August 22, 2018

# North Shore Medical Center

## 2018 Community Health Needs Assessment

## Final Report

Submitted to:

NORTH SHORE MEDICAL CENTER

Health Resources in Action
*Advancing Public Health and Medical Research*

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# EXECUTIVE SUMMARY

## BACKGROUND

North Shore Medical Center (NSMC), a member of Partners HealthCare, is the North Shore's largest healthcare provider. In 2018, NSMC partnered with Health Resources in Action (HRiA), a non-profit public health organization, to **undertake a community health needs assessment (CHNA) to gain a greater understanding of the health issues affecting residents of the NSMC service area, the needs of underserved and vulnerable populations, current initiatives to address these needs, and opportunities to address these needs in the future.**

### Previous CHNA

In 2015, NSMC conducted a CHNA to examine the current health status of NSMC's service area as well as new and emerging concerns related to behavioral health. Following this previous 2015 CHNA, NSMC developed an Implementation Strategy focused on four priority areas: access to care; substance use and mental health disorders; obesity, physical activity and nutrition; and meeting the needs of the most vulnerable.

### Purpose and Geographic Scope

The 2018 CHNA compares current health status of residents to the 2015 findings, where relevant, and expands the focus of the 2015 CHNA to broader health and related demographic, socioeconomic, and environmental indicators. This report describes the process and findings from the 2018 CHNA, which aimed to:

- Identify health-related needs in the community, as well as community strengths and resources;
- Describe issues that affect the community overall, as well as concerns for certain sub-populations;
- Provide data that can be used by NSMC and others in the community to plan and develop programs and initiatives.

The NSMC CHNA focused on the eight communities of Danvers, Lynn, Lynnfield, Marblehead, Nahant, Peabody, Salem, and Swampscott that comprise the hospital's principal communities.

## PROCESS AND METHODS

The CHNA engaged the diverse perspectives of residents across the NSMC service area and was guided by a social determinants of health framework, recognizing that multiple factors affect community health and well-being.

- Quantitative data that provide insight into the social, economic, and health-related outcomes of the NSMC service area were drawn from national and state sources (e.g., U.S. Census, Massachusetts Department of Public Health, etc.).
- Quantitative data was supplemented by a community forum in Lynn involving six small group discussions with a total of 40 participants, five focus groups with 55 participants total, and 20 key informant interviews conducted from January to May 2018 to understand participants' perceptions of their communities, health needs and assets, and suggestions for future programming and services to address these issues.

**KEY FINDINGS**

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

**Demographics**

The health of a community is linked with numerous factors including the demographic distribution of age, race/ethnicity, educational attainment, income, and employment status, among other factors.

- **Population:** Among the NSMC communities, in 2016, the communities with the largest populations were Lynn (92,000), Peabody (52,235) and Salem (42,804).
- **Age:** According to American Community Survey estimates, in 2016 Lynn and Salem had large proportions of young residents, with approximately one-third aged 24 and younger. In the remaining NSMC towns, approximately half of all residents were aged 45 and older, and around one in five were over age 65. Participants noted that the region has a growing senior community and expressed concerns about meeting the needs of this growing population.
- **Racial and Ethnic Diversity:** Assessment participants described a growing immigrant community, including undocumented residents. Lynn was characterized as the most diverse in the NSMC area, with a growing number of refugees and immigrants. In Lynn in 2016, 36% of residents were born outside of the U.S. and 50.5% of Lynn residents spoke a language other than English at home.

> *"The issue of immigration doesn't just affect whether people come in for a flu shot—it's also increasing anxiety in our patient population because of what's happening at the federal level around immigration. That's a huge struggle for a lot of our patients."*

- **Income, Poverty, and Employment:** Poverty was reported as a concern, with residents increasingly concerned about the wealth disparity among the North Shore communities. The percent of families living below the poverty line ranged from under 6% in a majority of towns to 13% in Salem and 17% in Lynn. In 2016, with the exception of Lynn (7.8%), unemployment across the NSMC service area was at or below the Massachusetts unemployment rate of 6.8%.
- **Educational Attainment:** With the exception of Lynn and Peabody, educational attainment in the NSMC communities was higher than the state as a whole. Relative to Massachusetts and other NSMC service area towns, Peabody (86%), Salem (82%), and Lynn (74%) had a lower percent of public high school students who graduated within four years.

**Social and Economic Context**

- **Housing:** Concerns about gentrification and/or the lack of affordable housing was mentioned in almost every interview and focus group, with participants citing lackluster affordable options in safe neighborhoods. Housing costs consumed at least 30% of income for 63% of Lynnfield residents and approximately half of residents in all other communities in the NSMC service area, with the exception of Nahant (40%).

> *"As [housing] prices rise in Boston, we're seeing it spread to the North Shore...people are being priced out and displaced."*

- **Transportation:** Concerns about transportation were discussed in nearly every focus group and interview. Where public transportation is available, participants stated, timeliness of services and cost are challenges for residents and are especially cumbersome for seniors and residents seeking ongoing care such as dialysis or cancer treatment. As a result, according to participants, residents largely rely on private cars. In all NSMC service area communities, a majority of residents drove alone or carpooled to work, ranging from 71% in Lynn to 90% in Danvers.

- **Violence and Trauma:** A few participants noted that the increase of substance users has impacted community safety. Youth participants reported feeling unsafe walking in their communities, citing sexual harassment and active drug users. The rate of violent crime in the NSMC communities varied from a low of about 70 incidents per 100,000 population in Swampscott and Lynnfield to a high of 772 incidents per 100,000 population in Lynn in 2016. Trauma for immigrant populations was a concern for some participants, while other participants noted that trauma, such as sexual trauma, was an issue for the community broadly and necessitates a trauma-informed approach to services.

**Community Strengths and Resources**

When asked about community strengths, participants identified several assets including: **cultural diversity, collaboration among social service organizations in the region, engaged community residents, and green space and recreational space available in the North Shore.**

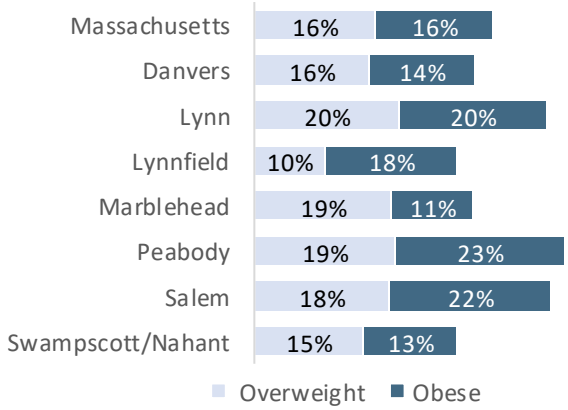
> *"There's true collaboration among many of the social services in the community; our relationships are strong and productive."*

**Community Health Issues**

This section focuses on health issues and concerns that emerged during the NSMC needs assessment. It examines health outcomes and lifestyle behaviors among residents that support or hinder health.

- **Chronic Diseases and Related Risk Factors:** In interviews and focus group discussions across the NSMC catchment area, residents noted that unhealthy habits are established at a young age and that chronic diseases are often associated with the social determinants of health including poverty.
  - *Physical Activity and Healthy Eating:* Participants connected barriers to physical activity and healthy eating with obesity and other chronic diseases. Physical activity barriers included safety concerns and a lack of parks or trails in some neighborhoods. Healthy eating barriers included a prevalence of convenience and fast food stores, as well as a lack of awareness around healthy eating and cooking.
  - *Overweight and Obesity:* Community residents perceived that childhood obesity was on the rise, and that the prevalence of obesity was correlated with socioeconomic status. In 2014-2015, two in five public school students in Peabody (42%), Salem (40%), and Lynn (39%) were overweight or obese, while only one-third (32%) of public school students were overweight or obese across Massachusetts.

**Percent of Overweight or Obese Children in Grades 1, 4, 7, and 10, by State and City/Town, 2014-2015**




DATA SOURCE: Body Mass Index Screening, Massachusetts Public School Districts, 2015

  - *Asthma:* Assessment participants shared the perception that young children living in poverty are affected by asthma as a result of poor environmental factors, poor living conditions, and housing conditions. Only Lynn (13 cases per 100 students) had an asthma prevalence rate among students that exceeded that for Massachusetts overall (12 cases per 100 students) in 2014-2015.

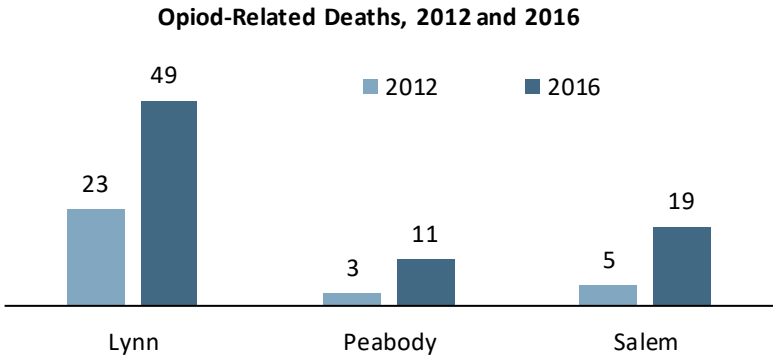
- *Diabetes:* Diabetes was a common concern discussed in interviews and forums. In 2015, one in ten adults in Lynn (11%) reported that they were diagnosed with diabetes, a prevalence that was higher than the state average (8%).
- *Heart Disease:* In 2015, 6% of Lynn adults were ever diagnosed with angina or coronary heart disease, a prevalence that was slightly higher than that for the state overall (5%). While heart disease was among the leading causes of death in the area, few assessment participants identified heart disease as a pressing community concern.
- *Cancer:* Though cancer is among the leading causes of death in the area, few participants identified cancer as a pressing community concern. In 2015, approximately 6% of adults in Lynn and Massachusetts reported a cancer diagnosis in their lifetime.

- **Mental Health:** Depression, stress, and trauma were frequently cited concerns. Many assessment participants observed that dual diagnoses, particularly for individuals with multiple mental health issues and/or a mental health and substance use disorder, are very challenging. In 2015, about one in ten Lynn residents reported at least 14 poor mental health days in the past month.

> *"Mental illness is a key concern for Lynn. Substance use and mental illness go hand in hand and you really need to treat them both."*

- **Substance Use Disorders:** Substance use disorders, in particular opioid use, were mentioned in every focus group, interview, and community forum group. Substance use treatment, and a need for expanding services, was a challenge that emerged in several interviews.
  - *Opioid Use:* Use of opioids such as fentanyl was a major concern that emerged in interviews and discussions. Opioid related deaths more than doubled between 2012 and 2016 in Lynn, Peabody, and Salem. In 2016, the primary substance for which treatment was sought was heroin for a majority of clients from NSMC communities.

> *"When you have an addict in your family, it disrupts the whole family, it disrupts everything emotionally, financially."*

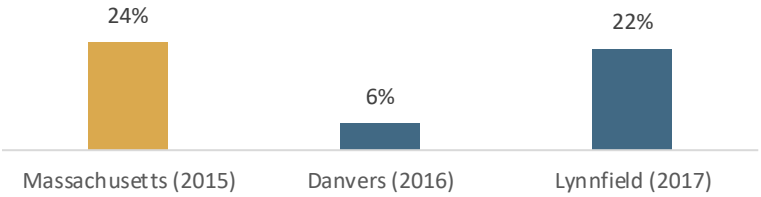



DATA SOURCE: Massachusetts Department of Public Health, Registry of Vital Statistics, November 2017

  - *Alcohol Use:* While not mentioned as frequently as opioid use, some assessment participants noted that alcohol use is a key area of concern. During the 2014 to 2016 period, alcohol treatment patterns among clients seeking substance use treatment consistently exceeded the state average (approximately 31%) in Danvers, Marblehead, and Salem.
  - *Marijuana Use:* Concerns about marijuana use were mentioned by some assessment participants, particularly for youth and particularly given the imminent legalization of this substance. From 2014 to 2016, treatment for marijuana use declined in Danvers (7% to 5%) and Peabody (5% to 4%) and increased in Lynn (4% to 5%) and Salem (5% to 6%).

- *Substance Use among Youth:* Focus group participants noted that substance use patterns differ for youth compared to adults, and described use of mainly fentanyl, Xanax, benzol, prescription medications, and alcohol among youth. Participants also explained that vaping is a significant issue among youth. In the NSMC service area, current use of electronic vapor products among high school students in Lynnfield (22%) was similar to Massachusetts overall (24%), with two in ten students reporting current use of vaping products. Only 6% of high school students in Danvers reported current use of electronic vapor products in 2016.

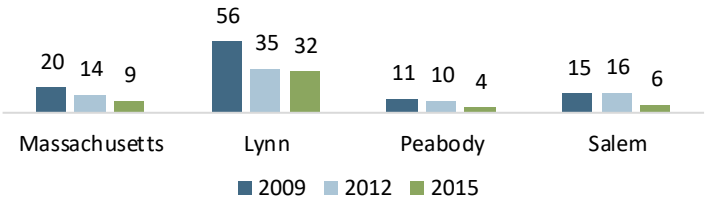
**Percent of High School Students Reporting Current Use of Electronic Vapor Products, by State and City/Town, 2015-2017**




DATA SOURCE: Massachusetts 2015 Youth Risk Behavioral Survey. Health & Risk Behaviors of Massachusetts Youth: 2015 Report; Danvers High School 2016 Youth Risk Behavioral Survey Results; Lynnfield High School 2017 Youth Risk Behavioral Survey Results
NOTE: Data not available for all assessment communities

- **Sexual Health:**
  - *Teen Pregnancy:* Assessment participants described teen pregnancy as a major challenge, particularly in Lynn. From 2009 to 2015, the rate of teen births in Lynn was more than double the rate across Massachusetts. The teen birth rate in Lynn declined from 56 births per 1,000 population in 2009 to 32 births per 1,000 population in 2015. In 2015, Hispanic teens (72%) accounted for three quarters of teen births in Lynn.

**Teen (Age 15-19 Years) Birth Rate per 1,000 Population, by State and City/Town, 2009, 2012, and 2015**




DATA SOURCE: Registry of Vital Records and Statistics, MDPH, 2010-2016.
NOTE: Data not available for all assessment communities

> *"[In] Lynn, teen pregnancy rates are high. They are coming down thankfully, but we have one of the highest rates in Lynn [compared to state of MA]. That education piece is always needed."*

  - *Sexually Transmitted Infections:* While not mentioned frequently by assessment participants, in 2016 the chlamydia, gonorrhea, and syphilis case rates were highest in Lynn, Peabody, and Salem. From 2013 to 2016, the rate of chlamydia declined by 48% in Lynn and 30% in Salem.
- **Oral Health***:* A few assessment participants described oral health as a concern, especially for the homeless and elderly population. Among adults 65 years of age and older, in Lynn one in five (20%) have lost all of their teeth, compared to one in seven (14%) statewide in 2014.
- **Health Care Access:** Key informants, focus group participants, and community forum participants identified several barriers to health care access including lack of health insurance and under-insurance, navigation and care coordination, transportation, accessibility and after-hours care, language and immigration status, and a need for culturally-sensitive approaches to care.

> *The avenues of communication are not open to parents [who don't speak English]. It has to be the bilingual kids who are helping them with those services."*

**Community Suggestions for Future Programs and Services**

Assessment participants shared the following suggestions for future services and programs in the community: strengthen culturally-sensitive approaches to care; increase transportation options, particularly for health care access; focus on the social determinants of health, including housing and employment; provide community education on health and prevention, at the appropriate literacy level; expand community programs for youth and seniors; and support school-based initiatives, particularly around behavioral health.

**Key Themes and Conclusions**

This assessment report describes the social and economic context of the communities served by NSMC, as well as key health issues and concerns, and perceived assets and opportunities. Several key themes emerged from this synthesis:

- *The North Shore community has a variety of assets* including cultural and linguistic diversity, collaborative social service organizations, engaged community residents, and green space.
- *Access to social and economic resources varies across the North Shore community, and perceptions of rising inequality are of particular concern.* Frequently cited concerns related to the social determinants of health included: poverty, affordable housing and quality housing conditions, transportation, access to affordable healthy foods, and access to safe and affordable places to exercise as substantial barriers to health.
- *Prevention and management of chronic diseases is a challenge for some North Shore residents.* Childhood obesity was frequently cited as a concern among participants, who linked challenges related to affording healthy food with obesity. Diabetes was mentioned as an important issue that some community members view as inevitable. Heart disease and cancer are leading causes of death in the NSMC service area.
- *Behavioral health, including mental health and substance use disorders, continues to be a pressing issue for North Shore communities.* Regarding mental health, participants described issues of depression, stress, and trauma. Regarding substance use disorders, opioid use was a pressing concern, as were concerns for youth, particularly around marijuana and vaping. A need to expand and de-stigmatize treatment, including for co-occurring disorders, was frequently noted.
- *Barriers to health care access are common concerns, particularly for low-income residents and immigrant communities.* Common barriers cited included a lack of access to preventive or specialty care, particularly for the uninsured or under-insured; transportation challenges; a need for after-hours care and care coordination; and a need for culturally sensitive approaches to care for immigrant and non-English speaking populations.
- *Expanding health education and health literacy programs was viewed as beneficial.* Participants noted the importance of expanding programs for youth, including sexual health education to prevent teen pregnancy. Residents also recommended providing community wellness education centered on health and prevention, delivered at the appropriate literacy level.

# BACKGROUND

Overview of North Shore Medical Center

The North Shore Medical Center (NSMC), a member of Partners HealthCare, is the North Shore's largest healthcare provider. With a main hospital campus in Salem and many ambulatory care sites and physician offices throughout the service area, NSMC offers comprehensive care and a commitment to exceptional quality, safety and kindness.

Summary of Previous Community Health Needs Assessment

This 2018 CHNA builds upon and expands NSMC's previous 2015 CHNA, which examined the current health status of NSMC's service area and explored in detail new and emerging concerns related to behavioral health services. Following this previous 2015 CHNA, NSMC developed an Implementation Strategy focused on the following Priority Areas: Access to Care; Substance Use and Mental Health Disorders; Obesity, Physical Activity and Nutrition; and Meeting the Needs of the Most Vulnerable. The 2018 CHNA compares current health status to the 2015 findings, where relevant, and expands the focus beyond behavioral health to broader health and related demographic and socioeconomic indicators.

Review of Initiatives

As a result of the 2015 CHNA, NSMC developed a plan to address identified key health needs and issues through clinical care, programs and services, and in collaboration with a variety of community agencies. Since the 2015 CHNA, NSMC has provided a variety of services and programming to address the identified key needs and issues (see Appendix A). Services and programming have been implemented to address the following Priority Areas: Access to Care; Substance Use and Mental Health Disorders; Obesity, Physical Activity and Nutrition; and Meeting the Needs of the Most Vulnerable.

Purpose and Geographic Scope of the 2018 NSMC Community Health Needs Assessment

In 2018, NSMC undertook a community health needs assessment (CHNA) of the communities it serves. This report describes the process and findings of this effort. In addition to fulfilling the requirement by the IRS Section H/Form 990 mandate, the NSMC CHNA process was undertaken to achieve the following overarching goals:

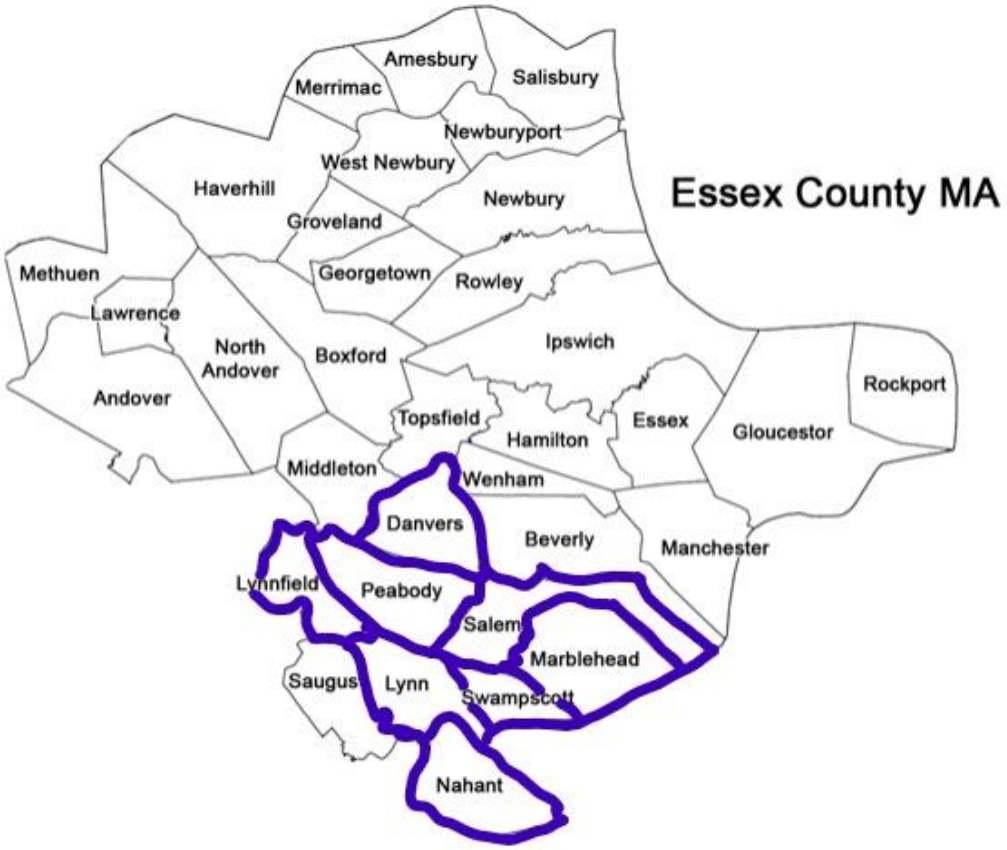
- Identify health-related needs in the community, as well as community strengths and resources;
- Describe issues that affect the community overall, as well as concerns for certain sub-populations;
- Provide data that can be used by NSMC and others in the community to plan and develop programs and initiatives.

NSMC contracted with Health Resources in Action (HRiA), a non-profit public health organization in Boston, MA, to collect and analyze data to develop the CHNA report. This report discusses the findings from the CHNA, which was conducted from January 2018 to August 2018.

Definition of Community Served

The NSMC CHNA focused on the communities of Danvers, Lynn, Lynnfield, Marblehead, Nahant, Peabody, Salem, and Swampscott that comprise the hospital's principal communities (see Figure 1 below). While the CHNA process aimed to examine the health concerns across the entire service area, there was a particular focus on identifying the needs of underserved populations and vulnerable groups.

**Figure 1: Geographic Focus Area of 2018 North Shore Medical Center Community Health Needs Assessment**



## METHODS

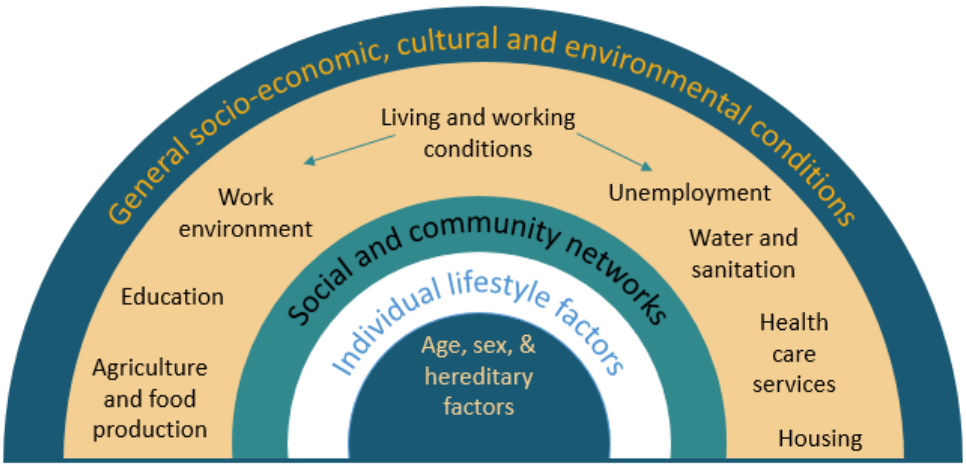
The following section details how the data for the NSMC community health needs assessment was compiled and analyzed, as well as the broader lens used to guide this process. Specifically, the community health needs assessment defines health in the broadest sense and recognizes that numerous factors and 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., air quality) —all have an impact on the community's health.

Approach and Social Determinants of Health Framework

It is important to recognize that multiple factors have an impact on health, and there is a dynamic relationship between people and their lived environments. Where we are born, grow, live , work, and age—from the environment in the womb to our community environment later in life —and the interconnections among these factors are critical to consider. That is, not only do people's genes and lifestyle behaviors affect their health, but health is also influenced 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. While the data to which we have access is 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 approaches data in a manner designed to discuss who is healthiest and least healthy in the community, as well as examines the larger social and economic factors associated with good and ill health.

Figure 2 below 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. This report provides information on many of these factors, as well as reviews key health outcomes among the residents of this North Shore region.

**Figure 2. Social Determinants of Health Framework**




DATA SOURCE: World Health Organization, Commission on the Social Determinants of Health, Towards a Conceptual Framework for Analysis and Action on the Social Determinants of Health, 2005. Graphic reformatted by Health Resources in Action.

Quantitative Data: Review of Secondary Data

The NSMC CHNA incorporates data on important social, economic, and health indicators pulled from various sources, including the U.S. Census, Centers for Disease Control and Prevention, Massachusetts Department of Public Health, Massachusetts Department of Elementary and Secondary Education, the Federal Bureau of Investigation and national databases that compile data such as the 500 Cities project. Types of data include self-reporting of health behaviors from large, population-based surveys such as the Behavioral Risk Factor Surveillance System (BRFSS), as well as vital statistics based on birth and death records. All tables and graphs note the specific data source.

Much of the social, economic, and health data in this report are provided for each of the eight North Shore communities as well as the state overall. However, city- and town-level data were not available for all measures. In the cases where certain local data were not available, data for a subset of geographies (often Lynn alone, as the largest city of the eight communities) are provided. It should also be noted that for data that derive from the American Community Survey, five-year (2012-2016) estimates are used. Per Census recommendations, these five-year aggregates are used to yield a large enough sample size. Where possible, the most current data are compared to data shared in the 2015 CHNA to enable the examination of trends.

Quantitative data in this report is often presented in percentages or proportions to allow for comparisons across geographic localities. Given that there is variation across the eight North Shore communities in population size (with Lynn being the largest city/town), it should be noted that the actual number of residents affected by a particular issue or health concern may be higher or lower in certain localities even if percentages are similar.

Qualitative Data: Input from Community Representatives

While quantitative data is important for providing information on incidence and prevalence, and change over time, qualitative data offers in-depth information on the how and the why behind these numbers. To that end, as part of the 2018 NSMC CHNA, a Community Forum, 20 Key Informant Interviews, and 5 Focus Groups were conducted to gather qualitative data.

*Community Forum*

In February 2018, NSMC hosted a Community Forum in Lynn. NSMC chose to hold the forum in Lynn not only because it is the largest community in the service area with a long history of health needs, but also because it was particularly important to provide Lynn residents with an opportunity to share their perceptions of health-related needs in the community at this juncture, as the closure of Union Hospital becomes imminent. At this Community Forum, HRiA provided a brief overview of the CHNA process and then facilitated small group discussions with participants to gather information on perceptions of health-related issues in the community and feedback on gaps in programs and services. Six small group discussions were held with a total of 40 participants. The discussions were facilitated by a trained moderator using a semi-structured guide.

*Interviews and Focus Groups*

From January to May 2018, focus groups and interviews were conducted with community members and leaders from a wide range of organizations in different sectors. In total, 20 key informant discussions and 5 focus groups, with 55 participants in total, were conducted. Focus groups were held with local youth, the local Khmer population (focus group conducted in Khmer), the local Latino population (focus group conducted in Spanish), residents and stakeholders at a local YMCA, and key community leaders working on addiction issues. Twenty key informant discussions were conducted with individuals

representing a variety of sectors including local public health, elected officials, community leaders, the Lynn Health Task Force, health care / community health, law, a local union, senior services, and transportation services. A full list of the different sectors engaged during the focus group and interview process can be found in Appendix B.

Focus group and interview discussions explored participants' perceptions of their communities, priority health concerns, barriers to addressing health concerns and accessing health care, and suggestions for future programming and services to address these issues. A semi-structured moderator's guide was used across all discussions to ensure consistency in the topics covered. Each focus group and interview was facilitated by a trained moderator, and detailed notes were taken during conversations. On average, focus groups lasted 90 minutes and included 6-15 participants, while interviews lasted approximately 30-60 minutes.

The collected qualitative data were coded and analyzed thematically, where data analysis identified themes that emerged across all groups and interviews. Frequency and intensity of discussion on a specific topic were key indicators used for extracting main themes. Selected quotes—without personal identifying information—are presented in the report to further illustrate points within topic areas.

Limitations

As with all data collection efforts, there are several limitations related to the assessment's research methods that should be acknowledged. Years of the most current data available differ by data source, and some of the secondary data were not available at the local city/town level. Additionally, several sources did not provide current data stratified by race/ethnicity, gender, or age – thus these data could only be analyzed by total population.

Secondary survey data that are included in this CHNA report and is based on self-reports, such as the Behavioral Risk Factor Surveillance Survey (BRFSS), 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 CHNA benefit from large sample sizes and repeated administrations, enabling comparison over time.

While the focus groups, interviews, and community forum discussions conducted for this assessment provide valuable insights, results are not statistically representative of a larger population due to non-random recruiting techniques and a small sample size. Because of this, it is possible that the responses received only provide one perspective of the issues discussed. It is also important to note that data were collected at one point in time, so findings, while directional and descriptive, should not be interpreted as definitive.

## FINDINGS

**Community Social and Economic Context**

The health of a community is associated with numerous factors including what resources and services are available (e.g., safe green space, access to healthy foods) as well as who lives in the community. The section below provides an overview of the population of the North Shore community. Who lives in a community is significantly related to the rates of health outcomes and behaviors of that area. While age, gender, race, and ethnicity are important characteristics that have an impact on an individual's health, the distribution of these characteristics in a community may affect the number and type of services and resources available.

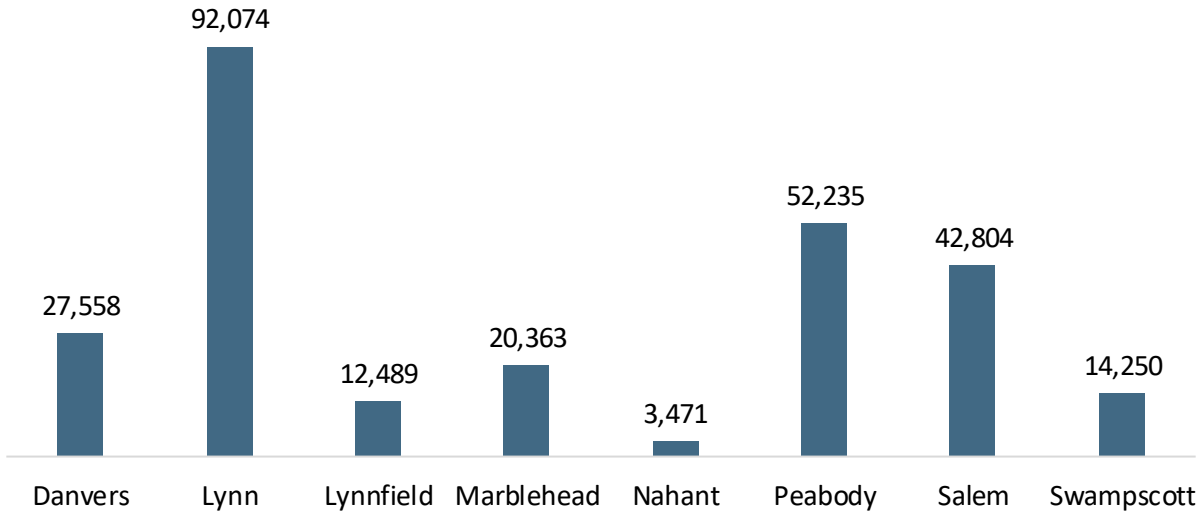
Demographic Characteristics

*Population*

Communities in the NSMC catchment area varied widely in size from nearly 3,500 (Nahant) to just over 92,000 (Lynn) (Figure 3). Peabody and Salem are relatively sizable communities, at just over 52,000 and just under 43,000, respectively. Remaining communities ranged from 3,471 residents (Nahant) to nearly 28,000 residents (Danvers). For comparison, the Massachusetts population as a whole is 6,742,143.

In interviews and focus group discussions across the NSMC service area, participants mentioned the strong sense of identity and pride among residents. As one interviewee explained, "*[Salem] is small in size – 8 square miles – but we punch out of our weight class."* Participants also noted that community members are engaged and supportive of each other. For example, one interviewee explained, *"Once you're a Lynn person, you don't forget your roots, you give and offer back to the community."*

**Figure 3. Total Population, by City/Town, 2012-2016**

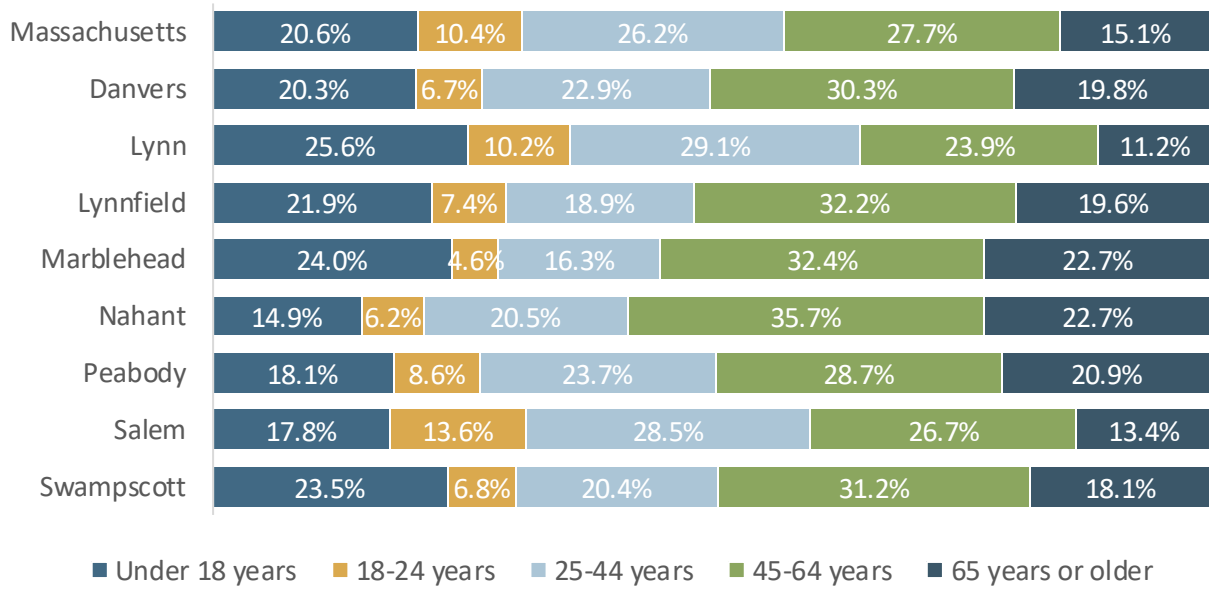



DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2012-2016

*Age*

As seen in Figure 4, age distribution across NSMC cities and towns varied both in reference to the state as a whole and in comparison with one another. Lynn and Salem had large proportions of young residents, with approximately one-third of their populations aged 24 and younger, nearly one-third aged 25-44, and the remaining third over 45 years of age. When looking more closely, Salem most closely resembled the age distribution of the state as a whole, while Lynn skewed notably younger. In comparison, the remaining area cities and towns had relatively higher proportions of older residents, with approximately half of all residents aged 45 and older, and around one in five over age 65.

**Figure 4. Age Distribution, by State and City/Town, 2012-2016**

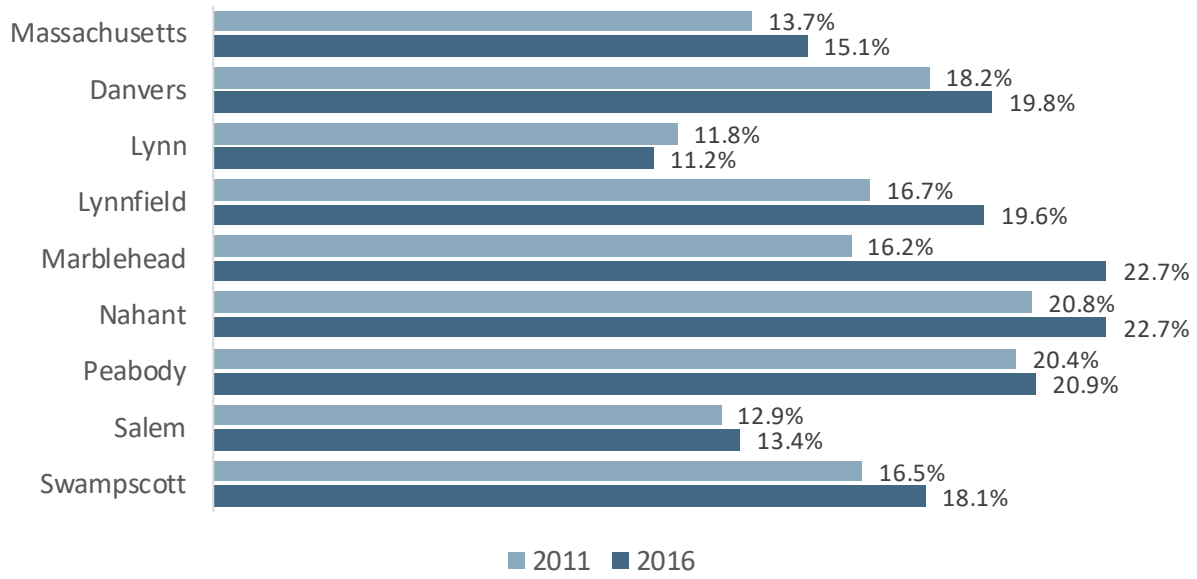



DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2012-2016

As seen in Figure 5, most cities and towns have seen at least a small increase in the number of residents over age 65 since 2011. This increase was greatest in Marblehead—whereas in 2011 one in six residents were over 65, as of 2016 approximately one in four to five residents were in that age range. The exception to this trend is Lynn, where there was a slight decrease in older residents from 2011 to 2016.

Participants in the assessment also noted that the region has a growing senior community, many of whom are involved in the community. Concerns about meeting the needs of a growing senior population also emerged in conversations. For example, cognitive impairments such as dementia and Alzheimer's disease were perceived as especially concerning. Key informants 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) for the aging population. In particular, they observed that more supplemental support was needed for seniors to reduce emergency department visits. One interviewee explained: "*We need post-hospitalization support. There's not enough for seniors to keep them out of the nursing home. If they fall and break a hip, they end up in rehab for a long time, because there's not enough community support for them in their home*."

**Figure 5. Percent of Population Age 65 Years or Older, by State and City/Town, 2007-2011 and 2012-2016**




DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2007-2011, 2012-2016

*Racial and Ethnic Diversity*

> *"Lynn is the most diverse city… It has been for long time. Meaning that we have every color of skin, every nationality, every religion, we have millionaires and movie stars that live here and also hotel workers and landscapers."* – Interview participant

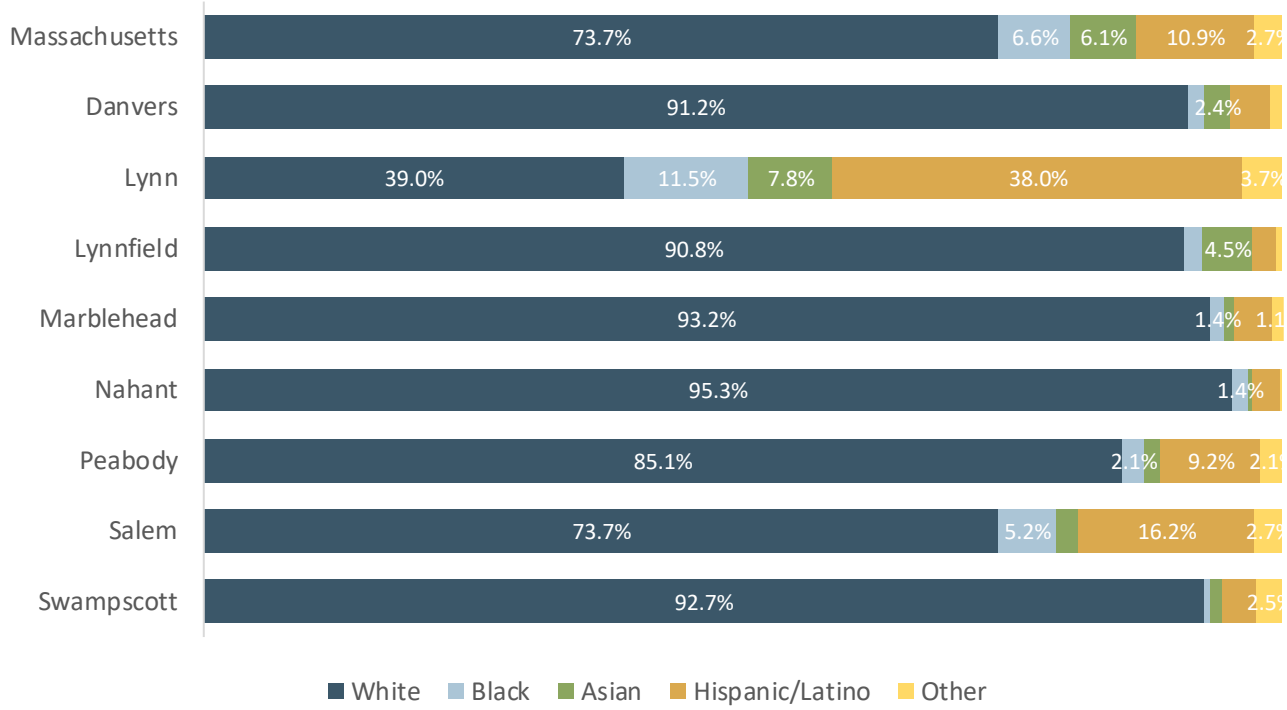
> *"Salem is a welcoming and diverse community steeped in history."* – Interview participant

Participants engaged in the assessment described their communities as "*very diverse,*" mentioning wide racial, linguistic, and cultural diversity. Lynn was described as the most diverse in the NSMC catchment area with a growing number of refugees and immigrants. Key informants and participants described strong community connections among enclave communities and affinity groups. One participant described, "*Cambodian people here [in Lynn] get along with each other, we support each other, have mutual assistance between us."* These groups, shared participants, are often connected to services by anchor institutions such as faith-based organizations and cultural centers.

Compared to the state as a whole, most NSMC area cities and towns had a far greater proportion of white non-Hispanic residents, as seen in Figure 6. In these areas, Hispanic or Latino residents represented a majority of non-white residents across most communities, however Asian residents were the majority minority group in Lynnfield. Salem's racial and ethnic composition, similar to the state, was more diverse; three-quarters of residents identified as white, non-Hispanic, with the second largest racial/ethnic group being Hispanic or Latino residents (16.2%). Lynn's racial and ethnic composition was more diverse than both the surrounding communities and the state, with nearly equal proportions of

white non-Hispanic (39.0%) and Hispanic or Latino residents (38.0%), and a greater proportion of both Black residents (11.5%) and residents of Asian ethnicities (7.8%).

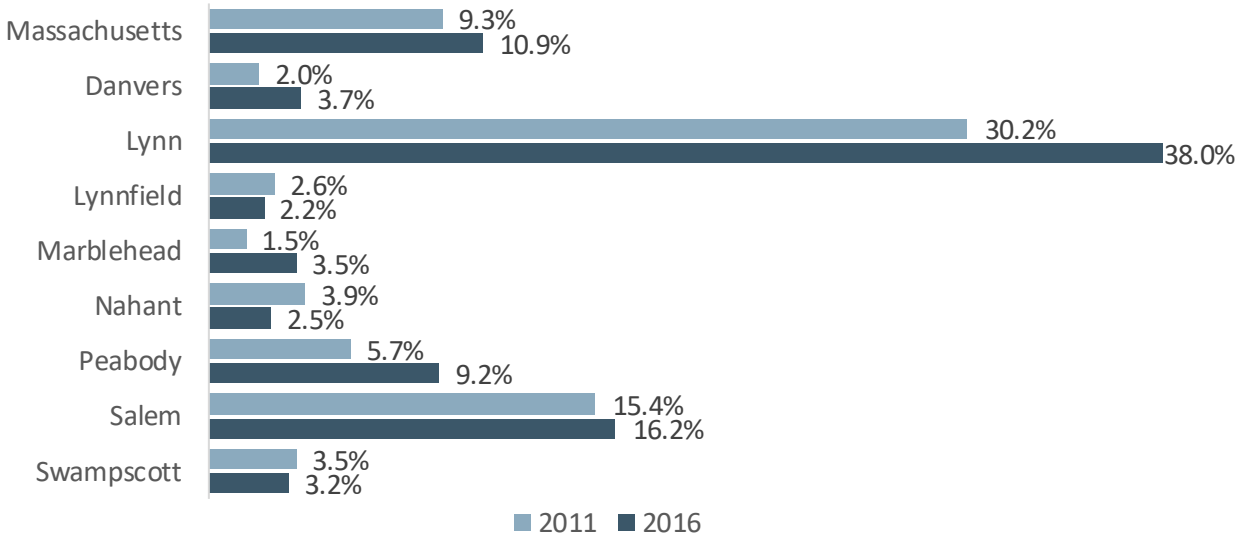
**Figure 6. Racial/Ethnic Composition, by State and City/Town, 2012-2016**




DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2012-2016

As noted above, a sizable percent of residents in the NSMC service area identified as Hispanic or Latino, ranging from 2.5% (Nahant) to 38.0% (Lynn). Seen in Figure 7 below, the size of the Hispanic or Latino population shifted in several ways since 2011. In most cities, as in Massachusetts, the percent of Hispanic or Latino residents has increased within a range of 1% (Salem) to as much as 8% (Lynn). In a several communities (Lynnfield, Nahant, and Swampscott), the percent of Hispanic or Latino residents has decreased slightly from 2011 to 2016.

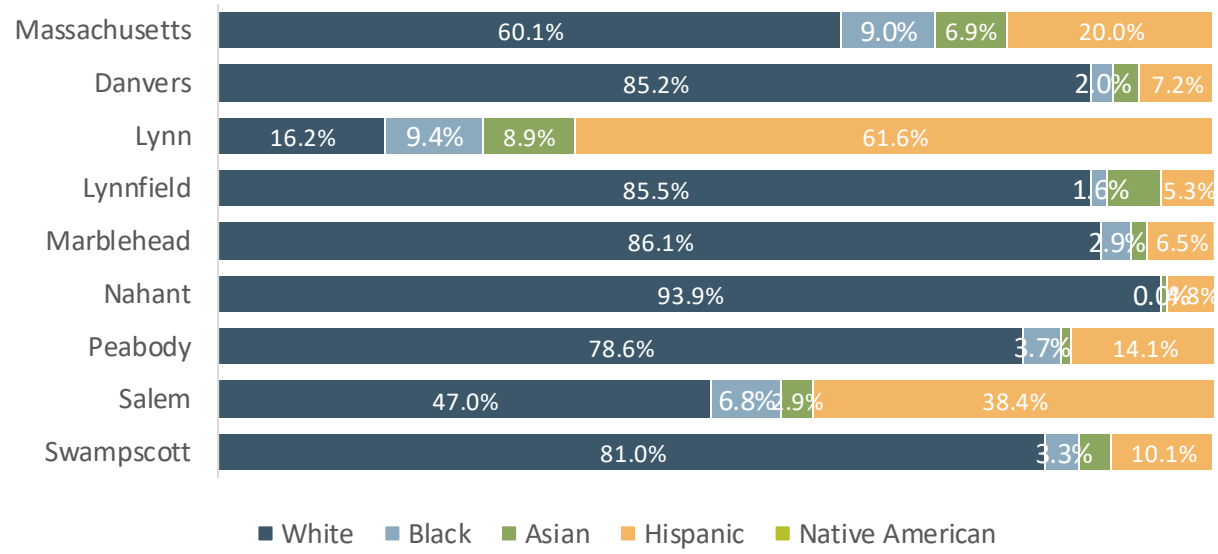
**Figure 7. Percent of Population Identifying as Hispanic/Latino, by State and City/Town, 2007-2011 and 2012-2016**




DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2007-2011, 2012-2016

Racial and ethnic diversity in the NSMC service area was also reflected in public school enrollment, as seen below in Figure 8 for the 2017-18 school year. Many of the communities saw far greater racial and ethnic diversity in their public schools as compared to their overall populations. The majority of students in all towns except for Lynn and Salem were white, non-Hispanic, but there were higher representations of Hispanic or Latino, Black, Asian, and Native American students in public school settings. In some cases, this was dramatically so, as in Lynn where nearly two-thirds of publicly enrolled students were Latino or Hispanic, and in Salem where Hispanic or Latino students comprise over a third of the student body.

**Figure 8. Racial/Ethnic Composition of Public School District Enrollment, by State and City/Town, 2017-2018**




DATA SOURCE: School and District Profiles, Massachusetts Department of Elementary and Secondary Education, 2017-2018

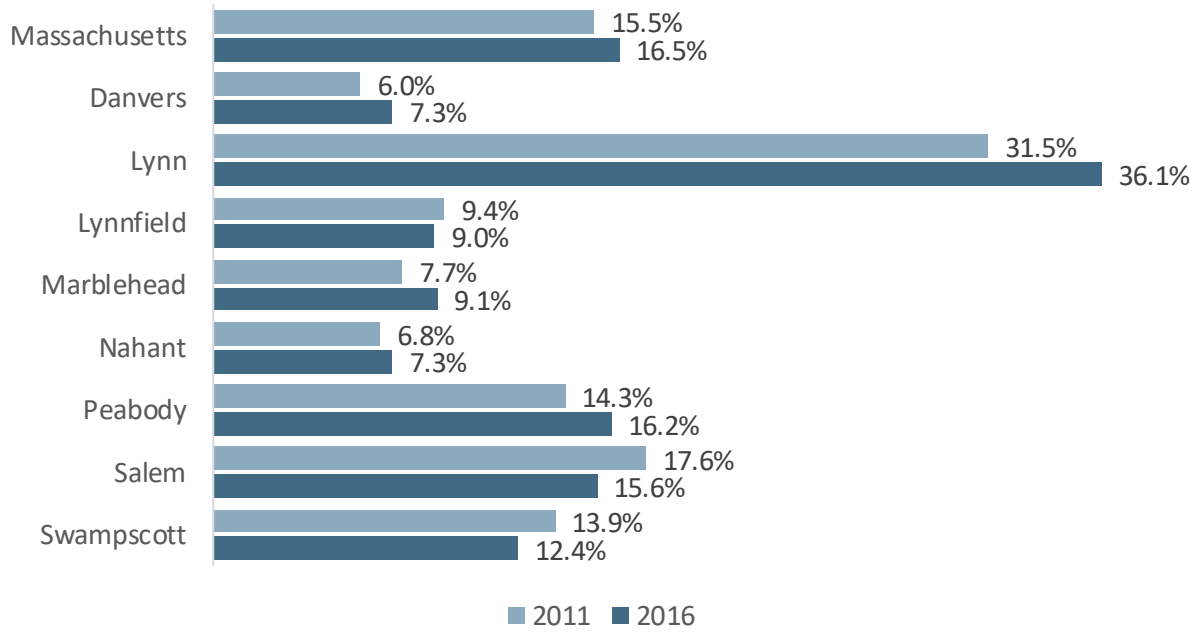
*Immigration and Language*

> "*Lynn has always been a city of immigrants, it continues to grow in that way and we have a strong cultural component to be proud of*." -Interview Participant
>
> "*The immigrant population is afraid to leave the house, afraid to go to school*." – Interview Participant

Assessment participants described a growing immigrant community, including undocumented residents. Participants noted that diverse residents and immigrants are a strength of their communities, but also noted that new communities faced unique barriers that included: limited availability of local services whose capacity is already strained, challenges navigating the health system due to linguistic and cultural barriers, trauma and anxiety experienced in country of origin or as part of the immigrant process, and being particularly vulnerable in the current political climate. One participant shared, "*The issue of immigration doesn't just affect whether people come in for a flu shot—it's also increasing anxiety in our patient population because of what's happening at the federal level around immigration. That's a huge struggle for a lot of our patients."*

As shown in Figure 9, in the NSMC service area, the share of residents over age 5 who were born outside of the U.S. ranged from 7.3% (Danvers and Nahant) to 36.1% (Lynn) in 2016. This prevalence has fluctuated slightly since 2011. Danvers, Lynn, Marblehead, Nahant, and Peabody saw increases in the percent of immigrant residents, while Lynnfield, Salem, and Swampscott experienced slight decreases in the immigrant population. Peabody and Salem's overall proportions of immigrant residents were most closely matched to that of the state (approximately 15%), while Lynn's proportion was nearly double, with one in three (36.1%) residents born outside of the U.S. in 2016.

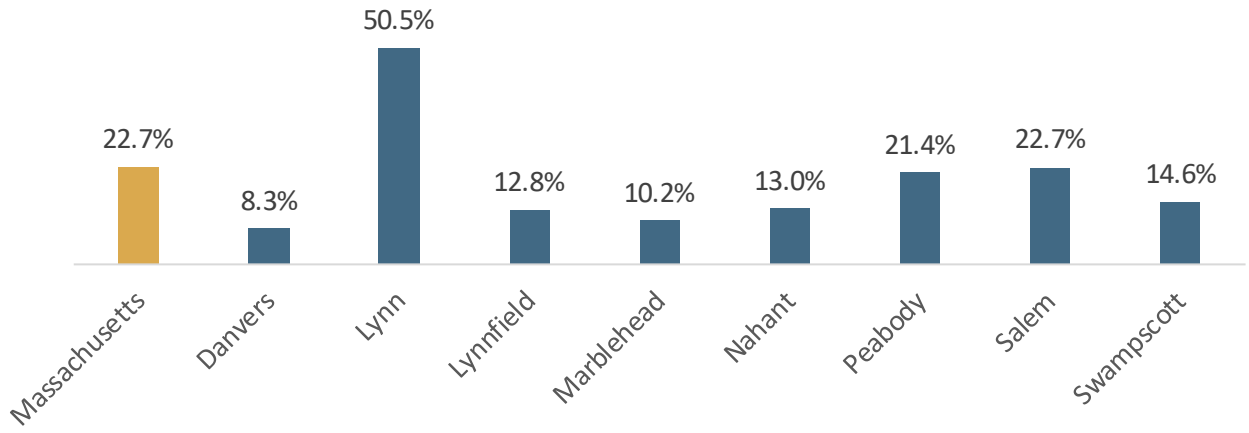
**Figure 9. Percent of Population Age 5 and Over Born Outside U.S., by State and City/Town, 2007-2011 and 2012-2016**




DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2007-2011, 2012-2016

As might be expected in a city as diverse in nativity as Lynn, there was great linguistic diversity as well (Figure 10). Half (50.5%) of Lynn residents spoke a language other than English at home, as compared to just over one in five in Peabody (21.4%) and Salem (22.7%), and Massachusetts (22.7%) as a whole. In Lynn, the most common language other than English was Spanish (spoken by approximately one-third of the population), followed by Cambodian (4.1%), French Creole (1.9%), a variety of African languages (1.4%), Portuguese (1.3%), and Russian 1.2% (Table 1). There was less linguistic diversity in Danvers, Marblehead, Lynnfield, and Swampscott, with a range of 8.3%-14.6% of residents speaking another language at home.

**Figure 10. Percent of Population Age 5 and Over who Speak Language Other than English at Home, by State and City/Town, 2012-2016**




DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2012-2016

**Table 1. Most Common Languages Other Than English Spoken at Home in Lynn, 2011-2015**

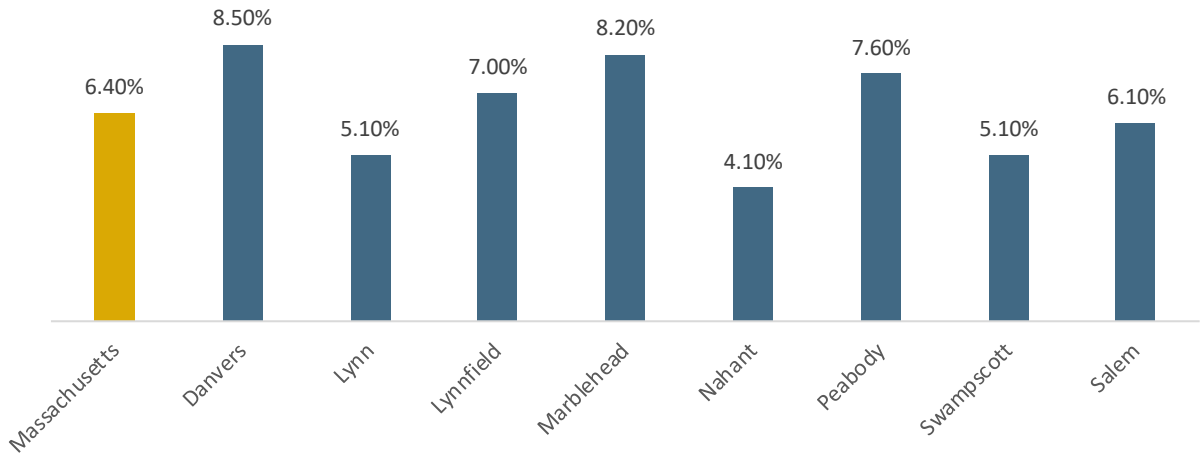
| | % of Total Population |
|---|---|
| Spanish or Spanish Creole | 31.3% |
| Mon-Khmer, Cambodian | 4.1% |
| French Creole | 1.9% |
| African Languages | 1.4% |
| Portuguese | 1.3% |
| Russian | 1.2% |

DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2011-2015

*Veteran Status*

As shown in Figure 11, the percent of veterans among the civilian population was higher in many North Shore cities and towns, including Danvers, Lynnfield, Marblehead, and Peabody, when compared to the state overall.

**Figure 11. Percent of Veterans among Civilian Population 18 years and Over, 2012-2016**




DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2012-2016

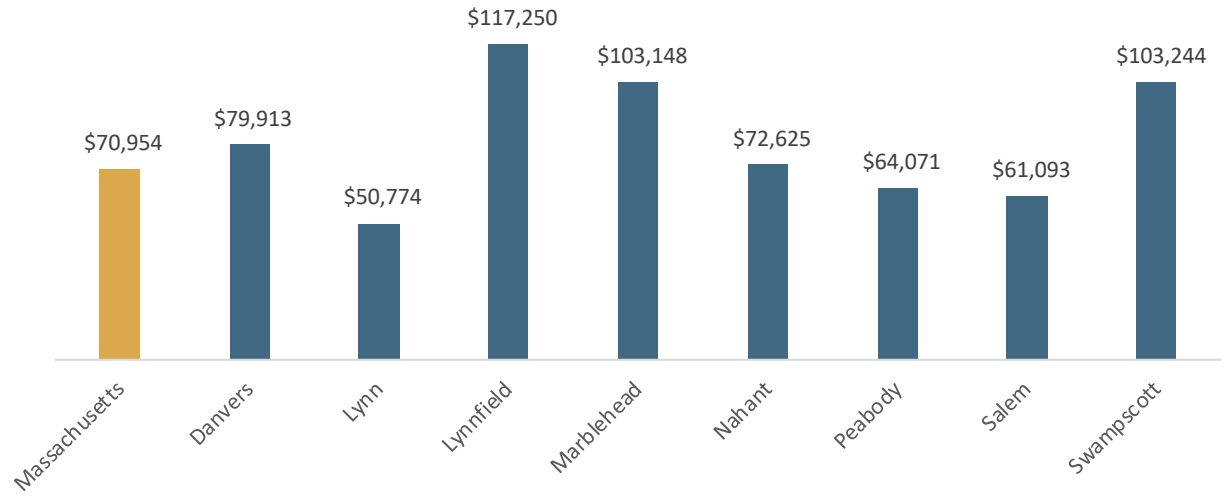
Income and Poverty

> "*The biggest issue facing [us]… is incredible* ***inequity****… [we have] some of the most wealthy and ideal communities next door to communities that are really struggling*." – Interview participant

Poverty was reported as a concern across all focus group and interviews, with residents increasingly concerned about the wealth disparity among the North Shore communities. In addition to inequity across the North Shore communities, some participants described "two Lynns", one concentrated in the more affluent Ward 1, and the other in lower socioeconomic regions of Lynn, where residents of color were more likely to live. 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. One community forum participant summarized, *"Poverty is really one of the leading drivers of health issues in this community, and everything related to that – the lack of belief in a better future, living hand-to-mouth, you can't see into the future because [you're] just trying to survive today."*

The median income for Massachusetts residents was nearly $71,000 in 2016 (Figure 12). Comparatively, Lynnfield, Swampscott, Marblehead had median incomes far higher than the state average, ranging from $103,148 to $117,250. Salem and Peabody had lower median incomes ($61,093 and $64,071, respectively), while Lynn's median income was a full $20,000 lower than the state average at $50,774.

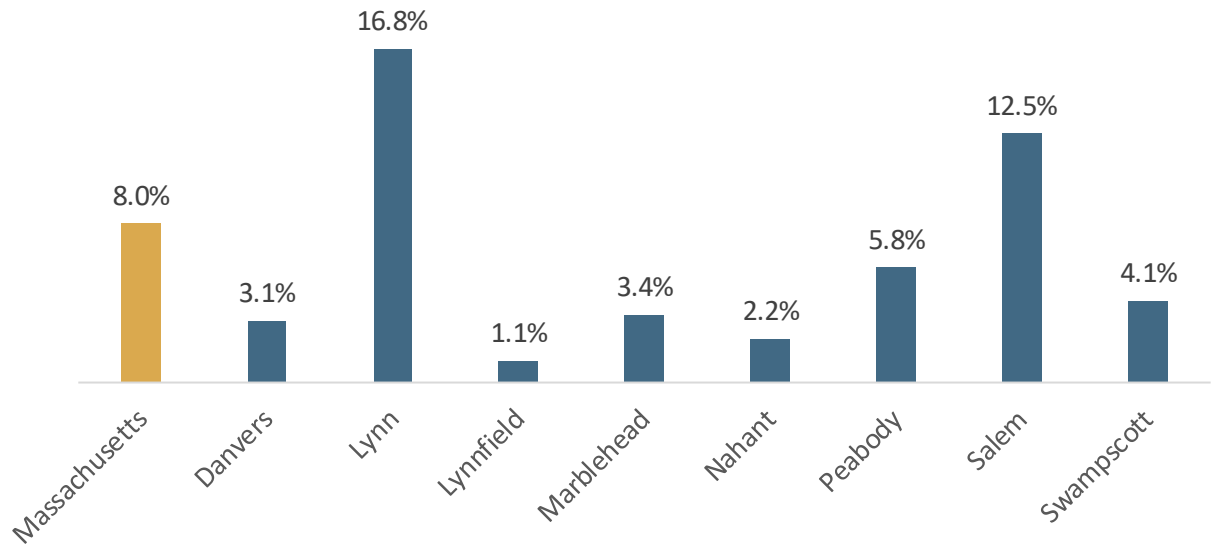
**Figure 12. Median Household Income, by State and City/Town, 2012-2016**




DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2012-2016

As shown in Figure 13, the percent of families living below the poverty line in the NSMC service area ranged from under 6% in a majority of towns (Lynnfield, Nahant, Danvers, Marblehead, Swampscott, and Peabody in ascending order) to over 10% (Salem and Lynn). At 16.8%, the percent of families living below the poverty level in Lynn was over twice that of the state as a whole (8.0%) in 2016.

**Figure 13. Percent of Families Living Below the Poverty Line, 2012-2016**



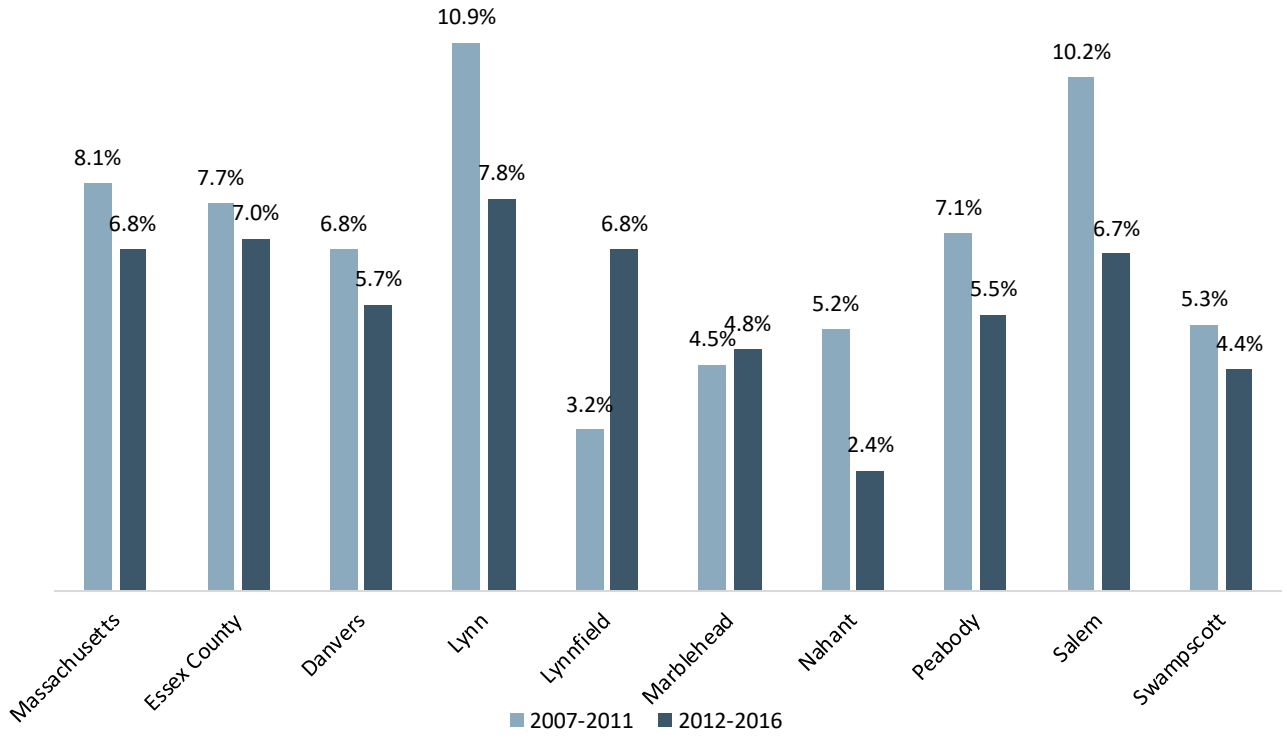

DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2012-2016

Employment

Assessment participants reported a need for more opportunities for stable and gainful employment, particularly in Lynn and for target populations including youth and immigrants. Key informants described employment challenges for immigrants who are professionals in their country of origin but who often have difficulties securing high-skilled positions in the United States. Further, it was reported that immigrants face unique challenges to accessing benefits such as worker compensation, with one participant sharing, *"A lot of immigrants are day laborers. They get nothing but pain. No benefits, no health insurance."*

In most of the NSMC communities, unemployment among residents age 16 and over decreased between 1% (Danvers, from 6.8% to 5.7%) and 3.5% (Salem, from 10.2% to 6.7%) from 2011 to 2016 (Figure 14). In two communities, however, unemployment has increased—doubling in Lynnfield (from 3.2% to 6.8%) and increasing slightly in Marblehead (4.5% to 4.8%). Though unemployment has decreased since 2011, in 2016 Lynn (7.8%) had the highest percent of unemployed residents and Nahant (2.4%) had the lowest percent of residents who were unemployed. In 2016, with the exception of Lynn, unemployment across the NSMC service area was at or below the Massachusetts unemployment rate of 6.8%.

**Figure 14. Percent Unemployed among Population Age 16 and Older, by State, County, and City/Town, 2007-2011 and 2012-2016**



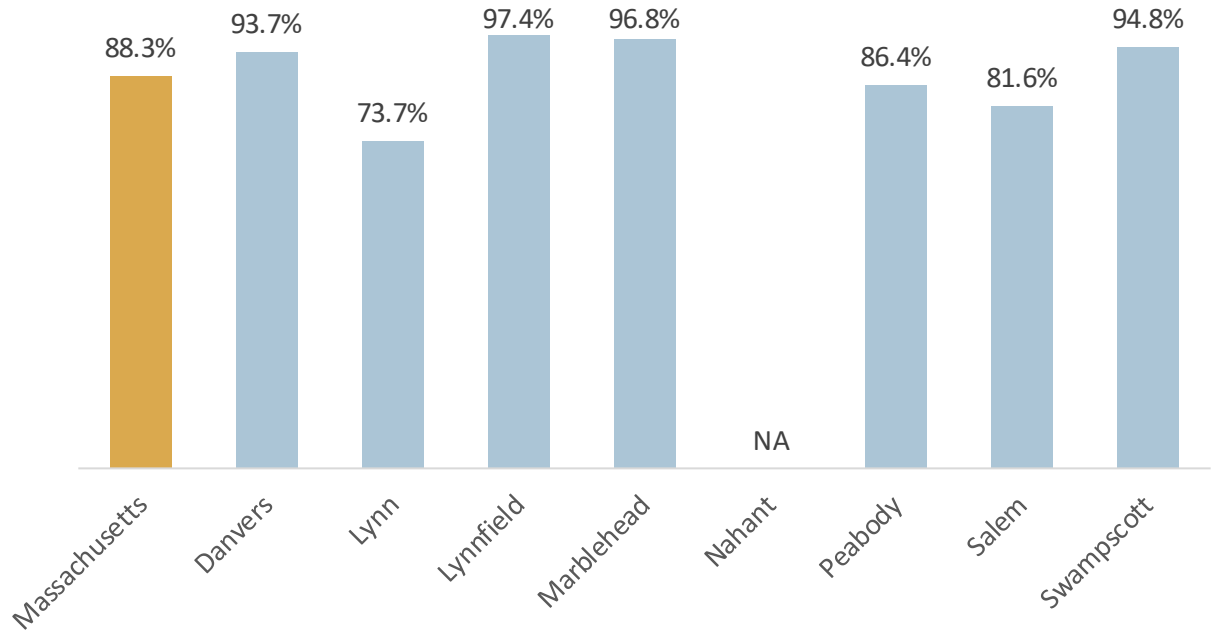

DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2007-2011, 2012-2016

Education

The educational system in the region was noted as a strength in some communities, and an area for improvement in others. Many assessment participants noted the important role schools played in health and described local efforts to provide health services—including mental health resources—as early as middle school. While many assessment participants reported these efforts as a strength, others cautioned about the burden schools face to sustain these services with limited resources.

Across the NSMC service area, over 93% of public high school students in four communities (Danvers, Lynnfield, Marblehead, and Swampscott) graduated in four years in 2017-2018, higher than patterns for the state overall (88.3%) (Figure 15). Relative to Massachusetts and other NSMC service area towns, Peabody (86.4%), Salem (81.6%), and Lynn (73.7%) had a lower percent of public high school students who graduated within four years.

**Figure 15. Percent of Public School District High School Students who Graduated in Four Years, by State and City/Town, 2017-2018**

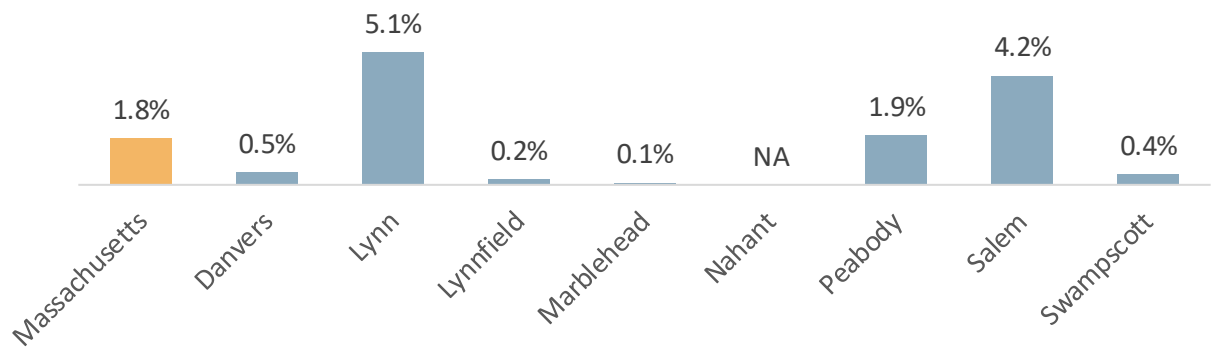



DATA SOURCE: School and District Profiles, Massachusetts Department of Elementary and Secondary Education, 2017-2018

NOTE: NA indicates data not available

Shown in Figure 16, compared to other NSMC communities and the State, Lynn (5.1%) and Salem (4.2%) had a higher percent of public high school students who dropped out of school in the 2017-18 academic year. The percent of high school students who dropped out of school in Peabody (1.9%) was similar to the state (1.8%). The other NSMC service area communities had high school dropout levels of half a percent or lower.

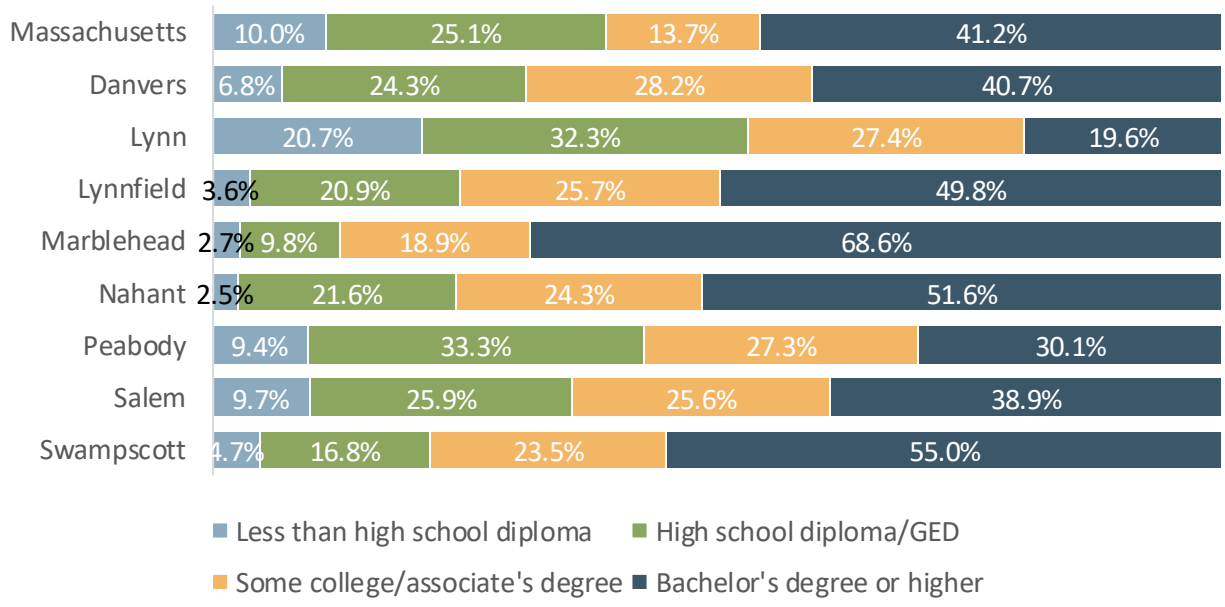
**Figure 16. Percent of Public School District High School Students who Dropped Out, by State and City/Town, 2017-2018**




DATA SOURCE: School and District Profiles, Massachusetts Department of Elementary and Secondary Education, 2017-2018
NOTE: NA indicates data not available

Compared to the state of Massachusetts overall, where 41.2% of residents had a bachelor's degree or higher, six of the eight NSMC communities had a similar or far higher percent of residents with a bachelor's degree or higher (Figure 17). However, Lynn and Peabody had a comparatively lower percent of residents with a bachelor's degree or higher (19.6% and 30.1%, respectively). In Lynn, one in five (20.7%) residents had less than a high school diploma, a percent twice that of the state (10.0%).

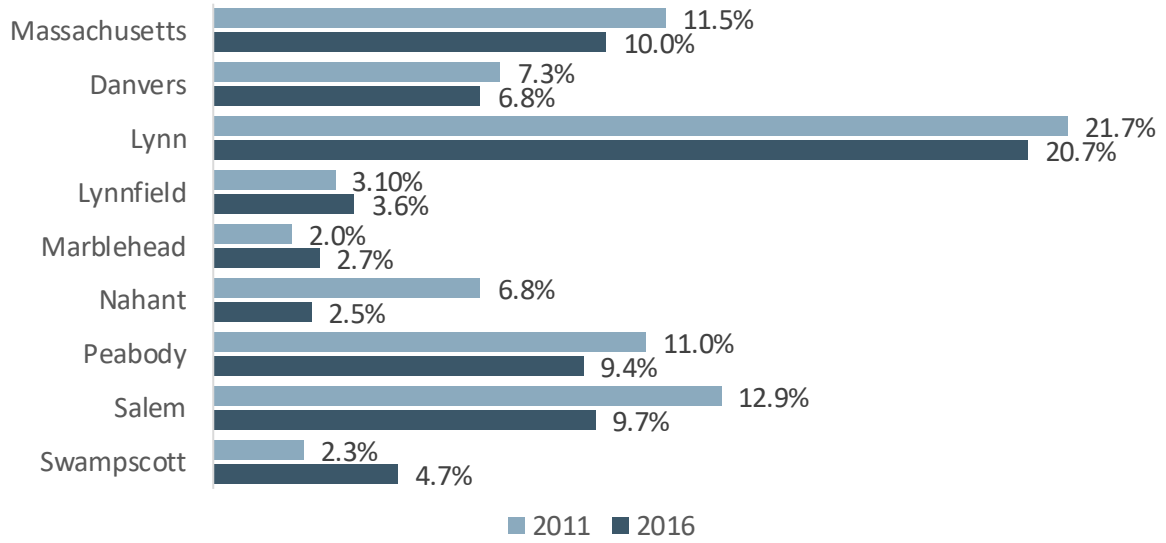
**Figure 17. Educational Attainment of Adults Age 25 and Older, by State and City/Town, 2012-2016**




DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2012-2016

As seen in Figure 18, since 2011 there have been fluctuations in the percent of adults with less than a high school diploma in the NSMC service area. The biggest change over this period can be seen in Nahant, where there was a 4.3% decrease in the percent of residents with less than a high school degree (from 6.8% to 2.5%), and Salem, which experienced a 3.2% decrease (from 12.9% to 9.7%). The towns of Lynnfield, Marblehead, and Swampscott saw an increase in the percent of residents with less than a high school diploma, with the greatest increase in Swampscott (2.3% to 4.7%).

**Figure 18. Percent of Adults Age 25 and Over with Less than High School Education or Equivalent, by State and City/Town, 2007-2011 and 2012-2016**




DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2007-2011, 2012-2016

Housing and Homelessness

> *"It's hard to keep people healthy if they don't have stable housing"* – Interview participant
>
> *"More people are being displaced, any new development is market rate, we're being gentrified…"* – Interview participant

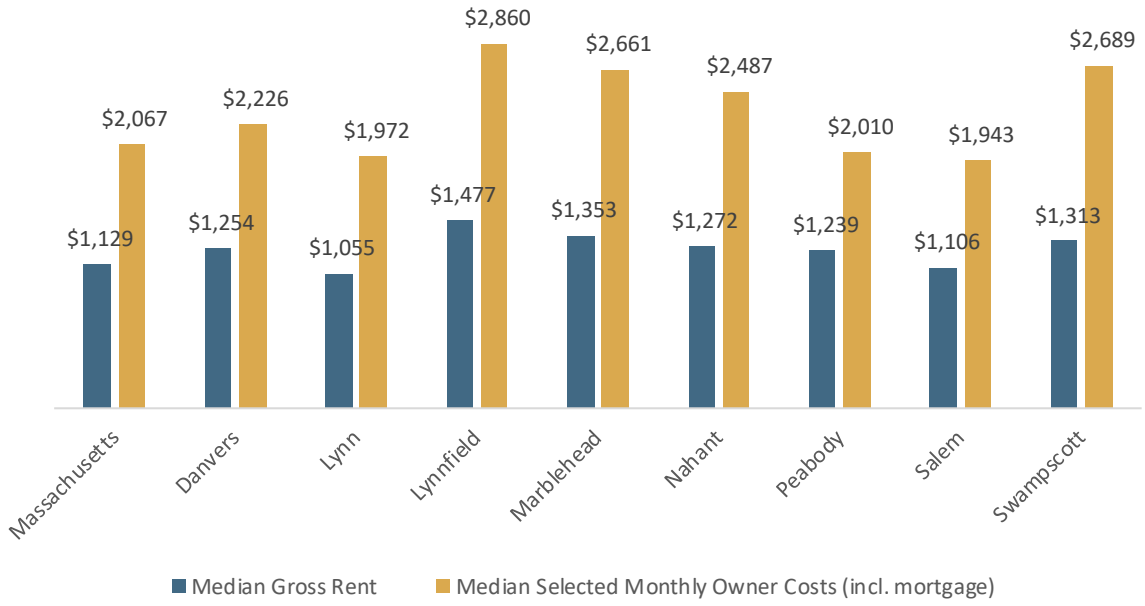
The lack of affordable housing was mentioned in almost every interview and focus group, with participants citing lackluster affordable options in safe neighborhoods. Participants reported that the number of affordable rental units in the community is far smaller than the need. Interviewees expressed concerns about gentrification and explained how housing issues mirror rising costs in larger cities such as Boston, with one participant summarizing, *"As [housing] prices rise in Boston, we're seeing it spread to the North Shore...people are being priced out and displaced."* Interview participants identified elders, residents in recovery, and those suffering from mental illness among the most vulnerable for becoming homeless.

A couple of interviewees shared that while some community organizations have been working to address this issue, more needs to be done to support the development of affordable housing in the

community. 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. As one interviewee shared, *"It's hard to keep people healthy if they don't have stable housing…they have no good place to store medications and it's not a great situation. If they don't have stable housing, it's hard to engage them in their health care."*

In 2016, median housing costs for renters in NSMC communities ranged from just over $1,000 (Lynn) to nearly $1,500 (Lynnfield), compared to a median rent of $1,100 in the state as a whole (Figure 19). For homeowners, median monthly costs (including mortgage) ranged from just under $2,000 (Salem) to nearly $2,900 (Lynnfield). As with median rents, this range indicated overall relatively higher costs of living as in the NSMC service area compared to the state average.

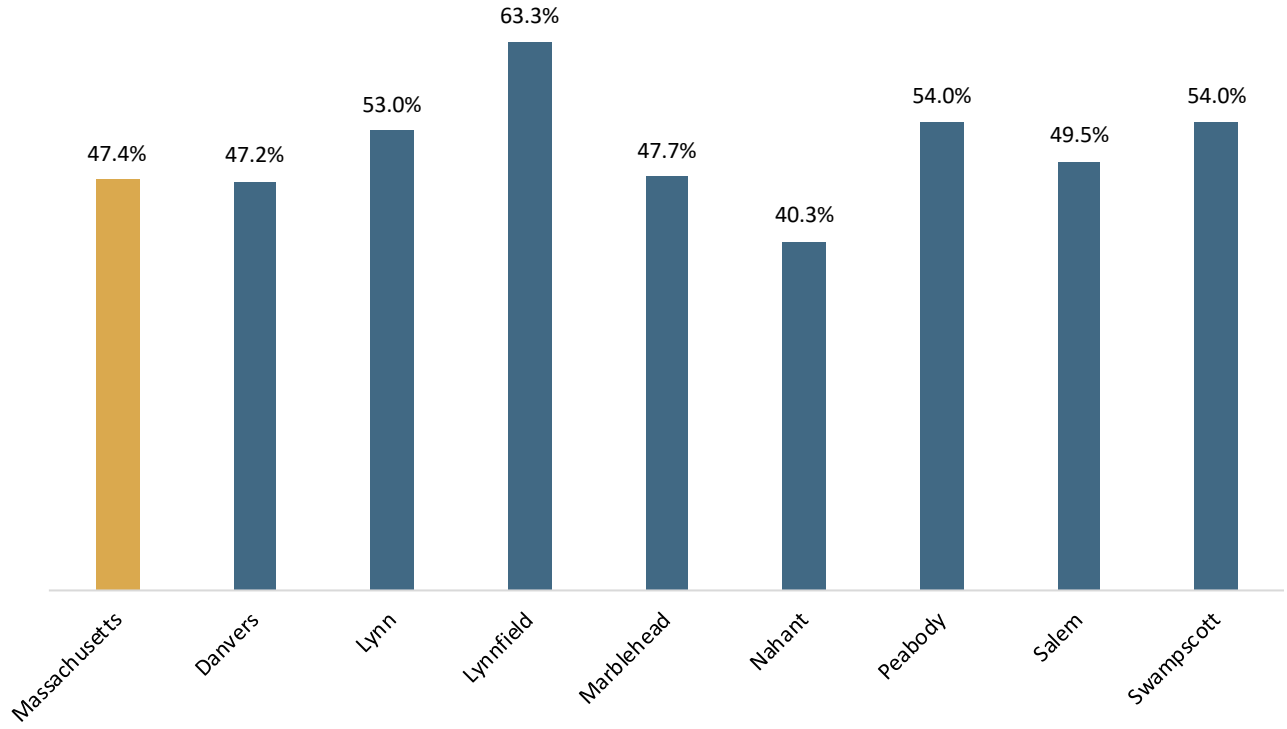
**Figure 19. Median Gross Rent and Median Selected Owner Costs (Including Mortgage), by State and City/Town, 2012-2016**




DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2012-2016

It is useful to consider median monthly housing costs in the context of the percent of income that is spent toward housing expenses. As shown in Figure 20, similar to the state average (47.4%), housing costs consumed at least 30% of income for nearly half residents of Danvers (47.2%), Marblehead (47.7%), and Salem (49.5%), compared to only 40.3% of Nahant residents. More than half of residents in all other communities in the NSMC service area spent 30% or more of their income on housing costs. The highest proportion of residents spending at this level was in Lynnfield (63.3%), where nearly two-thirds of residents spent at least one-third of their income on housing costs.

**Figure 20. Percent of Renter-Occupied Housing Units Where 30% or More of Income Is Spent Towards Rent and Utilities, by State and City/Town, 2012-2016**




DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2012-2016

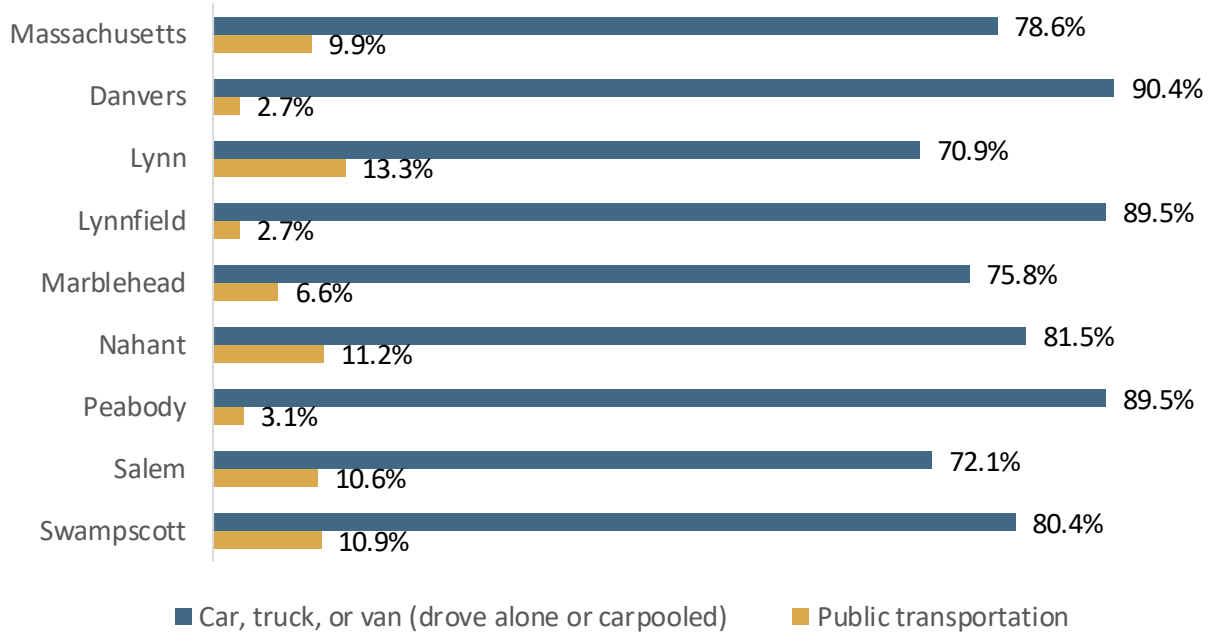
Transportation

> *"Access to transportation could be better, we have the commuter rail, but most Lynn folks don't use it because of limited access, it's not reliable, and the cost is too high."* – Focus Group Participant

Concerns about transportation were discussed in nearly every focus group and interview. While the region was described by participants as having access to the commuter rail (though this was described as costly and unreliable), some bus routes, and the RIDE (the MBTA's paratransit service), these services were viewed as inadequate given the size of the population. As a result, according to participants, residents largely rely on private cars. Where public transportation is available, participants stated, timeliness of services and cost are challenges for residents. Participants noted that transportation barriers are especially cumbersome for seniors and residents seeking ongoing care such as dialysis or cancer treatment.

With regards to means of transportation to work, in 2016 approximately 10-13% of residents in Lynn, Nahant, Salem, and Swampscott used public transportation, as compared to about 3% of residents Danvers, Lynnfield, and Peabody (Figure 21). In all NSMC service area communities, a majority of residents drove alone or carpooled to work, ranging from 70.9% in Lynn to 90.4% in Danvers.

**Figure 21. Means of Transportation to Work Among Population Age 16 and Over, by State and City/Town, 2012-2016**




DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2012-2016
NOTE: Percents do not sum to 100 due to exclusion of additional categories.

Violence and Trauma

> *"There's the trauma of poverty, the trauma of witnessing violence…it's trauma accumulated and not just one isolated incident* – Interview Participant

Violence, safety, and trauma were described by assessment participants. A few participants noted that the increase of substance users has impacted community safety, with one participant sharing, "*The [use] of opioids breeds other issues such as financial stress that forces people to resort to crime."* Youth participants reported feeling unsafe walking in their communities, citing common instances of sexual harassment and active drug users.

The rate of violent crime in the NSMC communities varied widely in 2016, from a low of about 70 incidents per 100,000 population in Swampscott and Lynnfield to a high of 772 incidents per 100,000 population in Lynn (Table 2). However, when examined over time, between 2012 and 2016 the violent crime rate has decreased in many NSMC communities including Lynn (Table 3).

With regards to property crime, in 2016, Lynnfield, Marblehead, and Nahant had the lowest rates, while Salem had the highest rate at 2,409 incidents per 100,000 population. Massachusetts, in comparison, had an average property crime rate of 1,561 incidents per 100,000 population in 2016.

**Table 2. Crime Rate per 100,000 Population, by State and City/Town, 2016**

| | Violent Crime Rate* | Property Crime Rate** |
|---|---|---|
| Massachusetts | 377 | 1,561 |
| Danvers | 139 | 2172 |
| Lynn | 772 | 2079 |
| Lynnfield | 70 | 695 |
| Marblehead | 107 | 720 |
| Nahant | 115 | 718 |
| Peabody | 392 | 1305 |
| Salem | 305 | 2409 |
| Swampscott | 69 | 1278 |

*Violent crime is defined as murder and non-negligent murder, rape, robbery, and aggravated assault.
**Property crime is defined as burglary, larceny-theft (excluding force or threat of force), motor vehicle theft, and arson (including force or threat of force).
DATA SOURCE: Crime in the United States, Federal Bureau of Investigation, 2016

**Table 3. Violent Crime Rate* per 100,000 Population, by State and City/Town, 2012 - 2016**

| | 2012 Rate | 2016 Rate |
|---|---|---|
| Massachusetts | 406 | 377 |
| Danvers | 215 | 139 |
| Lynn | 821 | 772 |
| Lynnfield | 59 | 70 |
| Marblehead | 134 | 107 |
| Nahant | 173 | 115 |
| Peabody | 232 | 392 |
| Salem | 378 | 305 |
| Swampscott | ** | 69 |

*Violent crime is defined as murder and non-negligent murder, rape, robbery, and aggravated assault.
**Numbers low and suppressed
DATA SOURCE: Crime in the United States, Federal Bureau of Investigation, 2016

Assessment participants identified the need to better understand how trauma affects all aspects of community health including prevention, violence, and behavioral health. Trauma for immigrant populations was a concern for some participants, while other participants noted that trauma, such as sexual trauma, was an issue for the community broadly and necessitates a trauma-informed approach to services. While data on Adverse Childhood Experiences (ACEs) is not available at the local level, the percentage of children ages 0 to 17 in Massachusetts overall who experienced two or more ACEs in 2016 was lower in the state (20.2%) compared to the United States (22.6%).; still, about 1 in 5 children in Massachusetts in 2016 experienced two or more ACEs[1].

[1] DATA SOURCE: Child and Adolescent Health Measurement Initiative, National Survey of Children's Health, Data Resource Center for Child and Adolescent Health, 2016, as reported by America's Health Rankings. ACEs DEFINITION: Percentage of children aged 0 to 17 years who experienced 2 or more of the following: Socioeconomic hardship, divorce/parental separation, lived with someone who had an alcohol or drug problem, victim or witness of neighborhood violence, lived with someone was mentally ill or suicidal, domestic violence witness, parent served time in jail, treated or judged unfairly due to race/ethnicity, death of parent (pre-2016 NSCH redesign)

**COMMUNITY HEALTH ISSUES**

This section focuses on health issues and concerns that emerged during the NSMC needs assessment process. It examines health outcomes as well as the lifestyle behaviors among residents that support or hinder health including physical activity, nutrition, and alcohol and substance use. Where appropriate and available, local statistics are compared to the state and trends over time are presented.

Leading Causes of Mortality

As shown in Table 4, the leading causes of death in the NSMC communities in 2014 were cancer and heart disease, mirroring patterns for Massachusetts overall. Cerebrovascular disease was the third leading cause of death in Danvers, Lynnfield, Nahant, and Peabody, whereas injuries and poisoning were the third leading causes of death in Lynn, Salem, and Swampscott, reflecting patterns for the state. It should be noted that the category of "Injuries and Poisoning" includes drug overdoses.

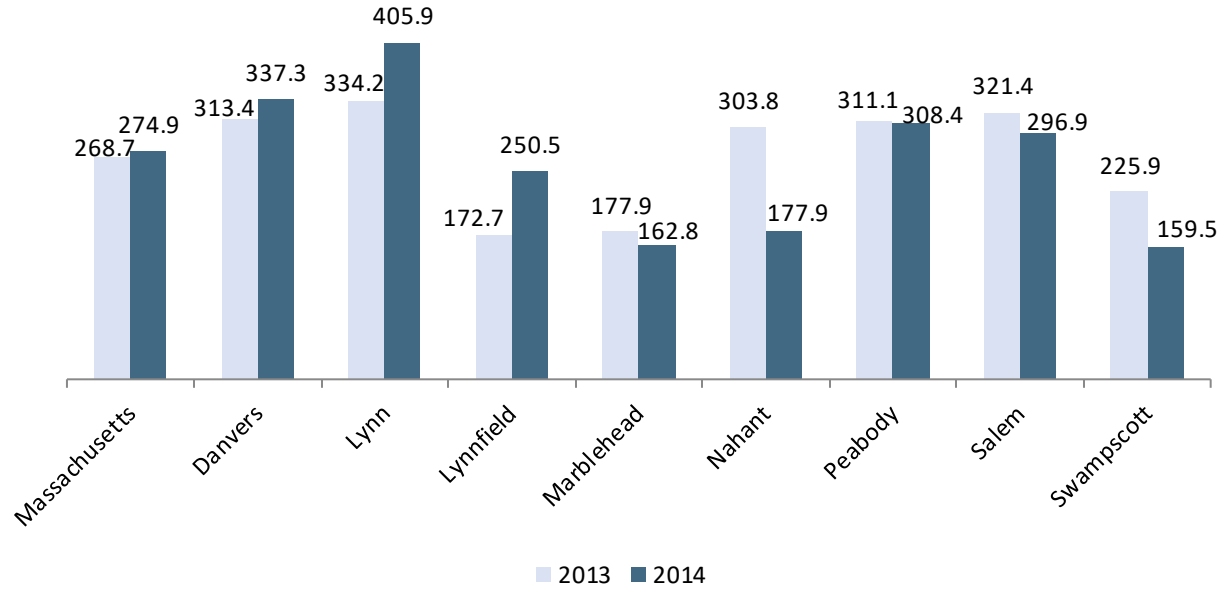
**Table 4. Leading Causes of Death, by State and City/Town, 2014**

| Rank | Massachusetts | Danvers | Lynn | Lynnfield | Marblehead | Nahant | Peabody | Salem | Swampscott |
|---|---|---|---|---|---|---|---|---|---|
| 1 | All-Site Cancer | All-Site Cancer | All-Site Cancer | All-Site Cancer | All-Site Cancer | All-Site Cancer | Heart Disease | All-Site Cancer | Heart Disease |
| 2 | Heart Disease | Heart Disease | Heart Disease | Heart Disease | Heart Disease | Heart Disease | All-Site Cancer | Heart Disease | All-Site Cancer |
| 3 | Injuries and Poisoning | Cerebro-vascular Disease | Injuries and Poisoning | Cerebro-vascular Disease | Alzheimer's Disease | Cerebro-vascular Disease | Cerebro-vascular Disease | Injuries and Poisoning | Injuries and Poisoning |

DATA SOURCE: Massachusetts Department of Public Health, Data Request, 2018

Premature mortality, which assesses deaths that occurred before age 75, is an important indicator of the community's wellbeing. Many of these premature deaths are considered to be preventable. In 2014, the premature mortality rate exceeded the state average (274.9 deaths per 100,000 population) in Lynn (405.9 deaths per 100,000 population), Danvers (337.3 deaths per 100,000 population), Peabody (308.4 deaths per 100,000 population), and Salem (296.9 deaths per 100,000 population) (Figure 22). The premature mortality rate in 2014 was lowest in Swampscott, Marblehead, and Nahant. From 2013 to 2014, the premature mortality rate increased in Danvers, Lynn, and Lynnfield, with a 45% increase in Lynnfield over this period. In contrast, the premature mortality rate declined for all other towns.

**Figure 22. Premature Mortality Rate per 100,000 Population, by State and City/Town, 2013 and 2014**




DATA SOURCE: Massachusetts Department of Public Health, Office of Data Management and Outcomes Assessment

Chronic Diseases and Related Risk Factors

This section presents findings relative to chronic diseases, including asthma, diabetes, heart disease, hypertension, and cancer, and related risk factors including physical activity, healthy eating and food security, and overweight or obesity. In interviews and focus group discussions across the NSMC catchment area, residents noted that unhealthy habits are established at a young age and that chronic diseases are often associated with the social determinants of health including poverty. One resident explained, "*Chronic diseases decrease the life span, it reinforces the poverty effect because people have strokes, heart attacks, and things that shouldn't happen to them at their age. It essentially helps families be poorer*."

*Physical Activity*

Access to opportunities for physical activity was reported by participants to be varied across the region. While participants shared that some communities have parks, trails, and bike sharing programs, they indicated that these opportunities do not exist in all neighborhoods. In Lynn, the safety of parks and exposure to dirty needles was a concern that residents noted affected physical activity. Participants cited additional barriers to physical activity including lack of sidewalks in some areas and poor quality of sidewalks in others. Teen focus group participants identified *"broken sidewalks and dirty streets"* as daily concerns, and some participants also noted that physical activity opportunities and programming for youth are limited during the wintertime and summer months.

*Healthy Eating and Food Security*

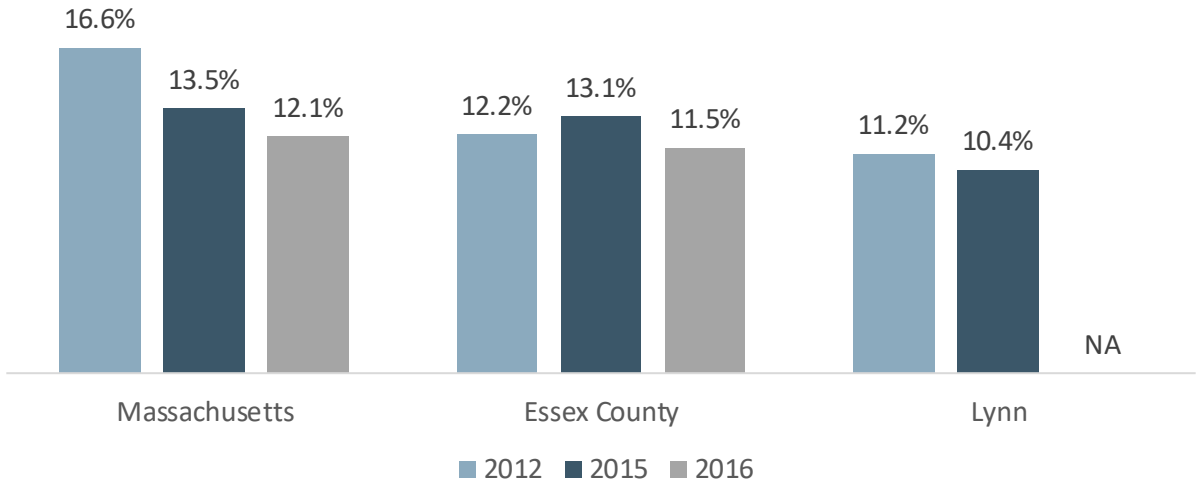
> "*There needs to be some consciousness about [the] benefits of healthy eating and providing people this,* ***at affordable prices***." - Community Forum Participant

Focus group and interview participants expressed concern about limited healthy food options in lower income communities in the North Shore area. Participants reported a lack of grocery stores and prevalence of convenience stores and fast food in these communities, which they saw as directly linked to obesity and chronic disease among residents. The higher cost of fresh produce and lack of awareness of the importance of healthy eating and how to cook healthy meals were also identified as barriers to healthy eating. One community forum participant explained, *"Even Farmer's Markets are ridiculous, food is so expensive here!"* Food insecurity among seniors was mentioned as an issue by a couple of participants. Teen focus group participants noted the saturation of fast food restaurants in Lynn.

Access to fresh food was still a challenge in high-need neighborhoods. Residents noted that the push for healthier items at food banks poses challenges to buy more equipment to store food. Additionally, participants explained that many residents do not have access to a refrigerator in shelters or if they are homeless. One assessment participant described, "*We don't have much capacity for food pantries in our community. There's also the issue of housing fresh produce. Pantries are traditionally in churches. If you get fresh items, where are they supposed to store it?"*

Food security is a condition in which individuals have safe, sufficient access to nutritious food. As shown in Figure 23, in 2012 and 2015 approximately one in ten children in Lynn (11.2% and 10.4%, respectively), did not have access to a reliable source of food in the past year. In 2015, lack of access to a reliable source of food for children in Lynn (10.4%) was slightly below that for children across Massachusetts (13.5%) and Essex County (13.1%).

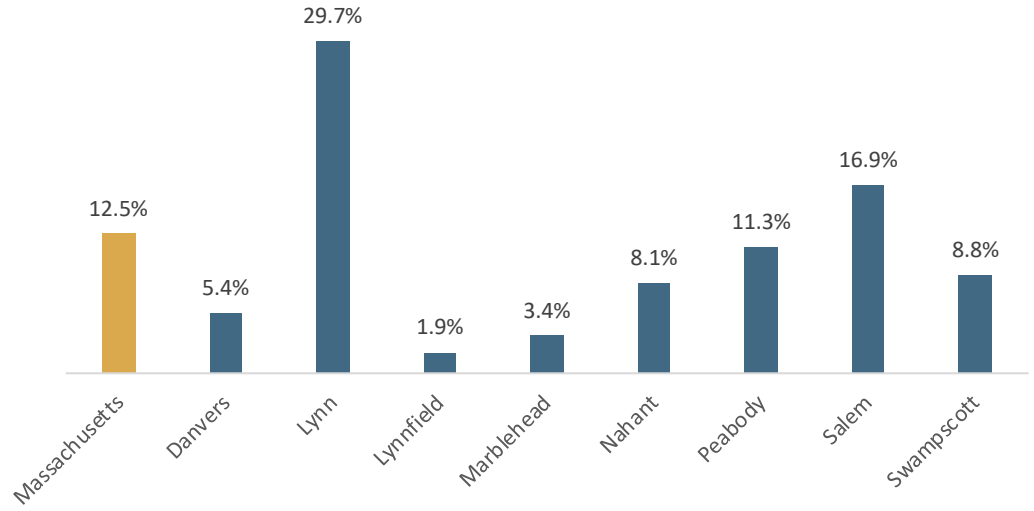
**Figure 23. Percent of Population Under Age 18 That Did Not Have Access to a Reliable Source of Food During the Past Year, by State, County, and City/Town, 2012, 2015, and 2016**




DATA SOURCE: Feeding America, Map the Meal Gap
NOTE: NA indicates data not available; Data not available for other assessment communities

In 2016, nearly one-third (29.7%) of households across Lynn received food stamp benefits under the Supplemental Nutrition Assistance Program (SNAP), more than double the percent of food stamp recipients for Massachusetts overall (12.5%) (Figure 24). One in six (16.9%) households in Salem received food stamps and one in ten Peabody households received food stamps. Fewer than one in ten households across the six other towns in the NSMC service area received food stamps.

**Figure 24. Percent of Households Receiving Food Stamps (SNAP Benefits), by State and Select Cities/Towns, 2012-2016**




DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2012-2016

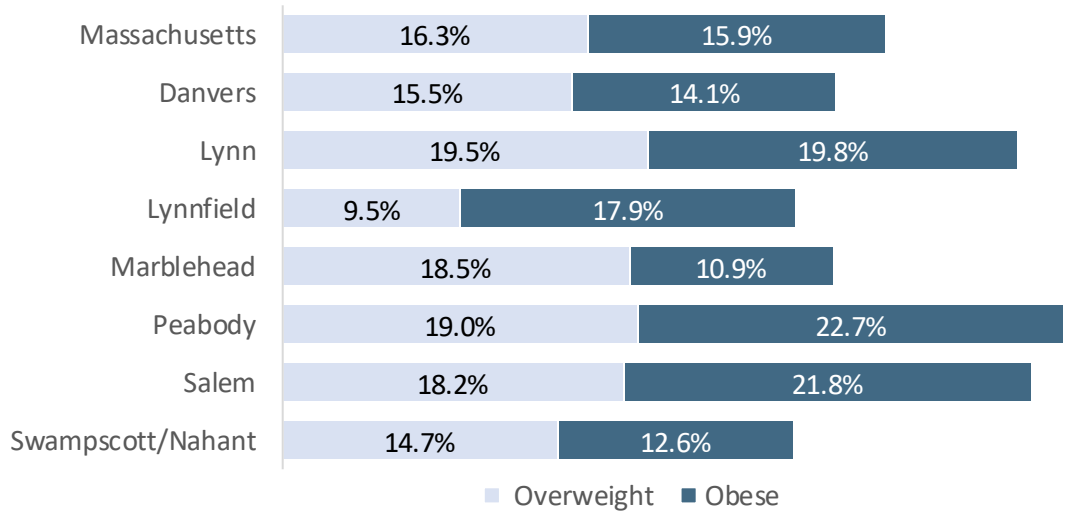
*Overweight and Obesity*

> *"Low income children have problems with obesity because families can't afford the price. It's a lot easier to buy the bag of chips than it is to buy the fruit."* - Community Forum Participant

As noted above, assessment participants connected limited access to affordable, healthy foods with obesity. In interviews and focus groups, childhood obesity arose as a common concern. Community residents perceived that childhood obesity was on the rise, and that the prevalence of obesity was correlated with socioeconomic status. In particular, assessment participants connected childhood obesity to reliance on fast food and concerns about safety in some neighborhoods.

In 2014-2015, two in five public school students in Peabody (41.7%), Salem (40.0%), and Lynn (39.3%) were overweight or obese, while only one-third (32.2%) of public school students were overweight or obese across Massachusetts (Figure 25). Compared to the state (16.3%), a higher percent of public school students in the towns of Lynn (19.5%), Marblehead (18.5%), Peabody (19.0%), and Salem (18.2%) were overweight in 2014-2015. The towns of Lynn (19.8%), Lynnfield (17.9%), Peabody (22.7%), and Salem (21.8%) had a prevalence of obesity amongst public school students that exceeded statewide (15.9%) patterns.

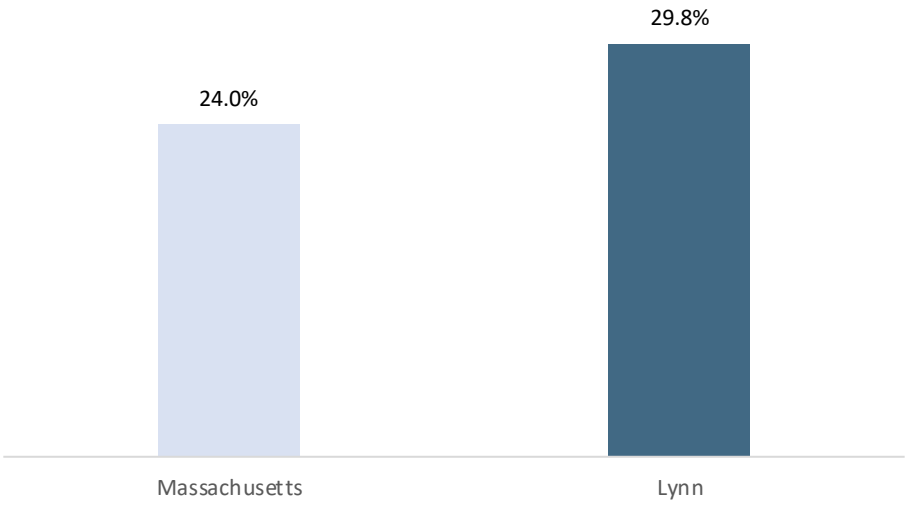
**Figure 25. Percent of Overweight or Obese Children in Grades 1, 4, 7, and 10, by State and City/Town, 2014-2015**




DATA SOURCE: Body Mass Index Screening, Massachusetts Public School Districts, 2015

As shown in Figure 26, in 2015 three in ten (29.8%) adults in Lynn were obese, while nearly one-quarter (24.0%) of adults across Massachusetts were obese.

**Figure 26. Percent of Adults Who are Obese, By State and City/Town, 2015**




DATA SOURCE: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System
NOTE: Age-adjusted; data not available for other assessment communities

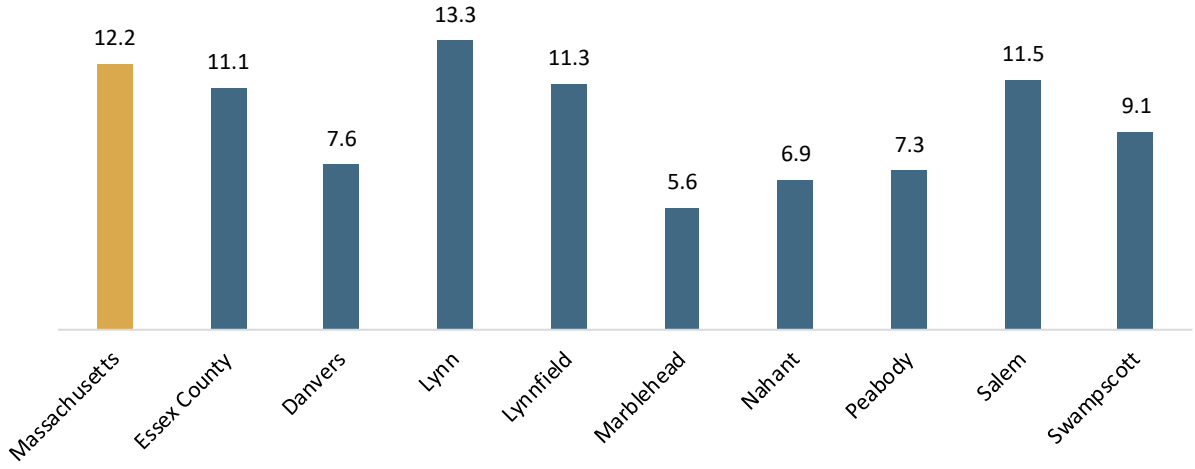
*Asthma*

> "*If… patients do have housing, it's not in great condition. So if their kids have asthma, if there's carpeting or cockroaches, their asthma gets flared up*." – Interview participant

Assessment participants shared the perception that young children living in poverty are affected by asthma as a result of poor environmental factors, poor living conditions, and housing conditions. One key informant elaborated: *"… if their kids have asthma, if there's carpeting or cockroaches, their asthma gets flared up. There are things beyond our ability to control."* Participants suggested that prevention and control efforts around asthma be developed or expanded, specifically: policy and regulation for housing; access to medication; outreach and engagement of parents; linkages between schools and primary care; and tobacco cessation programs.

As shown in Figure 27, only Lynn (13.3 cases per 100 students) had an asthma prevalence rate among students that exceeded that for Massachusetts overall (12.2 cases per 100 students) in 2014-2015. The prevalence of asthma among students exceeded the average for Essex County (11.1 cases per 100 students) in the towns of Lynn (13.3 cases per 100 students), Salem (11.5 cases per 100 students), and Lynnfield (11.3 cases per 100 students).

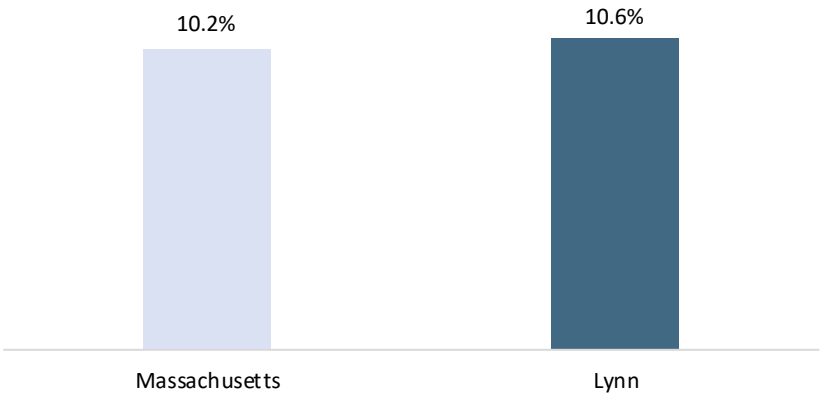
**Figure 27. Rate of Asthma per 100 Students, by State and City/Town, 2014-2015 School Year**




DATA SOURCE: Massachusetts Environmental Public Health Tracking, Massachusetts Department of Public Health Bureau of Environmental Health

In 2015, one in ten adults in Lynn (10.6%) and Massachusetts (10.2%) reported that they had been told by a health care provider that they had asthma (Figure 28).

**Figure 28. Percent of Adults Reporting a Diagnosis of Asthma, by State and City/Town, 2015**

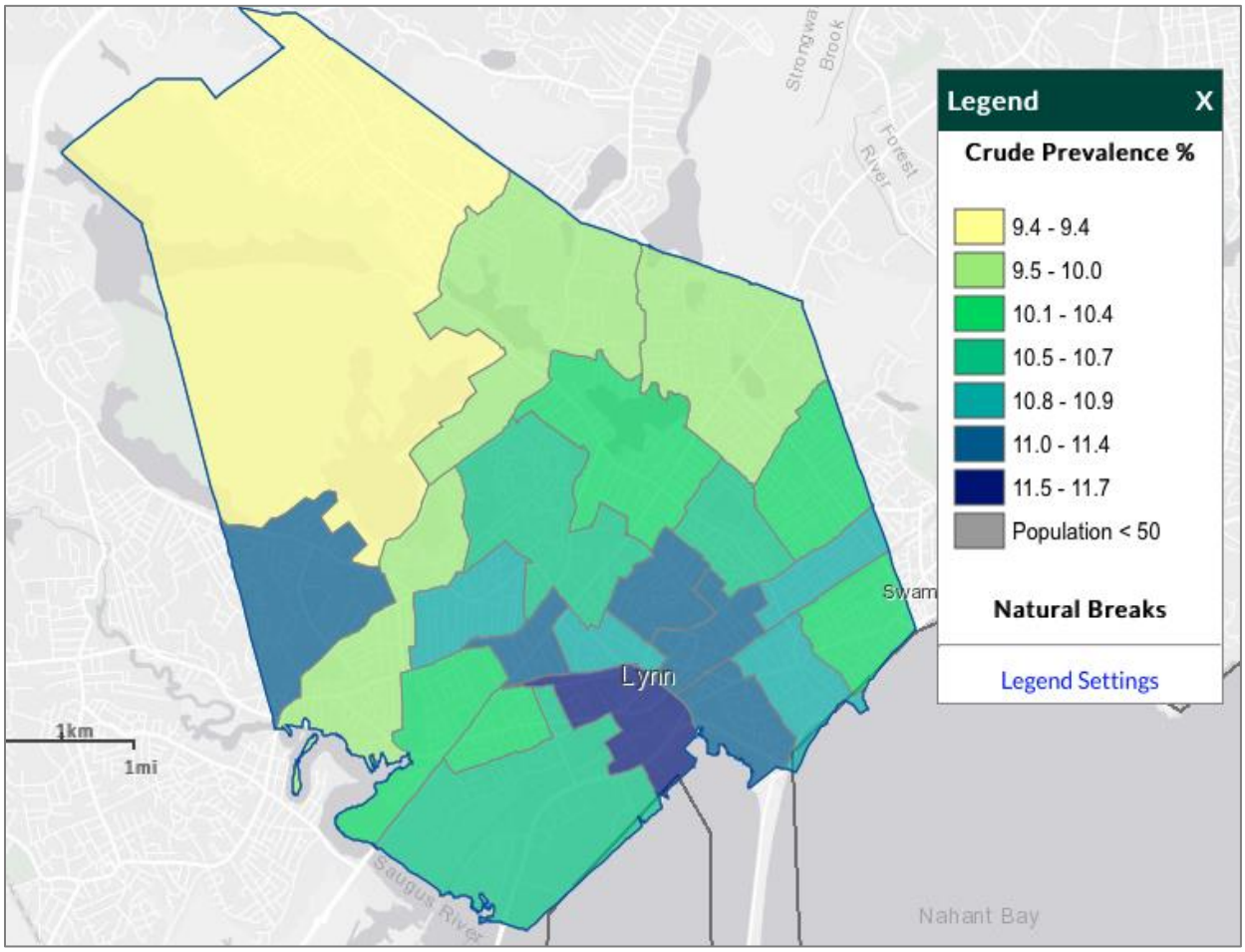



DATA SOURCE: Centers for Disease Control and Prevention, Division of Population Health; Behavioral Risk Factor Surveillance System

NOTE: Data not available for other assessment communities

When looking at the geographic distribution of asthma among adults in Lynn, the prevalence of asthma was highest (approximately 11%) in Census tracts in south central Lynn and southwest Lynn in 2015, as indicated by the blue shading. The asthma prevalence was lowest (approximately 9%) among adults in Census tracts in northwest Lynn, which are shaded in yellow.

**Figure 29. Map of Asthma Prevalence Among Adults, Lynn, 2015**



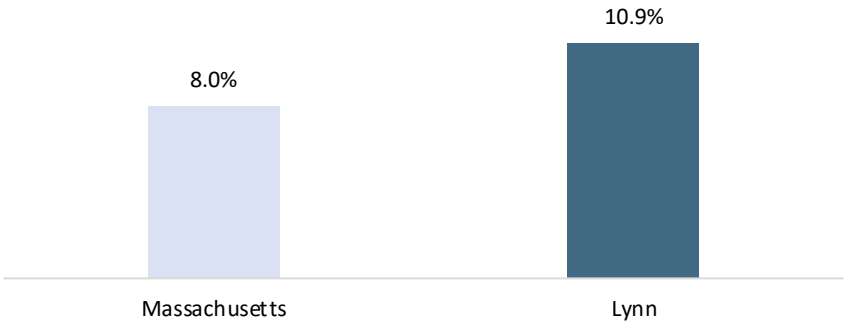

DATA SOURCE: Centers for Disease Control and Prevention, Division of Population Health, 500 Cities
NOTE: Model-based estimates

*Diabetes*

> "*Diabetes, I would venture to say that in our congregation, diabetes is at a crisis point, that is a huge, a HUGE issue. And people seem to accept it as normal.*" – Interview participant

Diabetes was a common concern discussed in interviews and forums. One key informant emphasized community concerns about diabetes: *"Diabetes, I would venture to say that in our congregation, diabetes is at a crisis point, that is a huge, a HUGE issue. And people seem to accept it as normal. Think "My mother had it, my father had it, my brother had it, now it's my turn". My mind is blown when I see how casual people talk about diabetes, like oh well, and they're not paying attention to things to prevent complications. [They] just say well "oh well, I'm diabetic"."* In 2015, one in ten adults in Lynn (10.9%) reported that they were diagnosed with diabetes, a prevalence that was higher than the state average (8.0%) (Figure 30).

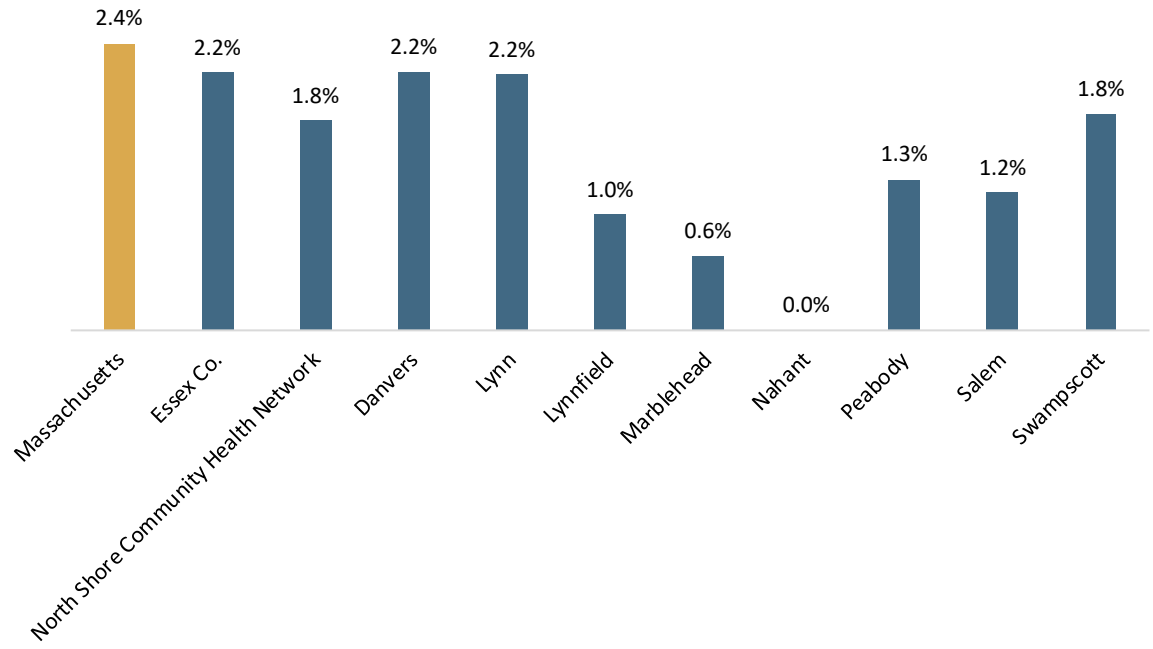
**Figure 30. Percent of Adults Reporting a Diagnosis of Diabetes, by State and City/Town, 2015**




DATA SOURCE: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System
NOTE: Age-adjusted; data not available for other assessment communities

In 2015, reflecting patterns across the state (2.4%) and in Essex County (2.2%), 2.2% of deaths in Danvers and Lynn were attributed to diabetes (Figure 31). The prevalence of diabetes-attributable deaths was lowest in Nahant (0.0%) and Marblehead (0.6%).

**Figure 31. Deaths Attributable to Diabetes as Percent of All Deaths, by State, County and City/Town, 2015**

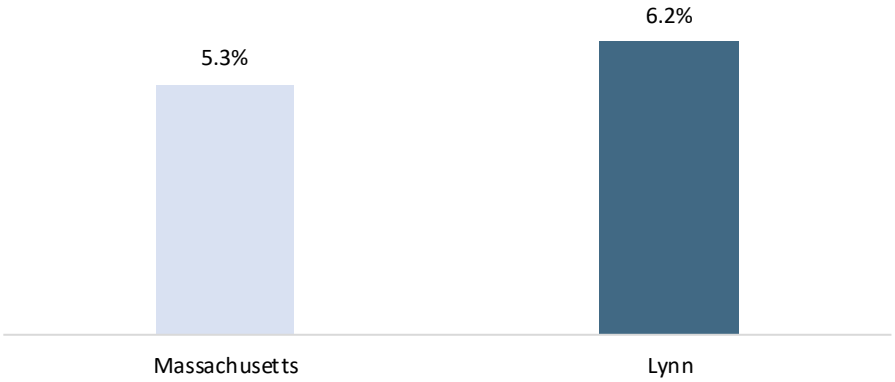



DATA SOURCE: Massachusetts Department of Public Health, Registry of Vital Records and Statistics

*Heart Disease*

As shown in Figure 32, 6.2% of Lynn adults were ever diagnosed with angina or coronary heart disease, a prevalence that was slightly higher than that for the state overall (5.3%) in 2015. While heart disease was among the leading causes of death in the area, few assessment participants identified heart disease as a pressing community concern.

**Figure 32. Percent of Adults Ever Diagnosed with Angina or Coronary Heart Disease, by State and City/Town, 2015**



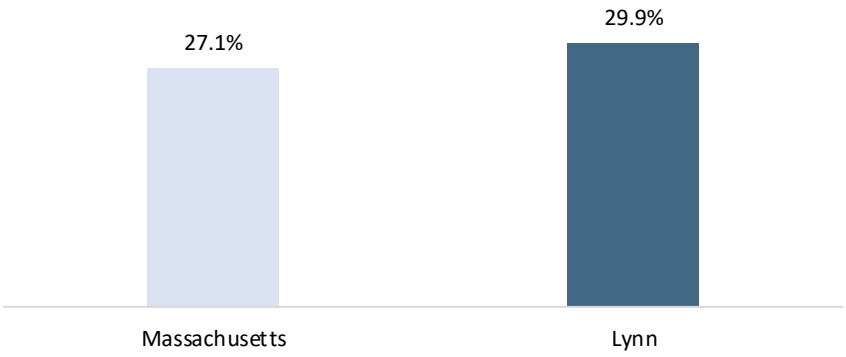

DATA SOURCE: Centers for Disease Control and Prevention, Division of Population Health; Behavioral Risk Factor Surveillance System

NOTE: Data not available for other assessment communities

*Hypertension*

In 2015, nearly one in three Lynn adults (29.9%) had been diagnosed with high blood pressure, slightly higher than the state average (27.1%) (Figure 33).

**Figure 33. Percent of Adults Ever Diagnosed with High Blood Pressure, by State and City/Town, 2015**




DATA SOURCE: Behavioral Risk Factor Surveillance System (BRFSS)

NOTE: Age-adjusted; Data not available for other assessment communities

*Cancer*

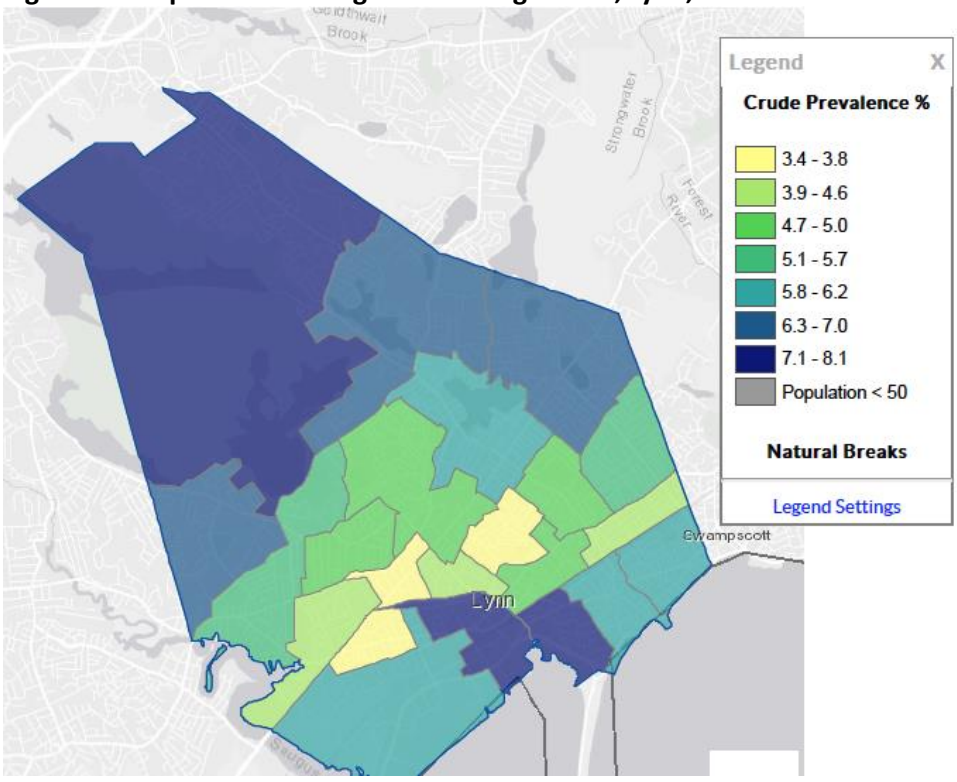
In 2015, approximately 6% of adults in Lynn and Massachusetts reported a cancer diagnosis in their lifetime (Figure 34). While cancer is among the leading causes of death in the area, few assessment participants identified cancer as a pressing community concern.

**Figure 34. Percent of Adults Ever Diagnosed with Cancer, by State and City/Town, 2015**


DATA SOURCE: Behavioral Risk Factor Surveillance System (BRFSS)
NOTE: Age-adjusted; Does not include skin cancer diagnoses; data not available for other assessment communities

Shown in Figure 35 is the geographic distribution of cancer diagnoses among adults across Lynn in 2015. Census tracts in northwestern and south central Lynn (6%-8%) – shaded in blue – had double the prevalence of cancer diagnoses than Census tracts in central Lynn (approximately 3%), as indicated by the yellow and light green shading.

**Figure 35. Map of Cancer Diagnoses among Adults, Lynn, 2015**




DATA SOURCE: Centers for Disease Control and Prevention, Division of Population Health, 500 Cities
NOTE: Model-based estimates; does not include skin cancer

Oral Health

> *"There needs to be a real commitment to understanding that oral health is a huge part of health care. Oral health puts you at risk for a lot of issues like cardiac disease."* –Interview participant

A few assessment participants described oral health as a concern, especially for the homeless and elderly population. It was noted that regular and preventive dental care can be costly, and that residents may avoid paying for dental care until emergency situations arise. Participants also noted that oral health can impact other health issues, such as cardiac disease or the ability to eat healthy foods, as well as other aspects of daily living such as appearance and confidence at job interviews.

In 2016, there was a slightly lower proportion of dental providers available to Essex County residents relative to Massachusetts overall (Figure 36). Specifically, there was one dental provider available for every 1,140 Essex County residents in 2016, a ratio that exceeded the state average of one dental provider per 1,010 residents across Massachusetts.

**Figure 36. Ratio of Population per One Dentist, by State and County, 2016**


DATA SOURCE: County Health Rankings & Roadmaps, Area Health Resource File/American Medical Association, 2018
NOTE: Data not available for the assessment communities

Limited data were available regarding a range of oral health outcomes across the NSMC catchment area. As shown in Figure 37, among adults 65 years of age and older, in Lynn one in five (20.0%) have lost all of their teeth, compared to one in seven (14.4%) statewide in 2014.

**Figure 37. Percent of Adults 65+ Years of Age Reporting Loss of All Teeth, by State and City/Town, 2014**


DATA SOURCE: Centers for Disease Control and Prevention, Division of Population Health, 500 Cities
NOTE: Data not available for all assessment communities

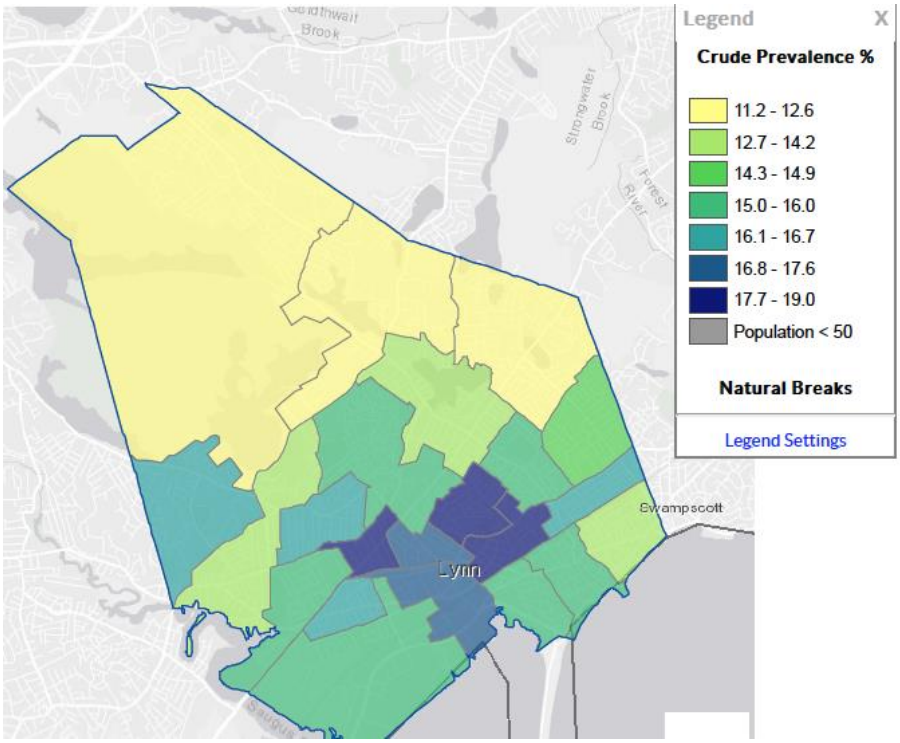
Mental Health

> *"Mental illness is a key concern for Lynn. Substance use and mental illness go hand in hand and you really need to treat them both."*- Community Forum Participant
>
> "*We're not quite where we need to be in terms of de-stigmatization. Why should people who have anxiety be treated differently than people who have asthma or diabetes?"* -Key Informant Interview

Mental health was identified as a priority issue among the majority of participants in this assessment. Depression, stress, and trauma were the most frequently cited concerns within these conversations, including among youth. As described above, participants noted the need to understand mental health issues through the lens of individual and community trauma. Additionally, some participants shared the perception that law enforcement is increasingly encountering individuals suffering from mental illness and could benefit from additional training and support. Lastly, participants expressed concerns about cognitive impairments among seniors as described above, including Alzheimer's and dementia.

As shown in Figure 38, the prevalence of adverse mental health outcomes in Lynn was not equally distributed. At least one in ten Lynn residents reported at least 14 poor mental health days in the past month in 2015. As indicated by the blue shading, Census tracts in south central Lynn had a higher prevalence of residents reporting poor mental health (16%-19%) compared to Census tracts in northern and northwestern Lynn (shown in yellow shading).

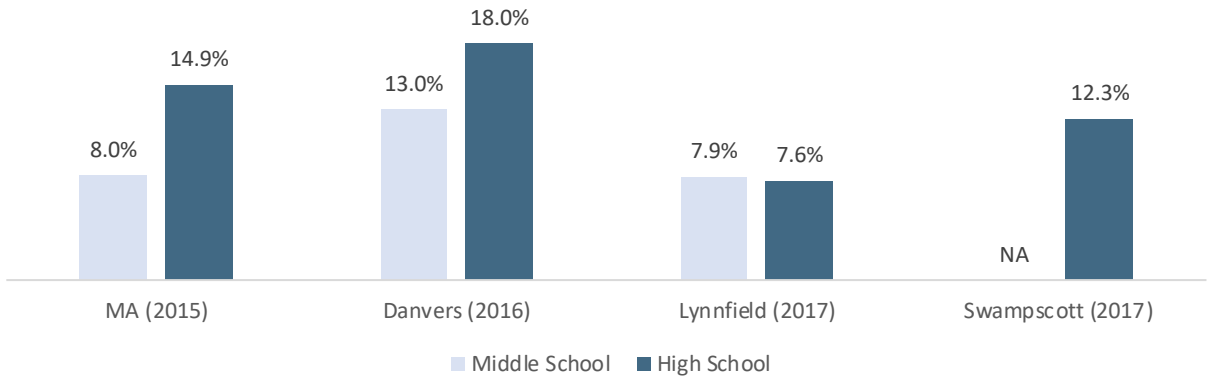
**Figure 38. Map of Adults Reporting 14+ Poor Mental Health Days, Lynn, 2015**




DATA SOURCE: Centers for Disease Control and Prevention, Division of Population Health, 500 Cities
NOTE: Model-based estimates

In 2017, nearly one in five (18.0%) Danvers high school students reported that they seriously considered attempting suicide, a prevalence that was slightly higher than that for high school students across Massachusetts (14.9%) in 2015 (Figure 39). Following state patterns (8.0% and 14.9%, respectively), high school students (18.0%) in were more likely than middle school students (13.0%) in Danvers to report considering a suicide attempt. In 2017, compared to the state average, a smaller percent of high school students in Swampscott (12.3%) and Lynnfield (7.6%) reported considering suicide. In Lynnfield (7.9%) in 2017, the percent of middle school students reporting that they considered attempting suicide was similar to that for middle school students across Massachusetts (8.0%) in 2015.

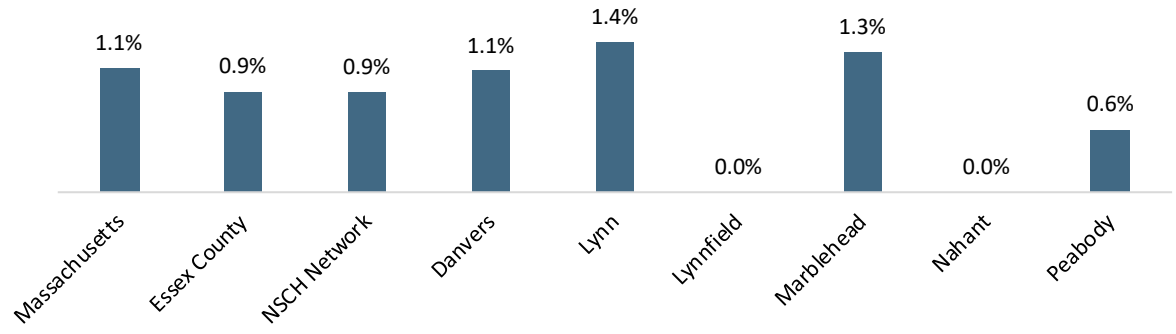
**Figure 39. Percent of Middle School and High School Students Reporting They Seriously Considered Attempting Suicide, 2015-2017**




DATA SOURCES: Massachusetts 2015 Youth Risk Behavioral Survey. Health & Risk Behaviors of Massachusetts Youth: 2015; Danvers Middle School 2016 Youth Risk Behavioral Survey Results; Lynnfield Middle School 2017 Youth Risk Behavioral Survey Results; Swampscott Middle School 2017 Youth Risk Behavioral Survey Results
NOTE: NA indicates data not available; Years of data collection vary by assessment community; data not available for all assessment communities

In 2015, approximately 1% of all deaths were attributable to suicide in Lynn (1.4%), Marblehead (1.3%), Danvers (1.1%), and Salem (0.9%), similar to the prevalence statewide (Figure 40). The prevalence of suicide-attributable deaths was lowest in Lynnfield, Nahant, and Swampscott.

**Figure 40. Deaths Attributable to Suicide as Percent of All Deaths, by State and City/Town, 2015**



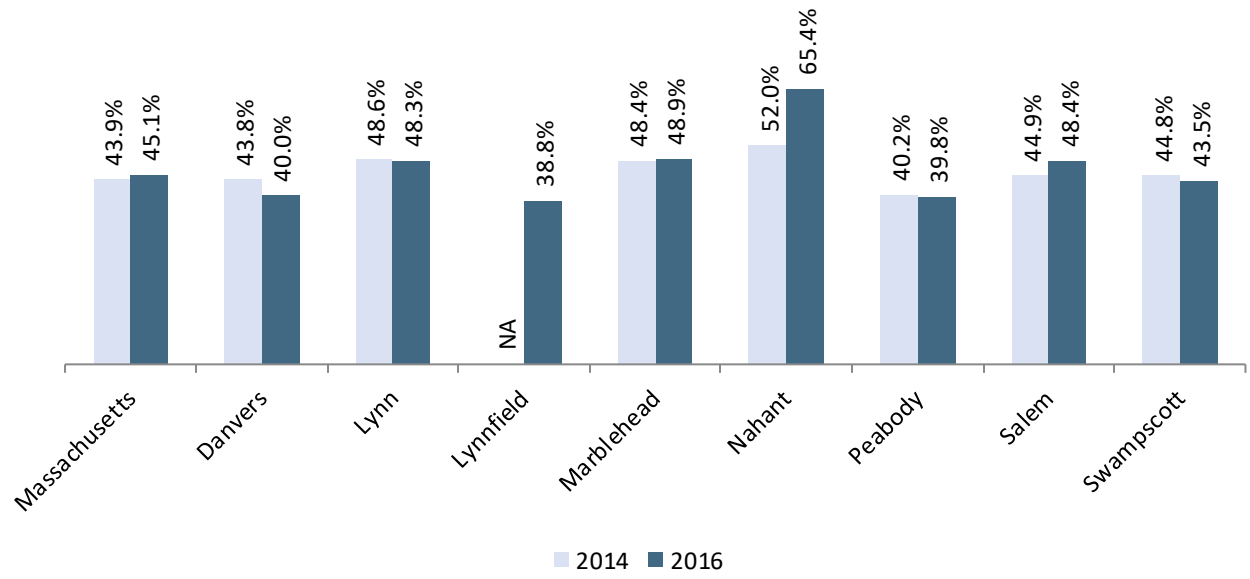

DATA SOURCE: "Massachusetts Deaths 2015" Pub Apr 2018. MDPH, Registry of Vital Records and Statistics
NOTE: NSCH Network indicates North Shore Community Health Network

Many assessment participants observed that dual diagnoses, particularly for individuals with multiple mental health issues and/ or a mental health and substance use disorder, are particularly challenging. As one Community Forum participant noted, "*Substance use and mental illness go hand in hand and you really need to treat them both."*

Assessment participants also described barriers to mental health treatment. First, some participants noted that stigma around seeking care for this health issue persists, including among seniors. As one interviewee noted, "*We're not quite where we need to be in terms of de-stigmatization. Why should people who have anxiety be treated differently than people who have asthma or diabetes?*" Other participants pointed to systemic challenges to addressing community mental health issues. Participants described an insufficient number of providers in the community to meet the need, noting in particular that some mental health providers do not accept or accept only a limited number of Medicaid-insured patients. A need for child psychiatrists in particular was noted. Lastly, some assessment participants described a need for additional grant or other funding to support education around and de-stigmatization of mental health issues.

Figure 41 below presents the percentage of clients seeking substance abuse treatment who also report prior mental health treatment. In 2016, two-thirds (65.4%) of clients from Nahant who sought treatment at MDPH-contracted or licensed substance abuse services reported prior mental health treatment, a percent that far exceeded that for Massachusetts overall (45.1%) (Figure 41). Among the other communities in the NSMC service area, nearly half of clients from Lynn (48.3%), Marblehead (48.9%), and Salem (48.4%) reported past mental health treatment, compared to four in ten clients in Danvers (40.0%), Lynnfield (38.8%), Peabody (39.8%), and Swampscott (43.5%). From 2014 to 2016, following patterns statewide, reports of past mental health treatment among substance abuse clients increased or remained stable across the NSMC communities.

**Figure 41. Percent of MDPH Contracted/Licensed Program Clients Reporting Prior Mental Health Treatment, by State and City/Town, 2014 and 2016**




DATA SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services, Description of Admissions to BSAS Contracted/Licensed Programs, FY2014 and FY2016
NOTE: NA indicates data not available

Substance Use Disorders

> *"When you have an addict in your family, it disrupts the whole family, it disrupts everything emotionally, financially."* -Community Forum Participant
>
> "*A lot of people are vaping. It's mad cheap to buy and easy to get. People vape during class*." – Youth focus group participant
>
> *"We need a change in regulation for suboxone. There's a limit on how many users I can treat but I can prescribe as many opioids as I want. It doesn't work." -Focus Group Participant*

Substance use disorders, in particular opioids, were mentioned in every focus group, interview, and community forum group. Residents noted that substance use bears heavily on families. One community forum participant noted, *"When you have an addict in your family, it disrupts the whole family, it disrupts everything emotionally, financially."* Another key informant described: *"It's affecting many more people than HIV ever affected at its peak… Everyone needs to talk about [substance use disorders]. The amount of people that die from overdoses is the equivalent of two jumbo jets crashing every day."*

Substance use treatment, and a need for expanding services, was a challenge that emerged in several interviews. One informant noted, *"Getting same-day referrals is really challenging. People are desperate and if you can't get them help immediately they go use [drugs] again."* For opioid treatment in particular, barriers to treatment that were identified by assessment participants included a need for additional providers who are certified to provide medication-assisted treatment such as Suboxone, limited funding for prevention and education, and stigma from both providers and substance users. For example, participants perceived that some providers did not want to treat substance users and have "*those people in [their] waiting room*," while from a user level, pill users do not identify as a "*junkies*" because they are not injecting heroin. Some participants also noted stigma related to substance use in Lynn in particular. As one participant described, *"people in Marblehead say there's no drug problem, that it's in Lynn… but they're buying their drugs in Lynn. They're a source community."*

Residents identified a need to explore different substance use treatment models. Recommendations included transitional programs, outpatient support groups, peer recovery models, and on demand care for drug use for which there is a short window to intervene. Another suggestion included advocating for ambulances to transport patients to community health centers to provide "*urgent care for opioids*." Participants observed that there are some "repeat offenders" who frequently seek care in the ER for substance use issues, yet participants noted that ER providers often do not have the capacity to discuss long term services. Lastly, some informants perceived that services are hyper-focused on opioids. One informant noted, *"There are no services for anything besides opioids—patients feel that their problems aren't as important because there is such a focus on opioid use instead of say, alcoholism."*

Table 5 below shows that among clients who sought treatment at MDPH-contracted or licensed substance abuse services and programs in 2016, the primary substance for which treatment was sought was heroin for a majority of clients from NSMC communities. However, in Marblehead and Nahant, alcohol was the most frequently cited primary substance for which treatment was sought.

**Table 5. Primary Substance Used for which Treatment is Sought Among MA DPH Contracted/Licensed Program Clients, 2016**

| | Alcohol | Crack/ Cocaine | Heroin | Other Opioids | Other Sedatives/ Hypnotics | Marijuana |
|---|---|---|---|---|---|---|
| **Massachusetts** | 31.8% | 3.3% | 54.6% | 4.5% | 1.1% | 4.0% |
| **Danvers** | 37.0% | 1.9% | 47.9% | 6.8% | - | 4.7% |
| **Lynn** | 28.1% | 4.2% | 57.9% | 5.7% | 1.0% | 4.7% |
| **Lynnfield** | 33.7% | - | 51.0% | 9.2% | - | - |
| **Marblehead** | 52.6% | - | 36.3% | 5.9% | - | - |
| **Nahant** | 52.0% | - | 40.0% | - | - | - |
| **Peabody** | 29.8% | 2.8% | 56.0% | 5.4% | 1.4% | 3.9% |
| **Salem** | 38.1% | 2.6% | 46.5% | 4.7% | 1.4% | 6.1% |
| **Swampscott** | 37.0% | - | 48.9% | - | - | - |

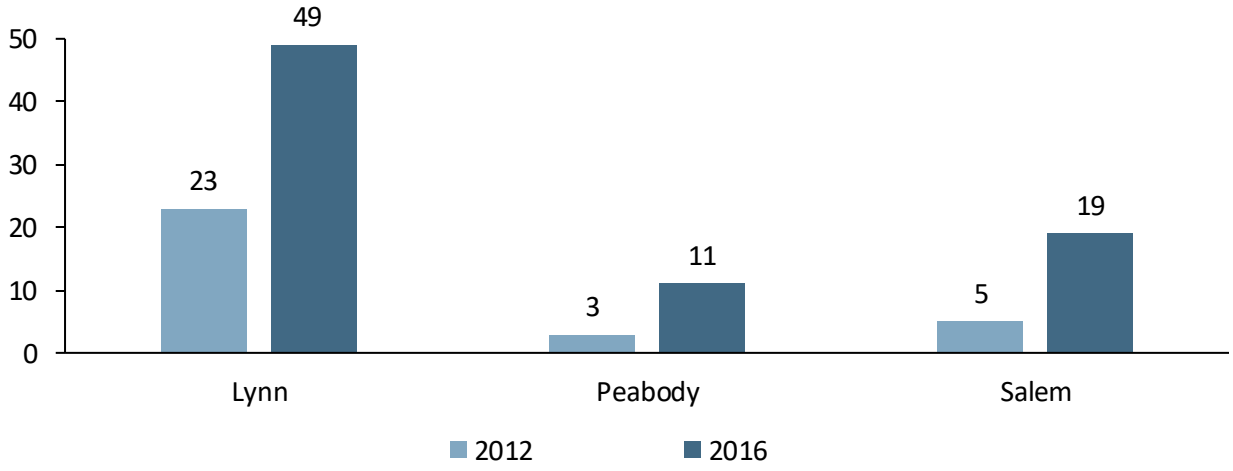
DATA SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services, Description of Admissions to BSAS Contracted/Licensed Programs, FY2016

*Opioid Use*

Use of opioids such as fentanyl was a major concern that emerged in interviews and discussions. One informant explained, *"The state should treat it like the state of emergency that it is. We need on demand treatment for the opioid epidemic."* Another informant described the toxicity of fentanyl use: *"With fentanyl it's not just experimenting with drugs…you can die the first time."*

As shown in Figure 42, opioid related deaths more than doubled between 2012 and 2016 in Lynn, Peabody, and Salem.

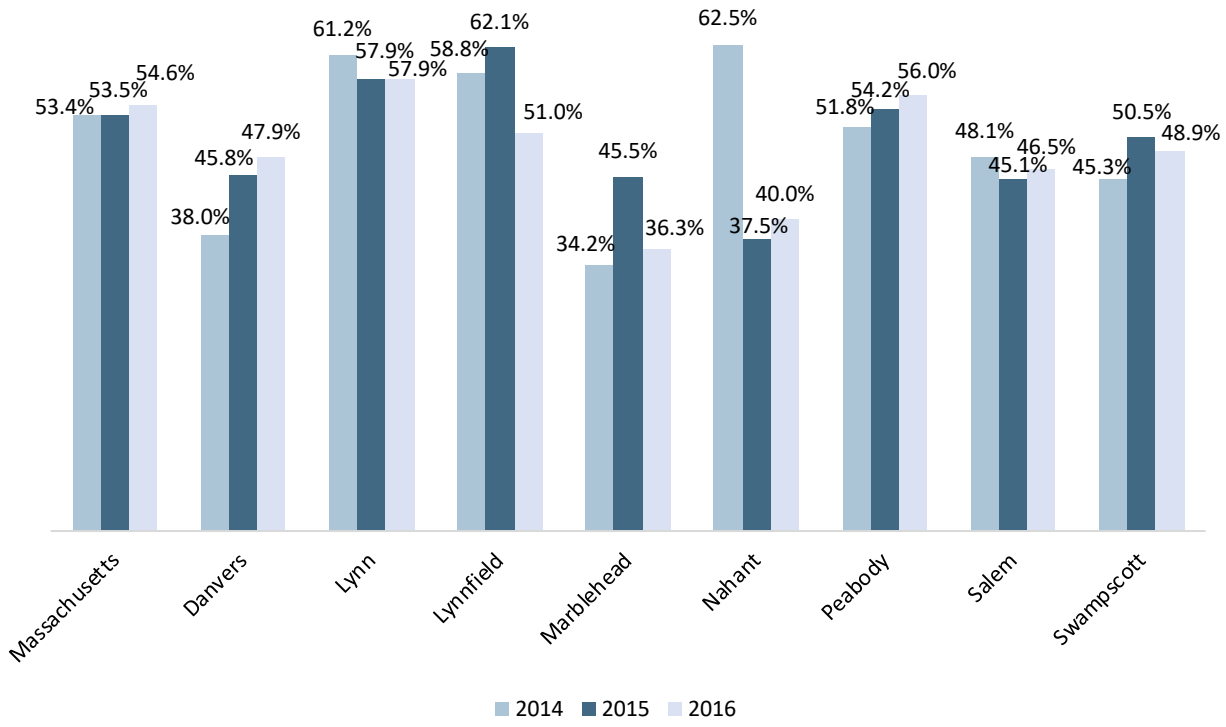
**Figure 42. Opioid Related Deaths, 2012 and 2016**




DATA SOURCE: Massachusetts Department of Public Health, Registry of Vital Statistics, November 2017

As shown in Figure 43, during the 2014 to 2016 period, treatment for heroin use exceeded patterns across the state (approximately 54%) for residents of Lynn, Lynnfield, Nahant, and Peabody, where nearly six in ten residents in substance use treatment were receiving care for heroin use ( Figure 43). During this period, treatment for heroin use was lowest for residents of Danvers and Marblehead. From 2014 to 2016, treatment for heroin use increased in Danvers, Peabody, and Swampscott, and decreased in Lynn, Lynnfield, Nahant, and Salem. Notably, heroin use treatment declined from 62.5% in 2014 to 40.0% in 2016 in Nahant. Heroin use treatment for residents of Marblehead ranged from one-third of clients in 2014 (34.2%) and 2016 (36.3%) to approximately four in ten (45.5%) clients in 2015.

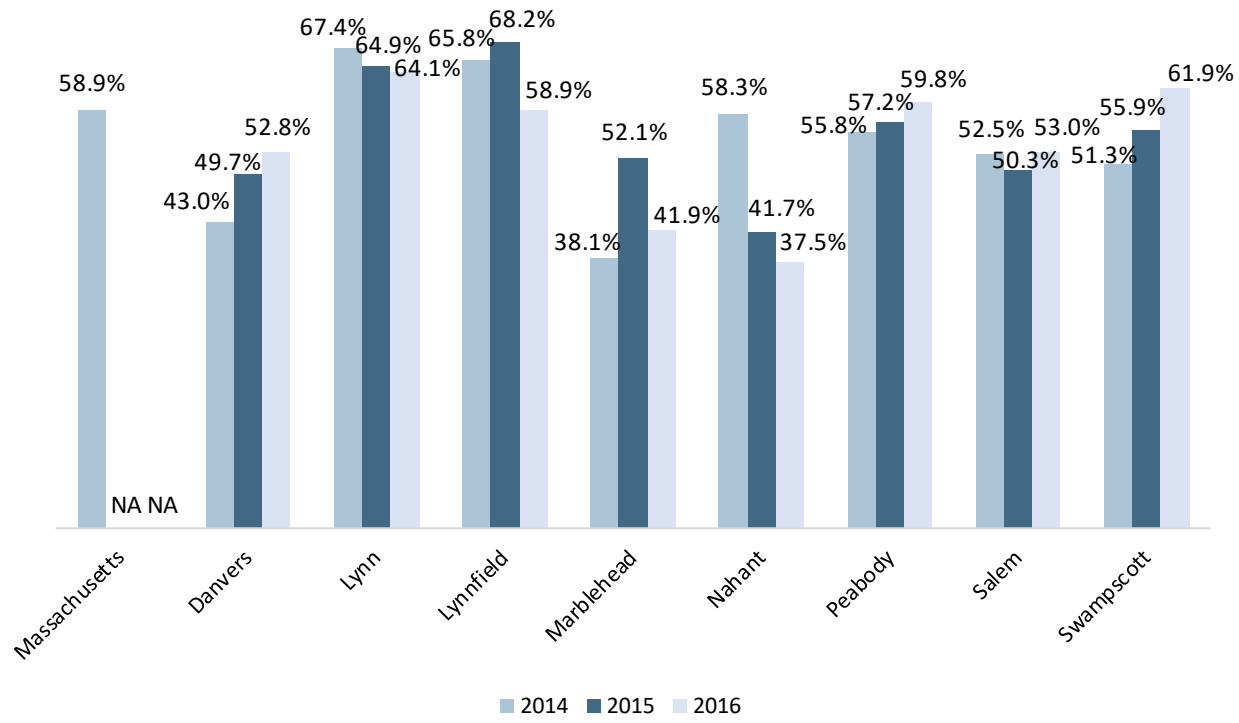
**Figure 43. Percent of Population who Sought Substance Use Treatment Primarily for Heroin Use, by State and City/Town, 2014, 2015, and 2016**




DATA SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services, Description of Admissions to BSAS Contracted/Licensed Programs, FY2016

From 2014 to 2016, on average across Lynn and Lynnfield approximately six in ten residents in substance use treatment used heroin in the past year, slightly higher than the prevalence for Massachusetts overall (58.9%) in 2014 (Figure 44). In 2016, the prevalence of heroin use among substance use clients was lowest in Nahant (37.5%) and Marblehead (41.9%). From 2014 to 2016, use of heroin in the past year increased slightly in Peabody and increased more substantially in Danvers, Marblehead, and Swampscott. Heroin use in the past year declined slightly for substance use clients from Lynn and Lynnfield, and declined noticeably in Nahant, while patterns remained stable in Salem.

**Figure 44. Percent of Population in Substance Use Treatment who Used Heroin in Past Year, by State and City/Town, 2014, 2015, and 2016**



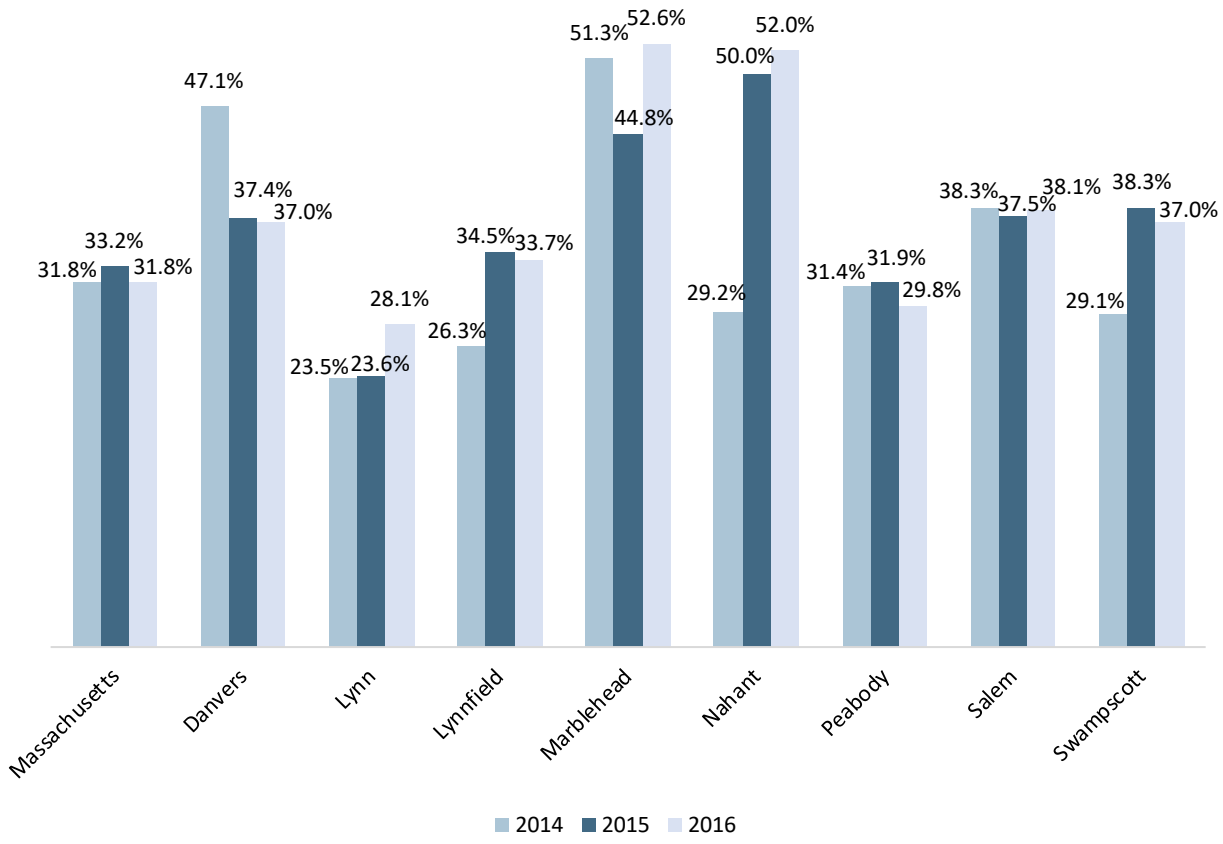

DATA SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services, Description of Admissions to BSAS Contracted/Licensed Programs, FY2016
NOTE: NA indicates data not available

*Alcohol Use*

While not mentioned as frequently as opioid use, some assessment participants did note that alcohol use is a key area of concern, including among minority communities, and shared the perception that resources for treatment of opioid use diverts funding and support from treatment of other substances including alcohol. As one interviewee noted, "*There are no services for anything besides opioids — patients feel that their problems aren't as important because there is such a focus on opioid use instead of say, alcoholism*."

During the 2014 to 2016 period, alcohol treatment patterns among clients seeking substance use treatment consistently exceeded the state average (approximately 31%) in Danvers, Marblehead, and Salem (Figure 45). In 2016, half of clients from Marblehead (52.6%) and Nahant (52.0%) sought treatment for alcohol use, the highest prevalence across the NSMC service area. From 2014 to 2016, alcohol treatment declined in Danvers, and increased or remained stable across the remaining towns served by NSMC. The prevalence of alcohol treatment increased substantially in Nahant from nearly one-third (29.2%) in 2014 to half (52.0%) of clients in 2016.

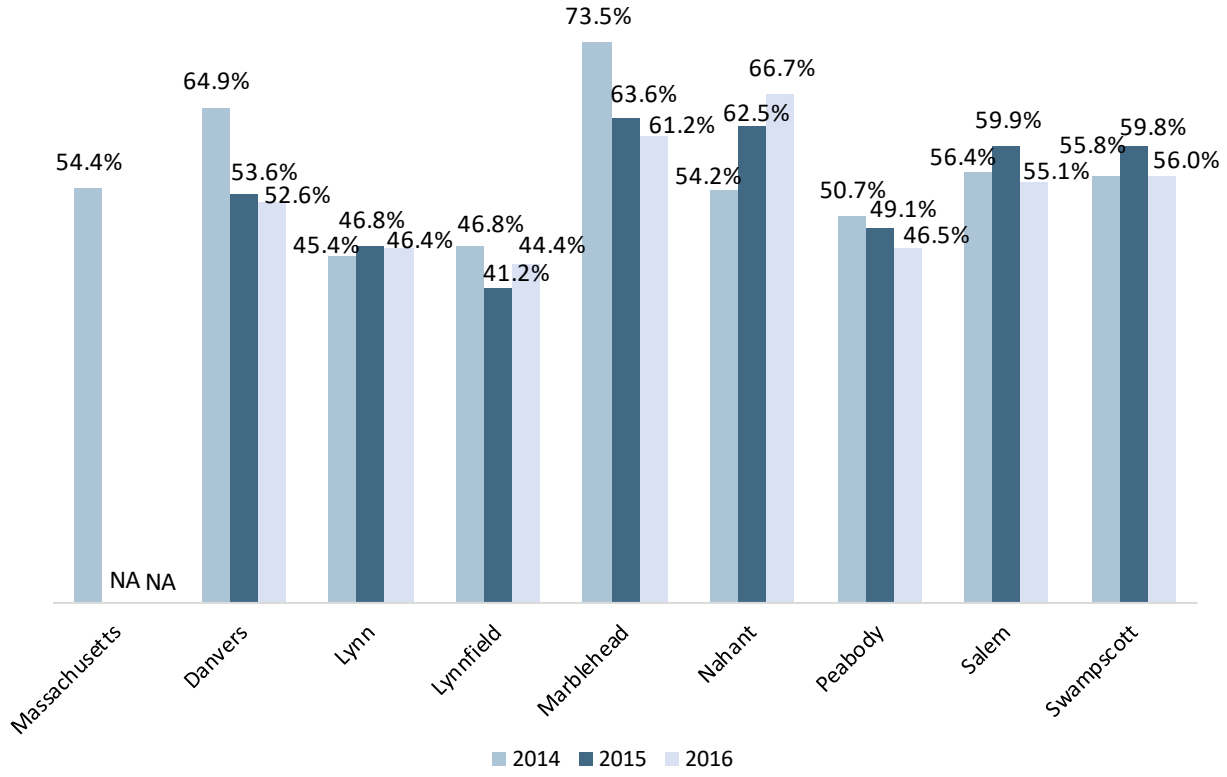
**Figure 45. Percent of Population who Sought Substance Use Treatment Primarily for Alcohol Use, by State and City/Town, 2014, 2015, and 2016**




DATA SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services, Description of Admissions to BSAS Contracted/Licensed Programs, FY2016

In 2014, similar to state patterns (54.4%), in six of the eight assessment communities approximately half of clients seeking substance use treatment reported use of alcohol in the past year (Figure 46). In contrast, nearly two-thirds (64.9%) of clients from Danvers and three-fourths (73.5%) of clients from Marblehead reported alcohol use in the past year in 2014. In 2015 and 2016, six in ten clients from Marblehead and Nahant reported alcohol use in the past year. From 2014 to 2016, reports of past alcohol use declined for clients from Danvers, Lynnfield, Marblehead, Peabody, and Salem, with the greatest decline seen in Danvers (64.9% in 2014 to 52.6% in 2016) and Marblehead (73.5% to 61.2%). Over this same period, past year alcohol use increased slightly among clients from Lynn and increased substantially for clients from Nahant (54.2% in 2014 to 66.7% in 2016).

**Figure 46. Percent of Population in Substance Use Treatment who Used Alcohol in Past Year, by State and City/Town, 2014, 2015, and 2016**



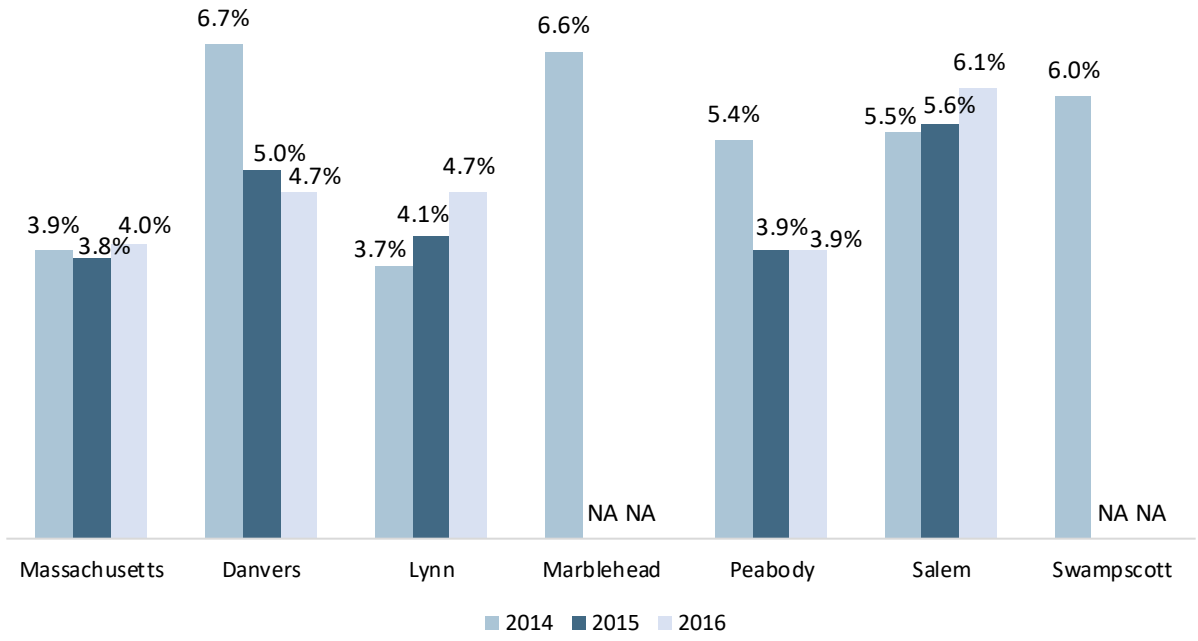

DATA SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services, Description of Admissions to BSAS Contracted/Licensed Programs, FY2016
NOTE: NA indicates data not available

*Tobacco / Marijuana Use*

Concerns about marijuana use were mentioned by some assessment participants, particularly for youth and particularly given the imminent legalization of this substance. As one focus group participant noted, "*I also wonder around marijuana use being legal for everyone, [it's a] growing concern in high schools and outside of high schools*."

During the 2014 to 2016 period, while substance use treatment for marijuana use remained stable for Massachusetts overall, these patterns fluctuated across the assessment communities (Figure 47). For all NSMC service area communities for which data were available, at some point in the 2014 to 2016 period substance use treatment for marijuana use exceeded the state average (approximately 4%). For assessment communities for which longitudinal data were available, treatment for marijuana use declined in Danvers (6.7% to 4.7%) and Peabody (5.4% to 3.9%) and increased in Lynn (3.7% to 4.7%) and Salem (5.5% to 6.1%) from 2014 to 2016.

**Figure 47. Percent of Population who Sought Substance Use Treatment Primarily for Marijuana Use, by State and City/Town, 2014, 2015, and 2016**

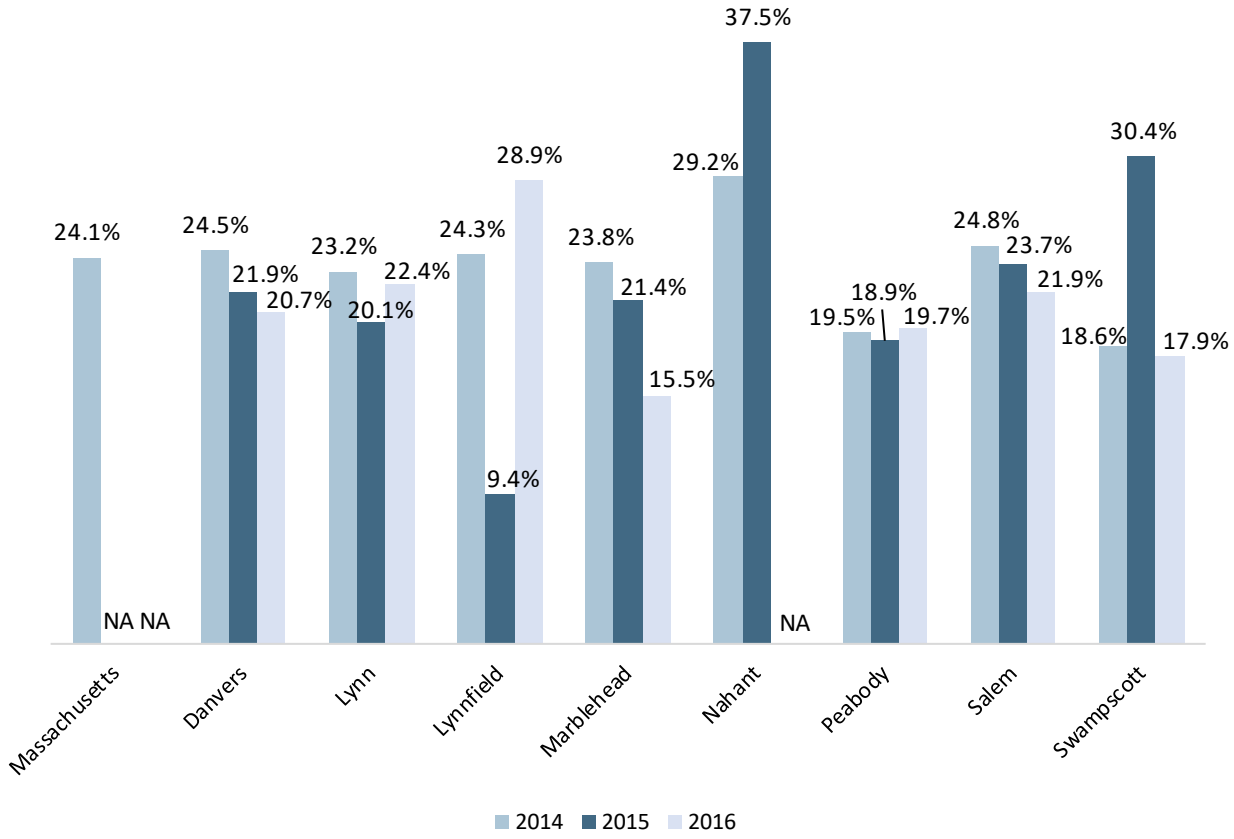



DATA SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services, Description of Admissions to BSAS Contracted/Licensed Programs, FY2016

NOTE: NA indicates data not available; Data not available of all assessment communities

As shown in Figure 48, from 2014 to 2016 on average across six of the eight assessment communities approximately one-quarter of substance use clients used marijuana in the past year, similar to patterns across Massachusetts. Exceptions to this pattern were in Nahant, where 29.2% to 37.5% of clients used marijuana in the past year in 2014 and 2015, respectively, and Peabody, where one-fifth of clients reported past year use of marijuana from 2014 to 2016. From 2014 to 2016, past year marijuana use among substance use clients declined for residents of Danvers, Lynn, Marblehead, and Salem, while patterns remained stable in Peabody. Marijuana use in the past year increased for substance use clients from Lynnfield, Nahant, and Swampscott, with approximately one in three clients reporting marijuana use in the past year.

**Figure 48. Percent of Population in Substance Use Treatment who Used Marijuana in Past Year, by State and City/Town, 2014, 2015, and 2016**

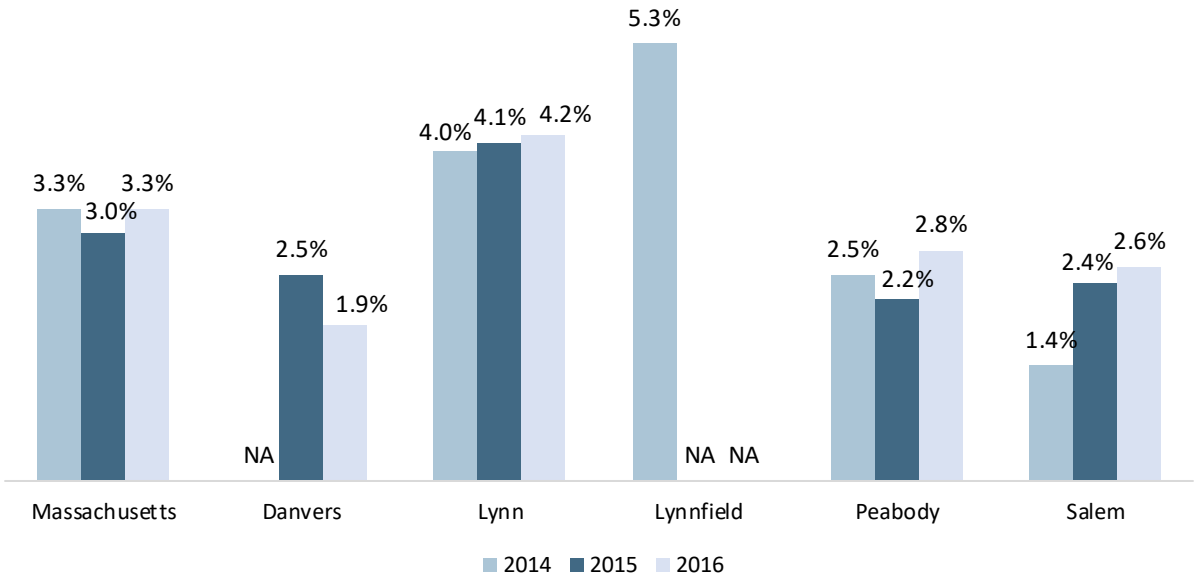



DATA SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services, Description of Admissions to BSAS Contracted/Licensed Programs, FY2016
NOTE: NA indicates data not available

*Cocaine*

Few assessment participants raised use of cocaine as a top concern for their communities. During the 2014 to 2016 period, substance use treatment for crack/cocaine exceeded the state average (approximately 3%) in Lynn (about 4%) and Lynnfield (5.3%) (Figure 49). From 2014 to 2016, substance use treatment for crack/cocaine declined slightly in Danvers, and increased slightly in Lynn and Salem. Patterns remained stable in Peabody from 2014 to 2016.

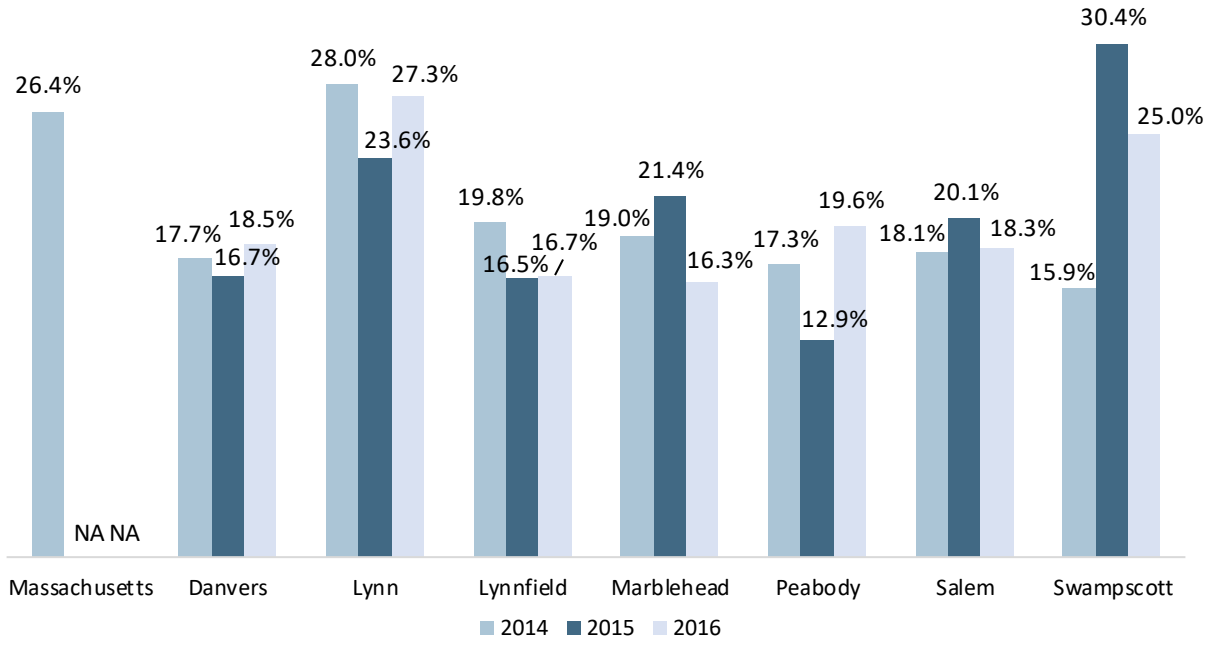
**Figure 49. Percent of Population who Sought Substance Use Treatment Primarily for Crack/Cocaine Use, by State and City/Town, 2014, 2015, and 2016**




DATA SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services, Description of Admissions to BSAS Contracted/Licensed Programs, FY2016
NOTE: NA indicates data not available; data not available for all assessment communities

In 2014, the percent of clients in substance use treatment who used crack/cocaine in the last year in Lynn (28.0%) was most similar to patterns for Massachusetts overall (26.4%) (Figure 50). From 2014 to 2016, crack/cocaine use among substance use treatment clients fluctuated across the NSMC service area. On average, across Danvers, Lynnfield, Marblehead, Peabody, and Salem nearly one in five clients used crack/cocaine in the past year from 2014 to 2016. Crack/cocaine use in the past year increased slightly for residents from Danvers and Peabody and decreased in Lynnfield and Marblehead. In Swampscott, past year crack/cocaine use increased from one in six (15.9%) clients in 2014 to one-quarter (25.0%) of clients in 2016.

**Figure 50. Percent of Population in Substance Use Treatment who Used Crack/Cocaine in Past Year, by State and City/Town, 2014, 2015, and 2016**



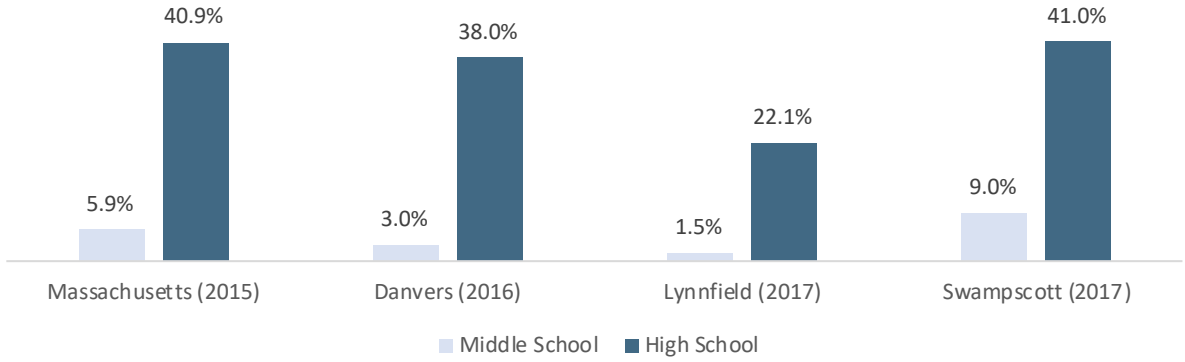

DATA SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services, Description of Admissions to BSAS Contracted/Licensed Programs, FY2016
NOTE: NA indicates data not available; data not available for all assessment communities

*Substance Use Among Youth*

Assessment participants also discussed the impact of substance use disorders on youth. Focus group participants noted that substance use patterns differ for youth compared to adults, and described use of mainly fentanyl, Xanax, benzol, prescription medications, and alcohol among youth. Participants also explained that vaping is a significant issue among youth. Residents also identified a need for opioid discussions in classrooms for children witnessing opioid use in the household. One informant lamented, *"[it's] sad to say, but by 5th grade students are already aware of what's going on in their household, and they might not know where to go for help."*

Over the 2015 to 2017 period, marijuana use among high school students in Swampscott (41.0%) and Danvers (38.0%) was similar to patterns among high school students statewide (40.9%), with approximately four in ten students reporting that they have used marijuana at some point in their lifetime (Figure 51). Lifetime use of marijuana among high school students was lowest in Lynnfield, where two in ten (22.1%) students reported past marijuana use. Among middle school students, a higher percentage of middle school students in Swampscott (9.0%) reported ever using marijuana compared to students in Danvers, Lynnfield, and the state overall.

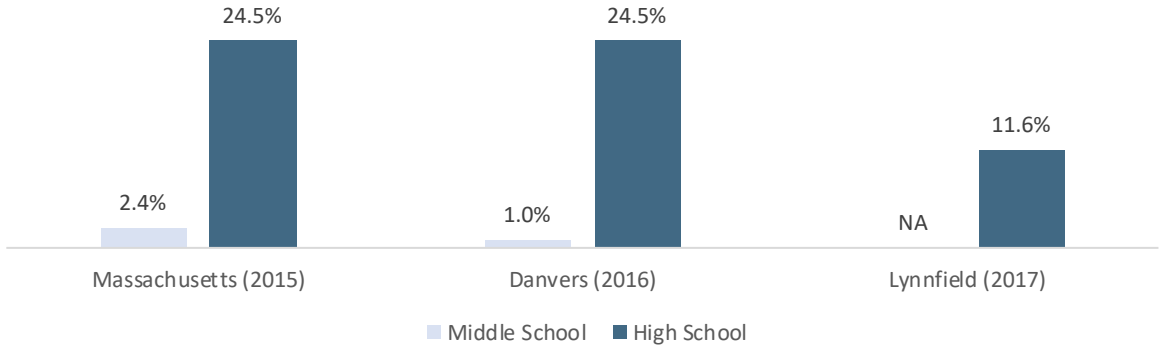
**Figure 51. Percent of Middle School and High School Students who Ever Used Marijuana, by State and City/Town, 2015-2017**




DATA SOURCE: Massachusetts 2015 Youth Risk Behavioral Survey. Health & Risk Behaviors of Massachusetts Youth: 2015 Report; Danvers Middle School 2016 Youth Risk Behavioral Survey Results; Lynnfield Middle School 2017 Youth Risk Behavioral Survey Results; Swampscott Middle School 2017 Youth Risk Behavioral Survey Results; Danvers High School 2016 Youth Risk Behavioral Survey Results; Lynnfield High School 2017 Youth Risk Behavioral Survey Results; Swampscott Middle School 2017 Youth Risk Behavioral Survey Results
NOTE: Data not available for all assessment communities

In 2016, one-quarter (24.5%) of high school students in Danvers reported current marijuana use in 2016, similar to Massachusetts overall (24.5%) in 2015 (Figure 52). The prevalence of current marijuana use among Lynnfield high school students (11.6%) in 2017 was about half of the prevalence statewide in 2015. Current marijuana use among middle school students in Danvers (1.0%) in 2016 was slightly below the state average (2.4%) in 2015.

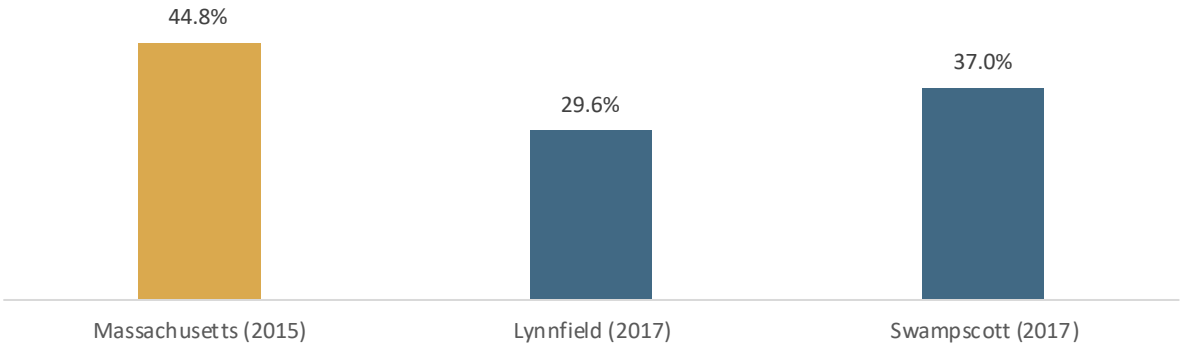
**Figure 52. Percent of Middle School and High School Students who Reported Current Use of Marijuana, by State and City/Town, 2015-2017**




DATA SOURCE: Massachusetts 2015 Youth Risk Behavioral Survey. Health & Risk Behaviors of Massachusetts Youth: 2015 Report; Danvers Middle School 2016 Youth Risk Behavioral Survey Results; Lynnfield Middle School 2017 Youth Risk Behavioral Survey Results; Danvers High School 2016 Youth Risk Behavioral Survey Results; Lynnfield High School 2017 Youth Risk Behavioral Survey Results
NOTE: NA indicates data not available; Data not available for all assessment communities

The use of electronic vapor products or "vapes" were described as popular among youth participants. One youth focus group participant shared that, "*A lot of people are vaping. It's mad cheap to buy and easy to get. People vape during class*." In the NSMC service area, use of electronic vapor products among high school students ranged from three in ten (29.6%) in Lynnfield to one-third (37.0%) in Swampscott in 2017, below the statewide average (44.8%) in 2015 (Figure 53).

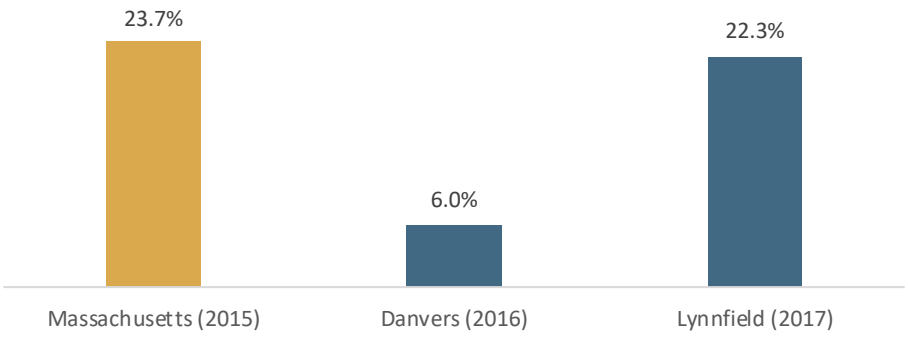
**Figure 53. Percent of High School Students Reporting They Ever Tried Electronic Vapor Products, by State and City/Town, 2015-2017**




DATA SOURCE: Massachusetts 2015 Youth Risk Behavioral Survey. Health & Risk Behaviors of Massachusetts Youth: 2015 Report; Lynnfield High School 2017 Youth Risk Behavioral Survey Results; Swampscott High School 2017 Youth Risk Behavioral Survey Results
NOTE: Data not available for all assessment communities

As shown in Figure 54, current use of electronic vapor products among high school students in Lynnfield (22.3%) was similar to Massachusetts overall (23.7%), with two in ten students reporting current use of vaping products. Only 6.0% of high school students in Danvers reported current use of electronic vapor products in 2016, well below the prevalence statewide.

**Figure 54. Percent of High School Students Reporting Current Use of Electronic Vapor Products, by State and City/Town, 2015-2017**




DATA SOURCE: Massachusetts 2015 Youth Risk Behavioral Survey. Health & Risk Behaviors of Massachusetts Youth: 2015 Report; Danvers High School 2016 Youth Risk Behavioral Survey Results; Lynnfield High School 2017 Youth Risk Behavioral Survey Results
NOTE: Data not available for all assessment communities

Sexual Health

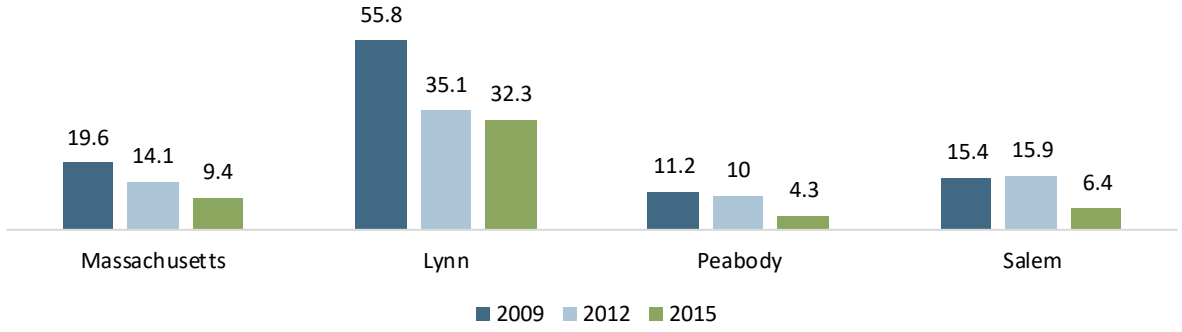
> *"[In] Lynn, teen pregnancy rates are high. They are coming down thankfully, but we have one of the highest rates in Lynn [compared to state of MA]. That education piece is always needed."* – Interview participant

In interviews and focus groups, participants described teen pregnancy as a major challenge, particularly in Lynn. One key informant explained, *"We have a lot of pregnant women with substance use issues…it's challenging because they're not treated well in the North Shore. Some of our folks will not go to certain places because they will be judged."* In the youth focus group, discussions centered on sexual health. Youth participants called for more effort to educate boys in sexual health.

*Teen Pregnancy*

From 2009 to 2015, the rate of teen births in Lynn was more than double the rate across Massachusetts (Figure 55). The teen birth rate in Lynn declined from 55.8 births per 1,000 population in 2009 to 32.3 births per 1,000 population in 2015, a rate that still exceeded the state average (9.4 births per 1,000 population) that same year. In 2015, there were 104 teen births in Lynn, 10 teen births in Salem, and 6 teen births in Peabody (data not shown).

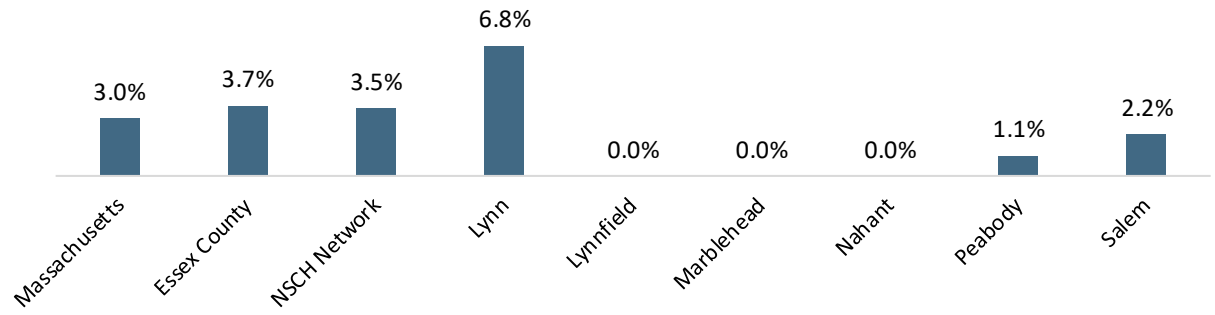
**Figure 55. Teen (Age 15-19 Years) Birth Rate per 1,000 Population, by State and City/Town, 2009, 2012, and 2015**




DATA SOURCE: "Massachusetts Births 2009". Registry of Vital Records and Statistics, MDPH, Dec. 2010; "Massachusetts Births 2011 and 2012". Registry of Vital Records and Statistics, MDPH, Dec. 2010; "Teen Births Massachusetts 2013". Office of Data Management and Outcomes Assessment, MDPH, Dec. 2014; "Massachusetts Births 2015". Registry of Vital Records and Statistics, MDPH, Dec. 2016.
NOTE: Data not available for all assessment communities

As shown in Figure 56, 6.8% of all births in Lynn were to teen mothers, a prevalence that was approximately double that for Massachusetts (3.0%), Essex County (3.7%) and the North Shore Community Health Network in 2015.

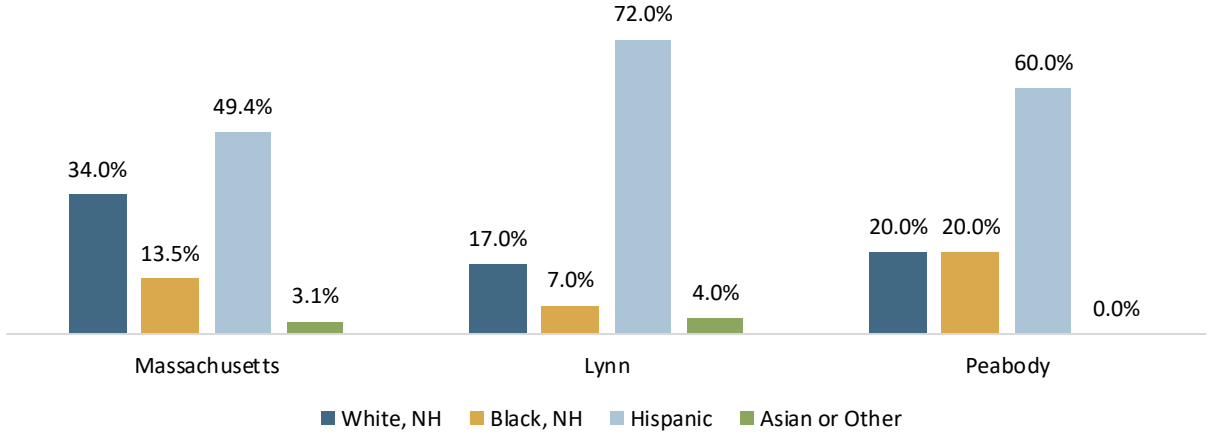
**Figure 56. Teen (Age 15-19 Years) Births as Percent of All Births, by State, County, Region, and City/Town, 2015**




DATA SOURCE: "Massachusetts Births 2015". Registry of Vital Records and Statistics, MDPH, Dec. 2016.
NOTE: NSCH Network indicates North Shore Community Health Network

Figure 57 below shows the percent of teen births in Massachusetts, Lynn, and Peabody by mother's race and ethnicity. In Massachusetts, Lynn, and Peabody, the percent of teen births to Hispanic mothers was higher than the percent of teen births to mothers who self-identified as white, non-Hispanic, black, non-Hispanic, and Asian or an other race/ ethnicity. For example, in Lynn in 2015, 72.0% of teen births were birth to mothers who self-identified as Hispanic.

**Figure 57. Teen (Age 15-19 Years) Births, by Race/Ethnicity and by State and City/Town, 2015**

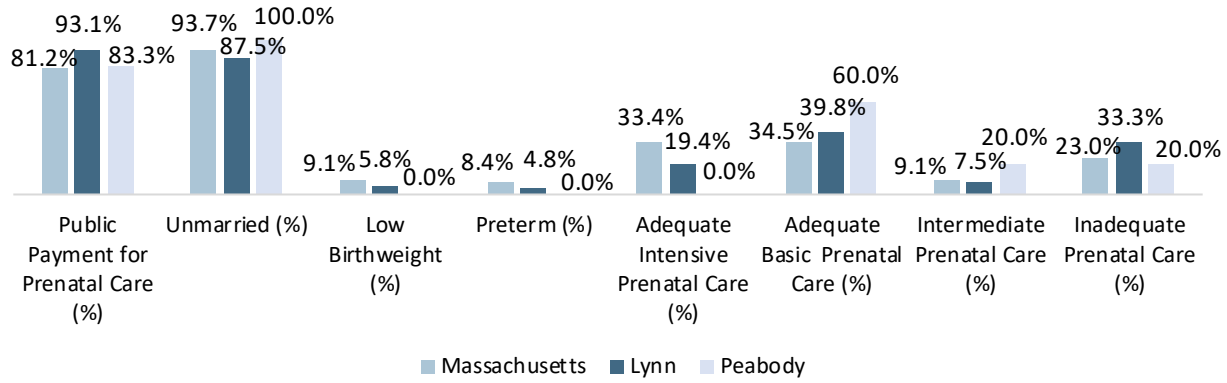



DATA SOURCE: "Massachusetts Births 2015". Registry of Vital Records and Statistics, MDPH, Dec. 2016.
NOTE: Data not available for all assessment communities

As shown in Figure 58, similar to patterns statewide (81.2%), eight in ten (83.3%) teenage women from Peabody who gave birth had public health insurance, compared to more than nine in ten (93.1%) teens in Lynn in 2015. All Peabody (100.0%) teen mothers who gave birth in 2015 were not married, compared to approximately nine in ten teens in Lynn (87.5%) and across Massachusetts (93.7%). The prevalence of low birthweight and preterm birth among teen mothers in Lynn (5.8% and 4.8% respectively) and Peabody (0% and 0%, respectively) was lower than that for teens statewide (9.1% and 8.4%,

respectively). Teen mothers in Peabody were more likely to receive adequate or intermediate prenatal care than their counterparts in Lynn (and across Massachusetts.)

**Figure 58. Teen (Age 15-19 Years) Birth Characteristics, by State and City/Town, 2015**



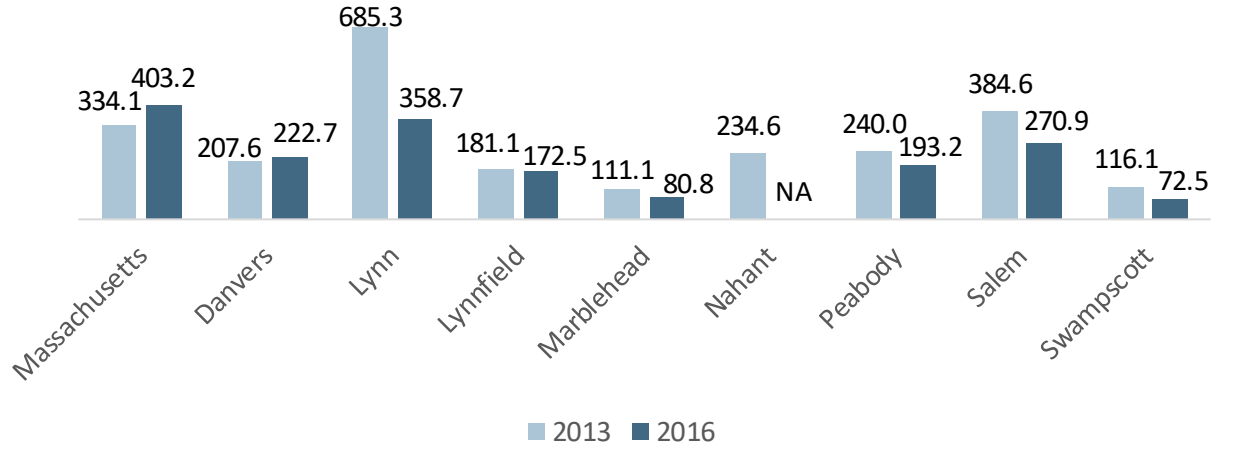

DATA SOURCE: "Massachusetts Births 2015". Registry of Vital Records and Statistics, MDPH, Dec. 2016.
NOTE: Data not available for all assessment communities

*Sexually Transmitted Diseases*

While not mentioned frequently by assessment participants, rates of chlamydia, gonorrhea, and syphilis are available for the NSMC communities.

As shown in Figure 59, in 2013 and 2016 the chlamydia case rate was highest in Lynn and Salem, where this rate exceeded the state average in 2013 (334.1 cases per 100,000 population), but was below the rate for Massachusetts overall in 2016 (403.2 cases per 100,000 population). From 2013 to 2016, the rate of chlamydia declined by 47.7% in Lynn and 29.6% in Salem. Over this same period, the chlamydia case rate declined slightly in Lynnfield, Marblehead, Peabody, and Swampscott, while it increased slightly in Danvers.

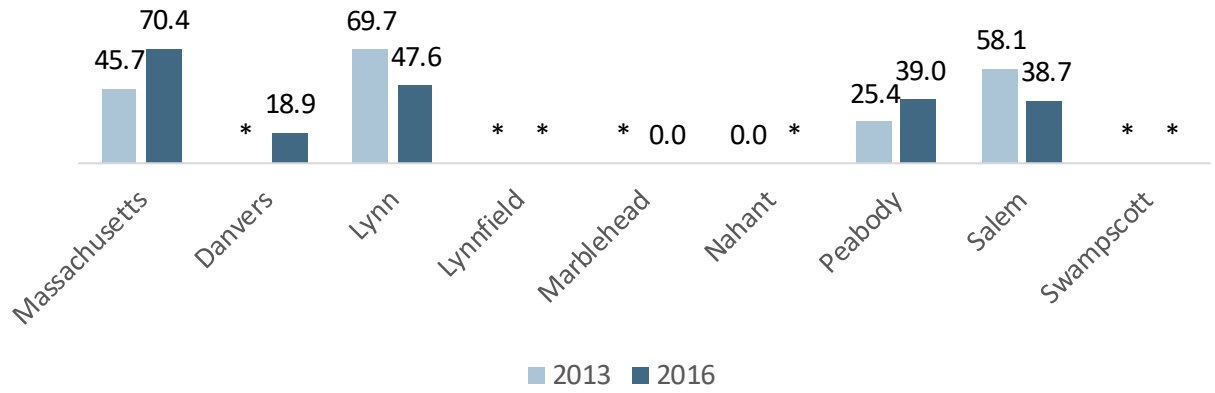
**Figure 59. Chlamydia Case Rate per 100,000 Population, by State and City/Town, 2013 and 2016**




DATA SOURCE: Massachusetts Department of Public Health, Bureau of Infectious Disease and Laboratory Sciences, Division of STD Prevention, 2013 and 2016
NOTE: NA indicates data not available

As shown in Figure 60, the gonorrhea case rate exceeded the state average (45.7 cases per 100,000 population) in 2014 in Lynn (69.7 cases per 100,000 population) and Salem (58.1 cases per 100,000 population). From 2013 to 2016, the gonorrhea case rate increased in Peabody (25.4 to 39.0 cases per 100,000 population), similar to patterns across Massachusetts. In contrast, the gonorrhea case rate declined noticeably in Lynn (69.7 to 47.6 cases per 100,000 population) and Salem (58.1 to 38.7 cases per 100,000 population).

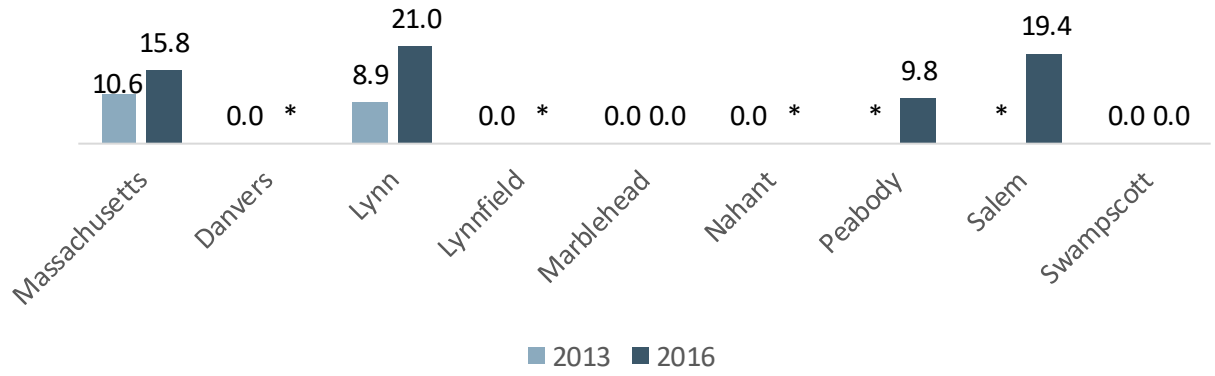
**Figure 60. Gonorrhea Case Rate per 100,000 Population, by State and City/Town, 2013 and 2016**




DATA SOURCE: Massachusetts Department of Public Health, Bureau of Infectious Disease and Laboratory Sciences, Division of STD Prevention, 2013 and 2016
NOTE: * indicates a number < 5

The syphilis case rate in Lynn (21.0 cases per 100,000 population) and Salem (19.4 cases per 100,000 population) was higher than the state average (15.8 cases per 100,000 population) in 2016 (Figure 61). Of note, from 2013 to 2016 the syphilis case rate doubled in Lynn (8.9 to 21.0 cases per 100,000 population).

**Figure 61. Syphilis Case Rate per 100,000 Population, by State and City/Town, 2013 and 2016**




DATA SOURCE: Massachusetts Department of Public Health, Bureau of Infectious Disease and Laboratory Sciences, Division of STD Prevention, 2013 and 2016
NOTE: * indicates a number < 5

Infectious Diseases

While not mentioned frequently by assessment participants, rates of HIV, Hepatitis C, Hepatitis B, and Tuberculosis are available for NSMC communities. Tuberculosis (TB) was mentioned as a concern for the immigrant community in Lynn by one interviewee; in the words of this interviewee, "*TB is also a big one in Lynn… people think TB is eradicated. For us, it is. But not for people coming from different countries. There is a lack of knowledge, not knowing there is help, language barriers, [people] don't know [the] seriousness of disease*."

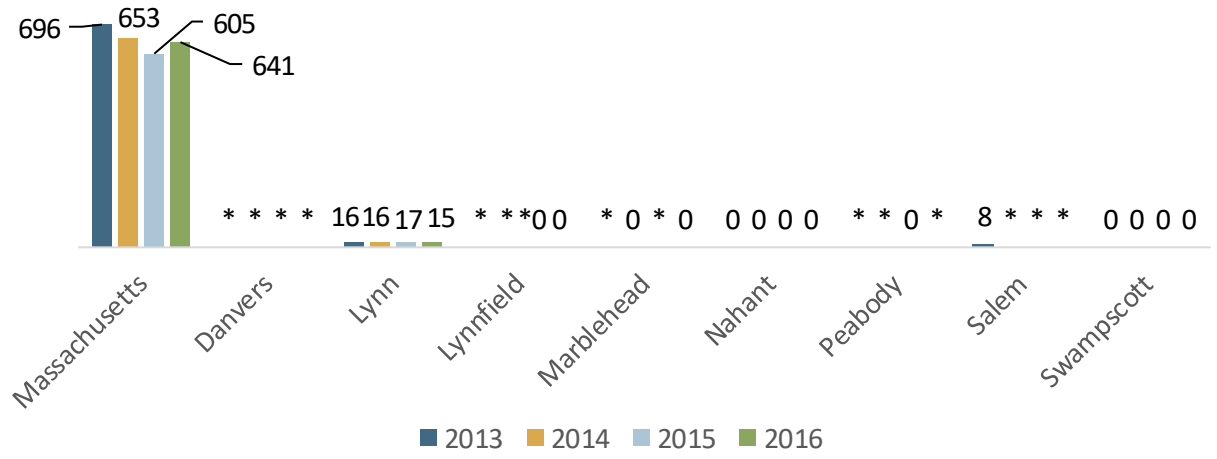
*Tuberculosis*

From 2013 to 2016, the number of confirmed tuberculosis cases in Lynn increased from 7 to 12 (Data Source: Massachusetts Department of Public Health, Bureau of Infectious Disease and Laboratory Sciences, HIV/AIDS Surveillance Program, 2018). There were few confirmed tuberculosis cases across the other assessment communities during this period (data not shown).

*HIV*

From 2013 to 2016, the number of Lynn residents who were diagnosed with HIV ranged from 15 to 17, higher than the other NSMC assessment communities over this period (Figure 62). In 2013, 8 individuals in Salem were diagnosed with HIV.

**Figure 62. Number of Individuals Diagnosed with HIV, by State and City/Town, 2013, 2014, 2015, and 2016**

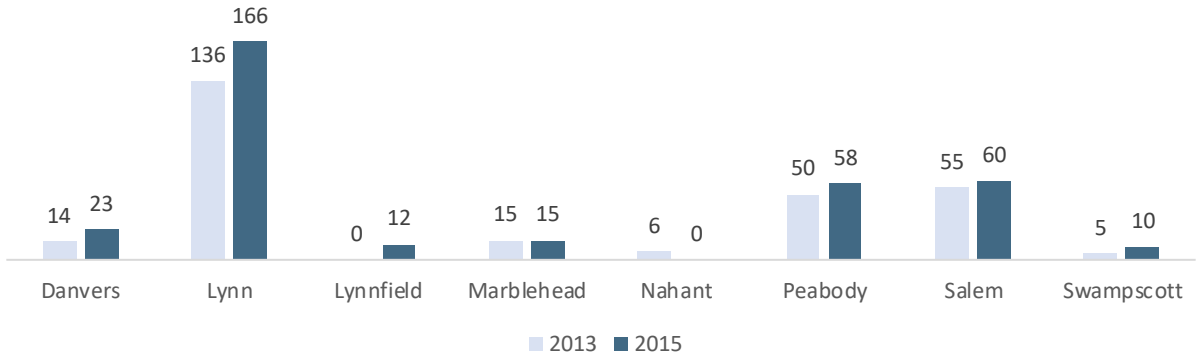



DATA SOURCE: Massachusetts Department of Public Health, Bureau of Infectious Disease and Laboratory Sciences, HIV/AIDS Surveillance Program, 2018; Excluding Prisoners
NOTE: * Indicates a number <5

*Hepatitis C*

As seen in Figure 63, in 2015 the number of confirmed and probable cases of hepatitis C was highest in Lynn (166 cases), followed by Salem (60 cases) and Peabody (58 cases). From 2013 to 2015, with the exception of Nahant, the number of confirmed and probable hepatitis C cases increased across all towns in the NSMC service area.

**Figure 63. Number of Confirmed and Probable Cases of Hepatitis C, by State and City/Town, 2013 and 2015**

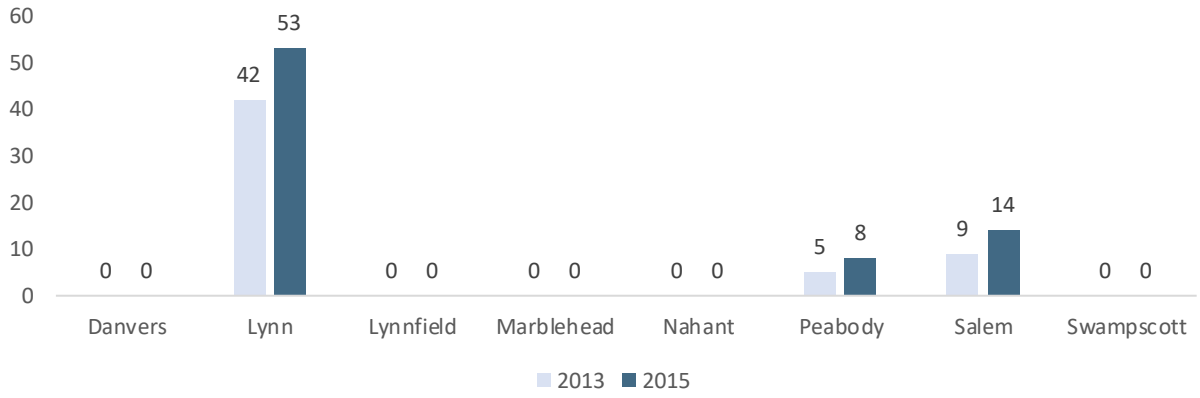



DATA SOURCE: Massachusetts Department of Public Health, Bureau of Infectious Disease and Laboratory Sciences, HIV/AIDS Surveillance Program, 2018
NOTE: 0 includes number < 5

*Hepatitis B*

In 2015, across the NSMC service area, Lynn had the highest number of confirmed and probable cases of hepatitis B (53 cases), followed by Salem (14 cases) and Peabody (8 cases) (Figure 64). Trends over this period suggest an increase in the number of cases of hepatitis B from 2013 to 2015.

**Figure 64. Number of Confirmed and Probable Cases of Hepatitis B, by State and City/Town, 2013, 2014, and 2015**




DATA SOURCE: Massachusetts Department of Public Health, Bureau of Infectious Disease and Laboratory Sciences, HIV/AIDS Surveillance Program, 2018
NOTE: 0 includes number < 5

Health Care Access and Utilization

> "*Affluent folks will always get health care. Below that area, even working poor, access to health care isn't easy*." – Interview participant
>
> *"When a Khmer patient says 'I have a headache' it means 'I've been thinking too much, I feel depressed, and I want it to go away.' If a provider doesn't know this, they just tell them to take some medicine."* -Focus group participant

Key informants, focus group participants, and community forum participants identified several barriers to health care access including un-insurance and under-insurance, navigation and care coordination, transportation, accessibility and after-hours care, language and immigration status, and a need for culturally-sensitive approaches to care.

Participants noted that residents who are underinsured experience barriers to accessing and navigating the health care system. Many assessment participants noted the limited number of providers, and particularly specialists, who accept Medicaid. As one interviewee stated: "*Most of our patients are on MassHealth and they can't receive services from many practitioners. We can't send patients locally for basic screening services*." Participants noted that additional support is needed for residents around navigation of the insurance and health care system, and coordination across care providers.

Transportation was frequently mentioned by assessment participants as a barrier to accessing health care. Some noted that public transportation is limited for accessing services locally as well as for accessing specialty care in Boston, in particular for seniors. For example, one interviewee noted that for seniors, "*if they're sick, they can't wait at the bus stop*." Additionally, assessment participants expressed concern about limited transportation options for the Lynn community to access emergency care at Salem Hospital, following the planned closure of Union Hospital. Participants noted a lack of reliable public transportation as well as frequent traffic along the route from Lynn to Salem Hospital. Some participants suggested ongoing education in the Lynn community regarding when to use Urgent Care in Lynn instead of seeking emergency care; expanding EMS services and ambulance availability was also suggested. As one interviewee noted, "*[the] perception is if you call 911 you get see to see a doctor quicker. So maybe work on wait times or educating [the] public to know what is hospital visit versus minute clinic. But the key is the consistent training…"*

Several assessment participants also noted that currently there are limited options for after-hours health care. Participants stated that after hours care is critical in particular for residents who work long hours and/or do not have access to child care.

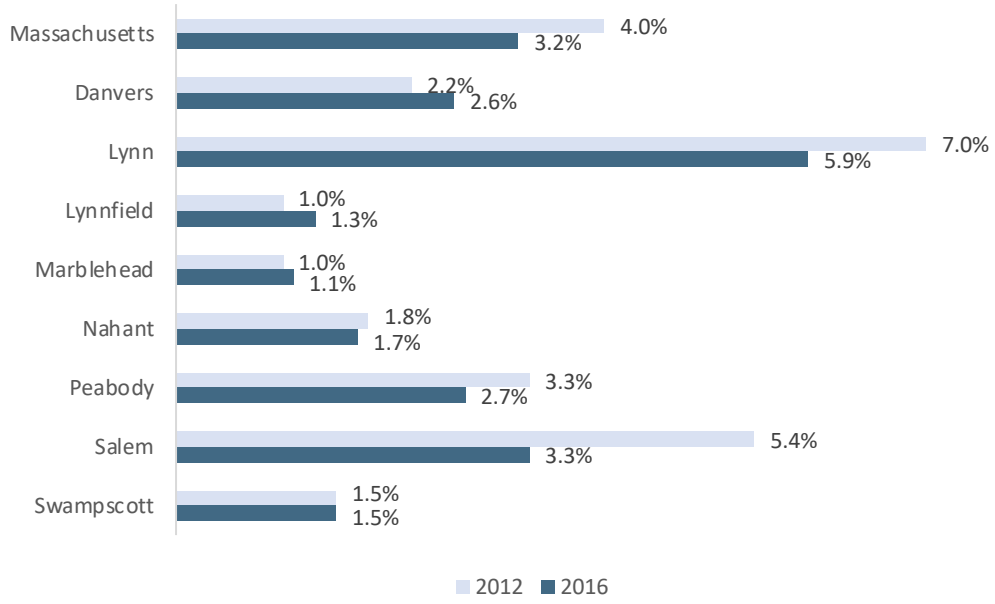
For immigrant communities, participants described immigration status (e.g., undocumented vs. documented) as a significant barrier to accessing health care. The need for increased linguistic capacity in the health care and social service landscape was also a common theme among qualitative conversations, particularly in Lynn. Focus group participants described how language barriers are exacerbated when it comes to health issues, with one participant sharing, *"When you go buy something at the store you can figure out the English, but when it comes to health, a physical exam, understanding what the doctor is saying in English is hard enough…trying to navigate the [situation] is even harder."* According to participants, it is especially challenging when children serve as the primary interpreter for non-English speaking parents. As one participant shared, "*The avenues of communication are not open to parents [who don't speak English]. It has to be the bilingual kids who are helping them with those*

*services."* Local organizations including the Lynn Community Health Center were described as community assets regarding language capabilities, but participants cautioned that resources for these services were costly and limited, and more could be done to build the capacity of surrounding institutions. For example, community members suggested investing in initiatives to recruit and retain diverse community members to serve in professional capacities as interpreters, peer navigators, and frontline staff. Other suggestions included shared resources for linguistic services across institutions, and outreach in multiple languages.

Lastly, a need for expanding culturally-sensitive approaches to care was identified by some assessment participants. Participants noted that, in addition to language, cultural understanding and nuance impacts the patient's care experience. For example, a participant in the Khmer focus group noted that when a Khmer patient says "*'I have a headache'",* it means "*'I feel depressed.'"* However, if a health care provider does not understand the nuance of this statement, the mental health issue may not be recognized and addressed.

In both 2012 and 2016, a higher percent of Lynn residents (7.0% and 5.9%, respectively) lacked health insurance compared to Massachusetts overall (4.0% and 3.2%, respectively) (Figure 65). Notably, over this period there was a slight decrease in the percent of uninsured residents in Salem (5.4% to 3.3%) and Lynn (7.0% to 5.9%). Across the other six assessment communities, the percent of residents who were uninsured remained relatively stable from 2012 to 2016.

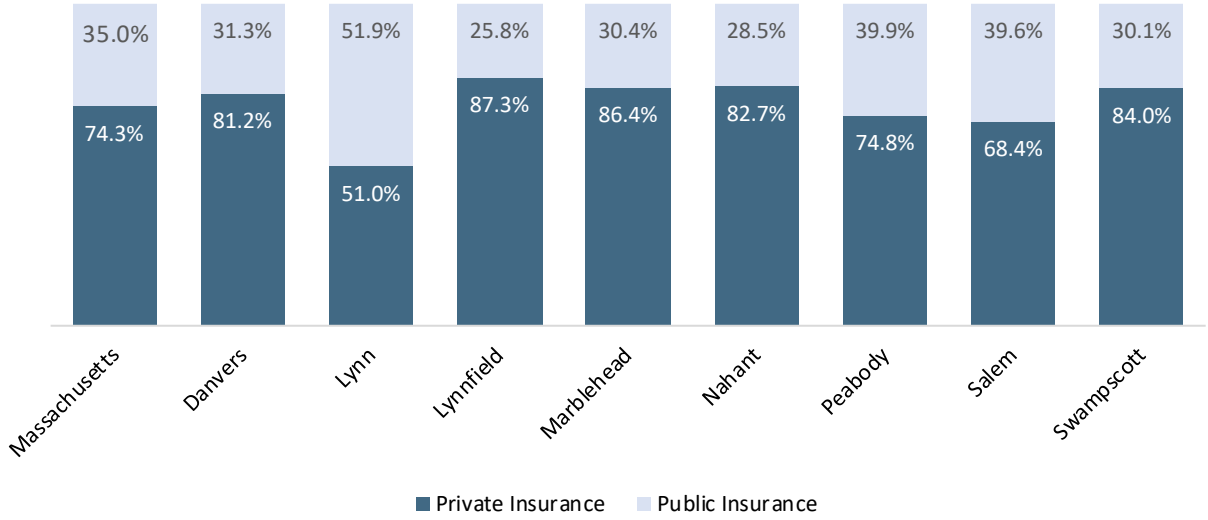
**Figure 65. Percent of Population without Health Insurance, by State and City/Town, 2012 and 2016**




DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2008-2012 (Health Insurance Coverage Status) and 2012-2016

As shown in Figure 66, in 2016 approximately eight in ten insured residents in Danvers, Lynnfield, Marblehead, and Swampscott had private health insurance, above the state average (74.3%). Peabody (74.8%) and Salem (68.4%) were similar to Massachusetts overall (74.3%) in terms of the percent of privately insured residents. Compared to the other NSMC service area towns, residents of Lynn were more likely to have public insurance; 51.9% of Lynn residents had public insurance compared to 35.0% of residents in the state of Massachusetts overall.

**Figure 66. Type of Health Insurance among the Insured Population, by State and City/Town, 2016**




DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2012-2016
NOTE: Public insurance includes Medicaid, Medicare, and VA Health Care Coverage. Some residents have a combination of public and private insurance.

**Community Resources and Assets**

When asked about community strengths, participants identified several assets including cultural diversity, collaborative social service organizations, engaged community residents, and green space.

*Cultural Diversity*

The rich cultural diversity of the North Shore was described as a community asset, with residents identifying diverse cultures as having a positive impact on economic development. One interviewee shared, *"We live in a vibrant, immigrant-defined community. Most immigrants are incredible risk takers and very entrepreneurial minded…that energy, ambition, and drive is remarkable."* Cultural events were highlighted as ways to bring community members together. As summarized by a focus group participant, *"It's really wonderful to see different ethnic groups here. In April, there is an annual Khmer New Year's that takes place in Lynn Commons. It's great that the city acknowledges and wants to represent ethnic communities like Cambodians –also Russians, Ethiopians, Nepali, Myanmar families. It's been really great to learn about all the different cultures here."*

*Collaborative Social Service Organizations*

Several participants identified the collaborative nature of organizations working on the North Shore as a strength. As one interviewee described, *"There's true collaboration among many of the social services in the community; our relationships are strong and productive."* Another interviewee shared a similar view saying, *"[Social service] agencies have the ability to listen to each other and address concerns in collaboration with each other*." However, a few participants reported that collaboration among some organizations could improve and identified a need for more collaboration to address community needs, especially in light of tight funding. The Lynn Health Center and Lynn Health Task Force were specifically mentioned as collaborative conveners that could be leveraged moving forward.

*Engaged Community Residents*

Numerous participants stated that the civic mindedness and "hometown pride" of community residents was a substantial community strength, with one participant sharing, *"People who live here have great pride and dedication to the city."* The community was described as *"tight-knit"* and its residents as *"caring."* As one focus group participant shared, *"People help you a lot. If you go to a clinic, they help you. You can find support, no matter what color, ethnicity, or religion."* Residents described strong enclave and affinity group connections. For example, Spanish speaking and Khmer focus group participants reported strong connections to faith-based organizations. However, a few participants described challenges engaging diverse residents in the larger community, sharing, "*Salem has large Latino population. It's always a challenge to engage, especially recent immigrants. That part of population is still disenfranchised."*

*Green Space*

Residents discussed ample green space and recreational space in the North Shore as a strength. One interviewee summarized, *"We've benefited from being on [the] waterfront. We have a good quality of life, rich cultural community with museums, parks, a college, a health care institution [Salem Hospital] which is the largest north of Boston. All these quality of life and economic aspects, add to vibrancy of Salem."* Several interviewees discussed plans to further develop the waterfront and downtown areas, which they reported as positive for economic development.

**Community Suggestions for Future Programs, Services, and Initiatives**
Participants in the Community Forum, interview, and focus group discussions were asked for their suggestions for addressing identified needs and their vision for the future. This section summarizes and presents these recommendations for future initiatives.

- ***Strengthen culturally-sensitive approaches to care***. Participants frequently mentioned the need to strengthen culturally-sensitive approaches to care. To do this, they suggested training staff from diverse communities for professional roles, such as interpreters and peer navigators. As one focus group participant stated: "*We need more Khmer staff and supports for people who don't speak English. It's hard to express our feelings because of language and cultural barriers*." Participants also suggested increasing the retention of diverse staff through pipeline programs.

- ***Increase transportation options, particularly for health care access.*** When describing their vision for the future of their communities, participants also suggested an increased focus on expanding transportation options. Increased transportation was viewed as something that would be beneficial in general for day-to-day life, and specifically for decreasing barriers to accessing health care.

- ***Focus on the social determinants of health, including housing and employment.*** Many assessment participants noted the impact that the social determinants of health have on quality of life and health indicators in the region. Participants noted that housing and employment are key issues for the community.

- ***Provide community education on health and prevention, at the appropriate literacy level.*** Assessment participants suggested expanding health education in the community, particularly around chronic disease prevention and behavioral health. As one interviewee noted, "*I'd love to see a whole faith-based movement on education and wellness and prevention and all that*."

- ***Expand community programs for youth and seniors.*** Some assessment participants suggested expanding programming in particular for youth and seniors. For youth, affordable summer programming, programs for positive youth development, and sexual health education that includes all youth (e.g., not just girls) was suggested. For seniors, a need for additional supports for aging in place and in the community was noted.

- ***Support school-based initiatives, particularly around behavioral health.*** While participants noted that schools already juggle many competing priorities and demands, schools were also seen as an ideal environment for reaching and educating young people, particularly around early prevention and intervention of behavioral health issues. As one interviewee noted, *"One of the mistakes that has been made historically has been to focus on kids at risk. You don't have to have risk factors present to develop a problem… At every grade, talk to young kids about healthy relations [and] decision making."*

## KEY THEMES AND CONCLUSIONS

The 2018 NSMC CHNA involved a review of secondary social, economic, and health data from the NSMC service area, as well as an analysis of discussions with community residents and leaders. This assessment provides an overview of the social and economic context in the NSMC catchment area, and the health outcomes and behaviors that affect community well-being. Several key themes emerged from this synthesis:

**Community Strengths**
Assessment participants identified several assets of the North Shore community including cultural diversity, collaborative social service organizations, engaged community residents, and green space.

**Social Determinants of Health**
Many participants described how a combination of social factors affect the health and well-being of residents in the NSMC service area. Frequently cited concerns included: poverty, affordable housing and quality housing conditions, transportation, access to affordable healthy foods, and access to safe and affordable places to exercise as substantial barriers to living a healthy lifestyle, disease management, and navigating health care systems. As one interview participant noted, *"Poverty impacts how someone can manage their health so much. I see clients who have [a] mental health issue and they have diabetes, and they are on the verge of being evicted because they can't afford [the] rent. It's all of those things in combination."*

**Cross-Cutting Vulnerable Populations (Immigrant populations, Homeless populations, Seniors, Youth)**
A need for social and healthcare supports for immigrant populations, including undocumented immigrants and immigrant community members for whom English is not their first language; seniors; homeless individuals; and youth were cited. Relatedly, participants recognized the role of individual and community experiences of trauma in shaping health. Residents recommended delivering culturally competent and linguistically appropriate social services and healthcare to immigrant communities; keeping seniors out of the hospitals and in their homes; and focusing on prevention in younger populations by strengthening school-based initiatives.

**Behavioral Health**
Mental health was identified as a priority issue among the majority of participants, and depression, stress, and trauma were the most frequently cited concerns. Participants were also concerned about the prevalence of co-occurring disorders, such as patients who may be simultaneously experiencing depression and substance use. Substance use, and opioids in particular, were also mentioned as a top concern, and one which affects entire family units. Participants also discussed concerns relative to alcohol use, "vaping" among young people, and the legalization of marijuana. Among the North Shore community, data show that treatment is frequently sought for opioid use and alcohol use.

Participants identified a need to de-stigmatize behavioral health treatment and noted that behavioral health resources are limited, especially for non-English speakers, immigrants, and those who are underinsured. Providers and residents also perceived challenges relative to limited availability of treatment providers, particularly those who accept Medicaid and offer medication-assisted treatment, and limited funding available to support prevention efforts. The need to deliver behavioral health care to individuals suffering from addiction to a range of substances, not just opioids, was also mentioned.

**Chronic Diseases**
Childhood obesity was frequently cited as a concern among participants, who linked challenges related to affording healthy food with obesity. Childhood obesity was more prevalent in Lynn, Peabody, and Salem. Asthma was also perceived to be an issue affecting low-income children, which some interviewees linked with poor housing conditions. Diabetes was mentioned as an important issue that some community members view as inevitable. While heart disease and cancer were leading causes of death in the NSMC service area, they did not emerge as top health concerns among assessment participants.

**Oral Health**
Concerns about limited access to oral health care and social factors that shape oral health also emerged in discussions, though less frequently than other health issues. Residents explained that uninsured and under-insured residents struggled to find dental providers who would accept their insurance, contributing to preventable ED visits. Participants described these challenges as particularly affecting the homeless population; exacerbating other social determinants of health, including ability to get employment; and contributing to other health conditions.

**Health Care Access**
Socioeconomic barriers to accessing care was a common concern, particularly for uninsured and under-insured residents who had few provider options for preventive or specialty care. Another health care challenge was accessing public transportation, especially for seniors and for specialty care in Boston. Transportation concerns also surfaced when residents discussed concerns about emergency care options for Lynn residents following the closure of Union Hospital. Navigation and care coordination were identified as needs, as were after-hours care. Participants frequently identified the need to strengthen culturally-sensitive approaches to healthcare including by focusing on the diversity of the healthcare workforce.

**Health Literacy and Education**
Participants noted the importance of expanding programs in the community for youth, including sexual health education to prevent teen pregnancy. Residents also recommended providing community wellness education centered on health and prevention, delivered at the appropriate literacy level.

## PRIORITY HEALTH NEEDS OF THE COMMUNITY

IRS requirements (IRS Section H/Form 990 mandate) state that community health needs identified through the community health needs assessment (CHNA) must be prioritized. In addition to this requirement, prioritization of needs allows institutions to target resources and to focus on achievable strategies and goals for addressing priority needs. This section describes the process and outcomes of the North Shore Medical Center's prioritization of needs.

Process and Criteria for Prioritization

In June 2018, HRiA led a facilitated conversation with NSMC's Community Affairs and Health Access Committee (CAHC), which serves as NSMC's Community Benefits Advisory Committee and is comprised of NSMC's trustees and leadership and community members (see Appendix C for list of CAHAC members). This conversation included a presentation of the key themes identified by the community health needs assessment (CHNA), including the magnitude and severity of these issues and their impact on priority populations. Building off of the key issues that emerged most frequently from the review of available data in the CHNA, the CAHAC identified the following list of key health issues for prioritization: behavioral health; health care access; health care environment and trust; chronic diseases; oral health; and related risk factors (including violence/trauma, affordable healthy foods/exercise, and housing conditions). Next, the CAHAC used a multi-voting technique to prioritize the list of key health issues against the following criteria:

| **RELEVANCE** | **IMPACT** | **FEASIBILITY** | **APPROPRIATENESS** |
|---|---|---|---|
| *How Important Is It?* | *Will it "move the needle"?* | *Is there capacity and will?* | *Should it be done now?* |
| - Burden (magnitude and severity; economic cost; urgency) of the problem<br>- Community concern<br>- Focus on equity and accessibility | - Builds on or enhances current work<br>- Can move the needle and demonstrate measurable outcomes<br>- Proven strategies<br>- Effectiveness<br>- Coverage | - Community capacity<br>- Technical capacity<br>- Economic capacity/available resources<br>- Political capacity/will<br>- Can identify easy short-term wins | - Ethical and moral issues<br>- Human rights issues<br>- Legal aspects<br>- Political and social acceptability<br>- Public attitudes and values |

Prioritized Community Health Needs

The key health issues were prioritized as follows:

1. Behavioral Health
2. Health Care Access
3. Health Care Environment and Trust, including Culturally Sensitive Approaches to Care

Within **behavioral health**, key areas of need identified through the CHNA included mental health issues (including depression, trauma, and stress); substance use disorders (including use of opioids, alcohol, marijuana, and vaping); co-occurring disorders; gaps in treatment; and stigma.

Within **health care access**, key areas of need identified through the CHNA included issues related to accessibility (transportation, access to after-hours care, access to specialty care); issues related to health insurance and cost; and the need for expanded care coordination and navigation services.

Within **health care environment and trust,** key areas of need identified through the CHNA included issues related to providing culturally-sensitive approaches to care (including training and retaining a diverse healthcare workforce) and providing services in multiple languages.

Additionally, the CAHAC recommended maintaining **a cross-cutting focus on vulnerable populations** (such as immigrants, seniors, youth, and the homeless population) and incorporating **health education** strategies when addressing prioritized needs.

Next Steps

In the fall of 2018, North Shore Medical Center, in conjunction with key stakeholders, will develop an implementation strategy that outlines next steps, goals, and strategies to address the prioritized health needs from the CHNA.

## APPENDIX A. NORTH SHORE MEDICAL CENTER 2018 REVIEW OF INITIATIVES

As a result of their 2015 Community Health Needs Assessment (CHNA), the North Shore Medical Center developed a plan to address the four priority areas identified in their 2015 Implementation Strategy. Since the 2015 Needs Assessment, the North Shore Medical Center has provided a variety of services and programming to address the identified key needs and issues. These services and programming are summarized in the table below.

| Activities, Services and Programs implemented since 2015 CHNA | Description of Activity, Service and/or Program | Impact and Outcomes: 2015 – 2018 |
|---|---|---|
| **Priority Area: Substance Use and Mental Health Disorders** | | |
| Addiction Services Consortium | NSMC, community health centers, and Bridgewell consortium of clinical and administrative leaders focused on increasing suboxone capacity in the community, sharing best practices, collaborating on grants, developing community-wide campaigns | Quarterly meetings; More than 900 patients are enrolled in suboxone programs at LCHC, NSCH and NSMC; HPC approved $750K grant proposal for ED initiated suboxone program |
| Learn to Cope | Weekly family support group and Narcan training sessions held weekly at Salem Hospital | Approximately 80 families in attendance per week |
| Recovery Coach Program | 24/7 program at NSMC's Union Hospital – Bridgewell, Inc. Recovery Coaches are called by Union Hospital ED staff to help overdose patients connect with treatment and recovery services. | Started March 2017; Over 300 patients were connected to recovery coaches in the first year of the program |
| Psych Connection Program | Project through which NSMC connects patients in need of ongoing outpatient behavioral health care to care at the Lynn Community Health Center. | 70% follow-up show rate |
| **Priority Area: Access to Care** | | |
| Support for Lynn Community Health Center (LCHC) | Support for LCHC to expand its physical site to increase primary care and behavioral health capacity | Increased capacity at LCHC's main location for 5 new primary care providers and 5 new behavioral health / addictions providers |
| Support for school-based health programming | Expansion of school-based health programming at local health centers | LCHC opened new School-Based Behavioral Health programs at two elementary schools. North Shore Community Health initiated the provision of on-site behavioral health care in four elementary/middle schools and expanded high school services. |

| Activities, Services and Programs implemented since 2015 CHNA | Description of Activity, Service and/or Program | Impact and Outcomes: 2015 – 2018 |
|---|---|---|
| HealthCare for the Homeless Project – Recuperative Care Center | With NSMC support, Bridgewell, Inc. built a 14 bed short term medical respite care unit for at-risk individuals in downtown Lynn | The facility opened in March 2018; up to 300 patients expected to be admitted annually |
| Certified Application Counselors | NSMC Certified Application Counselors provide information about insurance programs, help complete applications, facilitate enrollment. | Certified Application Counselors contributed to the estimated 70 patient financial counselors that served patients who needed assistance with their coverage |
| Specialty Care Access | NSMC and LCHC agreed to focus on improving access to local gastroenterology services provided by North Shore Physicians Group (the multi-specialty physician network affiliated with NSMC). | Completed a week long Rapid Process Improvement Workshop to explore the barriers preventing LCHC patients from receiving needed GI specialty care locally and to find ways to address the barriers. |
| Transportation Assistance | NSMC provides Charlie Cards and taxi vouchers to MassHealth and Health Safety Net patients who require assistance in getting to and from needed health care services in its community. | NSMC provides taxi vouches and Charlie Cards to thousands of patients totaling more than $100K per year |
| **Priority Area: Meeting the Needs of the Most Vulnerable** | | |
| Integrated Care Team | Integrated care team that works with Lynn's most vulnerable patients to ensure they engaged in care. | Case load of over 400 patients |
| Student Success Jobs Program | Intensive year-round employment and mentoring program for students with the goal of addressing the underrepresentation of young people of color in health and science careers. | 4 students selected to participate |
| Teen Pregnancy Programming | With NSMC's support, Girls Inc. has developed programming for at-risk teens including group meetings for at risk girls and peer advising/ education services aimed at reducing teen pregnancy in Lynn | More than 1,500 Lynn girls participated in after school or summer programs hosted by Girls Inc. |
| Domestic Violence Programming | NSMC provides funding to Healing Abuse Working for Change ("HAWC") to support the hospital-based advocacy program, Crossroads, to provide crisis intervention to NSMC patients and staff experiencing domestic violence | On-site resources available to all NSMC patients and staff |

| Activities, Services and Programs implemented since 2015 CHNA | Description of Activity, Service and/or Program | Impact and Outcomes: 2015 – 2018 |
|---|---|---|
| **Priority Area: Obesity, Physical Activity, and Nutrition** | | |
| See above - Support for Lynn Community Health Center (CHC) and Integrated Care Team also address this priority area | | |
| Obesity Programming | Mass in Motion and YMCA Collaborations | Collaborated with local YMCAs on programs including urban gardening (more than 500 kids participate in the Greater Beverly and Salem garden programs annually); Mass in Motion collaborations include safe walking streets and nutrition programs for youth and families. |

# APPENDIX B. COMMUNITY ENGAGEMENT

**Organizations involved in focus group (n = 55 participants) recruitment:**

1. Girls, Inc. of Lynn (9 participants)
2. Salem YMCA (7 participants)
3. St. Joseph's Parish, Lynn (16 participants, Spanish language focus group)
4. Church of Living Fields, Lynn (18 participants, Khmer language focus group)
5. Addiction Services Consortium (5 participants)

**Key stakeholders representing the following institutions participated in interviews (n = 20):**

1. Local Public Health Departments (3 interviews)
2. City of Lynn Elected Officials (3 interviews)
3. City of Salem Elected Official
4. Commonwealth of Massachusetts Elected Official
5. Lynn Health Task Force (2 participants in 1 interview)
6. 1119SEIU
7. Lynn Fire Department / Emergency Medical Services
8. Lynn Community Health Center (2 interviews)
9. North Shore Community Health, Inc.
10. North Shore Community Health Network
11. North Shore Medical Center
12. Children's Law Center of Massachusetts
13. Greater Lynn Senior Services (GLSS)
14. North Shore Elder Services (3 participants, 1 interview)
15. Zion Baptist Church

**Additionally, 40 individuals participated in small group discussions at a Community Forum hosted by North Shore Medical Center.**

# APPENDIX C. NORTH SHORE MEDICAL CENTER COMMUNITY AFFAIRS AND HEALTH ACCESS COMMITTEE MEMBERS

**NORTH SHORE MEDICAL CENTER**
**COMMUNITY AFFAIRS AND HEALTH ACCESS COMMITTEE**

**MEMBERSHIP**
**June 2018**

Terrence McGinnis, Esq. Co-Chair*
Mark Schechter, M.D. Co-Chair
Ivette Arias
Joseph C. Correnti, Esq.
Charles Desmond*
Matthew Fishman
Susan Goldman
Emily Herzig**
Dianne Kuzia-Hills**
Charity Lezama
Philip Rice, M.D.
Carla Saccone
Linda Saris
M. Christian Semine, M.D.
Candace Waldron
Mary Wheeler**
Nelson Woodfork

*Member, NSMC Board of Trustees
**Lynn Health Task Force Seat