related programming to improve oral health.  


Some of the key accomplishments of the Central Massachusetts Oral Health Initiative (CMOHI) include: approval for seven-year accreditation by the American Dental Association of the Dental Residency program at UMass Medical School with four residents expected to increase to six in the coming year; increased student participation in school-based prevention services; expanded access to treatment at Family Health Center, Edward M. Kennedy Community Health Center and Quinsigamond Community College; oral surgery services returned to Hahnemann Hospital; and the creation of education materials for physicians on adult emergent and urgent oral health issues. Public policy changes that have been achieved include: the implementation of the MassHealth dental third-party administrator, caseload setting capability and restoration of adult dental benefits. CMOHI will continue its advocacy efforts in conjunction with OHINC and Health Care For All’s Oral Health Advocacy Task Force. (Source: [http://www.hfcm.org/GrantsByInit/38](http://www.hfcm.org/GrantsByInit/38)).
Note: The authors of this report also recommend reviewing *The Status of Oral Disease in Massachusetts: A Great Unmet Need 2009*, Published by the MA Department of Public Health’s Office of Oral Health, which reviews the impact of oral health on overall health, the impact by population, discusses policy and programmatic strategies, as well as workforce development issues. This document can be found at: http://www.mass.gov/eohhs/docs/dph/corn-health/oral-health-burden.pdf

**Behavioral Health**


“Behavioral health is a state of mental/emotional being and/or choices and actions that affect wellness. Substance abuse and misuse are one set of behavioral health problems. Others include (but are not limited to) serious psychological distress, suicide, and mental illness (SAMHSA, 2011). Such problems are far-reaching and exact an enormous toll on individuals, their families and communities, and the broader society.”

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**Community Asset in Focus: CHART**

Established through the Commonwealth’s landmark cost containment law, Chapter 224 of the Acts of 2012, CHART is a grant program that makes phased investments for certain Massachusetts community hospitals to enhance their delivery of efficient, effective care. CHART awarded Athol Hospital, Heywood Hospital, and HealthAlliance Hospital funding to support strategic pilot initiatives aimed towards building greater level of access to behavioral healthcare and care coordination between hospitals and community-based providers and organizations. The Regional Behavioral Health Collaborative (RBHC) was organized through CHART to provide a forum for dialogue across the North Central and North Quabbin communities to discuss and develop best practices to improve early identification of mental illness and to increase access to behavioral health care.

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**Regional Mental Health Indicators**

According to the May 2014 *Heywood Health System Behavioral Health Needs Assessment*, “Indicators of mental health issues in Fitchburg, Gardner, Athol and Leominster are among the highest in Massachusetts.” The assessment includes the following data:

- The average quintile for 5-year average prevalence of poor mental health and 3-year average prevalence of symptoms of depression among adults in the combined cities is 5, suggesting that the severity of mental health issues is particularly high in these municipalities.
Hospitalization rates for mental health are 1230.4 per 100,000 in this area compared to 873.8 in MA.

### Regional Mental Health Indicators (CY07-11) - Per 100,000 Population

<table>
<thead>
<tr>
<th>City/town</th>
<th>Mental Health Hospitalizations</th>
<th>Suicide Rate</th>
<th>QUINTILES: Three years average prevalence of symptoms of depression in past two weeks by PHQ-8 among adults</th>
<th>QUINTILES: Five years average prevalence of poor mental health (&gt;15 days poor mental health) among adults</th>
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<tbody>
<tr>
<td>Ashburnham</td>
<td>599.51</td>
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<td>Ashby</td>
<td>546.82</td>
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<tr>
<td>Athol</td>
<td>1377.25</td>
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</table>

Source: 2014 Heywood Health System Behavioral Health Needs Assessment

### Mental Disorder Mortality Rate

According to the Behavioral Risk Factor Surveillance System (BRFSS), in 2011, there were 4,658 deaths due to mental disorders in Massachusetts, for an age-adjusted rate of 54.18 per 100,000. Overall, the Study Area experienced 130 deaths due to mental disorder, equating to lower rates than the State at the age-adjusted rate of 44.64 per 100,000.

![Mental Disorders Mortality Cities/Towns 2011](image)

Six cities and towns in the Study Area had a mental disorder mortality rate in 2011 of zero: Ashby, Bolton, Harvard, New Salem, Townsend, and Warwick. However, the nine cities
and towns with the highest mental disorder mortality rates in the Study Area also had higher mental disorder mortality rates compared to the State.

### Cities and Towns in North Central Massachusetts with Higher Mental Disorders Mortality Rates Compared to Massachusetts (2010)

<table>
<thead>
<tr>
<th>City/Town in North Central Massachusetts</th>
<th>Age Adjusted Rate Per 100,000</th>
<th>Count</th>
</tr>
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<tr>
<td>Wendell</td>
<td>387.7</td>
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</tr>
<tr>
<td>Petersham</td>
<td>182.45</td>
<td>2</td>
</tr>
<tr>
<td>Phillipston</td>
<td>118.95</td>
<td>1</td>
</tr>
<tr>
<td>Templeton</td>
<td>113.88</td>
<td>10</td>
</tr>
<tr>
<td>Athol</td>
<td>113.06</td>
<td>20</td>
</tr>
<tr>
<td>Sterling</td>
<td>86.25</td>
<td>9</td>
</tr>
<tr>
<td>Winchendon</td>
<td>77.38</td>
<td>7</td>
</tr>
<tr>
<td>Clinton</td>
<td>56.44</td>
<td>9</td>
</tr>
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<td>Study Area</td>
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<tr>
<td>Massachusetts</td>
<td>54.18</td>
<td>4,658</td>
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</table>

By Service Area, Athol Hospital has the highest rate at 82.26. Heywood Hospital and MPHN are similar to the Massachusetts rate. HealthAlliance Primary has the lowest age-adjusted mental disorder mortality rate per 100,000 at 33.59.
As noted at several points in this report, both youth and adults participants in this study (adults were interviewed more extensively) repeatedly identified “stress,” worsening mental health, and depression as central health concerns.

When asked to name the three biggest health problems in your community, “mental health problems and a lack of mental health services and providers” was the second-most cited problem among 247 Focus Group participants, across ages, geographic locations and racial/ethnic groups (the most cited concern was the lack of, or underfunded health and prevention programs).

“Mental health – stress – has gotten worse.”

“[We need] family counseling in our community.”

“We have a lot of untreated mental health issues.”

“The need has not decreased.”

“The dumbest thing they ever did was close the mental health hospital (in Gardner, about 35 years ago.”

The highest age-adjusted rate of deaths due to mental disorders in Massachusetts was reported among White, Non-Hispanic at 56.13 per 100,000, followed by Black, Non-Hispanic at 49.03 per 100,000. The lowest age-adjusted mental disorder mortality rate per 100,000 was among American Indian, Non-Hispanic at 9.18. This represented one case. In the Study Area, the age-adjusted mental disorder mortality rate per 100,000 was also highest among White, Non-Hispanic at 45.83 and Black, Non-Hispanic at 41.54. The lowest age-adjusted mental disorder mortality rate was among Hispanics at 20.68 per 100,000. The rates for Black, Non-Hispanics and Hispanics both represent one case. In the Study Area, no cases were reported among Asian/Pacific Islander, Non-Hispanic and American Indian, Non-Hispanic.

Across the largest five cities/towns, most data by race/ethnicity have no reported cases as indicated by zero (0). The highest age-adjusted mental disorder mortality rate per 100,000 was among Whites, Non-Hispanics in Athol at 105.76, followed Hispanics in Fitchburg at 73.85. The lowest was among White, Non-Hispanics in Leominster at 27.05 the age-adjusted rate per 100,000. No cases were reported for American Indian, Non-Hispanic; and Other, Non-Hispanic.
Mental Health – Children and Youth

Past community health assessments have relied heavily upon the Youth Risk Behavior Survey (YRBS), administered in schools, for data about child and youth mental health. The YBRS collects extremely sensitive, however useful information from youth about their behaviors—particularly related to youth mental health, suicidal ideation, plans, and attempts. Given the nature of the data, schools have the decision to share or not share the results of the survey publicly.

During the time period of this study, current data from the YRBS was not made available by schools in the Study Area. However, the authors have included select data previously published in the MPHN Community Health Assessment, from the 2011 Youth Risk Behavior Survey conducted across Massachusetts and the United States and Youth and Community Survey conducted by LUK in North Central Massachusetts.

From the MPHN Community Health Assessment:

National prevalence studies consider the full range of mental health and substance abuse conditions. They have found that approximately 21% of children and youth from ages 9 to 17 would have experienced a mental health or substance abuse problem during the prior year, and that approximately 9% percent would have had a Serious Emotional Disturbance (SED). The National Survey on Drug Use and Health found that 8% of youth ages 12 to 17 nationally reported experiencing at least one major depressive episode.

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6Serious emotional disturbance is defined as children who have a diagnosed mental health problem which has or is likely to affect them for a year or more and which causes the child difficulty in daily functioning in the home, school, and community.
According to the 2011 YBRS, a higher percentage of youth in North Central Massachusetts (27.9%) report feeling sad or hopeless than across the Commonwealth (25%) but less than in the United States (28.5%).

In an attempt to enhance the quantitative available, the qualitative component of this study sampled youth more extensively than during past assessments, in order to assist in informing providers, community members, and policy makers accordingly. Youth participants stated their concerns about mental health problems experienced by themselves, their peers and adults in their lives, including the following:

"[It is] worse, depression and stress among teens."

"Mental health is worse, from problems at home."

"People from other towns criticize us if they know we are from [locale]."

LGBTQ youth in particular expressed that they, or other youth they know, deal with anxiety, ADHD, sensory processing disorders, and un-medicated depression. Participants cited problems including long waiting lists for mental health services; no respite services for youth in crisis; and no appropriate therapists for LGBTQ youth in the region.

"I have seen six therapists in six months. Therapists will refuse to see you if you are LGBT, due to not having the skills."
Suicide Mortality Rate

Suicide, especially among males in the Study Area, has been identified as a serious health issue. The following information has been provided by Heywood Healthcare with additional suicide data acquired from the Massachusetts State Police Detective Units for 2014. In the Study Area in 2014, there were a total of 22 adult suicides. The ages of the adults ranged from 24-83, with the median age of 54.5, the mean age of 55.5, and the mode (i.e., the most frequent age) being 62 years of age. Eighteen of the suicides were among men and four (4) among women, with the number of male suicides being 4.5 times that of female suicides. The two primary means of committing suicide (68%) were through the use of a firearm, followed by asphyxia by hanging. The highest numbers of suicide occurred in Gardner and Athol equally followed by Leominster. Suicides occurred in other cities and towns in the Study Area; however, the authors have not enumerated these locations due to the low numbers and the corresponding potential of identifying the specific individuals. Note: These numbers do not include overdoses unless the overdoses met the Massachusetts State Police criteria for determining that a suicide occurred.

According to the Behavioral Risk Factor Surveillance System (BRFSS), in 2011, Massachusetts had 590 deaths due to suicide, for an age-adjusted rate of 8.45 per 100,000. At 11.65 per 100,000, North Central Massachusetts has a rate that is higher than the State rate.

A high suicide rate was identified as a problem across Focus Groups.

“I think a lot of people, young and old, end up going into a depressive state when they don’t have a social environment around them.”

“We’ve seen more suicides in the past few years than before, including among young people.”

“Veterans are dropping like flies from suicide.” (Veteran)

Leominster had the highest number of cases (6) and Princeton had the highest age-adjusted suicide mortality rate per 100,000 at 50.67. Rates for Leominster, Fitchburg and Gardner range from 8.98 to 13.82. Leominster is the only city with a rate higher than the State and Study Area rates. Both Athol and Clinton had zero age-adjusted suicide mortality rates.

Within the Service Areas, Athol Hospital has the lowest age-adjusted suicide mortality rate per 100,000 and is the only geographical area that has a lower rate than the State at 2.08. HealthAlliance Secondary (14.23) and Heywood Hospital (14.41) are the highest and have similar rates.

Suicide Mortality Rate by Race/Ethnicity

The highest age-adjusted rate of deaths due to suicide in Massachusetts was reported among White, Non-Hispanics at 9.75 per 100,000, followed by Asian/Pacific Islander, Non-Hispanics and Black, Non-Hispanics at 4.4 per 100,000 and 4.16 per 100,000 respectively. The lowest age-adjusted suicide mortality rate per 100,000 was among Hispanics at 3.22. In the Study Area, the age-adjusted suicide mortality rate per 100,000 was highest among Asian/Pacific Islander, Non-Hispanics at 17.38 per 100,000, representing one case. The lowest age-adjusted mental disorder mortality rate was among White, Non-Hispanics at
13.18 per 100,000; however this rate represented the highest number of cases at 31. In the Study Area, no cases were reported among Black, Non-Hispanics and Hispanics.

Across the five largest cities/towns, most data by race/ethnicity have no reported cases as indicated by zero (0). The highest age-adjusted suicide mortality rate per 100,000 was among Asian/Pacific Islander, Non-Hispanics in Fitchburg at 70.7, which represents one case. The second highest age-adjusted suicide mortality rate is among White, Non-Hispanics in Leominster at 18.22 per 100,000. The lowest was among White, Non-Hispanics in Gardner at age-adjusted rate of the 9.92 per 100,000. No cases were reported among Black, Non-Hispanics and Hispanics.

Suicide – Children and Youth

“I cut myself because I got so stressed out and I didn’t know how to deal with it. I said I couldn’t handle anything anymore.” (Youth)

“Teen suicide [rates are worse], because of bullying in schools.” (Youth)

 “[Students have a] lack of hope for the future.” (Adult)

From the MPHN Community Health Assessment:

“Data presented here related to suicide show that a greater number of North Central youth are considering and taking actions toward suicide than their peers in Massachusetts and the United States. Specifically, 16.2% of area high school youth versus 13% of youth in Massachusetts and 15.8% of youth in the United States seriously considered suicide during the 12 months prior to the [2011] survey. In addition,
14.0% of area youth had developed suicide plans during that same time period versus 12% and 12.8% of youth in the State and nation, respectively.

Within Massachusetts, for the timeframe 2005 – 2010, the age-adjusted Suicide Mortality Rate for youth ages 0-19 years was 1.3 per 100,000. The age-adjusted rates for youth ages 0-19 years for all MPHN reporting regions (for which at least one suicide was reported) were higher than the State. Gardner’s rate, 6.6, was more than 5 times the State’s. Interestingly, within the State there were no suicides among children less than 10 years old and in the MPHN region there were no suicides reported among children less than 15 years old. (p. 13)

According to the *Youth Risk Behavior Survey and Youth and Community Survey*, 10.1% of area high school youth reported attempting suicide at least one time during the 12 months prior to the survey. This percentage was greater than the percentage of youth across Massachusetts (7%) and the United States (7.8%) who attempted suicide. Furthermore, 4.4% of area high school youth attempted suicide in such a way that they needed medical treatment following the attempt. This percentage is higher than State (2%) and national (2.4%) figures.”

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Suicidal Thoughts and Behaviors (past 12 months)

Source: LUK, Inc., with the permission of, and in collaboration with participating school districts.
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“The *Youth Risk Behavior Survey* reported that 14.9% of area high school youth had suicidal thoughts and that 11.8% had suicide plans during the 12 months prior to the survey. These numbers are consistent with national figures. That is, during the 12 months prior to the survey, a similar percentage of high school youth in the region and across the United States seriously considered and/or planned suicide.

According to the *Youth Risk Behavior Survey*, 9.4% of area high school youth reported attempting suicide during the 12 months prior to the survey. This percentage was greater than the percentage of youth across the United States who attempted suicide (6.9%) and the difference approached significance. Furthermore,
4% of area high school youth attempted suicide in such a way that they needed medical treatment following the attempt. This percentage is higher than State and national figures. No tests of significance were completed on the area and Massachusetts data.”

### Community Assets in Focus: Regional Behavioral Health Strategies

- Regional Behavioral Health Collaborative
- School-Based Health Center with care coordination
- Suicide Prevention Task Force
- Emergency Department Care Coordination
- Opioid Task Force

### Substance Use

“The primary care providers, ED personnel and clinicians overseeing inpatient services all agree with remarkable consistency that substance abuse is widespread among patients they see and that there seem to be low capacity in the treatment available and a scarcity in the range of options, both being aspects in a deeply fragmented system of care.” (2014 Heywood Health System Behavioral Health Needs Assessment)

### Binge Drinking: Adults

It is important to note that community members often do not utilize the same characterizing terminology or description of a health issue. In this regard, the term “binge drinking” was not identified as such. However, the issue of alcohol abuse, both in adults and youth, was identified as a health concern in the Study Area.

As noted earlier in this report, community members identified the abuse of alcohol and easy access to alcohol as a significant health concern.

“Alcohol is a big problem; a lot of veterans just consider drinking part of their lifestyle and don’t even think of it as a problem.”

“Too many bars…38 in [town], not counting the package stores.”

“Everyone’s worried about drug use, but alcohol is still a big problem.”

Within Massachusetts, 20.6% of adult respondents to the Behavioral Risk Factor Surveillance System (BRFSS) survey during the 2011 – 2013 time period reported binge drinking within the last 30 days compared to the slightly lower percentage of 19.4% in the Study Area. When this data is broken down by age group, the percentages in the
Commonwealth and the Study Area are similar among the 25-34 and the 55-64 age groups.

The Study Area had lower reported binge drinking than in the Commonwealth as a whole, at 15.4% for the 18-24 age group (less than half of the MA binge drinking percentage of 37.8%); 23.4% for the 35-44 age group (MA 26.9%); and 17.1% for the 45 – 54 age group (MA 19.3%). Within the 65 plus age group, there were too few respondents from the Study Area to obtain a meaningful percent.

The percentage of adult women who reported binge drinking in the past 30 days was slightly lower in the Study Area than in the Commonwealth at 15.7% compared to 16.1% in the State. For men, it should be noted that while the percentage of men who reported binge drinking was higher in the Study Area (26.8%) than in the Commonwealth (24.9%) during 2003-2008, between 2011 and 2013, the percentage of men in the Study Area who reported binge drinking decreased to 22.8%, a lower percentage than the State’s, which increased during the same time period to 25.4%.
The numbers of respondents by race/ethnicity were too few to provide meaningful data about binge drinking by race/ethnicity within the Study Area.

While binge drinking by adults with less than a high school education was higher in the Study Area at 17.5% versus the State at 14.9%, Study Area residents with a high school diploma reported less binge drinking at 15.6% than those in the Commonwealth as a whole (19.4%). Study Area residents with some college education or with a 4-year college degree reported comparable percentages of binge drinking as in Commonwealth as a whole.

### Alcohol/Substance Related Hospitalizations

According to the 2011 BRFSS, the age-adjusted alcohol/substance related hospitalization rate for Massachusetts was 343.97 per 100,000. These represented 23,691 hospitalizations.

The Study Area alcohol/substance related hospitalization rate was lower at 271.14. Ashby reported the highest rate at 669.09, followed by Gardner (453.61) and Clinton (391.88). Warwick reported zero (0). Due to suppression rules, data are not available for: Ashburnham, Erving, Harvard, Hubbardston, Lancaster, New Salem, Petersham, Phillipston, Princeton, Royalston, Sterling and Wendell.

Four of the five largest cities/towns have higher rates than the region. Gardner had the highest age-adjusted alcohol/substance related hospitalization rate at 453.61 and Athol had the lowest rate at 168.47.
Among the Service Areas, HealthAlliance Primary and Heywood Hospital had the highest age-adjusted alcohol/substance related hospitalization rate at 321.89 and 317.01 respectively. The Athol Hospital Service Area had the lowest at 204.59.

Alcohol/Substance Related Hospitalizations by Race/Ethnicity

In Massachusetts, the highest age-adjusted alcohol/substance related hospitalization rate per 100,000 was reported among White, Non-Hispanics at 368.8, followed by Hispanics at 324.18. The lowest age-adjusted alcohol/substance related hospitalization rate per 100,000 was reported among Other/Non-Hispanics at 204.59.
in Massachusetts was reported among Asian/Pacific Islander, Non-Hispanics at 40.52. In the Study Area, White, Non-Hispanics also had the highest age-adjusted alcohol/substance related hospitalization rate at 287.85 per 100,000, followed by Black, Non-Hispanics at 202.15 per 100,000.

Given the low or not reported numbers for American Indian, Non-Hispanic; and Other, Non-Hispanic, the following table only reports data for White, Non-Hispanic; Black, Non-Hispanic; Hispanic and Asian/Pacific Islander, Non-Hispanic. However, among the five largest cities/towns, most data by race/ethnicity have no reported cases or data are not reported due to suppression rules. Zero (0) indicates that the geographical area has no reported cases, whereas a blank indicates that data was not reported due to suppression rules.

Across the five largest cities/towns, the highest age-adjusted alcohol/substance related hospitalization rate per 100,000 was among White, Non-Hispanics in Gardner at 467.62, followed by White, Non-Hispanics in Clinton at 462.41. The lowest age-adjusted alcohol/substance related hospitalization rate per 100,000 was among Hispanics in Fitchburg at 156.02. Either there are no reported cases or suppressed data for Black, Non-Hispanics and Asian/Pacific Islander, Non-Hispanics.

### Age-Adjusted Alcohol/Substance Related Hospitalization Rates by Race/Ethnicity in 5 Largest Cities (2011)

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Athol</th>
<th>Clinton</th>
<th>Fitchburg</th>
<th>Gardner</th>
<th>Leominster</th>
<th>Study Area</th>
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<tr>
<td>White, Non-Hispanic</td>
<td>160.67</td>
<td>462.41</td>
<td>345.47</td>
<td>467.62</td>
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<td>287.85</td>
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<td>156.02</td>
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<td>160.4</td>
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<tr>
<td>Asian/Pacific Islander, Non-Hispanic</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Decreased Reports of Alcohol as Primary Substance of Use in Treatment Programs**

While these numbers also decreased (-6.5%) in the State as a whole between 2010 and 2014, there was an even greater decrease in all of the five largest cities and towns in the Study Area, -23.7% in Leominster; -23.5% in Clinton; -12.9% in Gardner; -11.3% in Athol; and – 10.3% in Fitchburg.

![Percentage of individuals admitted to a treatment program* who identified alcohol as their primary substance of use 2010 vs. 2014](image)

* To BSAS Contracted/Licensed Programs

In the other communities of the Study Area, with the exception of Sterling, where the percentages of individuals admitted to a BSAS-supported treatment program that identified alcohol as their primary substance of use increased by 4.6%, there were also decreased percentages – most notably, decreases of more than -20% in Ashburnham (-33.4%); Westminster (-31.7%); Lunenburg (-31.4%); Townsend (-22.5%); and Orange (-21.5%).

Comparison data were not available for the communities of Erving, Harvard, New Salem, Petersham, Princeton, Royalston, or Wendell. No data were reported for the communities of Phillipston or Warwick.

![Percentage of individuals admitted to a treatment program* who identified alcohol as their primary substance of use 2010 vs. 2014](image)

* To BSAS Contracted/Licensed Programs
**Smoking – Adults**

Within Massachusetts, 18.2% of respondents to the Behavioral Risk Factor Surveillance System (BRFSS) survey during the 2008 – 2011 time period reported being current smokers who smoke regularly, a 5.1% increase from during the 2003 – 2008 time period.

The percentage of current smokers within the Study Area is lower than in the Commonwealth as a whole, but has also increased, to 18.2% in 2008 – 2012, from 15.6% in 2003-2008. When this data is broken down by age group, the percentage of younger adults, aged 18 – 24 in the Study Area who were smokers at 26.2%, was higher than the 22.6% of smokers in that age group in the Commonwealth, as was the percentage those aged 25-34, at 28.3 as compared to 26.4% in the Commonwealth.

In fact, the Study Area has a higher percentage of current smokers than in the Commonwealth as a whole in every age group except for the 65-74 age group where the percentages are equal. The numbers reported in the 75+ age group were too few to provide meaningful data in the Study Area, though in the Commonwealth, 5.7% of this age group are current smokers.

![](Percent of Current Smokers Among Adults by Age Group (2011-2013).png)

The Study Area had a comparable percentage of smokers as in the State among men, 19.4% versus 19.7%; however, more than 1 out of 5 (21.3%) women in the Study Area were current smokers in 2008 – 2011 which is 4.4 percentage points higher than in the Commonwealth.

The numbers of respondents by race were too few to provide meaningful data within the Study Area.
Current smoking by adults with less than a high school education was comparable in the Study Area at 31.7% (down 2.1 percentage points since the prior survey) to in the State at 30.1%, as was the percentage of current smokers among those with a high school education, 23.9% in the Study Area versus 25.1% in the State. Nearly 1 out of 4 (24.1%) Study Area residents with 1-3 years of college were current smokers, as compared to in the Commonwealth at 21%; however among Study area residents with 4 years of college or more, the percentage of current smokers dropped to 6.2%, similar to the percentage of 7.2% in the Commonwealth.

Smoking was not expressed as a common concern in the Focus Group data; although it may be that Focus Group participants were also referring to smoking as a part of their overwhelming concern about substance use. Public health officials highlighted recent anti-smoking policies in several local cities to be among community assets and strengths. **Opioid-related Hospitalizations**
In Massachusetts there were 23,012 opioid-related hospitalizations in 2011, for a rate of 343.25 per 100,000. The Study Area had a lower rate than the State at 228.75 and Gardner is the only city in Study Area that had an opioid-related hospitalization rate higher than the State in 2011. Pepperell had the lowest at 167.61. Three of the five largest cities/towns had higher rates than the region: Athol (268), Fitchburg (289.48) and Gardner (525.52). Leominster had the lowest rate at 190.18.

All of the Service Areas had lower age-adjusted opioid-related hospitalization rates than the State. HealthAlliance Secondary had the lowest rate at 175.06 per 100,000 and Heywood Hospital had the highest rate at 328.09 per 100,000.
Opioid-related Hospitalizations by Race/Ethnicity

In Massachusetts, the highest age-adjusted opioid-related hospitalizations rate per 100,000 was reported among White, Non-Hispanics at 373.43, followed by Hispanics at 368.46. The lowest age-adjusted opioid-related hospitalizations rate per 100,000 in Massachusetts was reported among Asian/Pacific Islander, Non-Hispanics at 10.45 (46 cases).

<table>
<thead>
<tr>
<th>Race/Hispanic Ethnicity</th>
<th>Number of Cases</th>
<th>Age Adjusted Rate Per 100,000*</th>
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<tr>
<td>White, Non-Hispanic</td>
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<tr>
<td>Black, Non-Hispanic</td>
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<tr>
<td>Unknown</td>
<td>424</td>
<td>NA</td>
</tr>
</tbody>
</table>

*NA means data were suppressed for confidentiality protection or based on insufficient data

A similar trend was reported for the Study Area. White, Non-Hispanic had the highest age-adjusted opioid-related hospitalizations rate at 246.83 per 100,000, followed by Hispanics at 109.39 per 100,000. Data for Black, Non-Hispanics and Asian/Pacific Islander, Non-Hispanics were not reported due to suppression rules.

Given the low or not reported numbers for American Indian, Non-Hispanic; and Other, Non-Hispanic, the below chart only reports data for White, Non-Hispanic; Black, Non-Hispanic; Hispanic and Asian/Pacific Islander, Non-Hispanic. However, among the five largest cities, most data by race/ethnicity have no reported cases or data are not reported due to suppression rules. In the chart below, zero (0) indicates that the geographical area has no reported cases, whereas a blank indicates that data was not reported due to suppression rules.

Across the five (5) largest cities, the highest opioid-related hospitalizations rate per 100,000 was among White, Non-Hispanics in Gardner at 544.37, followed by White, Non-Hispanics in Fitchburg at 331.94 per 100,000. The lowest age-adjusted opioid-related hospitalizations rate per 100,000 was among Hispanics in Fitchburg at 151.83. No reported cases or data are not reported due to suppression rules for Asian/Pacific Islander, Non-Hispanics.
Increased Reports of Heroin as Primary Substance of Use in Treatment Programs

Despite lower reported age-adjusted opioid-related hospitalization rates in the Study Area communities as compared to those of the State as a whole, it is important to affirm that the use of heroin has increased dramatically in the Study Area.

According to the Massachusetts Department of Public Health Bureau of Substance Abuse Services report, Description of Admissions to BSAS Contracted/Licensed Programs FY 2014 (http://www.mass.gov/eohhs/docs/dph/substance-abuse/care-principles/state-and-city-town-admissions-fy14.pdf), in Massachusetts between 2010 and 2014 there was a 12.7% increase in the percentage of individuals admitted to a BSAS-supported treatment program that identified heroin as their primary substance of use. In the five largest cities and towns in the Study Area, the percentage increase was nearly two times higher, at 27.2% in Leominster and 24.7% in Athol; and also higher at 22% in Clinton, 19% in Gardner and 15.4% in Fitchburg.
With the exception of Hubbardston and Leominster, where the percentages of individuals admitted to a BSAS-supported treatment program that identified heroin as their primary substance of use decreased by 5.7% and 1% respectively, increased reported use of heroin as the primary substance of use was also apparent in the smaller cities/towns of the Study Area, with higher increases in percentages than in the State for Lunenburg, Orange, Westminster, Templeton, Ashby, Townsend, Winchendon, Pepperell and Groton.

Though comparison data were not available for the communities of Phillipston or Princeton, the percentages of individuals admitted to a BSAS-supported treatment program that identified heroin as their primary substance of use was higher in 2014 in those communities than the State percentage of 12.7, at 63.6% and 54.5% respectively. No data were reported for the communities of Erving, New Salem, Petersham, Royalston, Warwick or Wendell.

Consistent with the quantitative data, increased heroin and other opioid use was referred to in multiplicity across Focus Groups and Key Informant interviews.

“"You’re seeing a rise in heroin usage; pure off the boat, more overdoses."

“"And the drugs they are coming in with now are killer drugs – we have no idea what’s in them."

“"It’s an epidemic."

“"More people are abusing prescription drugs."

Opioid-related Mortality Rates

In Massachusetts there were 645 deaths due to opioid-related overdoses in 2011, for an age-adjusted opioid-related mortality rate of 9.7 per 100,000. North Central Massachusetts
had 24 deaths due to opioid-related overdoses for an age-adjusted opioid-related mortality rate of 9.32 per 100,000, a rate lower than the State.

Within the Study Area, Ashby had the highest rate at 42.51, followed by Pepperell at 28.34. However, Fitchburg had the highest number of deaths at six (6), for a 14.81 age-adjusted opioid-related mortality rate per 100,000. Leominster had the next highest number of deaths due to an opioid-related overdose at 4. The lowest was Groton at 5.78.

All of the five largest cities/towns in North Central Massachusetts had higher rates than the region. The number of deaths range from 2 to 6. Athol has the highest age-adjusted opioid-related mortality rate per 100,000 at 19.41 and Leominster had the lowest at 10.53.

Three of the Service Areas are lower than the State. Athol Hospital and MPHN are higher than the State at 12.82 and 10.09 respectively. The lowest is Heywood Hospital with a 5.79 age-adjusted opioid-related mortality rate per 100,000.
Opioid-related Mortality Rates by Race/Ethnicity

In Massachusetts, the highest age-adjusted opioid-related mortality rate per 100,000 was reported among White, Non-Hispanics at 11.66, followed by American Indian, Non-Hispanics and Hispanics at 5.98 (one case) and 5.65 (thirty-six cases) respectively. The lowest age-adjusted opioid-related mortality rate per 100,000 in Massachusetts was reported among Asian/Pacific Islander, Non-Hispanics at 0.27.

In the Study Area, Black, Non-Hispanics had the highest age-adjusted opioid-related mortality rate at 12.48 per 100,000, followed by White, Non-Hispanic at 9.99 per 100,000. Hispanics had the lowest age-adjusted opioid-related mortality rate at 3.83 per 100,000. No cases were reported for Asian/Pacific Islander, Non-Hispanic.

Given the low or not reported numbers for American Indian, Non-Hispanic; and Other, Non-Hispanic, the chart below only reports data for White, Non-Hispanic; Black, Non-Hispanic; Hispanic and Asian/Pacific Islander, Non-Hispanic. However, among the five largest cities, most data by race/ethnicity have no reported cases as indicated by a zero (0) in the chart below.

Across the five largest cities/towns, the highest opioid-related mortality rate per 100,000 was among Black, Non-Hispanics in Leominster at 45.07, followed by White, Non-Hispanics in Athol and Fitchburg at 20.69 per 100,000 and 20.47 per 100,000 respectively. The lowest age-adjusted opioid-related mortality rate per 100,000 was among White, Non-Hispanics in Leominster at 7.92. No cases were reported for Asian/Pacific Islander, Non-Hispanics.

Many initiatives to address the “opioid crisis” in the Study Area were mentioned as community assets in the qualitative data, including Narcan training for first responders and families; increased education for prescribers about the dangers of over-prescribing opiates; an MPHN grant that provided publicly-located sharps and medicine boxes that are...
“available 24/7” in eleven local towns; and the availability of Suboxone at local community health centers.

Community Asset in Focus: Massachusetts Opioid Abuse Prevention Coalition


“With funding from SAMHSA, BSAS has provided a grant to a cluster of communities within the Montachusett Public Health Network – Fitchburg, Leominster, Athol and Gardner – to address the issue of opioid abuse and misuse by supporting the implementation of effective and sustainable strategies and interventions. Fitchburg has contracted with LUK, Inc. to provide leadership for the successful administration of the grant. The goal of Massachusetts Opioid Abuse Prevention Coalition (MOAPC) is to support the implementation of local policy, practice, systems and environmental change for three key purposes:

- To prevent the misuse of opioids (including first use);
- To prevent and reduce unintentional deaths and nonfatal hospital events associated with opioid poisonings; and
- To increase both the number and capacity of municipalities across the Commonwealth addressing these issues.

Fitchburg, Gardner, and Leominster have existing Community Action Teams and Athol has the North Quabbin Community Coalition Substance Abuse Task Force.” MOAPC builds upon existing Coalitions and strives to address the needs of each community.

Youth: Substance Use

“People and society’s behavior due to drug use” [negatively impact the health of the community]. (Youth)

[There is] …“peer pressure…drug use…bad influences.” (Youth)

“Kids are buying bath salt. Blows their brains out right out their head.” (Adult Community Member)

“Higher abuse also feeds into high dropout rates.”

Past community health assessments have relied heavily upon the Youth Risk Behavior Survey (YRBS), administered in schools, for data about youth substance use. The YBRS collects extremely sensitive, however useful information from youth about their behaviors. Given the nature of the data, schools have the decision to share or not share the results of the survey publicly.
During the time period of this study, current data from the YRBS was not made available by schools in the Study Area. However, the authors have included data about youth substance use, previously published in the MPHN Community Health Assessment, from the 2011 Youth Risk Behavior Survey conducted across Massachusetts and the United States and Youth and Community Survey conducted by LUK in North Central Massachusetts.

All the data included in this section are from the MPHN Community Health Assessment.

“According to the 2011 Youth Risk Behavior Survey and the Youth and Community Survey, conducted and analyzed by LUK, high school youth in North Central Massachusetts engaged in the use of alcohol at rates lower than their peers in Massachusetts and the United States. They report that the percentage of area high school youth reporting current use of alcohol is lower than the percentage of youth in the state and across the nation (area youth = 37.6%, Massachusetts youth = 40%, and United States youth = 38.7%). Also presented in the report, a majority of area youth indicated that at some time in their lifetime they had used alcohol, which is consistent with lifetime use among their peers in Massachusetts and the United States. However, the percentage of area youth reporting lifetime use (67.1%) is lower than both the State (68%) and nation (70.8%).”

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Source: LUK, Inc., with the permission of, and in collaboration with, participating school districts.
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“In contrast, a higher percentage of area high school youth indicated lifetime and current marijuana use than their peers in Massachusetts and the United States. Specifically, 43.1% of area youth reported lifetime use of marijuana versus 43% and 39.9% of youth in the State and nation, respectively. Over twenty-eight percent (28.3%) of area youth reported current use of marijuana versus 28% and 23.1% of youth in the State and nation, respectively.”
More than eleven percent (11.6%) of area youth reported ever having tried cocaine, 15.5% reported ever having tried inhalants, 10.7% reported ever having tried heroin, 11.4% reported ever having tried methamphetamine, 16.2% reported ever having tried ecstasy, 10.6% reported ever having used steroids without a doctor’s prescription, 21.5% reported misusing prescription drugs, and 8.5% reported ever having used a needle to inject an illegal drug. Each of these numbers is higher than the number of youth reporting lifetime use at the State and national levels. In many cases, area youth report use at rates two to three times that of their peers.” (p.88, Community Health Assessment of the Montachusett Public Health Network, January 2014) Source: LUK, Inc., with the permission of, and in collaboration with, participating school districts.”
CHRONIC DISEASE

“The larger North Central [Massachusetts] municipalities tend to have prevalence of at least one chronic disease that is significantly higher than the state average.” (Source: 2014 Heywood Health System Behavioral Health Needs Assessment at: http://www.nqcc.org/pdfs/north_central_bh_needs_assessment.pdf)

According the U.S. Centers for Disease Control and Prevention (CDC) website at: http://www.cdc.gov/chronicdisease/overview/:

*Chronic diseases and conditions—such as heart disease, stroke, cancer, diabetes, obesity, and arthritis—are among the most common, costly, and preventable of all health problems.*

- As of 2012, about half of all adults—117 million people—have one or more chronic health conditions. One of four adults has two or more chronic health conditions.
- Seven of the top 10 causes of death in 2010 were chronic diseases. Two of these chronic diseases—heart disease and cancer—together accounted for nearly 48% of all deaths.
- **Obesity is a serious health concern.** During 2009–2010, more than one-third of adults, or about 78 million people were obese (defined as body mass index [BMI] ≥30 kg/m2). Nearly one of five youths aged 2–19 years was obese (BMI ≥95th percentile).
- **Arthritis is the most common cause of disability.** Of the 53 million adults with a doctor diagnosis of arthritis, more than 22 million say arthritis causes them to have trouble with their usual activities.
- **Diabetes is the leading cause of kidney failure; lower limb amputations other than those caused by injury; and new cases of blindness among adults.**

### Overweight and Obesity – Adults

“We eat too much unhealthy foods because they are cheap or easily accessible (fast foods, cheap snacks/drinks.)”

[We] work too much …no time to cook healthy.”

Data regarding Overweight and Obesity, reported as separate categories in past BRFSS reports, were combined for the 2008 – 2011 BRFSS report.
Within Massachusetts, 59.3% of adult respondents to the Behavioral Risk Factor Surveillance System (BRFSS) survey during the 2008 – 2011 time period reported being overweight based on having a Body Mass Index (BMI) of greater than 25.

Within the Study Area, this percentage was higher at 63.2%. When this data is broken down by age group, the percentage of Study Area respondents who reported being overweight was consistently higher than within the Commonwealth as a whole for all age groups. Three Study Area age groups had percentages of respondents who were overweight that were more than 70%: the 45 – 54 age group (71.5%); the 55 – 64 age group (72.4); and the 65 – 74 age group (73.6%).

In the qualitative data, the issues of “overweight” or “obesity,” which were not expressed utilizing this terminology in previous assessments, were included as issues of concern. Community members across virtually all groups described concerns that have been established to be related to overweight and obesity. When asked to list the three biggest health problems in their communities, 13.5% of participants included obesity and/or poor nutrition among the three biggest problems.

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8 This percentage does not yet include data from the Focus Groups with Black/African American or Brazilian community members, although the Brazilian Focus Group participants expressed that they would like access to free classes about health, exercise and nutrition, especially for teens.
The Study Area had a higher percentage of overweight adults than the State among both men (69.9% versus 66.2% for the State) and women (51.6% versus 46.1% for the State).

Among respondents with less than a high school education, the percentage of overweight adults was comparable among the Commonwealth and the Study Area, as was this percentage for high school graduates. However, Study Area residents with some college and college graduates reported higher percentages of being overweight than the Commonwealth at 63.9% versus 57.9% and 58.9% versus 51.4%, respectively.

**Overweight and Obesity – Children**

The Centers for Disease Prevention (CDC) identify severe and psychosocial risks related to childhood overweight and obesity that include higher cholesterol, blood pressure, increased glucose intolerance, as well as greater risk for asthma and sleep apnea. In addition,
overweight and obese children are more likely to experience psychosocial and self-esteem issues than their peers. (Whitlock et al, 2005). In adulthood, childhood obesity also leads to increased risk and more severe adulthood obesity as well as greater risk in for cardiovascular disease, diabetes, and certain types of cancer. 

The Commonwealth, through its Executive Office and Department of Public Health, has also identified childhood overweight and obesity as a serious health issue and a priority for the administration, calling it “an epidemic.” A series of initiatives to prevent overweight, enhance wellness, promote healthy eating, and promote active living was launched by the Commonwealth including: Mass in Motion, which is currently in 44 communities, including in all 30 of the Study Area cities and towns9; the release of A Call to Action reporting the scope and seriousness of the obesity epidemic; support for regulatory changes including BMI screening in the public schools in grades 1, 4, 7, and 10; regulatory actions related to large scale food purchasing by government entities; municipal wellness grants; the expansion of the Workplace Wellness program; and the expansion of the Essential Schools Program.

In December, 2012, the Massachusetts Department of Public Health published The Status of Childhood Weight in Massachusetts 2009-2011. This study looked at BMI, using the following standards for participating schools of students in grades 1, 4, 7, and 10, using the following “BMI Screening Weight Categories:

“When the BMI percentile for age is less than the 5th percentile, the child is considered underweight. When the child's BMI for age percentile is between the 5th percentile and 85th percentile, it is considered a healthy weight. BMI for age percentiles greater than or equal to the 85th percentile but less than the 95th percentile are considered overweight. When a child's BMI for age percentile is equal to or greater than the 95th percentile, the child is considered obese.”

Not all school district data was included in the Status report, and therefore, is not available for this report. The comprehensive report, including reasons for non-inclusion can be located at: http://www.mass.gov/eohhs/docs/dph/com-health/school/status-childhood-obesity-2011.pdf.

The chart on the following page depicts that Massachusetts overall rate of childhood overweight and obesity as well as the Study Area school district which were included in The Status of Childhood Weight in Massachusetts 2009-2011.

The data shows several school districts in the Study Area which had rates of overweight lower than the Massachusetts rate of 16.7% (i.e., Montachusett Vocational Technical at 12.9%; Athol-Royalston at 14.1%; Groton-Dunstable at 14.5; Harvard at 15.5%; Narragansett at 16.0%; and Ayer-Shirley at 16.5%). In contrast, several of the Study Area school districts had rates that exceeded the State rate of 16.7% (i.e., Quabbin at 27.5%; Leicester at 22.0%; Fitchburg at 18.9%; and Gardner at 17.6%).

Related to obesity, the Study area had school districts whose rates were better than the State rate of 15.7%, with Harvard at 8.8%; and Groton-Dunstable at 11.6%. Most Study Area rates were higher than State rates, with Athol-Royalston at 26.8; Fitchburg at 23.1%; and Ayer-Shirley at 21.8% the highest.

When overweight and obesity were combined, two school districts again had better rates than the State rate of 33.9%: Harvard and Groton-Dunstable at 24.3% and 26.1 respectively. All of the Study Area school districts included in the report, exceeded MA rates, with however, many of the Study area school districts combined overweight and obesity rates exceeded the State rate, with Quabbin, Fitchburg, and Athol-Royalston at 43.4, 42.0, and 40.8 respectively.

The authors would like to emphasize, that while Study Area rates, may, at times, be better than State rates, nonetheless, Massachusetts, like many other states in the country, is facing, as is emphasized by State initiatives, an overweight/obesity “epidemic.”

The data cited above reflects the quantitative data gathered. Overweight and obesity continue to be concerns expressed in the qualitative data in this report. Community members and service providers identified multiple contributing factors including food insecurity (which is linked to childhood obesity); the cost and availability of more nutritious and healthier food options, the need for more opportunities for safe activities, the increased amount of time that youth spend watching screens (i.e., computers, tablets, phones, television); as well as safety concerns related to children being out of doors.

An informative perspective that is discussed in the MPHN Community Health Assessment, is the fact that students themselves perceive themselves to be overweight or obese as reported in the 2011 Youth Risk Behavior Survey and Youth and Community Survey stating...
that 30.2% of area high school youth in North Central Massachusetts consider themselves to be “overweight”.

“Nearly half (43.5%) of area youth reported that they were trying to lose weight. Nearly sixty percent (59.5%) reported exercising and 38.8% reported eating fewer calories to lose weight or keep from gaining weight...MPHN area youth reported higher rates of “more drastic” measures to control their weight. Specifically, 13.6% reported not eating for 24 hours or more to control their weight versus 10% and 12.2% across the state and nation, respectively. Ten percent (10.0%) reported taking diet pills, powders or liquids to lose weight or keep from gaining weight versus 4.0% in Massachusetts and 5.1% in the United States. And, 9.6% reported vomiting or taking laxatives.” (p. 116)

Body mass index (BMI) is a measure used to determine childhood overweight and obesity. BMI is calculated differently in children, utilizing formulation that includes multiple factors such as, gender, age, height, and weight (with a more severe condition of obesity) putting them at greater risk for heart disease, diabetes, and certain forms of cancer.

Limited data is available in Massachusetts by city and town or by race and ethnicity for childhood overweight and obesity. Updated data for childhood obesity and diabetes among youth in the Study Area were unavailable for this health assessment. The information by school district is collected by, but is not available from the Massachusetts Department of Public Health. Individual school districts own and maintain their separate data; local data are available only by directly contacting each school district nurse leader. School districts are under no obligation to share the information with outside sources.

However, The Status of Childhood Weight in Massachusetts, 2009: Preliminary Results from Body Mass Index Screening in 80 Essential School Health Districts, 2008-2009, published by the MA Department of Public Health (2010), does provide us with some data on school aged children in grades 1, 4, 7, and 10 related to overweight and obesity in three of the cities and towns in the Study Area: Fitchburg, Gardner, and Leominster. Of these, Leominster rated slightly lower than the overall study average of 34.3% reporting 32.1% of children being overweight or obese. In contrast, Fitchburg and Gardner reported some of the highest rates of overweight and obesity of the 80 communities reviewed at 46.2% and 42.0% respectively. In the study overall, there was a range of 9.6% (in Arlington) to a high of 46.6% (in Lawrence). For those seeking additional data on these cities and towns, the authors would encourage the reader to review this report in more detail as it breaks down the data more specifically by gender and by age.

As discussed above, childhood obesity poses a higher risk for diabetes. The following chart shows rates of diabetes related inpatient hospitalizations. Diabetes-related hospitalizations for children ages 0-19 were significantly higher for the Study Area than in the State, at 113.3 versus the State rate of 88.6 and 52.3 versus the State rate for ages 0-9 years and 10-19 years respectively).
### Diabetes Related Inpatient Hospitalizations: CHNA 9

<table>
<thead>
<tr>
<th>Age</th>
<th>Area Count</th>
<th>Area Age Specific Rate</th>
<th>State Age-Specific Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 9 yrs.</td>
<td>39</td>
<td>113.3</td>
<td>88.6</td>
</tr>
<tr>
<td>10 to 19 yrs.</td>
<td>20</td>
<td>52.3</td>
<td>34.4</td>
</tr>
<tr>
<td>20 to 24 yrs.</td>
<td>15</td>
<td>105.6</td>
<td>98.0</td>
</tr>
<tr>
<td>25 to 44 yrs.</td>
<td>84</td>
<td>108.0</td>
<td>133.6</td>
</tr>
</tbody>
</table>

### Childhood Overweight and Obesity: Interventions

According to data from the CDC, the average child now consumes 365 extra calories per day of extra sugars and 433 calories per day of solid fats for a combined total of 798 calories. It has been demonstrated that the more time children spend in front of any type of screen – whether video, television or computer—the greater the likelihood they will be overweight or obese.\(^\text{10}\)

As Focus Group participants noted, it is not easy for everyone to make “healthy” food choices.

> “Good food costs a lot more versus getting the stuff off the shelves which are full of fat that you don’t really want to eat but that is what is accessible.”

Interventions to address the issue of both adult and childhood obesity are complex and have been initiated in some areas in the region through programs such as the Fun n’ FitChburg program, the Off Our Rockers after school program in Gardner, Project LEAP, YouthFIT, Get Up and Grow, and the Athol YMCA Diabetes Prevention Program (DPP).

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**Community Asset in Focus: Fun ’n FitChburg**

In partnership with the city of Fitchburg, MOC has been addressing the issue of childhood obesity by policy, systems and environmental changes in the city to increase access to healthy foods and physical activity. Fun ’n FitChburg’s partners have grown from 20 to over 85 key stakeholders, proving their dedication to reducing obesity and chronic conditions through collaboration and work in neighborhoods where health disparities are most glaring (Green Acres, Elm Street, and Cleghorn). The existing partnership includes wide representation from local city government, community organizations, schools, health care, public and private businesses, and youth and adults of all ages from the community at large.

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Physical Activity

Adults Who Meet the Guidelines for Aerobic Activity

Within Massachusetts, 56.3% of the Behavioral Risk Factor Surveillance System (BRFSS) respondents in the 2008 - 2011 time period reported having been involved in regular physical activity, defined as a 30 minute session 5 or more times per week. Within CHNA 9, this percentage was 56.2%.

![Graph: Percent of Adults Who Meet Guidelines for Aerobic Activity by Age, 2011-2013]

When this data is broken down by age group, the percentage of Study Area respondents who reported being regularly physically active was comparable to the Commonwealth for most age groups. However, the percentage of regularly physically active adults in the 45 – 54 age groups in the Study Area was lower, at 45.5% (down from 58.7% in the previous report) versus 57.8% in the State and Study Area individuals in the 75+ age groups also fared worse at 47.1% compared to 54.4% in the Commonwealth.

![Graph: Percent of Adults Who Meet Guidelines for Aerobic Activity by Gender, 2011-2013]
The percentages of adult men and adult women in the Study Area that were involved in regular physical activity were comparable to percentages for the overall Commonwealth. Among respondents with less than a high school education and those who were high school graduates, regular physical activity was higher in the Study Area than within the Commonwealth at 57.7% versus 42.4% and 53.2% versus 50.5%, respectively. 59.5% of Study Area residents who had some college participated in more regular physical activity than those in the State; however, Study Area college graduates reported lower percentages of regular physical activity college graduates within the State at 55.9% versus 63.5%.

The numbers of respondents by race were too few to provide meaningful data within the Study Area.

**Diabetes**

Within Massachusetts, 8% of the Behavioral Risk Factor Surveillance System (BRFSS) respondents in the 2008 - 2011 time period reported that they had or currently have diabetes, up from 6.5% in the prior survey. Within the Study Area, this percentage was even higher at 9.3%, up from 5.8% in the prior survey.

When this data is broken down by age group, the percentage of respondents who had or have diabetes was higher in the Study area than within the Commonwealth for all age groups, with the exception of the 75+ age group. In the Study Area, 7.9% of the 45-54 age group, 15.3% of the 55-64 age group, and 28% of the 65-74 aged group reported having had diabetes. Among the 18–34 age group, the numbers were too small to provide meaningful data in the Study Area.
Diabetes is such a concern in this report as diabetes significantly increases the chances of having a range of additional serious health problems such as high blood pressure, high cholesterol, coronary artery disease, and stroke. (CDC, National Diabetes Fact Sheet, 201: http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2011.pdf).

As outlined in the following table, for example, a person with diabetes is more than twice as likely to also have high blood pressure (59.3% as opposed to 21.4% for a person without diabetes). Similarly, a person with diabetes is more than three times more likely to have cardiovascular disease than a person without diabetes (i.e., 31.3% versus 9.5% respectively).

### Why is Diabetes Such a Concern?
#### Risk factors among people with and without Diabetes

<table>
<thead>
<tr>
<th>Condition</th>
<th>State 3 year Percent (Massachusetts)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Persons with Diabetes</td>
</tr>
<tr>
<td>High Blood Pressure</td>
<td>59.3</td>
</tr>
<tr>
<td>High Cholesterol</td>
<td>54.5</td>
</tr>
<tr>
<td>Cardiovascular: Had a Stroke</td>
<td>8.9</td>
</tr>
<tr>
<td>Cardiovascular: Had or have Angina, or Coronary Disease</td>
<td>17.7</td>
</tr>
<tr>
<td>Cardiovascular: Had or have Heart Disease</td>
<td>31.3</td>
</tr>
<tr>
<td>Overweight</td>
<td>79.9</td>
</tr>
<tr>
<td>Obese</td>
<td>42.8</td>
</tr>
<tr>
<td>Low Physical Activity</td>
<td>64.6</td>
</tr>
<tr>
<td>Less than 5 servings of fruits and vegetables</td>
<td>71.8</td>
</tr>
<tr>
<td>Smokes Regularly</td>
<td>14.4</td>
</tr>
<tr>
<td>Have Health Insurance</td>
<td>97.2</td>
</tr>
<tr>
<td>Have a disability</td>
<td>47.1</td>
</tr>
</tbody>
</table>
Within both the Study Area (and the Commonwealth) a higher percentage of adult men have or had diabetes at 10% than adult women at 8.6%. The percent of adults with diabetes in the Study Area was higher for both men and women than the corresponding percent of men and women with diabetes in the Commonwealth.

Although the numbers of respondents by race were too few to provide meaningful data within the Study Area through the MassCHIP data sources available at the time of the study, it has been well established that most communities of color suffer significant disparities in rates of diabetes and of diabetes related complications and mortality (CDC, *National Diabetes Fact Sheet, 201: http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2011.pdf*).

### Diabetes Related In-Patient Hospitalizations: CHNA 9

<table>
<thead>
<tr>
<th></th>
<th>Area Count</th>
<th>Area Age Specific Rate</th>
<th>State Age Specific Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>956</td>
<td>386.7</td>
<td>383.4</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White, Non-Hispanic</td>
<td>785</td>
<td>338.4</td>
<td>314.7</td>
</tr>
<tr>
<td>Black, Non-Hispanic</td>
<td>37</td>
<td>1025.3</td>
<td>952.0</td>
</tr>
<tr>
<td>Asian Pacific Islander, Non-Hispanic</td>
<td>N/A</td>
<td>N/A</td>
<td>179.5</td>
</tr>
<tr>
<td>Hispanic.</td>
<td>38</td>
<td>452.8</td>
<td>486.7</td>
</tr>
</tbody>
</table>

Similarly, as noted in the following Disease-Related Mortality section of this report, within the Commonwealth as a whole, the highest percentage of respondents who had or have diabetes was reported among Black, Non-Hispanics at 9.6%, followed by Hispanics at
8.5%, White, Non-Hispanics at 6.2% and Asians at 4.5%. It is of note that not only was diabetes identified by the large majority of Focus Groups as a major health condition, in the groups with Latino participants; it was listed by almost all of the Latino participants in each group.

Among the Study Area respondents with less than a high school education the percentage of respondents who had or have diabetes was much lower at 11% than reported among respondents with less than a high school education in the Commonwealth (17.9%). However, the Study Area percentages were higher for respondents who were high school graduates (12.4%); for those who had some college (8.6%); and for college graduates (6.1%), than those reported for respective age groups in the Commonwealth.

As noted throughout this section, topics related to BRFSS data are discussed throughout this report.

**High Blood Pressure**

Within Massachusetts, 29.2% of the Behavioral Risk Factor Surveillance System (BRFSS) respondents in the 2008 – 2011 time period reported that they had been diagnosed with high blood pressure in their lifetimes. Within the Study Area, this percentage was nearly the same at 29.3%.

When this data is broken down by age group, the percentage of respondents who were diagnosed with high blood pressure was 3.6 percentage points lower than the State for the 35 – 44 age group, but higher than State percentages for every other age group, most notable in the 55 – 64 age group where the Study Area percentage was 49.5% as compared to the State at 43.7%. Among the 18– 34 age group, the numbers were too small to provide meaningful data in the Study Area.
A slightly higher percentage of adult men in the Study Area were diagnosed with high blood pressure at 31.9% than adult men in the Commonwealth at 30.9%. However, the percentage of adult women in the Study Area who were diagnosed with high blood pressure was lower at 26.4% than the State at 27.7%.

The numbers of respondents by race were too few to provide meaningful data within the Study Area.

Among respondents with less than a high school education, who were high school graduates and who were college graduates, the percentage of respondents who were diagnosed with high blood pressure in the Study Area was comparable to that reported among respondents with the corresponding level of education in the Commonwealth, with the exception of college graduates at 28.4% in the Study Area, as compared to 21.5% in the State.
As noted above, topics related to BRFSS data are discussed throughout this report. Please refer to the Executive Summary, Mortality, and Primary Care Manageable Hospitalizations sections for additional quantitative and qualitative data related to high blood pressure and cardiovascular disease.

High Cholesterol

Within Massachusetts, 34.3% of the Behavioral Risk Factor Surveillance System (BRFSS) respondents in the 2008 – 2011 time period reported that they had been diagnosed with high cholesterol in their lifetimes. Within the Study Area, this percentage was lower at 29.1%.

When this data is broken down by age group, the percentage of respondents who were diagnosed with high cholesterol was higher than the State for all age groups except the 65 – 74 age group, at 66.6% in the Study Area as compared to 53.8% in the State.

Within both the Study Area and the Commonwealth a higher percentage of adult men have been diagnosed with high cholesterol than adult women. The percent of adults with high cholesterol in the Study Area was lower for both men and women than the corresponding percent of men and women with high cholesterol in the Commonwealth.

When considering levels of educational attainment, the percentage of respondents who were diagnosed with high cholesterol in the Study Area was much lower than that reported among respondents with the corresponding level of education in the Commonwealth.
The numbers of respondents by race were too few to provide meaningful data within the Study Area.

**Asthma**

Within Massachusetts, 15.3% of the Behavioral Risk Factor Surveillance System (BRFSS) respondents in the 2008 – 2011 time period reported that they had been diagnosed with asthma in their lifetimes.

Within the Study Area, this percentage was comparable at 15.4. When this data is broken down by age group, the percentage of respondents who were diagnosed with asthma was lower in the Study Area than in the State, except for in the 25-34 age group at 19.9% compared with 18.5% in the State and in the 75+ age group at 11.5% in the Study Area and 8.7% in the State.

Within both the Study Area and the State, a higher percentage of women have been diagnosed with asthma than men. The percent of adult women with asthma was comparable in the Study Area at 17.7% to the Commonwealth at 17.8%. Among adult men, the Study Area had a higher percent of asthma diagnoses at 13.3%, which is an increase by 2.5% from the prior survey.
Among respondents at all levels of education except for those with 1-3 years of college education, the percentage of respondents who were diagnosed with asthma was within 2 percentage points of those with the corresponding level of education in the Commonwealth. Among respondents with 1-3 years of college education, the percentage of those who were diagnosed with asthma was 18.4% in the Study Area, compared to 16.1% in the State.

As noted above, topics related to BRFSS data are discussed throughout this report. Please refer to the Executive Summary, Mortality, and Primary Care Manageable Hospitalizations sections for additional quantitative and qualitative data related to asthma.
Disability

Within Massachusetts, 23.1% of the Behavioral Risk Factor Surveillance System (BRFSS) respondents in the 2008 - 2011 time period reported having a disability. Within the Study Area, this percentage was comparable at 22.5%.

When this data is broken down by age group, the percentage of respondents who had a disability was comparable in the Study Area to the State, but higher at 34.5% in the 65 – 74 age group than in the State (31.9%).

Within the Study Area, a higher percentage of women (25.2%) reported having a disability than men (20%). A slightly lower percentage of men reported having a disability at 20% than men in the Commonwealth overall at 21.4%. Among women the percentage reporting a disability within the Study Area was 25.2%, higher than that reported by women in the Commonwealth overall at 24.7%.
Among respondents with less than a high school education, the percent of adults reporting a disability was much lower at 24.6% than adults in the Commonwealth overall with less than a high school education at 34.7%.

The percent of respondents with a disability was slightly higher for high school graduates in the Study Area (26.5%) as compared with the Commonwealth (25.4%). For those with some college, the percent of respondents who reported a disability in the Study Area was nearly the same at 23% than in the Commonwealth overall at 23.1% and lower in the Study Area at 16.3% versus 17.9% in the State.

In the Qualitative data, community members and stakeholders did not utilize the term “disability” with any frequency.
DISEASE-RELATED MORTALITY

Overall Mortality

The Mortality Rate is defined as the number of deaths per 100,000 people per year. In 2011, the age-adjusted mortality rate in Massachusetts was 668.82 per 100,000. North Central Massachusetts had a higher rate than the state at 737.16 per 100,000. In the region, the highest rates were in Royalston (1185.65 – 11 deaths), Templeton (893.64 – 81 deaths) and Fitchburg (873.16 – 390 deaths). The lowest age-adjusted mortality rate per 100,000 was in Lunenburg at 347.21 (36 deaths).

In 2011, among the five largest cities/towns, Fitchburg had the highest age-adjusted mortality rate per 100,000 at 873.16, followed by Athol at 868.14. The lowest, also lower than the overall Study Area rate, was in Leominster at 728.86.

All five Service Areas had higher rates than the State. The highest was Heywood Hospital’s Service Area at 790.61 per 100,000. The lowest was HealthAlliance Primary at 740.57. HealthAlliance Secondary and Athol Hospital were similar at 752.68 and 752.26 respectively.
Overall Mortality by Race/Ethnicity

Within Massachusetts, the highest age-adjusted mortality rate was found among Black, Non-Hispanics at 709.23 per 100,000, followed by White, Non-Hispanics at 680.59 per 100,000. The lowest rate was found among American Indian, Non-Hispanics at 351.75 per 100,000. This represents 47 cases. The Study Area was similar to the State. Black, Non-Hispanics also had the highest age-adjusted mortality rate per 100,000 at 948.11, and White, Non-Hispanics was the second highest at 735.86 per 100,000. The lowest rate was found among Asian/Pacific Islander, Non-Hispanics at 388.44 per 100,000.

Among the five (5) largest cities, the highest age-adjusted mortality rate in 2011 was among Hispanics in Athol at 3046.1 per 100,000 and Black, Non-Hispanics in Gardner at 2349.64 per 100,000. However, the number of deaths for each was 2 and 3 respectively. The highest number of deaths was among White, Non-Hispanics in Fitchburg (354) and Leominster (337). The lowest reported age-adjusted mortality rate across the five (5) largest cities was among Hispanics in Gardner at 214.15 per 100,000.

The highest age-adjusted mortality rate per 100,000 for White, Non-Hispanics was in Fitchburg at 882.95, followed by Athol at 862.09 per 100,000. The lowest was in Leominster at an age-adjusted mortality rate of 730.71 per 100,000.

The highest age-adjusted mortality rate per 100,000 for Black, Non-Hispanics in 2011 was in Gardner at 2349.64, followed by Clinton at 1141.22. The highest number of deaths was in Leominster (11). Athol and Fitchburg were not reported due to suppression rules.

For Hispanics, the highest age-adjusted mortality rate per 100,000 in 2011 was in Athol at 3046.1 per 100,000, followed by Fitchburg at 717.59 per 100,000. Fitchburg also reported
the highest number of deaths (24) among Hispanics. The lowest age-adjusted mortality rate per 100,000 was in Gardner at 214.15.

For Asian/Pacific Islander, Non-Hispanics, Athol, Clinton and Gardner reported no deaths. The highest age-adjusted mortality rate per 100,000 was in Fitchburg at 683.94; which also had the highest number of deaths (6).

Given the low or not reported numbers for American Indian, Non-Hispanic; and Other, Non-Hispanic, the following chart only reports data for White, Non-Hispanic; Black, Non-Hispanic; Hispanic and Asian/Pacific Islander, Non-Hispanic. However, the Study Area had an age-adjusted mortality rate of 553.31 per 100,000 for Asian/Pacific Islander, Non-Hispanics. This represented two (2) deaths.

In the following chart, zero (0) indicates that the geographical area has no reported cases, whereas a blank indicates that data was not reported due to suppression rules.

Premature Mortality

Premature mortality is defined as deaths occurring before the age of 75. The premature mortality rate (PMR) is the number of premature deaths per 100,000. In 2011, the age-adjusted premature mortality rate in Massachusetts was 273.41 per 100,000. A total of 19,189 people died before the age of 75. The Study Area rate was slightly higher than the State at 310.42 per 100,000 representing 847 deaths. The highest age-adjusted premature mortality rates reported in the region were Pepperell (257.19 per 100,000 – 29 deaths), Townsend (261.14 per 100,000 – 25 deaths) and Clinton (263.66 per 100,000 – 37 deaths). The lowest mortality rate was reported in Harvard at 182 per 100,000.
Among the five largest cities and towns, the highest overall rate was reported in Fitchburg with an age-adjusted premature mortality of 411.93 per 100,000, followed by Gardner at 390.57. The lowest age-adjusted premature mortality rate was in Clinton at 263.66 per 100,000.

All of the Service Areas had higher age-adjusted premature mortality rates than the State overall rate. These were highest for the Heywood Hospital Service Area at 350.99 per 100,000 and lowest for the Athol Hospital Service area at 292.33 per 100,000.
Premature Mortality by Race/Ethnicity

Within Massachusetts, the highest age-adjusted premature mortality rate was found among Black, Non-Hispanics at 346.89 per 100,000, followed by White, Non-Hispanics at 277.12 per 100,000. The lowest rate was found among Asian / Pacific Islander, Non-Hispanics at 125.13 per 100,000.

Similarly for the Study Area, Black, Non-Hispanics had the highest age-adjusted premature mortality rate at 573.59 per 100,000. Hispanics had the second highest rate at 318.26 per 100,000. Data for Asian/Pacific Islander, Non-Hispanics were not reported due to suppression rules. Given the low or not reported numbers for American Indian, Non-Hispanic; and Other, Non-Hispanic, the following chart only reports data for White, Non-Hispanic; Black, Non-Hispanic; and Hispanic and Asian/Pacific Islander, Non-Hispanic populations. However, among the five largest cities and towns in the Study Area, most data by race/ethnicity have no reported cases, or data were not reported due to suppression rules. Zero (0) indicates that the Service Area has no reported cases, whereas a blank indicates that data were not reported due to suppression rules.

White, Non-Hispanics were represented across all five of the Study Area’s largest cities and towns as experiencing deaths due to premature mortality. Age-adjusted premature mortality rate per 100,000 among White, Non-Hispanics were highest in Fitchburg at 421.12 and lowest in Clinton at 291.13.
**Cancer Mortality Rates**

In 2010, the age-adjusted cancer mortality rate in Massachusetts was 165.65 per 100,000. The Study Area rate was slightly higher than the State at 169.3. The highest age-adjusted cancer mortality rates reported in the Study Area were in Phillipston (256.19 per 100,000 – 5 deaths), Ashburnham (234.31 per 100,000 – 12 deaths) and Gardner (203.37 per 100,000 – 53 deaths). The lowest cancer mortality rate was reported in Harvard at 182 per 100,000.

Among the five largest cities/towns, two communities had higher rates than the region – Gardner and Leominster. Gardner was the highest overall at 203.37 age-adjusted cancer mortality rate per 100,000. The lowest was Clinton at 159.62, which also had a similar rate as Fitchburg (159.8).

Most of the Service Areas had higher rates than the overall State, with Heywood Hospital at 199.78 age-adjusted cancer mortality rate per 100,000. Athol Hospital had the lowest rate at 152.99.
Cancer Mortality Rates by Race/Ethnicity

Within Massachusetts, the highest age-adjusted cancer mortality rate was found among Black, Non-Hispanics at 178.6 per 100,000, followed by White, Non-Hispanics at 169.69 per 100,000. The lowest cancer mortality rate was found among American Indian, Non-Hispanics at 56.43 per 100,000. The Study Area was similar to the State. Black, Non-Hispanics also had the highest age-adjusted cancer mortality rate per 100,000 at 231.23, and White, Non-Hispanics was the second highest at 170.83 per 100,000. The lowest rate was found among Asian/Pacific Islander, Non-Hispanics at 58.26 per 100,000.

Among the five largest cities and towns, the highest age-adjusted cancer mortality rate in 2011 was among Black, Non-Hispanics in Fitchburg at 1682.58 per 100,000. However, the number of deaths was 2. The highest number of deaths was among White, Non-Hispanics in Leominster (88). The lowest reported age-adjusted cancer mortality rate across the five largest cities and towns was among Black, Non-Hispanics in Leominster at 45.45 per 100,000.

The highest age-adjusted cancer mortality rate per 100,000 for White, Non-Hispanics was in Leominster at 199.37, followed by Gardner at 197.61 per 100,000. The lowest was in Clinton at an age-adjusted cancer mortality rate of 143.54 per 100,000.

The highest age-adjusted cancer mortality rate per 100,000 for Black, Non-Hispanics in 2011 was in Fitchburg at 1682.58, followed by Clinton at 1141.22. The lowest was in Leominster at an age-adjusted cancer mortality rate of 45.45 per 100,000.

For Hispanics, the highest age-adjusted cancer mortality rate per 100,000 in 2011 was in Gardner 214.15 per 100,000, followed by Clinton at 150 per 100,000. The lowest age-adjusted cancer mortality rate per 100,000 was in Leominster at 86.41.
Given the low or not reported numbers for American Indian, Non-Hispanics; and Other, Non-Hispanics, the following chart only reports data for White, Non-Hispanics; Black, Non-Hispanics; Hispanic and Asian/Pacific Islander, Non-Hispanics. However, only Fitchburg reported an age-adjusted cancer mortality rate of 315.12 per 100,000 for Asian/Pacific Islander, Non-Hispanics.

In the following chart, zero (0) indicates that the geographical area has no reported cases, whereas a blank indicates that data for cancer mortality rates was not reported due to suppression rules.

![Age-Adjusted Cancer Mortality Rate Per 100,000 by Race/Ethnicity in 5 Largest Cities (2011)](image)

**Breast Cancer (Female) Mortality Rates**

In 2011, the age-adjusted breast cancer mortality rate per 100,000 women in Massachusetts was 19.26. The Study Area was lower than the State at 17.85. The cities and towns in the region with the highest rates were New Salem (446.05) and Phillipston (102.09). It is important to note that both had one (1) death. Shirley was the third highest at 101.17 with four (4) deaths due to breast cancer. The lowest was Leominster at 4.16. Eleven (11) cities and towns in the region reported zero (0) deaths due to breast cancer.

Among the five largest cities/towns, Gardner had the highest age-adjusted breast cancer mortality rate at 25.91 per 100,000, followed by Athol at 17.82. The lowest was Leominster at 4.16, which is at least three times lower than the rate for the region.
For the Service Areas, HealthAlliance Secondary, Athol Hospital and Heywood Hospital had similar rates ranging from 21.42 to 25.39. The lowest age-adjusted breast cancer mortality rate among the Service Areas was reported by HealthAlliance Primary at 14.51 per 100,000.

**Breast Cancer (Female) Mortality Rates by Race/Ethnicity**

Within Massachusetts, the highest age-adjusted breast cancer rate was found among Black, Non-Hispanic women at 25.5 per 100,000, followed by White, Non-Hispanic women at 19.82 per 100,000. The lowest rate was found among American Indian, Non-Hispanic women at 9.01 per 100,000.
**Age-Adjusted Breast Cancer (Female) Mortality Rate Per 100,000 by Race/Ethnicity in Massachusetts (2011)**

<table>
<thead>
<tr>
<th>Race/Hispanic Ethnicity</th>
<th>Number of Deaths</th>
<th>Age Adjusted Rate Per 100,000</th>
</tr>
</thead>
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<tr>
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<td>19.82</td>
</tr>
<tr>
<td>Black, Non-Hispanic</td>
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<tr>
<td>Hispanic</td>
<td>16</td>
<td>7.51</td>
</tr>
<tr>
<td>Asian/Pacific Islander, Non-Hispanic</td>
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<td>10.12</td>
</tr>
<tr>
<td>American Indian, Non-Hispanic</td>
<td>1</td>
<td>9.01</td>
</tr>
<tr>
<td>Other, Non-Hispanic</td>
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</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>NA</td>
</tr>
</tbody>
</table>

*NA means data were suppressed for confidentiality protection or based on insufficient data.

Given the low or not reported numbers for American Indian, Non-Hispanic; and Other, Non-Hispanic, the following chart only reports data for White, Non-Hispanic; Black, Non-Hispanic; Hispanic; and Asian/Pacific Islander, Non-Hispanic populations. Among the five largest cities and towns in the Study Area, most data by race/ethnicity have no reported cases or data are not reported due to suppression rules. In the chart, zero (0) indicates that the geographical area has no reported cases, whereas a blank indicates that data was not reported due to suppression rules.

The age-adjusted breast cancer rate per 100,000 among White, Non-Hispanic women was the highest in Athol at 18.08 and lowest in Gardner at 4. Data on Black, Non-Hispanic women in Athol were not reported due to suppression rules. Other race/ethnicities reported no deaths from breast cancer per 100,000.
Lung Cancer Mortality Rates

In 2011, Massachusetts had an age-adjusted lung cancer mortality rate of 44.63 per 100,000. North Central Massachusetts was slightly higher at 50.23. Royalston (122.73), Shirley (106.92) and Templeton (86.36) had the highest rates; however the number of cases was lower at 1, 6 and 8 respectively. The highest number of cases was found four of the five largest cities.

In comparing the five largest cities/towns, Clinton (10 cases) had the highest rate at 71.62, followed by Gardner (16 cases) at 66.52. Even though Leominster had the second lowest rate at 50.06, the city had the highest number of cases at 24, followed by Fitchburg at 23 cases with a 54.16 age-adjusted lung cancer mortality rate per 100,000.

![Age-Adjusted Lung Cancer Mortality Rate Per 100,000 by 5 Largest Cities (2011)](image)

Four of the five largest cities had higher rates than the State. In the Service Areas, Heywood Hospital’s had the highest age-adjusted lung cancer mortality rate at 61.56 per 100,000, closely followed by HealthAlliance Secondary at 60.16. The lowest rate was reported as Athol Hospital at 41.2.
Lung Cancer Mortality Rates by Race/Ethnicity

Within the Commonwealth, the highest age-adjusted lung cancer mortality rate per 100,000 was reported among White, Non-Hispanics at 46.68 and Black, Non-Hispanics at 41.82. The lowest age-adjusted lung cancer mortality rate per 100,000 was among American Indian, Non-Hispanics at 15.94. Hispanics was an age-adjusted lung cancer mortality rate of 18.51 per 100,000, and Asian/Pacific Islander, Non-Hispanics was an age-adjusted lung cancer mortality rate of 25.19 per 100,000.

In the Study Area, age-adjusted lung cancer mortality rate per 100,000 was reported for White, Non-Hispanics at 52.11 and Hispanics at 25.47. Both rates are higher than the State’s rates. Black, Non-Hispanics and Asian/Pacific Islander, Non-Hispanics reported zero (0) deaths.

Given the low or not reported numbers for American Indian, Non-Hispanic; and Other, Non-Hispanic, the below chart only reports data for White, Non-Hispanic; Black, Non-Hispanic; Hispanic and Asian/Pacific Islander, Non-Hispanic. However, among the five largest cities, most data by race/ethnicity have no reported cases or data are not reported due to suppression rules. In the following chart, zero (0) indicates that the geographical area has no reported deaths, whereas a blank indicates that data was not reported due to suppression rules.

Across the five (5) largest cities, the highest age-adjusted lung cancer mortality rate per 100,000 was among Hispanics in Clinton at 150 (1 death), followed by White, Non-Hispanics in Clinton at 69.34. The lowest age-adjusted lung cancer mortality rate per 100,000 was Hispanics in Fitchburg at 18.28. Either there are no reported cases or suppressed data for Black, Non-Hispanics and Asian/Pacific Islander, Non-Hispanics.
Cerebrovascular Disease Mortality Rates

Massachusetts had a 29.83 age-adjusted cerebrovascular disease mortality rates per 100,000 in 2011. The Study Area rate was higher at 54.82. Warwick (207.69), Hubbardston (151.62) and Phillipston (131.05) had the highest rates; however the number of deaths due to cerebrovascular disease in these cities/towns was lower at 1, 4 and 5 respectively. The highest number of deaths in the region was reported as Leominster (38) and Fitchburg (34).

In 2011, two of the five largest cities had lower rates than the Study Area as a whole. Fitchburg had the highest age-adjusted cerebrovascular disease mortality rate at 79.57 per 100,000, followed by Leominster at 74.36. The lowest rates reported were Clinton at 35.9 and Gardner at 32.02.
All of the Service Areas reported rates higher than the State. The highest was HealthAlliance Primary and MPHN at 58.79 and 58.53 respectively. The lowest age-adjusted cerebrovascular disease mortality rate was in the Service Area of Heywood Hospital at 38.57 per 100,000.

Cerebrovascular Disease Mortality Rates by Race/Ethnicity

Within the Commonwealth, the highest age-adjusted cerebrovascular disease mortality rate per 100,000 was reported among Black, Non-Hispanics at 32.12, followed by White, Non-Hispanics at 29.78. The lowest age-adjusted cerebrovascular disease mortality rate per 100,000 was among American Indian, Non-Hispanics at 14.59. Hispanics was an age-adjusted cerebrovascular disease mortality rate of 23.52 per 100,000, and Asian/Pacific Islander, Non-Hispanics was an age-adjusted cerebrovascular disease mortality rate of 24.3 per 100,000.

In the Study Area, Hispanics had the highest age-adjusted cerebrovascular disease mortality rate at 69.89 per 100,000, followed by White, Non-Hispanics at 53.97 per 100,000. Black, Non-Hispanics had the lowest age-adjusted cerebrovascular disease mortality rate at 14.85 per 100,000.

Given the low or not reported numbers for American Indian, Non-Hispanic; and Other, Non-Hispanic, the following chart only reports data for White, Non-Hispanic; Black, Non-Hispanic; Hispanic and Asian/Pacific Islander, Non-Hispanic. However, among the five largest cities, most data by race/ethnicity have no reported deaths. In the chart, zero (0) indicates that the geographical area has no reported deaths, whereas a blank indicates that data was not reported due to suppression rules.

Across the five (5) largest cities, the two highest age-adjusted cerebrovascular disease mortality rates per 100,000 were in Leominster - Hispanics at 106.15 (3 deaths) and Asian/Pacific Islander, Non-Hispanics at 85.01 (3 cases). The lowest age-adjusted
Cerebrovascular disease mortality rate per 100,000 was among White, Non-Hispanics in Gardner at 33.43.

Coronary Heart Disease Mortality Rates

In 2011, Massachusetts had an age-adjusted coronary heart disease mortality rate of 91.44 per 100,000. The Study Area rate is higher than the State’s at 107.44, with the highest rates reported by Royalston (312.93), Hubbardston (146.5) and Templeton (145.03). However, the number of deaths due to coronary heart disease was low in these cities/towns at 3, 4 and 13 respectively. Leominster (at 60) and Fitchburg (at 56) had the highest number of deaths in the region. Harvard had the lowest age-adjusted coronary heart disease mortality rate at 45.27 per 100,000.

The age-adjusted coronary heart disease mortality rate per 100,000 for all of the five largest cities/towns is higher than in the State. These rates ranged from 114.8 to 134.95 with Gardner reporting the highest rate and Leominster reporting the lowest rate.
All of the rates for the Service Areas are higher than the State. The Garder Hospital Service Area has the highest age-adjusted coronary heart disease mortality rate at 123.17 per 100,000. HealthAlliance Secondary has the lowest rate at 106.98.

**Coronary Heart Disease Mortality Rates by Race/Ethnicity**

Within the Commonwealth, the highest age-adjusted coronary heart disease mortality rate per 100,000 was reported among Black, Non-Hispanics at 97.05, followed by White, Non-Hispanics at 93.7. The lowest age-adjusted coronary heart disease mortality rate per 100,000 was among Asian/Pacific Islander, Non-Hispanics at 43.92. Hispanics was an age-adjusted coronary heart disease mortality rate of 56.25 per 100,000, and American Indian, Non-Hispanics was an age-adjusted coronary heart disease mortality rate of 60.3 per 100,000 (6 deaths).

In the Study Area, Black, Non-Hispanics had the highest age-adjusted coronary heart disease mortality rate at 280.08 per 100,000 (8 deaths). White, Non-Hispanics and Hispanics had similar age-adjusted coronary heart disease mortality rates at 105.98 per 100,000 and 107.15 per 100,000 respectively. Asian/Pacific Islander, Non-Hispanics had the lowest age-adjusted coronary heart disease mortality rate at 46.99 per 100,000. Overall in the Study Area, White, Non-Hispanic had the highest number of deaths at 294.

Given the low or not reported numbers for American Indian, Non-Hispanic; and Other, Non-Hispanic, the following chart only reports data for White, Non-Hispanic; Black, Non-Hispanic; Hispanic and Asian/Pacific Islander, Non-Hispanic. However, among the five largest cities, most data by race/ethnicity have no reported deaths. In the chart, zero (0) indicates that the geographical area has no reported deaths, whereas a blank indicates that data was not reported due to suppression rules.
Across the five (5) largest cities, the highest age-adjusted coronary heart disease mortality rate per 100,000 was in Leominster among Black, Non-Hispanics at 629.36. This represents 5 deaths. The second highest is among Hispanics in Fitchburg at 221.87, representing 6 deaths. The lowest age-adjusted coronary heart disease mortality rate per 100,000 was among Hispanics in Leominster at 77.57.

Chronic Liver Disease Mortality Rates

Massachusetts had an age-adjusted chronic liver disease mortality rate of 7.45 per 100,000 in 2011. The Study Area was slightly higher at 10.54. In the region, Petersham (75.65), Phillipston (73.89) and Athol (43.41) had the highest rates; however the numbers of deaths in these cities/towns was lower at 1, 1 and 6 respectively. Athol and Leominster had the highest number of deaths due to chronic liver disease, both at 6. The lowest age-adjusted chronic liver disease mortality rate was reported by Townsend at 6.98.

Among the five largest cities/towns in North Central Massachusetts, Clinton, Fitchburg, Gardner and Leominster have similar age-adjusted chronic liver disease mortality rates per 100,000 as the State. Rates range from 8.43 to 11.38 with Clinton reporting the lowest rate and Leominster reporting the highest rate.
Among the Service Areas, Athol Hospital had the highest age-adjusted chronic liver disease mortality rates at 29.05 per 100,000, followed by MPHN at 13.02. HealthAlliance Secondary reported the lowest rate at 6.44 per 100,000.

**Chronic Liver Disease Mortality Rates by Race/Ethnicity**

Within the Commonwealth, the highest age-adjusted chronic liver disease mortality rate per 100,000 was reported among Hispanics at 10.62. White, Non-Hispanics were second highest with an age-adjusted chronic liver disease mortality rate of 7.86 per 100,000. For the lowest chronic liver disease mortality rates, Black, Non-Hispanics and American Indian, Non-Hispanics were similar at 3.06 per 100,000 and 3.18 per 100,000.

In the Study Area, Hispanics had the highest age-adjusted chronic liver disease mortality rate at 43.44 per 100,000 (4 deaths), followed by White, Non-Hispanics at 9.82 per
100,000. Black, Non-Hispanics and Asian/Pacific Islander, Non-Hispanics reported no deaths due to chronic liver disease.

Given the low or not reported numbers for American Indian, Non-Hispanic; and Other, Non-Hispanic, the following chart only reports data for White, Non-Hispanic; Black, Non-Hispanic; Hispanic and Asian/Pacific Islander, Non-Hispanic. However, among the five largest cities and towns, most data by race/ethnicity have no reported deaths. In the chart, zero (0) indicates that the geographical area has no reported deaths, whereas a blank indicates that data was not reported due to suppression rules.

Across the five largest cities and towns, the highest age-adjusted chronic liver disease mortality rate per 100,000 was among Hispanics in Fitchburg at 45.14. This represents 2 deaths. The second highest is among White, Non-Hispanics in Athol at 35.57, representing 5 deaths. The lowest age-adjusted chronic liver disease mortality rate per 100,000 was among White, Non-Hispanics in Fitchburg at 7.74.

**Diabetes Mellitus Mortality Rates**

Massachusetts had an age-adjusted diabetes mellitus mortality rate of 14.36 per 100,000 in 2011. The Study Area was higher at 19.4. Within the region, Templeton (61.77), Bolton (60) and Townsend (54.76) have the highest rates; however, the number of deaths due to diabetes mellitus in these cities/towns is low at 5, 1 and 4. The highest number of deaths due to diabetes mellitus is reported as Fitchburg (13) and Leominster (8). The lowest age-adjusted diabetes mellitus mortality rate in the region is Athol at 4.48 per 100,000.

Among the five largest cities, Leominster is the only city with a lower rate than the region. Fitchburg has the highest rate at 28.25, followed by Gardner at 23.56. Athol has the lowest rate at 4.48.
Among the Service Areas, Heywood Hospital had the highest age-adjusted diabetes mellitus mortality rate at 29.36 per 100,000, followed by HealthAlliance Primary and HealthAlliance Secondary at 21.25 and 21.58 respectively. The lowest rate was Athol at 2.62. This was significantly lower compared to the other four cities.

**Diabetes Mellitus Mortality Rates by Race/Ethnicity**

Within the Commonwealth, the highest age-adjusted diabetes mellitus mortality rate per 100,000 was reported among Black, Non-Hispanics at 29.2. Hispanics and American Indian, Non-Hispanics had similar diabetes mellitus mortality rates at 22.77 per 100,000 and 22.43 per 100,000. The lowest age-adjusted diabetes mellitus mortality rate per 100,000 was among Asian/Pacific Islander, Non-Hispanics at 7.23.

In the Study Area, Hispanics had the highest age-adjusted diabetes mellitus mortality rate at 32.24 per 100,000, followed by White, Non-Hispanics at 19.42 per 100,000. Black, Non-
Hispanics had the lowest age-adjusted diabetes mellitus mortality rate at 16.1 per 100,000. In the Study Area, zero (0) deaths were reported for Asian/Pacific Islander, Non-Hispanics.

Given the low or not reported numbers for American Indian, Non-Hispanic; and Other, Non-Hispanic, the following chart only reports data for White, Non-Hispanic; Black, Non-Hispanic; Hispanic and Asian/Pacific Islander, Non-Hispanic. However, among the five largest cities and towns, most data by race/ethnicity have no reported deaths. In the chart, zero (0) indicates that the geographical area has no reported deaths, whereas a blank indicates that data was not reported due to suppression rules.

Across the five largest cities and towns, the highest age-adjusted diabetes mellitus mortality rate per 100,000 was among Hispanics in Fitchburg at 74.39. This represents 2 deaths. The remaining data report on rates among White, Non-Hispanics. In this population, Fitchburg had the highest age-adjusted diabetes mellitus rate per 100,000 at 27.42 and Athol had the lowest at 4.52.

**Alzheimer’s Disease Mortality Rates**

Massachusetts had an age-adjusted Alzheimer’s disease mortality rate of 20.84 per 100,000 in 2011. The rate in the Study Area was higher, at 28.05 per 100,000. The communities of Sterling (83.38), Royalston (77.57) and Lancaster (70.9) had the highest rates in the Study Area, with the number of deaths due to Alzheimer’s disease in these cities/towns reported as 10, 1 and 5 respectively. The highest overall number of deaths due to Alzheimer’s disease was reported in Fitchburg (16). The lowest age-adjusted Alzheimer’s disease mortality rate reported in the Study Area was in Lunenburg at 5.37 per 100,000.

Among the Study Area’s five largest cities/towns, Fitchburg had the highest age-adjusted Alzheimer’s disease mortality rate at 34.74 per 100,000, followed by Gardner (24.72) and Clinton (22.08). Leominster had the lowest rate at 16.77.
Health Alliance Secondary was the Service Area with the highest reported age-adjusted Alzheimer’s disease mortality rate at 37.32 per 100,000, followed by MPHN (29.55) and Heywood Hospital (27.74). Athol Hospital had the lowest age-adjusted Alzheimer’s disease mortality rate at 11.51 per 100,000.

**Alzheimer’s Disease Mortality Rates by Race/Ethnicity**

Within the Commonwealth, the highest age-adjusted Alzheimer’s disease mortality rate per 100,000 in 2011 was reported among White, Non-Hispanics at 21.49, followed by Asian/Pacific Islander, Non-Hispanics at 16.22. This represented 26 deaths. The lowest age-adjusted Alzheimer’s disease mortality rate per 100,000 was among Hispanics at 7.78, representing 16 deaths.

For the Study Area, White, Non-Hispanics and Hispanics reported an age-adjusted Alzheimer’s disease mortality rate of 28.68 per 100,000 and 20.68 per 100,000 respectively. Other cities reported no deaths for other race/ethnicities due to Alzheimer’s disease. Similar rates are found across the five largest cities and towns. Leominster reported an age-adjusted Alzheimer’s disease mortality rate of 53.48 per 100,000 for
Hispanics. Deaths across the five largest cities/towns occurred mostly among White, Non-Hispanics. In this population, Fitchburg had the highest age-adjusted Alzheimer’s disease rate per 100,000 at 36.93. Leominster had the lowest age-adjusted Alzheimer’s disease mortality rate of 16.12 per 100,000. In the following chart, zero (0) indicates that the geographical area has no reported deaths, whereas a blank indicates that data was not reported due to suppression rules.

![Age-Adjusted Alzheimer’s Disease Mortality Rate Per 100,000 by Race/Ethnicity in 5 Largest Cities (2011)](chart)

**Parkinson's Disease Mortality Rates**

Massachusetts had an age-adjusted Parkinson’s Disease mortality rate of 6.52 per 100,000 in 2011. The mortality rate in the Study Area was higher at 8.39 per 100,000.

In the Study Area, the communities of Orange (33.23), Princeton (31.86) and Sterling (25.32) had the highest rates; however, the number of deaths due to Parkinson’s Disease in these cities/towns is low at 3, 1 and 2 respectively. The highest number of deaths due to Parkinson’s Disease is reported as Gardner (6). The lowest age-adjusted Parkinson’s Disease mortality rate in the region is Leominster at 4.57 per 100,000. Among the five largest cities/towns, Gardner has the highest age-adjusted Parkinson’s Disease mortality rate at 18.56 per 100,000. Leominster has the lowest rate at 4.57. Athol is the only city with no reported deaths due to Parkinson’s Disease.
The Heywood Hospital Service Area has the highest age-adjusted Parkinson’s Disease mortality rate at 14.3 per 100,000, followed by Athol Hospital at 9.42. HealthAlliance Secondary has the lowest rate at 6.35.

**Parkinson’s Disease Mortality Rates by Race/Ethnicity**

Within the Commonwealth, the highest age-adjusted Parkinson’s Disease mortality rate per 100,000 in 2011 was reported among White, Non-Hispanics at 6.83, followed by Black, Non-Hispanics at 4.07 and Asian / Pacific Islander, Non-Hispanics at 3.08. The lowest age-adjusted Parkinson’s Disease mortality rate per 100,000 was among Hispanics at 2.75.
For the Study Area, White, Non-Hispanics had an age-adjusted Parkinson’s Disease mortality rate of 8.68 per 100,000. This represented 23 deaths. Other cities for other race/ethnicities reported no deaths due to Parkinson’s Disease. Similar rates are found across the five largest cities/towns. Data is only reported on White, Non-Hispanics. In this population, Gardner had the highest age-adjusted Parkinson’s Disease rate per 100,000 at 18.72. No deaths were reported in Athol; however, Leominster had the lowest age-adjusted Parkinson’s Disease mortality rate of 4.79 per 100,000.
INJURIES AND VIOLENCE

Self-Inflicted Injuries

“I cut myself because I got so stressed out and I didn’t know how to deal with it. I said I couldn’t handle anything anymore.” (Youth Focus Group Participant)

“Youth suicide, because of bullying in schools…” (Youth Focus Group Participant)

As noted in the Mental Health and Substance Abuse Needs Assessment of North Central Massachusetts, “Self-inflicted injuries are those judged by hospital staff to be an intentional effort to hurt or kill oneself. This excludes unintentional overdoses of either prescription or illegal drugs.”

The rates available are crude rates per 100,000. In Massachusetts there were 4,646 hospitalizations for self-inflicted injuries in 2011, for a rate of .58 per 100,000. The Study Area had 189 hospitalizations for self-inflicted injuries in 2011, for a rate of 72.39 per 100,000. This is more than 124 times the State. Winchendon and Gardner have the highest rates at 135.92 and 133.5 respectively. Leominster (66.25) and Fitchburg (57.05) have the lowest.

Among the five largest cities/towns, Fitchburg and Leominster are lower than the region, with Fitchburg having the lowest rate of 57.05 per 100,000. Gardner (133.5) is the highest, followed by Athol (103.59) and Clinton (102.95).

Self-Inflicted Injury rates in the Service Areas are significantly higher than in the State overall. Primary, HealthAlliance Secondary, Athol and MPHN are similar ranging from 72.96 per 100,000 to 78.53 per 100,000. Heywood Hospital has the highest rate of hospitalizations for self-inflicted injuries at 97.73 per 100,000.
Homicide Mortality Rate

In Massachusetts there were 201 deaths due to homicide in 2011, for an annual age-adjusted homicide mortality rate of 3.01 per 100,000. Within the Study Area, only Leominster exhibited a homicide mortality rate higher than the State during this time period, at 5.58. However, it must be noted that this rate is based on two homicides in the time period. These were the only deaths due to homicide reported for the Study Area.
Homicide Mortality Rate by Race/Ethnicity

Within the Commonwealth, the highest age-adjusted homicide mortality rate per 100,000 in 2011 was reported among Black, Non-Hispanics at 14.8, which also represented the highest number of deaths at 76. Hispanics had the second highest rate at 6.62 (53 deaths). Whites, Non-Hispanics had an age-adjusted homicide mortality rate at 1.28 per 100,000 (68 deaths). The lowest reported age-adjusted homicide mortality rate per 100,000 was among Asian/Pacific Islander, Non-Hispanics at .95 (4 deaths). American Indian, Non-Hispanic reported no deaths due to homicide.

For the Study Area, only White, Non-Hispanics and Hispanics reported an age-adjusted homicide mortality rate at .49 per 100,000 and 3.6 per 100,000 respectively. Both represent 1 death. Other cities for other race/ethnicities reported no deaths due homicide. Across the five largest cities/towns, Leominster is the only city that reported an age-adjusted homicide mortality rate for Hispanics of 13.82 per 100,000. The remaining cities have no reported cases or data are not reported due to suppression rules. In the chart, zero (0) indicates that the geographical area has no reported cases, whereas a blank indicates that data was not reported due to suppression rules.

Injuries and Poisonings

In 2011, the age-adjusted injuries and poisonings mortality rate in Massachusetts was 43.7 per 100,000. The Study Area was similar at 46.86 per 100,000. The cities and towns with the highest rates in the region were Phillipston (118.95) and Royalston (117.68). However, both only have one case reported. Fitchburg and Leominster had the highest number of cases, both at 20.
For the five largest cities/towns, Fitchburg, Gardner and Leominster were similar to the rate reported for the region at 47.57, 50.51 and 47.51 respectively. Clinton had the lowest age-adjusted injuries and poisonings mortality rate at 32.55 per 100,000.

The Service Areas had similar age-adjusted injuries and poisonings mortality rates per 100,000. Heywood Hospital has the highest rate at 51.15 and MPHN has the lowest at 42.49.

**Injuries & Poisonings by Race/Ethnicity**

Within the Commonwealth, the highest age-adjusted injuries and poisonings mortality rate per 100,000 in 2011 was reported among Black, Non-Hispanics at 50.18, followed closely by White, Non-Hispanics at 45.28 per 100,000. The lowest reported age-adjusted injuries
and poisonings mortality rate per 100,000 was among Asian/Pacific Islander, Non-Hispanics at 20.64. American Indian, Non-Hispanics and Hispanics reported similar rates at 32.93 per 100,000 and 34.64 per 100,000 respectively.

For the Study Area, Black, Non-Hispanics had the highest age-adjusted injuries and poisonings mortality rate at 231.23 per 100,000, followed by Whites, Non-Hispanics at 170.83 per 100,000. The lowest rate was among Asian/Pacific Islander, Non-Hispanics at 58.26 per 100,000.

Given the low or not reported numbers for American Indian, Non-Hispanic; and Other, Non-Hispanic, the following chart only reports data for White, Non-Hispanic; Black, Non-Hispanic; Hispanic and Asian/Pacific Islander, Non-Hispanic populations. Among the five largest cities/towns, Gardner, Clinton and Athol only reported rates for White, Non-Hispanics. Other race/ethnicities in those cities reported no deaths due to injuries and poisonings or data are not reported due to suppression rules. Overall, the highest age-adjusted injuries and poisonings mortality rate per 100,000 was in Athol among White, Hispanics (168.29), and the lowest was in Fitchburg among Hispanics (9.03). In the chart, zero (0) indicates that the geographical area has no reported cases, whereas a blank indicates that data was not reported due to suppression rules.

![Age-Adjusted Injuries & Poisonings Mortality Rate Per 100,000 by Race/Ethnicity in the 5 Largest Citites](chart)

**Motor Vehicle-related Mortality Rates**

In 2011, the age-adjusted motor vehicle-related mortality rate in Massachusetts was 5.48 per 100,000. The Study Area was significantly higher at 52.98 per 100,000.

The highest rates within the region were found in the five largest cities/towns. Athol has the highest rate at 91.43 per 100,000, followed by Fitchburg (64.61) and Gardner (67.25). The lowest rate reported was Leominster at 59.81 per 100,000.
Among the Service Areas, Athol Hospital has the highest age-adjusted motor vehicle-related mortality rate at 71.42 per 100,000. This is followed by HealthAlliance Primary, MPHN and HealthAlliance Secondary ranging from 49.73 to 59.28 per 100,000.

Motor Vehicle-related Mortality Rates by Race/Ethnicity

Within the Commonwealth, the highest age-adjusted motor vehicle-related mortality rate per 100,000 in 2011 was reported among Black, Non-Hispanics at 7.02, followed by White, Non-Hispanics at 5.56 per 100,000. The lowest reported age-adjusted motor vehicle-related mortality rate was among Asian/Pacific Islander, Non-Hispanics at 2.15.
For the Study Area, Black, Non-Hispanics had the highest age-adjusted motor vehicle-related mortality rate at 10.35 per 100,000. This represented one death. Whites, Non-Hispanics were the second highest at 7.29 per 100,000 (15 deaths). The lowest rate was among Hispanics at 5.27 per 100,000 (1 death).

Given the low or not reported numbers for American Indian, Non-Hispanic; and Other, Non-Hispanic, the below chart only reports data for White, Non-Hispanic; Black, Non-Hispanic; Hispanic and Asian/Pacific Islander, Non-Hispanic populations. The age-adjusted motor vehicle-related mortality rates for White, Non-Hispanics were reported for all of the five largest cities/towns. Leominster also reported rates for Black, Non-Hispanics and Hispanics. Other cities for other race/ethnicities reported no motor vehicle-related deaths or data are not reported due to suppression rules. Overall, the highest age- motor vehicle-related mortality rate per 100,000 was in Leominster among Black, Non-Hispanics (62.13), and the lowest was in Leominster among White, Non-Hispanics (2.35). In the chart, zero (0) indicates that the geographical area has no reported cases, whereas a blank indicates that data was not reported due to suppression rules.

Focus Group participants in the Study Area’s largest cities and towns indicated that more lighting could increase pedestrian and general community safety.

“There are no lights in the streets; it feels like it is 12 at night and it is dangerous.”

“Once in a while you see someone walking; or the bikers and you feel like, oh my God!”

“Police officers should be out there; it is very dangerous for the little ones.”
Weapons-related Injuries

In 2011, there were 1,860 weapon-related injuries in Massachusetts. Overall, the Study Area experienced 70 weapon-related injuries.

The only cities and towns in the region to report numbers of weapons-related injuries in 2011 were Fitchburg (16), Gardner (13), Clinton (10) and Leominster (8).

Data was not reported for other towns and cities in the region due to suppression rules or data was not provided for surveillance. Among the Service Areas, MPHN had the highest weapon-related injuries at 54, followed by HealthAlliance Primary at 46. The Service Area with the lowest reported number for weapon-related injuries was Athol Hospital at 7.

Child Maltreatment

The Massachusetts reported rate of maltreatment of children (defined as persons less than 18 years old) was 56.3 per 1,000 residents in 2010, up from 51.9 per 1,000 residents in 2009. In the Commonwealth, 33 cities and towns had higher reporting rates than the statewide rate: four of which are located in the Study Area. The communities of Athol (#2) and Gardner (#9) were among the 10 cities with the highest maltreatment reporting rates in the Commonwealth.

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11 It is important to note that, “although “high reporting rates indicate a high incidence of maltreatment, they may also reflect a high public awareness within the geographic area.” MA Department of Children and Families 2010 Child Maltreatment Statistics (November 2012).
<table>
<thead>
<tr>
<th>Community</th>
<th>Reported rate of maltreatment of children (less than 18 years old) per 1000 residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massachusetts</td>
<td>56.3</td>
</tr>
<tr>
<td>Athol</td>
<td>185.4</td>
</tr>
<tr>
<td>Gardner</td>
<td>110.5</td>
</tr>
<tr>
<td>Fitchburg</td>
<td>102</td>
</tr>
<tr>
<td>Leominster</td>
<td>72.2</td>
</tr>
</tbody>
</table>

**Domestic Violence**

Domestic violence (also referred to as ‘intimate partner violence’ or IPV) is associated with many social and health issues including but not limited to: substance abuse; depression; attempted suicide and suicide; homelessness; teen pregnancy; STDs and HIV, child abuse; sexual assault; teen dating violence; homicide; and many assorted stress related illnesses and diseases (Centers for Disease Control and Prevention, 2011, at: http://www.cdc.gov/ViolencePrevention/intimatepartnerviolence/index.html, and http://www.cdc.gov/violenceprevention/pdf/IPV_factsheet-a.pdf).

Domestic violence cuts across all races, socio-economic groups, religions, and educational levels. It is seen in heterosexual and same-sex relationships. According to the CDC National Center for Injury Prevention and Control, in the United States, nearly 3 in 10 women and 1 in 10 men have experienced rape, physical violence, and/or stalking by a partner with IPV-related impact. (http://www.cdc.gov/violenceprevention/pdf/IPV_factsheet-a.pdf). Men in same-sex relationships experience abuse rates similar to those of women, an estimated 25 to 33%, yet men in same-sex relationships are twice as likely to suffer abuse as men in heterosexual relationships. Furthermore, intimate partner violence is often unreported. According to a 2012 U.S. Department of Justice Special Report, *Victimizations Not Reported to the Police, 2006-2010*:

"About 46% of intimate partner violence (IPV) victimizations were not reported to police between 2006 and 2010. The percentage of IPV victimizations not reported to police was about the same, regardless of whether the victimization was a simple assault (44%) or a serious violent crime (47%). Among the unreported IPV victimizations, 38% went unreported because the victim was afraid of reprisal or getting the offender in trouble." (http://www.bjs.gov/content/pub/pdf/vnrp0610.pdf)

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In 2008, the Governor issued a Public Health Advisory on Domestic Violence due to the domestic violence homicide rate occurring in Massachusetts. The Study Area was not immune from this disturbing phenomenon. From the fall of 2009 through the summer of 2010, there were five domestic violence homicides and two related suicides. In an effort to save lives and address the violence in this region, four Domestic Violence High Risk Response Teams were established throughout the Study Area. 1400 police officers, (including campus police from both Mount Wachusett Community College and Fitchburg State University), the Worcester County District Attorney’s Office Trial Court Assistant District Attorneys, and Victim/Witness Advocates were trained in Dangerousness Assessment and Strangulation.

One of the problems facing any data driven report is the lack of data associated with an issue such as domestic violence, particularly at the local level. For example, police departments are not required to identify a 911 call or a subsequent police report as domestic violence. Challenges also exist in tracking the occurrence of domestic violence in the healthcare system. With the exception of data collection related to targeted research studies and specialized programmatic initiatives, data collection within the healthcare system is most often associated with billing codes for medical diagnoses, medical procedures, and hospitalizations.

Similarly, in the public health arena, fatal and non-fatal injuries (including suicides and attempted suicides) are tracked, but are not routinely linked in the data specifically to domestic violence. When a homicide occurs within the context of domestic violence, it is more likely to be reported in the media and in the criminal justice system as being “related to domestic violence.” However, this is not always the case as some homicides may not be classified accurately until many months or years later.

According to the 2012 Rural Domestic and Sexual Violence Draft Report by the Services Accessibility Sub-Committee of the Governor’s Council Addressing Sexual and Domestic Violence:

In rural Massachusetts, domestic and sexual violence continue to be leading health problems exacerbated by social and geographic isolation and the lack of public transportation, housing, employment, child care, anonymity and accessible health and human services. Although domestic and sexual violence crosses all socioeconomic lines, the overwhelming poverty of many rural communities in Massachusetts further limits the choices of victims there, preventing escape and access to assistance. Without understanding the unique characteristics of rural environments, it is impossible to respond appropriately and fully to domestic violence and sexual assault in rural areas. Rural environments are distinct from urban environments in ways that affect the ability of the criminal justice system to investigate and prosecute domestic violence and sexual assault, and to provide appropriate and effective intervention. It is also more difficult for service providers to treat and counsel victims. The geographical and cultural features of the rural environment also impact the ability of abused rural victims and their children to access the justice system and social service agencies and these challenges impact holding perpetrators accountable.
Although data on domestic violence is limited, the following sources of data can provide a glimpse of domestic violence in the Study Area. An important indicator of the prevalence of domestic violence is the data on child abuse. Research on child abuse and domestic violence suggests a 50-60% concurrent incident rate of domestic violence and child abuse (Domestic Violence Awareness Project, 2009: http://www.nrcdv.org/dvam/about/aboutdv.php).

Also, according the MOC CAP:

“An important indicator of the prevalence of domestic violence is the data on child abuse. Research on child abuse and domestic violence suggests a 50-60% concurrent incident rate of domestic violence and child abuse (Domestic Violence Awareness Project, 2009). The most consistent data is the Massachusetts Trial Court Civil Protection Order Registry. The registry records the permanent protection orders issued by the District Courts in the State. However, this data does not reflect the number of Temporary Civil Protection Orders issued by the police on evenings and weekends or by the courts for a period of 24 hours to ten days.”

As indicated in the Child Maltreatment section of this report, in some locations in the Study Area the rate for child abuse is almost twice the rate of the Commonwealth, which could indicate a high rate of domestic violence as well. The following table provides data about the number of restraining orders filed by District Courts in the Study Area.

<table>
<thead>
<tr>
<th>COURTS</th>
<th>Number of Orders 2010</th>
<th>Number of Orders 2013</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ayer</td>
<td>299</td>
<td>362</td>
<td>21%</td>
</tr>
<tr>
<td>Clinton</td>
<td>211</td>
<td>258</td>
<td>22%</td>
</tr>
<tr>
<td>Fitchburg</td>
<td>375</td>
<td>659</td>
<td>76%</td>
</tr>
<tr>
<td>Gardner</td>
<td>237</td>
<td>324</td>
<td>37%</td>
</tr>
<tr>
<td>Leominster</td>
<td>294</td>
<td>387</td>
<td>32%</td>
</tr>
<tr>
<td>Orange</td>
<td>191</td>
<td>270</td>
<td>41%</td>
</tr>
<tr>
<td>Winchendon</td>
<td>179</td>
<td>217</td>
<td>21%</td>
</tr>
<tr>
<td><strong>Selected Court Totals</strong></td>
<td><strong>1786</strong></td>
<td><strong>2477</strong></td>
<td><strong>39%</strong></td>
</tr>
</tbody>
</table>
INFECTIOUS DISEASES

Hepatitis C

The data available related to Hepatitis C is only available for individual cities/towns. In addition, the rates available are crude rates per 100,000. Data are not reported for fourteen (14) cities and towns in the Study Area due to suppression rules – Ashburnham, Ashby, Erving, Groton, Harvard, Hubbardston, Lunenburg, Orange, Petersham, Phillipston, Princeton, Townsend, Wendell and Westminster.

For the data provided on the cities and towns in the Study Area, Leominster (68.7), Athol (86.33) and Shirley (83.25) had the highest prevalence of Hepatitis C per 100,000. The lowest rates were reported as zero (0) in Bolton, New Salem and Templeton.

HIV/AIDS

The data available related to HIV/AIDS is only available for individual cities/towns. In addition, the rates available are crude rates per 100,000. Data from Ashburnham, Ashby, Erving, Groton, Harvard, Hubbardston, Lunenburg, Orange, Petersham, Phillipston, Princeton, Townsend, Wendell and Westminster are not reported due to suppression rules.

In 2011, there were 17,972 cases of HIV/AIDS in Massachusetts for a rate of 272.82 per 100,000. Black, Non-Hispanics have the highest prevalence per 100,000 and Asian/Pacific Islander, Non-Hispanics have the lowest prevalence per 100,000. Data on ‘Other or Unknown’ are not provided due to suppression rules.
For the data provided on the cities and towns in the Study Area, Leominster (186.48), Fitchburg (250.55) and Gardner (178.01) had the highest prevalence of HIV/AIDS per 100,000. The lowest rates were reported as Royalston (0), Athol (43.16) and Pepperell (43.5).

Chlamydia

Data about Chlamydia are only available for individual cities/towns and are crude rates per 100,000 and age-specific rates per 100,000. Data from Ashby, Erving, Harvard, Phillipston, Princeton and Wendell are not reported due to suppression rules.
In 2012, there were 23,745 new cases of chlamydia in Massachusetts for a rate of 360.45 per 100,000. For the data provided on cities and towns in the Study Area, Leominster (520.19), Fitchburg (399.38) and Clinton (301.49) had the most new cases of chlamydia per 100,000. The lowest rates were reported in Bolton (265.47), Athol (112.22) and Ashburnham (197.34).

Due to suppression rules, no data were reported for Athol or the age groups of: 10 - 14 years, 40 - 49 years and 50 years plus.

However for the reported data on the largest cities in the Study Area, the distribution of new Chlamydia cases by age group indicated that Leominster had the highest rates in all three age groups and Gardner had the lowest rates in all three age groups.
PRIMARY CARE MANAGEABLE HOSPITALIZATIONS

The Commonwealth routinely reports on three hospitalization measures for conditions (asthma, angina and bacterial pneumonia) that are considered to be manageable on an outpatient basis, when given access to high-quality primary care. As a result, higher hospitalization rates for these measures can be used as an indicator of poorer access to appropriate care.

Asthma

In 2011, there were 9,942 asthma hospitalizations in Massachusetts for an age-adjusted rate of 152 per 100,000. The Study Area was lower than the State for an age-adjusted asthma hospitalization rate of 134.95 per 100,000. Data are not reported for fourteen (14) cities and towns in the Study Area due to suppression rules – Ashby, Bolton, Groton, Harvard, Hubbardston, Lancaster, New Salem, Petersham, Phillipston, Royalston, Shirley, Townsend, Westminster and Winchendon.

Five (5) of the reporting cities and towns in the Study Area had age-adjusted asthma hospitalization rates higher than the State – Ashburnham (254.35), Fitchburg (214.85), Templeton (204.26), Lunenburg (190.14) and Leominster (188.45).

Age-Adjusted Asthma Hospitalization Rates by 5 Largest Cities/Towns (2011)

The Service Areas with the highest age-adjusted asthma hospitalization rates were HealthAlliance Primary (172.81) and MPHN (162.87). The lowest age-adjusted asthma hospitalization rate was reported in HealthAlliance Secondary at 98.29.
Asthma by Race/Ethnicity

Within the Commonwealth, the highest age-adjusted asthma hospitalization rate per 100,000 in 2011 was reported among Hispanics at 326.39 (1,738 hospitalizations), followed closely by Black, Non-Hispanics at 322.04 (1,389 hospitalizations). The lowest reported age-adjusted asthma hospitalization rate per 100,000 was among Asian/Pacific Islander, Non-Hispanics at 80.79 (249 hospitalizations). White, Non-Hispanics were at an age-adjusted asthma hospitalization rate of 116.59 (6,129 hospitalizations) per 100,000. American Indian, Non-Hispanics; Other, Non-Hispanics and Unknown Race were not reported due to suppression rules.

For the Study Area, Hispanics had the highest age-adjusted asthma hospitalization rate at 283.66 per 100,000, followed by Black, Non-Hispanics at 227.75 per 100,000. The lowest rate was among White, Non-Hispanics at 125.31 per 100,000. Rates were not reported for Asian/Pacific Islander, Non-Hispanics and American Indian, Non-Hispanics due to suppression rules.

Given the low or not reported numbers for American Indian, Non-Hispanic; and Other, Non-Hispanic, the following chart only reports data for White, Non-Hispanic; Black, Non-Hispanic; Hispanic and Asian/Pacific Islander, Non-Hispanic populations. Asthma hospitalization rates for White, Non-Hispanics were reported for all of the five largest cities and towns. Hispanics was the other race reported, but only for Fitchburg and Leominster. Other race/ethnicities reported no hospitalizations due to asthma or data are not reported due to suppression rules. Overall, the highest age-adjusted asthma hospitalization rate per 100,000 was in Fitchburg among Hispanics (528.46), and the lowest was in Gardner among White, Non-Hispanics (109.62). In the chart, zero (0) indicates that the geographical area has no reported cases, whereas a blank indicates that data was not reported due to suppression rules.
Angina

In 2011, there were 696 hospitalizations for angina in Massachusetts for an age-adjusted rate of 9.04 per 100,000. The Study Area was higher than the State. There were thirty (30) hospitalizations yielding an age-adjusted angina hospitalization rate of 10.48 per 100,000. Fourteen cities and towns reported zero (0) hospitalizations due to angina and fifteen cities and towns did not report data due to the suppression rules. Hence, there are too few angina hospitalizations reported by cities and towns to provide meaningful data.

Among the five largest cities/towns in the Study Area, data was not reported for Clinton, Fitchburg, Gardner and Leominster due to the suppression rule. Athol reported zero (0) hospitalizations due to angina.

Data are more revealing when captured by the Service Areas. MPHN has a higher rate than the State at 9.45, followed by HealthAlliance Primary at 8.91. Data are not available for HealthAlliance Secondary, Athol Hospital, or Heywood Hospital Service Area.

Age-Adjusted Angina Hospitalization Rate by Service Areas (2011)
Angina by Race/Ethnicity

Within the Commonwealth, the highest age-adjusted angina hospitalization rate per 100,000 in 2011 was reported among Hispanics at 12.66 (51 hospitalizations), followed closely by Black, Non-Hispanics at 10.96 (41 hospitalizations). The lowest reported age-adjusted angina hospitalization rate per 100,000 was among White, Non-Hispanics at 8.54 (576 hospitalizations). Other, Non-Hispanics has 12 angina hospitalizations. The age-adjusted angina hospitalization rate for Asian / Pacific Islander, Non-Hispanics was not reported due to suppression rules. There were zero angina hospitalizations in Massachusetts for American Indian, Non-Hispanics.

For the Study Area, an age-adjusted angina hospitalization rate was only reported for White, Non-Hispanics at 10.43 per 100,000. There were zero angina hospitalizations in the North Central Massachusetts study area for Black, Non-Hispanics; Hispanics; Asian / Pacific Islander, Non-Hispanics; and American Indian, Non-Hispanics.

Among the five largest cities/towns, there were zero hospitalizations due to angina or data were not reported due to suppression rules. In the table, zero (0) indicates no reported cases, whereas a NA means data were suppressed for confidentiality protection or based on insufficient data.

### Age-Adjusted Breast Angina Hospitalization Rate Per 100,000 by Race/Ethnicity in 5 Largest Cities/Towns (2011)

<table>
<thead>
<tr>
<th>Race/Hispanic Ethnicity</th>
<th>Athol</th>
<th>Clinton</th>
<th>Fitchburg</th>
<th>Gardner</th>
<th>Leominster</th>
<th>Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>White, Non-Hispanic</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>10.43</td>
</tr>
<tr>
<td>Black, Non-Hispanic</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Asian/Pacific Islander, Non-Hispanic</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Bacterial Pneumonia

In 2011, the age-adjusted bacterial pneumonia hospitalization rate in Massachusetts was 291.49 per 100,000. There were 21,454 hospitalizations due to bacterial pneumonia. The Study Area was higher than the State at 335.4. Phillipston (846.92), Templeton (507.99) and Gardner (444.7) had the highest age-adjusted bacterial pneumonia hospitalization rate in the region. Note, Phillipston had a low number of cases, 12. New Salem and Wendell both reported zero (0). Due to suppression rules, data were not provided for Ashby, Bolton, Erving, Harvard, Petersham, Princeton, Royalston and Warwick.

Clinton (333.04), Leominster (346.45) and Fitchburg (390.62) were higher than the region. Athol had the lowest age-adjusted bacterial pneumonia hospitalization rate at 326.19.
All of the Service Areas have higher rates than the State. Heywood Hospital has the highest at 400.82, followed by HealthAlliance Secondary at 336.31.
Bacterial Pneumonia by Race/Ethnicity

Within the Commonwealth, the highest age-adjusted bacterial pneumonia hospitalization rate per 100,000 in 2011 was reported among Hispanics at 356.51 (1,427 hospitalizations), followed by Black, Non-Hispanics at 308.93 (1,184 hospitalizations). The lowest reported age-adjusted bacterial pneumonia hospitalization rate per 100,000 was among American Indian, Non-Hispanic at 129.66 (17 hospitalizations). In the following table, NA means data were suppressed for confidentiality protection or based on insufficient data.

<table>
<thead>
<tr>
<th>Race/Hispanic Ethnicity</th>
<th>Count</th>
<th>Age Adjusted Rate Per 100000</th>
</tr>
</thead>
<tbody>
<tr>
<td>White, Non-Hispanic</td>
<td>17,889</td>
<td>280.32</td>
</tr>
<tr>
<td>Black, Non-Hispanic</td>
<td>1,184</td>
<td>308.93</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1,427</td>
<td>356.51</td>
</tr>
<tr>
<td>Asian / Pacific Islander, Non-Hispanic</td>
<td>460</td>
<td>179.81</td>
</tr>
<tr>
<td>American Indian, Non-Hispanic</td>
<td>17</td>
<td>129.66</td>
</tr>
<tr>
<td>Other, Non-Hispanic</td>
<td>249</td>
<td>NA</td>
</tr>
<tr>
<td>Unknown</td>
<td>228</td>
<td>NA</td>
</tr>
</tbody>
</table>

For the Study Area, Hispanics had the highest age-adjusted bacterial pneumonia hospitalization rate at 364.37 per 100,000, followed by White, Non-Hispanics at 333.22 per 100,000. The lowest rate was among Black, Non-Hispanics at 282.23 per 100,000.

Given the low or not reported numbers for American Indian, Non-Hispanic; and Other, Non-Hispanic, the below chart only reports data for White, Non-Hispanic; Black, Non-Hispanic; Hispanic and Asian/Pacific Islander, Non-Hispanic. The age-adjusted bacterial pneumonia hospitalization rates for White, Non-Hispanics were reported for all of the five largest cities and towns. Hispanic was the other race reported, but only for Fitchburg and Leominster. Other race/ethnicities reported no hospitalizations due to bacterial pneumonia or data are not reported due to suppression rules. Overall, the highest age-adjusted bacterial pneumonia hospitalization rate per 100,000 was in Fitchburg among Hispanics (460.1), and the lowest was in Athol among White, Non-Hispanics (318.59). In the chart, zero (0) indicates that the geographical area has no reported cases, whereas a blank indicates that data was not reported due to suppression rules.
### Age-Adjusted Bacterial Pneumonia Hospitalization Rate Per 100,000 by Race/Ethnicity in 5 Largest Cities (2011)

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Athol</th>
<th>Clinton</th>
<th>Fitchburg</th>
<th>Gardner</th>
<th>Leominster</th>
<th>Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>White, Non-Hispanic</td>
<td>318.59</td>
<td>325.56</td>
<td>383.54</td>
<td>445.25</td>
<td>351.21</td>
<td>333.22</td>
</tr>
<tr>
<td>Black, Non-Hispanic</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>282.23</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0</td>
<td>460.1</td>
<td>0</td>
<td>0</td>
<td>415.37</td>
<td>364.37</td>
</tr>
<tr>
<td>Asian/Pacific Islander, Non-Hispanic</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td>310.06</td>
</tr>
</tbody>
</table>
INCARCERATION AND RE-ENTRY

For the first time, data about incarceration and reentry of individuals that have been released into the Study Area are being included in this report. The issue of the needs of this population has been identified as a priority by the partners supporting this community health assessment. This reflects national, state and local priorities in this area.

On a national level, President Obama has identified the need for a more effective and efficient way to approach criminal justice—considering it from a public health, social justice, economic, and societal approach, including the consideration of systemic redesign efforts to reduce incarceration such including “Justice Reinvestment,” “Drug Market Intervention,” and “Smart Probation Strategies”  http://www.whitehouse.gov/ondcp/alternatives-to-incarceration

Furthermore, the President has identified the need to more effectively assist persons re-entering the community, with a particular emphasis upon the impact of substance use upon incarceration.  http://www.whitehouse.gov/blog/2011/11/30/prisoner-reentry-programs-ensuring-safe-and-successful-return-community

Efforts call for substance free recovery housing, job placement, and wrap around psychosocial services. To assist in this systemic reform, the White House has launched new website: The National Re-entry Resource Center  http://www.whitehouse.gov/blog/2011/11/30/prisoner-reentry-programs-ensuring-safe-and-successful-return-community

In Massachusetts, Governors Patrick and Baker has also identified re-entry issues and systemic reform as a priority in their administrations. In Governor Patrick’s 2015 budget, for example, he included a “package of sustainable, cost-effective criminal justice reforms” with the goal of: “dramatically improve inmates’ reentry into their communities, increase opportunities for formerly incarcerated individuals and enhance public safety.” The program includes evidence-based reentry programming that involves a “Department of Correction (DOC) that includes a state-to-county facility step-down program” as well as resources for the treatment of substance use. Systemic interventions also review of the criminal justice system.

Similarly, Governor Baker has identified the need for systemic reform, job training programs, substance abuse treatment, and potential diversion alternatives for non-violent offender as part of his “Urban Agenda.”

The Health Foundation of Central Massachusetts has been a thought leader in the re-entry conversation, dedicating significant resources to this issue and producing results through a rigorous evaluation process through their Worcester Initiative for Supported Reentry program, demonstrating reduce recidivism, successful job placement and retention, among other successful measures.  http://www.hfcm.org/Worcester-Initiative-for-Supported-Reentry/767

Locally, the partners supporting this report have identified inmate health and re-entry as major issues. Qualitative data support the effectiveness of one regional strategy that engages outreach staff to assist released individuals to access the comprehensive services
(including medical, behavioral health, and family support) they need for successful reintegration into communities. Two additional strategies were suggested for positively impacting effective reentry: the creation of a North-Central Massachusetts Resource Guide for recently released individuals and their families, similar to a guide that is available in the Worcester area, and; strengthened partnerships between community service and resource providers and the correctional system to increase prison staffs’ and inmates’ awareness of available services and resources for inmates and recently-released individuals.

Quantitative data was also collected to explore this issue. All data in this section come from the Massachusetts Department of Correction (DOC) 2013 Annual Report, unless indicated otherwise (http://www.mass.gov/eopss/agencies/doc/).

This information is provided in the context of the Massachusetts Department of Correction (DOC) 2013-2018 Strategic Plan with the goals to:

- Maintain and enhance prison safety and security for the public, staff and incarcerated persons;
- Effectively prepare inmates for transition into communities to reduce crime and victimization, reduce recidivism and promote rehabilitation and reentry;
- Collaborate with external stakeholders and partners to achieve mutual goals and objectives;
- Maximize efficiency through process improvements;
- Achieve work force excellence;
- Promote and enhance communication internally and externally; and
- Create a healing environment.

The Study Area contains two DOC facilities located in the Study Area, the North Central Correctional Institution in Gardner and the MCI Shirley Souza Baranowski Correctional in Shirley. In addition, women from the Study Area are also served by the Hamden County House of Correction.

- The North Central Correctional Institution in Gardner is a facility housing criminally sentenced males, mostly in medium security housing units (908) with an Average Daily Population (ADP) of 969. The institution is located on land formerly occupied by the Gardner State Hospital which was open from 1902 until 1976.

- The MCI Shirley Souza Baranowski Correctional in Shirley has an ADP of 1,388 in two facilities that house medium and minimum custody level inmates. MCI-S is also the site of the Department’s Regional Training Center. Along with an infirmary, MCI-S operates an Assisted Daily Living Unit for medium inmates.

- The Western Massachusetts Women’s Correctional Center (WCC) under the Hamden County Correctional system is located in Chicopee, MA and houses women from the region who are awaiting trial and are serving sentences of 2.5 years or less. It offers gender specific services, including trauma informed care, as well as re-entry

13 Massachusetts Department of Corrections 2013 Annual Report
services. The WCC is collecting for this report related to incarcerated women from the region.


“More than one-third (37 percent) of released adult prisoners returned to two of Massachusetts’ 14 counties [Suffolk and Worcester Counties]. These two counties account for 22 percent of the State’s overall population… 18 percent of those released (434 individuals) returned to Worcester County.” And, 40 percent of released juveniles also return to Suffolk and Worcester counties, with “19 percent of those released (334 juveniles) returned to Worcester County.”
APPENDICES

A. Comprehensive Data Summary
B. Community Voices – Qualitative Data
C. MassCHIP Suppression Rules by Dataset.doc
D. Behavioral Risk Factor Surveillance System (BRFSS) Data
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APPENDIX A: COMPREHENSIVE DATA SUMMARY

Demographics

Overall, the Study Area population was 268,539, based on the 2010 Census, representing a 3.96% increase from the 2000 Census. However, the dichotomy of the communities within the Study Area is evident again in the population data: While the overall Study Area experienced a larger growth rate than the State which was 3.1%, much of this growth was very specific and not geographically broad-based. Five communities – Erving, Bolton, Templeton, Shirley, and Groton – experienced more than 10% population growth. However, the five largest cities/towns in the region all experienced a growth rate that was lower than the State’s: Leominster, Fitchburg, Gardner, Clinton, and Athol. Four communities lost population: Gardner, Leominster, Townsend, and Wendell.

Given health-related issues that are particularly associated with rural communities, it is worth noting that 24 of the 30 cities and towns in the Study area (80%) are classified “rural,” as defined as having fewer than 500 people per square mile (MacDougall and Campbell, 1995) with 49% of the Study Area population residing in them. Many of these communities experience the geographic isolation and lack of public transportation that further exacerbate the plight of low-income and moderate-income households in rural communities.

The Study Area population is also generally older than that of the Commonwealth, a change from the previous Community Assessment. Overall, 52% of the study population is 50 years or older, compared to 33.5% in that age group for the State. This may reflect not only an aging population, but also the impact of the additional towns configured into the study.

The Study Area also has slightly more female than male population with 50.5% females to 49.5% males, similar to the State population of 51.6% females to 48.4% males.

Regarding race and ethnicity, like the Commonwealth as a whole, the Study Area is primarily made up of non-Hispanic Caucasians. However, racial/ethnic diversity has increased overall in the State and is reflected in the Study Area where there are significant pockets of residents who struggle with meeting their health care needs. In addition to “traditional minority” groups as reported by the US Census, it should be noted that many individuals took advantage of the opportunity afforded by the 2010 US Census to report race differently than in the past: Two Study Area cities have a higher rate of individuals who identify as “Two or more races” than the Commonwealth rate of 2.5% (Fitchburg – 3.7% and Leominster – 2.8%); and three Study Area towns have a higher rate of individuals identifying as “Some other race” than the Commonwealth rate of 4.7% (Fitchburg – 9.1%, Clinton – 5.5%, and Leominster – 5.3%).

Latinos are the largest racial/ethnic group at 9.6% in the Commonwealth and 8.5% in the Study Area, an increase in the Latino population between 2000 and 2010. It is noteworthy that three of the Study Area cities have significant percentages of their communities that identify as Latino: Fitchburg at 21.6%, Clinton at 15%, and Leominster at 14.5%.

The number of Black/African American residents has also increased in both the State and the Study Area. However, the communities with the largest percentages of Black/African American residents, that outnumber the State percentage of 6.6%, are the relatively smaller towns of Shirley at 8% and Lancaster at 7.7%.

While the Asian population has grown in the Commonwealth, it remains one of the smallest racial/ethnic groups in the Study Area. The State percentage is 5.3% in 2010. The largest Asian communities covered in this report are Fitchburg at 3.5% (down from 4.3% in 2000), and
In addition, the towns of Harvard, Groton, and Shirley have the most Asians as a percentage of their population in 2010, at 3.3%, 2.8%, and 2.8% respectively. Nineteen out of the 30 cities/towns in the Study Area had one percent or less of the population that identified as Asian in their communities.

**Sociodemographics**

Income data reflects the diversity of the Study Area with wide ranges between the Study Area cities and towns. The estimated per capita income in the Commonwealth based on the 2013 American Community Survey was $35,763. Overall the estimated average per capita income in the Study Area was lower, at $32,679, and in the Service Areas even lower at $30,000. Examples of this end of the economic spectrum include five communities with much lower per capita incomes than the State level: Shirley - $24,469; Gardner - $24,321; Athol - $23,356; Fitchburg - $22,972, and Orange - $21,203. At the other end of the spectrum are six cities/towns in the Study Area with a higher per capita income than in the Commonwealth as a whole: Lunenburg - $35,866; Sterling - $40,536; Princeton - $42,921; Groton - $48,248; Bolton - $55,369; and Harvard - $52,258.

The median annual household income for Massachusetts was $64,509 in 2010. Five towns in the Study Area had median annual household incomes that were higher than the Commonwealth’s: Templeton at $66,138; Phillipston at $70,493; Westminster at $79,073; Sterling at $102,115; Princeton at $102,853. At the other end of this spectrum are three communities with median household incomes of less than $50,000: Fitchburg at $47,019; Athol at $47,099; and Gardner at $48,333. Clinton, Leominster, and Royalston all reported median household incomes below the State level.

Consistent with this income data, is it not surprising that many of the residents in the Study Area are struggling with poverty. According to the American Community Survey, 2009-2013 5-Year Estimates, Massachusetts as a whole has experienced an increase in poverty from 10.5% in 2010 to 11.4% in 2013. In the Study Area, the hardest-hit cities and towns are Gardner at 14.4%, Wendell at 15.2%, Fitchburg at 15.6%, Ayer at 15.7%, and Athol at 15.8%.

When considering the percentage of children in families living below 100% of the poverty level (14.9% for the State as a whole), the numbers are more dramatic, with Lancaster and Warwick at 16.7%, Wendell at 21.8%, Athol at 23.3%, Gardner at 24.8%, Shirley at 26.5%, Royalston at 26.6%, and Fitchburg at 31.5%.

According to the US Census, the percent of persons age 65 and over living below 100% of the poverty level rose in Massachusetts from 8.9% in 2000 to 9.3% in 2010. In the Study Area there were several communities in which older adults were experiencing poverty: Gardner at 12.5%, Fitchburg at 12.7%, Clinton at 16.2%, and Templeton at 16.8%.

When considering the percentage of households comprised of married couples, this percentage is notably higher in the Study Area (77%) than in the State as a whole (46.3%) with many children under the age of 18 living within those households. However, an exception to this scenario is found in the 5 largest cities/towns in the Study Area – Athol, Clinton, Fitchburg, Gardner, and Leominster, which all have lower rates of households composed of married couples, and have a higher rate of households made up a single woman with children under the age of 18. These same 5 cities and towns also had the highest rates of older adults aged 65 and older living alone.

Unemployment levels have dropped throughout the Commonwealth to the rate of 8.9% in 2013. In the Study Area, only the town of Orange at 10.6% had a higher rate of unemployment than the State’s. Despite these decreased unemployment rates, there remains great concern among Study
Area community members and leaders about the generally poor economy and the significant impacts of poverty upon the health and well-being of individuals and families.

According to 2014 HUD data, there were 158 individuals experiencing homelessness in North Central Worcester County. While the majority of these individuals were adults, 33% were under the age of 18, and 8% were between the ages of 18-24. Data regarding the numbers of youth experiencing homelessness in the specific cities/and towns of the Study Area were not publicly available for this report; however statewide data from the 2013 Youth Risk Behavior Survey estimate that there are 37,000 homeless students in Massachusetts public schools.

Levels of educational attainment also highlight the diversity within the Study Area. In 2010, 11.3% of Massachusetts residents aged 25 and over did not possess a high school diploma, and 24.9% did not go beyond receiving a high school diploma or equivalent. In the Study Area, there were three municipalities with higher levels of residents with no high school diploma: Athol at 15.3%, Fitchburg at 15.6% and Gardner at 18%. At the opposite end of the spectrum is the town of Harvard where there was a 97.4% 4-year graduation rate in 2013.

Health Status and Outcomes

Maternal and Child Health:

Of the total births in Massachusetts in 2010 (72,835), 3.64% (or 2,654) were in North Central Massachusetts. The majority of these were in Fitchburg, followed by Leominster.

In terms of race/ethnicity, the highest percentage of births in Massachusetts was to White, Non-Hispanic mothers (66.54%). Similarly, in the Study Area the highest percentage was also to this group at 81.09%. For births by Hispanic mothers, the State percentage was 14.54%, and in the Study Area, it was 12.21%. However, Fitchburg more than doubled the State rate at 26.42% for births by Hispanic mothers, followed by Leominster at 22.29%.

For births by Black/African American, Non-Hispanic mothers, the State percentage was 9.33% and only 3.09% in the Study Area. Leominster saw the highest percentage of births in this group at 6.28%. And, for births by Asian/Pacific Islander, Non-Hispanic mothers, the State percentage was 7.99%, and was 2.56% in the Study Area. Leominster, again, was notably the city with the highest percentage of births by this group, at 5.19%.

In 2010, the fertility rate for Massachusetts was 53.75, and was slightly higher in the Study Area, at 54.71. The cities/towns with highest rates in the Study Area were Leominster at 57.14, Fitchburg at 60.93, Athol at 61.91, Gardner at 62, and Clinton at 70.29.

In 2010, the teen birth rate (births to young women aged 15-19) for Massachusetts was 17.15, while it was higher in the Study Area at 21.29 overall. The highest rates were found in all of the 5 largest cities/towns, ranging from 25.97 in Leominster up to 42.9 in Gardner. The overall highest rate, however, was found in the town of Orange at 49.18.

Of the 3,907 births in Massachusetts in 2010 to young women aged 15-19, the highest birth rate was among Hispanic teens at 49.29; followed by Black/African American, Non-Hispanic teens at 28.12; American Indian, Non-Hispanic teens at 21.19; White, Non-Hispanic teens at 10.22; and Asian/Pacific Islander, Non-Hispanic teens at 8.66. In the Study Area, the highest birth rate in this category was among Hispanic teens at 49.46, and 26.09 for Black/African American, Non-Hispanics teens. The highest rates of these Hispanic teen births were found in Fitchburg at 55.67 and in Leominster at 53. Of the White, Non-Hispanic teen births, the highest rates were found in Gardner at 40 and Athol at 32.54.
The Kessner Index of prenatal care indicates that in 2010, there was adequate prenatal care for 78.94% of the State’s total births. In the Study Area, the index was slightly lower at 77.02%. The five largest cities/towns in the Study Area: Athol, Clinton, Fitchburg, Gardner and Leominster, all had percentages similar to the overall area, ranging from 73% to 78%. Communities with the lowest adequate prenatal care indices were Orange (61.54) and Petersham (60); however these communities also had among the lowest number of births.

Looking at adequate prenatal care by race/ethnicity, the statewide percentage in 2010 was reported at 81.66% for White, Non-Hispanic births; 68.36% for Black/African American, Non-Hispanic births; 70.72% for Hispanic births; 77.81% for Asian/Pacific Islander, Non-Hispanic births; and 63.83% for American Indian, Non-Hispanic births. In this category, adequate prenatal care was also reported for 74.68% of Other, Non-Hispanic births, and 31.03% for births categorized as having an unknown race/ethnicity.

Rates for adequate prenatal care among the same racial/ethnic groups in the Study Area were all lower than for the State. The highest rates for White, Non-Hispanic births were found in Clinton and Leominster, both at 80.13% -- higher than in the Study Area as a whole, but still lower than in the State. For Black/African American, Non-Hispanic births, the highest rates were found in Leominster (65.52%), Gardner (66.67%), and Clinton (71.43%), which were all higher than the Study Area percentage of 63.41. However, Fitchburg’s rate was lower than the State’s (68.36%) at 59.26. For Hispanic births, both Fitchburg and Leominster had rates very close to the Study Area rate, 70.83 and 70.87, respectively. Rates for Asian/Pacific Islander, Non-Hispanic births varied from a low of 63.16 in Fitchburg to 87.5 in Leominster.

The prenatal care that was received for 38% of expectant mothers in the Study Area was publicly-funded. The highest number of recipients of public funding was found in the 5 largest cities/towns, ranging from 38.14% in Clinton to 54.55% in Athol in addition to a high number in Orange where 57.69% of expectant mothers received public funds for prenatal care.

Low Birth Weight (weighing less than 2,500 grams or 5 pounds, 8 ounces) was found to be present in a majority of the Study Area communities. The State percentage of newborns with low birth weight was 7.76% in 2010 and slightly higher at 7.95% for the Study Area. However, it is notable that the percentage of low birth weight in Ashby (26.32%) was more than three times the Study Area percentage. Other cities/towns with higher percentages were Westminster, Groton, and Lancaster at 15.38%, 13.7%, and 13.33% respectively.

In 2010, the infant mortality rate for Massachusetts was 4.38 per 1,000 live births. The Study Area rate was higher than the State’s. Notably, among the Study Area cities/towns, Fitchburg experienced an infant mortality rate of 9.17, which was more than twice the rate for the State as a whole.

In 2010, 11.64% of women smoked during pregnancy in the Study Area, nearly double the rate of women who smoked during pregnancy in the State as a whole (6.29%). These rates were even higher, above 20% in three Study Area cities/towns: Athol at 21.21%, Gardner at 22.41% and Orange at 24.36%.

In 2010, the State percentage of mothers who were either breastfeeding at discharge or planning to breastfeed was 81.8%. Overall, the Study Area had a lower percentage, at 79.84%. While there were exceptions in some communities, such as New Salem and Wendell at 100% of mothers who were either breastfeeding at discharge or planning to breastfeed, the number of births in these communities was low (6 and 5, respectively). Ashburnham also reported a percentage of 94.64%. However, the 5 largest cities/towns all had percentages of mothers who were either breastfeeding at discharge or planning to breastfeed that were lower than the Study Area average, reporting
percentages of between 74.14% (Gardner) and 79.65% (Leominster). Hubbardston was at 72.73%, Orange at 69.23%, and Royalston at 66.67% - the lowest percentages in the area.

**Lead Poisoning:**

Out of the 232 children who reported elevated blood lead levels and the 43 diagnosed with lead poisoning in 2012 in Massachusetts, three (3) were in the Study Area: two (2) in Fitchburg, and one (1) in Leominster.

**Oral Health:**

Although access to oral health services in the Study Area and a higher rate of total tooth loss than in the State among the older population continue to be challenges, many initiatives have occurred in the Study Area during the past decade that have clearly made a positive impact on oral health. In the qualitative data, there was a dramatic decrease from past reports in the identification of Oral Health as a major health issue in the region. “The community health clinics offer dental…for all.”

**Behavioral Health:**

According to a 2014 Heywood Health System Behavioral Health Needs Assessment, “*Indicators of mental health issues in Fitchburg, Gardner, Athol, and Leominster are among the highest in Massachusetts.*” Among the indicators reported, psychiatric hospitalization rates are 1230.4 per 100,000 in the area compared to 873.8 in the State; the prevalence rates for depression and poor mental health are higher than elsewhere in the region; and the suicide rate is higher than the State rate of 9.0, in some places over double: Orange at 12.8, Gardner at 14.8, Athol at 17.3, and Winchendon at 19.4.

While the Study Area had a lower Mental Disorder Mortality Rate of 44.64 deaths per 100,000 compared to the State at 54.18, there were nine cities and towns in the Study Area with higher rates: Clinton at 56.44 (9 deaths); Winchendon at 77.38 (7 deaths); Sterling at 86.25 (9 deaths); Athol at 113.06 (20 deaths); Templeton at 113.88 (10 deaths); Phillipston at 118.95 (1 death); Petersham at 182.45 (2 deaths); Royalston at 357.88 (3 deaths); and Wendell at 387.7 (1 death). It is also worth noting that, according to data from the 2011 YBRS, the percentage of youth in the Study Area that reported feeling sad or hopeless (27.9%) is less than was reported in the overall U.S. (28.5%). However, the Study Area percentage is higher than that of the overall Commonwealth (25%). LGBTQ youth in particular have expressed struggling with anxiety, ADHD, sensory processing disorders, and depression.

In terms of Suicide Mortality, the Study Area has a rate of 11.65 per 100,000, which is higher than the State rate of 8.45. Gardner, Fitchburg, and Leominster all have higher rates than the State rate, at 8.98, 10.96, and 13.82, respectively. Focus Group and Key Informant interview participants stated that increased suicide ideation and suicides were community problems, and mentioned veterans and children/youth as being at particular high risk for suicide. According to the U.S. Department of Veterans Affairs, there were 379,772 veterans living in Massachusetts at the end of Fiscal Year 2013. Of the three counties which comprise Study Area cities and towns, Franklin County had 57 veterans of which 13 were 75 years and older; Middlesex County had 635 veterans of which almost exactly half (318) were 75 years and older; and Worcester County had 473 veterans of which close to half (224) were 75 years and older. As one veteran study participant commented, “Veterans are dropping like flies from suicide.” According to the 2014 Montachusett Community Health Assessment, “a greater number of North Central youth (16.2%) have considered or attempted suicide than their peers in Massachusetts and the United States (2005-2010).”
The nature of substance use and abuse varies within the Study Area, although community clinicians, social service providers, community leaders and community members all considered it to be a significant problem. Binge drinking, reported at 20.6% of the adult population in Massachusetts in the 2011-2013 Behavioral Risk Factor Surveillance Survey, is slightly lower for the Study Area at 19.4%. This difference remains constant when broken down further by age group: in the 18-24 age group, the State rate was 37.8% versus 15.4% for the Study Area; in the 35-44 age group, it was 26.9% for the State versus 23.4% for the Study Area; and for the 45-54 age group, it was 19.3% for the State versus 17.1% for the Study Area.

Breaking down further by gender, the rates of binge drinking were lower among adult women in the Study Area at 15.7% than in the State at 16.1%, and at 22.8% for adult men in the Study Area versus 25.4% for the State. Binge Drinking also appeared to decrease in the Study Area among individuals with higher levels of educational attainment. While binge drinking with adults less than a high school education was higher in the Study Area at 17.5% versus the State at 14.9%, those with a high school diploma reported less binge drinking at 15.6% versus the State at 19.4%. Percentages of binge drinking were comparable for both the Study Area and the Commonwealth of persons with some college education or with a 4-year college degree.

According to the 2011 BFRSS, Alcohol/Substance Related Hospitalizations were 343.97 per 100,000 for the Commonwealth, while the rate for the Study Area was 271.14. Four of the five largest cities in the Study Area have rates higher than in the Study Area as a whole: Leominster at 311.93, Fitchburg at 322.96, Clinton at 391.88, and Gardner at 453.61. In addition, Ashby had a rate of 669.09.

The BFRSS also revealed that the Study Area has a higher percentage of current smokers than in the Commonwealth as a whole. This was true in every age group with the exception of those 65-74 years old, where the percentages are equal to that of the State. It should also be noted that the State percentage of 18.2% is a 2.6% increase from 15.6% in the previous BFRSS. In addition, a breakdown by gender reveals rates of current smoking among adult men to be comparable between the State and the Study Area; however, among adult women, the Study Area has a higher rate at 22.3%, which is 4.4 percentage points higher than the State rate. Educational attainment did not impact most of the percentages except among those with 1-3 years of college, where the Study Area percentage of current smoking was at 24.1% versus the State’s at 21%, and among those with 4 years of college or more, where the current smokers dropped to 6.1% in the Study Area and 7.2% in the State.

In 2011, the rate of Opioid-Related Hospitalizations was 343.25 per 100,000 for the Commonwealth. The Study Area, overall, had a lower rate of 228.75. However, three of the five largest cities in the Study Area had higher rates than in the Study Area overall: Athol at 268, Fitchburg at 289.48, and Gardner at 525.52.

In 2011, the Opioid-Related Mortality Rate was 9.7 per 100,000 for the Commonwealth, and the Study Area, overall, had a slightly lower rate of 9.32. However, all 5 of the largest cities in North Central Massachusetts had a higher rate than in the Study Area, ranging from Gardner at 10.27 to Athol at 19.41. In the Study Area overall, Ashby had the highest rate at 42.51, followed by Pepperell at 28.34.
Chronic Disease

**Overweight and Obesity:**

According to the BRFSS, 59.3% of adults in Massachusetts reported being overweight based on a Body Mass Index (BMI) of greater than 25. In the Study Area, adult respondents reported being overweight at a consistently higher percentage than in the State. This was true across all age groups. Furthermore, there were 3 age groups with percentages higher than 70%: in the 45–54 age group at 71.5%; the 55–64 age group at 72.4%; and the 65–74 age group at 73.6%. When educational attainment was factored in, percentages remained comparable between the State and the Study Area; however, for residents with some college and for college graduates, there were higher percentages of overweight than for the State at 63.9% versus 57.9% and 58.9% versus 51.4%, respectively.

Childhood Overweight and Obesity is a concern in the Study Area as well. According to a Massachusetts Department of Public Health study of 2009–2011, there were 16.7% of school aged children considered “Overweight,” 15.7% considered “Obese,” and 33.9% considered “Overweight and Obese.” While not all school district data were included in that report, among the Study Area cities and towns that were included, many were at percentages lower than the State rate for being Overweight. The exceptions to this were Gardner at 17.6%, Fitchburg at 18.9% and Quabbin (which serves Hubbardston) at 27.5%. However, the majority of, not only rates for percentages considered Obese, but also Overweight and Obese, are higher for Study Area communities than for the State. These higher rates for Obesity range from 15.9% - 26.8%. For Overweight and Obese, they range from 35.1% to 43.4%. Fitchburg and Gardner reported these higher percentages at 46.2% and 42%, respectively.

**Physical Activity:**

According to the BRFSS, in 2008–2011, 56.3% of Massachusetts residents were engaged in regular physical activity (defined as a 30 minute session at least 5 times a week). In the Study Area, this was comparable at 56.2%. Broken down by age group, the percentages for the Study Area decrease in comparison to the State: among the 45–54 age group, the rate is 45.5% versus 57.8% for the State (a decrease from 58.7% in the previous study); and in the 75+ age group, the Study Area was 47.1% versus 54.4% for the State.

Factoring in educational attainment, however, reversed this pattern. Study Area residents with less than a high school education and a high school diploma engaged in more physical activity than in the Commonwealth as a whole, at 57.7% compared to 42.4%, and 43.2% compared to 50.5%, respectively. Those with some college in the Study Area also had a higher rate of physical activity at 59.5% as well. However, among college graduates in the Study Area, the rate of physical activity dropped to 55.9% versus the State rate of 63.5%.

**Diabetes:**

According to the BRFSS, 8% of Massachusetts residents report that they currently have or have had diabetes, an increase from 6.5% in the prior survey. In the Study Area, this percentage was even higher at 9.3%, an increase from 5.8% in the prior survey. This higher rate was seen in all age groups in the Study Area.

In both the Study Area and the Commonwealth, more adult men than women report having diabetes, at 10% and 8.6%, respectively. Among race/ethnicity breakdowns, Black/African American, Non-Hispanics have the highest percentage of reporting current or prior diabetes in both the State and in the Study Area. This is followed by Hispanics at 8.5%; White, Non-Hispanics at 6.2%; and Asian, Non-Hispanics at 4.5%.
Among Focus Group participants, diabetes was raised as a health concern, especially in groups with participants who were Brazilian, older adults, or alternative High School students where gestational diabetes was a concern.

**High Blood Pressure:**

According to the BRFSS, 29.2% of respondents in Massachusetts report having been diagnosed with high blood pressure, comparable to the Study Area percentage of 29.3%. Broken down by age group, the Study Area percentage is lower than the State’s for 35-44 year olds, but higher than the State for every other age group. A slightly higher percentage of adult men in the Study Area received this diagnosis than in the State (31.9% versus 30.9%). However, adult women in the Study Area had a lower percentage than in the State at 26.4% versus 27.7%.

**High Cholesterol:**

Within Massachusetts, 34.3% of BFRSS respondents reported having been diagnosed with high cholesterol in their lifetimes, while the Study Area percentage was lower at 29.1%. Broken down by age group, however, the Study Area percentages are higher than for the State in all age groups, except for the 65-74 age group with a percentage of 66.6% versus 53.8% in the State.

For both the Study Area and the Commonwealth, adult men have a higher percentage of having been diagnosed with high cholesterol than adult women.

**Asthma:**

Among the BRFSS respondents, 15.3% reported having been diagnosed with asthma during their lifetimes, a comparable rate of 15.4% for the Study Area. Broken down by age, however, percentages were lower in the Study Area for all age groups except for in the 25-34 age group, with 19.9% as compared to the State at 18.5%, and in the 75+ age group at 11.5% compared to the State at 8.7%.

In both the Study Area and the State, a higher percentage of women have been diagnosed with asthma than men.

**Disability:**

Disability indicators are again comparable between the State and the Study Area. Among BRFSS respondents in the State, 23.1% indicated that they had a disability, comparable to the Study Area percentage of 22.5%. Percentages continued to be similar when broken down by age, with the exception of in the 65-74 age group, which was higher for the Study Area at 34.5% than for the State at 31.9%. Adult women in the Study Area reported having a disability at a higher rate (25.2%) than for the State (24.7%), and at a higher rate than their male Study Area counterparts (20%).

The State percentage for adults reporting a disability with less than a high school education was 34.7%, while the Study Area was much lower for this group at 24.6%. For those who were high school graduates, the Study Area was slightly higher at 26.5% compared to 25.4% for the State. For those with some college in the Study Area, the percentages of adults reporting a disability were very similar at 23% compared with 23.1% in the State.
Disease-Related Mortality

Overall Mortality:

The Mortality Rate, defined as the number of deaths per 100,000 people, was 668.82 for the State in 2011. The Study Area had a higher rate for 2011 at 737.16. Among the 5 largest cities and towns in the Study Area, 3 had higher rates than in the Study Area overall: Gardner at 802.61, Athol at 868.14, and Fitchburg at 873.16. The highest rates were in the towns of Templeton at 893.64 and Royalston at 1185.65.

In terms of overall mortality by race/ethnicity, the highest rate in Massachusetts was among Black/African American, Non-Hispanics at 709.23 per 100,000, followed by White, Non-Hispanics at 680.59. This was paralleled in the Study Area with an age-adjusted mortality rate of 948.11 for Black/African American, Non-Hispanics, and 735.86 for White, Non-Hispanics. Among the five largest cities and towns, Black/African American, Non-Hispanics had the highest rates of age-adjusted mortality in Gardner at 2349.64 and Clinton at 1141.22. White, Non-Hispanics had higher rates than the Study Area in four out of the five largest cities and towns: Clinton at 767.87; Gardner at 814.7; Athol at 862.09; and Fitchburg at 882.95. Leominster was slightly under the study area rate at 730.71. Hispanics had the highest rates in Fitchburg at 717.59 and in Athol at 3046.1. Asian/Pacific Islander, Non-Hispanics had the lowest rates in the area at 388.44. However, the rate in Fitchburg for this group was significantly higher at 683.94.

Premature Mortality Rate:

The premature mortality rate is defined as the number of deaths occurring before the age of 75 per 100,000 persons. In 2011, the age-adjusted premature mortality rate in Massachusetts was 273.41 per 100,000. A total of 19,189 people died before the age of 75. The study area, North Central Massachusetts, was slightly higher than the state at 310.42 per 100,000 representing 847 deaths.

By race/ethnicity, the highest rate in Massachusetts was reported among Black/African American, Non-Hispanics at 346.89 per 100,000, followed by White, Non-Hispanics at 277.12 per 100,000. The lowest rate was found among Asian / Pacific Islander, Non-Hispanics at 125.13 per 100,000. In the Study Area, data was available only for Black/African American, Non-Hispanics with the highest rate (573.59); Hispanics (318.26), and White, Non-Hispanics with the lowest rate (306.57).

Cancer Mortality Rates

In 2010, the age-adjusted cancer mortality rate in Massachusetts was 165.65 per 100,000. North Central Massachusetts was slightly higher than the state at 169.3. Among the five (5) largest cities, two cities had higher rates than the region – Gardner and Leominster. Gardner was the highest overall at 203.37 age-adjusted cancer mortality rate per 100,000. The lowest was Clinton at 159.62, which also had a similar rate as Fitchburg (159.8). By race/ethnicity, in Massachusetts the highest age-adjusted cancer mortality rate was among Black/African American, Non-Hispanics at 178.6, followed by 169.69 for White, Non-Hispanics. The Study Area was parallel to the State with a rate of 231.23 for Black/African American, Non-Hispanics, and 170.83 for White, Non-Hispanics. While the Study Area rate for Asian/Pacific Islander was low at 58.26, Fitchburg had a noteworthy rate of 315.12 for this group.

Breast Cancer (Female) Mortality Rates:
In 2011, the age-adjusted breast cancer mortality rate for women in Massachusetts was 19.26 per 100,000. The Study Area had a lower rate at 17.85. Of the 5 largest cities and towns in the Study Area, only Gardner had a higher rate at 25.91. The highest rates were in Shirley (101.17), Phillipston (102.09), and New Salem (446.05). Despite the high rates in Phillipston and New Salem, both towns had just one (1) death. Shirley had four (4) deaths due to breast cancer. The lowest rate was in Leominster at 4.16.

In terms of breast cancer rates by race/ethnicity, the highest rates for age-adjusted breast cancer rates in Massachusetts were found in Black/African American, Non-Hispanic women at 25.5 per 100,000, and White, Non-Hispanic women at 19.82. Data for the Study Area was available only for White, Non-Hispanic women resulting in an overall rate for the area of 18.91. All the five largest cities/towns reported deaths in this group yielding breast cancer mortality rates ranging from 18.08 in Athol, 17.08 in Clinton, and 16.07 in Fitchburg, while Leominster and Gardner reported at 4.34 and 4, respectively.

Lung Cancer Mortality Rates:

In 2011, the age-adjusted lung cancer mortality rate for Massachusetts was 44.63, while the Study Area had a slightly higher rate at 50.23. Of the 5 largest and towns in the Study Area, 3 had rates higher than in the Study Area as a whole: Fitchburg at 54.19, Gardner at 66.52, and Clinton at 71.62. The highest rates were in Templeton at 86.36, Shirley, 106.92, and Royalston at 122.73; however, the number of deaths was lower in these towns at 8, 6, and 1, respectively.

By race/ethnicity, the highest age-adjusted rates for lung cancer mortality in the State were found among White, Non-Hispanics at 46.68 and Black/African American, Non-Hispanics at 41.82. Asian/Pacific Islander, Non-Hispanics had a rate of 25.19, followed by Hispanics at 18.51. The lowest rate was among American Indian, Non-Hispanics at 15.94. Both White, Non-Hispanics and Hispanics in the Study Area had rates than the state at 52.11 and 25.47, respectively. White, Non-Hispanics living in four out of five of the area’s largest cities and towns all had rates higher than the Study Area (52.11): Leominster at 54.9; Fitchburg at 69.34; Gardner at 68.72; and Clinton at 69.34. Hispanics had a Study Area rate of 25.47 in the two cities for which data was available, Fitchburg had a rate of 18.28, but Clinton’s rate was significant at 150. Data were not available for other groups.

Cerebrovascular Disease Mortality Rates:

In 2011, Massachusetts had an age-adjusted cerebrovascular disease mortality rate of 29.83 per 100,000, while the Study Area had a significantly higher rate of 54.82. Of the 5 largest cities and towns in the Study Area, 3 had higher rates than in the Study Area as a whole: Athol at 61.75, Leominster at 74.36 and Fitchburg at 79.57. The highest rates were found in Phillipston (131.05), Hubbardston (151.62) and Warwick (207.69). The number of deaths in these towns was lower, however, at 5, 4, and 1, respectively.

By race/ethnicity, in Massachusetts the highest rates of age-adjusted cerebrovascular disease mortality were found among Black/African American, Non-Hispanics at 32.12 per 100,000, followed by White, Non-Hispanics at 29.78. Hispanics had a rate of 23.52, and Asian/Pacific Islander, Non-Hispanics were at 24.3. The lowest rate was among American Indian/Non-Hispanics at 14.59. In the Study Area, it was Hispanics who had the highest rate at 69.89; however, in Leominster, the rate was much higher at 106.15. White, Non-Hispanics at 53.97; however, three of the five largest cities and towns had higher rates: Athol – 63, Leominster – 69.73, and Fitchburg – 83.1 Asian Pacific Islander, Non-Hispanics, had a rate of 37.48; however in Leominster the rate was much higher at 85.01. Black/African American, Non-Hispanics had the lowest rate at 14.85.
**Coronary Heart Disease Mortality Rates:**

In 2011, Massachusetts had an age-adjusted coronary heart disease mortality rate of 91.44, while the Study Area had a higher rate of 107.44. Of the 5 largest cities and towns in the Study Area, all had rates higher than in the Study Area as a whole. These ranged from 114.8 in Leominster to 134.95 in Gardner. The highest rates were reported in Templeton (145.03), Hubbardston (146.5), and Royalston (312.93). The number of deaths in these towns, however, was lower at 13, 4, and 3, respectively.

In Massachusetts, the highest age-adjusted coronary heart disease mortality rate was found among Black/African American, Non-Hispanics at 97.05 per 100,000, followed by White, Non-Hispanics at 93.7. Hispanics had a rate of 56.25, and Asian/Pacific Islander, Non-Hispanics were at 43.92. The lowest rate was among American Indian, Non-Hispanics at 60.3 per 100,000. Coronary heart disease mortality rates were similar for all groups in the Study Area compared to the State. White, Non-Hispanics had a rate of 105.98; Hispanics had a rate of 107.15, and Asian/Pacific Islander, Non-Hispanics had a rate of 46.99. However, the rate for Black/African American, Non-Hispanics in the Study Area was much higher than the State – 280.08 compared to 97.05. In the five largest cities and towns in the Study Area, the highest rates were found in Black/African American, Non-Hispanics in Leominster at 629.36. Hispanics had a rate of 221.87 in Fitchburg. Asian/Pacific Islander, Non-Hispanics had a rate of 172.31 in Leominster. Finally in all five cities/towns, White, Non-Hispanics had a higher rate than the Study Area ranging from 109.33 in Leominster to 138.95 in Clinton.

**Chronic Liver Disease Mortality Rates:**

In 2011, Massachusetts had an age-adjusted chronic liver disease mortality rate of 7.45 per 100,000, while the Study Area was slightly higher at 10.54. Of the 5 largest and towns in the Study Area, 4 had rates similar to the Study Area as a whole: Clinton (8.43), Fitchburg (10.51), Gardner (10.8), and Leominster (11.38). Athol, however, had a significantly higher rate of 43.41, as did the towns of Phillipston (73.89) and Petersham (75.65). These towns, however, had lower numbers of deaths at 6, 1, and 1, respectively.

By race/ethnicity, the highest age-adjusted chronic liver disease mortality rate per 100,000 in Massachusetts was reported among Hispanics at 10.62 and White, Non-Hispanics at 7.86 per 100,000. The lowest rates were reported for Black/African American, Non-Hispanics and American Indian, Non-Hispanics at 3.06 and 3.18 respectively. Data for the Study Area were available only for Hispanics, with the highest age-adjusted chronic liver disease mortality rate at 43.44 (4 deaths), followed by White, Non-Hispanics at 9.82 per 100,000. Black/African American, Non-Hispanics and Asian/Pacific Islander, Non-Hispanics reported no deaths due to chronic liver disease. In the five largest cities and towns, the highest rate was among Hispanics in Fitchburg at 45.14 (2 deaths), followed by White, Non-Hispanics in Athol at 35.57 (5 deaths). The lowest rate was among White, Non-Hispanics in Fitchburg at 7.74.

**Diabetes Mellitus Mortality Rates:**

In 2011, Massachusetts had an age-adjusted diabetes mellitus mortality rate of 14.36 per 100,000, while the Study Area had a higher rate of 19.4. Of the 5 largest and towns in the Study Area, Leominster had a similar rate at 16.6, while Gardner and Fitchburg both had higher rates at 23.56 and 28.25, respectively. The highest rates were found in Townsend (54.76), Bolton (60), and
Templeton (61.77). However, the number of deaths due to diabetes mellitus in these towns was low at 4, 5, and 1, respectively.

Among the five largest cities/towns, Black/African American, Non-Hispanics, with a rate of 231.23, had the highest rates of cancer mortality in Fitchburg at 1682.58, followed by Clinton at 1141.22, and Gardner at 565.44. Gardner and Leominster had higher rates than the Study Area for White, Non-Hispanics (170.83) in Leominster at 199.37 and Gardner at 197.61. The Study Area rate for Hispanics was 102.78, but was higher in Fitchburg (108.34), Clinton (150), and Gardner (214.15). While the Study Area rate for Asian/Pacific

By race/ethnicity, in Massachusetts, the highest rates for age-adjusted diabetes mellitus mortality rates were among Black/African American, Non-Hispanics at 29.2, followed by Hispanics and American Indian, Non-Hispanics at 22.77 per 100,000 and 22.43 per 100,000. The lowest rate was among Asian/Pacific Islander, Non-Hispanics at 7.23. In the Study Area, Hispanics had the rate at 32.24 per 100,000, followed by White, Non-Hispanics at 19.42. Black/African American, Non-Hispanics had the lowest rate at 16.1 per 100,000. Zero deaths were reported for Asian/Pacific Islander, Non-Hispanics and data were low or not reported for American Indian, Non-Hispanic; and Other, Non-Hispanic individuals. In the five largest cities and towns, the highest rate was among Hispanics in Fitchburg at 74.39 (2 deaths).

**Parkinson’s Disease Mortality Rates:**

In 2011, Massachusetts had an age-adjusted Parkinson’s Disease mortality rate of 6.52 per 100,000 in 2011. The Study Area had an age-adjusted Parkinson’s Disease Mortality Rate of 8.39. Of the 5 largest cities/towns in the Study Area, only Gardner had a rate higher than the Study Area at 18.56. The highest rates were found in Sterling (25.32), Princeton (31.86), and Orange (33.23). The number of deaths from Parkinson’s Disease in these towns is low, however, at 2, 1, and 3, respectively.

The Heywood Hospital Service Area has the highest age-adjusted Parkinson’s Disease mortality rate at 14.3 per 100,000, followed by Athol Hospital at 9.42. HealthAlliance Secondary has the lowest rate at 6.35.

Within the Commonwealth, the highest age-adjusted Parkinson’s Disease mortality rate by race/ethnicity per 100,000 in 2011 was reported among White, Non-Hispanics at 6.83, followed by Black/African American, Non-Hispanics at 4.07 and Asian / Pacific Islander, Non-Hispanics at 3.08. The lowest rate per 100,000 was among Hispanics at 2.75.

**Injuries and Violence**

**Self-Inflicted Injuries:**

In 2011, Massachusetts had a rate of self-inflicted injuries (injuries judged by hospital staff to be an intentional effort to hurt or kill oneself) of .58 per 100,000. The Study Area had a rate of 72.39 – more than 124 times the State rate. Among the 5 largest cities and towns in the Study Area, 3 had rates higher than the Study Area’s already high rate: Clinton at 102.95, Athol at 103.59, and Gardner at 133.5. The highest rates of self-inflicted injuries were found in Gardner and Winchendon at 133.5 and 135.92, respectively.

**Homicide Mortality Rates:**
In 2011, the age-adjusted homicide mortality rate for Massachusetts was 3.01 per 100,000. Within the Study Area, only Leominster had a higher rate than the State at 5.58 which represents two homicides during this time period. These were, in fact, the only deaths due to homicide during this time period reported for the Study Area.

**Injuries and Poisonings:**

In 2011, the age-adjusted injuries and poisonings mortality rate for Massachusetts was 43.7 per 100,000, and the Study Area had a similar rate at 46.86. Of the 5 largest cities and towns in the Study Area, 3 had rates higher than the region: Leominster at 47.51, Fitchburg at 47.57 and Gardner at 50.51. The towns of Royalston and Phillipston had the highest rates at 117.68 and 118.95, respectively; however both had only one case reported.

**Motor Vehicle-Related Mortality Rates:**

In 2011, the age-adjusted motor vehicle-related mortality rate for Massachusetts was 5.48 per 100,000. The Study Area had a significantly higher rate of 52.98. The 5 largest cities and towns in the Study Area had the highest rates for motor vehicle-related mortality: Leominster was close to the Study Area rate at 50.81; Fitchburg at 64.61; Gardner at 67.25; and Athol at 91.43. (Data for Clinton were unavailable.)

**Weapons-Related Injuries:**

In 2011, there were 1,860 weapons-related injuries in Massachusetts. The Study Area experienced 70 weapons-related injuries during this time. The only municipalities in the Study Area to report numbers of weapons-related injuries in 2011 were Fitchburg (16), Gardner (13), Clinton (10), and Leominster (8).

**Child Maltreatment:**

The 2010 reported rate of maltreatment of children (defined as persons less than 18 years old) was 56.3 per 1,000 residents in Massachusetts, an increase from 51.9 in 2009. Four cities in the Study Area had rates of maltreatment of children higher than the State. In some instances, the rates were significantly higher: Leominster at 72.2; Fitchburg at 102; Gardner at 110.5; and Athol at 185.4.

**Domestic Violence:**

Data on domestic violence (also referred to as “Intimate Partner Violence” or IPV) are limited for various reasons. Many incidents of domestic violence are not recorded as such. Despite the overlap in the public health and criminal justice arenas, as well as in child welfare, there is currently no concise means of capturing accurate data on domestic violence.

Instead, there are other indicators that can help illuminate the scope of domestic violence occurring in any given geographical area. For example, child abuse data, such as that found in the Child Maltreatment section of this report, often coincide with a high rate of domestic violence. (According to the Domestic Violence Awareness Project, some research indicates a 50-60% correlation.) Another resource is the data on the number of restraining orders filed by courts. In the Study Area, among selected courts, the total number of restraining orders has increased 39% from 1,786 in
2010 to 2,477 in 2013. These totals represent filings in the towns of Ayer, Clinton, Fitchburg, Gardner, Leominster, Orange, and Winchendon. Most of the increases range from 21% - 41%, but Fitchburg is noteworthy for its 76% increase, representing an increase to 659 orders filed in 2013 from 375 orders filed in 2010.

**Infectious Diseases:**

In the Study Area, the cities and towns with the highest rates of Hepatitis C were in Athol (86.33 per 100,000), Shirley (83.25), and Leominster (68.7).

In 2011, the rate of HIV/AIDS was 272.82 per 100,000 in Massachusetts. By race and ethnicity, Black/African American, Non-Hispanic persons had the highest rate at 1188.84, followed by Hispanic persons at 669.67. Among the five largest cities and towns in the Study Area, four had rates of HIV/AIDS lower than the for State, but still noteworthy: Clinton at 154.42, Gardner at 178.01, Leominster at 186.48, and Fitchburg at 250.55. The rate in Shirley was also notable at 124.88 per 100,000.

In 2012, the Massachusetts rate for Chlamydia was 360.45 per 100,000. Among the five largest cities and towns in the Study Area, two had rates higher than the State: Fitchburg at 399.38 and Leominster at 520.19.

**Primary Care Manageable Hospitalizations:**

In 2011, the age-adjusted rate for asthma hospitalizations in Massachusetts was 152 per 100,000. The rate for the Study Area was lower at 134.95. Of the five largest cities and towns in the Study Area, Leominster and Fitchburg had rates higher than both the State and Study Area rates at 188.45 and 214.85, respectively. Additional high rates were reported in Lunenburg (190.14), Templeton (204.26), and Ashburnham (254.35).

In 2011, the age-adjusted rate for hospitalizations in Massachusetts for angina was 9.04 per 100,000 based on 696 admissions. The rate for the Study Area was higher at 10.48 based on 30 hospitalizations.

In 2011, the age-adjusted rate for bacterial pneumonia hospitalizations in Massachusetts was 291.49 per 100,000. The Study Area had a higher rate of 335.4. Among the 5 largest cities and towns in the Study Area, two had rates close to that of the Study Area as a whole: Athol at 326.14 and Clinton at 333.04. The remaining three had higher rates: Leominster at 346.45, Fitchburg at 390.62 and Gardner at 444.7. The highest rates were found in Templeton at 507.99 and Phillipston at 846.92.

**Incarceration and Re-Entry**

Incarceration and reentry data for the community are included for the first time in this report as a reflection of its identification by the community health assessment partners as a local priority, as well as a State and national priority. The Study Area contains two Department of Correction facilities – the North Central Correctional Institution at Gardner, and the MCI Shirley Souza-Baranowski Correctional Center in Shirley. In addition, women from the Study Area are also served at the Western Massachusetts Women’s Correctional Center under the Hampden County Correctional system in Chicopee.
Community Voices: Key Themes from the Qualitative Data

The current Community Health Assessment of North Central Massachusetts report contains a large amount of qualitative data and quotations related to the health status of community members residing in the Study Area. Several key themes emerged in the data and are discussed throughout the report, including:

Community Assets

“The power of people supporting other people even if they don’t know each other.” “People in the north county work together very well. We take limited resources and make the best of them. There is a lot of collaboration.” Many community strengths and assets were identified by Study participants throughout the course of this Study. Participants consistently mentioned health and social services organizations and other community-based organizations to be critically important to the health of their communities, especially those that offer social support, economic and food assistance, and healthy living opportunities. Examples of these included clinics and hospitals; school-based health programs; senior centers; veterans organizations; churches/faith-based organizations; youth groups and centers; food pantries and community kitchens; Meals on Wheels; libraries; drop-in centers; YMCAs; charity organizations; local banks (help with utility payments); and community colleges. The strong collaboration and cooperation among service agencies was cited as an asset not only by multiple interviewees, but also across multiple Focus Groups. Other community strengths that were highlighted included the natural beauty of the Study Area and the willingness of residents to help one another. Several community assets that stood out during the qualitative activities are highlighted in the body of the report.

The Economy

“Not having enough money. It causes not being able to pay rent, go to job interviews, travel if you have kids, [or pay] hospital bills.” The economy, unemployment and poverty continue to exacerbate many issues associated with health and access to healthcare in the Study Area, despite decreases in unemployment since the last community health assessment in 2011. The accumulative and ongoing impact of economy-related stressors are considered to have an ongoing impact on mental health, substance use and abuse, violence, healthcare seeking behavior and general health status in in Study Area communities. Both community members and community leaders described a common state of resource insecurity among large numbers of community members who are either living in poverty, or have just enough money or resources to get by, but not enough to feel secure or be able to weather new circumstance that might arise and require more. Descriptions of choices between putting food on the table and purchasing prescribed medications; purchasing nutritious foods vs. less expensive “fast food”; or not seeking healthcare because of the high cost of co-pays for each visit, were common.

Mental Health

“The world feels scary and frightening and the services are not enough.” Clinicians, health and social service providers, community adults, and youth across racial and ethnic groups alike stated that untreated mental health problems are increasing among both adults and youth in the communities of the Study Area. There was widespread concern about the shortage of mental health counselors in general, trauma counselors, and specialists to work with specific populations (e.g. pediatric, adolescents, LGBTQ individuals, non-English speaking, racial/ethnic groups); waiting lists for mental health services; inadequate access to psychiatric care and hospitalization; and insurance coverage issues that limit placements. Depression, stress and trauma were cited as
common concerns, as well as a lack of hope for the future – especially among youth, and high rates of suicide ideation and suicides. Descriptions of stigma related to mental illness diagnoses and suicide-related behaviors were mentioned as an ongoing barrier to mental health-seeking behavior.

**Substance Use and Lack of Adequate Treatment Services**

“Alcohol and drug use is a real problem, especially treatment resource and especially in the rural areas. For example, there are no detox or treatment or stabilization step 1 or step 2 resources in those areas at all.” Substance use has been a consistent concern in past assessments of the health status of the Study Area. In the current study, issues of substance use and abuse were paramount. A lack of adequate treatment resources – both short term and long term – and the related impacts of substance use and abuse on individuals and communities were emphasized by nearly all of the study participants. This may be reflective of the opioid overdose crisis occurring in many parts of Massachusetts, including in the Study Area. However, alcohol use was highlighted as a serious health problem as well.

**Transportation**

“There is an absence of good quality health care in the areas where people live, and because there is little transportation, they can’t access quality health care.” Insufficient public transportation and poor transportation infrastructure were widely identified as having a negative impact on community health and safety in every focus group and in many interviews with Key Stakeholders. Participants stated that transportation in the Study Area has not improved or has worsened, identifying the condition of roads, bridges and poor street lighting and also a lack of sufficient and affordable public transportation services as major barriers to staying healthy and accessing health services. Participants reported waiting hours to catch a bus, having to push baby carriages in inclement weather in order to make appointments; having to walk to the doctor's office even when very sick, and ending up in places “you shouldn’t be” because of limited transportation. The impact of insufficient public transportation resources was considered even worse for those residing outside the Study Area’s cities. “Elders in small towns are far away from health services out in the boonies; if you’re in a rural area, you’re pretty much on your own.”

**Low-Quality Housing Stock and Homelessness**

“The housing stock is old and chopped up.” “Homeless families in hotels… temporary placements are now turning permanent.” Homelessness and insecure housing were themes that arose throughout the qualitative data. Participants identified what they perceived as an increase in homelessness, questioning if there was a relation to the opioid crisis. In addition, service providers and community members alike expressed concern about the unanticipated relocation of homeless families to long term hotel stays in the region with corresponding impacts upon the families as well as on the regional educational and human service systems. The qualitative data reflected serious concerns about the living conditions of renters in the region; problems related to old and inadequately maintained housing stock; and increased conflict between tenants and landlords.

**Child and Adolescent Health**

“Every school system, every school should have a health curriculum from 4th – 12th grade. The curriculum should include in-depth learning about wellness, sex ed, substance abuse, recognizing
Adults and youth alike expressed concern about the health of children and adolescents in the region, in particular about their social/emotional and mental health, and about a lack of adequate resources tailored for children and youth. Examples provided included the need for more pediatric mental health and treatment services, health education, employment opportunities, encouragement for educational attainment, mentoring and expanded recreational options.

**Social and Cultural Isolation**

“So then they are sitting out there alone with all their problems.” Despite widespread agreement about and appreciation of community members’ willingness to help each other and the positive impact of strong organizational collaboration in the Study area, social and cultural isolation was considered by most Focus Group participants to have worsened in the past few years. Participants expressed concern about the isolation of elders; rural residents; LGBTQ individuals; families living in hotels; recent immigrants; and newcomers to the country. Wintertime was said to increase isolation in the Study Area and participants consistently mentioned a relationship between social and cultural isolation with loneliness, mental health problems, and drug and alcohol use.
As discussed in *Qualitative Methodology, Community Voices* and other sections of this report, many community members and community leaders participated in Focus Groups and Key Stakeholder Interviews to contribute data for this study.

### 26 INTERVIEWS with KEY INFORMANTS including:
- Children’s services
- Clinical/medical practice
- Community engagement
- Criminal justice and corrections
- Disability services
- Diverse communities
- GLBTQ issues and needs
- Health equity
- Homecare and hospice
- Hospital administration
- Housing and homelessness
- Local collaboration and coalitions
- Mental health
- Oral health
- Other health-related areas of expertise
- Outpatient behavioral health services
- Policymaking
- Political processes
- Public health
- Rural health needs
- School health
- Substance Use Treatment
- Suicide prevention
- Tobacco cessation
- Veteran’s services
- Workforce issues

### 16 FOCUS GROUPS with 228 participants including:
- Public health professionals
- Social service professionals
- Clinicians and other medical providers
- Behavioral health providers
- Latino adults and youth
- Black/African American adults
- Brazilian adult women
- Hmong individuals
- Veterans
- LGBTQ youth
- High school students
- Adults with major mental illness
- Homeless individuals
- Older Adults

In all, 228 individuals participated in one of 16 Focus Groups conducted throughout the Study Area between October 2014 and April 2015, as represented in the following chart.
These community members and leaders participated voluntarily and were provided with a gift card to a local grocery store upon completion of their participation. Data from these participants are only included in this report when expressed in multiplicity in the data gathering (i.e., descriptions and quotations are not recorded in this report if expressed solely by one participant).

This data was collected and analyzed per group and across groups utilizing manual qualitative content analysis and reviewed for consistency by the Central Massachusetts Area Health Education Center, Inc., and is synthesized and recorded throughout this report. As noted in the description of the Qualitative methods in the Executive Summary, Qualitative Methodology, and Introduction sections, participant feedback was only reported when expressed in multiplicity in the data.
Analysis of the Focus Group findings across groups produced several strong common themes in terms of what “good health” means to individuals; community strengths and assets that support health; and worsening health issues and barriers to good health, for example: the importance of community hospitals and community-based health service organizations; the negative impact of increased substance use and increased mental health problems, and lack of related treatment resources; and the negative impact of poverty on community health. Analysis also elicited information about group/population-specific issues, or in some cases, underscored one or two issues of great importance to the group/population. Analysis of data from individual Focus Groups. Both types of findings are reported in this section.

Common Themes

The summaries below are reflective of repeated data collected from the 16 Focus Groups and 26 Key Stakeholder individual interviews. The quotes are statements that reflect views expressed by several individuals and/or by individuals across groups.

Definition and components of “good health” and wellness:

- **Physical health and making healthy choices in daily life.** Examples provided included: eating a healthy diet; exercising; not smoking; feeling of energy; and taking medicines as directed

- **Being healthy in spirit.** Examples provided included: feeling good; the tranquility of good health; peace and spirituality; thinking good thoughts; and prayers

- **Good mental health.** Examples provided included: healthy in mind; stress-free or stress-managed; maintaining a positive outlook; being able to express one’s feelings; to want to get up in the morning and not feel dread; “being comfortable with who I am”; and feeling good about yourself

- **Family/work balance.** Examples included: when everything feels in balance; family and work commitments are balanced; parents having energy for their kids; and having an occupation that doesn’t create stress.

- **Good support systems.** Examples included: having personal support, including friends and family; helping others; not being alone; having the tools to deal with issues that come up, like substance abuse; help; and support from others

- **Access to health care.** Examples included: lack of fear regarding health; availability of programs and services when needed; having a hospital nearby; and having insurance.

- **Living in a healthy and safe environment.** Examples included: feeling safe; having a safe and affordable home; healthy environment and community; public safety; and not being afraid at home or outside your home.
Community Strengths and Assets

The following community assets were identified across the Focus Groups as contributors to the health and wellbeing of their communities:

- Access to a group or place where people can come together with other community members; e.g.: youth center, support group, club house, coffee house;
- Collaboration among community service providers;
- Local hospitals, Community Health Connections and UMass (interns offered services, health education, health fairs); better access to and coverage of dental health services;
- The natural beauty of the area; (e.g.: trails, bike lanes, parks, outdoor recreation);
- Recent anti-smoking policies in several local cities;
- Attention to opiate use and overdose prevention; Narcan training to prevent overdoses.

Health Problems and/or Barriers to Good Health

Worsening health problems and/or barriers to good health in the area were consistently mentioned across groups: worsening mental health, depression and stress and a shortage of mental health services; substance use and a critical need for more and longer-term treatment services; and unemployment and poverty. These are described in more detail in categories below.

Substance Use and lack of Adequate Treatment Resources

Across all Focus Groups, participants cited increased substance use and addiction, including use of drugs, alcohol and tobacco, as a negative impact on the mental, physical and overall health of their communities. Participants perceived an increase in opiate use, including heroin; increased abuse of prescription drugs, as well as excessive use of alcohol. Participants noted that easy access is part of the problem.

“People I never would have guessed have an issue do have one.”

“More folks, even professionals, are becoming addicted.”

“And the drugs they are coming in with now are killer drugs – we have no idea what’s in them. Kids are buying bath salts; blows their brains out right out their head.”

“one doctor in [city] and several in the region were busted for overprescribing”;

“38 bars in XXX town, without counting package stores.”

A reoccurring theme cross communities was a critical need for more and longer detox and treatment services and programs, and better access to follow-up and support services after detox and drug rehab…

“instead of just sending people to detox for 3 days…especially ones that last longer and provide support services afterward to be successful.”
The two Focus Groups comprised of mostly providers referred to the recent regional attention on preventing substance use and overdose, including Narcan training, as a strength/asset.

**Mental Health, Depression, and Stress**

“We have a lot of untreated mental health issues.”

Every group expressed concern about worsening mental health in their communities. Participants referred to increased numbers of individuals with depression, stress and anger problems. Every group identified the shortage of mental health services and providers as a major problem, citing a lack of therapists; too-large caseloads for therapists and counselors; long waiting-lists for services; lack of family counseling services, and, especially, a lack of therapists trained or able to work with specific populations, including children and adolescents, veterans, elders and LGBTQ individuals.

“We should have self-sustaining mental health programs.”

Unemployment and poverty were identified as sources of stress.

In addition, across groups, study participants mentioned a link among mental health, depression and stress and worsening substance use and abuse problems;

“Bad economy leads to depression; that leads to people trying to escape, self-medicate (and) substance abuse and mental health problems.”

A high suicide rate was identified as a problem in both youth groups, the veterans group and groups comprised of social service/public health providers.

**Transportation and Road Conditions**

Insufficient public transportation was regarded as negative impact on community health in every group.

Improvements in transportation in the Study Area were also noted including: New bike racks on buses; More parking at the Leominster train station; and Plans for a new train station in Fitchburg in 2016.

However, participants overwhelmingly agreed that transportation had not improved or had worsened, citing issues including: worsening condition of roads,

“Potholes in the streets”, and bridges;

“Lack of increased or improved services by MART”;

“No public transportation available out the Route 2 corridor”;

“Limited transportation between towns…Athol only has one bus a day to Gardner, so if the connection is late, you miss it”;

“That’s always been a mess”;

“There are no lights in the streets; it feels like it is 12 at night and it is dangerous”;
“Once in a while you see someone walking; or the bikers and you feel like, oh my God!”

“Police officers should be out there; it is very dangerous for the little ones.”

Youth input included that, “Limited transportation…you end up in places you shouldn’t be.”

The lack of transportation was considered worse for those residing outside the Study Area’s cities.

“Elders in small towns are far away from health services out in the boonies.”

“If you’re in a rural area, you’re pretty much on your own.”

**Healthcare Cost**

Across the Focus Groups, participants stated that cost of healthcare has improved for some people and gotten more expensive for others. Most, but not all, participants considered that the cost of healthcare had improved for individuals with MassHealth and that the Affordable Care Act has resulted in more community members having health insurance.

“It is hard to tell if it is better or worse, with all the teeth gnashing about Obama Care.”

“As much as I was against it, the requirement of health insurance (has contributed to the wellbeing of the community). Because if you are sick and you have insurance you are more likely to go take care of it instead of putting it off or not going.”

Participants noted improvements in plans’ coverage for some services, including dental care. For individuals with private insurance or insurance through employers, the cost of insurance had risen. And, there was discussion in most of the groups about the still high costs of co-pays and the cost of “what health insurance doesn’t cover.”

“Sometimes you have to miss [doctor] visits because the co-pays add up.”

“Co-pays are hard when you’re going through a financial problem. When you get sick you have to go to the doctor again and again; if you don’t have MassHealth, it adds up.”

“We (health care providers) are juggling multiple methods of delivering care, for example, ACOs and fee for service.”

Youth participants regarded the cost of healthcare as a problem, with one participant recommending the provision of:

“financial aid for families and youth for health services,” because there are issues with insurance and, “parents get stressed and take it out on the kids.”

**Unemployment and Poverty**

Participants across the Focus Groups stated that the economy is still “really bad” despite economic improvements elsewhere.
"Low income families are not better off. If someone’s on a fixed income, with property value going down and taxes going up, they’re between a rock and a hard place."

“A large challenge for (health care) consumers is income security. How can they stay at home and receive needed services? Keeping folks home is a challenge for caregivers.”

There was agreement in all the groups that despite small improvements in unemployment, both adults and youth need “better employment opportunities” and more financial support services. One group discussed how the Boston Globe published a feature about the worst areas in Massachusetts for home reclaimations, and XXX city had the highest rate in the State.

Participants consistently linked poverty to higher rates of stress, depression and substance use, though participants across several groups remarked that

“Drug use is also contributing to poverty.”

“Poverty brings a rash of health issues.”

“It all goes back to poverty as the root cause.”

“Bad economy leads to depression; that leads to people trying to escape, self-medicate (and) substance abuse and mental health problems.”

Day care, health care, dental care, housing, and healthy food were all mentioned as being “too expensive.”

**Healthcare Access**

A shortage or lack of services was mentioned as a major health problem across the Focus Groups.

“We need Telehealth – particularly for rural populations – as a way to get specialists there, for example.”

“The system is too complicated and fragmented. We need a more holistic approach to care.”

“We need to do a better job with our health care workforce reflecting the populations we serve – particularly the racial, ethnic and linguistic diversity. It’s hard because much of the health care workforce has been in their roles for a long time.”

“It is a challenge recruiting and retaining doctors – especially in the rural areas.”

**Poor Housing Stock, Increasing Conflict between Owners and Tenants, Lack of Housing and Homelessness**

Participants cited a lack of quality affordable housing, waiting lists for housing, housing instability, and/or the poor condition of housing as having a negative impact on community health. Examples of problems included: insufficient inspections; the number of large abandoned houses; “outsiders” buying properties and renting them out before completing the work that needs to be done on them; and a fear of speaking up about housing violations:
“Housing stock is a problem.”

“Our fear is to get evicted for complaining.”

Housing stock was described as “old” and “chopped up,” with lead paint in the buildings and soil, old plumbing, and a general decay of older properties that have been given only a

“band aid approach” for repairs, “but sooner or later the band aid wears off.”

“Families deserve to live in better neighborhoods; they should all be bright and clean.”

In several Focus Groups, participants highlighted the problem of homeless families living in hotels, stating that

“Temporary placements are now turning permanent.”

Participants in most of the Focus Groups stated that homelessness is a serious problem, despite moving some homeless community members into now over-crowed hotels – a problem in itself, since the strategy was “supposed to be temporary,” but has continued beyond what was intended.

Homelessness was emphasized as an issue especially among the Veterans and Black/African American group participants. All the Focus Groups mentioned a link between increased substance use and abuse and homelessness.

*Barriers to Child and Adolescent Health*

“The fields are empty of kids (except for during games) and nobody plays football or basketball in the street anymore.”

Both the Focus Groups comprising youth and those comprising adults, highlighted many challenges to good health among the region’s youth. Examples of issues identified included: substance use among youth, as well as the impact on children of increased substance use and addiction among adults; and an increase in school dropout rates,

“We have among the lowest educational attainment rates in MA;”

“Child abuse…which also feeds into high dropout rates.”

Qualitative data also identified an increase in the number of children choosing to attend school outside the district,

“Kids are bussed to regional schools…come home and parents aren’t there…parents don’t want their kids to go outside, so they stay home watching TV, playing video games, eating cookies…”;

Bullying in schools; and family poverty were also highlighted.

Participants also noted that children and youth need more life skills training, including education about health, sexuality and substance use.
Youth participants cited a lack of services for youth in crisis or resources for youth who do not have parental support. They also expressed that education and sensitivity training was needed for adults about gender and sexuality. Notably, only the two youth Focus Groups raised issues of bullying and abuse; see summaries of youth group input below for more information.

**Social and Cultural Isolation**

Across Focus Groups participants expressed that social isolation has gotten worse.

“People stay home on the internet more.” “(There is) nowhere for elderly to go (and no transportation) so they sit home…How sad is that!”

“(Veterans) are getting discharged sooner than they should be from treatment programs; so then they are sitting out there on their own with all their problems.”

“People are by themselves, and they came (here from other countries) for a better life.”

**Themes within Focus Groups/Populations**

The table below identifies themes and comments expressed by multiple individuals within population-specific Focus Groups. It includes not only issues that were raised only within the specific group, but also themes that may have emerged across all the Focus Groups but that were expressed within the particular group to be of great importance or concern.

<table>
<thead>
<tr>
<th>Population</th>
<th>Concerns</th>
<th>Assets and Ideas</th>
</tr>
</thead>
</table>
| Adults with serious mental illness | - Lack of, and long waiting lists for mental health services and providers  
- Hard to get jobs  
- Not feeling safe  
- Feeling ignored in the community  
- Disrespected due to their mental illness by providers and others  
- Not enough funding for community-based services/supports  
- Health insurance doesn’t cover enough | - Westwinds is a good support system.  
- Would like more classes, computers and education resources, including financial support for seeking education.  
- Need more places to go for recreation, sports, arts, etc.  
- More education about mental illness for the general population. |
| Black/African American individuals | - Isolated elders without children nearby  
- Doctors more concerned with insurance status than the patient; decisions about medications, etc., based on insurance status more than what patient needs  
- Complicated health information and health plan rules  
- High cost of co-payments  
- Substance use, abuse and lack of | - Church community keeps people connected and supported  
- Community programs that provide food and other types of assistance  
- Make information more public about discounts available for senior citizens |
<table>
<thead>
<tr>
<th>Population</th>
<th>Concerns</th>
<th>Assets and Ideas</th>
</tr>
</thead>
</table>
| Brazilian women     | - Stress, depression, alcoholism, substance use, obesity are biggest community health problems  
|                     |   - Leominster ER is overloaded and understaffed  
|                     |   - Copays are too expensive and “add up”  
|                     |   - Sense of isolation – “socialize with just Brazilian people”  
|                     |   - Fibromyalgia is a problem; request for resources/education about how to help friends who have it.  
|                     |   - Nowhere for kids to go/nothing to do other than stores/mall; nothing that isn’t too expensive  
|                     |   - Streets not lighted well; it is dangerous  
|                     |   - Discrimination toward immigrants. Not being treated with respect because of limited English skills | - Other Brazilians and their church communities offer them great support  
|                     |                                                                         | - Would like access to free classes about health, exercise and nutrition, especially for the teens and about women’s health |
| High school youth   | - Not having enough money  
|                     |   - High cost of groceries and rent  
|                     |   - Need job opportunities  
|                     |   - Transportation  
|                     |   - Chronic stress  
|                     |   - Fear of police  
|                     |   - Drugs  
|                     |   - Being judged | - Assets: family, peer support, teachers, social service agencies like Planned Parenthood  
|                     |                                                                         | - Need more housing, especially for teen parents  
|                     |                                                                         | - Need more buses during the day and on Sundays  
|                     |                                                                         | - More pro-choice options |
| Hmong individuals   | - People going uncured or getting sicker when only using faith healers and herbal medicines  
|                     |   - Healers lack knowledge re: cancer, depression, hypertension, diabetes  
|                     |   - High blood sugar/diabetes  
|                     |   - Unhealthy eating and drinking  
|                     |   - Lack knowledge about food safety  
|                     |   - Providers’ lack of understanding of Hmong; need more interpreters  
|                     |   - Working overtime; too much work | - Strong cultural identity  
<p>|                     |                                                                         | - Traditional diet is healthy but more people are not eating traditional diet |</p>
<table>
<thead>
<tr>
<th>Population</th>
<th>Concerns</th>
<th>Assets and Ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homeless</td>
<td>Not enough places to go for shelter</td>
<td>Assets: drop-in centers, churches, AA meetings, YMCA, library, Catholic charities, Salvation Army,</td>
</tr>
<tr>
<td>individuals</td>
<td>Lack of access to restrooms</td>
<td>thrift stores</td>
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<td></td>
<td>Drug use and users</td>
<td>Need places to take showers</td>
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<tr>
<td></td>
<td>Need more homeless advocates</td>
<td>Need a bus to pick up people at shelters and take them to work</td>
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<tr>
<td></td>
<td>More access to meals</td>
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<td></td>
<td>Lack of jobs and discrimination about hiring homeless</td>
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<tr>
<td></td>
<td>Transportation</td>
<td></td>
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<tr>
<td>Latino adults</td>
<td>Lack of public transportation, especially for traveling to other locations for work</td>
<td>Having interpreters for medical services helps, “but having more trained interpreters would be better”</td>
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<td></td>
<td>Lack of language- and culture-sensitive health services</td>
<td>The church services the community in important ways.</td>
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<td></td>
<td>Lack of Latino and/or Spanish-speaking health providers</td>
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<td></td>
<td>“Very bad housing conditions”, and fear of complaining and getting evicted</td>
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<tr>
<td></td>
<td>Poverty, unemployment, “we’re all poor.”</td>
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<tr>
<td>Latino youth</td>
<td>Gangs and crime</td>
<td>Tutoring at the YMCA, youth center, etc., is an asset.</td>
</tr>
<tr>
<td></td>
<td>Abuse (sexual, physical, mental)</td>
<td>Need more for youth to do, e.g. jobs, recreational facilities, youth centers, youth camps, etc.</td>
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<tr>
<td></td>
<td>Bullying at school</td>
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<tr>
<td></td>
<td>Stress and depression among youth</td>
<td></td>
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<tr>
<td></td>
<td>Need employment opportunities</td>
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<tr>
<td>LGBTQ youth</td>
<td>Lack services for LGBTQ youth</td>
<td>Safe places to meet with others, like the Coffee House, are very important.</td>
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<td></td>
<td>Lack providers who understand needs</td>
<td>Gay Straight Alliances (GSA) in school are an asset; should start them earlier, in middle school.</td>
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<tr>
<td></td>
<td>Lack of understanding and sensitivity towards LGBTQ in general</td>
<td>Require education/sensitivity training for teachers, health providers, other adults re: working with LGBTQ youth</td>
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<tr>
<td></td>
<td>Feeling unsafe; bullying at school</td>
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<td></td>
<td>Teen suicide and “self-hurting”</td>
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<td></td>
<td>Lack gender neutral, multi-stall restrooms</td>
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<tr>
<td>Population</td>
<td>Concerns</td>
<td>Assets and Ideas</td>
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<tr>
<td>Older adults</td>
<td>• Isolation – especially in rural areas with limited transportation and services&lt;br&gt;• Adult children move away to find work and are unable to care for their elders.&lt;br&gt;• Lack of transportation&lt;br&gt;• Lack of respect from providers&lt;br&gt;• Lack of primary care providers&lt;br&gt;• Doctors are too busy to communicate&lt;br&gt;• Complicated Medicare paperwork&lt;br&gt;• No getting good information or the right information&lt;br&gt;• Lack of inter-agency communication</td>
<td>• Assets: senior centers, food pantries, veteran’s organizations, community health clinics, library, Board of Health, Meals on Wheels, MOC&lt;br&gt;• Need more publicity about how and where to get help, resources, free services&lt;br&gt;• Need more transportation&lt;br&gt;• Every agency should be informed about benefits</td>
</tr>
<tr>
<td>Veterans</td>
<td>• Problem drinking.&lt;br&gt;• Substance abuse and lack of detox services and long-term support, “Detox at the VA is a 3 day program, but then where are people supposed to go?”&lt;br&gt;• Mental health issues and suicide, “Veterans are dropping like flies”&lt;br&gt;• Providers lack awareness about veterans’ needs and issues&lt;br&gt;• Unaware of programs/services&lt;br&gt;• “A lot of people don’t know, and if you are a veteran or veteran’s wife you are entitled to many things.”&lt;br&gt;• “It’s hard to get the bean counter and numbers people to listen.”</td>
<td>• The VA is an asset even though veterans don’t use it much&lt;br&gt;• Veteran-specific services, especially and free services for veterans (e.g., local gym)&lt;br&gt;• If you are a veteran, you should get a piece of paper with benefits listed.&lt;br&gt;• Case managers for vets; every veteran should get one right away when they get out (of the service)</td>
</tr>
<tr>
<td>Behavioral health providers and advocates</td>
<td>• Untreated mental health issues&lt;br&gt;• Shortage of mental health services, especially “higher level” care&lt;br&gt;• Lack of psychiatric care for youth&lt;br&gt;• Insurance coverage/payment issues, e.g. limitations of placement for behavioral health concerns&lt;br&gt;• Suicide rates; more ideation (youth)&lt;br&gt;• Not enough support systems in place; lack of community resources for youth mentoring programs&lt;br&gt;• Difficulty recruiting therapists to area&lt;br&gt;• Lack of primary care options&lt;br&gt;• Family difficulties to meet basic needs; financial limitations&lt;br&gt;• Transportation&lt;br&gt;• Housing stock and homelessness&lt;br&gt;• Substance abuse/lack of treatment</td>
<td>• Collaboration among health and social service providers&lt;br&gt;• CHART grant has been successful&lt;br&gt;• Caring people, volunteers, clergy</td>
</tr>
<tr>
<td>Population</td>
<td>Concerns</td>
<td>Assets and Ideas</td>
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<td>----------------------------------------------------------------------------------</td>
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<tr>
<td>Health and social service providers; clinicians; and administrators</td>
<td>• Homelessness, including prospects for homeless families living in hotels&lt;br&gt;• Opioid use and overdose crisis&lt;br&gt;• Poverty – high number of community members “living on the edge” – making ends meet now, but just barely; poverty impacts all aspects of health&lt;br&gt;• Low community morale; choice out of local schools; youth leaving the area&lt;br&gt;• Low educational attainment impacts all aspects of health&lt;br&gt;• Food security; high number of children rely on school meals for nutrition&lt;br&gt;• Low literacy rates&lt;br&gt;• Lack of access to funding for community programs and services; Need more funds to make the work happen; “it is difficult to share small pots of money;” the way cities and towns are divided up can impede funding opportunities&lt;br&gt;• Difficulty recruiting/retaining health providers, especially primary care and behavioral health&lt;br&gt;• Need for more culturally and linguistically responsive services&lt;br&gt;• Shortage of mental health services (particularly bilingual services)&lt;br&gt;• LGBTQ individuals suffer from isolation and “do not feel safe.”&lt;br&gt;• High rates of suicide or attempts&lt;br&gt;• Reimbursement structure for services is a barrier</td>
<td>• Great collaboration among health and social service agencies&lt;br&gt;• Willingness of community members, particularly in rural areas, to help one another&lt;br&gt;• There is good collaboration among health and social service agencies.&lt;br&gt;• If the smaller rural communities were able to apply for one larger pot of funding, that would help&lt;br&gt;• Area hospitals are actively working on integrating more into the community&lt;br&gt;• Telehealth, especially for rural populations would help&lt;br&gt;• We need more community-building activities to improve the perception of the community&lt;br&gt;• Natural beauty and green spaces of the area; attract people for outdoor recreation</td>
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Three Biggest Community Health Problems

At each Focus Group, after discussion of all the Focus Group questions, participants were given handouts with the question, *what are the three biggest health issues in your community*, followed by three blank lines. Participants were invited to fill in the lines with their own perception of their community’s three biggest problems, and then to return the handouts to the facilitators. Assistance was provided when requested to address potential literacy issues. These handouts were completed anonymously by participants; however, they were sorted and filed by Focus Group for analysis of themes within, as well as across, Focus Groups.
In all, 553 problem statements were submitted – or an average of 2.4 responses ("problems") submitted per 228 Focus Group participants. Among the statements submitted, 49 different health problems were identified and 479 (87%) of the problems identified fell into one of the 17 categories as represented in the following chart. **It is important to note that problems were submitted by participants of Focus Groups who resided in multiple cities and towns, and therefore the problems identified are not attributable to any specific cities or towns.**

![Chart showing the 3 biggest health problems in the community](chart.jpg)

Significantly, 26% of the problem statements submitted identified behavioral health problems (substance use and/or mental health problems), along with a lack of adequate behavioral health providers and treatment resources (especially pediatric/adolescent mental health specialists and trauma specialists) as one of the biggest health concerns.

Other issues that were mentioned more than once, but that did not fit into these categories are represented in the following table.

<table>
<thead>
<tr>
<th>Times mentioned</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>General sickness or illnesses</td>
</tr>
<tr>
<td>5</td>
<td>Bullying</td>
</tr>
<tr>
<td>4</td>
<td>Cancer&lt;br&gt;Isolation&lt;br&gt;Lack of exercise&lt;br&gt;Suicide and suicide awareness</td>
</tr>
<tr>
<td>3</td>
<td>Discrimination&lt;br&gt;Lack of support services in schools</td>
</tr>
<tr>
<td></td>
<td>Lack of elder care</td>
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<tr>
<td></td>
<td>Lack of and cost of child care</td>
</tr>
<tr>
<td></td>
<td>Lack of mentoring/support services for youth</td>
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<tr>
<td></td>
<td>Lack of recreational activities</td>
</tr>
<tr>
<td></td>
<td>Long waits on phone or at medical appointments</td>
</tr>
<tr>
<td></td>
<td>Lack of coordination between clinical care providers</td>
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<tr>
<td></td>
<td>Dementia and Alzheimer’s</td>
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<tr>
<td></td>
<td>Trash on streets</td>
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<tr>
<td></td>
<td>Unaware of available resources</td>
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<tr>
<td></td>
<td>Work too much</td>
</tr>
</tbody>
</table>

**Key Informant Interview Themes**

As described in the **Introduction, Qualitative Methodology** and **Community Voices** sections of this report, 21 Key Informant Interviews were also conducted. Key Informants were identified primarily by members of the Steering Committee of the Joint Coalition on Health. In a few cases those interviewed suggested other individuals to be added as Key Informants. Key Informants represented community leaders, providers of health care and social services, elected officials, administrators and frontline workers. Areas of expertise included among the Key Informants that were interviewed included: Substance Use Treatment; Oral Health; Homelessness; Health Equity; Mental Health; Disability Services; Community Engagement; Criminal Justice; GLBTQ Support (Adults and adolescents); Community Building; Veteran’s Services; Public Health; and Tobacco Cessation. The following represents common themes expressed during the interviews.

**Data from Key Informant Interviews**

### Barriers to Care (Most frequently identified)
- Transportation
- Cost of care
- Language
- Lack of primary care and behavioral health providers (and difficulty recruiting and retaining them)

### Social Determinants of Health (Most frequently identified)
- Education
- Poverty
- Housing
- Race, ethnicity
- Gender
- Local culture of cross-generational poverty and low educational attainment

### Community Resources and Assets (Most frequently identified)
- Health care providers
- Community Based Organizations (Social service agencies, anti-poverty organizations, and age and condition specific related entities)
- Collaboration among agencies
- Natural beauty of the region
- Opioid Education and Awareness Task Forces
- Anti-smoking initiatives

### Health Conditions (Most frequently identified)
- Depression and Stress
- Substance Use and Addiction (including alcohol and tobacco)
- Obesity
- Domestic violence and child maltreatment
**Community Assets and Strengths**

Across all interviews Key Informants identified community assets and strengths. The assets below were identified by at least 3 Key Informants. The most commonly reported asset was the ability of individuals and organizations in the Study Area to collaborate.

“People in North County work together very well. We take limited resources and make the best of them. There is a lot of collaboration.”

“Everybody is working hard together, even without enough resources” “We’re resource poor and collaboration rich.”

Several Key Informants also identified Community Health Connections and its satellite sites as valuable community assets.

“[Access to care has] improved with Community Health Connections and its 3 locations providing low-cost, or free dental services.”

The Joint Coalition on Health was identified by a number of Key Informants as a resource for collaboration, building partnerships and to identify community health needs and strengths.

“JCOH is a strong voice and should continue.”

“I commend the Joint Coalition for paying attention to mental health issues. It’s important to do [an] assessment in the community.”

**Specific Health Problems and Barriers**

Across geographic locations and specific areas of expertise Key Informants identified several health issues and barriers to accessing care for the region. The items below were mentioned by 3 or more Key Informants.

**Mental Health, Depression and Stress**

Mental health was identified as a health issue by several Key Informants. Most identified a shortage of in-patient beds (particularly for adults receiving MassHealth and children), shortage of therapists, shortage of bilingual mental health staff, large caseloads for mental health counselors, low reimbursement rates and stigma around receiving mental health services. Also of concern was the limited number of school adjustment counselors. Key Informants shared that the school systems want to help youth but are inhibited by limited school resources, lack of training in mental illness and limited support staff to assist with the issue.

**Substance Use**

Substance use and abuse, particularly opioid use and opioid overdose, was a concern reported by most Key Informants. Also of concern was the availability of prescription drugs to youth. Most agreed that more education and prevention efforts for youth would be helpful to reduce substance use.
At the time of the interviews, Massachusetts was in the middle of a much publicized opioid crisis. While substance use and abuse have been reported in past assessments as a concern, the awareness statewide was increased by community experiences as well as media coverage of recent overdose deaths. Participants described this as a public health emergency.

Prevention and early education efforts were mentioned as needed strategies to reduce substance use, e.g., “every day I do nothing someone else dies, if I don't work on prevention efforts.”

**Transportation**

As in past assessments transportation was identified as a barrier to accessing health and social services, especially in rural communities. Several individuals stated that offering or arranging transportation for community members was crucial for individuals to receive services. While several of those interviewed do not provide transportation through their organizations, they reported assisting community members to find resources for transportation. “There is an absence of good quality health care in the areas where people live, and because there is little transportation, they can’t access quality health care.”

**Cost of Health Care**

Although the passage of Health Reform in Massachusetts and the Affordable Care and Patient Protection Act (ACA) has assisted many to gain health insurance coverage, the cost of care is still a factor in the Study Area. Some services provided by area agencies and health care providers are not reimbursable or the reimbursement rates are very low. Key Informants working with the homeless population stressed that some health services aren’t reimbursable but there is a strong commitment to offer services.

**Housing**

Affordable, safe housing was identified as a barrier to good health. Absent landlords and unsafe living conditions were identified as concerns in the region.

**Culture**

The increasing diversity of the Study Area has created an awareness of the necessity for a more diverse workforce to meet community needs. Most often reported was the need for increased bilingual/bicultural workers and appropriate interpreter staffing. Also reported was the need for providers to better understand and serve the GLBTQ community. Several Key Informants shared that their organizations are attempting to increase diversity among both front line and management level staff. Participants also discussed the impact of racism on health. One of the recommendations to improve cultural responsiveness was to have more persons of color in senior positions within the health and social service systems. When asked if cultural responsiveness and racism has changed in the recent years, the authors heard, “Racism is still there, but at least now we are having some of the needed conversations around it.”

One of the recommendations to improve cultural responsiveness was to have more persons of color in senior positions within the health and social service systems. In addition, many persons of color talked about the social isolation they experienced. “It’s hard sometimes to be the only person of color”
Community Engagement

All providers interviewed stressed the importance of building community trust and engagement. However, most reported they could do a better job of engaging community members in efforts to improve health. Location, time and support services such as babysitting were identified as important items for consideration when engaging the community. Additionally, assuring that the community members have a “real” voice at the table was reported as important when engaging the community. Community trust was identified as important in order to engage communities in provider efforts.

“The community should guide the providers. We [providers] shouldn’t tell them what we think is best”

“First we [need to] work on building trust, and then we work on the medical care.”
APPENDIX C: MassCHIP Suppression Rules by Dataset.doc

Behavioral Risk Factor Surveillance System (BRFSS) Selected Cities (1994+)
No data are provided when the combination of selector values chosen by the user results in fewer than 125 respondents to a particular question.

NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Cell Counts and Rates where the Base Number of Respondents is from 0 to 50 will appear as "NA" in the MassCHIP Results Grid. - Custom Groups Are Allowed - Cell Counts and Rates will appear as "NA" when the standard error of the percent responding to a question is 30% or more of the percentage

Cancer Registry
NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Cell Counts of 1 to 4 will appear as "NA" in the MassCHIP Results Grid. - Rates based on denominators of 0 to 4 will appear as "NA" in the MassCHIP Results Grid. - Custom Groups Are Allowed

Communicable Diseases
Massachusetts Department of Public Health, Bureau of Communicable Disease Control (BCDC) Registries. Data from five Communicable Disease Program data sets are available in MassCHIP: Sexually Transmitted Diseases (STDs), Acquired Immune Deficiency Syndrome (AIDS), Epidemiological Topics (general disease incidence), Tuberculosis (TB), and Childhood Immunization.

Caveats: In order to maintain MDPH protocols on privacy protections related to the data in these data sets, analysis through MassCHIP is limited. Geographic selectors include only the entire state, standard regions, or individual cities/towns; custom geographic groupings are not allowed. No other selectors are available in MassCHIP.

- HIV/AIDS Program
  In order to maintain MDPH protocols on privacy protections related to the data in this data set, analysis through MassCHIP is limited. Geographic selectors include only the entire state, standard regions, or individual cities/towns; Other selectors are available in MassCHIP only when State total is selected, they are not available for any smaller geographies. NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Cell Counts of 1 to 4 will appear as "NA" in the MassCHIP Results Grid. - Rates based on denominators of 0 to 4 will appear as "NA" in the MassCHIP Results Grid. In order to comply with commitments regarding confidentiality that have been made to the community of AIDS advocacy organizations and their clients, the presentation of HIV/AIDS data in MassCHIP has been modified to insure greater protection of confidentiality. In the past MassCHIP had reported AIDS and HIV data at the city/town level stratified by age, sex, and race/Hispanic ethnicity. In the revised presentation these stratifications will only be
available at the state level. Only counts of events will be reported at the city/town level but the ability to create custom groups of communities or years will now be offered for the city/town data set. The new data set will contain two measures – HIV incidence and HIV/AIDS prevalence.

- **Epidemiology Program**
  In order to maintain MDPH protocols on protecting confidentiality related to the data in this data set, analysis through MassCHIP is limited. Geographic selectors include only the entire state, standard regions, or individual cities/towns; custom geographic groupings are not allowed. Sexually Transmitted Diseases (STD) Program data are available for only two age groups: 15 - 19 years or all ages. No other selectors are available in MassCHIP.

  NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Cell Counts of 1 to 4 will appear as "NA" in the MassCHIP Results Grid. - Rates based on denominators of 0 to 4 will appear as "NA" in the MassCHIP Results Grid. - Custom Groups Are Not Allowed

- **Immunization Program**
  The numbers shown are percentages and cannot be aggregated across data years. No other rates or counts are available for these data elements.

  NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Custom Groups Are Not Allowed

- **Sexually Transmitted Disease Program**
  Data on the incidence of gonorrhea, syphilis and chlamydia, maintained by the Division of Sexually Transmitted Disease Prevention.

  In order to maintain MDPH protocols on protecting confidentiality related to the data in this data set, analysis through MassCHIP is limited. Geographic selectors include only the entire state, standard regions, or individual cities/towns; custom geographic groupings are not allowed. Sexually Transmitted Diseases (STD) Program data are available for only two age groups: 15 - 19 years or all ages. No other selectors are available in MassCHIP.

  NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Cell Counts of 1 to 4 will appear as "NA" in the MassCHIP Results Grid. - Rates based on denominators of 0 to 4 will appear as "NA" in the MassCHIP Results Grid. - Custom Groups Are Not Allowed

- **Tuberculosis Program**
  Data on the incidence of tuberculosis, maintained by the Division of Tuberculosis Prevention and Control.
In order to maintain MDPH protocols on privacy protections related to the data in this data set, analysis through MassCHIP is limited. Geographic selectors include only the entire state, standard regions, or individual cities/towns; custom geographic groupings are not allowed. No other selectors are available in MassCHIP.

NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Cell Counts of 1 to 4 will appear as "NA" in the MassCHIP Results Grid. - Rates based on denominators of 0 to 4 will appear as "NA" in the MassCHIP Results Grid. - Custom Groups Are Not Allowed

Demographic / Census Files
U.S. Census, 1990 (MARS Adjustments; MIVER intercensal estimates).
- Population 2000: Census Counts & Sample Socio-demographic Data
  [No description]
  Population File: Single Race/Multiple Race Details
  Population File: Selected Race Categories, Age, Sex
  Census 2000 (SF3) Sample Data: Ancestry, Languages, Foreign born
  Census 2000 (SF3) Sample Data: Disabilities
  Census 2000 (SF3) Sample Data: Education
  Census 2000 (SF3) Sample Data: Employment
  Census 2000 (SF3) Sample Data: Housing Units
  Census 2000 (SF3) Sample Data: Income and Poverty Status
  Census 2000 (SF3) Sample Data & (SF1) Counts: Living Arrangements
- Population 1985-2005: Census Counts & Estimates by Sex, Age (5-Yr Age Grps) & Race
  NOTE ON SUPPRESSION: No suppression rules apply to this data set.
- Population 1990: Census Counts & Sample Socio-demographic Data
  Census (STF3) Sample Data 1990
  Population File: Hispanics included in selected Races
  Population File: Hispanic is a separate category

Department of Early Education and Care (DEEC)
No suppression required since only counts of licensed day care slots by community are shown

Department of Elementary and Secondary Education (DESE)
MassCHIP implements a “default” suppression rule of any cell >0 and <5
• School Enrollment by City/Town
• Public Education Expenditure
• School Enrollment/Dropouts by District
  ➢ School Enrollment/Dropouts by District, Grade & Race
  ➢ School Enrollment/ Dropouts by District, Grade & Sex
  ➢ School Dropouts by District, Grade, Sex & Race

Department of Children and Families (DCF)

• **Children in Foster Care by Age (DCF)**
  NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Cell Counts of 1 to 9 will appear as "NA" in the Results Grid. - Custom Groups Are Not Allowed

• **Children in Foster Care by Race (DCF)**
  NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Cell Counts of 1 to 9 will appear as "NA" in the Results Grid. - Custom Groups Are Not Allowed

• **Children in Foster Care by Sex (DCF)**
  NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Cell Counts of 1 to 9 will appear as "NA" in the Results Grid. - Custom Groups Are Not Allowed

• **Child Abuse/Neglect (DCF)**
  NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Cell Counts of 1 to 9 will appear as "NA" in the Results Grid. - Custom Groups Are Not Allowed

Department of Transitional Assistance (DTA)
NOTE ON SUPPRESSION: No suppression rules apply to this data set.

Division of Unemployment Assistance (DUA)
NOTE ON SUPPRESSION: No suppression rules apply to this data set.

Early Intervention (EI) Program Utilization – Calendar Year
NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Cell Counts of 1 to 4 will appear as "NA" in the MassCHIP Results Grid. - Rates based on denominators of 0 to 4 will appear as "NA" in the MassCHIP Results Grid. - Custom Groups Are Not Allowed
Hospital Discharge (UHDDS)
NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Cell Counts of 1 to 6 will appear as "NA" in the MassCHIP Results Grid. - Rates based on denominators of 0 to 4 will appear as "NA" in the MassCHIP Results Grid. - Custom Groups Are Allowed

Hospital Emergency Visits
NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Cell Counts of 1 to 6 will appear as "NA" in the MassCHIP Results Grid. - Rates based on denominators of 0 to 4 will appear as "NA" in the MassCHIP Results Grid. - Custom Groups Are Allowed

Hospital Outpatient Observation
NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Cell Counts of 1 to 6 will appear as "NA" in the MassCHIP Results Grid. - Rates based on denominators of 0 to 4 will appear as "NA" in the MassCHIP Results Grid. - Custom Groups Are Allowed

Lead Poisoning Prevention Program (CLPPP)
NOTE ON SUPPRESSION: No suppression rules apply for this data set.

Medicaid (MassHealth)
NOTE ON SUPPRESSION: No suppression rules apply to this data set.

NOTE ON SUPPRESSION: No suppression rules apply to this data set.

Mortality (Vital Records) ICD 10 based (1994+)
NOTE ON SUPPRESSION: No suppression rules apply to this data set.

Natality (Vital Records)

- Births (Vital Records)
  NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Cell Counts of 1 to 4 will appear as "NA" in the MassCHIP Results Grid. - Rates based on denominators of 0 to 4 will appear as "NA" in the MassCHIP Results Grid. - Custom Groups Are Allowed

- Linked Births / Deaths (Vital Records) ICD 9 1989-19998
  This data set is only available at the state level and there is no suppression

  This data set is only available at the state level and there is no suppression
  NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Infant Mortality Rates based on denominators of 0 to 499 will appear as "NA" in the MassCHIP Results Grid. - Custom Groups Are Allowed

- Infant Deaths (Vital Records) ICD 10 (1994 +)
  NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Infant Mortality Rates based on denominators of 0 to 499 will appear as "NA" in the MassCHIP Results Grid. - Custom Groups Are Allowed

Physicians Registered and Working in Massachusetts
No suppression rules apply to this dataset

Substance Abuse (BSAS) DPH Funded Program Utilization
NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Cell Counts of 1 to 9 will appear as "NA" in the MassCHIP Results Grid. - Rates based on denominators of 0 to 4 will appear as "NA" in the MassCHIP Results Grid. - Custom Groups Are Not Allowed

WIC Program Utilization (Dec. Participation)
No population-based rates can be calculated for WIC data in this release of MassCHIP. NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Cell Counts of 1 to 4 will appear as "NA" in the MassCHIP Results Grid. - Custom Groups Are Not Allowed

WIC Program Utilization (June Participation)
No population-based rates can be calculated for WIC data in this release of MassCHIP. NOTE ON SUPPRESSION: Suppression may be used for either precluding display of counts for confidentiality protection or for precluding display of rates based on insufficient data. If a count is suppressed, all corresponding rates are suppressed. Counts equal to zero are never suppressed. The following specific suppression rules apply to this data set: - Cell Counts of 1 to 4 will appear as "NA" in the MassCHIP Results Grid. - Custom Groups Are Not Allowed

Youth Risk Behavioral Survey (YRBS) NOT TO BE INCLUDED IN NEW MASSCHIP RELEASE 1
No data are provided when the combination of selector values chosen by the user results in fewer than 125 respondents to a particular question.

Youth Health Survey (YHS) High School
No data are provided when the combination of selector values chosen by the user results in fewer than 50 respondents to a particular question or when the relative standard error of the estimate is greater than 30%.

**Youth Health Survey (YHS) Middle School**
No data are provided when the combination of selector values chosen by the user results in fewer than 50 respondents to a particular question or when the relative standard error of the estimate is greater than 30%.

**Weapons Related Injury Surveillance System (WRISS)**
MassCHIP implements a “default” suppression rule of any cell >0 and <5
APPENDIX D: BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM DATA

This section of the report contains data from The Behavioral Risk Factor Surveillance System (BRFSS). According to the Centers for Disease Control and Prevention (CDC) website:

“By the early 1980s, scientific research clearly showed that personal health behaviors played a major role in premature morbidity and mortality. Although national estimates of health risk behaviors among U.S. adult populations had been periodically obtained through surveys conducted by the National Center for Health Statistics (NCHS), these data were not available on a state-specific basis. This deficiency was viewed as a critical obstacle to state health agencies trying to target resources to reduce behavioral risks and their consequent illnesses. National data may not be applicable to the conditions found in any given state; however, achieving national health goals required state and local agency participation.

About the same time as personal health behaviors received wider recognition in relation to chronic disease morbidity and mortality, telephone surveys emerged as an acceptable method for determining the prevalence of many health risk behaviors among populations. In addition to their cost advantages, telephone surveys were especially desirable at the state and local level, where the necessary expertise and resources for conducting area probability sampling for in-person household interviews were not likely to be available.

As a result, surveys were developed and conducted to monitor state-level prevalence of the major behavioral risks among adults associated with premature morbidity and mortality. The basic philosophy was to collect data on actual behaviors, rather than on attitudes or knowledge, that would be especially useful for planning, initiating, supporting, and evaluating health promotion and disease prevention programs.”
http://www.cdc.gov/brfss/

While the BRFSS Data is reported separately in this section of the report, data related to health conditions contained in the BRFSS data set are also discussed (utilizing additional data sources such as MassCHIP) in the Executive Summary and in all of the sections of this report.

**Binge Drinking: Adults**

Within Massachusetts, 20.6% of adult respondents to the Behavioral Risk Factor Surveillance System (BRFSS) survey during the 2011 – 2013 time period reported binge drinking within the last 30 days compared to 19.4% in the Study Area. When this data is broken down by age group, the percentages in the Commonwealth and the Study Area are similar among the 25-34 and the 55-64 age groups. However, the Study Area had lower reported binge drinking than in the Commonwealth as a whole, at 15.4% for the 18-24 age group (MA 37.8%); 23.4% for the 35-44 age group (MA 26.9%); and 17.1% for the 45 – 54 age group (MA19.3%). Within the 65 plus age group, there were too few respondents from the Study Area to obtain a meaningful percent.
The percentage of adult women who reported binge drinking in the past 30 days was slightly lower in the Study Area than in the Commonwealth at 15.7% compared to 16.1% in the State. For men, it should be noted that while the percentage of men who reported binge drinking was higher in the Study Area than in the Commonwealth during 2003-2008 at 26.8% versus 24.9%, in the 2011-2013 time period, the percentage of men in the Study Area who reported binge drinking was 22.8%, compared to 25.4% in the Commonwealth.

Numbers of respondents by race were too few to provide meaningful data within the Study Area.
While binge drinking by adults with less than a high school education was higher in the Study Area at 17.5% versus the State at 14.9%, Study Area residents with a high school diploma reported less binge drinking at 15.6% than those in the Commonwealth as a whole (19.4%), while Study Area respondents with some college education or with a 4-year college degree reported comparable percentages of binge drinking as in Commonwealth.

It is important to note that community members often do not utilize the same characterizing terminology or description of a health issue. In this regard, the term “binge drinking” was not identified as such. However, the issue of alcohol abuse, both in adults and youth, was identified as a health concern in the Study Area.

As noted earlier in this report, community members identified the abuse of alcohol and easy access to alcohol as a significant health concern.

“…don’t even think of it as a problem – what do you mean it’s not normal to drink 2 cases of beer a night?”

“There are 38 bars in town, without counting package stores.”

**Smoking: Adults**

Within Massachusetts, 18.2% of respondents to the Behavioral Risk Factor Surveillance System (BRFSS) survey during the 2008–2011 time period reported being current smokers who smoke regularly, a 5.1% increase from during the 2003–2008 time period.

The percentage of current smokers within the Study Area is lower than in the Commonwealth as a whole, but has also increased, to 18.2% in 2008–2022, from 15.6% in 203-2008. When this data is broken down by age group, the percentage of younger adults, aged 18–24 in the Study Area who were smokers at 26.2%, was higher than the 22.6% of smokers in that age group in the Commonwealth, as was the percentage those aged 25-34, at 28.3 as compared to 26.4% in the Commonwealth. In fact, the Study Area has a higher percentage of current smokers than in the Commonwealth as a whole in every age group except for the 65-74 age group where the percentages are equal. The numbers reported in the 75+ age group were too few to provide meaningful data in the Study Area, though in the Commonwealth, 5.7% of this age group are current smokers.
The Study Area had a comparable percentage of smokers as in the State among men, 19.4% versus 19.7%; however, more than 1 out of 5 (21.3%) women in the Study Area were current smokers in 2008 – 2011 which is 4.4 percentage points higher than in the Commonwealth. The numbers of respondents by race were too few to provide meaningful data within the Study Area.

Current smoking by adults with less than a high school education was comparable in the Study Area at 31.7% (down 2.1 percentage points since the prior survey) to in the State at 30.1%, as was the percentage of current smokers among those with a high school education, 23.9% in the Study Area versus 25.1% in the State. Nearly 1 out of 4 (24.1%) Study Area residents with 1 to 3 years of college were current smokers, as compared to in the Commonwealth at 21%; however among Study area residents with 4 years of college or more, the percentage of current smokers dropped to 6.2%, similar to the percentage of 7.2% in the Commonwealth.
Smoking was not expressed as a common concern in the Focus Group data; although it may be that Focus Group participants were also referring to smoking as a part of their overwhelming concern about substance use. Public health officials highlighted recent anti-smoking policies in several local cities to be among community assets and strengths.

**Overweight and Obesity: Adults**

Data regarding Overweight and Obesity, reported as separate categories in past BRFSS reports, were combined for the 2008 – 2011 BRFSS report.

Within Massachusetts, 59.3% of adult respondents to the Behavioral Risk Factor Surveillance System (BRFSS) survey during the 2008 – 2011 time period reported being overweight based on having a Body Mass Index (BMI) of greater than 25. Within the Study Area, this percentage was higher at 63.2%. When this data is broken down by age group, the percentage of Study Area respondents who reported being overweight was consistently higher than within the Commonwealth as a whole for all age groups. Three Study Area age groups had percentages of respondents who were overweight that were more than 70%: the 45 – 54 age group at 71.5%; the 55 – 64 age group at 72.4; and the 65 – 74 age group at 73.6%.

In the qualitative data, the issues of “overweight” or “obesity,” which were not expressed utilizing this terminology in previous assessments, were included as issues of concern. Community members across virtually all groups described concerns that have been established to be related to overweight and obesity. When asked to list the three biggest health problems in their communities, 13.5% of participants included obesity and/or poor nutrition among the three biggest problems.

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14 This percentage does not yet include data from the Focus Groups with Black/African American or Brazilian community members, although the Brazilian Focus Group participants expressed that they would like access to free classes about health, exercise and nutrition, especially for teens.
The Study Area had a higher percentage of overweight adults than the Commonwealth among both men (69.9% versus 66.2% for the State) and women (51.6% versus 46.1% for the State).
Among respondents with less than a high school education, the percentage of overweight adults was comparable among the Commonwealth and the Study Area, as was this percentage for high school graduates. However, Study Area residents with some college and college graduates reported higher percentages of being overweight than the Commonwealth at 63.9% versus 57.9% and 58.9% versus 51.4%, respectively.

**Overweight and Obesity: Children**

The Centers for Disease Prevention (CDC) identify severe and psychosocial risks related to childhood overweight and obesity that include higher cholesterol, blood pressure, increased glucose intolerance, as well as greater risk for asthma and sleep apnea. In addition, overweight and obese children are more likely to experience psychosocial and self-esteem issues than their peers. (Whitlock et al, 2005). In adulthood, childhood obesity also leads to increased risk and more severe adulthood obesity as well as greater risk in for cardiovascular disease, diabetes, and certain types of cancer.  


The Commonwealth, through its Executive Office and Department of Public Health, has also identified childhood overweight and obesity as a serious health issue and a priority for the administration, calling it “an epidemic.” A series of initiatives to prevent overweight, enhance wellness, promote healthy eating, and promote active living was launched by the Commonwealth including: Mass in Motion, which is currently in 44 communities, including in all 30 of the Study Area cities and towns; the release of *A Call to Action* reporting the scope and seriousness of the obesity epidemic; support for regulatory changes including BMI screening in the public schools in grades 1,4,7, and 10; regulatory actions related to large scale food purchasing by government entities; municipal wellness grants; the expansion of the Workplace Wellness program; and the expansion of the Essential Schools Program.

In December, 2012, the Massachusetts Department of Public Health published *The Status of Childhood Weight in Massachusetts 2009-2011*. This study looked at BMI, using the following standards for participating schools of students in grades 1,4,7, and 10, using the following “BMI Screening Weight Categories:

“When the BMI percentile for age is less than the 5th percentile, the child is considered underweight. When the child's BMI for age percentile is between the 5th percentile and 85th percentile, it is considered a healthy weight. BMI for age percentiles greater than or equal to the 85th percentile but less than the 95th percentile are considered overweight. When a child's BMI for age percentile is equal to or greater than the 95th percentile, the child is considered obese.”

Not all school district data was included in the *Status* report, and therefore, is not available for this report. The comprehensive report, including reasons for non-inclusion can be located at: [http://www.mass.gov/eohhs/docs/dph/com-health/school/status-childhood-obesity-2011.pdf](http://www.mass.gov/eohhs/docs/dph/com-health/school/status-childhood-obesity-2011.pdf)

The following chart depicts that Massachusetts overall rate of childhood overweight and obesity as well as the Study Area school district which were included in *The Status of Childhood Weight in Massachusetts 2009-2011*.

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The data shows several school districts in the Study Area which had rates of overweight lower than the Massachusetts rate of 16.7% (i.e., Montachusett Vocational Technical at 12.9%; Athol-Royalston at 14.1%; Groton-Dunstable at 14.5; Harvard at 15.5%; Narragansett at 16.0%; and Ayer-Shirley at 16.5%). In contrast, several of the Study Area school districts had rates that exceeded the state rate of 16.7% (i.e., Quabbin at 27.5%; Leicester at 22.0%; Fitchburg at 18.9%; and Gardner at 17.6%).

Related to obesity, the Study area had school districts whose rates were better than the State rate of 15.7%, with Harvard at 8.8%; and Groton-Dunstable at 11.6%. Most Study Area rates were higher than State rates, with Athol-Royalston at 26.8; Fitchburg at 23.1%; and Ayer-Shirley at 21.8% the highest.

When overweight and obesity were combined, two school districts again had better rates than the state rate of 33.9%; Harvard and Groton-Dunstable at 24.3% and 26.1 respectively. All of the Study Area school districts included in the report, exceeded MA rates, with Quabbin, Fitchburg, and Athol-Royalston at 43.4, 42.0, and 40.8 respectively.

The authors would like to emphasize, that while Study Area rates, may, at times, be better than State rates, nonetheless, Massachusetts, like many other states in the country, is facing, as is emphasized by state initiatives, an overweight/obesity “epidemic.”

The data cited above reflects the quantitative data gathered. Overweight and obesity continue to be concerns expressed in the qualitative data in this report. Community members and service providers identified multiple contributing factors including food insecurity (which is linked to childhood obesity); the cost and availability of more nutritious and healthier food options, the need for more opportunities for safe activities, the increased amount of time that youth spend watching screens (i.e., computers, tablets, phones, television); as well as safety concerns related to children being out of doors.

An informative perspective that is discussed in the MPHN Community Health Assessment, is the fact that students themselves perceive themselves to be overweight or obese as reported in the 2011 Youth Risk Behavior Survey and Youth and Community Survey stating that 30.2% of area high school youth in the Study Area consider themselves to be “overweight”.

<table>
<thead>
<tr>
<th>School District</th>
<th>% Overweight</th>
<th>% Obese</th>
<th>% Overweight and Obese</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massachusetts Overall</td>
<td>16.7</td>
<td>15.7</td>
<td>33.9</td>
</tr>
<tr>
<td>Athol-Royalston</td>
<td>14.1</td>
<td>26.8</td>
<td>40.8</td>
</tr>
<tr>
<td>Ayer-Shirley</td>
<td>16.5</td>
<td>21.8</td>
<td>38.3</td>
</tr>
<tr>
<td>Fitchburg</td>
<td>18.9</td>
<td>23.1</td>
<td>42.0</td>
</tr>
<tr>
<td>Gardner</td>
<td>17.6</td>
<td>18.4</td>
<td>36.1</td>
</tr>
<tr>
<td>Groton-Dunstable</td>
<td>14.5</td>
<td>11.6</td>
<td>26.1</td>
</tr>
<tr>
<td>Harvard</td>
<td>15.5</td>
<td>8.8</td>
<td>24.3</td>
</tr>
<tr>
<td>Leicester</td>
<td>22.0</td>
<td>17.7</td>
<td>39.8</td>
</tr>
<tr>
<td>Montechusett Vocational Technical</td>
<td>12.9</td>
<td>19.3</td>
<td>32.2</td>
</tr>
<tr>
<td>Narragansett</td>
<td>16.0</td>
<td>19.1</td>
<td>35.1</td>
</tr>
<tr>
<td>Quabbin</td>
<td>27.5</td>
<td>15.9</td>
<td>43.4</td>
</tr>
</tbody>
</table>
“Nearly half (43.5%) of area youth reported that they were trying to lose weight. Nearly sixty percent (59.5%) reported exercising and 38.8% reported eating fewer calories to lose weight or keep from gaining weight...MPHN area youth reported higher rates of “more drastic” measures to control their weight. Specifically, 13.6% reported not eating for 24 hours or more to control their weight versus 10% and 12.2% across the state and nation, respectively. Ten percent (10.0%) reported taking diet pills, powders or liquids to lose weight or keep from gaining weight versus 4.0% in Massachusetts and 5.1% in the United States. And, 9.6% reported vomiting or taking laxatives.” (p. 116)

Body mass index (BMI) is a measure used to determine childhood overweight and obesity. BMI is calculated differently in children, utilizing formulation that includes multiple factors such as, gender, age, height, and weight (with a more severe condition of obesity) putting them at greater risk for heart disease, diabetes, and certain forms of cancer.

Limited data is available in Massachusetts by city and town or by race and ethnicity for childhood overweight and obesity. Updated data for childhood obesity and diabetes among youth in the Study Area were unavailable for this health assessment. The information by school district is collected by, but is not available from the Massachusetts Department of Public Health. Individual school districts own and maintain their separate data; local data are available only by directly contacting each school district nurse leader. School districts are under no obligation to share the information with outside sources.

However, The Status of Childhood Weight in Massachusetts, 2009: Preliminary Results from Body Mass Index Screening in 80 Essential School Health Districts, 2008-2009, published by the MA Department of Public Health (2010), does provide us with some data on school aged children in grades 1, 4, 7, and 10 related to overweight and obesity in three of the cities and towns in the Study Area: Fitchburg, Gardner, and Leominster. Of these, Leominster rated slightly lower than the overall study average of 34.3% reporting 32.1% of children being overweight or obese. In contrast, Fitchburg and Gardner reported some of the highest rates of overweight and obesity of the 80 communities reviewed at 46.2% and 42.0% respectively. In the study overall, there was a range of 9.6% (in Arlington) to a high of 46.6% (in Lawrence). For those seeking additional data on these cities and towns, the authors would encourage the reader to review this report in more detail as it breaks down the data more specifically by gender and by age.

As discussed above, childhood obesity poses a higher risk for diabetes. The following chart shows rates of diabetes related inpatient hospitalizations. Diabetes-related hospitalizations for children ages 0-19 were significantly higher for the Study Area than in the Commonwealth as a whole at 113.3 versus the state rate of 88.6 and 52.3 versus the state rate for ages 0-9 years and 10-19 years respectively).

**Diabetes Related Inpatient Hospitalizations: CHNA 9**

<table>
<thead>
<tr>
<th>Age</th>
<th>Area Count</th>
<th>Area Age Specific Rate</th>
<th>State Age Specific Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 9 yrs.</td>
<td>39</td>
<td>113.3</td>
<td>88.6</td>
</tr>
<tr>
<td>10 to 19 yrs.</td>
<td>20</td>
<td>52.3</td>
<td>34.4</td>
</tr>
<tr>
<td>20 to 24 yrs.</td>
<td>15</td>
<td>105.6</td>
<td>98.0</td>
</tr>
<tr>
<td>25 to 44 yrs.</td>
<td>84</td>
<td>108.0</td>
<td>133.6</td>
</tr>
</tbody>
</table>
Childhood Overweight and Obesity: Interventions

According to data from the CDC, the average child now consumes 365 extra calories per day of extra sugars and 433 calories per day of solid fats for a combined total of 798 calories. It has been demonstrated that the more time children spend in front of any type of screen—whether video, television or computer—the greater the likelihood they will be overweight or obese\textsuperscript{16}.

Interventions to address the issue of both adult and childhood obesity are complex and have been initiated in some areas in the region through programs such as the \textit{Fit in Fitchburg} program, the \textit{Off Our Rockers} after school program in Gardner, and others. Efforts undertaken have included environmental and policy strategies such as modifying the built environment to make walking to school or going to playgrounds more accessible and safe, making school lunches healthier, supporting more community gardens, offering incentives for low-income families to purchase fresh fruits and vegetables, addressing work place health and parent education, and offering after school nutrition and activity programming. These efforts are consistent with the conclusions of the \textit{Massachusetts Health Policy Obesity Forum Brief}.

“The challenge, then, is to create healthy defaults, build environments that are good for adults and children alike and that promote healthy behaviors. In Massachusetts, change could begin by creating healthy school environments that provide children with nutritious foods and encourage physical activity. Outside of the school setting, policies that provide more and better health information about food choices, encourage consumption of locally grown produce, and discourage consumption of less nutritious, high fat, high calorie options should be considered. Equally important are policies that create safe spaces in all neighborhoods and promote walking and physical activity as a part of everyday life.”

As Focus Group participants noted, it is not easy for everyone to make “healthy” food choices. “\textit{Good food costs a lot more versus getting the stuff off the shelves which are full of fat that you don’t really want to eat but that is what is accessible.}”

Physical Activity: Adults Who Meet the Guidelines for Aerobic Activity

Within Massachusetts, 56.3\% of the Behavioral Risk Factor Surveillance System (BRFSS) respondents in the 2008 - 2011 time period reported having been involved in regular physical activity, defined as a 30 minute session 5 or more times per week. Within CHNA 9, this percentage was 56.2\%.

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When this data is broken down by age group, the percentage of Study Area respondents who reported being regularly physically active was comparable to the Commonwealth for most age groups.

However, the percentage of regularly physically active adults in the 45 – 54 age groups in the Study Area was lower, at 45.5% (down from 58.7% in the previous report) versus 57.8% in the State and Study Area individuals in the 75+ age groups also fared worse at 47.1% compared to 54.4% in the Commonwealth.

The percentages of adult men and adult women in the Study Area that were involved in regular physical activity were comparable to percentages for the overall Commonwealth.

Among respondents with less than a high school education and those who were high school graduates, regular physical activity was higher in the Study Area than within the Commonwealth at 57.7% versus 42.4% and 53.2% versus 50.5%, respectively. 59.5% of Study Area residents who had some college participated in more regular physical activity than those in the State; however, college graduates reported lower percentages of regular physical activity than among similar respondents within the Commonwealth at 55.9% versus 63.5%.
The numbers of respondents by race were too few to provide meaningful data from the Study Area.

Within Massachusetts, 8% of the Behavioral Risk Factor Surveillance System (BRFSS) respondents in the 2008 - 2011 time period reported that they had or currently have diabetes, up from 6.5% in the prior survey. Within the Study Area, this percentage was even higher at 9.3%, up from 5.8% in the prior survey.

When this data is broken down by age group, the percentage of respondents who had or have diabetes was higher in the Study area than within the Commonwealth for all age groups, with the exception of the 75+ age group. In the Study Area, 7.9% of the 45-54 age group, 15.3% of the 55-64 age group, and 28% of the 65-74 aged group reported having had diabetes. Among the 18–34 age group, the numbers were too small to provide meaningful data in the Study Area.

Diabetes is such a concern in this report as diabetes significantly increases the chances of having a range of additional serious health problems such as high blood pressure, high cholesterol, coronary artery disease, and stroke. (CDC, National Diabetes Fact Sheet, 201: http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2011.pdf).

As outlined in the following table, for example, a person with diabetes is more than twice as likely to also have high blood pressure (59.3% as opposed to 21.4% for a person without diabetes). Similarly, a person with diabetes is more than three times more likely to have cardiovascular disease than a person without diabetes (i.e., 31.3% versus 9.5% respectively).
Why is Diabetes Such a Concern: Risk factors among people with and without Diabetes

<table>
<thead>
<tr>
<th>State 3 year Percent (Massachusetts)</th>
<th>Persons with Diabetes</th>
<th>Persons without Diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Blood Pressure</td>
<td>59.3</td>
<td>21.4</td>
</tr>
<tr>
<td>High Cholesterol</td>
<td>54.5</td>
<td>30.4</td>
</tr>
<tr>
<td>Cardiovascular: Had a Stroke</td>
<td>8.9</td>
<td>2.4</td>
</tr>
<tr>
<td>Cardiovascular: Had or have Angina or Coronary Disease</td>
<td>17.7</td>
<td>4.6</td>
</tr>
<tr>
<td>Cardiovascular: Had or have Heart Disease</td>
<td>31.3</td>
<td>9.5</td>
</tr>
<tr>
<td>Overweight</td>
<td>79.9</td>
<td>52.5</td>
</tr>
<tr>
<td>Obese</td>
<td>42.8</td>
<td>16.6</td>
</tr>
<tr>
<td>Low Physical Activity</td>
<td>64.6</td>
<td>46.9</td>
</tr>
<tr>
<td>Less than 5 servings of fruits and vegetables</td>
<td>71.8</td>
<td>70.7</td>
</tr>
<tr>
<td>Smokes Regularly</td>
<td>14.4</td>
<td>14.2</td>
</tr>
<tr>
<td>Have Health Insurance</td>
<td>97.2</td>
<td>92.3</td>
</tr>
<tr>
<td>Have a disability</td>
<td>47.1</td>
<td>19.4</td>
</tr>
</tbody>
</table>

**Percent of Adults with Diabetes by Level of Education (2011-2013)**

**Percent of Adults with Diabetes by Gender (2011-2013)**
Within both the Study Area (and the Commonwealth) a higher percentage of adult men have or had diabetes at 10% than adult women at 8.6%. The percent of adults with diabetes in the Study Area was higher for both men and women than the corresponding percent of men and women with diabetes in the Commonwealth.

Although the numbers of respondents by race were too few to provide meaningful data within the Study Area through the MassCHIP data sources available at the time of the study, it has been well established that most communities of color suffer significant disparities in rates of diabetes and of diabetes related complications and mortality (CDC, National Diabetes Fact Sheet, 201: http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2011.pdf).

### Diabetes Related In-Patient Hospitalizations: CHNA 9

<table>
<thead>
<tr>
<th></th>
<th>Area Count</th>
<th>Area Age Specific Rate</th>
<th>State Age Specific Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>956</td>
<td>386.7</td>
<td>383.4</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White, Non-Hispanic</td>
<td>785</td>
<td>338.4</td>
<td>314.7</td>
</tr>
<tr>
<td>Black, Non-Hispanic</td>
<td>37</td>
<td>1025.3</td>
<td>952.0</td>
</tr>
<tr>
<td>Asian Pacific Islander, Non-Hispanic</td>
<td>N/A</td>
<td>N/A</td>
<td>179.5</td>
</tr>
<tr>
<td>Hispanic</td>
<td>38</td>
<td>452.8</td>
<td>486.7</td>
</tr>
</tbody>
</table>

Similarly, as noted in the Mortality section of this report, within the Commonwealth as a whole, the highest percentage of respondents who had or have diabetes was reported among Black, Non-Hispanics at 9.6%, followed by Hispanics at 8.5%, White, Non-Hispanics at 6.2% and Asians at 4.5%. It is of note that not only was diabetes identified by the large majority of Focus Groups as a major health condition, in the groups with Latino participants; it was listed by almost all of the Latino participants in each group.

Among the Study Area respondents with less than a high school education the percentage of respondents who had or have diabetes was much lower at 11% than reported among respondents with less than a high school education in the Commonwealth (17.9%). However, the Study Area percentages were higher for respondents who were high school graduates (12.4%); for those who
had some college (8.6%); and for college graduates (6.1%), than those reported for respective age groups in the Commonwealth.

**High Blood Pressure**

Within Massachusetts, 29.2% of the Behavioral Risk Factor Surveillance System (BRFSS) respondents in the 2008 – 2011 time period reported that they had been diagnosed with high blood pressure in their lifetimes. Within the Study Area, this percentage was nearly the same at 29.3%.

When this data is broken down by age group, the percentage of respondents who were diagnosed with high blood pressure was 3.6 percentage points lower than the State for the 35 – 44 age group, but higher than State percentages for every other age group, most notable in the 55 – 64 age group where the Study Area percentage was 49.5% as compared to the State at 43.7%. Among the 18–34 age group, the numbers were too small to provide meaningful data in the Study Area.

A slightly higher percentage of adult men in the Study Area were diagnosed with high blood pressure at 31.9% than adult men in the Commonwealth at 30.9%. However, the percentage of adult women in the Study Area who were diagnosed with high blood pressure was lower at 26.4% than the State at 27.7%.
Numbers of respondents by race were too few to provide meaningful data within the Study Area. Among respondents with less than a high school education, who were high school graduates and who were college graduates, the percentage of respondents who were diagnosed with high blood pressure in the Study Area was comparable to that reported among respondents with the corresponding level of education in the Commonwealth, with the exception of college graduates at 28.4% in the Study Area, as compared to 21.5% in the State.

![Percent of Adults Who Have Been Told That Their Blood Pressure Was High by Level of Education (2011-2013)](image)

**High Cholesterol**

Within Massachusetts, 34.3% of the Behavioral Risk Factor Surveillance System (BRFSS) respondents in the 2008 – 2011 time period reported that they had been diagnosed with high cholesterol in their lifetimes. Within the Study Area, this percentage was lower at 29.1%.

When this data is broken down by age group, the percentage of respondents who were diagnosed with high cholesterol was higher than the State for all age groups except the 65 – 74 age group, at 66.6% in the Study Area as compared to 53.8% in the State.

Within both the Study Area and the Commonwealth a higher percentage of adult men have been diagnosed with high cholesterol than adult women. The percent of adults with high cholesterol in the Study Area was lower for both men and women than the corresponding percent of men and women with high cholesterol in the Commonwealth.
When considering levels of educational attainment, the percentage of respondents who were diagnosed with high cholesterol in the Study Area was much lower than that reported among respondents with the corresponding level of education in the Commonwealth.

Numbers of respondents by race were too few to provide meaningful data within the Study Area.

**Asthma**

Within Massachusetts, 15.3% of the Behavioral Risk Factor Surveillance System (BRFSS) respondents in the 2008 – 2011 time period reported that they had been diagnosed with asthma in their lifetimes. Within the Study Area, this percentage was comparable at 15.4.

When this data is broken down by age group, the percentage of respondents who were diagnosed with asthma was lower in the Study Area than in the State, except for in the 25-34 age group at 19.9% compared with 18.5% in the State and in the 75+ age group at 11.5% in the Study Area and 8.7% in the State.

Within both the Study Area and the State, a higher percentage of adult women have been diagnosed with asthma than adult men. The percent of adult women with asthma was comparable in the Study Area at 17.7% to the Commonwealth at 17.8%. Among adult men, the Study Area had a higher percent of asthma diagnoses at 13.3%, which is an increase by 2.5% from the prior survey.
Among respondents at all levels of education except for those with 1-3 years of college education, the percentage of respondents who were diagnosed with asthma was within 2 percentage points of those with the corresponding level of education in the Commonwealth. Among respondents with 1-3 years of college education, the percentage of those who were diagnosed with asthma was 18.4% in the Study Area, compared to 16.1% in the State.

Disability

Within Massachusetts, 23.1% of the Behavioral Risk Factor Surveillance System (BRFSS) respondents in the 2008 - 2011 time period reported having a disability. Within the Study Area, this percentage was comparable at 22.5%.

When this data is broken down by age group, the percentage of respondents who had a disability was comparable in the Study Area to the State, but higher at 34.5% in the 65 – 74 age group than in the State (31.9%).
Within the Study Area, a higher percentage of women (25.2%) reported having a disability than men (20%). A slightly lower percentage of men reported having a disability at 20% than men in the Commonwealth overall at 21.4%. Among women the percentage reporting a disability within the Study Area was 25.2%, higher than that reported by women in the Commonwealth overall at 24.7%.

Numbers of respondents by race were too few to provide meaningful data within the Study Area.
Among respondents with less than a high school education, the percent of adults reporting a disability was much lower at 24.6% than adults in the Commonwealth overall with less than a high school education at 34.7%. The percent of respondents with a disability was slightly higher for high school graduates in the Study Area (26.5%) as compared with the Commonwealth (25.4%). For those with some college, the percent of respondents who reported a disability in the Study Area was nearly the same at 23% than in the Commonwealth overall at 23.1% and lower in the Study Area at 16.3% versus 17.9% in the State.

In the Qualitative data, community members and stakeholders did not utilize the term “disability” with any frequency.
### APPENDIX E: DATA SOURCES

<table>
<thead>
<tr>
<th>National Sources</th>
<th>Websites/Links</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>US Census Bureau Decennial Census 2010</strong></td>
<td><a href="http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml###">http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml###</a></td>
</tr>
<tr>
<td>The decennial census is the only data gathering operation in the United States that is mandated by the Constitution. It occurs every 10 years, in the years ending in “0”. Statistical data from these censuses are or will be available through American FactFinder.</td>
<td></td>
</tr>
<tr>
<td>The American Community Survey (ACS) is a nationwide survey designed to provide communities a fresh look at how they are changing. The ACS eliminated the need for a decennial census long form in 2010. The ACS collects long form type information throughout the decade, publishing statistics yearly rather than only once every 10 years. The American Community Survey collects data throughout the year in every county in the United States and every municipality in Puerto Rico. Statistics from the ACS are released in the form of 1-year, 3-year and 5-year estimates.</td>
<td></td>
</tr>
<tr>
<td><strong>Health Resources and Services Administration (HRSA) Primary Care: The Health Center Program</strong></td>
<td><a href="http://bphc.hrsa.gov/about/index.htm">http://bphc.hrsa.gov/about/index.htm</a>! For State information, visit the Massachusetts League of Community Health Centers website: <a href="http://www.massleague.org/">http://www.massleague.org/</a></td>
</tr>
<tr>
<td>HRSA-supported health centers, including Federally Qualified Health Centers provide comprehensive, culturally competent, quality primary health care services to medically underserved communities and vulnerable populations.</td>
<td></td>
</tr>
<tr>
<td>The BRFSS surveys are conducted to monitor state-level prevalence of the major behavioral risks among adults associated with premature morbidity and mortality.</td>
<td></td>
</tr>
<tr>
<td>Point-in-Time Homeless Persons Counts (PIT) provide counts of sheltered and unsheltered people experiencing homelessness on a single night, by household type (individuals, families, and child-only households).</td>
<td></td>
</tr>
<tr>
<td>Commonwealth of Massachusetts Sources</td>
<td>Websites/Links</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Commonwealth of Massachusetts Executive Office of Health and Human Services (EOHHS)</td>
<td><a href="http://www.mass.gov/eohhs/">http://www.mass.gov/eohhs/</a></td>
</tr>
<tr>
<td><em>Massachusetts Community Health Information Profile (MassCHIP)</em> - MassCHIP specially designed data reports were the source of the majority of Quantitative Data used in this report. MassCHIP provides community-level data to assess health needs, monitor health status indicators, and evaluate health programs.</td>
<td><a href="http://www.mass.gov/eohhs/research/community-health/masschip/">http://www.mass.gov/eohhs/research/community-health/masschip/</a></td>
</tr>
<tr>
<td><em>Special Commission on Rural Access and Improving State-Sponsored Services In Massachusetts Rural Communities Report to the Great and General Court and Executive Office Of The Governor August 2013</em></td>
<td></td>
</tr>
<tr>
<td>This report provides content about health status, concerns and challenges of residents of Massachusetts’ rural communities.</td>
<td></td>
</tr>
<tr>
<td>Commonwealth of Massachusetts Department of Elementary and Secondary Education (DOESE)</td>
<td><a href="http://www.doe.mas.edu">http://www.doe.mas.edu</a></td>
</tr>
<tr>
<td>This website was the source of the majority of data in the Education and Educational Attainment content in the report.</td>
<td><a href="http://www.doe.mass.edu/mv/Survey2013.pdf">http://www.doe.mass.edu/mv/Survey2013.pdf</a></td>
</tr>
<tr>
<td>The DOESE provided information about Limited English Proficiency among students and the LEP definition</td>
<td></td>
</tr>
<tr>
<td>Commonwealth of Massachusetts: Department of Veteran’s Services</td>
<td><a href="http://www.mass.gov/veterans/">http://www.mass.gov/veterans/</a></td>
</tr>
<tr>
<td>This official website provides information and resources about veteran’s health and wellness in addition to many other resources and topics.</td>
<td>Additional information available at: <a href="http://www.va.gov/">http://www.va.gov/</a>, and <a href="http://www.va.gov/opa/publications/">http://www.va.gov/opa/publications/</a></td>
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<td>This website was the source of the majority of unemployment content of this report.</td>
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<td>Child Maltreatment Statistics</td>
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<td>2013 Annual Report</td>
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<td>Massachusetts Parole Board 2013 Annual Statistical Report</td>
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<tr>
<td><strong>Other Massachusetts State-Level Data Sources</strong></td>
<td><strong>Websites/Links</strong></td>
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<tr>
<td>Massachusetts Healthy Aging Data Report Community Profiles 2014, Tufts Health Plan Foundation</td>
<td><a href="http://mahealthyagingcollaborative.org">http://mahealthyagingcollaborative.org</a></td>
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<td>Created by researchers at the Gerontology Institute of the John W. McCormack Graduate School of Policy and Global Studies at UMass Boston and commissioned by the Tufts Health Plan Foundation, this is the most comprehensive view of healthy aging indicators reported at local geographic levels ever available in Massachusetts; this is the first time that these data have been utilized for the North Central Massachusetts community health assessment.</td>
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<td>This source provided information about health status and challenges specific to residents of Massachusetts’ rural communities.</td>
<td>MHP additional publications: <a href="http://www.mhp.net/community_initiatives/resources.php">http://www.mhp.net/community_initiatives/resources.php</a></td>
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<td>Includes data about access to care, asthma, blood-borne pathogens, education, obesity and overweightness, substance use and violence.</td>
<td>Additional information at: <a href="http://www.masscoalitionfororalhealth.org/oral-health-policy/reports-and-research/">http://www.masscoalitionfororalhealth.org/oral-health-policy/reports-and-research/</a></td>
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<tr>
<td>North-Central Massachusetts Regional Data Sources</td>
<td>Websites/Links</td>
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<td><strong>2014 MPHN Community Health Assessment</strong>&lt;br&gt;This comprehensive assessment provided the most current data available for the MPHN service area for this report, thanks to the prior authorization graciously provided by the MPHN, including data about youth risk behaviors that was unavailable publicly elsewhere during the development of the current report.</td>
<td><a href="http://www.ci.fitchburg.ma.us/government/departments/health/mphn-page/MPHN%20CHA%20FIN%20Jan%202014.pdf">http://www.ci.fitchburg.ma.us/government/departments/health/mphn-page/MPHN%20CHA%20FIN%20Jan%202014.pdf</a></td>
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<td><strong>2012 Community Health Needs Assessment: North Quabbin Community Health Needs Assessment</strong>&lt;br&gt;The assessment of the North Quabbin Community Coalition includes data about local health status and conditions as well as community perceptions of health, barriers to care and unmet needs in the North Quabbin area.</td>
<td><a href="http://www.atholhospital.org/files/dmfile/CommunityHealthNeedsAssessment20121.pdf">http://www.atholhospital.org/files/dmfile/CommunityHealthNeedsAssessment20121.pdf</a></td>
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<td><strong>2011 Community Assessment of North Central Massachusetts</strong>&lt;br&gt;This is the prior assessment to the current report, 2014 Community Assessment of North Central Massachusetts, provides earlier information and analyses relative to the health status, issues, concerns, and assets of the North Central Region of Massachusetts.</td>
<td><a href="http://www.jointcoalitiononhealth.org/about/partnering/coh/pdfs/Community_Health_Assessment_final_report_12_20_11.pdf">http://www.jointcoalitiononhealth.org/about/partnering/coh/pdfs/Community_Health_Assessment_final_report_12_20_11.pdf</a></td>
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<td><strong>2014 Heywood Health System Behavioral Health Needs Assessment</strong>&lt;br&gt;This assessment provides information about behavioral health in the Heywood Health System Service Area, including summaries of needs, demands, key questions and recommendations.</td>
<td><a href="http://www.ngcc.org/pdfs/north_central_bh_needs_assessment.pdf">http://www.ngcc.org/pdfs/north_central_bh_needs_assessment.pdf</a></td>
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