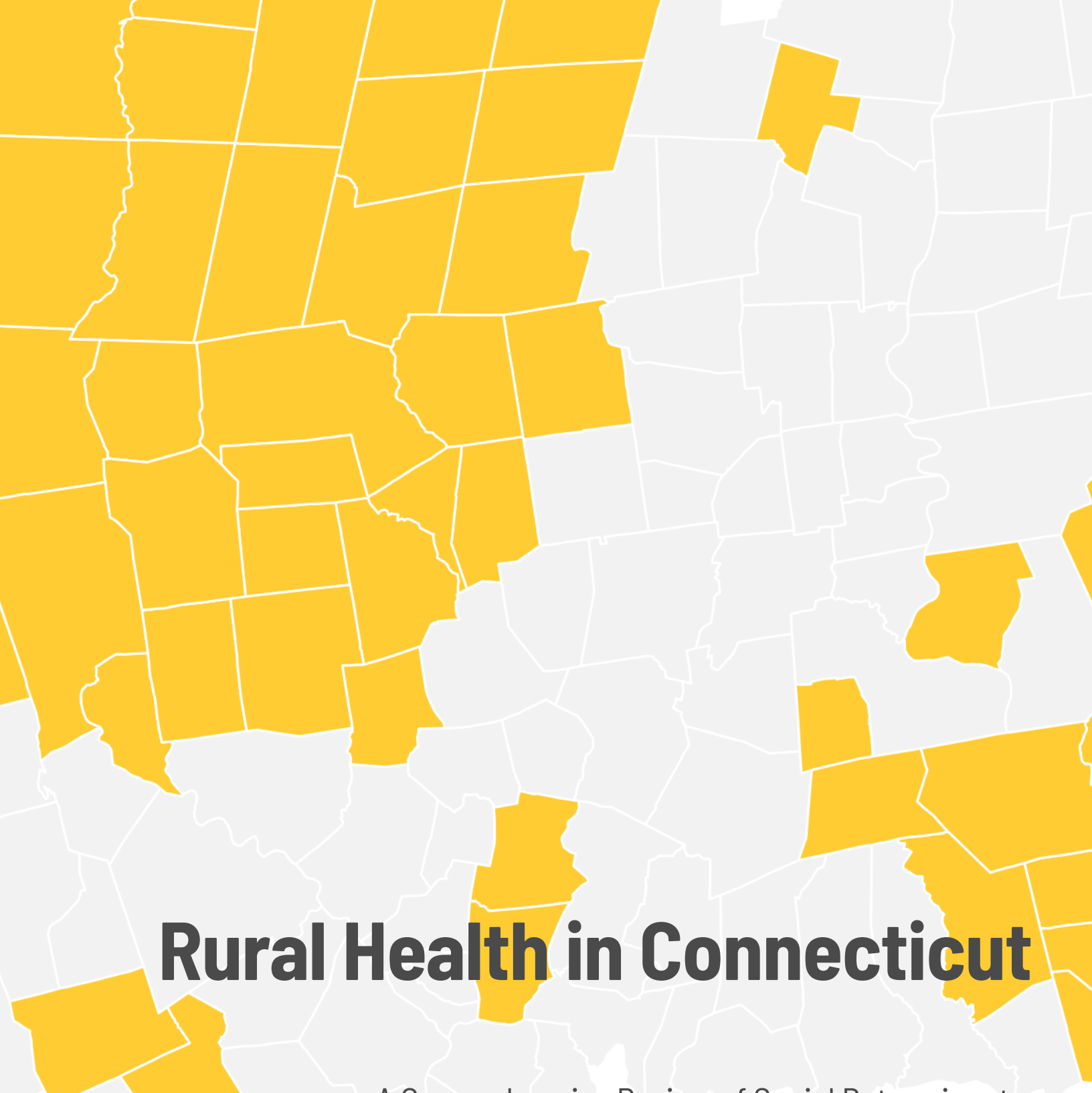

Rural Health in Connecticut

A Comprehensive Review of Social Determinants, Community Resources, Health Outcomes, and Wellbeing

June 2022

DataHaven

The Connecticut Office of Rural Health (CT-ORH) works to improve the health of Connecticut's rural residents and reduce rural health disparities through developing partnerships with rural stakeholders, sharing information and resources, and working with partners toward collective goals.

The CT-ORH is located on the Northwestern campus of CT State Community College, a part of the Connecticut State College and Universities system, and is supported by the Federal Office of Rural Health Policy at the Health Resources and Services Administration (HRSA).

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DataHaven is a non-profit organization with a 25-year history of public service to Greater New Haven and Connecticut. Its mission is to empower people to create thriving communities by collecting and ensuring access to data on well-being, equity, and quality of life. DataHaven is a formal partner of the National Neighborhood Indicators Partnership of the Urban Institute in Washington, DC.

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Suggested Citation:
Davila, K. and Seaberry, C. (2022). Rural Health in Connecticut. New Haven, CT: DataHaven. Published June 2022.

Thanks to:
Mark Abraham, Andrew Carr, Emilia Oliva, Sarah Ullom-Minnich, and Liyang Yang.

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Executive Summary

Despite an overall high quality of life, rural towns face numerous challenges to good health. To better understand the differences in health status and the impact of health-related social needs, this report uses a new approach to group rural towns into three "Types" based on demographic attributes. These groups are compared to the state through the spectrum of healthcare, from social determinants to health risks and health outcomes. We find that rural towns compare favorably to the state in many key social determinants, including income, housing, and food security. But area averages mask racial disparities within, and we demonstrate that Black, Native American, and Latino residents of rural areas face much greater social and financial challenges that have a downstream effect on their health outcomes. More broadly, hospital and department closures in rural areas are leaving large areas without comprehensive, local access to healthcare.

Trends in this report show that rural towns with more Black, Native American, and Latino residents who have endured a legacy of racial discrimination have lower incomes, reduced access to healthcare, and poor health outcomes as a result. These populations are more numerous in what we refer to as "Type One Towns."

We suggest that a continued focus on health equity can benefit Black, Native American, and Latino populations greatly. Removing barriers to healthcare access and emphasizing community-based and culturally competent healthcare in these areas can help improve health outcomes, especially preventable outcomes related to births, substance use, and complications arising from negative health behaviors like smoking. Additionally, partnering with organizations centered on racial justice and economic improvement for people of color can have a positive downstream effect on income and access to resources that improve health outcomes in the long run.

Below are the major points from each chapter of this report.

GROUPING RURAL TOWNS

- Three distinct groups of rural towns were revealed, based on resident age, educational attainment, and income.
- Type One Towns have fewer adults with post-secondary education and lower median household incomes compared to the other rural towns.
- Type Two Towns have higher than average shares of residents age 65 and over compared to the other rural towns.
- Type Three Towns have very high median household incomes and are usually closer in proximity to Connecticut's larger cities.

DEMOGRAPHICS & SOCIAL DETERMINANTS OF HEALTH

- Population in rural towns has declined slightly between 2010 and 2020.
- Younger generations are more racially and ethnically diverse.
- There are rising shares of high-needs students in public schools, suggesting that educational and social services resources for children are as important as ever.
- Income disparities like poverty, financial insecurity, and food insecurity are not evenly distributed across the population. Due to the legacy of racial discrimination in employment, housing, and education, Black, Latino, and Native American populations are more likely to experience these challenges. These populations are more prevalent in Type One Towns.

HEALTHCARE SYSTEM ASSETS & RESOURCES

- Residents of rural towns in Connecticut face longer drive times to health care facilities than the state average.
- In rural counties, there are fewer primary care providers and dentists per person compared to the state's more urban counties.
- According to HRSA, Type One Towns have Primary Care and Dental Health Health Provider Shortage Areas, while Type Two and Type Three Towns do not.
- Workforce projections for Connecticut show that Family Practice doctors are in high demand and short supply, which may negatively affect children's health care access.

HEALTH RISKS & BEHAVIORS

- Low-income adults and people of color are more likely to lack a person or place they consider their doctor, and are also more likely to have skipped or delayed necessary medical care.
- About 30 percent of adults statewide and in rural areas have a BMI that qualifies them as obese. Obesity is related to many other health issues such as diabetes, stroke, high blood pressure, and high cholesterol.
- Adults in Type One Towns are more likely to engage in risky health behaviors, such as binge drinking and smoking. These behaviors are related to higher rates of financial insecurity, which is elevated higher in Type One Towns.
- Adults in Type One Towns also have higher rates of hospital encounters compared to adults statewide and in other rural areas.

HEALTH OUTCOMES

- Type Two Towns, with higher shares of adults over age 65, have elevated rates of chronic health issues.
- Type One and Type Two Towns have higher shares of children with elevated blood-lead levels.
- Rural towns in general have about 3 times the rate of people diagnosed with Lyme disease.
- Non-rural towns have higher rates of death due to COVID-19 than rural towns, although Type One Towns trend close to non-rural rates.

- Rural areas generally have more positive birth outcomes than the state average, but these should be monitored closely as labor and delivery wards in rural hospitals are closed.
- Drug-related fatalities continue to increase year over year. Fentanyl is a major driver in the rise in overdose deaths, statewide and in Type One Towns.
- Despite average life expectancies in rural towns that track close with the state average. As of 2015, wide gaps within rural clusters are apparent.
- COVID-19 caused a jump in all-cause mortality in 2020, but cancer and heart disease remain the top causes of death.
- Annually, Type One Towns have higher premature death rates the state average.

Introduction

This report is an update and expansion upon "An Assessment of Rural Health in Connecticut: Overview, Obstacles, and Opportunities"—the previous rural health assessment completed in 2015.

Public health data and ways of reporting that data have changed since the completion of the 2015 report. More datasets are now publicly available with estimates of health related indicators at a variety of geographic levels. Public health emphasis has also shifted to accommodate a better understanding of the social determinants that influence healthy behavior and help prevent major illnesses. With more detailed data, we can now disaggregate information by race/ethnicity, sex, and other demographic factors. As a result, public health reporting has seen a renewed focus on social and health equity.

Specific trends in health outcomes have also become more apparent. The alarming rise of fentanyl in the illicit drug supply has led to steep increases in drug related fatalities, and the opioid epidemic has been recognized as being multifaceted—affecting rural and urban populations differently. Finally, the COVID-19 pandemic has been one of the most turbulent public health crises in a lifetime, upending social and economic foundations that influence overall health and wellbeing, exposing deep inequities in health care quality and access, and testing the resilience of the health care sector.

This report documents the nature of public health for Connecticut's rural populations with a renewed focus on trends to better capture how these populations are changing. Disaggregations by race/ethnicity and age are used to better understand the health needs of different populations.

Also, notably, this report shifts away from geographical groupings of rural towns in favor of demographic groupings of towns to better describe the ways that social determinants of health vary across populations, and affect health behaviors and outcomes.

Defining "Rural" for Connecticut's Towns

Multiple definitions of rural exist. Individual states often develop their own definitions specific to their geographies and populations. Government agencies also use multiple definitions based on specific program requirements.

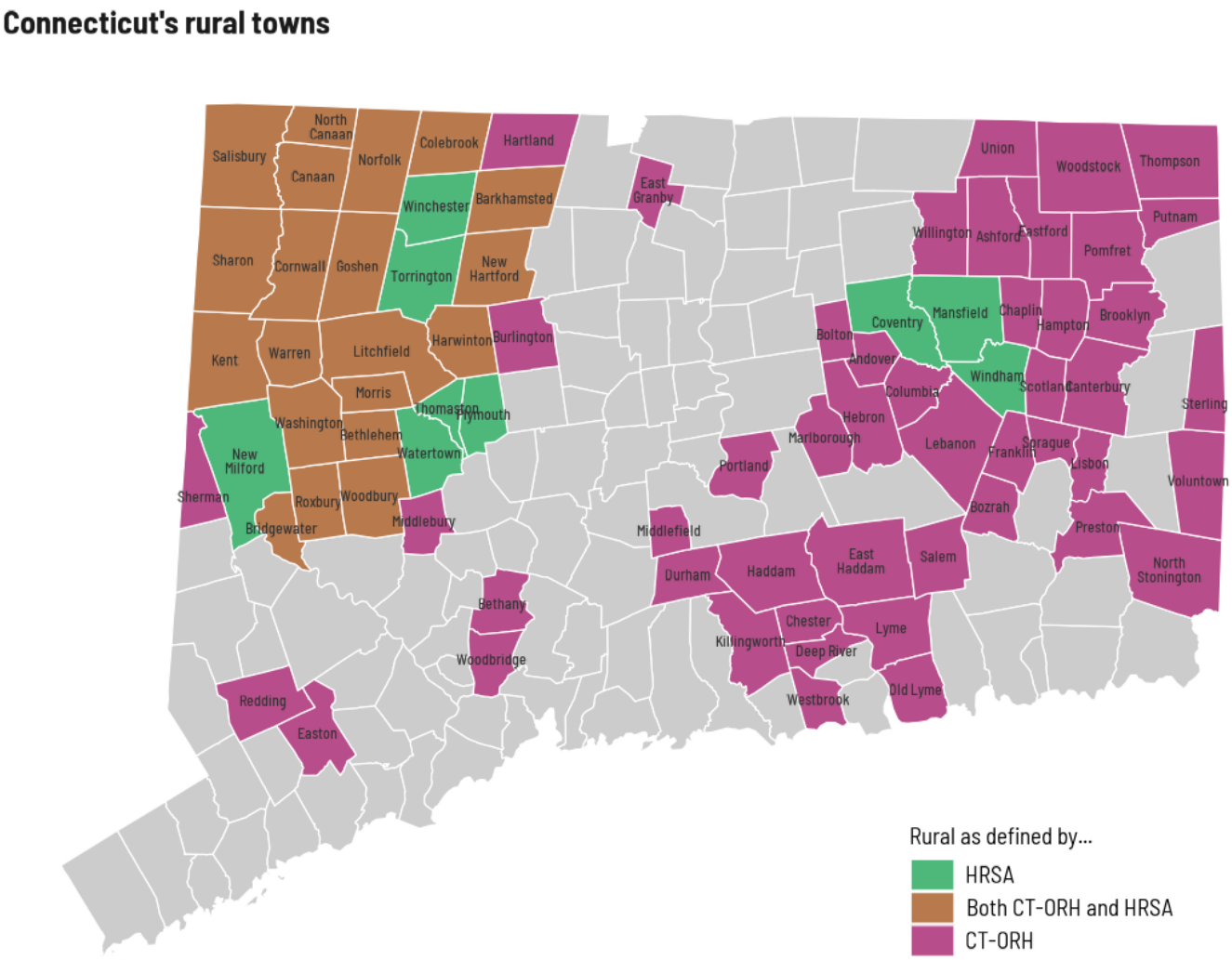
The Connecticut Office of Rural Health (CT-ORH) uses a definition based on population and population density. Per CT-ORH, a town in Connecticut is considered rural if it has a population of up to 10,000 and a population density of no more than 500 people per square mile. This definition includes 68 towns statewide.

The Health Resources and Services Administration (HRSA) combines several measures of rurality from the U.S. Census Bureau, the Federal Office of Management and Budget, and their own Rural-Urban Commuting Area regions to generate its definition of rural for the purpose of grants and programs. Readers are advised to check HRSA's website for the most up-to-date definitions used by HRSA, or to check if their area is covered under HRSA's rural definition for grant writing purposes.[1] Incorporating these HRSA-defined regions adds 9 additional towns to the 68 CT-ORH towns, for a total of 77 rural towns in Connecticut.

For the purposes of this report, the two definitions, both HRSA and CT-ORH, are combined. This is done in order to paint a comprehensive portrait of rural towns in the state and to provide relevant data for stakeholders, grant writers, policymakers, students, and others. Be advised that, while in many cases the towns qualifying as rural overlap, there are a few rural towns covered by CT-ORH's definition that are not covered by HRSA's definition and vice versa. See Figure 1.

In addition to the grouped summaries provided in this document, an appendix is included at the end of the document for resources on individual towns in Connecticut.

Figure 1



Per the CT-ORH definition (population up to 10,000 and population density up to 500 people per square mile), in 2022, Connecticut's rural towns include: Andover, Ashford, Barkhamsted, Bethany, Bethlehem, Bolton, Bozrah, Bridgewater, Brooklyn, Burlington, Canaan, Canterbury, Chaplin, Chester, Colebrook, Columbia, Cornwall, Deep River, Durham, East Granby, East Haddam, Eastford, Easton, Franklin, Goshen, Haddam, Hampton, Hartland, Harwinton, Hebron, Kent, Killingworth, Lebanon, Lisbon, Litchfield, Lyme, Marlborough, Middlebury, Middlefield, Morris, New Hartford, Norfolk, North Canaan, North Stonington, Old Lyme, Pomfret, Portland, Preston, Putnam, Redding, Roxbury, Salem, Salisbury, Scotland, Sharon, Sherman, Sprague, Sterling, Thompson, Union, Voluntown, Warren, Washington, Westbrook, Willington, Woodbridge, Woodbury, and Woodstock.

Per the HRSA definition (see the HRSA website for specific contributing factors), the following areas are considered rural: All of Litchfield County, the town of Windham, Census tract 8502 in Coventry, and Census tract 8815 in Mansfield. However, because much of the data used in this report is only available at the town level, for the areas HRSA has designated only one tract as rural, we have included the entire town. Therefore, for the purposes of this report, all of the CT-ORH towns are included and the following towns are added in accordance with HRSA's definition: Coventry, Mansfield, New Milford, Plymouth, Thomaston, Torrington, Watertown, Winchester, and Windham.

Grouping Rural Towns

Rural towns generally have low populations. This can complicate data analysis by introducing large margins of error that make some estimates unreliable. As a result, we need to group towns in a meaningful way in order to describe trends in those towns more accurately.

This report uses demographic groupings to describe three distinct types of rural towns in Connecticut. This allows us to analyze trends that are meaningful to the populations there. This approach deviates from the 2015 assessment, which used a geographical grouping to describe trends. While many social determinants can be considered geographical—for example, prevailing employment sectors—many are demographically rooted in race/ethnicity, sex, and age. When considering those factors from a geographical perspective, the trends begin to look more like Connecticut in general. But because we know rural towns are not all the same, demographic grouping allows us to provide interesting insights to the social determinants of health in these areas.

This chapter briefly explains how the towns were grouped.

Highlights from this chapter include:

- Three distinct groups of rural towns were revealed, based on resident age, educational attainment, and income.
- Type One Towns have fewer adults with post-secondary education and lower median household incomes compared to the other rural towns. This is the largest group.
- Type Two Towns have higher than average shares of residents age 65 and over compared to the other rural towns. This is the smallest group.
- Type Three Towns have very high median household incomes and are usually closer in proximity to Connecticut's larger cities.
- See the following pages for maps and lists of towns in each group.

Approach

In order to create meaningful groups based on shared characteristics, three indicators were analyzed: median household income, the share of the population age 65 and over, and the share of adults ages 25 and over with a high school education or less. See Table 1.

These indicators were selected because income is typically positively correlated to overall health and wellbeing; because older adults have greater medical needs than younger adults, generally; and because adults with less formal education can often have lower incomes, and thus fewer resources to put towards health care or other needs. DataHaven analyses of adults with lower educational attainment suggest they are also more likely to skip or delay medical treatment, prescriptions, and engage in riskier health behaviors like smoking.

K-means clustering was used to generate groups whose towns were as similar as possible to each other, while being as different as possible to other groups. Three groups were identified using this approach.[2]

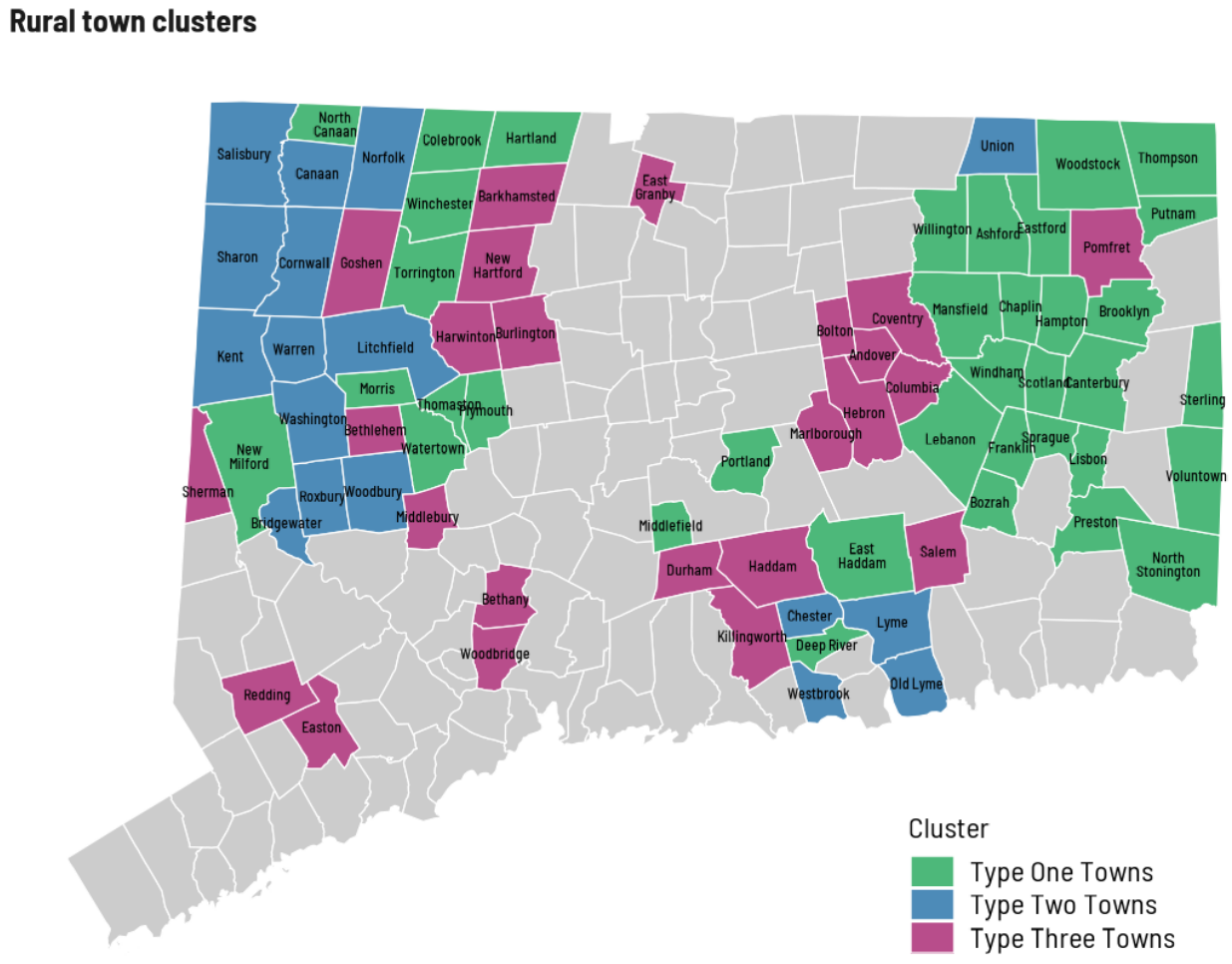
Because this approach uses demographic attributes to cluster towns, rather than geographic attributes, the towns themselves are dispersed across the state. There are some geographical groups that emerge, but geography is not a defining characteristic of these towns. See Figure 2.

In order to understand how geography plays a role in health care services and access, we have included a chapter with analysis of distance to common medical services.

Table 1: Cluster groups and included towns

Group	Primary cluster characteristic	Towns
Type One Towns	More adults with a maximum educational attainment of high school or less; lower median household incomes	Ashford, Bozrah, Brooklyn, Canterbury, Chaplin, Colebrook, Deep River, East Haddam, Eastford, Franklin, Hampton, Hartland, Lebanon,Lisbon, Mansfield, Middlefield, Morris, New Milford, North Canaan North Stonington, Plymouth, Portland, Preston, Putnam, Scotland, Sprague,Sterling, Thomaston, Thompson, Torrington, Voluntown, Watertown, Willington, Winchester, Windham, Woodstock
Type Two Towns	High share of residents age 65 and over	Bridgewater, Canaan, Chester, Cornwall, Kent, Litchfield, Lyme, Norfolk, Old, Lyme, Roxbury, Salisbury, Sharon, Union, Warren, Washington, Westbrook, Woodbury
Type Three Towns	Very high median household incomes	Andover, Barkhamsted, Bethany, Bethlehem, Bolton, Burlington, Columbia, Coventry, Durham, East, Granby, Easton, Goshen, Haddam, Harwinton, Hebron, Killingworth, Marlborough, Middlebury, New, Hartford, Pomfret, Redding, Salem, Sherman, Woodbridge

Figure 2



Demographics & Social Determinants of Health

Rural towns are not monolithic. As this report demonstrates, the demographic characteristics of these towns are important components to better understanding their health needs and outcomes.

Highlights from this chapter include:

- The population in rural towns has declined slightly while households have increased, suggesting rural areas now have fewer people per household in 2020 than in 2010. Reasons for this may include children entering adulthood and leaving home, or spouses passing away.
- Younger generations are more racially and ethnically diverse.
- There are rising shares of high-needs students in public schools, despite declining enrollment, suggesting that educational and social services resources for children are as important as ever.
- Income disparities like poverty, financial insecurity, and food insecurity are not evenly distributed across the population. Due to the legacy of racial discrimination in employment, housing, and education, Black, Latino, and Native American populations are more likely to experience these financial challenges.

Population

Each of the rural clusters are comprised of individual towns which are demographically similar to one another. The clusters are not similar in size, however. While all rural towns generally have small populations and low population density, the rural clusters in this report vary.

Like most towns in Connecticut, rural areas have stable or slightly declining populations as a result of out-migration and natural causes (more deaths than births). Type Three Towns, which tend to be closer in proximity to urban areas, have more stable populations than Type Two or Type One Towns.

Table 2: Population, 2010-2020

Area	Population, 2010	Population, 2020	Total change	Percent change
Connecticut	3,545,837	3,570,549	24,712	<1%
Type One Towns	299,455	291,267	-8,188	-3%
Type Two Towns	63,130	61,484	-1,646	-3%
Type Three Towns	151,067	151,234	167	<1%

Age distributions in the rural clusters are similar to the state, but Type Two Towns have much higher shares of the population who are over age 65. Note that this is one of the defining criteria of the Type Two cluster.

Figure 3

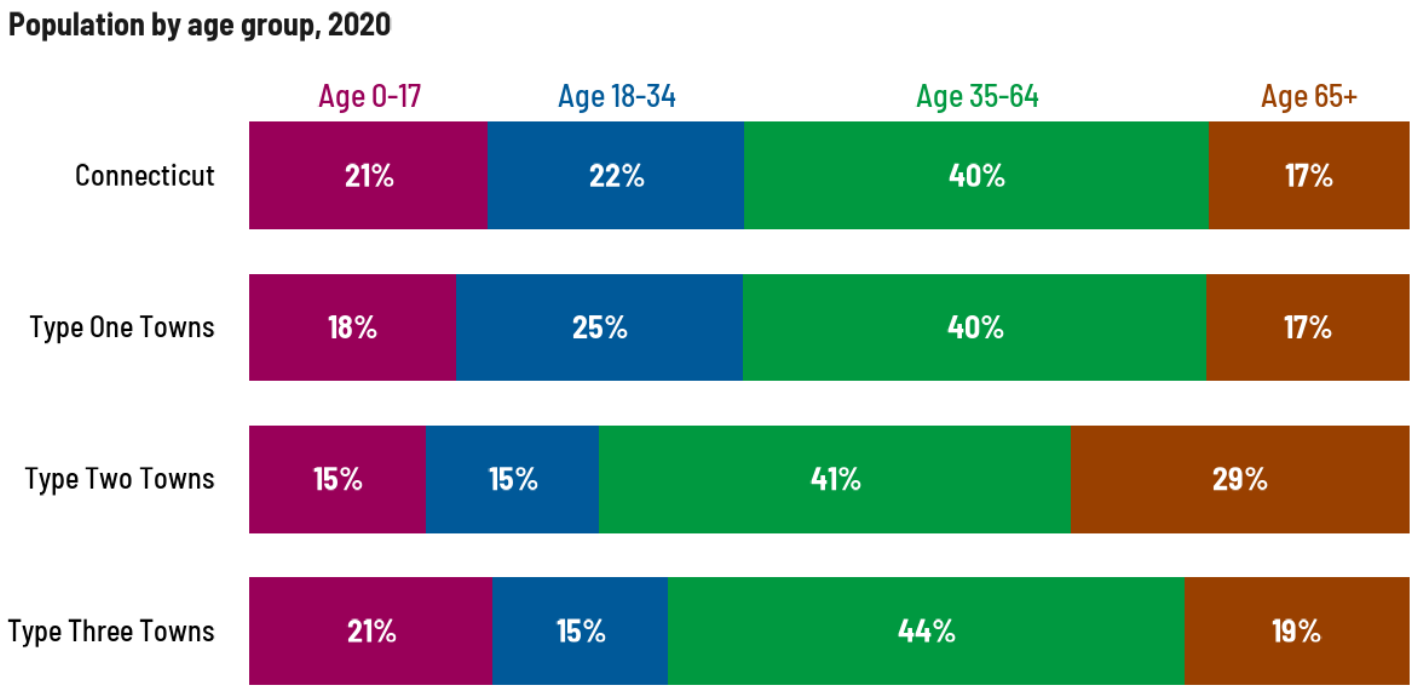
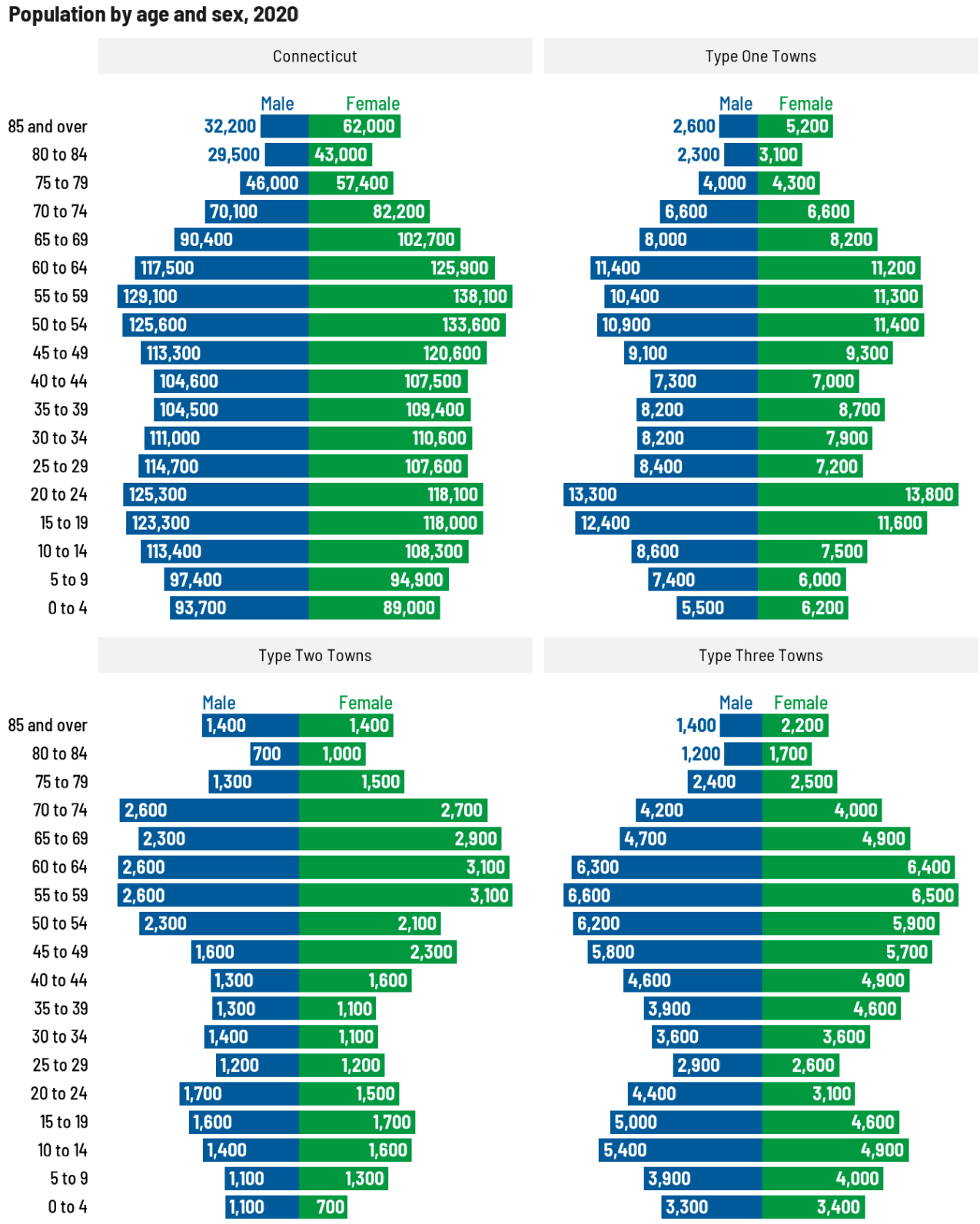


Figure 4 below shows more granular age distributions in each cluster's age pyramid. Type Two Towns have a perceptible "bulge" in the population between ages 50 and 74. Type One Towns, meanwhile, have a noticeably large proportion of young people between the ages of 15 and 24.

Figure 4



Due in part to the enduring legacy of redlining and racial bias in housing and other policies, Connecticut's residents of color primarily reside in the state's larger cities, so the population of rural towns is predominantly white. However, Connecticut's younger generations are more diverse. Young Latinos are one of the fastest growing groups both statewide and in rural areas.

Table 3: Population by race/ethnicity, 2020

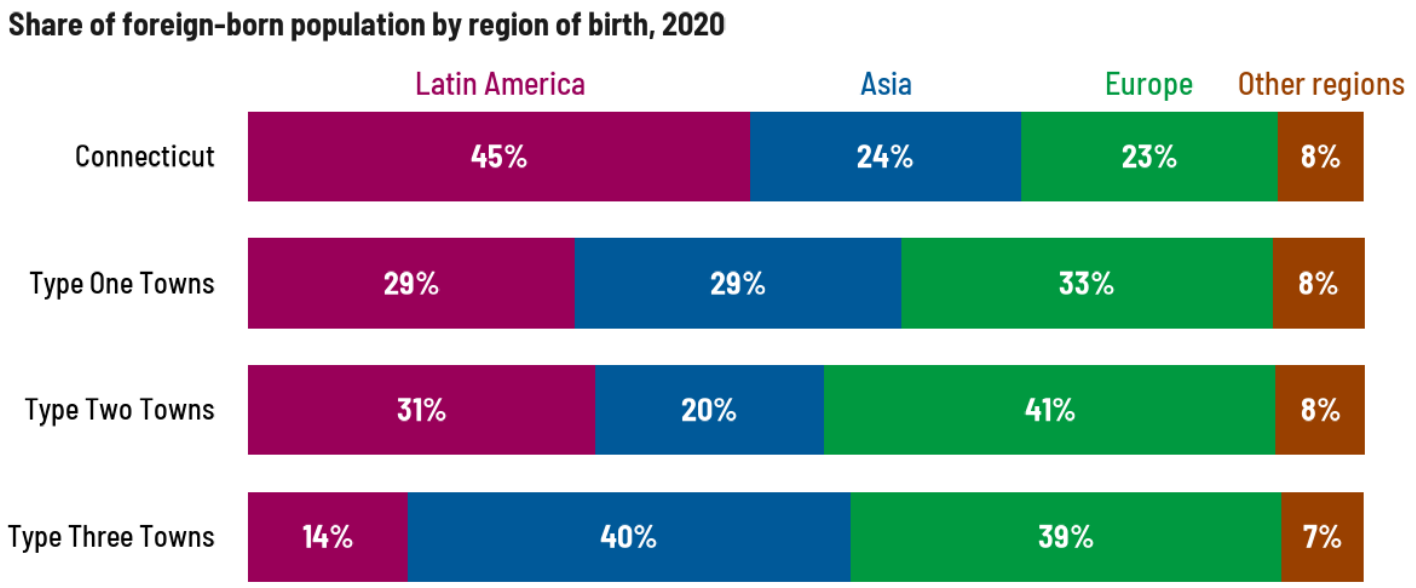
Area	Population, 2020	Percent White alone	Percent Black alone	Percent Latino of any race	Percent other race/ ethnicity not listed here
Connecticut	3,570,549	66%	11%	16%	7%
Type One Towns	291,267	84%	2%	9%	5%
Type Two Towns	61,484	90%	1%	6%	3%
Type Three Towns	151,234	90%	<1%	4%	6%

The foreign-born residents who call rural areas home were most often born in Europe, except in Type Three towns where foreign-born residents were more commonly born in Asia.

Table 4: Foreign-born population, 2020

Area	Total population, 2020	Foreign-born population, 2020	Percent foreign-born
Connecticut	3,570,549	521,384	15%
Type One Towns	291,267	19,721	7%
Type Two Towns	61,484	4,728	8%
Type Three Towns	151,234	10,290	7%

Figure 5



While most people in rural towns speak English, individuals who speak another language at home sometimes struggle with English proficiency. Every rural cluster has a sizable population of individuals who speak Spanish or another language at home, and who self-report speaking English less than "very well," according to the Census Bureau. Low English proficiency can be a barrier to accessing medical care, employment, education, or other services.[3]

Table 5: Population age 5 and up by language spoken at home and English proficiency, 2020

Area	Population age 5 and up	Population age 5 and up who speak Spanish at home	Percent of Spanish-speakers with limited English proficiency	Population age 5 and up who speak a language other than English or Spanish at home	Percent of non-English/non-Spanish speakers with limited English proficiency
Connecticut	3,387,841	403,019	40%	345,577	33%
Type One Towns	279,574	16,588	36%	15,776	30%
Type Two Towns	59,717	2,067	40%	3,212	19%
Type Three Towns	144,499	3,016	22%	9,644	24%

HOUSEHOLDS

Safe and affordable housing contributes to overall wellbeing by reducing stress, improving feelings of safety, and ensuring resources are available for other expenses.

Households (housing units where people reside, in other words, homes that are not vacant) have increased slightly since 2010 in rural areas and Connecticut as a whole. Population during that same window of time has decreased, meaning there are fewer people per household in 2020 than there were in 2010. This could be due to a number of factors, including more people opting to live in single-person households, children becoming adults and moving away, or elderly spouses passing away.

Table 6: Total households, 2010-2020

Area	Total households, 2010	Total households, 2020	Total change	Percent change
Connecticut	1,359,218	1,385,437	26,219	2%
Type One Towns	112,793	113,334	541	<1%
Type Two Towns	26,576	27,237	661	2%
Type Three Towns	55,904	56,849	945	2%

Homeownership helps households build equity and intergenerational wealth and can be more affordable over time if an individual's wages increase. Meanwhile, rental housing is important for people new to an area to find a home and establish roots in a community. Rural areas generally have fewer renter households than the state as a whole, since Connecticut's largest cities generally have many more renter households than owner households.

Table 7: Households by homeownership, 2020

Area	Total households, 2020	Percent owner-occupied	Percent renter-occupied
Connecticut	1,385,437	66%	34%
Type One Towns	113,334	72%	28%
Type Two Towns	27,237	80%	20%
Type Three Towns	56,849	88%	12%

Similar to the population by race/ethnicity, households in rural areas are predominantly white—more so than the state as a whole. Homeownership, however, is also much more common among white-led households than households headed by a person of color. There are many barriers to homeownership, especially in recent years where institutional investment in real estate has increased substantially and fewer households led by people of color have sufficient liquid assets to purchase a home. Note that because of the small numbers of households headed by non-white individuals, many values have high margins of error and are suppressed.

Table 8: Share of households by race/ethnicity of head of household, 2020

Area	White alone	Black alone	Latino of any race	Other race not listed here
Connecticut	72%	10%	13%	5%
Type One Towns	88%	2%	7%	3%
Type Two Towns	93%	<1%	4%	2%
Type Three Towns	93%	<1%	3%	4%

Table 9: Homeownership rates by race/ethnicity, 2020

Area	White alone	Black alone	Latino of any race	Other race not listed here
Connecticut	76%	40%	36%	59%
Type One Towns	76%	38%	35%	Suppressed
Type Two Towns	82%	Suppressed	55%	Suppressed
Type Three Towns	89%	Suppressed	79%	Suppressed

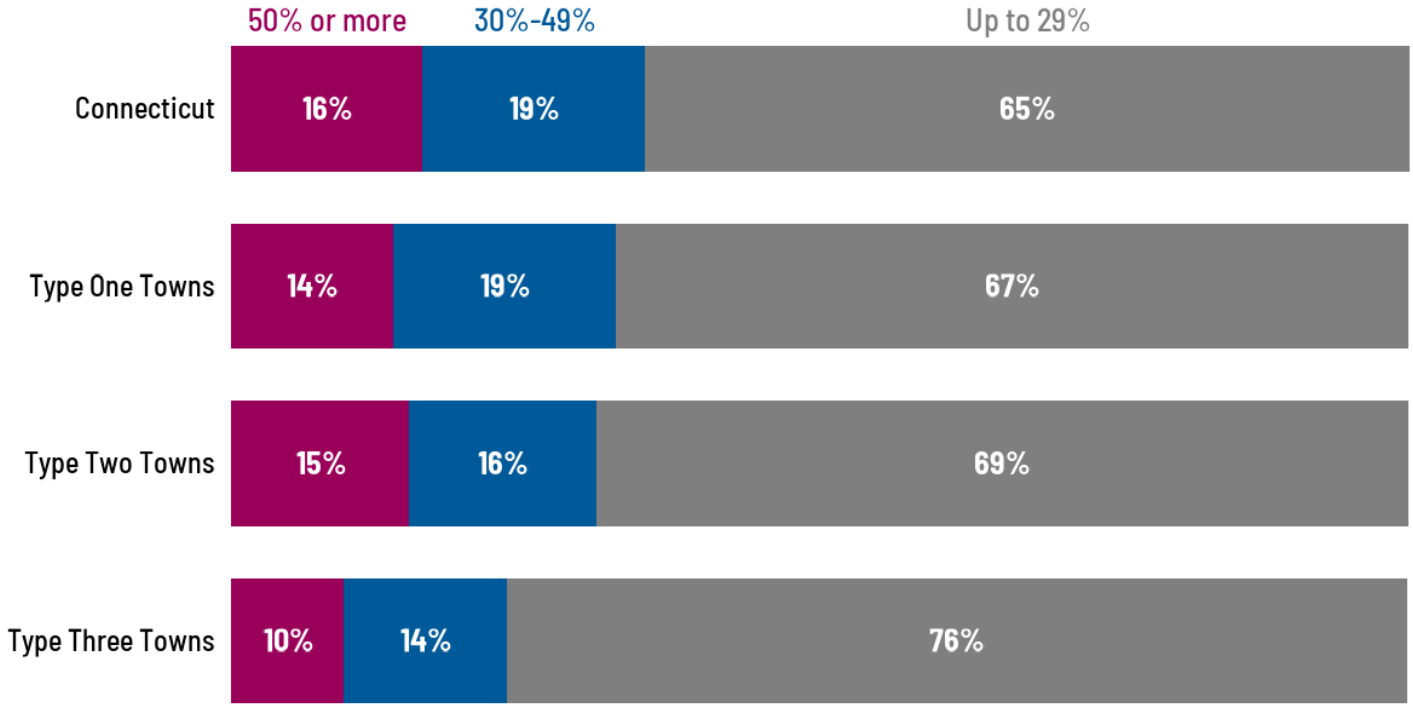
HOUSING AFFORDABILITY

Housing affordability is both a local and national issue, rooted in complex dynamics of housing supply (or lack thereof) and demand. Increasingly, households are cost-burdened, meaning they are spending 30 percent or more of their household income on housing expenses. High housing costs reduce available resources for other necessary goods and services. For renters especially, these costs are not fixed and can increase significantly year over year, imposing more cost burden on those households.

Figure 6

Share of income spent on housing (housing cost-burden), 2020

Housing cost burden is defined as spending at least 30% of income on housing costs.
Severe burden occurs when a household spends 50% of income or more on housing.



The DataHaven Community Wellbeing Survey asks adults if there has been a time in the past 12 months when they have not had enough money for housing.[4] These adults are considered housing-insecure. Black, Latino, and Native American populations in rural areas are more housing insecure than white adults.

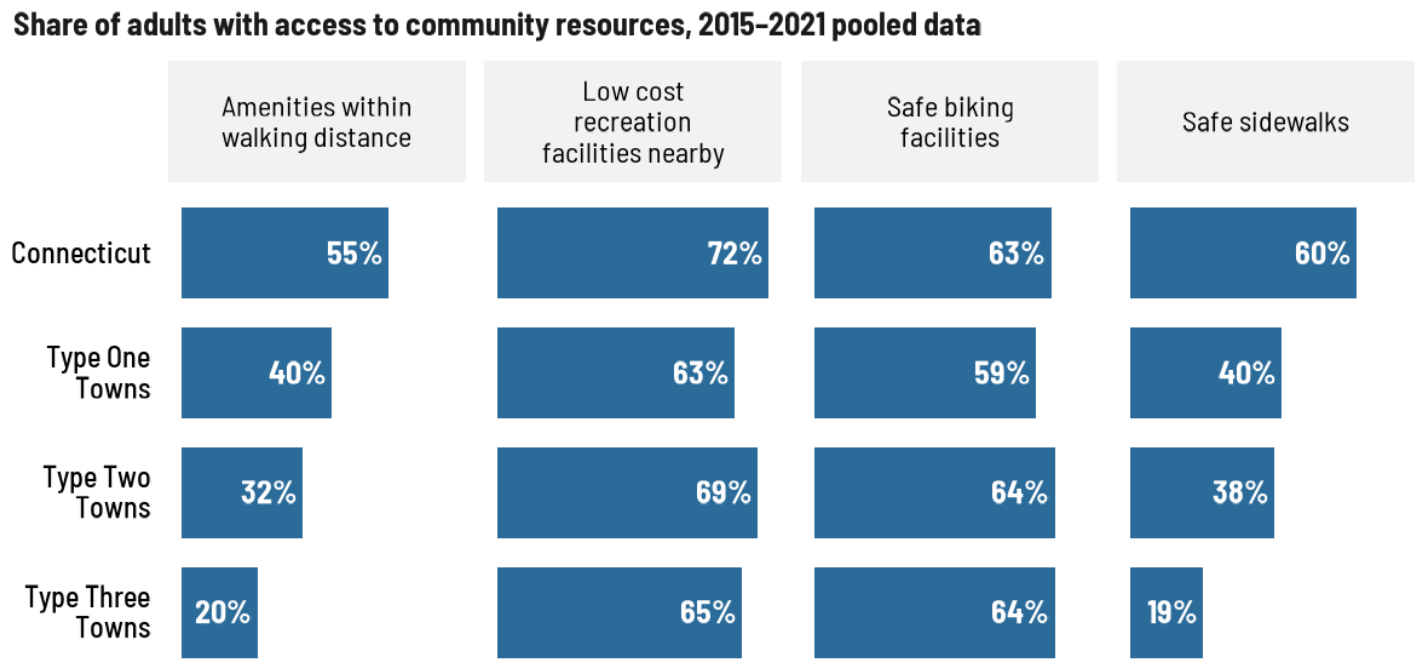
Table 10: Share of adults who are housing insecure, 2015–2021 pooled data

Area	Total	White	Black	Latino	Asian	Native American
Connecticut	8%	6%	13%	13%	7%	9%
Type One Towns	8%	6%	16%	15%	7%	16%
Type Two Towns	6%	4%	Suppressed	Suppressed	Suppressed	Suppressed
Type Three Towns	6%	5%	Suppressed	7%	Suppressed	Suppressed

COMMUNITY ASSETS

While rural living can offer opportunities to spend time outdoors, pedestrian and cyclist infrastructure and a range of recreation facilities provide more options for all residents to choose healthier lifestyles. In Connecticut's rural areas, residents generally have fewer amenities like safe sidewalks or recreation centers, and may live farther than walking distance to work, shopping centers, or school. Figure 7 below shows that residents of rural areas, and particularly Type Three Towns, have fewer amenities and recreation facilities nearby than adults statewide.

Figure 7



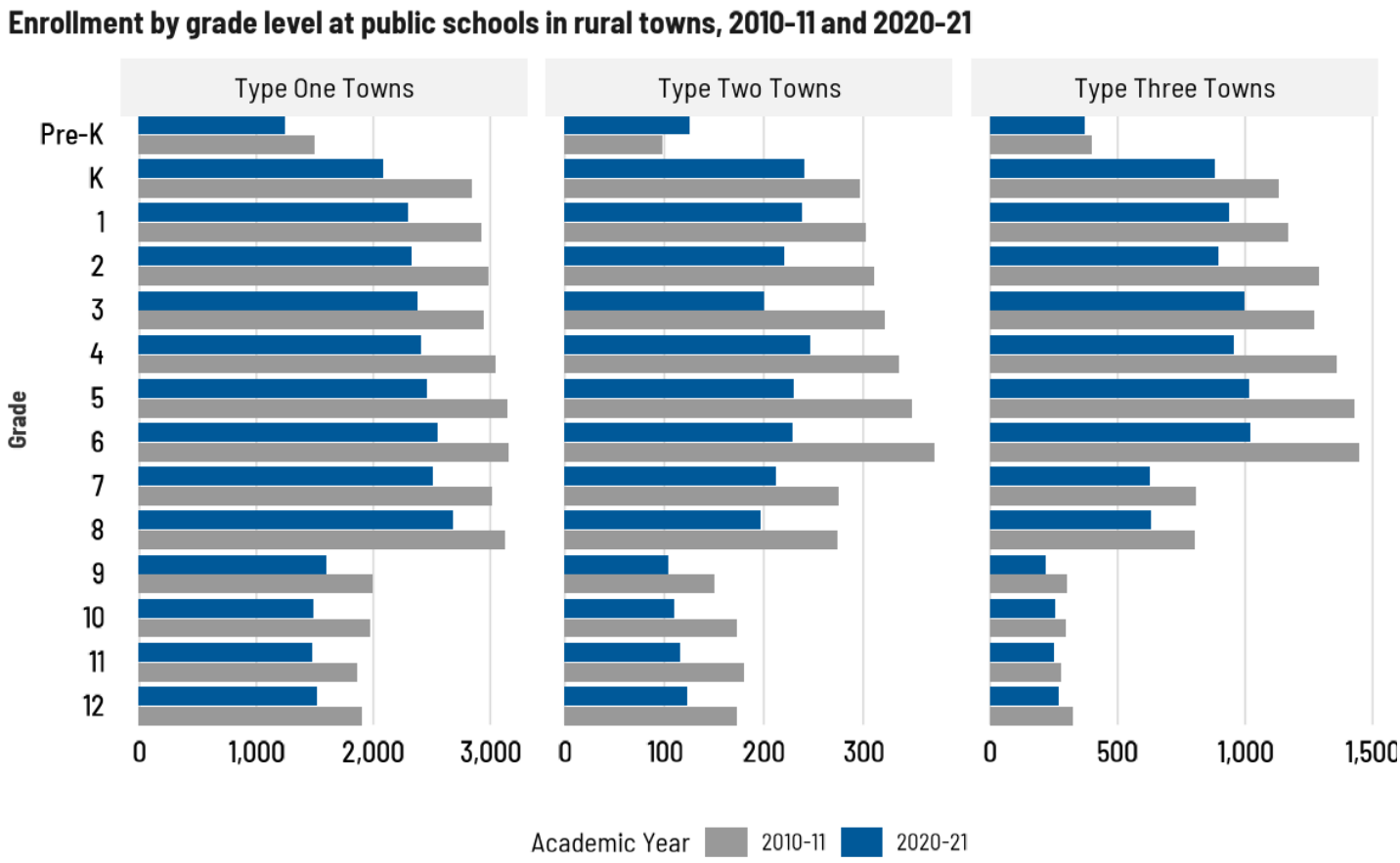
EDUCATION

Youth educational enrollment information is a good way to interpret what a community might look like in the future. Overall enrollment numbers can also show whether the population of children is growing, potentially indicating a need for resources for children as they grow.

Primary and secondary school (K-12) enrollment has declined in the past decade in rural areas and statewide. Mirroring statewide trends, only pre-kindergarten enrollment has increased since 2011. In 2014, with a push for expanded Pre-K services statewide, more Pre-K seats were added to schools, which may explain the increased enrollment.

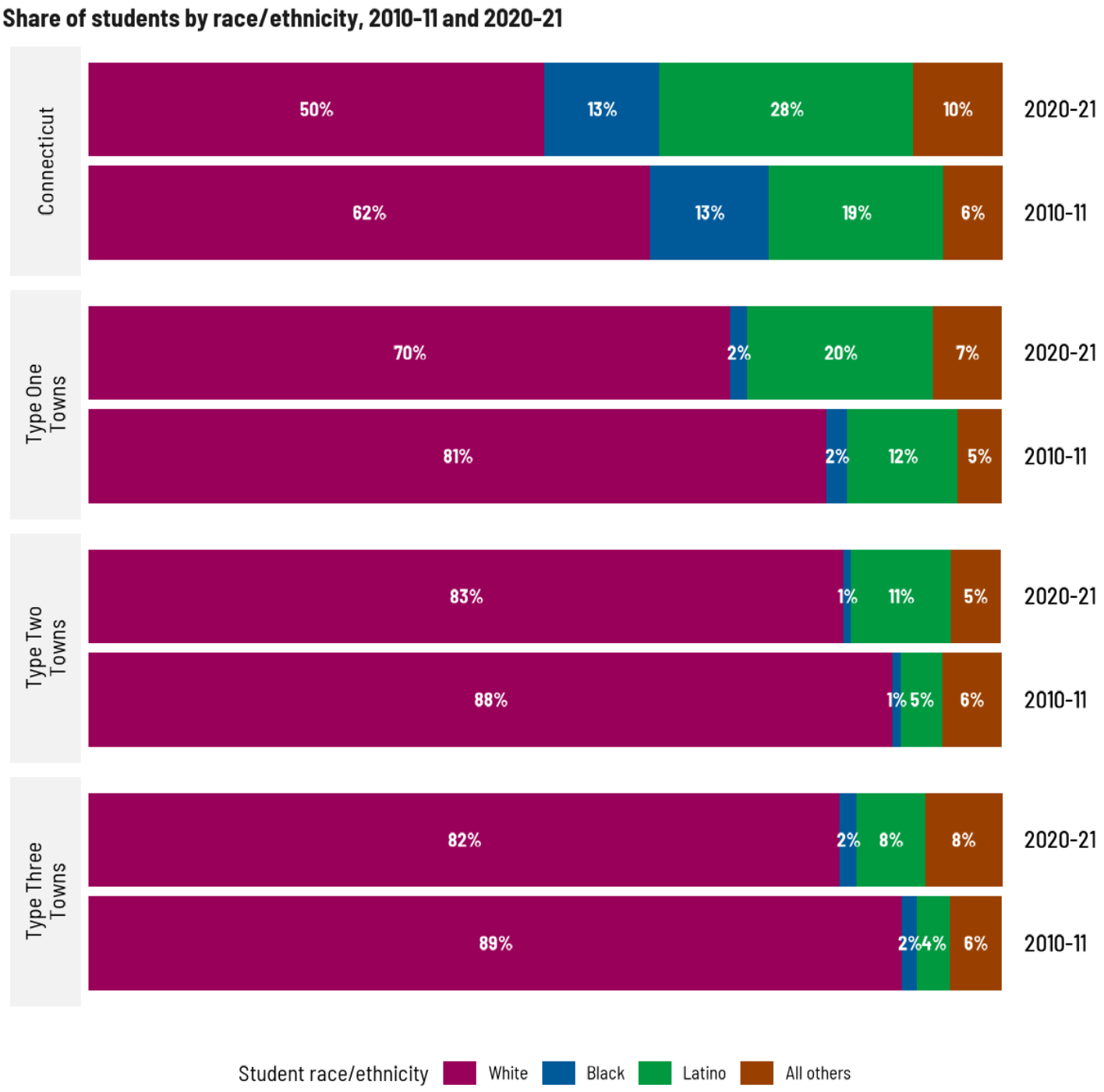
Note that the data below reflect only municipal schools in rural towns, not the regional districts that serve the areas. Due to data limitations, it is not possible to determine which regional school district students are residents of rural towns without making significant assumptions. As a result, there are apparent drops in enrollment from grades 6 to 7 and grades 8 to 9 since not all rural areas have middle schools or high schools serving their communities, though all have at least through grade 6.

Figure 8



In rural areas as well as statewide, K-12 students are becoming more racially and ethnically diverse. Young Latino students are among the fastest-growing K-12 student population. Again, these enrollment figures reflect only municipal school districts in rural towns. Values may not add up to 100 because the Connecticut State Department of Education suppresses some small values for student race groups, although those students are counted towards total enrollment.

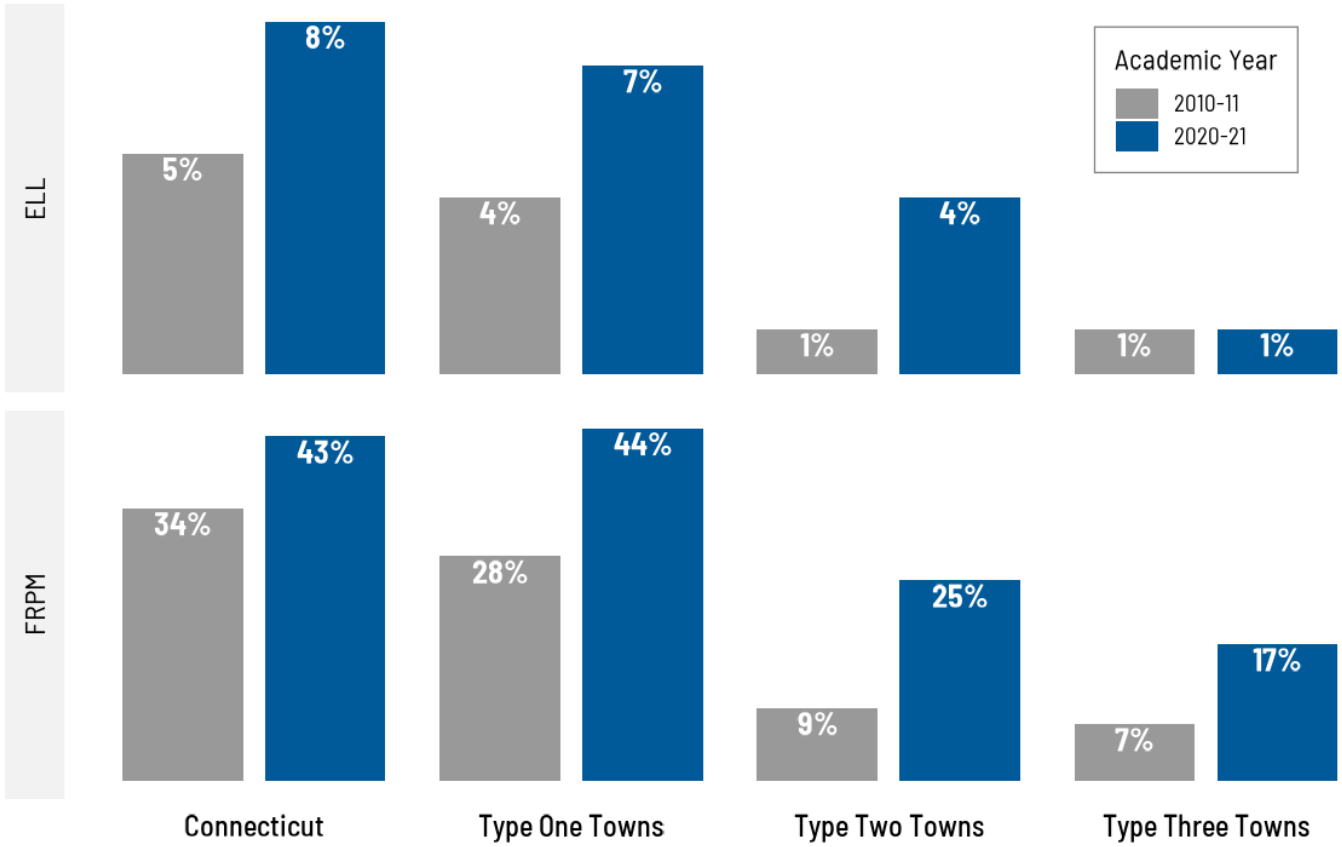
Figure 9



Students are eligible for free or reduced price meals (FRPM) if their household earns up to 185% of the federal poverty threshold (up to $49,025 for a family of four in 2021). The share of students eligible for FRPM has increased over the past decade in rural areas, again mirroring statewide trends. In addition to schools providing meals for these students, FRPM students and English Language Learners (ELL) are considered high-need students. Students may have more than one high-need designation. High-need students may require additional resources from their teachers and educational staff to succeed. Although enrollment is dropping, the proportion of high-need students are increasing, suggesting a demand for focused attention on resources in public schools.

Figure 10

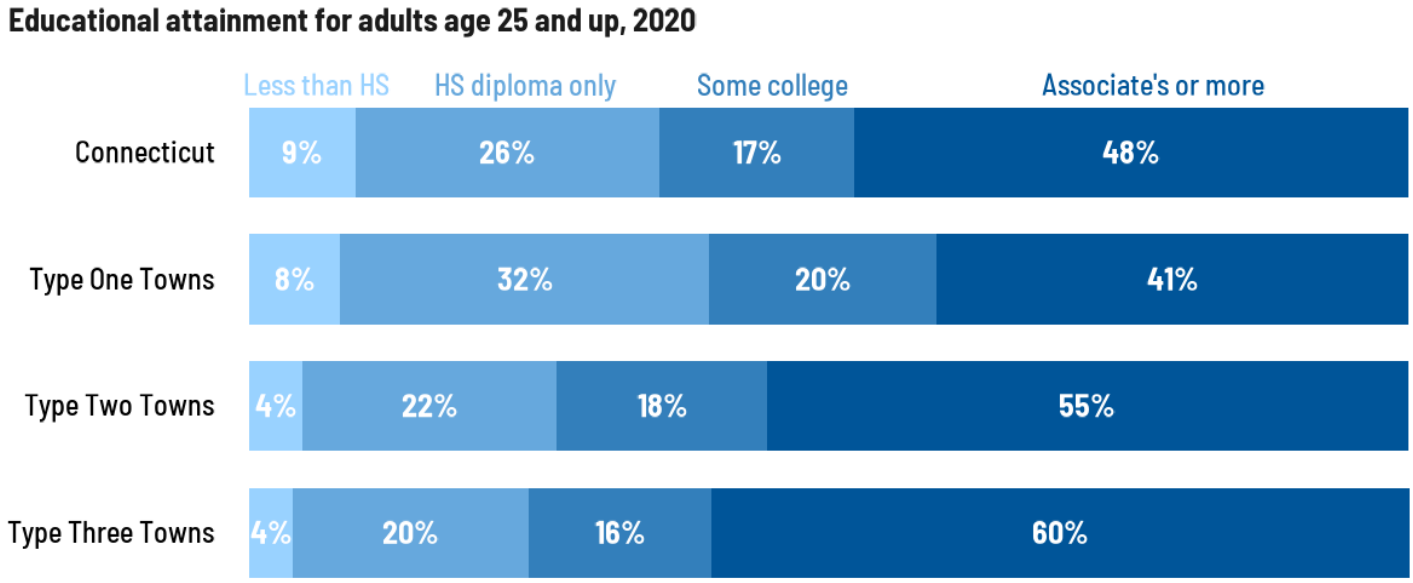
Share of students by high-needs status, 2010-11 and 2020-21



Educational attainment is an important predictor of earning potential. Adults with higher levels of formal education are better able to obtain employment and qualify for higher-paying jobs. College graduates are better positioned to earn higher incomes than adults with only a high school education. Many employers now require applicants to have at least a high school diploma or equivalent.

While Type Two and Type Three Towns have higher shares of adults who are college graduates than the state, Type One Towns have much higher shares of adults with only a high school diploma or equivalent—nearly a third of the adults over age 25. The prevailing employment sectors in Type One Towns may provide well-paying jobs to those with less than a college education.

Figure 11

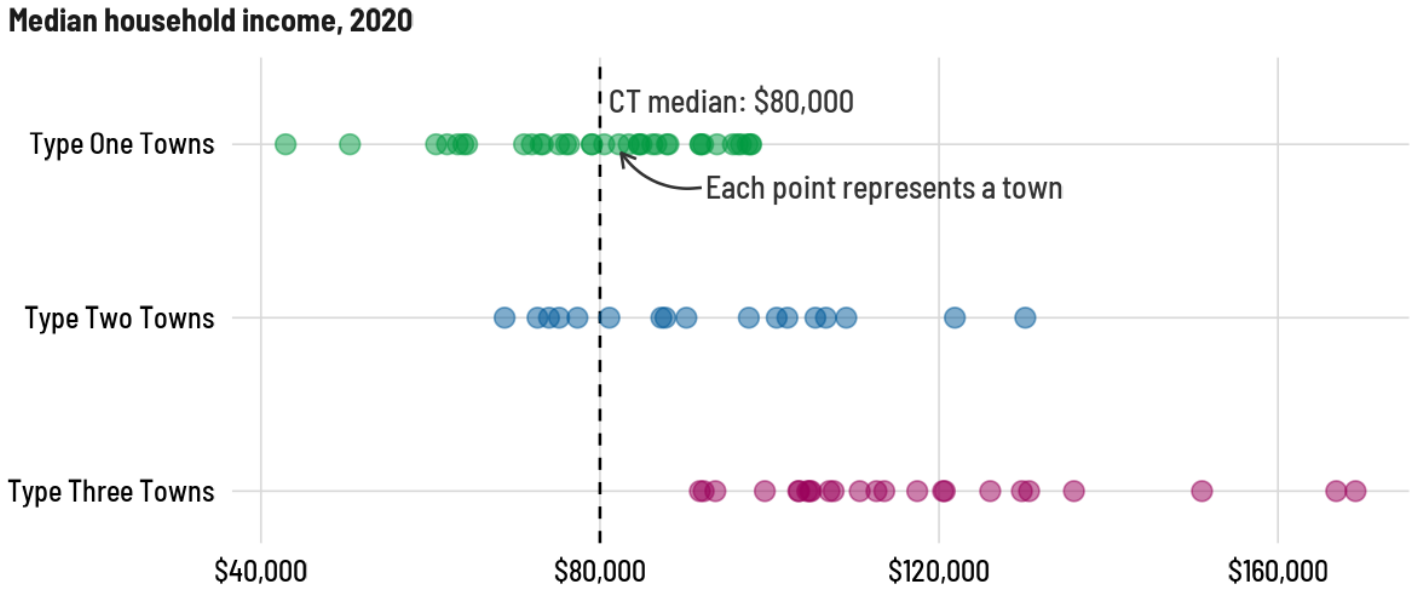


Income & Wealth

Income and wealth are strongly interrelated with health because access to health resources in the United States can be expensive. This section occasionally presents data at the town level rather than rural town clusters to illustrate specific points.

Household income is a common measure of financial resources. On the whole, Connecticut has a relatively high median household income, around $80,000 in 2020. Type Three Towns have median household incomes that exceed that state average, while Type One and Type Two Towns fall closer to the state average.

Figure 12



The federal poverty threshold, commonly referred to as the “poverty line" is another common indicator of financial need. In 2020, a single person earning $12,760 annually, or a family of four earning $26,200, were considered to be below the poverty threshold. However, because the cost of living in Connecticut is quite high, multiples of the federal poverty threshold are often used to determine need for health insurance purposes, as well as other social services.

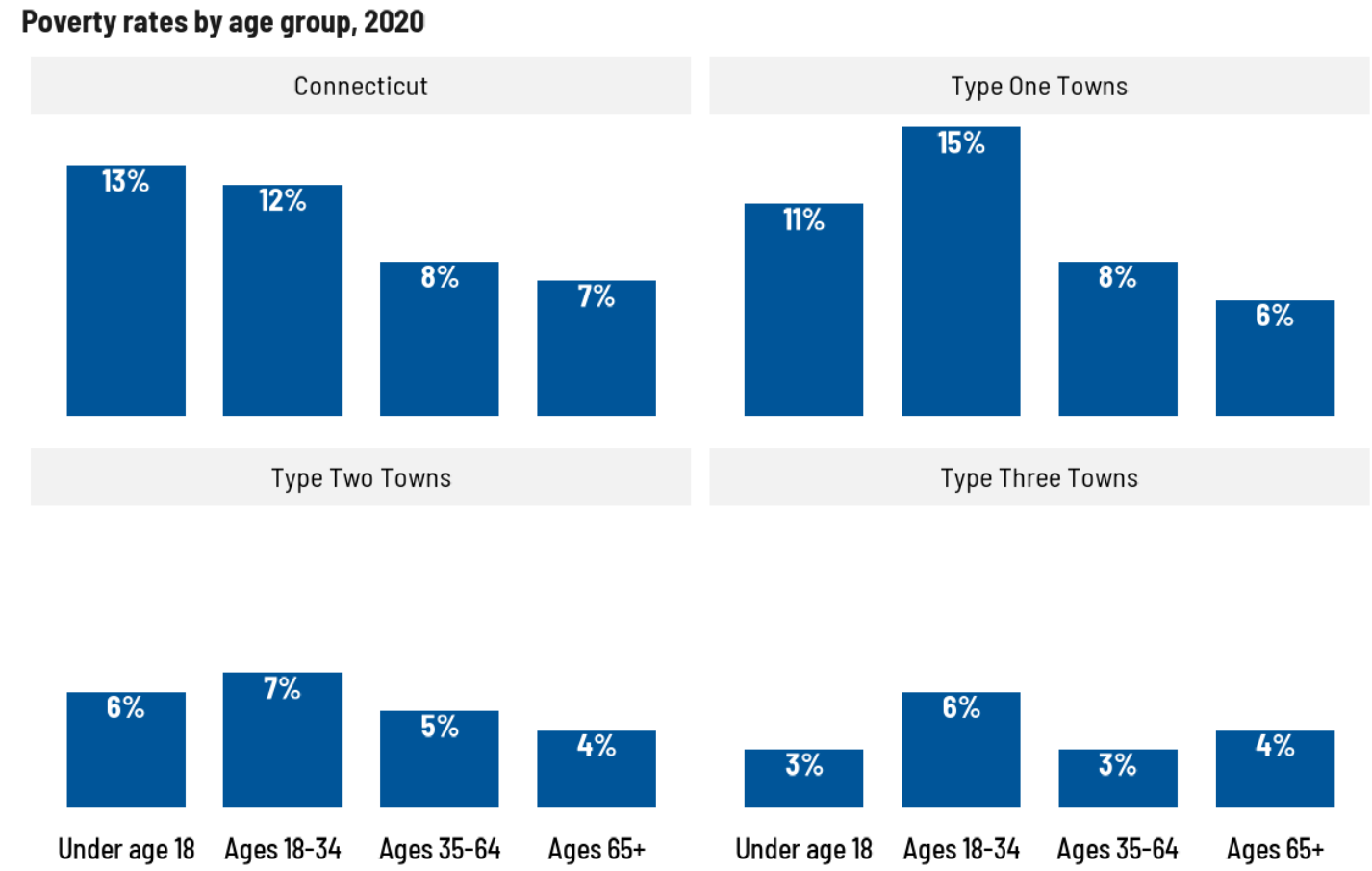
Poverty is not distributed evenly across a population. Poverty often peaks in early adulthood when 18-year-olds age out of programs aimed at reducing childhood poverty, and are at the beginning of their careers with comparably lower earning potential than older adults. Seniors (age 65 and over) begin to age into programs intended to reduce senior poverty.

In Type One Towns, the share of the population with incomes up to twice the poverty threshold is comparable to the state average. In Type Two Towns, the share is lower. This is because poverty often peaks in early adulthood and tapers off in older age, and Type Two Towns have higher shares of older adult populations. Type Three Towns also have lower shares of people in poverty because area income is high, and the two measures are inversely correlated.

Table 11: Share of population by income-to-federal-poverty-limit (FPL) ratios, 2020

Area	Total population	Population with income under 100% FPL	Population with income between 100%-200% FPL	Population with income over 200% FPL
Connecticut	3,570,549	10%	12%	78%
Type One Towns	291,267	10%	12%	78%
Type Two Towns	61,484	5%	9%	86%
Type Three Towns	151,234	4%	6%	90%

Figure 13



For the purpose of this report, populations are too small in these rural areas to disaggregate by both race/ethnicity and age to demonstrate the inequities in poverty levels across the population, but a recent analysis by DataHaven demonstrated that, in 2018, the share of the population in poverty decreased as adults aged for white and Black adults, but not for Latino adults. In fact, Black and Latino adults had poverty rates two to four times higher than white adults across all age groups.[5]

The DataHaven Community Wellbeing Survey asks respondents to describe how they are doing financially, overall. Respondents who say they are "just getting by," "finding it difficult," or "finding it very difficult" to get by financially are summarized here as being financially insecure. Again, financial insecurity is elevated among adults of color, both statewide and in rural towns. Values are suppressed for small samples.

Table 12: Share of adults who are financially insecure, 2015–2021 pooled data

Area	Total	White	Black	Latino	Asian	Native American
Connecticut	33%	29%	47%	42%	24%	47%
Type One Towns	33%	32%	53%	38%	15%	64%
Type Two Towns	29%	27%	Suppressed	Suppressed	Suppressed	Suppressed
Type Three Towns	24%	24%	Suppressed	17%	Suppressed	Suppressed

The Supplemental Nutrition Assistance Program (SNAP, or food stamps) is a program available to very low income households. It can be used as a measure of financial need, and has been shown to improve nutrition for some low income families. Access to healthy foods is a critical step in reducing or preventing many health issues.

Despite low shares of households receiving SNAP benefits, more than 1,000 households in Type Two Towns, and more than 3,000 in Type Three Towns rely on that aid. Because of the overall wealth in these communities, other food assistance programs may not be available, making SNAP even more important for these households.

Table 13: Households receiving SNAP benefits, 2020

Area	Total households	Households receiving SNAP benefits	Percent of households receiving SNAP benefits
Connecticut	1,385,437	172,078	12%
Type One Towns	113,334	12,255	11%
Type Two Towns	27,237	1,061	4%
Type Three Towns	56,849	3,010	5%

Similar to financial insecurity, food insecurity is another measure assessed by the DataHaven Community Wellbeing Survey. Adults who say there has been a point in the past 12 months where they have not been able to pay for food for their family are considered food insecure. Again, adults of color struggle with food insecurity more than white adults.

Table 14: Share of adults who are food insecure, 2015–2021 pooled data

Area	Total	White	Black	Latino	Asian	Native American
Connecticut	14%	10%	23%	25%	10%	20%
Type One Towns	14%	11%	34%	28%	4%	52%
Type Two Towns	9%	6%	Suppressed	Suppressed	Suppressed	Suppressed
Type Three Towns	6%	6%	Suppressed	7%	Suppressed	Suppressed

Economy

Just as rural towns are demographically distinct from one another, they also have varied economic profiles. This section summarizes some of the major economic trends for each of the three rural clusters. Data for 2019 is used since the latest available data (2020) was greatly affected by the COVID-19 pandemic.

The top employment sectors in Connecticut in 2019 were Health Care and Social Assistance, Retail Trade, Manufacturing, Accommodation and Food Services, and Finance and Insurance. Together these comprised about half of all employment statewide. With the exception of Finance and Insurance, the remaining four sectors are also common in rural areas. In Connecticut, high wage jobs such as those in Finance and Insurance are disproportionately located in the state's largest towns.

All three groups share the same top industries: Health Care and Social Assistance, Retail Trade, Manufacturing, Accommodation and Food Services, and Construction.

Table 15: Jobs and average wages for top sectors, 2019

Sector	Connecticut		Type One Towns		Type Two Towns		Type Three Towns	
	No. of jobs	Avg. wage	No. of jobs	Avg. wage	No. of jobs	Avg. wage	No. of jobs	Avg. wage
All sectors	1,670,354	$69,806	95,189	$49,006	23,371	$49,750	35,611	$50,970
Health care and social assistance	271,014	$54,858	14,369	$48,117	2,954	$41,937	4,474	$40,416
Retail Trade	175,532	$35,833	12,081	$31,995	2,630	$34,079	2,087	$32,631
Manufac-turing	161,893	$85,031	11,448	$64,763	1,324	$72,983	4,484	$67,096
Accommoda tion and food service	129,012	$23,183	7,664	$20,204	2,738	$25,683	2,228	$19,654
Construction	59,659	$72,371	4,336	$65,411	912	$56,531	2,065	$65,840

Labor force participation in rural towns is generally comparable to the state average, as is the rate of unemployment.

Table 16: Unemployment rates for labor force population age 16 and over, 2020

Area	Population 16 and over	Labor force participation rate	Unemployment rate
Connecticut	2,927,839	66%	6%
Type One Towns	246,619	65%	6%
Type Two Towns	53,448	62%	5%
Type Three Towns	123,844	68%	4%

The share of people over age 65 who are out of the labor force is used to estimate the share of the retired population. Interestingly, Type Two Towns, with higher shares of adults over 65, have lower shares of seniors who are retired. Sixteen percent of seniors in these towns remain in the labor force, either employed or unemployed.

The share of adults 65 and older out of the workforce has decreased slightly statewide from 93 percent to 91 percent, in Type One Towns from 94 percent to 91 percent, and most notably in Type Two Towns from 92 percent to 84 percent. In Type Three Towns, the share has increased from 89 percent in 2010 to 92 percent in 2020.

Table 17: Estimated retired population (age 65 and over who are out of the workforce), 2020

Area	Population age 65 and over	Out of workforce, age 65 and over (retired)	Estimated share of population over 65 who are retired
Connecticut	270,059	246,060	91%
Type One Towns	21,316	19,392	91%
Type Two Towns	7,287	6,121	84%
Type Three Towns	11,431	10,545	92%

Healthcare System Assets & Resources

Like social determinants of health, aspects of the healthcare landscape can affect the overall wellbeing of a population. This section lists the existing governance and emergency service coverage for rural towns, examines the driving distance to nearest facilities and providers as a measure of access to care, summarizes providers and services per capita, and recognizes underserved communities.

Highlights from this chapter include:

- Emergency medical services are generally comprehensive in Connecticut's rural towns, but four towns have only ambulance service coverage.
- Residents of rural towns in Connecticut face longer drive times to health care facilities than the state average, and residents of Type Two Towns have even longer drive times than Type One or Type Three Towns.
- In Litchfield, Tolland, and Windham Counties, there are fewer primary care providers and dentists per person compared to the state's urban counties.
- According to Health Resources and Services Administration data, Type One Towns have Primary Care and Dental Health Health Provider Shortage Areas, while Type Two and Type Three Towns do not.
- Workforce projections for Connecticut show that Family Practice doctors are in high demand and short supply, which may negatively affect children's health care access.

Public Health Governance

The Connecticut Department of Public Health maintains an up-to-date listing of regional health districts and municipal public health departments.[6] At the time of writing, most rural towns are covered by regional public health departments, except for Durham, Redding, Sharon, Sherman, and Westbrook, which have their own municipal public health departments. See Appendix A for a listing of rural towns and their associated regional health district or municipal public health department.

While public health infrastructure in Connecticut is decentralized, all health departments in Connecticut are required to provide a minimum of service enforcing the Connecticut Public Health Code. Among its other responsibilities, the state Department of Public Health provides grants-in-aid to local and regional health departments, and distributes federal funding to these departments as required.

Emergency Medical Services

Four levels of emergency medical services are rendered to towns in Connecticut. These include Basic Ambulance, First Responder, Supplemental First Responder, and Paramedic services. First Responders include emergency medical responders (EMRs), emergency medical technicians (EMTs), and advanced emergency medical technicians (AEMTs) who are highly trained, certified professionals with knowledge of emergency first aid. These providers stabilize patients and prepare them for paramedics or other health care professionals. Paramedics are the highest tier of emergency healthcare support, with more training and educational requirements than first responders.

While most towns are fortunate to receive the full spectrum of emergency services, not all rural towns are covered by each level of service. Appendix B lists each town and the emergency services provided there.

In summary, Plymouth, Cornwall, Warren, and Bethany have only Basic Ambulance service with no First Responder or Paramedic services. Otherwise, all rural towns have either or both First Responder and Paramedic coverage. Although they have First Responder services, the following towns lack Paramedic services: Barkhamsted, Bethany, Bethlehem, Bridgewater, Canaan, Colebrook, Cornwall, Easton, Goshen, Harwinton, Kent, Litchfield, Marlborough, Middlebury, Morris, New Hartford, Norfolk, North Canaan, North Stonington, Plymouth, Redding, Roxbury, Salem, Salisbury, Sharon, Sherman, Thomaston, Union, Warren, Washington, Winchester, and Woodbury.

Hospitals and Federally Qualified Healthcare Centers

At the time of writing, there are four hospitals serving rural areas: Charlotte Hungerford Hospital in Torrington, Day Kimball Hospital in Putnam, Sharon Hospital in Sharon, and Windham Hospital in Windham, in addition to more than 20 hospitals in non-rural areas throughout the state.[7]

Hospital mergers have become increasingly common in recent years. The number of independent hospitals in Connecticut has decreased from 23 in 2000 to just six in 2022.[8] When large hospital networks manage multiple facilities, they often scale back or close duplicative services across their systems. The consequence of these closures for rural areas is fewer facilities with resources to provide adequate care for complex conditions, including intensive care and birthing. While some of these closures have been approved through the Connecticut Office of Health Strategy, many have not, leading to patchy service distribution through de facto closures in rural areas. In many cases, residents are not aware of what services they can or cannot access at their local hospitals.[9]

In addition to hospitals, there are seven non-school-based, non-administrative federally qualified healthcare centers (FQHCs) serving rural towns, four of which are in Torrington and one each in Putnam, Winchester, and Windham—all Type One Towns.[10] FQHCs receive federal funding to provide community-based primary health care in underserved areas regardless of a patient's insurance status or ability to pay. In Connecticut, these health centers are located in or nearby a medically underserved area.[11] Medically underserved areas are described in greater detail on page 39.

There are also 22 school-based FQHCs serving nine rural towns, all in the Type One cluster. These towns are Ashford, Canterbury, East Haddam (three locations), Portland (four locations), Putnam, Torrington (seven locations), Willington (two locations), Winchester (two locations), and Windham.

The 29 FQHCs in Connecticut's rural towns are operated by four organizations collectively, Community Health and Wellness of Greater Torrington, United Community and Family Services, Generations Family Health Center, and Community Health Center.

Distance to Facilities

One of the principal challenges facing residents of rural areas is the distance to various health care facilities and services, such as hospitals. While Connecticut is a geographically small state, limited access to facilities can lead to individuals not seeking necessary medical services, or facing potentially long drives to the nearest hospital during medical emergencies or while in labor.

This section looks at the median travel time to various facilities. To summarize this data, we took the point-locations of selected health care services and estimated the shortest distance and shortest drive-time duration to the population-weighted center of each town in the state. To aggregate to rural town clusters, we took the median of each value. The figure below summarizes the median drive time to various locations. While we also collected distance information, we found that towns with the same distance could have very different drive times, often due to the proximity to highways and other travel options.

One important caveat to this data is that we only used locations within Connecticut. In some cases, the nearest facility may be in Rhode Island, Massachusetts, or New York. Due to data limitations, we were not able to collect this information across all categories, and omitted them from this analysis.

In general, residents of rural towns in Connecticut face longer drive times to health care facilities than the state average, and residents of Type Two Towns have even longer drive times. As could be expected, pharmacies have the shortest average drive time since they are very numerous, while trauma centers have the longest average drive times since they are less numerous in general due to the nature of their qualifications.

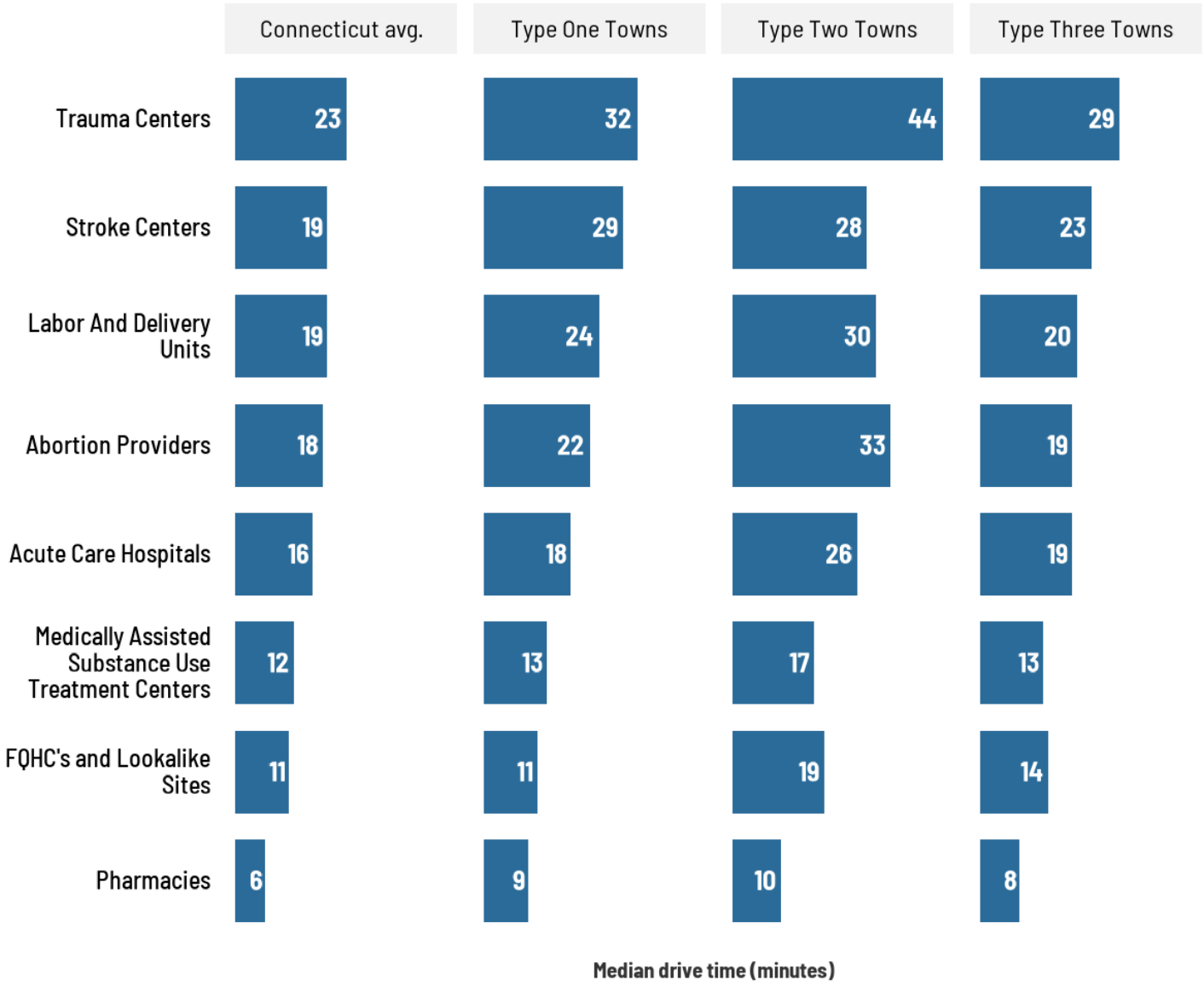
Notably, the drive time to labor and delivery units was greater in Type One and Type Two towns. In the past decade, Connecticut has seen a number of hospital closures or consolidations, including the closure of two labor and delivery units. As of 2021, three more rural hospitals are in the process of closing their units.[12] The fourth and last rural labor and delivery unit, Day Kimball Hospital, is currently being considered for acquisition by Catholic health care system Covenant Health. Advocates are concerned the acquisition could reduce or eliminate the existing reproductive care facilities at Day Kimball.[13]

While other birthing options like doulas and non-medical birthing centers exist, medical facilities at labor and delivery units have equipment and specialized physicians onsite in the event of emergencies. Pregnant people in rural areas often must get a referral for these services if they seek prenatal care nearby at a facility without birthing options.

Similarly, the distance to abortion providers is longer in Type Two Towns, although Connecticut in general has much better access to abortion providers than the national average (prior to the Supreme Court's revocation of Americans' constitutional right to abortion the average drive time to an abortion provider in the United States was approximately 90 minutes).[14]

Figure 14

Median drive time to select healthcare facilities, 2022



Providers per Capita

Since health care provider data is often limited in geographical specificity, and because providers are not found in each town in Connecticut, county-level information is used in this section. Here, we assume most people will seek a provider within their own county. However, the closest provider may be in a nearby adjacent county.

PRIMARY CARE PROVIDERS AND DENTISTS

Hartford and New Haven Counties enjoy relatively high access to primary care providers and dentists due to the presence of several large hospitals and clinics in those regions, while the rural counties of Litchfield, Tolland, and Windham have fewer providers. Hartford County, for example, has twice as many primary care providers and dentists per person than Windham County.

Table 18: Ratio of primary care providers and dentists to population, by county, 2019

County	Population, 2019	Primary care providers	Ratio of population to primary care providers	Dentists	Ratio of population to dentists
Fairfield	943,926	890	1,060:1	886	1,070:1
Hartford	893,561	858	1,040:1	957	930:1
Litchfield	182,002	105	1,730:1	119	1,530:1
Middlesex	163,053	122	1,340:1	127	1,280:1
New Haven	857,513	758	1,130:1	669	1,280:1
New London	267,390	171	1,560:1	207	1,290;1
Tolland	151,063	80	1,890:1	75	2,010:1
Windham	116,566	54	2:160:1	57	2,050:1

SUBSTANCE USE TREATMENT FACILITIES

Substance use and substance related fatalities are not consigned to only urban or rural populations, but are widespread across Connecticut. Substance use treatment facilities are increasingly important as the prevalence of synthetic opioids in the drug supply leads to many more overdose fatalities. Medically assisted treatment is particularly important, since it has been shown to be more effective and longer-lasting than other treatment approaches when used in combination with other behavioral therapies.[15]

Substance use disorder is very challenging to treat because it is a problem that affects people from various socioeconomic levels, cultural backgrounds, and geographical locations. As of 2022, there are 19 facilities across nine rural towns, 17 of which are in Litchfield County, and one each in Windham and New London Counties. These include 10 facilities in Torrington, two in Kent, and one each in Bethlehem, Canaan, Lebanon, Litchfield, New Milford, Putnam, and Sharon.[16]

Many people choose treatment facilities farther from home to remove themselves from the influence of suppliers and acquaintances who may negatively affect their recovery, particularly if they are selecting in-patient facilities. However, others may prefer nearby access to outpatient facilities. Due to data limitations, we are not able to determine which facilities provide which services. Additional substance use trends are further discussed in a later chapter.

NURSING FACILITIES

As Connecticut's population ages, access to nursing care will become important for maintaining healthy residents well into older age. While not all seniors will choose or need nursing facility care, some will depend upon it in years to come. Although skilled nursing facilities care for patients of all ages, the majority of patients (usually greater than 80 percent) are age 65 or older.

There are two types of nursing facility levels of care in Connecticut, Chronic and Convalescent Nursing Homes (CCNH), or skilled nursing care; and Rest Homes with Nursing Supervision (RHNS), also known as intermediate care facilities. Over time, many facilities have been phasing out RHNS care and converting those beds into CCNH beds.[17]

Table 19 summarizes both population and nursing facility availability trends by county. Again, it is generally assumed that because facilities do not exist in every town in Connecticut that individuals will generally choose to use services within their county of residence.

Table 19: Skilled and intermediate nursing facilities and bed availability, 2021

County	Population (2020)	Population over age 65 (2020)	CCNH			RHNS		
			No. of facilities	No.of beds	Pct. avail. beds	No. of facilities	No.of beds	Pct. avail. beds
Fairfield	944,306	150,147	37	4,890	23%	2	57	44%
Hartford	892,153	152,812	58	7,402	21%	6	322	38%
Litchfield	181,143	38,580	11	1,096	17%	2	60	22%
Middlesex	162,742	33,127	16	1,441	26%	1	13	15%
New Haven	855,733	148,857	52	5,740	21%	5	93	22%
New London	266,868	48,749	16	1,605	23%	1	87	11%
Tolland	150,947	23,874	5	678	22%	0	0	NA
Windham	116,657	19,320	9	960	23%	0	0	NA

Medically Underserved Populations

The Health Resources and Services Administration (HRSA) identifies geographic areas or individual locations (such as hospitals or clinics) that have a shortage of adequate health care professionals. HRSA refers to these as Health Professional Shortage Areas (HPSAs). HPSAs are further categorized by service type: Primary Care, Dental Health, and Mental Health. HPSAs can be whole geographic areas (e.g., towns), clinics or other facilities, or subsets of the population in a geographical area. In Connecticut, the population affected by these shortages are low income residents.

Note that, between 2017 and 2019, HRSA began to modify the HPSA designation criteria and updated their definitions of medically underserved areas. More changes to the designation are ongoing. These may affect the populations covered as medically underserved, as well as payments for providers in underserved areas or who serve disadvantaged populations.

Type One Towns have Primary Care and Dental Health HPSAs, while Type Two and Type Three Towns do not. The Type One Towns affected are Mansfield, Putnam, Torrington, and Windham.[18]

Populations underserved by Mental Health care providers are grouped into larger contiguous regions, making it impossible to determine which rural towns specifically are affected by a shortage of those providers. As such, only state-level underserved populations are provided in the table below.

Table 20: Medically Underserved Population, 2021

Area	Total population (2020)	MUP - Primary care	MUP - Dental health care	MUP - Mental health care
Connecticut	3,570,549	177,199	394,804	244,441
Type One Towns	291,267	10,970	19,629	N/A
Type Two Towns	61,484	0	0	N/A
Type Three Towns	151,234	0	0	N/A

Statewide Healthcare Workforce Projections

HRSA also models projections of supply and demand for workers in various healthcare professions. To do this, they utilize their Health Workforce Simulation Model, which accounts for regular occupational attrition, labor force statistics, and demographics. Projections are made at the state level.[19] These projections do not take into account the impact of the COVID-19 pandemic and its effect on health care personnel, who have faced burnout, illness, and other factors that affect their wellbeing and the overall health care labor force.[20]

Projections are provided for several occupations, including Licensed Practical Nurses (LPNs) and Registered Nurses (RNs) who work in long-term care; Family Medicine physicians, General Internal Medicine physicians, and Nurse Practitioners who work in primary care; and Obstetrics and Gynecology (OBGYN) and Pediatric Care specialists.

Understanding the supply of and demand for these professionals is important in order to maintain an adequate balance of health care providers in an area. If there are too many practitioners in a specific field in a given location, some may leave the area to obtain employment where demand is higher. If there are too few providers, the population has insufficient coverage.

In Connecticut, the demand for Family Medicine physicians is higher than the workforce supply. The shortage of these practitioners could mean fewer individuals seeking primary care or delaying care due to difficulty in scheduling appointments. Since Family Medicine physicians care for children as well as adults, this shortage may disproportionately affect children's healthcare.

There is likely an insufficient supply of Internal Medicine physicians in rural areas, although HRSA projects greater supply than demand for these practitioners statewide. This mismatch may be due in part to healthcare facility consolidation but also challenges in attracting workforces to rural towns. General Internal Medicine physicians differ from Family Medicine providers in that they exclusively care for adults, not children. Similarly, there may be a shortage of Nurse Practitioners and Physician Assistants in primary care practices, despite HRSA's estimate that there is a surplus of these practitioners.

Finally, Pediatric Medicine and OBGYN professionals are projected to decline in supply, suggesting a potential need for workforce development in these fields in the future.

Data on the "supply" of long-term care LPNs and RNs are not available since turnover in these fields is quite high, and although these professionals are licensed, the location of their employment is not necessarily tracked. Long-term care includes nursing homes, residential care facilities, home health, hospice, and adult day services. However, it is assumed there is a shortage of these professionals based on the demographics of these workers and their share of the overall health care workforce.[21] HRSA suggests that one possible solution to this shortage is to increase wages, since many of these roles are highly demanding, but not highly compensated. As the population of rural towns grow older, a stable network of long-term care providers will be needed to provide adequate healthcare in these areas. The Connecticut Department of Public Health has initiatives underway that may help bolster the healthcare workforce statewide.

Health Risks & Behaviors

Despite Connecticut's status as a relatively healthy state, health outcomes are often inequitable across regions and populations. This is due in part to behaviors, such as drinking, smoking, and keeping up to date on doctor visits; and risk factors like obesity, diabetes, and high blood pressure. These health behaviors are often directly linked to socioeconomic status.

Highlights from this chapter include:

- Health insurance coverage is highest among children and adults ages 65 and older due in part to access to public insurance such as CHIP and Medicare. However, disability is most common among older adults compared to other age groups.
- Low-income adults and people of color are more likely to lack a person or place they consider their doctor, and are also more likely to have skipped or delayed necessary medical care.
- More than 75 percent of adults are up-to-date on annual checkups and dental care, but only 30 percent of adults over 65 are current on all core preventive services. However, most older adults are current on select preventive services, such as mammograms. Outreach may be needed to get older adults to complete all core preventive services.
- About 30 percent of adults statewide and in rural areas have a BMI that qualifies them as obese. Obesity is related to many other health issues such as diabetes, stroke, high blood pressure, and high cholesterol.
- Adults in Type One Towns are more likely to engage in risky health behaviors, such as binge drinking and smoking. These behaviors are related to higher rates of financial insecurity, which is elevated higher in Type One Towns.
- Adults in Type One Towns also have elevated rates of hospital encounters compared to adults statewide and in other rural areas.

HEALTH INSURANCE

Overall rates of uninsured individuals are less than 5 percent in rural areas. These rates are generally higher for people between the ages of 19 and 64. Children and adults ages 65 and over have more comprehensive public insurance programs, which result in lower rates of uninsured people in those age groups.

Table 21: Uninsured rate, overall and by age group, 2020

Area	Overall	Ages 18 and under	Ages 19-64	Ages 65 and over
Connecticut	5%	3%	7%	1%
Type One Towns	4%	2%	5%	<1%
Type Two Towns	4%	3%	7%	<1%
Type Three Towns	3%	2%	4%	<1%

Many people in the United States rely on a combination of public and private insurance coverage. As discussed above, more comprehensive programs for children and seniors mean more of these individuals are covered by public insurance programs like CHIP or Medicare. Typically, adults ages 19 to 64 must have very low incomes to qualify for public insurance, leaving many to rely on employer-sponsored healthcare coverage, or coverage purchased through state health insurance marketplaces like AccessHealthCT.

Table 22: Share of insured on public insurance, by age group, 2020

Area	Ages 18 and under	Ages 19-64	Ages 65 and over
Connecticut	35%	19%	95%
Type One Towns	34%	19%	96%
Type Two Towns	20%	14%	96%
Type Three Towns	14%	10%	95%

DISABILITY

The term "disability" covers a broad range of challenges, including problems with mobility, cognition, independent living, hearing, vision, and self-care. Approximately 13 percent of Americans live with a disability,[22] similar to the overall rate in Connecticut and rural towns. Older populations have higher rates of disability than younger populations.

Disability can be a barrier to an individual's access to health care or other services that can help them live independently or with greater ease. According to the CDC, many individuals with a disability have other health-related challenges like no medical home, or more skipped doctor visits. These individuals also often face compound health issues like obesity and heart disease.[23]

Table 23: Share of population with a disability, overall and by age group, 2020

Area	Overall	Ages 18 and under	Ages 19-64	Ages 65 and over
Connecticut	11%	4%	9%	30%
Type One Towns	12%	4%	10%	31%
Type Two Towns	12%	5%	7%	24%
Type Three Towns	9%	3%	7%	25%

MEDICAL HOME & SKIPPED CARE

A medical home is a person or place an individual considers their health care provider, who they see on an ongoing basis. This person or place is crucial to developing trust and continuing engagement with the healthcare system, as well as keeping up-to-date on preventive healthcare.

Individuals with a disability are more likely to lack a medical home. Because health and wealth are strongly correlated, lower income and medically underserved communities—primarily comprised of people of color—are more likely than white populations to say they lack a medical home.

Table 24: Share of adults with no medical home, by race, 2015-2021 pooled data

Area	White	Black	Latino	Asian	Native American
Connecticut	13%	17%	24%	24%	15%
Type One Towns	11%	20%	20%	31%	12%
Type Two Towns	12%	Suppressed	Suppressed	Suppressed	Suppressed
Type Three Towns	13%	Suppressed	31%	Suppressed	Suppressed

Among other reasons, individuals with no medical home are also more likely to delay getting medical care they need, or go without that care altogether. In Type One Towns, Black adults are 1.8 times as likely, and Native American adults are 2.2 times as likely as white adults to have delayed medical care. In Type Three Towns, Latino adults are 4 times as likely to go without medical care as white adults.

Reasons given for skipping or delaying care are numerous, but are often the result of scheduling, conflicts with caretaking responsibilities, necessary medical services being too costly, or insurance not covering the cost of care. Each of these reasons are potentially resolvable with wraparound services, outreach about sliding scale payment plans, and healthcare centers who render care regardless of a patient's insurance status or ability to pay (such as FQHCs).

Table 25: Share of adults who skipped or went without medical care, by race, 2015-2021 pooled data

Indicator	Area	White	Black	Latino	Asian	Native American
Delayed getting medical care	Connecticut	24%	24%	29%	20%	36%
	Type One Towns	26%	47%	33%	31%	57%
	Type Two Towns	21%	Suppressed	Suppressed	Suppressed	Suppressed
	Type Three Towns	21%	Suppressed	31%	Suppressed	Suppressed
Went without medical care	Connecticut	8%	11%	16%	11%	16%
	Type One Towns	10%	13%	17%	18%	17%
	Type Two Towns	6%	Suppressed	Suppressed	Suppressed	Suppressed
	Type Three Towns	5%	Suppressed	20%	Suppressed	Suppressed

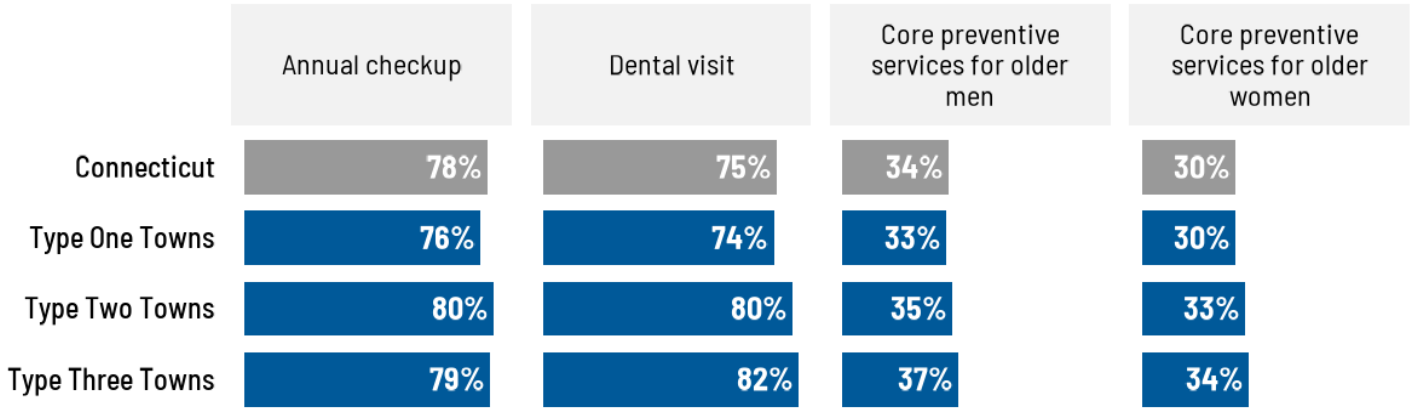
PREVENTIVE CARE

Preventive screenings and checkups are important for establishing relationships with healthcare providers and recognizing signs or symptoms of illnesses before they become major health concerns. As of 2019, more than three-quarters of adults statewide were up-to-date on annual checkups and dental visits.[24]

Older adults, over age 65, are less likely to be up-to-date on their core preventive services. There are several services that fall into these categories, and because it is an all-or-nothing metric, the rate of older adults having received all preventive services is generally low. Given the relatively low rate of complete core preventive services, outreach and communication on the importance of these services may be necessary for older populations, especially as that age group begins to grow and place greater demand on the healthcare system.

Figure 15

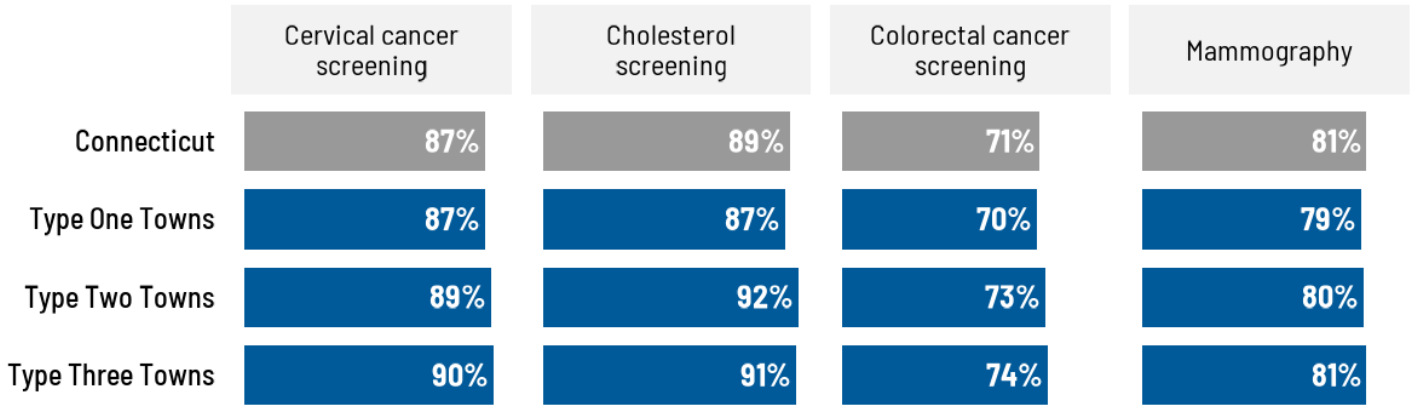
Share of adults who are up-to-date on annual checkups, 2019



Rates of adults who have had individual preventive screening services are more in-line with adults completing routine doctor or dental visits. This is perhaps due to doctors often folding these services into routine checkups.

Figure 16

Preventive screening rates, 2018

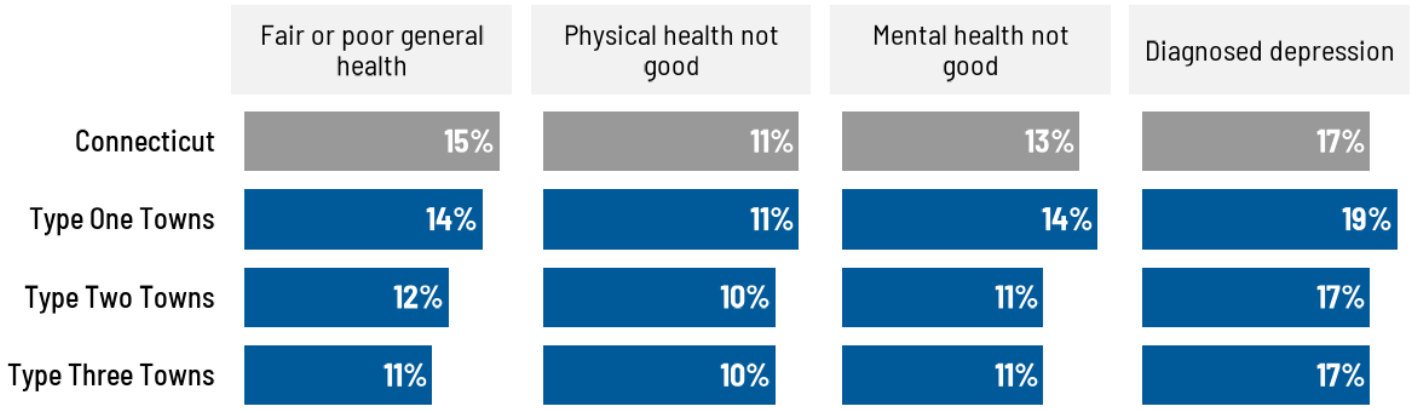


SELF-REPORTED HEALTH

Surveys often ask respondents to rate their own health as a means to qualitatively assess how individuals feel about their physical or mental wellbeing beyond specific health conditions. There is a strong correlation between financial insecurity and poor self-rated health, since limited financial resources are often allocated to housing and food before physical or mental healthcare needs. Depression in particular is related to negative health outcomes—an effect compounded by the ongoing challenges of the COVID-19 pandemic.[25] While the figure below gives overall rates for Connecticut and its rural towns, a 2020 DataHaven analysis found a strong correlation between high levels of financial insecurity and high levels of depression. Groups with high financial insecurity, especially disabled and low-income adults, were also more likely to self-report their health as fair or poor.[26]

Figure 17

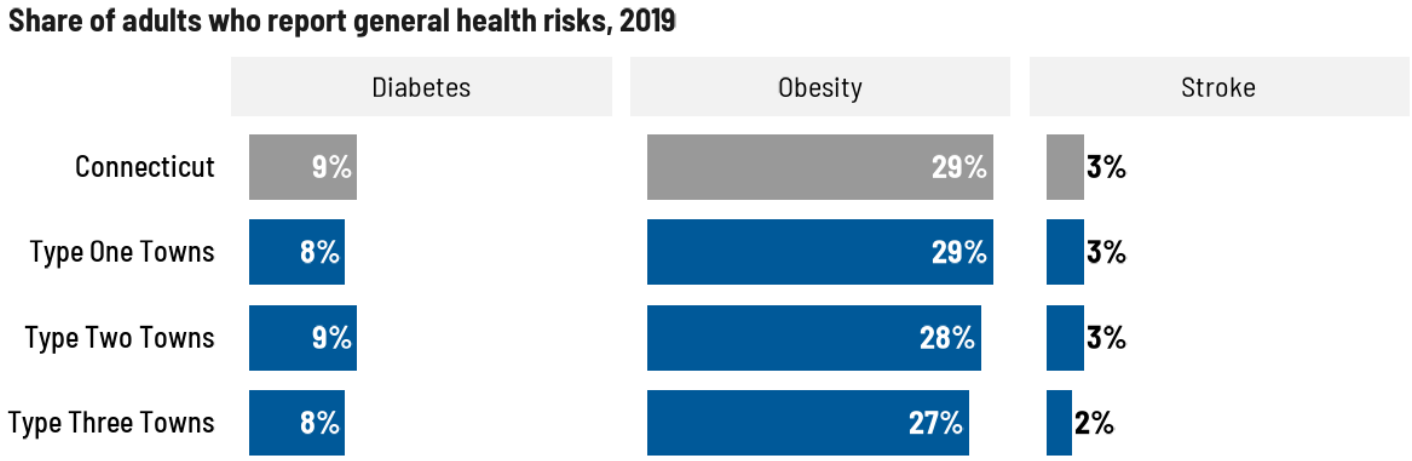
Share of adults self-reporting overall health status, 2019



Health Risks

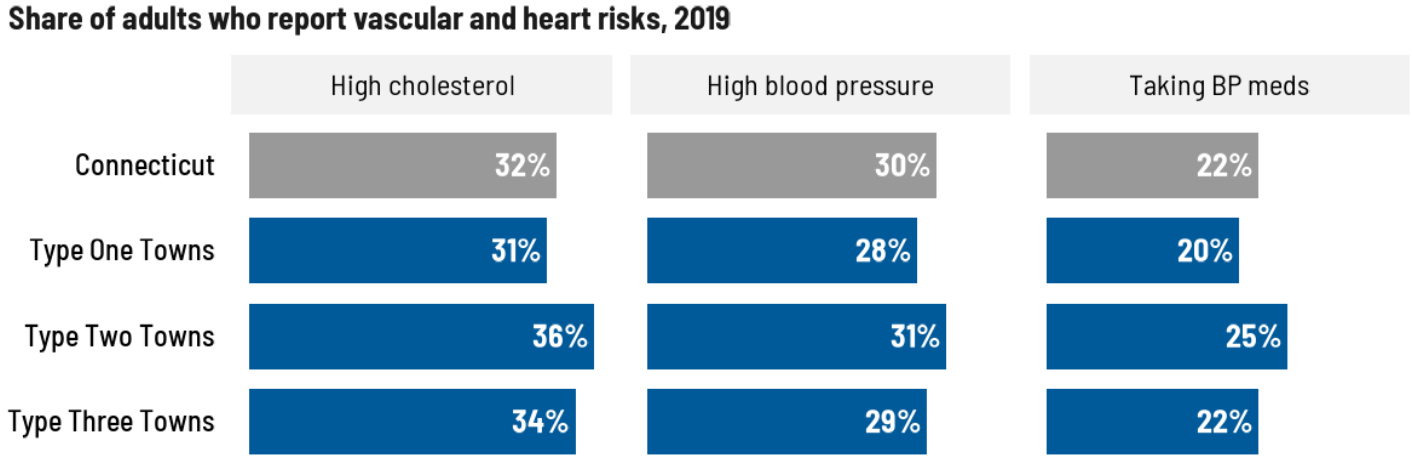
Obesity has been an issue of concern among healthcare practitioners for many years, particularly because of its relationship with other health issues such as diabetes. Together, obesity and diabetes are major risk factors for stroke. Nearly 30 percent of adults in Connecticut have a body mass index that qualifies them as obese.

Figure 18



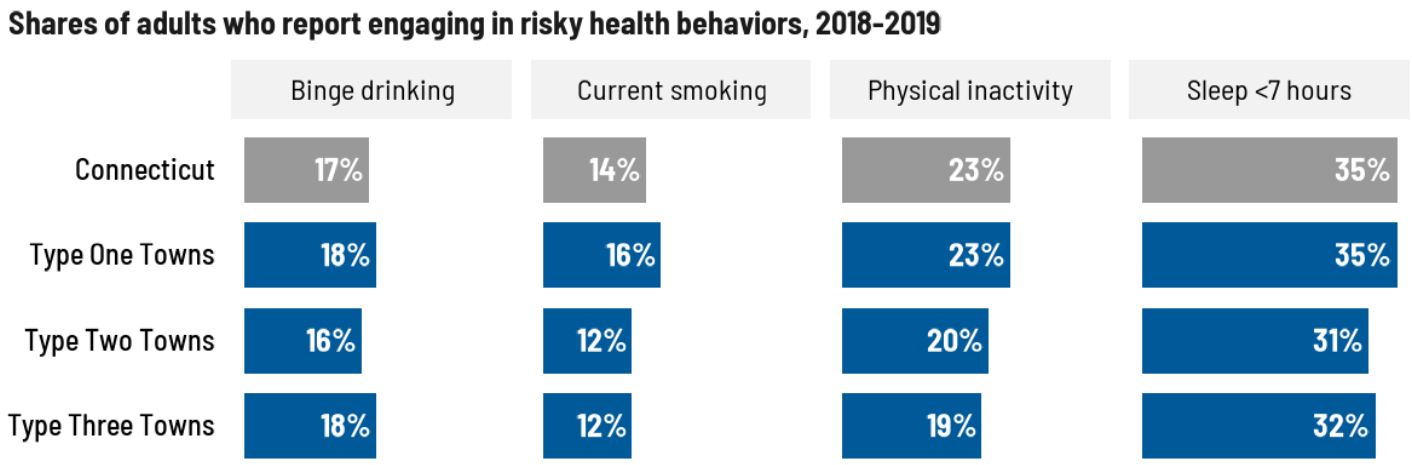
Obesity also directly contributes to cardiovascular issues such as high cholesterol and high blood pressure. Related complications such as hypertension and diabetes are two of the top causes for hospital visits in rural areas and statewide (see Figure 21 below).

Figure 19



Certain risky health behaviors also contribute to overall poor health, including elevated risk of obesity, cancer, heart disease, lung disease, and mental health issues. Binge drinking, smoking, physical inactivity, and getting less than seven hours of sleep are factors that are elevated in Type One Towns. These are often related to financial insecurity, which is elevated among people of color in Type One Towns (see Table 12 above). Residents of Type One Towns also have higher hospital encounter rates compared to other rural towns (see Figure 22).

Figure 20

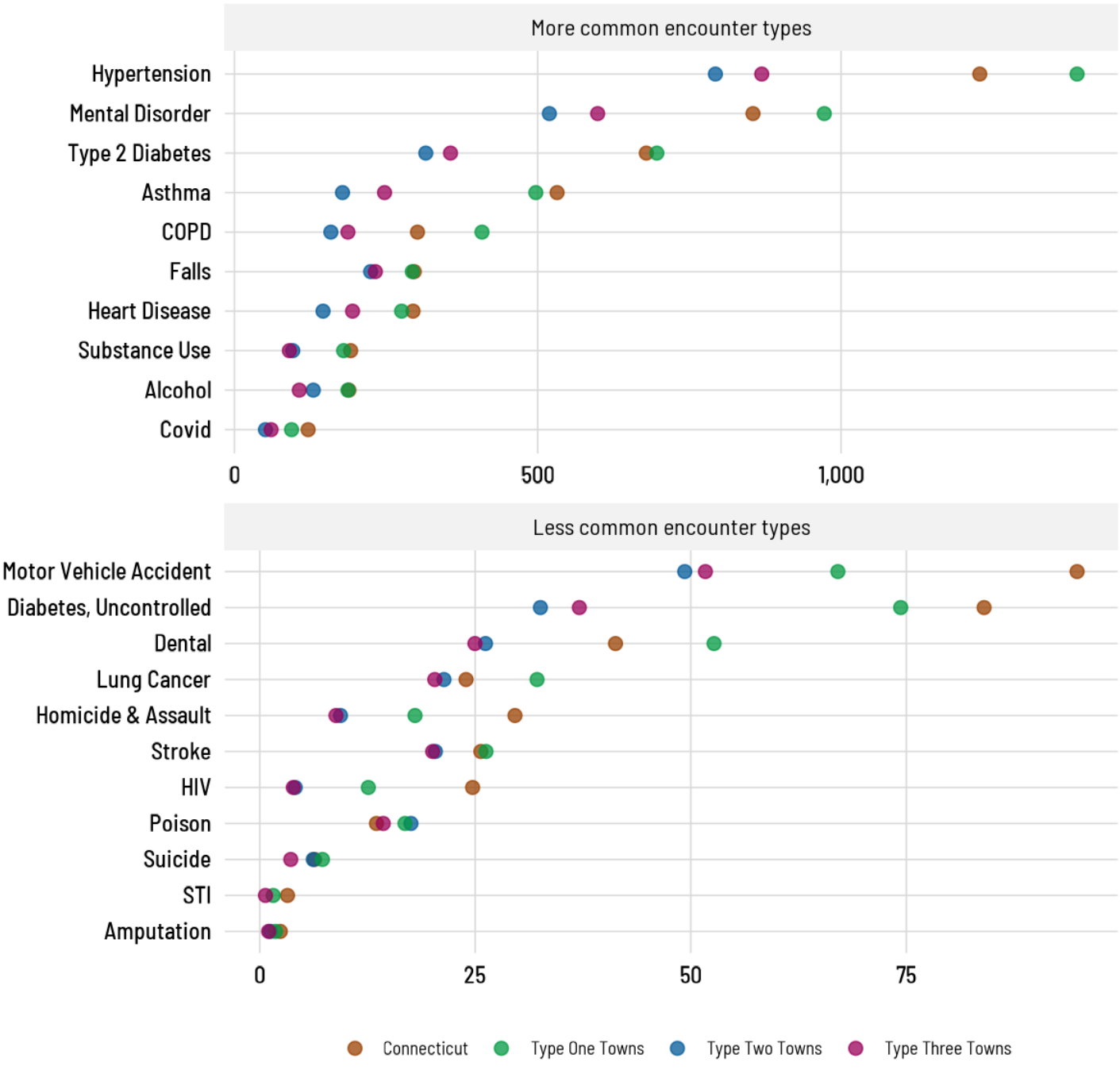


Hospital Encounters

Hospital encounter data is a good way to examine potential health risks across certain populations. Information drawn from Connecticut hospitals' recently published Community Health Needs Assessments for 2022 show that residents of Type One Towns often have elevated rates of encounters for various clinical features. The disparity between residents of Type One Towns and residents of other rural areas are particularly large for diabetes-related encounters, asthma, COPD, substance use, and emergency dental encounters (which can be used as a proxy for inadequate dental care).

Figure 21

Annualized age-adjusted hospital encounter rates per 10,000 residents, 2018-2021



Health Outcomes

Health outcomes are the clinical observation and statistical results of everything described above—from socioeconomic indicators that influence health behaviors, healthcare access, and potential risk factors for disease. This section summarizes outcomes related to chronic and environmental health issues, substance use, birth outcomes, and mortality.

Highlights from this chapter include:

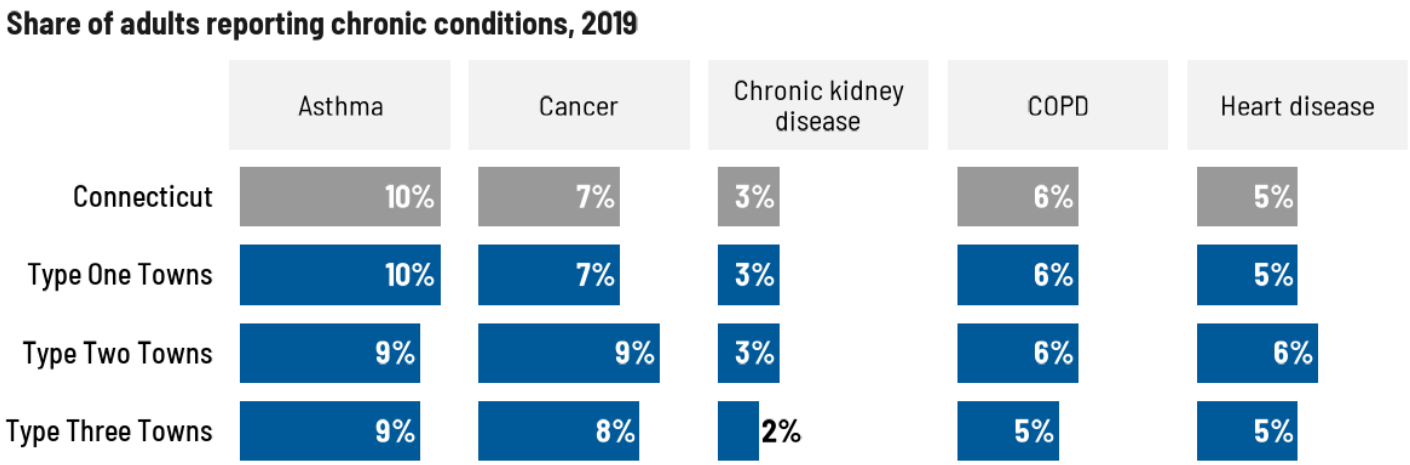
- Type Two Towns, with higher shares of adults over age 65, have elevated rates of chronic health issues.
- Type One and Type Two Towns have higher shares of children with elevated blood-lead levels.
- Rural towns in general have about 3 times the rate of people diagnosed with Lyme disease.
- Non-rural towns have higher rates of death due to COVID-19 than rural towns, although Type One Towns trend close to those rates.
- Rural areas generally have more positive birth outcomes than the state average, but these should be monitored closely as labor and delivery wards in rural hospitals are closed.
- Drug-related fatalities continue to increase year after year. Fentanyl is a major driver in the rise in overdose deaths, statewide and in Type One Towns.
- Despite average life expectancies in rural towns that are close to the state average, wide gaps within rural clusters are apparent.
- COVID-19 caused a jump in all-cause mortality in 2020, but cancer and heart disease remain the top causes of death.
- Annually, Type One Towns lose more years of residents' potential life than the state average.

Chronic Health Issues

Chronic health conditions can greatly affect an individual's quality of life. Diseases of the kidney, lungs, and heart can make it more difficult to overcome other illnesses due to the toll those diseases take on the body's organs and immune system. Asthma in particular is related to elevated levels of anxiety among sufferers, which can trigger asthma attacks as part of a negative feedback loop.[27] Mental illnesses often co-occur with chronic illnesses.[28]

Type Two Towns, with high shares of older adults, have higher rates of many chronic illnesses.

Figure 22



Environmental Health Issues

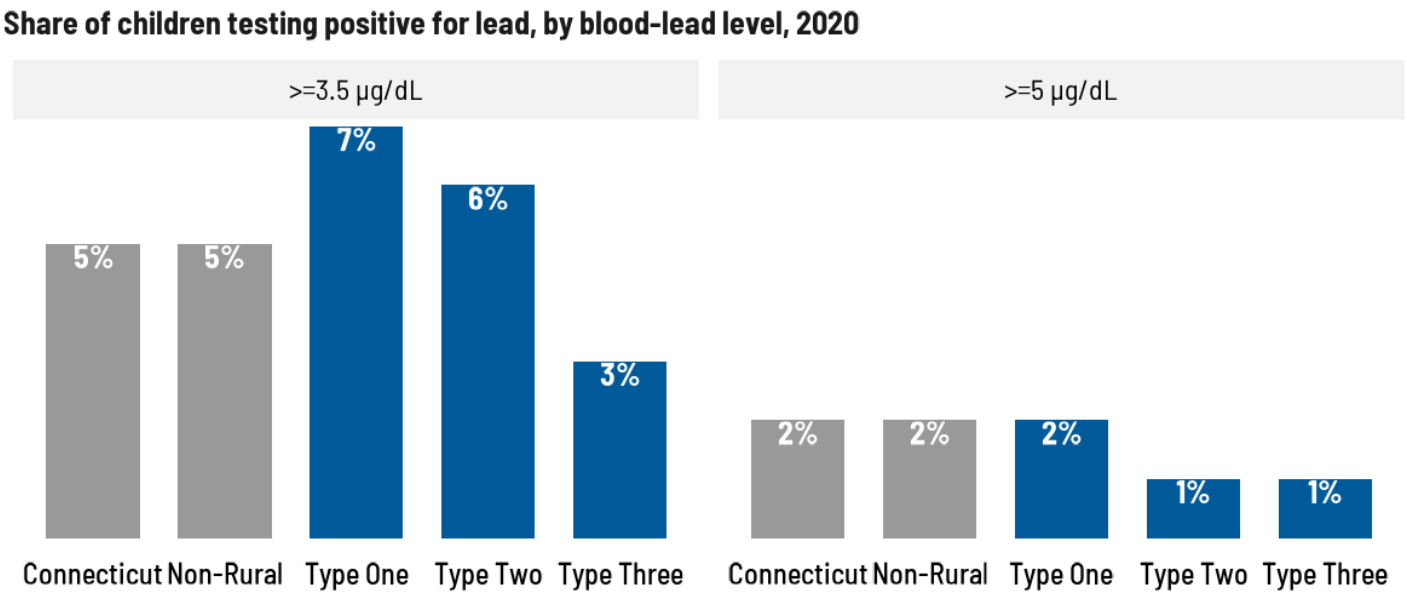
Environmental health issues can have serious consequences, but in many cases are preventable with proper precautions. They may also be treated if caught early.

CHILDHOOD LEAD POISONING

Among childhood environmental illnesses, lead poisoning has much of the public's attention since the neurological damage it can cause can be tragic and irreversible. In Connecticut, children are tested for blood lead levels as surveillance for potential lead poisoning.

In Figure 23 below, two measurements are given. This is because Connecticut uses a threshold of 5 micrograms per deciliter for "elevated" blood-lead levels, while the CDC uses 3.5 micrograms per deciliter for its threshold.[29] By this standard, Type One and Type Two Towns have higher shares of children whose blood-lead levels are "elevated" according to the CDC, despite having levels on par with the state using its higher threshold value. In the future, Connecticut will align to CDC's standard, though both threshold values are provided in Figure 23.

Figure 23

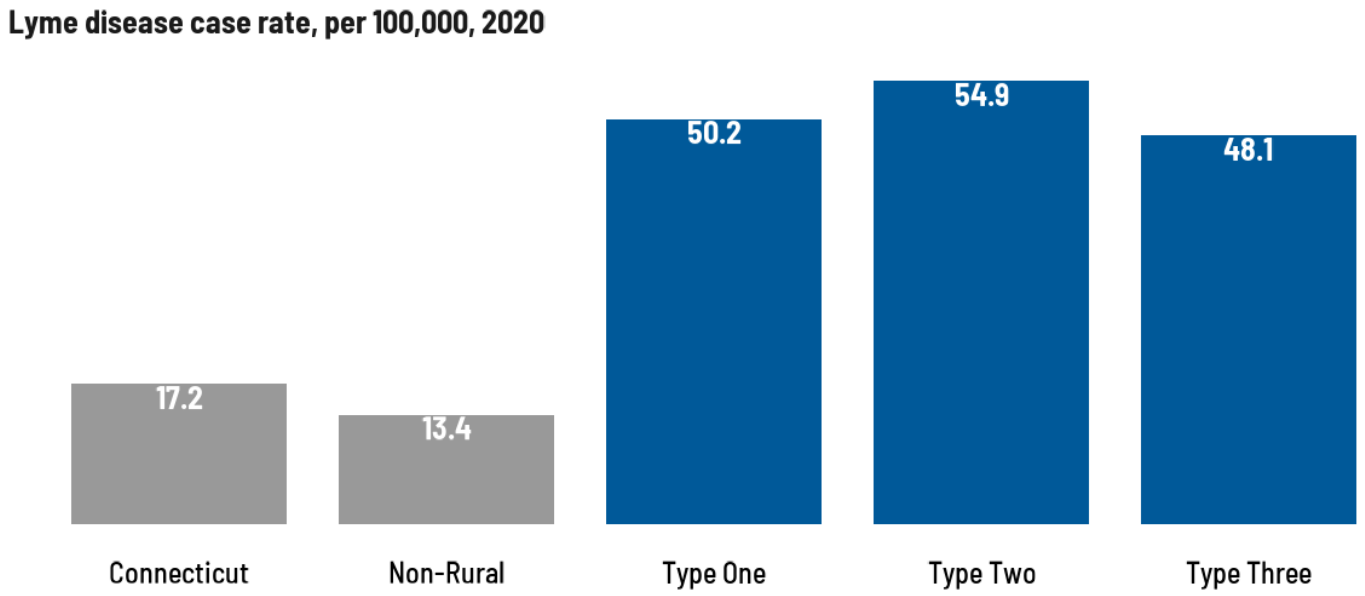


LYME DISEASE

Lyme disease is an infection that is transmitted to humans through ticks. While initial symptoms are relatively mild and may include rash, fever, and headache, in the long-term the disease can spread throughout the body and ultimately affect the heart, joints, and nervous system. Luckily, Lyme disease can be treated if caught early.[30]

Connecticut's suburban and rural areas, environments preferred by ticks, are more likely than urban areas to have elevated rates of Lyme disease. Lyme disease diagnoses are reported by healthcare providers to the Connecticut Department of Public Health as part of its Lyme disease surveillance program. However, the CDC estimates that there may be nearly 10 times as many cases of Lyme in the population than those diagnosed by doctors.[31] All types of rural towns in Connecticut have nearly three times the case rate of Lyme disease than non-rural areas and the state as a whole.

Figure 24



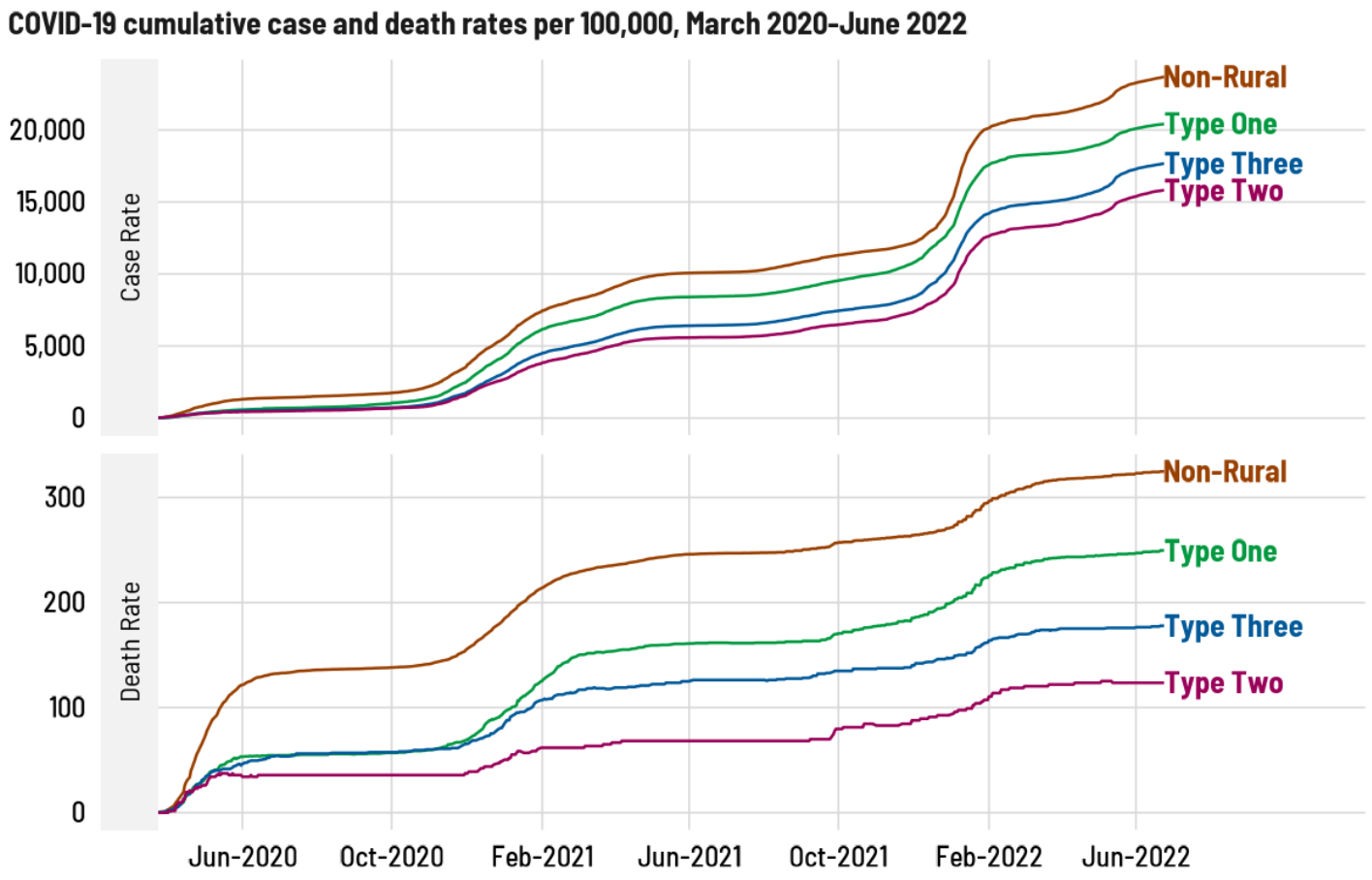
COVID-19

Since March of 2020, COVID-19 has been the dominant public health concern worldwide. Millions have died due to complications as a result of COVID-19, and hundreds of millions have been infected with the virus. These numbers are widely believed to be undercounts. In Connecticut, like elsewhere, trends have changed over time, but age remains the strongest predictor of severe illness. The numbers below are the most current snapshot of the data. While rural towns typically have lower rates of cases and deaths due to covid than non-rural towns, Type One Towns have historically trended closer to non-rural towns in case rates.

Table 26: Latest COVID-19 case and death rates by cluster (Mar 24, 2020 - Jun 24, 2022)

Area	Total cases	Total deaths	Case rate per 100,000	Death rate per 100,000
Connecticut	822,459	11,032	23,035	309
Non-Rural Towns	726,522	9,960	23,692	325
Type One Towns	59,482	727	20,422	250
Type Two Towns	9,729	76	15,824	124
Type Three Towns	26,726	269	17,672	178

Figure 25



Birth Outcomes

Birth statistics are reliable indicators for the overall health of a community. The United States lags behind other developed and prosperous countries in these outcomes due to widespread disparities in socioeconomic status, access to health care, and other systemic inequality. As a result, birth outcomes such as infant mortality are high in the United States. According to the OECD, infant mortality among all OECD countries is 4.1 deaths per 1,000 live births. In the United States as of 2018, that rate was was 5.7. Connecticut's infant mortality rate is 4.6, about on par with New Zealand, and rural areas have slightly better rates than the state. Type One Towns have an infant mortality rate of 3.4, on par with Latvia.[32]

In many cases, infant mortality is preventable with adequate care and routine checkups. Pre-natal care is a positive step a pregnant person can take to ensure a healthy birth, yet in Connecticut about 3 percent of births involved parents starting pre-natal care late (in the third trimester) if at all.[33] Lack of adequate prenatal care can result in low-weight births, correlate with complications early in an infant or child's life, and can be a predictor of poor health, including infant mortality.

Table 27: Select birth outcomes, 2016-2018

Area	Total births	Pct. Births with late or no prenatal care	Pct. Low weight births	Infant mortality rate per 1,000 live births
Connecticut	105,524	3.4%	7.8%	4.6
Type One Towns	7,001	3.0%	3.7%	3.4
Type Two Towns	1,024	2.6%	Suppressed	Suppressed
Type Three Towns	3,314	2.0%	Suppressed	Suppressed

Total trends mask the wide disparity in infant mortality by the birthing parent's race/ethnicity. While there are not enough births in rural areas to summarize trends specific to rural towns, the table below summarizes trends in infant mortality in Connecticut by parent race/ethnicity. Infant mortality is more than 3 times higher for Black parents than white parents. According to the OECD, the Black infant mortality rate in Connecticut, 9.5, is on par with Turkey.

Table 28: Infant mortality by birthing parent's race/ethnicity, Connecticut, 2016-2018.

Area	White	Black	Latino
Connecticut	3.1	9.5	5.0

Substance Use

Drug overdose deaths in Connecticut have been climbing sharply for many years. The increasing prevalence of fentanyl in the illicit drug supply underlies this trend. Fentanyl is now found in a variety of substances, from heroin to unlicensed marijuana, often unbeknownst to the user. While previously assumed to be a phenomenon observed generally in the urban drug supply, fentanyl has also established a strong foothold in rural areas (see Figure 26 below).

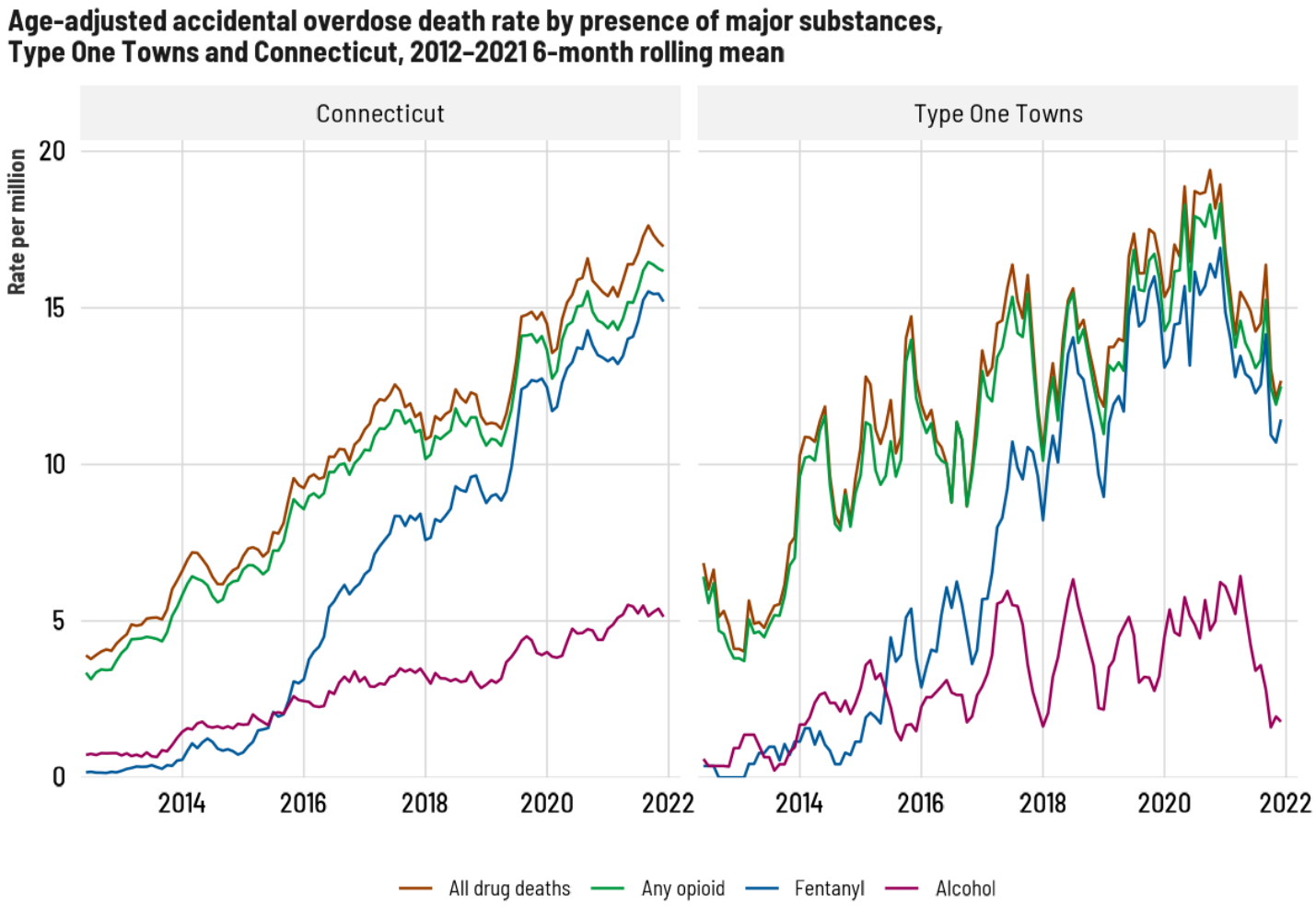
Drug overdose deaths in Connecticut have doubled between the period 2012-2016 and 2017-2021, with 2021 having the highest number of overdose deaths statewide—a trend that is also unfolding nationally. Since Type Two and Type Three Towns have an annual average of fewer than 50 overdose deaths, the figure below will look only at Type One Towns, since these areas unfortunately have enough overdose deaths that the data can be summarized and disaggregated by substance.

Table 29: General trends in overdose deaths, 2012-2021

Area	Annual average overdose deaths, 2012-2021	Overdose deaths, 2012-2016	Overdose deaths 2017-2021	Pct. change from 2012-2016 to 2017-2021
Connecticut	885	2,954	5,900	100%
Type One Towns	79	293	500	71%
Type Two Towns	10	32	65	103%
Type Three Towns	18	76	107	41%

The vast majority of drug-related deaths in Connecticut and Type One Towns involve opiates, particularly fentanyl alone or in combination with other substances. Once comprising just a fraction of opioid-related deaths, fentanyl is now present in nearly all such overdose deaths. Drug related fatalities in general are increasing, although alcohol-related deaths remain low compared to other substances.

Figure 26



Life Expectancy & Mortality

Life expectancy is the measure of how long a child born at a given time can expect to live. In Connecticut in 2015, that was 80 years. But the average value belies the range for each town. There is a 13 year life expectancy gap in Connecticut, from the town with the lowest life expectancy, North Canaan, and the town with the highest, Weston. Type One Towns—with lower adult educational attainment, lower incomes, higher financial need, more people of color, and more adults skipping or delaying medical care—have a gap of 10 years. Type Two Towns have a gap of 6 years, and Type Three Towns have a gap of 7 years.

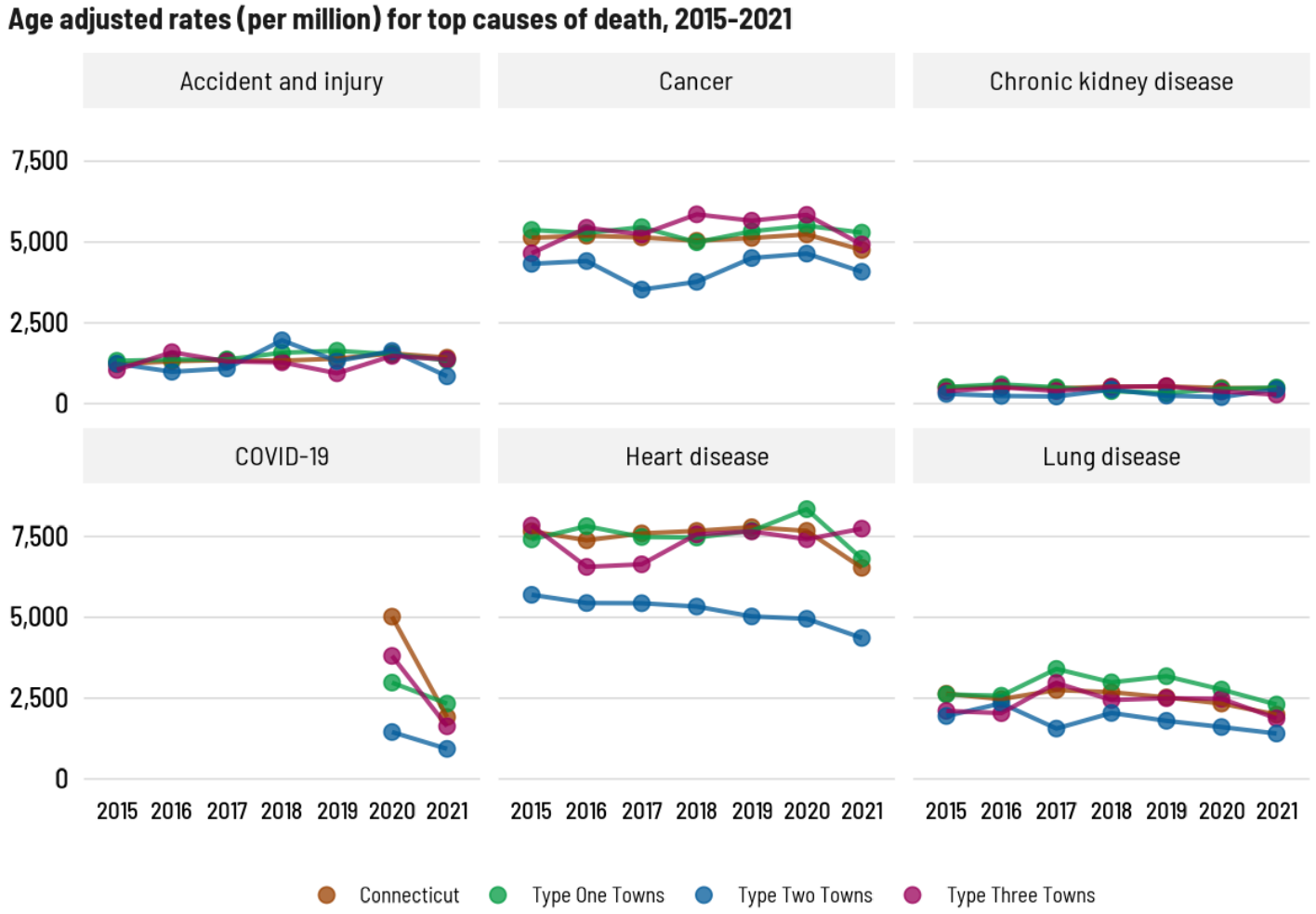
Table 30: Life expectancy, 2015

Area	Area average life expectancy	Town with lowest life expectancy in area	Town with highest life expectancy in area
Connecticut	80 years	North Canaan (74 years)	Weston (87 years)
Type One Towns	80 years	North Canaan (74 years)	Voluntown (84 years)
Type Two Towns	82 years	Salisbury (80 years)	Norfolk (86 years)
Type Three Towns	83 years	Marlborough (78 years)	Middlebury (85 years)

The top causes of age-adjusted mortality in the state are heart disease, cancer, lung disease, accident and injury (a broad category including car crashes and gun violence among other injuries), and chronic kidney disease. The figure below shows the trend in these top causes between 2015 and 2021, and adds COVID-19 since it was major influence in overall mortality rates in 2020.

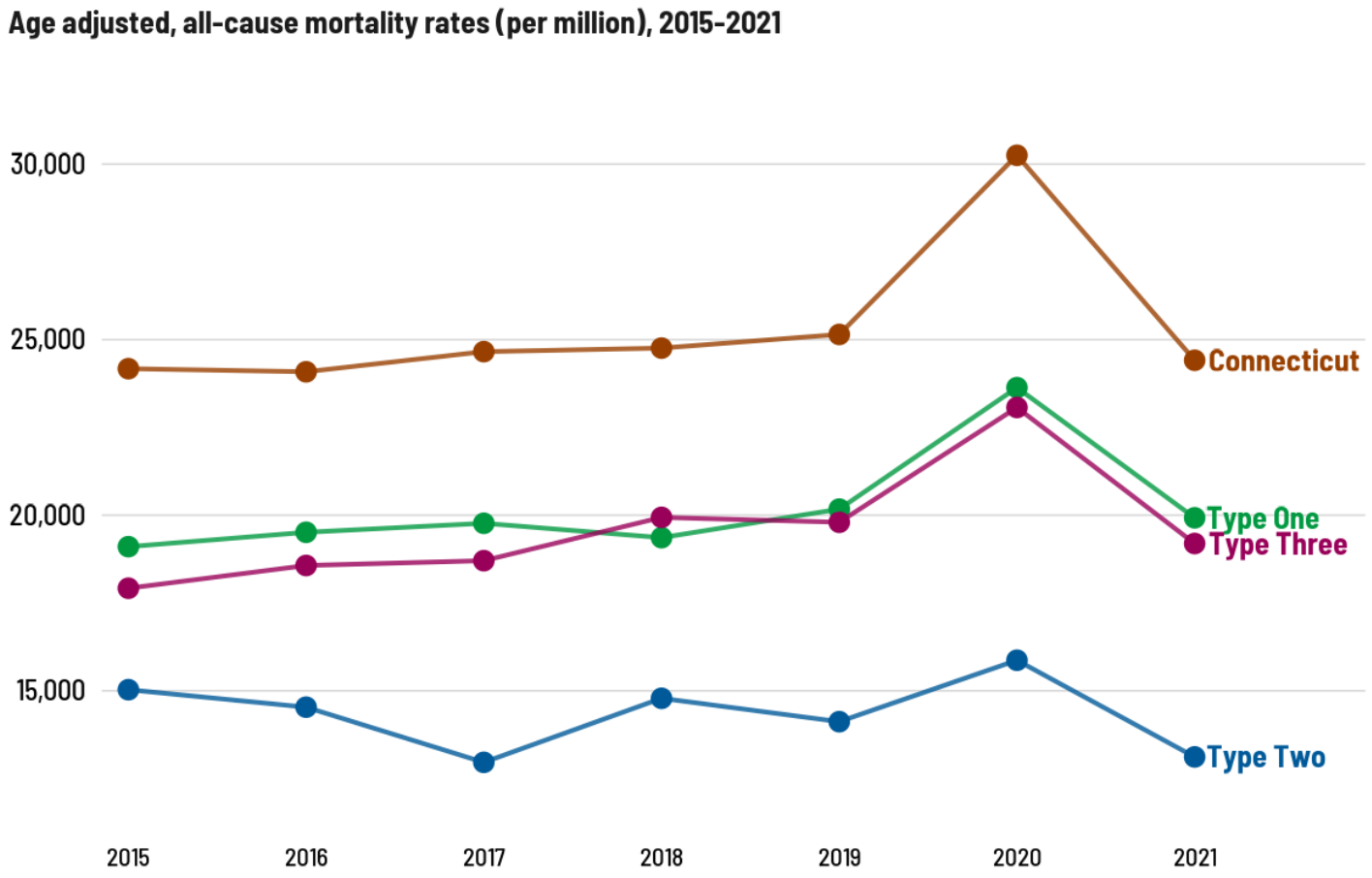
For accident and injury and chronic kidney disease, rural areas generally trend in line with the state in mortality rates for those causes of death. Type Three Towns trend slightly higher for cancer, while Type Two Towns trend slightly lower. Mortality caused by heart disease and lung disease is lower in Type Two Towns. All rural areas had lower than the state average mortality due to COVID-19 in 2020.

Figure 27



All-cause mortality summarizes the overall trend in deaths from all causes. Again, rural towns have lower rates of mortality than the state, with Type Two Towns having by far the lowest rate of the groups shown. The peak in 2020 is a direct result of COVID-19.

Figure 28

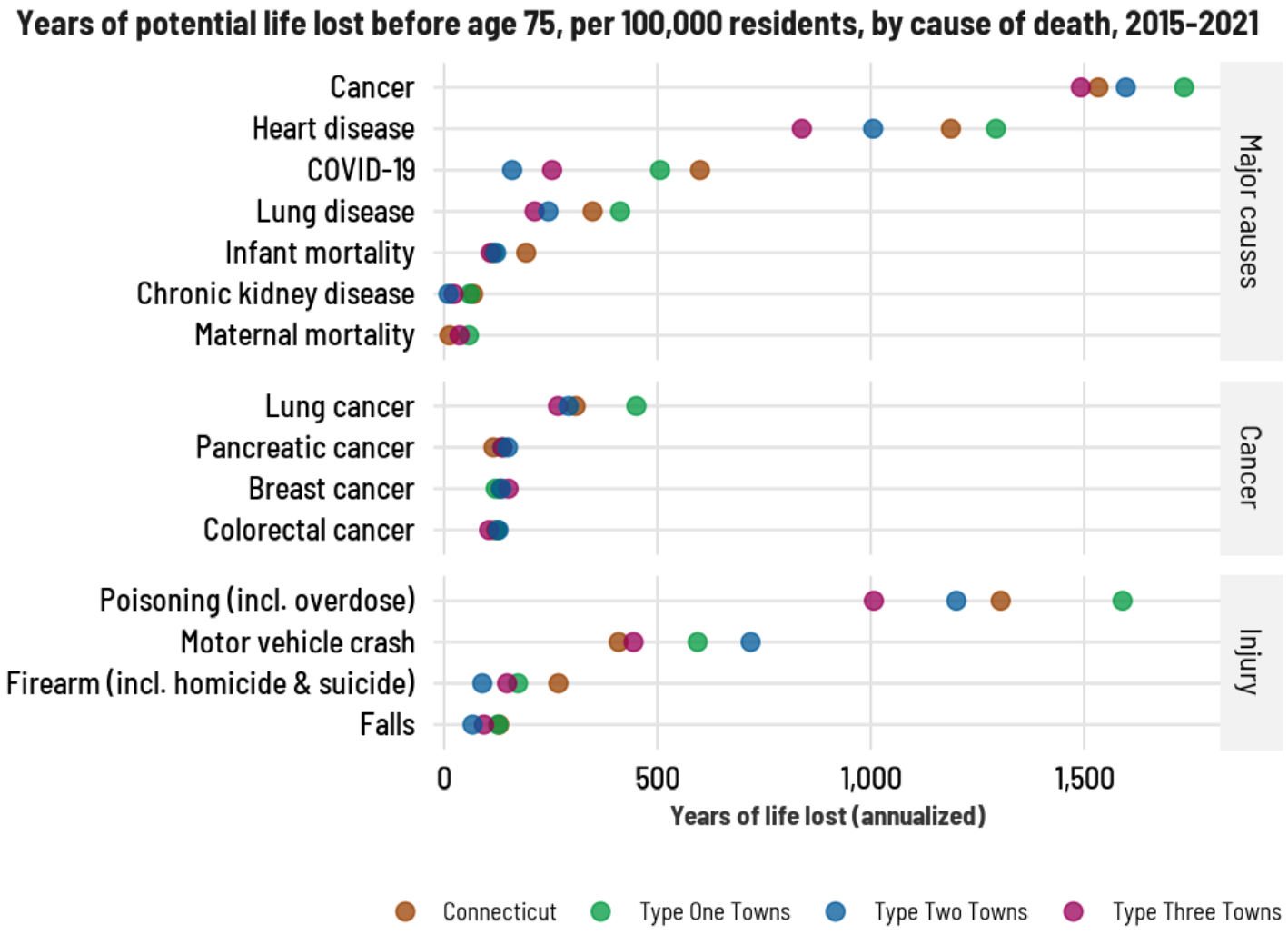


One way to summarize premature mortality is to look at the years of potential life lost (YPLL) before age 75. Since older populations tend to be affected by some conditions more than young people, the years of life lost for them will be lower, although mortality due to those conditions might be higher. However, infant mortality, for example, is relatively rare but causes many more years of life lost. Poisoning, including overdose, and motor vehicle crashes are relatively high as well due to the fact they often affect the young.

Cancer and heart disease are the leading causes of lost life due in part to their prevalence and potential to afflict young or middle aged people. Poisonings (including overdose) were third. When annualized, COVID-19 was the fourth leading cause of premature mortality in Connecticut.

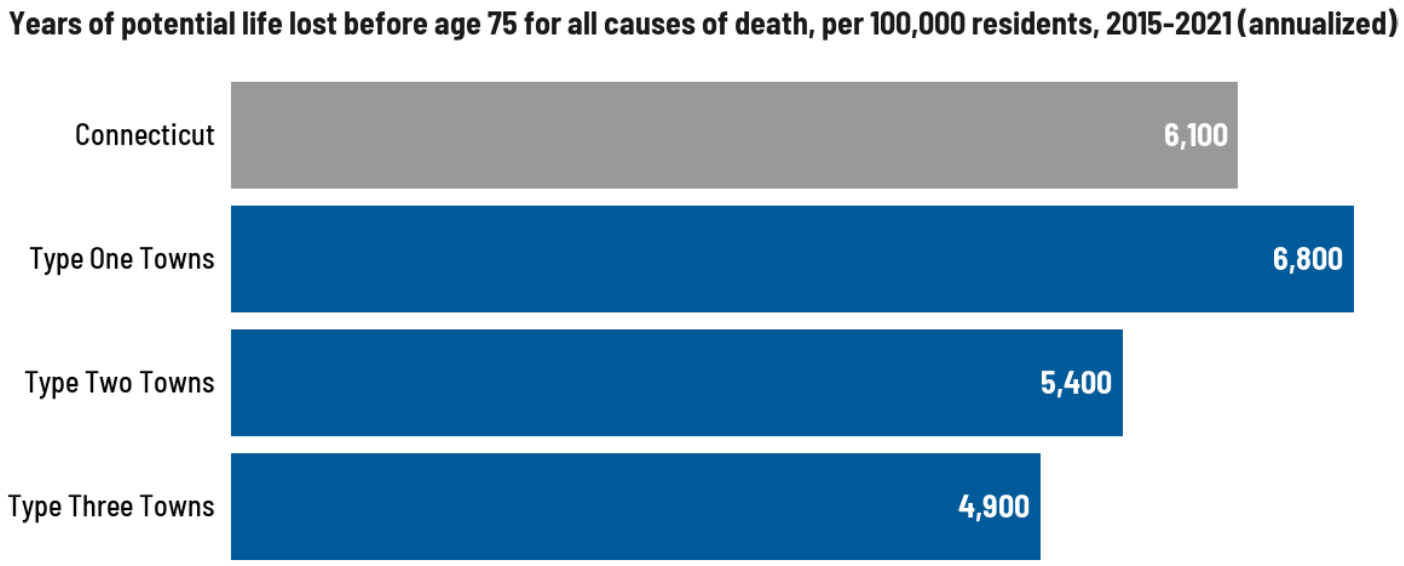
Type One Towns exceed the state rates for years of life lost in several categories, but notably lung cancer (recall that smoking rates are elevated in Type One Towns), and overdose. Type Two Towns have high rates of premature death due to motor vehicle crashes.

Figure 29



Finally, all-cause YPLL sums the years lost from all causes of death. With an annual average of 6,800 years lost, and for the socioeconomic and health-related reasons described in this report, Type One Towns exceed the all-cause YPLL for Connecticut.

Figure 30



Conclusions

Despite an overall high quality of life, rural towns face numerous challenges to good health.

RACIAL DISPARITIES IN SOCIAL DETERMINANTS OF HEALTH RESULT IN POOR HEALTH OUTCOMES FOR BLACK, NATIVE AMERICAN, AND LATINO RESIDENTS.

We find that, on average, rural towns compare favorably to the state in many key social determinants, including income, housing, and food security. But area averages mask racial disparities within. Compared to white adults, Black and Native American adults are 2 to 3 times as likely to be housing insecure, about 2 times as likely to be financially insecure, and 3 to 5 times as likely to be food insecure. Black, Native American, and Latino residents make up a greater share of the population of Type One Towns.

Black and Native American adults are 2 times likely as white adults to lack a person or place they consider their doctor, where they receive medical services. Compared to white adults, Black and Native American adults are 2 times as likely to have delayed getting medical care they needed, and Latino adults are 4 times as likely to have skipped getting necessary medical care altogether.

Adults in Type One Towns have elevated rates of risky health behaviors, such as binge drinking and smoking. They also have higher rates of hospital emergency department encounters, higher rates of overdose fatalities, and higher overall mortality rates than residents of other rural towns. Type One Towns accumulate more years of potentially life lost due to premature mortality compared to other rural areas and the state as a whole.

Removing barriers to healthcare access and emphasizing community-based and culturally competent healthcare in these areas can help improve health outcomes, especially preventable outcomes related to births, substance use, and complications arising from negative health behaviors like smoking.

Additionally, partnering with organizations centered on racial justice and economic improvement for Black, Native American, and Latino residents can have a positive downstream effect on income and access to resources that improve health outcomes in the long run.

HEALTHCARE ACCESS IS LOWER IN RURAL AREAS THAN URBAN AREAS COMPARED TO STATE AVERAGES, AND HOSPITAL CONSOLIDATIONS MAY MAKE IT WORSE.

Labor and delivery unit closures in particular are of major concern. Additionally, some rural hospitals are unable to provide comprehensive care for patients who need complex emergency services—and many rural residents do not know what services their hospital can provide. This is an equity issue from the perspective of all rural parents, but can further exacerbate the wide gap in infant and maternal mortality observed statewide between white parents and parents of color.

Appendices

Appendix A

Table 31: Rural towns and their regional health districts or local public health departments, 2022

Cluster	Town	Health Department Type	Regional Health District or Local Health Department Name
Type One	Ashford	Regional Health District	Eastern Highlands Health District
	Bozrah	Regional Health District	Uncas Health District
	Brooklyn	Regional Health District	Northeast District Department of Health
	Canterbury	Regional Health District	Northeast District Department of Health
	Chaplin	Regional Health District	Eastern Highlands Health District
	Colebrook	Regional Health District	Farmington Valley Health District
	Deep River	Regional Health District	Connecticut River Area Health District
	East Haddam	Regional Health District	Chatham Health District
	Eastford	Regional Health District	Northeast District Department of Health
	Franklin	Regional Health District	Uncas Health District
	Hampton	Regional Health District	Northeast District Department of Health
	Hartland	Regional Health District	Farmington Valley Health District
	Lebanon	Regional Health District	Uncas Health District
	Lisbon	Regional Health District	Uncas Health District
	Mansfield	Regional Health District	Eastern Highlands Health District
	Middlefield	Regional Health District	Plainville-Southington Regional Health District
	Morris	Regional Health District	Torrington Area Health District
	New Milford	Regional Health District	Housatonic Valley Health District
	North Canaan	Regional Health District	Torrington Area Health District
	North Stonington	Regional Health District	Ledge Light Health District
	Plymouth	Regional Health District	Torrington Area Health District
	Portland	Regional Health District	Chatham Health District
	Preston	Regional Health District	Uncas Health District
	Putnam	Regional Health District	Northeast District Department of Health

Cluster	Town	Health Department Type	Regional Health District or Local Health Department Name
	Scotland	Regional Health District	Eastern Highlands Health District
	Sprague	Regional Health District	Uncas Health District
	Sterling	Regional Health District	Northeast District Department of Health
	Thomaston	Regional Health District	Torrington Area Health District
	Thompson	Regional Health District	Northeast District Department of Health
	Torrington	Regional Health District	Torrington Area Health District
	Voluntown	Regional Health District	Uncas Health District
	Watertown	Regional Health District	Torrington Area Health District
	Willington	Regional Health District	Eastern Highlands Health District
	Winchester	Regional Health District	Torrington Area Health District
	Windham	Regional Health District	North Central District Health Department
	Woodstock	Regional Health District	Northeast District Department of Health
Type Two	Bridgewater	Regional Health District	Newtown Health District
	Canaan	Regional Health District	Torrington Area Health District
	Chester	Regional Health District	Connecticut River Area Health District
	Cornwall	Regional Health District	Torrington Area Health District
	Kent	Regional Health District	Torrington Area Health District
	Litchfield	Regional Health District	Torrington Area Health District
	Lyme	Regional Health District	Ledge Light Health District
	Norfolk	Regional Health District	Torrington Area Health District
	Old Lyme	Regional Health District	Ledge Light Health District
	Roxbury	Regional Health District	Newtown Health District
	Salisbury	Regional Health District	Torrington Area Health District
	Sharon	Part Time Municipal	Sharon Health Department
	Union	Regional Health District	Northeast District Department of Health
	Warren	Regional Health District	Torrington Area Health District
	Washington	Regional Health District	Housatonic Valley Health District

Cluster	Town	Health Department Type	Regional Health District or Local Health Department Name
	Westbrook	Full Time Municipal	Westbrook Health Department
	Woodbury	Regional Health District	Housatonic Valley Health District
Type Three	Andover	Regional Health District	Eastern Highlands Health District
	Barkhamsted	Regional Health District	Farmington Valley Health District
	Bethany	Regional Health District	Quinnipiack Valley Health District
	Bethlehem	Regional Health District	Torrington Area Health District
	Bolton	Regional Health District	Eastern Highlands Health District
	Burlington	Regional Health District	Bristol-Burlington Health District
	Columbia	Regional Health District	Eastern Highlands Health District
	Coventry	Regional Health District	Eastern Highlands Health District
	Durham	Part Time Municipal	Durham Health Department
	East Granby	Regional Health District	Farmington Valley Health District
	Easton	Regional Health District	Aspetuck Health District
	Goshen	Regional Health District	Torrington Area Health District
	Haddam	Regional Health District	Connecticut River Area Health District
	Harwinton	Regional Health District	Torrington Area Health District
	Hebron	Regional Health District	Chatham Health District
	Killingworth	Regional Health District	Connecticut River Area Health District
	Marlborough	Regional Health District	Chatham Health District
	Middlebury	Regional Health District	Torrington Area Health District
	New Hartford	Regional Health District	Farmington Valley Health District
	Pomfret	Regional Health District	Northeast District Department of Health
	Redding	Part Time Municipal	Redding Health Department
	Salem	Regional Health District	Uncas Health District
	Sherman	Part Time Municipal	Sherman Health Department
	Woodbridge	Regional Health District	Quinnipiack Valley Health District

Appendix B

Table 32: Emergency medical service types by town, 2022

Cluster	Town	Basic Ambulance	First Responder	Supplemental First Responder	Paramedic
Type One	Ashford	Yes	Yes	No	Yes
	Bozrah	Yes	Yes	No	Yes
	Brooklyn	Yes	Yes	No	Yes
	Canterbury	Yes	Yes	No	Yes
	Chaplin	Yes	No	Yes	Yes
	Colebrook	Yes	Yes	No	No
	Deep River	Yes	Yes	No	Yes
	East Haddam	Yes	Yes	Yes	Yes
	Eastford	No	Yes	No	Yes
	Franklin	Yes	No	No	Yes
	Hampton	No	Yes	No	Yes
	Hartland	Yes	Yes	Yes	Yes
	Lebanon	Yes	Yes	No	Yes
	Lisbon	Yes	Yes	No	Yes
	Mansfield	Yes	Yes	No	Yes
	Middlefield	Yes	Yes	No	Yes
	Morris	Yes	Yes	No	No
	New Milford	Yes	Yes	No	Yes
	North Canaan	Yes	Yes	No	No
	North Stonington	Yes	Yes	Yes	No
	Plymouth	Yes	No	No	No
	Portland	Yes	Yes	No	Yes
	Preston	Yes	Yes	No	Yes
	Putnam	Yes	Yes	No	Yes
	Scotland	Yes	Yes	No	Yes
	Sprague	Yes	No	No	Yes
	Sterling	Yes	Yes	No	Yes

Cluster	Town	Basic Ambulance	First Responder	Supplemental First Responder	Paramedic
	Thomaston	Yes	Yes	Yes	No
	Thompson	No	Yes	No	Yes
	Torrington	Yes	Yes	Yes	Yes
	Voluntown	Yes	Yes	No	Yes
	Watertown	No	Yes	Yes	Yes
	Willington	Yes	Yes	No	Yes
	Winchester	Yes	Yes	Yes	No
	Windham	Yes	Yes	No	Yes
	Woodstock	Yes	Yes	No	Yes
Type Two	Bridgewater	Yes	Yes	No	No
	Canaan	Yes	Yes	No	No
	Chester	Yes	Yes	No	Yes
	Cornwall	Yes	No	No	No
	Kent	Yes	Yes	No	No
	Litchfield	Yes	Yes	No	No
	Lyme	Yes	Yes	No	Yes
	Norfolk	Yes	Yes	Yes	No
	Old Lyme	Yes	Yes	No	Yes
	Roxbury	Yes	Yes	No	No
	Salisbury	Yes	Yes	No	No
	Sharon	Yes	Yes	No	No
	Union	Yes	Yes	No	No
	Warren	Yes	No	No	No
	Washington	Yes	Yes	Yes	No
	Westbrook	Yes	Yes	No	Yes
	Woodbury	Yes	Yes	Yes	No
Type Three	Andover	Yes	Yes	No	Yes
	Barkhamsted	Yes	Yes	No	No
	Bethany	Yes	No	No	No

Cluster	Town	Basic Ambulance	First Responder	Supplemental First Responder	Paramedic
	Bethlehem	Yes	Yes	No	No
	Bolton	Yes	Yes	No	Yes
	Burlington	Yes	Yes	Yes	Yes
	Columbia	Yes	No	No	Yes
	Coventry	Yes	Yes	No	Yes
	Durham	Yes	Yes	No	Yes
	East Granby	Yes	No	No	Yes
	Easton	Yes	Yes	No	No
	Goshen	Yes	Yes	No	No
	Haddam	Yes	Yes	No	Yes
	Harwinton	Yes	Yes	No	No
	Hebron	Yes	Yes	No	Yes
	Killingworth	Yes	Yes	No	Yes
	Marlborough	Yes	Yes	No	No
	Middlebury	Yes	Yes	No	No
	New Hartford	Yes	Yes	No	No
	Pomfret	Yes	Yes	No	Yes
	Redding	Yes	Yes	Yes	No
	Salem	Yes	Yes	Yes	No
	Sherman	Yes	Yes	No	No
	Woodbridge	Yes	Yes	No	Yes

Figure and Table Notes

Figures

Figure 1
DataHaven map (2021) created in conjunction with CT-ORH of CT-ORH and HRSA rural town classifications.

Figure 2
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates. Data were used in k-means clustering to arrive at three rural clusters. See section Grouping Rural Towns for more detail.

Figure 3
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Figure 4
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Figure 5
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Figure 6
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Figure 7
DataHaven analysis (2021) of 2015, 2018, and 2021 DataHaven Community Wellbeing Survey Responses.

Figure 8
DataHaven analysis (2022) of 2020–2021 school year enrollment data from the Connecticut State Department of Education, accessed via EdSight at http://edsight.ct.gov At the school district level, not all groups may be shown due

to CTSDE data suppression rules for small enrollment counts, even though they may represent more than 1% of the school district population.

Figure 9
DataHaven analysis (2022) of 2020–2021 school year enrollment by race/ethnicity data from the Connecticut State Department of Education, accessed via EdSight at http://edsight.ct.gov At the school district level, not all groups may be shown due to CTSDE data suppression rules for small enrollment counts, even though they may represent more than 1% of the school district population.

Figure 10
DataHaven analysis (2022) of 2020–2021 school year enrollment by high-needs status data from the Connecticut State Department of Education, accessed via EdSight at http://edsight.ct.gov.

Figure 11
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Figure 12
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Figure 13
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Figure 14
DataHaven analysis (2022) of the shortest estimated drive time from each town to various facilities in Connecticut based on the residential areas of each town. The chart shows the median value for each cluster. Only locations in Connecticut were used. In some cases, a closer facility may exist in a neighboring state.

Driving routes and estimated driving time were obtained through the Open Source Routing Machine engine, a self-hosted server based on data from OpenStreetMap. See Dennis Luxen and Christian Vetter. 2011. Real-time routing with OpenStreetMap data. In Proceedings of the 19th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (GIS '11). Association for Computing Machinery, New York, NY, USA, 513–516. https://doi.org/10.1145/2093973.2094062.

Sources for each location-type include:
Trauma Centers, American Trauma Society data retrieved from https://www.amtrauma.org/page/FindTraumaCenter; Stroke Centers, Connecticut Department of Public Heath data retrieved from https://portal.ct.gov/DPH/Emergency-Medical-Services/EMS/Certified-Stroke-Centers; Labor and Delivery Units, Connecticut Network of Care Data retrieved from https://connecticut.networkofcare.org/mh/services/subcategory.aspx?tax=LJ-5000.1700&k=Delivery/Childbirth&z=&r=500; Abortion Providers, retrieved through request from Myers, CK. Myers Abortion Facility Database. Published online July 29, 2021, https://doi.org/10.17605/OSF.IO/8DG7R; Acute Care Hospitals, Connecticut Department of Public Health data retrieved from https://data.ct.gov/Health-and-Human-Services/Connecticut-Acute-Care-Hospitals/r4ta-b48e; Substance Use Treatment Facilities, Substance Abuse and Mental Health Services Administration data retrieved from https://www.samhsa.gov/medication-assisted-

treatment/find-treatment/treatment-practitioner-locator?field_bup_state_value=8; FQHCs an Lookalike Sites, Health Services and Resources Administration data, retrieved from https://data.hrsa.gov/data/download; Nursing Facilities, Connecticut Department of Health and Human Services data retrieved from https://data.ct.gov/Health-and-Human-Services/Nursing-Facility-Registry/rm6f-b9qj; Pharmacies, Connecticut Department of Health and Human Services data retrieved from https://data.ct.gov/Health-and-Human-Services/Pharmacies/2rnd-twzt.

Figure 15
DataHaven analysis of data from PLACES Project. Centers for Disease Control and Prevention.

Figure 16
DataHaven analysis of data from PLACES Project. Centers for Disease Control and Prevention.

Figure 17
DataHaven analysis of data from PLACES Project. Centers for Disease Control and Prevention.

Figure 18
DataHaven analysis of data from PLACES Project. Centers for Disease Control and Prevention.

Figure 19
DataHaven analysis of data from PLACES Project. Centers for Disease Control and Prevention.

Figure 20
DataHaven analysis of data from PLACES Project. Centers for Disease Control and Prevention.

Figure 21
All information provided here is based on a DataHaven analysis (2022) of CHIME data provided by the Connecticut Hospital Association upon request from and special agreement with partner hospitals and DataHaven. See https://www.ctdatahaven.org/reports/2022-community-health-needs-assessment-chime-data-profiles for more information.

Figure 22
DataHaven analysis of data from PLACES Project. Centers for Disease Control and Prevention.

Figure 23
DataHaven analysis of data collected from Ortiz, D. Connecticut Department of Public Health 2020 Executive Summary: Childhood Lead Poisoning Surveillance. Published online March 1, 2022.

Figure 24
DataHaven analysis (2022) of data collected from the Connecticut Department of Public Health 2020 Lyme Disease Cases and Rates by Town and County, retrieved from https://portal.ct.gov/-/media/DPH/EEIP/Lyme/2020-Lyme.pdf.

Figure 25
See notes for Table 26.

Figure 26
DataHaven analysis (2022) of Accidental Drug Related Deaths 2012–2021. Connecticut Office of the Chief Medical Examiner. Available at https://data.ct.gov/resource/rybz-nyjw.

Figure 27
DataHaven analysis (2022) of data from the Connecticut Department of Public Health Occurrent Deaths 2015–2021. Retrieved from https://portal.ct.gov/DPH/Health-Information-Systems—Reporting/File-Transfer-Page/Connecticut-DPH-File-Transfer-Page (encrypted). Rates are weighted to a Connecticut standard million (based on 2019 ACS data, calculated by DataHaven). Annualized values for COVID-19 are scaled from the start of the pandemic. For all-cause mortality, all causes of death are summarized. For selected primary causes of death, only major causes and their sub-categories are included.

Figure 28
See notes for Figure 27.

Figure 29
See notes for Figure 27.

Figure 30
See note for Figure 27.

Tables

Table 1
See notes for Figure 2.

Table 2
DataHaven analysis (2022) of US Census Bureau 2010 Census and American Community Survey 2020 5-year estimates.

Table 3
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Table 4
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Table 5
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Table 6
DataHaven analysis (2022) of US Census Bureau 2010 Census and American Community Survey 2020 5-year estimates.

Table 7
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Table 8
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Table 9
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Table 10
DataHaven analysis (2021) of 2015, 2018, and 2021 DataHaven Community Wellbeing Survey Responses.

Table 11
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Table 12
DataHaven analysis (2022) of 2015, 2018, and 2021 DataHaven Community Wellbeing Survey Responses.

Table 13
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Table 14
DataHaven analysis (2021) of 2015, 2018, and 2021 DataHaven Community Wellbeing Survey Responses.

Table 15
DataHaven analysis (2022) of 2019 employment data from the Connecticut Department of Labor. The 2020 data was not used because it was deeply impacted by the COVID-19 pandemic.

Table 16
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Table 17
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Table 18
University of Wisconsin Population Health Institute. County Health Rankings & Roadmaps 2022. www.countyhealthrankings.org.

Table 19
DataHaven analysis (2022) of data from the Connecticut Department of Health and Human Services Nursing Facility Registry, retrieved from https://data.ct.gov/Health-and-Human-Services/Nursing-Facility-Registry/rm6f-b9qj.

Table 20
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates and Connecticut Department of Public Health Nursing Facility data retrieved from https://data.ct.gov/Health-and-Human-Services/Nursing-Facility-Registry/rm6f-b9qj.

Table 21
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Table 22
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Table 23
DataHaven analysis (2022) of US Census Bureau American Community Survey 2020 5-year estimates.

Table 24
DataHaven analysis (2021) of 2015, 2018, and 2021 DataHaven Community Wellbeing Survey Responses.

Table 25
DataHaven analysis (2021) of 2015, 2018, and 2021 DataHaven Community Wellbeing Survey Responses.

Table 26
DataHaven analysis (2022) of data provided by the Connecticut Department of Public Health, retrieved from https://data.ct.gov/Health-and-Human-Services/COVID-19-Tests-Cases-and-Deaths-By-Town-ARCHIVE/28fr-iqnx. Note, as of June 27, 2022 this dataset as been archived.

Table 27
DataHaven analysis (2022) of data from the Connecticut Department of Public Health Vital Statistics. Retrieved from https://portal.ct.gov/DPH/Health-Information-Systems—Reporting/Hisrhome/Vital-Statistics-Registration-Reports.

Table 28
See notes for Table 27.

Table 29
DataHaven analysis (2022) of Accidental Drug Related Deaths 2012–2021. Connecticut Office of the Chief Medical Examiner. Available at https://data.ct.gov/resource/rybz-nyjw. Rates are weighted with the U.S. Centers for Disease Control and Prevention (CDC) 2000 U.S. Standard Population 18 age group weights available at https://seer.cancer.gov/stdpopulations.

Table 30
DataHaven analysis (2022) of data from National Center for Health Statistics. U.S. Small-Area Life Expectancy Estimates Project (USALEEP): Life Expectancy Estimates Files, 2010–2015. National Center for Health Statistics. 2018. Available at https://www.cdc.gov/nchs/nvss/usaleep/usaleep.html.

Table 31

Compiled health districts and departments as of June, 2022 from https://portal.ct.gov/dph/Local-Health-Admin/LHA/Local-Health-Administration—-Site-Map. These data are subject to change. Please consult the link above for the most up-to-date information.

Table 32

Compiled from Primary Service Area by EMS Service, as of June, 2022 from elicense.ct.gov . These data are subject to change. Please consult the link above for the most up-to-date information.

Endnotes

[1] HRSA provides a grant eligibility analyzer on their website at https://data.hrsa.gov/tools/rural-health.

[2] The "elbow" and "silhouette" methods were used to determine the optimal number of clusters.

3 Khan A, Parente V, Baird JD, et al. Association of Patient and Family Reports of Hospital Safety Climate With Language Proficiency in the US. JAMA Pediatrics. Published online June 13, 2022. doi:10.1001/jamapediatrics.2022.1831

[4] Throughout this document, the DataHaven Community Wellbeing Survey is referenced. This survey is an in-depth telephone interview with randomly selected adults across the state. As of 2022, the survey has completed three full waves (2015, 2018, and 2021) and one smaller COVID wave in 2020. The survey is weighted to Census population estimates to ensure a representative sample for adults in all 169 towns across Connecticut, but due to the small population sizes in rural areas, survey data for this report is often pooled (all waves are combined) to generate summaries that can be disaggregated by race/ethnicity, age, or other factors.

[5] Davila K, Abraham M, Seaberry C. Towards Health Equity in Connecticut. Published online June 6, 2020. https://ctdatahaven.org/reports/towards-health-equity-connecticut

[6] See https://portal.ct.gov/dph/Local-Health-Admin/LHA/Local-Health-Administration—-Site-Map

[7] DataHaven analysis of data from the Connecticut Department of Public Health Acute Care Hospitals list, retrieved June 22, 2022. https://data.ct.gov/Health-and-Human-Services/Connecticut-Acute-Care-Hospitals/r4ta-b48e

[8] Golvala K. "As hospital systems grow in CT, rural patients lose services." CT Mirror. May 8, 2022. https://ctmirror.org/2022/05/08/as-hospital-systems-grow-consolidate-rural-patients-ct-lose-services-labor-delivery-intensive-care/

[9] Ibid.

[10] DataHaven analysis (2022) of data from the Heath Resources and Services Administration Health Center Service Delivery and Look-Alike Sites, retrieved June 22, 2022. https://data.hrsa.gov/data/download

[11] See https://portal.ct.gov/DPH/Family-Health/Community-Health-Centers/Community-Health-Center-Overview

[12] Golvala K. "In some rural CT towns, hospital cuts mean fewer options for giving birth." CT Mirror. November 28, 2021. https://ctmirror.org/2021/11/28/rural-birthing-options-dwindle-as-hospitals-slash-labor-and-delivery-services/

[13] Phillips E. "Catholic health system's acquisition of Day Kimball hospital raises concerns." CT Mirror. June 9, 2022. https://ctmirror.org/2022/06/09/catholic-covenant-health-acquisition-day-kimball-hospital-reproductive-services/

[14] Myers C. Myers Abortion Facility Database. Published online July 29, 2021. https://doi.org/10.17605/OSF.IO/8DG7R

[15] Pew Charitable Trusts Research Fact Sheet. Medication-Assisted Treatment Improves Outcomes for Patients with Opioid Use Disorder. Published online November 22, 2016. https://www.pewtrusts.org/en/research-and-analysis/fact-sheets/2016/11/medication-assisted-treatment-improves-outcomes-for-patients-with-opioid-use-disorder

[16] DataHaven analysis (2022) of data from the Connecticut Department of Public Health Substance Abuse Care Facilities dataset, retrieved June 22, 2022. http://www.ct.gov/dcp/cwp/view.asp?q=459952

[17] State of Connecticut Annual Nursing Facility Census. Published online September 30, 2020. https://portal.ct.gov/-/media/OPM/HHS/LTC/NF-Fact-Sheet-2020.pdf

[18] See notes for Table 17.

[19] For some states, but not Connecticut, these projections are also available at the county level.

[20] See https://data.hrsa.gov/topics/health-workforce/workforce-projections

[21] Ibid.

[22] See notes for Table 23.

[23] See https://www.cdc.gov/ncbddd/disabilityandhealth/infographic-disability-impacts-all.html

[24] 2019 is the latest year for which data are available, but the COVID-19 pandemic forced many doctors and patients to limit contact with one another, which may affect these data in 2020-2021 when they are released.

[25] Lee H, Singh GK. Monthly Trends in Self-Reported Health Status and Depression by Race/Ethnicity and Socioeconomic Status During the COVID-19 Pandemic, United States, April 2020-May 2021. Annals of Epidemiology. Published online August 4, 2021. https://doi.org/10.1016/j.annepidem.2021.07.014

[26] See Endnote 4.

[27] See https://www.aafa.org/emotions-stress-depression.aspx

[28] Chapman DP, Perry GS, Strine TW. The vital link between chronic disease and depressive disorders. Prev Chronic Dis 2005;2:A14

[29] See Ortiz, D. Connecticut Department of Public Health 2020 Executive Summary: Childhood Lead Poisoning Surveillance. Published online March 1, 2022.

[30] Centers for Disease Control and Prevention. Lyme Disease. Published online January 19, 2022. https://www.cdc.gov/lyme/index.html

[31] Connecticut Department of Public Health. A Brief History of Lyme Disease in Connecticut. Published online July 1, 2019. https://portal.ct.gov/DPH/Epidemiology-and-Emerging-Infections/A-Brief-History-of-Lyme-Disease-in-Connecticut.

[32] OECD. Infant mortality rates (indicator). doi: 10.1787/83dea506-en

[33] Note, the Connecticut Department of Public Health has used different measures of "late" prenatal care in the past so these values may seem lower than previous estimates.