

## CHAPTER 4 IDENTIFYING UNMET NEED FOR AT-RISK AND VULNERABLE POPULATIONS

Unmet healthcare need is disproportionately experienced among specific population groups and geographic areas across Connecticut. As described in Chapter 1, in 2014, the DPH developed the SHIP,<sup>1</sup> which was informed by health issues and patterns identified in the SHA.<sup>2</sup> Through a partnership process, the SHIP identified measurable objectives and evidence-based strategies to improve the health of and health equity among Connecticut residents. Several of the SHIP recommendations included improvements in healthcare access and quality, with particular consideration of specific population groups. As described in a Chapter 1, in subsequent years there have been several healthcare-oriented initiatives to address the unmet healthcare need of specific population groups in Connecticut. The health status and healthcare need described in this section align with the SHA and SHIP processes.

This chapter provides an overview of the health status and unmet healthcare need of specific population groups in Connecticut and compares current patterns with those at the time the 2014 supplement was published. These comparisons over time facilitate an examination of trends in healthcare need across at-risk and vulnerable populations. This section also attempts to identify towns and cities most likely to have unmet healthcare need that may have benefited from healthcare reforms over the past two years, in addition to those identified by hospitals in their CHNAs and implementation strategies.

### **Population and Health Status for the At-Risk and Vulnerable**

While Connecticut has a favorable health and socioeconomic profile overall compared to most other states, deep disparities exist among specific populations and/or geographic locations in Connecticut. As previously stated, barriers to opportunities to live a healthy life may be disproportionately concentrated among certain population groups, including but not limited to racial and ethnic minorities, low-income populations, those with lower educational attainment and older adults. The influences of socioeconomic factors on health patterns and outcomes are often intertwined and demonstrably result in health disparities.

Based on DPH's working definition of health disparities and related priority population groups,<sup>3</sup> Table 0.1 provides estimates of Connecticut's at-risk or vulnerable residents and the percentage self-reporting poor health in 2015 compared with 2012. These population groups are not mutually exclusive, and health and healthcare disparities may be compounded for residents who identify with multiple groups. Additionally, the health-related concerns may vary across groups as well as the rates of people self-reporting poor health. For example, compared to the state, in 2015 Connecticut residents who were elderly, low-income, had a high school education or less, Hispanic, or disabled were more likely to report poor health.

While Connecticut's population has not grown substantially from 2012 to 2015, the elderly, racial/ethnic minority, immigrant, linguistic minority, and disabled populations have increased. Over this same period, the proportions of individuals who were unemployed, had less than a college education or were uninsured declined. A smaller ratio of Connecticut's residents self-reported poor health in 2015 compared to 2012. During the same period, although the prevalence of self-reported poor health among priority populations remains relatively higher than the statewide rate, the rates declined for older, less educated, unemployed, racial/ethnic minority, immigrant, and uninsured groups and increased for persons with incomes below the federal poverty level or with a disability. Subsequent sections illustrate the rates at which some population groups are disproportionately burdened with chronic conditions such as high blood pressure, asthma and diabetes.

**Table 0.1. Connecticut At-Risk or Vulnerable Populations by Health Status (Self-Reported), 2012 vs. 2015**

Priority Population Group	Description of Connecticut Priority Population Group	2012			2015				
		Number of CT Population	% of CT Population	% in Poor Health <sup>8</sup>	Number of CT Population	% of CT Population	Direction of Change	% in Poor Health <sup>10</sup>	Direction of Change
Total population	CT	3,590,347	100.0%	2.9%	3,590,886	100.0%	↑	2.3%	↓
Elderly <sup>1</sup>	65 years of age or older	532,024	14.8%	5.1%	567,360	15.8%	↑	3.9%	↓
Low income <sup>2</sup>	Income below the federal poverty level	384,167	10.7%	4.5% <sup>9</sup>	377,043	10.5%	↓	5.8%	↑
Less than college education <sup>3</sup>	≥25 years of age with less than a college education	1,546,841	62.9%	5.8%	1,526,674	61.7%	↓	4.2%	↓
	-Less than high school	249,186		9.9%	242,268		↓	9.2%	
	-Graduated high school/GED	682,207		4.3%	678,916		↓	4.1%	
	-Some college	615,448		6.3%	605,490		↓	2.1%	
Unemployed	≥16 years of age in the civilian labor force and are unemployed	189,561	6.6%	3.9% <sup>9</sup>	134,494	4.6%	↓	1.5%	↓
Racial or ethnic minority <sup>1</sup>	Non-Whites	1,077,574	21.9%	4.3%	1,279,603	35.6%	↑	2.5%	↓
	-Black or African American only	339,063		5.0%	355,469		↑	1.4%	
	-Asian only	146,701		2.9%	155,610		↑	N/A	
	-American Indian only	6,099		N/A	4,235		↓	N/A	
	-Other/2+races	72,831		11.3%	81,525		↑	N/A	
	-Hispanic, any race	510,647		3.9%	553,783		↑	4.0%	
Immigrants <sup>3</sup>	Speak language other than English at home (5+ years old <sup>4</sup> )	755,297	22.2%	N/A	762,388	22.4%	↑	N/A	↓
	Born outside of US	495,421	13.8%	4.1%	519,648	14.5%	↑	0.9%	
	Speak English less than "very well"	288,142	8.5%	N/A	278,739	8.2%	↓	N/A	

<sup>1</sup> The population who speak a language other than English at home includes, but is not limited to immigrants.

Priority Population Group	Description of Connecticut Priority Population Group	2012			2015				
		Number of CT Population	% of CT Population	% in Poor Health <sup>8</sup>	Number of CT Population	% of CT Population	Direction of Change	% in Poor Health <sup>10</sup>	Direction of Change
LGBT <sup>4</sup>	<i>Self-identifies as lesbian, gay, bisexual, or transgender</i>	95,091 (2013)	2.6%	N/A	N/A	N/A	N/A		
Uninsured <sup>2</sup>	<i>&lt;65 years old that is uninsured</i>	321,972	9.0%	1.7%	206,912	6.9%	↓	0.6%	↓
	<i>&lt;18 years old</i>	29,928			25,100		↓		
	<i>-18-64 years old</i>	287,077		1.9%	181,812		↓		
Homeless <sup>5</sup>	<i>Spending the night in emergency shelter, transitional housing or unsheltered situation</i>	4,506 (2013)	0.1%	N/A	3,911 (2016)	0.1%	↓	N/A	
Persons with a disability <sup>6</sup>	All ages	376,618	10.7%	15.4%	389,690	11.0%	↑	17.0%	↑
	<5 years old	1,406		N/A	1,958		↑	N/A	
	-5 to 17 years old	29,839		N/A	28,628		↓	N/A	
	-18 to 64 years old	183,789		18.6%	190,691		↑	30.6%	
	-65+ years old	161,584		12.9%	168,413		↑	6.0%	
Transportation <sup>7</sup>	<i>No vehicle available among occupied housing units</i>	123,561	9.1%	N/A	123,621	9.2%	↑	N/A	

Note: N/A indicates data not available.

Sources:

<sup>1</sup> US Census Bureau, American Community Survey, 2012 and 2015, 1-Year Estimates, DP05 File.

<sup>2</sup> US Census Bureau, American Community Survey, 2012 and 2015, 1-Year Estimates, DP03 File.

<sup>3</sup> US Census Bureau, American Community Survey, 2012 and 2015, 1-Year Estimates, DP02 File.

<sup>4</sup> Movement Advancement Project, *Connecticut's Equality Profile*, based on 2013 analysis by the Williams Institute and Gallup and US Census, American Community Survey 2013 1-Year Estimates.

<sup>5</sup> Connecticut Coalition to End Homelessness, *2013 Homeless Point in Time Count, 2013 and 2016 Report on Homelessness in Connecticut, 2016*. Note: Estimate of the size of the homeless population in 2013 and 2016 are based upon the 2013 and 2016 reports and US Census, American Community Survey 2013 and 2015 1-Year Estimates, B01003, respectively.

<sup>6</sup> US Census, American Community Survey, 2012 and 2015, 1-Year Estimates, S1810 File.

<sup>7</sup> US Census Bureau, American Community Survey, 2012 and 2015, 1-Year Estimates, CP04 File.

<sup>8</sup> US Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2013.

<sup>9</sup> US Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2012.

<sup>10</sup> US Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2015.

## HEALTH OUTCOMES IN CONNECTICUT

Even though many more Connecticut residents have gained health insurance coverage since 2014, as discussed in Chapter 1, some population groups continue to experience chronic conditions which are also the leading causes of morbidity and mortality in the state. Numerous studies establish strong relationships among socioeconomic status, geographic location, health outcomes, access to healthcare services, and unmet healthcare need. CT BRFSS is the only available source in the state that monitors health risk and proactive behaviors relating to the leading causes of mortality and morbidity among demographic subgroups of age, race/ethnicity, incomes, and education level. The following sections utilizes BRFSS data to illustrate where there are disparities in morbidity and mortality across Connecticut for selected chronic conditions.

### Leading Causes of Morbidity and Mortality in Connecticut

At-risk and vulnerable populations generally have a greater prevalence of chronic diseases than the overall population, a factor that is compounded by unequal access to healthcare services. Table 0.2 provides an overview of selected leading chronic conditions and why Connecticut residents often seek healthcare. For the total population, patterns indicate declines in hospitalizations due to heart disease and stroke from 2011 to 2015. During the same period, there were increases in the proportion of adults with high cholesterol, high blood pressure, depressive disorder, diabetes and asthma in both adults and children with asthma. The incidence and prevalence of these conditions vary among population groups.

**Table 0.2. Selected Leading Causes of Morbidity and Mortality, Connecticut, 2011-2015**

Health Condition	Incidence per 100/000 Population / %				
	2011	2012	2013	2014	2015
Cancer (Incidence) <sup>1</sup>		489.3			
Heart disease (Hospitalizations) <sup>2</sup>		850.9		779.4	
Stroke (Hospitalizations) <sup>2</sup>		213.5		196.5	
High cholesterol <sup>3</sup>	36.2%		37.8%		37.4%
High blood pressure <sup>3</sup>	29.7%		31.3%		30.4%
Depressive disorder <sup>3</sup>		16.7%	17.4%		17.6%
Asthma <sup>3</sup>					
Children (<18 years)	10.1%	11.0%	10.1%	10.1%	10.6%
Adults (18+ years)	9.9%	9.9%	9.8%	9.2%	10.5%
Diabetes <sup>3</sup>		9.1%	8.3%	9.2%	9.3%

Sources:

<sup>1</sup> Connecticut Department of Public Health, Connecticut Tumor Registry, 2008-2012.

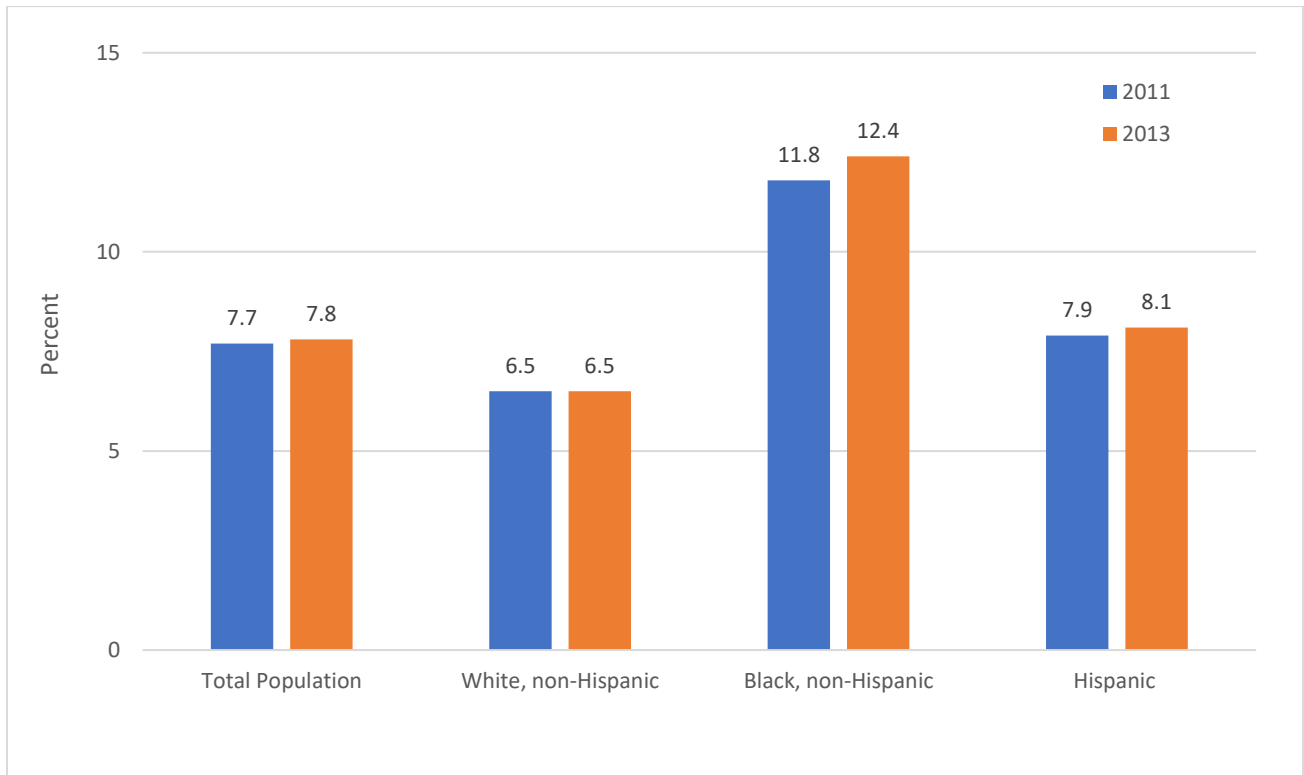
<sup>2</sup> Connecticut Department of Public Health, Hospitalization Tables, 2014, Table H-1.

<sup>3</sup> Connecticut Department of Public Health, Connecticut Behavioral Risk Factor Surveillance System 2011-2015. Data are available annually for depression, asthma and diabetes and biennially for high cholesterol and blood pressure.

## Morbidity

As shown in Figure 0.1, in 2011 and 2013 there remained racial/ethnic disparities in the prevalence of low birthweight newborns. In 2013, the percentage of Black non-Hispanic women's newborns with low birthweight, increased. Newborns of Hispanic women continue to have the second highest prevalence of low birthweight, followed by those of White non-Hispanic women.

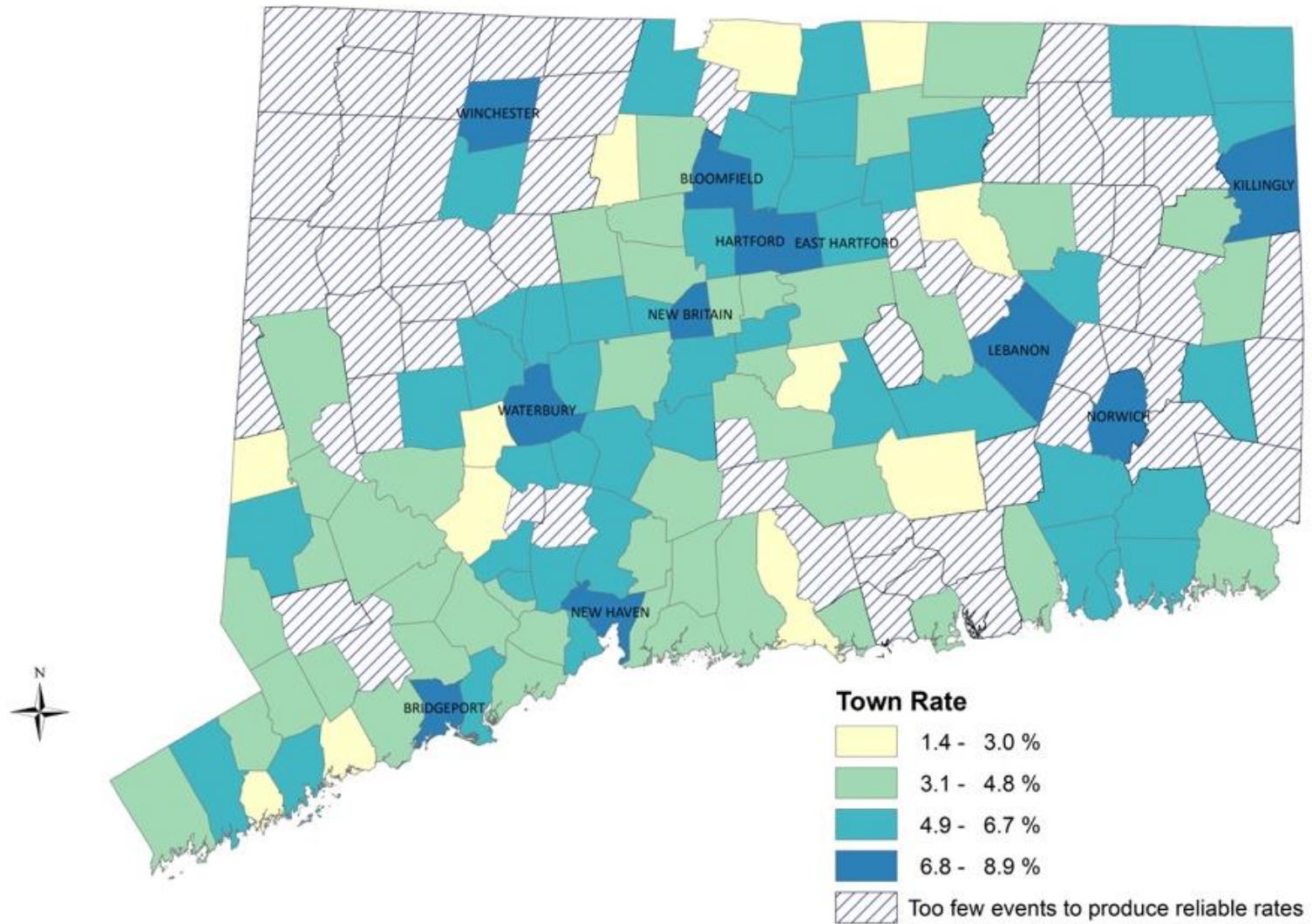
**Figure 0.1 Percent of Low Birthweight Newborns, by Race/Ethnicity, Connecticut, 2011 vs. 2013**



Source: Connecticut Department of Public Health, Births 2011 and 2013.

In 2010-2014, combined, the prevalence of low birthweight newborns was greatest in Connecticut's largest towns, including Bridgeport, New Haven, Waterbury, New Britain, Hartford, East Hartford and Norwich, as well as several towns in northern Connecticut: Winchester, Bloomfield and Killingly (Figure 0.2).

Figure 0.2. Map of Singleton Low Birthweight Newborns, by Town, Connecticut, 2010-2014

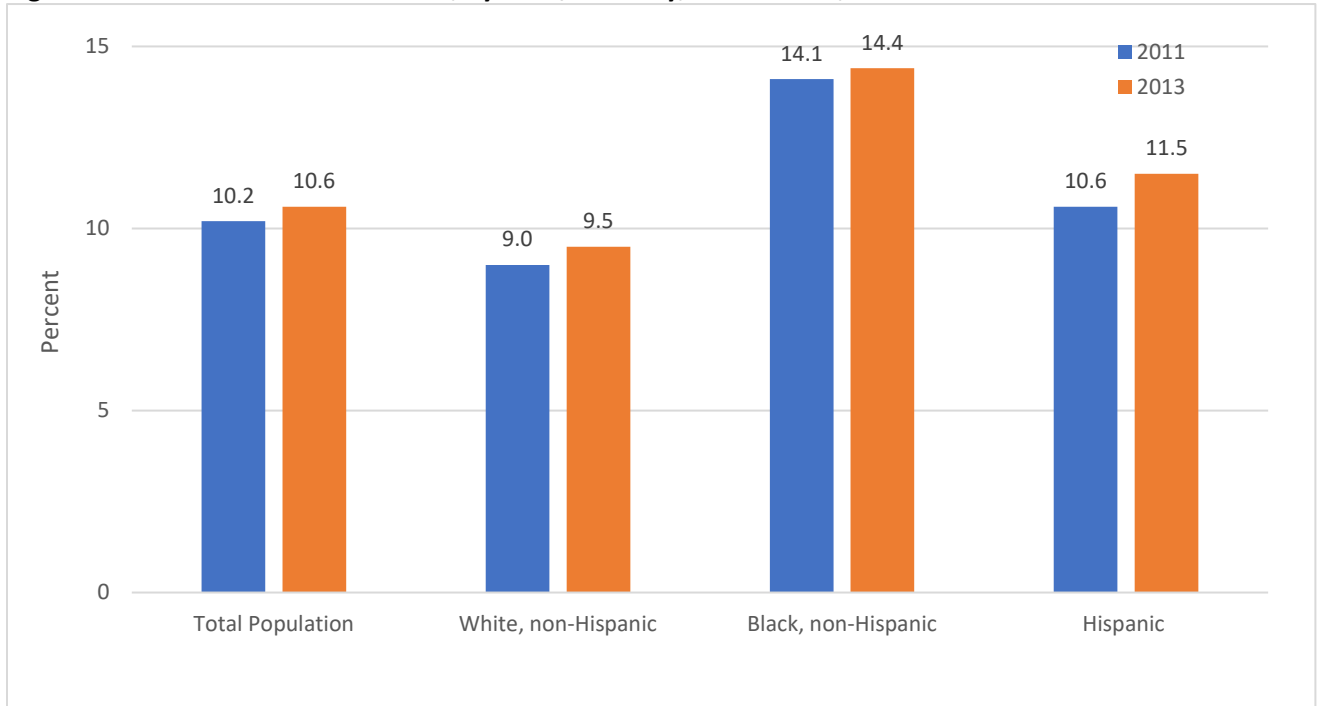


Note: Low birthweight classified as newborns weighing <2,500 grams.

Source: Connecticut Department of Public Health, Health Statistics and Surveillance, Statistics Analysis and Reporting.

Racial/ethnic disparities were also observed in the prevalence of preterm births in both 2011 and 2013 (Figure 0.3). For example, in 2013 a greater proportion of newborns of Black non-Hispanic women were preterm compared to those of Hispanic or White non-Hispanic women.

**Figure 0.3. Percent of Preterm Births, by Race/Ethnicity, Connecticut, 2011 vs. 2013**

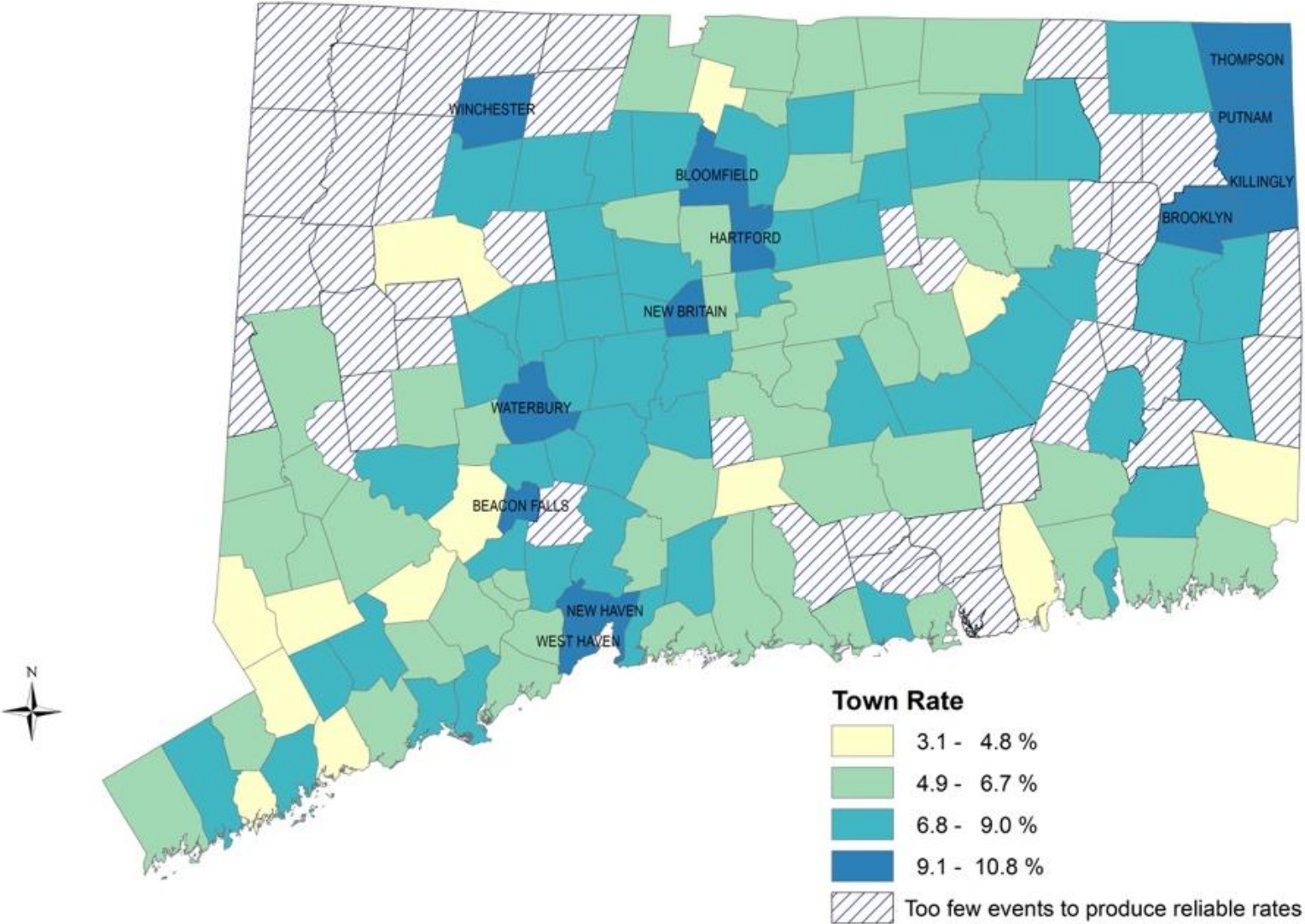


Source: Connecticut Department of Public Health, Births 2011 and 2013.

From 2010-2014, the prevalence of preterm births was also relatively higher in some of Connecticut's largest towns, as well as several rural towns in northeastern and in central Connecticut (Figure 0.4).



Figure 0.4. Map of Singleton Preterm Births, by Town, Connecticut, 2010-2014

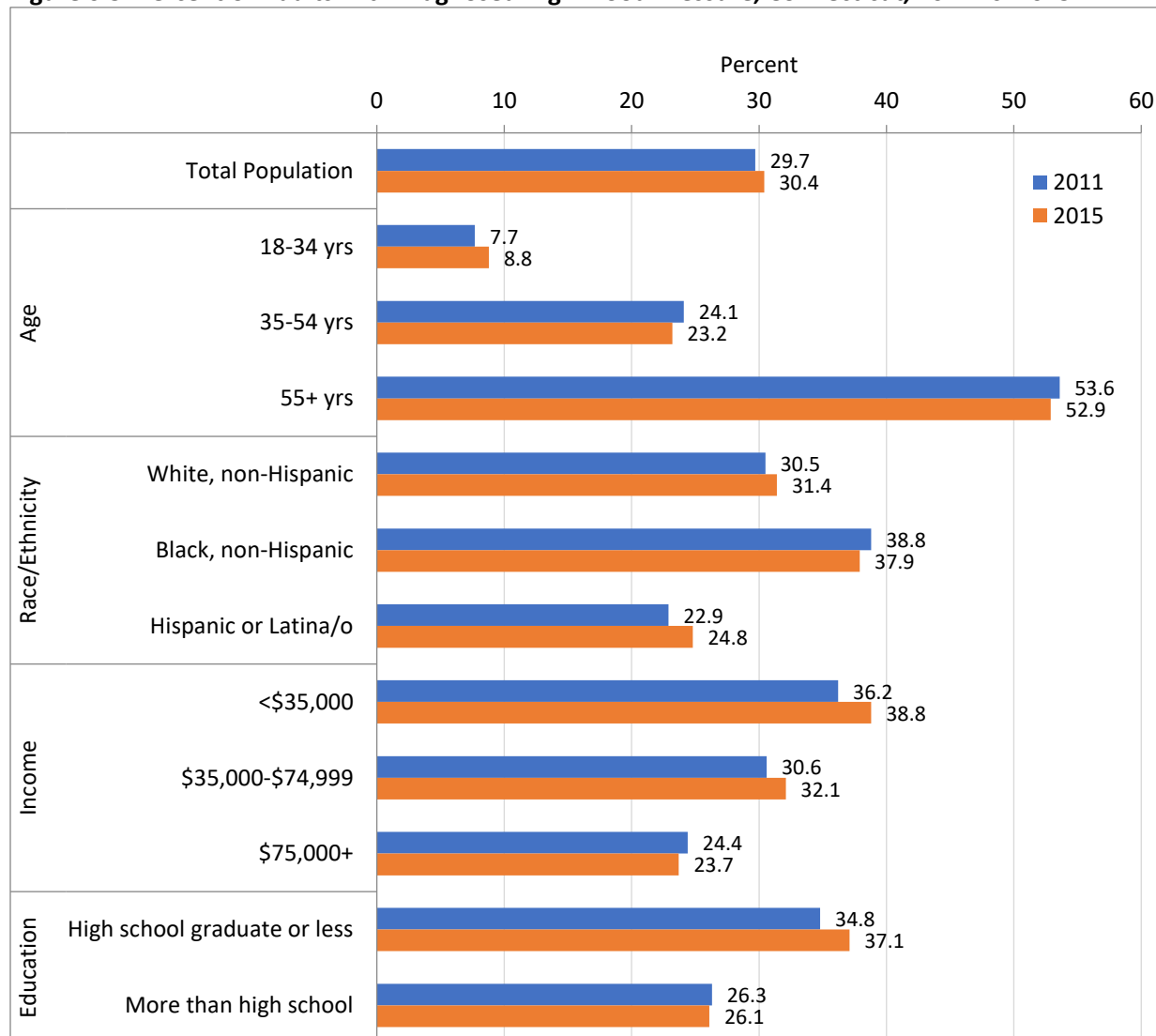


Note: Preterm births classified as births before 37 weeks gestation.  
 Source: Connecticut Department of Public Health, Health Statistics and Surveillance, Statistics Analysis and Reporting.



The percentage of individuals diagnosed with high blood pressure varies by age, race/ethnicity, income and educational attainment (Figure 0.5). Prevalence rates remained highest among persons 55 years of age or older, Black non-Hispanic, people with incomes less than \$35,000 or with a high school education or less. In 2015, the prevalence rate increased among adults 18-34 years of age, Hispanic or Latina/o, adults with incomes below \$75,000 or with high school education or less.

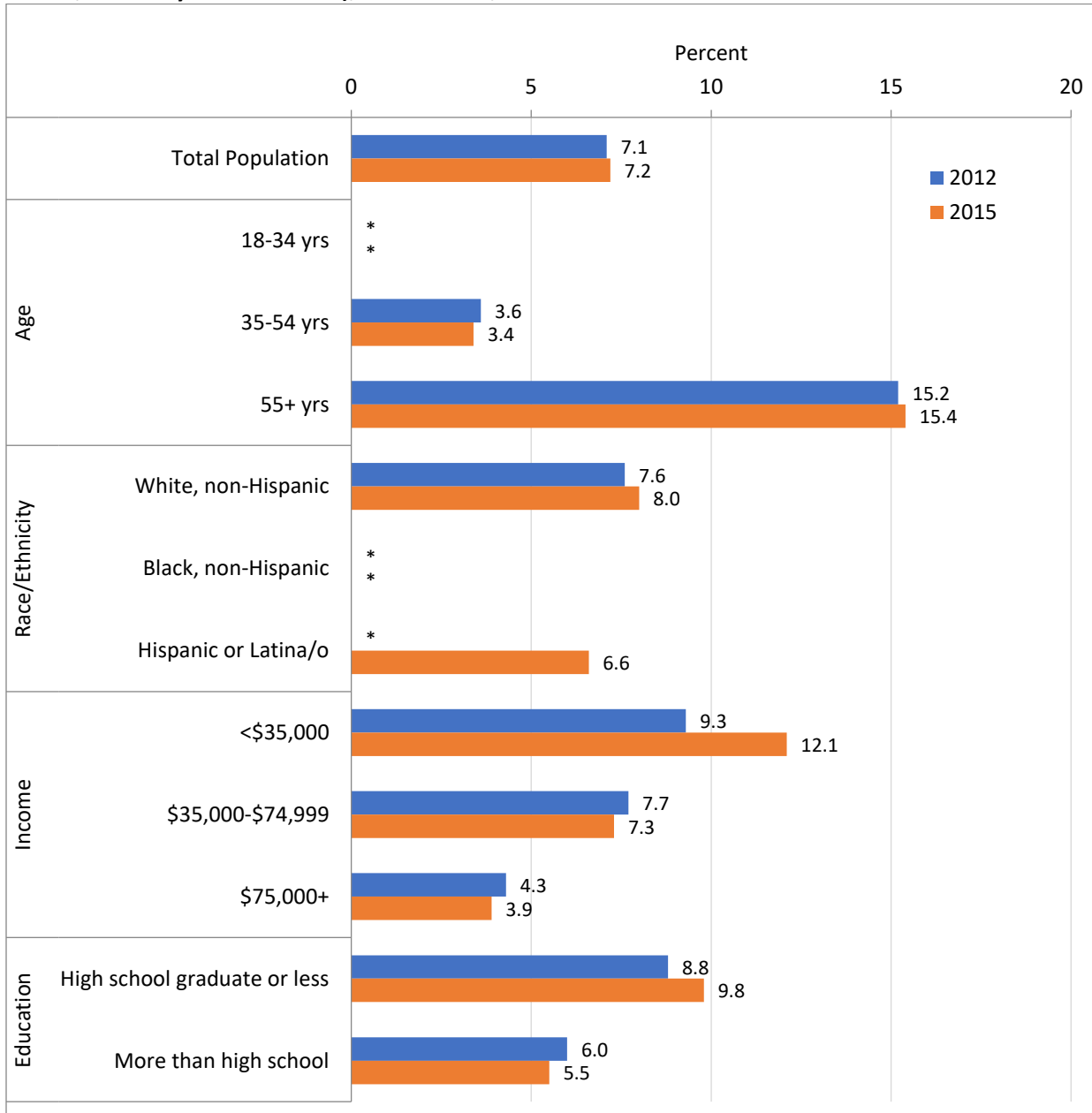
**Figure 0.5. Percent of Adults with Diagnosed High Blood Pressure, Connecticut, 2011 vs. 2015**



Source: Connecticut Department of Public Health, Connecticut Behavioral Risk Factor Surveillance System, 2011 and 2015.

As with high blood pressure, the prevalence of a heart disease experience varies among socio-economic cohorts (Figure 0.6). In both 2012 and 2015, a greater proportion of those who were 55 years and older, had lower incomes, a high school education or less were more likely than their counterparts to have had at least one heart disease experience. In 2015, the prevalence of heart disease experience increased most among adults with incomes less than \$35,000 and for persons with a high school education or less.

**Figure 0.6. Percent of Adults Who Have Had At Least One Heart Disease Experience (Heart Attack, Stroke, Coronary Heart Disease), Connecticut, 2012 vs. 2015**

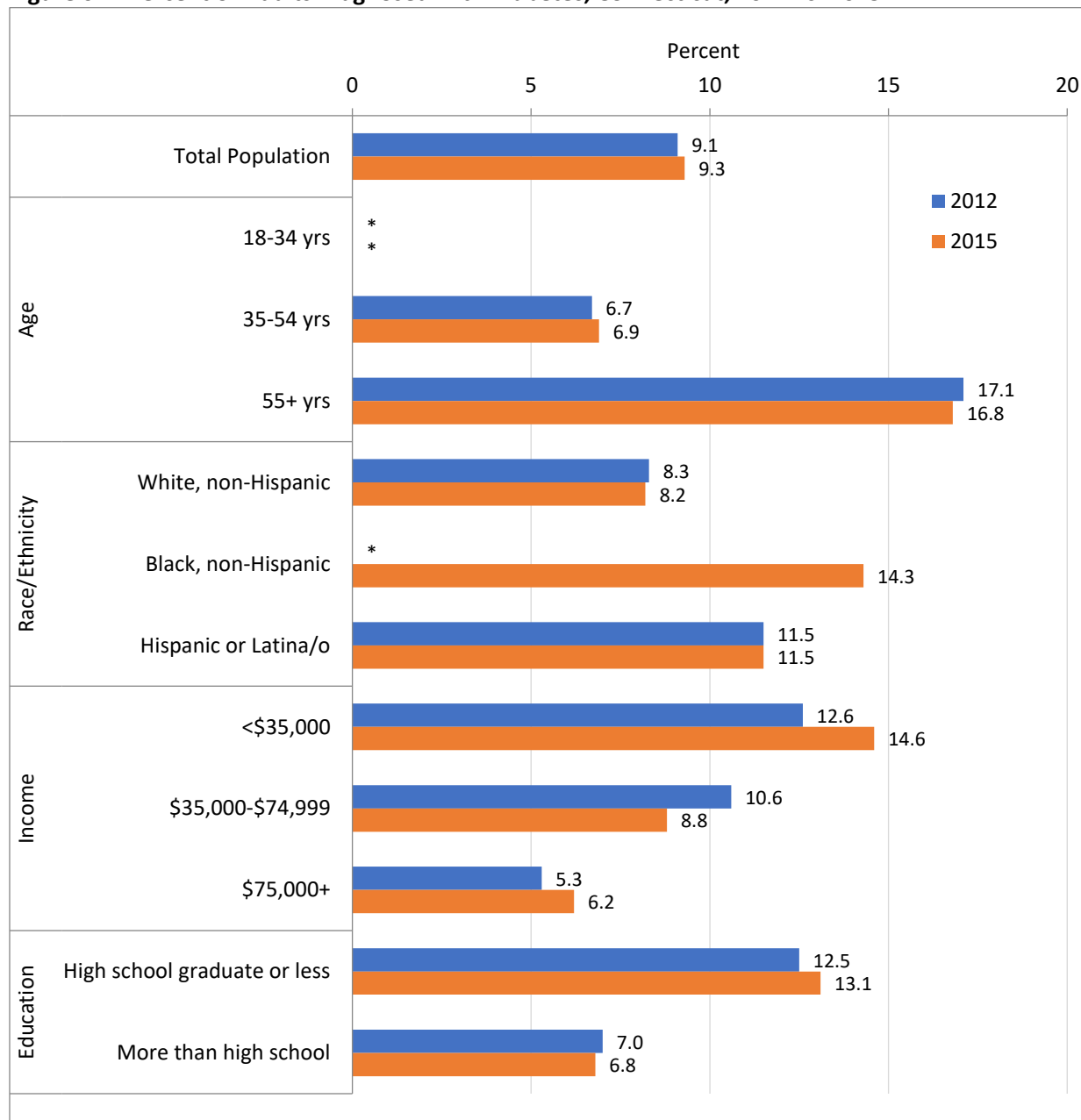


Note: \*Estimate not reliable.

Source: Connecticut Department of Public Health, Connecticut Behavioral Risk Factor Surveillance System, 2012 and 2015.

Figure 0.7 shows that in both 2012 and 2015, older adults, Black non-Hispanics, Hispanics or Latinas/os, persons with lower incomes or with a high school education or less were more likely to have diabetes than their counterparts. Over the three year period, the prevalence of diagnosed diabetes increased only for persons with incomes less than \$35,000 and for those with a high school degree or less. The prevalence of diagnosed diabetes only declined for adults with incomes between \$35,000 and \$74,999.

**Figure 0.7. Percent of Adults Diagnosed with Diabetes, Connecticut, 2012 vs. 2015**

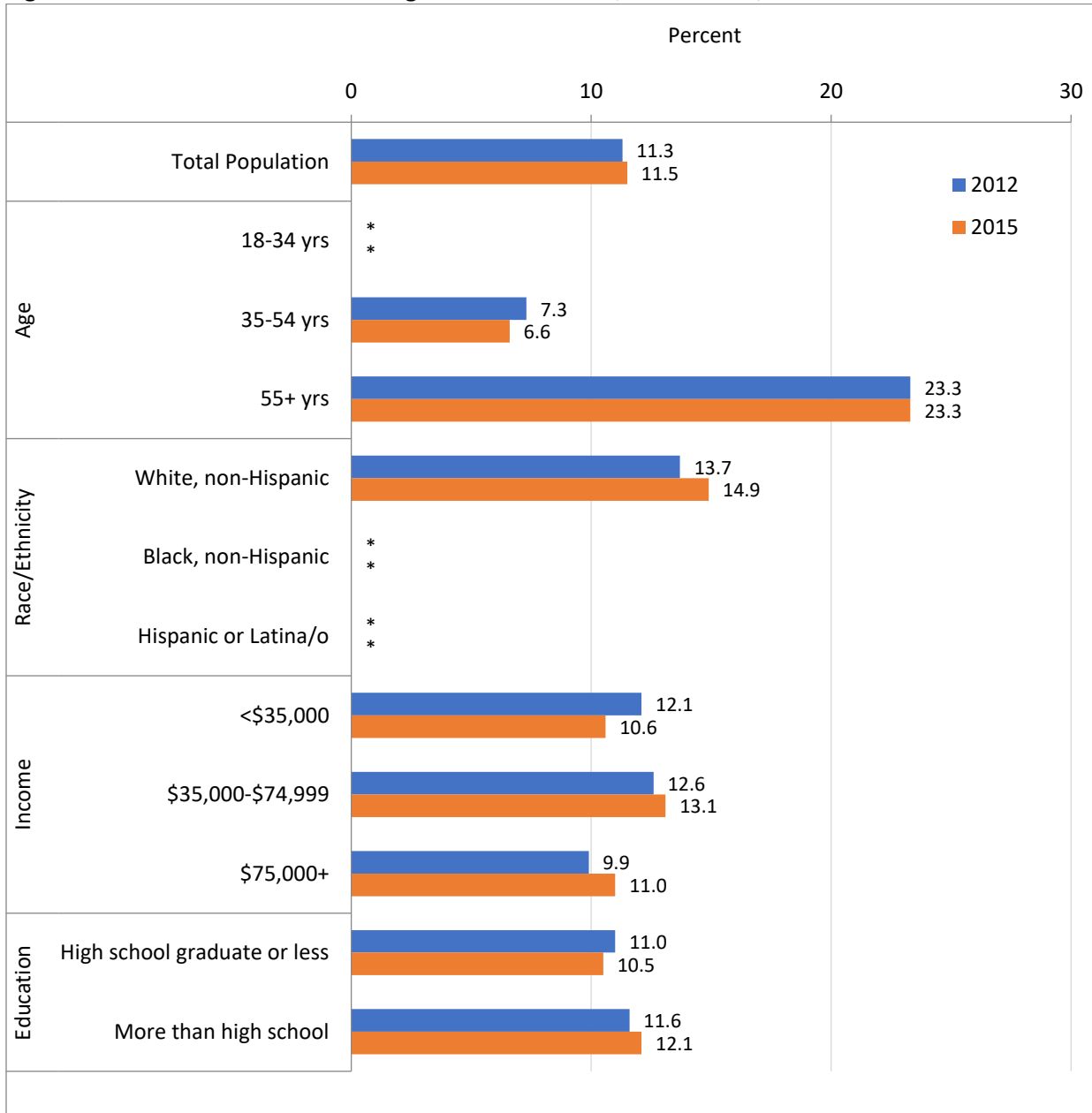


Note: \*Estimate not reliable.

Source: Connecticut Department of Public Health, Connecticut Behavioral Risk Factor Surveillance System, 2012 and 2015.

Over the same period, the prevalence of any diagnosis of cancer also varied by age, income and educational attainment (Figure 0.8). In both years, the prevalence of diagnosed cancer was highest among adults 55 years of age or older, with incomes between \$35,000 and \$74,999, and among those with more than a high school education. Between 2012 and 2015, the prevalence of diagnosed cancer declined for adults with income less than \$35,000 but increased for White non-Hispanics, persons with incomes over \$35,000 or attained more than high school education.

**Figure 0.8. Percent of Adults Ever Diagnosed with Cancer, Connecticut, 2012 vs. 2015**

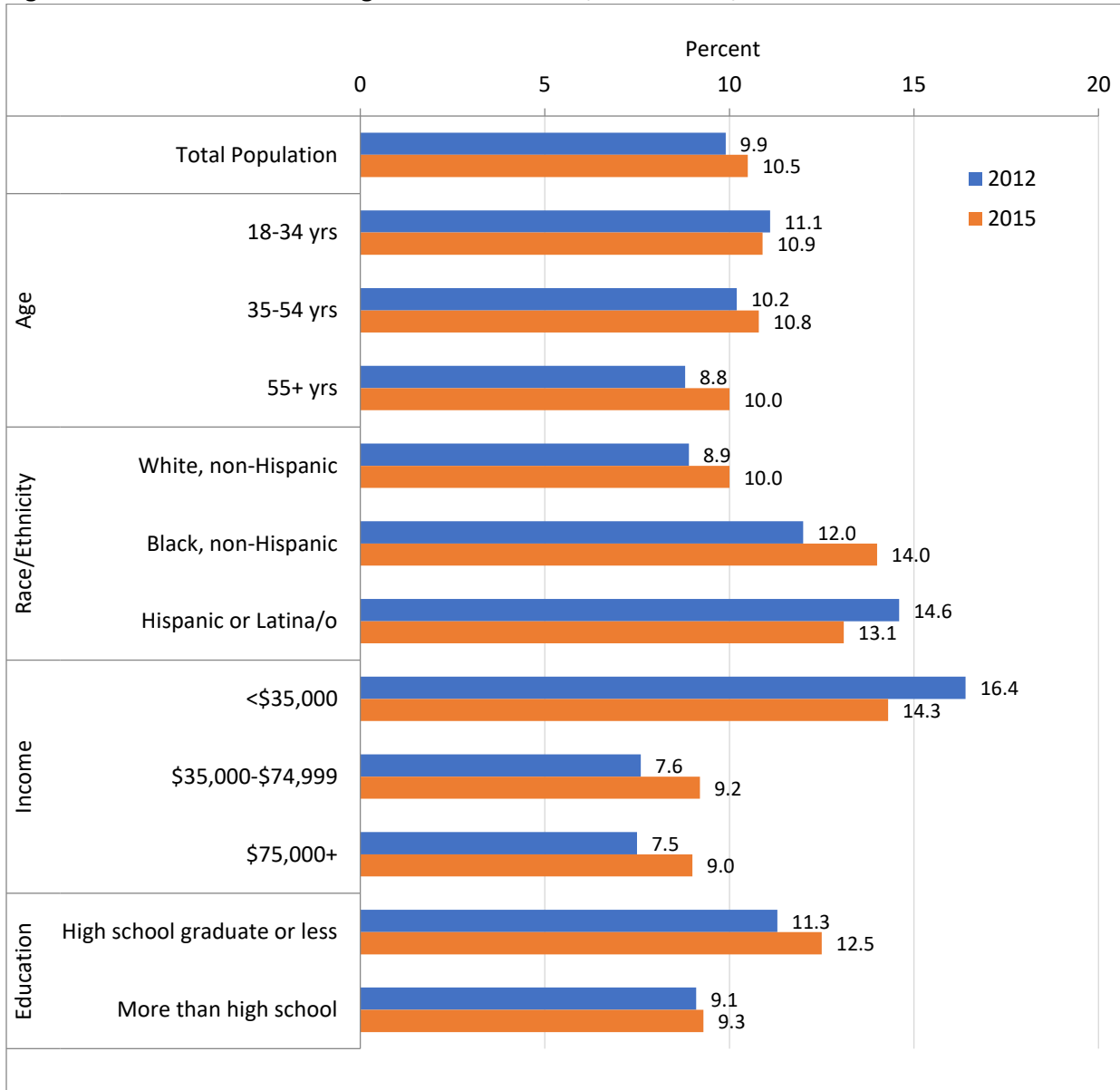


Note: \*Estimate not reliable.

Source: Connecticut Department of Public Health, Connecticut Behavioral Risk Factor Surveillance System, 2012 and 2015.

Disparities also exist in the prevalence of asthma, with the highest rates occurring among adult Black non-Hispanic, Hispanic or Latina/o, those with incomes less than \$35,000 or those with a high school education or less, relative to their counterparts (Figure 0.9). In 2015, asthma prevalence rates increased among adults 55 years of age or older, White non-Hispanic, Black non-Hispanic; those with incomes greater than \$35,000, or those with a high school education or less. It decreased for Hispanics or Latinos/as and persons with incomes less than \$35,000.

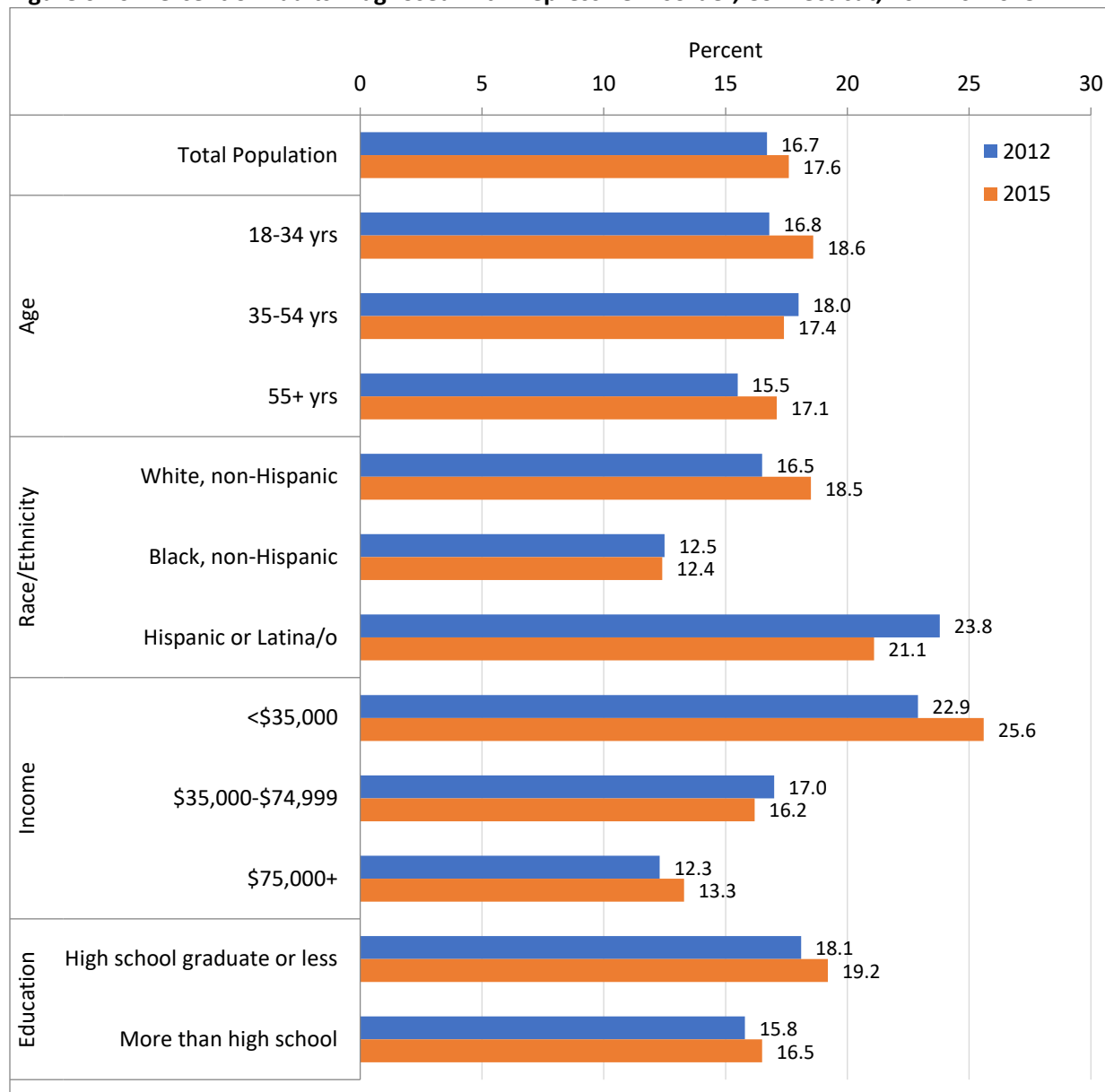
**Figure 0.9. Percent of Adults Diagnosed with Asthma, Connecticut, 2012 vs. 2015**



Source: Connecticut Department of Public Health, Connecticut Behavioral Risk Factor Surveillance System, 2012 and 2015.

In 2015, the proportion of adults with depressive disorder was greatest among adults with incomes less than \$35,000, between 18 and 34 years of age, who were Hispanic or Latino/a, or had less than a high school education, compared to their counterparts (Figure 0.10). Between 2012 and 2015, depressive disorder prevalence increased the most for adults with incomes less than \$35,000 and those between 18 and 34 years of age. It declined the most among Hispanic or Latina/o adults.

**Figure 0.10. Percent of Adults Diagnosed with Depressive Disorder, Connecticut, 2012 vs. 2015**



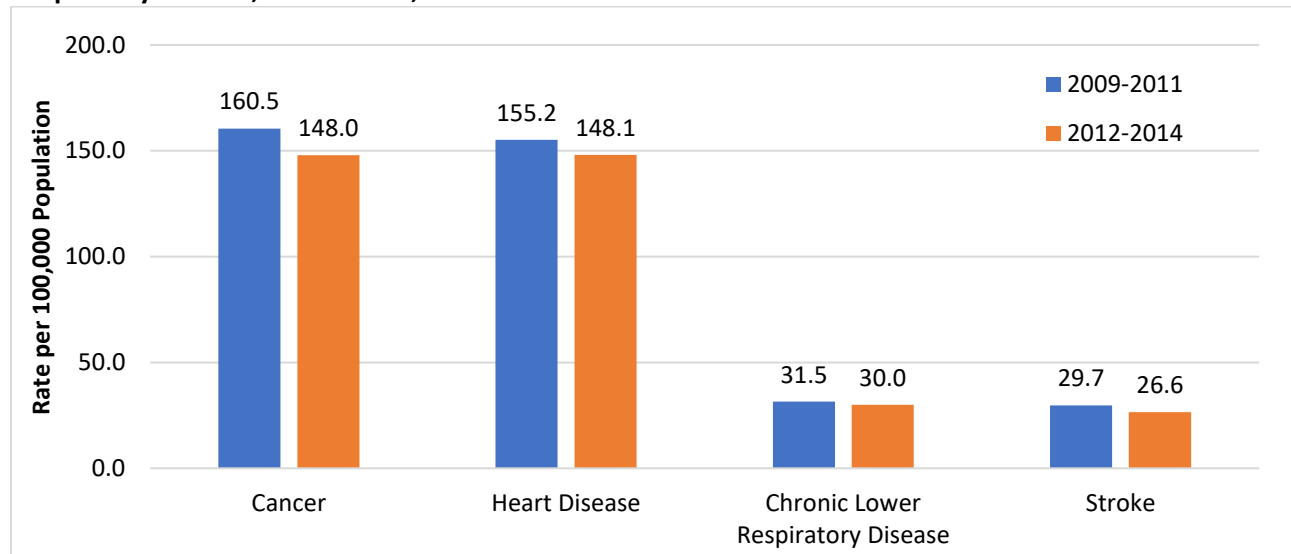
Source: Connecticut Department of Public Health, Connecticut Behavioral Risk Factor Surveillance System, 2012 and 2015.



## Mortality

Cancer, heart disease, chronic lower respiratory disease and stroke remain among the leading causes of death in Connecticut. From the period of 2009 through 2011 and 2012 through 2014, the age-adjusted mortality rate (AAMR) due to cancer, heart disease and stroke all declined (Figure 0.11).

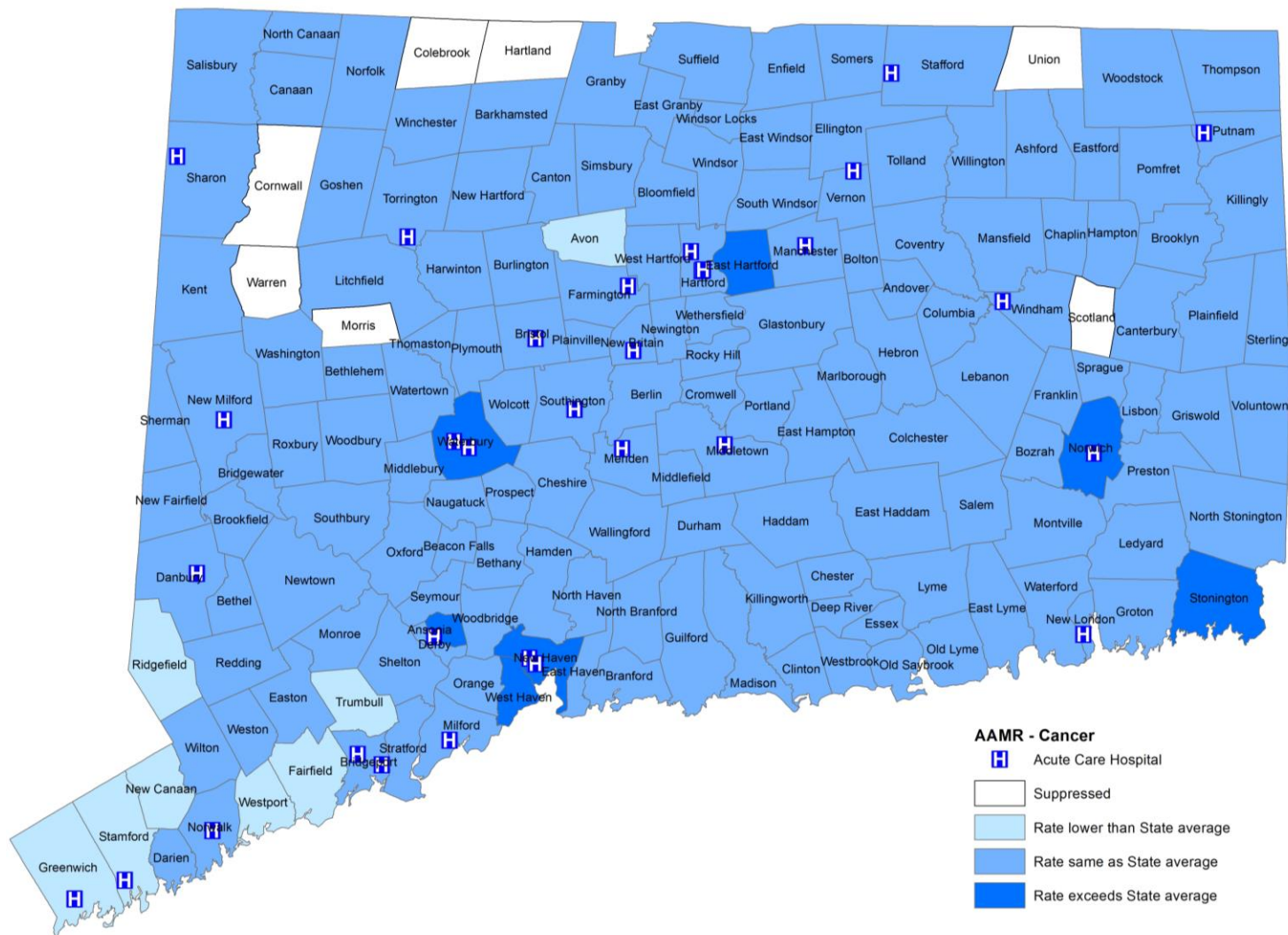
**Figure 0.11. Age-Adjusted Mortality Rate Due to Cancer, Heart Disease, Stroke, and Chronic Lower Respiratory Disease, Connecticut, 2009-2011 vs. 2012-2014**



Source: Connecticut Department of Public Health, Age-Adjusted Mortality Rates, 3-Year Estimates, 2012-2014.

Although AAMR declined in Connecticut overall, health disparities exist among geographic areas of Connecticut. As shown in Figure 4.12, in 2008-2012 the AAMR due to cancer exceeded the state average in Hartford, Waterbury, Ansonia, New Haven, West Haven, Norwich and Stonington. Over this same period, the AAMR due to heart disease exceeded the state average in several of Connecticut's largest towns -- e.g., Torrington and East Hartford -- and the northern -- e.g., Enfield and Stafford -- and eastern -- e.g., Plainfield and Griswold -- parts of the state (Figure 0.13). Meriden was the only town that had a chronic lower respiratory disease mortality rate that exceeded the state average (Figure 0.14). The towns of Bristol, Windham, and Stonington had age-adjusted stroke mortality rates that exceeded the state average (Figure 0.15). Four towns in southwest Connecticut -- Greenwich, Stamford, New Canaan and Westport -- consistently had mortality rates due to heart disease, cancer, and stroke that were below the state average.

Figure 0.12. Map of Age-Adjusted Mortality (AAMR) due to Cancer, by Town, Connecticut, 2008-2012



Source: CT DPH Instant Atlas, 2008-2012  
Created by DPH OHCA January 2017

Figure 0.13. Map of Age-Adjusted Mortality Rate (AAMR) due to Heart Disease, by Town, Connecticut, 2008-2012

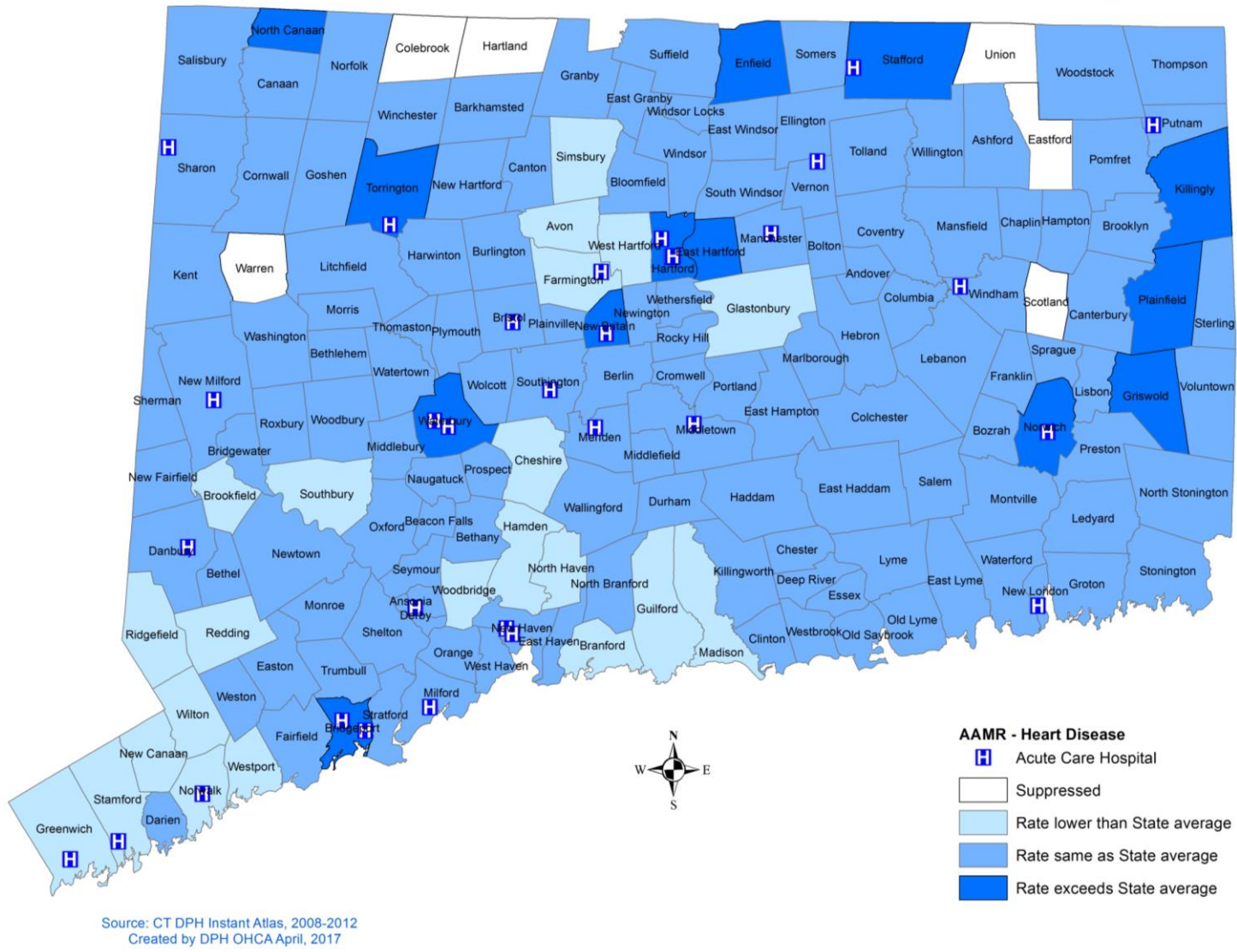
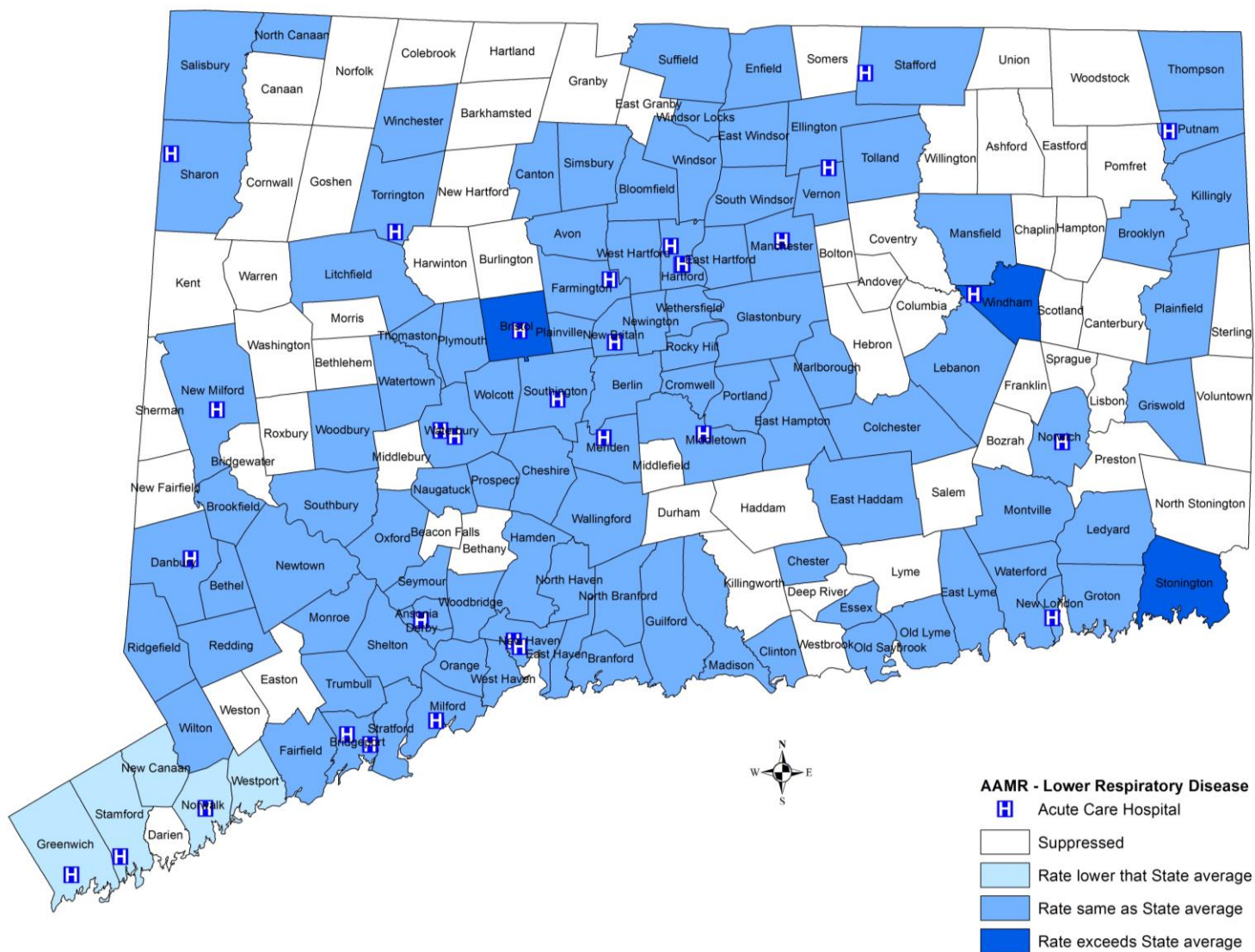


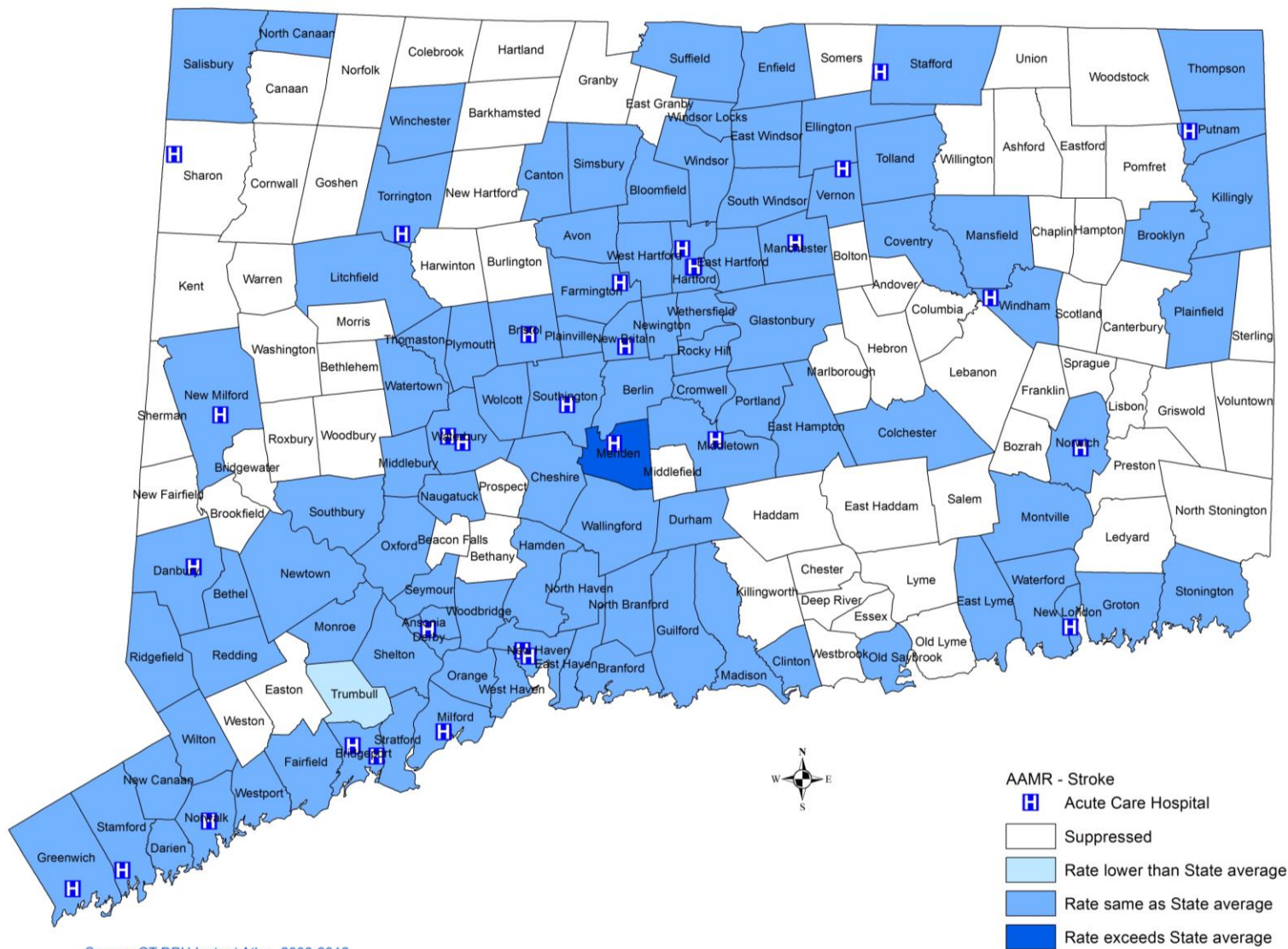


Figure 0.14. Map of Age-Adjusted Mortality Rate (AAMR) due to Chronic Lower Respiratory Disease, by Town, Connecticut, 2008-2012



Source: CT DPH Instant Atlas, 2008-2012  
 Created by DPH OHCA April, 2017

**Figure 0.15. Map of Age-Adjusted Mortality Rate (AAMR) due to Stroke, by Town, Connecticut, 2008-2012**



Source: CT DPH Instant Atlas, 2008-2012  
 Created by DPH OHCA April, 2017

## HEALTHCARE ACCESS AND UNMET NEED

### Medically Underserved Areas/Populations and Health Professional Shortage Areas

It is also important to identify geographic areas, population groups and small hospitals<sup>4</sup> that experience the greatest need for healthcare professionals. Chapter 1 describes the two indicators of health professional shortages that inform these efforts -- federal MUA/Ps and HPSAs designations -- and the process for obtaining them in Connecticut.

As shown in Table 0.3, in 2016, there are 29 MUA/Ps across Connecticut, with New Haven (n=8), Hartford (n=7), and Fairfield (n=6) Counties having the greatest number. Additionally, there were 39 designations of primary care, 30 of mental health and 36 of dental health HPSAs in Connecticut. While county level reports about HPSAs and MUAs are useful, it is important to examine these patterns at the more detailed census tract or town level to better understand the geographic and population-level disparities in healthcare access, (see Appendix E for individual towns with at least one HPSA or MUA/P designation). The HRSA OSD continuously updates HPSA and MUA/P designations as applications are on-going.

**Table 0.3. Medically Underserved Areas or Populations (MUA/P) Health Professional Shortage Areas, by County, Connecticut, 2016**

Area/County	# MUA/P Designations <sup>1</sup>	# HPSA Designations <sup>2</sup>		
		Primary Care	Mental Health	Dental Health
<b>Connecticut</b>	<b>29</b>	<b>39</b>	<b>30</b>	<b>36</b>
Fairfield	6	9	8	7
Hartford	7	8	5	8
Litchfield	1	2	2	2
Middlesex	1	2	2	3
New Haven	8	7	6	7
New London	3	4	3	4
Tolland	1	1	1	1
Windham	2	4	2	3
Tribal Nations	*	2	1	1

Sources:

<sup>1</sup> Health Resources and Services Administration, Data Warehouse: MUA Find. Accessed December 27, 2016.

<sup>2</sup> Health Resources and Services Administration, Data Warehouse: HPSA Find, July 2016.

Designations are updated continuously at <https://datawarehouse.hrsa.gov/tools/analyzers/geo/ShortageArea.aspx> including mapping services provided for

HPSA: [https://gis.hrsa.gov/arcgis/rest/services/Shortage/HealthProfessionalShortageAreas\\_FS/FeatureServer](https://gis.hrsa.gov/arcgis/rest/services/Shortage/HealthProfessionalShortageAreas_FS/FeatureServer) and MUA/P: [https://gis.hrsa.gov/arcgis/rest/services/Shortage/MedicallyUnderservedAreas\\_FS/FeatureServer](https://gis.hrsa.gov/arcgis/rest/services/Shortage/MedicallyUnderservedAreas_FS/FeatureServer)

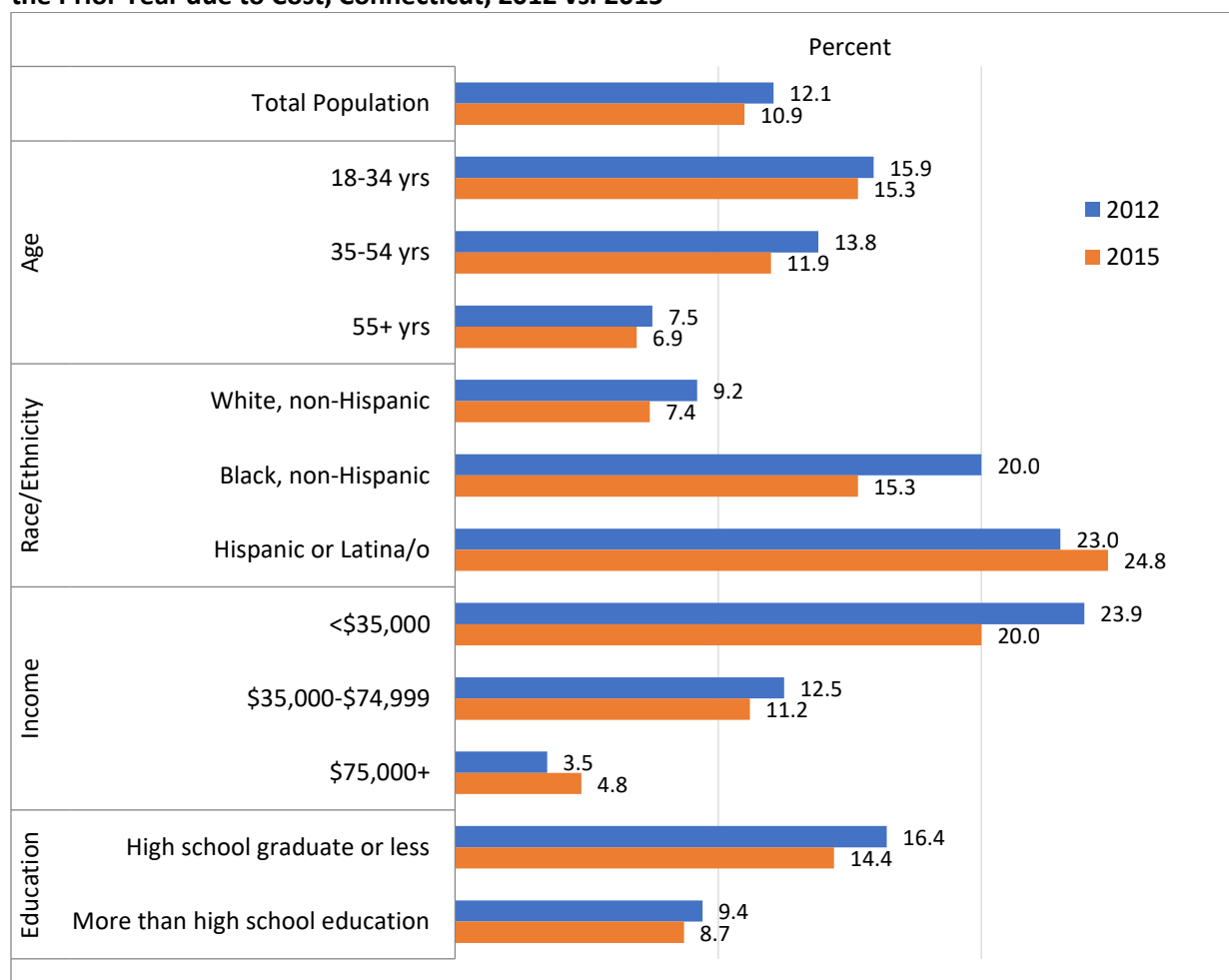
<sup>3</sup>. Connecticut Department of Mental Health & Addiction Services: Catchment Area Councils, Accessed July 21, 2017. <http://www.ct.gov/dmhas/cwp/view.asp?q=334678>



## Healthcare Access among Connecticut’s At-Risk or Vulnerable Populations

Healthcare access continues to be a challenge for many Connecticut residents. Figure 0.16 illustrates that there remained an income- and education-based correlation in healthcare access, with residents of lower income and a high school education or less more likely to report not being able to access needed medical care than their counterparts. The specific population groups with the highest prevalence of adults who could not get or delayed needed medical care due to costs were those between 18 and 34 years of age, Hispanic or Latina/o, had incomes less than \$35,000 or a high school or less education. The prevalence rate declined the most for adults that were Black non-Hispanic, with incomes less than \$35,000, had a high school education or less or were between 35 and 54 years of age. Only the prevalence rate for adults with incomes greater than \$75,000, increased.

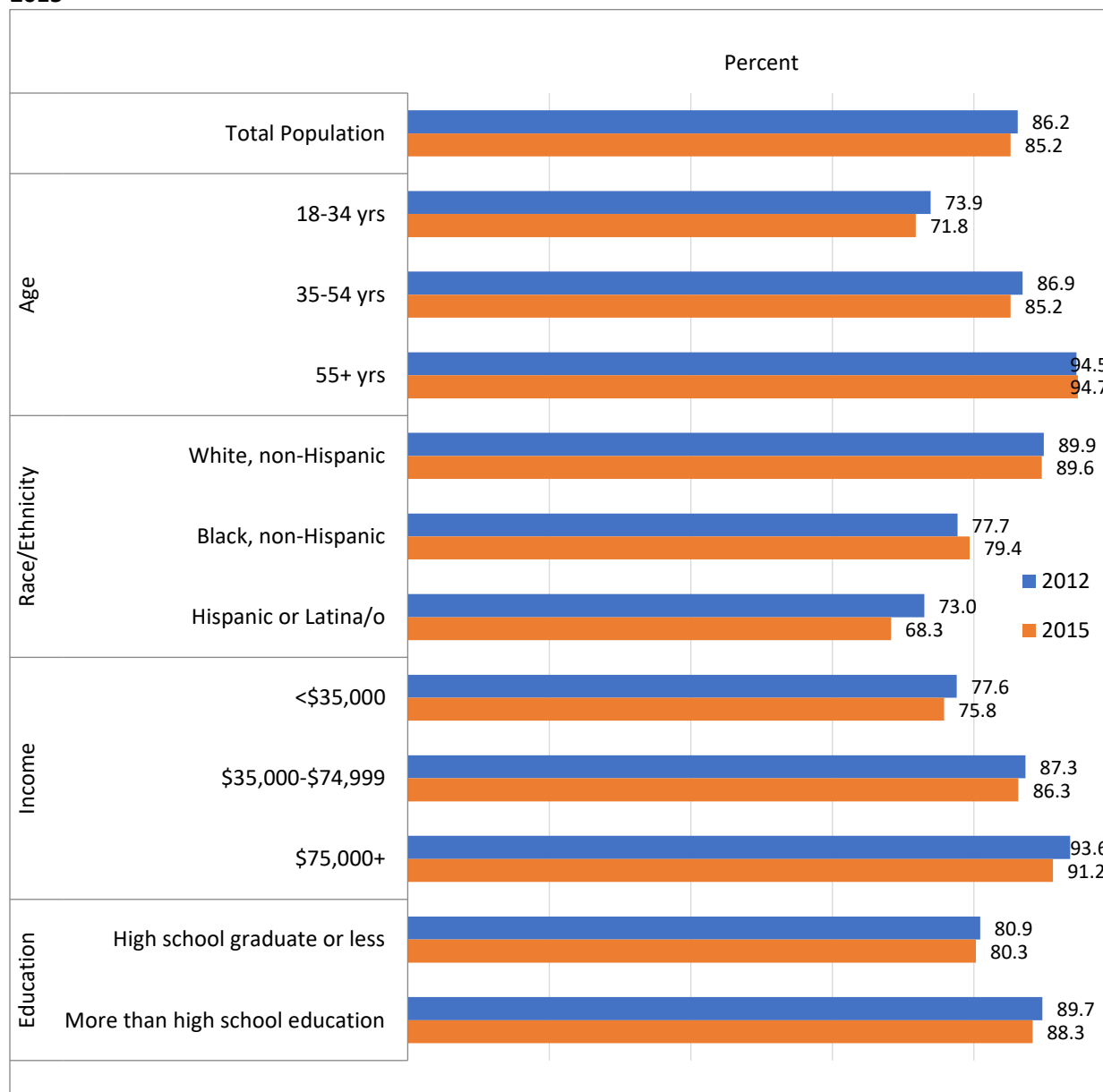
**Figure 0.16. Percent of Adults Who Did Not Get Needed Medical Care or Postponed Medical Care in the Prior Year due to Cost, Connecticut, 2012 vs. 2015**



Source: Connecticut Department of Public Health, Connecticut Behavioral Risk Factor Surveillance System, 2012 and 2015.

At the same time, the percentage of adults reporting that they have a personal doctor or healthcare provider declined (Figure 0.17). It remained relatively higher among adults 55 years of age and older, White non-Hispanic, with higher incomes and with greater educational attainment. Only the proportion of Black non-Hispanic adults with a personal doctor or healthcare provider increased.

**Figure 0.17. Percent of Adults with a Personal Doctor or Healthcare Provider, Connecticut, 2012 vs. 2015**



Source: Connecticut Department of Public Health, Connecticut Behavioral Risk Factor Surveillance System, 2012 and 2015.

Studies show that continuity of care improves the quality of care, reduces emergency visits by nearly half and results in shorter hospital stays.<sup>5</sup> The following section identifies population groups and/or geographic areas that continue to be more likely to have or make a potentially preventable hospital visit or stay.

## **Preventable Hospitalizations and Emergency Department Visits**

Lack of access to a usual source of care and care coordination lead to avoidable emergency department use and hospitalizations and readmissions. The rates of occurrence in a community are an indicator of the quality of its primary healthcare system and transitions between care settings. At-risk persons are disproportionately represented among Connecticut residents whose hospitalizations or ED visits may have been avoided with timely and effective primary care. Connecticut residents 65 years of age and older are about 14% of the population but account for 58% of preventable hospitalizations and 42% of readmissions (Table 0.4). Black non-Hispanics were more likely than White non-Hispanics to have a potentially preventable hospitalization, an avoidable ED visit or to visit the ED more than ten times within a year. Connecticut communities with relatively higher concentrations of White non-Hispanic adults ages 65 years and older, Black non-Hispanics, Hispanics, residents suffering from a chronic condition or in proximity of an acute care hospital were at greater risk for such hospitalizations or ED visits.

**Table 0.4. Acute Care Preventable Hospitalizations, Readmissions and ED Use, Connecticut, 2013-2015**

	Preventable Hospitalizations FY 2013-2015 <sup>1</sup>	Readmissions within 30 Days of Discharge FY 2013-2015 <sup>2</sup>	Avoidable ED Visits FY 2013-2015 <sup>3</sup>	ED Frequent Users' FY 2013-2015 <sup>4</sup>
Hospitalizations/visits	45,552	50,588	489,805	67,291
% of all	12	13	37	5
Patient Days	226,174	248,937	n/a	n/a
% of all	12	14	n/a	n/a
Total Charges	\$1,628,769,137	\$2,259,400,949	n/a	\$140,283,414
% of all	11	15	n/a	5
<b>Age in years (%)</b>				
<18	8	11	21	3
18 - 44	10	21	43	55
45 - 64	24	27	24	37
65+	58	42	12	5
<b>Race/Ethnicity (per 100,000)</b>				
CT	1,268	1,408	13,631	1,873
White, non-Hispanic	1,286	1,425	9,751	1,399
Black, Non-Hispanic	1,952	1,917	26,116	3,964
Hispanic	966	1,094	23,992	3,245
Other	737	1,174	13,093	724
<b>Primary Payer (%)</b>				
Medicare	62	46	17	24
Medicaid	19	24	49	65
Private	16	28	26	6
Uninsured	2	3	9	5
<b>UConn Five Town Grouping</b>				
Urban core	25	37	49	59
Urban periphery	38	38	30	30
Rural	11	7	9	5
Suburban	22	9	6	3
Wealthy	3	9	5	3

Source: CT DPH Office of Health Care Access Acute Care Hospital Discharge Database, Connecticut Hospital Association Chime Inc., Emergency Department Database and US Census Bureau 2011-2015 American Community Survey 5-year estimates, Table DP05.

<sup>1</sup> Instances of inpatient care for health conditions or illness typically treated or managed in an outpatient setting. Instances determined with Agency for Healthcare Research and Quality WinQI 5.0.3 tool.

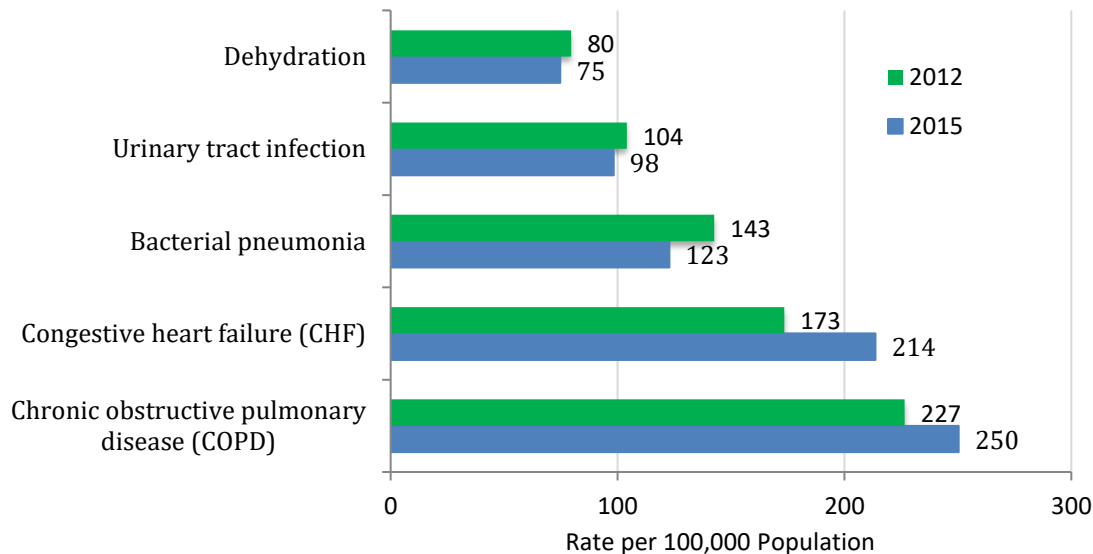
<sup>2</sup> Scheduled and unscheduled readmissions to the same hospital.

<sup>3</sup> ED non-admit visits that may have been avoided. New York University algorithm applied. Excludes Sharon Hospital data.

<sup>4</sup> ED non-admits with ten or more ED visits per year.

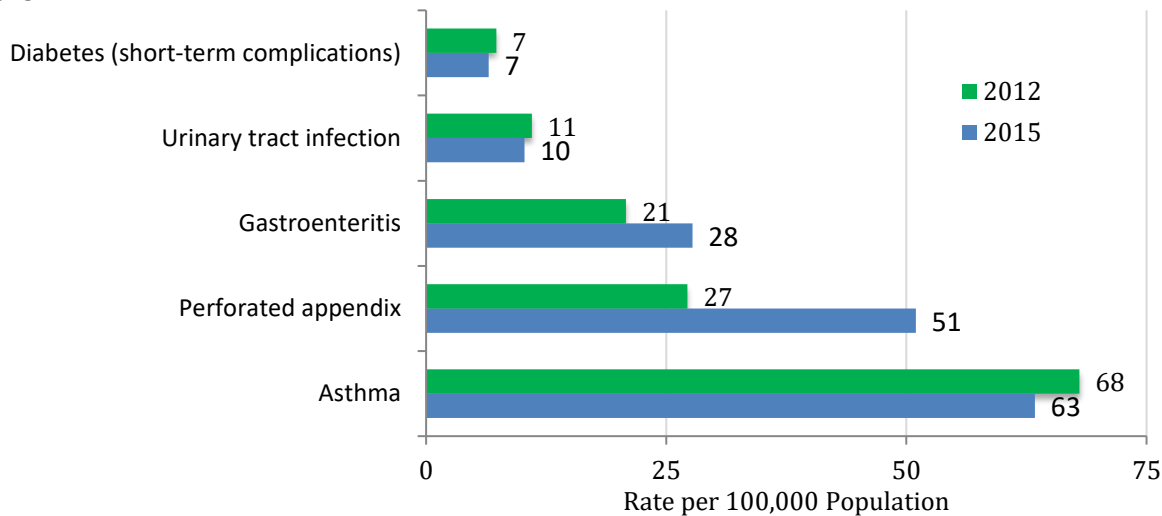
The leading causes of preventable hospitalizations among adults (Figure 0.18) and children (Figure 0.19) were chronic conditions. In 2015, chronic obstructive pulmonary disease and asthma were the leading causes of preventable hospitalizations among Connecticut adults and children, respectively.

**Figure 0.18. Leading Causes of Preventable Hospitalizations among Adults, Connecticut, 2012 vs. 2015**



Source: CT DPH Office of Health Care Access Acute Care Hospital Discharge Database

**Figure 0.19. Leading Causes of Preventable Hospitalizations among Children, Connecticut, 2012 vs. 2015**



Source: CT DPH Office of Health Care Access Acute Care Hospital Discharge Database

The following section provides a review of health status, outcomes and unmet healthcare needs of at-risk or vulnerable populations in Connecticut and attempts to identify communities most likely to have unmet health needs in addition to those identified by hospital CHNAs.

## **UNMET NEED**

### **Unmet Healthcare Need Definition**

As in the 2012 Plan and 2014 Supplement, the 2016 Supplement uses two definitions of unmet healthcare need.<sup>6</sup>

First, unmet need is defined as the inadequate availability of healthcare services deemed necessary to address a particular health problem.<sup>7,8</sup> Using this definition, the barriers to accessing care may be one or more of the following:

- Physical unavailability of service or professional shortage;
- Mismatched services for the needs of the people – that is, the healthcare system is unresponsive;
- Inferior available services as compared to the norm;
- Lack of knowledge regarding what services are available locally or how to access them;
- Lack of enabling services such as translation services to non-English speaking immigrants or transportation to facilitate access, especially in rural areas;
- Insufficient coordination between different providers of different levels and types of services;
- Complex health insurance payer rules such as eligibility for Medicare and/or Medicaid and for accessing services; and
- Inadequate collaboration among governmental agencies and/or community providers.

Second, unmet need is defined as when individuals of a distinct socio-demographic group, such as those lacking health insurance or people with low income, forgo or delay accessing needed available healthcare services because the associated costs are unaffordable. The Institute of Medicine (IOM) has identified lack of insurance as a significant driver of health disparities.<sup>9</sup>

These definitions aim to take into account the complex factors that have an adverse impact on health status as a result of limited or disproportionate access to care. Whichever definition is used, unmet need has to be quantified to determine the appropriate intervention(s) or policy change(s). The expected result is a more integrated healthcare delivery system in which resources are allocated efficiently based on agreed priorities to improve health status and eliminate inequalities.

As previously discussed in Chapter 1, the following sections utilize the unmet need composite index, developed in the 2014 Supplement, HPSA and MUP/A designations and CHNAs to assess unmet need in Connecticut towns and cities.

### **Unmet Need Composite Index<sup>10</sup>**

The unmet need composite index measures community health and the quality and level of coordination in the overall health system in Connecticut. The index is the sum of the socioeconomic status (SES) and health outcomes indices and an indicator of which towns or cities may have an unmet healthcare need. These assessments are not measures of exact need. The state-level index has a value of 15, which is the sum of the health status index (10) and the healthcare services access index (5). Thus, a value greater than 15 implies that the health or healthcare profile of the town or city is worse than the profile for the state and therefore has a higher probability of an unmet healthcare need. A value that is lower than 15



implies that the town or city has a better profile than the state and is less likely to have an unmet healthcare need.

### **Socioeconomic Status (SES) Index**

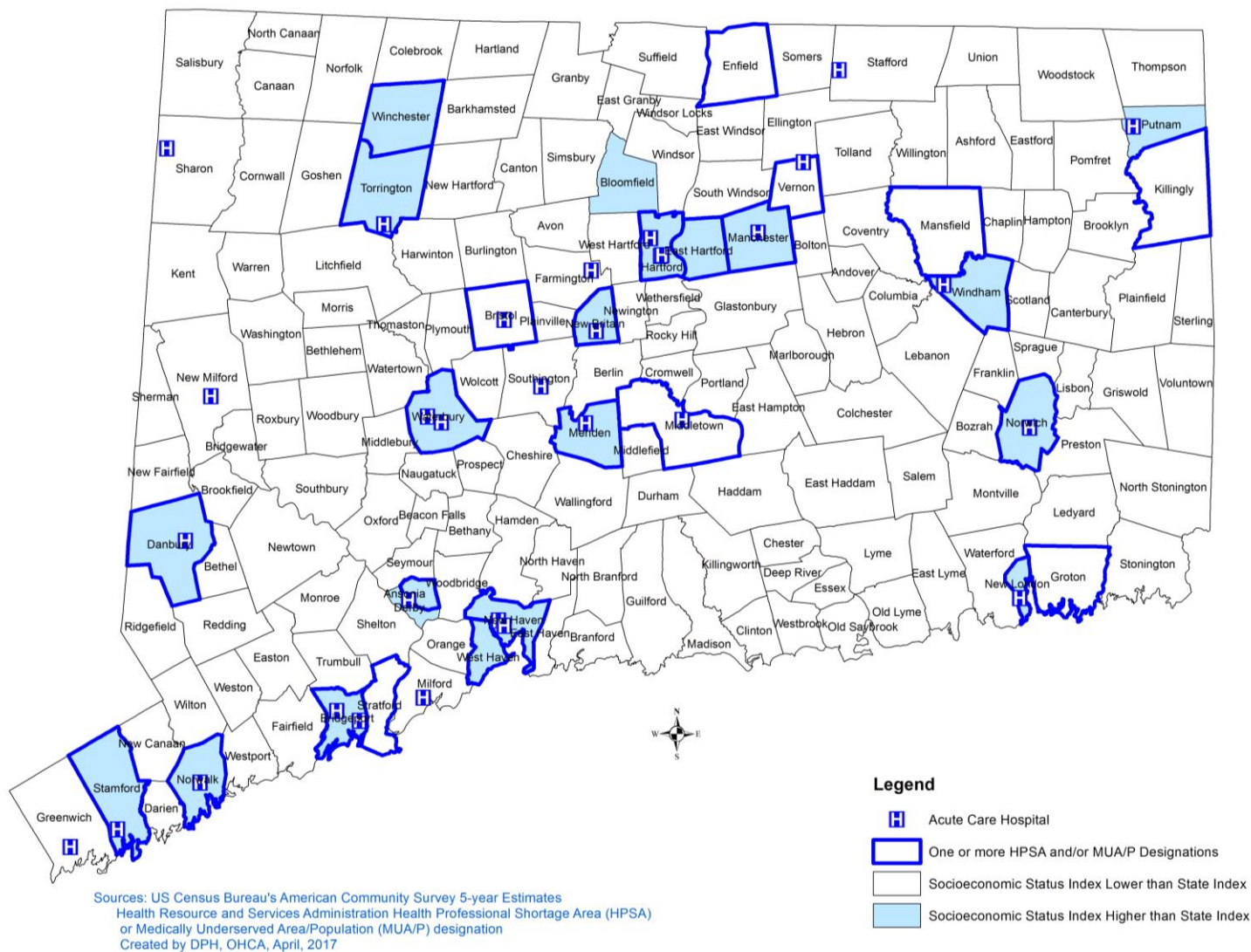
Several social and economic factors shape health and the distribution of adverse health outcomes. Too many individuals and populations experience barriers to the opportunity to be healthy and to engage in health-promoting behaviors. Examples of barriers facing individuals, families, and communities include living in neighborhoods characterized by adverse physical environments (e.g., air pollution, lack of walkability, unaffordable or unhealthy housing); having limited access to nutritious, affordable food or safe places to exercise; or experiencing violent relationships in the home, in their neighborhoods, or at school).<sup>11</sup> At-risk populations, such as low-income households, racial and ethnic minorities, homeless persons, persons with disabilities and gender/sexual minorities, among others, are more likely to experience these barriers to the opportunity to live a healthy life. Understanding factors that contribute to health disparities, as well as the distribution of health disparities, can inform data-driven and evidence-based strategies to promote well-being and health equity.

The SES index consists of social, demographic and economic factors established in the literature as having a significant impact on population health. This index includes US Census five-year average (2011 to 2015) estimates of the following measures:

- Poverty status: percentage of the population below the federal poverty level
- Educational attainment: percentage of the population age 25 and older with less than a high school education or without a high school diploma
- Employment status: percentage of the population age 16 and older that is unemployed
- Transportation: percentage of the population age 16 or older that do not own a car
- Language proficiency: percentage of the population that speaks English “less than very well”
- Health insurance status: percentage of the population age 18 to 64 that is uninsured
- Disability status: percentage of the population that is disabled
- Age: percentage of the population that is age 65 or older
- Racial or ethnic minority status: percentage of the population that is non-white, non-Hispanic
- Medicaid coverage: percentage of the population with Medicaid coverage

The SES index is an indication of towns with the propensity to have poor health status and thus increased predisposition to having unmet healthcare need. For most towns and cities in Connecticut, the SES index was lower than the state, with the exception of the 21 towns shaded in blue (Figure 0.20 and Appendix F). The 21 towns include the state’s largest towns and cities (e.g. Hartford, Bridgeport, New Haven); towns in northeastern (e.g. Putnam and Windham) and western (e.g. Winchester and Torrington) Connecticut. Residents in these towns had higher proportions of unfavorable socioeconomic conditions, which make them more likely to have poorer health and unmet healthcare need. While only these 21 towns and cities, as a whole, had a disproportionately greater share of vulnerable populations, several other towns and cities had at least one of their vulnerable populations with an index above the state’s and therefore remain at risk for an unmet healthcare need. Except for Bloomfield, Derby and Putnam, all these towns have sub-geographic areas or populations with at least one HPSA or MUA/P underserved designations (indicated by the blue border). As previously noted, the HPSA and MUA/P designations imply the communities are eligible to receive certain federal resources to obtain primary care, dental and mental health providers and services.

**Figure 0.20. Map of Socioeconomic Status Index, by Town, Connecticut, 2011-2015**



## Health Outcomes Index

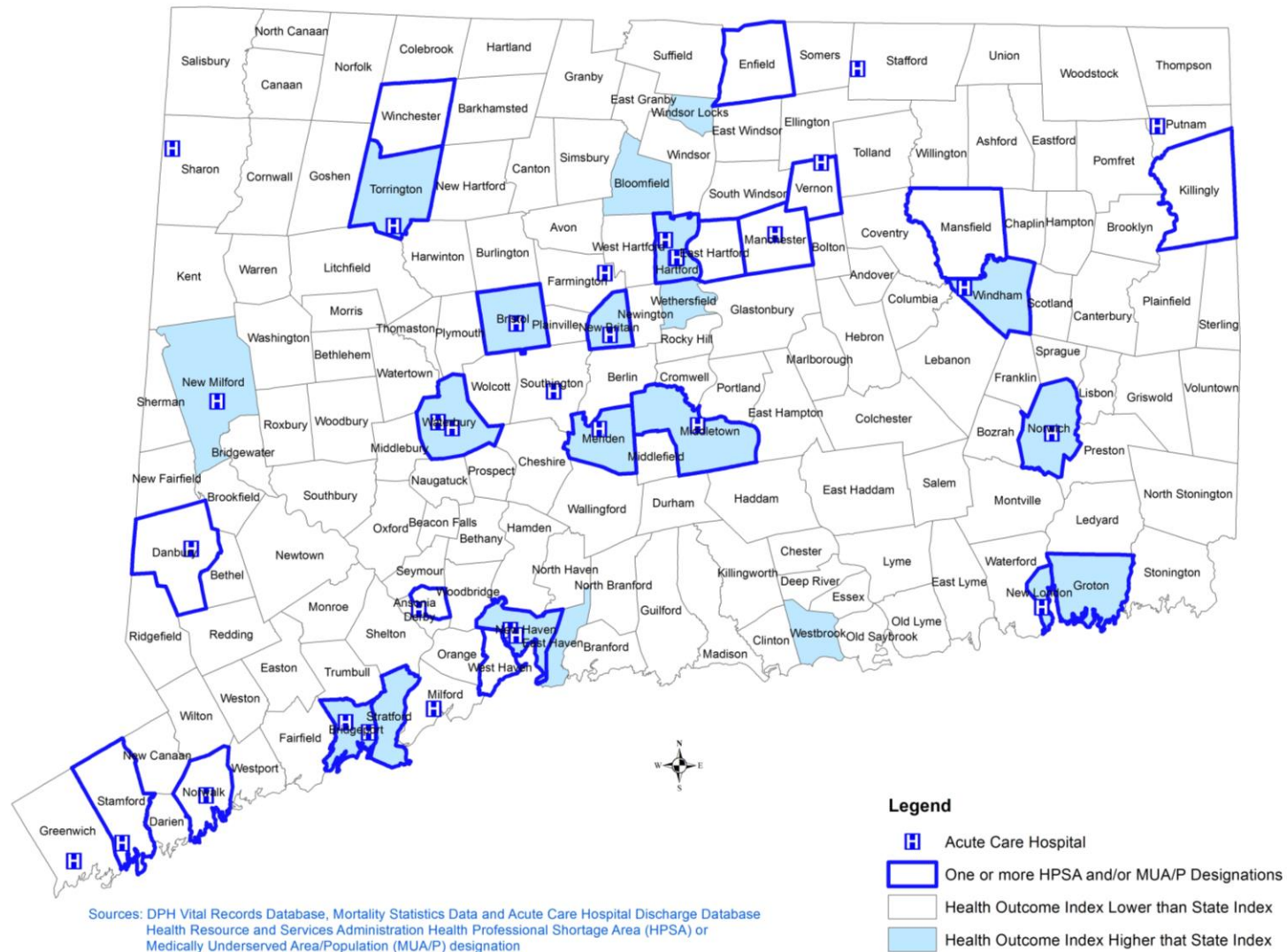
The health outcomes index is a measure of the community's health and includes five indicators of population health, access to healthcare services and the quality and coordination of care:

- Infant mortality rate: rate of infant deaths within the first year per 1,000 live births (2011-2013)
- Crude mortality rate per 100,000 population (2008-2012)
- Hospitalization rate for ambulatory care sensitive conditions per 100,000 population (2013-2015)
- Avoidable emergency department use rate per 100,000 populations (2013-2015)
- All-cause 30-day readmissions rate per 100 discharges (2013-2015)

The five indicators serve as proxies for the health of a community. Looking at these by town and standardizing the scores allows for identification of towns that are significantly higher or lower than the state overall in their health outcomes.

Figure 0.21 (and Appendix F) shows that although the vast majority of towns compared favorably to the state, 20 towns (e.g., New Milford, Bridgeport, Groton and Windsor Locks) had scores higher than the Connecticut index, indicating poorer health outcomes. Most of these 20 towns, contained at least one HPSA and/or MUA/P designations (indicated by the blue border); six towns (New Milford, Windsor Locks, Bloomfield, Wethersfield, East Haven and Westbrook) did not.

Figure 0.21. Map of Health Outcome Index, by Town, Connecticut, 2012-2015



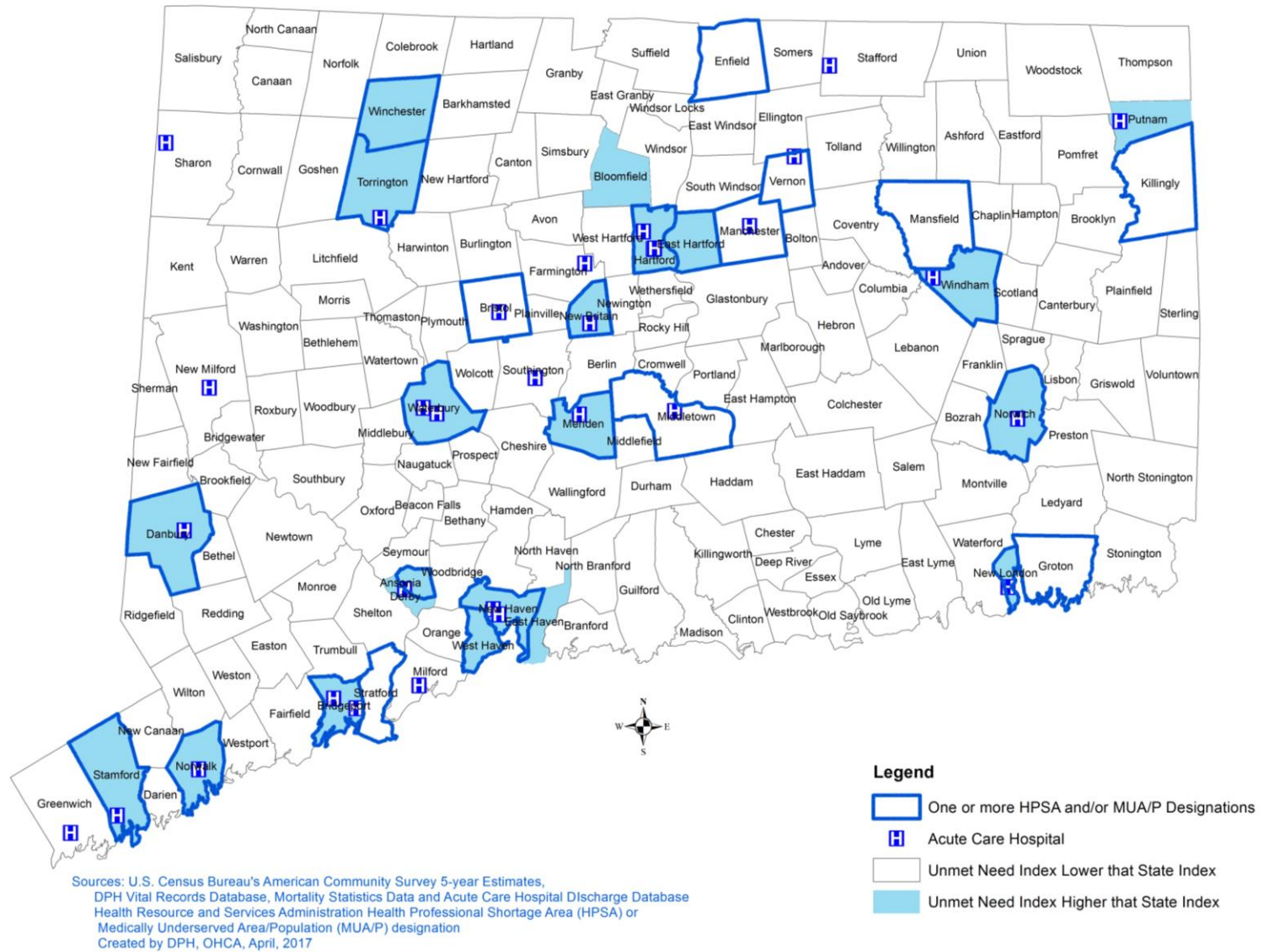
## **Unmet Healthcare Need**

Like the nation as a whole, populations in Connecticut with lower socioeconomic status are disproportionately affected by negative health outcomes. Additionally, health outcome indicators do not only show the different rates of disease, but are potential proxies for unequal access to services.

The unmet need composite index examines a range of SES characteristics and health outcomes compared to state rates and provide an overall indicator of unmet healthcare need. The unmet need composite index is the sum of the SES and health outcome indices described in previous sections, which sum to 15 for the overall state.

The index is an indicator of which towns and cities are most likely to have unmet healthcare need compared to the state. Most towns and cities had an index score lower than 15, except 21 towns (Figure 0.22 and Appendix E). All of these 21 towns, with the exception of East Haven, also had a higher SES index compared to the state. Seventeen of these 21 towns contained at least one HPSA and/or MUA/P designations (indicated by the blue border). However, four of the 21 towns identified as most likely to have unmet healthcare needs -- Bloomfield, Derby, East Haven and Putnam -- did not contain HPSA and/or MUA/P designations.

Figure 0.22. Map of Unmet Healthcare Need Index, by Town, Connecticut, 2011-2015





## HOSPITAL COMMUNITY HEALTH NEEDS ASSESSMENT AND IMPLEMENTATION

To assess healthcare service availability, the most recent [CHNAs](#) and implementation strategies in [Community Health Improvement Plans](#) (CHIPs) completed by Connecticut's hospitals were reviewed and the findings compared to those included in the 2014 Supplement. This review was designed to enhance the understanding of communities included in CHNAs, identify towns not covered in CHNAs but potentially have unmet healthcare need, examine decisions that influenced which towns were included in CHNAs, uncover any identified need and to develop strategies to meet the needs.

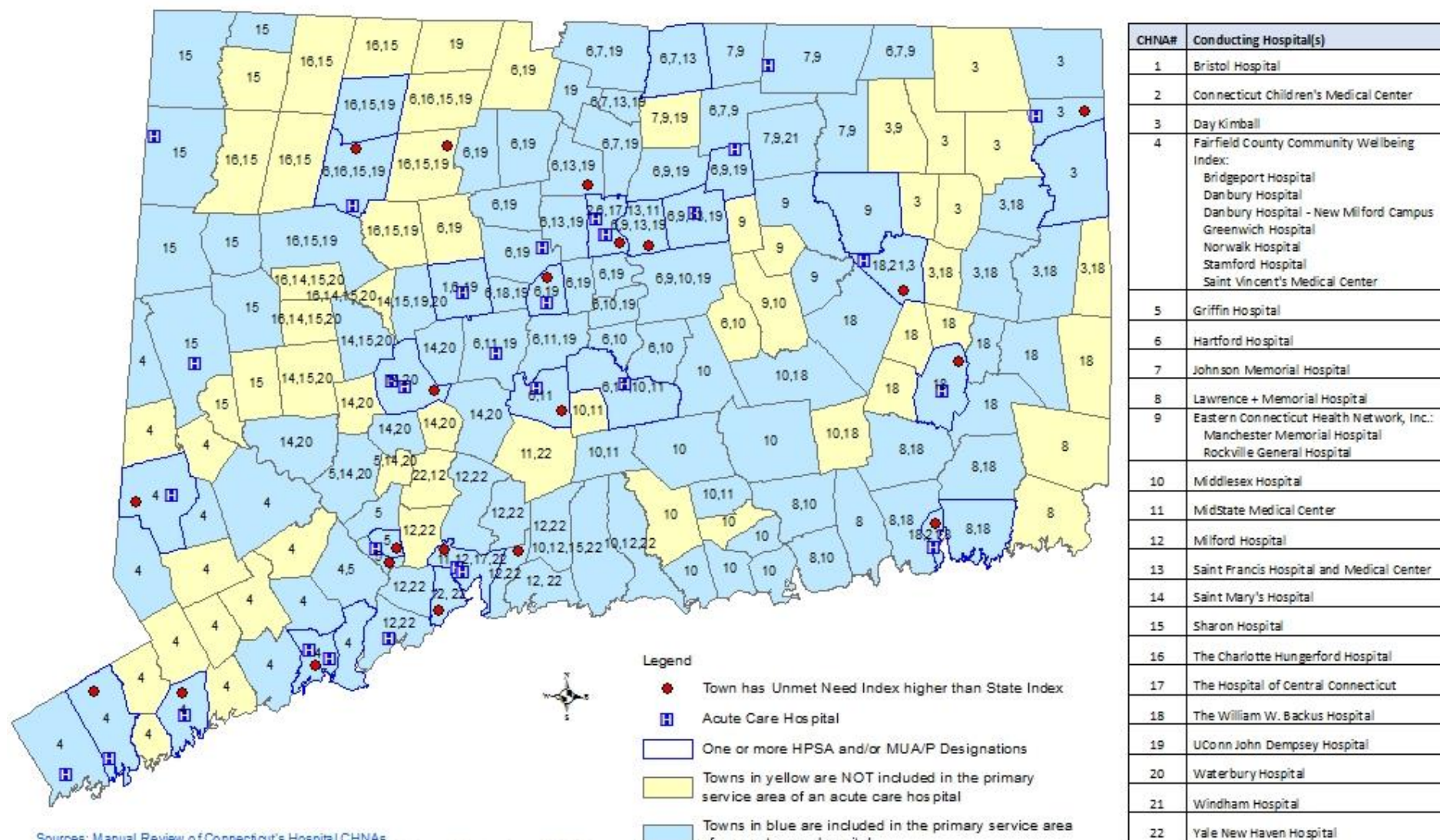
The PPACA mandates that non-profit hospitals conduct a triennial CHNA and develop an implementation strategy to meet the community needs identified as a requirement to maintain their tax-exempt status. This mandate offers an opportunity for hospitals and other entities to work collaboratively across sectors to identify and address health needs in their communities. A complete listing of Connecticut hospital CHNAs is available at <http://www.chime.org/advocacy/community-health/>.

Of the 26 unique CHNAs published between 2012 and 2016, nine CHNAs were collaborations among multiple hospitals and/or with their local health department and local nonprofit organizations. The remaining 17 CHNAs were by individual hospitals.

The majority of towns included in each CHNA were towns within the hospital's primary or secondary service area. However, only nine of the 26 CHNAs in this review included the hospital's entire primary service area in the assessment. Generally, primary service area towns that were not included in the CHNA were smaller towns, or towns that were included in other CHNAs. Relative to the CHNAs reviewed in the 2014 Supplement, more CHNAs classified their primary service areas at a more granular geographic unit (i.e., zip code).

Numbers shown in Figure 4.23 indicate the geographic area covered by a CHNA and the conducting entity or entities listed on the right hand side of the map. The numbers indicate that all Connecticut towns were covered by a CHNA in comparison to Figure 30 in the 2014 Plan which showed that 14 were not covered in the 2008-2014 CHNAs. Additionally, the four towns identified to have Unmet Need Index scores higher than the state -- Bloomfield, Derby, East Haven and Putnam -- were also covered.

**Figure 4.23. Map of Hospital Community Health Needs Assessment Geographic Coverage, Primary Service Area and Unmet Need, Connecticut 2012-2016**





Collaborative CHNAs often provided a more comprehensive snapshot of community health (e.g., across multiple indicators and for multiple groups) for a broader geographic area (e.g., county, multiple towns). In addition to hospitals collaborating among themselves, some collaborate with health directors who serve as active and regular partners with hospitals, provide key informant interviews or fill out survey questionnaires to help hospitals as they conduct their CHNAs. In some areas of the state, some local health directors are not only engaged in the CHNA process but also in the creation and implementation of the CHIP. CHNAs conducted by individual hospitals tended to include a review of fewer indicators of community health. Most CHNAs focused on community wellbeing and health broadly, whereas one hospital (UConn John Dempsey) centered its CHNA on cancer care specifically.

As outlined in Chapter 1, the AHA has identified 10 services deemed essential for vulnerable populations. Many of the essential services align with priority health needs identified in CHNAs including improving primary care; mental health and substance use treatment services; diagnostic services; oral healthcare; referral systems; and home care.<sup>12</sup>

Table 4.5 presents the priority health areas identified in the review of the CHNAs completed by Connecticut hospitals in 2008-2014 (2014 Supplement) and 2012-2016 (current Supplement). Over the 2012-2016 period, there was a consistent pattern in prioritization of health needs (see Appendix F for a list of top health needs by hospital). An increasing number of CHNAs now identify the following as the top health concerns of the communities that they serve: overweight, obesity, nutrition and physical activity (16 to 23); substance abuse (from 12 to 21); mental health (from 12 to 20); and chronic disease (from 18 to 19). These needs emerged as leading health priorities and were consistent with those identified in the 2014 Supplement, with some exceptions. Addressing gaps in primary care was a specific priority identified in the 2008-2014 CHNAs, whereas in the 2012-2016 CHNAs, improving access to care more generally was identified as a consistent priority, perhaps reflecting statewide initiatives to enhance the coordination of care and integrate primary and mental healthcare. Concern about opioid-use factored into several CHNA's prioritization of mental health and substance abuse priorities. In the 2012-2016 CHNAs, reducing tobacco use, improving family and community safety, reducing STIs, improving respiratory health (particularly asthma), and reducing and treating HIV/AIDS were additional areas of priority that did not emerge as leading areas of intervention across the 2008-2014 CHNAs. Some health assessments also identified the social determinants of health, including community socioeconomic disadvantage, housing conditions (e.g., lead exposure) and social cohesion and integration as priority health concerns.

**Table 4.5. Top Health Needs Identified through CHNA Process, Connecticut, 2008-2014 vs. 2012-2016**

Health Needs	Number of Assessments Identifying this Health Need	
	2014 Review (2008-2014 CHNAs) <sup>1</sup>	2016 Review (2012-2016 CHNAs) <sup>2</sup>
Overweight, Obesity, Nutrition, Physical Activity	16	23
Substance Abuse <sup>3</sup>	12	21
Mental Health <sup>3</sup>	12	20
Chronic Disease	18	19
Respiratory Health	5	13
Access to Care (general)		12
Safety		9
Maternal and Child Health	5	9
Tobacco Use		8
Gaps in Primary Care	13	7
Healthy Aging	4	7
HIV/AIDS		5
Sexually Transmitted Infections (STIs) (excluding HIV/AIDS)		5
Gaps in Mental Healthcare	7	4
Housing	4	

<sup>1</sup> The 2014 review includes 21 CHNAs completed between 2008 and 2014.

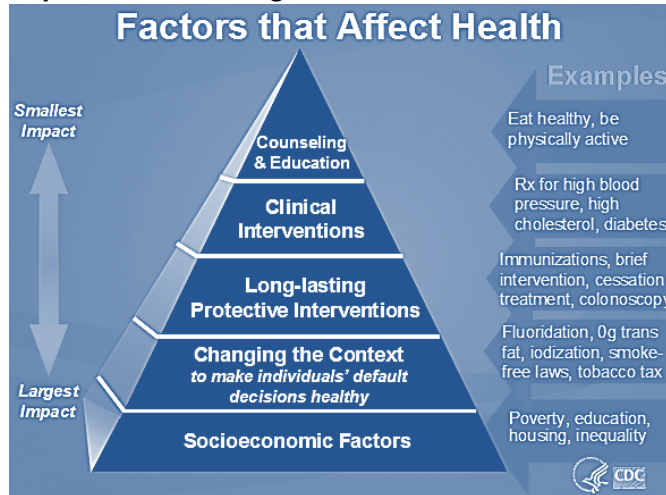
<sup>2</sup> The 2016 review includes 26 CHNAs completed between 2012 and 2016. One CHNA identified in this review pertained specifically to cancer care, rather than community health more generally. One hospital did not identify priority health areas in the CHNA; their priority health areas will be included in their CHIP which is currently under development. Some CHNAs were conducted as a collaboration among multiple hospitals. Priority health needs from these collaborative CHNAs are counted once

<sup>3</sup> 19 CHNAs identified substance abuse and mental health together as health priorities.

As part of the IRS mandate for non-profit hospitals, a hospital must also develop an implementation strategy every three years that discusses how it will address the identified needs from the CHNA or whether these needs are being addressed by other community providers. While there were 24 new CHNAs completed since the 2014 Facilities Supplement there were 18 new CHIPs.

CHIPs differed in the level of focus of proposed strategies to address the health needs identified in CHNAs. Approaches include improving the health and healthcare of individuals and populations. These approaches have implications for the anticipated health impact of the intervention strategies on population health. As shown in Figure 0.23, Strategies that address factors at the base of the pyramid, or the social determinants of health, such as socioeconomic factors and improving the conditions in which people live, work and play to promote health and reduce health inequities, may yield larger improvements in population health as these strategies may reach and promote the health of a larger population.<sup>13</sup> Individually-focused strategies focused on the top of the pyramid, such as counseling, health education and clinical interventions may produce a smaller impact on the health of the population, as these interventions are often more intensive and reach a smaller subset of the population.<sup>14</sup>

**Figure 0.23. Health Impact Pyramid: Considering the Social Determinants of Health**



Source: Frieden, Thomas R. A Framework for Public Health Action: The Health Impact Pyramid. American Journal of Public Health. April 2010, 100(4), 590-595.

These different approaches to mitigating health needs have implications for non-profit hospitals and their interpretation of community benefit categorization. For example, systems change initiatives such as strategies to improve access to quality mental healthcare (e.g., hiring more mental health clinicians) have the potential to sustainably address the healthcare need of the identified community. However, many hospital community benefits officers are not clear on how to “count” these systems change initiatives as a community benefit. Instead, community benefits programs tend to focus on charity care as well as more individual and interpersonal-focused initiatives such as community health education and health fairs because they are easier to classify for tax purposes. However, such programmatic strategies may have a limited health impact for a small proportion of the population under the hospital service area and may not provide sustainable solutions to improving the health of the community. OHCA, in its agreed settlements relating to hospital transfers of ownership or conversions, requires hospitals to align community benefit/building activities/funding with needs identified in their CHNAs for a minimum of three years. By guiding hospitals in these long-term planning efforts, OHCA hopes to positively influence population health and health equity.

Generally, collaborative CHIPs tended to focus their health improvement strategies at a systems level, focusing on hospital-, school-, and community-based interventions. The SIM program is facilitating formal partnerships among hospitals and community based providers for disease prevention and care coordination CHNAs completed by individual hospitals generally focused on hospital-based implementation strategies.

CHIPs that proposed systems level changes to address the health needs that emerged from the CHNAs proposed strategies including:

- Improve access to primary, mental, dental, urgent and specialty care;
- Address unmet mental health and substance abuse needs; and
- Reduce overweight, obesity and chronic disease rates.

Some CHIPs identified opportunities to improve access to quality healthcare include:

- Consideration of opportunities to improve access to primary, mental, dental, and urgent care;
- Increase access to specialty care for vulnerable populations;

- Advocate for expanded oral healthcare coverage;
- Advocate for greater coordination of care among primary and mental healthcare;
- Ensure that residents who are eligible for health insurance enroll in the exchange;
- Create a supply of community health workers to prevent and control chronic diseases;
- Mobilize stakeholders to address transportation needs related to healthcare access; and
- Provide culturally and linguistically appropriate care.

CHIPs that prioritize mental health care and reducing substance abuse rates proposed strategies such as:

- Building capacity for community-based organizations and schools to respond to mental health emergencies;
- Integrating social, emotional, and mental health of students and families into schools;
- Advocating for improved health insurance reimbursement for mental health services;
- Developing a mental health referral system between primary care and secondary mental health and substance abuse facilities;
- Implementing a screening tool for mental health and substance abuse needs;
- Educating communities about opioid misuse;
- Increasing and implementing safe opioid disposal programs;
- Training first responders in opioid overdose reversal strategies; and
- Training providers in trauma-informed practices.

Proposed systems-level approaches to reducing overweight, obesity and chronic disease rates include strategies to:

- Improve access to healthy and affordable foods, such as considering opportunities to collaborate with other organizations such as food banks, to support a community farmer's market, or community garden;
- Decrease portion sizes in public service venues;
- Increase the use of supplemental nutrition assistance (SNAP) and women, infants and children (WIC) programs at farmers' markets;
- Increase the availability of fruits and vegetables at local convenience stores;
- Increase the number of schools engaging farm-to-school food programs;
- Increase the number of before- and after-school physical activity programs;
- Institutionalize support for increased physical activity among students in child care settings and schools and among adults;
- Implement worksite wellness programs;
- Implement restaurant menu labeling programs; and
- Collaborate to create town walking maps.

CHIPs that identified respiratory health, including asthma, chronic lower respiratory disease and chronic obstructive pulmonary disease, as priority areas focused on home- and clinical-based interventions to improve asthma management. These strategies included, for example, educating households about asthma and asthma triggers and in-home assessments of asthma triggers. One CHIP identified a community-based program to inform physician practices as an important initiative to improving asthma management.

All CHIPs focused some or most of their strategies on health education and prevention-related health promotion activities such as holding community education programs (e.g., awareness of nutritional food choices, cooking class, promotion of healthy lifestyle messages, weight loss discussions or classes, chronic

disease management training). Additional strategies represented in these CHIPs include a focus on chronic disease and mental health screening, investing in smoking cessation programs or support groups, and raising awareness of existing social and healthcare services.

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- <sup>3</sup> The Connecticut Department of Public Health defines health disparities and priority populations as: “the differences in disease risk, incidence, prevalence, morbidity, mortality and other adverse conditions, such as unequal access to quality care that exist among specific population groups in Connecticut. Population groups may be based on race, ethnicity, age, gender, socioeconomic position, immigrant status, sexual minority status, language, disability, homelessness and geographic area of residence. Specifically, health disparities refer to those avoidable differences in health that result from cumulative social disadvantages.” Stratton, A., Hynes, M., Nepaul, A. (2007). Defining Health Disparities. The Connecticut Health Disparities Project. Connecticut Department of Public Health. <http://www.kids.ct.gov/dph/cwp/view.asp?q=396418>
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