



CHAPTER 1

Population Characteristics





Population Characteristics

This chapter provides an overview of the population characteristics in Massachusetts. While Massachusetts is ranked first overall state, first in education and second in health care by *US News and World Report*, health disparities and inequities persist. This helps provide context to the data that follows. Since there is no widely accepted consensus on which elements best describe population characteristics, the following topic areas provide some context:

- Demographics
- Social and Economic Factors
- Mortality

Chapter Data Highlights

- Massachusetts ranked #1 overall state by US News
- Massachusetts is ranked #1 in education and #2 in health care
- Massachusetts is ranked among the top 10 states for the economy
- The rate of population increase of people of color in Massachusetts is increasing at four times the national rate
- The elder population in Massachusetts is growing at a faster rate than the national average

Overview

Where individuals, families, and communities live, age, work, and play profoundly shapes their health.²⁵ In addition, disparities in health outcomes are linked with socioeconomic status, race/ethnicity, gender, immigration, and other social characteristics.²⁶ Understanding how these social, geographic and economic factors shape health is necessary to

identify areas for intervention to meet the needs of the Commonwealth. Consequently, the characteristics of Massachusetts' residents and changes in the population over time are important for understanding the Commonwealth as a whole and for particular population groups.

Diversity and education are two aspects of the state's population worth noting as strengths. With two in five residents identifying as immigrants or racial/ethnic minorities, the diversity of the Commonwealth is an important asset. Education also represents a strength. The Commonwealth has the highest proportion of college graduates in the nation. Average household incomes are higher than in most other states. Yet, while Massachusetts overall has a favorable social and economic profile, disparities remain.

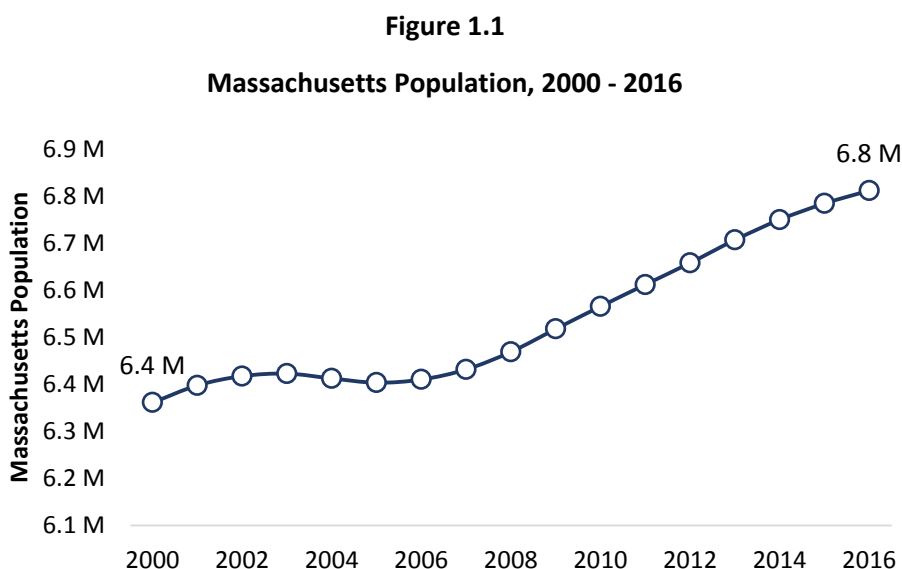
Demographics

Who lives in Massachusetts? How large is the population and how has the demographic composition of the Commonwealth changed over time? This section addresses these questions.

Population Size and Growth

Massachusetts remains the third most densely populated state in the US and ranks 15th in population size²⁷ with 6.8 million residents. The Commonwealth's population grew 3.5% from 2006-2010 to 2011-2015, below the national average of 4.1% for the same time period (see Figure 1.1).

Boston is the largest city in the state, with 667,137 residents or 9.8% of the total population. Franklin, Berkshire, and Barnstable counties are the only counties in the state that have lost population since 2010.



SOURCE: US CENSUS BUREAU, POPULATION DIVISION

As part of this health assessment, MDPH conducted 11 focus groups and 30 key informant interviews with stakeholders across the Commonwealth. Several of these participants observed that the growth of their communities, especially in the more populous areas, has led to a strain in affordable housing and an increase in gentrification.

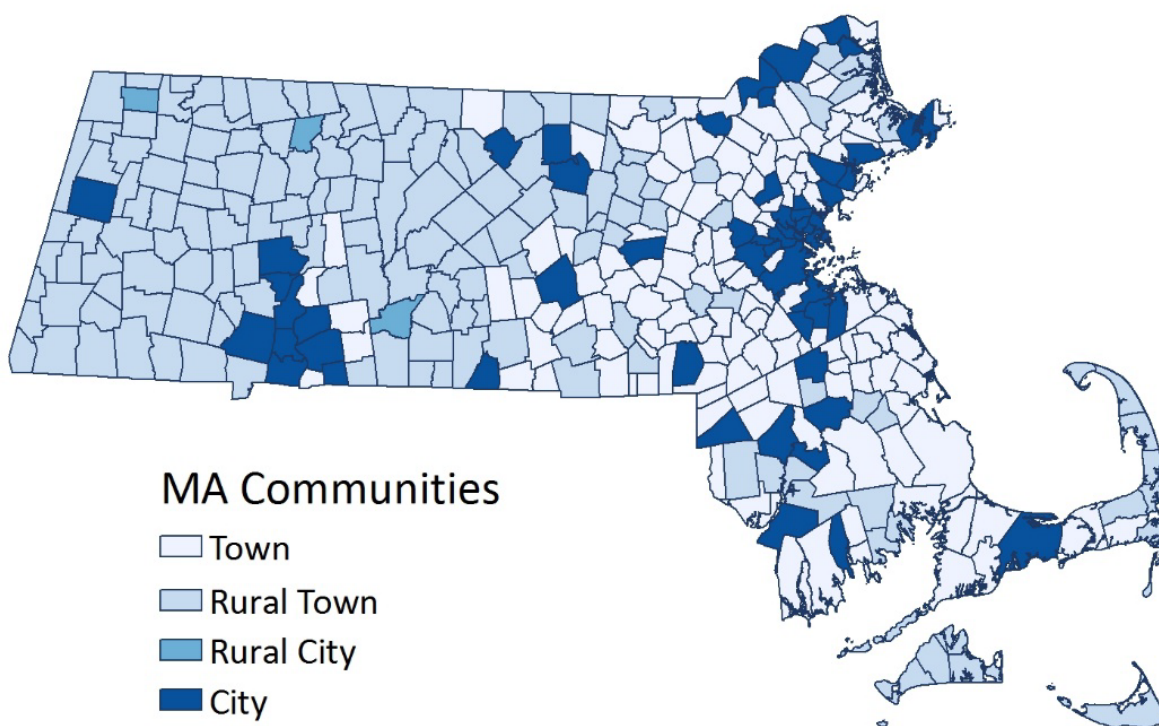
As one focus group participant shared: “Western Mass is growing and people who have been here for generations are being priced out of their homes.” However, focus group participants in Cape Cod worried about a declining population. One shared that: “There aren’t a lot of opportunities out here for people in their 30’s and younger. People leave the Cape when they graduate high school and don’t come back because they feel like nothing is here.”

Population Density

Massachusetts is often thought of as urban because of the dense concentration of people in metro-Boston and other cities. But 52% of Massachusetts’ landmass is classified as rural, including 56% of the state’s cities and towns. Residents of these rural communities total 679,911, which is about 10% of the state’s total population. Since 2010 three counties have decreased in size, all of them rural.

Figure 1.2

Massachusetts Rural Cities and Towns, 2017



As shown in **Figure 2.1** above, rural Massachusetts spans the entire length of the state from the Berkshires to the Islands and includes mountains, farm land, rolling hills, seaside coasts, islands, and dense forest. These rural areas are known for their scenic beauty, outdoor recreation, vacation destinations, abundance of farms, communities of artists, well-known educational institutions, quintessential town centers, and New England charm.

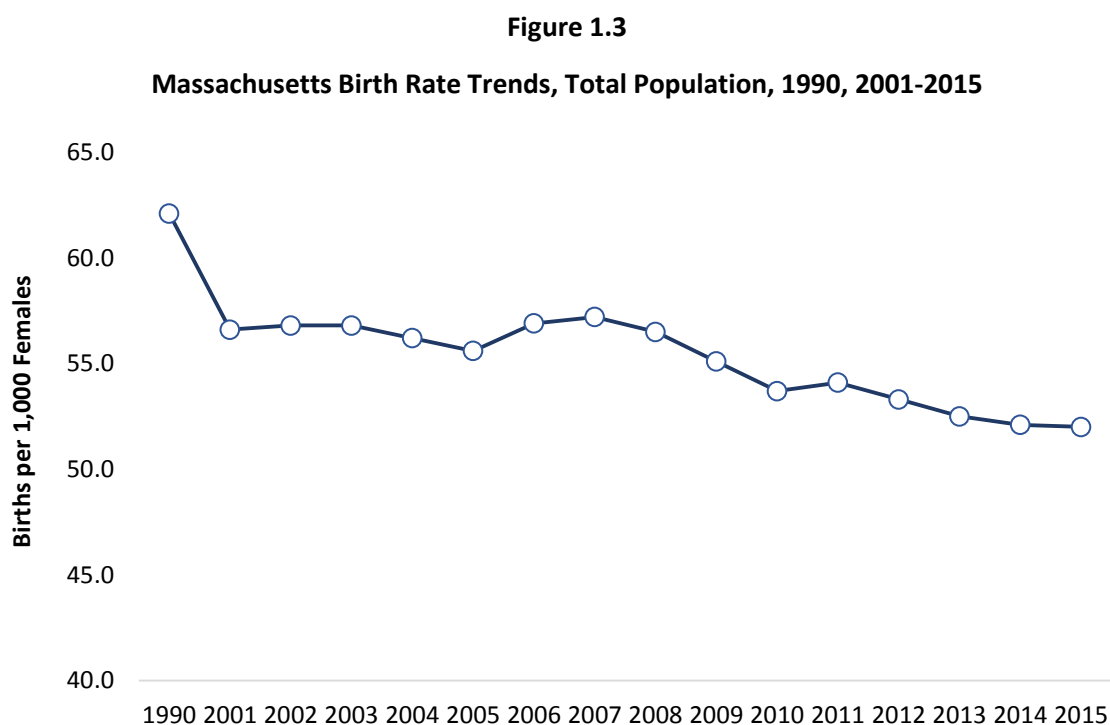
Massachusetts’ seasonal tourist destinations, former mill towns, and agricultural economies face many challenges and tend to be more economically distressed than their urban neighbors. Often the leading industry has moved, leaving these communities with a shortage of employment opportunities and living wages. Rural communities often lack the infrastructure (e.g., broadband internet) needed to attract businesses and the expenses associated with development

can be high. The costs per capita associated with health and human services delivery tend to be higher in rural areas because of their lower population density.

Tourism communities see a seasonal growth in employment, but employment in this sector carries lower wages for short periods of time during the year. Some year-round residents may need to earn a salary to live on for a year in only a few months. This seasonal bloom in population places a great strain on affordable housing and health services. Limited public transportation in these areas can create additional barriers for employment and health access.

Births

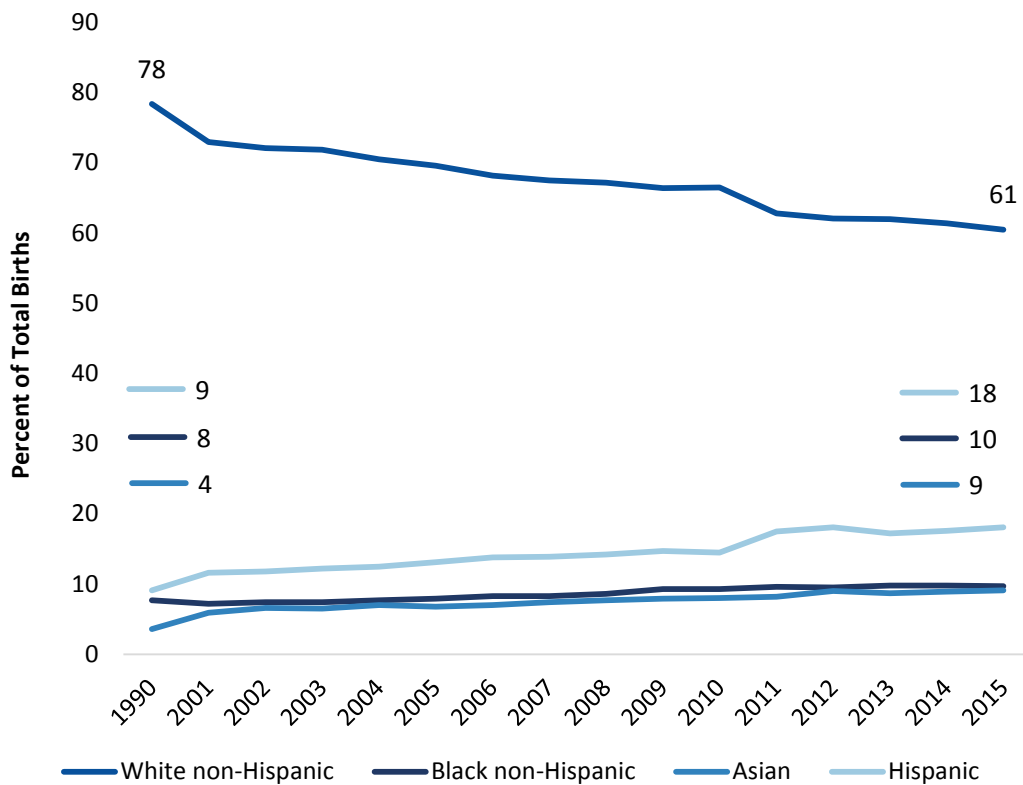
The birth rate in Massachusetts has been steadily declining over the past several decades, as shown in **Figure 1.3**. In 2015, there were 71,484 births to Massachusetts resident mothers, a decline of 0.5% from 71,867 in 2014 and a decline of 22.7% since 1990. In 2015, the number of births to mothers under the age of 30 (2015 – 28,890; 2014 – 29,858) decreased by 3.2% whereas the number of births to mothers ages 30 and older increased by 1.4% from 2014 (2015 – 42,594; 2014 – 42,009).



In birth trends by race, the proportion of births to White non-Hispanic mothers has declined, while births to Black non-Hispanic, Asian non-Hispanic, and Hispanic mothers has increased since 1990 (**see Figure 1.4**). Most recently, the proportion of births to White mothers declined by 1.5% (from 61.4% in 2014 to 60.5% in 2015) and the proportion of births to Hispanic mothers increased by 2.8% (from 17.6% in 2014 to 18.1% in 2015). The proportion of births to Asian non-Hispanic mothers increased by 2.2% (from 8.9% in 2014 to 9.1% in 2015).

Figure 1.4

Percent of Total Births by Race, Massachusetts, 1990, 2001-2015



Gender

From birth to middle age, the proportion of boys and men in the Commonwealth exceeds that of girls and women. However, for the oldest group, those 65 years of age or older, the population of women (16.4%) exceeds that of men (12.9%). Among those 85 years of age and older, women outnumber men two to one. As a result, women represent the majority population at 51.5%.

LGBTQ

Data on lesbian, gay, bisexual, transgender, and queer (LGBTQ) populations in Massachusetts are slowly becoming more available. The only major source of statewide data is the Youth Risk Behavior Surveillance System (MA YRBS). In 2013, a question was added to the MA YRBS asking whether students identify as transgender. Further, a question asking about Gender Expression was added to the MA YRBS in 2017.

According to the Massachusetts Department of Elementary and Secondary Education analysis of the 2011-2015 MA YRBS data, 14.8% of Massachusetts youth identified as Sexual and/or Gender minority. Due to data limitations, MDPH believes that this is an undercount of actual rates. Among Sexual and/or Gender Minority Youth, 63% are White, 20% are Hispanic, 9% are Black, 5% are Asian, and 3% are Multi-Ethnic.

Age

The Commonwealth's population is aging. More than one-third of residents are 45 years or older (43%). The median age of Massachusetts residents increased, from 38.7 years in 2006-2010 to 39.3 years in 2011-2015. This exceeds the median age for adults across the US (37.6 years). Two-thirds of Massachusetts counties (10 out of 14) have a median age of 40 or older. Mirroring national patterns, the proportion of Massachusetts residents from birth to 18 years of age has decreased and the percent of the population 65 years of age or older has increased.

Key informant interviewees and focus group participants mentioned that there is a growing and vibrant senior community. Concerns about meeting the needs of this rapidly growing population also emerged. Interviewees identified critical issues such as health security (e.g. support for family caregivers, access to affordable medication, long-term care services), and financial security (e.g. work and employment protection, retirement savings issues, housing stability). One interviewee commented, *"When we're thinking about who our employers, businesses, and educators are – breaking down the barriers and changing the perceived discrimination against getting old, that needs to start as a fundamental piece of how we educate people."*

"Recognizing that demographic shift towards older adults is happening, the Governor created the State's first advisory council on aging that will guide administration policy to support healthy aging."

Key Informant Interviewee

Statewide initiatives such as the Massachusetts Healthy Aging Collaborative, which aims to create age-friendly livable communities, were noted as strengths that can be leveraged moving forward. In 2011-2015, 11.3% of Massachusetts residents 65 years of age or older lived alone, slightly more than the proportion in 2006-2010 (10.6%) and across the US in 2011-2015 (10.1%).

Race/Ethnicity

The Commonwealth is less diverse than the US as a whole. Races and ethnicities other than the White non-Hispanic population comprise 27% of the total state population compared to 39% in the US. However, the minority population in Massachusetts has been increasing at a faster rate than the US average. From 2010 to 2016, races and ethnicities other than White non-Hispanic increased 4%, from 23% to 27%, compared to a 2.6% increase nationally.

Geographically, Nantucket, Essex, and Norfolk counties experienced the largest increases in minority populations between 2010 and 2016 compared to other Massachusetts counties. Franklin, Barnstable, and Berkshire counties were the least diverse in terms of race/ethnicity during the same time period.

Across the Commonwealth, population growth among Hispanics increased faster than the national rate. Similar to national data, the median age of the Hispanic population in Massachusetts is younger (27.9 years) compared to the non-Hispanic population (41.5 years).

According to the most recent available Census data (2010 US Census), 50,705 people in Massachusetts identified themselves as American Indian/Alaska Native (AI/AN alone or in combination). American Indian communities and individuals lag behind the general population in terms of educational attainment, economic status and health. For example, self-identified American Indian people in New England are less likely to have college degrees and more likely to hold lower-paying jobs, suffer from more chronic diseases such as diabetes, and live shorter lives.²⁸

Qualitatively, while numerous focus-group participants described diversity as a community strength, many participants also voiced concerns about gentrification, notably in Boston, Northampton, and Worcester. One focus group participant described the community as “*very diverse*”, mentioning wide cultural diversity. They noted that diverse residents are a strength of the community, but also noted that some residents faced barriers receiving culturally-competent services.

Participants perceived that many providers were not taking cultural aspects of health into account when treating people, including religion, stigma, language, and culinary norms. As one participant noted, “*We need to educate mainstream providers and hospitals and teach them what it means to treat communities of color. It’s about cultural sensitivity.*”

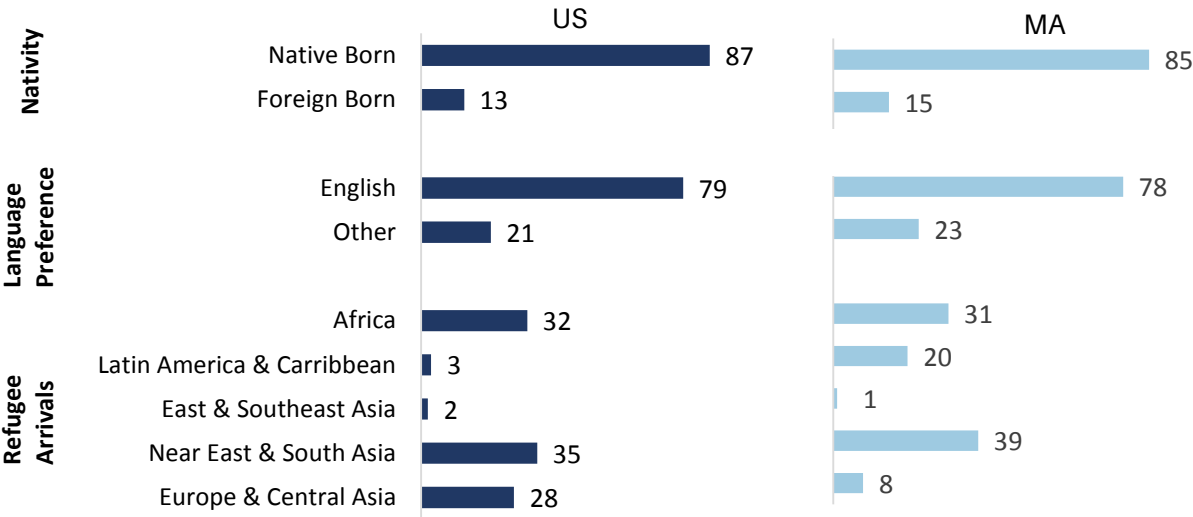
Immigration and Growing Diversity

Massachusetts ranks eighth in the nation for the percentage of the population that are immigrants or refugees. A total of 15.5% of Massachusetts residents were born outside of the US, compared to 13.2% across the nation.²⁹ This represents a slight increase in the immigrant population from 2006 to 2010 (14.5%). Similar to national trends, the majority of immigrants in Massachusetts are from Latin American and Caribbean countries, followed by Asian and European countries.

Diversity in terms of place of birth, language spoken at home, and country of origin are evident in Massachusetts (see **Figure 1.5**). In 2011-2015, more than one in every five residents reported speaking a language other than English at home (22.5%), slightly more than that for the United States (21%). The majority of refugees to Massachusetts are from near East and South Asia (39%), followed by African countries (31%), and Latin American and Caribbean countries (20%).

Figure 1.5

Immigrant Population Characteristics, US vs. MA, 2011-2015



NOTE: PERCENTAGES MAY NOT ADD UP TO 100 PERCENT DUE TO ROUNDING

Focus group and interview participants reported that some populations face challenges to accessing health care services, especially communities of color, elders, homeless residents, and those suffering with mental illness.

Numerous participants stressed that more needs to be done to address the needs of undocumented residents, who were described as an essential part of the community. However, the inability of this group to obtain services threatens

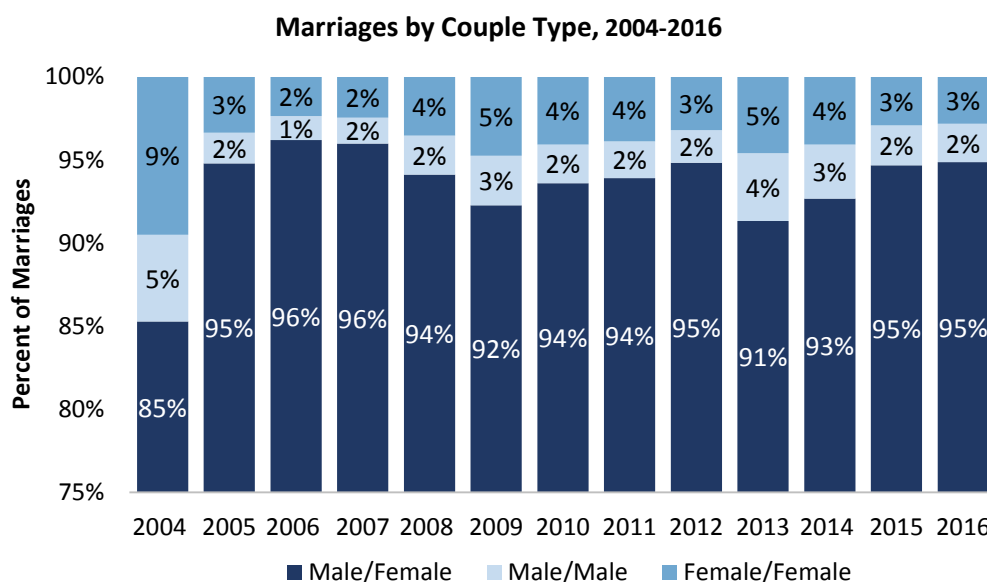
their health and raises costs for the overall system. As one focus group participant shared, “There’s a lot of seasonal work in Massachusetts, and many workers come from other countries and are undocumented. They work very hard and often get injured but can’t seek medical care because of their status.”

Marital Status

From 2000 to 2015, the number of marriages across the Commonwealth declined. In 2005, the number of marriages increased which was attributed to the 2004 law that enabled same-sex couples to marry in Massachusetts. In 2016, the number of marriages declined slightly to 39,297, of which 2,017 (5.1%) were to same-sex couples. From May 2004 through the end of 2016, there have been more than 32,456 marriage licenses to same-sex couples. **Figure 1.6** shows the relative change in marriages by couple type during this time period.

In 2011-2015, more than one-quarter (28.7%) of households had a single parent, a slight increase from 2006-2010 (27.4%), but lower than the national average (31%) in 2011-2015.

Figure 1.6



Persons with a Disability

A disability is defined as a physical or mental condition that limits a person’s movement, senses, or activities. People with disabilities live daily with challenges that include a lack of adequate accessible transportation, limited housing, unequal physical and programmatic access to public and private facilities, barriers to education and employment and reduced income. People with disabilities also have disparities in health outcomes. Unfortunately, many of the data sources consulted for this assessment do not include a category for disability. Where that information is available it is noted. Approximately 11.5% of Massachusetts residents have a disability, including sensory, physical, mental, self-care, and go-outside-home disabilities. This proportion is slightly below the nation (12.4%), but this may be due to underreporting.

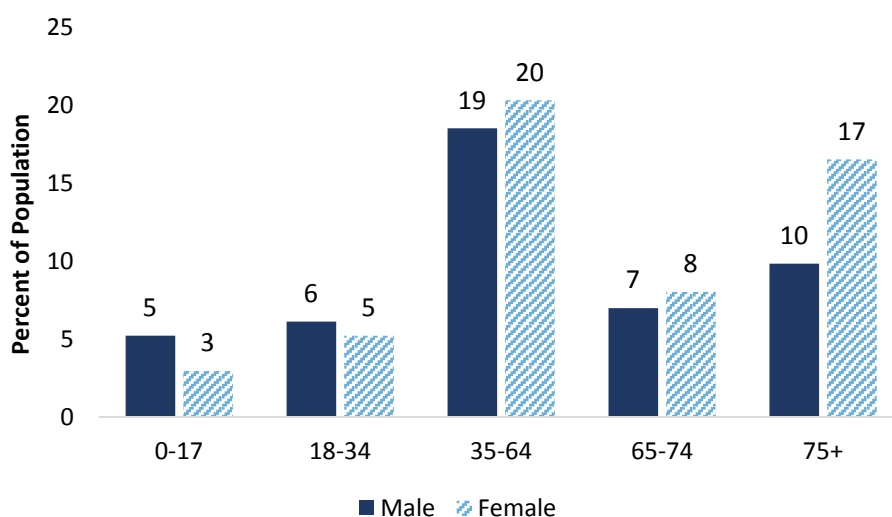
Massachusetts ranks 21st in the nation for the population 5 to 17 years of age with a disability and 39th in the nation for the population over 65 years of age with a disability.³⁰ As shown in **Figure 1.7**, residents 35 to 64 years of age account for the highest percentage of the Massachusetts population with a disability (39%). Given that the state’s population of older adults is projected to rise, the number and percentage of persons with a disability is also expected to grow.

“We currently think about people with disabilities as an outcome, a preventable outcome. For people with disabilities – it’s not about preventing them, it’s about including them. A shift in the framework is needed. It’s about shifting people’s thinking about disabilities as a health outcome to include persons ” with disabilities in the conversation.

Key Informant Interviewee

Figure 1.7

Percent of the Population with a Disability by Age and Gender, Massachusetts, 2011- 2015



SOURCE: US CENSUS BUREAU, AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

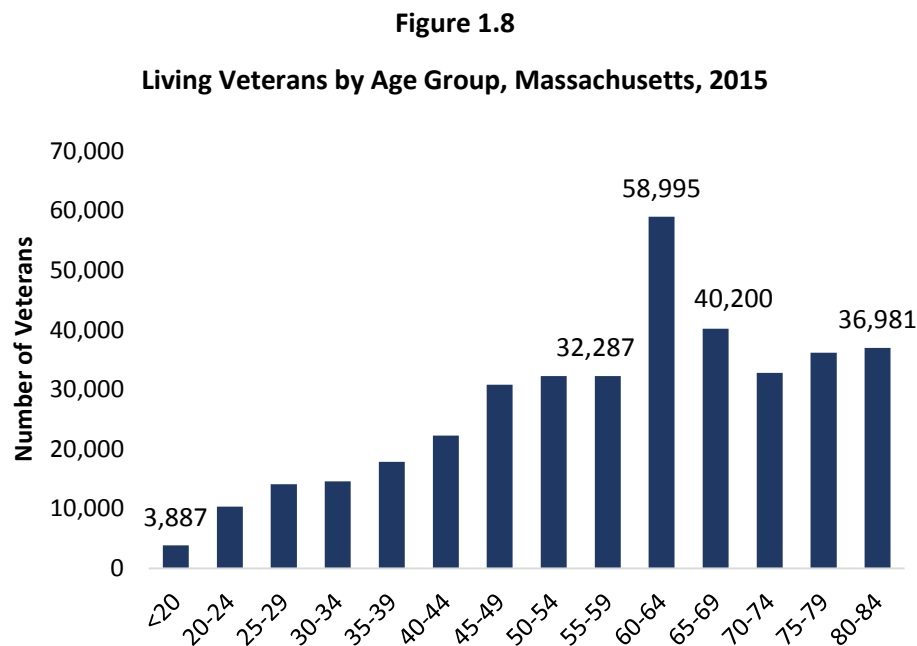
NOTE: DUE TO ROUNDING, MAY NOT ADD UP TO 100%

Veteran Status

According to the National Center for Veterans Analysis and Statistics, 368,000 veterans lived in Massachusetts in 2015. The same year, approximately 85,000 received health and mental health services in a VA facility meaning that more than 283,000 seek treatment in other parts of the health care system. While the total population of veterans is projected to decrease nationally in the next two decades, the female veteran population is expected to increase from nine percent in 2013 to approximately 17% in 2043.

This upward trend is also true for minority veteran populations. For example, in 2010 approximately 10% of veterans identified as Black non-Hispanic and 6% identified as Hispanic. By 2040, Black non-Hispanic and Hispanic veterans are expected to make up almost one third of the total veteran population (30%). In terms of percent of population by period of service, the post-9/11 veteran population is expected to show the biggest population growth, increasing by approximately 33% between 2015 and 2020. Those 60-64 years old represent the largest veterans age cohort (see

Figure 1.8). Veterans’ mental health needs present differently and require treatment appropriate to their special needs. The number of veterans with a service-connected disability is on the rise as well.



SOURCE: NATIONAL CENTER FOR VETERANS ANALYSIS AND STATISTICS

Social and Economic Factors

While the US spends more per person on health care than other high-income countries, we have the lowest life expectancy and lag behind these same countries in several health indicators.³¹ Quality health care is important for ensuring the well-being of families and communities, but the steps to take for ensuring good health take place long before an illness occurs and before medical care is needed.

When asked about social determinants of health (see definitions in the Introduction), focus group and key informant interviewees stressed the importance of attending to key barriers, such as transportation, housing, and employment, that prevent Massachusetts residents from achieving optimal health. Numerous focus group and interview participants saw the lack of these basic needs as a substantial barrier to improved health for low-income residents and reported that addressing these determinants of health was critical. Participants suggested greater investments in transportation, anti-poverty, and affordable housing initiatives.

“Health inequities are systematic differences in the opportunities that groups have to achieve optimal health, leading to unfair and avoidable differences in health outcomes.”

National Academies of Sciences,
Engineering, and Medicine

The sections following provide an overview of the socio-economic characteristics of Massachusetts residents and the opportunities for health.

Income

Just as an individual's income is important to health, a community's average household or individual income also affects its residents' health. The Commonwealth's per capita income in 2014 was \$50,330. This puts Massachusetts fourth in the nation, behind Connecticut, North Dakota, and Wyoming.³² In 2011-2015, the median household income in Massachusetts was \$68,563, a 6.3% increase over the median household income of \$64,509 in 2006-2010 and 24% higher than that for the US (\$53,889).

"The most important determinant of health is income. Eradicate poverty. Once we do that everything else will follow."

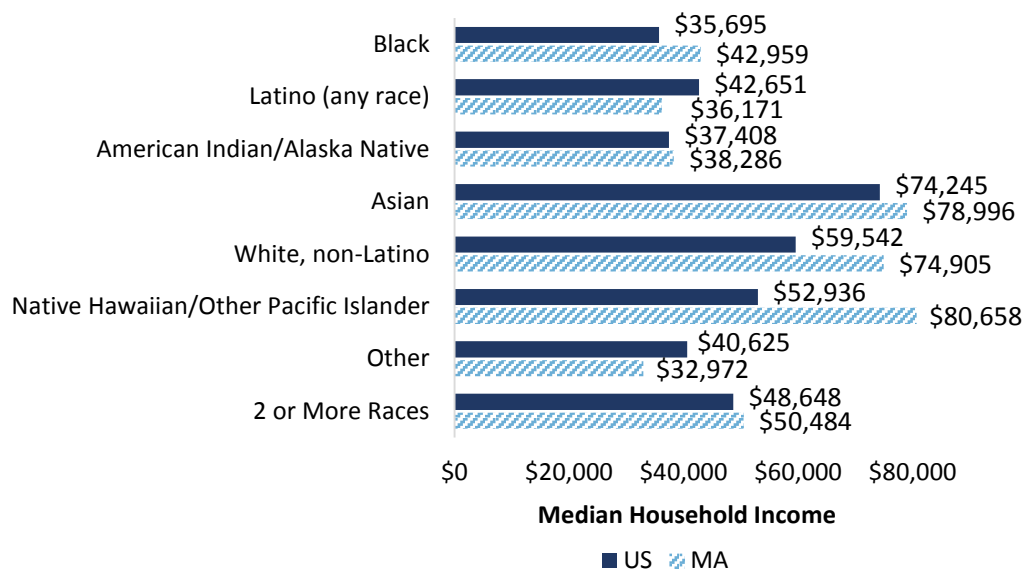
Key Informant Interviewee

While Massachusetts ranks third in the nation for median family income³³, we are 5th for being the most expensive state to live in.³⁴

Economic successes are not shared evenly among racial/ethnic groups. In 2011-2015, the median household income for White non-Hispanics was approximately two times that for Hispanic and American Indian/Alaskan Native residents, and 1.7 times that for Black non-Hispanic residents (see **Figure 1.9**). While most racial/ethnic groups in Massachusetts have higher median household incomes than the national average, the median household income for Hispanics in Massachusetts (\$36,171) was 16% lower than that for Hispanics nationally (\$42,651) in 2011-2015.

Figure 1.9

Median Household Income, by Race/Ethnicity, US and Massachusetts, 2011-2015



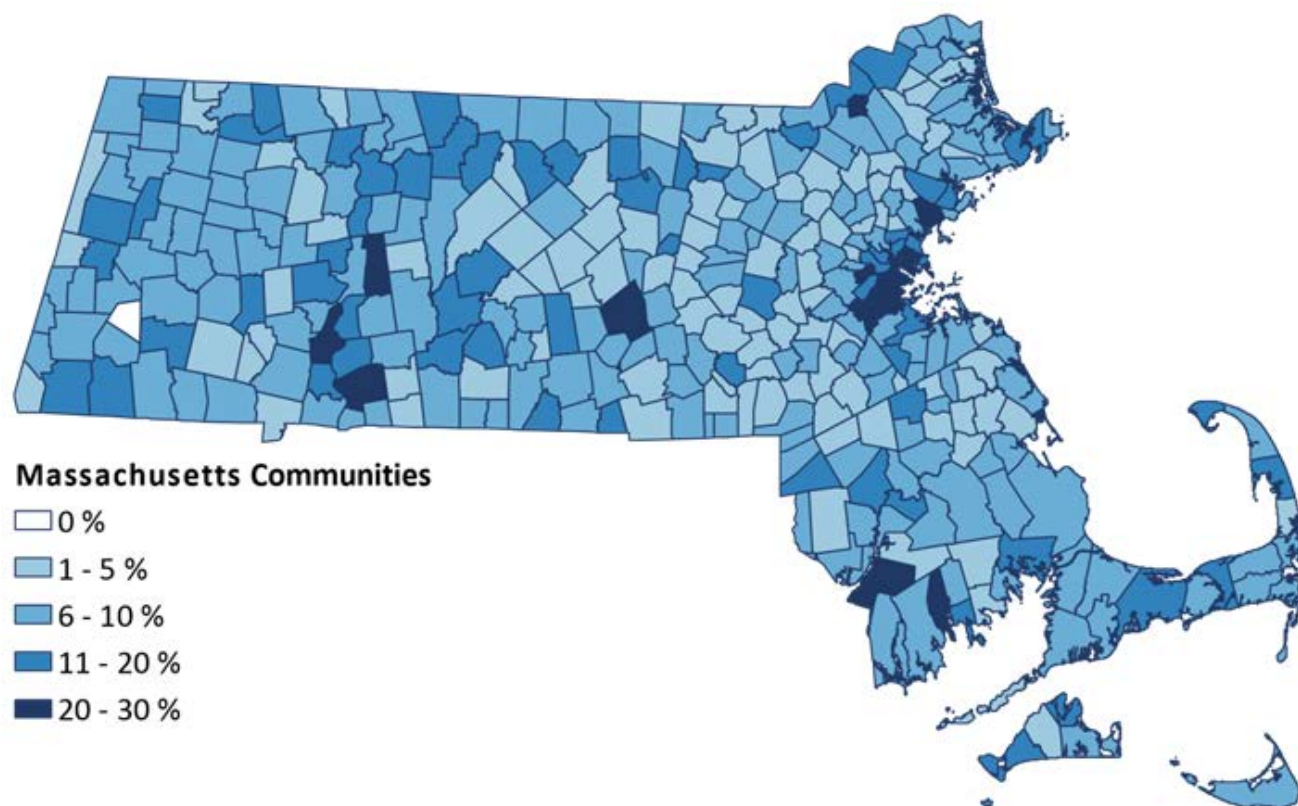
SOURCE: US CENSUS BUREAU, AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES; NOTE: US CENSUS DATA REFERS TO HISPANICS AS LATINO

Poverty

Despite relatively high income figures for the state, there is considerable poverty among some demographic and geographic groups. In 2011-2015, approximately 14.9% of individuals had incomes that are 125% of the federal poverty level, reflecting a slight increase over 2008-2010 (14%). According to **Figure 1.10**, residents with incomes below the federal poverty level are concentrated in several darkened areas of the state, in particular the metro Boston area.

Figure 1.10

Individuals with Incomes Below 125% of the Federal Poverty Level, Massachusetts, 2011-2015



SOURCE: US CENSUS BUREAU, AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

As shown in **Figure 1.12**, stark racial disparities exist in poverty rates across Massachusetts. In 2011-2015 approximately one in three (29.3%) Hispanic residents and one in five Black non-Hispanic (22%), American Indian or Alaska Native (22.9%), or Native Hawaiian or other Pacific Islander (22.4%) residents recorded incomes below the federal poverty level. These patterns stand in dramatic contrast to less than one in 10 (7.8%) White non-Hispanic and one in seven (14.6%) Asian non-Hispanic residents with incomes below the federal poverty level. Some people's housing costs exceed 30% of their income, leaving less money to cover other necessities.

Environmental Justice

Environmental justice communities are defined as populations where 25% of the households have an annual median income that is equal to or less than 65% of the statewide median or 25% of its population is minority or identifies as a household that has English Isolation.³⁵ Environmental justice is based on the principle that all people have a right to be protected from environmental hazards and to live in a clean and healthful environment, regardless of race, color, national origin, income, or English language proficiency. Environmental justice is the equal protection and meaningful involvement of all people and communities with respect to the development, implementation, enforcement of energy, climate change, environmental laws, regulations, policies; and the equitable distribution of energy, environmental benefits and burdens. **Figure 1.11** shows the extent of Environmental Justice Population across the state. **Figure 1.12** illustrates the extent of individuals with incomes below the poverty level.

Figure 1.11

Individuals Living in Environmental Justice Communities, 2010

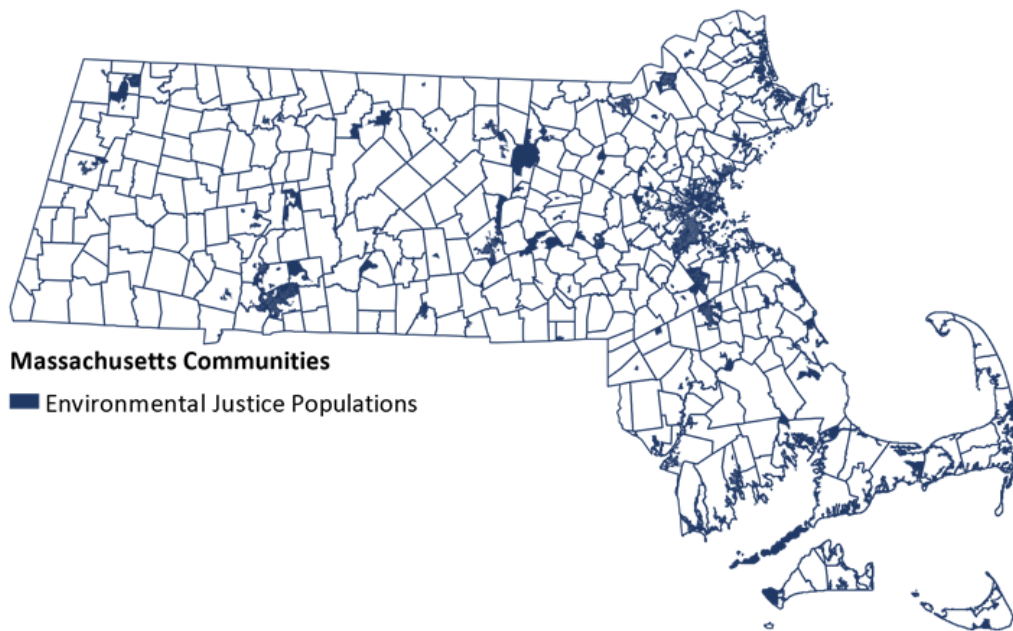
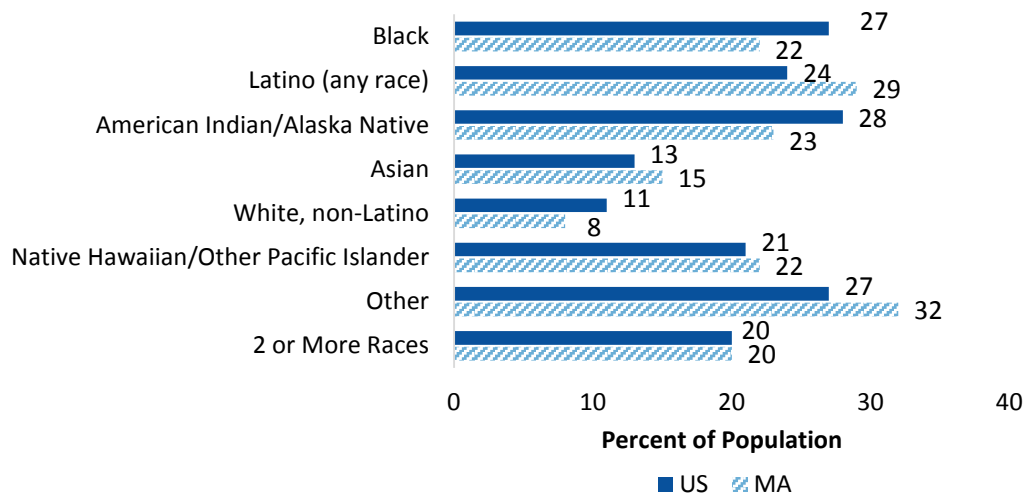


Figure 1.12

**Individuals with Incomes Below the Federal Poverty Level, by Race/Ethnicity
US and Massachusetts, 2011-2015**



SOURCE: US CENSUS BUREAU, AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

NOTE: DUE TO ROUNDING, MAY NOT ADD UP TO 100%

Poverty was reported as a common concern across all focus groups and interviewees, with residents increasingly concerned about the wealth disparity in areas such as Boston and Worcester. As one focus group participant shared, *“You have a clash of classes in many neighboring communities.”* Participants indicated that poverty was the root cause

of stress in community members' lives, reporting challenges meeting basic needs such as food and shelter and difficulty balancing multiple, low-wage jobs.

Unemployment

The proportion of unemployed residents declined from 10.2% in 2010 to 5.8% in 2015, reflecting a 43% decrease over this period. From 2010 to 2015, the percentage of Massachusetts residents who were unemployed was lower than the national average (see Figure 1.13). In 2015, 5.8% of Massachusetts residents 16 years of age or older were unemployed, compared to 6.3% for the US.

"We need to recognize that the **future workforce** has unique needs when it comes to training and education.

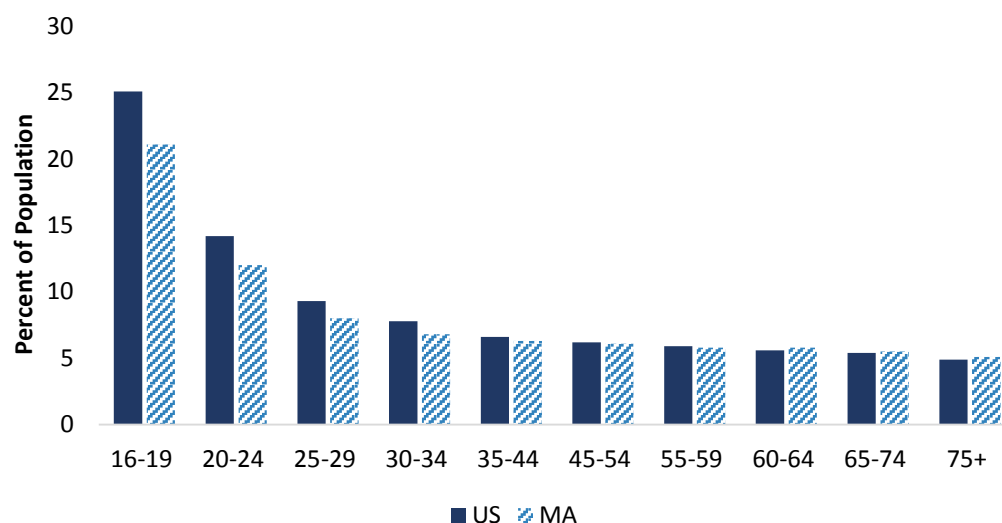
Key Informant Interviewee

Following national patterns, a greater share of younger individuals were unemployed in 2011-2015. A total of 21.1% of Massachusetts residents 16-19 years of age were unemployed and 12% of persons 20-24 years of age were unemployed.

Overall, several key informant interview and focus group participants expressed concern that even though the state enjoys relatively low unemployment and economic growth has occurred in depressed communities, employment challenges for low-wage workers still exist.

Figure 1.13

Percent of the Population Ages 16 or Older who are Unemployed, by Age Group, US and Massachusetts, 2011-2015



SOURCE: US CENSUS BUREAU, AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

As one key informant interviewee stated, "We have low levels of unemployment in our county - but the problem is sustainable employment for low-wage workers, who often face barriers to transportation and childcare."

Education

With 40.5% of adults 25 years of age and older having a college education or higher in 2011-2015, Massachusetts ranks first in the nation in percentage of individuals who have at least a bachelor's degree.³⁶ Another quarter (25.4%) of Massachusetts residents have graduated from high school, and 23.9% have attended some college or completed an associate's degree (AD).

As shown in **Figure 1.14**, these educational achievements are not shared equally across racial/ethnic groups. While more than half (57.5%) of Asian non-Hispanic residents and two in five (43.1%) White non-Hispanic residents have a college education or higher, only 23.4% of Black non-Hispanic and 17.5% of Hispanic residents have at least a college education.

Education was noted as a strength in several areas of the state. One theme that emerged frequently was the need for more community education on health and prevention, at the appropriate health literacy level, specifically for school-aged children.

Figure 1.14

**Educational Attainment among Population 25 Years of Age or Older, by Race/Ethnicity,
Massachusetts, 2011-2015**

	Less than HS Diploma	HS Diploma/GED	Some college/ AD degree	Bachelor's degree or higher
Black non-Hispanic	17.2%	28.8%	30.6%	23.4%
Latino (any race)	31.9%	28.9%	21.8%	17.5%
American Indian/Alaska Native	21.2%	31.0%	28.9%	18.9%
Asian	15.8%	15.0%	11.7%	57.5%
White non-Hispanic	6.9%	25.4%	24.5%	43.1%
Native Hawaiian/Other Pacific Islander	13.3%	14.0%	44.4%	28.3%
Other	34.8%	31.5%	21.6%	12.1%
2 or More Races	22.6%	25.1%	23.5%	28.8%

SOURCE: US CENSUS BUREAU, AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

Housing and Homelessness

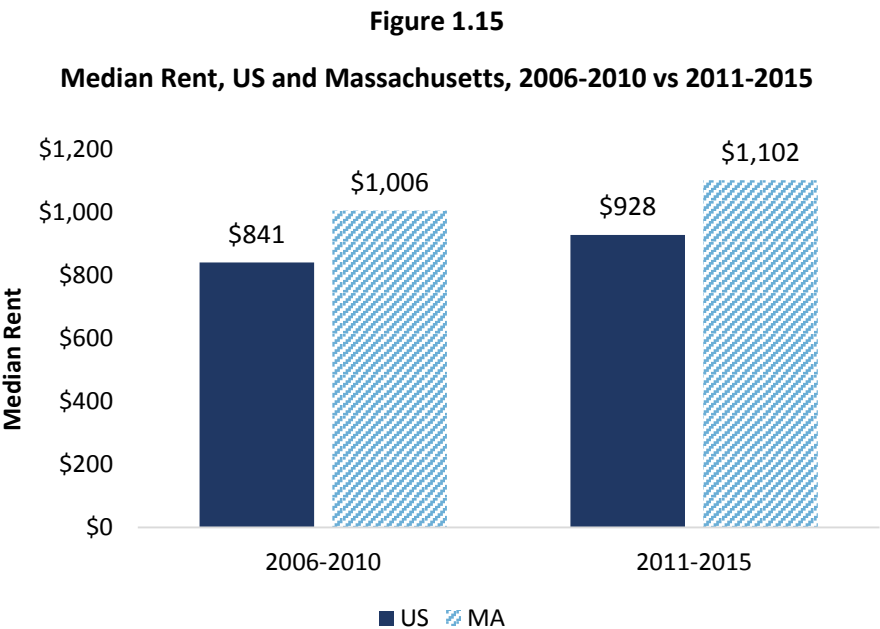
Where individuals, families, and communities live is intimately related to their health and well-being.³⁷

The age of housing is particularly important because older homes are more likely to contain substances that are harmful to health.³⁸ The Commonwealth's housing stock is older than the average across the US with half (51.1%) constructed before 1960 and only 8.5% constructed since 2000.

Similar to national patterns, in 2011-2015 62.1% of Massachusetts’ housing stock was owner-occupied, and 37.9% was rented. In 2011-2015, the median rent across the Commonwealth was \$1,102, a 9.5% increase from 2006-2010 (\$1,006) and 17.1% higher than the national average (\$928) (see **Figure 1.15**)

“We need wrap-around training supports at community-based organizations that take into account the stressors of life: single parents, domestic violence, caring for aging parents, not enough food, and lackluster living conditions.”

Key Informant Interviewee



SOURCE: US CENSUS BUREAU, AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

The number of people experiencing homelessness and housing instability in Massachusetts remains very high. According to the US Department of Housing and Urban Development’s 2015 Annual Homeless Assessment Report, more than 21,000 people in Massachusetts experienced homelessness. Adolescents are at higher risk for homelessness than adults.³⁹ From 2009-2010 to 2015-2016, the total number of homeless public school students in Massachusetts increased 62%. These students took shelter at night in a variety of settings, primarily doubling up, such as sleeping on a friend’s couch, and in shelters. As of June 2017, there were more than 3,500 families living in Massachusetts emergency assistance shelter program. Sexual minority populations experience homelessness at much higher rates than those who identify as heterosexual.⁴⁰

“Are we addressing housing as a challenge to peoples' ability to be healthy...to the extent at which housing is a barrier to health? Because housing affordability affects health.”

Key Information Interviewee

Lack of affordable housing emerged as a prominent theme in key informant interviews and focus groups. As one interviewee stated, *“Affordable housing is a huge problem in our community; prices keep rising every year and people aren’t making ends meet.”* According to participants, housing costs comprise a large part of spending for lower income households, leaving few resources for other needs such as health care, medicines, or nutritious food.

Those working with seniors expressed concern about seniors on fixed incomes who are not able to remain in their homes and experience long wait lists for affordable senior housing. Other participants observed that the high cost of housing contributes to homelessness in the region. Concerns over rising homelessness were mentioned in almost all focus groups and key informant interviewees. Interviews identified elders, residents in recovery, and those suffering from mental illness among the most vulnerable for becoming homeless. They also explained that patients with addiction issues faced significant challenges qualifying for housing because of restrictive eligibility and criminal records. Additionally, one key interviewee acknowledged an emerging population at risk for homelessness – college students, a population not typically considered prone to homelessness.

Social Environment Influences

How an individual operates and the experiences they have in their social environment influence healthy behaviors and outcomes. The personal history of the individual – such as experiencing discrimination or trauma – impacts health. Social isolation and lack of social support also shape health.^{41,42}

Community consists of neighborhoods and institutions; while community can be defined in many different ways, it is focused on those elements for the purposes of this health assessment. Communities have different institutions and varying neighborhood characteristics that can help or harm health. As the population of Massachusetts increases, so has the number of registered voters. Between 2012 – 2017 there was an 8.4% increase in the number of registered voter.

“Social factors play a big part in inequity in access to health care.”

Key Informant Interviewee

Many interview participants described trauma as an unintended consequence of community violence. One said that, *“Kids are seeing things in their communities and at school and they carry that trauma with them.”* A prominent theme across participants was the need to better understand how trauma affects all aspects of community health including prevention, violence, and behavioral health. Interviewees described youth and the immigrant community as the most vulnerable groups impacted by trauma. Chronic trauma such as community violence and abuse were described as especially concerning.

Historical trauma faced by the Native American community was also reported as a barrier to a healthy life. As one participant shared, *“Nipmuc people have a story of indigenous people under occupation. For us, it’s been centuries since we’ve been the first contact people. Mental health issues, self-esteem issues, and alcohol issues all stem from this trauma and legacy.”*

Lastly, key informant interview participants expressed the need to better understand how systemic issues such as racism and other forms of oppression impact trauma in communities of color.

Further, a common theme that emerged was the need to integrate more trauma-informed care in health services. The impacts of trauma, according to several interviewees, greatly affect health outcomes for youth and adults.

Key informant interview participants cited the need for more provider training around trauma: One participant said, *“We can’t treat substance use if we aren’t targeting the trauma that triggered it. Providers need to be equipped to deal with these traumas and take into account how they’re affecting a patient’s health.”*

Built Environment Influences

The built environment is the human-made elements of where we live, work, worship, travel, and play. It includes open spaces, transportation systems, infrastructure, and the systems that connect them. Built environment characteristics have an impact on available resources and services across communities. Access to healthy food and safe places to exercise and play influence a person’s ability to be healthy.

Open Spaces

Open space resources include 29 State Parks, 78 State Forests, one State Fish Hatchery, four State Wildlife Management Areas, one National Park, four National Historic Sites, two National Historic Parks, four National Wildlife Refuges, and one National Seashore.⁴³

Transportation

Features of the built environment, such as transportation, are important for fulfilling caregiving and employment responsibilities and for accessing health-promoting resources and health care.⁴⁴ Transportation choices are impacted by community design. Yet, community transportation planning does not typically include health impacts in a cost-benefit analysis. Health impacts can be measured as a cost from lost productivity from premature death, health care costs, lost wages, and decreased quality of life. Research nationally is beginning to place an economic value on those transportation-related health outcomes. Transportation systems designed to primarily consider vehicle traffic movement can contribute to physical inactivity. The likelihood of obesity increases 6% for every additional hour per day spent in a car.⁴⁵

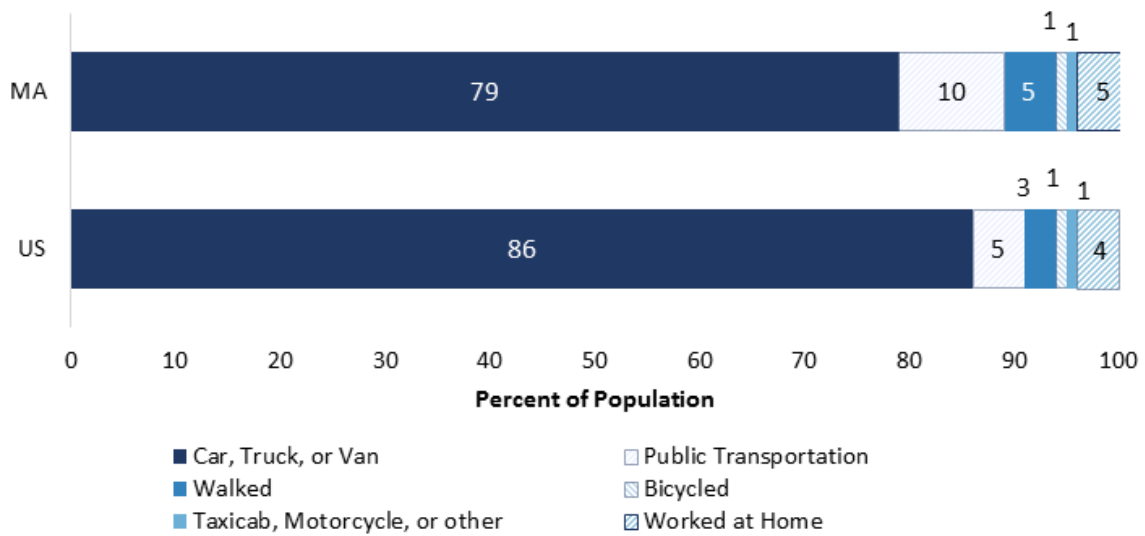
As shown in **Figure 1.16**, in 2011-2015, 9.8% of Massachusetts residents relied on public transportation to get to work, a proportion that was nearly double the national average (5.1%). Nearly eight in ten (79.1%) Massachusetts residents drove to work, a percentage that is lower than that for the nation (85.9%). Another 5.6% of Massachusetts residents used active transportation, such as cycling or walking, to get to work.

In 2011-2015, 94.2% of households across the Commonwealth had at least one vehicle. This rate is similar to the prevalence in 2006-2010 (94.3%) and slightly below that for the US in 2011-2015 (95.6%). A total of 43.2% of Massachusetts households had two vehicles, while 23.9% of households had one vehicle and 27.1% of households had three or more vehicles in 2011-2015.

Transportation allows for access to critical goods and services including supermarkets. However, in many neighborhoods, nutritious, affordable, and high-quality food is not accessible, particularly in low-income communities.⁴⁶ In Massachusetts, low-income communities in the central and western regions as well as Cape Cod are more likely to have less access to supermarkets (see **Figure 1.17**).

Figure 1.16

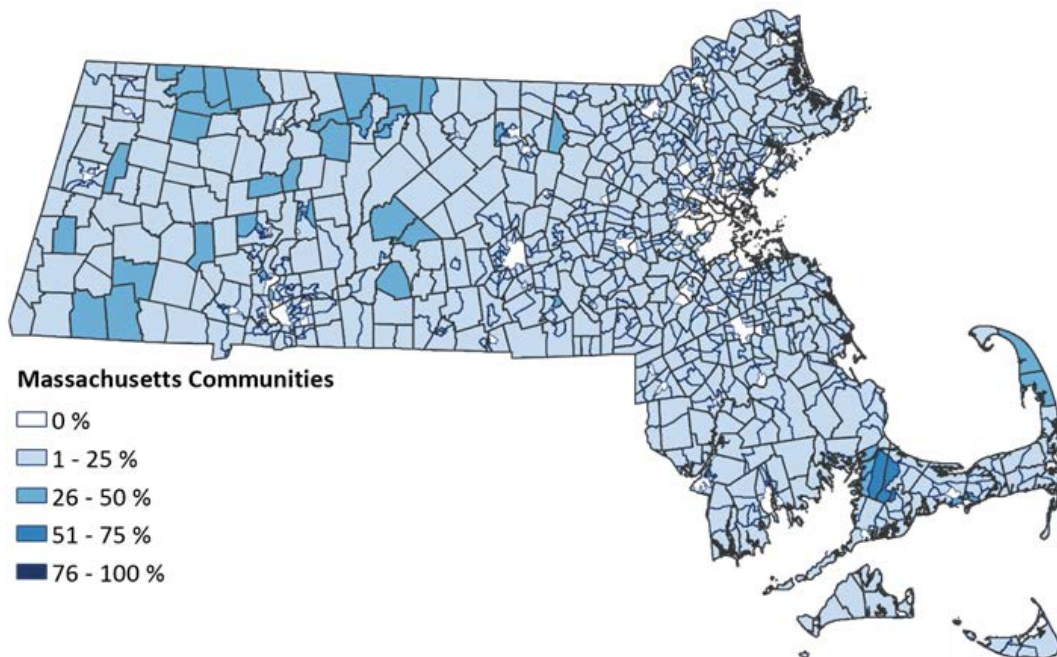
Means of Transportation to Work, US and Massachusetts, 2011-2015



SOURCE: US CENSUS BUREAU, AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES; NOTE: DUE TO ROUNDING, MAY NOT ADD UP TO 100%

Figure 1.17

Low-income Access to Supermarkets By Community, 2015



SOURCE: US DEPARTMENT OF AGRICULTURE ECONOMIC RESEARCH SERVICE FOOD ACCESS RESEARCH ATLAS

Concerns about transportation were discussed in nearly every focus group and key informant interview. As one interviewee summarized, *“Transportation is an issue that looks different depending on the area. In rural areas there are no public options, in urban areas like Springfield there’s public transit but there are challenges that limit the access to it.”* Walking and bicycling may be viewed as unsafe because of traffic and lack of sidewalks, crosswalks, and bicycle facilities.

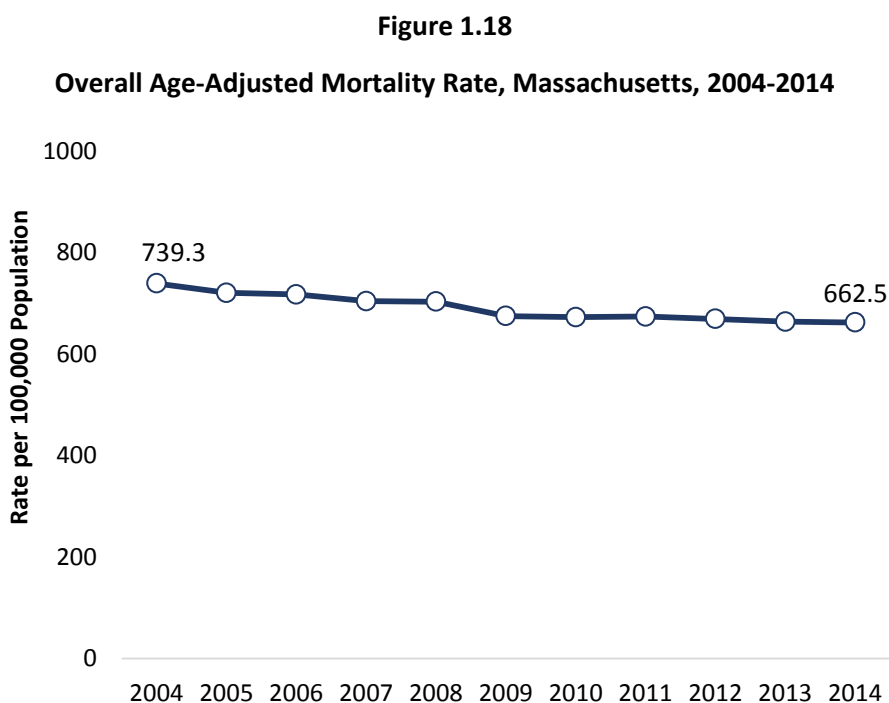
Mortality

The overall mortality rate in Massachusetts continues to decline, reaching a low of 662.5 per 100,000 population in 2014, a 10.4% decrease from the overall mortality rate a decade prior (see **Figure 1.18**).

Massachusetts death certificates show causes of death, age, race/ethnicity, sex, educational attainment, marital status, and occupation among other characteristics. MDPH uses this information to monitor mortality trends in the Commonwealth, identify population groups at greatest risk of death from diseases and injuries, and to design and implement programs to promote health.

In order to understand the impact of mortality, both the number of deaths and death rates are important. The number of deaths provides insight into the overall public health burden of specific diseases. Mortality rates presented in this section adjust for the age of each individual.⁴⁷ Mortality rates are presented per 100,000 population.

In addition to assessing risk factors, variations in death rates may also reflect differences in socioeconomic status, access to health care resources, geography, and other factors.



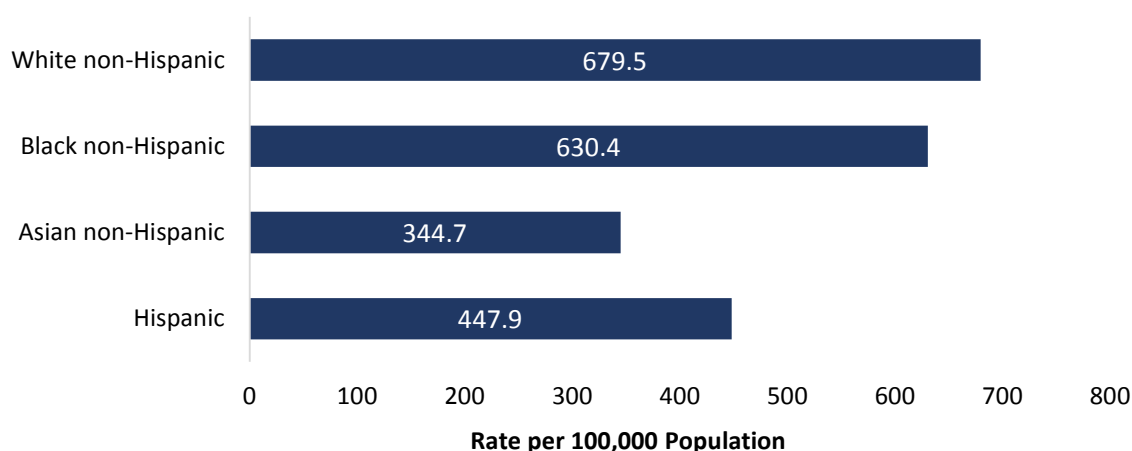
NOTE: USING THE 2000 US STANDARD POPULATION

As shown in **Figure 1.19**, mortality rates vary by race/ethnicity. Contrary to patterns from previous years, in 2014 the mortality rate for White non-Hispanic residents exceeded that for Black non-Hispanic, Hispanic, and Asian non-Hispanic

residents. From 2013 to 2014, the mortality rate for Black non-Hispanics declined 7.2%. The mortality rate for Asian non-Hispanic residents continues to be the lowest for each of the largest racial/ethnic groups across the Commonwealth.

Figure 1.19

Age-Adjusted Mortality Rate, by Race/Ethnicity, Massachusetts, 2014



NOTE: USING THE 2000 US STANDARD POPULATION

Leading Causes of Death

Leading causes of death are ranked according to the number of deaths rather than the mortality rate.⁴⁸ Consistent with previous years, in 2014 cancer and heart disease were the leading causes of death in Massachusetts (see Figure 1.20).

Figure 1.20

Leading Causes of Death, Massachusetts, 2014

RANK	CAUSE OF DEATH	NUMBER OF DEATHS	% OF TOTAL MORTALITIES
1	Cancer	12,797	23.2%
2	Heart Disease	11,845	21.5%
3	Unintentional Injuries	2,859	5.2%
4	Chronic Lower Respiratory Disease	2,596	4.7%
5	Stroke	2,459	4.5%
6	Alzheimer's Disease	1,685	3.1%
7	Influenza and Pneumonia	1,363	2.5%
8	Nephritis	1,229	2.2%
9	Diabetes	1,214	2.2%
10	Ill-defined conditions, signs, and symptoms	996	1.8%

Leading causes of death also differ by age. In 2014, as with previous years, injuries were the leading cause of death for persons ages one to 44. Among older age groups, chronic diseases such as cancer and heart disease were the leading causes of death.

In 2014, the three leading causes of death were cancer, heart disease, and unintentional injuries including opioid related overdose for all racial/ethnic groups, but some variations occur in other leading causes of death across racial/ethnic groups (see **Figure 1.21**). For example, while stroke was the fourth leading cause of death for racial/ethnic minorities, chronic lower respiratory disease was the fourth leading cause of death for White non-Hispanics. Diabetes was among the leading causes of death for Black non-Hispanics and Hispanics.

Figure 1.21

Leading Causes of Death, by Race/Ethnicity, Massachusetts, 2014

Rank	White non-Hispanic	Black non-Hispanic	Asian non-Hispanic	Hispanic
1	Cancer	Cancer	Cancer	Cancer
2	Heart disease	Heart disease	Heart disease	Heart disease
3	Unintentional injuries	Unintentional injuries	Unintentional injuries	Unintentional injuries
4	Chronic lower respiratory disease	Stroke	Stroke	Stroke
5	Stroke	Diabetes	Nephritis	Diabetes

Life Expectancy

Life expectancy is a commonly used measure of the health status of a population. This is expressed as the expected number of years of life at a given age.⁴⁹ A person born in Massachusetts in 2014 should expect to live 80.8 years, indicating a 1.5% improvement in life expectancy over the past decade.

Life expectancy is higher for women (83.4 years) than for men (78.3 years). Within each racial/ethnic group, women are expected to live longer than men. For individuals born in 2014, Hispanic women could expect to live 89.6 years, the longest life expectancy across racial/ethnic and sex-specific groups (see **Figure 1.22**). Black non-Hispanic women (84.3 years), Hispanic men (84.3 years), and White non-Hispanic women (83.0 years) had the next highest life expectancies. Black non-Hispanic men had a life expectancy of (77.5 years) and White non-Hispanic men (78.1 years) had the lowest life expectancies.

Premature Mortality

The premature mortality rate indicates how many individuals die before reaching 75 years of age. The premature mortality rate is highly correlated with morbidity indicators (measures of “sickness” rather than death).⁵⁰ The premature mortality rate reflects the health status of a population, and the need for systematic public health approaches to health promotion and disease prevention.⁵¹

Premature mortality may be related to socioeconomic status and its correlates, such as neighborhood, social and economic environment, and exposure to stressors.^{52,53,54}

In 2014, Black non-Hispanics in Massachusetts had the highest premature mortality rate, experiencing 1.1 times the rate of premature deaths as White non-Hispanics (see **Figure 1.23**). Asian non-Hispanics had the lowest.

Figure 1.22

Life Expectancy at Birth, by Race/Ethnicity and Sex, Massachusetts, 2014

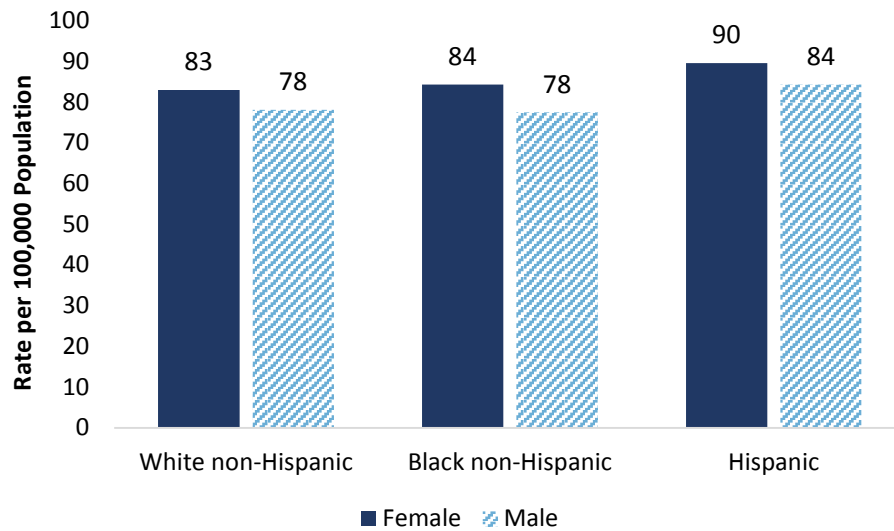
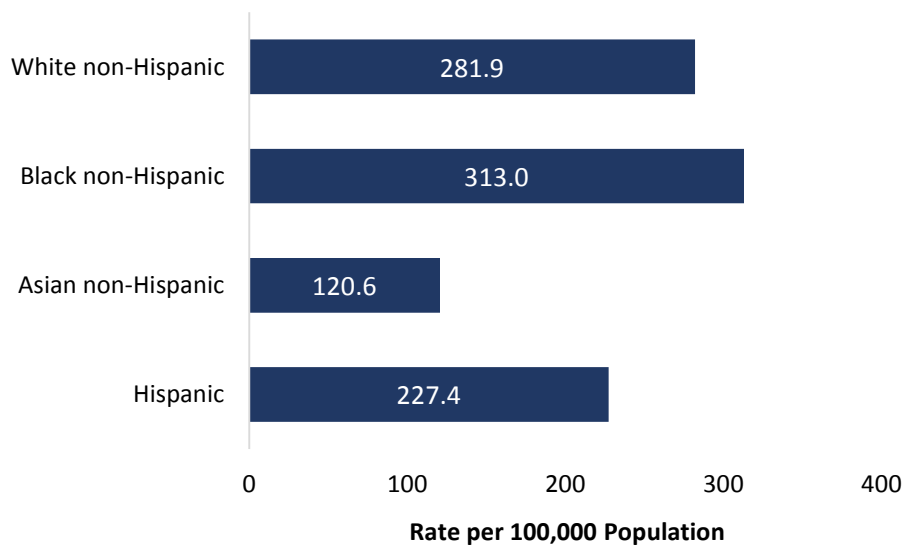


Figure 1.23

Premature Mortality Rate, by Race/Ethnicity, Massachusetts, 2014



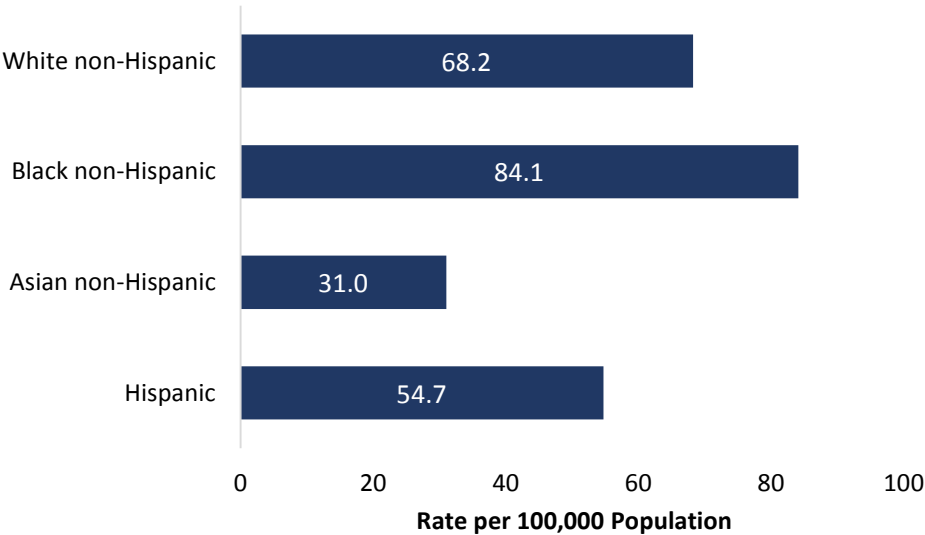
Amenable Mortality

Amenable mortality are deaths that may have been prevented by timely and effective health care. This concept has been implemented by many countries as a tool to track changes over time and assess the performance of health care systems.⁵⁵

The categorization of amenable mortality allows policy-makers, community advocates, and public health professionals to consider more effective and cost-efficient approaches to improving the quality of life and health of the public.

In Massachusetts, Black non-Hispanics had the highest amenable mortality rate, 1.2 times that of White non-Hispanics in 2014 (see Figure 1.24).

Figure 1.24
Age-Adjusted Amenable Mortality Rate, by Race/Ethnicity, Massachusetts, 2014



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