DECEMBER 2012:

2012 Greater Worcester Community Health Assessment (CHA)

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GREATER WORCESTER AREA COMMUNITY HEALTH ASSESSMENT
EXECUTIVE SUMMARY

Introduction

Advancing the health of a community is critical for improving residents' quality of life and enhancing the future social and economic wellbeing of the community. To this end, the City of Worcester Division of Public Health and UMass Memorial Medical Center are leading a comprehensive community health planning effort to measurably enhance the health of residents in the Greater Worcester area, including the City of Worcester and the outlying communities of Shrewsbury, Millbury, West Boylston, Leicester, and Holden. This effort involves two major phases: (1) a community health assessment (CHA) of the health-related needs and strengths of the Greater Worcester area and (2) a community health improvement plan (CHIP) to identify major health priorities, overarching goals, and specific strategies to implement in a coordinated approach across the region. This report provides a summary of the findings of the community health assessment, which examines a range of health behaviors and outcomes, social and economic issues, health care access, and gaps and strengths of existing resources and services, with a focus on the Greater Worcester region.

Methods

The community health assessment was guided by a participatory, collaborative approach to examine health in the broadest sense. The assessment process included integrating existing data on social, economic, and health indicators in the region with new data from community dialogues, focus groups, key informant interviews, and a community survey. In total, approximately 1,745 individuals from across the six communities provided feedback during the community health assessment process, with 1,356 respondents to the community survey and 389 participants involved in the qualitative focus group, interview, and dialogue discussions. Respondents represented a range of communities and sectors, including youth, seniors, government officials, educational leaders, and social service and health care providers.

Key Findings

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

<u>Who Lives in the Greater Worcester area?</u>

The Greater Worcester area includes six communities with wide variation in socioeconomic conditions.

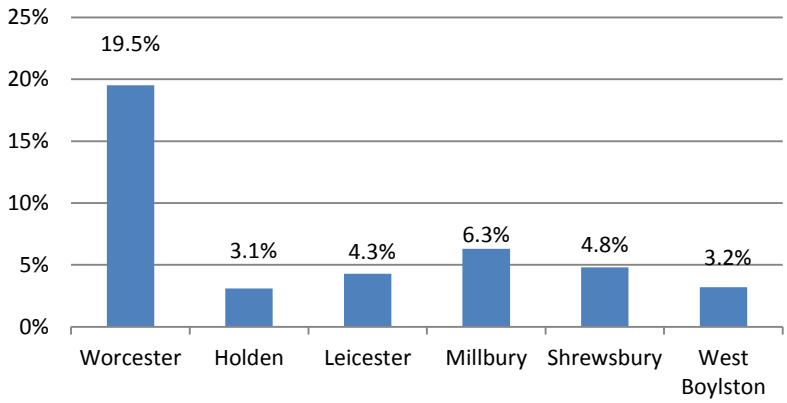
- **Overall Population:** While the City of Worcester is the second largest city in Massachusetts and New England (181,045 persons), the towns within the Greater Worcester area vary by size, growth patterns, and composition of residents.
- **Age Distribution:** Key informant interview participants described their communities as multi-age – a combination of young families, middle-aged residents, and seniors, a description that U.S Census data

> *"In Worcester, we have a lot of different people living together. That certainly has its challenges, but people also celebrate others."* – Focus group participant
>
> *"Worcester is a pleasant place to live. We're an example of seeing a city turnaround from a mill city to a biotech city."* – Key informant interview participant

confirm. The City of Worcester has a young population, with 37% of Worcester's population being 24 years of age or younger.

- **Racial and Ethnic Diversity:** Diversity in the region was described as a major strength by key informant and community festival participants. Communities in the Greater Worcester area varied in the levels and types of racial/ethnic diversity of their populations. For example, Millbury and Holden are 92.8% and 92.7% White, respectively, while the City of Worcester is 10.2% Black, 6.0% Asian and 20.9% Hispanic and Shrewsbury is 15.3% Asian. Much of the population growth in the region is attributed to new immigrants and refugees. Approximately 32% of residents in the City of Worcester speak a language other than English.

Figure 1: Percent of Individuals Below Poverty, Greater Worcester Area, 2009



DATA SOURCE: U.S. Census, American Community Survey, 2009 as cited in city-data.com and CHNA8 assessment

- **Income, Poverty, and Employment:** While the Greater Worcester area is characterized by differences in income across and within towns, more affluent communities surround the City of Worcester. As shown in Figure 1, the largest proportion of residents below the poverty level resides in Worcester (19.5%), followed by Millbury (6.3%) and Shrewsbury (4.8%). While Worcester is less affluent than surrounding communities, there is variation in socioeconomic status of city residents. As one key informant interview participant explained, *"There are areas of poverty and wealth in Worcester."*
- **Employment:** Employment opportunities emerged as a concern among focus group respondents and interview participants. Over the period the past decade, unemployment rates increased in the state, Worcester County and City of Worcester. In 2010, the unemployment rate in was 9.3% in Worcester County and 10.2% in Worcester City. The unemployment rate in Worcester City was higher than the rate for the State (9.7%) in 2010.
- **Educational Attainment:** There is also substantial variation in educational attainment across communities in the Greater Worcester area. Holden (50.0%) and Shrewsbury (56.5%) have the highest proportion of residents with at least a college education, while in other towns, the proportion of residents with a college education ranges from 24.2% in Leicester to 29.6% in the City of Worcester.
- **Disability:** Several key informant interview participants cited residents with disabilities as an important community to consider when planning programs and policies to improve the health of residents. According to Census estimates, 4% of persons under 18 years of age, 9% of persons aged 18 to 64 and 37% of persons age 65 and older have a disability in Worcester County.

Social and Physical Environment: What is the Greater Worcester Community Like?

- **Urbanicity:** The six towns in the Greater Worcester area vary in their geographic settings and are described by key informants as urban centers experiencing revitalization, suburbs, and small towns. While many participants in the more affluent communities liked the region for its open parks, recreational facilities and schools, perceptions were different in less affluent areas.
- **Housing:** While respondents in more affluent areas cited the affordability of housing as an asset, respondents in the City of Worcester described housing as less accessible and very costly for low-income residents.
- **Transportation:** Transportation emerged as a key concern for key informants, focus group participants, and community festival participants describing transportation within the City of Worcester and among the communities in the Greater Worcester area as inadequate for persons who do not have a car. Respondents noted that transportation was a significant issue particularly for low-income residents and the elderly.
- **Crime and Violence:** While residents across the region described safety as a concern that restricts active living and utilization of parks and green spaces for recreation, residents in the City of Worcester described their neighborhoods as less safe. Quantitative data confirm these perceptions. The violent and property crime rate in the City of Worcester (988.2 and 3336.4 per 100,000, respectively) exceeds that for the state (428.4 and 2258.7 per 100,000, respectively) and other towns in the region.
- **Social Support and Cohesion:** Several key informant interview participants, focus group participants and community festival participants described the region as a community- and family-oriented area and a region that celebrates its cultural diversity.

Risk and Protective Lifestyle Behaviors

This section summarizes lifestyle behaviors among residents in the Greater Worcester area that promote or hinder health.

- **Healthy Eating, Physical Activity, and Overweight/Obesity:** Similar to patterns nationwide, concerns regarding obesity and behaviors associated with obesity, such as nutrition and physical activity, are important health concerns cited by respondents in all communities in the Greater Worcester area and are associated with chronic illnesses such as diabetes and heart disease. In Worcester County, the prevalence of overweight and obesity are patterned by socioeconomic status. In 2010, 72% of adults with a household income of less than $25,000 reported that they were overweight (Figure 2) and 33% reported that they were obese. In contrast, 65% or less of residents with incomes at or above $25,000 reported being overweight and 30% or less in this income category reported being obese. Transportation, affordability of healthy food, access to recreational facilities, and concerns about neighborhood safety emerged as barriers to active, healthy living.

Figure 2: Percent of Adults who Reported that they are Overweight, by Household Income, Worcester County, 2010

DATA SOURCE: MDPH, MassCHIP, BRFSS 2010

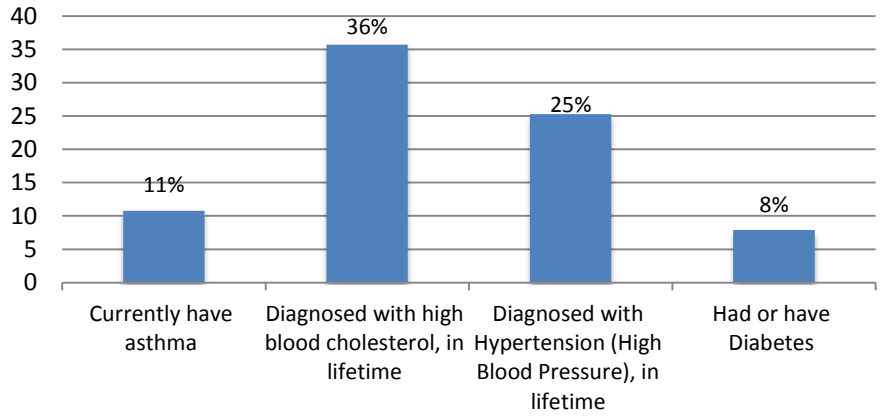
- **Substance Use and Abuse:** Substance use and abuse emerged as a concern among respondents across communities in the Greater Worcester region, as one respondent described, *"Overdose is a big issue."* Some respondents described substance use and underage drinking as a major issue for youth. In 2011 the percent of high school students in the Greater Worcester region reporting lifetime use of non-prescribed prescription drugs increased with age, from 10.5% of 9th grade students to 18.6% of 12th grade students reporting drug use. In 2010, binge drinking among adults in Worcester County (21%) exceeded the prevalence for the State (18%).

Health Outcomes

This section provides a quantitative overview of the leading health conditions in the Greater Worcester region, while also indicating the significant health concerns described by key informant interview, focus group and community festival participants.

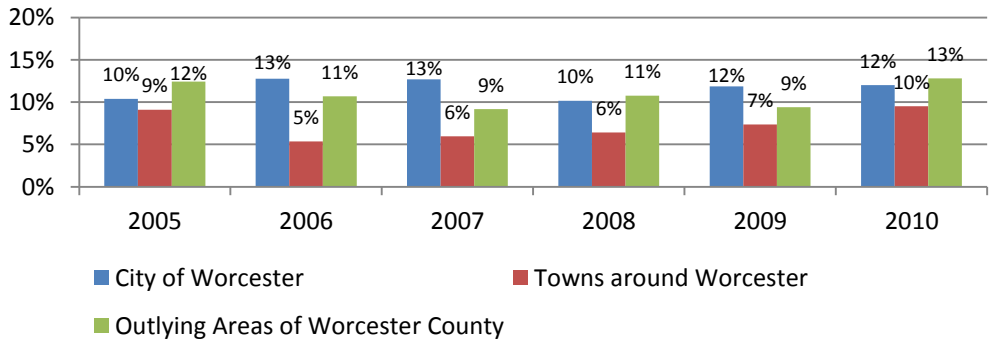
- **Overall Leading Causes of Hospitalization and Death:** Chronic conditions are the main contributors to morbidity and mortality for adults in the region. Quantitative data indicate that the leading causes of death in Worcester County were cardiovascular disease and cancer, accounting for 32% and 24% of deaths, respectively, from 2008 to 2010.
- **Chronic Disease:** Many interview participants cited chronic disease, including heart (cardiovascular) disease and diabetes as major health concerns for the Greater Worcester area. As shown in Figure 3, heart disease is prevalent in the region. A disproportionate percent of Hispanics, Blacks and low-income residents in the region experience chronic disease. Asthma also emerged as a health concern among respondents, with a greater proportion of Hispanics and Blacks in the region having asthma.
- **Mental Health:** Mental health emerged as a particular concern among key informants

Figure 3: Chronic Disease among Adults (Aged 18 and older), Worcester County, 2009



DATA SOURCE: MDPH, BRFSS, 2009

Figure 4: Percent of Adults Reporting 15 or More Days of Poor Mental Health in Past Month, by region, 2005-2010.



DATA SOURCE: BRFSS 2005-2010

and participants of elder focus groups. Figure 4 shows the proportion of residents in the region reporting poor mental health from 2005 to 2010. In general, a larger proportion of residents in the City of Worcester report poor mental health than those in the towns around the City of Worcester and in the rest of Worcester County. In Worcester County, a greater proportion of persons with only a high school education and persons with disability reported poor mental health.

- **Oral Health:** Oral health and access to oral health services emerged as a concern among participants, particularly because several participants noted that the water in the Greater Worcester region is not fluoridated. Challenges to accessing oral health care included transportation, health insurance and long waiting lists to make an appointment.
- **Reproductive and Maternal Health:** Infant mortality, inadequate prenatal care and teenage pregnancy among vulnerable populations, particularly populations of color, emerged as concerns. In the City of Worcester, the number of infant deaths declined from 34 in 2005 to 14 in 2010. Over the period of 2008 to 2010, Hispanics and Blacks experienced the highest number of infant deaths.
- **Communicable Disease:** Infectious disease was not a frequently discussed topic during focus group and individual interviews. A few key informants noted the need for greater flu prevention efforts, including flu vaccinations for students and the elderly and access to germ-prevention agents in the schools, such as hand sanitizer.

<u>Health Care Access and Utilization</u>

Data on health care from the Community Health Assessment Survey and discussions around health care access showed a complex picture of the health care environment in the Greater Worcester area, with numerous excellent health care services, but also many barriers to accessing these services.

- **Resources and Use of Health Care Services:** With a medical school and medical center based in the region, key informant interview, focus group, and community festival participants repeatedly remarked about the quality of health care in the region. However, there was concern about access to health care for vulnerable populations, including low-income residents and immigrant populations.
- **Challenges to Accessing Health Care Services:** Key informant, focus group, and community festival participants described barriers to accessing health care; participants also discussed services that were unequal or less accessible to vulnerable populations. Challenges to accessing health care include being uninsured or underinsured, limited provider availability, long wait times at health centers, limited transportation options to appointments, fragmentation of services, unequal treatment from health providers or when scheduling an appointment, use of emergency rooms for primary care, and linguistic and cultural competency.

> *"Access to mental health services for diverse populations is a big need."* - Key informant interview participant
>
> *"Many may not be accessing regular preventative health care and are using the ER as primary care for asthma or allergies or juvenile diabetes and this is not the best way to manage conditions*." – Key informant interview participant
>
> *"Anything can go wrong because of the language barrier."* - Key informant interview participant

Community Strengths and Resources

Key informant, focus group and community festival participants were asked to identify their communities' strengths/assets.

- **Health Care Services and Providers:** The Greater Worcester region has several excellent health care institutions addressing the social determinants of health, including UMass Medical School and Massachusetts College of Pharmacy. In addition, there are several health centers serving the health care needs of vulnerable populations and also connecting patients with WIC and welfare benefits.
- **Strong Social Service Organizations:** A key theme among key informant interview, community festival, and focus group respondents was the numerous, high-quality programs, services and providers in the Greater Worcester region who are working on a range of issues related to the health of residents. Another theme was that more and expanded services and programs are needed, particularly for prevention efforts such as promoting physical activity and healthy eating.
- **Engaged Communities:** Another strength that emerged was the high level of energy for and interest in enhancing partnerships within Worcester and in the Greater Worcester region to address priority health issues. Many interview participants noted that community engagement during the community health assessment process exemplified this collaborative energy and is especially important for identifying strategies to enhance the health of residents in the Greater Worcester area.
- **Education:** Many interview participants considered higher education a major asset in the Greater Worcester region. The Worcester region is home to numerous institutions including a medical school, pharmacy school, and several colleges and universities. In more affluent communities and for more affluent residents in Worcester, strong secondary schools were also cited as an asset.

> *"We're asset-rich when [it] comes to health and human service organizations that can support variety of needs of adults and children in community." – Key Informant Interview Participant*
>
> "*The city should know that there are willing partners [that are] anxious to come together."* – Key Informant Interview Participant

Community Challenges and External Factors

Respondents across the region described broader challenges and external forces that may influence health and health-related services in the Greater Worcester area.

- **Economic Downturn:** The economic downturn was considered a significant challenge to a region that has been struggling to rebuild its economic base in a post-industrial era. While the economic downturn hurt families and individuals, participants also indicated that it significantly reduced the budgets of government agencies and community-based organizations and limited the number or scope of services provided.
- **Public Health Infrastructure:** Key informant interviewees also cited the lack of a robust public health infrastructure in Worcester and the Greater Worcester region. Interview participants explained that there are many services and programs in the area that are not adequately funded, not well-connected, and may not be focused on systems change. Respondents explained that diminishing state and federal funding also contributed to these challenges. Several respondents noted that currently, the health department's functions were more limited and expressed concern that some basic functions, such as water fluoridation and addressing chronic disease, were not carried out by the health department.

Areas with Community Readiness

- Community Health Assessment Survey respondents were asked to identify key areas for action for improving the health of residents in the Greater Worcester region. Survey respondents indicated that key areas for action included increasing services and programs around obesity, physical activity, and nutrition; promoting "aging in place" among the elderly, and expanding counseling and mental health services for youth.

Key Overarching Themes and Conclusions

Several overarching themes emerged from this synthesis of data, including:

- **There is wide variation within the Greater Worcester area in race/ethnicity, language, socioeconomic status and community size, but common themes emerged around specific health issues such as overweight/obesity, substance abuse and mental health, and the need for a stronger public health infrastructure.** While a few communities in the Greater Worcester region are relatively affluent, the City of Worcester has a lower median income and higher rates of poverty than surrounding communities. These factors all influence residents' health status, their ability to seek and obtain services, access to resources, levels of stress, and opportunities to live healthy lives.
- **Health disparities/inequities in the Greater Worcester area, particularly in the City of Worcester, were a key concern raised by residents.** Secondary data confirmed that racial/ethnic and socioeconomic health disparities/inequities are prevalent in the region. Blacks and Hispanics disproportionately experience overweight/obesity and chronic diseases such as heart disease, diabetes, cancer, and asthma. Low-income residents have excess risk for overweight/obesity, smoking and poor mental and oral health. Respondents explained that these patterns of chronic health conditions reflect inequalities in the social environment, including racism, educational and employment opportunities, and concentration of stressors among vulnerable populations. Participants indicated that features of the built environment, such as unequal access to physical activity spaces, healthy food outlet options, and transportation pose impediments to health.
- **As with the rest of the nation and the state, healthy eating, active living, and overweight/obesity were considered key concerns by key informant interview and focus participants and were cited as shared health concerns across the Greater Worcester area.** These issues are particularly significant because chronic diseases such as heart disease, diabetes and cancer are the leading causes of morbidity and mortality. The prevalence of overweight and obesity in the City of Worcester is greater than that for the state and is partially driven by racial/ethnic health disparities. Respondents explained that the built environment presented many risk factors for obesity among low-income residents and residents of color: "food deserts" in the City of Worcester and surrounding communities, limited walkability in the region, few safe and well-maintained public spaces for physical activity, the high cost of gyms and organized sports and community safety. Initiatives to address obesity, such as farmer's markets, healthy modifications to public school menus, and community gardens were described as important strategies to promote healthy living and reduce obesity. **Residents cited substance abuse and mental health as growing issues and major concerns, and existing services were not addressing community needs, particularly among youth, low-income, and refugee and immigrant populations.** Substance use among youth, particularly related to alcohol, opioids and prescription drugs, was raised as an important concern among respondents. Further, drug use, such as heroin use among adults, was a concern noted by some interview participants. While secondary and tertiary treatment programs exist, respondents noted that the

demand exceeds the number of providers, some providers do not accept health insurance, and some residents cannot afford such treatment. Further, a need for services across the treatment spectrum was noted. Many respondents explained how substance abuse and mental health are interrelated, which makes addressing these issues more challenging.

- **While the Greater Worcester region has several strong health care services, vulnerable populations – such as the elderly, low-income residents, non-English speaking residents, and those with disabilities – experience difficulties in accessing primary care and oral health services, despite expanded health insurance coverage in the state.** Challenges include long waiting lists to schedule appointments, long wait times, limited transportation to and from health care, linguistic and cultural barriers, complexity of navigating the health care system, and a lack of sensitivity among health care staff and administrative staff. Several respondents noted that it was important for service providers to understand these challenges and incorporate different strategies to reduce these barriers.
- **Community safety was a concern raised by respondents across communities, but particularly in the City of Worcester.** Respondents described how neighborhood violence and perceptions of a less safe community can be stressful for residents and prohibit involvement in healthy behaviors, such as engaging in physical activity in the neighborhood. A few respondents explained that community violence is a stressor that increases the risk of poor mental health.
- **Several community festival respondents identified issues around sexual health, infant mortality, and teenage pregnancy as key concerns for the Greater Worcester area.** In the City of Worcester, the infant mortality rate more than doubled over 2006 to 2008, but has since been declining to the previous rate before the spike in infant mortality in 2006. Despite improved health insurance coverage, secondary data show that some pregnant women in the region receive inadequate prenatal care. Participants were also concerned about the rate of teenage pregnancy in the area and the potentially challenging economic, educational, and social environments that many young women with children face.
- **Respondents repeatedly discussed addressing the needs of the growing immigrant and refugee population in the Greater Worcester area as an important priority.** The Central Massachusetts region has experienced an increase in the immigrant and refugee population. Many respondents noted a need for more services for these populations as well as a need to bolster existing services through linguistically and culturally sensitive care, access to interpreters, and assistance navigating health services.
- **Challenges with transportation also emerged as a key concern among key informant interview and focus group participants and survey respondents and affect many aspects of life and population groups, including the elderly, disabled, and low-income residents**. These populations experience challenges in getting to health care and other services, accessing healthy food, employment opportunities, and other resources that can promote health.

Greater Worcester, MA
2012 Community Health Assessment

INTRODUCTION

Advancing the health of a community is vital to increasing residents' quality of life and ensuring its overall success. Health is a product of multiple social factors, including education, housing, employment, transportation, and numerous other underlying issues. Understanding these factors and how they influence health are critical steps towards community health improvement. To accomplish these goals, the City of Worcester Division of Public Health and UMass Memorial Medical Center led a comprehensive community health planning effort to improve the health of the Greater Worcester area by conducting:

1. A community health assessment (CHA) to provide a comprehensive portrait of the community's health status as well as strengths and needs as they relate to health
2. A community health improvement plan (CHIP) to provide an action-oriented plan outlining the priority health issues and how these issues will be addressed and measured

This report discusses the findings from the CHA, which was conducted using a collaborative, participatory approach. These findings informed discussions and priority areas for the CHIP.

Purpose and Geographic Scope of the Greater Worcester Community Health Assessment

The 2012 Greater Worcester community health assessment was conducted to fulfill several overarching aims, specifically to:

- Engage the community in a collaborative health planning process to identify shared priorities, goals, objectives, and strategies for moving forward in a cohesive and coordinated way;
- Provide a community health assessment to lay the foundation of regional planning for the Worcester District Incentive Grant (DIG) initiative; and
- Serve as the community health needs assessment for the UMass Memorial Medical Center's Section H/Form 990 IRS mandate.

This CHA focuses on the city of Worcester and the outlying communities of Shrewsbury, Millbury, West Boylston, Leicester, and Holden. The Greater Worcester region was defined by these six communities because they comprise the region's most underserved populations, are the focus of the City of Worcester Division of Public Health in its regionalization initiative, are within UMass Memorial Medical Center's primary service area, and overlap with the service area of many other local organizations. Focusing the CHA on this geographic area facilitates the alignment of the hospital's and the health department's efforts with community and governmental partners, specifically United Way, the area Federally Qualified Health Center, and several community-based organizations. These stakeholders are collaborating in the larger coalition to enable future initiatives to be developed and implemented with a more coordinated approach.

Community Engagement Process

Numerous partners were engaged and involved throughout the CHA process. The City of Worcester Health Department, UMass Memorial Medical Center, and numerous community partners including Clark University, Family Health Center of Worcester, Health Foundation of Central Massachusetts, Henry Lee Willis Center, Edward M. Kennedy Health Center, St. Vincent Hospital, UMass Medical School, and Common Pathways provided leadership in this effort through an advisory committee. Strong involvement of the advisory committee facilitated a participatory approach in the data collection and planning processes and helped build support among a variety of stakeholders. Committee members provided input into study methodology and reviewed and commented on draft documents. The goal of the committee was to serve as a liaison to the community as well as develop a sense of ownership during the process to enable findings and strategies to be shared and supported among all key stakeholders.

Discussions and data collection for the CHA process started in August 2011 among a range of community partners. The Methods section of the CHA provides detail on the number and types of organizations and individuals involved throughout this process. In May 2012, Health Resources in Action (HRiA), a non-profit public health consultancy organization, was hired to synthesize the primary and secondary data already collected during the CHA process as well as conduct additional primary data collection in the community in the form of a community survey and key informant interviews, among other methods.

METHODS

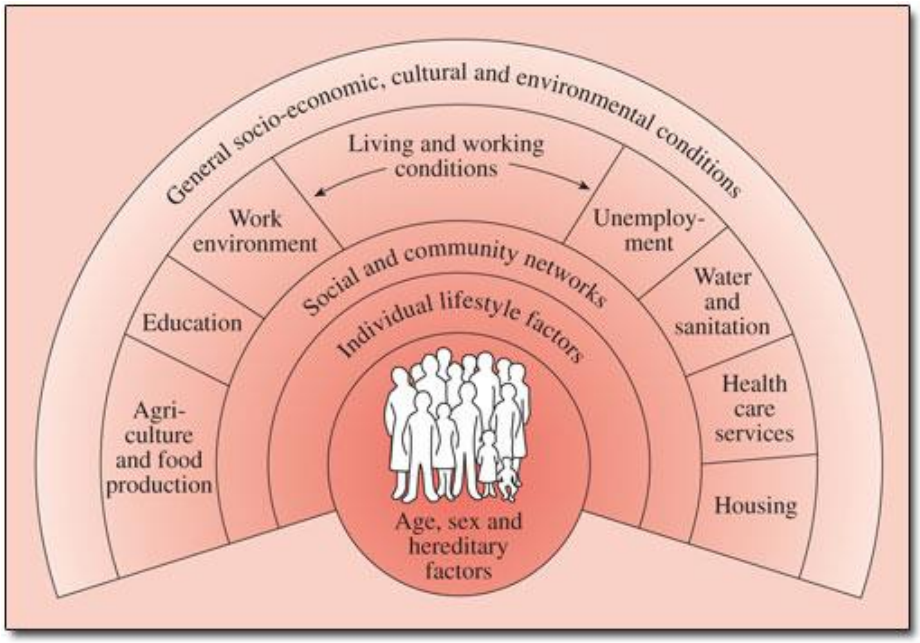
The following section details how the data for the CHA were compiled and analyzed, as well as the broader lens used to guide this process. Specifically, the CHA defines health in the broadest sense and recognizes numerous factors at multiple levels— from lifestyle behaviors (e.g., diet and exercise) to clinical care (e.g., access to medical services) to social and economic factors (e.g., employment opportunities) to the physical environment (e.g., sidewalks and walkability)— which all have an impact on the community's health. Additionally, it is critical to examine the distribution of health across population groups to identify inequities. The beginning discussion of this section describes the social determinants of health framework and health equity lens which helped guide this overarching process.

Social Determinants of Health Framework

Where and how we live, work, play, and learn are interconnected factors that are critical to consider in what has an impact on health. That is, people's health is impacted not only by their genes and lifestyle behaviors, but also by more upstream factors such as employment status and quality of housing stock. The social determinants of health framework addresses the distribution of wellness and illness among a population—its patterns, origins and implications. While the data to which we have access are often a snapshot of a population in time, the people represented by that data have lived their lives in ways that are constrained and enabled by economic circumstances, social context, and government policies. Building on this framework, this assessment utilizes data to discuss who is healthiest and least healthy in the community as well as to examine the larger social and economic factors associated with good and ill health.

The following diagram provides a visual representation of this relationship, demonstrating how individual lifestyle factors, which are closest to health outcomes, are influenced by more upstream factors such as employment status and educational opportunities (Figure 1). This report provides information on many of these factors, as well as reviews key health outcomes among the residents of the Greater Worcester region.

Figure 1: Social Determinants of Health Framework



DATA SOURCE: World Health Organization, Commission on Social Determinants of Health. (2005)

Health Equity

In addition to considering the social determinants of health, it is critical to understand how these characteristics disproportionately affect vulnerable populations. Health equity is defined as all people having "the opportunity to 'attain their full health potential' and no one is 'disadvantaged from achieving this potential because of their social position or other socially determined circumstance.'"[1] When examining the larger social and economic context of the population (e.g., upstream factors such as housing, employment status, racial/ethnic discrimination, the built environment, and neighborhood-level resources), a robust assessment should capture the disparities and inequities that exist for traditionally underserved groups. Thus a health equity lens guided the CHA process to ensure data comprised a range of social and economic indicators and were presented for specific population groups. According to Healthy People 2020, achieving health equity requires focused efforts at the societal level to address avoidable inequalities by equalizing the conditions for health for all groups, especially for those who have experienced socioeconomic disadvantage or historical injustices.

[1] Braveman, P.A., Monitoring equity in health and healthcare: a conceptual framework. Journal of health, population, and nutrition, 2003. 21(3): p. 181.

The framework, process, and indicators used in this approach were also guided by national initiatives including Healthy People 2020, National Prevention Strategy, and County Health Rankings.

Data Collection Methods

Quantitative Data Collection and Review

The following strategies were utilized:

Review of Secondary Data

In order to develop a social, economic, and health portrait of the Greater Worcester region through a social determinants of health framework and health equity lens, existing data were drawn from state, county, and local sources. This work primarily focused on reviewing the social, economic, health, and health care-related data provided by the City of Worcester Division of Public Health and UMass Medical Center.

Sources of data included, but were not limited to, the U.S. Census, U.S. Bureau of Labor Statistics, County Health Rankings and Massachusetts Department of Public Health. Types of data included self-report of health behaviors from large, population-based surveys such as the Behavioral Risk Factor Surveillance System (BRFSS), public health disease surveillance data, hospital data, as well as vital statistics based on birth and death records.

Worcester Area Community Health Assessment Survey

In order to gather quantitative data that were not provided by secondary sources, a brief community survey was developed and administered online to residents and employees of Worcester and the surrounding communities. The survey explored key health concerns of community residents as well as their primary priorities for services and programming. (A copy of the survey instrument can be found in Appendix A.) The Advisory Committee reviewed and provided feedback on the survey and also assisted with disseminating the survey link via their networks (e.g., sending an email announcement out to their contacts). These networks included, but were not limited to, the Worcester Health Department and Common Pathways, a healthy communities coalition (CHNA 8).

A total of 1,356 respondents completed the survey. As illustrated in Table 1, the majority of survey respondents were female (75.4%) and between the ages of 40 and 64 years old (63.9%). Respondents most often self-identified as White (66.9%) and the second largest representation was among Hispanics (6.2%). Almost half of respondents reported having a graduate or professional degree (47.3%). Survey respondents most often resided in Worcester City (37.8%) and Shrewsbury (37.2%).

Table 1: Survey Respondent Demographics by Total Population, 2012 (n=1,356)

Demographics	Percent
Gender	
Male	24.6%
Female	75.4%
Age	
Under 18	0.2%
18-24 years	2.3%
25-29 years	6.3%
30-39 years	16.2%
40-49 years	24.2%
50-64 years	39.7%
65-74 years	8.5%
75+ years	2.7%
Race/Ethnicity *(categories not mutually exclusive)*	
White	86.2%
Black	2.4%
Hispanic	7.9%
Asian	3.0%
American Indian/Native American	1.3%
Other race/ethnicity	2.3%
Education	
Primary or middle school	0.0%
Some high school	0.3%
High school graduate/GED	4.3%
Associate's degree or technical/vocational degree or certificate	8.4%
Some college	11.0%
College graduate	28.6%
Graduate or professional degree	47.3%
Town of Residence	
Holden	9.4%
Leicester	2.0%
Millbury	3.4%
Shrewsbury	37.2%
West Boylston	10.1%
Worcester	37.8%

DATA SOURCE: Community Health Assessment Survey, 2012

Qualitative Discussions

While social and epidemiological data can provide a helpful portrait of the region, it does not tell the whole story. It is critical to understand people's health issues of concern, their perceptions of the health of their community, the perceived strengths and assets of the community, and the vision that residents have for the future of their community. Qualitative data collection methods not only capture critical information on the "why" and "how", but also identify the current level of readiness and political will for future strategies for action. To this end, community dialogues, focus groups, and key informant

interviews were conducted with leaders from a wide range of organizations in different sectors, community stakeholders, and residents to gauge their perceptions of the community, their health concerns, and what programming, services, or initiatives are most needed to address these concerns. *Between the community survey and qualitative discussions, approximately **1,745 community residents** representing a range of population groups were engaged in the CHA process.*

Community Dialogues, Focus groups, and Community Festivals

Approximately 356 individuals were engaged through outreach methods of community dialogues, focus groups, and feedback forms at community festivals. Specifically, approximately 64 participants participated in community dialogues and focus groups during Summer 2012. Audiences included seniors, church groups, parents, EMT providers, and the general public. Community dialogue nights allowed for community members to review and discuss a preliminary profile of the region and provide their feedback on community health-related strengths, needs and the vision for the future. Common Pathways held the community dialogue sessions and small discussion groups were facilitated during break-out sessions. A copy of the discussion guide can be found in Appendix B.

In addition, focus groups were conducted with specific audiences. For example, discussion groups with 88 elders were conducted as part of an elder focus group needs assessment report completed by the UMass Memorial Medical Center and Worcester Housing Authority. Elders included those residing in five low-income Worcester housing sites. Focus group discussions pertained to factors that promote and adversely affect health, including dental and health insurance, transportation to and from health care services, experiences at health care facilities, cost of health care and prescription medications, exercise, and nutrition. Focus group discussion guides were informed by the 2010 Behavior Risk Factor Surveillance System (BRFSS) questionnaire. Additionally, approximately 20 residents, specifically refugees and immigrants from the African Community, participated in a community dialogue on health issues in Spring 2012.

Community residents also participated in the CHA by providing their feedback on health issues during the festivals occurring around the community in Summer 2012. To this end, a brief survey tool was developed with four open-ended questions and distributed at area summer festivals and events. This feedback form is located in Appendix C. This tool was administered at a number of community cultural festivals, including Millbury Summer Concert, Holden Concert on the Common, West Boylston Arts Extravaganza, Worcester Centro Las Americas Latino Festival, Leicester Summer Concert, Shrewsbury Summer Concert, Haley Festival, Big Dipper Ice Cream Festival, Asian Festival and Juneteenth Festival in the City of Worcester. A total of 184 festival attendees provided feedback on overall concerns and community health issues.

Key Informant Interviews

A total of 33 individuals representing leadership from all six communities participated in key informant interviews. Interviews lasted approximately 30-60 minutes and were conducted using a semi-structured interview guide, which is in Appendix D. The interviews explored community leaders' perspectives of the health needs and strengths (including assets and resources), challenges and successes of working in these communities, and perceived opportunities to address these needs. Key stakeholder interviewees

were from a range of sectors and agencies: government, hospital, medical, health centers, secondary education, higher education, business, faith community, and philanthropic and community organizations that focus on specific populations (e.g., youth, homeless, immigrant communities, ethnic/cultural groups, disabled community).

Analyses

These qualitative data were manually coded and then analyzed thematically for main categories and sub-themes. Data analysts identified key themes that emerged across all groups and interviews as well as the unique issues that were noted for specific populations. Frequency and intensity of discussions on a specific topic were key indicators used for extracting main themes. While municipality differences are noted where appropriate, analyses emphasized findings common across the Greater Worcester region. Selected paraphrased quotes – without personal identifying information – are presented in the narrative of this report to further illustrate points within topic areas.

Limitations

As with all research efforts, there are several limitations related to the assessment's research methods that should be acknowledged. There were several instances when secondary data sources (e.g., unemployment rates, behavioral data estimated by the BRFSS) did not provide community-level data were not available or reported inconsistent geographic scopes. For example, data were sometimes available for each town in the Greater Worcester region, while in other cases, data were available only for Worcester County or the City of Worcester. Additionally, several sources did not provide current data separately for each racial/ethnic, gender, or age group and thus these data could be analyzed only by total population.

Likewise, data based on self-reports should be interpreted with particular caution. In some instances, respondents may over- or underreport behaviors and illnesses based on fear of social stigma or misunderstanding the question being asked. In addition, respondents may be prone to recall bias—that is, they may attempt to answer accurately, but they remember incorrectly. In some surveys, reporting and recall bias may differ according to a risk factor or health outcome of interest. Despite these limitations, most of the self-report surveys analyzed in this CHA benefit from large sample sizes and repeated administrations, enabling comparison over time. However, it is important to note that the Worcester Area Community Health Assessment Survey, also self-reported data, used a non-random sampling method and therefore its findings may not be representative of the larger population.

Likewise, while the qualitative data collected for this study provide valuable insights, results are not statistically representative of a larger population due to non-random recruiting techniques and a small sample size. Recruitment for focus groups was conducted by community- or faith-based organizations and participants were those individuals already involved in community programming or the faith-based organizations. Because of this, it is possible that the responses received provide only one perspective on the issues discussed. Efforts were made to engage a diverse cross-section of individuals: some focus groups had distinct demographics, such as particular racial or ethnic groups being represented at focus groups held at a faith-based organization that primarily serves that community. However, because demographic characteristics of the focus group and interview participants were not collected, it is not

possible to confirm whether they reflect the composition of the region. Lastly, it is important to note that data were collected at one point in time and therefore findings, while directional and descriptive, should not be interpreted as definitive.

POPULATION: WHO LIVES IN THE GREATER WORCESTER AREA?

The health of a community is shaped by numerous factors, including the resources and services available within the community (e.g., safe green spaces, access to healthy food, transportation) and is influenced by who lives in the community. Who lives in the community is significantly related to health behaviors and health outcomes in the community. While age, gender, race, ethnicity, immigration status and socioeconomic status are characteristics that profoundly influence an individual's health, *the distribution of these characteristics* in a community may influence the number and type of services and resources available, as well as observed patterns of health behavior and health outcomes in the region. The following section provides an overview of the population in the Greater Worcester area of Massachusetts.

Population Size

> *"Our community [Worcester] is diverse because we have universities and colleges in the city, but there are also under-developed and under-supported areas."* – Key informant interview participant, Social service sector, Worcester

While Worcester is the second largest city in Massachusetts and New England in population size, the towns that comprise the Greater Worcester area vary in terms of size, growth patterns, and demographic characteristics of residents. In 2010, the population of the City of Worcester was estimated to be 181,045 persons, up 4.6% since 2000 (Table 2). The communities within the Greater Worcester area differ by population size and growth. Shrewsbury, the second-largest community in the Greater Worcester area, experienced 11.1% population growth, followed by Holden, the third-largest community, which experienced 9.9% growth in population from 2000 to 2010. The smaller communities of Leicester, Millbury, and West Boylston each experienced 2.5% to 4.5% growth in population from 2000 to 2010.

When focus group participants and key informants were asked to describe their communities and changes they have seen, several reported population growth in their communities. These observations are supported by U.S. Census data, which indicate that all communities in the Greater Worcester area experienced population growth from 2000 to 2010 and all but one community (West Boylston) experienced growth rates greater than that for Massachusetts (3.0). Focus group participants also cited the changing demographic composition of the community, namely race, ethnicity, and cultural backgrounds. Participants also described how the economic downturn and lack of affordable housing has contributed to residential mobility and housing instability in some communities.

Table 2: Population Change in Massachusetts and the Greater Worcester Area, 2000 and 2010

Geography	2000 Population	2010 Population	% Change 2000 to 2010
Massachusetts	6,349,097	6,547,629	3.0
Worcester County	750,963	798,552	6.0
Worcester City	172,648	181,045	4.6
Holden	15,621	17,346	9.9
Leicester	10,471	10,970	4.5
Millbury	12,784	13,261	3.6
Shrewsbury	31,640	35,608	11.1
West Boylston	7,481	7,669	2.5

DATA SOURCE: U.S. Department of Commerce, Bureau of the Census, 2000 Census and 2010 Census

Age Distribution

Interview participants described their communities as including young families, middle-aged persons and seniors. Quantitative data (Table 3) confirm these descriptions. The Greater Worcester area has an age distribution that is consistent with that of the state. For every ten residents, approximately two residents are 19 years of age or younger, and one is aged 65 or older. Compared to other communities in the Greater Worcester area, the communities of West Boylston (17.6%), Millbury (15.7%), and Holden (14.5%) have a larger proportion of residents aged 65 or older. In Shrewsbury (28.0%), Holden (27.3%), and and the City of Worcester (26.9%), a slightly larger proportion of the total population includes persons aged 19 and younger.

Table 4: Percent of Population by Age in Massachusetts and the Greater Worcester Area, 2010

Geography	19 years and younger	20 to 24 yrs old	25 to 44 yrs old	45 to 64 yrs old	65 yrs old and over
Massachusetts	24.8	7.3	26.5	27.8	13.7
Worcester County	26.5	6.6	25.7	28.4	12.8
Worcester City	26.9	10.5	27.7	23.2	11.6
Holden	27.3	4.0	23.1	31.0	14.5
Leicester	26.0	6.8	24.1	29.5	13.5
Millbury	23.4	5.0	26.6	29.5	15.7
Shrewsbury	28.0	4.2	26.4	28.0	13.5
West Boylston	19.1	4.9	24.7	33.8	17.6

DATA SOURCE: U.S. Department of Commerce, Bureau of the Census, 2010 Census

Residents frequently cited seniors and youth in the Greater Worcester area as key demographic groups in need of particular focus. Among seniors, respondents commented that there is a high prevalence of poverty, transportation challenges and health issues such as mental health and chronic illness facing the elderly. Youth were described as the population segment of concern for issues such as alcohol, tobacco and substance abuse, pregnancy and sexually transmitted infections and mental health concerns.

Racial and Ethnic Diversity

> *"In Worcester, we have a lot of different people living together. That certainly has its challenges, but people also celebrate others."* – Focus group participant

> *"Cultural competency is a big issue. I think a lot of providers have experience working with the Latino community, but not other immigrant groups that are newly arriving."* – Key informant interview participant, Social service sector, Worcester

Focus group and interview participants saw the diversity in the region, particularly in Worcester, as a major strength. When asked to describe their communities, focus group and interview participants reported racial and ethnic, linguistic, socioeconomic, religious and cultural diversity primarily in the City of Worcester, but also in some surrounding towns, such as Shrewsbury. Respondents noted that residents publicly celebrated the diversity in the region, exhibited by a range of public festivals celebrating the diverse cultures represented in the region.

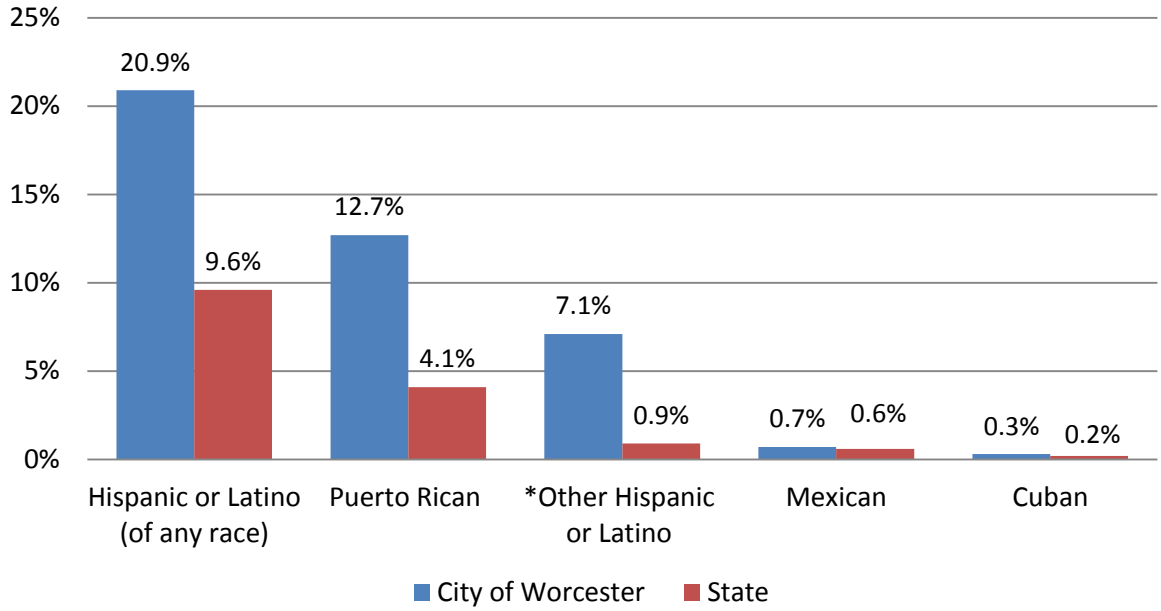
Table 5 demonstrates the substantial variation in racial and ethnic diversity across Greater Worcester area communities. Overall, the non-White population ranges from approximately 7% in Holden to 40% in the City of Worcester. These estimates include immigrant populations. The most racially and ethnically diverse city in the region, Worcester's population is approximately 10% non-Hispanic Black, which is greater than the rate of 6.0% non-Hispanic Black in the State. Roughly one-third of the population in Shrewsbury is non-White and its population is approximately 15% Asian, which exceeds the proportion of the total population in Massachusetts of Asian descent (5.3%). In contrast,he communities of Millbury, West Boylston, Leicester and Holden are predominantly White. Approximately 21% of the total population in the City of Worcester is of Hispanic origin or descent, which is more than double the proportion of Hispanics in the state (9.6%). As Figure 2 shows, the largest Hispanic subgroup in the City of Worcester is Puerto Ricans (12.7%).

Table 5: Racial/Ethnic Composition of Massachusetts and the Greater Worcester Area, 2010

	White, non-Hispanic	Black, non-Hispanic	Asian, non-Hispanic	Other Race, non-Hispanic	2 or More Races, non-Hispanic	Hispanic/ Latino
Massachusetts	76.1	6.0	5.3	1.1	1.9	9.6
Worcester County	80.7	3.6	4.0	0.7	1.6	9.4
Worcester City	59.6	10.2	6.0	0.9	2.3	20.9
Holden	92.7	0.9	3.0	0.2	1.0	2.2
Leicester	90.8	1.0	1.6	0.6	1.3	3.8
Millbury	92.8	1.2	1.0	0.5	1.3	2.3
Shrewsbury	77.3	2.0	15.3	1.0	1.6	2.7
West Boylston	88.9	4.2	0.7	0.4	0.6	5.3

DATA SOURCE: U.S. Department of Commerce, Bureau of the Census, 2010 Census

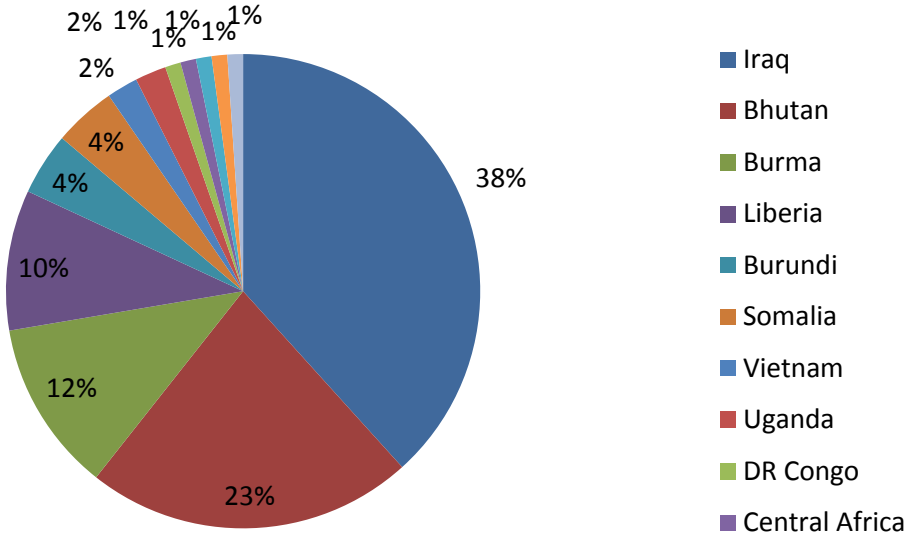
Figure 2: Hispanic Residents by Country of Origin or Descent, Massachusetts and City of Worcester and Massachusetts, 2010



DATA SOURCE: U.S. Department of Commerce, Bureau of the Census, 2010 Census

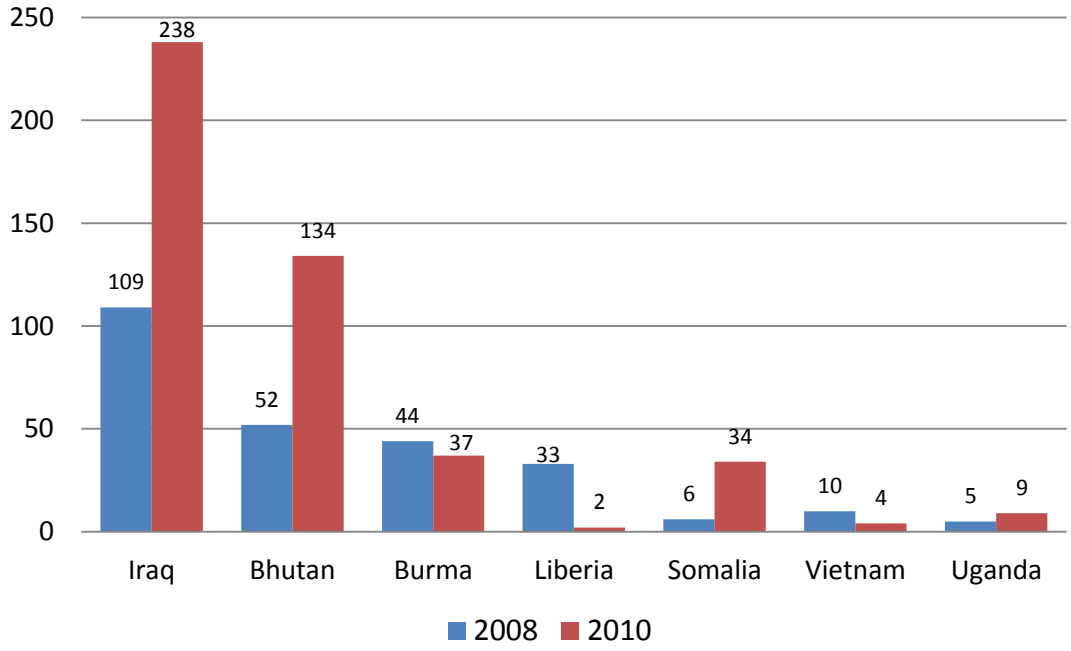
As shown in Figure 3, there is great heterogeneity in the country of origin for new arrival refugees in Central Massachusetts. The largest proportion of refugees is from Iraq (38%), followed by Bhutan (23%), Burma (12%), and Liberia (10%). From 2008 to 2010, the number of refugees from Iraq, Bhutan, and Somalia settling in Central Massachusetts more than doubled (Figure 4).

Figure 3: Total Percent of New Arrival Refugees in Central Massachusetts, 2007-2011



DATA SOURCE: Massachusetts Office for Refugees and Immigrants

Figure 4: Number of New Arrival Refugees by Country or Location of Origin, Central Massachusetts, 2008 vs. 2010



DATA SOURCE: Massachusetts Office for Refugees & Immigrants

As shown in Table 6, there is also great diversity in language preference and proficiency in the communities that comprise the Greater Worcester area. In the City of Worcester, 16.0% of residents speak primarily Spanish at home, followed by 8.7% who speak an Indo-European language (e.g., German, Italian, French) at home. In Shrewsbury, 11.0% of residents speak anIndo-European language (other than English) at home and 8.1% speak an Asian or Pacific Islander language at home. Figure 5 demonstrates the number of translations provided at UMass Memorial Medical Center during the 2011 fiscal year. More than half of the medical interpretation encounters were provided in Spanish, followed by Portuguese, Vietnamese, and Arabic languages. During interviews, health care providers and social service staff discussed the growth in the diversity of languages spoken by patients and clients. As one interviewee noted:

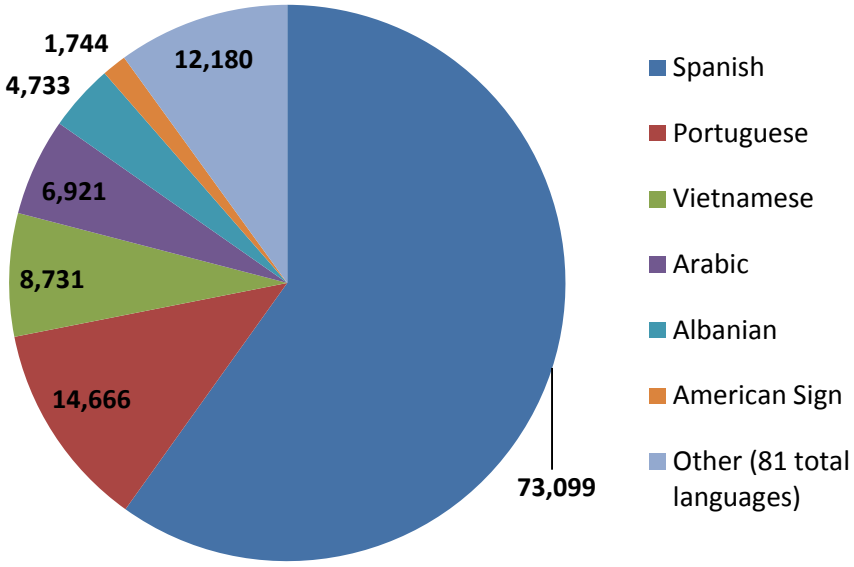
> *"Our patients are mostly bi- or tri-lingual, with the largest population being Spanish speaking, then Portuguese, and then English (in that order). There is a larger group that is a newly immigrated, refugee population … In the last 3-4 years, this population is being resettled more west of Boston because of economics and cost of living, so we have more diverse populations emerging … It is far-reaching in terms of languages that patients speak. There are over 80 languages: Arabic, Nepali, Burmese, Somali, and Mandarin."* – Key informant interview participant, Health care sector, Worcester

Table 6: Percent of Population who Speak a Language Other than English at Home, Greater Worcester Area, 2006-2010.

Geography	Spanish	Other Indo-European Language	Asian and Pacific Islander	Other Language
Worcester City	16.0	8.7	4.2	3.5
Holden	1.6	4.2	2.3	1.2
Leicester	3.9	3.0	1.7	1.2
Millbury	3.8	3.3	1.1	0.9
Shrewsbury	1.7	11.0	8.1	0.8
West Boylston	4.8	3.5	0.1	0.2

DATA SOURCE: U.S. Department of Commerce, Bureau of the Census, 2006-2010 American Community Survey

Figure 5: Number of Interpretations Provided by UMass Memorial Medical Center, Fiscal Year 2011 (Total interpretations: 122,074)



DATA SOURCE: UMass Memorial Medical Center

Income, Poverty, and Employment

> *"There are opportunities [in Worcester], but this is a deserted downtown. There are so many opportunities and schools in Worcester, so many industries in the Greater Worcester area, but they are all on the periphery. People avoid being downtown."* – Key informant interview participant, Academic sector, Worcester

> *"We know that health is just an outcome, but you need a vibrant school system and vibrant industries and recreation to get those healthy outcomes."* – Key informant interview participant, Academic sector, Worcester

> *"There is a significant mobility rate within school districts. People seem to move from place to place. This is linked to employment and housing."* – Key informant interview participant, Health care and Educational sector, Worcester

> *"The economy has been a challenge for many. Families are struggling during this recession. Low-income and high-end subdivisions are struggling with jobs, keeping homes, etc."* – Key informant interview participant, Educational sector, Shrewsbury

> *"Shrewsbury has a mix of college educated, technology and medical field people who move in and out of town. They follow the work. Shrewsbury has a good quality of life; good value, but it's not cheap."* – Key informant interview participant, Government sector, Shrewsbury

The Greater Worcester area is a community with contrasts in income, with both affluent and less affluent cities and towns, and socioeconomic variability within some towns. In general, interview participants described the region as one in which residents, industries and municipalities struggled during the economic recession. Further, this region is working to build its economic base in a post-industrial area. One key informant interview participant from Worcester's academic sector explained that health care and higher education are important industries in this region: "*Worcester is a pleasant place to live. We're an example of seeing a city turnaround from a mill city to a biotech city."* Residents reported expensive housing and several public parks and ball fields in the communities of Holden and Shrewsbury.

Respondents from Shrewsbury and Holden reported higher costs of living and more affluent or middle-income residents in their communities. Respondents from Leicester described their community as less affluent. Several interview participants cited concern regarding limited social and economic resources among racial and ethnic minority populations and immigrants in Worcester and the Greater Worcester area, overall.

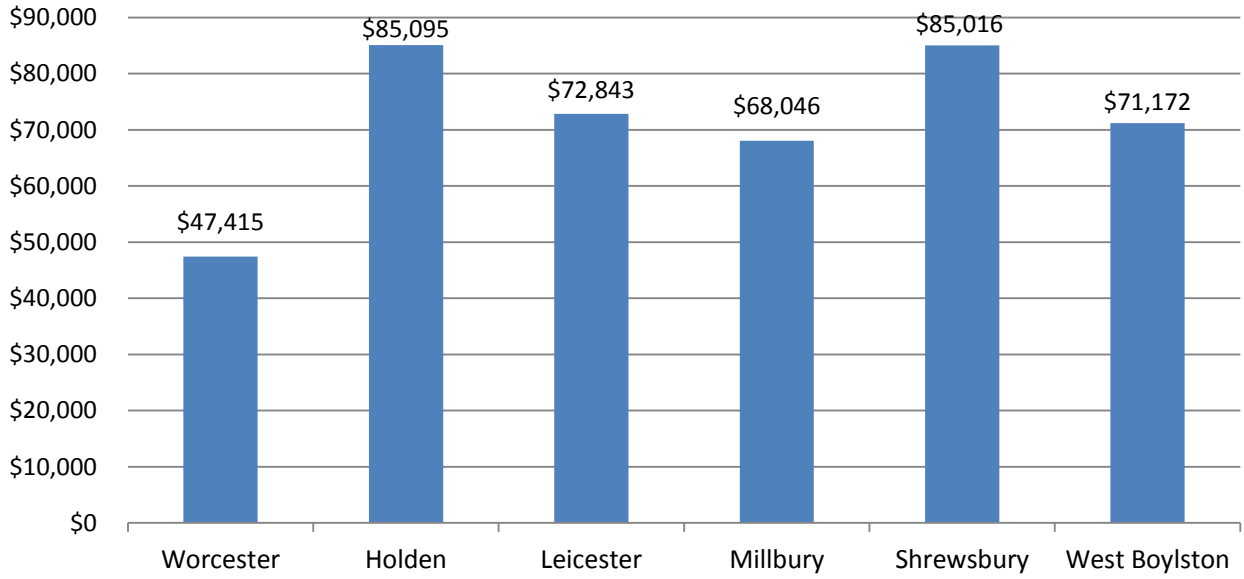
A few interview participants described Worcester as having affordable housing for middle class families. As one key informant representing the health care sector in Worcester indicated, "*"Worcester is really a place where there is affordable housing (generally speaking) for middle class families."* In contrast, the majority of interview participants noted that Worcester residents overall were disproportionately affected by a concentration of poverty. Interview participants cited a lack of affordable housing as a

challenge for low-income families. In general, the perception was that Worcester lacked access to amenities such as public indoor and outdoor spaces for physical activity and affordable, healthy food. One key informant interview participant from the government sector in Worcester described the unequal concentration of economic resources in Worcester, *"There are areas of poverty and wealth in Worcester."*

Income and Poverty

Quantitative data about income and poverty rates support focus group respondents' and interviewees' perceptions of variation in income levels across the communities in the Greater Worcester area. As shown in Figure 6, the median household income was highest in Holden ($85,095) and Shrewsbury ($85,016), followed by Leicester ($72,843), West Boylston ($71,172), and Millbury ($68,046). The City of Worcester had the lowest median household income ($47,415), far lower than that of the other communities in the Greater Worcester area.

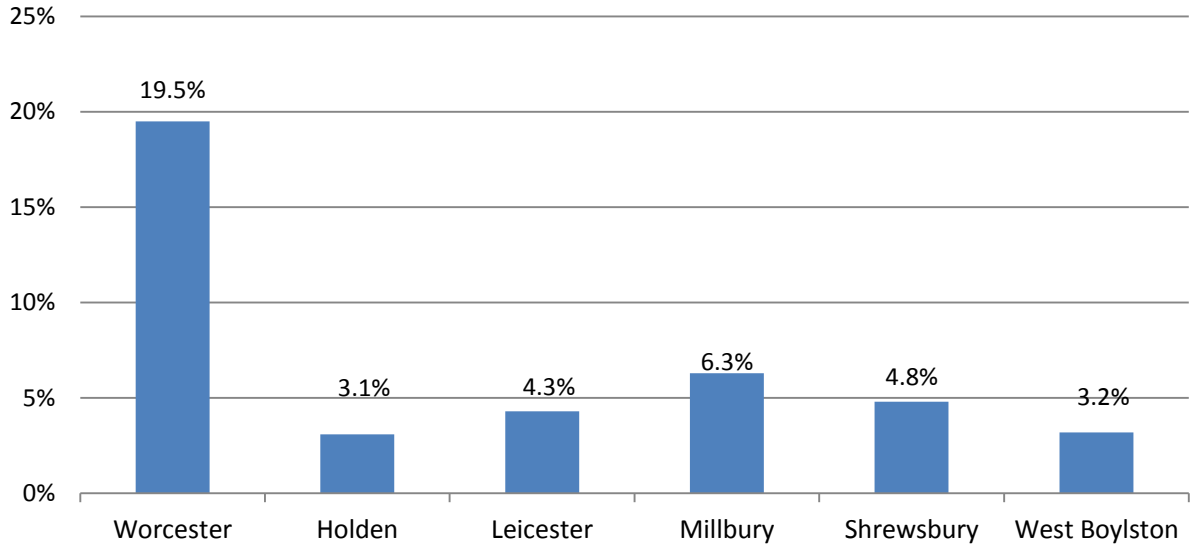
Figure 6: Median Household Income, Greater Worcester Area , 2009



DATA SOURCE: U.S. Census, American Community Survey, 2009 as cited in city-data.com and CHNA8 assessment

Poverty rates also vary substantially across communities in the Greater Worcester area (Figure 7). Almost 20% of residents in the City of Worcester had incomes at or below the federal poverty level (19.5%), according to the American Community Survey. Millbury (6.3%) had the second highest poverty rate among communities in the Greater Worcester area. Holden (3.1%) and West Boylston (3.2%) had the lowest poverty rates.

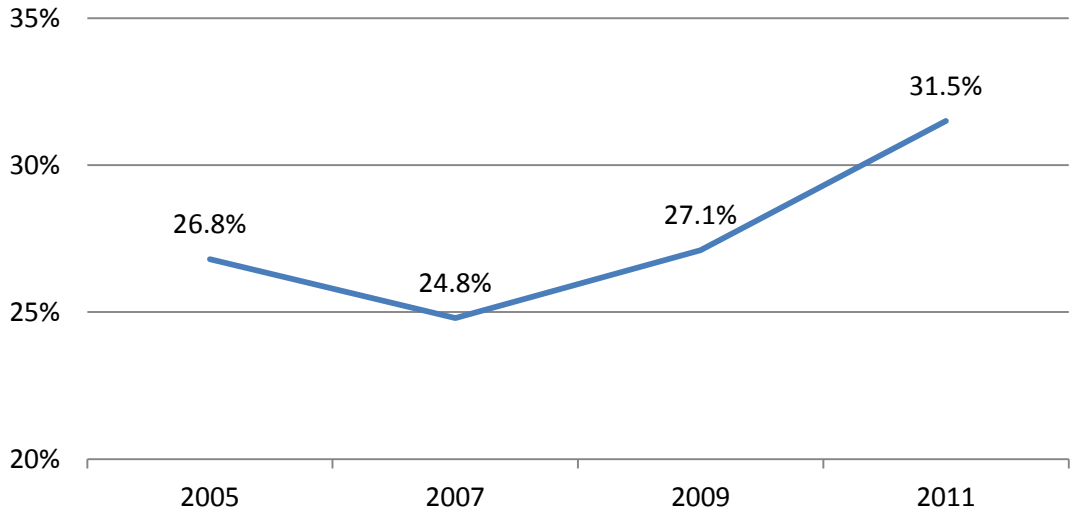
Figure 7: Percent of Individuals Below Poverty, Greater Worcester area, 2009



DATA SOURCE: U.S. Census, American Community Survey, 2009 as cited in city-data.com and CHNA8 assessment

In the City of Worcester, which has the highest poverty rates in the Greater Worcester area, the proportion of children who live in households with incomes at or below the federal poverty level has increased over time (Figure 8). In 2005, 26.8% of children lived at or below the federal poverty level and by 2011, this figure rose to 31.5%.

Figure 8: Percent of Children in Poverty, Worcester, 2005-2011

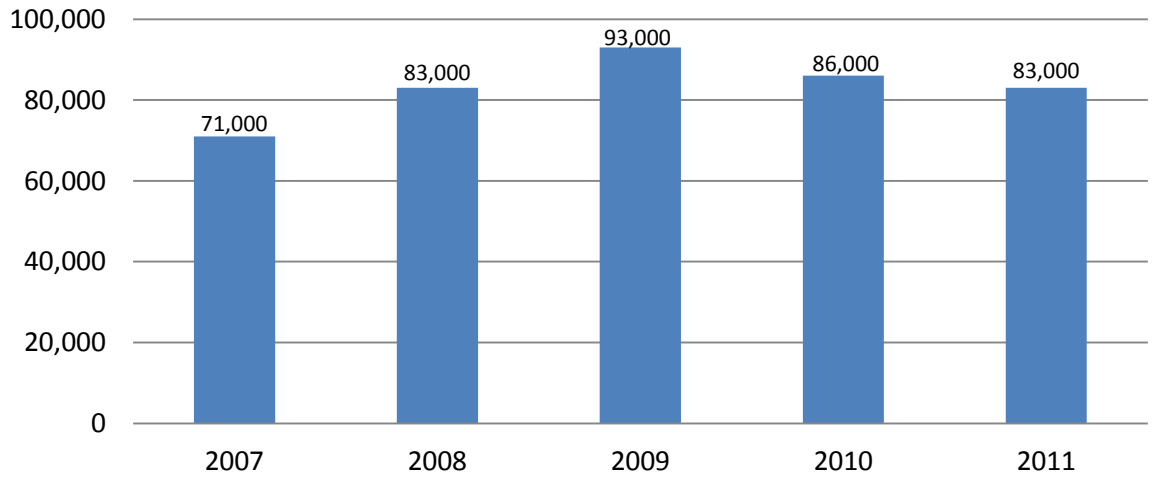


DATA SOURCE: U.S. Census, American Community Survey, 2005, 2007, 2009, 2011

Several community festival participants and interviewees noted that the high cost of living and high rates of poverty make it difficult for residents to meet their basic material and health needs. Respondents also noted that families and individuals who needed services such as financial assistance programs or social services felt stigmatized for utilization of such services. Quantitative data support respondents' perceptions of substantial challenges in meeting basic needs for many Greater Worcester area residents.

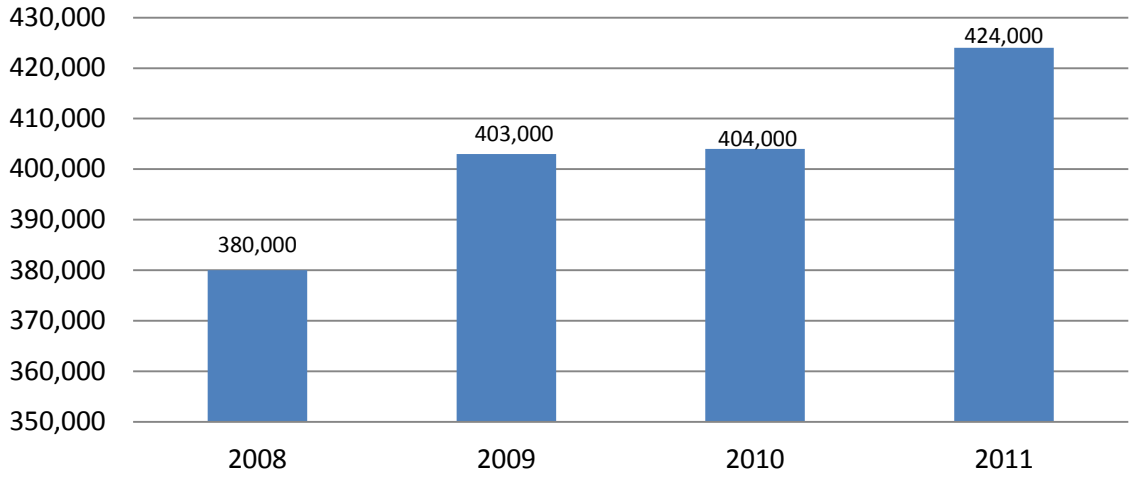
As shown in Figure 9 and Figure 10, the number of individuals receiving emergency food assistance in Worcester County increased from 71,000 individuals in 2007 to 83,000 individuals in 2011. The highest number of persons in Worcester County receiving emergency food assistance was in 2009, when 93,000 people received assistance. The number of requests for food assistance (including one-time requests and repeat requests) in Worcester County has increased steadily from 380,000 in 2007 to 424,000 in 2011, as estimated by the Worcester County Food Bank.

Figure 9: Number of People Receiving Emergency Food Assistance, 2007 through 2011



DATA SOURCE: Worcester County Food Bank
NOTE: Estimates include recipients of the Worcester County Food Bank and its partner agencies.

Figure 10: Total People Receiving Emergency Food Assistance, Including Repeat Visitors, 2008 though 2011



DATA SOURCE: Worcester County Food Bank
Note: Estimates include recipients of the Worcester County Food Bank and its partner agencies.

Employment

> *"We're a post-industrial state. Central Massachusetts used to be an economic powerhouse and now we depend on health care and higher education….We're an economy that, as a whole, is challenged from a tax base and therefore municipal capabilities is [sic] pretty tough to deal with."* – Key informant interview participant, Health care sector, Worcester

> *"In terms of financial issues, we have many who are underemployed, which can be worse than being unemployed. We have many underemployed who have been forced into early retirement and find it hard to get re-employed at age 50 or 60."* – Key informant interview participant, Government sector, Shrewsbury

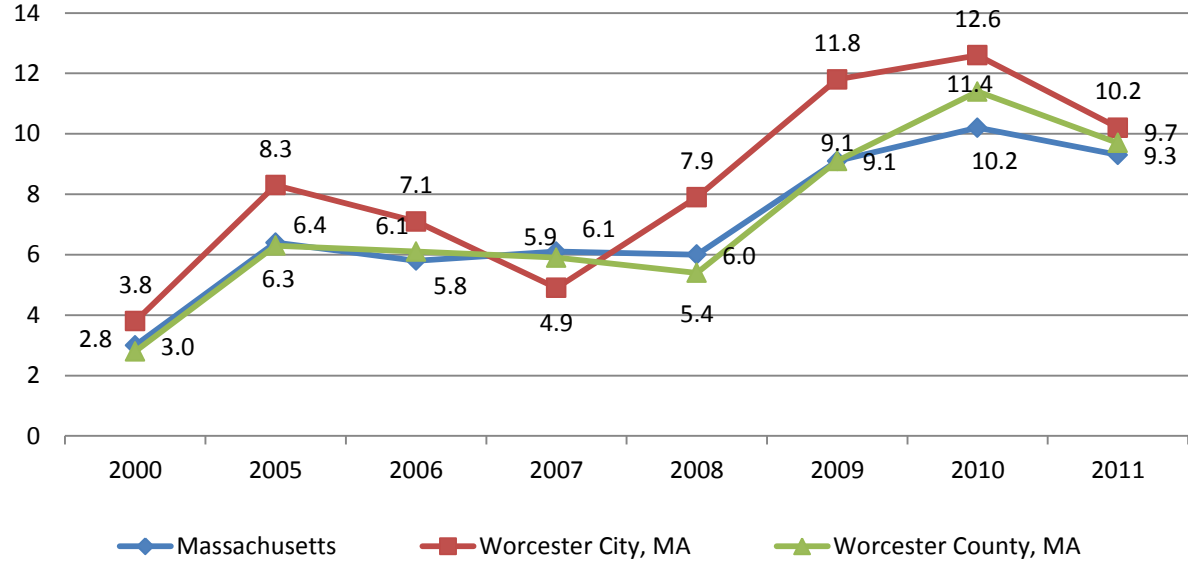
> *"[Worcester] is a wonderful place with nice neighborhood schools. It's also a place with poor job opportunities and educational opportunities."* – Key informant interview participant, Social services sector, Worcester

Employment opportunities emerged as a concern among focus group respondents and interview participants. Respondents cited a particular need for employment opportunities and skills training for working class residents in the Greater Worcester area, particularly given the shift in industries central to the region. Several residents noted the influence of limited and unstable employment opportunities on residential mobility in the Greater Worcester area.

As shown in Figure 11, unemployment rates increased in the State, Worcester County, and City of Worcester over the period of 2000 to 2011. During this time, the unemployment rate in the City of

Worcester generally exceeded that in the State. In 2011, the unemployment rate in the City of Worcester (10.3%) and Worcester County (9.7%) exceeded that of the State (9.3%). In August 2012, the unemployment rate in the greater Worcester, MA-CT region was 7.1%, greater than the unemployment rate for the State (6.3%), according to estimates by the U.S. Bureau of Labor Statistics, 2012.

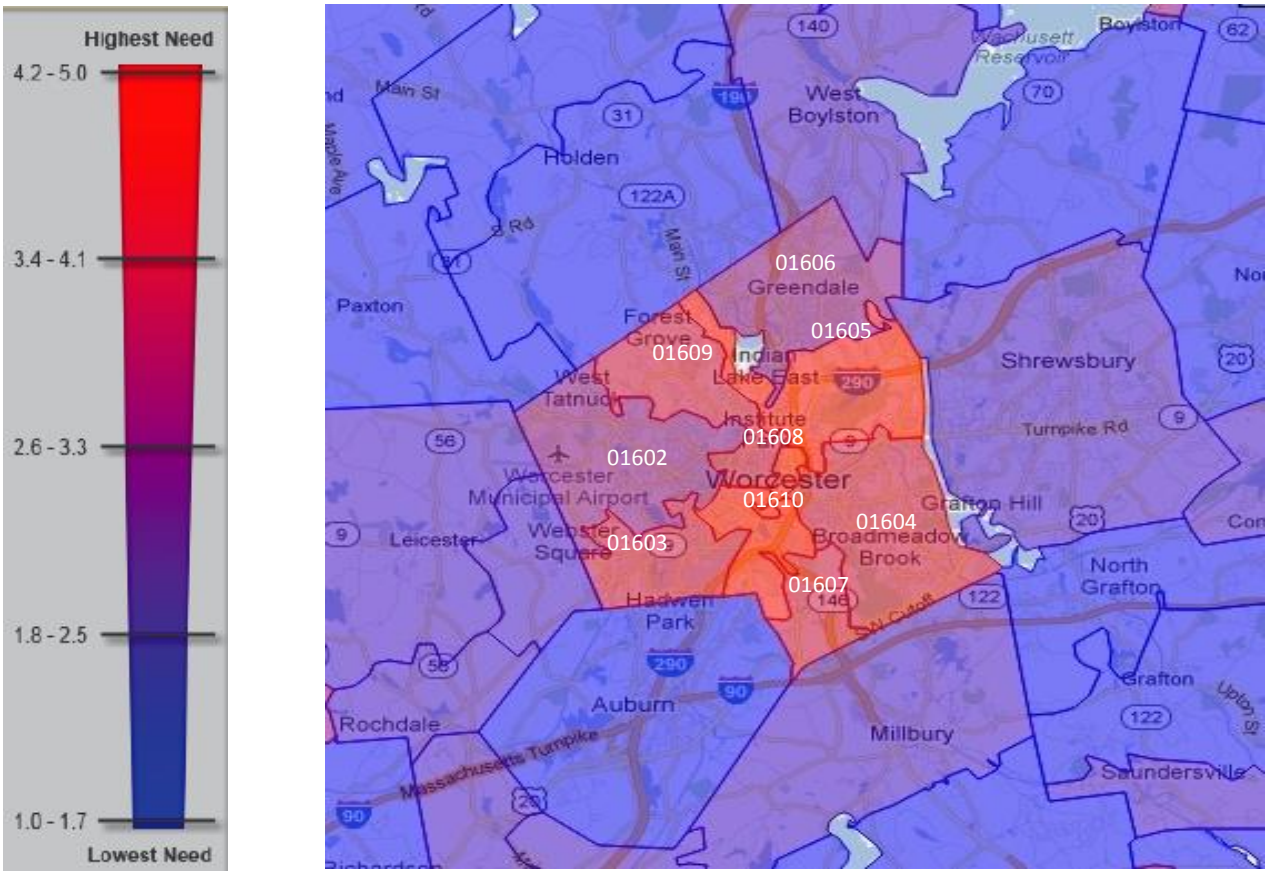
Figure 11: Unemployment Rates, City of Worcester, Worcester County and Massachusetts, 2000 through 2011.



DATA SOURCE: 2000 Census, 2005-2011 American Community Survey.

As noted among the interviewees, there is wide variation in the socioeconomic characteristics of the region. The Community Needs Index (CNI), an indicator developed through a collaboration of Dignity Health and Thompson Reuters, provides a standardized indicator of socioeconomic disparities that may limit health care access and increase the risk for preventable hospitalizations for each zip code in the United States. The CNI is a composite measure of socioeconomic barriers to health, which includes income, racial and ethnic distributions, language spoken, educational attainment, health insurance, and housing in each zip code and can range from 1 (indicating less community need) to 5 (indicating greatest community need). In the Greater Worcester area (Figure 12), the CNI ranged from 1.2 in Holden, to 4.8 in the 01608 zip code of the City of Worcester. Other zip codes with CNIs indicating high community need were 01605 (4.2) and 01610 (4.6).

Figure 12: Community Needs Index, Greater Worcester Area , 2010



DATA SOURCE: Dignity Health Community Needs Index

Educational Attainment

> *"Schools obviously are key to economic development. The strength of the public school system impacts livability of community."* – Key informant interview participant, Educational sector, Worcester

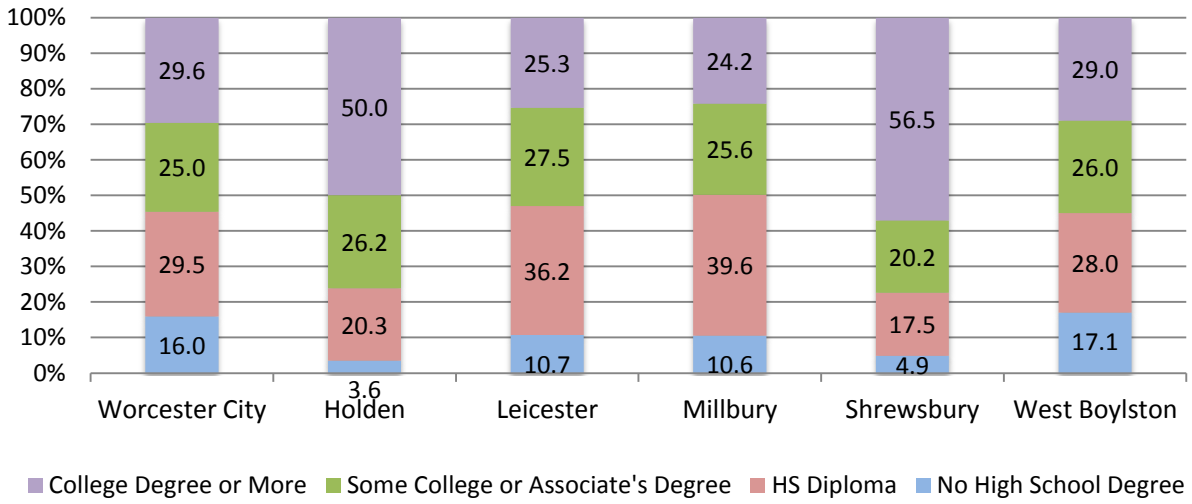
> *"The Holden school system is seen as a strength."* – Key informant interview participant, Government sector, Holden

Interview participants saw schools, particularly higher education institutions, as a strength that attracted residents to the Greater Worcester area; however, respondents provided mixed views of primary and secondary schools in the region. Some focus group and interview participants described schools in Worcester and Holden as a strength, while a few participants reported that the quality of schools in Worcester was poor. One interview participant explained that the Worcester school system

worked well for middle class students, but disadvantaged low-income students. As one key informant interview participant from the social services sector in Worcester noted, *"Worcester is a level 4 [one of the state's most struggling] district. The school committee develops strategies to serve white middle- to upper middle class families."*

Quantitative results show substantial variation in educational attainment among adults aged 25 and older in the Greater Worcester area (Figure 13). The majority of residents in the communities of Holden (50.0%) and Shrewsbury (56.5%) have a college education or higher. In most communities, approximately one-quarter of residents have received some college education or an associate's degree. The proportion of residents for whom high school was the highest level of education ranged from 17.5% in Shrewsbury to 39.6% in Millbury. West Boylston (17.1%) has the highest proportion of residents who have less than a high school education, followed by the City of Worcester (16.0%).

Figure 13: Educational Attainment of Adults 25 Years and Older in the Greater Worcester Area , 2006-2010



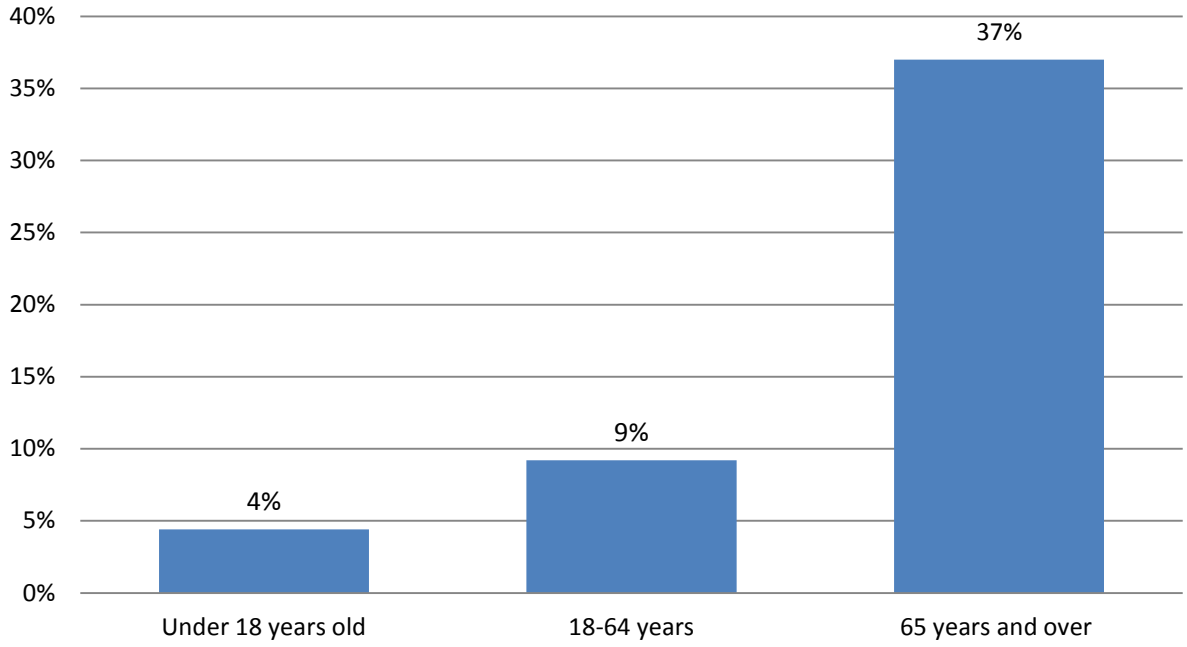
DATA SOURCE: U.S. Department of Commerce, Bureau of the Census,2006-2010 American Community Survey 5-Year Estimates *(Aggregated 5-year estimates used per Census recommendations due to small sample sizes by community.)*

Disability

Several interview participants cited residents with disabilities as an important community to consider when planning programs and policies to improve the health of residents in the Greater Worcester area. A few respondents described mobility challenges, such as accessing public transportation for persons with disabilities that is timely and runs on a regular, convenient schedule.

As demonstrated in Figure 14, a sizable proportion of residents in Worcester County has a disability, as estimated by the 2010 American Community Survey. Approximately 4% of persons under 18 years of age, 9% of persons aged 18 to 64, and 37% of persons age 65 and older have a disability.

Figure 14: Percent of Worcester County Residents with a Disability, 2010



DATA SOURCE: U.S. Census, 2010, American Community Survey

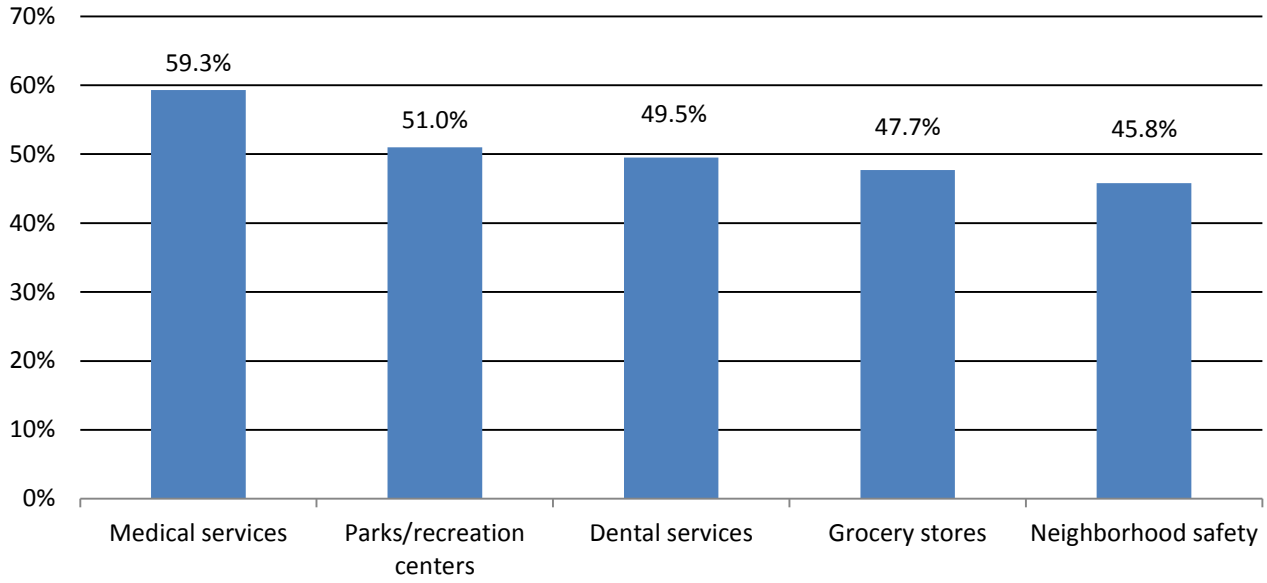
SOCIAL AND PHYSICAL ENVIRONMENT:WHAT IS THE GREATER WORCESTER AREA LIKE?

Important contextual factors such as the social and physical environment have been shown to influence the health of individuals, families and communities as a whole. Understanding social and physical influences on health will enhance understanding of how these factors may promote or hinder health at the community level. For example, community members may not utilize parks for physical activity if residents are worried about their safety. Similarly, residents may not have access to healthy food if it is expensive, concentrated in more affluent communities, or the public transportation system limits access to healthy food options. The section below provides an overview of the environment encompassing the Greater Worcester area to provide an enhanced context for understanding the community's health.

Facilitators and Barriers of the Social and Physical Environment

As discussed in more detail later in this section, survey respondents noted that many facilities and resources in their community make it easier to be healthy, while issues around transportation, the built environment, and economy challenge community health. Figure 15 shows thatresidents in the Greater Worcester area cited the location and availability of the following as the services and resources in their community that make it easier to be healthy: medical services (59.3% of respondents), parks and recreational facilities (51.0%), dental services (49.5%), grocery stores (47.7%), and overall neighborhood safety (45.8%)

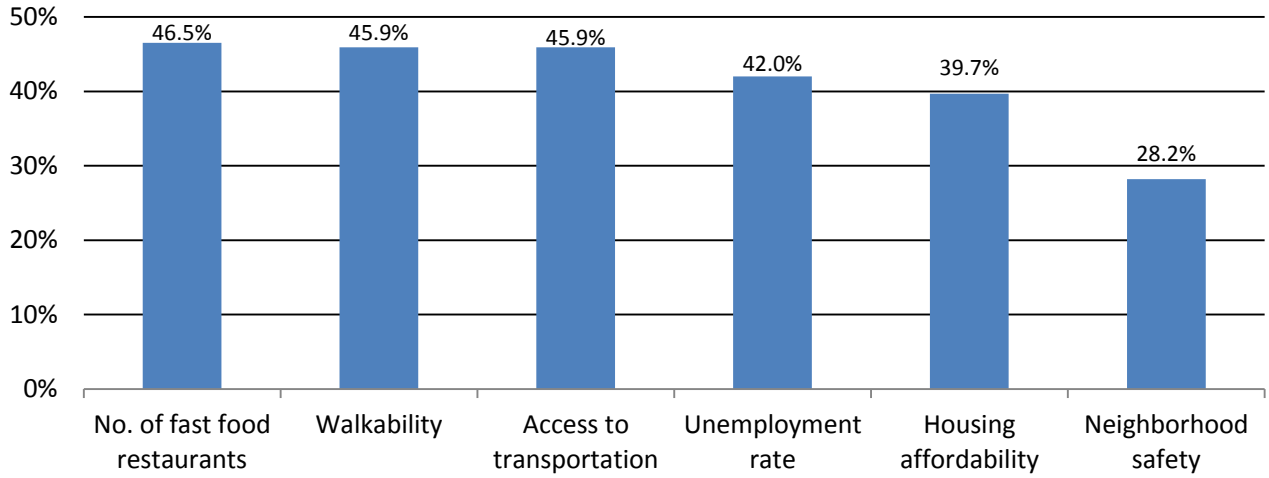
Figure 15: CHA Survey: Percent Respondents Citing Community Aspects that Make it Easier to be Healthy, Greater Worcester Area , 2012



DATA SOURCE: Community Health Assessment Survey, 2012

Figure 16 presents aspects of the social and built environment that residents reported make it more difficult to be healthy. Community factors that made it more difficult to promote health include the number of fast food restaurants (46.5%), access to transportation (45.9%), limited walkability (45.9%), unemployment (42.0%), housing affordability (39.7%), and neighborhood safety (28.2%). Walkability and access to transportation are key issues cited by respondents across all six communities. Overall, findings were consistent across communities, except for neighborhood safety, which was considered a positive factor that promotes health in the outlying communities of Worcester. Fast food establishments, unemployment, housing and neighborhood safety are issues that were specific to residents of Worcester.

Figure 16: CHA Survey: Percent Survey Respondents Citing Community Aspects that Make it Harder to be Healthy, Greater Worcester Area , 2012



DATA SOURCE: Community Health Assessment Survey, 2012

Urbanicity

The six towns comprising the Greater Worcester area vary in their geographic settings and are described by residents as urban areas, suburban areas and suburban areas that also border rural regions. The Greater Worcester area has experienced an outmigration of industries over the past few decades but is bolstered by the presence of higher education institutions and health care industries. As the most densely populated area in the Greater Worcester region, Worcester is described as a diverse, multi-cultural and family-friendly small city, with many cultural events, several higher education institutions, particularly the University of Massachusetts Medical School which, along with UMass Memorial Medical Center, acts as a health care provider. However, Worcester is also characterized by several challenges of a small city – less green space, concentration of poverty, and limited financial resources for residents and to address overarching public health needs. Residents in West Boylston, Worcester and Holden considered their communities to be unsafe for pedestrians and physical activity given the lack of sidewalks in each town.

Housing

> *"There is spillover from the economic downturn in terms of homelessness, foreclosure, etc., and connecting people to services to find another home. A lot of health concerns are tied to the housing and housing conditions. This is a post-industrial city. There is a lot of lead, and environmental health creates a lot of unsafe conditions for young children."* – Key informant interview participant, Government sector, Worcester

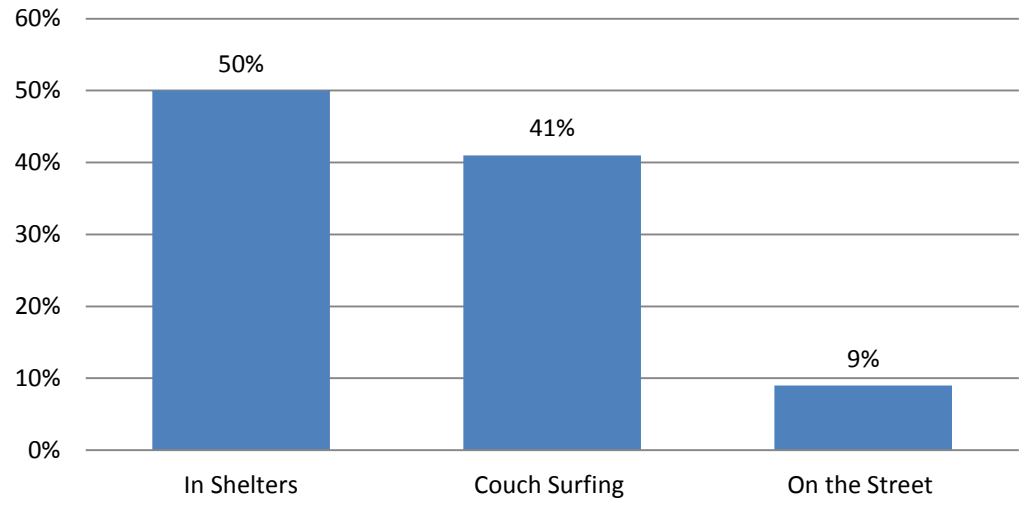
There were mixed views among respondents regarding housing availability and affordability. While some residents noted the affordable cost of housing for middle-class families, many residents in the Worcester area reported that finding affordable housing was difficult, if not impossible for many low-

income residents. Some respondents identified housing affordability as a positive aspect. While one key informant interview participant from the health sector in Worcester explained that *"from my middle class perspective, [affordable housing is] the greatest asset,"* several interview participants noted that the economic downturn particularly affected access to affordable housing and housing stability for low-income residents in Worcester. One key informant interview participant representing the health care sector in Worcester explained, *"There is a lot of movement to provide housing, but there are still families that live in hotels and individuals who stay in shelters."* Other interview participants described housing in Holden as expensive. Residents of Shrewsbury described homes in their community as "reasonably" priced, but "not cheap".

Quantitative data reflect respondents' concerns regarding the high cost of housing for low-income residents. Approximately 50% of Worcester renters spend 30% or more of their income on housing, according to the American Community Survey (city-data.com). Further, in 2011, there were 919 homeless families in Worcester County, as estimated by the Central Massachusetts Housing Alliance.

As shown in Figure 17, homeless youth (aged 13-25) may seek shelter in homeless or temporary shelters, temporarily residing with others (called "couch surfing"), or on the street. In 2011, 535 youth were surveyed and 19% (n=102) indicated that they were homeless. The figure below shows the place of residence indicated by these homeless youth. It should be noted that a potential limitation of this survey is that it was administered at one point in time, and thus offers a snapshot of places of residence for homeless youth.

Figure 17: Places of Residence of Homeless Youth (aged 13-25), City of Worcester, 2011 (of 102 homeless Youth)



DATA SOURCE: Youth and Young Adult Homelessness in Worcester, Massachusetts, Fall 2011 Worcester Teen Housing Task Force, the Compass Project, and Clark University

Transportation

> *"We don't have a strong internal public transportation system."* – Key informant interview participant, Health care sector, Worcester
>
> *"Transportation is a barrier to a lot of things that also impact health. Getting to where health care is offered … or to jobs is a challenge."* – Key informant interview participant, Social services sector, Worcester
>
> *"Many rely on cabs to get to the doctor and that can be an issue. Do they use money to go to the doctor, get a prescription, food, or pay for a cab? Free or low cost transportation would be helpful."* – Key informant interview participant, Social service sector, Worcester
>
> *"Within the city, the status of public transportation and getting patients to where they need to be is a challenge."* – Key informant interview participant, Academic sector, Worcester

Transportation emerged as a significant concern across respondents, with key informants, focus group participants and community festival participants describing local transportation within the City of Worcester and between the communities in the Greater Worcester area as inadequate for persons who do not have a car. Respondents noted that transportation was a significant issue particularly for low-income residents and the elderly. Interview participants noted that residents who do not drive or who do not have a car experience numerous difficulties in completing everyday activities in the area, including getting to work, the doctor, and social service agencies. As one key informant interview participant from the health care sector in Worcester noted, *"[The public transit system] doesn't impact me because I have a vehicle, but there are a lot of people who would benefit from more public transport."* Several participants noted that it is easier to travel to Boston, including via the new transportation hub in Worcester, than it is to travel within Worcester or within the Greater Worcester area. One key informant interview participant representing the health care sector in Worcester explained*, "A great new transportation hub was put into place to get out of the city to Boston and New York, but it's not a hub within the city. It's hard to get to the transportation hub, though."* Participants explained that limited transportation options create a challenge for the elderly, disabled and the poor. Participants in focus groups among elders noted that many elderly residents experience long waits for rides associated with the Worcester Regional Transit Authority (WRTA). A few respondents shared that residents who do not have access to a car had to rely on cab services to get to the doctor or to conduct necessary activities.

Environmental Conditions

Several residents cited environmental conditions as factors that directly affect health, prevent physical activity, and make getting around in their community challenging. A key theme among community festival and focus group participants in the region was concern regarding insect- and animal-born diseases, such as diseases transmitted by mosquitoes (e.g., West Nile virus and Eastern Equine Encephalitis), ticks (lyme disease), and stray animals or infected dogs (rabies). Respondents also cited *"unclean neighborhoods"* and *"animal droppings"* from stray animals as environmental health concerns.

Community festival participants also described traffic safety, including noise from traffic, narrow roads, and speeding as factors that influence neighborhood safety and safe options for active living in their neighborhoods. They also explained that the *"road seems crowded"* and the *"conditions of the roads and sidewalks"* need improvement.

Crime and Violence

> *"Violence and safety are health issues that impact health and mental health. We need safer walkways, and spaces."* – Key informant interview participant, Social services sector, Worcester

> *"There is a lot of available open space, but there is a perception that it's not safe."* – Key Informant Interview participant, Government sector, Holden

A key theme that emerged from interviews with community festival participants was concern for safety from crime. While crime was a major concern, Worcester respondents particularly expressed concerns regarding safety in their neighborhoods. Several respondents cited concern about gang violence, drug dealing and slow responses by law enforcement to emergency calls. One focus group respondent articulated how violence can affect health, *"Violence impacts everything about a person – their stress level, mental health, whether they feel safe leaving their house and talking to their neighbors."*

Youth were a population group of particular concern when discussion participants talked about violence, theme supported by quantitative data. Regional youth survey findings indicate that in 2011, 11.9% of Worcester area high school students reported that they carried a weapon to school, according to the Worcester Youth Survey. Additionally, approximately one in five Worcester area high school students (24.1% of 9th graders and 17.6% of 12th graders) indicated on the youth survey that they have been bullied at school, and approximately 17% indicated that they have been victims of electronic bullying.

Crime is an issue of concern around the entire community. As shown in Table 7, the violent and property crime rate in Worcester City exceeds that for the State and other towns in the Greater Worcester area. Overall, in 2011 there were 988.2 per 100,000 population violent crimes in Worcester, more than double the rate for the State (428.4 per 100,000). The second and third highest violent crime rates were in Millbury (194.9 per 100,000) and Leicester (126.8 per 100,000), respectively. The towns of Holden (34.4 per 100,000), Shrewsbury (14.0 per 100,000), and West Boylston (13.0 per 100,000) had the lowest violent crime rates in the region. The property crime rate in the City of Worcester (3336.4 per 100,000) and Millbury (2316.0 per 100,000) exceeded the rate for the State (2258.7 per 100,000). Holden (670.4 per 100,000) and Shrewsbury (790.0 per 100,000) had the lowest property crime rates.

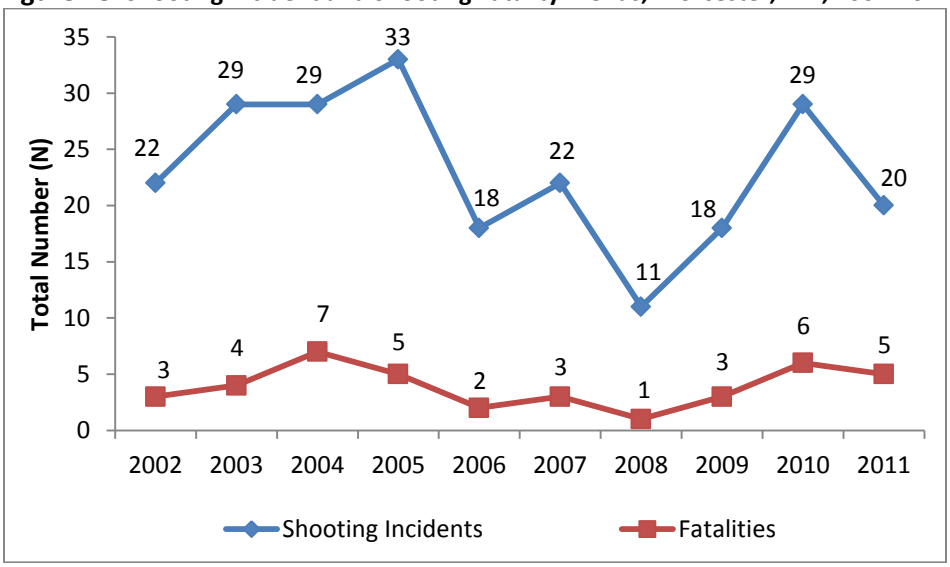
Table 7: Violent and Property Crime Rate per 100,000 Population In Massachusetts and the Greater Worcester Area , 2011

	Violent Crime Rate*	Property Crime Rate**
Massachusetts	428.4	2258.7
Worcester City	988.2	3336.4
Holden	34.4	670.4
Leicester	126.8	1639.9
Millbury	194.9	2316.0
Shrewsbury	14.0	790.0
West Boylston	13.0	1788.5

DATA SOURCE: The Federal Bureau of Investigation, Criminal Justice Information Services Division, Uniform Crime Reports, Crime in the United States, 2011
Note: County level data were not available
*Violent crime includes murder and non-negligent manslaughter, forcible rape, robbery, and aggravated assault
**Property crime includes burglary, larceny-theft, motor vehicle theft, and arson

Figure 18 shows shooting incident and shooting fatality trends in Worcester City from 2002 to 2011, according to the Worcester Police Department. The number of shooting incidents varied over this period, but ranged from 33 incidents in 2005 to 11 incidents in 2009. The general trend over this period, with the exception of 2010, is that shootings declined from 2005 to 2011. However, over this period, the number of shooting-related fatalities in Worcester City has increased from 3 in 2002 to 5 in 2011.

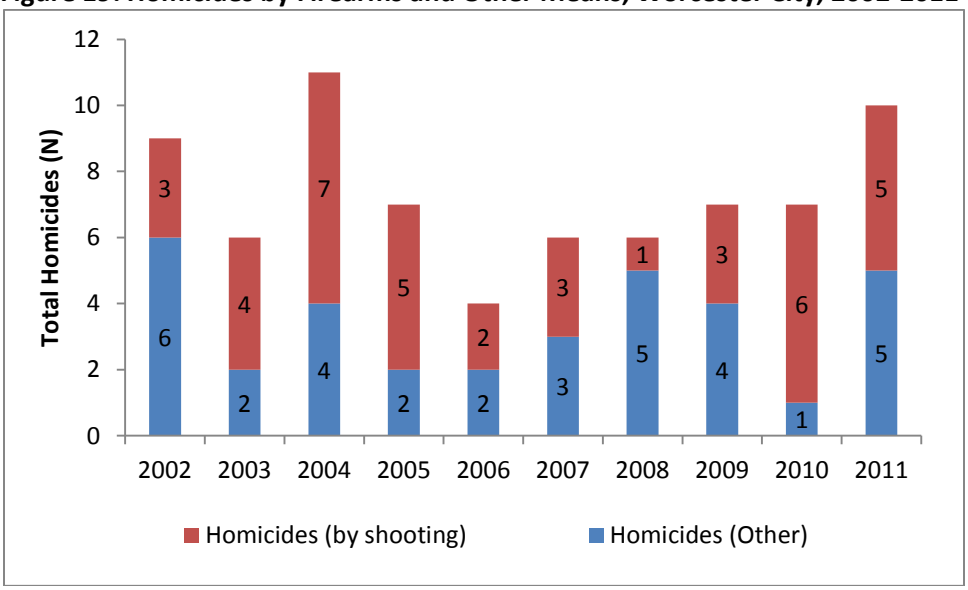
Figure 18: **Shooting Incident and Shooting Fatality Trends, Worcester, MA, 2002-2011**



DATA SOURCE: Worcester Police Department Annual Report.

The number of homicides in Worcester City from 2002 to 2011 is presented in Figure 19. While there has been some fluctuation, over this period there has been an increase in the number of shooting-related homicides, from 3 in 2002 to 5 in 2011. In 2011, 5 homicides were also committed by means other than a gun.

Figure 19: Homicides by Firearms and Other Means, Worcester City, 2002-2011



DATA SOURCE: Worcester Police Department Annual Report

Social Support and Cohesion

> *"We're community-oriented. People like to get involved in issues; especially if it affects their neighborhood. It brings the community together."* – Key informant interview participant, Health care sector, Worcester

Several community festival, focus group and interview participants described the Greater Worcester area as "community-oriented", with strong ties to culture and their families. Community festival participants explained that their community had a "small neighborhood feel" and there was a "good sense of trust in the neighborhood." Participants in the elder focus group shared that they drew social support from community activities including bingo, pool, church, social events, conferences with the Worcester Housing Authority, and other community programs.

RISK AND PROTECTIVE LIFESTYLE BEHAVIORS

This section examines lifestyle behaviors among residents of the Greater Worcester area that support or undermine health, including individuals' personal health behaviors and risk factors (including physical activity, nutrition, alcohol and substance use) that contribute to the leading causes of morbidity and mortality among residents of the Greater Worcester area.

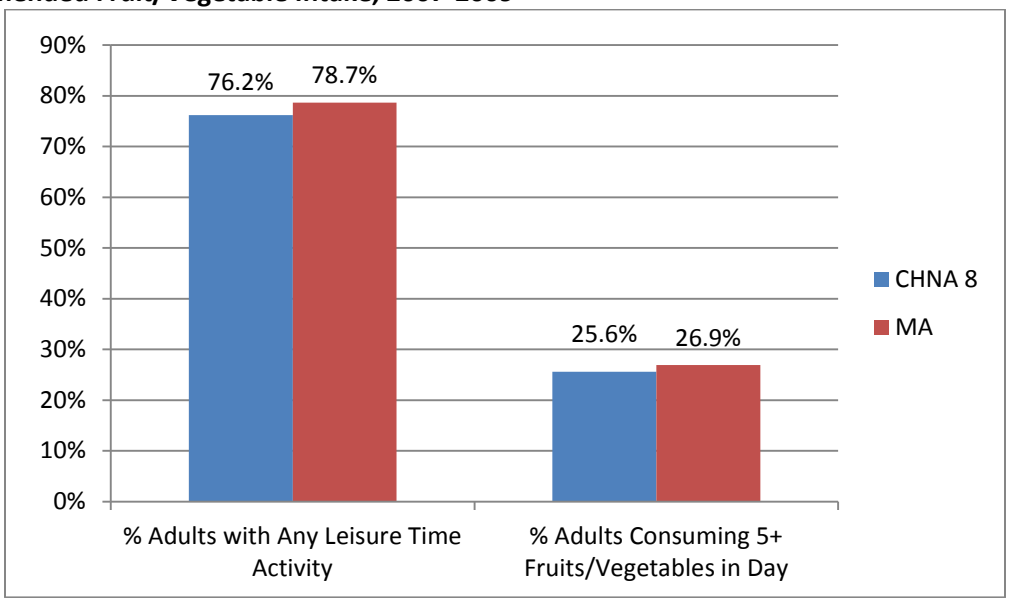
Healthy Eating, Physical Activity, and Overweight/Obesity

> *"When you don't have a lot of money; you can't buy the good foods."* – Key informant interview participant, Health care sector, Worcester
>
> *"We are not exercising enough. We need to find ways to incorporate exercise into daily living."* – Key Informant Interview participant, Health Care Sector, Worcester

Concerns regarding obesity and behaviors associated with obesity, such as nutrition and physical activity, are important health concerns cited by respondents in all communities in the Greater Worcester area and are associated with chronic illnesses such as diabetes and heart disease. As one key informant interview participant from the government sector in Shrewsbury noted, ***"****The regional health issue that affects us all is obesity. It is the root of so many other issues."* Several respondents noted that behaviors associated with preventing overweight and obesity, such as physical activity and healthy eating are more challenging for low-income residents who may have limited access to safe public spaces to exercise or affordable healthy foods. One key informant interview participant representing the government sector in Worcester explained, *"Lower income families don't have as many options for good food and exercise."*

Physical activity and fruit and vegetable consumption levels in the Greater Worcester area are similar to what is seen statewide (Figure 20). Approximately three quarters of adults have reported getting any leisure time physical activity in the past month, while only one quarter have indicated consuming five or more servings of fruits and vegetables per day.

Figure 20: Percent Adults in CHNA 8 (Greater Worcester) who Reported Physical Activity and Recommended Fruit/Vegetable Intake, 2007-2009



DATA SOURCE: MDPH. A Summary of Health Risks and Preventive Behaviors in Community Health Network Areas (CHNAs), 2007-2009, Results from the Behavioral Risk Factor Surveillance System, 2010.

Perceived Resources Related to Physical Activity and Healthy Eating

> *"Our community [Leicester] is average. We are not affluent, so there are more health issues. People can't afford good food."* – Key informant interview participant, Government sector, Leicester

> *"Holden used to have neighborhood grocery stores and clusters of residences around that people walk to, but now we have big box grocery stores and people can't walk there. Small markets don't survive economically."* – Key informant interview participant, Government sector, Holden

> *"People are fearful to walk or bike to school because parents think children will be kidnapped or injured on their way to school."* – Key informant interview participant, Government sector, Holden

When discussing physical activity, many interview participants noted that residents often did not feel safe using existing outdoor public spaces to exercise. As one key informant interview participant from the government sector in Holden noted, *"There is a lot of available open space, but there is a perception that it's not safe."* A few participants also noted a perception of lack of safety due to poorly maintained public parks. One key informant interview participant representing the academic sector in Worcester explained that *"not all parks in Worcester are maintained in the same manner."* A community festival respondent shared that walkability is a challenge:*"There is really a lack of sidewalks in the neighborhood. There is nowhere to walk, even if I wanted to."* Several residents noted that there were "*not enough exercise programs"* and limited indoor exercise facilities available to the public. Several

respondents cited limited walkability as a major issue in West Boylston, Holden, and Worcester. As a key informant interview participant from the government sector in Holden explained, *"the issue is the non-existence of sidewalks"*. Other concerns about impediments to walkability raised by community festival participants include dirty sidewalks, lack of pedestrian crossings, paucity of walkways, and litter in the streets.

Community festival participants noted that free or low-cost programs such as Relay for Life, other walks organized for a cause, and family events at public playgrounds are important existing community-and family-oriented events that also promote physical activity. Respondents also expressed concern that there were few well-maintained public spaces for physical activity including public pools and soccer and baseball fields. They also noted that there were few affordable organized sports or youth development programs to facilitate engagement in physical activity for youth.

Many respondents cited a lack of affordable, healthy food for vulnerable populations as a major issue. Several participants described "food deserts" as contextual factors that limit access to healthy food for low-income residents. Participants also reported that inadequate public transportation was also a barrier to accessing healthy food.

When asked about existing strategies to address community health concerns, several interview participants mentioned initiatives to improve access to healthy, affordable food in Worcester, such as farmer's markets and the expansion of governmental assistance benefits such as Electronic Benefits Transfer (EBT) and Supplemental Nutrition Assistance Program (SNAP) to include purchases at farmer's markets. One key informant interview participant from the academic sector in Worcester praised community initiatives to bring famer's markets to Worcester: *"Worcester is doing a better job in having full-service grocery stores and farmers markets in a lot of different locations."* However, one key informant representing the health care sector in Worcester observed that *"not all of the vouchers get redeemed"* and another key informant interview participant from the government sector in Worcester noted that *"farmer's markets exist, but we need more",* suggesting that strategies to increase utilization of farmer's markets by vulnerable communities and residents could be implemented and the farmer's market initiative may benefit from offering more farmer's markets.

<u>The Role of Schools</u>

> *"Use the school environment to influence food choices and exercise – we've been taking the approach that parents need to change what they feed their kids and that's hard…so hard."* – Key informant interview participant, Health care sector, Worcester

> *"The recent emphasis on improved food in cafeteria and community gardens is a real positive development to help kids because it needs to happen at a system level."* – Key informant interview participant, Health care sector, Worcester

> *"We need to increase movement and physical exercise for kids. Help kids to have more opportunities to exercise during the day; walk to school. Also nutrition, but that can be difficult because of cost."* – Key informant interview participant, Educational and health care sectors, Worcester

"I don't mind paying a little bit for exercise classes, but I cannot afford expensive family gym memberships." – Focus group participant, Faith-based organization

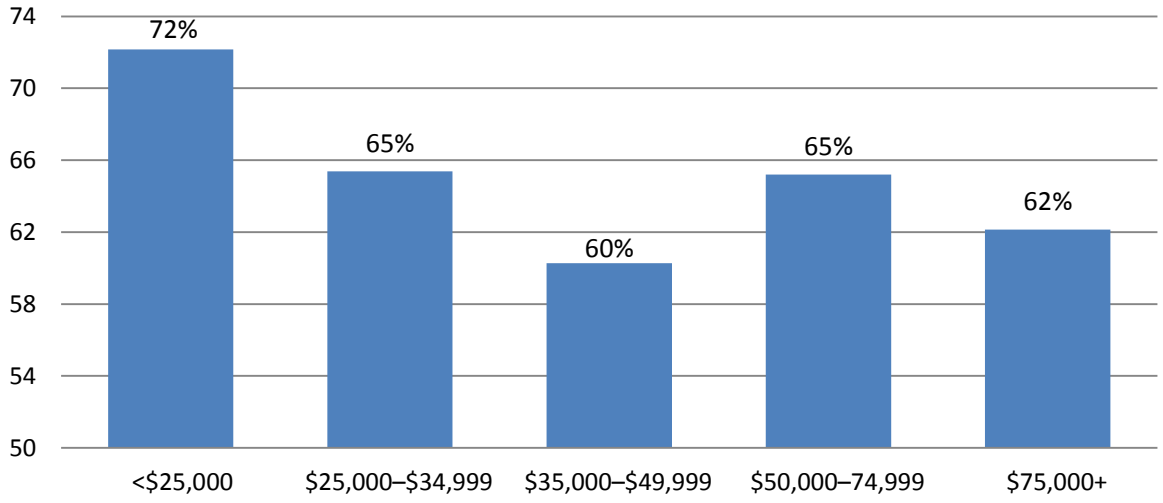
Several interview participants noted that leveraging the school environment to improve nutrition and increase physical activity among children in the Greater Worcester area is a promising strategy for preventing and addressing overweight and obesity among children. Some respondents noted that current practices within the school system, such as the incorporation of community gardens in the schools and healthy modifications to school menus, were appropriate approaches to reducing the burden of obesity, but more needs to be done.

Overweight and Obesity

Obesity-related issues were considered key concerns, particularly in relation to access and cost of healthy foods, neighborhood safety in parks and outdoor spaces, accessible, walkable spaces, and time constraints and the stress of living on the edge. Given the barriers to healthy eating and physical activity, a number of interview participants described obesity as a community issue that affected all populations, but particularly affected vulnerable populations and immigrant communities.

As demonstrated in Figure 21, overweight is very prevalent in Worcester County, but concentrated among lower-income adults. In 2010, 72% of adults with a household income of less than $25,000 reported that they were overweight or obese, while 65% or less of residents with higher incomes reported being overweight or obese

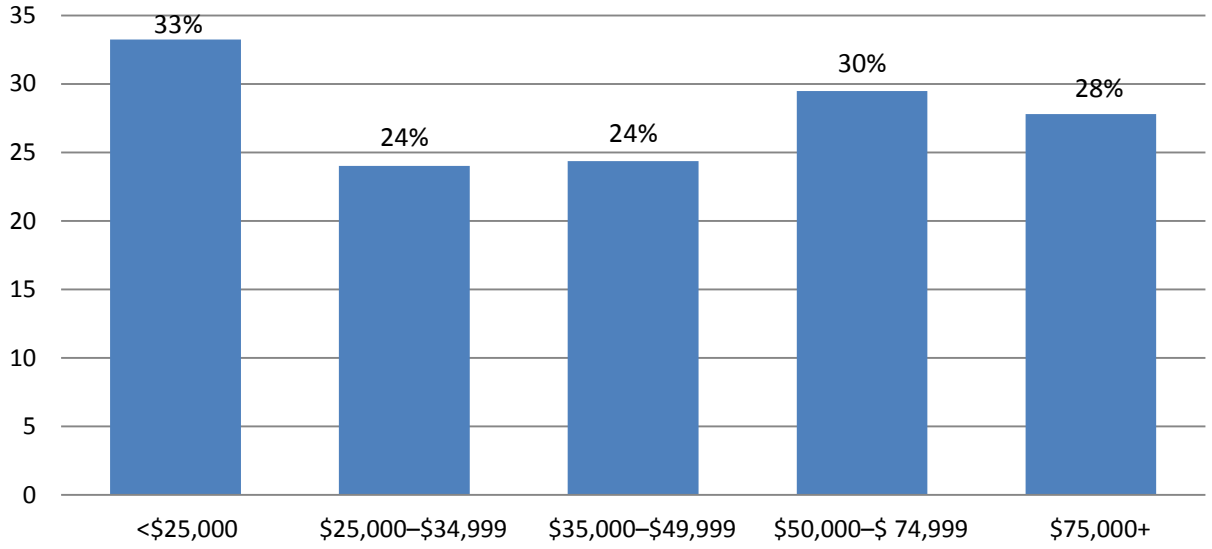
Figure 21: **Percent of Adults who Reported that They are Overweight or Obese, by Household Income, Worcester County, 2010**



DATA SOURCE: MDPH, MassCHIP, BRFSS 2010

Figure 22 examines adults in the region who are considered obese by household income.The largest proportion of persons who reported being obese in Worcester County were those who had household incomes of less than $25,000 (33%). For residents with household incomes above $25,000, the prevalence of obesity ranged from 24% among those with incomes between $25,000 and $49,999 to 30% for those with incomes between $50,000 and $74,999. For both overweight and obesity these results do not perfectly reflect a socioeconomic gradient in overweight and obesity. Rather, the relationship between overweight and obesity and household income is more curvilinear in Worcester County. However, these results do demonstrate that there is a clear trend: the lowest income residents in Worcester County have the highest rates of overweight and obesity.

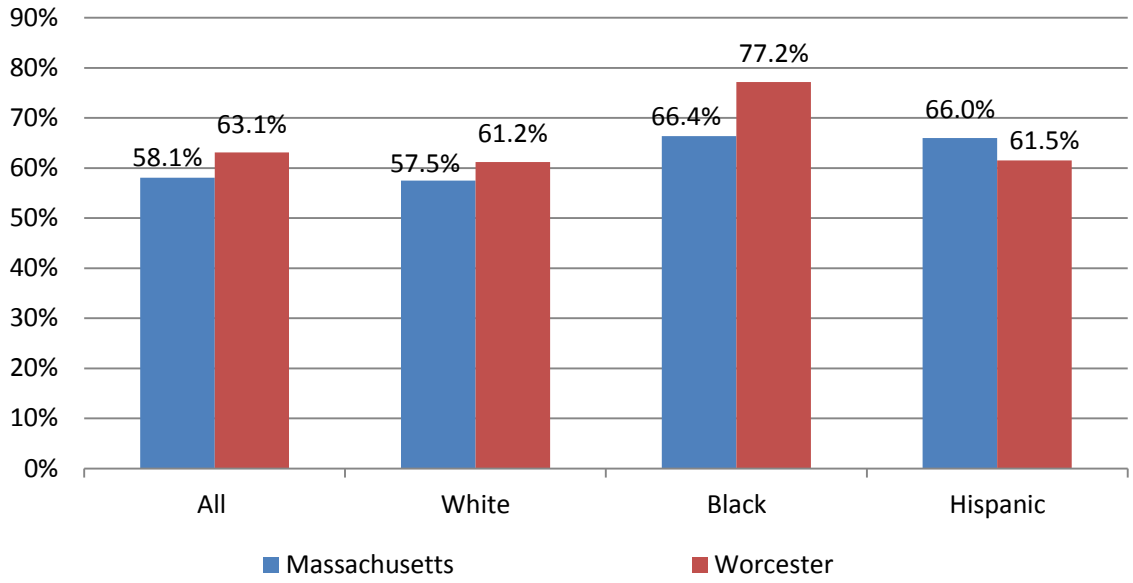
Figure 22: **Percent of Adults who Reported that They are Obese, by Household Income, Worcester County, 2010**



DATA SOURCE: MDPH, MassCHIP, BRFSS 2010

As shown in Figure 23, the prevalence of overweight and obesity among adults in the City of Worcester (61.1%) exceeded the prevalence rate for the state (58.1%) in 2008. There are racial and ethnic inequalities in the prevalence of overweight or obesity in the City of Worcester. In 2008, 77.2% of non-Hispanic Blacks reported that they were overweight or obese, greater than the rate for non-Hispanic Blacks in the state (66.4%) and greater than the rate for non-Hispanic Whites in the City of Worcester (61.2%).

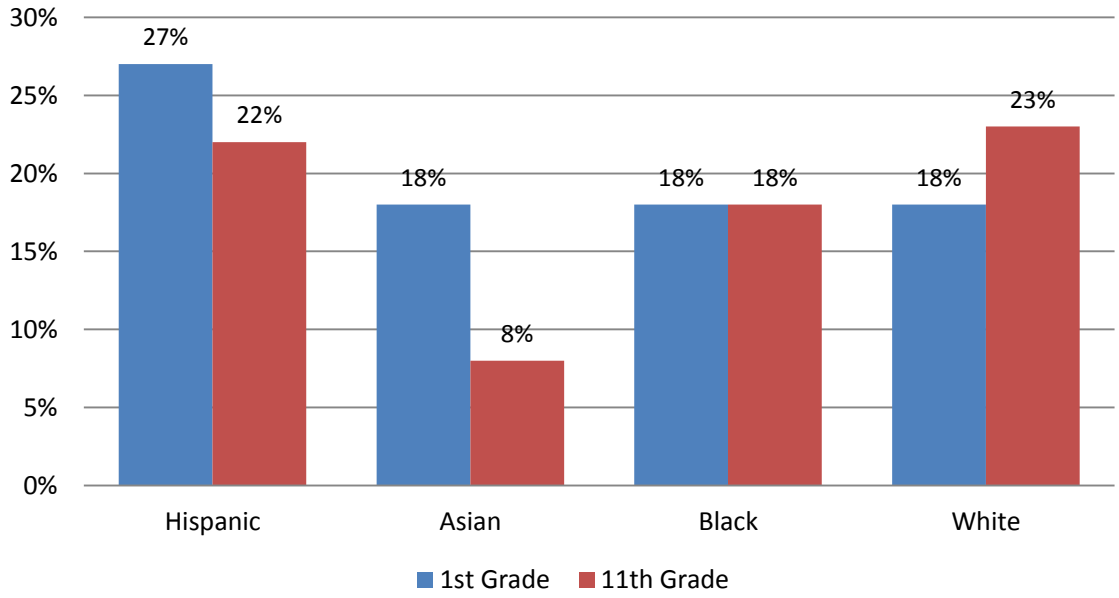
Figure 23: **Percent of Adults who Reported that they are Overweight or Obese, City of Worcester, 2008**



DATA SOURCE: Massachusetts Behavioral Risk Factor Surveillance System (BRFSS), 2008

Racial/ethnic disparities in obesity also emerge for youth in the Worcester Public School System (Figure 24). Hispanic youth (first and eleventh grades shown here), had the highest prevalence of obesity (27%), followed by non-Hispanic White youth (23%) and non-Hispanic Black (18%) and Asian (18%) students.

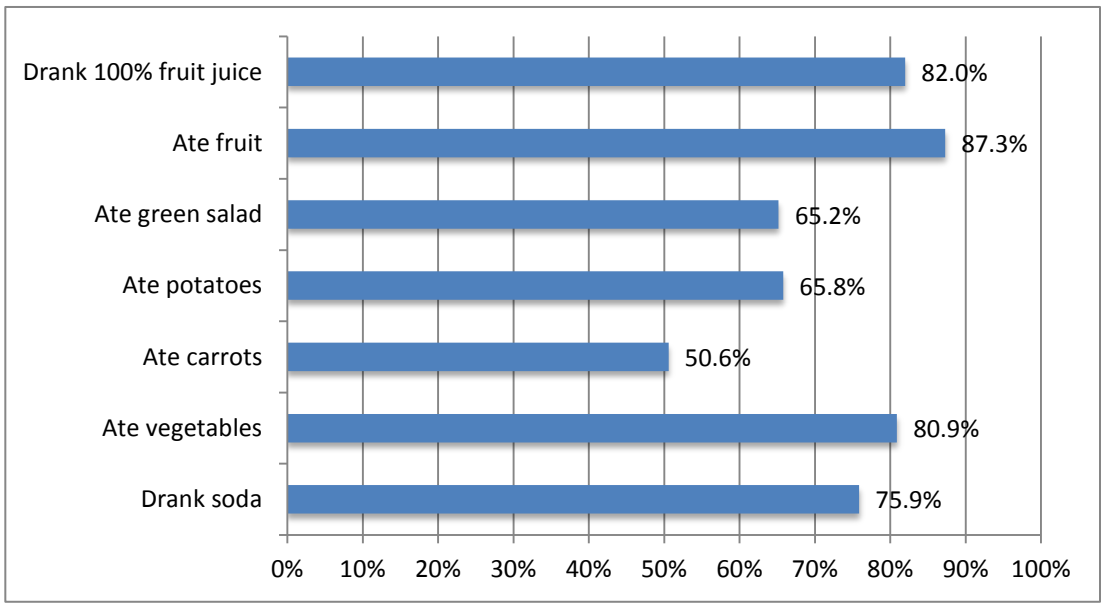
Figure 24: Youth Obesity in Worcester Public Schools, 2011



DATA SOURCE: MDPH, Essential School Health Service (ESHS) data Reports for Worcester and Massachusetts

Figure 25 shows dietary practices in the past week among youth in the Worcester Regional Schools in 2011, according to the Youth Survey of Worcester Regional Schools. Approximately 82.0% of youth reported drinking fruit juice and 75.9% indicated that they drank soda in the past week. In the previous week, 87.3% reported consuming fruit, 80.9% reported eating vegetables, and 65.2% indicated that they at a green salad in the past week.

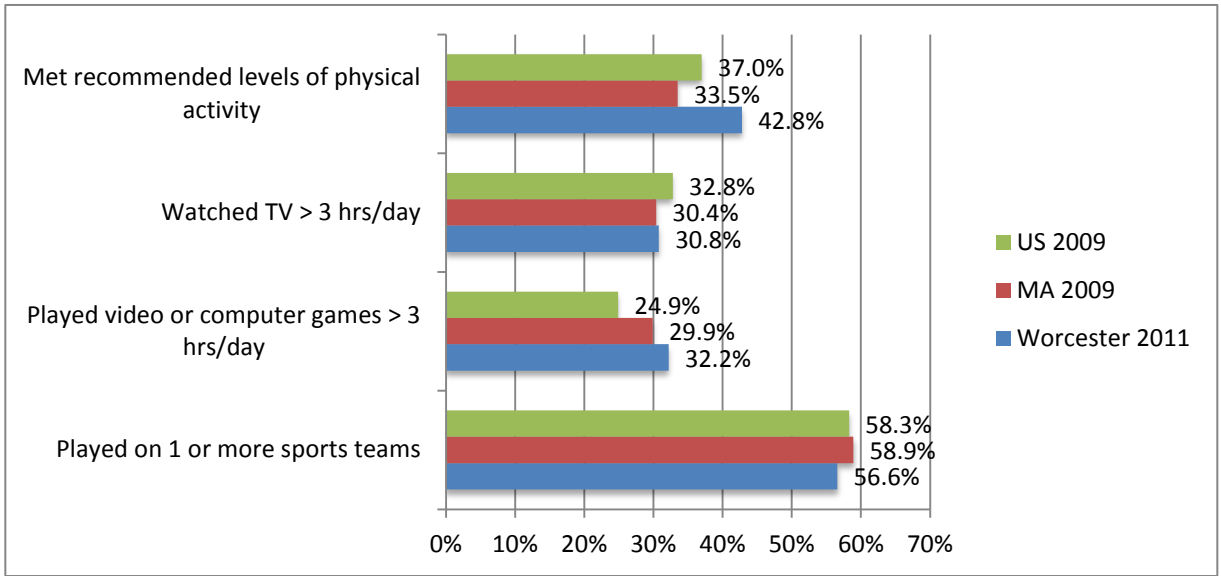
Figure 25: Youth Dietary Practices in Past Week, Worcester Regional Schools, 2011



DATA SOURCE: Youth Survey of Worcester Regional Schools, 2011

As shown in Figure 26, the proportion of youth in the Worcester regional schools meeting the recommended levels of physical activity in 2011 (42.8%) exceeded that for the state (33.5%) and nation (37.0%) in 2009. A similar proportion of youth in the Worcester regional schools (30.8%) reported watching more than three hours of television per day compared to the state (30.4%). The proportion of Worcester youth watching more than three hours of television per day was lower than that for the nation in 2009 (32.8%). A greater proportion of students in Worcester regional schools in 2011 (32.2%) reported playing computer games for more than three hours per day than that for the state (29.9%) and nation (24.9%) in 2009. A smaller proportion of youth in Worcester regional schools reported playing on one or more sports teams in 2011 (56.6%), compared to the state (58.9%) and nation (58.3%).

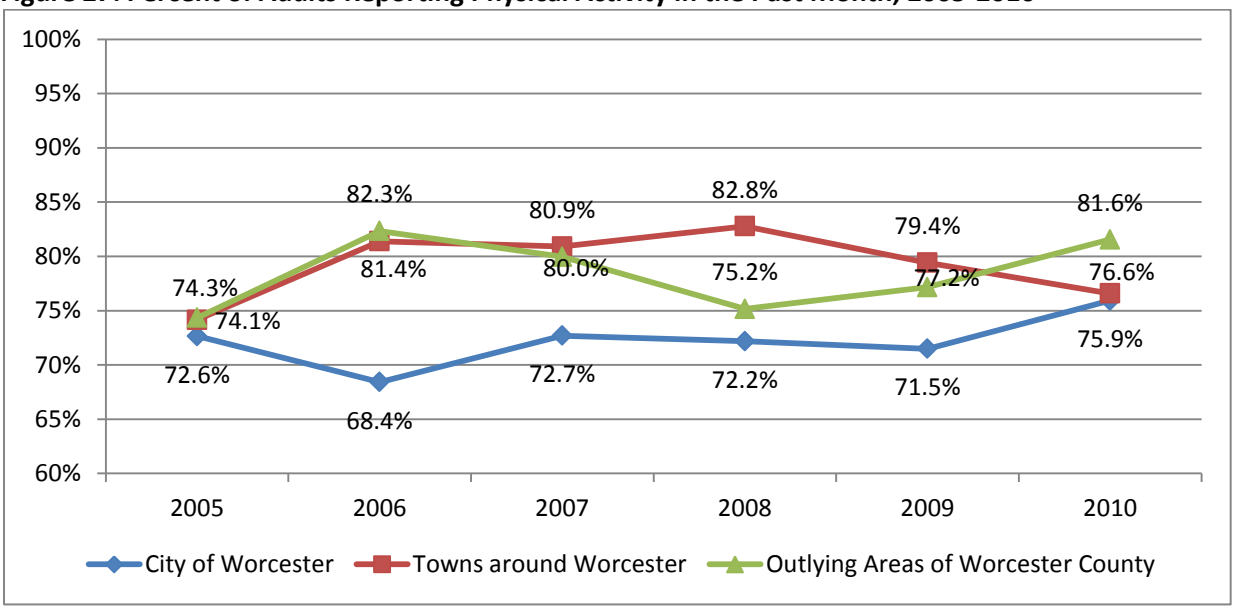
Figure 26: Percent of Youth Reporting Physical Activity, Worcester Region, 2011



DATA SOURCE: Youth Survey of Worcester Regional Schools, 2011

Figure 27 shows the percent of adults reporting physical activity in the past month from 2005-2010, within regions of Worcester County, as estimated by the BRFSS. Over this period, the percent of adults in Worcester City reporting engaging in physical activity increased from 72.6% in 2005 to 75.9% in 2010. Similarly, the proportion of adults reporting engaging in physical activity in towns surrounding Worcester City increased over this period, from 74.1% in 2005 to 76.6% in 2010. In 2010, for both Worcester City (75.9%) and the towns surrounding Worcester City (76.6%), the percent of adults engaging in physical activity was below that for adults in the outlying areas of Worcester County (81.6%).

Figure 27: Percent of Adults Reporting Physical Activity in the Past Month, 2005-2010



DATA SOURCE: Youth Survey of Worcester Regional Schools, 2011

Substance Use and Abuse (Alcohol, Tobacco, and Other Drugs)

> *"It's so multi-leveled and multi-layered. Prevention of substance abuse is so closely tied to other factors in the community."* – Key informant interview participant, Health care sector, Worcester

> *"It's like a scourge – everything around it suffers: individuals, neighborhoods. It tends to be areas that are poor where individuals with substance abuse will congregate with violence and other criminal behavior."* – Key informant interview participant, Health care sector, Worcester

> *"There are also societal problems in the inner city that these populations aren't always prepared for – like substance abuse, addiction, and violence; these populations may not have had to struggle with this before."* – Key informant interview participant, Academic sector, Worcester

Substance use and abuse, including drugs and alcohol, was noted as a concern across communities in the Greater Worcester area. One key informant interview participant representing the social services sector in Worcester noted, it is not just use of substances that is a concern, but *"overdose is a big issue"*, particularly for opioids. Another key informant participant from the health care sector in Worcester explained that substance abuse had a community-wide effect and also was concentrated in particular regions, stating *"we are a heroin town."* While participants described substance use and abuse as a factor that affected all segments of the greater Worcester population, other participants noted that immigrants, particularly refugees were vulnerable to alcohol abuse. One key informant interview participant from the social services sector in Worcester stated, *"There is a lot of alcoholism in the community and no one knows about it, especially among the refugees."* Youth and young adults were also cited as particularly at-risk groups for substance abuse.

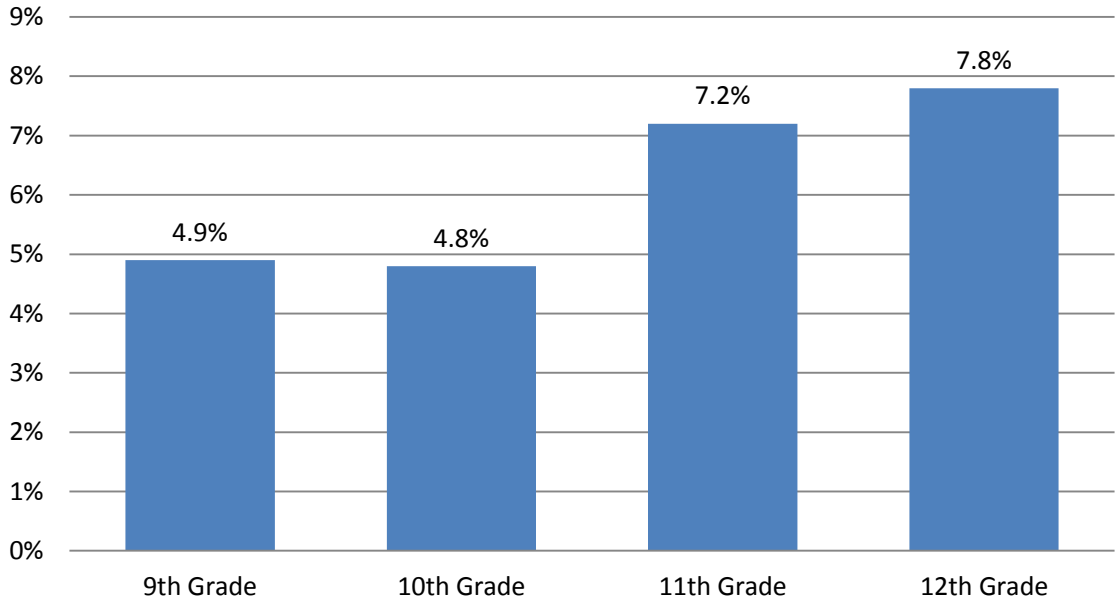
Alcohol and Substance Use

> *"We do not have a recovery high school, but we try to support kids who are going through substance abuse recovery."* – Key informant interview participant, Educational and health care sectors, Worcester
>
> *"We see many repeat patients and see them often for these [substance use] issues."* – Focus group participant
>
> *"We could be happier if there was less violence and drug use."* – Community Festival Participant

Several residents noted substance abuse and underage drinking among youth as a particular concern. One key informant interview participant from the social services sector in Worcester explained that substance use is on the rise, *"It seems like we are seeing a real increase in opiate use here. Like everywhere, there is a lot of stigma around addiction and the co-morbidities of mental health…and services just don't meet the need."* Quantitative data confirm concerns regarding the prevalence of substance use in the Greater Worcester area.

As shown in Figure 28, 4.9% of 9th grade students and 4.8% of 10th grade students in the Worcester region reported using opioids in the past 30 days. Opioid use was highest among older high school students, with 7.2% and 7.8% of 11th and 12th grade students, respectively, reporting use of opioids in the past 30 days.

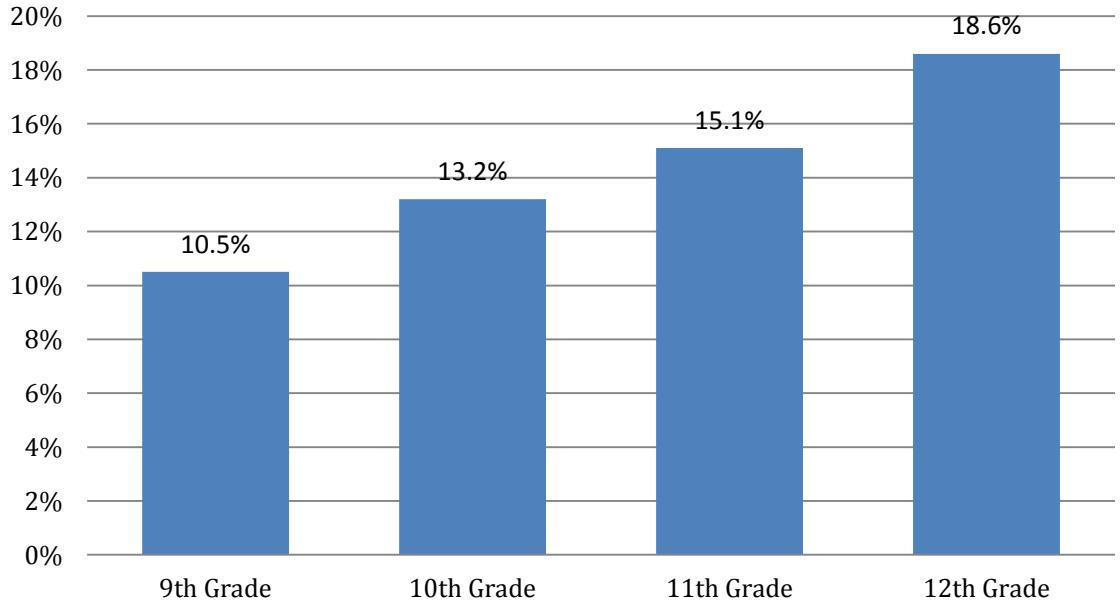
Figure 28: **Current Opioid Use among High School Youth, Worcester Region, 2011**



DATA SOURCE: Worcester Regional Youth Survey/YRBS, 2011

Use of non-prescribed pain-relieving prescription drugs (e.g., OxyContin, Vicodin) among high school youth in the Worcester region was also prevalent, with the highest rates seen among older high school students (Figure 29). Lifetime non-prescribed pain-relieving prescription drug use ranged from 10.5% among 9th grade students to 18.6% among 12th grade students.

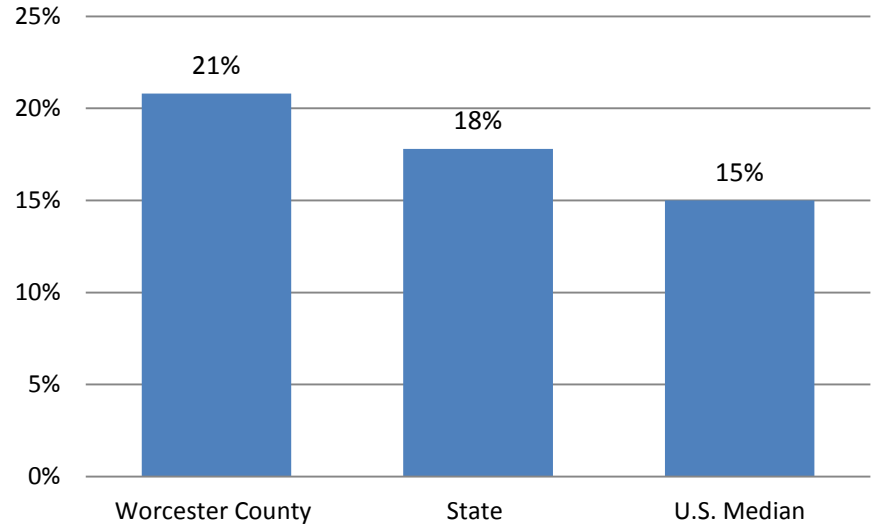
Figure 29: **Lifetime Prescription Drug Use among High School Youth, Worcester Region, 2011**



DATA SOURCE: Worcester Regional Youth Survey/YRBS, 2011

Alcohol use and abuse was another concern raised by focus group participants and interview respondents. As demonstrated in Figure 30, quantitative data show that binge drinking among adults in Worcester County exceeds the rate for the State and the median for the country. In 2010, 21% of adults in Worcester County reported binge drinking, compared to 18% for the State.

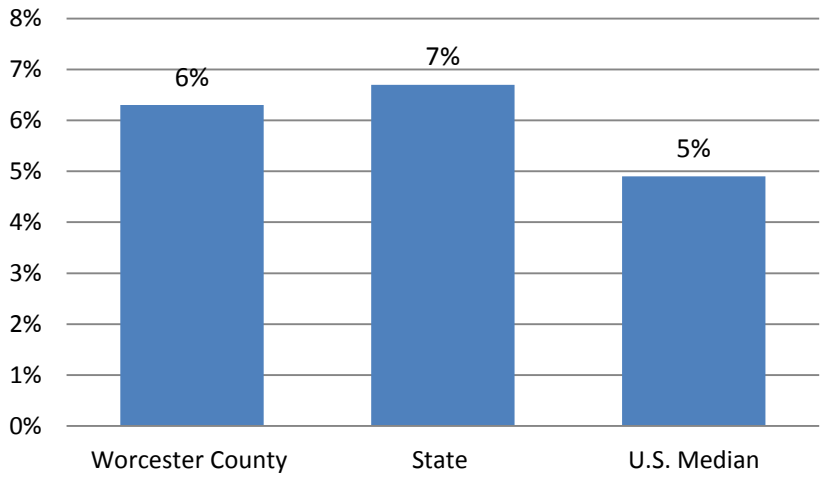
Figure 30: Binge Drinking among Adults, Worcester County, Massachusetts and United States, 2010



DATA SOURCE: MDPH, "A Profile of Health Among Massachusetts Adults", 2010 - BRFSS

As shown in Figure 31, 6% of adults reported heavy drinking, which was similar to the prevalence for the State (7%) and nation (5%).

Figure 31: **Heavy Drinking among Adults, Worcester County, Massachusetts and United States, 2010**

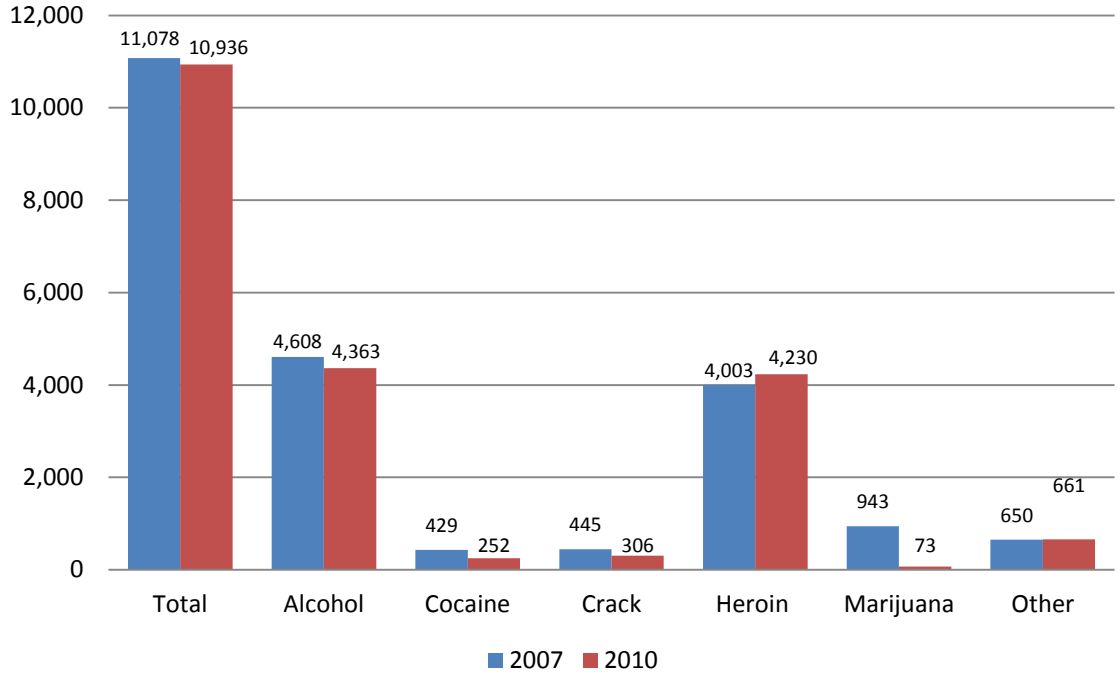


DATA SOURCE: MDPH, "A Profile of Health Among Massachusetts Adults", 2010 - BRFSS

Substance Abuse Treatment

Several respondents cited a need for more substance abuse treatment services and greater wrap-around substance abuse care with a holistic approach. Figure 32 demonstrates the number of substance abuse treatment admissions in Worcester County. In 2007, there were 11,078 substance abuse treatment admissions to Massachusetts Department of Public Health-funded programs for residents of Worcester County. In 2011, this number declined slightly to 10,936 substances abuse admissions for residents of Worcester County. The majority of substance abuse admissions in 2011 were for alcohol abuse (4,363 admissions) and heroin use (4,230 admissions).

Figure 32: **Substance Abuse Admissions to DPH-Funded Programs, Worcester County, 2007 vs. 2010**

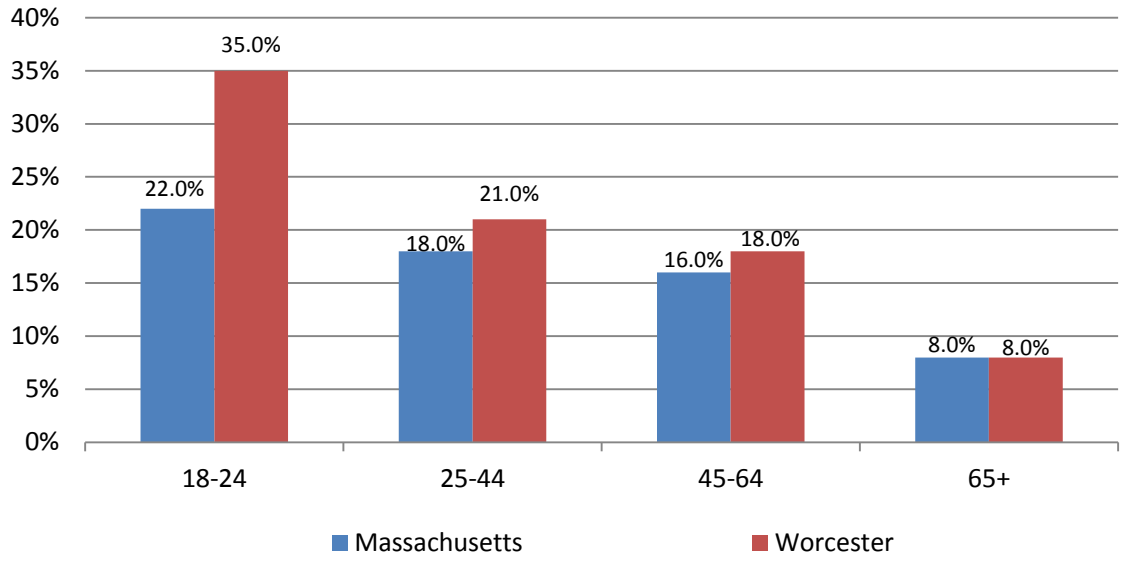


DATA SOURCE: MDPH, MassCHIP Custom Reports
NOTE: Data not available for City of Worcester.

Tobacco Use

Several interview participants mentioned tobacco use as a health concern for residents of the Greater Worcester area. As shown in Figure 33, smoking rates for adults in Worcester County are higher than that for the state. Approximately 35% of persons aged 18 to 24 in Worcester County reported smoking, compared to 22% of persons aged 18 to 24 in the state as a whole. Similarly, 21% of persons between the ages of 25 and 44 in Worcester County reported smoking, while 18% of persons in the same age group for the State reported smoking.

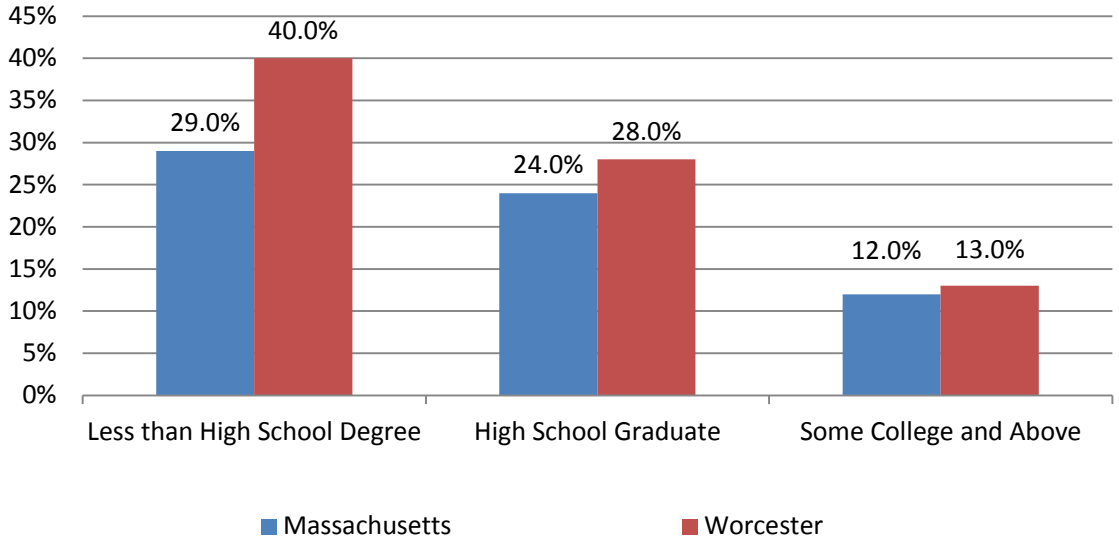
Figure 33: Smoking Prevalence among Adults, by Age, Worcester County, 2008-2010



DATA SOURCE: Data Source: MDPH, MassCHIP Smoking Report for Worcester County

As shown in Figure 28, results show a socioeconomic gradient in smoking among adults in Worcester County, with the highest smoking prevalence among residents with less than a high school education, and the second-highest prevalence among persons whose highest level of education is high school (Figure 34). Approximately 40% of residents with less than a high school degree in Worcester County reported smoking, followed by 28% of persons with a high school diploma. Only 13% of persons who had some college education or more reported smoking. Across levels of educational attainment, a greater proportion of residents in Worcester county smoke, compared to that for the State.

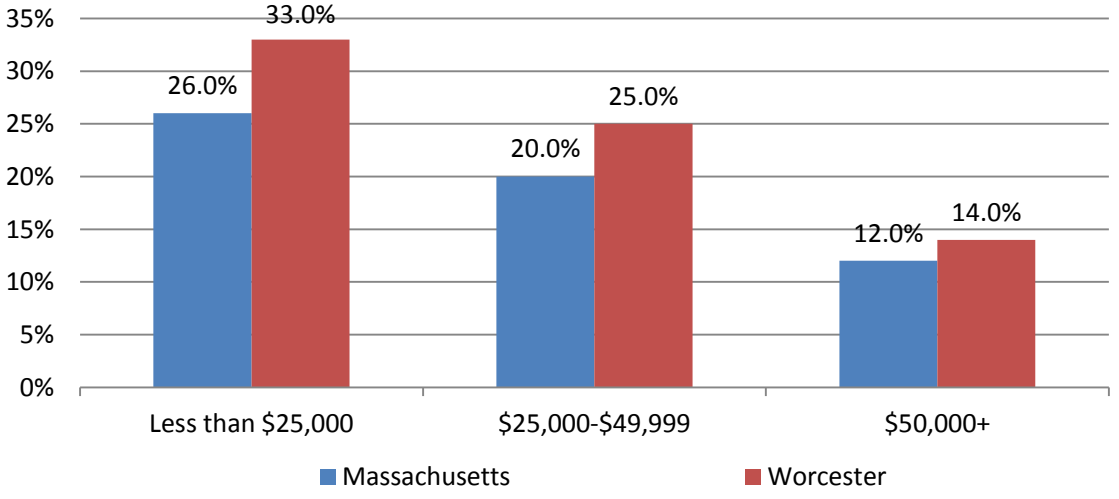
Figure 34: **Smoking Prevalence among Adults, by Educational Attainment, Worcester County and Massachusetts, 2008-2010**



DATA SOURCE: MDPH, MassCHIP Smoking Report for Worcester County

As demonstrated in Figure 35, a similar socioeconomic gradient is found by income for Worcester County, with approximately one third of adults with an income of less than $25,000 reporting smoking, followed by one quarter of residents with incomes ranging from $25,000 to $49,999 reporting smoking. Among residents in Worcester County with incomes of $50,000 or more, only 14% reported smoking. For each income level, a greater proportion of residents of Worcester County smoke than that for the state.

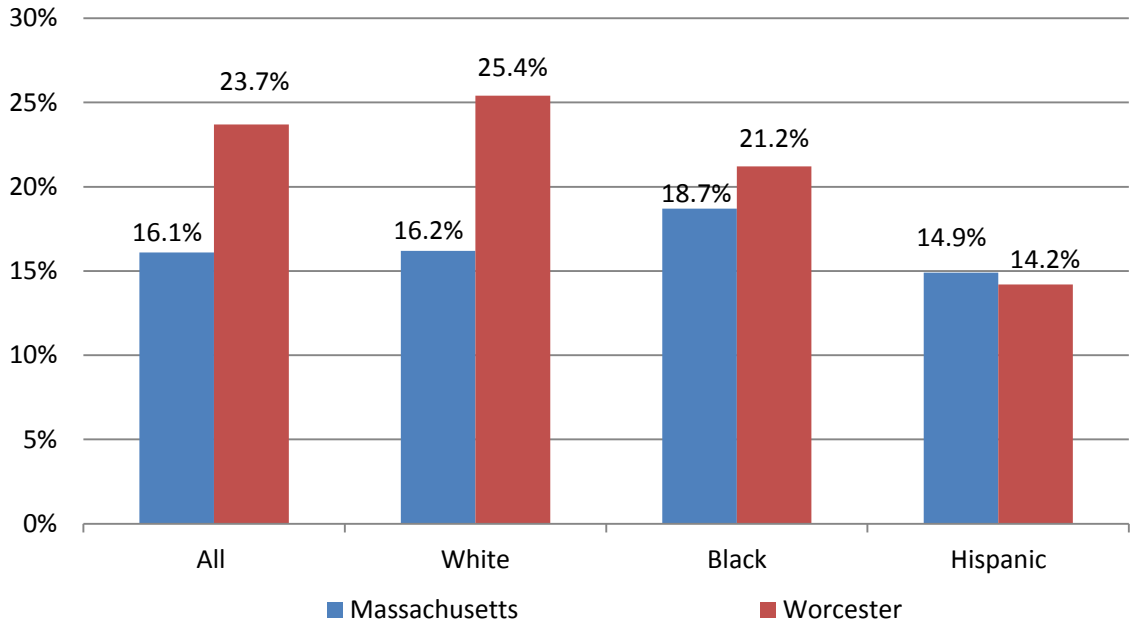
Figure 35: Smoking Prevalence Among Adults, by Income, Worcester County and Massachusetts, 2008-2010



DATA SOURCE: MDPH, MassCHIP Smoking Report for Worcester County

As shown in Figure 36, in the City of Worcester, smoking rates are highest among non-Hispanic Whites (25.4%) and exceed the prevalence for non-Hispanic Whites in the state (16.2%). Non-Hispanic Blacks in the City of Worcester reported the second highest smoking prevalence (21.2%), which also exceeds the smoking prevalence reported by non-Hispanic Blacks in the state (18.7%). The reported smoking prevalence was lowest among Hispanics (14.2%) in the City of Worcester, which is slightly below the smoking prevalence for Hispanics in the state (14.9%).

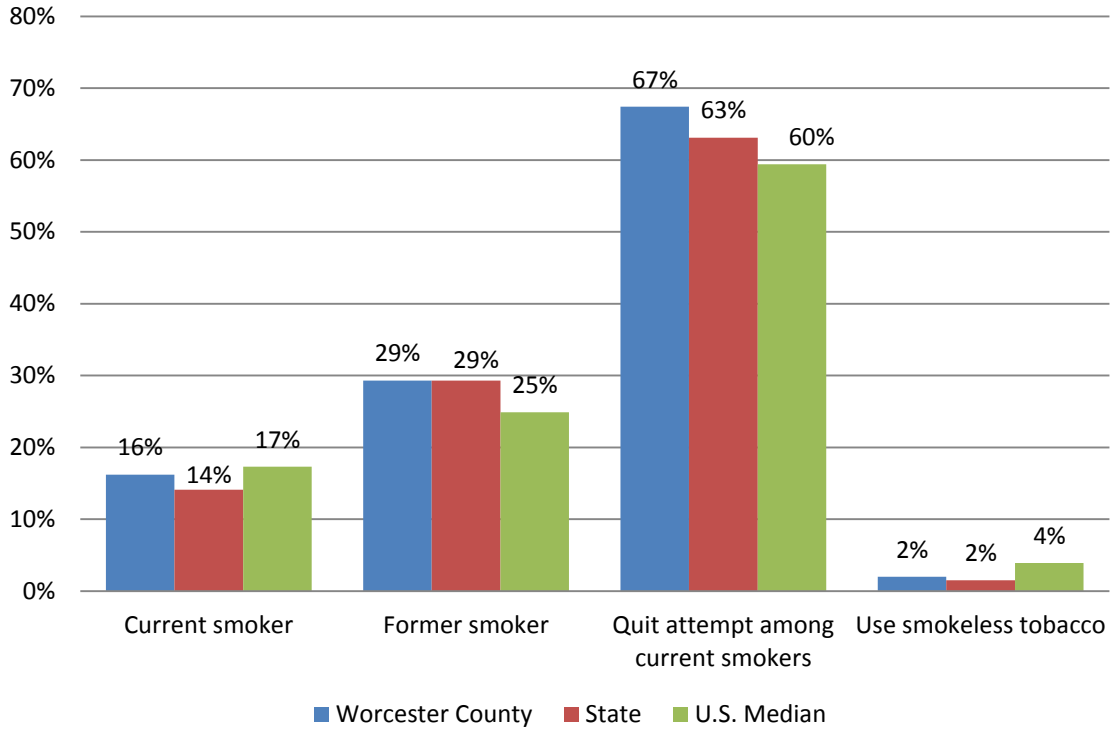
Figure 36: **Smoking Prevalence for People 18 and Older, by Race/Ethnicity, City of Worcester and Massachusetts, 2008**



DATA SOURCE: Massachusetts Behavioral Risk Factor Surveillance System (BRFSS), 2008

As shown in Figure 37, 16% of residents of Worcester County reported currently smoking. This prevalence is higher than the prevalence of smoking in the state (14%), but slightly below the median for the country (17%). Of the 16% of residents of Worcester County who reported being current smokers, 67% tried to quit smoking in the past. Approximately 29% of residents of Worcester Countyreported being former smokers, which is similar to the prevalence of former smokers in the State (29%)

Figure 37: Tobacco Use among Adults, Worcester County, Massachusetts and United States, 2010

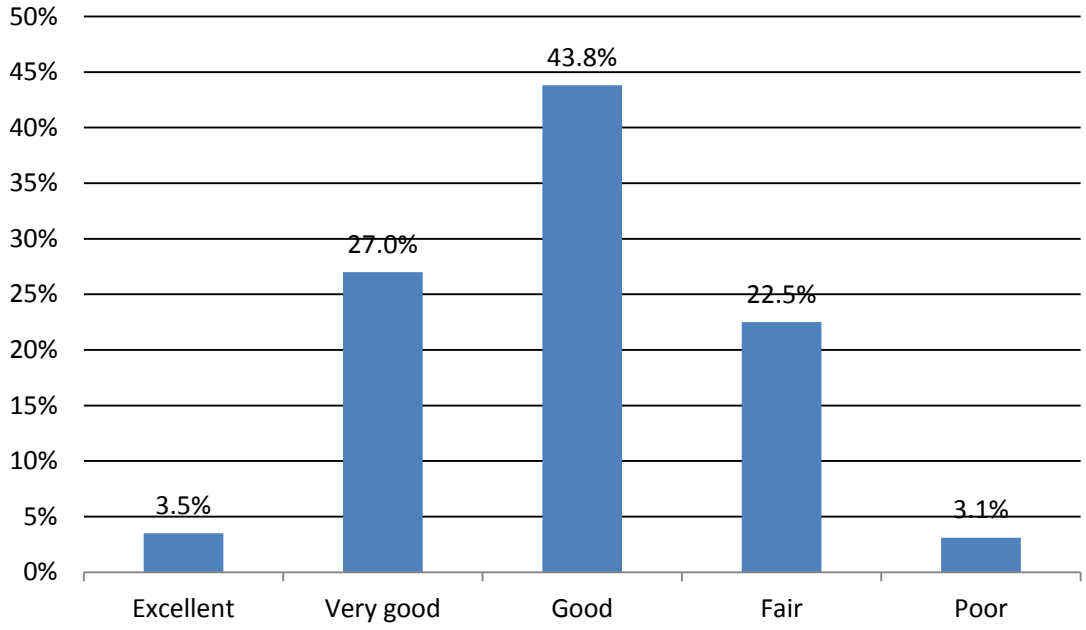


DATA SOURCE: MDPH "A Profile of Health Among Massachusetts Residents" 2010 Report, BRFSS

HEALTH OUTCOMES

Survey respondents were asked to gauge the general health of their communities on a scale ranging from 'Excellent' to 'Poor' (Figure 38). The majority of respondents described the community's general health as 'Good' or 'Very Good' (70.8%). While 3.5% of respondents described the community's health as 'Excellent,' an almost equal amount of respondents described the community health as poor (3.1%).

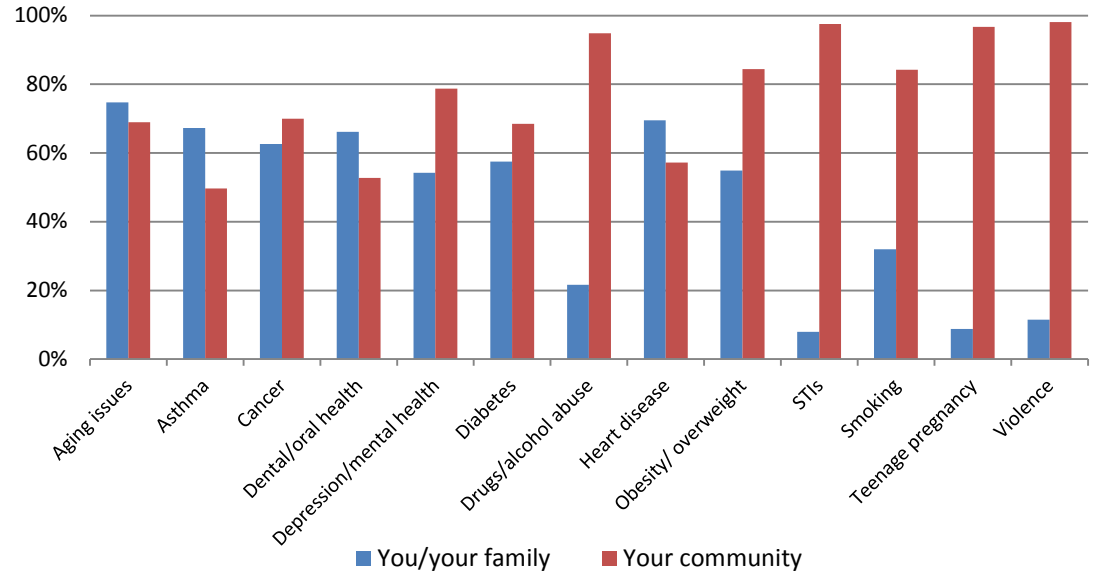
Figure 38: **CHA Survey: Resident description of the health of their community, Greater Worcester Area, 2012**



DATA SOURCE: Community Health Assessment Survey, 2012

Survey respondents noted their key issues of concern among themselves/their families and their community. Among respondents reported concern about specific topics, they noted some differences between personal health issues and community health issues. While some topics such as drug and alcohol abuse were key concerns at the community level, other health issues—such as aging, cancer and heart disease—were among the top personal concerns of respondents.

Figure 39: **CHA Survey: Top Health Issues that have the Largest Impact on the Resident/Family and the Community as a Whole, Greater Worcester Area, 2012**



DATA SOURCE: Community Health Assessment Survey, 2012

Overall Leading Causes of Hospitalization

Not surprisingly, several of the leading causes of hospitalization—both in-patient admissions and emergency department visits—are associated with many of the chronic conditions shown to have higher rates in the region. UMass Memorial Medical Center is the largest clinical system that serves the Greater Worcester area. In the fiscal year 2011, UMass Memorial Medical Center had over 15,000 inpatient hospital admissions (excluding maternity and newborn admissions) and nearly 70,000 emergency room visits, specifically among patients who reside in the towns of Worcester, Leicester, Holden, Millbury, West Boylston, and Shrewsbury.

Adjusting for population size and age, the leading causes of in-patient admissions (by primary diagnosis) among UMass Memorial patients from the six communities varied by age group and are listed in Table 8. Not surprisingly, patients over 65 years old have disproportionately higher rates of in-patient admissions. Leading causes of in-patient admissions are similar to what is seen across the state and U.S.

Table 8: Leading Causes of In-Patient Admissions at UMass Memorial Medical Center among Patients from Worcester and the Five Surrounding Communities, by Age Group, FY2011

Under 18 years old	18-64 Years Old	65+ Years Old
• Respiratory system conditions including asthma • Appendicitis • Fractures • Pneumonia • Infectious and parasitic diseases	• Digestive system disorders • Respiratory system conditions including asthma • Diabetes and other endocrine and metabolic disorders • Diseases of the musculoskeletal system and connective tissues • Genitourinary diseases	• Congestive heart failure and other cardiovascular conditions • Pneumonia • Septicemia • Cerebrovascular disease (stroke) • Digestive system disorders

DATA SOURCE: UMass Memorial data for Worcester Community Health Assessment, Inpatient data, 2011

Table 9 shows the leading causes of emergency department (ED) visits at UMass Medical Center, adjusted for age and population size, by age group for the region. Primary reasons for ED visits were somewhat similar across the different age groups. However, in addition to a range of chronic conditions and diseases related to specific systems, mental disorders were a leading reason to visit the emergency department among 18-64 year olds and 65+ year olds.

Table 9: Leading Causes of Emergency Department (ED) Visits at UMass Memorial Medical Center among Patients from Worcester and the Five Surrounding Communities, by Age Group, FY2011

Under 18 years old	18-64 Years Old	65+ Years Old
• Diseases of the respiratory system • Diseases of the nervous system and sense organs • Diseases of the skin and subcutaneous tissue, including open wounds • Diseases of the digestive system • Infectious and parasitic diseases • Fractures	• Diseases of the musculoskeletal system and connective tissues, including sprains and strains • Mental disorders • Diseases of the nervous system and sense organs • Diseases of the respiratory system • Diseases of the digestive system	• Diseases of the respiratory system • Diseases of the musculoskeletal system and connective tissues • Diseases of the skin and subcutaneous tissue, including open wounds • Diseases of the genitourinary system • Mental disorders • Diseases of the digestive system

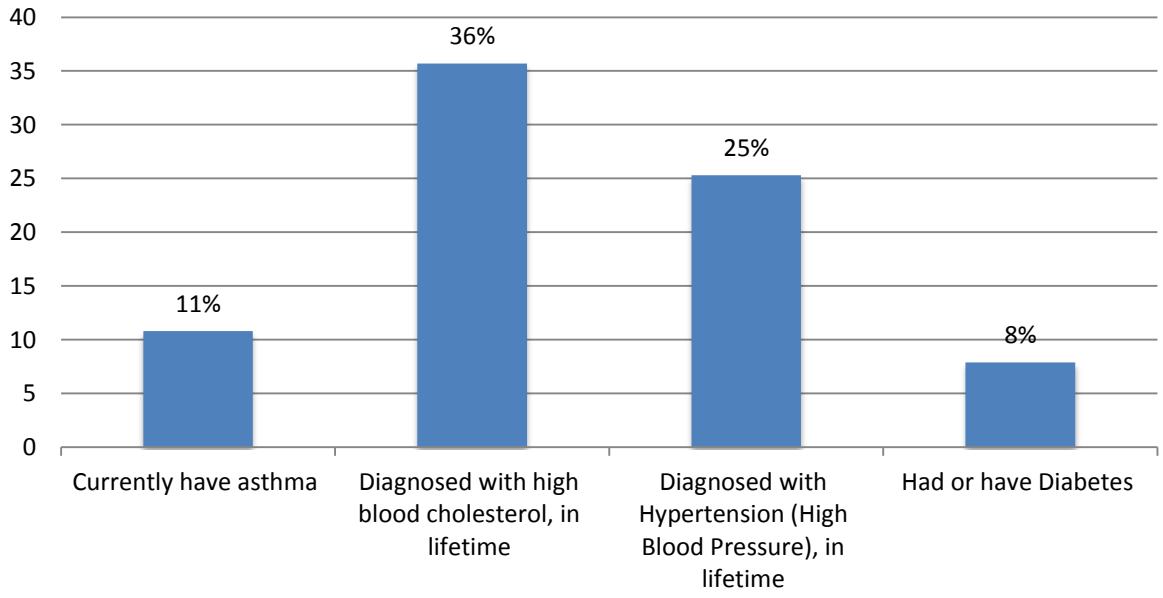
DATA SOURCE: UMass Memorial data for Worcester Community Health Assessment, Inpatient data, 2011

Chronic Disease

> *"Immigrants, low-income, minorities…these vulnerable population groups are suffering much more from many of the chronic diseases that we see." – Key informant interview participant, Health care sector, Worcester*

Many interview participants cited chronic disease, including heart (cardiovascular) disease and diabetes as major health concerns for the Greater Worcester area. Other participants noted that asthma and chronic lung disease were health concerns. Quantitative data indicate that the chronic diseases cited by respondents are prevalent in the Greater Worcester area (Figure 40). In 2009, 36% of persons aged 18 and older in Worcester County reported having been diagnosed with high cholesterol in their lifetime and 25% reported having been diagnosed with hypertension in their lifetime. Approximately 11% of persons aged 18 and older reported having asthma and 8% reported having diabetes.

Figure 40: **Chronic Disease among Adults (Aged 18 and older), Worcester County, 2009**



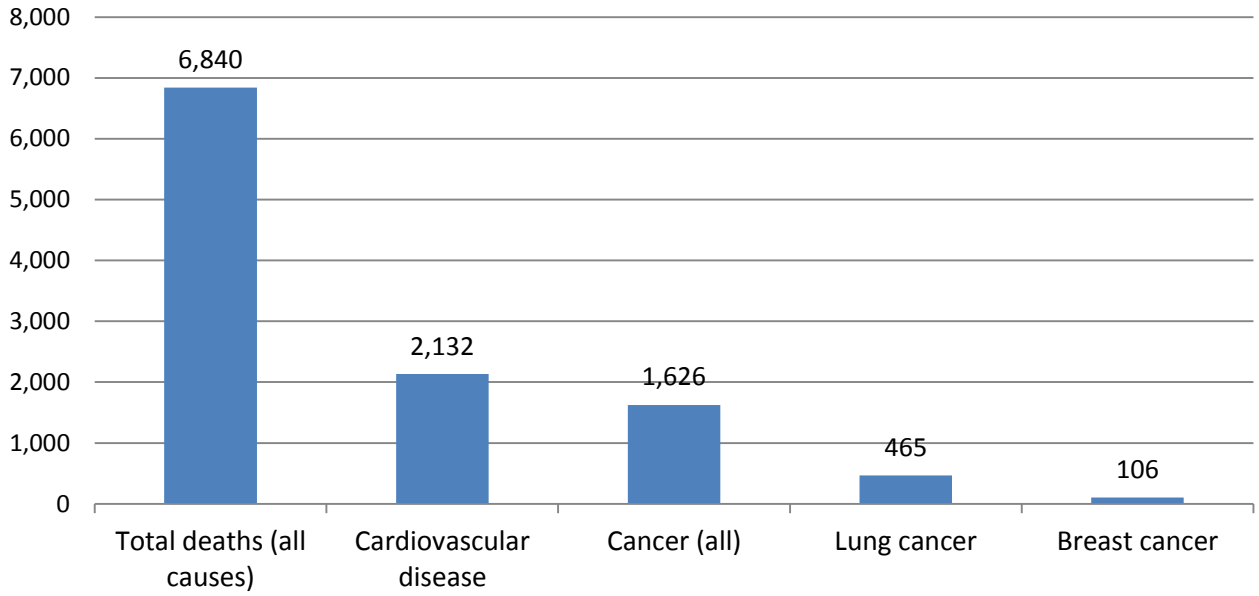
DATA SOURCE: MDPH, BRFSS, 2009

Figure 41 and Figure 42 show the leading causes of death over the period of 2008 to 2010.

- Cardiovascular Disease:
    - Cardiovascular disease was the leading cause of death in Worcester County, accounting for 32% of deaths or 2,132 cardiovascular disease-related deaths during this period.
- Cancer:
    - Cancer was the second-leading cause of death (24%), with 1,626 deaths attributed to cancer in Worcester County from 2008-2010.
    - Among deaths due to cancer, the largest numbers of cancer-related deaths were due to lung (465 deaths) and breast cancer (106 deaths).

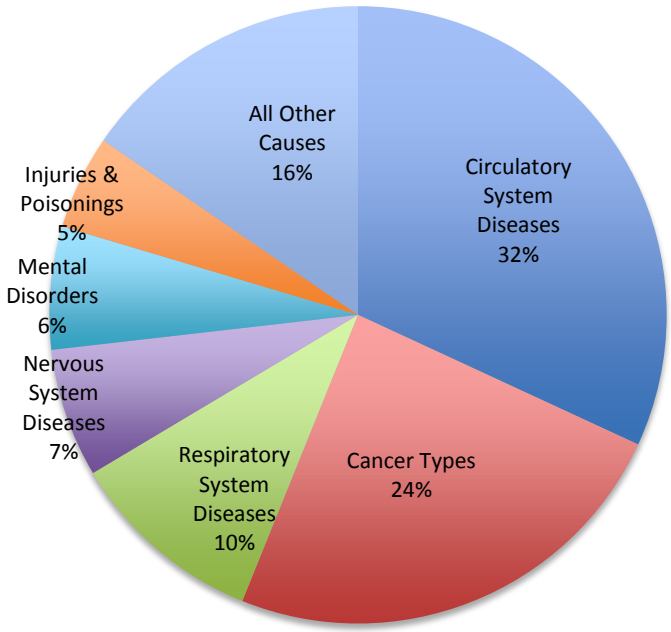
- Respiratory Diseases:
    - Diseases of the respiratory system were the third-leading cause of death, which accounts for 10% of deaths in Worcester County from 2008 to 2010.
- Premature Deaths:
    - The leading causes of premature death—those under 75 years old— were cancer, circulatory system disease and injuries/poisonings The leading cause of injury/poisoning death is from opioid overdoses.

Figure 41: Chronic Disease-Related Deaths, Worcester County, 2008-2010



DATA SOURCE: MDPH, "A Profile of Health Among Massachusetts Adults" 2010

Figure 42: Causes of Death, Worcester County, 2008

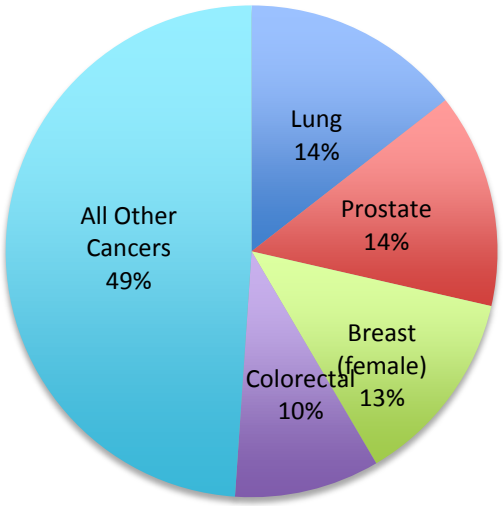


DATA SOURCE: MDPH, 2008

Cancer

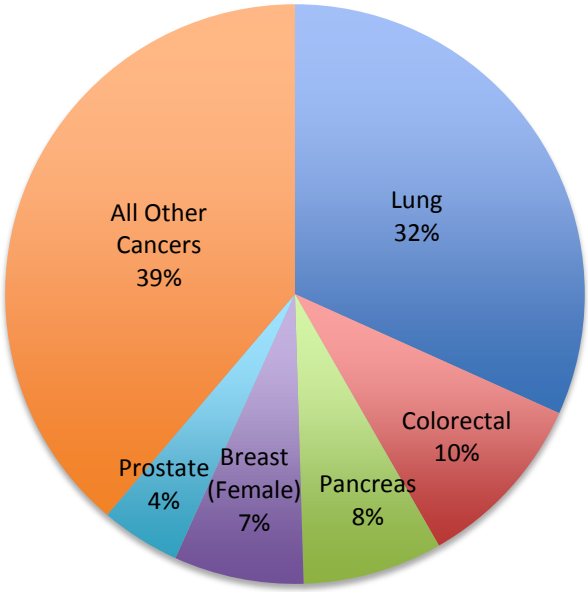
As shown in Figure 43, cancer incidence is highest for cancers of the lung (14%) and prostate (14%), followed by the breast (female breast cancer; 13% of the total population) and colorectal system (10%). Among cancer-related deaths, lung cancer (32%) is the leading cause of death, followed by colorectal cancer (10%), and cancer of the pancreas (8%), breast (7%), and prostate (4%) (Figure 44).

Figure 43: Cancer incidence in Worcester County, 2008



DATA SOURCE: MDPH MassCHIP; The City of Worcester Health of Worcester Report

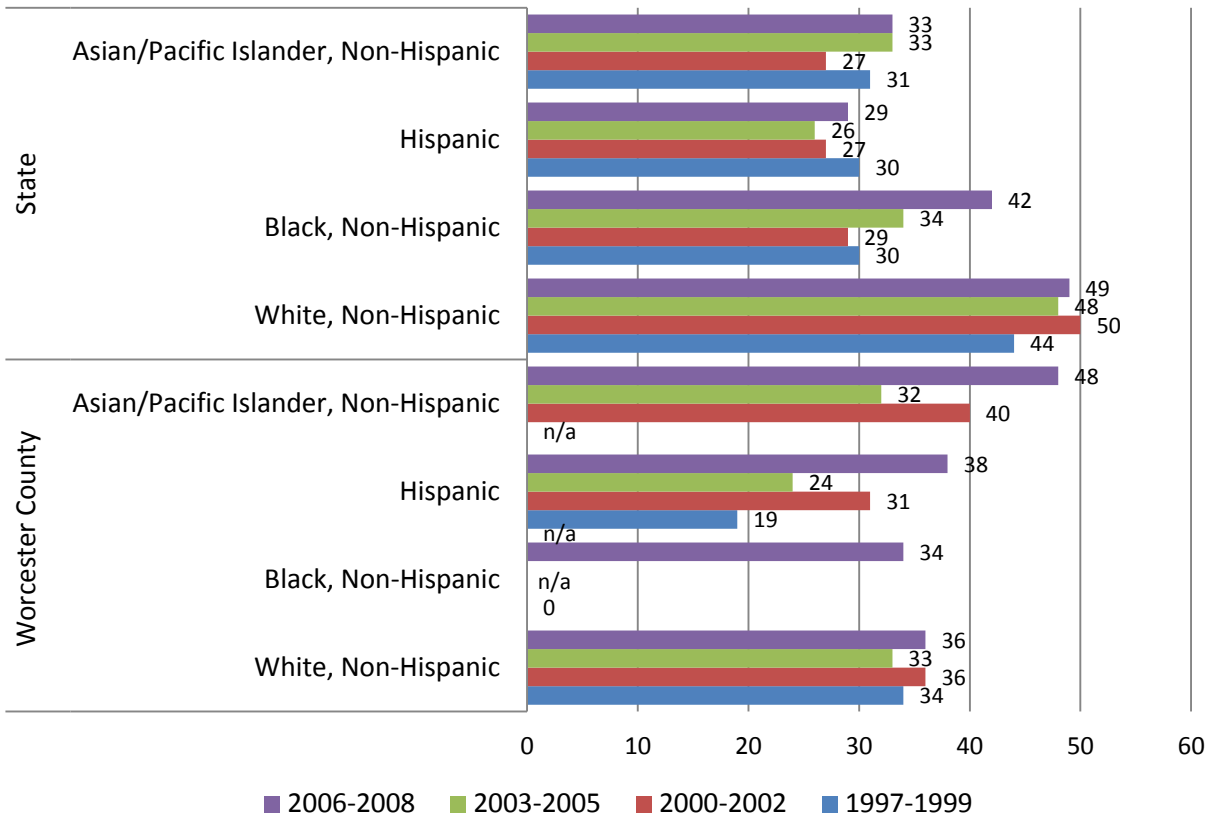
Figure 44: **Deaths Due to Cancer, Worcester County, 2008**



DATA SOURCE: MDPH MassCHIP; The City of Worcester Health of Worcester Report

As shown in Figure 45, over the period of 2006-2008, among female residents, Hispanics (36 per 100,000 population) and non-Hispanic Asian/Pacific Islanders(48 per 100,000 population) had higher breast cancer incidence rates than non-Hispanic White (36 per 100,000 population) and non-Hispanic Black (34 per 100,000 population) people in Worcester County. Further, the breast cancer incidence rates for Hispanics and non-Hispanic Asians/Pacific Islander women and girls in Worcester County exceeded the rates for the state (29 and 33 per 100,000 population, respectively)

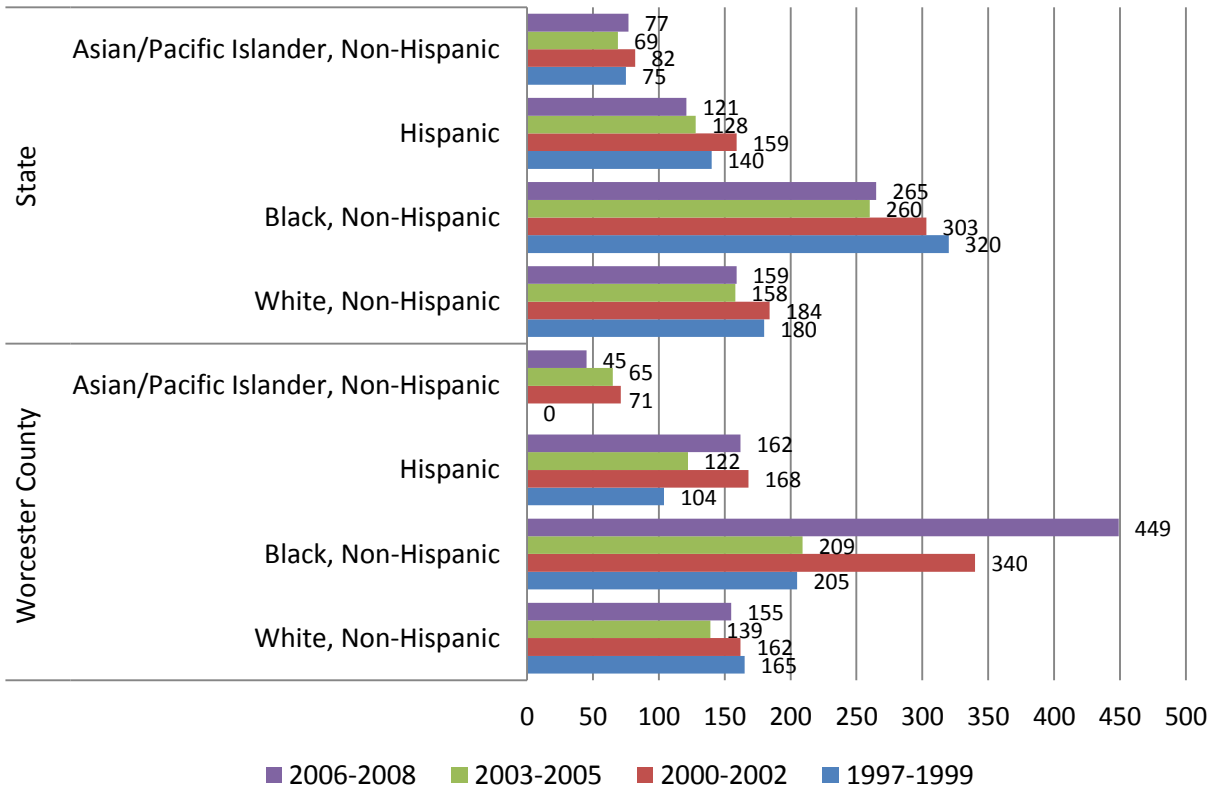
Figure 45: **Female Breast Cancer Incidence Rates per 100,000 Population, by Race/Ethnicity, Worcester County and Massachusetts, 1997-2008**



DATA SOURCE: Massachusetts Cancer Registry

As shown in Figure 46, among male residents, in Worcester County the prostate cancer incidence rate reported for non-Hispanic Black (449 per 100,000 population) people is almost triple the incidence rate reported for non-Hispanic Whites (155 per 100,000 population) over the period of 2006 to 2008. The prostate cancer incidence rate reported for non-Hispanic Blacks in Worcester County exceeds that for non-Hispanic Blacks in the State (265 per 100,000 population). Hispanics also have a higher reported prostate cancer incidence rate (162 per 100,000 population) as compared to non-Hispanic Whites (155 per 100,000 population) in 2006-2008 in Worcester County. The reported prostate cancer incidence rate for Hispanics in Worcester County is greater than that for Hispanics in the State (121 per 100,000). The reported prostate cancer incidence rate was lowest for non-Hispanic Asians/Pacific Islanders (45 per 100,000 population) and this rate was below that for non-Hispanic Asians/Pacific Islanders in the State (77 per 100,000 population) in 2006-2008.

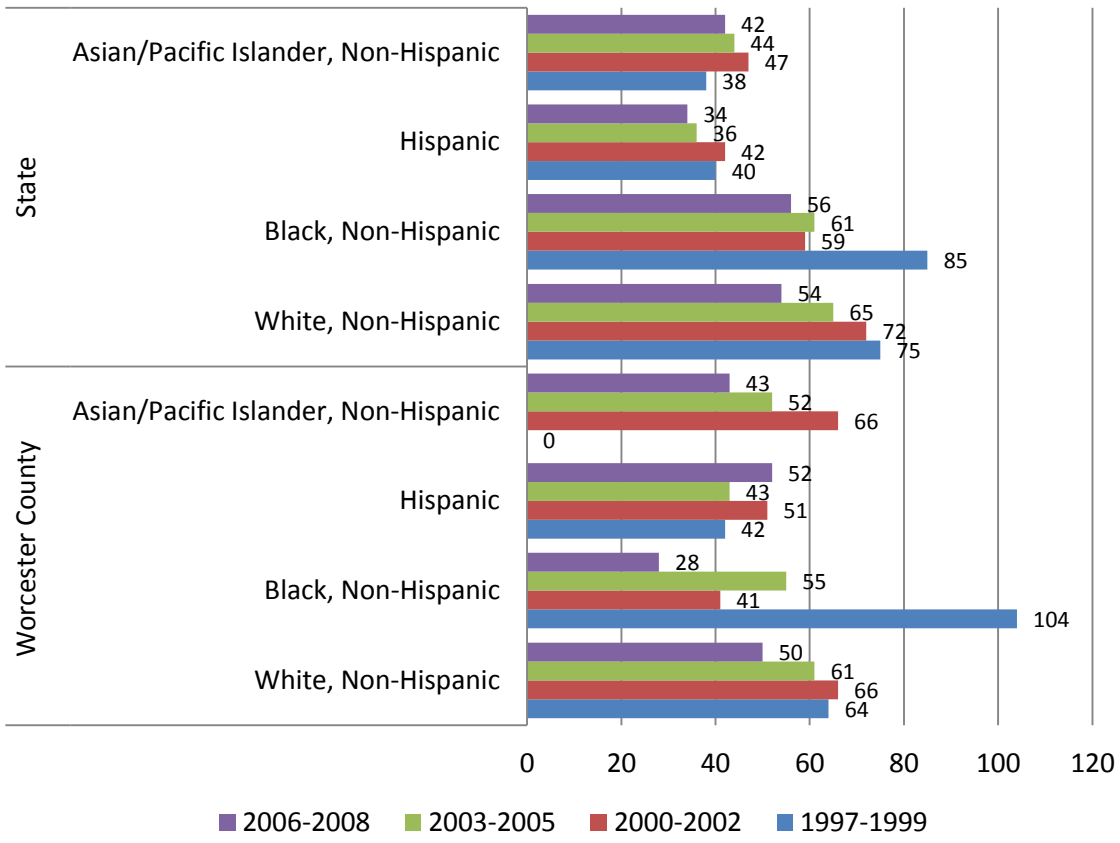
Figure 46: **Prostate Cancer Incidence Rates per 100,000 Population, by Race/Ethnicity, Worcester County and Massachusetts, 1997-2008**



DATA SOURCE: Massachusetts Cancer Registry

Colorectal cancer incidence rates reported for male residents in Worcester County and Massachusetts are presented in Figure 47. Over the period of 2006-2008, the highest colorectal cancer incidence rate was for Hispanic males (52 per 100,000 population), followed by non-Hispanic Whites (50 per 100,000), non-Hispanic Asians/Pacific Islanders (43 per 100,000 population) and non-Hispanic Blacks (28 per 100,000 population). For each racial/ethnic group, the colorectal cancer incidence rates for males in Worcester County were lower than the rate for the state.

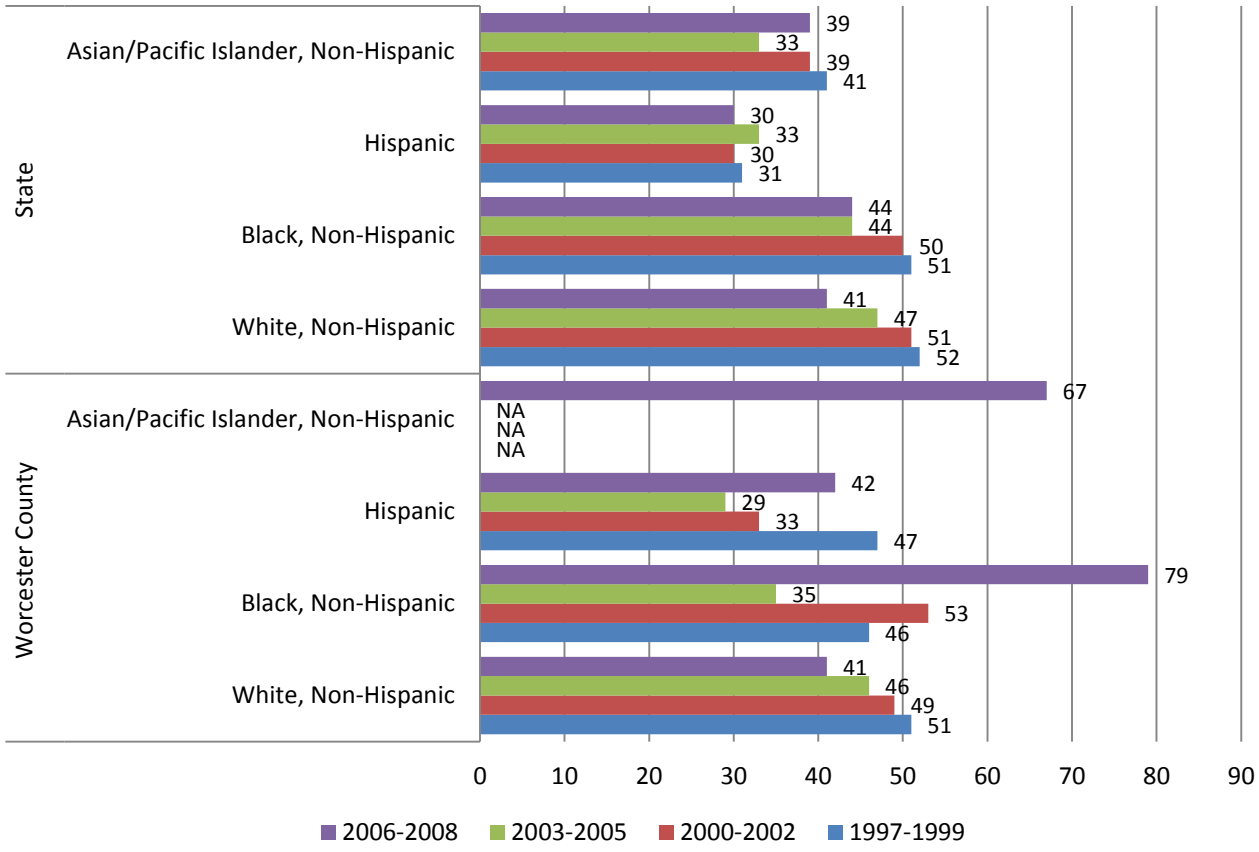
Figure 47: **Colorectal Cancer Incidence Rates among Males (per 100,000 Population), by Race/Ethnicity, Worcester County and Massachusetts, 1997-2008**



DATA SOURCE: Massachusetts Cancer Registry

As shown in Figure 48, among female residents in Worcester County, the colorectal cancer incidence rates were highest for non-Hispanic Black females (79 per 100,000 population), nearly double the rate for non-Hispanic White females (41 per 100,000 population) over the period of 2006-2008. The second-highest colorectal cancer incidence rate was for non-Hispanic Asian/Pacific Islander females (67 per 100,000 population). Among Hispanic females, the incidence rate was 42 per 100,000 for females in Worcester County. The colorectal cancer incidence rate for non-Hispanic Black and Hispanic females in Worcester County exceeded the rates for the state (44 and 30 per 100,000 population, respectively)

Figure 48: **Colorectal Cancer Incidence Rates among Females (per 100,000 Population), by Race/Ethnicity, Worcester County and Massachusetts, 1997-2008**

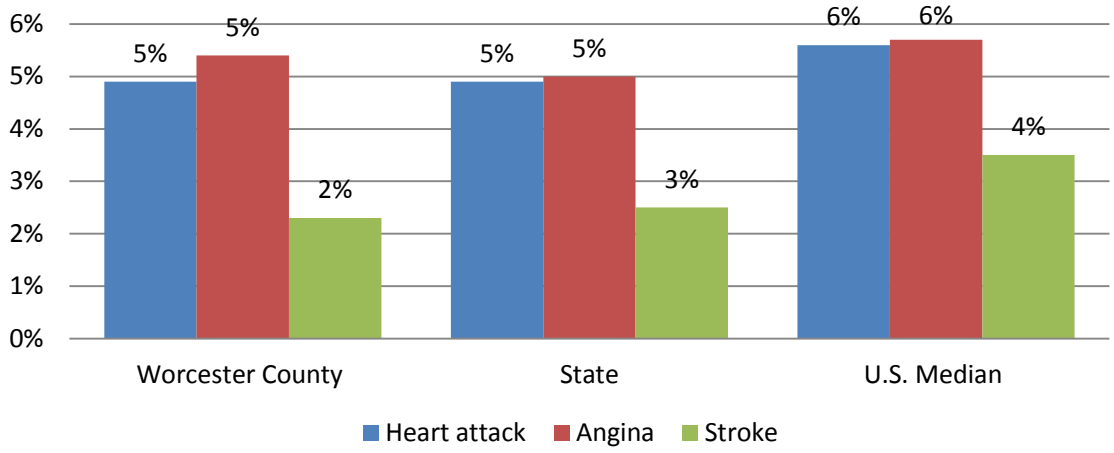


DATA SOURCE: Massachusetts Cancer Registry

Cardiovascular Disease

Cardiovascular disease is the leading cause of death for residents of Worcester County. As shown in Figure 49, indicators of heart disease, including heart attack (5%), angina (5%) and stroke (2%) were similar for Worcester County and the State and slightly lower than the prevalence of heart disease indicators for the nation.

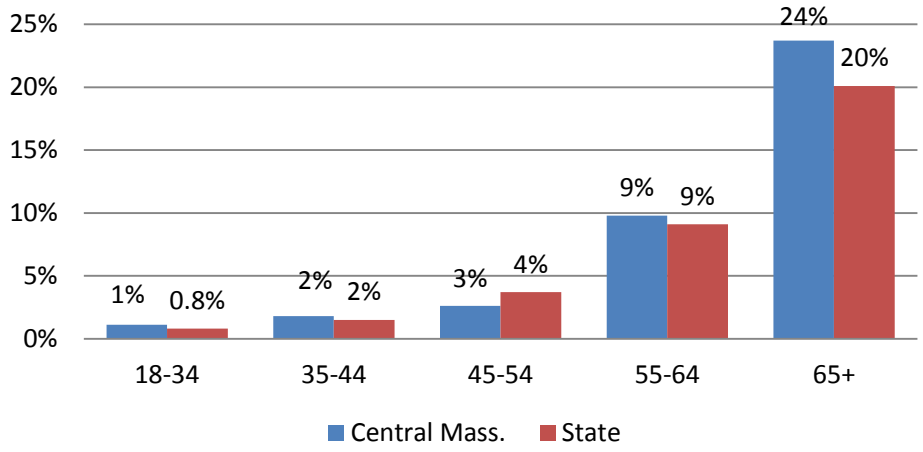
Figure 49: **Heart Disease among Adults, Worcester County, 2010**



DATA SOURCE: MDPH, "A Profile of Health Among Massachusetts Adults", 2010 - BRFSS

In Central Massachusetts, the reported prevalence of heart disease is highest for persons aged 65 and older (24%) and for persons between the ages of 55 and 64 (9%), as indicated in Figure 50. For residents aged 65 and older, the reported heart disease prevalence is higher in Central Massachusetts (24%) than the State (20%).

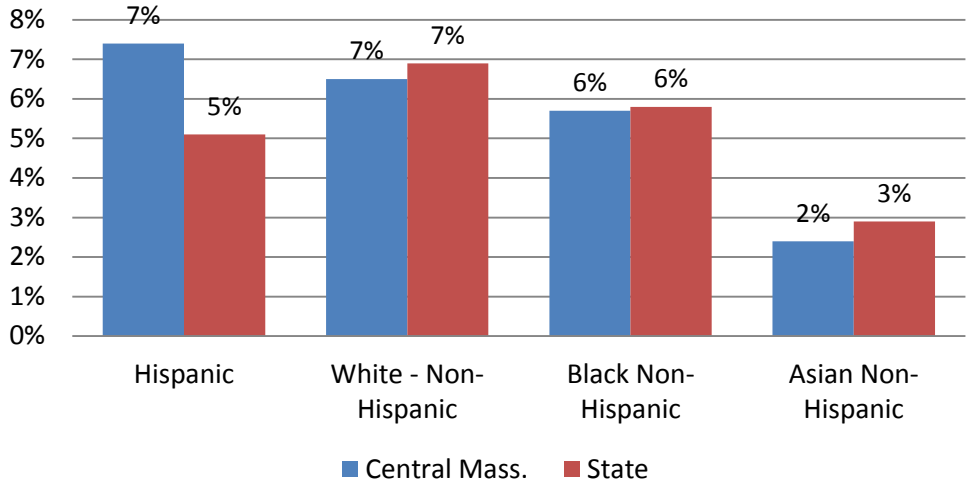
Figure 50: Heart Disease, Central Massachusetts and Massachusetts, by Age, 2003-2007



DATA SOURCE: MDPH MassCHIP Massachusetts Community Health Information Profile - BRFSS

As shown in Figure 51, over the period of 2003 to 2007, Hispanics in Central Massachusetts have the highest prevalence of heart disease (7%), followed by non-Hispanic Whites (7%), non-Hispanic Blacks (6%), and non-Hispanic Asians. The prevalence of heart disease for Hispanics was greater than the prevalence for Hispanics across the state (5%).

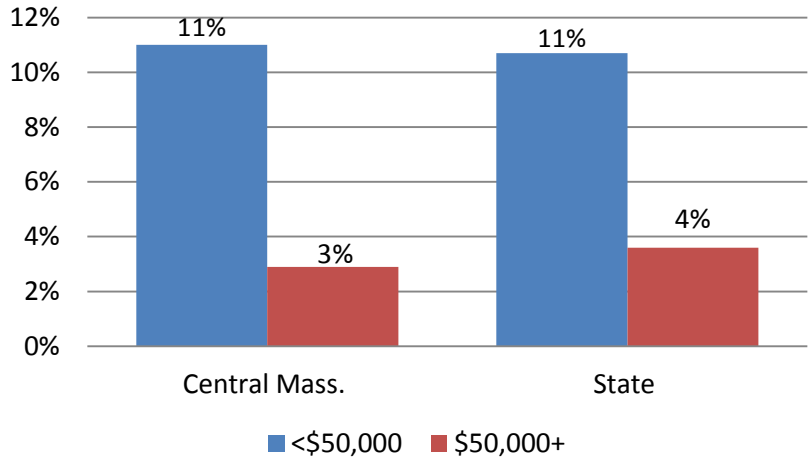
Figure 51: Heart Disease, by Race/Ethnicity, Central Massachusetts and Massachusetts, 2003-2007



DATA SOURCE: MDPH MassCHIP Massachusetts Community Health Information Profile ,BRFSS

In Central Massachusetts and Massachusetts overall, heart disease is patterned by socioeconomic position (Figure 52). Approximately 11% of residents in Central Massachusetts with incomes below $50,000 had heart disease, almost four times the prevalence of heart disease for those with incomes above $50,000 (4%).

Figure 52: Heart Disease, by Income, Central Massachusetts and Massachusetts, 2003-2007



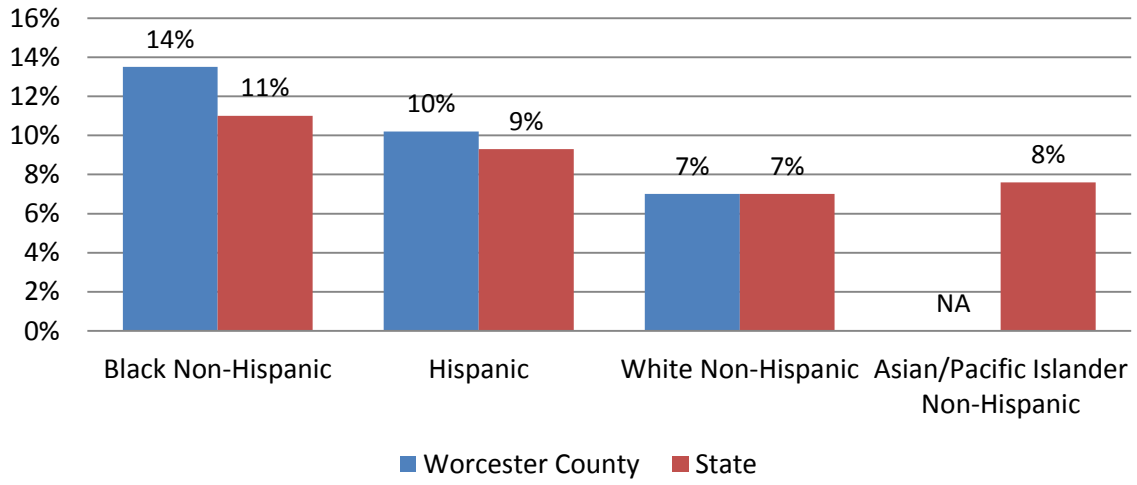
DATA SOURCE: MDPH MassCHIP Massachusetts Community Health Information Profile - BRFSS

Diabetes

In Worcester County over the period of 2008 to 2010, the highest reported prevalence of diabetes is among non-Hispanic Blacks (14%) and this prevalence exceeds that for non-Hispanic Blacks in the State

(11%) (Figure 53). The second-highest diabetes prevalence was for Hispanics (10%), followed by Asians/Pacific Islanders (8%) and non-Hispanic Whites (7%).

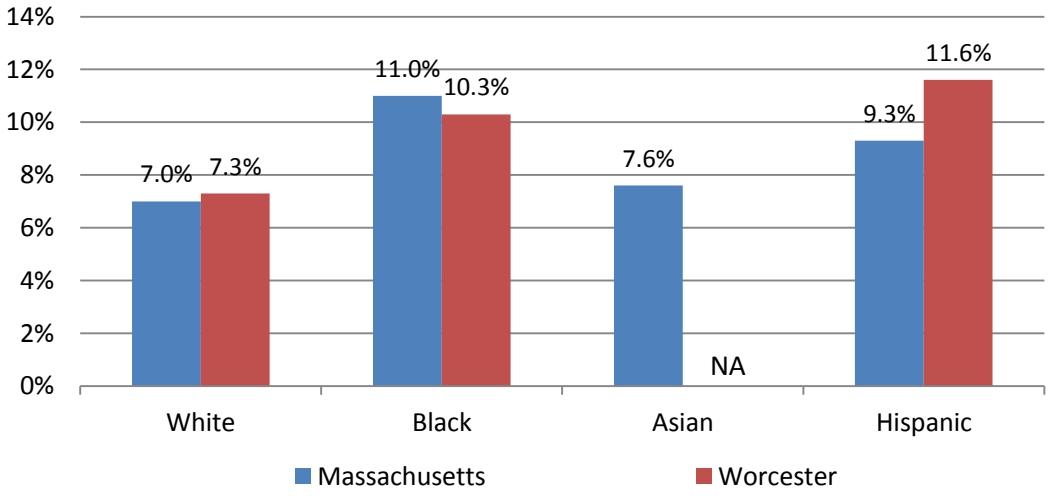
Figure 53: **Prevalence of Diabetes among Adults, by Race/Ethnicity, Worcester County, 2008-2010**



DATA SOURCE: MDPH, MassCHIP Diabetes Report for Worcester County, BRFSS 2008-2010

In the City of Worcester there are also racial/ethnic health disparities in the prevalence of diabetes (Figure 54). Approximately 11.6% of Hispanics and 10.3% of non-Hispanic Blacks in the City of Worcester had diabetes. The reported prevalence of diabetes for Hispanics in the City of Worcester exceeds that for Hispanics in the state (9.3%).

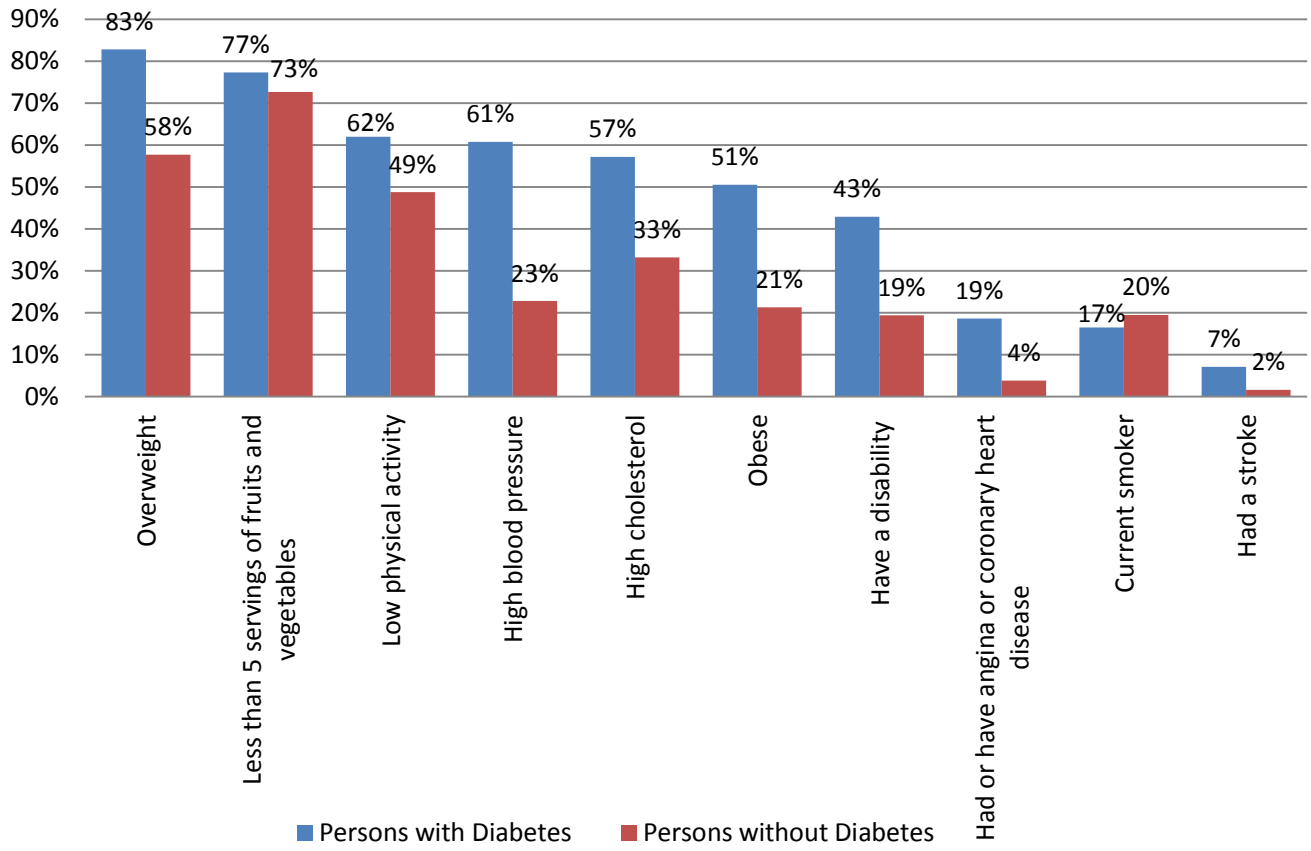
Figure 54: Prevalence of Diabetes among Adults by Race/Ethnicity, City of Worcester, 2006-2008



DATA SOURCE: MassCHIP 2006-2008

As shown in Figure 55, persons with diabetes in Worcester County were more likely to be overweight or obese and consume less than five servings of fruit and vegetables per day and less likely to engage in physical activity or smoke compared to persons who do not have diabetes. Compared to residents of Worcester County who do not have diabetes, persons with diabetes are also more likely to have high blood pressure, high cholesterol, a disability, heart disease or a stroke.

Figure 55: Prevalence of Risk Factors for Diabetes, Worcester County, 2008-2010

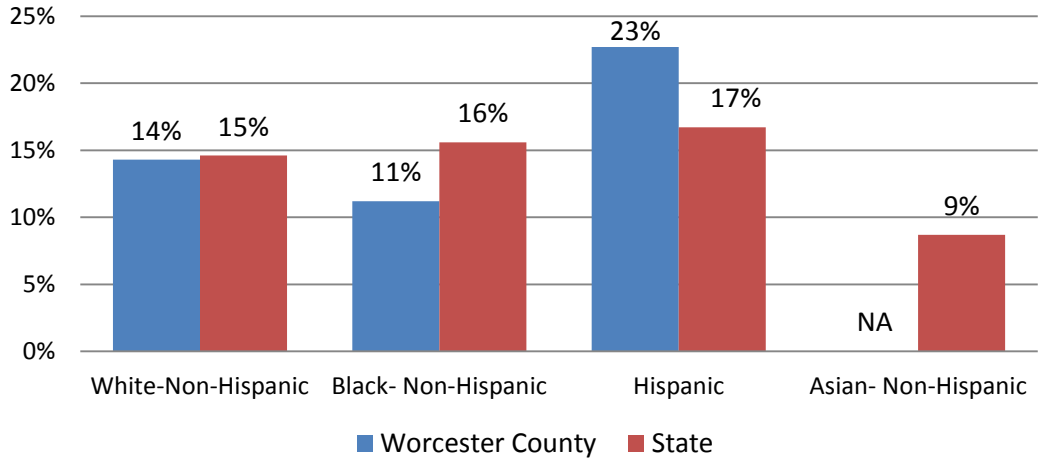


DATA SOURCE: Source: MDPH, MassCHIP Diabetes Report for Worcester County, BRFSS 2008-2010

Asthma

Community festival respondents and interview participants cited concerns related to environmental triggers in older housing stock in the region as major health concerns. As one key informant interview participant representing the social services sector in Worcester explained, *"All the issues of lead, mold, dust … that is a problem here around health."* Quantitative data indicate that asthma is a prevalent health issue in the Greater Worcester area (Figure 56). In Worcester County, Hispanics (23%) had the highest prevalence of asthma, followed by non-Hispanic Whites (14%) and non-Hispanic Blacks (11%). The asthma prevalence for Hispanics in Worcester Countywas greater than that for Hispanics in the State (17%).

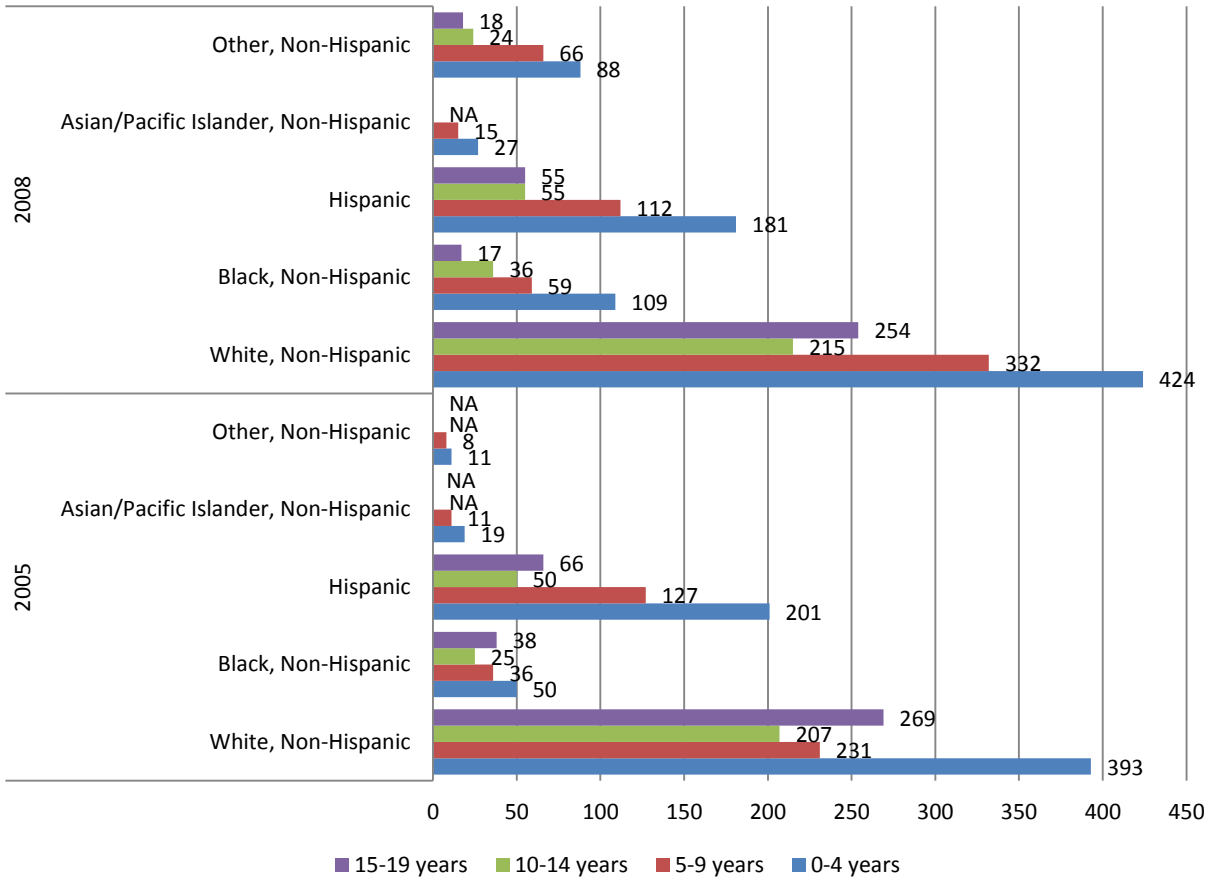
Figure 56: Lifetime Asthma Prevalence by Race/Ethnicity, Worcester County and Massachusetts, 2003-2008



DATA SOURCE: Asthma Reports for Worcester County, BRFSS 2003-2008

In 2008, asthma emergency room visits among children in Worcester County were highest across age groups for non-Hispanic Whites (Figure 57). Among children under 4 years of age, there were 424 emergency room visits for non-Hispanic White children, followed by 181 for Hispanic children, and 109 ER visits for non-Hispanic Black children. This pattern persisted across age groups for children.

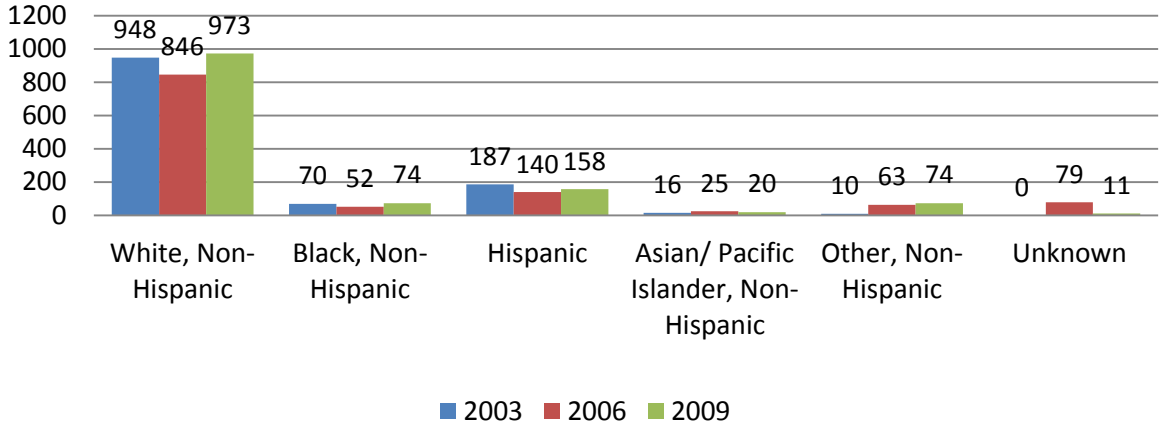
Figure 57: **Asthma Emergency Room Visits among Children, Worcester County, 2005 and 2008**



DATA SOURCE: MDPH, MassCHIP Custom Reports

As shown in Figure 58, asthma hospitalization discharges were substantially higher for non-Hispanic Whites in Worcester County from 2003 to 2009. In 2009, there were 973 asthma hospitalization discharges for non-Hispanic Whites, followed by Hispanics (158). These patterns in asthma hospitalization discharge patterns by race/ethnicity reflect the patterning of discharges by race/ethnicity for the state.

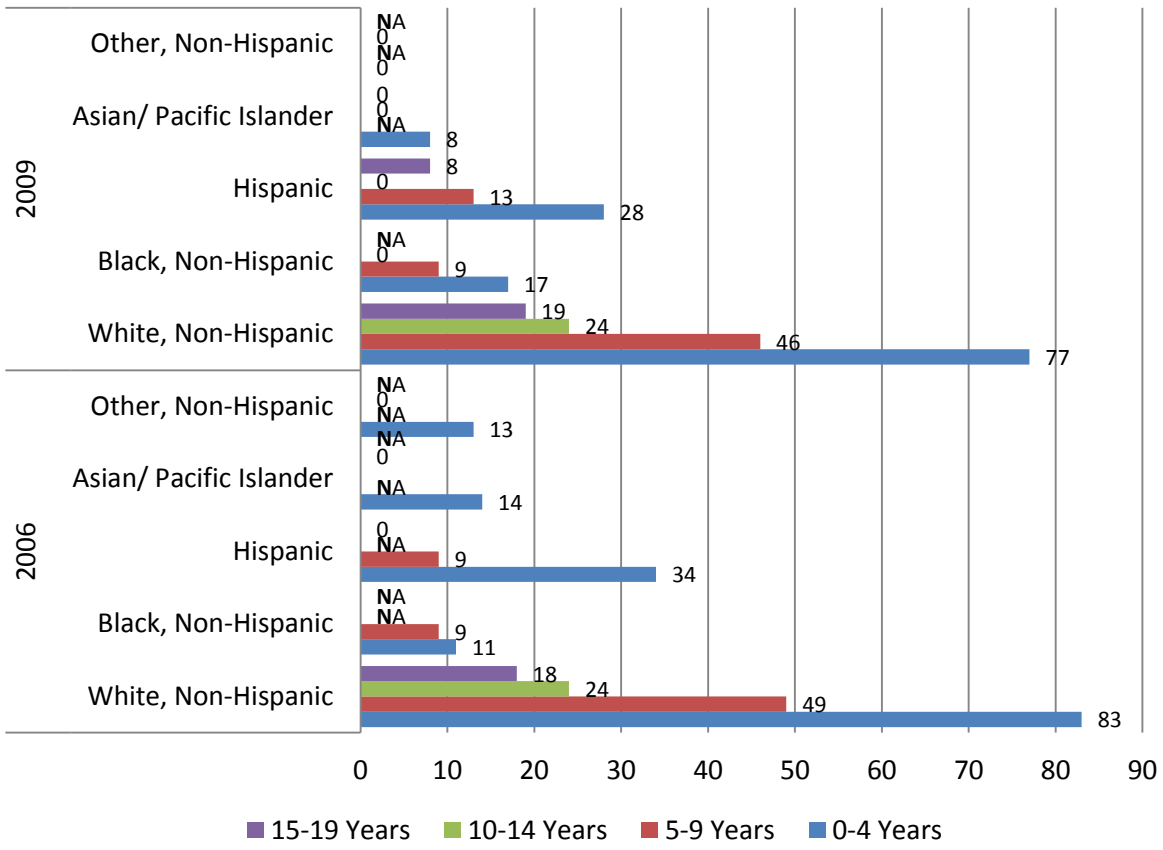
Figure 58: Asthma Hospitalization Discharges, All Ages, by Race/Ethnicity, Worcester County, 2003-2009



DATA SOURCE: Massachusetts Department of Public Health. MassCHIP Custom Reports

In 2009, asthma hospitalization discharges for children in Worcester County were highest for non-Hispanic Whites (Figure 59). For children 4 years of age and younger asthma hospitalization discharges were highest for non-Hispanic Whites (77), followed by Hispanics (28) and non-Hispanic Blacks (17). For children between the ages of 5 and 9, 46 non-Hispanic White children were discharged for asthma, followed by Hispanics (13) and non-Hispanic Blacks (9).

Figure 59: Asthma Hospitalization Discharges, Infant to 19 Years of age, by Race/Ethnicity, Worcester County, 2006 vs. 2009



DATA SOURCE: MDPH: MassCHIP Custom Reports

Mental Health

"Mental health is cutting across all groups. Financial pressures are creating additional stress in homes and another contributing factor is household stress (single parents, abusive relationships, mental health of parents)." – Key informant interview participant, Educational sector, Shrewsbury

"The school department is particularly concerned with the number of students in crisis in terms of mental health and the rate that it is happening at younger ages." – Key informant interview participant, Educational sector, Shrewsbury

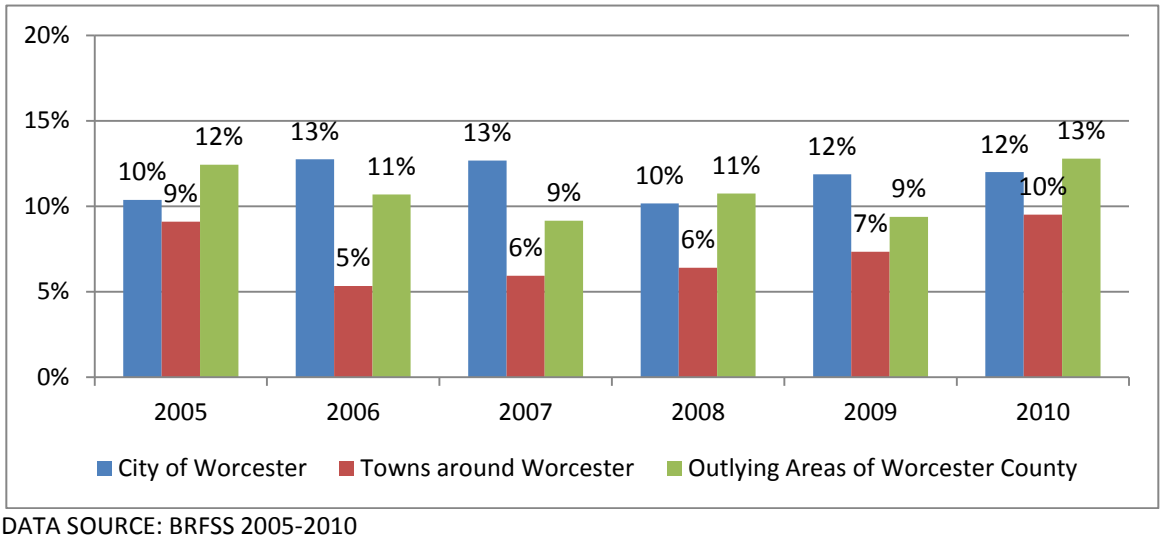
"Mental health is something some people don't want to talk about. I see it affecting the poor and immigrant communities …your kids are going to school and you don't know the language,

you don't have an education, you are not treated with respect by service providers. It's really hard."– Key informant interview participant, Social services sector, Worcester

Mental health emerged as a particular concern among key informants and participants of elder focus groups. Further, concerns about stigma regarding seeking help for mental health issues emerged as another concern. One key informant interview participant representing the social services sector in Worcester explained, *"Mental health is something some people don't want to talk about."* While some respondents described mental health as an issue that affected all segments of the Greater Worcester area, other respondents noted particular populations that were vulnerable to mental health issues, including youth and immigrant populations. In addition, some interview participants cited suicide as a concern. Other participants and one key informant interview participant representing the social services sector in Worcester noted that refugee trauma and *"a lack of culturally and linguistically competent services"* contributed to the high prevalence of mental health issues among immigrant communities. One key informant interview participant in the educational and health care sector in Worcester also raised the mental health of children of military families as a concern, who explained, *"children in military families … can be under more stress. We are trying to be more responsive to those families. We have a reserve unit in Worcester."* Participants of elder focus groups reported that they experienced bipolar disorder, stress, anxiety, panic attacks, and depression.

Figure 60 shows the percent of adults reporting poor mental health within particular regions of Worcester County from 2005-2010, according to BRFSS. Over this period, the proportion of residents in Worcester City reporting at least 15 days of poor mental health in the past month increased from 10% in 2005 to 12% in 2010. Among residents in the towns surrounding Worcester City, the percent reporting at least 15 days of poor mental health in the previous month declined from 9% in 2005 to 7% in 2009, but increased to 10% in 2010. In 2010, the proportion of residents in Worcester County reporting at least 15 days of poor mental health was highest for residents in the outlying areas of Worcester County (13%), followed by Worcester City (12%), and the towns surrounding Worcester City(10%).

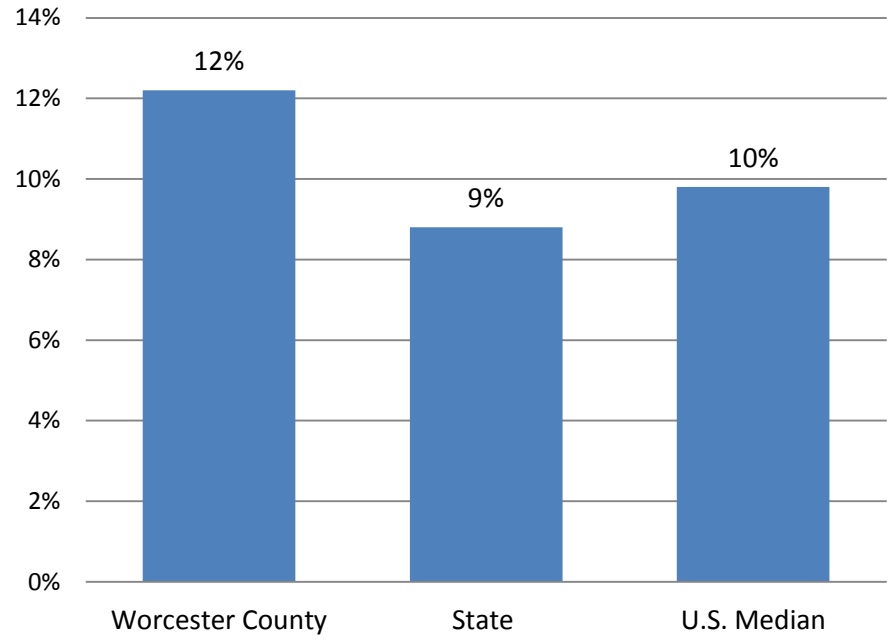
Figure 60: Percent of Adults Reporting 15 or More Days of Poor Mental Health in Past Month, by Region, 2005-2010.



DATA SOURCE: BRFSS 2005-2010

As demonstrated in Figure 61, according to the BRFSS, a larger proportion of adults in Worcester County reported poor mental health compared to the rest of the state and the nation. In 2010, 12% of adults in Worcester County reported experiencing 15 or more days of poor mental health in the past month, greater than the prevalence for the state (9%) and the U.S. (10%).

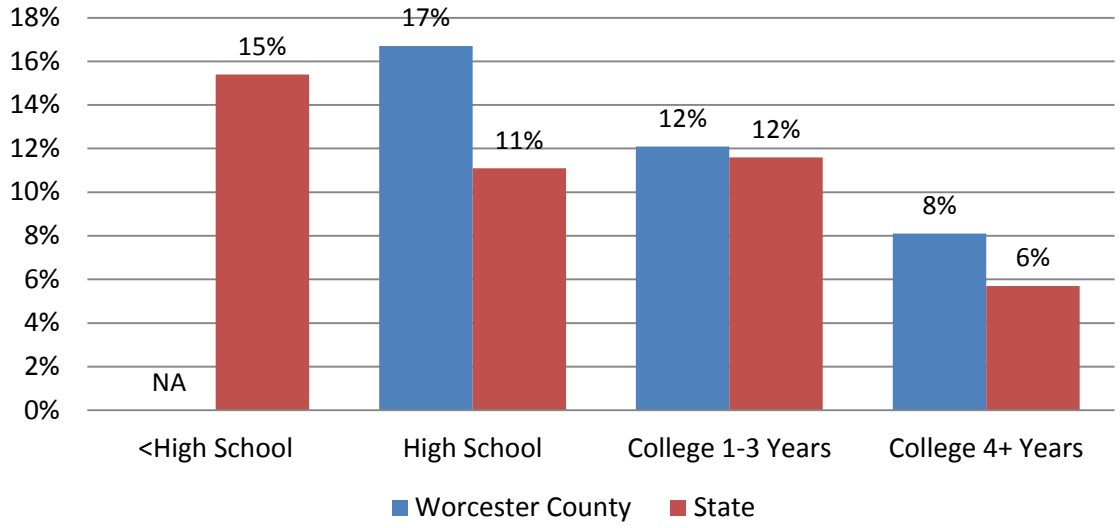
Figure 61: Percent of Adults with 15 or More Poor Mental Health Days, Worcester County, Massachusetts and the U.S., 2010



DATA SOURCE: MDPH, "A Profile of Health Among Massachusetts Adults", 2010" - BRFSS

As shown in Figure 62, indicators of poorer mental health are disproportionately concentrated among residents of lower socioeconomic status. In Worcester County, 17% of residents with a high school degree reported at least 15 poor mental health days in the past month, followed by 12% of persons with some college education and 8% of residents with a college education or more. The prevalence of poor mental health days reported among residents with a high school degree in Worcester County (17%) exceeds that for the State (11%).

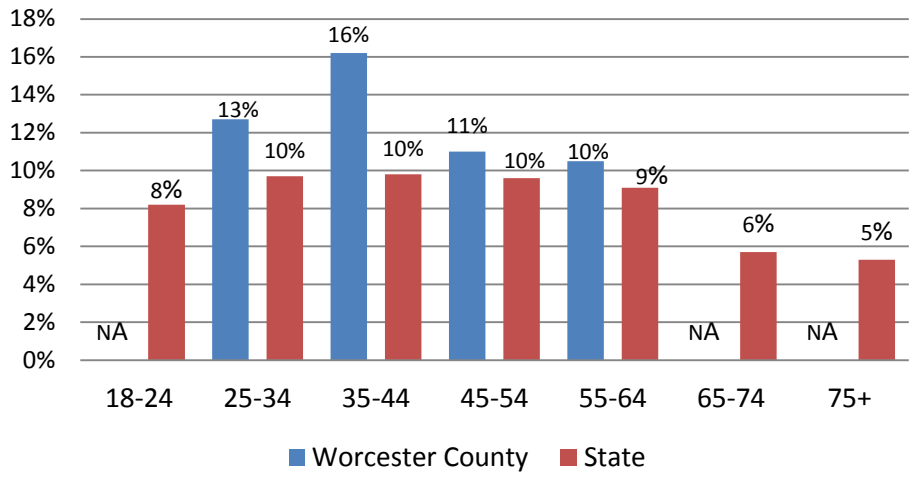
Figure 62: Percent of Adults with 15 or More Poor Mental Health Days, by Educational Attainment, Worcester County, 2010



DATA SOURCE: MDPH, "A Profile of Health Among Massachusetts Adults", 2010" - BRFSS

As illustrated in Figure 63, according to BRFSS, a larger proportion of residents of Worcester County aged 25 to 64 reported poorer mental health compared to the prevalence for state. Among adults aged 25-34, 13% of Worcester County residents reported experiencing 15 or more poor mental health days in the past month, while only 10% of adults in this age group across the state reported poor mental health. The largest proportion of Worcester County residents reporting at least 15 poor mental health days in the past month was for residents aged 35-44 (16%), higher than the proportion for the state (10%). Worcester County residents aged 45-54 (11%) and 55-64 (10%) had a slightly higher prevalence of experiencing 15 or more poor mental health days in the past month relative to the state (10% and 9%, respectively).

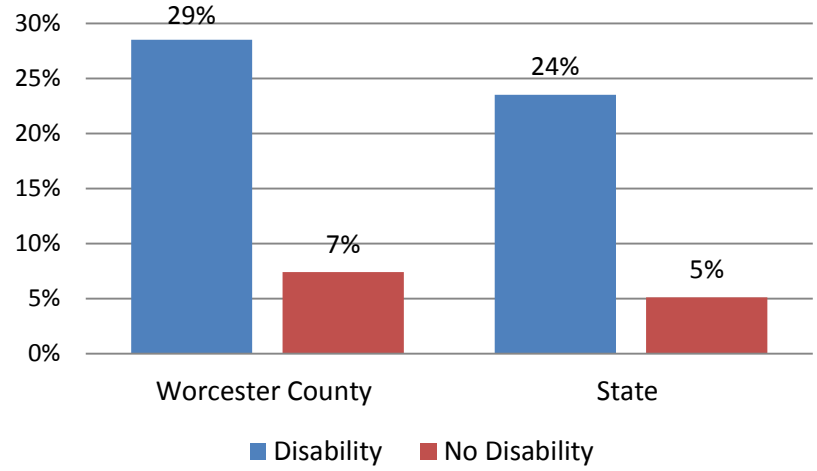
Figure 63: **Percent of Adults with 15 or More Poor Mental Health Days, by Age, Worcester County, 2010**



DATA SOURCE: MDPH, "A Profile of Health Among Massachusetts Adults", 2010" - BRFSS

Figure 64 demonstrates that in Worcester County and the State, a larger proportion of persons with a disability report poor mental health compared to persons with no disability, according to the BRFSS. In Worcester County, a larger percent of persons with a disability (29%) reported experiencing at least 15 poor mental health days in the past month, higher than the rate for the state (24%) and the rate for residents in Worcester County who do not have a disability (7%).

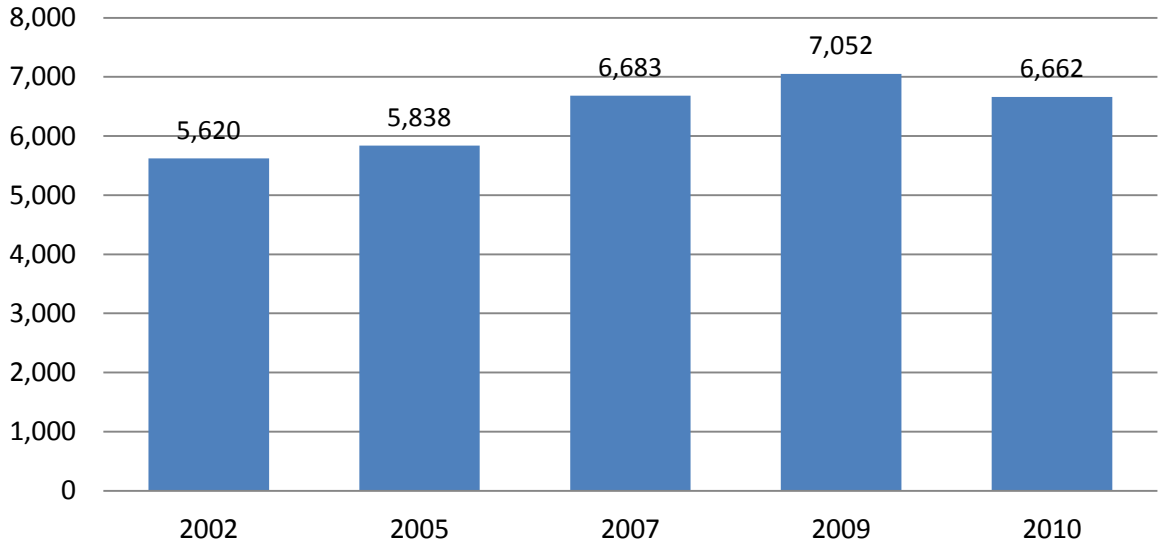
Figure 64: Percent of adults with 15 or more poor mental health days, by Disability Status, Worcester County, 2010



DATA SOURCE: MDPH, "A Profile of Health Among Massachusetts Adults", 2010" - BRFSS

A few participants shared that suicide was a concern for residents of the Greater Worcester area. Between 2008 and 2010, there were 57 suicides in Worcester County, as estimated by the Massachusetts Department of Public Health. As shown in Figure 65, the number of emergency mental health visits has increased from 2002 (5,620) to 2010 (6,662).

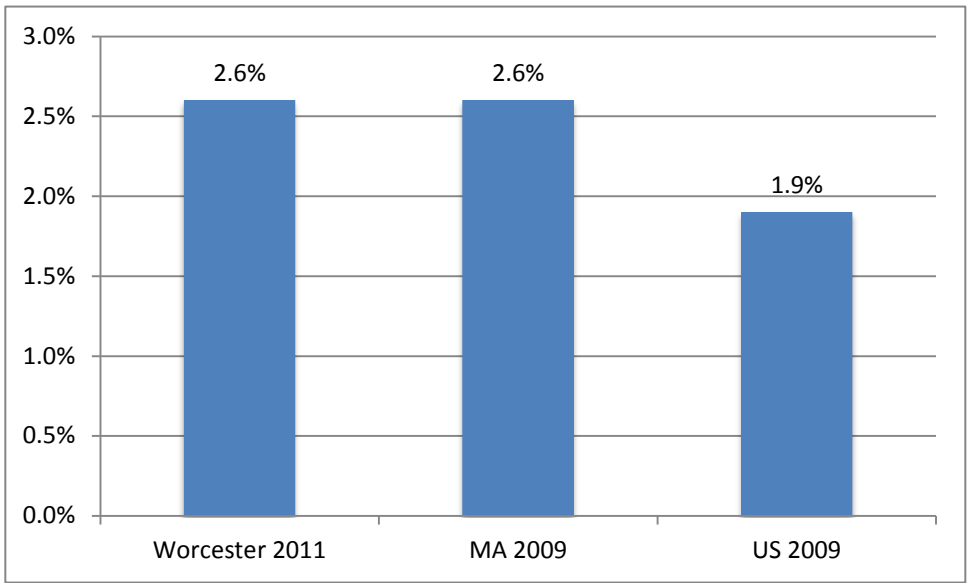
Figure 65: Total Emergency Mental Health Visits, 2002-2010



DATA SOURCE: Emergency Mental Health Services, UMMMC

Figure 66 shows the percent of youth in the Worcester regional schools that attempted suicide and were treated by a doctor or nurse in 2011 according to the Youth Survey of Worcester Regional Schools, compared to estimates for the state and nation in 2009. Approximately 2.6% of youth in Worcester regional schools and 2.6% of youth in Massachusetts (2009) attempted suicide and were treated by a doctor or nurse, greater than the percent for the nation (1.9%) in 2009.

Figure 66: Percent of Youth Who Had a Suicide Attempt Treated by a Doctor or Nurse, Worcester Region, 2011



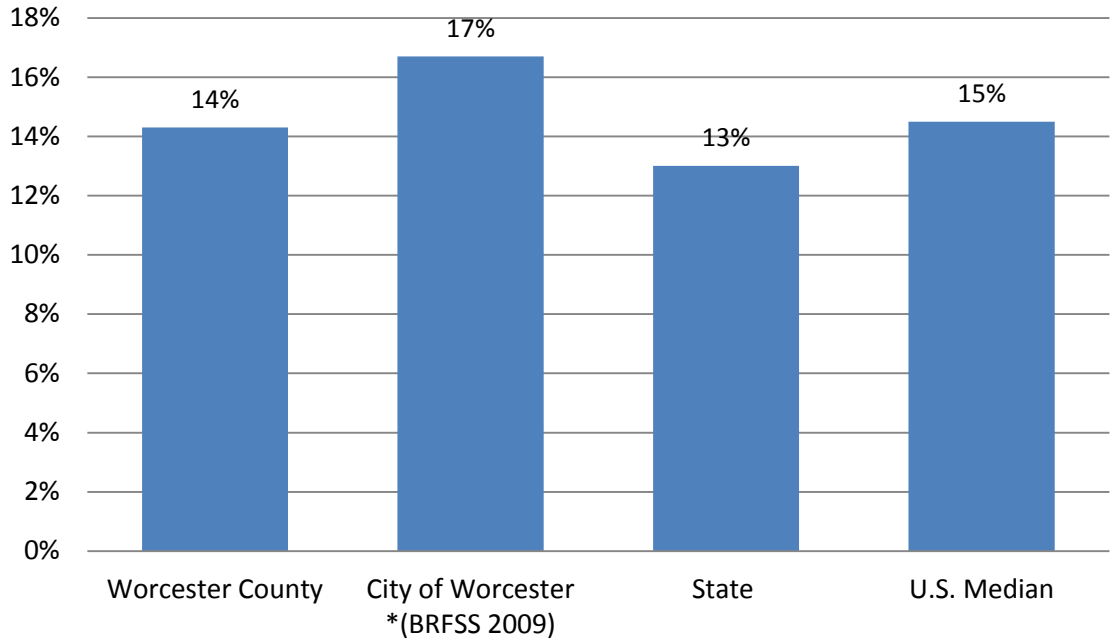
DATA SOURCE: Youth Survey of Worcester Regional Schools, 2011

Oral Health

> *"I do international work … and work with immigrants and they have better teeth than kids in Worcester. This issue is not as visible."* – Key informant interview participant, Academic sector, Worcester
>
> *" The City doesn't fluoridate it's water…that is unbelievable to me." – Key informant interview participant, Academic sector, Worcester*

Oral health and access to oral health services emerged as a concern among participants, particularly because several participants noted that the water in the Greater Worcester region is not fluoridated. Several participants in elder focus groups noted that they did not have dental health insurance and had not had a routine dental cleaning recently. Several elder focus group participants also shared that they did not have teeth. As shown in Figure 67, 14% of residents in Worcester County have 6 or more missing teeth. In the City of Worcester, 17% of residents are missing at least 6 teeth, which is higher than the proportion for the State (13%) and nation (15%).

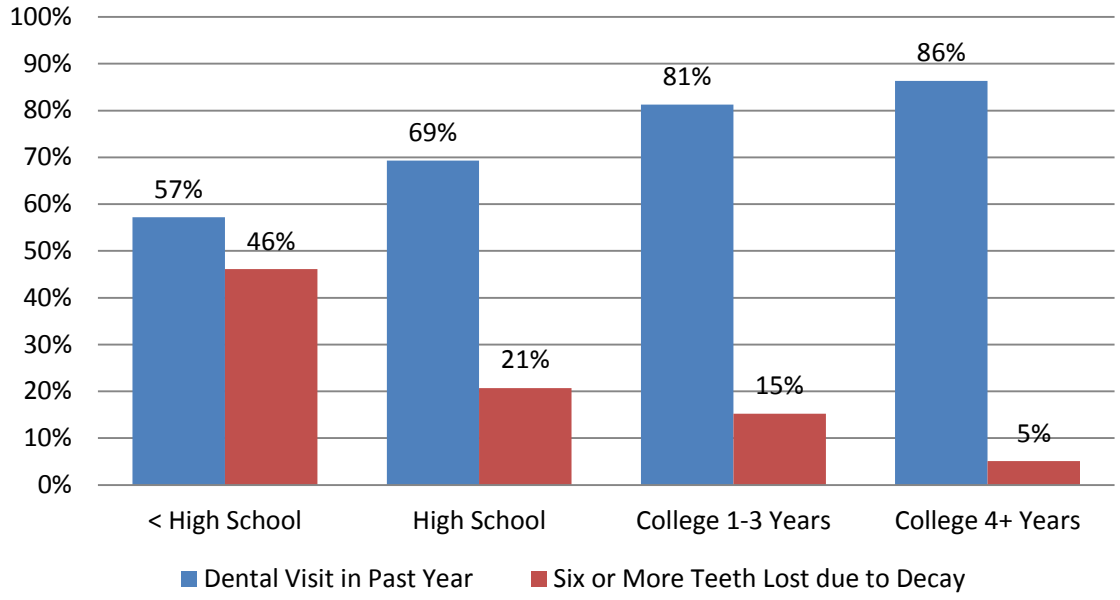
Figure 67: **Adults Missing Six or More Teeth Due to Tooth Decay and Disease, 2010**



DATA SOURCE: MDPH BRFSS, 2010

The proportion of persons in Worcester County who have seen a dentist in the past year and the proportion of residents who have lost six or more teeth due to tooth decay is patterned by socioeconomic status (Figure 68). Only 57% of residents of Worcester County who have less than a high school education reported having seen a dentist in the past year, followed by 69% of residents with a high school education, 81% of persons with some college education, and 86% of residents with a college education or higher. Approximately 46% of Worcester County residents with less than a high school education reported having lost six or more teeth due to tooth decay, followed by residents with a high school education (21%), those with some college education (15%), and residents with a college education or higher (5%).

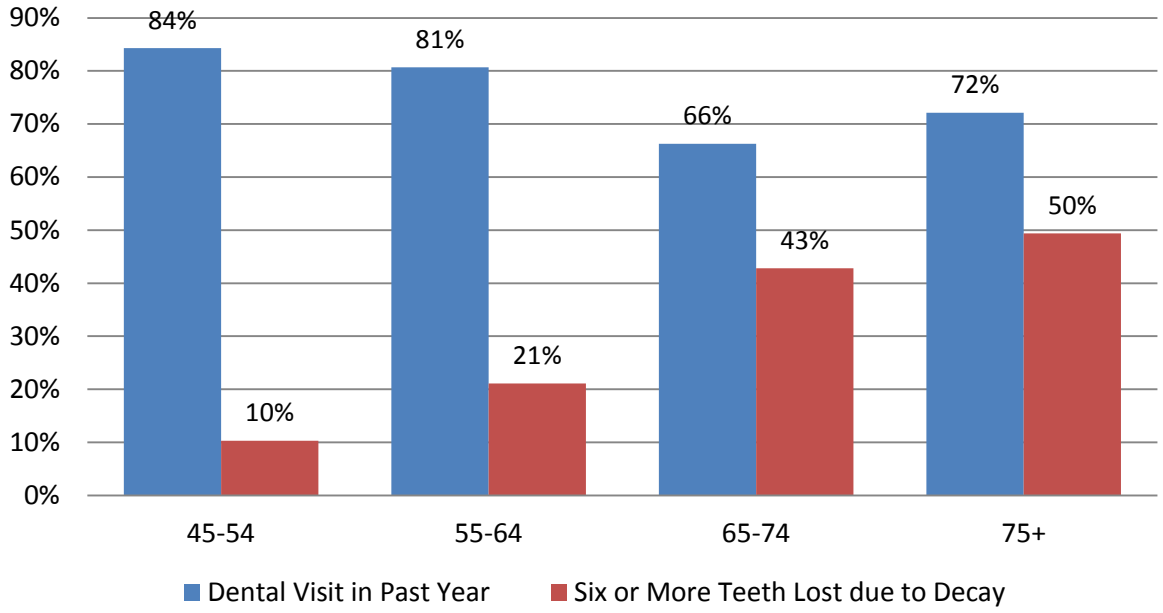
Figure 68: Percent of Adults who Saw a Dentist or Lost 6 or More Teeth, by Educational Attainment, Worcester County, 2010



DATA SOURCE: MDPH, "A Profile of Health Among Massachusetts Adults", 2010 - BRFSS

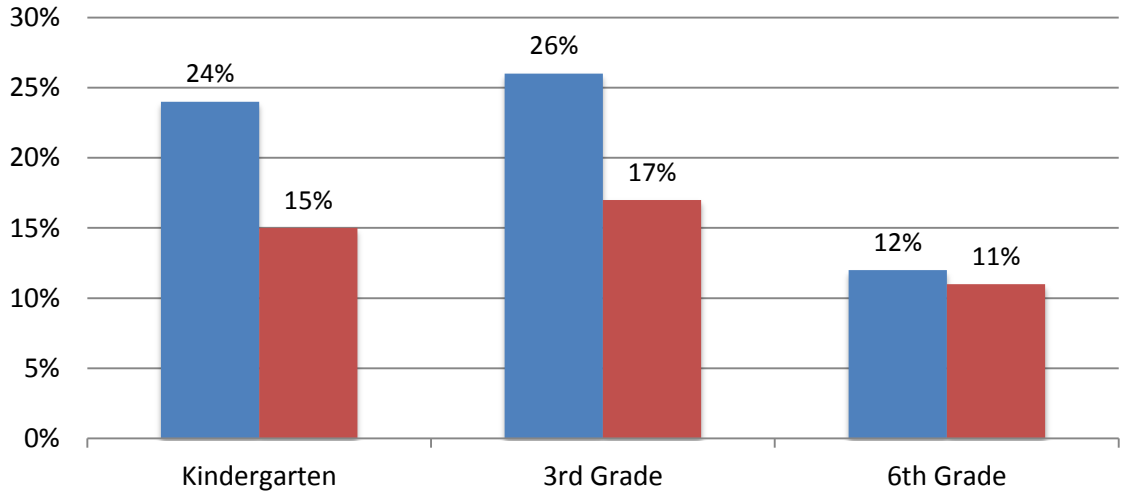
As shown in Figure 69, among persons aged 45 and older, the proportion of residents in Worcester County who reported having had a dental visit in the past year declines with age and the proportion of persons who have lost six or more teeth due to tooth decay increases with age. Approximately 84% of residents between the ages of 45 and 54 reported seeing a dentist in the past year, while only 66% and 72% of residents between the ages of 65 and 74 and 75 or older, respectively, reported seeing a dentist in the past year. Further, 43% and 50% of residents between the ages of 65 and 74 and 75 or older, respectively, have lost six or more teeth due to tooth decay, four to five times the prevalence for residents aged 45-54 years.

Figure 69: **Dental Health among Adults by Age, Worcester County, 2010**



There is a high prevalence of untreated tooth decay for children in Worcester County (Figure 70). In Worcester County, 24% of children in kindergarten and 26% of children in third grade had untreated tooth decay, which exceeds the proportion of children with untreated tooth decay for the state, 15% and 17%, respectively. Approximately 12% of children in sixth grade had an untreated decayed tooth, similar to the proportion for the state (11%).

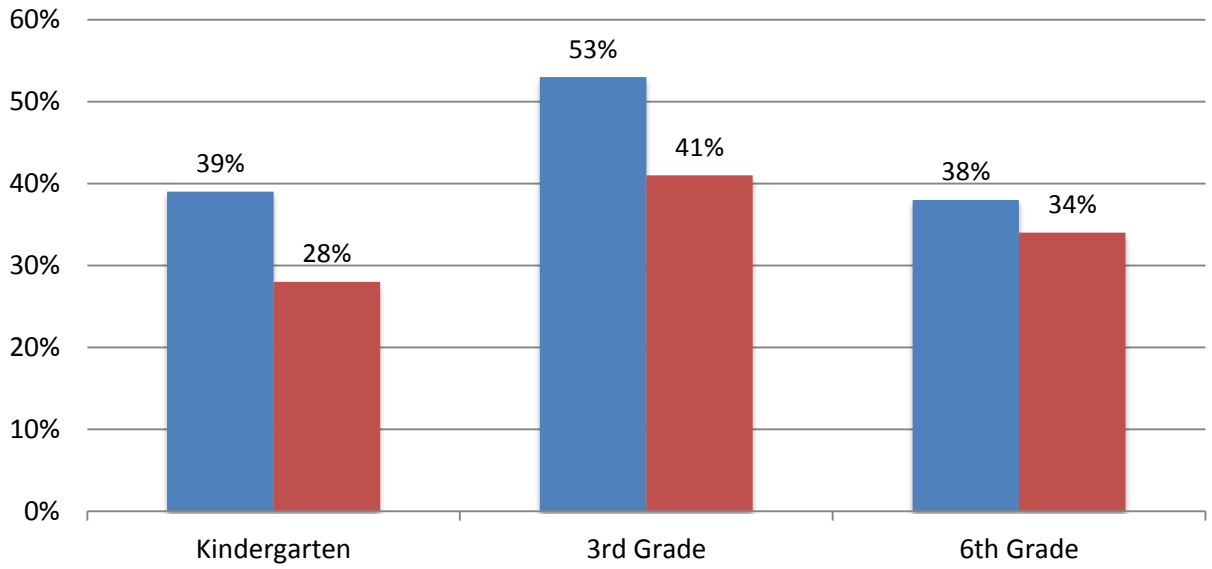
Figure 70: Untreated Decay among Children, Worcester County and Massachusetts, 2008



DATA SOURCE: The Catalyst Institute, "The Oral Health of Massachusetts' Children" January 2008 report

The proportion of children in Worcester County with tooth caries exceeds that for the state (Figure 71). Approximately 39% of children in kindergarten in Worcester County had tooth caries, while only 28% of children in Massachusetts have tooth carries. Among children in third grade, 53% of children in Worcester County had tooth carries, compared to 41% in Massachusetts. Approximately 38% of children in sixth grade in Worcester County had tooth carries, higher than the proportion in the state (34%).

Figure 71: Caries Experienced by Children, Worcester County and Massachusetts, 2008



DATA SOURCE: The Catalyst Institute, "The Oral Health of Massachusetts' Children" January 2008 report

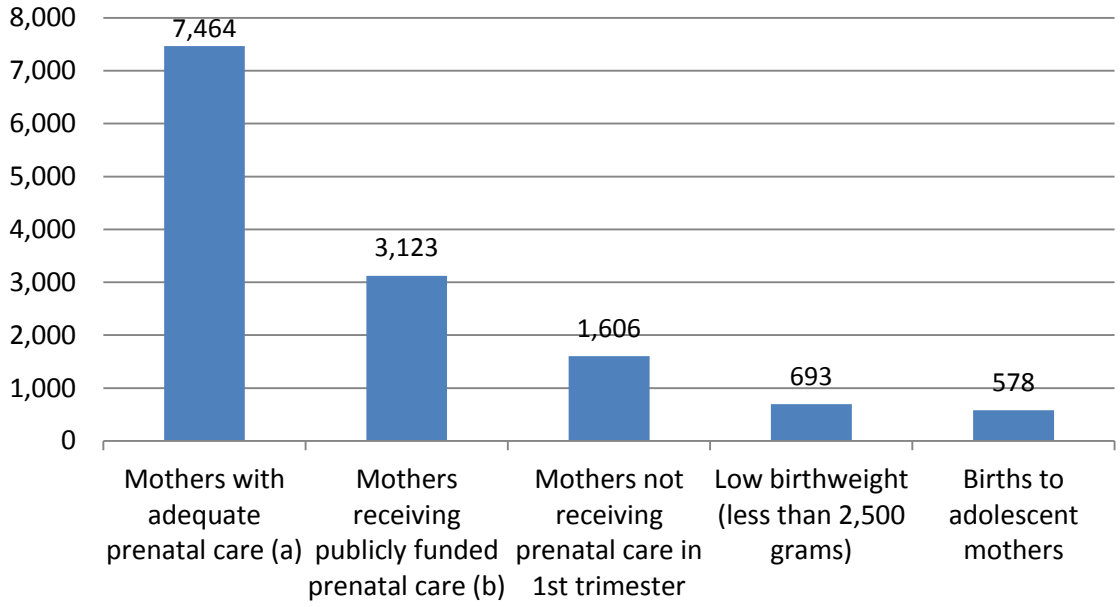
Reproductive and Maternal Health

> *"We have the highest infant mortality rate in the State. Clearly we are not doing something."* – Key informant interview participant, Academic sector, Worcester
>
> *"There has been a high infant mortality rate among African and African-American community for years. The Hispanic population has high infant mortality rate, yet there's no one from Hispanic community to work with them."* – Key informant interview participant, Social services sector, Worcester

Infant mortality, inadequate prenatal care and teenage pregnancy among vulnerable populations, particularly populations of color, emerged as concerns pertaining to reproductive and maternal health. One key informant interview participant from the health care sector in Worcester explained, *"Prevention programs are just so critical. It's complicated, but we need to reach the youth about pregnancy and sexually transmitted diseases."* However, respondents did not elaborate on risk factors that contributed to infant mortality and teenage pregnancy.

As shown in Figure 72, approximately 7,464 mothers had adequate prenatal care and 3,123 mothers received publicly funded prenatal care. However, only 1,606 mothers received prenatal care during the first trimester. There were approximately 693 low birth weight (less than 2,500 grams) births and 578 births to adolescent mothers among residents of Worcester County.

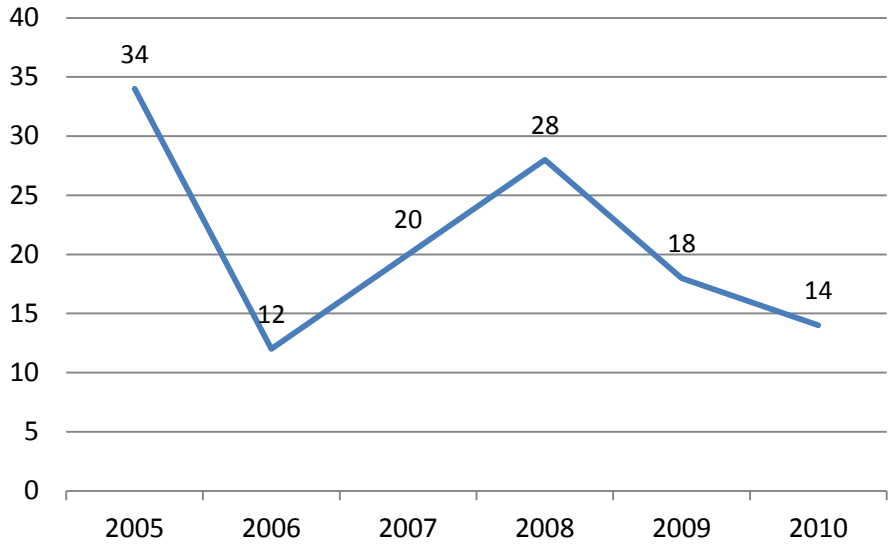
Figure 72: **Prenatal Care, Low Birth Weight, and Births to Adolescent Mothers, Worcester County, 2008-2010**



DATA SOURCE: MDPH, MassCHIP

As shown in Figure 73, the number of infant deaths over the period of 2005 to 2010 in the City of Worcester has varied. The number of infant deaths has declined from 34 in 2005 to 14 in 2010. It should be noted that in 2010, 3 (21%) of the 14 infant deaths were infants from a multiple pregnancy.

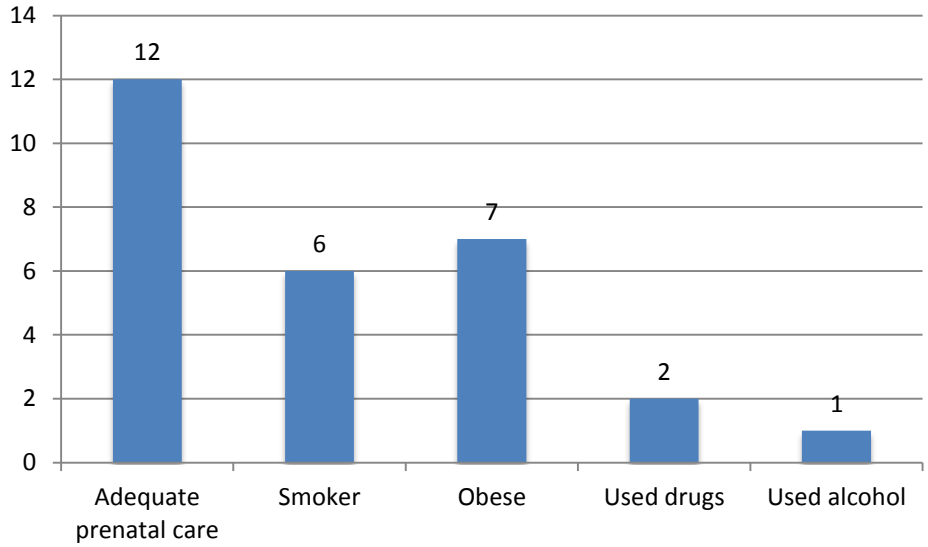
Figure 73: Number of Infant Deaths, City of Worcester, 2005-2010



Data Source: Worcester Infant Mortality Report, 2010

Figure 75 demonstrates the number of infant deaths by risk factors, according to the Worcester Infant Mortality Report for the City of Worcester. None of the infant deaths in 2010 were from teenage mothers, and 86% of these cases (12) were from pregnancies that had received adequate prenatal care. Of these 14 deaths, two (14%) were among mothers who were using drugs, and six (43%) were among mothers who smoked. These patterns were generally consistent across time.

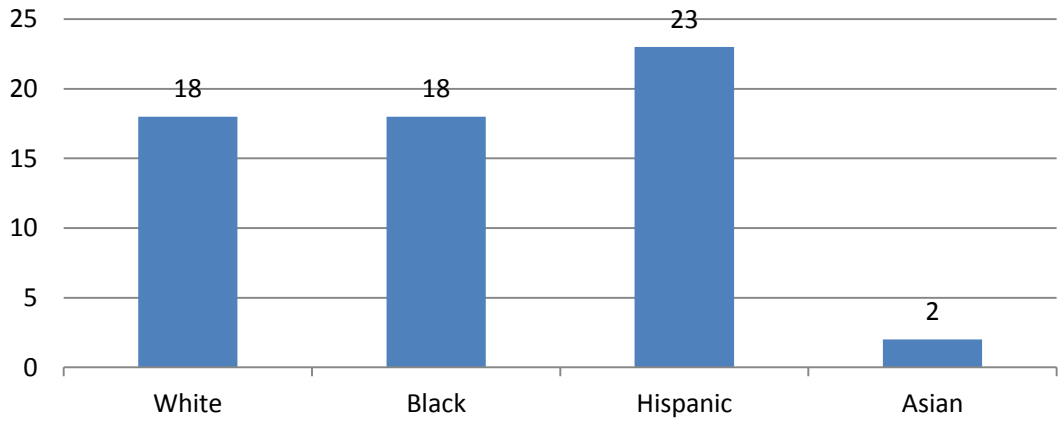
Figure 74: Number of Infant Deaths by Risk Factor, City of Worcester, 2010 (out of 14 infant deaths)



DATA SOURCE: City of Worcester Infant Mortality Report, 2010.

As shown in Figure 75, over the period of 2008 to 2010, the greatest number of infant deaths was experienced by Hispanics (23 deaths), followed by non-Hispanic Blacks (18 deaths) and non-Hispanic Whites (18 deaths).

Figure 75: Number of Infant Deaths, Worcester, by Race/Ethnicity, 2008-2010



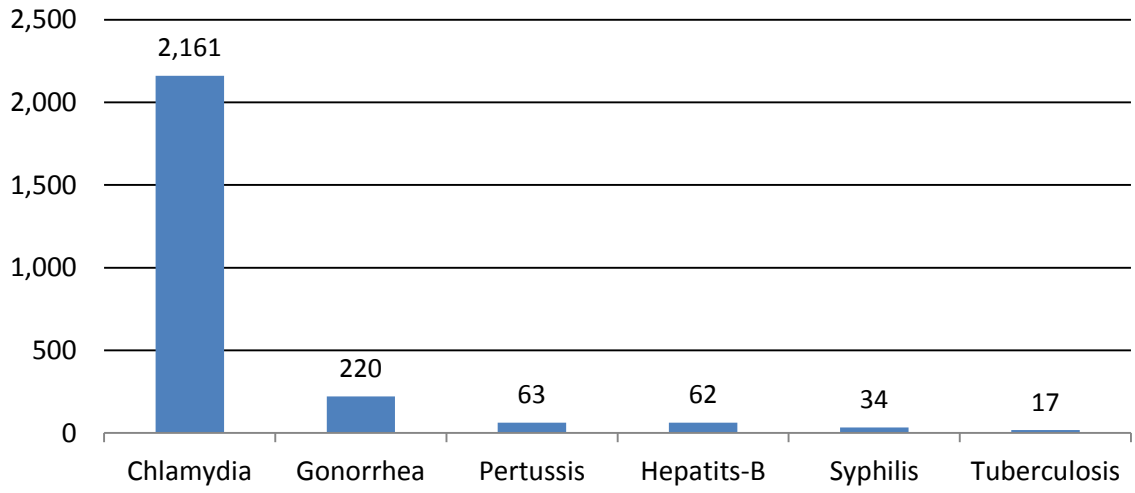
DATA SOURCE: Worcester Infant Mortality Report, 2010

Communicable Diseases

Infectious and communicable disease was not a frequently discussed topic during focus group and individual interviews. A few key informants noted the need for greater flu prevention efforts, including flu vaccinations for students and the elderly and access to germ-prevention agents in the schools, such as hand sanitizer. Others noted the need to ensure that immigrants were up to date with vaccinations. Several elder focus group participants reported that they had not received a seasonal flu shot in the previous year.

As shown in Figure 76, Chlamydia (2,161 cases) is the most common communicable disease among residents of Worcester County over the period of 2008 to 2010, followed by gonorrhea (220 cases), pertusis (63 cases) and Hepatitis B (62 cases). Youth and young adults ages 15-19 years old accounted for 613 of total Chlamydia cases during this period.

Figure 76: Infectious Disease, Worcester County, All reported Cases, 2008-2010



DATA SOURCE: MDPH, Health Status Indicators Report for Worcester County

Health Disparities and Inequalities

> *"When we look at health indicators, there is a difference between the rest of the city and the White population."* – Key informant interview participant, Health care sector, Worcester

> *"We see bad numbers relative to heart disease, cancer, diabetes, particularly among the communities of color. If we're to do anything we need to move upstream and address the underlying causes of poor health and poverty. We need to focus on prevention."* – Key informant interview participant, Academic Sector, Worcester

> *"We're more willing to talk about the issues of race than we used to be in years past."* – Key informant interview participant, Social service sector, Worcester

While the diversity in the region was described as an asset in the Greater Worcester area by nearly all respondents, many also cited dynamics of racism and classism in the region that may influence the health of residents of color. As one key informant interview participant from the social service sector in Worcester explained, *"People live in the same city but live in different worlds."* Another participant elaborated, explaining that *"Most assets aren't available to everybody. [There are] deficits for certain people – people of color. [There are] deficits for newly arrived immigrants. There are also classist and racist comments with no accountability and intentionally exclusive practices."*

Reducing racial/ethnic and socioeconomic health disparities and inequalities emerged as a particular concern among many interview participants. Respondents cited excess rates of obesity, diabetes, cardiovascular disease and infant mortality among African-Americans, Latinos or Hispanics and immigrant communities in the Greater Worcester area. They also explained that populations of color generally had limited access to healthy, affordable food and safe, affordable spaces to engage in physical activity, behaviors they described as linked to these health disparities. Additionally, respondents explained how racial and ethnic minorities – including African-Americans, Latinos or Hispanics and immigrants have more limited access to timely and quality health care than their White counterparts.

<u>Unequal treatment</u>

> *"What I'm saying is that the preponderance of individuals who are low-income are non-White and I'm using race as an indicator of SES [socioeconomic status]. They see that I'm White, dressed up and work at UMass – I get different care."* – Key informant interview participant, Health care sector, Worcester

> *"All of us [health care practitioners] aim to provide one standard of care for everyone, regardless of skin color or economics. We're probably not as impartially and culturally competent as we need to be. The population is changing a lot quicker than our workforce."* – Key informant interview participant, Academic sector, Worcester

Several participants cited unequal treatment of African-American, Latino or Hispanic and immigrant patients at health care facilities. One key informant interview participant representing the social services sector in Worcester reported that *"Health care depends on who you are and where you are."* A few of these respondents alluded to bias among health care providers and support staff towards patients as one factor that contributes to their unequal treatment. As a key informant interview participant from the social services sector in Worcester explained, *"If someone calls with an accent the hospital will refer them to the residents rather than a private clinician. Even women with private insurance – they are not even given a choice to see a private clinician."*

Several respondents also reported linguistic and cultural dissonance as factors that contributed to poorer quality care for patients of color. One key informant interview participant from the social services sector in Worcester noted that these experiences may discourage residents from seeking care when they need it:*"If you don't feel welcome, you just don't go."* Recent demographic changes, such as the movement of some new immigrant communities to the Greater Worcester area are cited as reasons why health care providers have been slow to provide linguistically and culturally competent care to their patients. Several interview participants explained that a more diverse workforce of health care providers was necessary to reduce issues of unequal treatment and linguistic and cultural barriers. This is a solution that many of the higher education institutions in the region are working to address "down the pipeline" by educating residents from the Greater Worcester area, with hopes that they will then provide health services to their community. One key informant interview participant from the academic sector in Worcester explained the importance of training community members in the health professions, *"these students are committed to the region and can bring the knowledge of the communities they serve with them. We have the opportunity to train the next generation – we will be better served by doing this, especially in health care."*

One key informant interview participant from the educational sector in Worcester shared her vision for the outcome of the regionalization effort and focus on health disparities: *"The idea that people are not looked down upon because they have to access the public health system and not seen as a drag on city and state services; rather, highlight all of the options available and have a well-defined system that folks can easily access; then we'll see a real reduction in obesity and associated health challenges and a stabilization of many of the mental health issues".*

Table 10 illustrates survey respondents' perceptions of their personal experiences with discrimination when trying to access medical care and responses by race/ethnicity. While the percentage of non-White respondents to the survey was low, there were differences in their responses in many questions around discrimination and barriers to care. While 28.7% of survey respondents indicated that they had had a negative experience with medical staff when trying to receive care, over 38% of Hispanics reported this issue, followed by approximately three in ten Black (30.8%) and Asian (31.3%) respondents. When asked about whether respondents felt discriminated against when getting medical care because of their race, ethnicity, or language, nearly one third of Black survey respondents (32.0%) and one quarter of Hispanic respondents (25.6%) said "true" to this statement. Income was also considered a source of discrimination when seeking medical care, particularly felt among non-White respondents.

Table 10: CHA Survey: Percent Survey Respondents Indicating True to Statements about Personal Experiences with Discrimination and Barriers to Care, Greater Worcester Area, 2012

	Overall Sample* (n=1,356)	White Respondents (n=978)	Black Respondents (n=27)	Hispanic Respondents (n=90)	Asian Respondents (n=33)
When trying to get medical care, I have had a negative experience with the staff in the office	28.7%	26.7%	30.8%	38.6%	31.3%
I or someone in my household has not received the medical care needed because the costs were too high	32.4%	30.5%	55.6%	51.1%	21.9%
When trying to get medical care, I have felt discriminated against because of my race, ethnicity, or language	5.3%	1.9%	32.0%	25.6%	12.5%
When trying to get medical care, I have felt discriminated against because of my income	11.3%	8.8%	29.2%	27.8%	16.1%

DATA SOURCE: Community Health Assessment Survey, 2012
NOTE: Not all respondents identified their race/ethnicity.

HEALTH CARE ACCESS AND UTILIZATION

Resources and Use of Health Care Services

When asked about the health care in their community, participants in interviews, focus groups, and the community festivals repeatedly remarked about the quality of care in the region. Residents and leaders discussed services do abound from hospitals such as UMass Memorial Medical Center to federally qualified health centers to providers in private practice. Importantly, these institutions and providers were perceived as offering high quality medical services. The biggest concern was related to access to these existing services. Based on the Department of Health and Human Services (DHHS) Health Resource and Service Administration Index of Medically Underserved Areas, the City of Worcester is a federally qualified Medically Underserved Area.

As shown in Table 11, the majority of respondents to the Community Health Assessment Survey (61.2%) reported being very satisfied with the availability of health or medical services in the region and 58.9% were satisfied with medical providers who accept their insurance. Approximately 55.5% of respondents were satisfied with medical specialists in the area, 46.8% expressed satisfaction with medical services for persons aged 65 or older and 44.1% were satisfied with interpreter services available. Approximately 43.4% of residents were not at all satisfied with alcohol or drug treatment services for youth and 44.5% were not satisfied with public transportation to health services. Among respondents, 39.0% were not satisfied with counseling or mental health services for youth and 31.0% were not satisfied with alcohol and drug treatment services for adults. There was mixed satisfaction for birth control and sexual health services for youth, with 22.4% of respondents indicating that they are very satisfied with services, but 28.6% expressing that they are not at all satisfied with the availability of these services for youth.

Table 11: CHA Survey: Satisfaction with Availability of Health and Social Services in Community, Greater Worcester Area, 2012

Services	Very Satisfied with Availability	Not Satisfied at All with Availability
Overall health/medical services in the area	61.2%	3.4%
Health/medical providers who take your insurance	58.9%	9.5%
Medical specialists in the area	55.5%	9.2%
Health/medical services for seniors (65+)	46.8%	7.2%
Dental services in the area	44.6%	14.0%
Interpreter services during medical visits/when receiving health information	44.1%	16.2%
Health/medical services for youth	41.9%	13.3%
Smoking cessation programs/services	26.1%	26.1%
Counseling/mental health services for adults	22.5%	28.4%
Birth control/sexual health services for youth	22.4%	28.6%
Alcohol/drug treatment services for adults	19.3%	30.9%
Counseling/mental health services for youth	19.2%	39.0%
Public transportation to area health services	16.8%	44.5%
Alcohol/drug treatment services for youth	14.5%	43.4%

DATA SOURCE: Community Health Assessment Survey, 2012

Challenges to Accessing Health Care Services

> *"Everyone in MA has insurance but access to [the] health system is not equal."* – Key informant interview participant, Academic sector, Worcester
>
> *"I think one of the limitations is around the recruitment of clinicians and staff specific to primary care. It's hard to recruit people to work at a community based clinic when hospitals are paying twice as much."* – Key informant interview participant, Health care sector, Worcester
>
> *"For immigrant and refugee populations – they can't get there during the workday because they are working 2 or 3 jobs – but they get labeled as non-compliant. We need to be where they are at the times they are there."* – Key informant interview participant, Academic sector, Worcester

Interviews with respondents indicated a perception that health care services in the area are of excellent quality and high in number. However, several challenges related to access for more vulnerable populations emerged as a key theme. Challenges discussed include: transportation limitations to health services, long wait times, complexities navigating the health system, cultural competency of providers and office staff, and a lack of coordination of care.

Despite access to health insurance for most residents in Massachusetts, long waiting lists to get an appointment, difficulty scheduling appointments, and long wait times when at the health facility emerged as health concerns for low-income residents. One key informant interview participant of the health care sector in Worcester described the experience of waiting for a doctor's appointment, *"the*

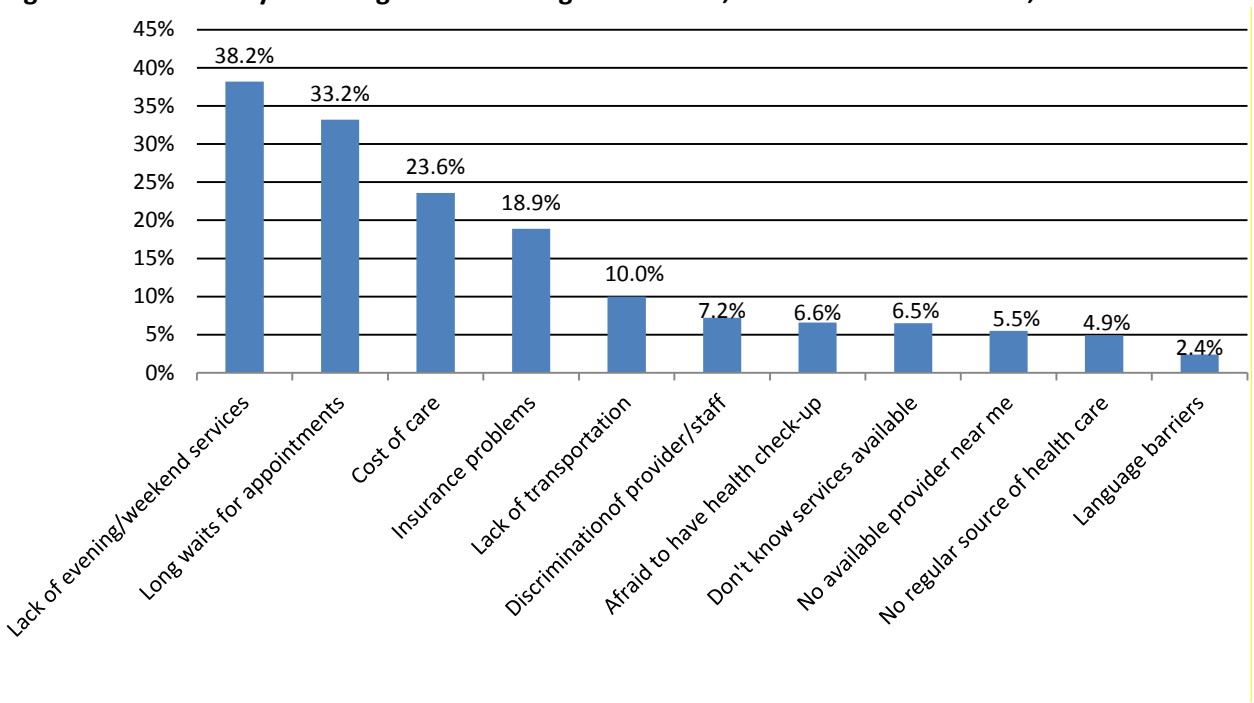
whole environment is one of come in, take a number, and sit there forever." One key informant interview participant from the social services sector in Worcester reported that there were *"enormous waiting lists"* and one key informant interview participant in the health care sector in Worcester explained, *"sometimes patients have to wait four months before they can get an appointment"* to see a medical provider.

Respondents described several structural factors that contributed to these challenges in accessing health care services. One interview participant explained that a lack of providers practicing primary care contributes to the long backlog of residents waiting for an appointment. In addition, a few respondents explained that business hours during which health facilities were open often conflicted with the availability of vulnerable populations who needed health care. One participant described how immigrants and refugees often worked multiple jobs to make ends meet, resulting in long workdays and limiting their ability to attend appointments during the business day. Other respondents reported that inadequate public transportation often compounded these difficulties to getting an appointment and making an appointment for low-income residents.

In addition, several respondents noted a need for assistance in navigating complex and fragmented health systems. One key informant interview participant in the academic sector in Worcester explained, "There is a *lack of knowledge that (the services and programs) exist ... the fringes of society are not hooked in, and don't know where to go …and I'm not sure it's a priority."*

Survey respondents were asked to check off the issues that made it harder to get the health care that they need. As shown in Figure 77, a lack of services available in the evening and during weekends (38.2%), long waits for appointments (33.2%), cost of care (23.6%), insurance problems (18.9%), and lack of transportation (10.0%) were cited as the five leading challenges to accessing health care cited by survey respondents. However, when asked directly true/false whether it is hard to use public transportation to get to medical/dental services, 68.6% of survey respondents indicated "true."

Figure 77: CHA Survey: Challenges to Accessing Health Care, Greater Worcester Area, 2012



DATA SOURCE: Community Health Assessment Survey, 2012

ER as Primary Care

An indicator of barriers to accessing health care is the use of hospital emergency rooms (ER) for non-emergent issues. A few participants explained that limited access to necessary health care contributed to use of ERs for management of chronic illnesses. One key informant interview participant from the educational sector in Worcester explained, *"many may not be accessing regular preventative health care and are using the ER as primary care for asthma or allergies or juvenile diabetes and this is not the best way to manage conditions."* Another key informant from the government sector in West Boylston noted, "*there are very few doctors and dentists so we rely on the strengths of the region, the hospitals in the surrounding towns."* Emergency response focus group participants reported that emergency response services are overused and misused due to the lack of primary care providers to provide preventative and secondary health care.

Provider Communication and Cultural Competency

Several participants also cited provider communication and cultural competency as concerns for immigrant and refugee patients. Themes during these discussions focused on providers' and support staff's competency in communicating with patients. One key informant from the educational sector in Shrewsbury explained, *"Language and cultural barriers are something that we are starting to experience more. I am concerned that families who are of a lower socioeconomic status and English is not their first language, will have issues with access."* Another key informant interview participant from the social

services sector in Worcester expressed concern for the health consequences of communication barriers, *"Anything can go wrong because of the language barrier."*

Challenges to Accessing Mental Health Care Services

> *"Access to mental health services for diverse populations is a big need."* – Key informant interview participant, Social services sector, Worcester

> *"There is a lack of mental health providers available for uninsured and Medicaid/Medicare subscribers. Changes in the requirement for mandated health insurance drove up the need to get health care providers and then demand was greater than services. But there is not enough to serve the population in need."* – Key informant interview participant, Government sector, Worcester

Access to mental health care for Medicaid- and Medicare-eligible populations and low-income populations emerged as a concern for residents. Several participants cited and one key informant interview participant from the educational sector in Shrewsbury noted, "economics can be a barrier to seeking help". Another key informant interview participant from the social services sector in Worcester shared that "access to mental health for diverse populations is a big need." One key informant interview participant in the educational sector in Shrewsbury explained that schools can only partially fulfill this gap for youth needing mental health services, as "there are situations where families who are on the lower end, [who] may not be able to afford counseling outside of school."

COMMUNITY STRENGTHS AND RESOURCES

Health Care Services and Providers

As discussed in the previous section, the Greater Worcester area is characterized by several excellent health care facilities. This region includes several health care teaching and research institutions, including the University of Massachusetts Medical School and Massachusetts College of Pharmacy, among other higher education institutions addressing health care and social determinants of health in the region. There are also several community health centers serving vulnerable populations and connecting patients to health and social services such as WIC and welfare benefits. While interview participants cited challenges to accessing health care with insurance, many participants noted that these health facilities are critical providers of medical care and community health promotion initiatives.

Strong Social Service Organizations

A key theme among interview, community festival, and focus group respondents was the numerous, high quality programs, services and providers in the Greater Worcester region who are working on a range of issues related to the health of residents. These organizations include Meals on Wheels, YMCAs, senior centers, churches, farmer's markets, services available through local community health centers, and so on. As one key informant interview participant from the educational sector in Worcester shared, *"We're asset-rich when [it] comes to health and human service organizations that can support variety of needs of adults and children in community."*

Another theme that emerged was the need for more and expanded services and programs. One key informant interview participant representing the health care sector in Worcester explained that it would be useful to expand current programs, *"It would be great if people could have more connections to YMCAs … as it gets colder, it would be nice if there was more access – such as opening schools in the evening for activities."*

Several respondents cited a need for more preventative programs and observed that there are currently many secondary and tertiary treatment programs. As one interview participant explained, *"There are more secondary and tertiary prevention places; free-standing organizations that are typically already branded, like women's health services, nutrition programs, people already have to have a problem to get in."* Participants explained that more preventative programs may be more broad, such as those addressing healthy eating and active living.

Engaged Community

> "*The city should know that there are willing partners [that are] anxious to come together"* – Key informant interview participant, Academic sector, Worcester

Another strength that emerged was the ripe level of energy and interest in enhancing partnerships within Worcester and in the Greater Worcester region to address priority health issues. One key informant interview participant from the academic sector in Worcester shared that *"we are well-engaged community in terms of working collaboratively and in teams; the coalition behind this community health assessment is a good example of that – especially when it's easy to think in silos."* Respondents also cited the strengths of collaboration, as one key informant interview participant representing the social services sector in Worcester indicated, *"Collaboratively, we can do more together to address duplication, efficiency and people who may be left out of services."* Towards the end of improving the health and wellbeing of residents of the Greater Worcester area, one key informant interview participant from the academic sector in Worcester shared their vision for the city, *"[My vision is that] the city goes beyond "I think I can" to knowing that they are doing. They are that little engine that could. I'm tired of hearing that we can, I want to hear that we are."*

Many interview participants noted that engagement during the community health assessment process was especially important. Several respondents expressed that there was the need to incorporate community members and more social service organizations, particularly representatives of health disparities/inequalities populations in efforts to identify health concerns, understand factors that contribute to health issues, and develop solutions to these health priorities. One key informant interview participant from the academic sector in Worcester shared, *"we talk generally about keeping your teeth clean and losing weight, but we should harness the resources of communities we want to serve to find ways to better serve the community. Let's have them be a part of the solution so the solutions that come up resonate with population. We need to figure out how they get medication and groceries, how they get from point A to point B, understand how they get information, etc."* Another key informant interview participant from the health care sector in Worcester expressed interest in seeing other service agencies at the table, *"there's enormous public housing in Worcester – it's a missed opportunity to not work with the Housing Authority. They are not present at any or many of our*

discussions. They need to be a part of them because Worcester's low-income population mostly lives in public housing."

Higher Education

Many interview participants considered higher education a major asset in the Greater Worcester region. The Worcester region is home to numerous institutions including a medical school (UMass Medical School), pharmacy school (Massachusetts College of Pharmacy and Health Sciences), and numerous colleges and universities including Assumption College, Becker College, Clark University, College of the Holy Cross, Quinsigamond Community College, Worcester Polytechnic Institute, and Worcester State University. Respondents noted that there are several opportunities to train residents to be future health professionals, whom they hope will serve the Greater Worcester region. In more affluent communities and for more affluent residents in Worcester, strong secondary schools were also cited as an asset.

COMMUNITY CHALLENGES AND EXTERNAL FACTORS

Economic Downturn

The economic downturn was considered a significant challenge to a region that has been struggling to rebuild its economic base in a post-industrial era. In qualitative discussions, several participants discussed factors in the external social, political, and economic environment that have an impact on health. A recurring theme in these discussions was related to the downturn in the economy and its impact, as already discussed in the social and economic context section of this report. While the economic downturn hurt families and individuals, participants also discussed how it significantly decreased the budgets of government agencies and community-based organizations as well, and limited the number or scope of services provided.

Public Health Infrastructure

Another larger community challenge that key informant interviewees cited was the lack of a robust public health infrastructure in Worcester and the Greater Worcester region. Interview participants explained that there are many services and programs in the area that are not adequately funded, not well-connected, and may not be focused on systems change. Respondents explained that diminishing state and federal funding also contributed to these challenges. One key informant interview participant from the social services sector in Worcester noted, *"Some of the gaps could be addressed with better connections with systems. Services may not be fully financed or have the capacity to accommodate all, but more interconnected systems could help with that."* Respondents shared that an ideal public health organization would be a central force. One key informant interview participant from the academic sector in Worcester described their vision, *"[This organization would] serve as the leader to all the other healthcare organizations within the city"* and organize regional initiatives to address priority health issues and reduce health inequalities based on evidence of health needs in the region.

Several respondents noted that currently, the health department's functions were more limited to infectious disease surveillance, restaurant inspections, and septic tank inspections, among others, but

expressed concern that some other basic functions, such as water fluoridation and addressing chronic disease were not carried out by the health department. One key informant interview participant from the health care sector in Worcester noted, *"We're the second biggest city in New England. So to have such a small department is an issue. Because of its small size, the Health Department seems to rely on community-based folks to do the health department's work... A lot of that is financially based, but we need to do more with regionalization – it just doesn't feel good to have a city this big and not have depth to the Department of Public Health."* Another key informant interview participant representing the health care sector in Worcester shared their vision for the health department, *"my belief and suggestion would be that the public health department, if we had a robust one, would be an organizing influence for the nonprofits and that would bring it all together and perhaps make it less fragmented … The missing ingredient is effective, regional leadership."*

AREAS WITH COMMUNITY READINESS

Survey respondents saw key areas for action as increasing services and programs around obesity, physical activity, and nutrition; promoting "aging in place" among the elderly, and expanding counseling and mental health services for youth. As shown in Table 12, community health assessment survey respondents were asked to note the issues and services they saw as a high priority for funding and resources. In addition to include services related to obesity, aging in place, and mental health, respondents also cited health services for seniors, health services for low-income residents, mental health services for adults, public transportation to health services, alcohol and drug prevention programs and health services for youth as priorities.

Table 12: CHA Survey: "High" Priority Areas When Deciding Funding and Other Resources, Greater Worcester Area , 2012

Issue/Activity	Percent
Offering more programs or services focusing on obesity, physical activity, nutrition	65.5%
Increasing the number of services to help the elderly stay in their homes	63.4%
Providing more counseling/mental health services for youth	47.0%
Expanding the health/medical services focused on seniors (65+)	43.9%
Increasing the health/medical services available to low income individuals	42.4%
Providing more counseling/mental health services for adults	41.9%
Providing more public transportation to area health/medical services	41.6%
Providing more alcohol/drug prevention programs in the community	41.3%
Expanding the health/medical services focused on youth	40.6%
Expanding the alcohol/drug treatment services available in the community	37.4%
Providing more reproductive or sexual health services for area youth	33.8%
Increasing the number of bilingual staff at area health/medical services	18.9%
Increasing the number of dental providers in the community	18.7%

DATA SOURCE: Community Health Assessment Survey, 2012

KEY THEMES AND CONCLUSIONS

This assessment report integrates a review of the secondary social, economic, and epidemiological data in the region; a community health survey of residents in the Greater Worcester area designed specifically to inform the community health assessment; and discussions with community residents and leaders to provide an overview of the social and economic environment in the Greater Worcester area, the health conditions and behaviors that most affect the community, and perceived assets, strengths and gaps in the current public health and health care environment. Several themes emerged from this synthesis:

- **There is wide variation within the Greater Worcester area in race/ethnicity, language, socioeconomic levels, and community size, but common themes emerged around specific health issues such as overweight/obesity, substance abuse and mental health, and the need for a stronger public health infrastructure.** While a few communities in the Greater Worcester region are relatively affluent, the City of Worcester experiences a lower median income, higher rates of poverty and lower levels of education. These factors all significantly influence residents' health status, their ability to seek and obtain services, access to resources, utilization of and contribution to social support networks, levels of stress, and opportunities to live healthy lives. Additionally, the cultural, language, and economic diversity in the Greater Worcester area poses a challenge when prioritizing services and health care intended to address the health needs across the area.

  However, regardless of the population group, overweight/obesity, substance abuse, and mental health, and the need for a stronger public health infrastructure were key concerns raised by interview and focus group respondents and community health assessment survey respondents across nearly all the communities. For many, access to safe public spaces to engage in physical activity, affordability of and access to healthy foods, and a substantially reduced public health infrastructure to set the public health agenda and facilitate collaborations across public health organizations disproportionately influenced the most vulnerable populations (e.g., low income, immigrant groups, elderly, disabled), but also influenced residents across the socioeconomic spectrum and region.

- **Health disparities/inequities in the Greater Worcester area, particularly in the City of Worcester, were a key concern raised by residents.** Secondary data confirmed that racial/ethnic and socioeconomic health disparities/inequities are prevalent in the region. Non-Hispanic Blacks and Hispanics disproportionately experience overweight/obesity and chronic diseases such as heart disease, diabetes, cancer, and asthma. Further, low-income residents have excess risk for overweight and obesity, smoking, poor mental health, and poor oral health. Respondents explained that this patterning of chronic health conditions reflects inequalities in the social environment, including racism, educational and employment opportunities, and concentration of stressors among vulnerable populations. Respondents also described how features of the built environment, such as unequal access to physical activity spaces, healthy food outlet options, and transportation pose impediments to health.

- **Healthy eating, active living, and overweight/obesity were considered key concerns by interview and focus participants and were cited as shared health concerns across the Greater Worcester area.** These issues were of concern particularly as chronic diseases such as heart disease, diabetes and cancer are the leading causes of morbidity and mortality. The prevalence of overweight and obesity in the City of Worcester is greater than that for the State and is partially driven by racial/ethnic health disparities in overweight and obesity. Initiatives to address overweight and obesity, such as farmer's markets, healthy modifications to public school menus and community gardens in schools were described as important existing strategies to promote healthy living and reduce overweight and obesity in the region and an initiative that could be expanded beyond the schools. Respondents also explained that features of the built environment that concentrate risk factors for overweight and obesity among low-income residents and residents of color, such as "food desserts" in the City of Worcester and surrounding communities, limited walkability in the region, few safe and well-maintained public spaces for physical activity, the high cost of gyms and organized sports, and community safety contribute to an environment in which some residents' ability to engage in a healthy lifestyle is limited.

- **Residents cited substance abuse and mental health as growing issues and major concerns, and concerns in which existing services were not necessarily addressing community needs, particularly among youth, low-income, and refugee and immigrant population groups.** Substance use among youth, particularly related to alcohol, opioids and prescription drugs, was raised as an important concern among respondents. Further, use of drugs such as heroine among adults, particularly low-income adults, was also a concern noted by some interview participants. While current secondary and tertiary treatment programs do exist, respondents noted that the demand exceeds the number of providers, some providers do not accept health insurance, and some residents cannot afford such treatment. Further, a need for services across the treatment spectrum was noted. Treatment options throughout the recovery process, not just during detoxification or crises, were cited as a major gap. Many respondents explained how substance abuse and mental health are interrelated, which makes addressing these issues more challenging. Mental health was described as a health concern that spanned all communities in the Greater Worcester area, but one that was also concentrated among more vulnerable populations, including low-income residents, youth, and immigrant populations.

- **While the Greater Worcester region has several strong health care services, vulnerable populations – such as the elderly, low-income residents, non-English speaking residents, and those with disabilities – experience difficulties in accessing primary care and oral health services, despite expanded health insurance coverage in the State.** Respondents described barriers to accessing primary care and oral health for low-income residents. Challenges included long waiting lists to schedule an appointment, long wait times, limited transportation to and from health care, linguistic and cultural barriers, complexity of navigating the health care system, and a lack of sensitivity among health care staff and administrative staff. Several respondents noted that it was important for service providers to understand these challenges and incorporate different strategies to accommodate barriers that residents face. Some approaches suggested included the need to offer primary health care services during the evenings and weekends, the need for more translators, transportation programs, a greater supply of primary care providers, and expanded community-based services.

- **Community safety was a concern raised by respondents across communities, but particularly in the City of Worcester.** Respondents described how neighborhood violence and perceptions of a less safe community can be stressful for residents and prohibit involvement in healthy behaviors, such as engaging in physical activity in the neighborhood. Interview and focus group participants also described how substance abuse, mental health, and community violence are inter-related. A few respondents explained that community violence is a stressor that increases the risk of poor mental health and adverse coping mechanisms and likewise substance use can also contribute to community violence.

- **Several community festival, interview, and survey respondents identified issues around sexual health, infant mortality, and teenage pregnancy as key concerns for the Greater Worcester area.** In the City of Worcester, the infant mortality rate more than doubled over the period of 2006 to 2008, but has since been declining to the previous rate before the spike in infant mortality in 2006. Hispanics experienced excess infant mortality in the City of Worcester in 2010. Despite improved health insurance coverage, secondary data show that some pregnant women in the region still receive inadequate prenatal care. Some survey respondents cited a need for more sexual and reproductive health services for young women in the area.

- **Respondents repeatedly discussed addressing the needs of the growing immigrant and refugee population in the Greater Worcester area as an important priority.** The Central Massachusetts region has experienced an increase in the immigrant and refugee population. Many respondents noted a need for more services for these populations as well as a need to bolster existing services through linguistically and culturally sensitive care, access to interpreters, and assistance navigating health services.

- **Issues related to transportation also emerged as a key concern among interview and focus group participants and survey respondents and one that affects many aspects of life and population groups, including the elderly, disabled, and low-income residents**. These populations experience challenges in getting to health care and other services, accessing healthy food, employment opportunities, and other resources that can promote health. Several respondents noted that public transit to and from Boston has improved, but public transportation options within the City of Worcester and the Greater Worcester area need significant improvement.

The Greater Worcester region is the home of numerous organizations, agencies, and institutions with long histories of trying to address the health of the region. In numerous discussions, a theme that was repeated throughout was that this was a region with engaged residents and organizations, active in trying to improve the health of the larger community. Harnessing that enthusiasm and passion for coordinated action will be critical. This community health assessment aims to provide the empirical evidence to inform collaborative planning, benchmarking progress and the alignment of future initiatives across community partners.

APPENDIX A. SURVEY INSTRUMENT

This is a hard copy version of the survey featured on-line.

Worcester Area Community Health Assessment 2012 Survey

The City of Worcester Division of Public Health (WDPH), UMass Memorial Medical Center, Common Pathways, and numerous community partners have recently launched a health initiative to explore the health needs, concerns, and strengths of the greater Worcester region. Through the work of this initiative, WDPH and its partners will develop a community-wide, collaborative strategic plan that sets priorities for health improvement and engages partners and organizations to develop, support, and implement the plan. The initiative is intended to serve as a vision for the health of the greater Worcester region and a framework for organizations and the community to use in making that vision a reality.

As part of the assessment, this survey is being administered to people who live and/or work in the greater Worcester region. The information gathered from this survey will be used to inform future programming and services.

We ask that people complete this 5-minute survey by Friday, September 28th. Thank you for your participation.

1. **In which of the following town/city do you live?**
    - o Holden
    - o Leicester
    - o Millbury
    - o Shrewsbury
    - o West Boylston
    - o Worcester
    - o Other (please specify) _____

2. **In which of the following town/city do you work?**
    - o Holden
    - o Leicester
    - o Millbury
    - o Shrewsbury
    - o West Boylston
    - o Worcester
    - o Other ((please specify) _____

3. **How would you describe your role in your community? (Please select all that apply)**
    - o Resident
    - o Health care provider
    - o Social services provider
    - o Public Service staff (e.g. police, firefighter, EMT)
    - o Local government official

- City employee
- Faith community
- Other (please specify) _____

4. In general, how would you describe the health of your community?

- Excellent
- Very good
- Good
- Fair
- Poor

5. Please select the <u>TOP 5 HEALTH ISSUES</u> that have the largest impact on you and/or your family, and the community as a whole.

(Please select 5 issues under "you/your family" and 5 issues under " your community." You can select the same or different issues.)

	You and/or your family	Your Community
Aging problems (Alzheimer's, arthritis, etc.)	O	O
Asthma	O	O
Cancer	O	O
Dental/ oral hea0lth	O	O
Depression or other mental health issues	O	O
Diabetes	O	O
Drugs and alcohol abuse	O	O
Heart disease/ heart attacks	O	O
Infectious/contagious diseases (TB, pneumonia, flu, etc.)	O	O
Obesity/ overweight	O	O
Sexually transmitted infections (STIs) such as HIV/AIDS or Chlamydia	O	O
Smoking	O	O
Teenage pregnancy	O	O
Violence (gang, street, or domestic violence)	O	O
Other (please specify)_____	O	O

6. Which of the following aspects of your community make it easier or harder for you to be healthy?

	Easier to be healthy	Neither easier or harder	Harder to be healthy
Current number or location of grocery stores/bodegas	O	O	O
Current number or location of fast food restaurants	O	O	O
Current number or location of parks and recreation centers	O	O	O
Current number or location of social services	O	O	O
Current number or location of medical services	O	O	O
Current number or location of dental services	O	O	O
Current number or location of mental health services	O	O	O
Community culture around health	O	O	O
Walkability (e.g., sidewalks, bike paths, street lights)	O	O	O
Safe streets/safe neighborhoods	O	O	O
Access to public transportation	O	O	O
Affordability of housing	O	O	O
Unemployment rate in the community	O	O	O
Educational opportunities in the community	O	O	O
Other (please specify)_____	O	O	O

7. Please think about the AVAILABILITY of different health and social services in your community. How satisfied or unsatisfied are you with the availability of the following services? (Please select one answer per row.)

	NOT SATISFIED AT ALL	SOMEWHAT SATISFIED	VERY SATISFIED	NOT SURE / DON'T KNOW
Overall health or medical services in the area	O	O	O	O
Health or medical services for seniors (65+)	O	O	O	O
Health or medical services specifically for youth	O	O	O	O
Alcohol or drug treatment services for adults	O	O	O	O
Alcohol or drug treatment services for youth	O	O	O	O
Counseling or mental health services for adults	O	O	O	O
Counseling or mental health services for youth	O	O	O	O
Public transportation to area health services	O	O	O	O
Birth control/sexual health services for youth	O	O	O	O
Dental services in the area	O	O	O	O
Programs or services to help people quit smoking	O	O	O	O
Health or medical providers who take your insurance	O	O	O	O
Medical specialists in the area	O	O	O	O
Interpreter services during medical visits and when receiving health information	O	O	O	O
Other (please specify:_____)	O	O	O	O

8. Please indicate whether each statement about your community or your personal experiences is true or false.

	TRUE	FALSE
The social service/health agencies in my community should focus more on prevention of diseases or health conditions	O	O
It is hard to use public transportation to get to medical/dental services	O	O
When trying to get medical care, I have had a negative experience with the staff in the office	O	O
I or someone in my household has not received the medical care needed because the costs were too high	O	O
When trying to get medical care, I have felt discriminated against because of my race, ethnicity, or language	O	O
When trying to get medical care, I have felt discriminated against because of my income	O	O
If I needed medical services I would know where to go for them	O	O

9. **Have any of these issues ever made it more difficult for you to get the health care that you needed? (Check all that apply.)**
   - o Lack of transportation
   - o Have no regular source of healthcare
   - o Cost of care
   - o Lack of evening and weekend services
   - o Insurance problems/ lack of coverage
   - o Language problems/ could not communicate with provider or office staff
   - o Discrimination/ unfriendliness of provider or office staff
   - o Afraid to have health check-up
   - o Don't know what type of services are available
   - o No available provider near me
   - o Long waits for appointments
   - o Health care information is not kept confidential
   - o I have never experienced any difficulties getting care
   - o Other (please specify) _____

10. **When deciding funding and other resources, what <u>PRIORITY</u> do you think should be given to the following issues?**

	LOW	MEDIUM	HIGH
Increasing the number of staff at area health/medical services who speak another language	O	O	O
Providing more public transportation to area health/medical services	O	O	O
Offering more programs or services focusing on obesity, physical activity, or nutrition	O	O	O
Increasing the health/medical services available to low income individuals	O	O	O
Expanding the health/medical services focused on youth	O	O	O
Expanding the health/medical services focused on seniors (65+)	O	O	O
Providing more reproductive or sexual health services for area youth	O	O	O
Increasing the number of services to help the elderly stay in their homes	O	O	O
Providing more alcohol or drug prevention programs in the community	O	O	O
Expanding the alcohol/drug treatment services available in the community	O	O	O
Increasing the number of dental providers in the community	O	O	O
Providing more counseling or mental health services for youth	O	O	O
Providing more counseling or mental health services for adults	O	O	O
Other (Please specify)_____	O	O	O

Demographic information

11. What is your gender?
- Male
- Female

12. What category best describes your age?
- Under 18 years old
- 18-24 years old
- 25-29 years old
- 30-39 years old
- 40-49 years old
- 50-64 years old
- 65-74 years old
- 75 years old or over

13. How would you describe your ethnic / racial background? (Please check all that apply.)
- Caucasian / White
- African American / Black
- Asian / Pacific Islander
- American Indian / Native American
- Other

14. What is the highest level of education that you have completed?
- Primary or middle school
- Some high school
- High school graduate / GED
- Associate's degree or technical/vocational degree or certificate
- Some college
- College graduate
- Graduate or professional degree

APPENDIX B. DIALOGUE DISCUSSION GUIDE

INTRODUCTION

- Hi, my name is _____ and I am here on behalf of the Worcester Department of Public Health and our partners…
- We are working on a Health of Worcester Survey.
- We need your opinions about the health issues important to you, your family, and your neighborhood.
- All of this information will be collected in one final report that will be shared with area organizations and the community.
- Your responses will be completely confidential.
- Before we begin, let's go around the table and say your first name and how long you've lived in [CITY].

QUESTIONS

1) What is your reaction to the information presented?

2) In your opinion, what are the top three concerns in your neighborhood?

3) What are the top three health related concerns for you and/or your family?

4) What makes it easier to be healthy and happy in your community?

5) What makes it harder to be healthy and happy in your community?

6) a) If you are using services, what programs or services are you currently using (e.g. Schools, Police, WIC, Health Center, Food Stamps, ESL-English as a Second Language, Dept of Transitional Assistance, RCAP Solutions, Worcester Housing Authority, food pantries, or shelter)?

b) Are these programs or services a benefit or a detriment to your health and/or your family's health? Please explain.

7) What obstacles/barriers are preventing you from obtaining/securing services? What services do you need more of?

8) Are you living in a healthy community? If yes, explain? If not, what can be done to make it healthier?

9) Do you think racism or discrimination impacts your health? Please explain.

10) If you could do one thing to improve your health/your family's health in your community what would it be?

CLOSING: Thank you so much for your time and feedback.

APPENDIX C. COMMUNITY FESTIVAL FEEDBACK FORM QUESTIONS

1) In your opinion, what are the top three concerns in your neighborhood?

2) What are the top three health related concerns for you and/or your family?

3) What makes it easier to be healthy and happy in your community?

4) What makes it difficult to be healthy and happy in your community?

APPENDIX D. KEY INFORMANT INTERVIEW GUIDE

AGENCY/ORGANIZATION

1. Can you tell me a bit about your organization/agency? [TAILOR PROBES DEPENDING ON AGENCY] [PROBE ON ORGANIZATION: What is your organization's mission? What communities do you work in? Who are the main clients/audiences for your programs?]

2. What are some of the biggest challenges your organization faces in providing these programs/services in the community?

    a. Do you currently partner with any other organizations or institutions in any of your programs/services?

COMMUNITY ISSUES

3. How would you describe the community which your organization serves?

    a. What do you consider to be the community's strongest assets/strengths?
        i. What are some of its biggest concerns/issues in general? What challenges do residents face day-to-day?

    b. What do you think are the most pressing <u>health</u> concerns in the community? Why? [PROBE ON SPECIFICS]

        i. How have these health issues affected your community? In what way?

        ii. Who do you consider to be the populations in the community most vulnerable or at risk for these conditions/issues?

    c. From your experience, what are residents' biggest challenges to addressing these health issues?

        i. [PROBE ON RANGE OF CHALLENGES: E.g., Various barriers to accessing to medical and/or preventive care and services, socioeconomic factors, lack of community resources, social/community norms, etc.]

I. PERCEPTIONS OF PUBLIC HEALTH/PREVENTION SERVICES AND HEALTH CARE

2. Let's talk about a few of these issues you mentioned. [SELECT TOP HEALTH CONCERNS] What programs/services are you aware of in the community that currently focus on these health issues? [PROBE FOR SPECIFICS]

        i. In your opinion, how effective have these programs/services been at addressing these issues? Why?

    b. Where are the gaps? What programs or services are currently not available that you think should be?

c. What do you think needs to be done to address these issues?

    i. Do you see opportunities currently out there that can be seized upon to address these issues? For example, are there some "low hanging fruit" – current collaborations or initiatives that can be strengthened or expanded?

3. In general, what do you see as the overall strengths and limitations related to the public health/prevention-related services in your community?

    a. What challenges do residents in your community face in accessing prevention services or programs?

        i. What do you think needs to happen in your community to help residents overcome or address these challenges?

4. What do you see as the strengths of the health care services in your community? What do you see as its limitations?

    a. What challenges do residents in your community face in accessing health care?

        i. What do you think needs to happen in your community to help residents overcome or address these challenges?

II. VISION OF COMMUNITY AND PROGRAM/SERVICE ENVIRONMENT

1. I'd like you to think ahead about the future of your community. When you think about the community 3-5 years from now, what would you like to see? What is your vision for the future?

    a. What is your vision specifically related to people's <u>health</u> in the community?

        i. What do you think needs to happen in the community to make this vision a reality?

III. CLOSING (2 minutes)

Thank you so much for your time. That's it for my questions. Is there anything else that you would like to mention that we didn't discuss today? Thank you again. Have a good afternoon.

This report prepared by:

Health Resources in Action

Advancing Public Health and Medical Research