Greater Lowell Community Health

Needs Assessment

Conducted on behalf of:

Lowell General Hospital

Greater Lowell Health Alliance

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Executive Summary

Lowell General Hospital, in partnership with the Greater Lowell Health Alliance, commissioned The University of Massachusetts Lowell to conduct an assessment of community health needs for the Greater Lowell area, which includes the towns of Billerica, Chelmsford, Dracut, Dunstable, Lowell, Tewksbury, Tyngsborough, and Westford. The purpose of this assessment includes evaluating the overall health of residents by involving a broad spectrum of community members, identifying the top health issues and strengths and weaknesses of the healthcare network, recommending actions to address priority concerns, and providing information that informs a community process to build consensus around strategies to improve the health of Greater Lowell residents. This report summarizes the major findings from our community health needs assessment. Primary data collection included interviews with six key informants and fourteen focus group with 113 participants, and secondary data sources included demographic, socioeconomic, and public health data.

The top health problems that were identified in the focus groups and interviews and supported by public health data include mental health, substance abuse, diabetes, obesity, respiratory diseases (e.g. asthma and chronic obstructive pulmonary disease), cardiovascular disease, and Hepatitis B in the Cambodian community. The residents identified at greatest risk for these and other health problems include the elderly, immigrants, non-immigrant Latinos, youth, low income individuals, those with mental health issues, and the lesbian/gay/bisexual/transgender/ questioning (LGBTQ) community.

The major strengths of the healthcare system identified include the healthcare providers, the more collaborative approach resulting from the merger between Lowell General Hospital and Saints Medical Center, cultural sensitivity, good access, and supportive organizations.

The major weaknesses identified include mental health needs that are not being met, insufficient cultural awareness, the overall healthcare approach, coordination problems, overreliance on medication, and inadequate outreach efforts. In addition, focus groups and interviews indicated that there is not enough availability of the following types of healthcare providers: therapists, specialists, home care, dentists, pediatric dentists, geriatric physicians, and primary care providers for alternative families. They also indicated that there are inadequate services in the following areas: interpreter services, emergency services, geriatrics, substance abuse, urgent care, walk-in clinics, and LGBTQ services.

The key barriers they identified to obtaining healthcare services include trouble obtaining emergency care due to long waits in the emergency room, lack of insurance coverage, language barriers, scheduling delays for doctor appointments, transportation barriers, and affordability issues.

Indicators of health based on public health and other secondary data are presented and discussed for Lowell, Greater Lowell, and Massachusetts on the following topics: general health, mental health, substance abuse, diabetes, obesity, cardiovascular disease, respiratory diseases, cancer, smoking, teen pregnancy, and Hepatitis B. Most of the health indicators show greater need for the city of Lowell than Greater Lowell. This is expected because of socioeconomic differences between Lowell's urban community and the surrounding suburban towns.

Some of the social determinants and environmental factors that affect community health are highlighted. Homeless individuals can have difficulty maintaining their health due to lack of basic necessities and poor insurance coverage. The majority of Lowell's housing stock is old (49% of the housing stock was built in 1939 or earlier, and 85% was built in 1979 or earlier [2006-2010 American Community Survey]), leading to higher rates of lead exposure and increased exposure to asthma triggers. The large numbers of multifamily housing units in Lowell also contributes to higher exposure to environmental tobacco smoke. Access to nutritious foods is adequate, though more affordable nutritious foods are less accessible to those without transportation.

Key recommendations to improve the healthcare system include improving communication and collaborations among the community, hospitals, and public health agencies; expanding healthcare; increasing community outreach; expanding interpreter services; hiring more culturally representative medical staff to improve cultural competency; expanding the number and geographic reach of urgent care and walk-in clinics; implementing various strategies to make the system more patient-centered; applying strategies to maintain high quality healthcare staff; increasing access to some services (e.g. community screening, pre-care for surgeries, reproductive services, palliative services, geriatric services, and home care); expanding transportation services; increasing political advocacy for better insurance policies; as well as focusing on community-level strategies for disease prevention like improving housing conditions and using schools to spread nutrition and health information.

The next step is to identify top priorities and action plans using the information provided in this report. Lowell General Hospital and the Greater Lowell Health Alliance are committed to a collaborative approach involving other community stakeholders, and they have scheduled community input sessions in various locations as part of this next step.

Introduction

The previous Health Assessment in 2010 was conducted in an environment very different from today. One key development during the last three years was the unification of the two Lowell community hospitals. In July 2012, Lowell General Hospital created the Circle Health System and merged Lowell General Hospital and the former Saints Medical Center into one unified system for the Greater Lowell area, including the city of Lowell and seven surrounding towns: Billerica, Chelmsford, Dracut, Dunstable, Tewksbury, Tyngsborough and Westford. The new Circle Health System unifies all the health providers in Greater Lowell and will demonstrate significant quality improvements and cost savings in the delivery of healthcare in the region.

To fulfill its commitment to the community and statutory requirements, Lowell General Hospital, in partnership with the Greater Lowell Health Alliance, contracted with the University of Massachusetts Lowell Center for Community Research and Engagement to conduct an assessment of community health needs. The University of Massachusetts Lowell team that worked collaboratively to complete this assessment included faculty, staff, students and community partners. The objectives of this study were to:

- Assess the overall health of area residents
- Identify the strengths and weaknesses of the local healthcare system
- Determine the top health problems facing area residents and the populations at greatest risk
- Involve a broad spectrum of professionals and residents, including newer immigrant communities
- Provide recommendations to improve the healthcare system and address unmet health needs
- Inform the process to identify priority health needs and develop action plans to address these priority needs

This report summarizes the major findings from our community health needs assessment.

Community Health Needs Assessment Partners

Lowell General Hospital in partnership with the Greater Lowell Health Alliance intend to use the information within this report to inform a community process in collaboration with other stakeholders to identify priority health needs and develop action plans to improve the local healthcare system and overall community health.

Lowell General Hospital is an independent, not-for-profit, community hospital serving the Greater Lowell area and surrounding communities. With two primary campuses located in Lowell, Massachusetts, the hospital offers the latest state-of-the-art technology and a full range of medical and surgical services for patients, from newborns to seniors.

The Greater Lowell Health Alliance of the Community Health Network Area 10 is comprised of healthcare providers, business leaders, educators, and civic and community leaders with a common goal to help the Greater Lowell community identify and address its health and wellness priorities.

Methodology

This assessment involved primary data collection using focus groups and key informant interviews, as well as secondary data sources, such as the Massachusetts Department of Public Health MassCHIP database and the United States Census. A more detailed description is below.

Focus Groups

Fourteen focus groups with 113 total participants were conducted from April 3 through June 19, 2013 (see Appendix A for list of attendees). Each focus group averaged about 90 minutes and included 7-9 questions, depending on the group (see appendix C). All focus groups were audio recorded and notes were also taken. The team of nine focus group facilitators included UMass faculty, staff and graduate students, as well as individuals from the Cambodian Mutual Assistance Association and Lowell Community Health Center (see appendix D). Focus groups were generally conducted in English, but the Cambodian community group was conducted in Khmer and the Latino group in Spanish.

The composition and number of the focus groups organized and the list of individuals invited were determined in collaboration with Greater Lowell Health Alliance and Lowell General Hospital, as well as other community partners.

Eight of the fourteen focus groups were organized by professional or organizational grouping: nonprofit organizations, organizations providing senior services, public health directors and agents, public health nurses, Circle Health leaders, physicians, Greater Lowell Health Alliance members, and Lowell General Hospital Patient Family Advisory Council members. The Non-Profit Alliance of Greater Lowell (NPA) allowed us to conduct the focus group of nonprofit organizations during the time allotted for their April monthly members' meeting. The Upper Merrimack Valley Public Health Coalition helped organize and recruit their members for the public health directors/agents and public health nurses focus groups. The other six focus groups represented various immigrant and ethnic communities as well as the LGBTQ community.

Key Informant Interviews

The University of Massachusetts Lowell conducted six interviews with individuals identified by Lowell General Hospital and the Greater Lowell Health Alliance as key community informants because of their positions and knowledge of community health needs (see appendix B). These six individuals were asked to participate as private individuals and not as official spokespersons for their organizations. David Turcotte conducted all interviews in person from April 22 to June 12, 2013. All interviews were audio recorded with notes also taken, and they lasted approximately 45 minutes. Interview questions were the same as those used in the focus groups.

Analysis of Secondary Data Sources

Most population health data was accessed through the MassCHIP database. We used the data to provide an overview of health status of residents of Lowell General Hospital's service area, the Greater Lowell Community Health Network Area (also known as CHNA-10). Data were generally comparatively analyzed and presented at the Lowell, Greater Lowell CHNA, and statewide levels. We analyzed and presented data on the City of Lowell because it is the largest and most diverse community and has greater health issues and needs. Data are mostly presented using bar charts and graphs. We generally determined the most important health information to present based on findings from focus groups and key informant interviews. Other secondary data sources included the US Census and local governmental reports as well as local research reports.

Service Area and Population

The Greater Lowell area had an estimated population of 274,404 residents in 2011. The City of Lowell is estimated have 105,519 residents, which represents over 38% of the area's population. Billerica is the largest community outside of Lowell with 40,243 residents. Three other towns, Chelmsford (33,802), Dracut (29,457) and Tewksbury (28,961) are behind Billerica in population size. The smallest community is Dunstable with a population of 3,179.

The City of Lowell, as the largest community, differs significantly from its surrounding suburbs. Since its founding in 1820 as a planned industrial city for textile manufacturing, the City of Lowell has been a gateway for newer immigrants arriving to Massachusetts. Immigration has been an important factor for Lowell's population growth in its early history and population stability over the last 30 years. In the 1800s, immigrants predominately arrived from Europe and Quebec, Canada. In contrast, most recent arrivals have come from Latin America, Asia and Africa. Accordingly, Lowell has the largest percent of foreign born (24.48%) in the service area. Conversely, most suburban communities have less than 10% foreign born, with Westford the exception at 12.6%. Lowell is also more diverse, with 40% non-white with an Asian population at 20.2% and Latino at 17.3%. Nevertheless, Westford and Chelmsford have sizable Asian populations (12.6% and 8.4%, respectively) compared to other area towns.

The economy of Lowell has also changed noticeably since the 1800s; it is no longer the economic center for jobs that it once was for the region. As the overall regional economy has moved from traditional manufacturing to high technology and services, the number of jobs in Lowell has declined significantly, with few manufacturing jobs remaining. As with all workers in today's economy, immigrants who lack higher education, tend to face a job market comprised of mainly low-paying service jobs, which lack the upwardly mobile manufacturing opportunities previously available. Lowell also has the highest unemployment rate in the region (9%), 30% more than the next highest rate in the area. Lowell also has the highest poverty rate (17.6%), notably higher than other communities and 13.5 times higher than Westford (1.3). Overall, Lowell is the least affluent community with a median household income of $51,471, which is less than half the income of the towns, such as Westford ($119,511) and Dunstable ($109,205).

Table 1. Basic demographic data, cities/towns in the Greater Lowell CHNA

City/Town	Population**	% White*	% Foreign Born*	% Aged 0-17**	% Aged 65+**	% Below Poverty*	% Unemp-loyed***	Median Household Income*	% Black*	% Asian*	% His-panic*
Billerica	40,243	90.2	9.03	23.2	12.2	4.7	6.5	88,531	2.1	5.5	2.6
Chelmsford	33,802	89.9	9.32	23.1	16.2	3.9	6.0	90,895	1.1	8.4	2
Dracut	29,457	91.7	6.78	23.1	12.5	4.2	6.8	71,824	2.5	4	3.9
Dunstable	3,179	96.5	3.27	28.8	9.9	3.3	5.2	109,205	0.2	3.1	1.4
Lowell	105,519	60.2	24.48	23.7	10.1	17.6	9.0	51,471	6.8	20.2	17.3
Tewksbury	28,961	93.3	6.16	22.6	14.5	2.9	6.9	86,378	1.1	2.7	2.1
Tyngsborough	11,292	92.5	7.02	25.3	8.9	4	6.8	101,103	1.1	4.7	2.3
Westford	21,951	83.7	12.03	29.7	9.9	1.3	5.7	119,511	0.4	12.6	1.5
Total/Weighted Average	274,404	86.8	9.8	24.9	11.8	5.2	7.3	89,865	1.9	7.7	4.1
Massachusetts	6,547,629	81.3	14.62	21.7	13.8	10.7	7.2	65,981	6.6	5.3	9.6

*American Community Survey 2007-2011

**2010 Census

***Massachusetts Executive Office of Labor and Workforce Development, July 2013

Findings about Community Health and Needs from Focus Groups and Interviews

Overall perception about community health

- *The overall perception is that health is slightly below average in the Greater Lowell area*. There is a lot of variation in health status for different communities due to great diversity.
- *There is an awareness that health varies based on socioeconomic status*, and that it manifests in a geographic contrast between poorer health in the lower income urban areas of Lowell, and better health in the suburban areas, especially in the more affluent towns. Specific health issues identified as being associated with socioeconomic status or geographic area include health awareness, diet, physical activity, smoking, obesity, heart attacks, asthma, infant mortality, dental health, and chronic diseases.
- *The health of the elderly and immigrant communities was seen as worse than the rest of the population.* They are seen as having more chronic disease and barriers to receiving adequate healthcare. These are described in more detail in the section titled "Types of residents at greatest risk" beginning on page 14.

Top health problems in the community

These are listed in order of importance based on the focus groups and interviews.

- *Mental health* - Specific mental health problems mentioned include depression, anxiety, and suicide. Those with mental health issues were also named as a type of resident at greatest risk for poorer health and unmet needs. See page 17 for more on the mental health population, and pages 22 and 29 for related public health data.

- *Substance abuse* - The top substances include alcohol, opioids/opiates, prescription pills, and heroin. The issue of substance abuse is a concern for many due to the associated violence and high needle use. See pages 23 and 29 for related public health data.

- *Diabetes* - The associated vision problems and access to endocrinologists in the area were raised as issues. It seems that few area endocrinologists accept MassHealth patients. See pages 23 and 31 for related public health data.

- *Obesity* - Those in lower socioeconomic pockets are thought to have higher body mass index. There is a perception that obesity is associated with lack of education, and for

childhood obesity, a lack of parental guidance. See pages 23 and 32 for related public health data.

- *Cardiovascular disease* – Cardiovascular disease and its precursors such as hypertension and cholesterol was also a common concern. See pages 24 and 35 for related public health data.

- *Respiratory diseases* – Asthma, chronic obstructive pulmonary disease (COPD), and chronic bronchitis were raised as concerns, as well as their connection to poor housing and mold. See pages 24 and 37 for related public health data and page 44 for a discussion of housing and health.

- *Hepatitis B* was raised as an important health issue in the Cambodian community. See page 15 for more information on Hepatitis B in the Cambodian population and pages 25 and 42 for related public health data.

- Other health issues raised include cancer, the possibility of geographic pockets of high cancer rates, and poor dental health.

- Behaviors or conditions that were named as contributing to poor health include poor nutrition, smoking, violence (domestic and sexual assault), teen pregnancy, stress, working too much, and poor access to healthcare.

Types of residents at greatest risk

- ***Elderly***

  The elderly were named most frequently as a population at great risk and with unmet needs. Common health-related problems include chronic diseases, social isolation, hidden substance abuse and behavioral issues, poor nutrition and restricted diets, poor lifestyles, and being homebound and/or physically disabled. The elderly tend to have poor access to the healthcare they need for several reasons. These include a lack of needed services in the area, unaffordability, difficulty qualifying for services, and a perceived tendency for local doctors to deny healthcare services for those on Medicare once they have met their quota for serving Medicare patients. Other reasons for poor access can include difficulty finding caretakers within the family, difficulty understanding insurance issues and personal costs associated with services, and reluctance to use various services, hospitals, and preventive care.

- ***Immigrant Communities***

  Members of immigrant communities were named in most groups as a high-risk population with unmet needs. In general, immigrants have more limited access to services and understanding of the healthcare system. The uninsured rate is higher, they have language and cultural barriers, and due to economic necessity they tend to prioritize work over their health. Immigrant communities may also have preexisting and poorly understood medical conditions or unaddressed mental health issues. Some individuals had observed a phenomenon where new refugees tend to be the healthiest in their community, but as they assimilate to the American diet and lifestyle, they become some of the unhealthiest in the area.

  The following information on ethnic and immigrant communities was provided by members of these communities during the focus group sessions.

  Cambodian community

  Health problems that are common in this community include diabetes, hypertension, high cholesterol, mental health, high prescription medication use, smoking, and Hepatitis B. Hepatitis B infection is of high concern in the Cambodian community. Cambodian immigrants have a 10% rate of Hepatitis B infection, 20 times higher than that of the general US population which is less than 0.5% (Touch, 2013). Among Cambodian elders, top health problems include overall physical health, depression, and dental health. There is a lack of knowledge about how to live healthy, coupled with a distrust of healthcare providers and avoidance of preventive services. There is a common fear of not being accommodated if there are no Cambodian medical personnel where care is sought. As a result medical help is often a last resort for this population, and there is heavy reliance on alternative practices that are unmonitored by physicians.

  Portuguese community

  Health problems of concern to the Portuguese community include trouble adjusting to weather patterns and depression as an impact of immigration. Other concerns are high cholesterol and high blood pressure.

  Brazilian community

  Members of the Brazilian community tend to underutilize healthcare because of lack of insurance coverage, lack of knowledge about how to access healthcare regardless of immigration status, and affordability issues. There is currently no organization that exclusively serves the Brazilian community.

African community

Many members of the African community tend to work long hours, which makes it difficult to incorporate healthcare into their lives. Some tend to be quiet or shy with doctors because of a cultural norm, a phenomenon which many doctors are not aware of. There is a need for interpreters for some of the less common African languages, and for help attaining health insurance. The community is reluctant to seek help for mental health since it is sometimes viewed as taboo.

Undocumented immigrants

Many undocumented immigrants tend not to seek care for fear of being deported, though in reality there is no risk of deportation for seeking medical care. There is a serious concern for the mental health of children and teens that have nowhere to go after graduating from high school due to their undocumented status.

- ***Latino community*** *(includes immigrant and non-immigrant Latinos)*
  Information about this population originated from the focus group with Latino participants. Latinos are more likely to have asthma (corresponding public health data on asthma is found on page 40) and diabetes (prevalence is higher among Hispanics than non-Hispanics [Massachusetts Department of Public Health]). Stress, depression, and mental health are concerns for this group due to unemployment and need for financial assistance and food. Latino youth seem to have limited options for community activities. Discrimination at the point of service in healthcare and other service institutions is problematic in both healthcare facilities and social service agencies. Some Latinos feel judged at the point of service when asking for help, and they have been met with discriminatory behavior because of language barriers.

- ***Youth***
  Certain children, adolescents, and teens are at high risk. Focus group participants stated that from their experience some parents have substance abuse issues, are not educated about health, or have difficulty finding time to teach their kids about health because of work demands. They expressed that some youth grow up with fear of their community that is inherited from their parents. Some also said there is a problem with “feral” or “free-range” children living in the city. These are children that have been badly neglected by their parents. Schools do not have the capacity to keep up with the behavioral and health problems that result from all of these issues.

- ***Low Income Individuals***

Focus group participants talked about what they saw as challenges for low income individuals. The unemployed and those with low income are at risk because they are often unable to afford healthy foods, have poor access to transportation, lack skills to navigate the healthcare system, and tend not to use what little financial resources they have to improve their health. In addition, those who are employed prioritize work over doctor visits due to economic necessity.

- ***Those with mental health issues***
  Focus group participants expressed that this population tends not to seek help because of the stigma associated with mental health issues. Depression was mentioned often across groups and there was a concern that depression is more common than data indicates. Unaddressed mental health problems can also lead to substance abuse issues. This population has a shortened life expectancy.

- ***LGBTQ***
  Information about this population originated from the focus group of LGBTQ members and service providers. Those who are isolated or without family support are at risk of developing mental health issues. There is a lack of sensitivity to this community by many healthcare professionals, a lack of outreach, as well as a lack of awareness of transsexuals. Individuals in this community tend to go to Boston to seek care, as there is a better sense of acceptance, expertise, and confidentiality.

- ***Other high-risk populations*** include the physically handicapped, the developmentally disabled, patients with palliative needs, those with limited health literacy, women, single mothers, substance abusers, and caregivers.

Major strengths of the healthcare system

- *The healthcare providers* available in the community were generally viewed as educated, experienced, forward thinking, and generally accommodating to different cultures and languages. Healthcare providers seem to work together to take care of patients as a team. The many specialized services that are available were seen as strengths as well. These include specialists, orthopedics, cancer services, endocrinology, nursing homes, emergency services, the first responder system, increasing numbers and geographic reach of walk-in clinics, preventive programs, wellness education in the surrounding towns and children's services.

- *The merger between Lowell General Hospital and Saints Medical Center* was also seen as a great improvement in the healthcare system that has resulted in a more collaborative approach and better coordination of services between the two campuses. Lowell General Hospital was seen as a strong hospital by those within and knowledgeable about the healthcare system, attributed to Circle Health (its parent organization), financial stability, diversity, outreach, volunteerism, and the electronic medical record system.

- *The more collaborative approach* between healthcare providers was observed as beneficial because it reduces costs, reduces duplications in services, and increases quality of care and response to community needs. Other partnerships with social services agencies were seen as crucial to health.

- *Cultural sensitivity* within the healthcare system locally was seen as being better than other areas in the state. The interpreter services and availability of culturally sensitive providers and providers that speak different languages add up to a rich cultural environment. The Lowell Community Health Center (LCHC) in particular was seen as a great resource by immigrants and minority groups for several reasons. LCHC is very accommodating to those who do not speak English well; staff are culturally competent and some of their staff are of similar ethnic backgrounds as their patients; LCHC has excellent interpreter capacity; they provide care regardless of socioeconomic status; they excel with community outreach; and they have a good in-flow of educated healthcare professionals.

- *Access to services* was named as a strength as well. Between LCHC and LGH, most treatments and tests are available. Specialty services and local collaborations are possible due to the size of the community, and specialists are being recruited from Boston to help improve follow-up services. In addition, patients are generally not turned down for services, and there is good access to recreational facilities.

- *Other organizations* that were named as crucial to the strength of the healthcare system include: the Visiting Nurse Association of Greater Lowell, the Greater Lowell Health Alliance, the Cambodian Mutual Assistance Association, the University of Massachusetts Lowell (particularly the health and sciences departments), and Middlesex Community College.

- *Other strengths identified include:* cutting edge technology and high quality physical facilities, good quality hospitals nearby in Boston, good quality care in general, good social services, better services for elders than other parts of the state, the recent greater focus on access to healthy food, strong home healthcare, good progress in dealing with foreign diseases, the strong arts community, and insurance coverage.

Major weaknesses and unmet needs in the healthcare system

- *While there are many mental health services in Greater Lowell that provide excellent services, the mental health needs of the community are not being met.* There is a need for more local providers. People of all ages need better access to these services and those with substance abuse issues are in need of better mental health services. More inpatient care is also needed for this population. An alternative to interpreter services for those who do not speak English is important, because interpreter services do not tend to work for individual counseling. There is a need for help with navigating the difficult mental health system as well.

- *While strides have been made to improve cultural competency in healthcare, more can be done* in general and at Lowell General Hospital. There is less focus on secondary cultural groups such as the Burmese community and as a result their needs are often not met.

- *Gains have been made in recruiting top-notch providers to the Greater Lowell area. However, still, there are not enough providers and/or inadequate services in several areas.*

Physicians:	Interpreter services
- Therapists	Primary care providers for alternative families
- Specialists	Emergency services
- Home care	Geriatric services
- Dentists/pediatric	Assisted living and other elderly housing
- Geriatric	Substance abuse
- Breast surgeons	Urgent care and walk-in clinics
	LGBTQ services

  Other services that were mentioned as being inadequate include palliative and chronic disease management, caregiver support, disability services, domestic violence, sexual assault services/Sexual Assault Nurse Examiners, complex patient services, gastrointestinal services, breast surgeons, and prevention.

- *The healthcare approach* was touched on as a weakness by several groups, for differing reasons. The following sentences describe the various comments about this topic. Some patients of the healthcare system were of the opinion that the holistic view of health, which includes mind, body, and spirit is not taken into consideration most of the time by

providers. There seems to be an overwhelming focus on addressing symptoms rather than the cause of the problem, and it may be linked to the very limited time physicians have with patients. The healthcare system itself appears to be more set up for crisis management than for preventive care.

- *The healthcare system was seen as uncoordinated at times*, leading to problems for patients. To some of the focus group members, it seems the healthcare system is made up of many of independent entities. Their perception is that there are many changes happening in the healthcare system that aren't well coordinated and seem mostly driven by incentives for medical institutions, rather than being based on community needs. They are concerned that these inefficiencies can drive up costs for the patient and the healthcare facility. Participants found little coordination between specialists. All of this makes it very difficult for patients to maneuver the medical system, and it is even more difficult for those with language barriers and learning disabilities. Some patients have seen so many doctors that they don't even know who their primary care physician is.

- *There are a few problems with medication use*. Medications tend to be unaffordable for those without or with inadequate health insurance, there is a perception of too much reliance on medications, and medication use is uncoordinated. Prescription monitoring is currently in the hands of individual providers, but there is not enough communication between providers.

- *Outreach efforts are ongoing and critical for access to care. While outreach is a focus for many programs, it seems more is needed for health education programs.* Some participants feel there is a lack of reliable information about the availability of medical services and who to turn to for health related questions. They also feel there is not enough simplified and easy-to-understand information for those who are less educated and have language and cultural barriers.

Barriers to obtaining healthcare services

- *Several issues were raised relating to barriers to obtaining emergency care services.* There are long wait times in the emergency room (ER); issues with insurance paperwork can contribute to delays; and improper use of the ER contributes to delays because problems that could be dealt with in outpatient care are being brought to the ER. It is thought that the ER is overused for problems that could be dealt with in outpatient care due to several factors: long waits (up to three months) for specialty services; a lack of available pediatric

care on weekends; and patients ending up in the ER when discharged from the hospital because it is too difficult to get an appointment at their doctor's office.

- *Insurance coverage was an issue raised in several groups.* Lack of coverage for services such as dental care, vision, and orthopedics was cited. Also, lack of knowledge about insurance coverage and lack of choice of providers were mentioned. Young adults tend to lack insurance coverage more than other age groups. Focus group respondents said that those with MassHealth can have problems getting service from doctors' offices because they stop serving MassHealth patients when their quota is fulfilled. Those with Medicaid have had problems with being bumped off their insurance policy without any warning, typically due to a clerical error. Medicaid patients also tend to have trouble finding a primary care provider that accepts their insurance. There is an overall need for help with obtaining the right amount of coverage.

- *Mental health services for children are difficult to access* because some insurance is not accepted. Patients sometimes must travel out of area to find services. For MassHealth patients there can be months of wait time. It can be difficult to gain access to psychiatric medications as well.

- *Language barriers were mentioned several times*. There are interpreter services in some facilities, especially Lowell Community Health Center, but the services are not widespread enough across other facilities to meet the need. There were reports of some nurses being unaware that their facility provided interpreter services.

- *In the doctors' offices, having to schedule appointments far in advance can be a problem*, as well as wait times for an appointment. This often forces patients to leave before being seen in order to maintain other obligations such as work and other doctor appointments.

- *Patients with mobility issues tend to have difficulties with transportation.* This includes patients who are too frail to travel on their own, and patients who don't have their own form of transportation. It can be difficult to access network resources, and insurance issues can limit options for transportation.

- *Affordability is a common barrier to accessing care.* Some focus group participants felt that income guidelines are not updated or unrealistic.

- *Other access issues* raised include difficulty gaining access to skilled nursing facilities for those who have a history of substance abuse, lack of freely available information and

assistance with accessing free care for those who need it, lack of understanding of healthcare availability for undocumented immigrants, cultural misunderstandings by providers, and discrimination against those with language barriers.

Analysis of Public Health Data

The data represented here are the most recent available from the Massachusetts Department of Public Health. The data are presented for residents of the city of Lowell, the Greater Lowell CHNA, and Massachusetts. The city of Lowell, being an urban area, is expected to have less optimal health statistics than the more suburban towns that make up the rest of the CHNA due to lower incomes, greater unemployment, greater diversity, and a larger immigrant population. Age-adjusted rates are provided when available and applicable, but some data are only available in crude rates (not age-adjusted). Age-adjustment is a statistical method that adjusts rates based on age distributions so that populations with different age distributions can be compared more accurately. This is especially important for diseases and causes of death that occur more frequently in certain age groups.

General health

General health statistics in Lowell are less optimal than the CHNA and Massachusetts. The percent of adults with fair or poor health in 2011 was 19.8 in Lowell, 12.3 in the CHNA, and 14.0 in Massachusetts (see figure 1.1). Mortality rates in Lowell have tended to be slightly higher than the CHNA and the state, though mortality rates in all three geographic areas have decreased slightly between 2000 and 2010 (see figure 1.2). In 2011, fertility rates were higher in Lowell at 72.4, 60.1 in the CHNA, and 55.1 in the state. Negative indicators of maternal health are higher in Lowell than the state. These include low birth weight, births to adolescent mothers, and mothers not receiving prenatal care in the first trimester. There is also a higher rate of mothers receiving publicly funded prenatal care in Lowell versus the state. Infant mortality rates appear to be trending upward from 2006-2011 in Lowell and the CHNA, but Massachusetts remains steady at between 4 and 5 deaths per 1,000 births (see figure 1.3). Emergency department hospitalizations are consistently higher in Lowell than the state and the CHNA, though the rates have remained fairly steady since 2002 (see figure 1.4). In 2010, homicide death rates were higher in Lowell at 4.3 per 100,000 people than the CHNA and Massachusetts, at 2.5 and 3.2, respectively (see figure 1.5). The trend in homicide deaths over the last ten years has been inconsistent in Lowell and the CHNA, with Lowell spiking to 6.2 in 2004 and 10.5 in 2006 (see figure 1.6). In 2010 95.8% of Lowell residents had health insurance. The greater Lowell CHNA was almost the same at 95.9%, and Massachusetts had a 97% coverage rate. In Lowell, 11.1% of respondents needed to see a doctor but could not due to

cost within the past year. In the CHNA and Massachusetts only 6.6 and 6.7% responded positively to the same question.

Mental health

Mental health hospitalizations overall are lower than they were in the 1990s for Lowell and the CHNA. Mental health hospitalizations in Lowell peaked at 1,189 per 100,000 people, and have decreased below the state rate since then, with a slight upward tick from 2007 to 2009 (see figure 2.1). The 2009 mental health hospitalization rates were 774 per 100,000 people for Lowell, 570 for the CHNA, and 786 for Massachusetts. Massachusetts rates have been fairly consistent over the last 20 years at around 800 per 100,000 people. Rates in the Greater Lowell CHNA have been consistently lower than Lowell, showing a concentration of mental health hospitalizations for residents of Lowell versus the surrounding suburban towns.

Substance abuse

For overall substance abuse admissions in 2011, Lowell has the highest rate at 2,145 per 100,000, followed by Massachusetts at 1,590, and the CHNA at 1,479. Substance abuse admissions for alcohol have decreased since 1992, with Lowell's rate being consistently higher than the state, and the CHNA's rate being consistently lower than the state (see figure 3.1). This suggests a concentration of alcohol abuse admissions in Lowell versus the surrounding suburban towns. Substance abuse admissions for heroin have trended slightly upward for all three regions since 1992. Lowell's rates peaked in the early 2000's at 1,672 per 100,000 and have remained about 900 per 100,000 from 2009 to 2011 (see figure 3.2). Substance abuse admissions in all three regions has been increasing rapidly for the category "other" which includes phencyclidine (PCP), other hallucinogens, methamphetamine, other amphetamines, other stimulants, benzodiazepines, other tranquilizers, barbiturates, other sedatives, inhalants, and over the counter drugs (see figure 3.3). Data from the only ambulance service in Lowell shows that ambulance calls for overdoses have increased since 2007 (see figure 3.4).

Diabetes

Diabetes prevalence in all three regions is higher for those of Hispanic origin versus White, which has the lowest prevalence (See figure 4.1). In Lowell, diabetes prevalence is highest for Asian/Pacific Islander, followed by Hispanic, Black, and White. In the CHNA, diabetes prevalence is highest for Black, followed by Hispanic, and White. The rates of those who have or have had diabetes have been increasing slowly but steadily in Massachusetts since 1999 (see figure 4.2). In Lowell, rates have increased from a low of 5.3 per 100,000 in 2004 to a high of 11.5 in 2009, and 9.8 in 2010. The CHNA has decreased more than Lowell between 2008 and 2010.

Obesity

Fruit and vegetable intake in all three regions trended slightly downward from 1994-2009. In 2009, 22% of Lowell's residents had adequate fruit and vegetable intake, and about 26% of residents in the CHNA and Massachusetts had adequate fruit and vegetable intake (see figure 5.1). The percent of adults who engaged in physical activity for exercise in Lowell in 2011 was 67.6. The percentages are higher in the CHNA at 74.9 and Massachusetts at 76.5 (see figure 5.2). In the school districts of the greater Lowell CHNA, for the 2010-2011 school year, the percent of students who were overweight or obese was highest in Dracut, Billerica, and Lowell at 36-37%; Chelmsford and Tewksbury were at 32%; and Tyngsborough and Westford were at 25% (see figure 5.3). No data were available for Dunstable. In the general population, obesity is on the rise for all three areas. About 15% of residents were obese in 1998, and 25% of residents were obese in 2010 (see figure 5.4). Percent overweight has also been on the rise since 1998, with Lowell and the CHNA at 57% in 1998 and 63% in 2010. The state is slightly lower at 50% in 1998 and 60% in 2010 (see figure 5.5).

Cardiovascular disease

The trend in emergency room visits for all circulatory system diseases has been decreasing since 1989, when all three regions had a rate of about 2,200 per 100,000 (see figure 6.1). In 2009 the rate was higher in Lowell (1,922) than the CHNA (1,826) and Massachusetts (1,502) (see figure 6.2). Emergency visit hospitalizations for hypertension are trending upward. All three areas begin at about 20-24 per 100,000 in 1989 (See figure 6.3). In 2009 rates were higher in Lowell than the CHNA and Massachusetts, at 69, 46, and 48 per 100,000, respectively (see figure 6.4).

Respiratory diseases

Emergency room visit hospitalizations for respiratory system diseases have been fairly steady since 1989, with Lowell higher than the CHNA and Massachusetts. There was a slight upward trend between 2007 and 2009 for all three areas, probably mostly due to the upward trend in Lowell (see figure 7.1). The 2009 rates are 1,651 per 100,000 in Lowell, 1,319 in the CHNA, and 1,066 in Massachusetts (see figure 7.2). Asthma related hospitalizations for children ages 0-4 have an upward trend since 1995. In Lowell, the low was 617 per 100,000 in 1995, and the rate peaked at 1,888 in 2008. The CHNA peaked at 1,215 in 2008 and Massachusetts had a rate of 854 (see figure 7.3). From 2009-2011 asthma hospitalization rates for children ages 0-4 were much higher in Lowell than Massachusetts. In 2011, rates were 639 per 100,000 in Lowell and 414 in Massachusetts (see figure 7.4). Asthma hospitalization rates are much lower than asthma related hospitalization rates because they are specific to asthma, whereas the asthma related hospitalizations include other related conditions. For children ages 5-14, asthma hospitalizations rates are less than half that of the 0-4 age group.

There is a large disparity in asthma hospitalizations between non-Hispanic Whites and Hispanics in Lowell compared to the disparity in Massachusetts. In 2009, the hospitalization rate for Hispanics in Lowell was almost 5 times higher than that of non-Hispanic Whites at 782 per 100,000 versus 159 (see figure 7.5). Asthma hospitalization rates for Asian/Pacific Islanders in Lowell are also higher than Massachusetts at 237 versus 88, respectively.

Chronic obstructive pulmonary disease (COPD) hospitalization rates have been increasing since 1989, but Lowell's rates have been consistently higher than the CHNA and Massachusetts. In 1989 the rates were 387, 283, and 266, respectively, and in 2009 the rates were 613, 455, and 378, respectively (see figure 7.6).

Cancer

Cancer rates in all three regions have been slowly rising since 1985. In 1985 the rates were about 430-450 per 100,000, and in 2008 the CHNA had the highest rate of 559, Massachusetts had a rate of 514, and Lowell had the lowest rate of 487 (see figure 8.1).

Smoking

The trend in smoking since 1998 has been downward, but Lowell's rates have been higher than the CHNA and Massachusetts. In 1998 29% of Lowell residents smoked, and about 21% of the CHNA and Massachusetts residents smoked (see figure 9.1). In 2011, 26.2% of Lowell's population smoked while the 22.3% of the CHNA's population and 18.2% of the Massachusetts population smoked (see figure 9.2).

Teen pregnancy

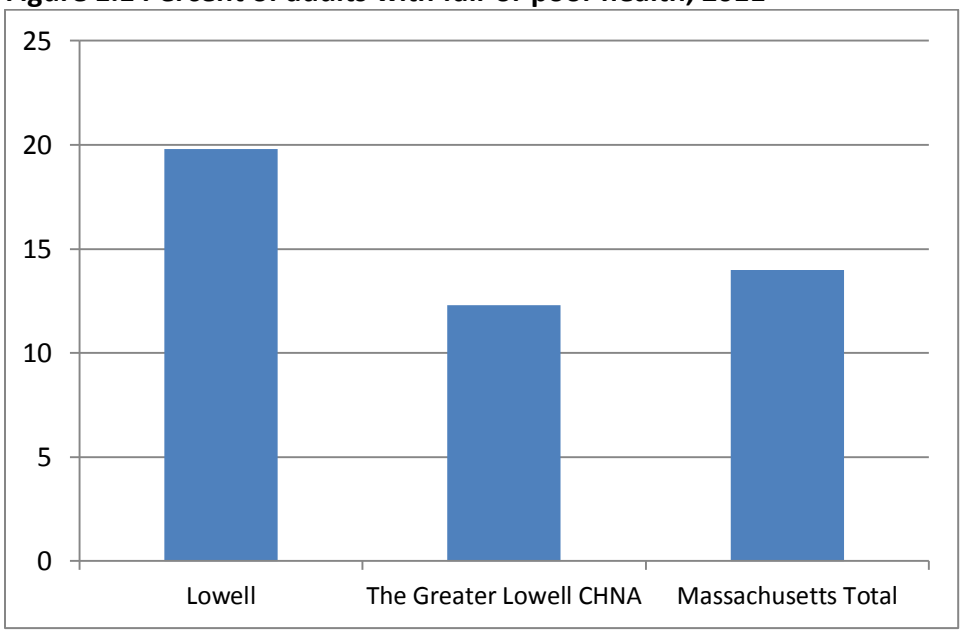
The rates of teen pregnancy have been decreasing since 1989 in all three regions. Lowell's rates have been consistently higher than the CHNA and Massachusetts. In 1989 Lowell's birth rate per 1000 females age 15-19 was 91, with the CHNA at 49 and Massachusetts at 36. In 2009 Lowell's rate was 53, with the CHNA at 29 and Massachusetts at 20 (see figure 10.1)

Hepatitis B

Rates of hepatitis B have been consistently higher in Lowell than the CHNA and Massachusetts. In 1992 rates were low – Lowell was 6.7, the CHNA was 3.9, and Massachusetts was 3.7 per 100,000. Rates rose and peaked in 2001 and Lowell reached a high of 120, pulling the rates up for the CHNA and Massachusetts (see figure 11.1). The latest data for 2009 still show a higher rate for Lowell at 58.6, with the CHNA at 29.3 and Massachusetts at 11.3 (see figure 11.2).

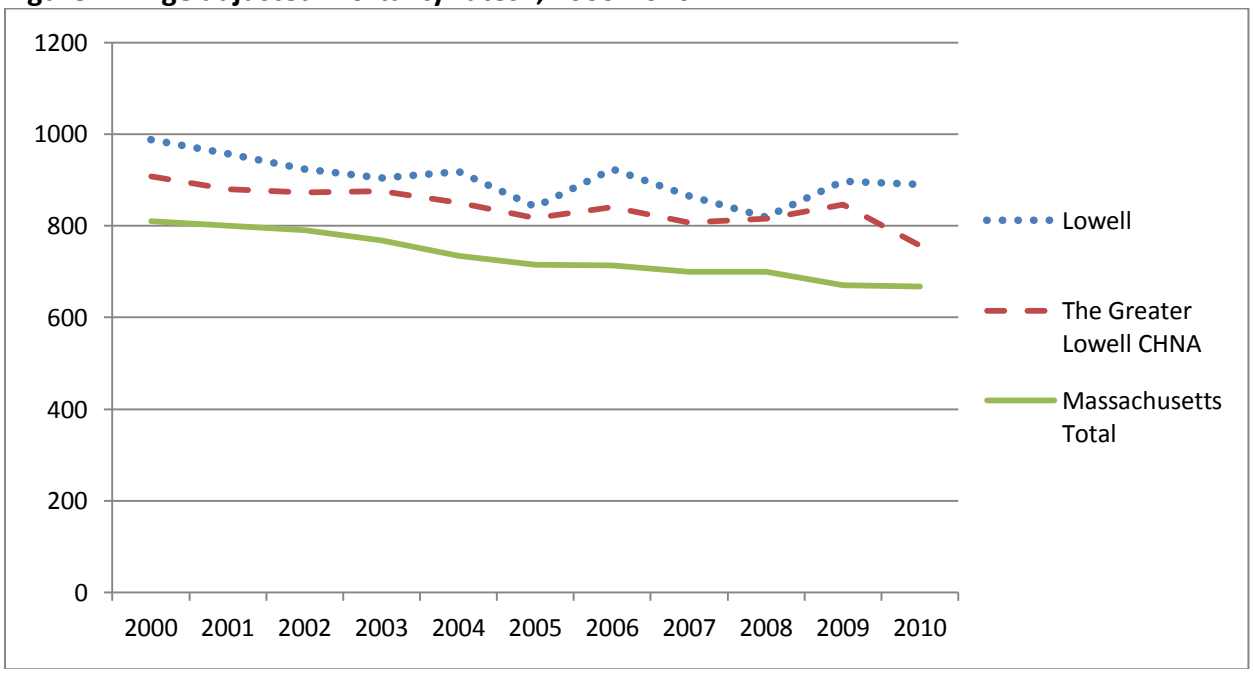
Figures - General Health

Figure 1.1 Percent of adults with fair or poor health, 2011



Source: Massachusetts Department of Public Health

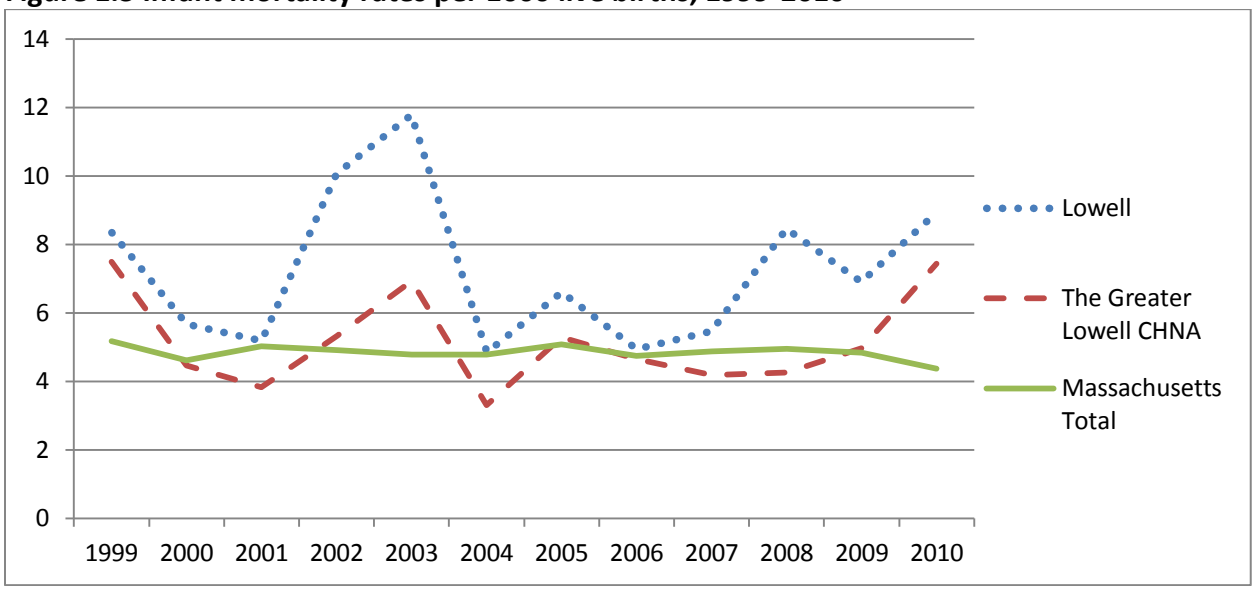
Figure 1.2 Age adjusted mortality rates*, 2000-2010



*Rate is per 100,000 persons

Source: Massachusetts Department of Public Health

Figure 1.3 Infant mortality rates per 1000 live births, 1999-2010



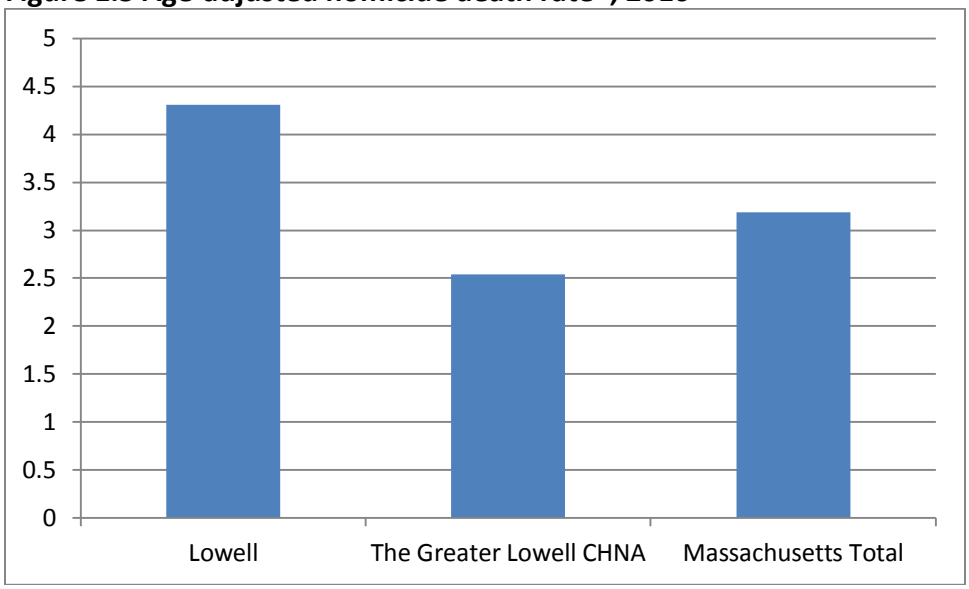
Source: Massachusetts Department of Public Health

Figure 1.4 Age-adjusted rates* of emergency department hospitalizations, 2002-2009

*Rate is per 100,000 persons

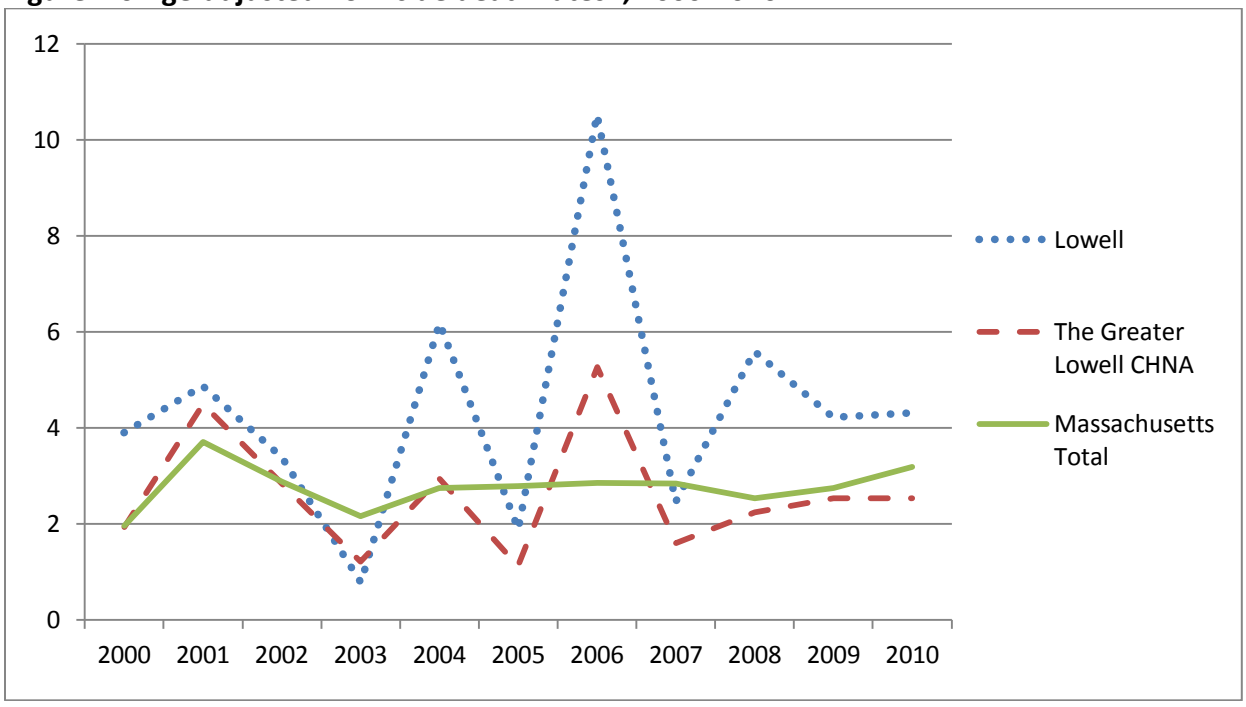
Source: Massachusetts Department of Public Health

Figure 1.5 Age-adjusted homicide death rate*, 2010



*Rate is per 100,000 persons
Source: Massachusetts Department of Public Health

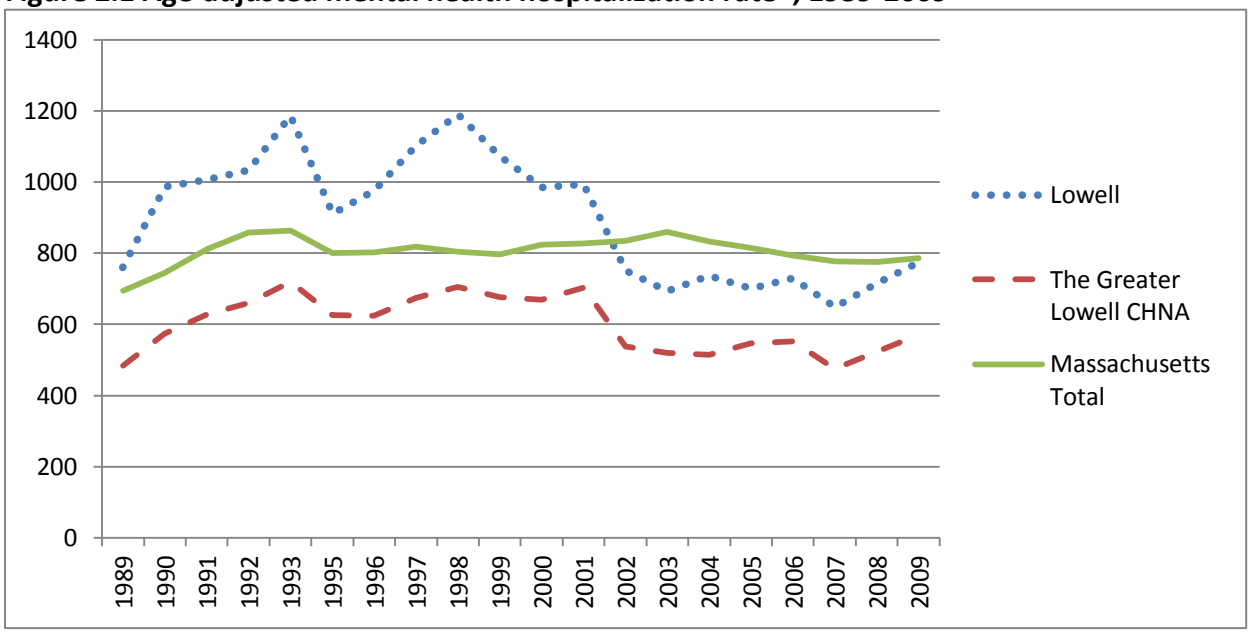
Figure 1.6 Age-adjusted homicide death rates*, 2000-2010



*Rate is per 100,000 persons
Source: Massachusetts Department of Public Health

Figures - Mental Health

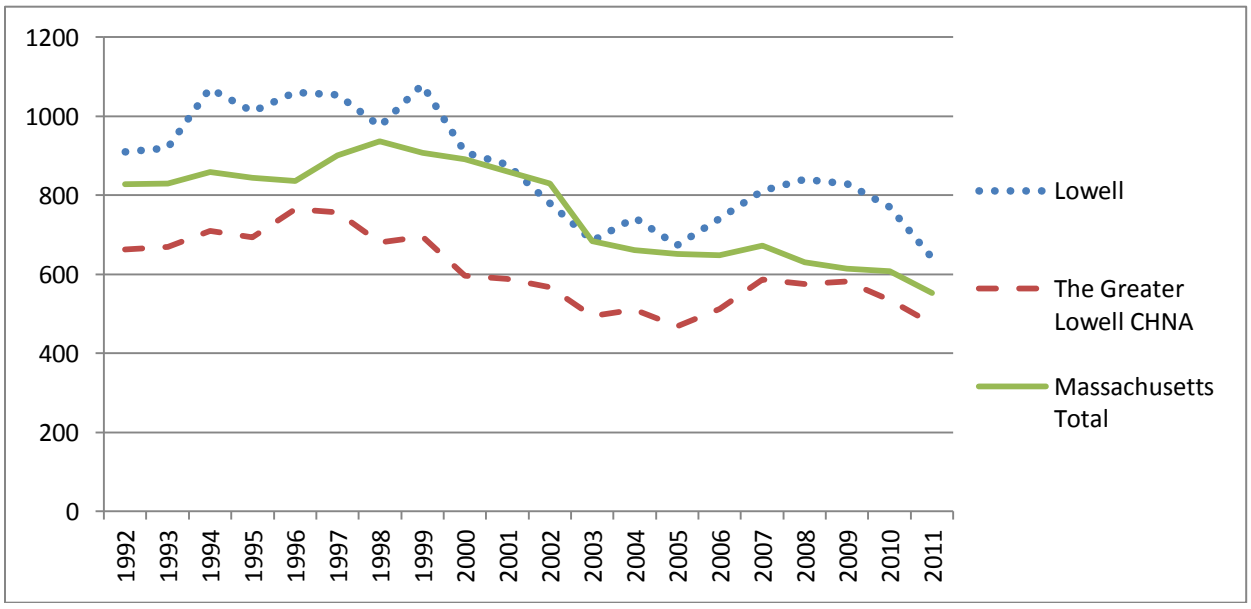
Figure 2.1 Age-adjusted mental health hospitalization rate*, 1989-2009



*Rate is per 100,000 persons
Source: Massachusetts Department of Public Health

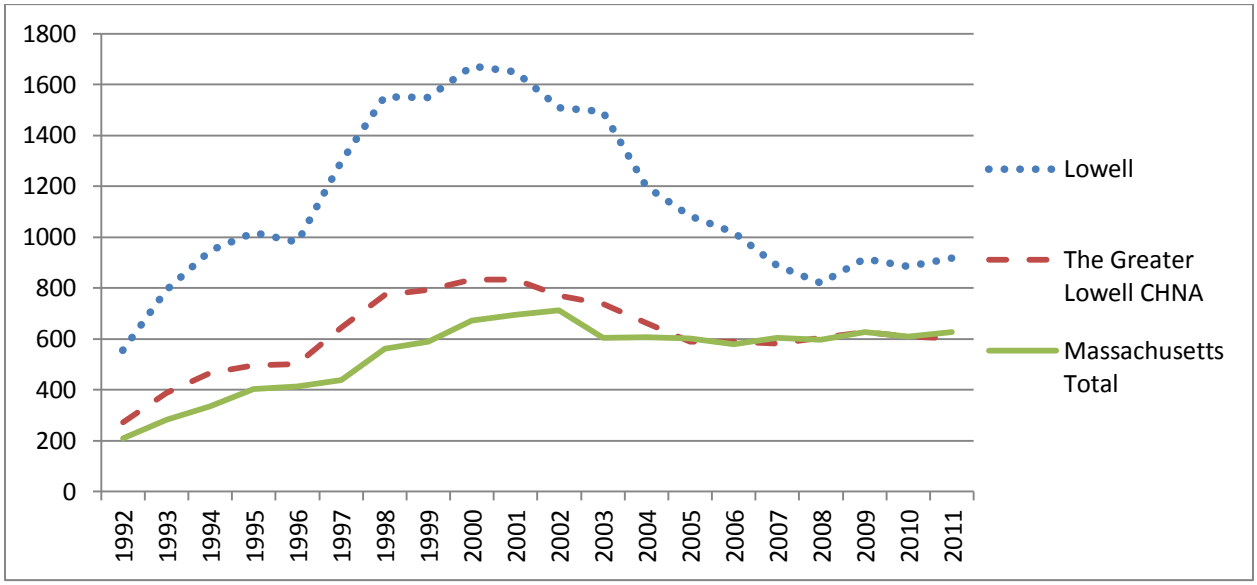
Figures - Substance Abuse

Figure 3.1 Crude rates* of substance abuse admissions – Alcohol was primary substance, 1992-2011



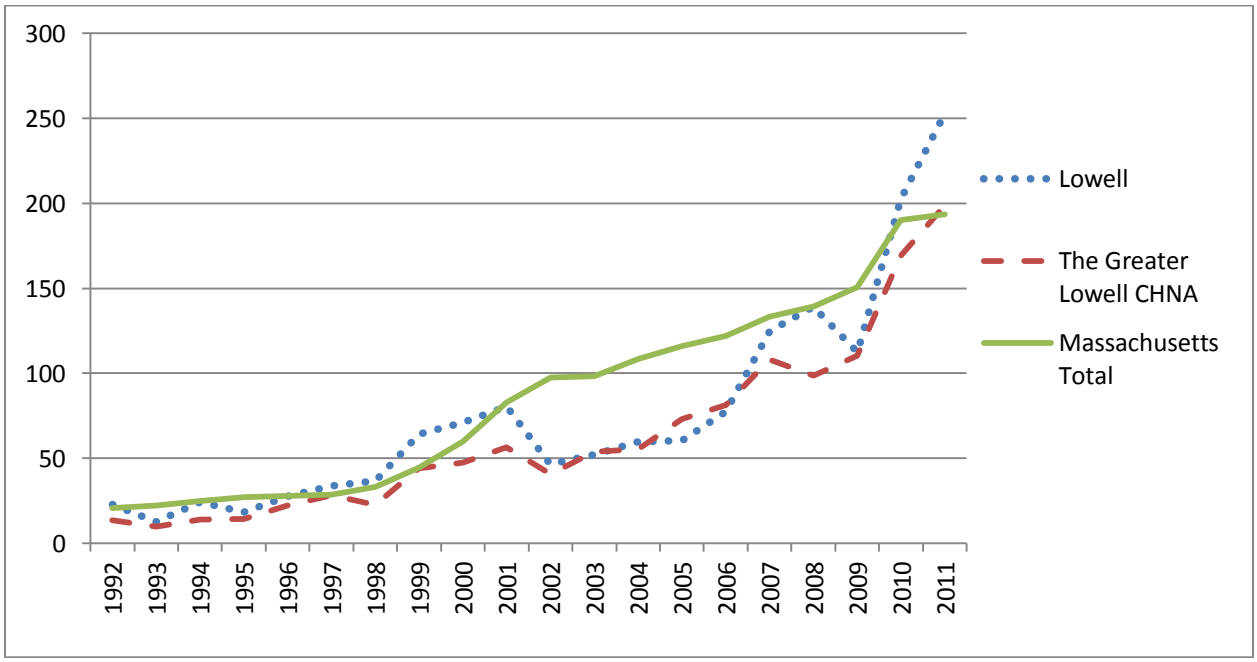
*Rate is per 100,000 persons
Source: Massachusetts Department of Public Health

Figure 3.2 Crude rates* of substance abuse admissions – Heroin was primary substance, 1992-2011



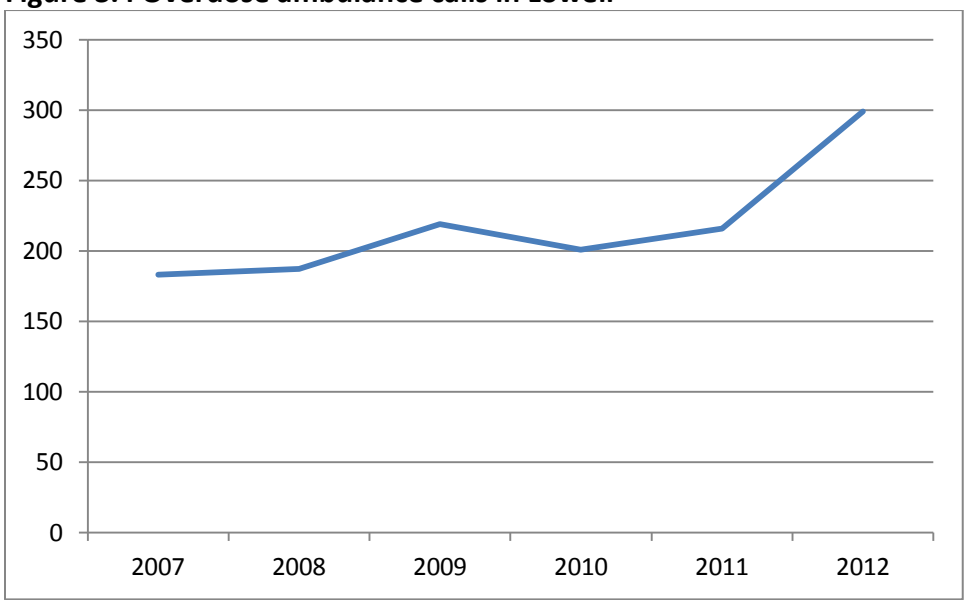
*Rate is per 100,000 persons
Source: Massachusetts Department of Public Health

Figure 3.3 Crude rates *of substance abuse admissions – Other was primary substance, 1992-2011**



*Rate is per 100,000 persons
** "Other" includes phencyclidine (PCP), other hallucinogens, methamphetamine, other amphetamines, other stimulants, benzodiazepines, other tranquilizers, barbiturates, other sedatives, inhalants, and over the counter drugs

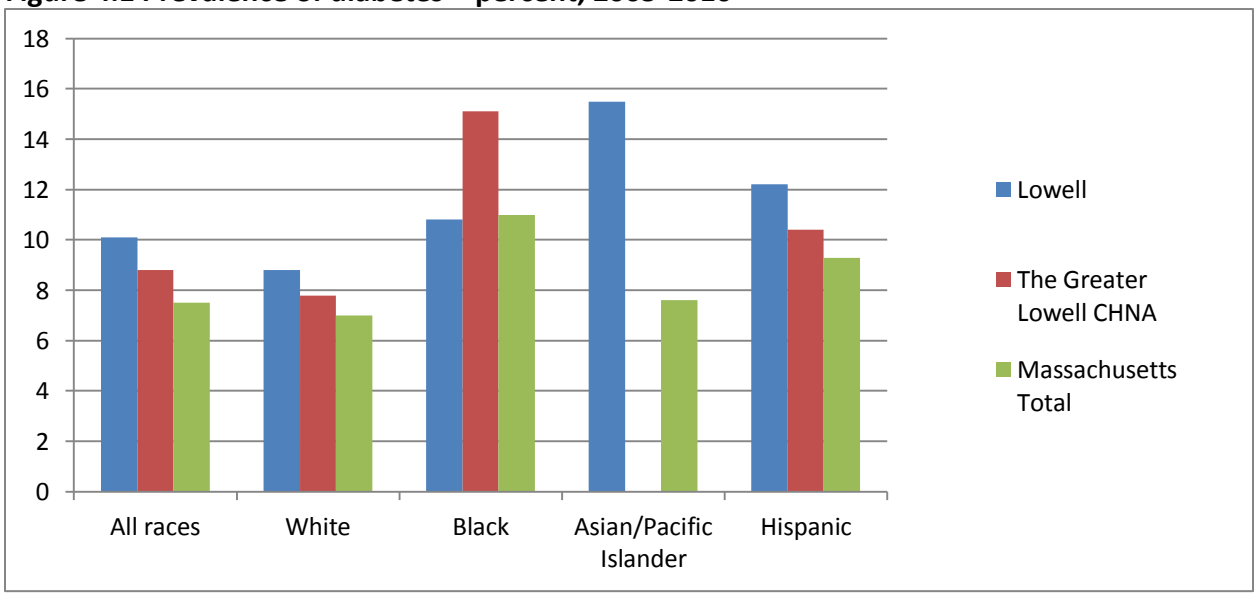
Figure 3.4 Overdose ambulance calls in Lowell



Source: Trinity Emergency Medical Service, Inc.

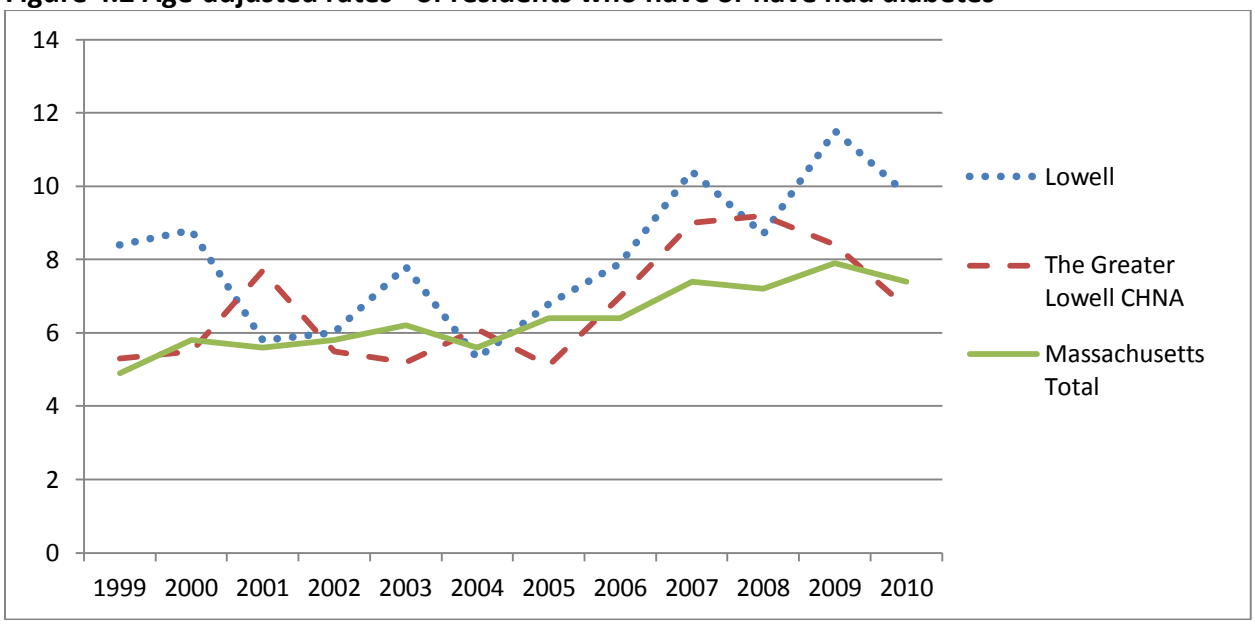
Figures - Diabetes

Figure 4.1 Prevalence of diabetes – percent, 2005-2010



Source: Massachusetts Department of Public Health
Note: No data available for Asian/Pacific Islander category for the Greater Lowell CHNA.

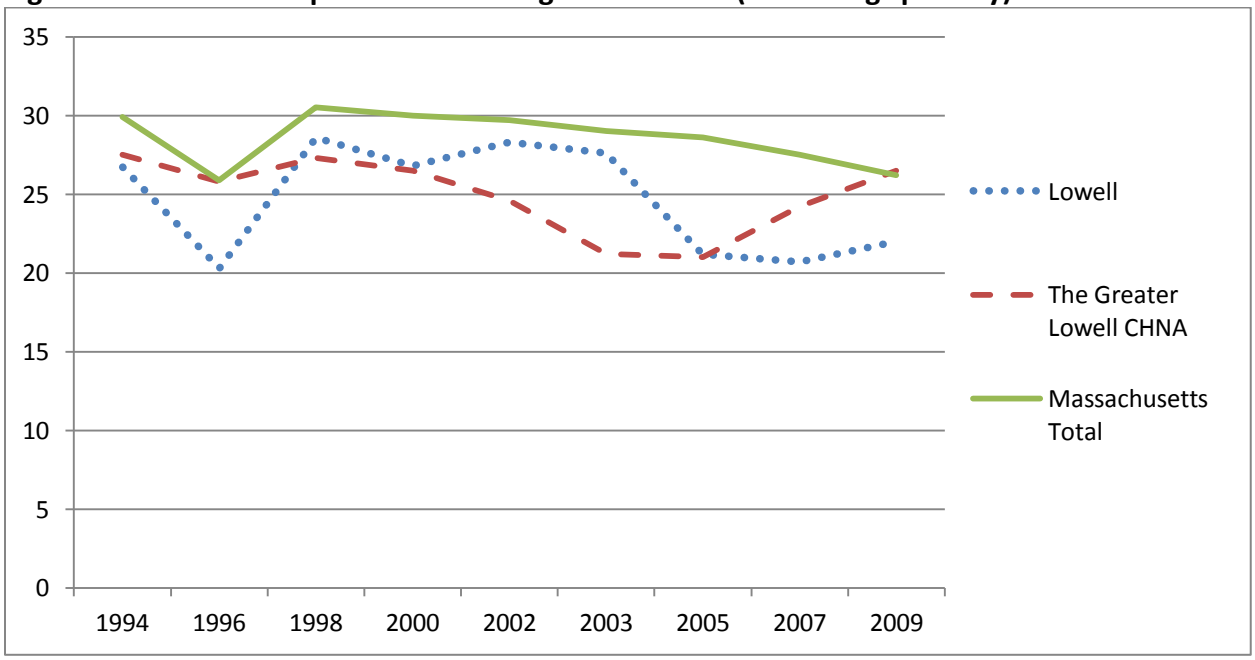
Figure 4.2 Age-adjusted rates* of residents who have or have had diabetes



*Rate is per 100,000 persons
Source: Massachusetts Department of Public Health

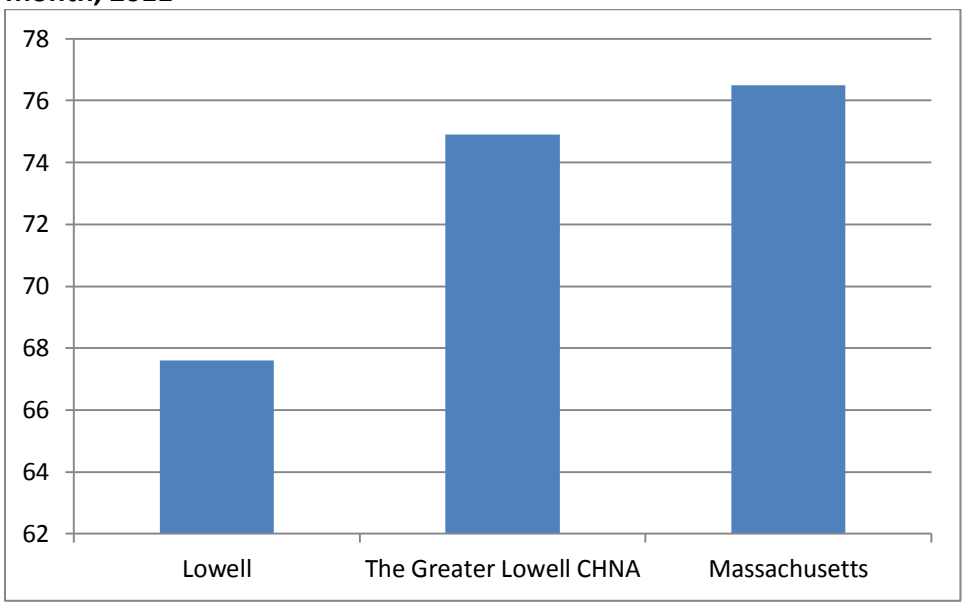
Figures - Obesity

Figure 5.1 Percent adequate fruit and vegetable intake (5+ servings per day)



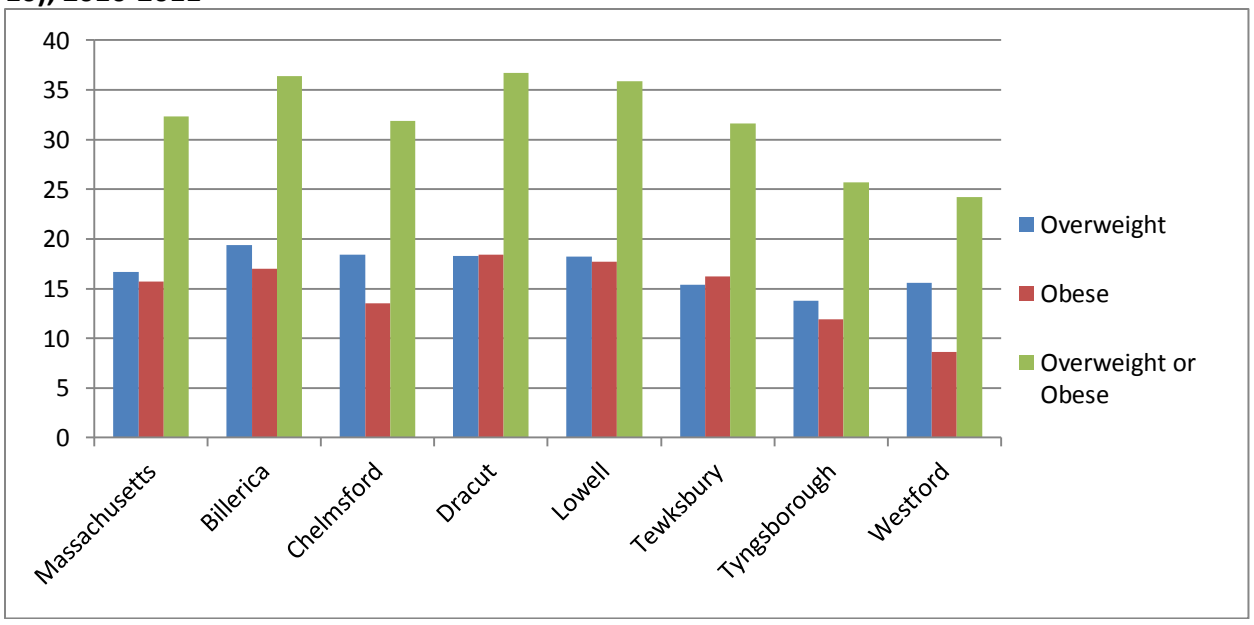
Source: Massachusetts Department of Public Health

Figure 5.2 Percent of adults who participated in physical activity for exercise in the last month, 2011



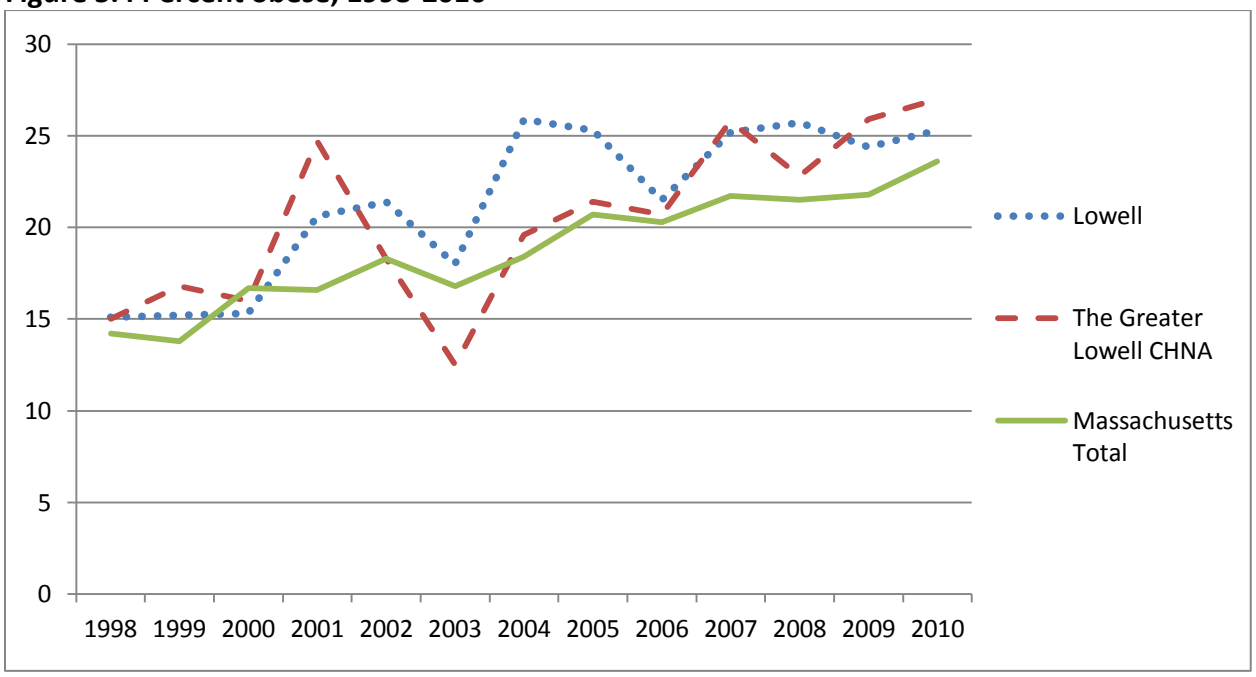
Source: Massachusetts Department of Public Health

Figure 5.3 Percent overweight or obese in Greater Lowell CHNA school districts (grades 1, 4, 7, 10), 2010-2011



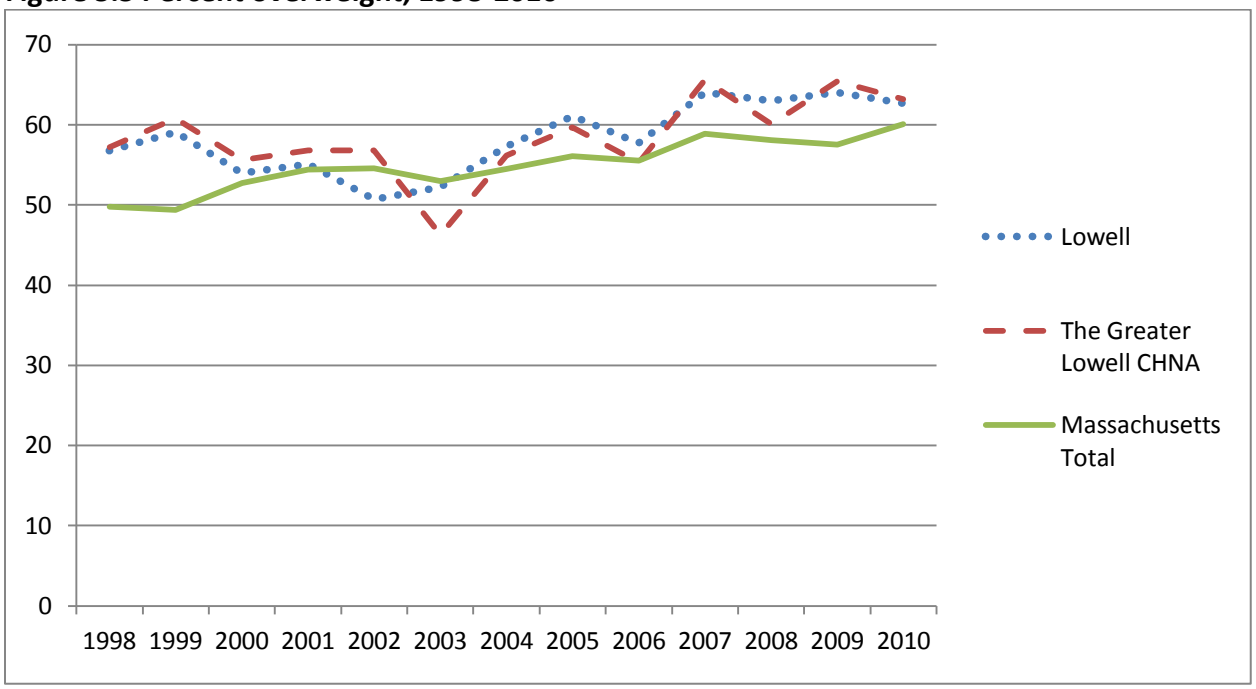
Note: No data available for the town of Dunstable
Source: Massachusetts Department of Public Health

Figure 5.4 Percent obese, 1998-2010



Source: Massachusetts Department of Public Health

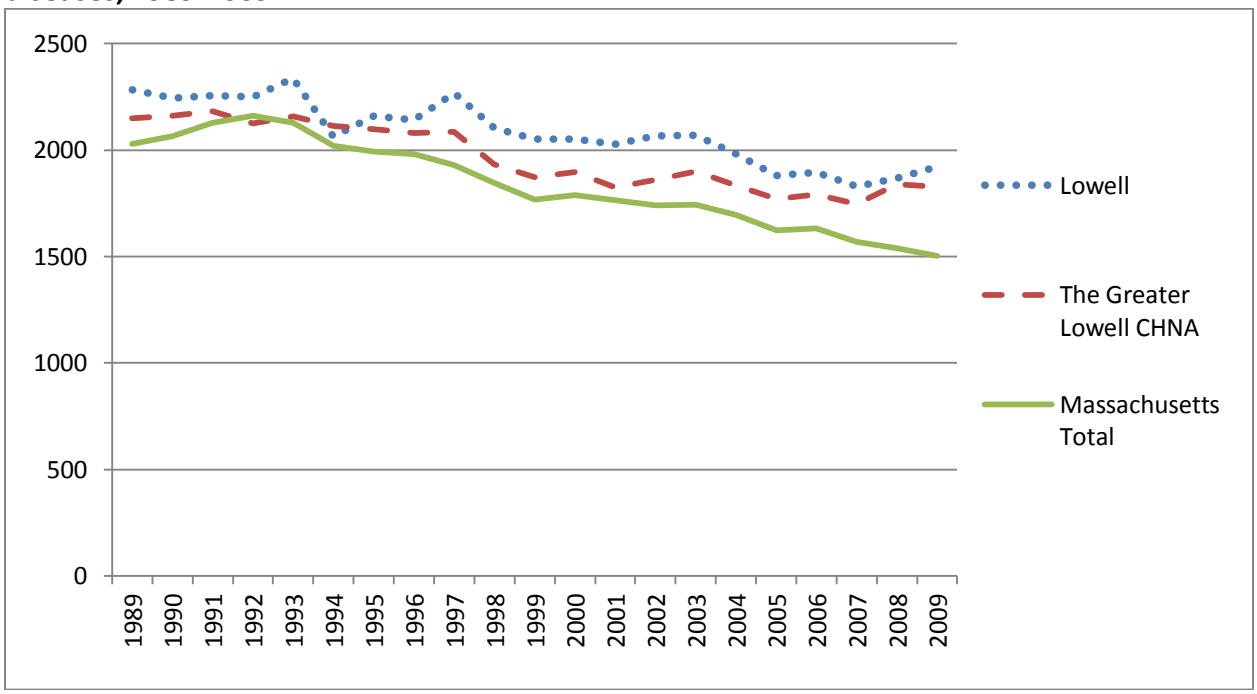
Figure 5.5 Percent overweight, 1998-2010



Source: Massachusetts Department of Public Health

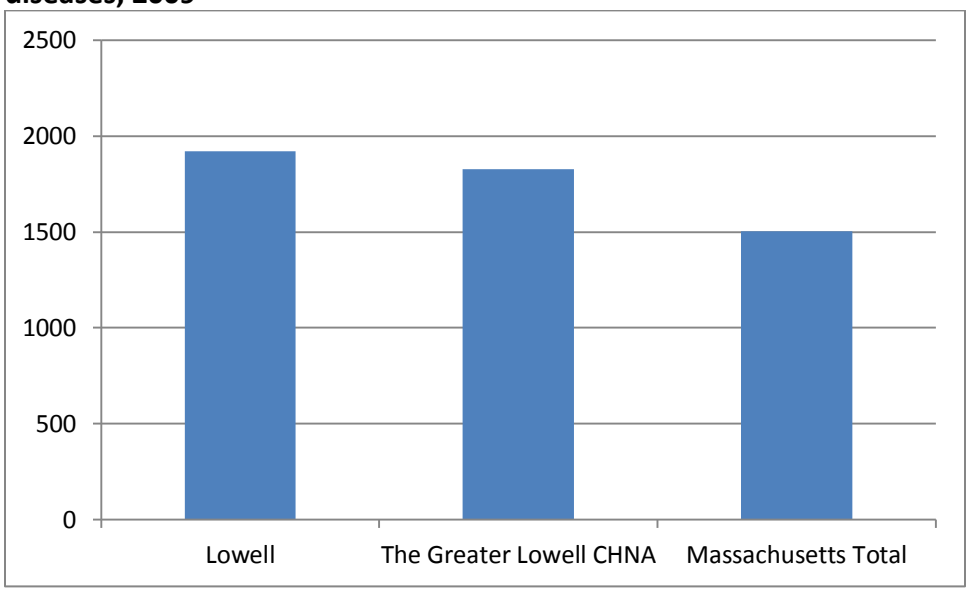
Figures - Cardiovascular Disease

Figure 6.1 Age adjusted rates* of emergency visit hospitalizations for all circulatory system diseases, 1989-2009



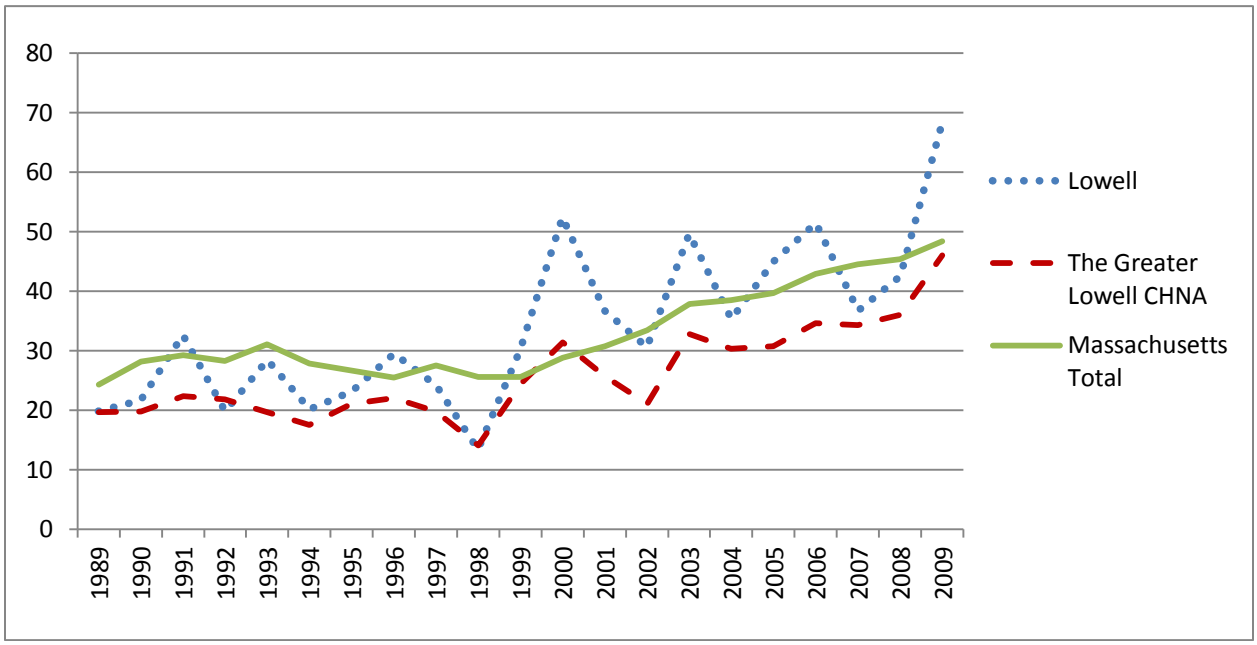
*Rate is per 100,000 persons
Source: Massachusetts Department of Public Health

Figure 6.2 Age adjusted rate* of emergency visit hospitalizations for all circulatory system diseases, 2009



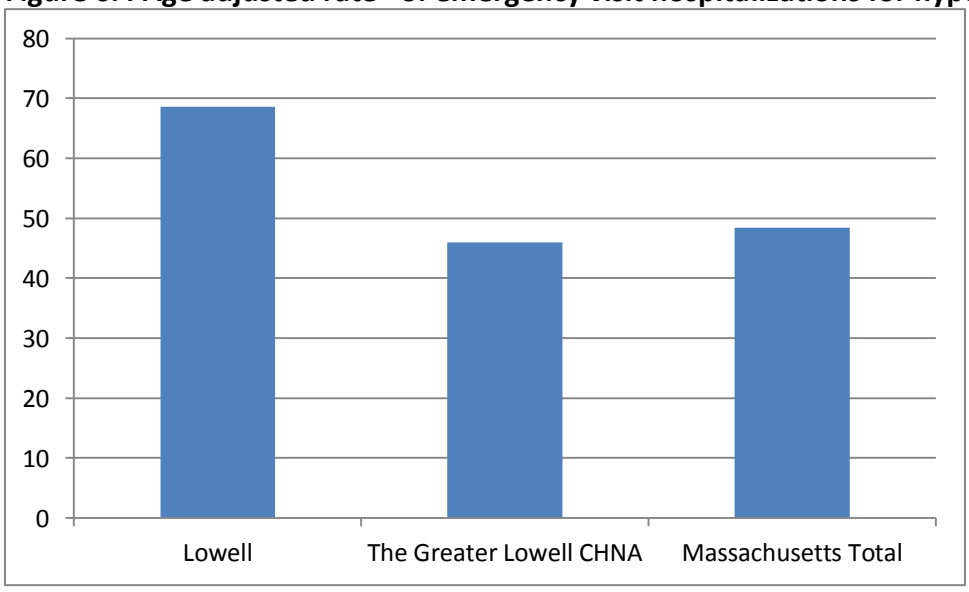
*Rate is per 100,000 persons
Source: Massachusetts Department of Public Health

Figure 6.3 Age adjusted rates* of emergency visit hospitalizations for hypertension, 1989-2009



*Rate is per 100,000 persons
Source: Massachusetts Department of Public Health

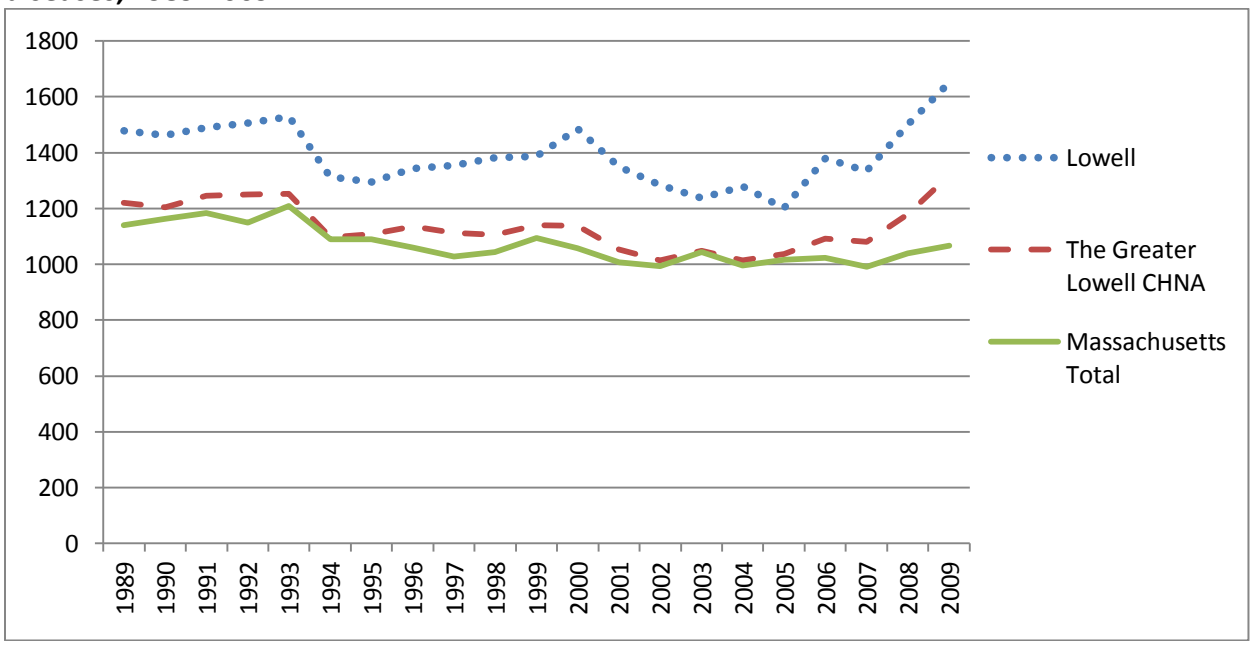
Figure 6.4 Age adjusted rate* of emergency visit hospitalizations for hypertension, 2009



*Rate is per 100,000 persons
Source: Massachusetts Department of Public Health

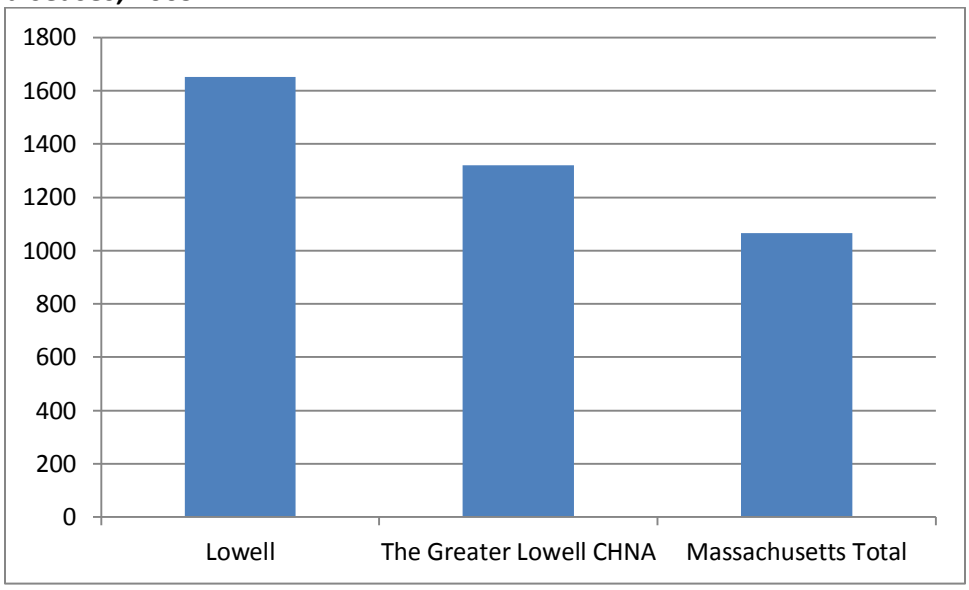
Figures – Respiratory Diseases

Figure 7.1 Age adjusted rates* of emergency visit hospitalizations for all respiratory system diseases, 1989-2009



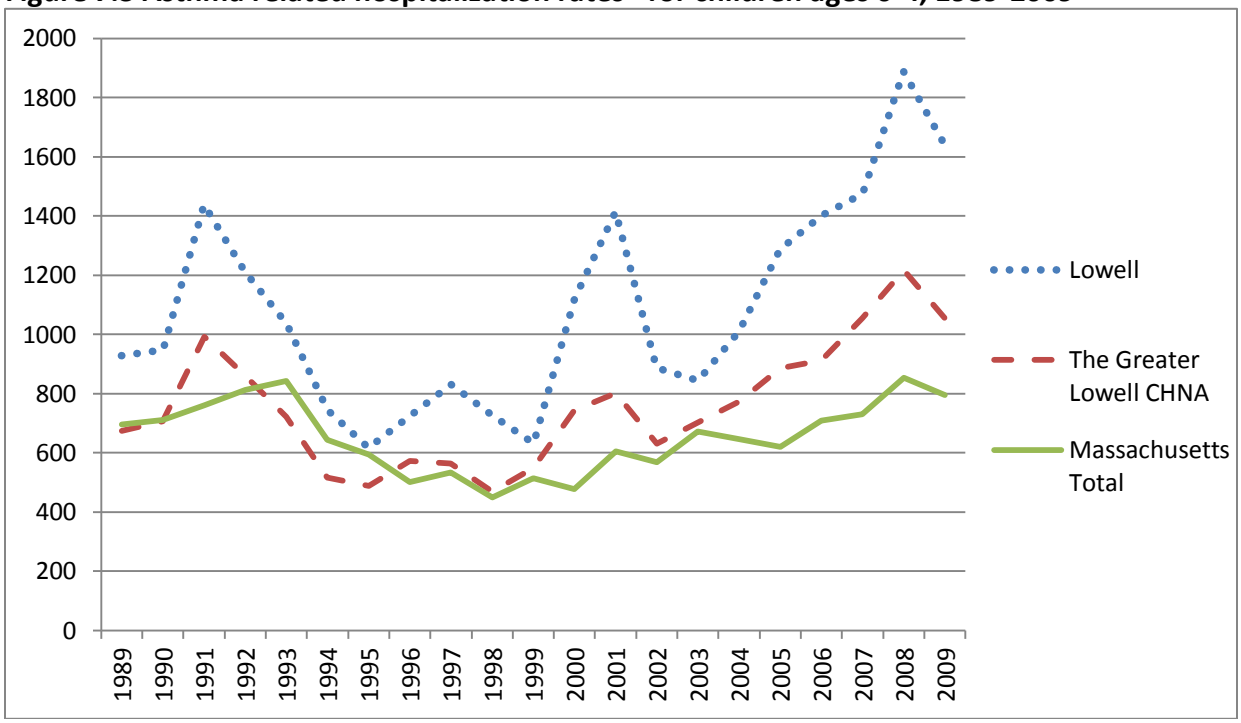
*Rate is per 100,000 persons
Source: Massachusetts Department of Public Health

Figure 7.2 Age adjusted rate* of emergency visit hospitalizations for all respiratory system diseases, 2009



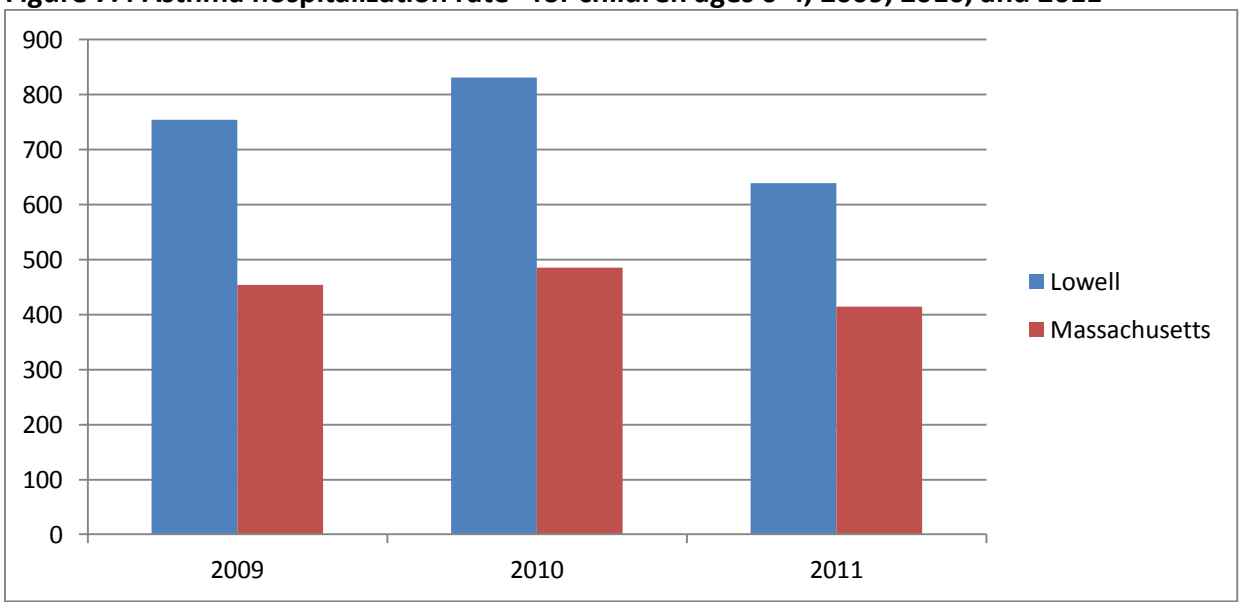
*Rate is per 100,000 persons
Source: Massachusetts Department of Public Health

Figure 7.3 Asthma related hospitalization rates* for children ages 0-4, 1989-2009



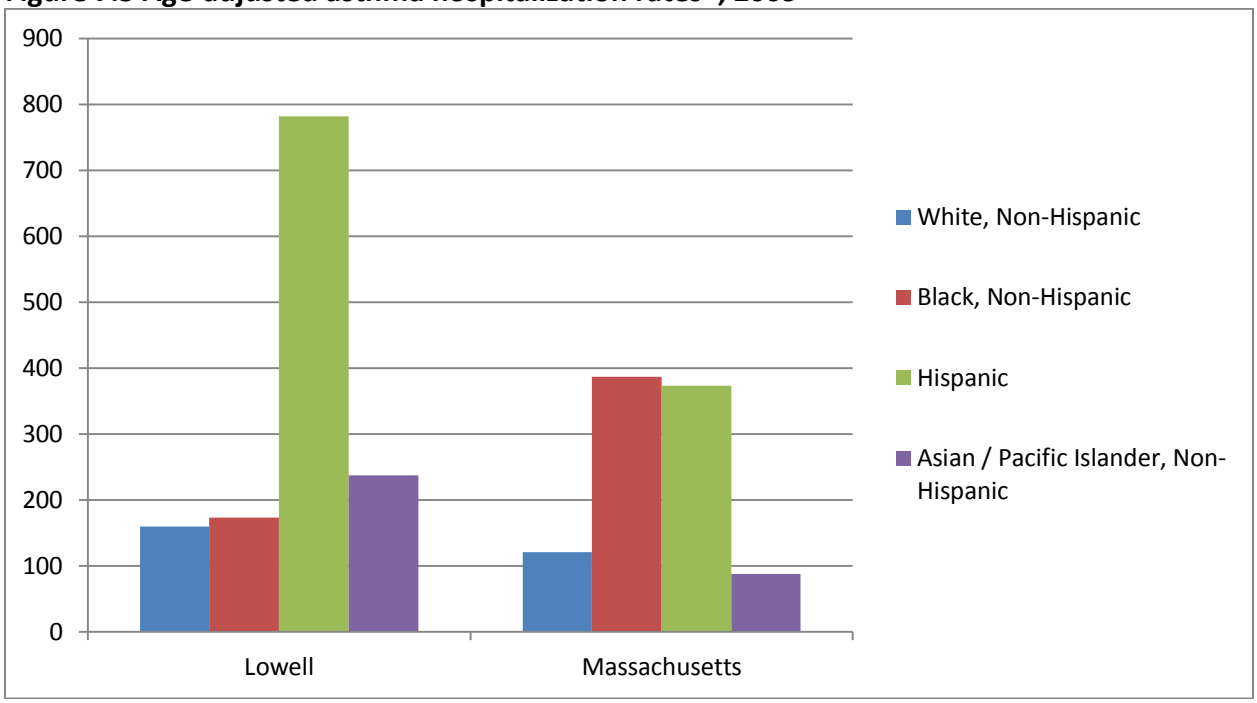
*Rate is per 100,000 persons
Source: Massachusetts Department of Public Health

Figure 7.4 Asthma hospitalization rate* for children ages 0-4, 2009, 2010, and 2011



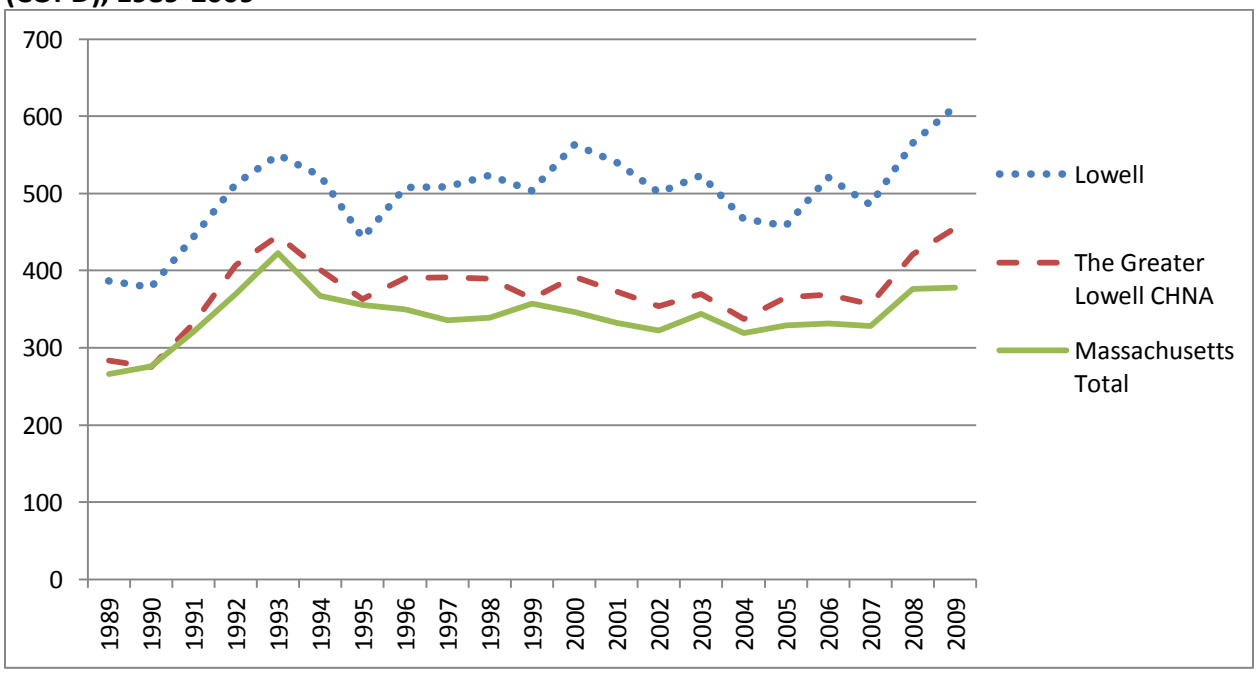
*Rate is per 100,000 persons
Source: Massachusetts Department of Public Health

Figure 7.5 Age-adjusted asthma hospitalization rates*, 2009



*Rate is per 100,000 persons
Source: Massachusetts Department of Public Health

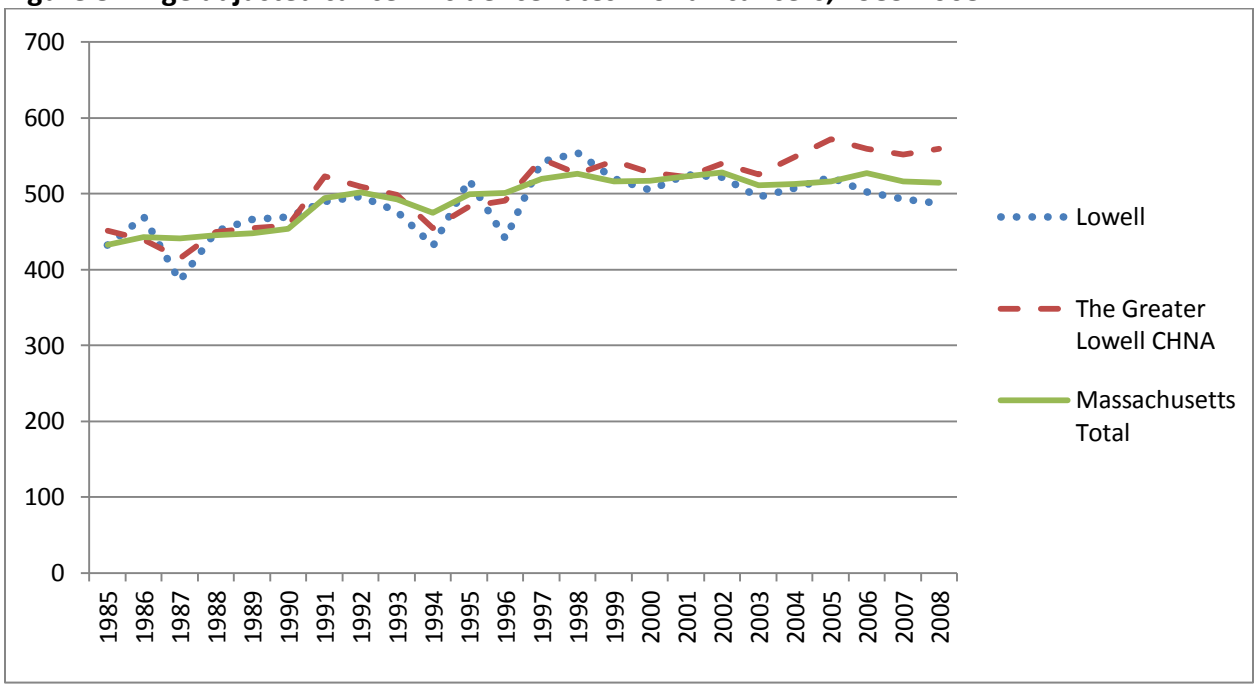
Figure 7.6 Age adjusted hospitalization rates* for chronic obstructive pulmonary disease (COPD), 1989-2009



*Rate is per 100,000 persons
Source: Massachusetts Department of Public Health

Figures - Cancer

Figure 8.1 Age adjusted cancer incidence rates* for all cancers, 1985-2008

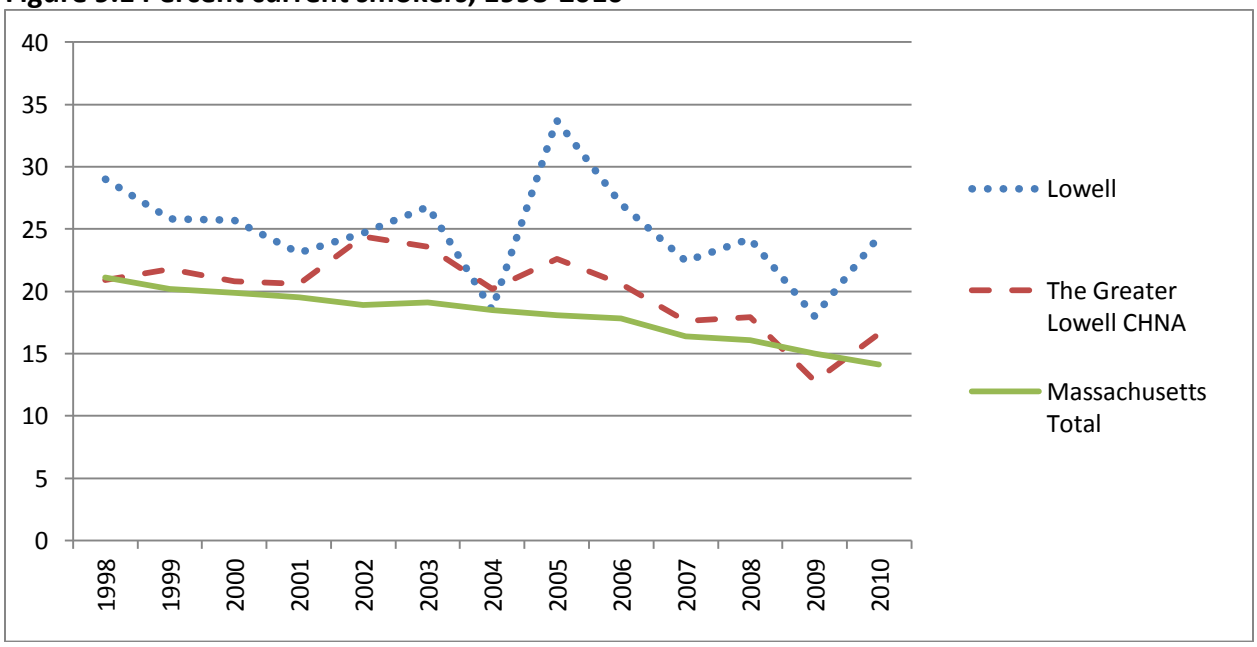


*Rate is per 100,000 persons

Source: Massachusetts Department of Public Health

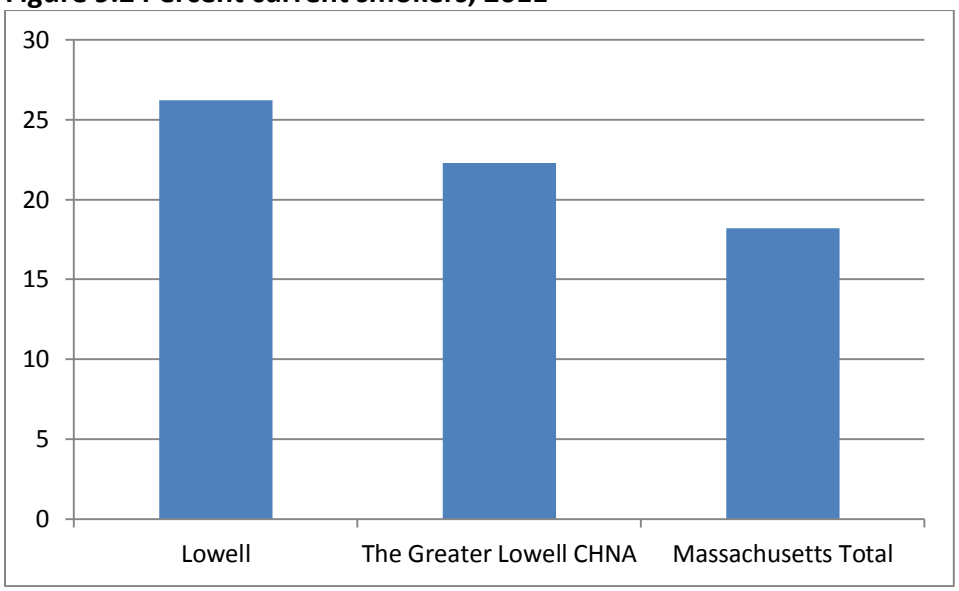
Figures - Smoking

Figure 9.1 Percent current smokers, 1998-2010



Source: Massachusetts Department of Public Health

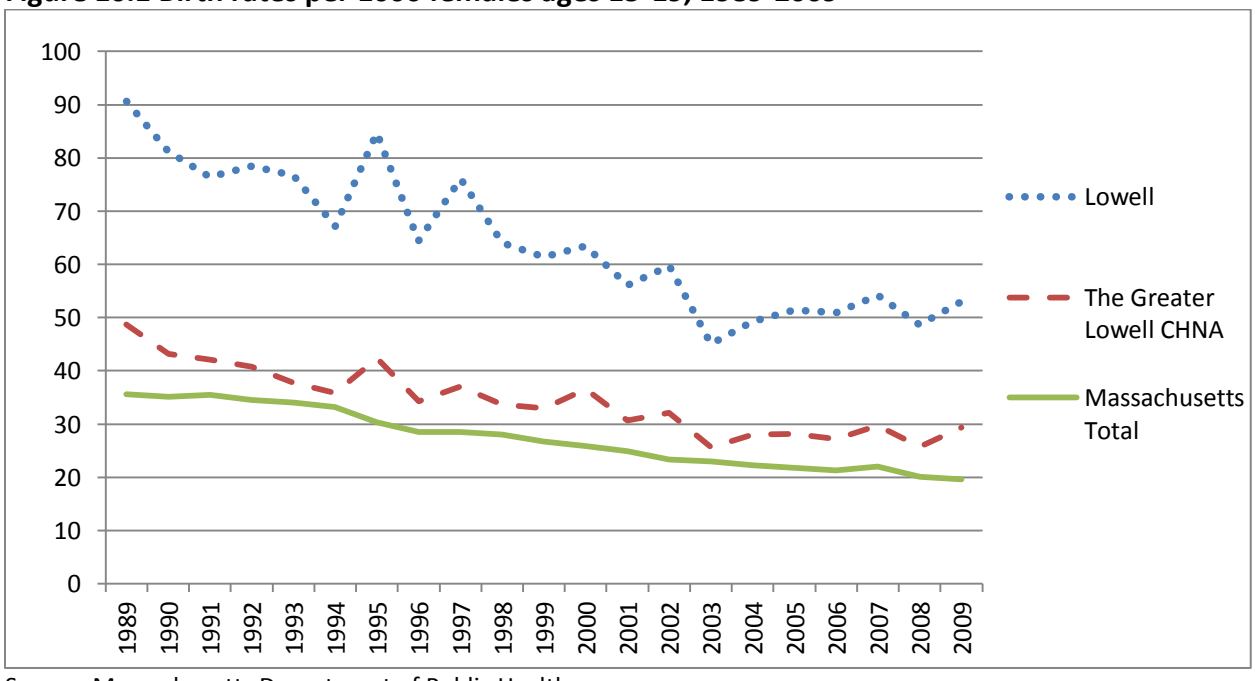
Figure 9.2 Percent current smokers, 2011



Source: Massachusetts Department of Public Health

Figures - Teen Pregnancy

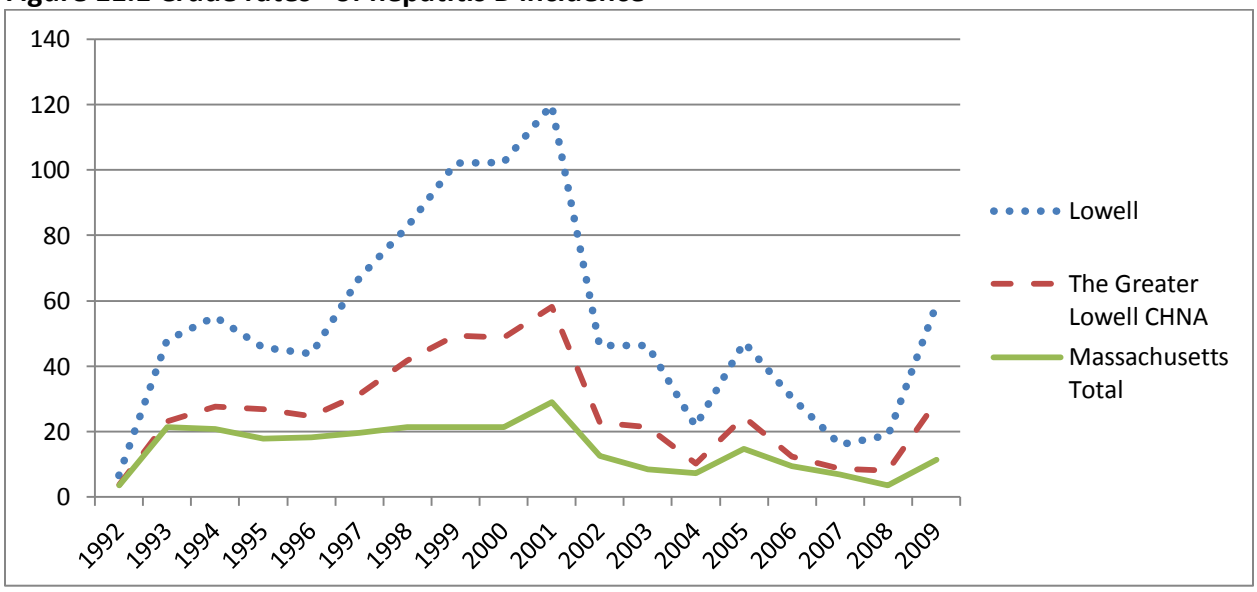
Figure 10.1 Birth rates per 1000 females ages 15-19, 1989-2009



Source: Massachusetts Department of Public Health

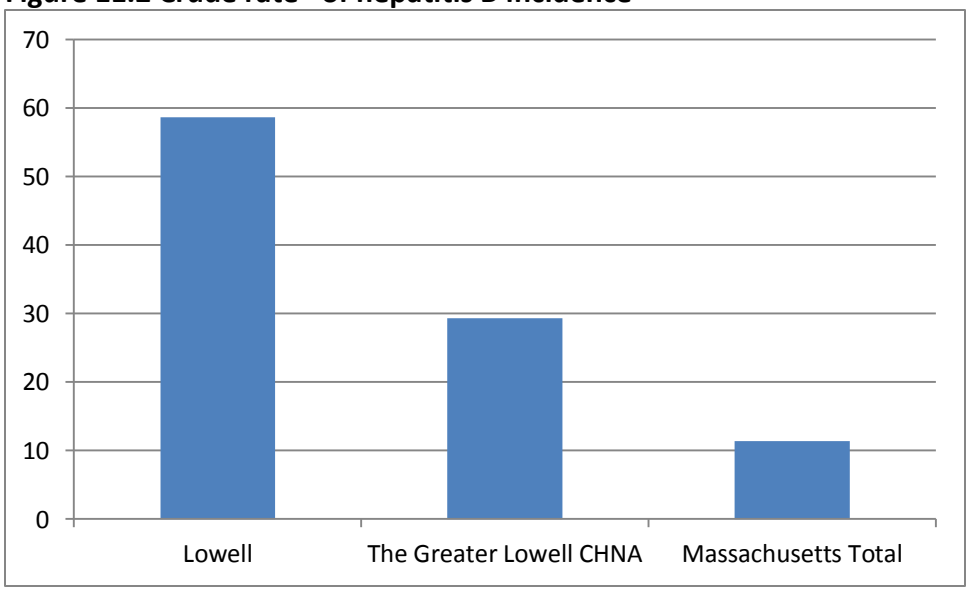
Figures - Hepatitis B

Figure 11.1 Crude rates* of hepatitis B incidence



*Rate is per 100,000 persons
Source: Massachusetts Department of Public Health

Figure 11.2 Crude rate* of hepatitis B incidence



*Rate is per 100,000 persons
Source: Massachusetts Department of Public Health

Social Determinants and Environmental Factors Affecting Community Health

Certain social and environmental characteristics of a community affect the health of its residents. According to the World Health Organization, "social determinants of health are the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels." For example, income, race/ethnicity, employment status, poverty level, foreign born status, homelessness, physical housing characteristics, and access to nutritious food all contribute to health and healthcare access. Some characteristics are known to be linked to discrimination or exclusion and can influence health. For example, some disparities are linked directly to race and ethnicity (United States Department of Health and Human Services, 2011). Income, race/ethnicity, employment status, poverty level, and foreign born status are all addressed in Table 1 on page 12. Other selected factors are described here.

Homelessness

According to the 2011 Point in Time Census, there were 589 homeless people in the Lowell area. This was up from 526 in 2010 (United States Department of Housing and Urban Development, 2011). Preliminary 2013 data from the Point in Time Census show that only about 45% of homeless people in Lowell have adequate health insurance coverage. Homeless individuals face many difficulties to maintaining good health. Lack of access to transportation, lack of access to nutritious food such as fresh fruits and vegetables, susceptibility to the elements, and inability to establish consistent healthcare necessities like insurance and primary care all contribute to deteriorating health.

Physical housing characteristics

Lead

Lowell was named a High Risk Community for Childhood Lead Poisoning by the Massachusetts Department of Public Health Childhood Lead Poisoning Prevention Program. According to public health data of children who were screened within Lowell in 2010, 2.7% had elevated blood lead levels (>15 mcg/dL). In Massachusetts 1.35% had elevated blood lead levels. Although the long-term trend is downward, the cases of elevated blood lead levels in children are consistently higher in Lowell than the state. Elevated blood lead levels are predominantly caused by exposure to lead-based paint in homes built before 1979. About 85% of the housing stock in Lowell was built before 1979. The city of Lowell Office of Lead Poisoning Prevention has worked extensively through the HUD-funded Lead Paint Abatement Program to provide lead abatement

services and education and outreach in Lowell (City of Lowell Office of Lead Poisoning Prevention, 2013).

Asthma triggers

Since Lowell's housing stock is older than surrounding towns, there is a high prevalence of substandard units, especially among low income and rental units (City of Lowell Office of Lead Poisoning Prevention, 2013). Poor quality housing tends to have poor indoor air quality and is a major factor for exacerbation of asthma, especially in children and the elderly. Asthma can be negatively affected by mold, dust, dust mites, carpeting, pests such as cockroaches and mice, cleaning chemicals and fragrances, combustion, excessive humidity or dryness, smoking, and pets, among other things. The HUD-funded Healthy Homes program at the University of Massachusetts Lowell observed that of participating households, the most common asthma allergen detected was pests. A total of 29% of homes enrolled in the program had signs of rodents and 30% had signs of cockroaches.

Smoking

Smoking indoors is another common health issue related to housing. Residents who don't smoke in their housing unit may still be exposed to secondhand smoke from outdoor sources or other units. This is especially true for those who live in multifamily buildings. Recognizing this issue, the Lowell Housing Authority is going smoke-free with 1,839 units of public housing.

Access to nutritious and affordable food

According to the 2012 Lowell Community Food Assessment, Lowell is well equipped with food stores that are accessible. However, more than one-third of these food stores do not carry fresh produce, and some of the more affordable stores are not as accessible via public transportation as the less affordable stores. Lowell has a good support system for those in need of food assistance because of federal assistance programs and local emergency food providers. A total of 16.4% of families in Lowell receive benefits from the Supplemental Nutrition Assistance Program (City of Lowell Office of Lead Poisoning Prevention, 2013). There is a need for greater access for those with language barriers and more nutrition and food preparation education for recipients of food assistance (Camp and Sisson, 2012). See the full report for more information.

Recommendations to Improve the Healthcare System

The following recommendations are from the focus groups and interviews.

- Make further improvements in communication and collaboration within the healthcare system, particularly among communities, hospitals, and local and state public health departments. Understanding of community needs could be improved by conducting more focus groups to capture the greatest needs, creating more community committees to relay needs and ideas to the appropriate places, and conducting active screening to identify barriers to patient access. Providers could ask often what can be done to better help serve the community, and work together to accomplish these goals. In addition, providers could reduce redundancies in services by sharing information between hospitals and doctors' offices and by improving care coordination between agencies based on existing research. Other suggestions for collaboration improvements include having the Greater Lowell Health Alliance support local boards of health to collaborate in sharing certain functions and gathering a group of key stakeholders from all areas of healthcare to create a master plan for the community's needs and issues rather than having individual facility-based plans. This could help to align interests and incentives across healthcare facilities to ensure that all parties are working toward the same goals.

- A major need expressed across several groups is for more health education. Suggestions include expanding educational materials and programming and formal outreach to the community and providers. Information would be best communicated through email, religious institutions, cultural groups and organizations, educational tools, classes and support groups, local businesses, and community health workers, who are excellent resources to link patients to community resources, education, and case management. Easily digestible information is highly sought in the following areas:

  For the community
  - General, simple education about healthcare
  - Prevention and the importance of protecting your health (also for young children)
  - Navigating the healthcare system: for those with and without health insurance
  - A guide to Lowell General Hospital and the services provided
  - Family health
  - Pregnancy prevention
  - Substance abuse
  - Mental health (to reduce the stigma associated with mental health)

For providers

- Sorting through complex insurance issues and regulations
- Community needs

Some additional suggestions to reach community members include using a hospital liaison to help bridge the community's gap in knowledge of navigating the system and involving the University of Massachusetts Lowell and Middlesex Community College.

- The Cambodian community provided several suggestions for outreach to their community that take advantage of cultural events and trusted organizations to help overcome the fear that prevents many Cambodians from connecting with the healthcare system.

- Improvement in interpreter services was raised as an important issue for all immigrant communities. The participants recommended face-to-face interpreters, increased availability across all doctor's offices, and reimbursement for these services. They said there is also a need for more English literacy services in the community. Language services could be improved by providing opportunities to access support for navigation of the healthcare system, ensuring an interpreter is available at all times, providing classes and support groups in different languages, and using online video chat programs for interpreting where body language is important, if in-person interpreters are not available. One strategy to increase interpreting capacity is to hire more local employees that can provide language assistance.

- Improving cultural competency across all healthcare facilities would enhance the patient experience and increase healthcare utilization among immigrants and different cultural groups. Suggestions include hiring a more culturally representative population and training hospital staff on various cultures to address cultural misunderstandings. Focus group participants from the Cambodian community recommend a walk-in clinic that specifically serves Cambodians and a list of local primary care physicians that are friendly to and experienced in working with Cambodians.

- Reducing long waits in the ER and overuse/misuse of the ER – issues raised as weaknesses across multiple focus groups and interviews – could be addressed by increasing the number of urgent care centers, expanding the hours of service beyond regular business hours, and increasing awareness of existing walk-in clinics and urgent care centers through advertising and outreach. Other suggestions include improvements in triaging of care and patient interactions. To improve efficiency and reduce costs, providers could explore the use of new technologies like telemedicine and online video chat services, streamline processes as

much as possible, and create a navigation system to help optimize the use of available resources.

- Focus group and interview participants recommended additional improvements in the quality of patient care. They emphasized that the healthcare system needs to be more patient-centered to ensure that patients feel comfortable when receiving services in a way that addresses their fears and expectations. Suggestions to achieve these improvements include advocating follow-through from the point of accessing services to patient discharge and beyond, expanding hours of service beyond the normal work day hours, considering differences in patient accountability, informing patients of costs prior to providing services, shifting toward preventive care over crisis management, ensuring smoother transitions for patients when doctors are transferred, addressing confidentiality concerns, and addressing physician-patient interaction issues.

- Suggestions for maintaining high quality healthcare staff include working to keep experienced staff, mentoring newcomers, recruiting young graduates to fill the need for nurses, hiring more nurse managers, and addressing issues of burnout among hospital employees. A suggestion for ensuring a healthy supply of future healthcare practitioners was to expose children to medical fields as early as middle and high school.

- It was suggested that several services make improvements to increase access. These include:
  - Screening in the community (e.g. free mammograms, blood pressure readings, screening for diabetes, hypertension, hepatitis, osteoporosis)
  - Pre-care for surgeries
  - Reproductive services (e.g. doulas that speak different languages, prenatal classes that are affordable and available in different languages, and more services for youth)
  - Palliative services
  - Long-range geriatric services
  - Home care

- Some suggested strategies to increase access include:
  - Recruiting more specialists to the area to reduce the need for patients to travel to Boston for care
  - Providing local sexual assault nurse examiner (SANE) certification to improve access to SANE nurses in cases of sexual assault
  - In the area of mental health, de-stigmatizing mental health, recruiting providers to expand local services, providing more reimbursement for services, accepting more

health insurance, increasing access to psychiatric medications, and expanding services to youth
  - Integrating mental and physical healthcare at primary care physicians to improve mental health screening
  - In the area of substance abuse, increasing services for children and youth and active participation in the Learn to Cope program (a peer support group run by families that have opioid addicts) by reaching out to parents

- There was a recommendation to improve transportation services to ensure that those without transportation are able to access care, especially those who are homebound and of very low income. It was suggested to expand appointment times and hours of services, expand some service lines, and provide insurance coverage for the associated costs.

- To aid with affordability, it was suggested that the community increase its political advocacy to demand better reimbursement for various services.

- There were requests for the healthcare system to place greater importance and focus on asthma, alcoholism, domestic violence, family planning, mental health, hypertension, diabetes, and de-stigmatizing mental health.

- Several suggestions for community actions that could aid in prevention were also expressed. These include using the influence of municipal government and public health officials to communicate with developers about the need for healthier housing characteristics like wood floors and better ventilation to aid in reducing asthma; educating youth about employment opportunities; recognizing violence as a public health issue; focusing on prevention of violence; addressing issues with people who have experienced violence; bringing every element of the healthcare system and community together to address the social determinants of health; working with schools to increase the health of the student population (e. g. nutrition programs to help bring education into households); providing opportunities for low-income youth to play sports; and having more comprehensive healthcare delivery in schools (primary care along with health education).

Next Steps: Identifying Top Priorities and Action Plans

An aim of the community health needs assessment report is to provide information about the health status and needs of area residents and the strength and weaknesses of the healthcare system. This information will be used to inform a process that will identify priority health needs and develop action plans to address these priorities. Lowell General Hospital and the Greater Lowell Health Alliance are committed to a collaborative approach involving other community stakeholders with the goal to identify top priorities and formulate action steps that will improve the area healthcare system and overall community health. To maximize community involvement, Lowell General Hospital and the Greater Lowell Health Alliance scheduled the following community input sessions and are planning additional forums.

October 10, 5-7 PM
Tewksbury Police Community Room
918 Main Street
Tewksbury, MA

October 11, 9-11 AM
Roudenbush Community Center
65 Main Street
Westford, MA

November 6, 12-2pm
Holiday Inn
4 Highwood Drive
Tewksbury, MA

References

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Touch, C. 2013. Doctoral Dissertation: *Level of Hepatitis B Knowledge Among Cambodian Americans*. Unpublished as of August 29, 2013.

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United States Department of Housing and Urban Development (HUD). December 2011. *The 2011 Point-in-Time Estimates of Homelessness: Supplement to the Annual Homeless Assessment Report*. Available at https://www.onecpd.info/resources/documents/pit-hic_supplementalaharreport.pdf

APPENDIX A

Focus Group Attendees

Nonprofit Organizations (NPA members)

Cheryl Finney	Clarendon Family Day Care
Mara Kirby	Bridgewell Inc.
Frank Baskin	Greater Lowell Elder Mental Health Collaboration
Jim Wilde	Merrimack Valley Housing Partnership
Suzanne Frechette	Coalition for a Better Acre
Elizabeth M. Cannon	Lowell Association for the Blind
Ken MacIver	Merrimack Valley Legal Services
Jean M. Phelps	LifeLinks
Johanna Ramirez	The Caleb Group
Brenda Gould	Habitat for Humanity of Greater Lowell
Juny Samedi	NPA Intern
Amy L. Pessia	Merrimack Valley Food Bank
Veronica Holmes	The Caleb Group
Irene Palmigimo	National Senior Network
Isla Glarster	Burmese Support Group
Derek Mitchell	International Institute of Lowell
Susan Jepson	National Senior Network

Organizations Providing Senior Services

John Lawlor	Lowell Senior Center
Linda Sutter	Lowell Housing Authority
Katelyn Yarrow	Blaire House of Tewksbury
Naomi Prendergast	Merrimack Valley Food Bank, Inc.
Donna Popkin	Billerica Senior Center
Suellen O'Neil	Merrimack Valley Food Bank

Public Health Directors and Agents

Gary Courtemanche	Billerica
Rae Dick	Westford
Tom Bomil	Dracut
Richard Berube	Billerica
Darren McCaughey	Westford
Frank Singleton	Lowell
Richard J. Day	Chelmsford
Sandy Collins	Westford

Public Health Nurses

Katie Morin	Dracut
Marie Ruggerio	Lowell
Rebecca Order (Intern)	Westford
Christine L. West	Billerica
Ellen Donohue	Westford
Christine Connolly	Lowell

Circle Health Leaders

Patricia Morse	Lowell General Hospital
Diane Trowbridge	Lowell Community Health Center
Cynthia Roche	Visiting Nurse Association of Greater Lowell, Inc.
Irene Egan	Visiting Nurse Association of Greater Lowell, Inc.
Kumble Rajesh	Lowell Community Health Center
Diane Regan	Lowell General Hospital
Shelia Och	Lowell Community Health Center

Physicians Focus Group

Dr. Frank Osborn	Family Practice
Dr. Eric Meikle	Pediatrics
Dr. Mark Gilchrist	Pediatrics
Dr. Pauline Tsirigotis	Internal Medicine
Emily Young	Physician Hospital Organization (PHO)

Greater Lowell Health Alliance Members

Linda Sopheap Sou	Lowell Community Health Center
Stephanie Buchholz	Lowell Community Health Center
Mercy Anampiu	Lowell Community Health Center
Nancy Quattrocchi	University of Massachusetts Lowell
Marilyn Graham	Community Teamwork WIC Program
Daniel Basil	Hamilton Center for Hope and Healing
Timothy J. Regan	Lowell General Hospital Paramedics
Richard Barry	Trinity Ambulance
Kevin Coughlin	Greater Lowell Health Alliance

Lowell General Hospital Patient Family Advisory Council

Sally DeAngelis	Lowell General Hospital
Carol Daly	Resident

Celeste Tremblay	EdD, RN, CNE University of Massachusetts Lowell
Fru Nkimbeng	Cameroonians of Lowell
Ina Francis	Greater Lowell Pediatrics
Constance E. Richards	Resident
Lincoln Pinsley	Resident
George Tsapatsaris	Resident
Robert Logan	Resident
Joseph M. Blanco	Resident
Paul F. Murray Sr.	Volunteer, Lowell General Hospital

Other Focus Group Attendees

Kaila Bermudez
Ron Bourque
Edina Braga
Sath Bun
Francisco J. Carvalho
Christian Claudio
Maria Claudio
Ana L Moncao-Conceicau
Geraldo DaSilva
Malcom Ebhohon
Pheang Ek
Filomena Fagundes
Polyanna Figueiredo
Dee Halzack
Daniel Basil Hamilton
Kimngoun Heng
Hum Hun
Modesto Irizarrry
Binleng Kaing
Lorna Kiplagat
Veth Lon
Alessandra Lopes
David Makumbi
Anna Carolina Medeiros
Kerri Morrison
Alphonsine Nadode
Marie Anne Ndjock
Peter Ngigi
Job Osanya
Sophal Ork
Muth Pheak
Try Phoeun
Gabriela Silva Pinto
Eunice Rintari
Francisca Suia
Sann Sem
Joverson Silva
Liliane Silva
Thul Soun
Chea Srunn
Sitha Tann
Savoeun Vath
Jackie Wangutusi
Chhoeur Yin

APPENDIX B

Individuals Interviewed

Rachel Chaddock
Executive Director
Visiting Nurse Association of Greater Lowell, Inc.

Michelle Davis
Vice President External Affairs
Lowell General Hospital

Dorcas Grigg-Saito
Chief Executive Officer
Lowell Community Health Center

Bernie Lynch
City Manager
City of Lowell

Paul Muzhuthett
Regional Director
Northeast Regional Health Office, Department of Public Health

Dr. David Pickul, MD
Chief Medical Officer
Circle Health, Inc.

APPENDIX C

Focus group and interview questions

1. Could you tell me your thoughts about the overall health of residents in the Greater Lowell region? To what extent do you feel like people are healthy or unhealthy?

2. What do you think are the top three health problems facing residents in your community?

3. What types of people are at greatest risk or have the greatest unmet needs?

4. What are the strengths of the healthcare system within the Greater Lowell area?

5. What are the weaknesses or unmet needs of the healthcare system within the Greater Lowell area?

6. Have you or anyone you know experienced any problems in accessing healthcare in the Greater Lowell area? If so, what was the problem and where did it happen?

7. How can the Greater Lowell Community work to improve its healthcare system, and address its unmet needs?

FOR THE PORTUGUESE SPEAKING/LATINO/AFRICAN/CAMBODIAN/LGBTQ FOCUS GROUPS ONLY

8. How good a job do you think the Greater Lowell healthcare system is doing at meeting the health needs of the [mention specific group] community, specifically?

9. What are the specific health problems you would like to see the healthcare system become more involved with, for the community in general? What should their top health priorities be in order to address the needs of the community?

APPENDIX D

Focus Group and Interview Facilitators and Note Takers

Facilitators

Rasy An	Cambodian Mutual Assistance Association
Mercy Anampiu	Lowell Community Health Center
Carla Caraballo	Lowell Community Health Center
Sarah M. Coulombe	University of Massachusetts Lowell
Stephen Kellett	University of Massachusetts Lowell
Sarah A. Strickland	University of Massachusetts Lowell
Robin Toof	University of Massachusetts Lowell
David Turcotte	University of Massachusetts Lowell
Emily Vidrine	University of Massachusetts Lowell

Notetakers

Marlene Abreu	Lowell Community Health Center
Carla Caraballo	Lowell Community Health Center
Sarah M. Coulombe	University of Massachusetts Lowell
Sarah Pike	University of Massachusetts Lowell
Sarah A. Strickland	University of Massachusetts Lowell
Shannon Sullivan	University of Massachusetts Lowell
Emily Vidrine	University of Massachusetts Lowell
Melissa Wall	University of Massachusetts Lowell
Zachery Zuber	University of Massachusetts Lowell