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# A Picture of Our Health

Hamilton County, Tennessee  
Community Health Report

2024



# Hamilton County Health Department

**Health Department Mission:**

To do all we can to assure a healthy community

**Health Department Vision:**

Healthy People in Healthy Communities

**This report was prepared by:**

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Epidemiology Department  
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### Letter to the Community



The Hamilton County Health Department is pleased to release the 2024 *A Picture of Our Health* community health assessment. This document provides a detailed report regarding the state of health in Hamilton County using comprehensive data and information from local, state, and federal agencies as well as current public health research.

Throughout this report, we refer to *Healthy People 2030* which sets national health objectives and a vision for improving the health and well-being of the American population by 2030. This initiative highlights the importance of data-driven decision-making and collaboration across various sectors to achieve its objectives which can be applied to our efforts in Hamilton County.

Our last *A Picture of Our Health* was released in 2019 and shortly thereafter, a global pandemic struck our community in March 2020. The COVID-19 pandemic left a significant impact on the health of Hamilton County residents. To better understand this impact, we conducted Hamilton County's first county-wide Public Health Survey in collaboration with the University of Tennessee at Chattanooga (UTC) in 2023. We received 3,383 valid responses from members of the community. A summary of the survey results is included in this report, which can be helpful in targeting health issues to address.

Using *Healthy People 2030* objectives, current health data, and the Public Health Survey results, we hope that you find this report a valuable resource as we work together toward a healthier future for our community.

Sincerely,

A handwritten signature in blue ink that reads "Sabrina F. Novak". The signature is written in a cursive, flowing style.

Sabrina F. Novak  
Administrator  
Hamilton County Health Department



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April 2, 2024

Dear Community:

The Regional Health Council (RHC) is excited to convey the *2024 A Picture of Our Health* community health profile. The Council serves as an advisory body to the Hamilton County Health Department and serves as the lead community-based organization on important matters relating to the health of the residents of Hamilton County. Appointed by the county mayor and county commissioners, the Council includes 25 members representing every sector of Hamilton County.

The Council is honored to have played a role in developing this report by identifying key health priorities. The Council will next work to develop strategies to improve the health and well-being of our community, based on the findings of the report. Indeed, the periodically updated *A Picture of Our Health* has historically guided our work and will continue to do so. Over the next few months, the Council will use this report to identify health priorities, develop strategies, and work to engage the community around these issues.

The *2024 A Picture of Our Health* represents an enormous amount of work with months of data analysis and report building. On behalf of the Regional Health Council, I thank the Epidemiology Department of the Hamilton County Health Department, led by Dr. Dawn Ford, for their efforts to produce this important document. I sincerely appreciate the enthusiasm and support of Mayor Weston Wamp, his staff, and members of the Hamilton County Commission. Their engagement and commitment to improving the health of our community is undeniable. Together, we will all work to address the health needs of the community identified in the *2024 A Picture of Our Health*.

Sincerely,

A handwritten signature in cursive script that reads "Sean Richards".

Sean Richards, PhD  
Chair, Regional Health Council

## Authorship and Acknowledgements

*A Picture of Our Health* was compiled August 2023-March 2024 and published in April 2024. The primary authors and contributors of this report are of the Health Department's Epidemiology Department:

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## Executive Summary

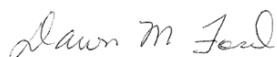
The 2024 *A Picture of Our Health* report describes the health status of Hamilton County, Tennessee residents, using the most current data available when the report was compiled. This report focuses on social determinants of health (SDOH) and emerging health issues. According to *Healthy People 2030*, SDOH are the conditions in which individuals exist and experience throughout their lifetime and can be categorized into five domains: income security, access to and quality of education, access to and quality of healthcare, physical environment, and social structure and support.<sup>1</sup>

While we aimed to update the data provided in the 2019 *A Picture of Our Health* report, additional topics were included to broaden its scope to provide an even more comprehensive view of the health of Hamilton County residents. In this report, we discuss *Healthy People 2030*, which is an initiative and set of national health objectives established by the U.S. Department of Health and Human Services (HHS). The *Healthy People 2030* initiative outlines a vision for improving the health and well-being of the American population by 2030 with a wide range of ambitious goals and objectives on many health determinants, ranging from reducing the prevalence of chronic diseases to promoting healthy behaviors.

This report also includes information about the COVID-19 pandemic and a summary of the Hamilton County Public Health Survey results. The COVID-19 pandemic has made a significant impact on Hamilton County residents, as it has with people around the world. Government agencies, businesses, and organizations implemented measures to safeguard public health using the best information and data available, including social distancing initiatives, mask mandates, and vaccination campaigns. The goal of these efforts was to reduce the transmission of the virus and its impacts. Examining the continued effects of COVID-19 on the community is important in understanding the broader health environment of Hamilton County moving forward.

In response to the evolving landscape shaped by the COVID-19 pandemic, the Hamilton County Health Department initiated the Hamilton County Public Health Survey in collaboration with the University of Tennessee at Chattanooga (IRB #23-043). The survey was administered in spring and summer 2023 and was designed to capture the current health challenges faced by Hamilton County residents. For residents aged 18 and above, the survey received 3,383 valid responses. This comprehensive data collection, involving diverse outreach strategies, has facilitated a better understanding of the health landscape in Hamilton County and a summary of the results is included in this report as Appendix C.

Our goal was to present many aspects of health and factors that impact it. Using *Healthy People 2030* as a guiding framework, this report can be used by policymakers, healthcare professionals, public health agencies, and community organizations to work collectively toward a healthier future for Hamilton County.



Dawn M. Ford, PhD, CPH  
Epidemiologist and Epidemiology Department Manager

# Chapter 1

## Introduction to Hamilton County and Our Health Status

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“A society in which all people can achieve their full potential for health and well-being across the lifespan.”

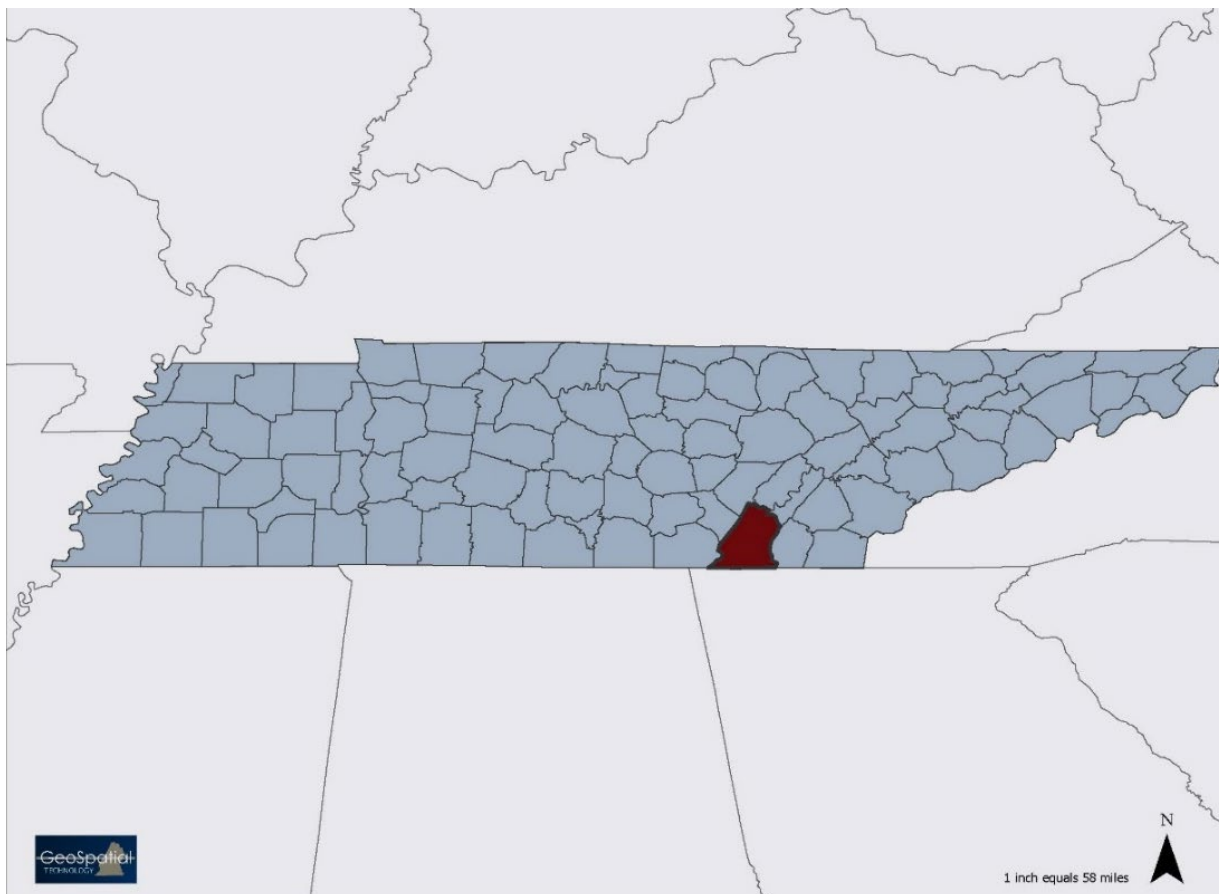
- Healthy People 2030

# Chapter 1. Introduction to Hamilton County and Our Health Status

## Introduction to Hamilton County

Hamilton County is a diverse and vibrant community located in southeast Tennessee, on the state border with Georgia (Figure 1-1). It is home to the City of Chattanooga, which serves as the county seat, and the following municipalities: City of Collegedale, City of East Ridge, City of Lakesite, City of Red Bank, City of Ridgeside, City of Soddy Daisy, Town of Walden, Town of Signal Mountain, and Town of Lookout Mountain.

**Figure 1-1. Map of Tennessee and Hamilton County. Source: Hamilton County GIS.**

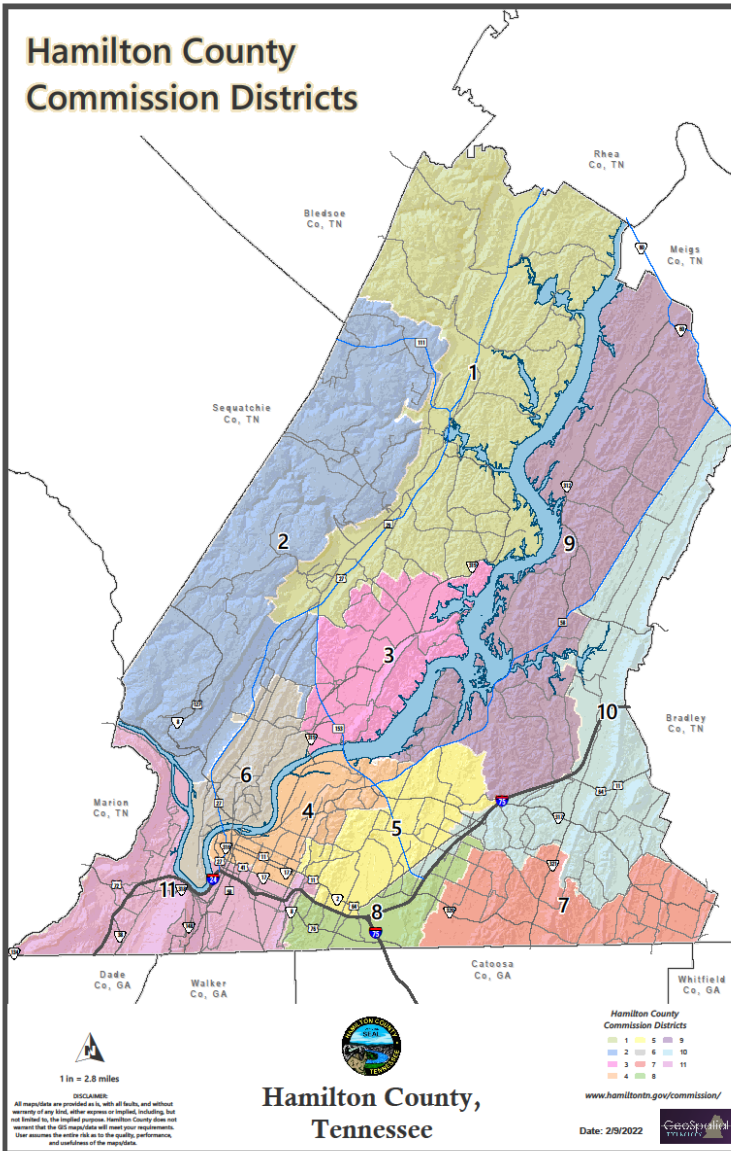


With an estimated population of over 360,000 residents, Hamilton County offers a mix of urban, suburban, and rural communities, the Tennessee River and its watershed, and nearby mountains. It is the 4<sup>th</sup> most populous county in the state. The region's economy thrives on industries such as manufacturing, healthcare, and tourism, making it an attractive place to live, work, and play.

There are 11 Hamilton County Commission Districts (Figure 1-2). Hamilton County is committed to fostering a strong sense of community and investing in the well-being of its residents. The county's

education system has a network of public and private schools dedicated to providing quality education to young people. The Hamilton County Department of Education serves over 45,000 students in more than 78 schools.<sup>2</sup>

**Figure 1-2. Map of Hamilton County, Tennessee, and County Commission Districts. Source: Hamilton County Government.<sup>3</sup>**



Hamilton County has a robust healthcare infrastructure, with reputable hospitals, medical centers, and clinics serving the population's healthcare needs. The county's commitment to public health is evident through various initiatives aimed at promoting healthy lifestyles, disease prevention, and access to healthcare services. Moreover, the presence of educational institutions and research facilities in the region helps advance medical knowledge and improve healthcare outcomes. Hamilton County's universities and colleges offer varying degrees and certifications in clinical practice, and partner with community hospitals and mental health practices to foster quality medical and mental health education.

Like many areas across the United States, Hamilton County has seen an increase in the prevalence of chronic diseases such as obesity, diabetes, and cardiovascular conditions. Addressing these issues requires continued efforts from local authorities, healthcare providers, and community

organizations to implement effective prevention and intervention strategies. Despite these challenges, the county's strong healthcare infrastructure and community-focused initiatives provide a solid foundation for improving the overall health and wellness of Hamilton County residents.

## Demographic and Social Data Summary

Hamilton County has seen a population increase of 3.4% since the 2012-2016 American Community Survey (ACS) 5-Year Estimate (2021).<sup>4</sup> The percentage of individuals aged 65 and over has increased over the same time (16% to 17.5%), while the proportion of those under the age of 18 years has remained the same at 21% (Table 1-1). Since the 2019 *A Picture of Our Health* report, twice as many residents in Hamilton County are reporting two or more races (4.3% compared to 2%) and the percentage of residents reporting Hispanic ethnicity has increased by 1%.

**Table 1-1. Demographics of Hamilton County, Tennessee, and the U.S. Source: 2017-2021 American Community Survey 5-Year Estimates.<sup>4</sup>**

	Hamilton County	Tennessee	United States
<b>Population Size</b>	363,790	6,859,497	329,725,481
Male	48.5%	49%	49.5%
Female	51.5%	51%	50.5%
Under 18 years	21.0%	22.4%	22.5%
65 years and older	17.5%	16.3%	16.0%
<b>Race: One race reported</b>			
White	73.1%	75.8%	68.2%
Black or African American	18.5%	16.5%	12.6%
American Indian and Alaska Native	0.2%	0.2%	0.8%
Asian	2.0%	1.8%	5.7%
Native Hawaiian & other Pacific Islander	0.0%	0.1%	0.2%
<b>Races: Two or more races</b>	4.3%	3.8%	7.0%
<b>Ethnicity: Hispanic</b>			
	6.0%	5.8%	18.4%

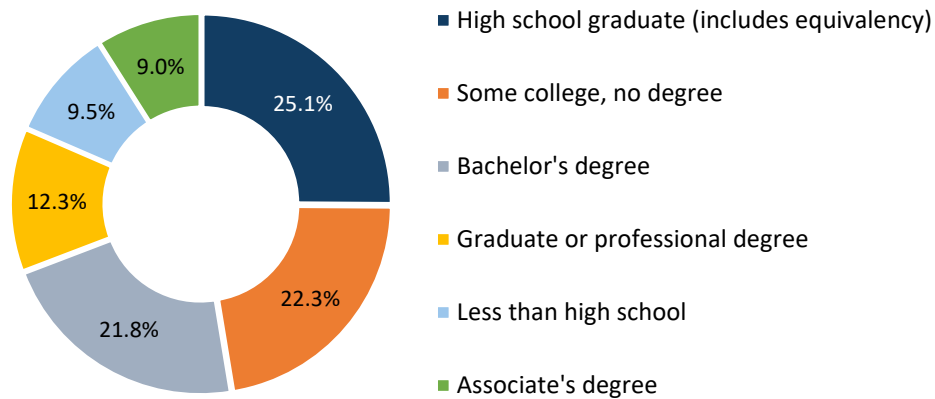
### Education

Education is a social determinant of health, and people with higher levels of education tend to have better health behaviors and lower rates of disease. The education level achieved by Hamilton County residents 25 years and older has improved over time, with only 9.5% having less than a high school education compared to 12% previously (Figure 1-3; Table 1-2).<sup>4</sup> Also, access to broadband internet helps with education efforts and the vast majority of Hamilton County's residents have access (Table 1-2).

**Table 1-2. Social characteristics of Hamilton County, Tennessee, and the U.S. Source: 2017-2021 American Community Survey 5-Year Estimates.<sup>4</sup>**

	Hamilton County	Tennessee	United States
<b>Educational Attainment (age 25+)</b>			
Less than high school	9.5%	11.2%	11.1%
High school graduate (includes equivalency)	25.1%	31.6%	26.5%
Some college, no degree	22.3%	20.6%	20.0%
Associate's degree	9.0%	7.6%	8.7%
Bachelor's degree	21.8%	18.2%	20.6%
Graduate or professional degree	12.3%	10.8%	13.1%
<b>Veterans Status</b>			
	7.4%	8.0%	6.9%
<b>Disability Status (non-institutionalized)</b>			
	14.7%	15.3%	12.6%
<b>Language Spoken at Home</b>			
English only	92.0%	92.6%	78.3%
Spanish	4.7%	4.2%	13.3%
<b>Broadband internet subscription</b>			
	86.4%	83.8%	87.0%

**Figure 1-3. Hamilton County educational attainment. Source: 2017-2021 American Community Survey 5-Year Estimates.<sup>4</sup>**





In evaluating education by race, Black persons and those reporting two or more races have the lowest rates of high school graduate or higher attainment, and Black persons have the lowest rate of bachelor's degree or higher attainment at 17.1% (Table 1-3). While there have been slight improvements for all races since the 2012-2016 ACS, these data represent an education disparity which can impact health outcomes.

**Table 1-3. Educational attainment by race. Source: 2017-2021 American Community Survey 5-Year Estimates.<sup>4</sup>**

Race	High school graduate or higher	Bachelor's degree or higher
White	92.3%	38.1%
Black	86.6%	17.1%
American Indian/Alaska Native	94.6%	34.2%
Native Hawaiian or Other Pacific Islander	100.0%	91.2%
Two or More Races	82.7%	24.1%

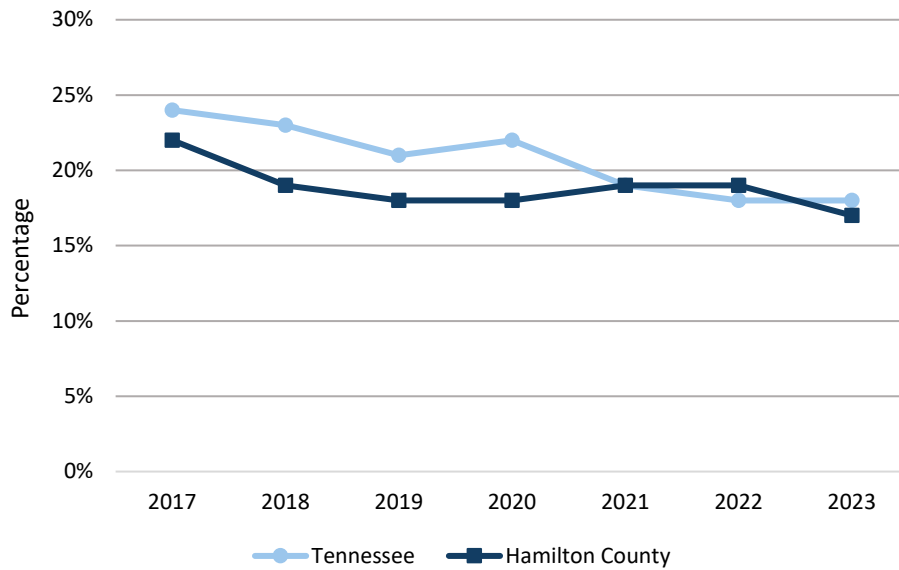
### Economic Data Summary

Economic characteristics for Hamilton County are better than those for the state of Tennessee with a lower unemployment rate, higher median household income, and lower poverty rates (Table 1-4). Since the last report, Hamilton County poverty rates have improved for all persons and for children specifically. Figure 1-4 shows the childhood poverty trends.

**Table 1-4. Economic characteristics of Hamilton County, Tennessee, and the United States. Source: 2017-2021 American Community Survey 5-Year Estimates.<sup>4</sup>**

	Hamilton County	Tennessee	United States
Unemployment Rate	4.6%	5.3%	5.5%
Median household income	\$61,050	\$58,516	\$69,012
Families living below poverty	8.3%	10.3%	8.9%
Child poverty	18.7%	19.9%	17.0%
All persons below poverty level	12.7%	14.3%	12.6%

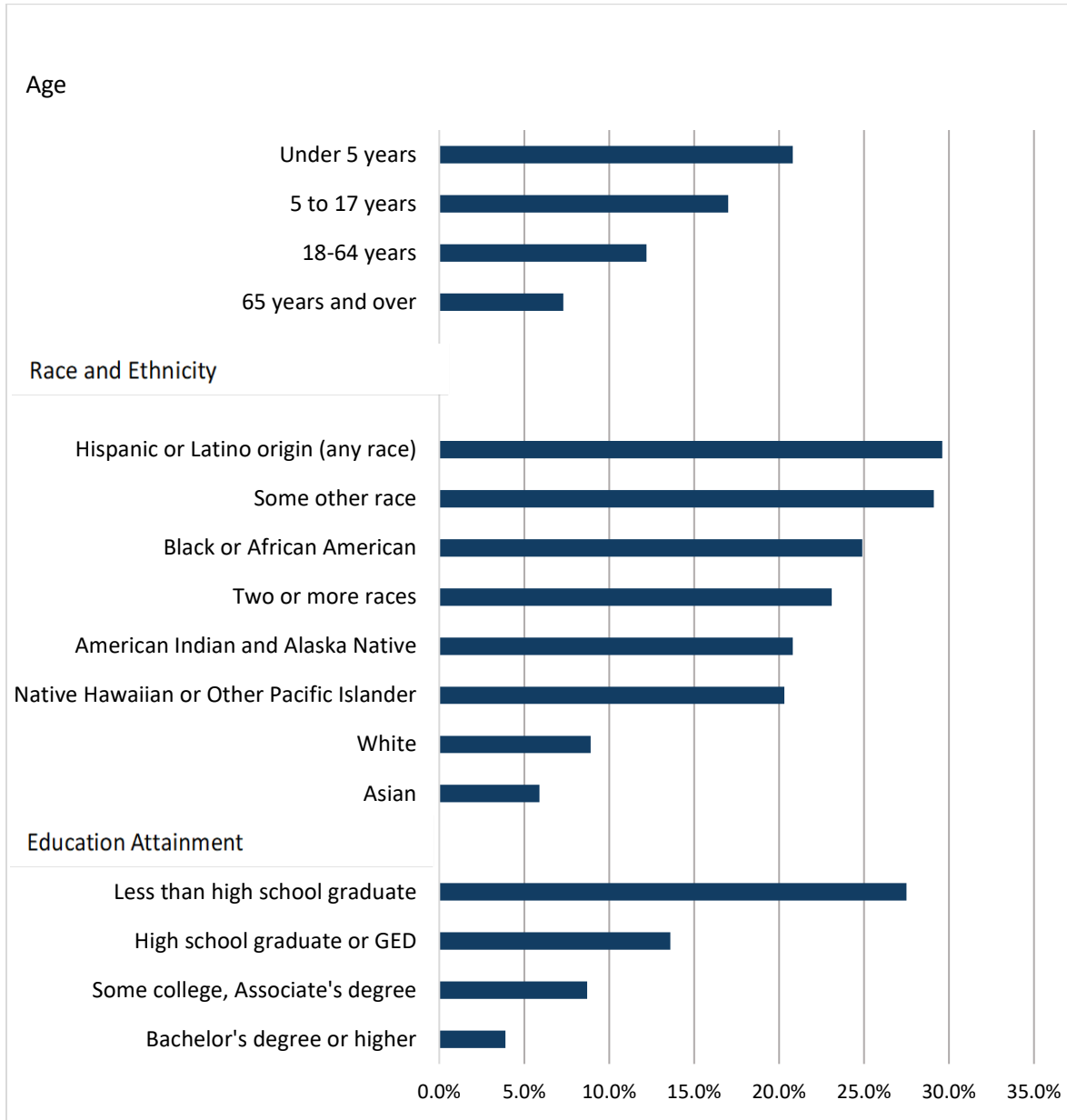
**Figure 1-4. Children in poverty in Hamilton County and the State of Tennessee. Source: County Health Rankings and Roadmaps 2023.<sup>5</sup>**



*Poverty*

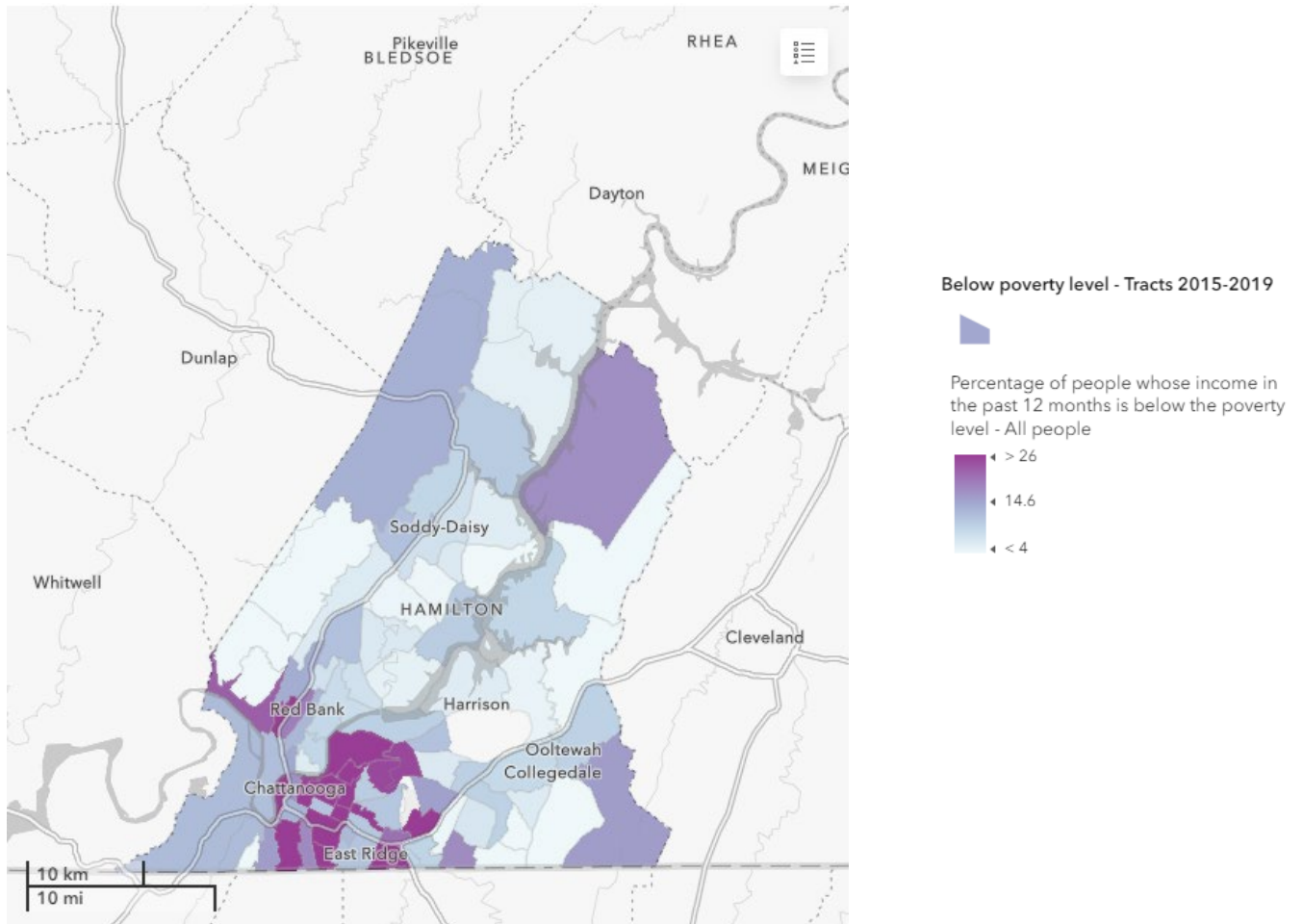
Poverty is a social determinant of health, and poverty rates vary by race, ethnicity, educational level, employment, and household type. Of women in Hamilton County, 13.30% live in poverty compared to 11.80% of men. Thirty-three percent of unemployed persons live in poverty compared to only 5.8% of those employed. As shown in Figure 1-5, those persons living below the 100% federal poverty level in Hamilton County are more likely to have less than high school education, be Hispanic or Latino, report as being some other race, and are young persons.

**Figure 1-5. Percent of persons living below the 100% federal poverty level in Hamilton County by age, race/ethnicity, and education attainment. Source: 2017-2021 American Community Survey 5-Year Estimates.<sup>4</sup>**



There are areas of the county that face more challenges with poverty than others. In general, there is more poverty in east and south Chattanooga compared to other parts of the county (Figure 1-6). The zip codes with the highest poverty levels are in Table 1-5.

**Figure 1-6. Income below poverty by census tract in Hamilton County. Source: U.S. Census Bureau, My Community Explorer 3.0.<sup>6</sup>**



**Table 1-5. Hamilton County zip codes with poverty levels above 20%, ranked in order. Source: ACS 2021 estimates.<sup>4</sup>**

Zip Code	Poverty Level %
37407	40.7
37402	37.4
37410	33.5
37403	32.3
37406	32.1
37404	24.0
37311	20.6

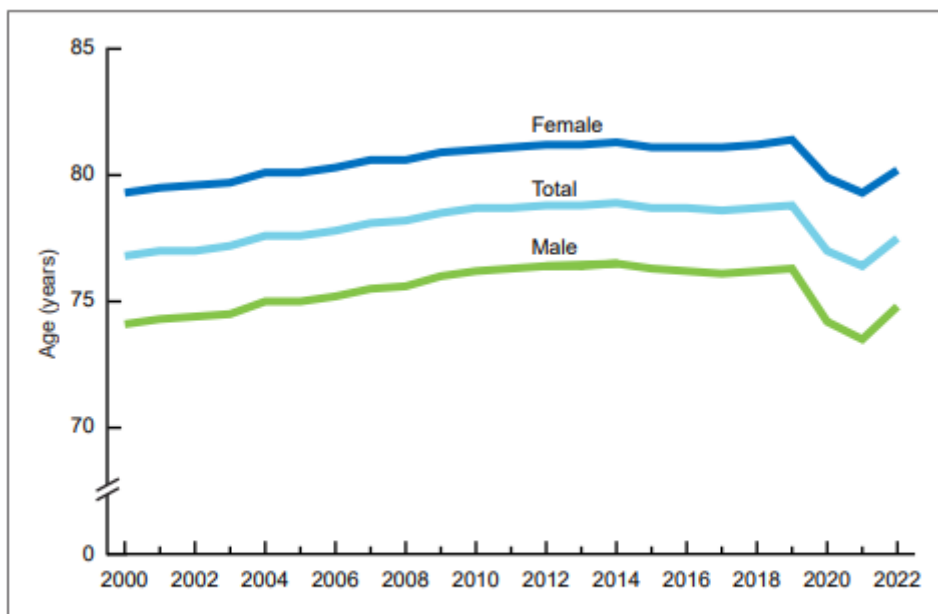
## Life Expectancy and Leading Causes of Death

### Life Expectancy

Life expectancy is a measure of population health, and in general, has increased over time. The U.S. life expectancy declined from 78.8 years in 2019 to 76.4 years in 2021, which is the lowest since 1996.<sup>7</sup> Provisional data, however, shows that life expectancy for 2022 has increased to 77.5 (Figure 1-7).

Life expectancy varies by race/ethnicity and gender. Women have longer life expectancies than men at the county, state, and national levels. For example, in the United States in 2022, life expectancy in women was 80.2 compared to men at 73.5.

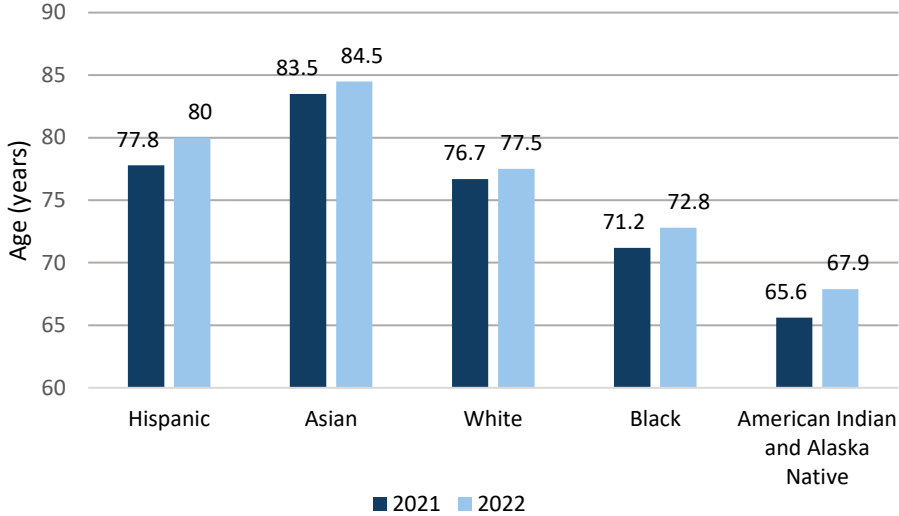
**Figure 1-7. Life expectancy at birth, by sex: United States, 2002-2022. Source: NVSS Provisional Life Expectancy Estimates for 2022, November 2023.<sup>8</sup>**



NOTES: Estimates are based on provisional data for 2022. Provisional data are subject to change as additional data are received. Estimates for 2000–2021 are based on final data.  
SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

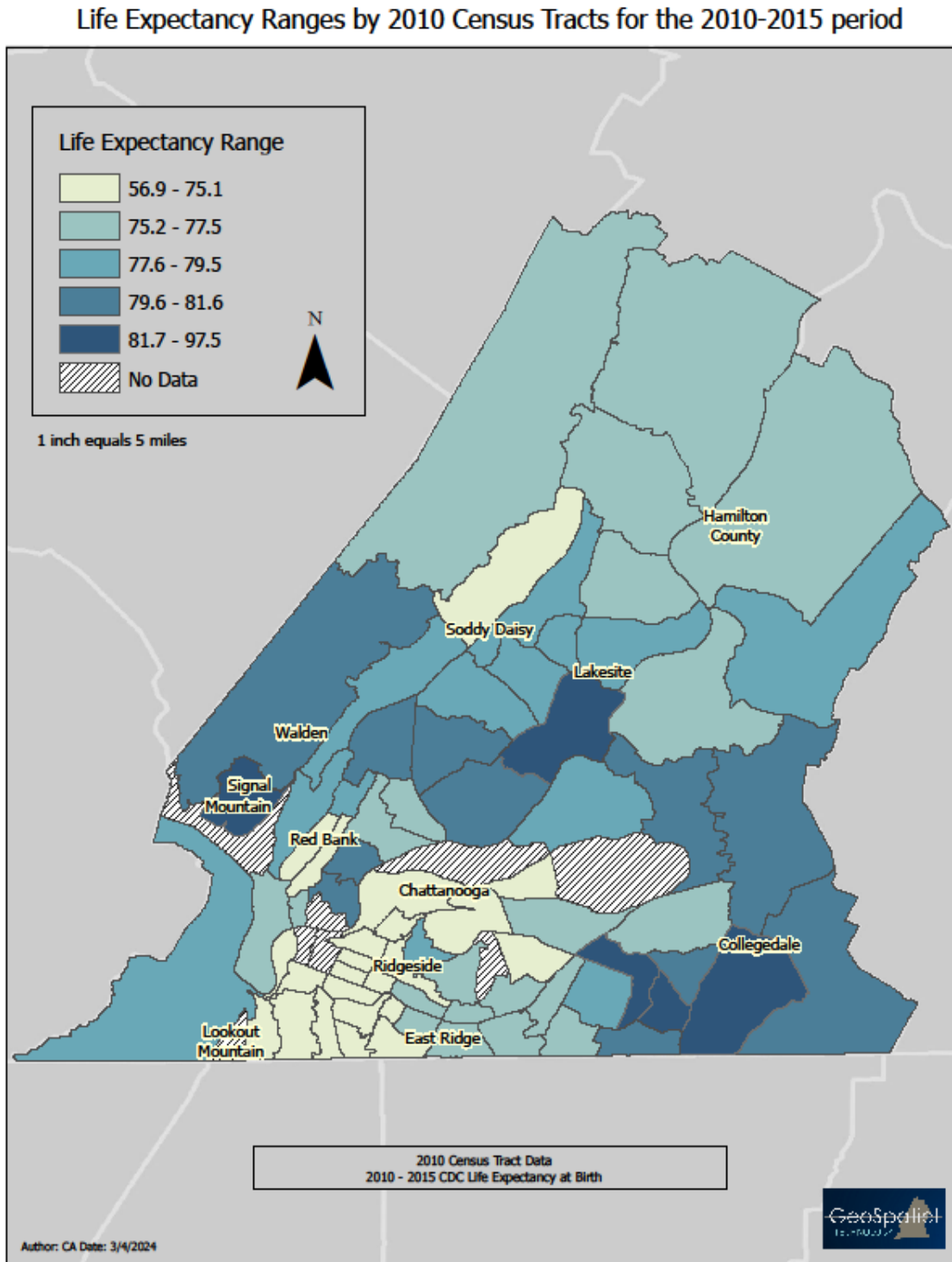
Figure 1-8 shows the comparison of life expectancy from 2021 to 2022 by race and ethnicity. The greatest gains were in the Hispanic population (2.2 years) and the American Indian and Alaska Native populations (2.3 years).

**Figure 1-8. Life expectancy at birth, by Hispanic origin and race. United States, 2021-2022. Source: NVSS Provisional Life Expectancy Estimates for 2022, November 2023.<sup>8</sup>**



According to the County Health Rankings and Roadmaps report (CHR&R, 2023),<sup>5</sup> life expectancy for Hamilton County is 77 years, compared to 75.3 for Tennessee and 78.5 for the United States. Life expectancy also varies by census tract, which is highlighted in Figure 1-9. As with poverty, the lowest life expectancies are in south and east Chattanooga. However, we also see lower life expectancies in other parts of the county.

Figure 1-9. Life expectancy in Hamilton County by 2010 census tract, 2010-2015. Source: CDC National Center for Health Statistics.<sup>9</sup>



### Leading Causes of Death

Leading causes of death in Hamilton County are shown in Table 1-6. By far, the two most common causes of death are heart disease and cancer, and this corresponds with the last *A Picture of Our Health* report with 2013-15 data. The major change over the past few years has been that COVID-19 is a leading cause of death, ranking 5<sup>th</sup>. Causes of death vary by race and illuminate health disparities, with more Black persons dying of COVID-19 making it the 3<sup>rd</sup> leading cause among the population, and assaults ranking 8<sup>th</sup> in 2020 (Appendix A).

**Table 1-6. Leading causes of death by rank and rate per 100,000 in Hamilton County, TN, 2020. Source: Tennessee Department of Health, Tennessee Death Statistical File, 2020.<sup>10</sup>**

Cause of Death	Total	
	Rank	Age-adjusted rate per 100,000
Heart Disease	1	186.4
Cancer	2	134.0
Accidents and Adverse Effects	3	70.3
Chronic Lower Respiratory Diseases	4	54.1
COVID-19	5	52.6
Alzheimer's Disease	6	41.2
Stroke	7	40.0
Diabetes	8	29.4
Chronic Liver Disease and Cirrhosis	9	17.5
Parkinson's Disease	10	15.4

## County Well-Being

### County Health Ranking

The CHR&R releases an annual report that compiles health measures for counties and ranks them within states.<sup>5</sup> The CHR&R model of health demonstrates how different elements affect health outcomes. The 2023 report ranked Hamilton County #17 out of 95 counties in Tennessee, which is among the healthiest in Tennessee, although a lower ranking than our two closest metropolitan areas in the state, with Nashville at #10 and Knoxville at #14. Hamilton County ranked among the healthiest counties in terms of both health factors - things we can modify to improve health - and health outcomes.<sup>5</sup>

With Quality-of-Life measures, in comparison with data from the last report, fewer Hamilton County residents reported poor or fair health and poor physical health days in the past 30 days (Table 1-7). However, residents reported more poor mental health days in the past 30 days (5.5) compared to the 2018 county health rankings report (4.4). This change indicates that mental health may be an issue that needs to be addressed in our community.



**Table 1-7. Quality of Life Measures in the CHR&R 2023 report data for Hamilton County, Tennessee, and the U.S. Source: County Health Rankings and Roadmaps 2023.<sup>5</sup>**

	<b>Hamilton County</b>	<b>Tennessee</b>	<b>United States</b>
Poor or Fair Health	14%	16%	12%
Poor Physical Health Days in past 30 days	3.2	3.3	3.0
Poor Mental Health Days in past 30 days	5.5	5.0	4.4
Low Birthweight Babies	10%	9%	8%

# Chapter 2

## Access to Health Care and Health Care Coverage

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“Healthy People 2030 focuses on improving health care quality and making sure people get the health care services they need.”

- Healthy People 2030

Image credit: <https://www.cdc.gov/>

# Chapter 2. Access to Healthcare and Health Care Coverage

## Introduction

Access to healthcare and health insurance significantly influences health outcomes, shaping the well-being of individuals and communities.<sup>11</sup> Adequate healthcare access is pivotal for prompt diagnosis, treatment, and preventive care, impacting the progression of illnesses and overall health conditions. Timely access to preventive measures, such as regular check-ups and screenings, is crucial for early disease detection, contributing to better health outcomes. Conversely, limited access to healthcare may result in delayed medical attention and missed opportunities for intervention, exacerbating health disparities.

Health insurance plays an important role in alleviating financial barriers to healthcare, influencing health-seeking behavior and outcomes.<sup>11</sup> Lack of insurance coverage can lead to substantial out-of-pocket expenses for medical treatments, medications, and other services, hindering individuals' ability to afford necessary care. The fear of financial burdens may discourage individuals from seeking timely medical attention, potentially worsening health conditions. Disparities in health outcomes may arise, as those without insurance face challenges in accessing essential healthcare services, perpetuating inequality. Addressing gaps in healthcare access and promoting widespread health insurance coverage are imperative steps toward achieving equitable health outcomes for diverse populations.<sup>11</sup>

## Health Care Providers

The CHR&R reports the ratio of the county population to the number of providers. According to this report, Hamilton County has one primary care physician per 920 residents, one dentist per 1,270 residents, and one mental health provider per 390 residents (Table 2-1). Compared to Tennessee overall, Hamilton County has better ratios and is better than the nation except for mental health providers.

**Table 2-1. Health care providers in Hamilton County and comparative resident to provider ratios. Source: County Health Rankings and Roadmaps 2023.<sup>5</sup>**

Provider Type (data year)	Hamilton County	Tennessee	United States
Primary Care Physicians (2020)	920:1	1,400:1	1,310:1
Dentists (2021)	1,270:1	1,790:1	1,380:1
Mental Health Providers (2022)	390:1	560:1	340:1

## Hospitals

Hamilton County serves as a center for health care in the region. Fourteen hospitals are in Hamilton County (Table 2-2), including seven general medical and surgical hospitals, four chemical dependency/psychiatric hospitals, and three long-term care hospitals. In total, these hospitals provide 1,973 staffed hospital beds, or 5.4 beds per 1,000 Hamilton County residents. Three Hamilton County hospitals offer labor and delivery services.

**Table 2-2. Staffed hospital beds in Hamilton County, Tennessee. Source: 2022 Joint Annual Report of Hospitals, Tennessee Department of Health.<sup>12</sup>**

<b>General Medical and Surgical Hospitals</b>	<b>Number of Staffed Hospital Beds</b>
CHI Memorial Hospital	349
CHI Memorial Hospital Hixson	74
Erlanger East	92
Erlanger Medical Center	568
Erlanger North	26
Parkridge East	102
Parkridge Medical Center	170
Total staffed general medical and surgical beds	1,381
Staffed beds per 1,000 population	3.8
<b>Psychiatric/Chemical Dependency Hospitals</b>	
Erlanger Behavioral Health Hospital	96
Moccasin Bend Mental Health Institute	165
Parkridge Valley Adult and Senior Services	62
Parkridge Valley Child and Adolescents Hospital	98
Total staffed psychiatric/chemical dependency	421
Staffed beds per 1,000 population	1.2
<b>Other Long-term Care Hospitals</b>	
Encompass Health Rehabilitation Hospital of Chattanooga	50
Kindred Hospital-Chattanooga	35
Siskin Hospital for Physical Rehabilitation	86
Total other long-term care hospitals	171
Staffed beds per 1,000 population	0.5

According to the Joint Annual Report of Hospitals (2022), there were 66,775 admissions to the seven general medical and surgical hospitals in 2022. Only 48% of admissions were for Hamilton County residents. Patients who lived outside of Hamilton County resided in other Tennessee Counties, and in Georgia, Alabama, and other states.

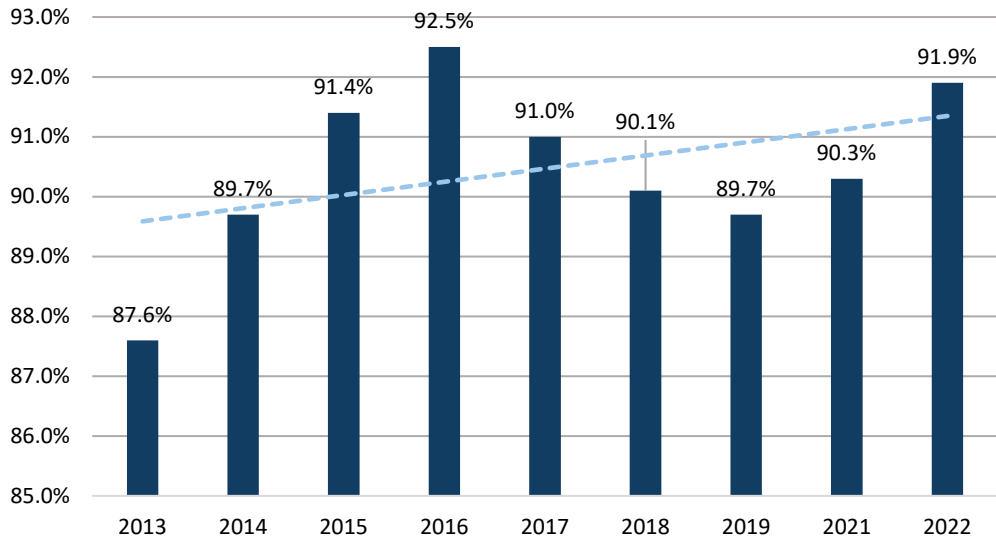
### Access to Care

Access to health care is critically important to maintaining health and preventing disease and disability. According to the 2022 National Health Interview Survey, just over 6% of U.S. adults 18 and older did not get needed medical care due to cost in the previous 12 months, and 6.6% did not take medications as prescribed to save money in the previous 12 months.<sup>13</sup>

One cost-related barrier to accessing quality healthcare services is the lack of health insurance coverage. Health insurance influences when, where, and how people get medical care. Uninsured adults are less likely to receive preventive and screening services, which can result in chronic diseases such as diabetes, cancer, and heart disease.<sup>11</sup> The uninsured are also more likely to visit the emergency department or be hospitalized for preventable health problems. According to the KFF, the major reasons for being uninsured in non-elderly adults are that coverage is not affordable (69.6%), they are not eligible for coverage (26.2%), they do not need or want it (23.5%) and signing up was too difficult or confusing (19.9%).<sup>14</sup>

Of residents who participated in the 2023 Hamilton County Public Health Survey, 13.4% responded “yes” when asked if there was a time in the past 12 months when they needed medical care, but did not receive the care they needed. Of this population, 48.3% identified that they could not afford treatment and 6% identified lack of insurance as their reason for not seeking care. Of all survey respondents, 4% identified having no insurance.

**Figure 2-1. Percentage of Hamilton County residents with health insurance coverage 2013–2021.**  
**Source: American Community Survey, 2022.<sup>4</sup>**



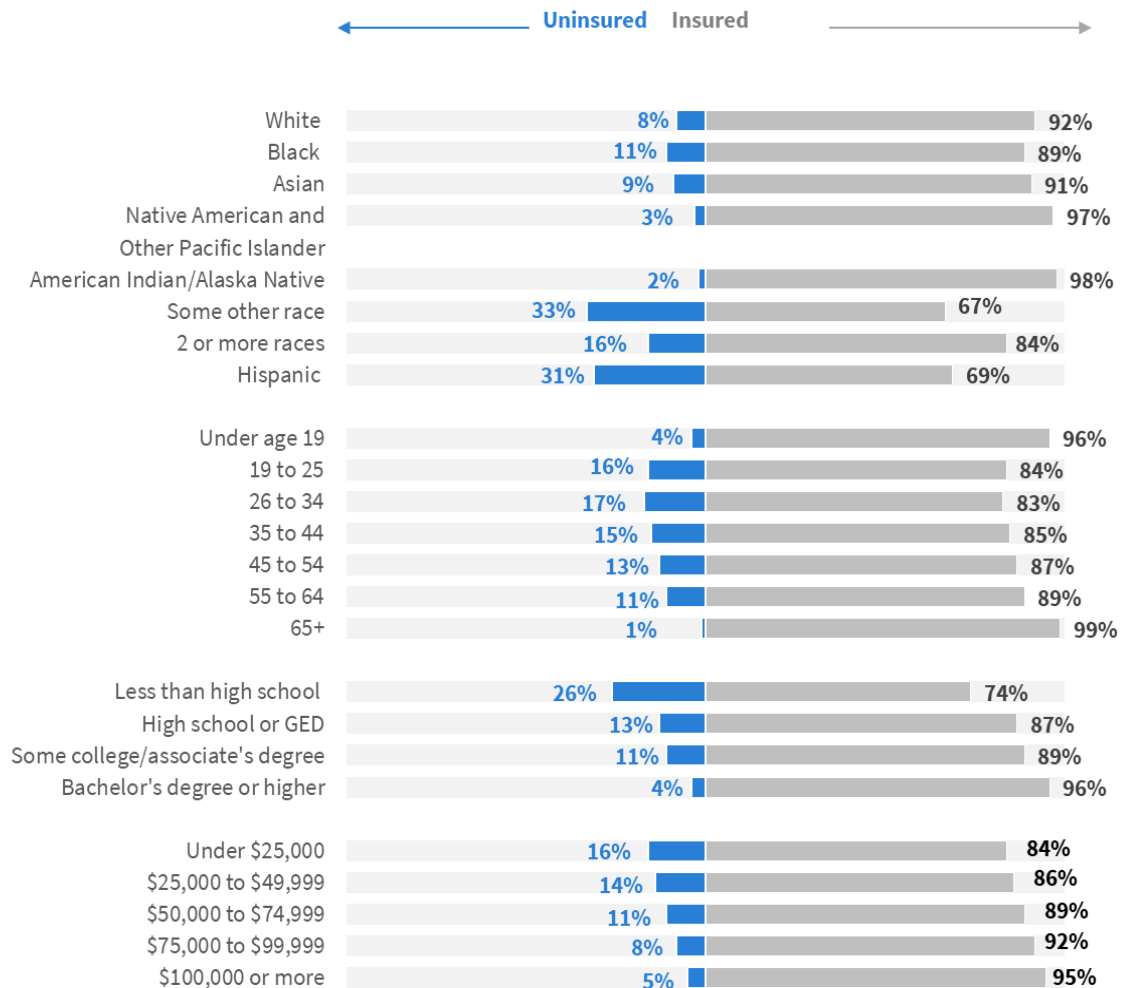
According to the U.S. Census Bureau, 91.9% of Hamilton County residents had health care coverage in 2022.<sup>4</sup> The number of insured Hamilton County residents has increased since the passage of the

Affordable Care Act in 2010, especially after 2014, when all citizens were required to have coverage or face income tax penalties. Congress revoked the health insurance mandate effective January 2019. Still, the national uninsured rate reached an all-time low of 7.7% in early 2023,<sup>15</sup> although the insured rate slightly declined in Hamilton County 2018-2021 (Figure 2-1).

### The Uninsured in Hamilton County

Of the 8.1% of residents who are not insured, the highest rates are among those in poverty (17.1%) and those unemployed (30.1%). As shown in Figure 2-2, those with less than a high school education (26%), Hispanic ethnicity (31%), and those reporting some other race (33%) also have high uninsured rates.

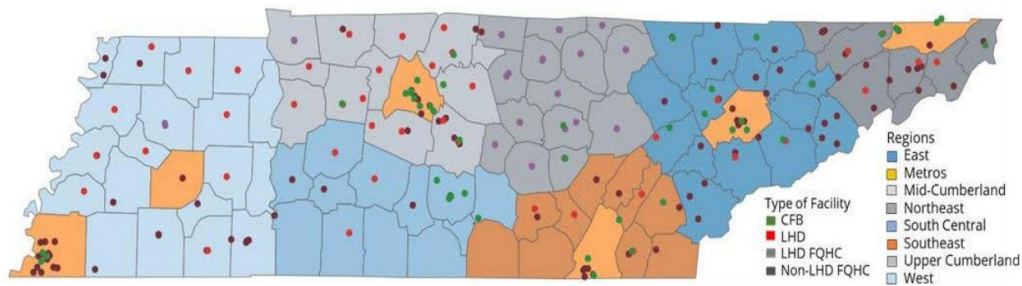
**Figure 2-2. Uninsured/insured rates by group. Source: ACS 5-year estimates, 2021.<sup>4</sup>**



## The Uninsured Adult Healthcare Safety Net Program

To address the issue of the uninsured, the Tennessee General Assembly approved Tenn. Code Ann. § 71-5-148 in 2005. This funding for the Healthcare Safety Net is to help people in need of medical and/or emergency dental care and referrals for specialist care coordination. This program partners with Federally Qualified Health Centers, community and faith-based organizations, the Tennessee Charitable Care Network, the Tennessee Primary Care Association, and Project Access to improve access to healthcare for uninsured adults for primary care, dental care, and mental health care (Figure 2-3).<sup>16</sup> Local Health Departments (LHD) also provide services through funding from TDH. The Tennessee Department of Mental Health and Substance Abuse Services (TDMHSAS) administers the Behavioral Health Safety Net program.<sup>17</sup>

**Figure 2-3. Safety Net primary care locations. Source: Tennessee Department of Health, 2022 Uninsured Adult Healthcare Safety Net Annual Report.<sup>18</sup>**



According to the TDH Safety Net Program, the uninsured adult healthcare providers in Hamilton County currently are:

- Erlanger Community Health Center, 1200 Dodson Avenue, Chattanooga, TN 37406
- Hamilton County Government, Birchwood Community Center, 5623 TN-60, Birchwood, TN 37408
- Hamilton County Government, Hamilton Homeless Health Care Center, 730 E 11<sup>th</sup> St, Chattanooga, TN 37403

## Community Initiatives to Increase Access to Healthcare Services in Hamilton County

There are organizations in Hamilton County that provide clinical services to those who do not have health insurance. Southeast Tennessee Project Access, for example, is a program of the Medical Foundation of Chattanooga and the Chattanooga-Hamilton County Medical Society. Through this program, physicians, hospitals, community clinics, and other providers donate their services to support uninsured residents of Southeast Tennessee. There are 1,180 participating volunteer physicians and providers and 20+ participating hospital systems and health centers. Since its inception in 2004, 24,976 people have received medical care or been directed to services. The economic impact of donated care is approximately \$23 million. There are 433 patients currently enrolled (March 2024). During the pandemic in 2020-2021, 3,529 individuals were assisted, and in 2021-2022, 3,111 individuals were assisted.<sup>19</sup>

Another organization is Volunteers in Medicine, Inc. (VIM) which is a free medical clinic that provides preventative and primary care to persons without access to health insurance in Southeast Tennessee and surrounding counties in Georgia. Since 2005, there have been over 76,000 patient visits. In 2022, VIM helped 458 patients with direct medical care. These services are provided through volunteer clinic providers who have donated over 162,000 hours since 2005.<sup>20</sup>



# Chapter 3

## Environmental Health

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“Healthy People 2030 focuses on reducing people’s exposure to harmful pollutants in the air, water, soil, food, and materials in homes and workplaces.”

- Healthy People 2030

## Chapter 3. Environmental Health

### Introduction

The environment plays a pivotal role in influencing human health. Exposure to air and water pollution, for instance, has been linked to a range of respiratory and cardiovascular diseases. Poor air quality is often a result of industrial emissions and vehicular exhaust and can lead to conditions such as asthma and chronic obstructive pulmonary disease (COPD). Additionally, contaminated water sources may contribute to waterborne diseases. Eating food that is not handled or cooked properly and bites of animals and insects can also introduce disease-causing agents.

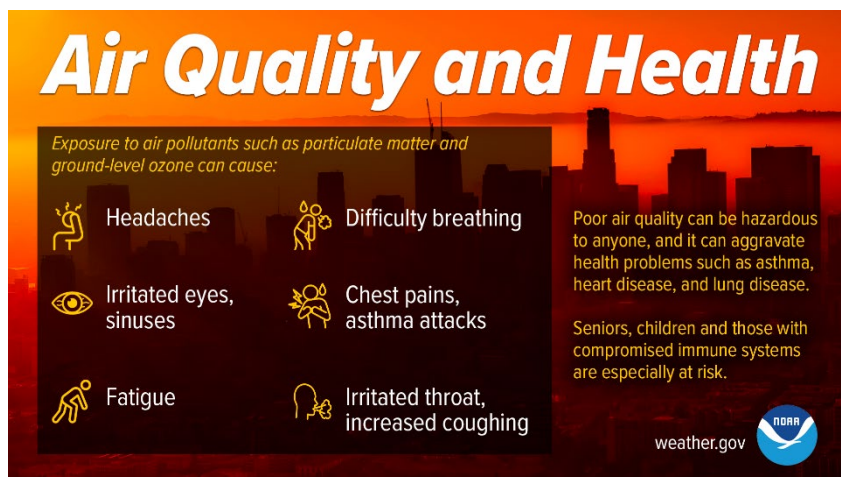
The built environment, encompassing factors like housing quality and urban planning, also affects health outcomes. Access to green spaces, safe neighborhoods, and recreational areas can positively influence health and physical activity levels, while inadequate living conditions may contribute to adverse health issues. The overall impact of the environment on health is complex, with interconnected factors influencing both physical and mental well-being. As such, addressing environmental determinants becomes crucial in promoting public health and creating sustainable communities that support the overall well-being of individuals.

### Air and Weather

Air quality in the United States has improved greatly since the 1970s; however, air pollution continues to harm human health and the environment. Recent studies have shown that even small levels of air pollution can impact health (Figure 3-1).<sup>21,22</sup> Air pollution can cause or worsen respiratory diseases such as asthma, lung cancer, and COPD. The United States Environmental Protection Agency (EPA) regulates air quality for six criteria pollutants through the National Ambient Air Quality Standards (NAAQS): ground-level ozone, particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>), lead, nitrogen oxides, carbon monoxide, and sulfur dioxide.<sup>21</sup>

Hamilton County, like many communities, is required to monitor two of these pollutants—ozone and particulates.<sup>23</sup> Daily air quality in a community is determined by the level of ozone or particulates, whichever is higher. The Air Quality Index (AQI), designed by the EPA, is a standardized way of measuring air quality and classifies concentrations on a 0-500 scale as good, moderate, unhealthy for sensitive groups, unhealthy, very

**Figure 3-1. Air Quality & Health. Source: National Weather Service.<sup>22</sup>**



unhealthy, and hazardous (Figure 3-2).

**Figure 3-2. The Air Quality Index (AQI) for ozone and particulates. Source: Chattanooga-Hamilton County Air Pollution Control Bureau.<sup>23</sup>**

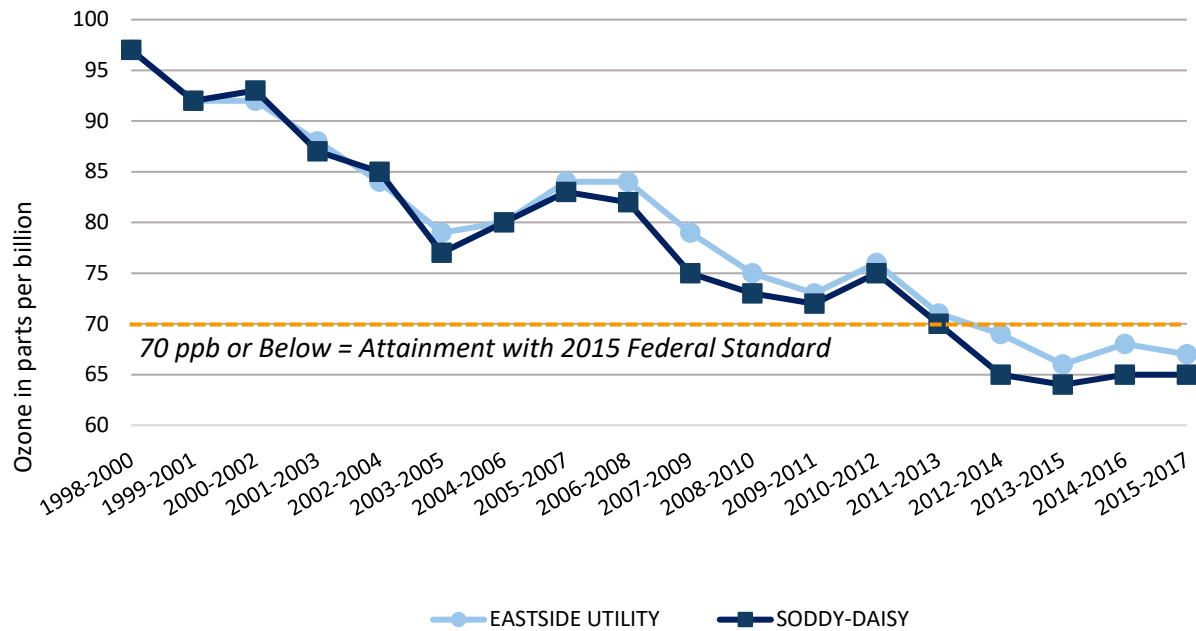
Daily AQI Color	Levels of Concern	Values of Index	Description of Air Quality
Green	Good	0 to 50	Air quality is satisfactory, and air pollution poses little or no risk.
Yellow	Moderate	51 to 100	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Orange	Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Red	Unhealthy	151 to 200	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.
Purple	Very Unhealthy	201 to 300	Health alert: The risk of health effects is increased for everyone.
Maroon	Hazardous	301 and higher	Health warning of emergency conditions: everyone is more likely to be affected.

One way that air pollution is managed in Hamilton County is through a seasonal burn ban and burn permits which reduces particulate pollution. Burning is allowed only October 1 through April 30 with a valid permit. The Chattanooga-Hamilton County Air Pollution Bureau (APB) and the EPA have primary enforcement authority for air pollution regulations. They issue permits for asbestos, industrial facilities, gasoline dispensing facilities, and dry-cleaning facilities. The APB posts a daily air quality report on their webpage and manages the burn permit program as well.<sup>23</sup>

### Ozone Pollution

Ground level ozone is a secondary pollutant, the result of a photochemical reaction of heat, sunlight, volatile organic compounds and nitrogen oxides (Figure 3-2). Because of the photochemical reaction, ozone is generated more during hot summer days than in other parts of the year.<sup>24</sup> When breathed in, ozone reacts chemically with lung tissue causing damage. Over the years, the EPA has tightened air quality standards for ozone, with the current ones being set in 2015. The current 8-hour standard is 0.070 ppm (70 parts per billion [ppb]), measured as the annual 4<sup>th</sup>-highest daily maximum 8-hour average concentration, averaged over three years.<sup>25</sup> Chattanooga-Hamilton County has been meeting the ozone standards since 2007-09 and was designated “in attainment” by the EPA for the 2015 standard of 70 ppb in January 2018 (Figure 3-3).

**Figure 3-2. 8-Hour ozone design values for Chattanooga area. Source: Chattanooga-Hamilton County Air Pollution Control Bureau.<sup>23</sup>**

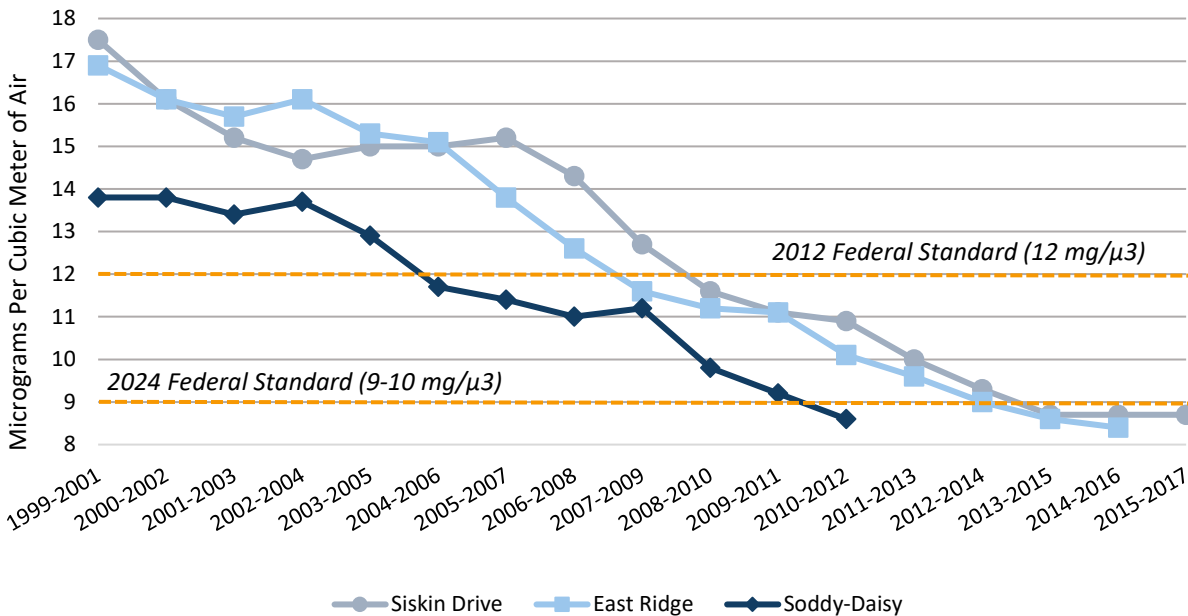


### Particulate Matter

Particle pollution refers to the amount of particulate matter in the atmosphere and includes a mixture of solid particles and liquid droplets such as dust and smoke. The smaller the particle, the more hazardous to human health. Fine particles less than 2.5 micrometers in diameter (PM<sub>2.5</sub>) are of particular concern because they can penetrate deep into the lungs. Particle pollution is emitted from a variety of sources including construction sites, fires, and smokestacks.<sup>26</sup>

The EPA has tightened air quality standards for particulate matter over time. Chattanooga-Hamilton County has met standards since 2008 and was designated as “in attainment” by the EPA for the 2012 particulate pollution standard of 12 µg/m<sup>3</sup> in January 2015 (Figure 3-4). In January 2024, the EPA revised the health-based PM<sub>2.5</sub> standard to within the range of 9.0 to 10.0 µg/m<sup>3</sup>.<sup>27</sup>

**Figure 3-3. PM2.5 particulate design values for Chattanooga area. Source: Chattanooga-Hamilton County Air Pollution Control Bureau.<sup>23</sup>**



*Wildfire Smoke*

When wildfires burn, the smoke has impacts on health. Breathing in smoke can cause a number of symptoms such as coughing, trouble breathing, asthma attacks, headaches, and chest pain.<sup>28</sup> Wildfire smoke has affected air quality in Hamilton County. In 2023, extensive wildfires in Canada created unhealthy air conditions in June and July. For example, on June 29th, the air quality index in Chattanooga/Hamilton County was 151 (“unhealthy” range), primarily from the Canadian wildfire smoke, resulting in a Code Red alert.<sup>23</sup>

*Pollen*

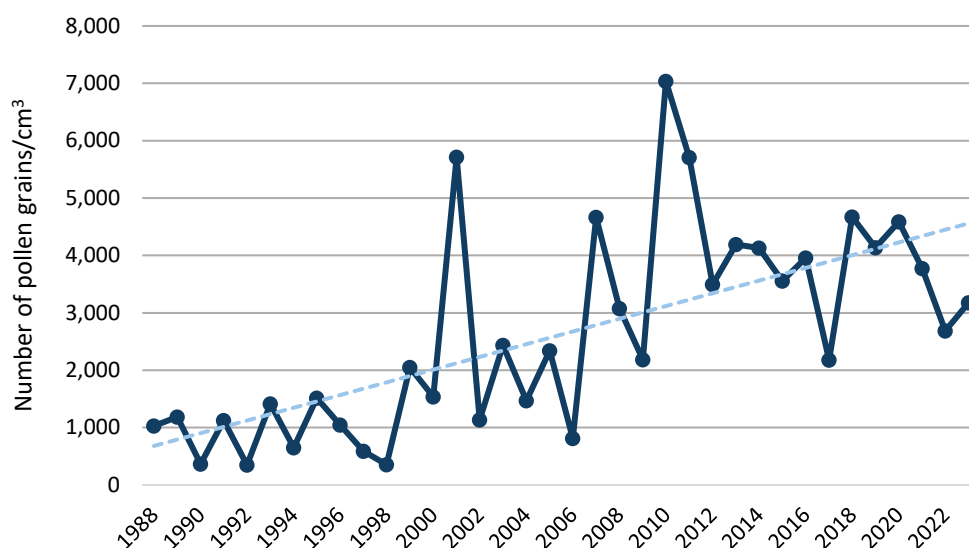
Seasonal pollen is an airborne biological contaminant in Tennessee that poses a significant impact on the health of its residents (Figure 3-5).<sup>23,29</sup> These pollens can trigger allergic reactions, resulting in symptoms such as sneezing, itchy or watery eyes, nasal congestion, and exacerbation of pre-existing respiratory conditions. A warming climate has the potential to exacerbate the challenges posed by seasonal pollen.<sup>30</sup>

Rising temperatures and increased carbon dioxide levels can lead to longer and more intense pollen seasons, as well as the introduction of new allergenic plant species.<sup>30</sup> As part of its air monitoring, the Chattanooga-Hamilton County Air Pollution Control Bureau publishes pollen and mold spore counts daily for the previous 24 hours. A scale is used to classify levels as absent, low, moderate, high, or very high for the categories of mold, grass, tree, and weed.<sup>23</sup> Since 1988, the highest pollen count day by year has increased from about 1,000 grains of pollen per cubic meter of air to over 3,000 in 2023 (Figure 3-6).

Figure 3-4. Mold and pollen scale. Source: Chattanooga-Hamilton County Air Pollution Control Bureau.<sup>23</sup>

Pollen Scale							
Mold		Grass		Tree		Weed	
0	Absent	0	Absent	0	Absent	0	Absent
1 - 6499	Low	1 - 4	Low	1 - 14	Low	1-9	Low
6500 - 12999	Moderate	5 - 19	Moderate	15 - 89	Moderate	10-49	Moderate
13000 - 49999	High	20 - 199	High	90 - 1499	High	50-499	High
> 50000	Very High	> 200	Very High	> 1500	Very High	> 500	Very High

Figure 3-5. Highest pollen readings by year, 1988-2023 in grains of pollen per cubic meter of air. Source: Chattanooga-Hamilton County Air Pollution Control Bureau.<sup>23</sup>

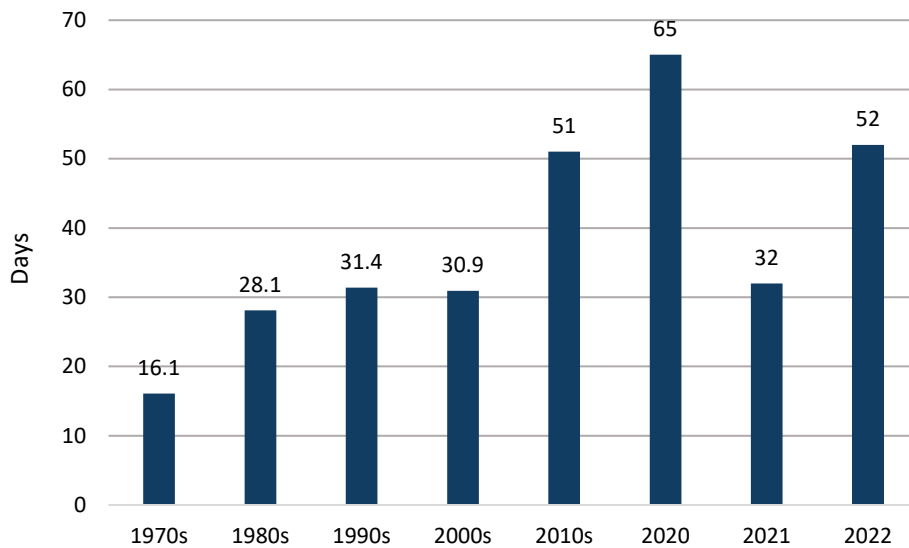


### Extreme Heat

Extreme heat is a growing concern and causes the most deaths of any natural threat, surpassing flooding and tornadoes.<sup>31</sup> High summer temperatures are associated with an increased risk of heat-related illnesses and death, particularly among vulnerable populations such as older adults, pregnant women, and children. Those living in urban areas may experience higher temperatures because of urban heat islands, increasing heat-related risks. Additionally, health risks are higher early in the summer compared to later in the summer because people are not adapted to the heat yet. “Analyses of hospital admissions, emergency room visits, or emergency medical services calls show that hot days are associated with an increase in heat-related illnesses, including cardiovascular and respiratory complications, renal failure, electrolyte imbalance, kidney stones, negative impacts on fetal health, and preterm birth.”<sup>32</sup>

In an analysis of annual days above the local minimum mortality temperature (MMT), it was found that Chattanooga has seen an increase from less than 20 in the 1970s to 52 days in 2022 (Figure 3-7).<sup>33</sup> MMT is the daily average temperature at which the risk of heat-related death is at its lowest. MMT is an important indicator to evaluate temperature-mortality association.

**Figure 3-6. Rise in number of days above the local minimum mortality temperature (MMT). Source: Climate Matters, 2023.<sup>34</sup>**



Note: Values for previous decades represent the average number of extreme heat days

## Drinking Water

There are more than 150,000 public water systems across the country that provide safe drinking water to most Americans.<sup>35</sup> These water sources are surface water (rivers, lakes) and groundwater. In addition, a small proportion of people are served by private wells for their potable water needs.<sup>36</sup> Private wells are not regulated by the government, and owners are responsible for the water safety.

In Hamilton County, the Tennessee American Water Company (TAWC)'s Citico Water Treatment Plant serves more than 380,000 residents in Hamilton County and north Georgia, with approximately 40 million gallons of water distributed each day.<sup>37</sup> TAWC resells water to Signal Mountain and Walden's Ridge, and there are also smaller utility districts across the county that serve local communities (Table 3-1).

**Table 3-1. Community Water Systems in Hamilton County, Tennessee. Source: CDC “My Water’s Fluoride”, EPA Safe Drinking Water Information System.<sup>38,39</sup>**

System	Population Size Served	City Served	Primary Water Source Type	Fluoridated?	Health-Based Violation 2021?
Tennessee American Water Company	190,067	Chattanooga	Surface water	Yes	No
Hixson Utility District	71,476	Hixson	Groundwater	Yes	No
Eastside Utility District	56,294	Chattanooga	Surface water	Yes	No
Savannah Valley Utility District	25,821	Georgetown	Groundwater under influence of surface water	Yes	No
North West Utility District	19,792	Soddy Daisy	Surface water	Yes	No
Walden’s Ridge Utility District	9,053	Signal Mountain	Surface water purchased	Yes	No
Signal Mountain Water System	7,616	Signal Mountain	Surface water purchased	Yes	No
Union Fork-Bakewell Utility District	5,847	Bakewell	Groundwater	Yes	No

*Water Violations*

There are three categories for health-based drinking water violations in a community drinking water system:

- Exceedances of the maximum contaminant levels (MCLs). MCLs are the highest allowable concentrations of contaminants in drinking water.
- Exceedances of maximum residual disinfectant levels (MRDLs). MRDLs are the highest concentrations of disinfectants allowed in drinking water.
- Failure to meet treatment technique requirements. These requirements specify processes used to reduce contaminant levels.<sup>40</sup>

There were no health-based drinking water violations in any community drinking water systems in Hamilton County for 2021 according to the EPA’s Safe Drinking Water Information System.<sup>41</sup>

*Fluoridated Water*

Most water in lakes, streams, and rivers has some naturally-occurring fluoride, but levels are not high enough to prevent tooth decay. The optimal level of fluoride in the water supply is 0.7 milligrams per liter



(mg/L), as recommended by HHS to prevent dental caries while minimizing the risk of dental fluorosis.<sup>42</sup>

The Oral Health Services program of TDH, in collaboration with TDEC, continues a statewide community water fluoridation program. In Hamilton County, all water systems serving county residents provide fluoridated water to its customers (Table 3-1). The water system serving Soddy Daisy residents discontinued their fluoridation program on July 25<sup>th</sup>, 2016, but it was added back by 2018.<sup>38</sup> America’s Health Rankings estimates that 88.8% of Tennessee’s residents served by community water systems have fluoridated water.<sup>43</sup>

### Recreational Waters

Hamilton County has an abundance of recreational waters – streams, lakes, and the Tennessee River. These waters provide the opportunity for sport and leisure activities such as swimming and fishing. Most of these water bodies are safe; however, when needed, TDEC Division of Water Resources posts warning signs about threats to public health.<sup>30,44</sup> Aligned with EPA guidance, any stream, river, or lake with an advisory does not meet the recreational designated use. Approximately 122 river miles in Tennessee are currently posted for bacterial contamination, for example.<sup>44</sup>

As of September 2023, the bacteriological advisories listed in Table 3-2 were posted for Hamilton County because of Chattanooga urban runoff and collection system issues.

**Table 3-2. Bacteriological advisories in Hamilton County. Source: TDEC, Division of Water Resources.<sup>44</sup>**

Stream	Portion	Length of Portion
Citico Creek, unnamed tributary	mouth to headwaters	1.2 miles
Chattanooga Creek	mouth to Georgia line	7.7 miles
Stringer's Branch	mouth to Orman Drive	5.4 miles

In the state, there are 250,000 reservoirs and 542 river miles that have advisories for contaminated fish. The contaminants found at dangerous levels in state waters are polychlorinated biphenyls (PCBs), mercury, and chlordane. The current fish advisories in Hamilton County are listed in Table 3-3.

**Table 3-3. Fish advisories in Hamilton County. Source: TDEC, Division of Water Resources.<sup>44</sup>**

Stream	Portion	Length	Pollutant	Comment
Chattanooga Creek	Mouth to Georgia line	7.7 miles	PCBs & chlordane	Fish should not be eaten
Nickajack Reservoir	Entirety	10,370 acres	PCBs	Precautionary advisory* for catfish

A precautionary advisory means that children, pregnant women, and nursing mothers should not consume the fish species. All other persons should limit the fish species to one meal per month. Additional information about advisories can be obtained from TDEC.

## Childhood Lead Poisoning

Children can be exposed to lead in the environment through contaminated water, soil, air, paint, and toys. The CDC reports there is no safe blood lead level (BLL) in children.<sup>45</sup> Children under the age of six are at the highest risk, and lead poisoning often occurs with no obvious symptoms, frequently going unrecognized. Because lead poisoning affects the brain and nervous system, it can cause a lower IQ, lower attention span, and underperformance in school.<sup>45</sup> As more evidence has been collected, the CDC has lowered the blood lead reference values used to identify children under the age of six with BLLs that are higher than most children's levels. In 2021, CDC lowered the reference value from 5.0 to 3.5 µg/dL.

TDH monitors blood lead screenings and conducts required reporting of confirmed elevated lead blood levels in children ages 6 months to 6 years. At the county level, the Hamilton County Health Department offers care coordination for children identified with elevated blood lead levels, which can include education and nutritional counseling, home visits, and referrals to community resources, depending on individual need.

In Hamilton County, the screening rate for children under the age of 6 has been relatively consistent over the past 5 years, except in 2021 when it was lower, presumably due to the COVID pandemic (Table 3-4). Children confirmed with elevated blood lead levels (EBLLs) have been between 3 and 6 percent (rate per 1,000).

**Table 3-4. Childhood lead poisoning screening and elevated blood lead levels in Hamilton County.**  
Source: Tennessee Childhood Lead Poisoning Surveillance Dashboard.<sup>46</sup>

	2018	2019	2020	2021	2022
Number of Children Screened for Blood Lead Levels	4,224	4,419	4,406	3,861	4,032
Screening Rates	16.80%	17.40%	17.10%	15.40%	16.10%
Confirmed Elevated Blood Lead Levels (EBLLs)	17	26	21	12	18
Confirmed EBLL Rate per 1,000	4.3%	6.1%	4.8%	3.1%	4.5%

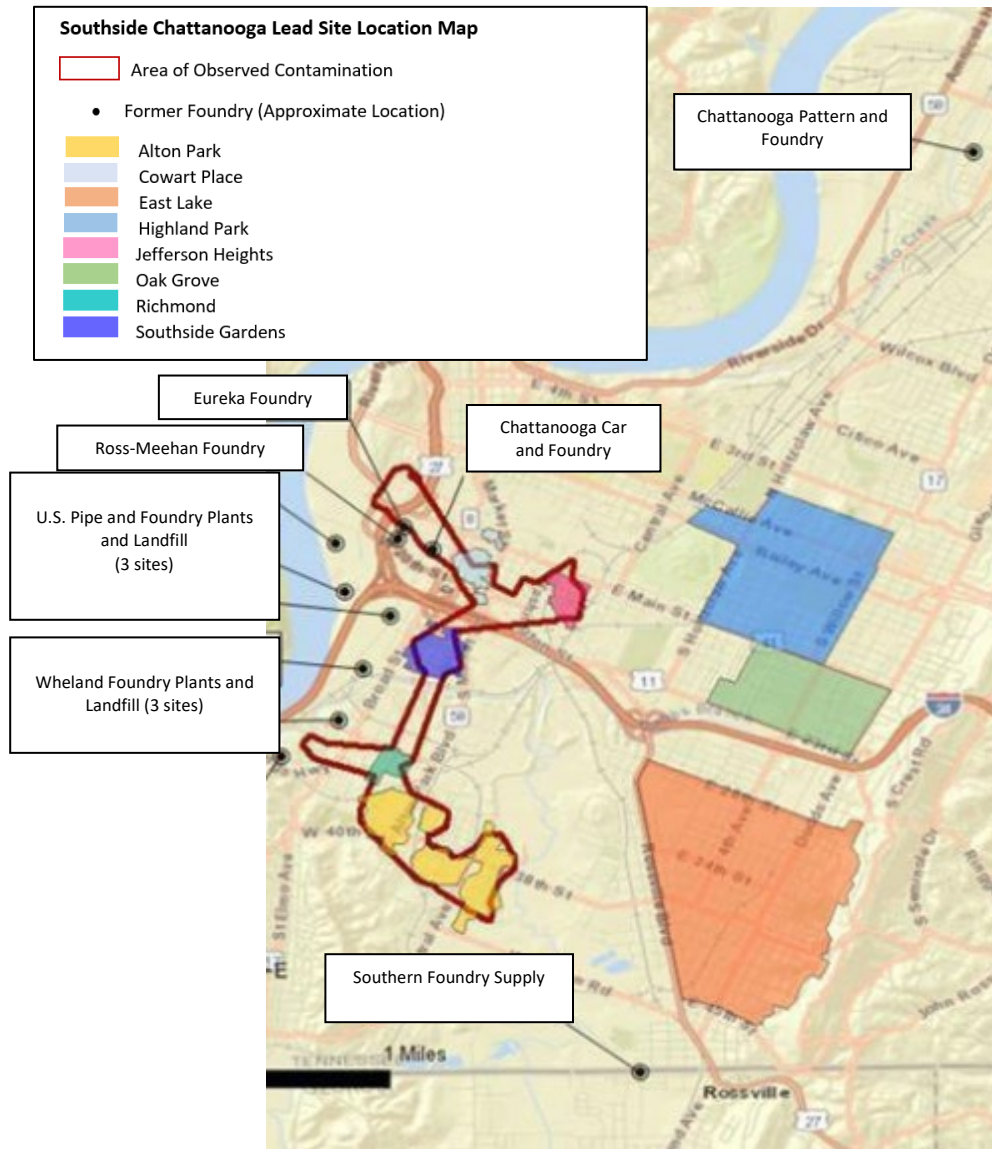
## Soil: Southside Chattanooga Lead Site

The Southside Chattanooga Lead Site is located in south Chattanooga, encompassing 8 neighborhoods: Alton Park, Cowart Place, East Lake, Highland Park, Jefferson Heights, Oak Grove, Richmond, and Southside Gardens (Figure 3-8).<sup>47</sup> These neighborhoods were identified after a local case of adult lead poisoning in 2011 prompted an investigation. The site includes residential homes, parks, schools, and playgrounds where foundry waste was once used as fill or topsoil. EPA added this site to the National Priorities List in September 2018.

Soil is being removed from properties that are tested and exceed a lead concentration greater than 360 mg/kg. In January 2024, the EPA announced the reduction of the threshold for lead content in soil at

residential sites from 400 parts per million (ppm) to 200 ppm.<sup>48</sup> In cases where residential properties have multiple sources of lead exposure, EPA will generally use a screening level of 100 ppm. It is important to note that screening levels are distinct from cleanup standards.<sup>48</sup> Cleanup decisions are site-specific and depend on various factors. This adjustment to levels aims to help EPA site teams in determining cleanup decisions to each site while protecting the surrounding communities.<sup>48</sup>

**Figure 3-7. The eight neighborhoods in southside Chattanooga designated as part of the South Chattanooga Lead Site. Source: EPA.<sup>47</sup> Modified from EPA.**



As of January 2024, 3,035 properties have been tested, with 813 cleaned up and restored. The data by neighborhood are in Table 3-5.

**Table 3-5. Neighborhood status updates as of January 2024. Source: EPA, 2024, Southside Chattanooga Lead, Chattanooga, TN, Cleanup Activities (public meeting, 2/8/24).**

Neighborhood	Total Yards to Sample	Total # of Properties Sampled	Total # of Properties >360 ppm	Calculated Rate of Exceedance	Predicted Total # of Properties > 360 ppm	Total # of Properties Remediated
Alton Park	532	387	122	31.5%	168	63
Cowart Place	221	131	48	36.6%	81	26
East Lake	2,191	832	234	28.1%	616	64
Highland Park	1,511	1090	693	63.6%	961	554
Jefferson Heights	168	154	31	20.1%	34	6
Oak Grove	692	316	146	46.2%	320	55
Richmond	52	41	23	56.1%	29	18
Southside Gardens	123	84	53	63.1%	78	27
<b>Total</b>	<b>5,490</b>	<b>3,035</b>	<b>1,350</b>	<b>43.2% (mean)</b>	<b>2,287</b>	<b>813</b>

In May 2023, the TDH released a Health Consultation for the Southside Chattanooga Lead Site (EPA facility ID: TNN000410686; SSCL) under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). A health consultation is a response from the ATSDR to a request for information about the health risks associated with a specific site, chemical release, or the presence of hazardous material. TDH’s Environmental Epidemiology Program evaluated possible environmental exposures at the site.

Three conclusions were drawn from this evaluation:

- **Conclusion 1:** “Residents, and in particular young children, at some residential properties inside the boundaries of the SSCL site are exposed to lead, copper, and polycyclic aromatic hydrocarbons (PAHS) in the soil at levels that could harm their health. In particular, young children, pregnant women, and developing babies are at greatest risk for harmful health effects from lead exposure”
- **Conclusion 2:** “The percentage of children with elevated blood lead levels in the SSCL area was greater than in the surrounding area of Hamilton County and in the state of Tennessee for 9 out of the ten previous years.”
- **Conclusion 3:** “Data gaps limit TDH’s ability to determine whether some residents may have been exposed to harmful levels of lead and other contaminants in their yards.” <sup>47(p37)</sup>

## Environmental Diseases

### *Water-Borne Diseases*

Infections can occur when persons breathe in small droplets of water or swallow water that is contaminated, and these are called water-borne diseases. The CDC estimates that 7.2 million people get waterborne illnesses each year, with the prevailing ones being otitis external (“swimmers ear”), norovirus, giardiasis, cryptosporidiosis, and campylobacteriosis.<sup>49</sup> One waterborne disease identified in Hamilton County over the past 5 years is Legionnaire’s disease, caused by the bacteria *Legionella*. Legionnaire’s disease is a type of pneumonia, and common sources of infection are human-made building water systems such as hot tubs, plumbing systems, swimming pools, showerheads and sink faucets.<sup>50</sup> Hamilton County has an average of 4 cases per year of Legionnaire’s disease.

Cryptosporidiosis and campylobacteriosis are infectious diseases that can be spread through both contaminated water and contaminated food. *Cryptosporidium* is the primary swimming-related disease in the United States, and causes acute gastrointestinal illness, skin rash, and acute respiratory illness.<sup>49</sup>

### *Foodborne Diseases*

Fresh produce, processed foods, and cooked foods can cause illness, called foodborne disease. In the United States, the CDC estimates that 48 million people a year get sick, 128,000 are hospitalized, and 3,000 people die from foodborne illness.<sup>51</sup> Certain people, like immunocompromised persons, are more at risk of developing foodborne illness (Figure 3-9).<sup>52</sup> A goal of *Healthy People 2030* is to reduce foodborne illness by improving food safety practices. In the United States, *Campylobacter* and *Salmonella* are the leading causes of bacterial enteric infections transmitted by food.<sup>53</sup>

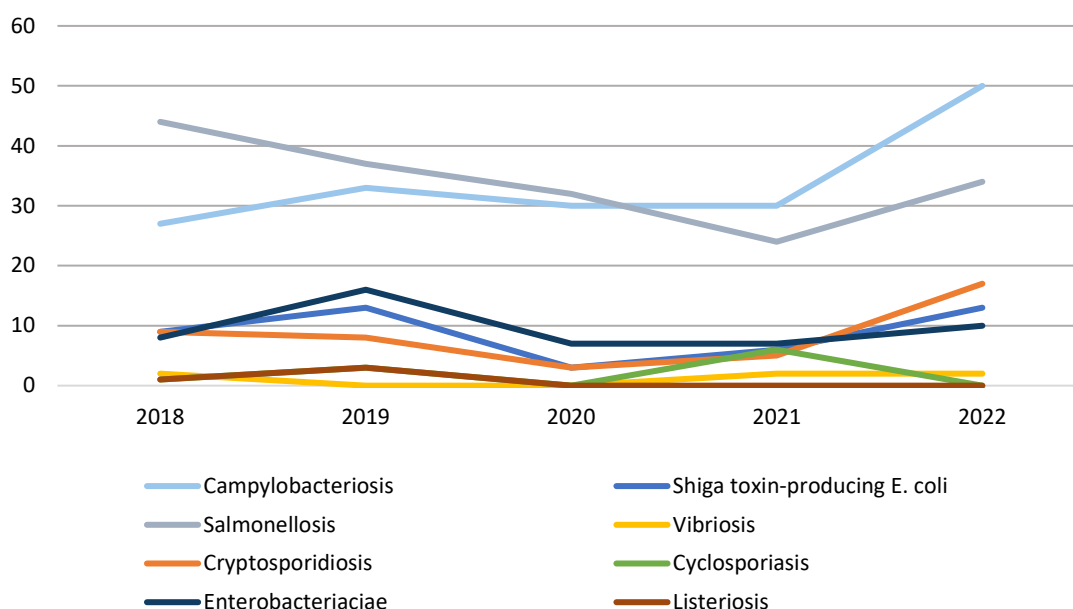
**Figure 3-8. Factors that increase the risk of food poisoning. Source: CDC, Food Safety.<sup>52</sup>**



During the COVID-19 pandemic, foodborne infections were lower, however incidence rates have now returned to pre-pandemic levels and/or exceeded them. The Foodborne Diseases Active Surveillance Network (FoodNet) reported that nationally, *Campylobacter*, *Salmonella*, *Shigella*, and *Listeria* incidences did not change in 2022, compared to 2016-2018. However, the incidences of Shiga toxin-producing *Escherichia coli* (STEC), *Vibrio*, and *Cyclospora* infections increased.<sup>54</sup>

In Hamilton County, the general trend in foodborne illnesses was a decline in 2020 and 2021 during the pandemic and an increase since then for 2022 (Figure 3-10). Like national trends, Campylobacteriosis and Salmonellosis are the major causes of foodborne disease.

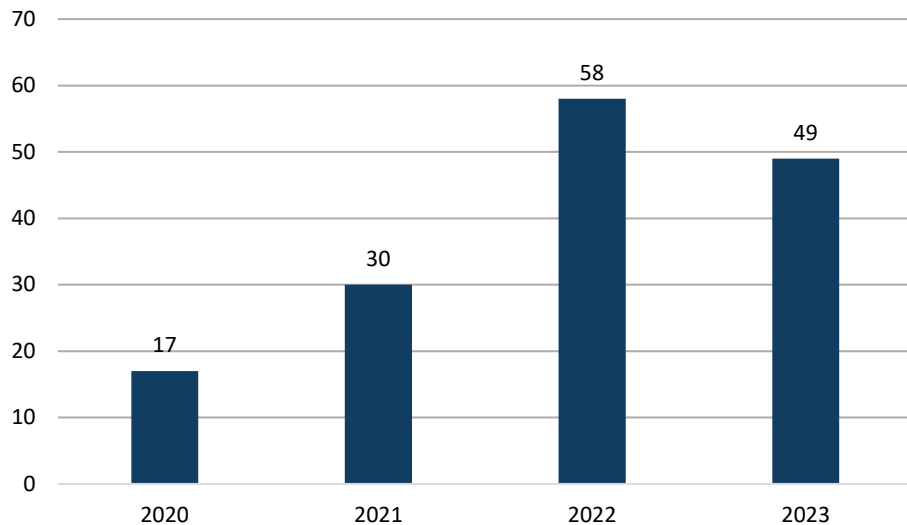
**Figure 3-9. Foodborne diseases, 2018-2022, Hamilton County. Source: Tennessee Department of Health.**



Most *Campylobacter* infections are caused by eating raw or undercooked poultry or consuming something that has touched raw or undercooked poultry. It is a bacterial diarrheal illness and is sometimes treated with antibiotics.<sup>55</sup> *Salmonella* infections come from sources such as contact with infected animals or their feces, eating contaminated food, and drinking contaminated water. Chicken is a major source of illness. Most people with an infection have diarrhea, fever, and stomach cramps.<sup>56</sup>

The Hamilton County Health Department’s Environmental Health division responds to foodborne illness complaints from the community. Figure 3-11 shows the number of foodborne illness complaints received over the past 4 years which shows fewer complaints during the pandemic.

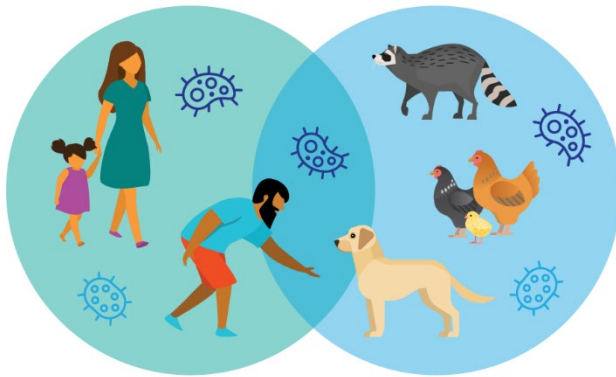
**Figure 3-10. Number of foodborne illness complaints to Hamilton County Health Department by year.**  
Source: Hamilton County Health Department.



### Zoonotic Diseases

Zoonotic diseases are those that are spread between people and animals (Figure 3-12). The infections themselves are caused by viruses, bacteria, parasites, and fungi.

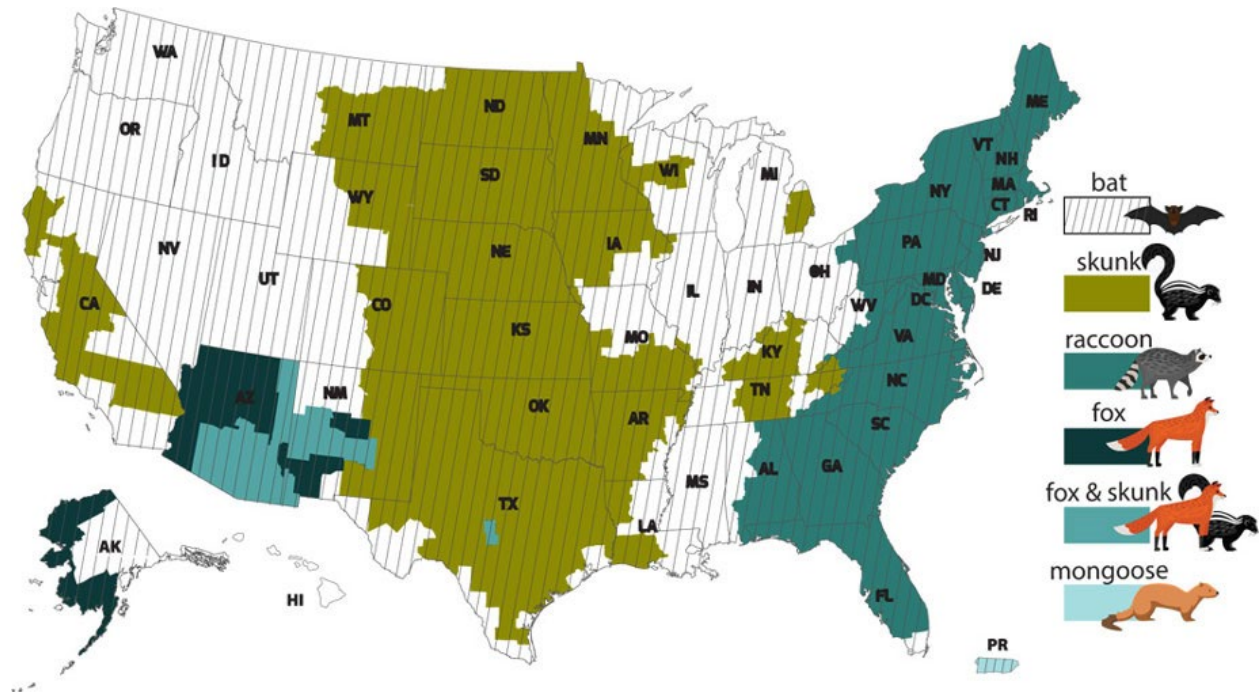
**Figure 3-11. Zoonotic diseases are when human health and animal health overlap with transmission of infectious diseases.** Source: California Department of Public Health, Veterinary Public Health Section.<sup>57</sup>



### Rabies

Rabies is a deadly viral disease. About 5,000 cases of animal rabies are reported to the CDC each year, with more than 90% occurring in wildlife species such as bats, raccoons, skunks, and foxes. Rabies in wildlife has been managed, in part, through a large-scale national wildlife vaccination program administered by the United States Department of Agriculture APHIS Wildlife Services Division since 1995.<sup>58</sup> Rabies virus variants are primarily transmitted within the animal they are adapted to (Figure 3-13).<sup>59</sup>

Figure 3-12. Rabies virus variants distribution in the U.S. Source: CDC, 2020.<sup>59</sup>



Less than 10% of animal rabies cases in are domestic animals, and those are primarily in cats and dogs. The Hamilton County Health Department investigated 707 animals for possible rabies infection in 2023, 661 in 2022, and 727 in 2021. State and local regulations require all dogs and cats to be properly vaccinated against rabies. Since the last *A Picture of Our Health* report, rabies vaccination numbers have dropped significantly from 107,185 vaccinations given in 2017. However, rabies vaccinations given at rabies clinics or veterinary offices in Hamilton County have stayed consistent over the past few years:

- 2021: 79,970
- 2022: 79,677
- 2023: 79,027

Data Source: Hamilton County Health Department, Environmental Health

There are very few cases of human rabies in the United States, thanks to many efforts such as animal control programs, vaccination of domestic animals and wildlife, administration of post-exposure prophylaxis, and education of the public and healthcare professionals.<sup>58</sup> In Hamilton County over the past five years, there have been four confirmed rabies cases in bats and seven confirmed rabies cases in raccoons. No rabies cases have been identified in cats, dogs, or other animals.<sup>60</sup>

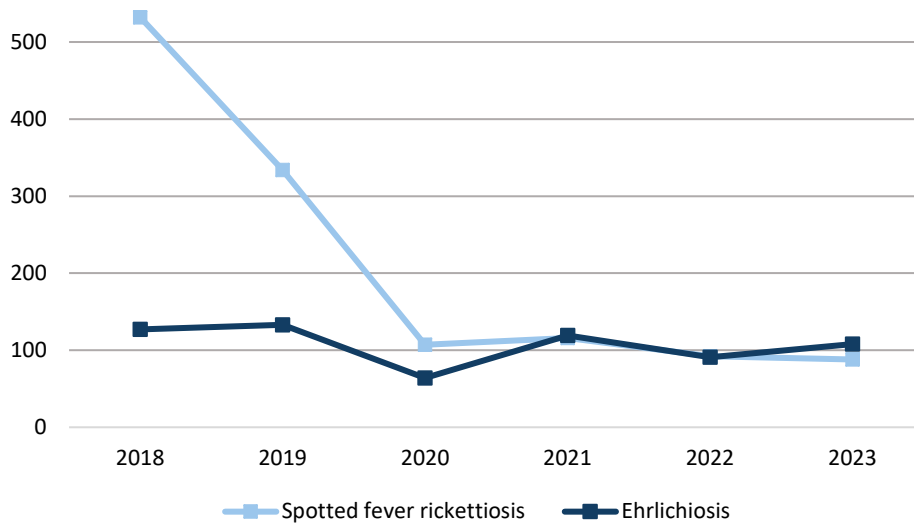
### Vector-borne Diseases

Diseases caused by the bite of a tick or mosquito are called vector-borne diseases. In Hamilton County, the most common vector-borne diseases are ehrlichiosis and spotted fever rickettsiosis, both caused by the bite of a tick.<sup>61</sup> Figure 3-14 shows the incidence of spotted fever rickettsiosis and ehrlichiosis in



Tennessee from 2018 to 2023.

**Figure 3-13. Incidence of spotted fever rickettsiosis and ehrlichiosis in Tennessee. 2018-2023. Source: Tennessee Department of Health, CEDEP.<sup>61</sup>**



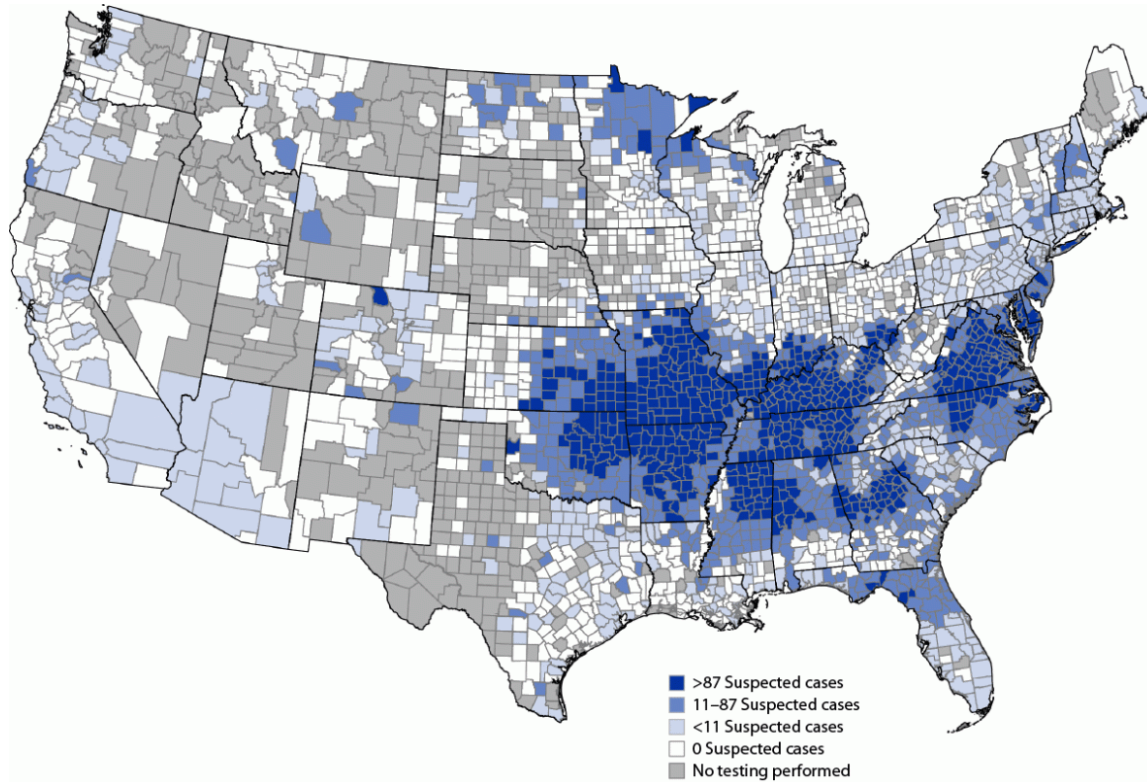
Other vector-borne diseases detected in Hamilton County over the past five years are West Nile Virus (mosquito-borne), Lyme Disease (tick-borne), and Eastern Equine Encephalitis (tick-borne).

#### *Alpha-Gal Syndrome (AGS)*

A relatively new condition linked to the bite of the lone star tick is Alpha-Gal Syndrome (AGS). While not a reportable condition to the CDC, the Council of State and Territorial Epidemiologists (CSTE) standardized a case definition in 2021 for surveillance purposes.

AGS is not an infection, but a potentially life-threatening allergic condition that occurs after a person eats red meat or is exposed to products containing alpha-gal, which is a sugar molecule found in most mammals.<sup>62</sup> The CDC reports more than 100,000 suspected cases of AGS between 2010 and 2022. AGS suspected cases are concentrated the south, Midwest, and mid-Atlantic (Figure 3-15).

Figure 3-14. Geographic distribution of suspected AGS cases per million population per year, 2017-2022.  
Source: MMWR Weekly Report, Volume 72, Issue 30.<sup>63</sup>



# Chapter 4

## Chronic Diseases

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Image credit: <https://www.cdc.gov/>



“Attain healthy, thriving lives and well-being free of preventable disease, disability, injury, and premature death.”

- Healthy People 2030

# Chapter 4. Chronic Diseases

## Introduction

Chronic diseases, also called noncommunicable diseases, are prevalent in society and increasing in prevalence. According to the CDC, chronic diseases are “broadly defined as conditions that last 1 year or more and require ongoing medical attention or limit activities of daily living or both.”<sup>64</sup> In the United States, 60% of adults have a chronic disease. Obesity is the most prevalent condition and is considered both a chronic disease and a risk factor for other diseases.<sup>64</sup>

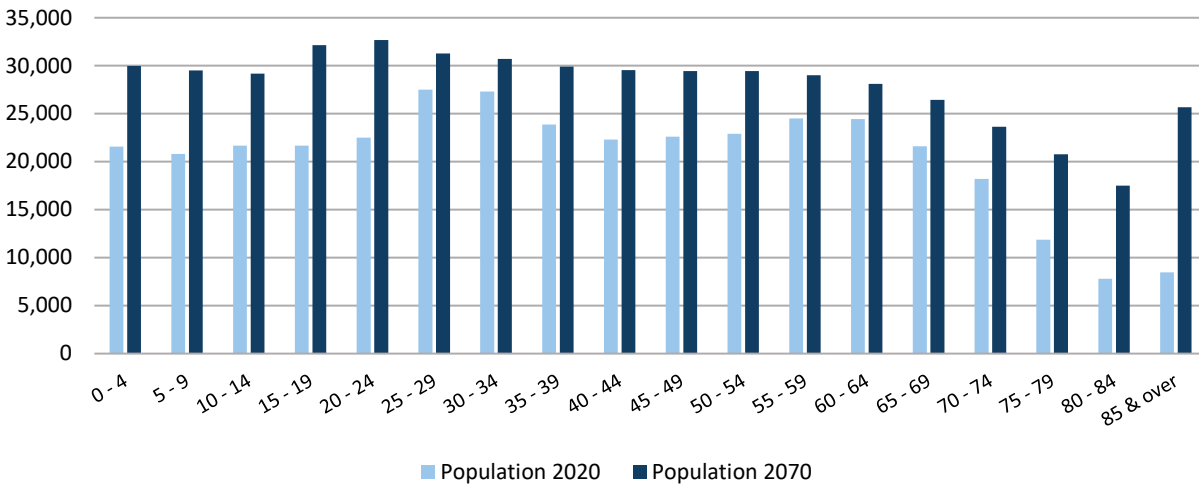
Chronic diseases affect a disproportionate number of Tennesseans compared to the nation. In Tennessee, 14.1% of adults have three or more chronic health conditions, resulting in a ranking of 46<sup>th</sup> in the country by America’s Health Rankings.<sup>65</sup> Table 4-1 shows the leading chronic diseases in order of prevalence in Hamilton County and the United States. High blood pressure and high cholesterol are also chronic conditions and are discussed in the risk factor section of this chapter.

**Table 4-1. Age-adjusted estimated prevalence rates based on 2021 census data. Source: CDC PLACES Data, 2022.<sup>66</sup>**

Chronic Disease	Hamilton County	United States
Obesity	35%	33%
Diabetes	11.1%	9.9%
Asthma	10.7%	9.7%
Cancer (excluding skin cancer)	6.3%	6%
Coronary Heart Disease	5.6%	5.2%
Chronic Kidney Disease	3.3%	3.1%
COPD	2.9%	2.7%
Stroke	2.9%	2.8%

Because the United States population is aging, it is expected that the adult population with chronic diseases will increase as well. To understand future chronic disease burden, population projections are helpful to examine. For example, it is projected that nearly 25% of the United States population will be 65 years or older by 2060.<sup>67</sup> The Boyd Center for Business and Economic Research projects that 22.6% of Hamilton County’s population will be 65 years or older by 2070 (Figure 4-1).<sup>68</sup>

**Figure 4-1. Comparison of Hamilton County population by age group, 2020 and 2070. Source: Boyd Center for Business and Economic Research (2022).<sup>68</sup>**

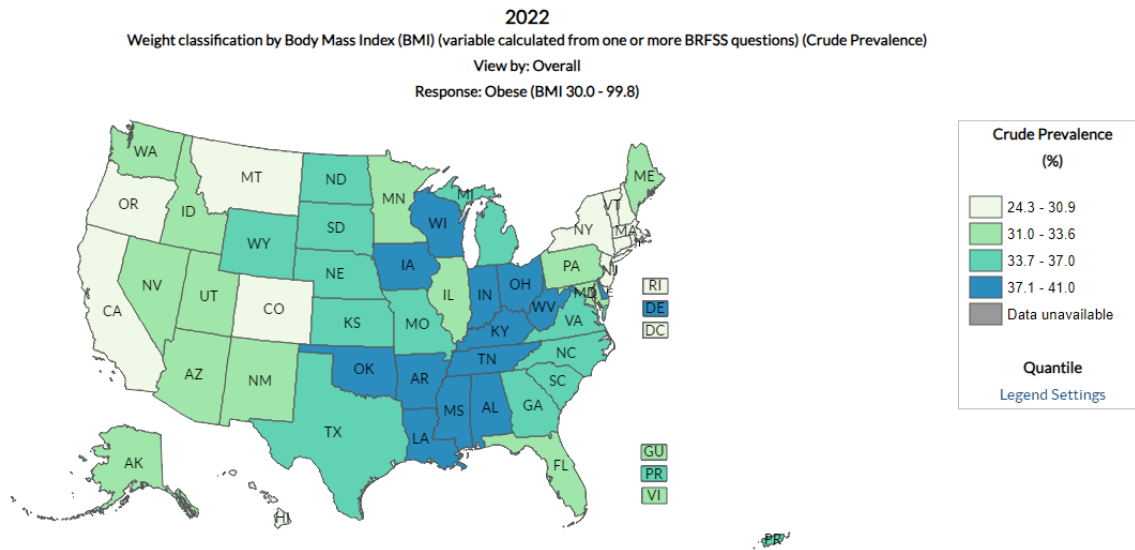


**Obesity**

Obesity is both a disease and a risk factor for developing other diseases. Obesity is measured by a person’s body mass index (BMI), a measurement calculated from their weight and height. Adults with a BMI of 25 to <30 are considered overweight, and adults with a BMI of 30 and above are considered obese. While obesity can be influenced by modifiable risk factors like poor nutrition and physical inactivity, other factors can also increase a person’s risk for developing obesity: certain health conditions and illnesses, certain medications, environmental factors, sleep, and genetics can all contribute to obesity.<sup>69</sup>

The effects of obesity are not only physical; obesity in adults and children also cause higher rates of mental issues like anxiety and depression. Obesity also costs the nation around \$173 billion in annual health care costs.<sup>69</sup> The prevalence of obesity in the United States and in Tennessee has continued to increase. In 2022, Tennessee was among the 13 states in the nation with the highest rates of obesity (Figure 4-2).

**Figure 4-2. Prevalence of obesity by state. 2022. Source: BRFSS, 2022.** <sup>70</sup>



In 2021, 36.1% of residents living in the Chattanooga, TN-GA Metropolitan Statistical Area met the obese weight classification and 36.9% met the overweight weight classification (Table 4-2). Reducing the number of adults, children, and adolescents with obesity is a *Healthy People 2030* goal and public health priority.

**Table 4-2. Percentage of Hamilton County residents who are overweight and obese. 2016-2021. Source: BRFSS, 2011-2021.** <sup>70</sup>

	<b>Obese (BMI 30.0 - 99.8)</b>	<b>Overweight (BMI 25.0 - 29.9)</b>	<b>Normal Weight (BMI 18.5 - 24.9)</b>
2016	33.7%	35.5%	29.0%
2019	34.5%	34.5%	28.7%
2021	36.1%	36.9%	23.9%

### Diabetes

Diabetes is a chronic disease occurring when the body does not produce enough insulin to regulate blood glucose (blood sugar) levels or does not respond properly to insulin.<sup>71</sup> Insulin is a hormone produced by the pancreas that allows glucose to enter cells and be used as energy.<sup>72</sup> When the body stops responding to or makes too little insulin, blood glucose levels become too high.<sup>71</sup>

Persons with blood glucose levels higher than normal but not high enough to be considered diabetic may have prediabetes. The prevalence of prediabetes in adults 18 years and older, 2017-2020, is 36.5%. Prevalence is higher in men (41%) compared to women (32%); however, it is similar across all education levels and racial/ethnic groups.<sup>73</sup>

The three most common types of diabetes are type 1, type 2, and gestational (Figure 4-3). With type 1

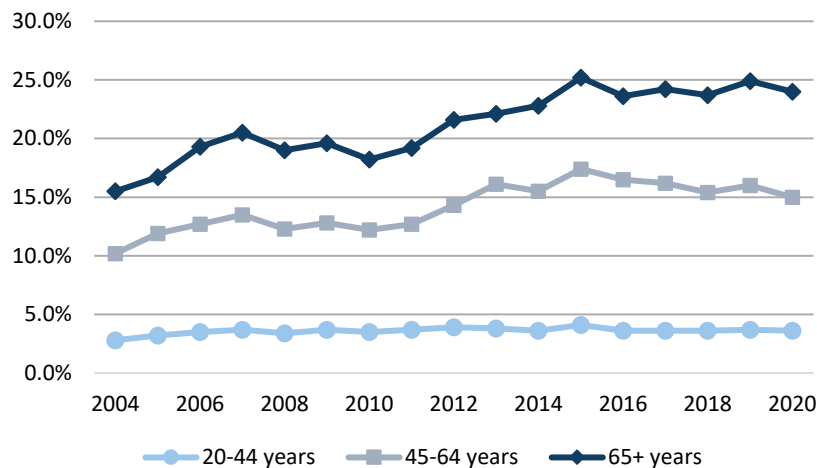
diabetes, a person’s body makes little to no insulin; this type is usually diagnosed in children and young people. With type 2 diabetes, the most common type, a person’s cells are not able to use insulin properly. Type 2 diabetes can develop at any age. Overweight, obesity, and family history are risk factors for Type 2 diabetes.<sup>72</sup> Gestational diabetes develops during pregnancy and usually resolves itself once the baby is born.

**Figure 4-3. Main types of diabetes. Source: World Health Organization.<sup>74</sup>**



Diabetes is a serious public health risk because it increases the risk of heart disease, stroke, and other conditions. The CDC reports age-adjusted data for adults in the U.S. (2021) with 8.5% of the population having diagnosed diabetes, most of which is type 2.<sup>73</sup> The age-adjusted rate for Tennessee is 12.2% and Hamilton County is 10.6%. Over time, the prevalence of diabetes in Hamilton County has increased in those 65 and older and in those 45-64 years old (Figure 4-4).<sup>75</sup>

**Figure 4-4. Diabetes prevalence in adults 20+ years Hamilton County over time, by age. Source: CDC National Diabetes Statistics Report, 2021.<sup>73,75</sup>**

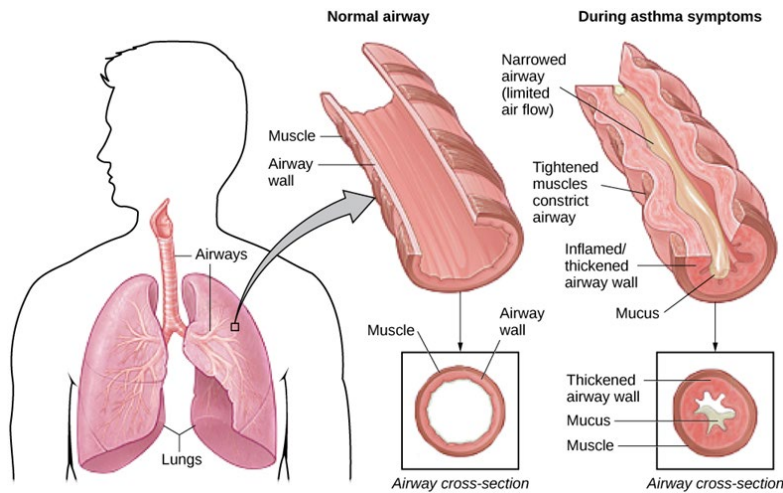


Age-adjusted data for 2018-2019 for adults in the United States shows that diabetes was highest among American Indians and Alaska Natives, followed by non-Hispanic Blacks. Prevalence varies by income and education level with the highest U.S. prevalence in adults with less than a high school education and those with a household income below the federal poverty level.<sup>73</sup>

## Asthma

Asthma is a chronic respiratory condition affecting millions of people in the United States, with 7.7% of the population with current asthma.<sup>76</sup> Asthma is characterized by airway inflammation and results in symptoms such as wheezing, coughing, shortness of breath, and chest tightness. Genetics, environmental triggers, and exposure to allergens contribute to the development and exacerbation of asthma (Figure 4-5).<sup>76</sup>

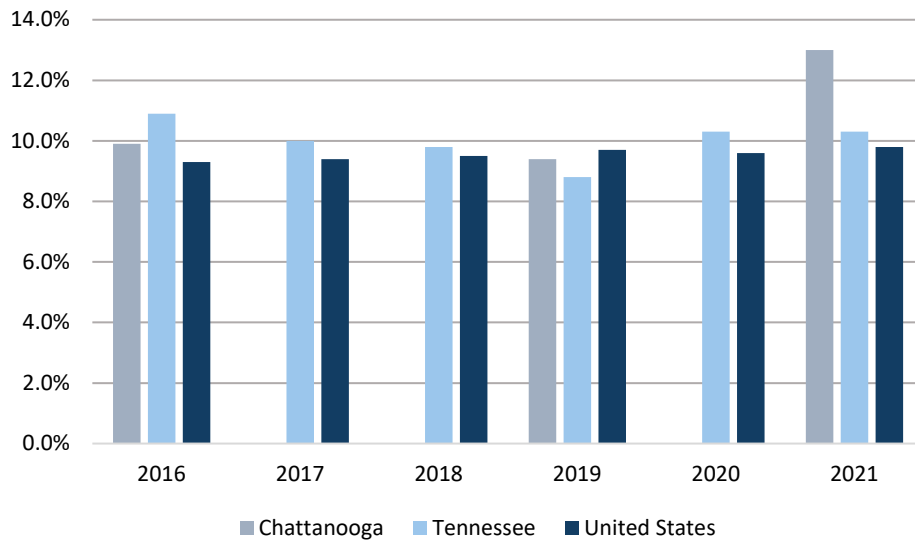
**Figure 4-5. Normal airways and airways during asthma symptoms. Source: EPA, “What is Asthma”.<sup>77</sup>**



The prevalence of adult asthma in Tennessee and the United States has remained relatively constant over the past several years, estimated at 10.3% and 9.8% respectively in 2021 (Figure 4-6).<sup>78,79</sup> The Chattanooga, TN-GA Metropolitan Statistical Area, however, has seen a sharp rise in prevalence from 2019 (9.4%) to 2021 (13.0%).



**Figure 4-6. Adult current asthma prevalence comparison of Chattanooga, Tennessee, and the U.S.**  
 Source: BRFSS, 2016-2021.<sup>79</sup>



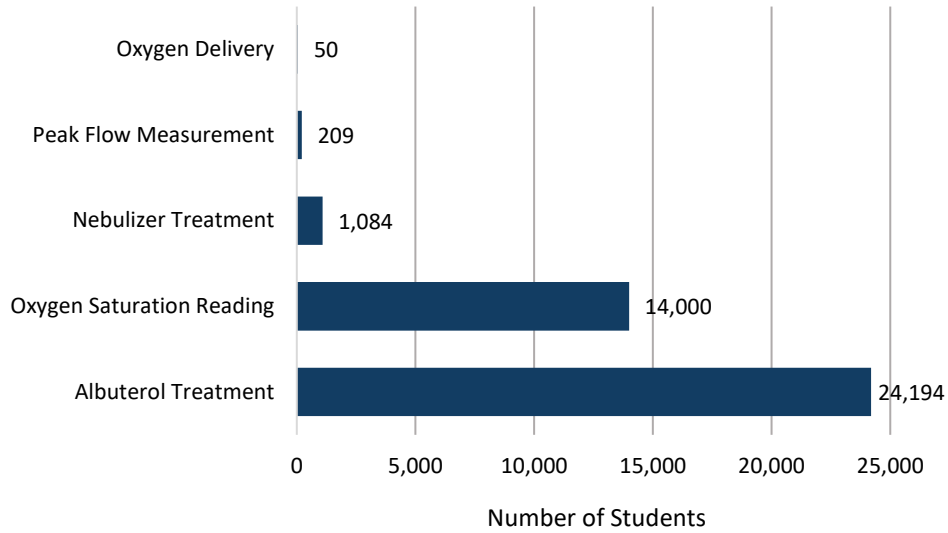
An estimated 30,348 adults and 7,466 children in Hamilton County have asthma, according to the American Lung Association (2023) (Table 4-3).<sup>80</sup>

**Table 4-3. Estimates prevalence of pediatric and adult asthma in Hamilton County and Tennessee, 2021.**  
 American Lung Association, 2021.<sup>80</sup>

	Hamilton County	Tennessee
Pediatric Asthma	7,466	150,048
Adult Asthma	30,348	565,299
Total Population	369,135	6,975,218

Asthma attack prevalence in the United States has declined over the past 20 years, as have emergency department visits and hospitalizations due to asthma.<sup>81</sup> In Tennessee, we have a higher-than-average rate of asthma-related hospitalizations.<sup>82</sup> Low-income populations, minorities, and children living in inner cities experience more emergency department visits, hospitalizations, and deaths due to asthma than the general population.<sup>80</sup> Asthma is a significant contributor to healthcare costs and school and work absences. In Tennessee, asthma is the primary chronic disease affecting students and is a major contributor to school absences.<sup>83</sup> During the 2022 to 2023 school year, albuterol was the most frequently administered emergency treatment in a school setting in Tennessee (Figure 4-7).

**Figure 4-7. Asthma-related healthcare procedures and emergency treatments administered in a school setting in Tennessee, 2022-2023 School Year. Source: Tennessee Department of Education, Annual School Health Services Report, 2022-23 School Year.<sup>83</sup>**

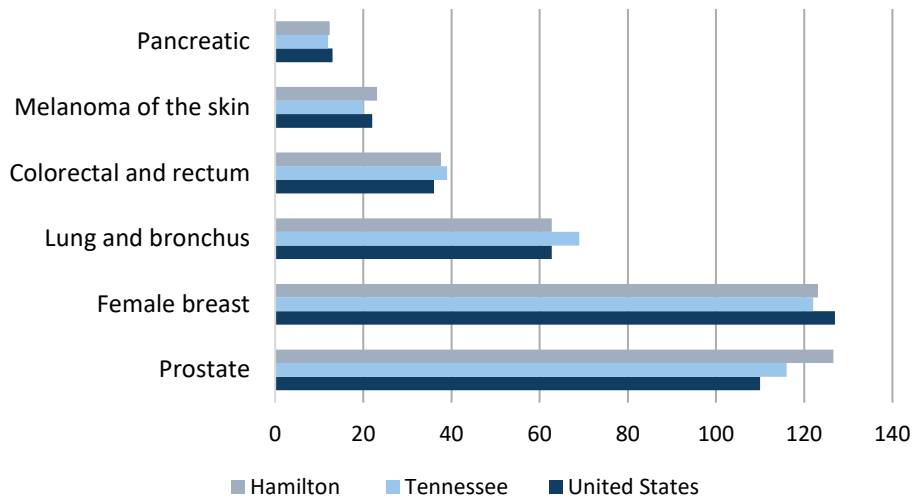


### **Cancer**

Cancer is a group of related diseases of the genes in our body's cells. Changes to genes can cause cells to malfunction and abnormal cells can develop into cancer.<sup>84</sup> One way to better understand how cancer is impacting our community is to analyze the incidence and prevalence of cancers. Social, environmental, and economic circumstances result in some groups being impacted by cancer more than others.<sup>84</sup>

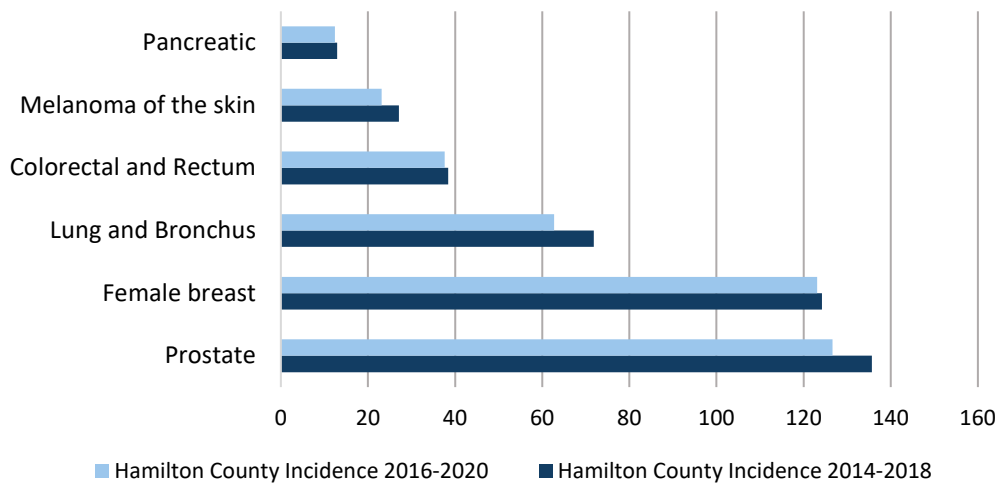
In the United States, Tennessee, and Hamilton County, most cancer cases are female breast cancer and prostate cancer (Figure 4-8). Incidence of prostate cancer is higher in Hamilton County compared to Tennessee and the United States. Aging is the most important risk factor for developing cancer, with most cases diagnosed in persons 65-69 years old.<sup>85</sup>

**Figure 4-8. Cancer incidence 2016-2020 comparison of Hamilton County, Tennessee, and the U.S.**  
 Source: U.S. Cancer Statistics.<sup>86</sup>



During the early part of the COVID-19 pandemic, cancer diagnoses at the national level declined which suggests there were fewer cancer screenings.<sup>87</sup> This trend held true in Hamilton County (Figure 4-9).

**Figure 4-9. Comparison of cancer incidence over time in Hamilton County.** Source: U.S. Cancer Statistics.<sup>86</sup>



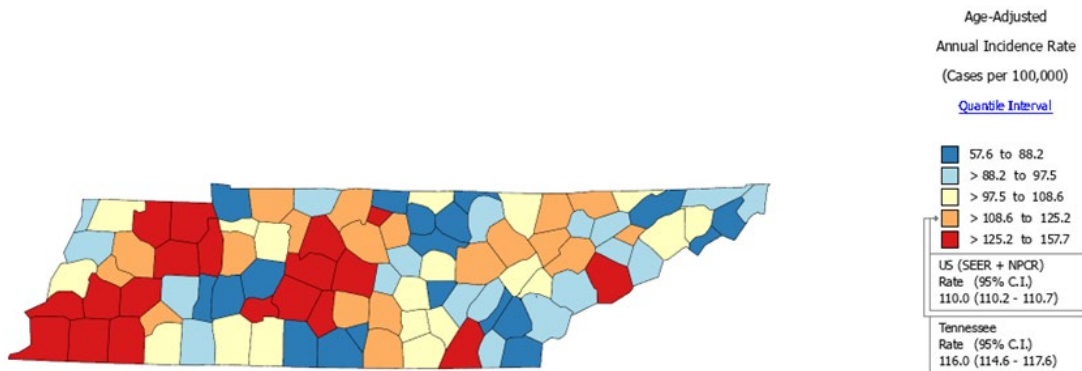
In examining cancer by group for prostate cancer, incidence is higher in Black persons (non-Hispanic) compared to White persons (non-Hispanic) and Hispanic persons (all races). These rates are higher in Hamilton County compared to Tennessee and the United States (Table 4-4).<sup>86</sup>

**Table 4-4. Incidence of prostate cancer, 2016-2020. Source: U.S. Cancer Statistics.<sup>86</sup>**

	White Persons	Black Persons	Hispanic Persons
United States	105	175	83
Tennessee	105	180	77
Hamilton County	114.8	199.7	85.3

Compared to other Tennessee counties, Hamilton County is among those with the highest incidence rates of prostate cancer per 100,000 population (Figure 4-10).<sup>86</sup>

**Figure 4-10. Age-adjusted incidence rates of prostate cancer by Tennessee county. All races (includes Hispanic), male, all ages. Source: U.S. Cancer Statistics.<sup>86</sup>**



For lung and bronchus cancer, incidence rates are highest for Black men (Table 4-5). And for melanoma of the skin, rates are higher in men than women (Table 4-6).

**Table 4-5. Age-adjusted incidence rates for lung and bronchus cancer, 2016-2020. Source: U.S. Cancer Statistics.<sup>84</sup>**

	White Persons	Black Persons	Black Men	Black Women
United States	58	55	61	45
Tennessee	72	61	82	47
Hamilton County	61.7	72.3	78.7	51.7

**Table 4-6. Age-adjusted incidence rates for melanoma cancer, 2016-2020. Source: U.S. Cancer Statistics.<sup>84</sup>**

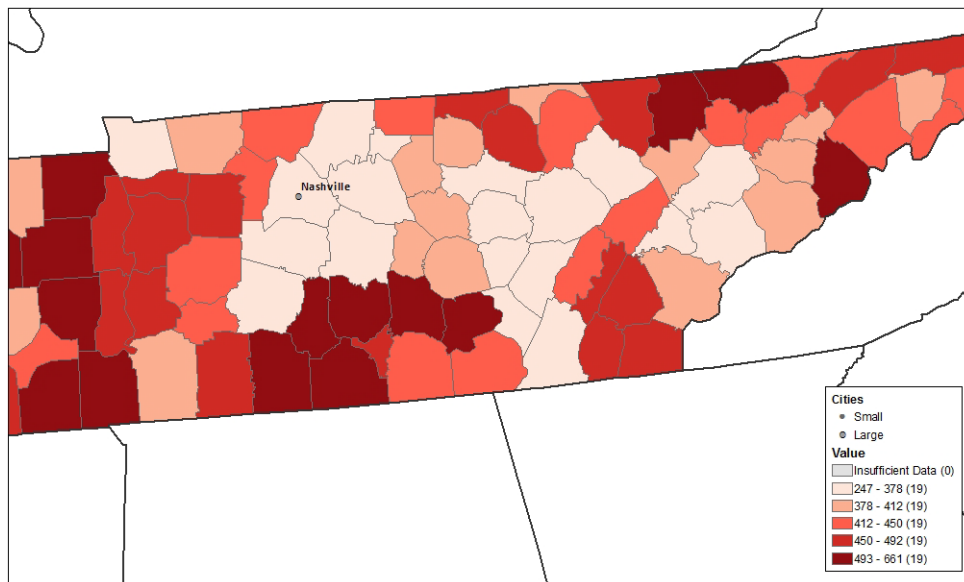
	Men	Women
United States	28	17
Tennessee	26	15
Hamilton County	29.8	18.4

## Heart Disease and Stroke

Heart disease refers to many heart conditions, the most common of which is coronary artery disease. Heart disease is a significant public health concern in the United States, contributing to a substantial portion of the nation's mortality and morbidity. According to the CDC, heart disease is the leading cause of death nationally, responsible for approximately 695,000 deaths in 2021.<sup>83</sup> Risk factors for heart disease, such as high blood pressure, high cholesterol, and obesity, are prevalent in the United States, Tennessee, and Hamilton County, contributing to the high prevalence of this condition.

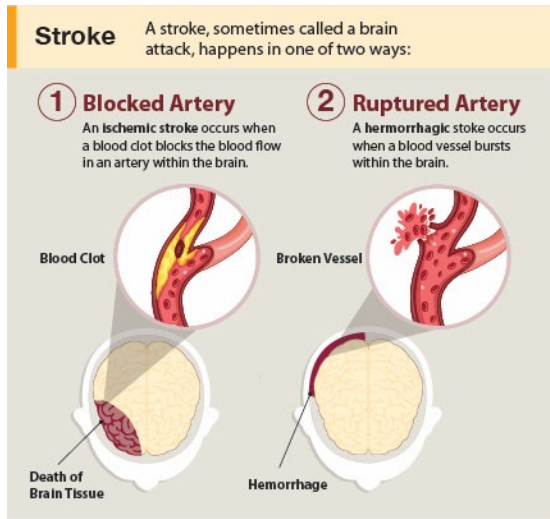
In addition to the human toll, heart disease places a substantial economic burden on the country's healthcare system and society as a whole, costing the United States about \$240 billion each year.<sup>83</sup> The management of heart disease involves a multidisciplinary approach, including lifestyle modifications, medication, and in some cases, surgical interventions, making it a critical area of focus for healthcare providers and policymakers alike. Heart disease death rates per 100,000 in Tennessee by county is shown in Figure 4-11. Hamilton County experiences lower incidence compared to many counties in the state.<sup>84</sup>

**Figure 4-11. Heart disease death rate per 100,000, all race/ethnicities, all genders, ages 35+, 2018-2020. Source: CDC Interactive Atlas of Heart Disease and Stroke.<sup>84</sup>**



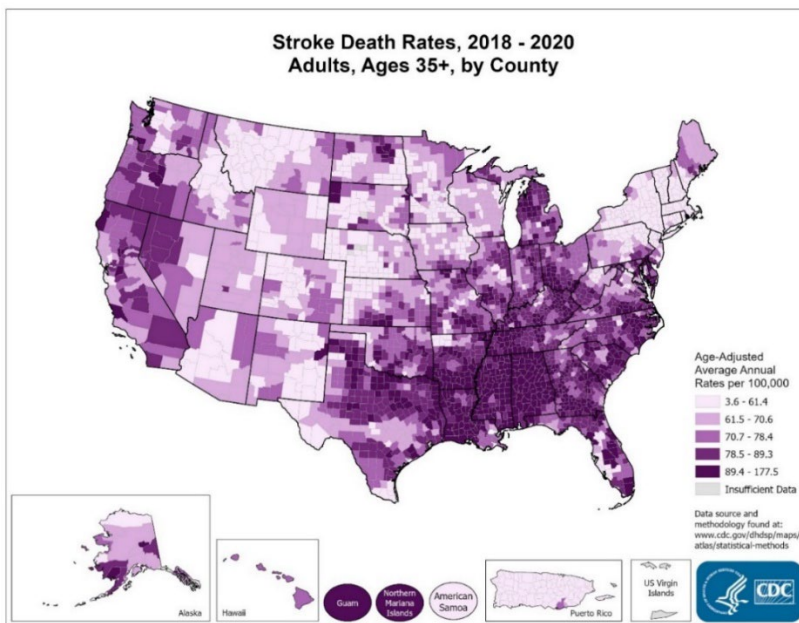
Stroke happens when the blood supply to the brain is blocked or when a blood vessel in the brain bursts. Within minutes, without a flow of blood, brain cells start to die. There are two types of strokes: ischemic and hemorrhagic. Most strokes are ischemic, occurring when a blood clot or particle blocks the blood vessels to the brain. A hemorrhagic stroke takes place when an artery in the brain ruptures or leaks blood. High blood pressure is a condition that can lead to a hemorrhagic stroke (Figure 4-12).<sup>85</sup>

**Figure 4-12. Description of the types of strokes. Source: CDC Stroke.<sup>90</sup>**



Tennessee is considered part of the “Stroke Belt” which is a region in the U.S. with higher stroke deaths (Figure 4-13).

**Figure 4-13. Stroke death rates, 2018-2020, adults ages 35+. Source: CDC Stroke.<sup>90</sup>**



## Risk Factors for Chronic Diseases

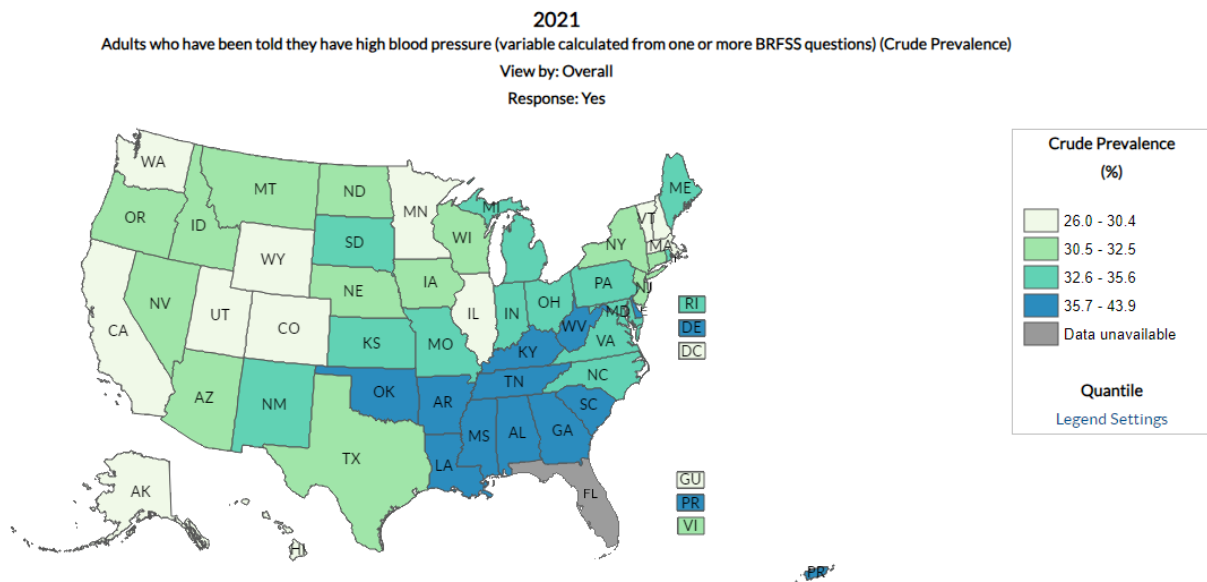
Certain health behaviors, like tobacco use, substance use, physical inactivity, and poor nutrition put people at a higher risk for developing chronic diseases.<sup>86</sup> Reducing the rate of these modifiable risk factors is an objective of *Healthy People 2030*, with many identified as Leading Health Indicators (LHI), meaning they are high-priority.<sup>87</sup>

### High Blood Pressure

High blood pressure, or hypertension, is a risk factor for heart disease and stroke which are leading causes of death in the United States. Hypertension is prevalent in the United States, affecting nearly half of adults, 48.1% or 119.9 million.<sup>93</sup> In 2021, hypertension was either the main reason or played a role in the deaths about 691,000 adults in the United States.<sup>94</sup> From 2017 to 2020, 45% of adults aged 18 years and older had hypertension, and the *Healthy People 2030* target goal is 41.9%.<sup>95</sup>

Based on data from the Behavioral Risk Factor Surveillance System (BRFSS), Tennessee ranks as one of the highest rates of adults receiving diagnoses of high blood pressure in the nation (Figure 4-14). In 2021, 39.5% of adults in the Chattanooga, TN-GA Metropolitan Statistical Area had been told that they have high blood pressure.<sup>96</sup>

**Figure 4-14. Prevalence of adults who have been told they have high blood pressure. 2021. Source: BRFSS, 2021.**<sup>96</sup>



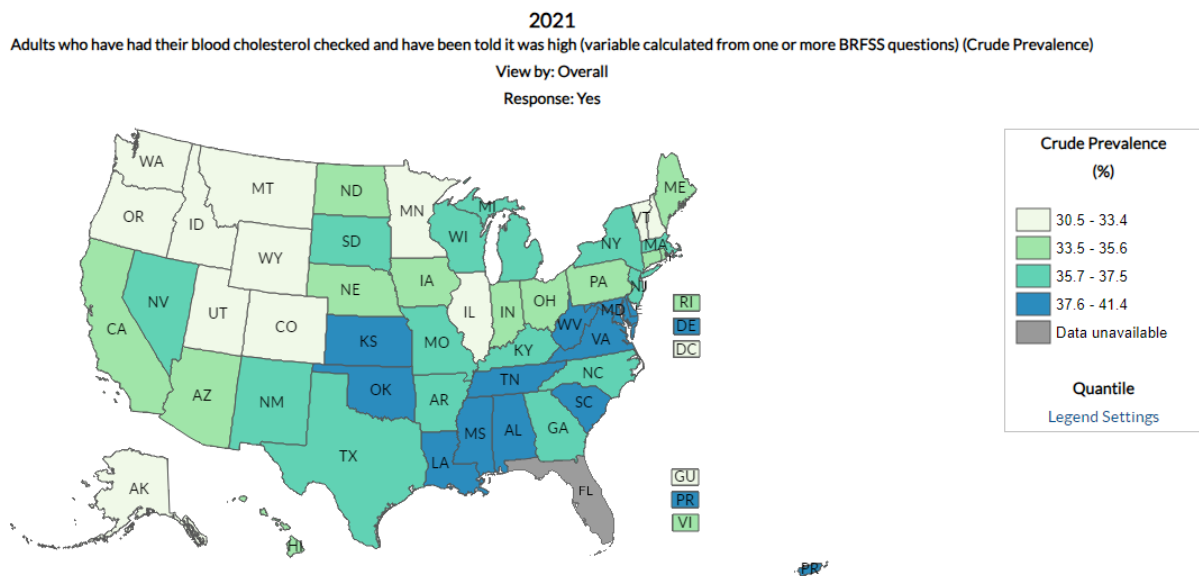
The lack of physical activity and an unhealthy diet can contribute to hypertension, as can certain health conditions like diabetes and obesity.<sup>94</sup> Lifestyle changes, including regular exercise, smoking cessation, healthy eating habits, weight management, and stress reduction, can help or manage hypertension.<sup>94</sup> Addressing high blood pressure is important for reducing the risk of heart disease, stroke, and other cardiovascular issues.<sup>94</sup>

### High Cholesterol

Nearly 40% of adults in the United States have high cholesterol levels with total blood cholesterol  $\geq 200$  mg/dL. High cholesterol increases the risk of heart disease and stroke.<sup>97</sup> High cholesterol levels vary among different racial or ethnic groups. Among males, the prevalence is highest among Non-Hispanic Asian adults (13%), followed by Non-Hispanic White adults (9.6%), Hispanic adults (9.3%), and Non-Hispanic Black adults (6.9%). For females, the highest prevalence is among Non-Hispanic White adults (10.7%), following by Hispanic adults at (10.0%), Non-Hispanic Asian adults (8.7%), and Non-Hispanic Black adults (9.3%).<sup>97</sup> *Healthy People 2030* prioritizes high cholesterol with an objective focused on reducing cholesterol in adults. From 2013 to 2016, 190.9 mg/dL was the mean total blood cholesterol for adults aged 20 and older, and the *Healthy People 2030* target goal is 186.4 mg/dL.<sup>98</sup>

According to data from BRFSS, Tennessee ranks among the top states for percentage of adults who have undergone blood cholesterol screening and have been informed of high levels (Figure 4-15). In 2021, 36.1% of adults in the Chattanooga, TN-GA Metropolitan Statistical Area had been told that they have high cholesterol.<sup>96</sup>

**Figure 4-15. Adults who have had their blood cholesterol checked and have been told it was high. 2021.**  
Source: BRFSS, 2021.<sup>96</sup>



While the average total cholesterol levels among adults in the United States has decreased in recent years, there are still millions of adults with high cholesterol. Research indicates that interventions aimed at promoting healthier eating habits, increased physical activity, and weight loss can effectively lower total cholesterol levels.<sup>98</sup>

### Tobacco Use

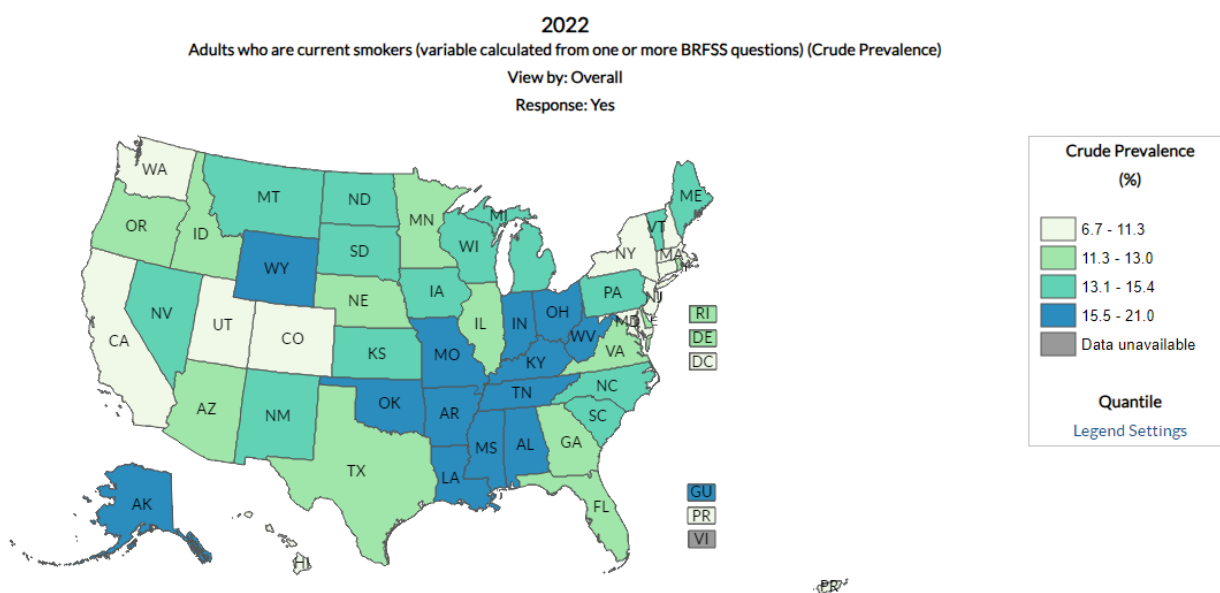
Tobacco use is a global public health problem, with over 8 million people dying each year worldwide as a result of tobacco consumption or secondhand smoke.<sup>99</sup> Tobacco use is the number one cause of



preventable illness and death in the United States, with over 480,000 individuals dying each year.<sup>100</sup> Using tobacco puts individuals at a higher risk for diabetes, heart disease, stroke, and cancer, among other conditions.<sup>101</sup>

People who use tobacco, compared to nonsmokers, have a 30-40% higher risk of developing type 2 diabetes, two to four times the risk of developing heart disease or stroke, and 25 times the risk of developing lung cancer. Nationwide, over 16 million individuals live with a disease caused by tobacco use.<sup>101</sup> In Tennessee, almost 33% of cancer deaths are due to smoking, and about 11,400 individuals die each year as a result of a smoking-related illness.<sup>102</sup> According to BRFSS data, Tennessee has one of the highest rates of current smokers in the nation (Figure 4-16).

**Figure 4-16. Prevalence of adults who are smokers. 2022. Source: BRFSS, 2022.**<sup>103</sup>



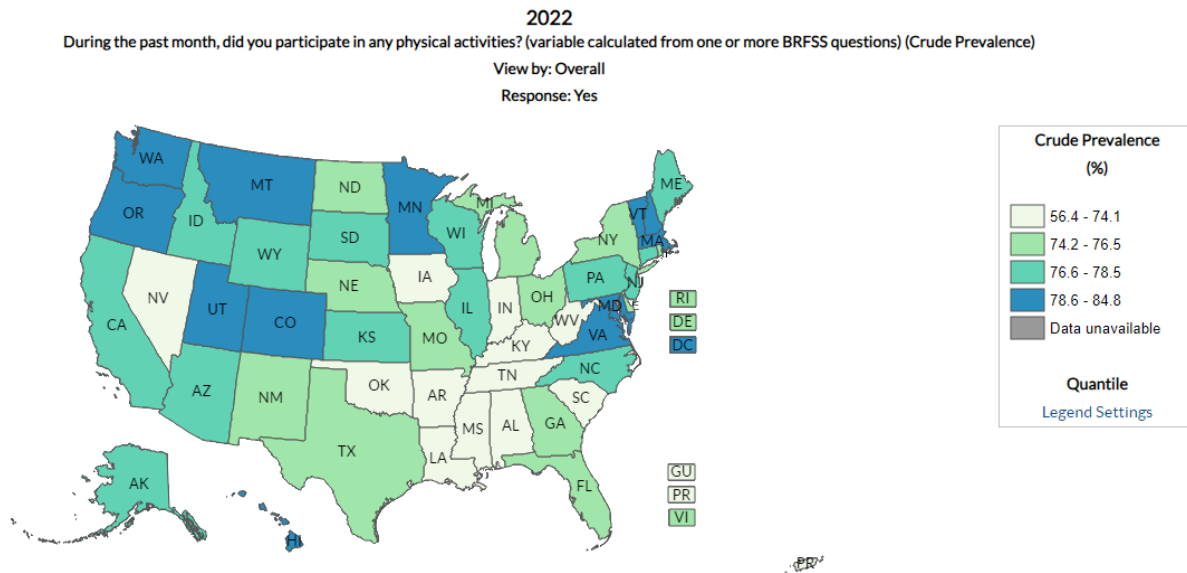
Nationally, the number of smokers has decreased over the last few years from 15.5% in 2020 to 14.0% in 2022.<sup>103</sup> While the percentage of Tennessee residents who report being a current smoker has increased slightly between 2019 and 2021, the percentage of smokers in the Chattanooga-Hamilton County region has decreased. As of 2021, 17.3% of Chattanooga-Hamilton County residents report being a current smoker compared to 19.7% of Tennessee residents.<sup>103</sup>

### *Physical Inactivity*

Being physically inactive can increase a person’s risk for chronic diseases, including heart disease, diabetes, and cancer.<sup>104</sup> According to the Physical Activity Guidelines for Americans, adults need at least 150 minutes per week of moderate-intensity physical activity.<sup>105</sup> BRFSS data suggest that the percentage of adults in Tennessee who meet the 150-minutes-per-week recommendation increased from 2013 through 2019.<sup>106</sup> However, in 2019, only 21.8% of Tennesseans met the recommendation, which is slightly

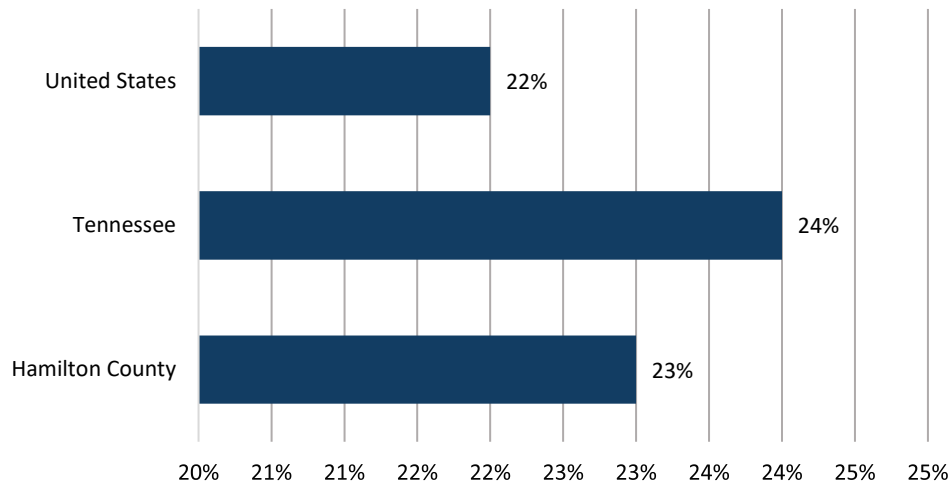
lower than the same metric for the United States.<sup>107</sup> In 2022, Tennessee was among the lowest states in the nation for the prevalence of individuals who do any sort of exercise (Figure 4-17).

**Figure 4-17. Prevalence of adults who participate in any physical activities. 2022. Source: BRFSS, 2022.<sup>103</sup>**



When asked “During the past month, did you participate in any physical activity?,” residents of the Chattanooga-Hamilton County region responded “yes” less frequently than the rest of the United States, but more frequently than other Tennessee residents in 2021.<sup>103</sup> Similarly, Hamilton County adults reported participating in no physical activity outside of work more often than the United States as a whole, but less often than other Tennessee residents (Figure 4-18).<sup>7</sup>

**Figure 4-18. Percentage of adults reporting no physical activity outside of work in Hamilton County, Tennessee, and the U.S. Source: County Health Rankings and Roadmaps 2023.<sup>7</sup>**



**Built Environment**

Aspects of a community that can either enhance or limit its residents’ ability to be physically active are its design and safety. A city’s walkability, meaning how easy it is to travel on foot, is an important contributor to physical activity accessibility.<sup>108</sup> Studies show that a community’s safety (including streetlights, sidewalks, crosswalks, etc.), visually pleasing surroundings, the presence of benches for rest, and close proximity to businesses, all increase the likelihood that individuals will choose walking as a form of transportation and exercise. Proper cyclist infrastructure and easy access to nature may also encourage residents to be more physically active. On the contrary, pollution, excess traffic, and safety concerns can be a barrier to individuals seeking physical activity in their community.<sup>108</sup>

Historically, Hamilton County has had few designated areas for active transportation, like walking and cycling.<sup>109</sup> Currently, only 1.7% of Hamilton County residents report walking to work, as opposed to 76.3% who report driving alone to work. Though higher than the percentage of Tennesseans who report walking to work (1.2%), Hamilton County sits markedly lower than the national average of 2.4% (Table 4-7).<sup>4</sup>

**Table 4-7. Commute to work by transportation type for Hamilton County, Tennessee, and the U.S. 2017-2021 Source: American Community Survey 5-Year Estimates.<sup>4</sup>**

	Hamilton County	Tennessee	United States
Walk to work	1.7%	1.2%	2.4%
Drive alone to work	76.3%	78.8%	71.7%

According to the Chattanooga-Hamilton County Regional Planning Agency’s (RPA) Comprehensive Plan 2030, transportation planning for the region is shifting away from adding new roadway infrastructure and toward roadway maintenance and increased multimodal transportation infrastructure.<sup>109</sup> The Chattanooga-Hamilton County/North Georgia Transportation Planning Organization (TPO) within the RPA

is conducting an Area Wide Bicyclist & Pedestrian Count Program as a part of the 2045 Regional Transportation Program (RTP).<sup>110</sup> Initial baseline data indicates the highest volume of bicycle and foot traffic in areas with destinations of interest and available cycle and pedestrian infrastructure, with Broad Street and Aquarium Way as the most traveled.<sup>110</sup> Excluding these two locations, disadvantaged areas represent 60% of all bicycle and pedestrian trips measured.<sup>110</sup> Disadvantaged areas often have an increased need for safe and consistent multimodal transportation infrastructure.<sup>110</sup> Increasing the safety and availability of multimodal infrastructure is included in the goals of RPA's Comprehensive Plan 2030.<sup>109</sup> Table 4-8 depicts averaged counts (first through third) of TPO's Area Wide Bicyclist & Pedestrian Count Program.

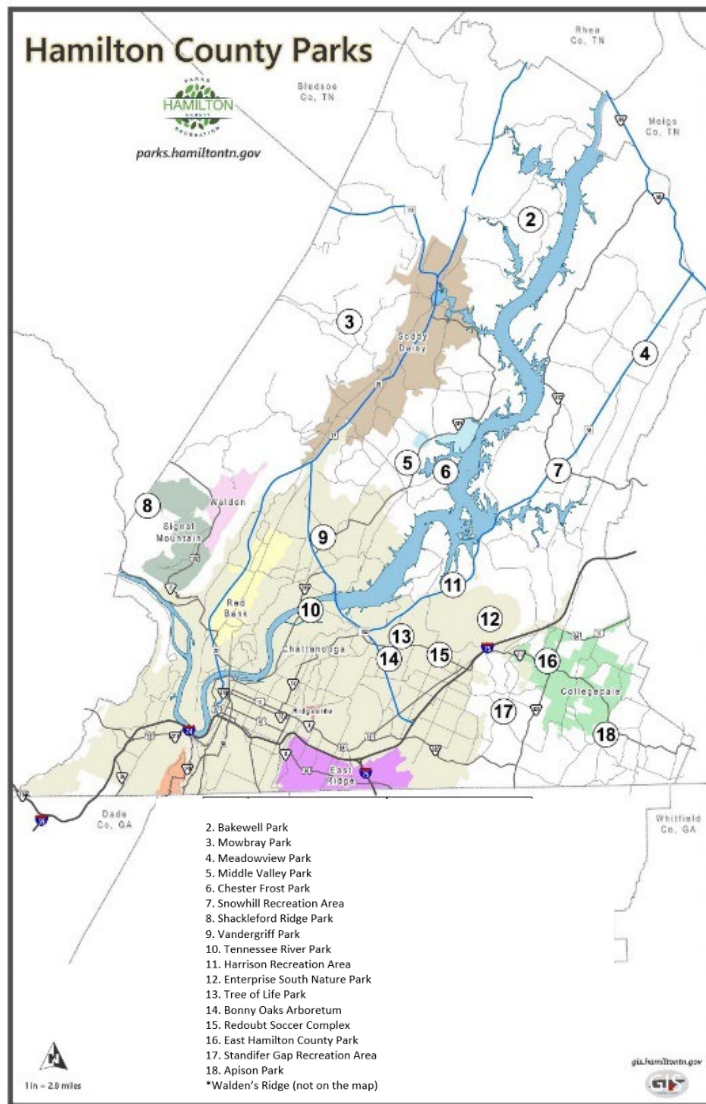
**Table 4-8. Area-wide bicyclist and pedestrian averaged count by infrastructure and location. Source: The Chattanooga-Hamilton County / North Georgia Transportation Planning Organization.<sup>110</sup>**

Location	Disadvantaged Area	Bicycle Infrastructure	Pedestrian Infrastructure	Jurisdiction	Averaged Total
Mabel St. & The Tennessee Riverpark	N	BR/SUP	SW	Chattanooga	3530.3
Manufacturer's Rd.	N	BR	SW	Chattanooga	2715.3
E. Martin Luther King Blvd. & Douglas St.	N	BL	SW	Chattanooga	2439.3
Wolftever Greenway	N	SUP	SUP	Collegedale	1881.7
N. Market St. & Bell Ave.	N	BL/BBL	SW	Chattanooga	610.3
Kirkland Ave. & E. 38th St.	N	BL	SW	Chattanooga	428.3
Chestnut St. & W. 26th St.	N	BR/BL/SUP	SW/SUP	Chattanooga	279.7
South Chickamauga Creek Greenway	N	SUP	SW/SUP	Chattanooga	304.7
Dayton Blvd. & Memorial Dr.	Y	BR	SW	Red Bank	152.7
Broad St. & Aquarium Way	Y	BR/SBL	SW	Chattanooga	18000.0
Broad St.	Y	SBL	SW	Chattanooga	15461.3
Market St. & Main St.	Y		SW	Chattanooga	4808.7
N. Market St. & Frazier Ave.	Y	BR/BL	SW	Chattanooga	6240.3
Douglas St. & Martin Luther King Blvd.	Y		SW	Chattanooga	4477.7
Carter St. & W. Martin Luther King Blvd.	Y	BR/BL	SW	Chattanooga	9110.0
King St. & E. 11th St.	Y	BR	SW	Chattanooga	1390.0
Virginia Ave. & W. 45th St.	Y	NGW	NGW/SW	Chattanooga	706.7
McCallie Ave. & University Greenway	Y	SUP	SW	Chattanooga	1828.7
McCallie Ave. & Willow St.	Y	BR BL	SW	Chattanooga	347.3
4th Ave. & E. 23rd St.	Y		SW	Chattanooga	354.3
Dodson Ave. & Wilcox Blvd.	Y	BR/BL	SW	Chattanooga	313.0
Dodds Ave. & E. 34th St.	Y	BR/BL	SW	Chattanooga	220.0
Tombras Ave. & Ringgold Rd.	Y	BL	SW	East Ridge	175.7

\* Infrastructure abbreviations: BR = Bike Route, BL = Bike Lane, BBL = Buffered Bike Lane, SBL = Separated Bike Lane, NGW = Neighborhood Greenway, SUP = Shared Use Path, SW = Sidewalk. Totals include scooter and skateboard users.<sup>110</sup>

Hamilton County offers many opportunities for recreation and abundant green spaces, including public access parks with available exercise equipment and a Riverwalk that provides over 16 miles of paved, lighted pathways free of cars for bikers and pedestrians.<sup>111</sup> In 2003, Chattanooga was recognized as a bicycle-friendly community from the League of American Bicyclists.<sup>112</sup> As of February 2024, Chattanooga is a silver award-level community with the League of American Bicyclists, with status through 2027, when renewal is required.<sup>112</sup> With 3 Hamilton County regional parks and many community parks, recreation areas, and sports facilities open to the public, most Hamilton County residents live within a short distance from a space that provides opportunity for outdoor recreation (Figure 4-19).<sup>113</sup> Municipalities also offer parks. For example, the City of Chattanooga manages Coolidge Park on the Northshore and Miller Park in downtown Chattanooga.

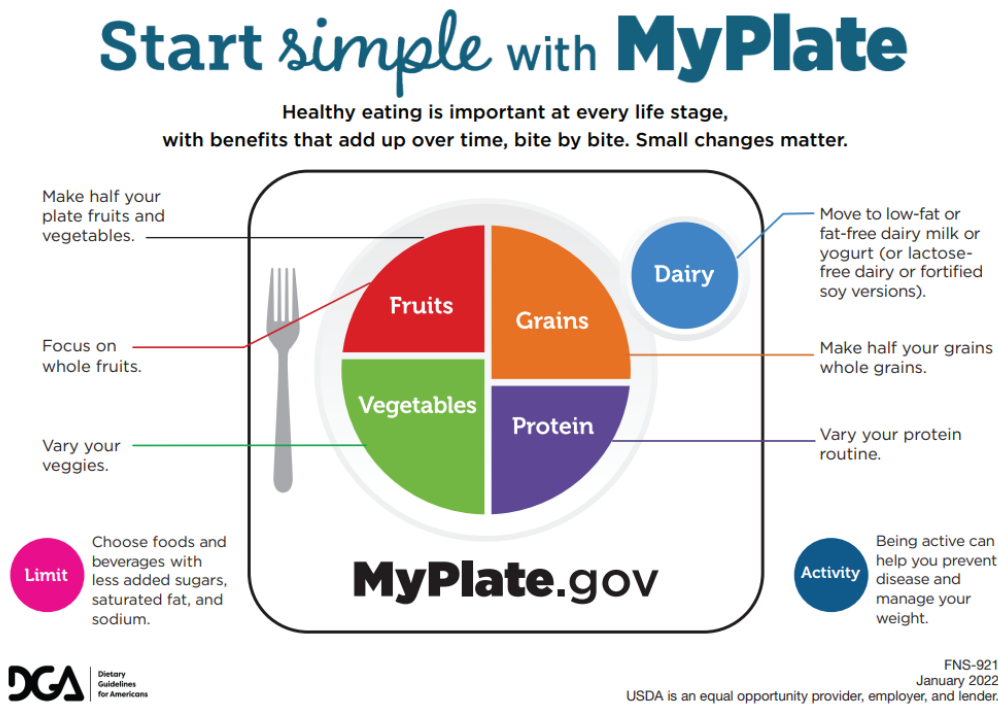
**Figure 4-19. Public Parks in Hamilton County, Tennessee. Source: Hamilton County Parks and Recreation.<sup>113</sup>**



### Poor Nutrition

An unhealthy diet is a major contributor to the development of chronic diseases. Poor nutrition increases the risk of heart disease and stroke, type 2 diabetes, and cancer.<sup>114</sup> The Dietary Guidelines for Americans is a framework for healthy eating that provides recommendations based upon life stage.<sup>115</sup> It is recommended that adults eat a variety of fruits and vegetables, whole grains, proteins, and low-fat dairy, while reducing the intake of added sugars, saturated fat, and sodium.<sup>115</sup> The United States Department of Agriculture (USDA) has developed MyPlate, a visual reminder to make healthy eating choices from each food group (Figure 4-20).<sup>116</sup>

Figure 4-20. My Plate. Source: USDA MyPlate, 2022.<sup>116</sup>



As of 2021, fruit and vegetable intake across the nation was low, with only 7.4% of adults reporting that they consumed 2+ fruits and 3+ vegetables daily.<sup>117</sup> This percentage was lower in Tennessee, with only 6.8% of adults meeting the recommended fruit and vegetable intake.<sup>117</sup> Further, significantly fewer adults in Tennessee who had diabetes reported eating vegetables compared to those adults that did not have diabetes.

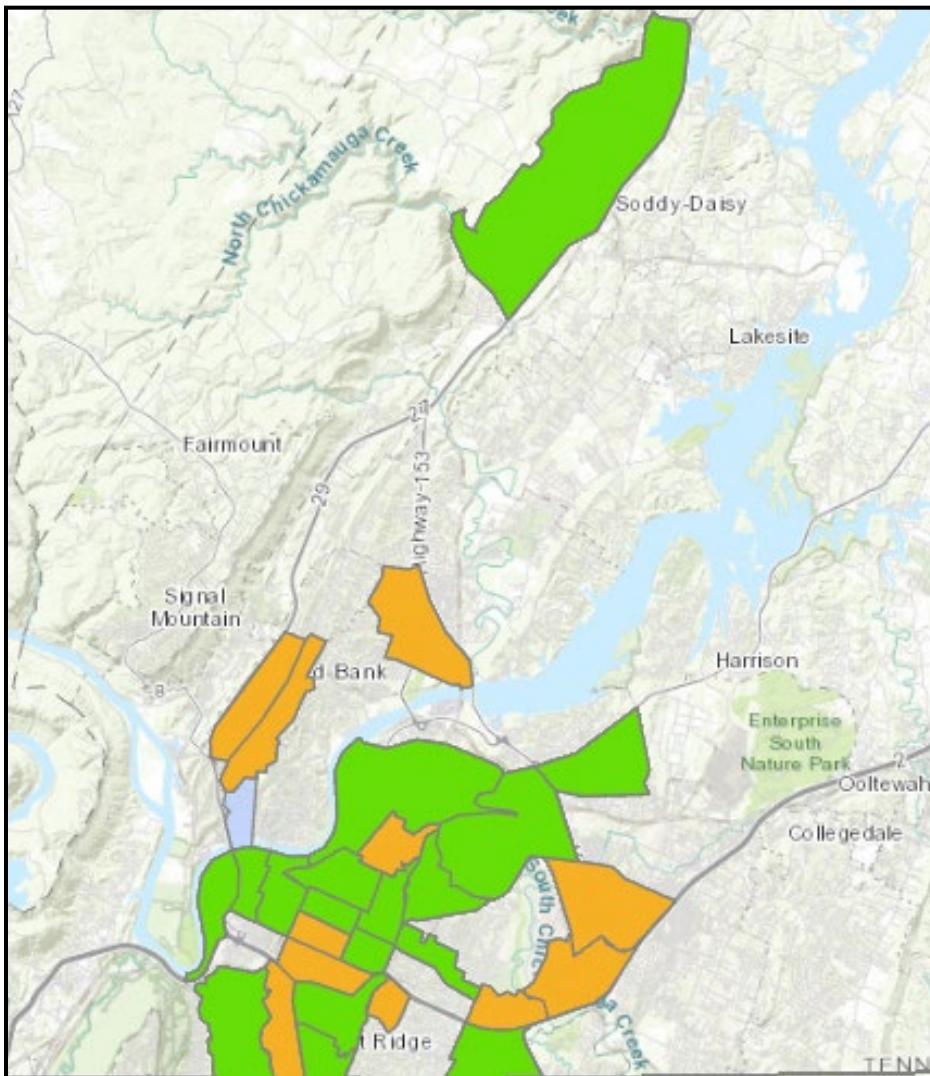
### Food Insecurity and Nutrition

Food insecurity is defined by the USDA as “a household-level economic and social condition of limited or uncertain access to adequate food” and hunger is the individual-level condition that results from food insecurity.<sup>118</sup> Numerous areas in the United States and in Hamilton County have limited access to healthy, nutritious foods. The USDA labels census tracts as either low-income (LI), low-access (LA), or both low-income and low-access (LILA).<sup>119</sup> Census tracts are labeled as low-income based on the area’s poverty rate

and are labeled low-access based on residents' distance from a food store. Thirteen percent of U.S. census tracts are considered LILA, with residents in urban areas over 1 mile from a food store and residents in rural areas over 10 miles from a food store.<sup>119</sup>

There are 29 census tracts in Hamilton County considered LI (Figure 4-21). Of these, 28 are considered LILA at 0.5 miles (urban) and 10 miles (rural), and 17 are considered LILA at 1 mile (urban) and 10 miles (rural).<sup>120</sup>

**Figure 4-21. Census tracts in Hamilton County considered to be LILA at 1 mile urban and 10 miles rural (green), LILA at 0.5 miles urban and 10 miles rural (green and orange), and LI (green, orange, and lilac).**  
Source: USDA, Food Access Research Atlas.<sup>120</sup>



The Food Environment Index uses LILA census tract data to measure food environments on a scale from 0 (highest percentage of LILA) to 10 (lowest percentage of LILA). While Hamilton County scores higher than Tennessee on the Food Environment Index, both Tennessee and the U.S. populations experience less limited access to healthy foods than Hamilton County (Table 4-9).<sup>7</sup>



**Table 4-9. Food Environment Index scores and percentage of food insecurity and limited access to healthy foods in Hamilton County, Tennessee, and the U.S. 2019-2020. Source: County Health Rankings and Roadmaps 2023.<sup>7</sup>**

	Hamilton County	Tennessee	United States
Food Environment Index	7.0	6.1	7.0
Food Insecurity	12%	12%	12%
Limited Access to Healthy Foods	13%	9%	6%

In 2021, it was estimated that over 38,000 Hamilton County residents faced food insecurity, over 10% of the population.<sup>121</sup> Over half of these food-insecure residents fall above the 130% poverty line, making them ineligible to receive Supplemental Nutrition Assistance Program (SNAP, sometimes called ‘Food Stamps’) benefits.<sup>121</sup> Food insecurity in Hamilton County may lead to hunger and/or the consumption of cheaper, less nutritious foods, which can increase residents’ risk of developing obesity, diabetes, and other chronic diseases.<sup>122</sup>

## Prevention

The risk for developing chronic diseases can be reduced by making certain health behavior choices, like quitting smoking, reducing alcohol intake, eating a healthy diet, being physically active, staying up-to-date with oral care and preventive health screenings, and getting enough sleep.<sup>123</sup>

### *Health Screenings*

Getting regular health screenings, like physical checkups and cancer screenings, can help identify illnesses early and provide a greater opportunity for appropriate and effective treatments.<sup>124</sup> *Healthy People 2030* goals include increasing the rate of preventive cancer screenings for adults in the United States. Low-income populations, minorities, those without insurance, and those with lower education levels are less likely to stay up-to-date with health screenings, highlighting disparities and barriers to screening.<sup>125</sup>

### *Regular Physical Checkups*

Receiving preventative care through regular checkups decreases the likelihood of diseases, and mortality. However, millions of individuals in the nation fail to access recommended preventative healthcare services.<sup>126</sup> *Healthy People 2030* prioritizes increasing preventative healthcare across all age groups.<sup>126</sup> Regular checkups keep you healthy and can detect health issues early, promoting a longer and healthier life. These routine checkups, distinct from visits for illness or injury, include screening tests to catch diseases early, vaccinations, dental cleanings, and education and counseling to support informed health choices.<sup>127</sup>

Median estimates from BRFSS indicate that a significant portion of individuals in both Chattanooga and Tennessee as a whole reported having had a routine checkup within the past year in 2021, with both medians higher than the United States. (Table 4-10)

**Table 4-10. Length of time since last routine checkup, 2021, U.S., Tennessee, and Chattanooga, TN-GA Metropolitan Statistical Area. Source: BRFSS, 2021.<sup>128</sup>**

	Chattanooga (median)	Tennessee (median)	United States (median)
Never	N/A	0.5%	0.6%
5 or more years ago	5.7%	4.9%	5.4%
Within the past 5 years	N/A	5.5%	6.2%
Within the past 2 years	9.9%	10.7%	12.8%
Within the past year	78.6%	78.5%	75.5%

\*Some data not available for Chattanooga, TN-GA Metropolitan Statistical Area

### *Mammograms*

Mammograms are the most common form of breast cancer screening and are the best way to detect breast cancer early.<sup>124</sup> The United States Preventative Services Task Force (USPSTF) currently recommends biennial breast cancer screening for women aged 50 to 74 of average risk, and recommends women aged 40 to 49 to begin considering screening.<sup>125,129</sup> According to CDC PLACES estimates, 76.0% of Hamilton County women aged 50 to 74 reported receiving a mammogram within the previous two years in 2020 (Table 4-11).<sup>128</sup> The *Healthy People 2030* goal of 80.3% of U.S. females aged 50 to 74 who had a mammogram within the last two years is unmet, as 75.6% of U.S. women were updated on their screening in 2021.<sup>130,131</sup>

**Table 4-11. Age-adjusted estimated prevalence of cancer screenings in Hamilton County and the U.S. 2020, 2022. Source: CDC PLACES, 2020; BRFSS, 2020.<sup>128, 132</sup>**

	Hamilton County	United States
Mammography use among women aged 50-74 (2020)	76.0%	77.8%
Cervical cancer screening among women aged 21-65 (2020)	85.1%	83.7%
Colorectal cancer screening among adults aged 50-75 (2020)	73.7%	70.6%
	Tennessee	United States
PSA testing among men 40+ within the past 2 years (BRFSS, 2020, Crude Prevalence)	32.9%	31.8%
CAT/CT scan among respondents aged 50-80 who are current and former smokers (BRFSS, 2022)	8.9%	9.7% (median)

### *Cervical Cancer Screenings*

According to USPSTF recommendations, women aged 21 to 65 should receive cervical cancer screening every 3 years with normal results.<sup>125,129</sup> The three most common types of cervical cancer screening are: Papanicolaou (Pap) tests, which detect precancerous or abnormal cells on the cervix; HPV tests, which detect human papillomavirus (HPV); and co-testing, administration of both a Pap test and an HPV test.<sup>133</sup> For women aged 21 to 29 with normal results, only Pap testing is recommended.<sup>129</sup>

For women aged 30 to 65 with normal results, screening is recommended every 3 years if Pap testing

alone, or every 5 years if co-testing or HPV testing alone.<sup>129</sup> Current recommendations were last updated in 2018 and are in the process of being revised.<sup>125</sup> The prevalence of U.S. women who receive cervical cancer screenings has been decreasing steadily since 2000.<sup>134</sup> CDC PLACES estimates indicate that 85.1% of Hamilton County women aged 21 to 65 received recommended cervical cancer screenings in 2020 (Table 4-11).<sup>128</sup> The most recent data shows that 73.9% of U.S. women aged 21 to 65 were up-to-date with cervical cancer screenings in 2021, failing to meet the *Healthy People 2030* goal of 79.2%.<sup>135</sup>

### *Colorectal Screenings*

Current USPSTF recommendations state that all adults aged 45 to 75 should be regularly screened for colorectal cancer.<sup>125,129</sup> The recommended age to begin colorectal cancer screenings was lowered from 50 to 45 in 2021 due to increased incidence of colorectal cancers among younger individuals.<sup>125</sup> Colorectal screening tests search for precancerous polyps and signs of illness, and include colonoscopy, computed tomography (CT) colonography, flexible sigmoidoscopy, and stool tests.<sup>136</sup> In Hamilton County, an estimated 73.7% of adults aged 50 to 75 received regular colorectal screening in 2020 (Table 4-11).<sup>128</sup> In 2021, 58.7% of U.S. adults aged 45 to 75 were up-to-date on colorectal cancer screenings, falling well below the *Healthy People 2030* goal of 68.3%.<sup>137</sup>

### *Lung Cancer Screenings*

USPSTF recommendations for lung cancer screening were updated in 2021 and include adults aged 50 to 80 who currently smoke or have quit smoking in the last 15 years and have a 20 pack-year smoking history.<sup>129</sup> Low-dose CT (LDCT) scans are the only recommended screening mechanism for lung cancer.<sup>138</sup> According to 2022 BRFSS data, 8.9% of Tennessee adults aged 50 to 80 who are current or former smokers reported receiving lung cancer screening compared to 9.7% of U.S. adults (Table 4-11).<sup>138</sup> The *Healthy People 2030* goal has yet to be updated with the 2021 USPSTF recommendations, and currently only baseline data from 2015 is available.<sup>139</sup>

### *Prostate Cancer Screenings*

Prostate cancer, the most frequently diagnosed cancer and second leading cause of cancer deaths in men in the United States, often progresses without symptoms, emphasizing the importance of screening for early detection and treatment.<sup>140,141</sup> Screening 1,000 men aged 55-69 may prevent one death and prevent three cases of prostate cancer spreading.

The PSA test is the primary screening tool for prostate cancer, aiding in detecting the disease early.<sup>142</sup> The updated USPSTF recommendation from 2018 suggests that men aged 55 to 69 should talk with their healthcare provider about the potential advantages and drawbacks of PSA screening, before deciding whether to undergo screening. It is not recommended that men aged 70 and older undergo PSA-based screening.<sup>143</sup> In Tennessee, an estimated 32.9% of men aged 40 or older received PSA-testing in the last 2 years in 2020 (Table 4-11). *Healthy People 2030* does not specifically target prostate cancer screenings but has an objective to reduce the prostate cancer death rate to 16.9 per 100,000. The most recent data from 2021 shows a death rate of 19.0 per 100,000 men.<sup>140</sup>

# Chapter 5

## Infectious Diseases

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“Healthy People 2030 focuses on preventing and treating infectious diseases... Making sure children and at-risk adults get vaccinated for diseases like measles, pertussis, flu, and hepatitis A and B is key to preventing infections... For diseases that can’t be prevented by vaccines... early diagnosis and treatment can help improve health outcomes.”

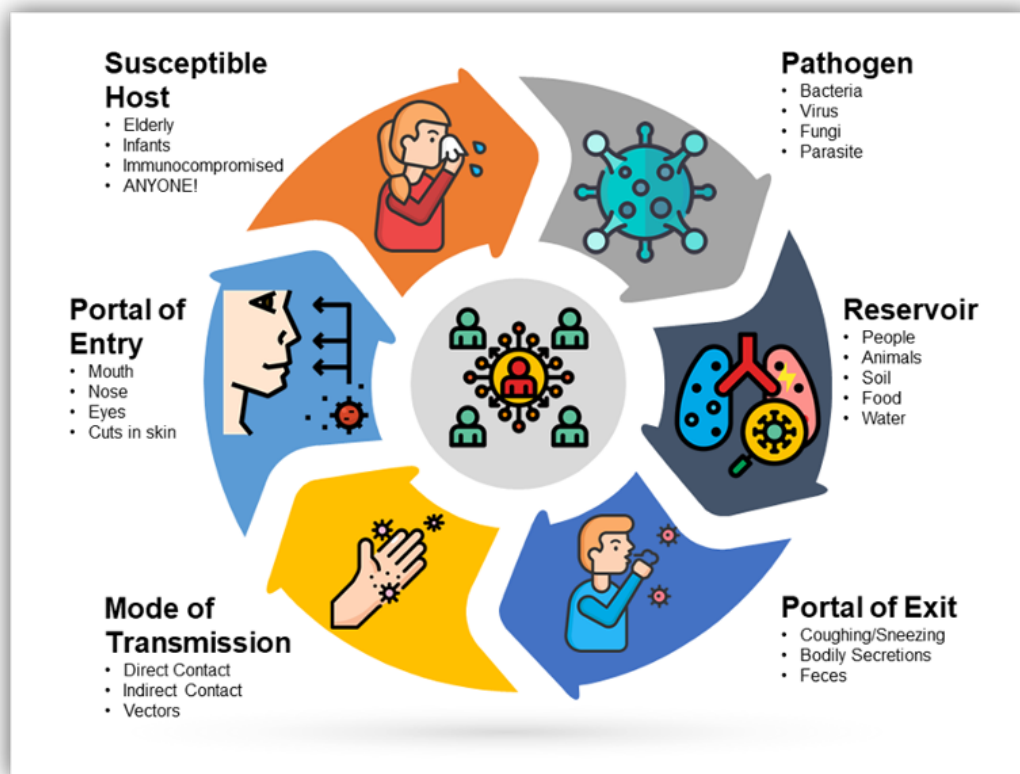
- Healthy People 2030

## Chapter 5. Infectious Diseases

### Introduction

Infectious diseases, also called communicable diseases, are caused by microbes and can be spread from person to person, animal to person, and through contaminated water, food, air, and soil.<sup>144</sup> Common infectious diseases include the common cold, influenza, and sexually transmitted infections. Infectious diseases can be caused by bacteria, viruses, parasites, and fungi. Figure 5-1 describes the chain of infection for infectious diseases involving the pathogen, reservoir, transmission, and host.

Figure 5-1. Chain of infection. Source: Texas Health and Human Services.<sup>145</sup>

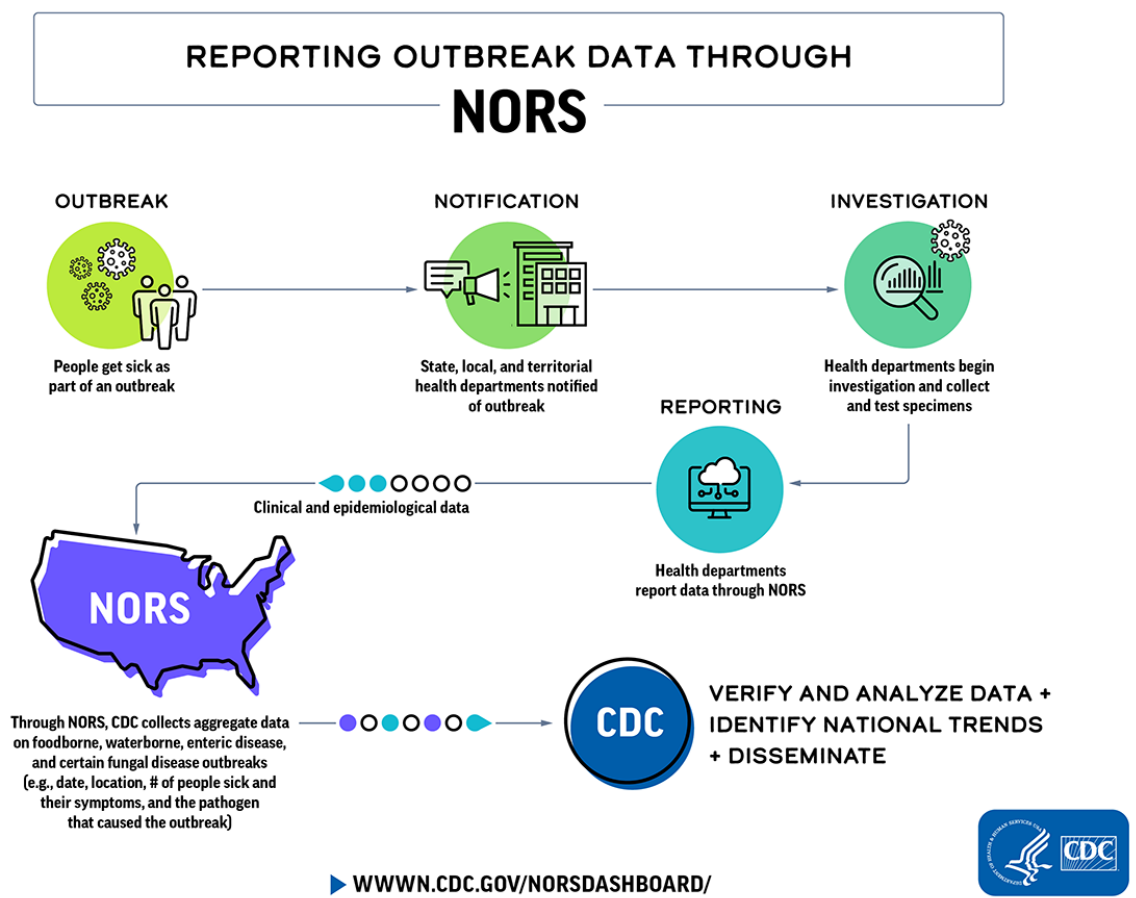


### Reportable Diseases and Outbreaks

Certain infectious diseases are required to be reported by healthcare providers to public health agencies to track disease incidence and help mitigate spread and outbreaks. These infectious diseases are called reportable diseases or Nationally Notifiable Diseases and are defined as “any disease which is communicable, contagious, subject to isolation or quarantine, or epidemic, and required by the Commissioner of Health to be reported in the List.”<sup>146</sup> The 2024 list of reportable diseases in Tennessee has approximately 100 diseases and health events and is updated annually by The Commissioner of Health.<sup>147</sup> The most frequently reported reportable diseases in Hamilton County include campylobacteriosis, chlamydia, COVID-19, gonorrhea, hepatitis C virus infection, and syphilis.<sup>148</sup> An outbreak of infectious disease is “more cases of a disease than expected in a specific location over a

specific time period.” The threshold for an outbreak differs on the causative agent, but is often two or more cases of the same disease with a shared exposure.<sup>149</sup> Figure 5-2 describes the standard steps of an outbreak investigation.

**Figure 5-2. Outbreak investigation steps. Source: CDC NORS.<sup>150</sup>**



In 2022-2023, the Health Department conducted seven local outbreak investigations, with suspected causative microorganisms including *Salmonella*, *Cryptosporidium*, and norovirus. These outbreaks were associated with facilities such as daycares, restaurants, schools, and long-term care facilities.

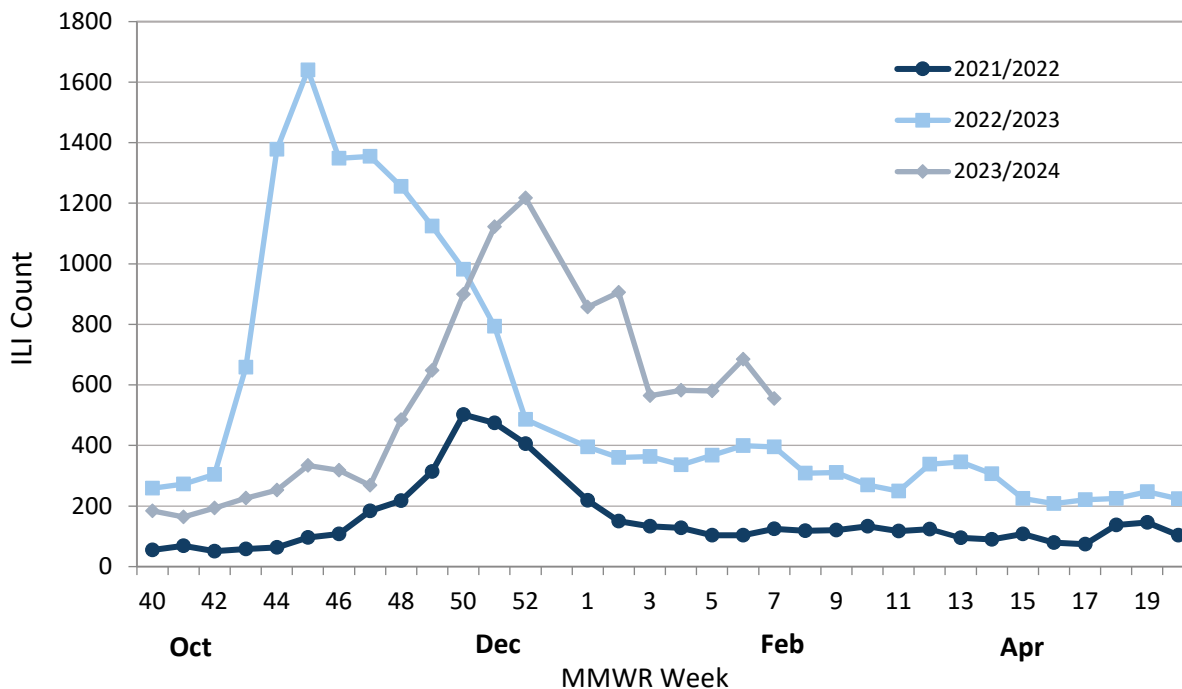
### Influenza-Like-Illness (ILI)

Influenza (flu) is a respiratory illness caused by influenza viruses. Influenza is contagious and symptoms often include, but are not limited to, fever, body aches, congestion, and a sore throat.<sup>151</sup> People who are 65 and older, young children, and people with underlying conditions are at a higher risk for serious complications from the flu. While flu viruses are present year-round, they are more prevalent in the fall and winter. The best way to prevent serious complications from the flu is to get vaccinated.<sup>151</sup>

The Health Department tracks ILI in the community as an indicator of the current influenza season. Healthcare providers provide weekly information voluntarily on how many patients they have seen with

ILI, which is defined as having a fever of 100°F (37.8°C) or greater, oral or equivalent, and a cough or sore throat.<sup>151</sup> Figure 5-3 shows that ILI levels were lowest during the COVID-19 pandemic and rebounded in the 2022-23 season, presumably when individuals were not taking as many precautions.

**Figure 5-3. Influenza-like-illness (ILI)\* surveillance in Hamilton County, 2021-2024. Source: Hamilton County Health Department.**



\*Influenza-like illness (ILI) is defined as fever  $\geq 100^{\circ}\text{F}$  ( $37.8^{\circ}\text{C}$ ) plus cough and/or sore throat. Classification of ILI is based upon symptoms only and does not require any test.

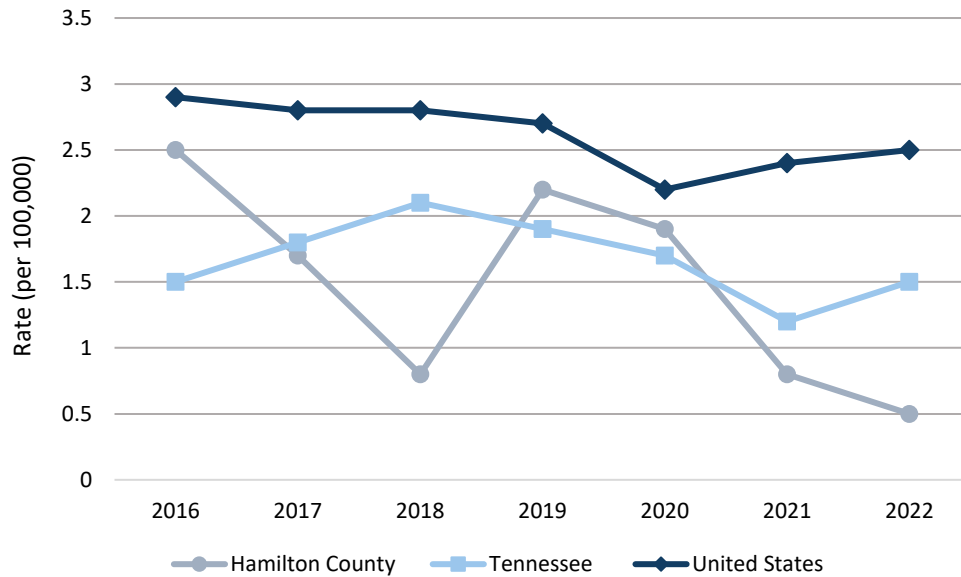
### Tuberculosis (TB)

An infection with *Mycobacterium tuberculosis* happens when the bacteria are inhaled into the body resulting in either latent TB infection or TB disease (active TB).<sup>152</sup> With latent TB infection, the person’s immune system is able to keep the bacteria from multiplying. Individuals with latent TB infection have no symptoms and cannot spread TB to others. They can eventually develop TB disease if it is not treated.<sup>152</sup>

Active TB disease has symptoms such as cough, chest pain, and coughing up blood or sputum.<sup>152</sup> Individuals with TB disease may develop the illness anywhere from weeks to years after exposure, and are able to infect others.<sup>152</sup> While cases of TB are more common in other parts of the world, the United States still has an estimated 13 million people living with latent TB infection.<sup>153</sup> In 2022, over 8,000 TB cases were reported in the United States – a slight increase from 2021, but still much lower overall than the early 1990s when annual TB cases averaged around 25,000.<sup>154</sup> In 2021, there were 602 TB-related deaths nationwide.<sup>154</sup>

Tennessee reported 84 cases of TB in 2021, and 106 cases in 2022. The incidence rate increased 24.7% from 1.2 cases per 100,000 to 1.5 cases per 100,000.<sup>155</sup> With a few exceptions, the Hamilton County TB case rate has historically been lower than that of the Tennessee and has always been markedly lower than the U.S. TB case rate (Figure 5-4).

**Figure 5-4. Case rate of Tuberculosis cases in the U.S., Tennessee, and Hamilton County. 2011-2022.**  
**Source: Tennessee Department of Health.<sup>155</sup>**



### COVID-19 Pandemic

Coronavirus disease 2019 (COVID-19) is a viral respiratory disease caused by SARS-Co-V. The disease was first discovered in December 2019 in Wuhan, China, as an outbreak of an atypical pneumonia-like illness.<sup>156</sup> In January 2020, the causative agent was identified as a novel coronavirus. Later in the month, other countries, including the United States, reported laboratory-confirmed cases of COVID-19. The virus continued to spread through February, and on March 11, 2020, after more than 4,000 deaths worldwide, the World Health Organization (WHO) declared a COVID-19 pandemic. The previous pandemic declaration had been the 2009 H1N1 swine flu pandemic, 2009-2010.<sup>156</sup>

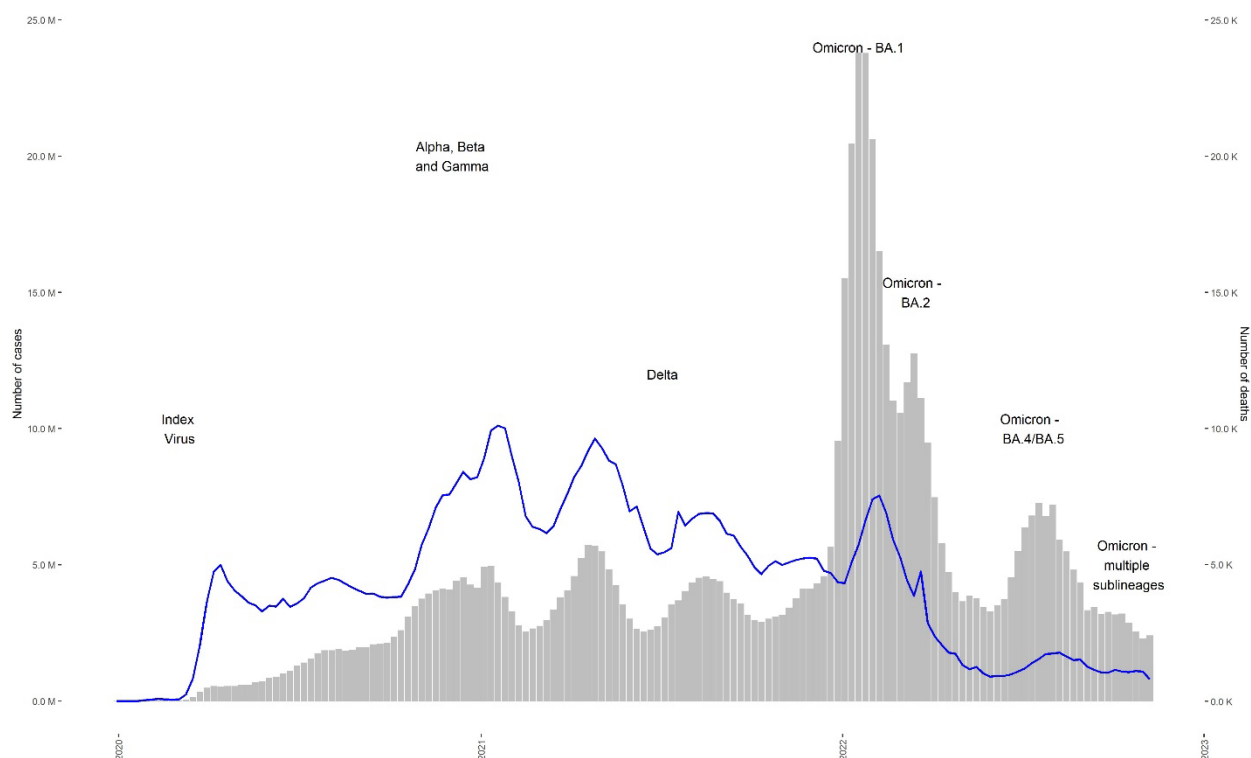
The first case in Tennessee was detected on March 5<sup>th</sup>, 2020 and in Hamilton County on March 13<sup>th</sup>, 2020.<sup>157,158</sup> The state’s response to the pandemic is described on the Tennessee Office of the Governor’s COVID-19 Timeline webpage.<sup>157</sup> Across the United States, the initial COVID-19 response was to slow disease transmission through testing and isolation and quarantine measures, with guidelines issued by the CDC. Many schools, daycares, and workplaces closed or shifted to remote operations.<sup>159</sup> Vaccines became available at the end of 2020 through Federal Food and Drug Administration (FDA) emergency use



authorization (EUA), and response efforts expanded to vaccination outreach by priority group.<sup>159</sup>

Throughout the pandemic, there were several variants of the virus detected. According to the WHO, there was the index virus, followed by alpha, beta, gamma, delta, and omicron. Figure 5-5 shows the cases (gray) and deaths (blue line) over time from 2020 to 2022 from different variants.

**Figure 5-5. One year since the emergence of COVID-19 virus variant Omicron. Source: WHO, 2022.<sup>160</sup>**



The end of the federal COVID-19 public health declaration was on May 11, 2023. This declaration marked the end of the CDC’s authorization to collect certain public health data.<sup>161</sup> As of March 16, 2024, Hamilton County had 130,646 cases which represented 4.8% of cases statewide. Of these cases, 3,240 persons were hospitalized from COVID-19 (5.7% of statewide hospitalizations), and there were 1,324 deaths (4.3% of deaths statewide).<sup>162</sup>

In response to the onset of the COVID-19 pandemic, the Hamilton County Health Department took a comprehensive and proactive approach. Initially response efforts focused on monitoring potentially exposed overseas travelers, conducting surveillance for cases within Hamilton County, and facilitating testing for individuals with potential exposure. After confirmation of the first case in Hamilton County, the response strategy evolved to include intense efforts in case investigation and isolation, as well as identification and quarantine of individuals in close contact with confirmed cases. As part of ongoing mitigation efforts, public education was prioritized by disseminating information through various media outlets and managing a dedicated COVID-19 telephone hotline. Non-pharmaceutical interventions were

recommended and implemented on a community-wide scale, encouraging protective measures such as the use of personal protective equipment (PPE) and handwashing, alongside social distancing measures and heightened environmental cleaning. Further pandemic efforts included drive-through testing sites and vaccinations.

Some of the highlights of Hamilton County's response are from the Hamilton County Health Department COVID-19 Emergency Response After-Action Report/Improvement Plan.<sup>158</sup>

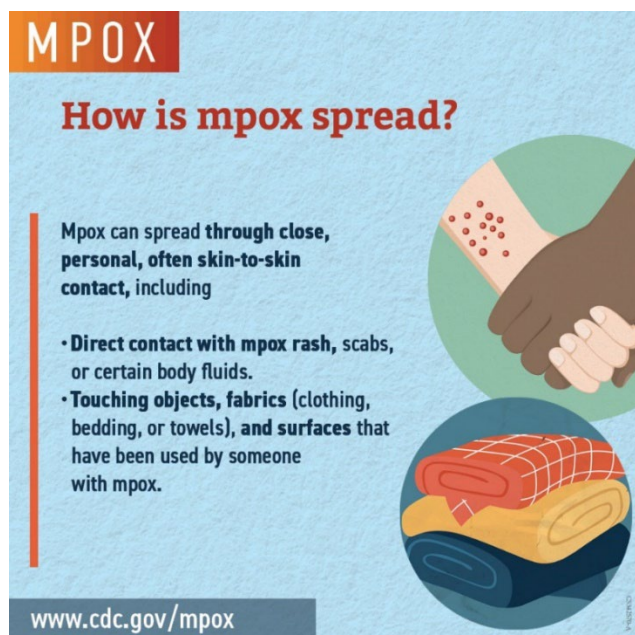
- 3/4/20 – Hamilton County Health Department COVID-19 hotline activated
- 3/9/20 – Regional Health Operations Center activated
- 3/26/20 – Establishment of a local COVID-19 testing lab in partnership with a local CLIA certified high school science lab
- 4/3/20 – First drive-through testing site opened
- 7/10/20 – Indoor masking directive issued
- 12/23/20 – COVID-19 vaccination site opens at Chattanooga Riverpark; two others open subsequently.
- 5/4/21 – “Say Yes to COVID Test” initiative began.
- 7/23/21 – COVID-19 test kit distribution at Chattanooga Riverpark

During the COVID-19 pandemic, individuals, community-based organizations, schools, businesses, health care entities, and faith-based communities in Hamilton County came together to combat the challenges posed by the pandemic to support the community. Individuals volunteered many hours, community organizations and faith-based organizations provided aid and support, schools switched to remote teaching and learning, and businesses adjusted operations. Healthcare facilities expanded capacities while treating COVID-19 patients and continuing to provide essential services. The collective response of the Hamilton County community demonstrated resilience and commitment to protecting the health and well-being of the community.

## **Mpox**

Cases of mpox, a virus formerly called monkeypox, have been sporadically identified for many years. However, the 2022 mpox outbreak, still ongoing, is the largest and most prolific mpox outbreak ever recorded.<sup>163</sup> The first U.S. case involved in this outbreak was identified on May 10, 2022, the first case in Tennessee was recorded in early July 2022, and the first in Hamilton County was July 21. To date, there have been over 93,000 cases and 166 deaths associated with this outbreak globally.<sup>164</sup> Over 31,000 of the cases and 56 deaths occurred in the United States.<sup>164</sup> Figure 5-6 explains how mpox is spread.

Figure 5-6. How mpox spreads. Source: CDC, Mpox. <sup>165</sup>



The vast majority of U.S. mpox cases have been among men, with a higher prevalence in Black men. <sup>166</sup> Cases in Tennessee have followed similar trends, with 61% of the total cases being Black and 93% being male. <sup>167</sup> As of March 2024, there have been 422 mpox cases in Tennessee, with only 3.8% of those in Hamilton County (16 cases). <sup>167</sup>

Common symptoms of mpox include fever, headache, chills, and rash. A vaccine, called JYNNEOS, is available to help protect at-risk individuals from mpox infections. Over 1 million doses of the vaccine have been administered in the United States, most among White males. <sup>168</sup> As of February 7, 2024, over 9,561 doses have been administered in Tennessee, with 399 in the Chattanooga/Hamilton County jurisdiction. <sup>168</sup> Similar to the nationwide trends, most vaccine doses given in Tennessee have been among White individuals and males. <sup>168</sup> Persons with HIV are over-represented in mpox cases. <sup>169</sup> While it is not clear if having HIV increases a person's risk of contracting mpox, mpox symptoms may be more severe in a person with HIV. <sup>169</sup>

## HIV

Human immunodeficiency virus (HIV) is a viral infection for which there is no cure. It weakens a person's immune system but can be effectively controlled with the proper treatment. <sup>170</sup> When left untreated, HIV can progress to Stage 3 of the disease, which is commonly called Acquired Immunodeficiency Syndrome, or AIDS. <sup>170</sup>

Approximately 1.2 million people in the United States have HIV, and nearly 20,000 in Tennessee. <sup>171,172</sup> In 2021, almost 1,200 people in Hamilton County were living with HIV. <sup>172</sup> Over 36,000 individuals were newly diagnosed with HIV in the U.S. in 2021. <sup>171</sup> Nationally, the number of new HIV diagnoses decreased from

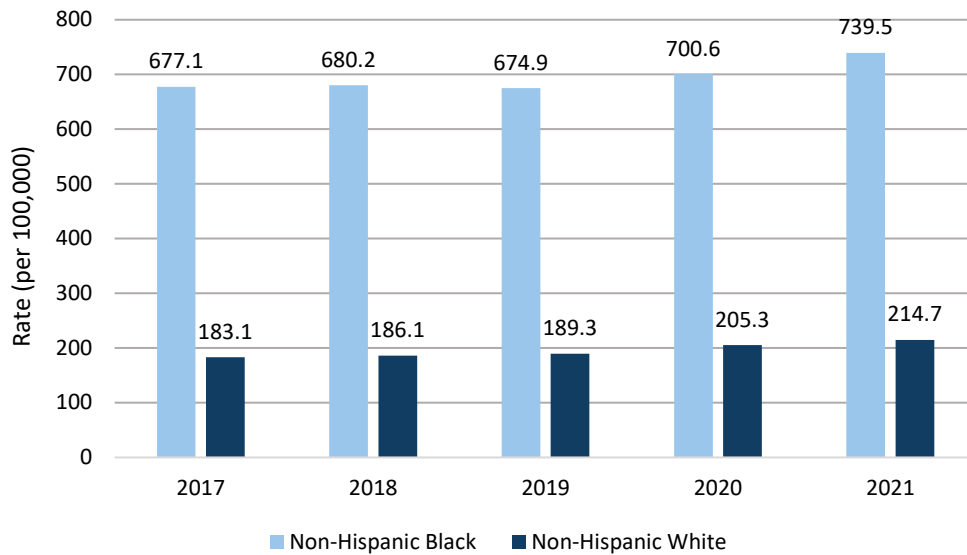
2017 to 2021.<sup>171</sup> In Tennessee and Hamilton County, however, the rate of individuals newly diagnosed with HIV increased between 2017 and 2021, with both geographical areas seeing a large decrease in 2020, likely a result of a delay of testing due to the COVID-19 pandemic (Table 5-1).<sup>172</sup> In 2021, there were over 9,000 people in Tennessee living with an HIV diagnosis that was ever classified as AIDS.<sup>172</sup> The rate of people in Hamilton County with AIDS has increased slightly since 2017 (Table 5-1).

**Table 5-1. Persons living with HIV by diagnosis, number of cases, and rate per 100,000 in Hamilton County and Tennessee. 2017-2021. Source: Tennessee Department of Health, HIV Surveillance Reports.<sup>172</sup>**

Year	Hamilton County		Tennessee	
	Number of Cases	Rate (per 100,000)	Number of Cases	Rate (per 100,000)
<b>Persons Newly Diagnosed with HIV, 2017-2021</b>				
2017	43	11.8	722	10.8
2018	46	12.6	755	11.1
2019	48	13.0	771	11.3
2020	24	6.4	650	9.4
2021	49	13.2	843	12.1
<b>Persons Living with Diagnosed HIV, 2017-2021</b>				
2017	1016	281.1	17,375	258.8
2018	1037	284.4	17,848	263.3
2019	1050	285.5	18,113	265.2
2020	1127	303.2	19,220	279.1
2021	1185	321.0	19,523	279.9
<b>Persons Ever Diagnosed with HIV Stage 3 (AIDS), 2017-2021</b>				
2017	541	149.7	8,447	125.8
2018	540	148.1	8,629	127.3
2019	539	146.6	8,679	127.1
2020	581	156.3	9,119	132.4
2021	605	163.9	9,096	130.4

Although it is possible for anyone to contract HIV, some groups are at a higher risk such as those who engage in male-to-male sexual contact, especially those men who are Black or Hispanic; persons who exchange sex for money or nonmonetary items; individuals who are economically disadvantaged; and people who inject drugs.<sup>173</sup> In Hamilton County, the rate of Black persons living with diagnosed HIV is over 3 times higher than White persons (Figure 5-7).

**Figure 5-7. Rate per 100,000 persons living with diagnosed HIV in Hamilton County by race. 2017-2021.**  
**Source: Tennessee Department of Health HIV Surveillance Reports.<sup>172</sup>**



A *Healthy People 2030* goal and Leading Health Indicator is increasing the proportion of people who know their HIV status through increased testing.<sup>174</sup> Increased testing can help reduce the spread of HIV by providing earlier diagnoses and the ability to seek effective treatment to reduce viral load. In 2020, and estimated 3,600 people in Tennessee were living with HIV without knowing about it.<sup>172</sup>

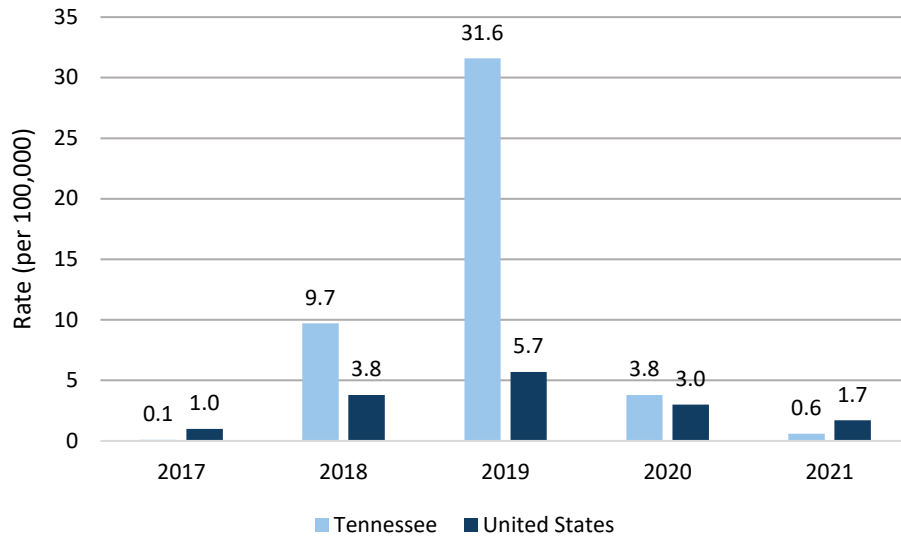
## Hepatitis

### *Hepatitis A*

Hepatitis A is a contagious viral disease and is contracted via the fecal-oral route when someone accidentally ingests the virus. It can be spread from a sick person or through contaminated food. Unlike other viral hepatitis types, hepatitis A is short-term and usually resolves on its own within a few weeks to months and does not typically cause severe long-term effects.<sup>175</sup> Hepatitis A can be prevented with a vaccine, which is recommended for children, people at a higher risk for infection or severe disease, and individuals in outbreak settings who are at higher risk.<sup>175</sup> Hepatitis A outbreaks are common, usually linked to produce or other food items.

Nationwide, hepatitis A cases surged during 2018 and 2019 due to multiple outbreaks, though they have since decreased (Figure 5-8). Tennessee saw a major peak in 2019, with 3,160 cases and 61% hospitalization rate (Figure 5-8). In Hamilton County, the outbreak began in May 2018, leading to efforts such as vaccinating over 10,000 at-risk individuals and targeting vulnerable populations like the homeless, incarcerated, and drug users, resulting in 276 cases linked to the outbreak.

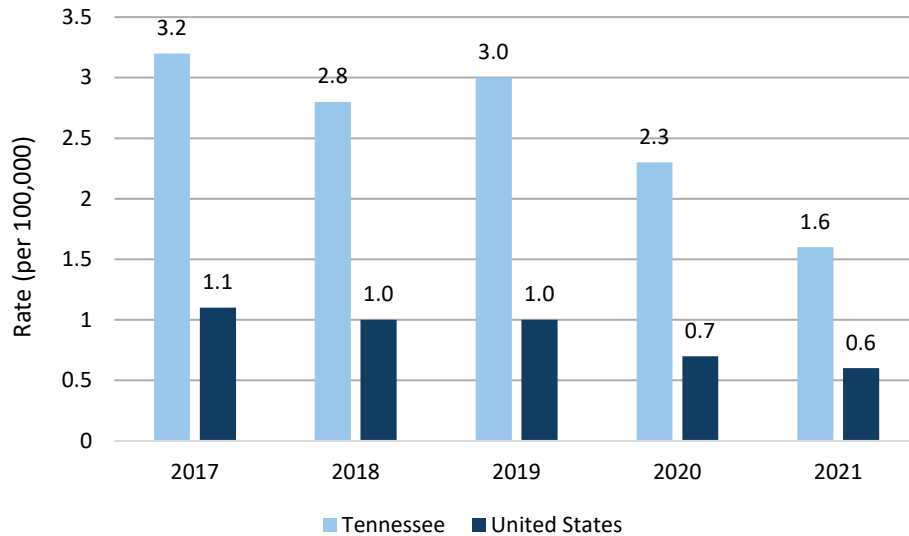
**Figure 5-8. Rate of reported cases of Hepatitis A per 100,000 persons for the U.S. and Tennessee. 2017-2021. Source: CDC Hepatitis A 2021 Surveillance.<sup>176</sup>**



### *Hepatitis B*

Hepatitis B is spread through blood or body fluids of an infected person and may be transmitted during sexual intercourse, intravenous drug use, or during pregnancy.<sup>177</sup> There is no cure for hepatitis B, and the infection can become chronic and lead to severe health problems. However, there is a vaccine available that can protect individuals from contracting the virus; babies are typically given the hepatitis B vaccine within 24 hours of birth, and adults are immunized if they are at a high risk of contracting hepatitis B. Historically, Tennessee has experienced higher case rates of hepatitis B than the United States; however, rates have been steadily decreasing over the past several years (Figure 5-9).

**Figure 5-9. Rate of reported cases of Hepatitis B per 100,000 persons for the U.S. and Tennessee. 2017-2021. Source: CDC 2021, Hepatitis B Surveillance.<sup>178</sup>**

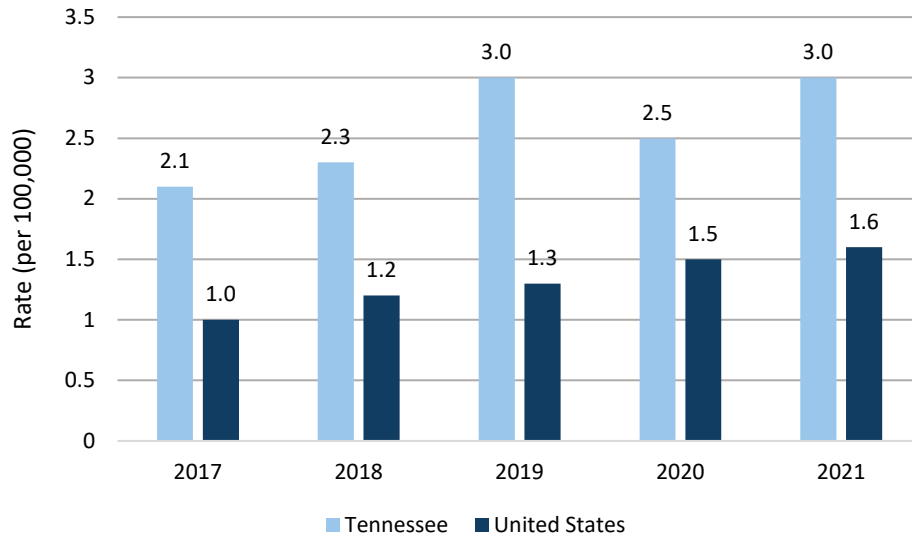


### *Hepatitis C*

Similar to hepatitis B, hepatitis C is spread through blood.<sup>179</sup> Hepatitis C is treatable with medication; however, many people do not know they have hepatitis C until it has worsened and they are diagnosed with advanced liver disease. Because many individuals with hepatitis C never have symptoms, following regular testing recommendations is important for early diagnosis and treatment. Every adult should be tested for hepatitis C at least once, but those with risk factors like intravenous drug use, should be tested regularly.<sup>179</sup>

The national number of reported acute hepatitis C cases has doubled since 2014, with more than 5,000 cases being reported in 2021.<sup>180</sup> Additionally, there were over 107,000 cases of chronic hepatitis C reported during 2021. Tennessee has had hepatitis C rates consistently higher than the national rates since 2017 (Figure 5-10).<sup>180</sup>

**Figure 5-10. Rate of reported cases of Hepatitis C per 100,000 persons for the U.S. and Tennessee. 2017-2021. Source: CDC 2021, Hepatitis C Surveillance.<sup>180</sup>**



### **Sexually Transmitted Infections (STIs)**

Over 2.5 million cases of chlamydia, gonorrhea, and syphilis were diagnosed in the United States in 2021, which is an increase of over 140,000 cases (6%) from 2020.<sup>181</sup> Table 5-2 shows the incidence rates for these infections for Hamilton County, Tennessee, and the United States. In recent years, there has been a spike in STIs across the country. This rise has prompted increased awareness campaigns and public health initiatives to promote safe sexual practices and access to testing and treatment services.

**Table 5-2. Incidence rates per 100,000 of sexually transmitted diseases, 2021. Source: Tennessee Department of Health; CDC 2022, Sexually Transmitted Infections Surveillance.<sup>182,183</sup>**

Disease	Hamilton County rate	Tennessee rate	United States rate
Chlamydia	603	563	496
Gonorrhea	314	270	214
Syphilis (all stages of infection) *	34	46	53

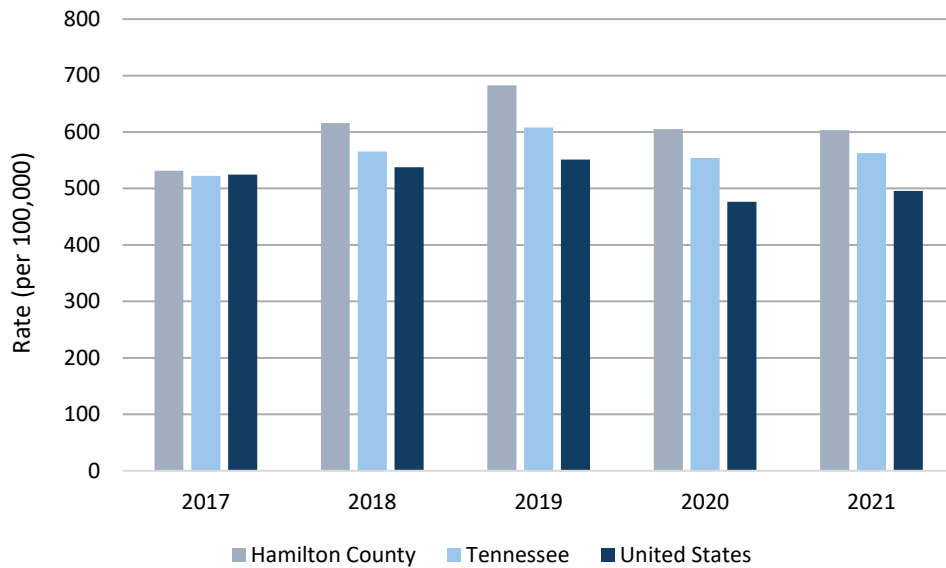
\*Syphilis (all stages of infection) includes primary & secondary, early latent, late latent, and congenital.

#### *Chlamydia*

Chlamydia is the most frequently reported STI in the United States caused by infection with the bacterium *Chlamydia trachomatis*.<sup>184</sup> Chlamydia is often referred to as the “silent” infection as most people are asymptomatic, which is particularly problematic for women. Left untreated, chlamydia in women may lead to infertility or a fatal ectopic pregnancy.<sup>184</sup>



**Figure 5-11. Incidence rates of Chlamydia for Hamilton County, Tennessee, and the U.S., 2017-2021.**  
 Source: Tennessee Department of Health; CDC 2022, Sexually Transmitted Infections Surveillance.<sup>182,183</sup>



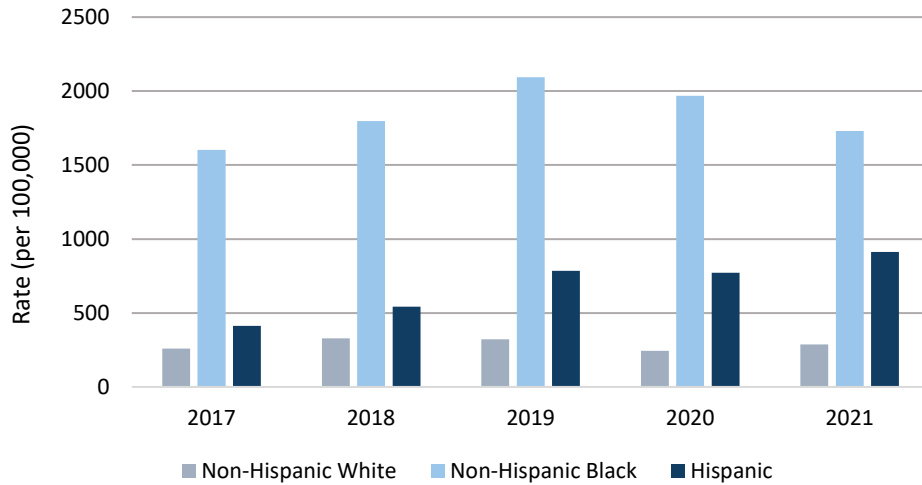
From 2017-2021, the incidence rate for chlamydia in Hamilton County increased by 13.5%; for Tennessee, it increased by 7.6%; and for the United States, it decreased by 5.5% (Figure 5-11).<sup>182,183</sup> The number of chlamydia cases and incidence rate in Hamilton County is shown in Table 5-3.

**Table 5-3. Chlamydia cases in Hamilton County by number of cases and rate per 100,000 persons, 2017-2021.** Source: Tennessee Department of Health; CDC 2022, Sexually Transmitted Infections Surveillance.<sup>182,183</sup>

	Number of Cases	Rate (per 100,000)
2017	1922	531.5
2018	2243	615.7
2019	2511	682.7
2020	2248	604.9
2021	2227	603.3

Incidence of chlamydia is experienced disproportionately by Black persons in Hamilton County. Figure 5-12 shows the disparity in incidence rates over time by race and ethnicity.

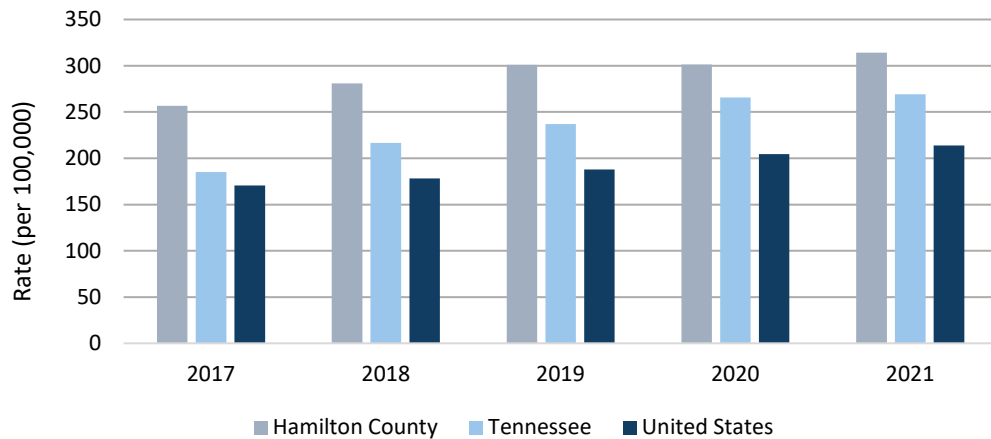
**Figure 5-12. Incidence rates of Chlamydia by Race/Ethnicity for Hamilton County, 2017-2021. Source: Tennessee Department of Health; CDC 2022, Sexually Transmitted Infections Surveillance.<sup>182,183</sup>**



**Gonorrhea**

The second most commonly reported STI is gonorrhea, which is caused by *Neisseria gonorrhoeae*.<sup>185</sup> Similar to chlamydia, many infections are asymptomatic, so the number of cases reported does not reflect the true burden of this disease. Untreated, gonorrhea can cause serious and sometimes permanent health issues in both men and women, such as pelvic inflammatory disease and infertility.<sup>185</sup>

**Figure 5-13. Incidence rates of Gonorrhea for Hamilton County, Tennessee and the U.S., 2017-2021. Source: Tennessee Department of Health; CDC 2022, Sexually Transmitted Infections Surveillance.<sup>182,183</sup>**



From 2017-2021 the gonorrhea incidence rate for Hamilton County increased by 22.3%; for Tennessee, it increased by 45.5%; and for the United States, it increased by 25.4% (Figure 5-13).<sup>182,183</sup> The number of

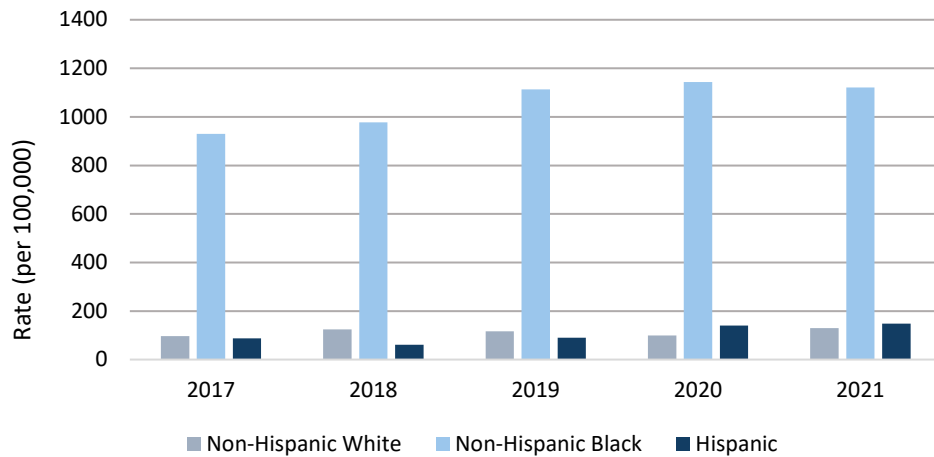
gonorrhea cases and incidence rate per 100,000 persons in Hamilton County is shown in Table 5-4.

**Table 5-4. Gonorrhea cases in Hamilton County by number of cases and rate per 100,000 persons, 2017-2021.** Source: Tennessee Department of Health; CDC 2022, Sexually Transmitted Infections Surveillance.<sup>182,183</sup>

	Number of Cases	Rate (per 100,000)
2017	928	256.6
2018	1024	281.1
2019	1107	301.0
2020	1120	301.3
2021	1159	314.0

Incidence of gonorrhea is experienced disproportionately by Black persons in Hamilton County. Figure 5-14 shows the disparity in incidence rates over time by race and ethnicity.

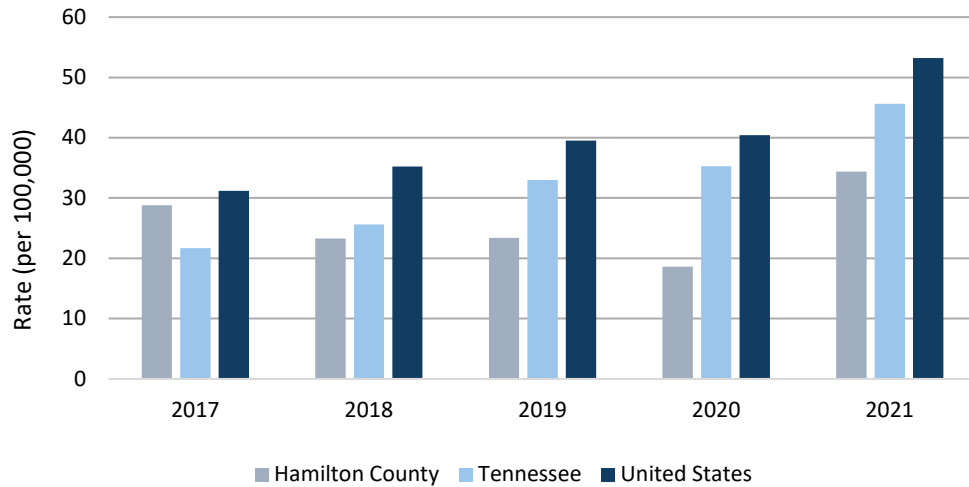
**Figure 5-14. Incidence rates of Gonorrhea by Race/Ethnicity for Hamilton County, 2017-2021.** Source: Tennessee Department of Health; CDC 2022, Sexually Transmitted Infections Surveillance.<sup>182,183</sup>



### Syphilis

Syphilis is an STI caused by the bacterium *Treponema pallidum* and can cause serious health problems if left untreated.<sup>186</sup> Gay, bisexual, and other men who have sex with men (MSM) experience a heightened burden of infection. However, case rates are also increased among heterosexual men and women of reproductive age in recent years.<sup>186</sup>

**Figure 5-15. Incidence rates of Syphilis for Hamilton County, Tennessee, and the U.S., 2017-2021.**  
 Source: Tennessee Department of Health; CDC 2022, Sexually Transmitted Infections Surveillance.<sup>182,183</sup>



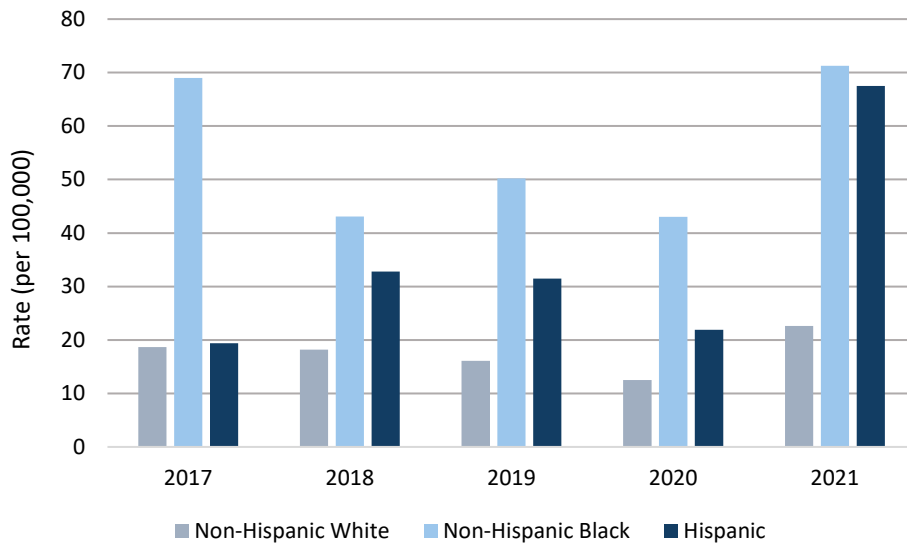
From 2017-2021, the syphilis incidence rate for Hamilton County increased by 19.4%; for Tennessee, it increased by 110.1%; and for the United States, it increased by 70.5% (Figure 5-15).<sup>182,183</sup> The number of cases of syphilis and incidence rate in Hamilton County is shown in Table 5-5.

**Table 5-5. Syphilis cases in Hamilton County by number of cases and rate per 100,000 persons, 2017-2021.** Source: Tennessee Department of Health; CDC 2022, Sexually Transmitted Infections Surveillance.<sup>182,183</sup>

	Number of Cases	Rate (per 100,000)
2017	104	28.8
2018	85	23.3
2019	86	23.4
2020	69	18.6
2021	127	34.4

Incidence of syphilis is experienced disproportionately by Black and, more recently, Hispanic persons in Hamilton County. Figure 5-16 shows the disparity in incidence rates over time by race and ethnicity.

**Figure 5-16. Incidence rates of Syphilis by Race/Ethnicity for Hamilton County, 2017-2021. Source: Tennessee Department of Health; CDC 2022, Sexually Transmitted Infections Surveillance.<sup>182,183</sup>**



***Congenital Syphilis***

The rate of syphilis in women of reproductive age has increased over the last few years. This, in turn, has led to an increase in the number of congenital syphilis cases. Congenital syphilis occurs when a pregnant woman passes the infection on to their unborn baby and can cause detrimental health impacts for the baby, including severe birth defects or death.<sup>186</sup>

**Table 5-6. Congenital Syphilis cases in Tennessee and the U.S. by number of cases and rate per 100,000 persons, 2017-2021. Source: Tennessee Department of Health; CDC 2022, Sexually Transmitted Infections Surveillance.<sup>182,183</sup>**

	Tennessee		United States	
	Cases	Rate	Cases	Rate
2017	11	13.6	941	24.4
2018	12	14.9	1313	34.3
2019	15	28.6	1875	48.5
2020	31	39.4	2157	57.3
2021	36	45.5	2855	77.9

From 2017 to 2021, the congenital syphilis incidence rate has increased by 234.6% for Tennessee, and by 219.3% for the United States (Table 5-6). To comply with data suppression rules, Hamilton County rates cannot be disclosed.<sup>182,183</sup>

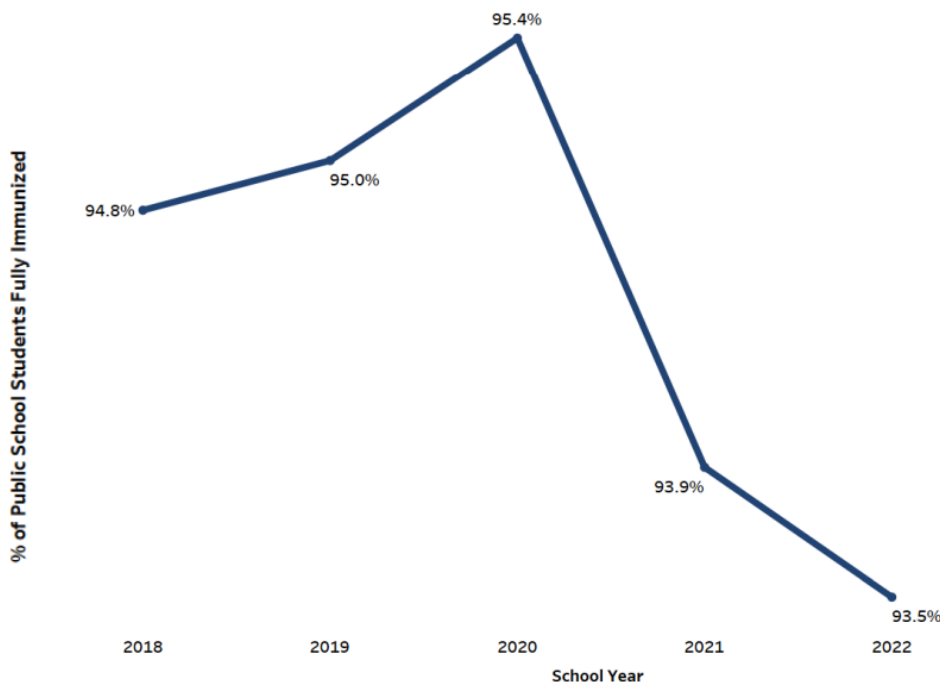
## Vaccine-Preventable Diseases

The CDC recommends that children under the age of 18 follow a vaccination schedule to protect against numerous infectious diseases. Adherence to this carefully designed immunization schedule prevents serious complications, provides early and long-term protection from illness, and prevents children from spreading illness, protecting themselves and others.<sup>187</sup> When immunization rates fall below 95%, the entire community is at a higher risk of a vaccine-preventable disease outbreak.

For the 2022-2023 school year, 90.3% of kindergarten students in Hamilton County were fully immunized at enrollment, making our community one of the state's lowest for immunization compliance.<sup>148</sup> The Hamilton County region has the 9th lowest percentage of public-school students fully immunized out of all the counties in Tennessee.<sup>148</sup> Statewide, 93.5% of kindergarten students were fully immunized at enrollment, an all-time low, which indicates the risk of vaccine-preventable disease outbreaks (Figure 5-17).<sup>148,188</sup>

**Figure 5-17. Percentage of Tennessee Public School Kindergarten Students Fully Immunized. 2022-2023.** Source: Tennessee Department of Health, Tennessee Kindergarten Immunization Compliance Assessment Report, 2022-2023 School Year.<sup>188</sup>

**Figure 2. Percentage of public-school students fully immunized, 2018-2022**



### *Measles*

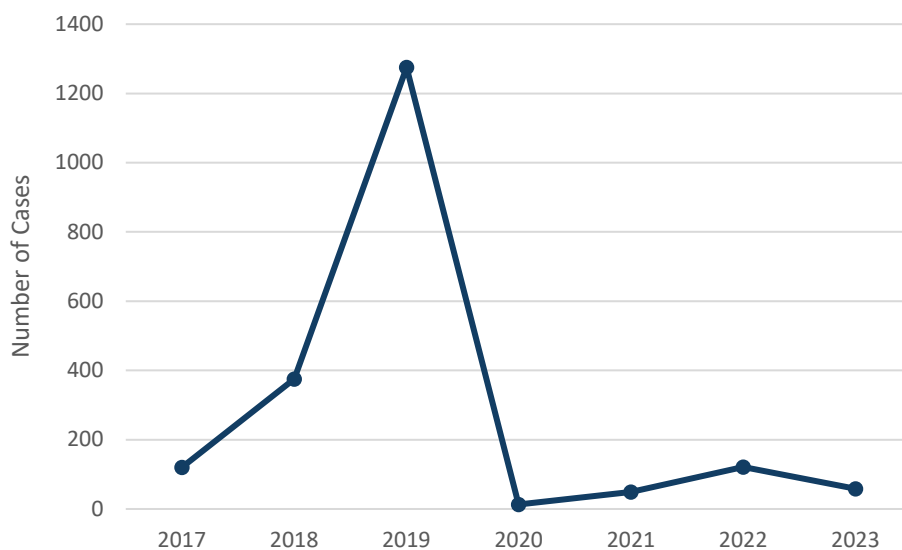
Measles is an extremely transmissible viral disease that can cause serious health complications, including pneumonia and swelling of the brain (encephalitis).<sup>189</sup> Measles spreads easily through the air when an

infected person coughs or sneezes.<sup>190</sup> Up to 9 out of 10 people nearby can become infected if they are not protected by vaccination. Even being in a room with someone who had measles can lead to transmission for up to two hours after they have left. The infected person can spread measles before showing symptoms, from 4 days before the rash appears to 4 days afterward.<sup>191</sup>

The measles vaccine is a combination vaccine that protects against measles, mumps, and rubella (MMR).<sup>192</sup> It is safe and highly effective at preventing measles infection: 97% for two doses, 93% for one dose.<sup>192</sup> Measles vaccination is so effective that the disease was declared eliminated from the United States in 2000.<sup>190</sup> In recent years, as more people have chosen not to vaccinate their children against measles infection, prevalence of the disease has increased nationally. The CDC’s vaccination schedule recommends children receive their first dose of the MMR vaccine at 12 to 15 months of age and the second dose at 4 to 6 years of age to protect against measles infection and spread.<sup>192</sup>

Measles remains prevalent worldwide.<sup>191</sup> Each year, individuals who have not been vaccinated, whether American or foreign travelers, are infected with measles while abroad and subsequently introduce the virus into the United States. This leads to the spread of the disease among those who lack immunity to measles. Outbreaks occur within communities where there are clusters of unvaccinated individuals.

**Figure 5-18. Measles cases in the U.S., 2017-2023. Source: CDC, Measles Cases and Outbreaks.<sup>193</sup>**



From January 1 to March 21, 2024, CDC has been notified of 64 confirmed U.S. cases of measles across 17 jurisdictions, including seven outbreaks in seven jurisdictions compared to 58 total cases and four outbreaks reported the entire year in 2023.<sup>193</sup> Since 2017, approximately 2,000 measles cases have been recorded in the United States, half of which occurred in 2019 during an outbreak confirmed in 31 states, marking the highest number of cases since 1992. The majority of these cases were among individuals who had not been vaccinated against measles.<sup>193</sup> Figure 5-18 shows the number of measles cases in the United States from 2017 to 2023.<sup>194</sup> The number of cases in Tennessee from 2016 to 2019 remained under 10

per year, with the highest number of cases recorded in 2016 in the state since the disease was declared eliminated from the United States in 2000.<sup>195</sup> There were no cases of measles in Tennessee from 2020 to 2023.<sup>195</sup>

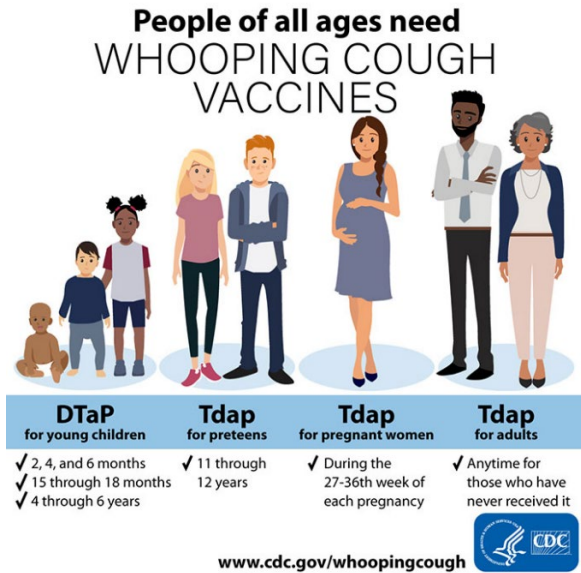
### *Pertussis*

Pertussis, commonly known as whooping cough, is a highly transmissible bacterial respiratory disease that can cause serious, often fatal, illness.<sup>196</sup> Pertussis is easily spread through the air when an infected person coughs, sneezes, or shares breathing space with a non-infected person for a prolonged period of time.<sup>196</sup> Though people of all ages can be infected with pertussis, infants and children are more at risk for severe illness.<sup>197</sup> Nearly one third of infants under 1 year of age who are infected with pertussis will be admitted to a hospital, with a 1% mortality rate for those hospitalized.<sup>197</sup> A person with pertussis can spread the disease from the time symptoms appear up to 2 weeks after coughing begins.<sup>196</sup> Babies with pertussis often do not cough, but instead may have difficulty breathing.<sup>197</sup> It is important to quickly seek medical care if this symptom develops.<sup>197</sup>

There are two vaccines that protect against pertussis infection: DTaP and Tdap.<sup>198</sup> Both are combination vaccines that protect against pertussis, diphtheria, and tetanus.<sup>198</sup> The CDC's vaccination schedule recommends infants and children receive 5 doses of DTaP total administered at the ages of 2 months, 4 months, 6 months, 15 to 18 months, and 4 to 6 years. One dose of Tdap is recommended at 11 to 12 years of age and for pregnant women in their 3<sup>rd</sup> trimester to protect their babies from pertussis infection until their first DTaP dose at 2 months of age.<sup>198,199</sup> Figure 5-19 shows the vaccination schedule for pertussis. Both DTaP and Tdap vaccines are safe and highly effective when the vaccination schedule is followed: 98% for DTaP in children after the last dose, 73% for Tdap in adolescents, and 78% for Tdap in pregnant women.<sup>200</sup>

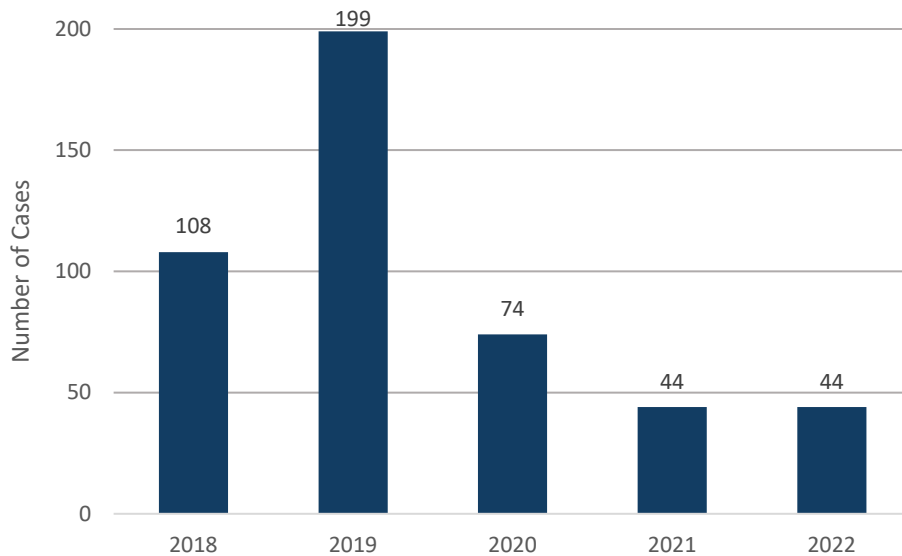


**Figure 5-19. Vaccination schedule for pertussis by age and vaccine type. Source: CDC, Whooping Cough Vaccination.<sup>198</sup>**



Pertussis is a reportable disease in the United States.<sup>201</sup> Outbreaks are most common in areas with large groups of people and unvaccinated individuals like schools, daycares, and hospitals.<sup>201</sup> In Tennessee and across the United States, cases spiked in 2019 but fell during the pandemic and continued that trend through 2022 (Figure 5-20).<sup>195,202</sup>

**Figure 5-20. Pertussis cases in Tennessee, 2018-2022. Source: Tennessee Department of Health, Interactive Disease Reports.<sup>195</sup>**



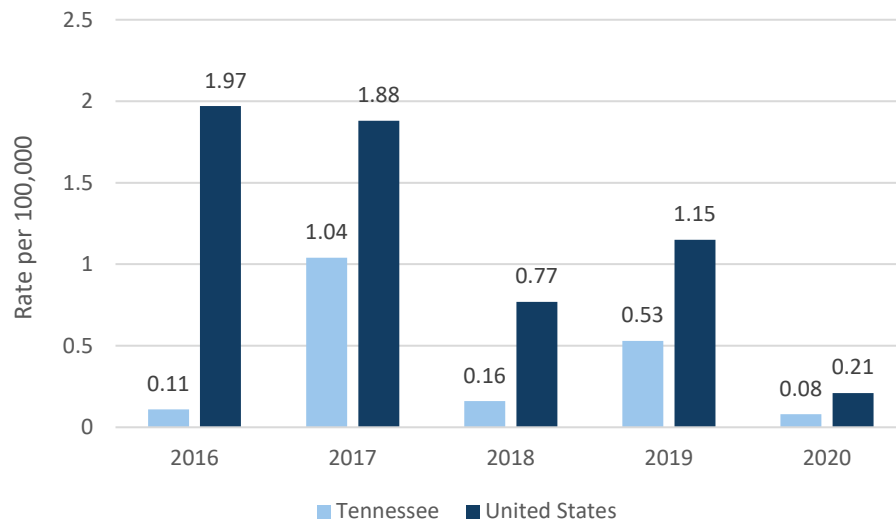
## *Mumps*

Mumps is a highly infectious viral disease that, in some cases, can lead to severe health complications, including encephalitis and swelling of the brain and spinal cord (meningitis).<sup>203,204</sup> Mumps is spread through contact with an infected person's saliva and through the air when an infected person coughs or sneezes.<sup>203</sup> People of all ages can be infected with mumps, though it spreads most easily in shared spaces where people spend extended periods of time like colleges and universities, residential and correctional facilities, and schools.<sup>205</sup> A person with mumps can spread the disease starting a few days before their salivary glands become swollen to up to 5 days after the onset of swelling.<sup>203</sup>

The MMR vaccine protects against mumps infection.<sup>205</sup> The CDC's vaccination schedule recommends children receive their first dose of the MMR vaccine at 12 to 15 months of age and the second dose at 4 to 6 years of age. Any person who has not received the MMR vaccine and is enrolled or planning to enroll in college is recommended to receive both doses at least 28 days apart before beginning their first semester.<sup>205</sup> The MMR vaccine is safe and highly effective at protecting against mumps infection: 88% after two doses, 78% after one dose.<sup>205</sup>

Outbreaks are most common in shared spaces with close contact like colleges, gyms, sports teams, and correctional facilities.<sup>205</sup> Because higher risk individuals, like immunocompromised persons, can still be infected with mumps even after vaccination, high vaccination rates are needed to control outbreaks.<sup>205</sup> Mumps is a reportable disease in the United States.<sup>206</sup> In 2016, the nation saw a significant increase in cases that lasted through 2017 (Figure 5-21).<sup>207</sup> Tennessee cases spiked in 2017 as a result of the outbreak.<sup>195</sup> From the earliest available data in 1995 to 2016, the number of mumps cases in Tennessee remained at or under 10. In 2017, there were 70 cases of mumps reported in the state. In 2020, cases again fell under 10, likely due to less frequent and more distanced interaction.<sup>195</sup> There were no mumps cases in Tennessee in 2021, but cases once again began to rise in 2022.<sup>195</sup>

**Figure 5-21. Mumps incidence rates per 100,000 in Tennessee and the U.S., 2016-2020. Source: Tennessee Department of Health, Interactive Disease Reports; National Notifiable Diseases Surveillance System.<sup>195,194</sup>**



# Chapter 6

## Mental Health

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Image credit: <https://www.cdc.gov/>

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“Healthy People 2030 focuses on the prevention, screening, assessment, and treatment of mental disorders and behavioral conditions.”

- Healthy People 2030

## Chapter 6. Mental Health

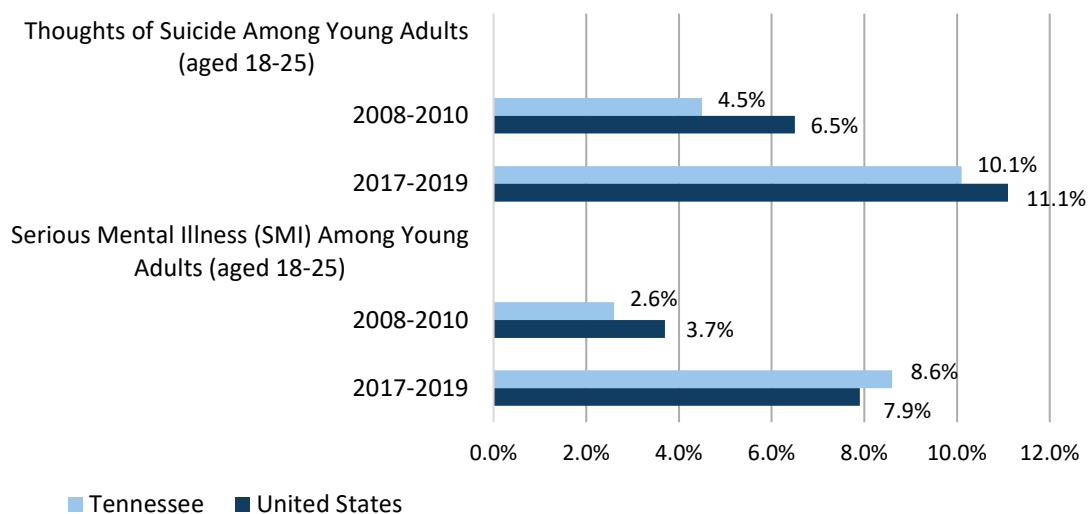
### Introduction

Mental health is a significant public health concern in the United States, substantially impacting individuals, families, and communities. According to the National Institute of Mental Health (NIMH), approximately 1 in 5 adults in the United States experiences mental illness each year.<sup>208</sup> Mental illness includes conditions such as depression, anxiety disorders, and bipolar disorder. The stigma associated with mental health conditions often hinders individuals from seeking help and receiving appropriate treatment, leading to adverse outcomes, including decreased quality of life, impaired work and social functioning, and an increased risk of suicide. Addressing mental health involves not only improving access to mental healthcare services but also reducing the stigma associated with mental illness and promoting early intervention and prevention efforts.<sup>208</sup>

### Mental Illness Trends

Tennessee, like many other states, faces its own challenges concerning mental health. According to data from the Substance Abuse and Mental Health Services Administration (SAMHSA), Tennessee has higher rates of mental illness compared to the national average.<sup>209</sup> The SAMHSA Behavioral Health Barometer publishes indicators from the 2019 National Survey on Drug Use and Health and the National Survey of Substance Abuse Treatment Services. In this report, it describes a significant increase in individuals reporting past year “serious thoughts of suicide” and “serious mental illness” among young adults, aged 18-25, between 2008-2010 and 2017-2019 (Figure 6-1).<sup>209</sup> This increase was not seen in older adults.<sup>209</sup>

**Figure 6-1. Changes in past-year serious mental illness and serious thoughts of suicide among young adults aged 18-25 in Tennessee, Region 4, and the U.S. Source: SAMHSA, 2020.<sup>209</sup>**



### Household Pulse Survey

A new source of data for mental health status at the community level is the Household Pulse Survey.<sup>210</sup> The U.S. Census Bureau is collaborating with other federal agencies to collect data on the social and economic effects of COVID-19 on American households. The Household Pulse Survey asks questions about core demographics and various topics including mental health (Table 6-1). Data are available at the national and state levels.<sup>210</sup>

**Table 6-1. U.S. Census Bureau Household Pulse Survey, Week 62. Tennessee. Source: United States Census Bureau, 2023.**<sup>210</sup>

	Tennessee	United States
Symptoms of anxiety: feeling nervous, anxious, or on edge – several days, more than half the days, and nearly every day of the last two weeks.	59%	58%
Symptoms of depression: feeling down, depressed, or hopeless – several days, more than half the days, nearly every day of the last two weeks.	46%	45%

### Poor Mental Health Days

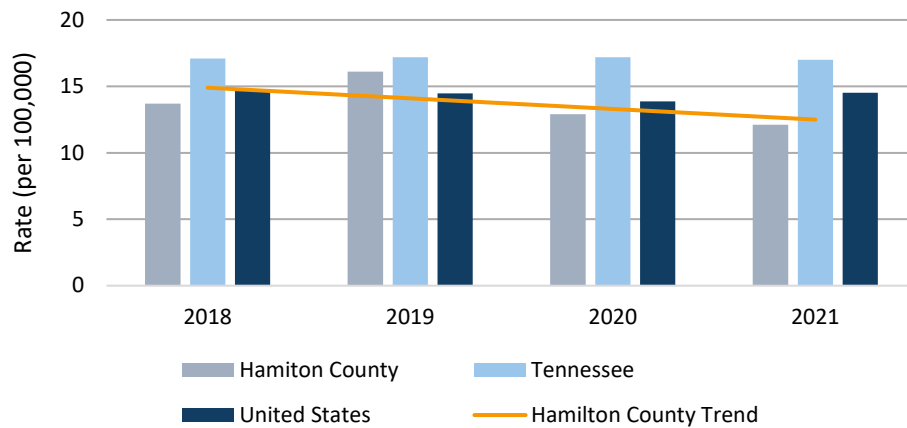
According to the County Health Rankings, Hamilton County adults reported an average of 5.5 days of poor mental health in the past 30 days when surveyed in 2020.<sup>7</sup> This compares to 5 days for Tennessee and 4.4 days for the United States. Further, 17% of Hamilton County adults reported experiencing frequent mental distress, defined as 14 or more days of poor mental health per month.

Access to mental health care was identified as a major community concern among respondents to the 2023 Hamilton County Public Health Survey. Of all survey respondents, 42.7% indicated that they had been feeling down, depressed, or hopeless on at least one day out of the 7 days prior to response while 42.8% indicated that they had been unable to stop or control worrying on at least one day out of the 7 days prior to response. Access to mental health care ranked 6<sup>th</sup> for the Top 10 “Major Problems” overall among respondents.

### Suicide

Suicide is a significant public health concern influenced by factors such as mental health, access to lethal means, social isolation, and economic factors. Suicide deaths in the United States peaked in 2018, declined in 2019 and 2020, and then increased again in 2021, presumably due to the COVID-19 pandemic. Suicide rates have increased most in younger persons (ages 12-17), persons who live in rural areas, and persons of color.<sup>211</sup> The 2021 age-adjusted rate of suicide in Hamilton County is lower than the rates in both Tennessee and the United States (Figure 6-2).<sup>211,212</sup>

**Figure 6-2. Suicide rates per 100,000 in Hamilton County, Tennessee, and the U.S., 2018-2021. Source: TDH, Death Statistics; CDC, Web-based Injury Statistics Query and Reporting System.<sup>10,213</sup>**



Suicide rates in Tennessee by age group show that rates are highest in those 85+ years of age and those 80-84 years old. By gender, far more men complete suicide at 28.5 per 100,000 compared to women at 6.7 per 100,000. Additionally, by race/ethnicity, the highest rates of suicide in Tennessee are in White, non-Hispanic persons.<sup>213</sup>

### Mental Health Services

Tennessee and Hamilton County have been taking steps to improve mental health services, increase awareness, and reduce the stigma associated with mental health issues. However, there is still a need for better access to care, particularly in rural and underserved areas. Efforts to expand telehealth services and integrate mental health into primary care settings are ongoing to improve Tennessee's overall mental health landscape.

Mental health providers include counselors, psychiatrists, psychologists, and psychiatric nurses. The ratio of the population to mental health providers in Hamilton County is much better than in Tennessee overall, but slightly lower than in the U.S. (Table 6-2).<sup>17</sup>

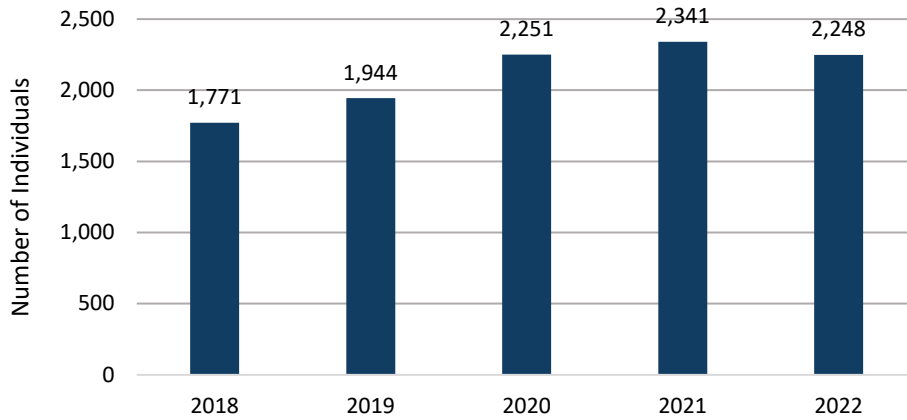
**Table 6-2. Mental health provider to population ratio in Hamilton County, Tennessee, and the U.S. Source: TDH 2022, Mental Health & Substance Abuse Services.<sup>17</sup>**

Mental Health Providers	Hamilton County	Tennessee	United States
Ratio of population to mental health providers.	390:1	560:1	340:1

### *Behavioral Health Safety Net of Tennessee*

The Behavioral Health Safety Net of Tennessee (BHSN of TN) is a program that provides behavioral health services to uninsured adults who meet eligibility requirements.<sup>214</sup> These services are administered through community mental health agencies, and the number of individuals served by this program has generally increased over time (Figure 6-3).

**Figure 6-3. Number of individuals receiving Behavioral Health Safety Net services in Hamilton County.**  
Source: TDH 2018-2022, Behavioral Health Safety Net of TN.<sup>214</sup>



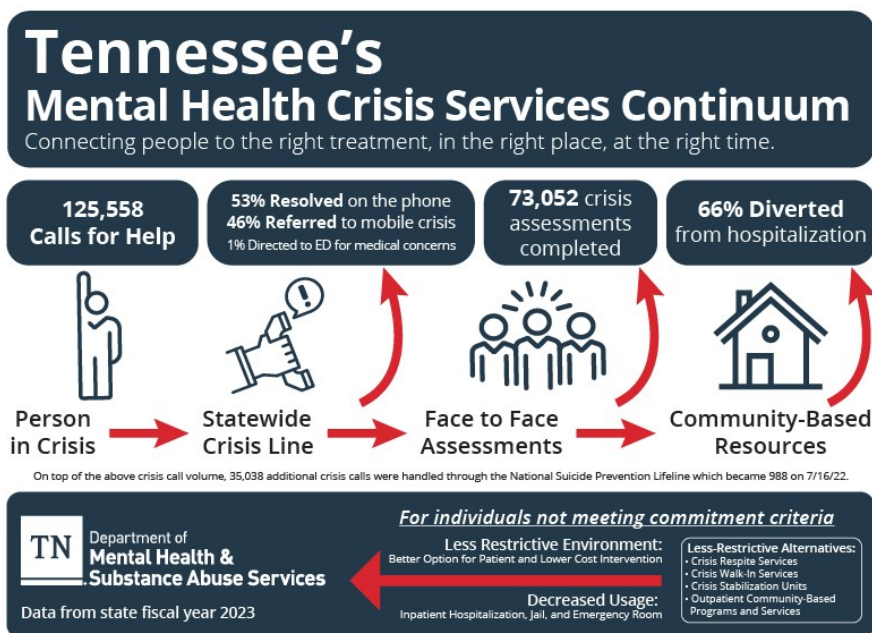
### **Mental Health Crisis Interventions**

A mental health crisis is an emergency condition that involves a serious disruption in an individual’s daily functioning. The Tennessee Department of Mental Health and Substance Abuse Services (TDMHSAS) Crisis Services Program coordinates mental health crisis services throughout the state. In July 2022, TDMHSAS established a 988 Suicide and Crisis Lifeline in the state that provides support 24 hours a day, 365 days a year.

Tennessee’s Mental Health Crisis Services continuum is described in Figure 6-4. A person in crisis calls or texts the phone number, and some issues are resolved by phone. Those issues not resolved by phone are either referred to mobile crisis or directed to an emergency department. Mobile crises involve face-to-face assessments to complete a crisis assessment and referrals to community-based resources which diverts many individuals from hospitalization.



Figure 6-4. Tennessee’s Mental Health Crisis Services continuum, 2023. Source: Tennessee Department of Mental Health and Substance Abuse Services.<sup>215</sup>



In fiscal year 2023, there were 4,324 face-to-face assessments for mental health emergencies among Hamilton County residents – 2,389 by mobile crisis units and 1,935 at a crisis walk-in center. These assessments represented 6% of the state’s total.<sup>216</sup>

Addressing mental health crises requires comprehensive preventions strategies such as:

- **Mental Health Support:** Improved access to mental health care services and reducing the stigma surrounding mental health issues are key components of suicide prevention.<sup>217</sup>
- **Firearm Safety:** Implementing responsible firearm storage practices and promoting awareness of the connection between firearm access and suicide risk can help reduce impulsive suicide attempts.<sup>218</sup>
- **Community Support:** Building strong social connections and support networks within communities can mitigate social isolation, a known risk factor for suicide.<sup>217</sup>
- **Economic Resilience:** Addressing economic factors contributing to suicide, such as unemployment and financial stress, involves supporting individuals during economic downturns and providing resources for coping.<sup>219</sup>

# Chapter 7

## Injuries

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“There are serious short- and long-term health effects from exposure to crime and violence in one’s community... Addressing exposure to crime and violence as a public health issue may help prevent and reduce the harms to individual and community health and well-being.”

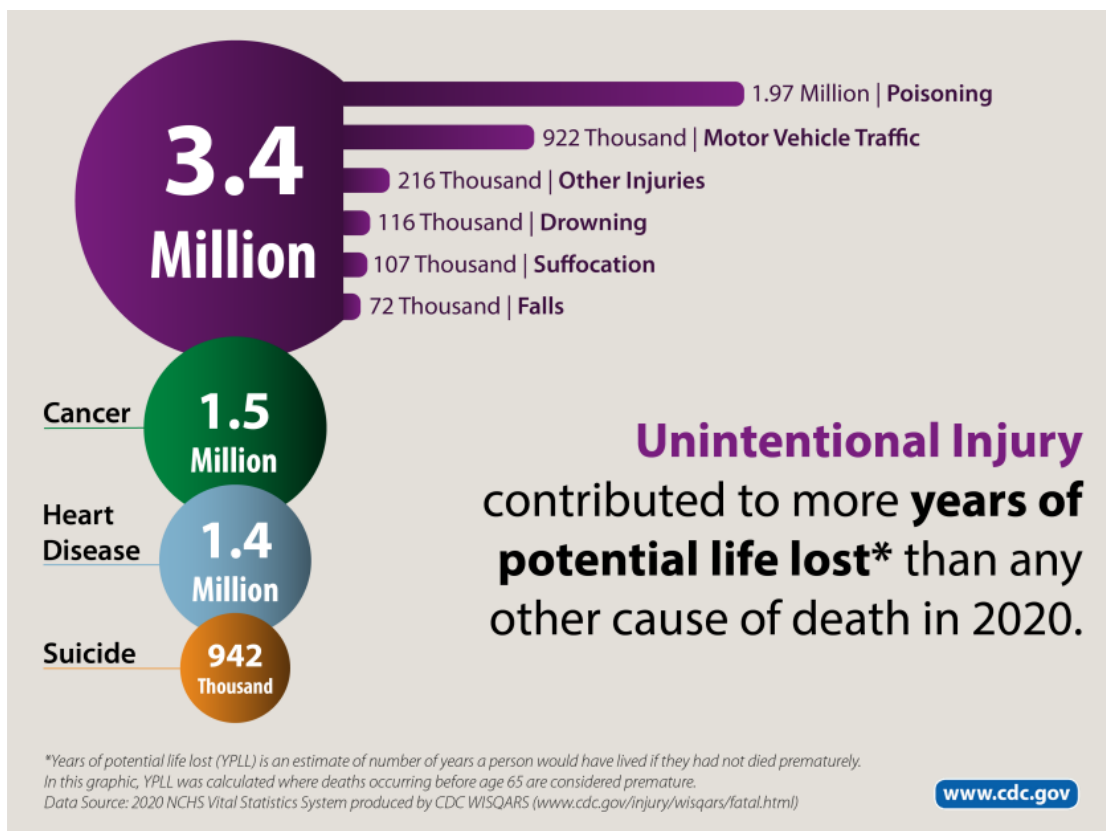
- Healthy People 2030

## Chapter 7. Injuries

### Introduction

Injuries encompass a broad spectrum of both intentional and unintentional events, presenting significant public health challenges. Non-intentional injuries, such as those resulting from falls, motor vehicle accidents, and unintentional poisonings, are leading causes of disability and death, particularly among children and the elderly.<sup>213</sup> Unintentional injury affects 3.4 million Americans a year, far greater than cancer, heart disease, and suicide (Figure 7-1).

**Figure 7-1. Unintentional injury and years of potential life lost, 2020. Source: CDC, Injury Prevention and Control.<sup>220</sup>**



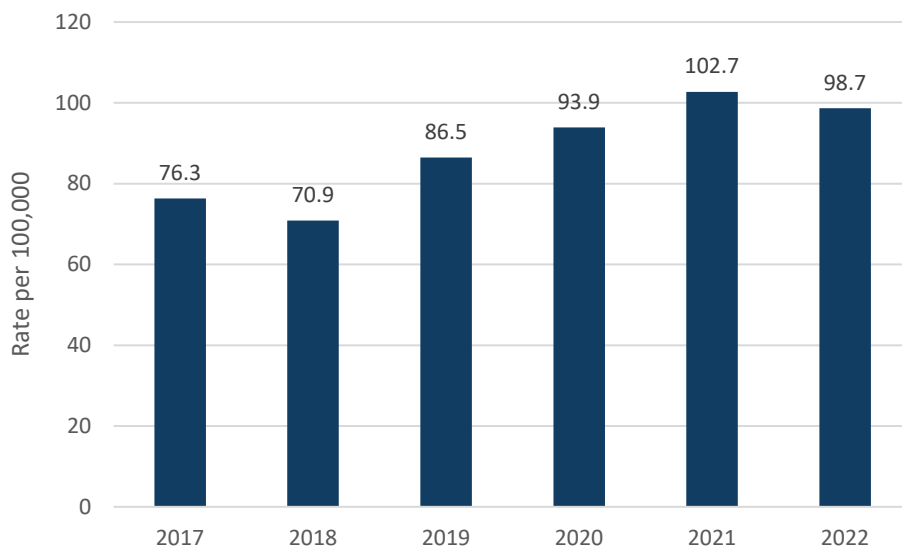
In Tennessee in 2021, there were 9,235 deaths from injuries, with 76.7% unintentional (Table 7-1). There were 388 deaths from injuries in Hamilton County in 2021.<sup>221</sup>

**Table 7-1. Fatal Injuries in Tennessee. 2017-2021. Source: CDC, WISQARS.<sup>221</sup>**

	Deaths	Age-adjusted rate per 100,000	Unintentional (%)	Suicide (%)	Homicide (%)
2017	6307	90.9	70.3%	18.5%	8.8%
2018	6363	90.9	70.5%	18.3%	9.5%
2019	6797	96.2	71.4%	17.9%	8.8%
2020	8230	117.7	74.2%	14.8%	9.2%
2021	9235	131.6	76.7%	13.2%	8.8%

Hamilton County age-adjusted rates (per 100,000) for injury deaths have also increased over time, with a slight decrease in 2022. Figure 7-2 shows the trend in injury deaths in Hamilton County from 2017 to 2022.

**Figure 7-2. Age-adjusted rate per 100,000 of injury deaths in Hamilton County. 2017-2022. Source: Tennessee Department of Health.**



Intentional injuries, including those from violence, self-harm, and assault, contribute significantly to the overall burden of injuries. Homicide, for example, is the second leading cause of death for individuals age 15-24 in the United States.<sup>213</sup> Violence causes numerous negative health impacts and disproportionately affects communities of color.<sup>222</sup> Effective injury prevention strategies, such as improving safety regulations, enhancing access to mental health services, and addressing social determinants of health, are crucial for mitigating the impact of injuries in both the United States and Tennessee.

## Motor Vehicle Accidents and Seatbelt Use

In 2023, there were 10,186 total motor vehicle crashes in Hamilton County, which is a decline from previous years (Table 7-2). There has also been a decline in distracted driving accidents in both Hamilton County and Tennessee. While the number of fatal crashes has gone up, the rate of fatal crashes in Hamilton County has consistently been lower than in Tennessee overall (Table 7-2).

By age, most motor vehicle crashes in 2023 were in those 16-25 years old (3,393), followed by those 26-36 years old (3,240).<sup>223</sup> There were 858 crashes involving a driving under the influence (DUI) driver in 2023 in Hamilton County.<sup>224</sup> According to the 2020-2024 Tennessee Strategic Highway Safety Plan, DUI encapsulates driving under the influence of any substance that impairs the ability of a driver to safely operate a motor vehicle, typically drugs and alcohol.<sup>225</sup> The number of alcohol-involved crashes in Hamilton County has seen a noticeable decrease between 2021 and 2023 (Table 7-2).<sup>226</sup>

**Table 7-2. Total motor vehicle accidents by fatality, alcohol impaired driving, and driver distraction in Hamilton County and Tennessee. 2020-2023. Source: Tennessee Department of Safety & Homeland Security, Crash Data.**<sup>226</sup>

	2020	2021	2022	2023
<b>Hamilton County</b>				
Fatal Crashes	39	51	44	54
Alcohol Impaired	403	443	360	369
Driver Distraction	861	906	895	665
<b>Total Crashes</b>	<b>12,149</b>	<b>13,663</b>	<b>12,674</b>	<b>10,186</b>
<b>Tennessee</b>				
Fatal Crashes	1,150	1,265	1,267	1,246
Alcohol Impaired	5,913	6,103	6,135	6,108
Driver Distraction	10,942	11,724	10,883	9,873
<b>Total Crashes</b>	<b>175,292</b>	<b>193,039</b>	<b>185,742</b>	<b>177,707</b>

Adherence to seatbelt laws saves lives. According to the Tennessee Department of Safety and Homeland Security, in Hamilton County, unrestrained/improperly restrained drivers are 34 times more likely to die, and three times more likely to be injured in a motor vehicle accident as compared to a properly restrained driver. Further, men are two times more likely to be unrestrained/improperly restrained than women.<sup>227</sup>

## Firearms

Firearm injury death rates are a key health indicator. In 2022, there were an average of 132 firearm deaths every day in the United States, more than half of which were suicides.<sup>228</sup> The United States falls short of meeting the *Healthy People 2030* goal 10.7 deaths per 100,000 (Table 7-3).<sup>229</sup> Tennessee had one of the highest firearm injury age-adjusted death rates in the nation in 2021, at 22.8 per 100,000 (1,569).<sup>230</sup>

Hamilton County’s firearm fatality rate over a 4-year period is 18 per 100,000 which is higher than the U.S. rate, but lower than Tennessee’s (Table 7-3). The firearm fatality rate among Black persons in Hamilton County is much higher than among White persons (14 per 100,000 compared to 38 per 100,000).<sup>231</sup>

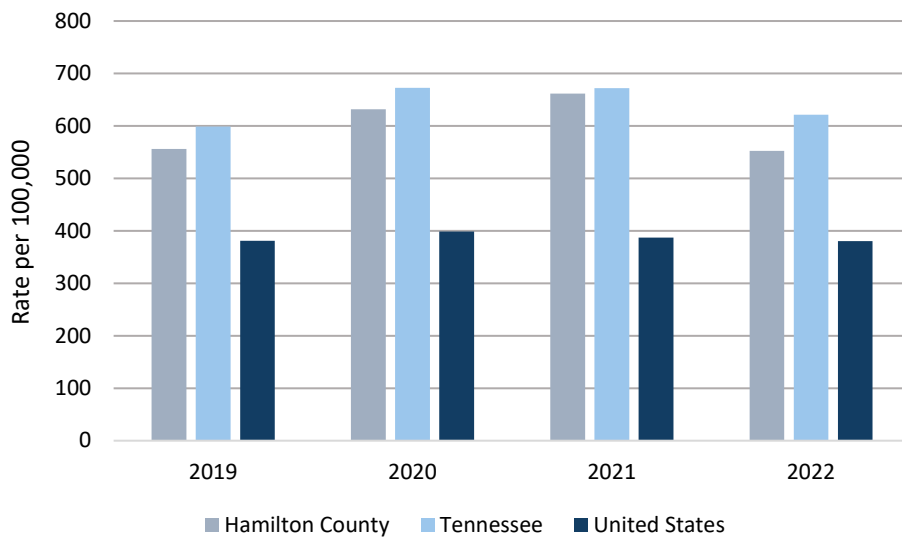
**Table 7-3. Firearms fatalities per 100,000 persons in Hamilton County, Tennessee, and the U.S. 2016-2020. Source: County Health Rankings and Roadmaps.<sup>231</sup>**

	Hamilton County	Tennessee	United States
Firearm fatalities per 100,000 persons	18	19	12

### Violent Crime

Violent crime in the United States and Tennessee is a significant concern. The FBI's Uniform Crime Reporting (UCR) Program categorizes violent crimes as those involving force or threat of force, including murder, rape, robbery, and aggravated assault.<sup>232</sup> Hamilton County’s rates of violent crime compared to Tennessee and the United States are shown in Figure 7-3.

**Figure 7-3. Violent crime by rate per 100,000 in Hamilton County, Tennessee, and the U.S. 2019-2022. Source: FBI Crime Data Explorer.<sup>232</sup>**



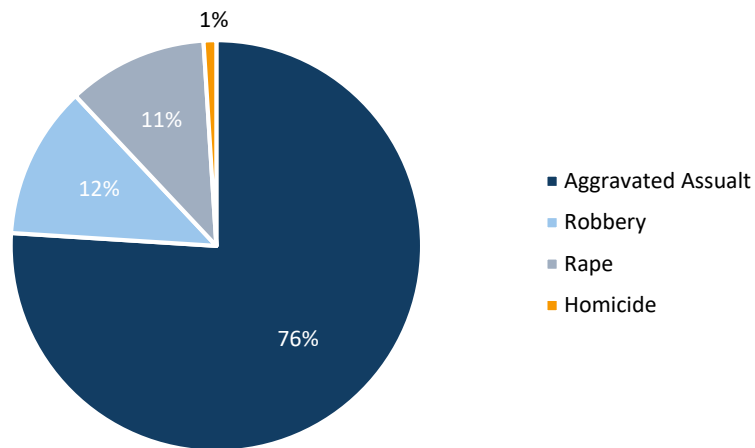
Law enforcement agencies in 2022 responded to 2,023 violent crimes, with Chattanooga Police Department the primary response agency (Table 7-4).

**Table 7-4. Incidence of Hamilton County violent crimes by reporting agency. 2022. Source: FBI Crime Data Explorer.<sup>232</sup>**

	Number of Incidents	Proportion
Chattanooga Police	1635	81%
Hamilton County Sheriff's Office	213	11%
East Ridge Police	101	5%
Red Bank Police	39	2%
Soddy Daisy Police	22	1%
Collegedale Police	12	1%
Signal Mountain Police	1	0%
Lookout Mountain Police	0	0%
<b>Total Incidents</b>	<b>2023</b>	

By type, most acts of violent crime are aggravated assault, followed by robbery (Figure 7-4). Since 2016, the proportion of violent crimes that are rape increased from 6% to 11%, while the proportion of robberies went down from 18% to 11% over the same time period.

**Figure 7-4. Hamilton County violent crime by type. 2022. Source: FBI Crime Data Explorer.<sup>232</sup>**



Socio-economic disparities, substance abuse, and access to firearms all contribute to violent crime.<sup>122</sup> Law enforcement agencies, community organizations, and policymakers in Tennessee have implemented various strategies to combat violent crime, including increased police presence in high-crime areas, targeted enforcement against known offenders, and community engagement initiatives aimed at building trust between law enforcement and residents. Additionally, programs focusing on education, employment, and mental health services seek to address underlying factors contributing to violent behavior. Certain groups of people are more likely to be exposed to violence and crime.

# Chapter 8

## Substance Abuse

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Image credit: <https://www.cdc.gov/>

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“Healthy People 2030 focuses on preventing substance abuse disorders - like drug or alcohol addiction - and helping people with these disorders get treatment.”

- Healthy People 2030



## Chapter 8. Substance Abuse

### Introduction

Substance abuse in the United States is a significant public health concern, affecting millions of Americans each year. The misuse of substances such as alcohol, tobacco, prescription drugs, and illicit drugs can lead to a range of negative consequences, including addiction, health problems, and social issues. Efforts to address substance abuse in the United States include prevention programs, treatment options, and policies aimed at reducing access to illicit substances. Despite these efforts, substance abuse remains a complex issue that requires ongoing attention and intervention.

### Alcohol Use

Alcohol is one of the most commonly abused substances in the United States with approximately 79% of people aged 12 and older reporting they drank alcohol at some point in their life, 63% reporting they drank alcohol in the past year, and 49% reporting they drank alcohol in the past month.<sup>233</sup> Efforts to address alcohol use and its consequences include implementing policies to regulate alcohol sales, raising awareness about responsible drinking practices, and providing support for individuals struggling with alcohol misuse.

#### *Alcohol Use Among Adolescents*

Underage alcohol use is prevalent in Tennessee and the United States. According to the 2021 Youth Risk Behavior Survey (YRBS), 22.3% of high school students in Tennessee drank alcohol and 13.4% binge drank alcohol during the past 30 days (Table 8-1).<sup>234</sup> YRBS data for Tennessee indicate that the percentage of high schoolers who report currently drinking shows a slight increase from 2019 to 2021 (Table 8-1).<sup>235</sup>

**Table 8-1. Percentage of high school students who reported currently drinking alcohol and currently binge drinking alcohol. Source: YRBS 2017-2021.**<sup>235</sup>

	2019	2021
<b>Drinking Alcohol*</b>		
Tennessee	21.6%	22.3%
United States	29.2%	22.7%
<b>Binge Drinking**</b>		
Tennessee	13.7%	13.4%
United States	8.8%	10.5%

\* Defined as at least one drink of alcohol, on at least 1 day during the 30 days before the survey

\*\* Defined as four or more drinks in a row if they are female or five or more drinks if they are male, within a couple of hours, on at least 1 day during the 30 days before the survey

#### *Excessive alcohol use*

Excessive alcohol use, which is defined as binge drinking; heavy drinking; and/or any drinking by pregnant women or children, is a precursor to numerous illnesses and injuries.<sup>236,237</sup> Not only does excessive alcohol use increase the risk of chronic diseases like heart disease, liver disease, and cancer, but it can also lead

to injuries and death from violence.<sup>237</sup>

Binge drinking, defined by the CDC as “consuming 4 or more drinks on an occasion for a woman or 5 or more drinks on an occasion for a man”, is a serious public health issue.<sup>237</sup> The percentage of adults who engage in heavy drinking, defined as “8 or more drinks per week for a woman or 15 or more drinks per week for a man”, has declined slightly in the Hamilton County area (Table 8-2).<sup>237,103</sup>

**Table 8-2. Percent of BRFSS Survey Respondents who Report Binge Drinking and Heavy Drinking in the U.S., Tennessee, and Chattanooga, TN-GA Metropolitan Statistical Area. 2019-2021. Source: CDC, BFRSS.<sup>103</sup>**

	2019	2021
<b>Heavy Drinking</b>		
Chattanooga	8.6%	7.9%
Tennessee	5.7%	5.5%
United States	6.5%	6.2%
<b>Binge Drinking</b>		
Chattanooga	18.1%	14.2%
Tennessee	14.4%	13.8%
United States	16.8%	15.3%

*Emerging Trend—High-Intensity Drinking*

The emerging trend of high-intensity drinking involves consuming alcohol at levels two or more times the gender-specific binge drinking thresholds. People who engage in high-intensity drinking are at a significantly higher risk of alcohol-related emergency department visits, with those consuming three times the binge thresholds being 93 times more likely to have such visits compared to non-binge drinkers.<sup>233</sup>

**E-Cigarettes**

While e-cigarettes are often promoted as a safer alternative to traditional cigarettes, they are not without risks. The full extent of the health impacts of vaping is still being researched, but it is clear that vaping is not harmless and can have serious health consequences. Types of e-cigarettes include disposable, rechargeable, and tanks & mods (Figure 8-1).<sup>238</sup>

Figure 8-1. Types of E-cigarettes. Source: CDC, 2023.<sup>238</sup>



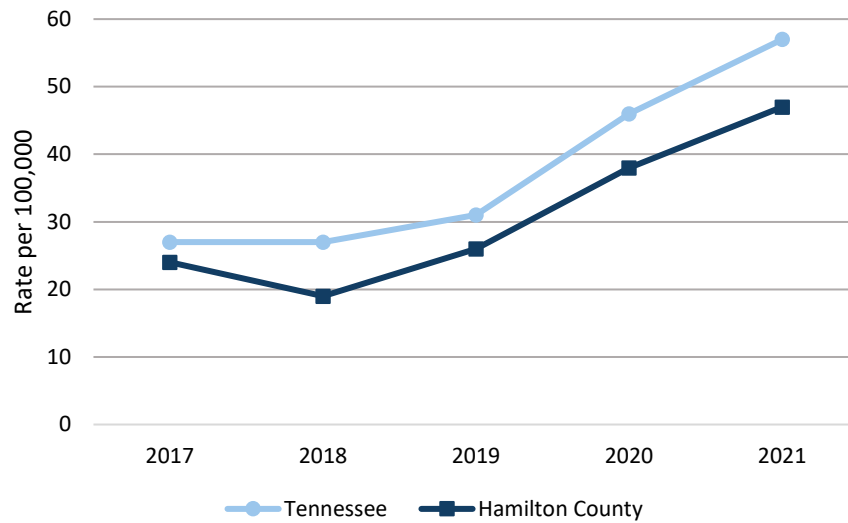
The National Health Interview Survey revealed in 2021 that 4.5% of U.S. adults aged 18 and over were current users of e-cigarettes, with more usage among men, White non-Hispanic persons, those of lower incomes levels, and those aged 18-24 years, compared to other groups.<sup>239</sup> In Tennessee, 10.8% of adults report using e-cigarettes or other electronic vaping products, which is the 2<sup>nd</sup> highest rate in the nation.<sup>240</sup> In Hamilton County, 12.7% of adults reported using e-cigarettes in 2021, comparing to 6.7% in the United States.<sup>132</sup>

Vaping is higher among youth. The Surgeon General declared e-cigarette use among youth an epidemic in 2018. The flavors available in e-cigarettes, such as fruit, candy, and mint, play a significant role in their appeal to youth. These flavors can mask the harshness of nicotine and make vaping more palatable to young users. In the United States, the use of vaping by 12<sup>th</sup> graders has dramatically increased from 11% in 2017 to 24.7% in 2021.<sup>241</sup>

### Drug Overdoses

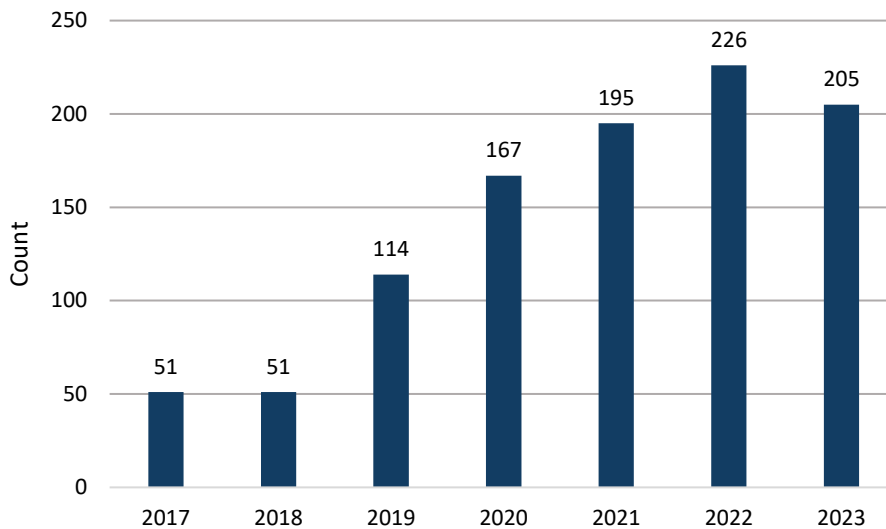
A drug overdose is a type of poisoning that can result from illegal drugs, prescription medications, or over-the-counter medications. Overdoses can be fatal or nonfatal. In 2021, there were 3,814 fatal drug overdoses in Tennessee and an estimated 107,622 drug overdose deaths in the United States.<sup>242,243</sup> The rate of drug overdose deaths in Hamilton County is slightly lower than Tennessee, but both rates have been increasing dramatically since 2019 (Figure 8-2).

**Figure 8-2. All drug overdose deaths by rate per 100,000 in Tennessee and Hamilton County. 2017-2021.**  
**Source: Tennessee Department of Health Drug Overdose Dashboard.<sup>242</sup>**



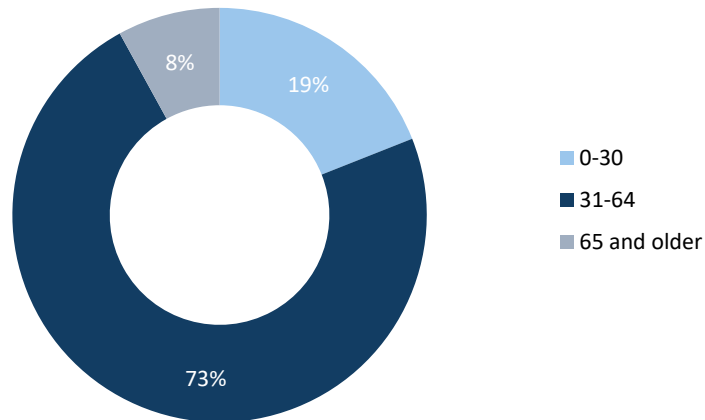
Suspected drug-related deaths in Hamilton County are those deaths that the Hamilton County Medical Examiner’s Office lists as an acute overdose or a death resulting from chronic drug/alcohol abuse. The number of suspected drug-related deaths in Hamilton County has shown a general increasing trend, although 2023 deaths were lower than 2022 (Figure 8-3).

**Figure 8-3. Total number of suspected drug-related deaths in Hamilton County by year. 2018-2023.**  
**Source: Hamilton County Medical Examiner.**



In 2023, 95% of suspected drug-related deaths in Hamilton County were ruled accidents, while 2.5% were natural deaths and 2.5% were suicide. The majority of these drug-related deaths fell in the 31 to 64-year-old age range, with most being male (66%) and White persons (77%) (Figure 8-4).

**Figure 8-4. Age group of suspected drug-related deaths in Hamilton County. 2023. Source: Hamilton County Medical Examiner.**

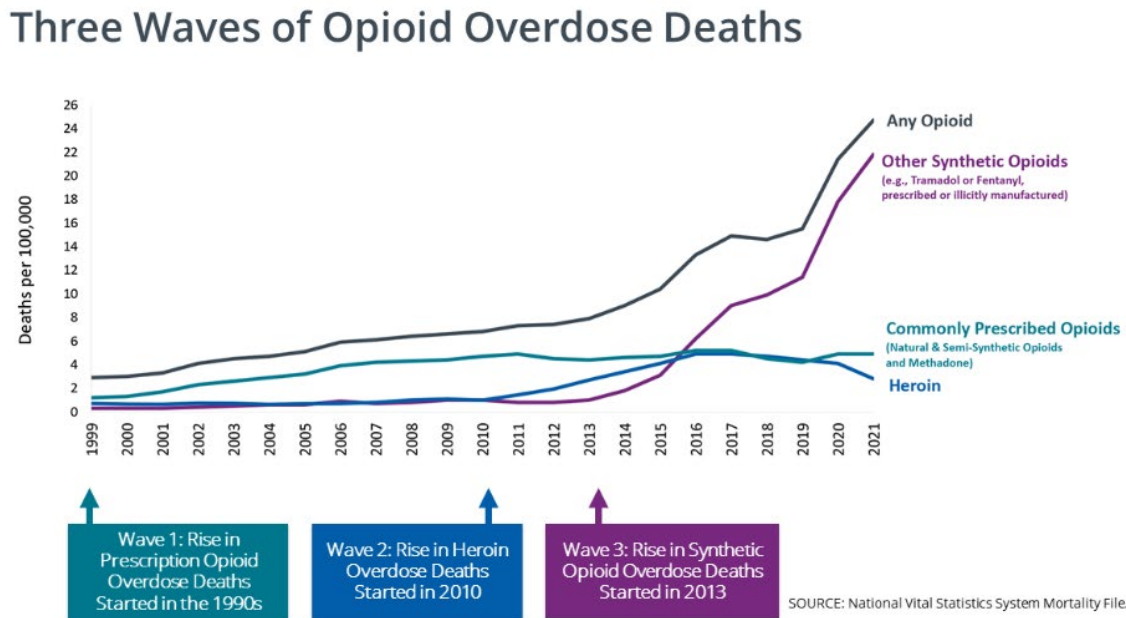


The geographic distribution of drug-related deaths in Hamilton County in 2023 shows the highest number of deaths (25) occurring in the 37421 ZIP code. Many overdoses in Hamilton County do not result in death. For every drug-related death, there are approximately 10 overdose-related emergency room visits, and more overdoses that do not arrive at the emergency room if they refused medical treatment.

#### *Opioid Overdose*

Opioids, a class of drugs that includes some prescription pain relievers, heroin, fentanyl and other synthetic opioids, were responsible for over 75% of all drug overdose deaths in the U.S. in 2021.<sup>244,245</sup> The rapidly increasing trend of opioid-involved deaths, sometimes called the ‘Opioid Overdose Epidemic’, began in the 1990s with prescribed analgesics, and stretched through the 2010s with the rise of heroin. In recent years, the exponential increase has been the result of synthetic opioids (Figure 8-5). The number of individuals who died from a drug overdose in 2021 was more than 6 times the number in 1999.<sup>244</sup>

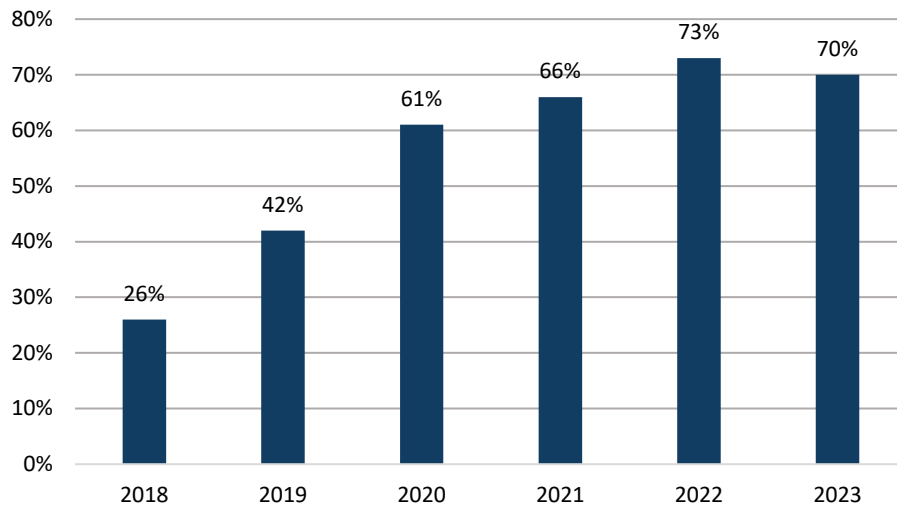
Figure 8-5. Three waves of opioid overdose deaths in the United States. 1999-2021. Source: Centers for Disease Control and Prevention.<sup>244</sup>



While declining opioid dispensing rates are helpful and may reduce the number of individuals who become addicted, the illegal manufacturing of synthetic opioids continues to drive the growing rate of overdoses. The third wave of opioid deaths is characterized by the involvement of fentanyl, an illicitly manufactured synthetic opioid 50-100x stronger than morphine. Most fentanyl-involved deaths are the result of illegally manufactured fentanyl, which is typically mixed in with other drugs to increase their potency.<sup>246</sup>

In Hamilton County, the percentage of drug-related deaths involving fentanyl has increased dramatically between 2018 and 2023. In 2023, 70% of all drug-related deaths in Hamilton County involved fentanyl (Figure 8-6).

**Figure 8-6. Percent of Hamilton County suspected drug-related deaths with fentanyl listed as a cause of death by year. 2018-2023. Source: Hamilton County Medical Examiner.**



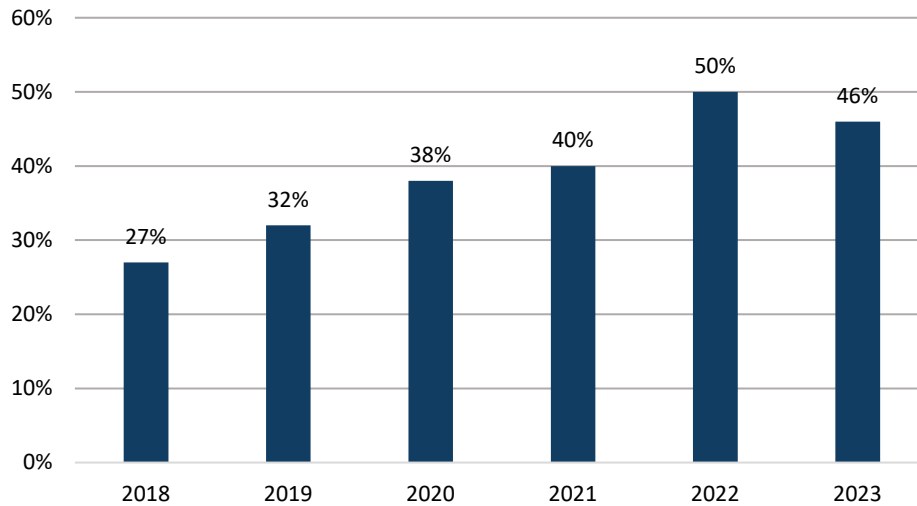
#### *Naloxone*

Opioid overdoses are often reversible by the timely administration of an opioid antagonist such as naloxone.<sup>247</sup> Naloxone laws in Tennessee were recently amended in July 2022 to provide wider access to naloxone. Licensed healthcare providers – acting in good faith and exercising reasonable care – may prescribe naloxone to individuals at risk, or their family or friends who may assist if there is an overdose. Licensed healthcare providers can also prescribe to an organization or entity for the purpose of them providing that medication to someone at risk of overdose or to their family or friends who may be in a position to assist. Additionally, first responders acting under a standing order may receive, store, and provide an opioid antagonist.<sup>247</sup>

#### *Methamphetamine and Xylazine*

Other substances responsible for overdoses and deaths in the United States include alcohol, methamphetamine, and other non-opioid drugs like xylazine. While methamphetamine (meth) has been a major part of the United States illicit drug system for years, the demographic of users with Methamphetamine Use Disorder (MUD) is changing.<sup>248</sup> While the majority of meth users have historically been White, middle-aged persons, the user group is diversifying and there has been a recent increase in MUD among Black persons and younger people.<sup>248</sup> In 2023, 46% of drug suspected overdose deaths in Hamilton County involved methamphetamines, which is a decrease from 50% in 2022. The percentage of Hamilton County drug-related deaths involving methamphetamine has increased steadily from 2018 through 2022 (Figure 8-7).

**Figure 8-7. Percent of Hamilton County drug-related deaths with methamphetamine listed as a cause of death by year. 2018-2023. Source: Hamilton County Medical Examiner.**



The recent emergence of drug users in the United States using xylazine, a veterinarian tranquilizer, has also been linked to overdoses and deaths.<sup>249</sup> Xylazine has been found across the nation, but is most prevalent in the South. While the portion of overdose deaths attributable to xylazine is still small compared to other drugs, the rapid increase in its popularity is cause for concern. In 2022, 23% of fentanyl powder and 7% of fentanyl pills seized by the U.S. Drug Enforcement Agency contained xylazine.<sup>249</sup>



# Chapter 9

## Vulnerable Populations

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“The health and well-being of all people and communities is essential to a thriving, equitable society.”

- Healthy People 2030

## Chapter 9. Vulnerable Populations

### Introduction

Vulnerable populations are groups of people who experience a higher-than-average risk for certain health problems due to factors such as age, life stage, race/ethnicity, abilities, and socioeconomic status.<sup>1</sup> Certain vulnerable populations, like unhoused individuals, may have less access to medical care while other vulnerable populations, like older adults, may experience health issues unique to their age.

### Maternal and Infant Health

The health of mothers and babies is a vital indicator of overall county health and well-being. *Healthy People 2030* features goals on reducing rates of infant death, reducing substance use among pregnant women, and reducing maternal deaths.<sup>250</sup>

#### *Birth Statistics*

In 2021, there were 4,562 live births in Hamilton County, with a birth rate of 12.4 per 1,000 people, which is slightly higher than Tennessee and the United States (Table 9-1).<sup>251,252</sup> Black persons have slightly higher birth rates than White persons. In addition, Hispanic persons have a much higher rate than non-Hispanic persons (Table 9-2). Birth rates in younger women (those ages 15-24) are decreasing, while birth rates in older women (those ages 35-44) are increasing.<sup>251,252</sup>

**Table 9-1. Birth statistics in Hamilton County, Tennessee and the U.S. 2021. Source: Tennessee Department of Health, Birth Statistics; National Vital Statistics Reports, Volume 72, Number 1.**

	Hamilton County	Tennessee	United States
Birth Rate (per 1,000 population)	12.4	11.7	11.0
Teen Pregnancy Rate (per 1,000 females aged 15-19)	22.5 (2020)	27.4 (2020)	13.9
Preterm Births (less than 37 weeks gestation)	10.6%	11.3%	10.5%
Low Birthweight (less than 2500 grams)	8.9%	9.3%	8.5%
Infant Mortality (per 1,000 age < 1 year)	4.6	6.2	11.0

Highlighted in Table 9-1, both the Tennessee and Hamilton County teen pregnancy rates have been much higher than the national rate.<sup>251,252</sup> However, Hamilton County has one of the lowest rates in the state.<sup>227</sup> Family planning-focused *Healthy People 2030* objectives include reducing pregnancies in adolescents and reducing the proportion of unintended pregnancies.<sup>254</sup> Babies born to teen mothers are more likely to suffer complications and poor outcomes, while the mothers are more likely to drop out of high school and face more economic stress and other long-term effects.<sup>253</sup>

While teen pregnancy rates, along with teen birth rates, are declining overall, there is still work to be done on race and ethnicity disparities. Teen pregnancy rates in Hamilton County are higher among Black residents than White residents, as well as remarkably higher among Hispanic residents than non-Hispanic residents (Table 9-2).<sup>252</sup>

**Table 9-2. Birth statistics by race/ethnicity in Hamilton County, 2021. Source: Tennessee Department of Health, Birth Statistics; National Vital Statistics Reports, Volume 72, Number 1.**<sup>251,252</sup>

	White	Black	Hispanic	Non-Hispanic
Birth Rate (per 1,000 population)	12.2	12.5	28.7	11.2
Teen Pregnancy Rate (per 1,000 females aged 15-19), 2020	18.9 (2020)	33.5 (2020)	67.4 (2020)	17.8 (2020)
Preterm Births (less than 37 weeks gestation)	9.3%	17.4%	9.4%	10.8%
Low Birthweight (less than 2500 grams)	6.6%	18.2%	6.5%	9.3%
Infant Mortality (per 1,000 age < 1 year)	3.5	14.4 (2020)	N/A*	N/A*

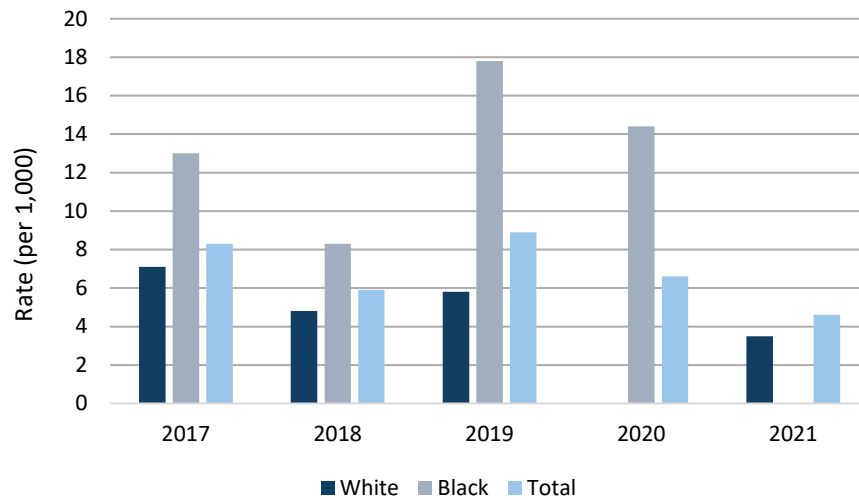
\*Note: Some infant mortality data not reported

Preterm birth and low birth weight were the second leading cause of death among U.S. infants in 2021.<sup>254</sup> Any baby born prior to 37 weeks of gestation is considered preterm, and they have a higher risk of death and an increased risk for health issues such as developmental delays and disabilities.<sup>255</sup> In 2021, 11.3% of live births in Tennessee and 10.6% in Hamilton County were preterm (Table 9-1). There is a substantial difference in preterm births by race, with nearly double the percent of preterm births to Black women compared to White women (Table 9-2).

Low birth weight (LBW), a birth weight of less than 2500g, can also put babies at a greater risk of death and disability.<sup>256</sup> In Hamilton County, a disproportionately high percentage of LBW babies were seen with Black women (Table 9-2). This disparity exists nationwide, with 14.6% of births to Black women in 2021 having low birthweight, compared to 7% of births to White women.<sup>251</sup>

Reducing the rate of infant mortality, the death of an infant before their first birthday, is a *Healthy People 2030* objective and leading public health goal.<sup>254,251</sup> Thousands of infants die every year in the United States, with the top five causes being birth defects, preterm birth and low birthweight, sudden infant death syndrome, injuries, and pregnancy complications. The infant mortality rate was 11.0 in the U.S., 6.2 in Tennessee, and 4.6 in Hamilton County, markedly lower (Table 9-1).<sup>257</sup> Infant mortality rates are notably higher among Black persons in the United States compared to White persons, and this trend holds true in Hamilton County (Figure 9-1).

**Figure 9-1. Infant mortality rate per 1,000 live births in Hamilton County by race. 2017-2021. Source: CDC Infant Mortality.<sup>233</sup>**



\* Note: some 2020 and 2021 data missing

*Pregnancy Health Indicators*

Regular prenatal care, especially when started early in pregnancy, reduces the risk of complications for the mother and the child. In 2020, 84.6% of pregnant women in Tennessee reported started prenatal care in their first trimester, which is a slight decline since 2017 (Table 9-3).<sup>259</sup> However, this percentage still meets the *Healthy People 2030* target of 80.5%.<sup>253</sup>

Using drugs, alcohol, and cigarettes during pregnancy puts the mother and baby at a higher risk of poor health outcomes, including fetal alcohol spectrum disorders, neonatal abstinence syndrome, sudden infant death syndrome, birth defects, and stillbirth.<sup>261</sup> In 2020, the percentage of mothers in Tennessee who report smoking and e-cigarette use during pregnancy were 12.0% and 2.1% respectively (Table 9-3). These number increased dramatically between 2019 and 2020.<sup>259</sup> In 2020, the percentage of Tennessee mothers who reported alcohol use during pregnancy was 6.8% (Table 9-3).<sup>259</sup>

**Table 9-3. Prenatal substance use by type and prenatal care starting in first trimester. 2016-2020. Source: Tennessee Department of Health 2016-2020 PRAMS Trend Report.<sup>259</sup>**

	2016	2017	2018	2019	2020
Prenatal Care 1st Trimester	84.7%	87.8%	86.1%	84.7%	84.6%
Smoking During Pregnancy	13.6%	12.1%	11.5%	8.3%	12.0%
Alcohol Use During Pregnancy	6.8%	8.8%	5.3%	4.8%	6.8%
E-Cigarette Use During Pregnancy	2.1%	2.0%	1.8%	1.0%	2.1%

Postpartum depression involves extreme feelings of sadness and hopelessness that do not go away within two weeks after having a baby.<sup>261</sup> Peripartum depression is depression that occurs during pregnancy and/or after pregnancy.<sup>262</sup> The two terms are often used interchangeably. In Tennessee, 14.9% of women reported experiencing postpartum depressive symptoms and 16% reported depression during pregnancy in 2020.<sup>263</sup> Reported prevalence of both peri- and postpartum depression slightly decreased among Tennessee mothers from 2016 to 2020 (Table 9-4).

**Table 9-4. Percentage of Tennessee mothers who had depressive symptoms during pregnancy and postpartum. 2016-2020. Source: Tennessee Department of Health 2016-2020 PRAMS Trend Report.<sup>260</sup>**

	2016	2017	2018	2019	2020
Depression During Pregnancy	18.8%	13.9%	16.3%	16.8%	16%
Postpartum Depressive Symptoms	18.9%	16%	15.7%	15.1%	14.9%

### Child Health

One in five residents in Tennessee and Hamilton County is under the age of 18.<sup>264</sup> Child health directly influences the overall well-being and development of individuals and communities. Healthcare coverage is an important aspect of child health, with over half of Tennessee’s children and 46.5% of Hamilton County’s children were covered by TennCare in 2023.<sup>264,265</sup>

A major concern related to children is the availability of affordable childcare, which can impact the economic stability and health of families. As indicated in the 2023 Hamilton County Public Health Survey, availability of affordable childcare was the 2<sup>nd</sup> major problem overall when respondents were asked about issues and concerns in their community.

Childcare costs often surpass rent or mortgage payments, particularly for single-income households. Notably, infant care costs at child care centers are more than in-state college tuition at all but two Tennessee four-year public universities (Table 9-5).<sup>264</sup> Childcare challenges persist in the workforce, as more than one in six Tennessee unemployed workers identifying childcare as a barrier, underscoring the need for accessible affordable childcare options.<sup>264</sup>

**Table 9-5. Average cost of childcare and rate of increase in market price by facility type. 2018-2023. Source: The State of the Child in Tennessee 2023.<sup>265</sup>**

	Infant Center-Based	Infant Home-Based	Toddler Center-Based	Toddler Home-Based
2023	\$10,301	\$7,602	\$8,372	\$7,068
2018	\$8,751	\$6,458	\$7,113	\$6,005
Increase in Market Rate Price	\$1,549	\$1,143	\$1,259	\$1,063

*Child Opportunity Index Ratings*

Considering social determinants of health, the Child Opportunity Index 2.0 plays a pivotal role in understanding the well-being and opportunities for success of children in various communities. In Hamilton County, 11 of its 27 zip codes (40.7%) were classified as having low or very low child opportunity indices, indicating disparities in resources and conditions (Table 9-6).<sup>265</sup> Most of these zip codes are in south Chattanooga, which reflects the impact of zip code on health.

**Table 9-6. Child Opportunity Index ratings for Hamilton County by ZIP code. 2015. Source: Diversity Data Kids Child Opportunity Index 2.0.**<sup>265</sup>

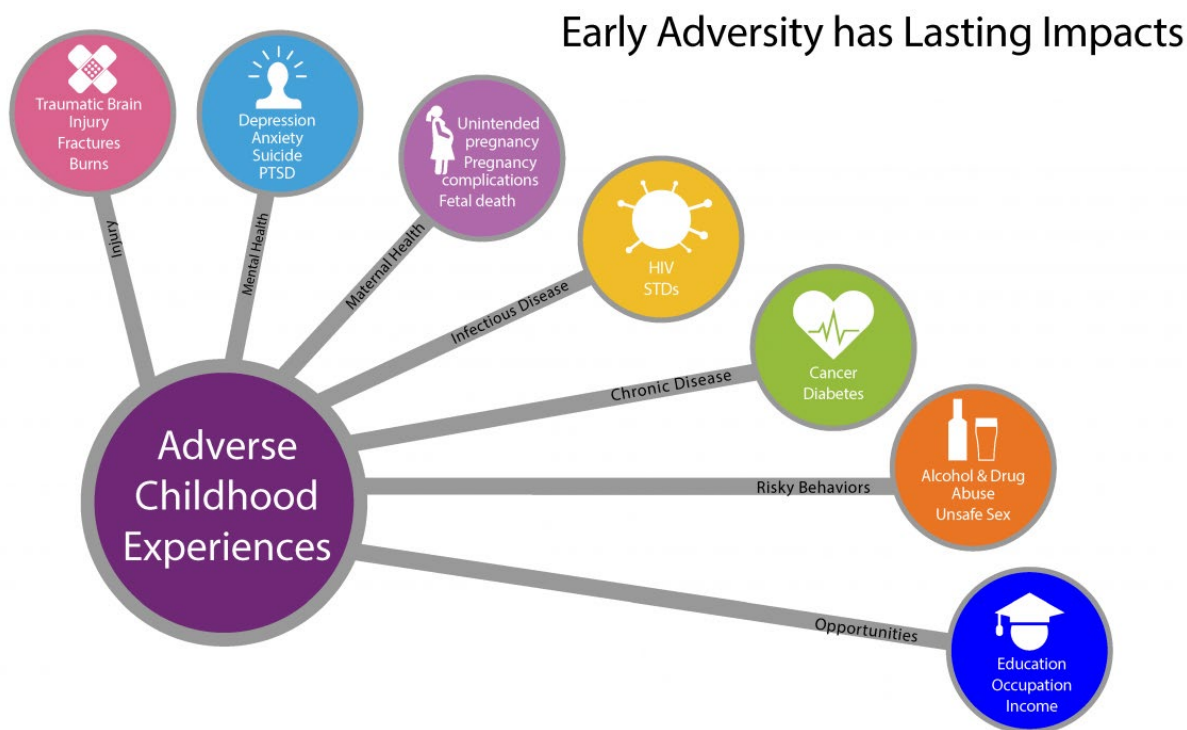
Zip Code	Overall Child Opportunity Index	Education Index	Health and Environment Index	Social and Economic Index
37412	Low	Low	Very Low	Moderate
37411	Low	Very Low	Very Low	Moderate
37410	Very Low	Very Low	Very Low	Very Low
37409	Low	Moderate	Very Low	Moderate
37408	Low	Moderate	Very Low	Moderate
37407	Very Low	Very Low	Very Low	Very Low
37406	Very Low	Very Low	Very Low	Very Low
37404	Very Low	Very Low	Very Low	Very Low
37403	Low	High	Very Low	Low
37402	Very Low	High	Very Low	Very Low
37308	Low	Moderate	High	Low

\*These opportunity levels are compared to other zip codes in Tennessee in 2015.

*Adverse Childhood Experiences (ACEs)*

Experiences and situations that occur during childhood have a profound effect on health outcomes later in life. Adverse childhood events are “potentially traumatic experiences during childhood that may disrupt the formation of brain architecture, affecting lifelong health.”<sup>266</sup> ACEs include witnessing or being the victim of violence, experiencing abuse or neglect, living in a household with people who have substance use disorders or mental health conditions, and more.<sup>266</sup> Factors that can lead to ACEs extend beyond a child’s guardian and household, stretching into the broader community and environment. ACEs can have lasting impacts and lead to chronic disease (Figure 9-2).

Figure 9-2. Early adversity and its lasting impacts. Source: CDC, 2022.<sup>267</sup>



Over 60% of Tennesseans report experiencing at least one ACE and nearly 20% report experiencing 4 or more ACEs. Tennesseans who reported a higher number of ACEs during their childhood also have a higher likelihood of having depression, being a smoker, and having a greater number of days in which they experience poor health.<sup>266</sup> A community’s income levels, crime rates, unemployment rates, substance misuse rates, and food insecurity rates can all influence ACEs, serving either as a risk factor or a protective factor.<sup>248</sup>

### Persons Who Are Homeless/Unhoused

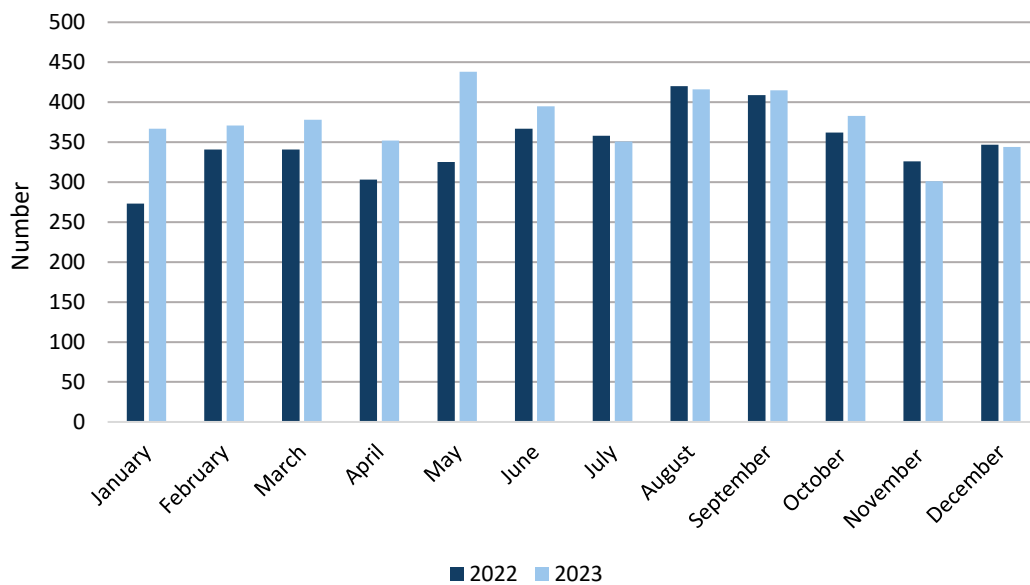
Persons who are homeless/unhoused may experience a higher disease burden than housed individuals due to their living situation and lack of access to care.<sup>269</sup> Homelessness has a significant impact on both physical and mental well-being, leading to challenges in accessing healthcare and contributing to higher rates of health issues compared to those with stable housing.<sup>269</sup> Difficulties in accessing healthcare can lead to a more individuals becoming chronically homeless and facing greater health risks. Living in an encampment or group setting may increase the risk of certain infectious diseases like Mpox, COVID-19, pneumonia, HIV, Hepatitis A, STIs, and other illnesses.<sup>270,271</sup> In addition to a higher risk of infectious and chronic diseases, homeless/unhoused individuals also have much higher rates of psychiatric conditions and substance abuse problems.<sup>271</sup>

On a single night in 2023, roughly 650,000 people in the United States were experiencing homelessness.<sup>272</sup> This 2023 Point-in-Time (PIT) count marks the highest number of individuals reporting as homeless on a

single night since data collection began in 2007.<sup>272</sup> Between 2022 and 2023, individuals experiencing homelessness increased throughout the country across all household types, a 12% increase.<sup>272</sup> In the Chattanooga/Southeast Continuum of Care, 1,735 individuals were experiencing homelessness on the night of the 2023 PIT count.<sup>272</sup>

The Hamilton County Homeless Health Care Center, located across the street from the Community Kitchen downtown, serves Hamilton County’s homeless population.<sup>273</sup> It offers diagnosis and treatment for acute and chronic illnesses, routine physical exams, medication dispensing, mental health and substance abuse referrals, assistance with entitlement programs and housing placement, and transportation to and from the clinic.<sup>273</sup> The center sees approximately 19,000 visits annually.<sup>273</sup> In 2023, the clinic saw a total of 4,192 patients. Based on monthly PIT counts of “street” patients, the clinic averaged 861 patients per month (Figure 9-3).

**Figure 9-3. Hamilton County Homeless Health Care Center Street Patients by Month, 2022 and 2023.**  
**Source: Hamilton Counted 2023 Year End Report, Hamilton County Government.**<sup>274</sup>



Note: “Street Patients” matches the U.S. Department of Housing and Urban Development’s (HUD) definition of “unsheltered.”

In 2023, the highest numbers of clinic visits amongst the homeless population were due to tobacco use disorder, smoke and tobacco use cessation, and hypertension. Table 9-8 shows the most common diagnoses and services rendered at the clinic in 2023. Chronic diseases and mental health disorders were most prevalent, keeping with national trends.



**Table 9-7. Selected diagnoses and services rendered at the Hamilton County Homeless Health Care Center by number of visits and number of patients, 2023. Source: Hamilton County Homeless Health Care Center.**

Diagnostic Category	Number of Visits	Number of Patients
<b>Chronic Disease</b>		
Asthma	466	171
Chronic bronchitis and emphysema	774	226
Diabetes mellitus	924	254
Heart disease (selected)	645	178
Hypertension	2164	662
Overweight and obesity	463	218
<b>Mental Health and Substance Abuse Disorders</b>		
Depression and other mood disorders	1459	623
Anxiety disorders including PTSD	419	212
Other mental disorders (excluding drug or alcohol dependence)	565	240
Tobacco use disorder	2787	980
Alcohol-related disorders	689	278
Other substance-related disorders (excluding tobacco use disorders)	792	363
Smoke and tobacco use cessation counseling	2518	942
<b>Infectious Disease</b>		
Hepatitis C	308	113
HIV (symptomatic and asymptomatic)	101	19
<b>Screenings and Vaccinations</b>		
HIV test	550	536
Hepatitis B test	382	380
Hepatitis C test	381	379
Mammogram	232	105
COVID-19 (SARS-CoV-2) vaccine	244	227

### Persons with Disabilities

About 27% or 61 million adults in the United States, reported having a disability. Disabilities represent a broad spectrum of conditions affecting various aspects of an individual’s life. According to the CDC, “a disability is any condition of the body or mind (impairment) that makes it more difficult for the person with the condition to do certain activities (activity limitation) and interact with the world around them (participation restrictions).”<sup>275</sup>

These conditions can be categorized into two primary dimensions: structural and functional disabilities.

Structural disabilities pertain to physical abnormalities, malformations, or damage to the body's anatomical structures, which may be present from birth or acquired. Examples include limb deformities, spinal cord injuries, and congenital disorders. On the other hand, functional disabilities focus on limitations in performing everyday activities and tasks, such as mobility, communication, self-care, and cognition. The two most common types of functional disabilities are mobility and cognitive.<sup>275</sup>

Roughly 12% and 13% of U.S. adults reported an impairment associated with mobility and cognition, respectively.<sup>276</sup> While structural disabilities provide insights into the physical characteristics of impairment, functional disabilities highlight the practical consequences, emphasizing the impact on daily life and well-being.<sup>275</sup>

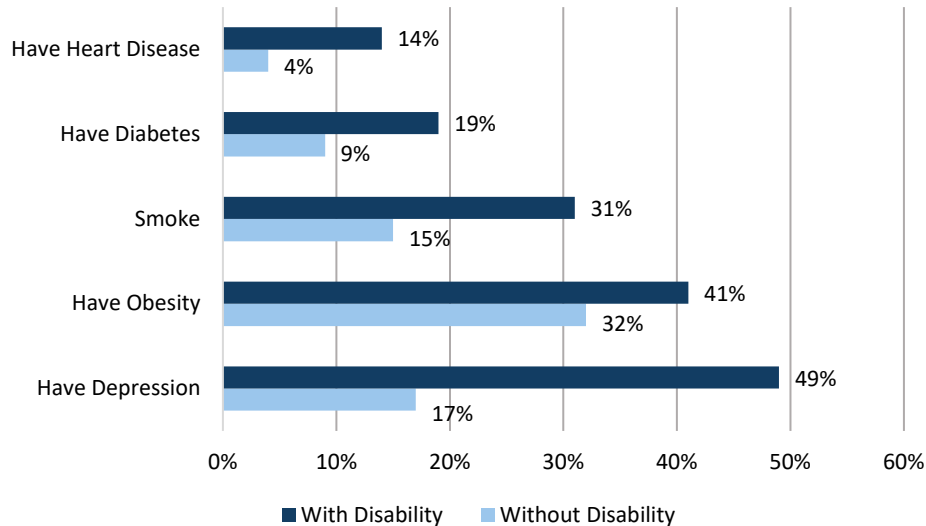
Moreover, an estimated 31.8% of Tennessee adults reported having a disability of any kind.<sup>276</sup> When adjusted for age, the percentage of Tennesseans who reported any disability increased by age group, with 50.4% of individuals 65 years and older having a disability.<sup>276</sup> Compared to national data, Hamilton County generally has slightly higher percentages of hearing, cognitive, and mobility disabilities. Self-care disability rates are similar to United States rates, while independent living disability is slightly higher in Hamilton County (Table 9-8).<sup>128</sup>

**Table 9-8. Age-adjusted prevalence of functional disability by type, adults aged 18 and over, 2021.**  
Source: CDC PLACES, 2022.<sup>128</sup>

	United States	Hamilton County
Hearing disability	6.1	6.3
Vision disability	4.7	4.5
Cognitive disability	12.6	14.7
Mobility disability	11.9	13.8
Self-care disability	3.6	3.5
Independent Living disability	7.1	7.8
Any disability	26.8	31.3

In addition to the effects of a disability on daily life, adults with disabilities are also more likely to have certain chronic diseases like heart disease and diabetes.<sup>277</sup> Adults with disabilities in Tennessee are also more likely to smoke and to have depression and obesity (Figure 9-4).<sup>276</sup>

**Figure 9-4. Tennessee adults with and without disabilities comparative likelihood of having certain health issues and behaviors. Source: CDC, Disability and Health Data System.<sup>276</sup>**



*Persons with Intellectual or Developmental Disabilities (ID/DD)*

The federal government defines a developmental disability as a “severe, chronic disability which originated at birth or during childhood, is expected to continue indefinitely, and substantially restricts the individual’s functioning in several major life activities.”<sup>278</sup> Intellectual and Developmental Disabilities (ID/DD) encompass a diverse range of conditions that affect cognitive functioning and adaptive behaviors.<sup>279</sup> These conditions, include intellectual disabilities, Down syndrome, autism spectrum disorders, and cerebral palsy, and fragile X, among others.<sup>278</sup>

Studies have shown that individuals with intellectual disabilities have some cause of death patterns different from the typical causes of death in the adults-without-disabilities population. For example, individuals with intellectual disabilities have a higher chance of dying from choking, pneumonia, and diabetes.<sup>280</sup> In Tennessee, around 2.3% of the population, or 160,000 people, have developmental disabilities.

**Older Adults**

Older adults, people age 65+, currently account for a large portion of the U.S. population – approximately 17% in 2022.<sup>281</sup> This percentage is expected to reach 25% of the U.S. population by 2060.<sup>282</sup> In Hamilton County, older adults accounted for an estimated 17.5% of the population in 2021.<sup>4</sup> Older adults can be affected by numerous health issues including dementia, injuries, and respiratory diseases.<sup>282</sup> In 2021, 27.2% of older adults in Tennessee self-reported that they consider their overall health to be “fair” or “poor.”<sup>268</sup> A large percentage of older adults in Tennessee (37.1%) also report not having any physical activity within the last month and 35.1% report being currently obese.<sup>283</sup>

## Dementia

Dementia affects cognitive abilities like thinking, reasoning, and speech, disrupting daily activities.<sup>284</sup> Alzheimer's disease is the primary cause of dementia, but other forms exist, including Lewy body dementia, frontotemporal disorders, and vascular dementia.<sup>284</sup> Alzheimer's disease is a memory loss condition that impacts older adults at a very high rate and is a leading cause of death among older adults.<sup>284</sup> Nearly 7 million older adults in the United States suffer from Alzheimer's – a number which is expected to triple by 2060.<sup>285</sup> Alzheimer's starts with mild memory problems and can progress to trouble talking and reacting to surroundings.<sup>285</sup> It usually shows up after age 60 with onset more likely as individuals get older. After age 65, the number of people with Alzheimer's doubles every five years.<sup>285</sup>

There are disparities in the prevalence of Alzheimer's and other dementias across demographic groups. In the United States, Black adults are twice as likely, and Hispanic adults are 1.5 times more likely, to have dementia compared to older White adults. Additionally, nearly two thirds of individuals diagnosed with Alzheimer's are women. There is not a single, main risk factor for Alzheimer's; instead, various factors influence each individual differently.<sup>285</sup> Aging is the most well-known risk factor.<sup>285</sup> Family history and genetics also play a role, but don't determine everything.<sup>285</sup>

**Figure 9-5. Modifiable Risk Factors and Alzheimer's Disease and Related Dementias. Source: CDC, 2022.**<sup>286</sup>



Modifiable risk factors are lifestyle choices and behaviors that can affect the likelihood of developing diseases like Alzheimer's and related dementias. These factors, including hypertension, lack of exercise, obesity, diabetes, depression, smoking, hearing loss, and binge drinking, are often linked to cardiovascular disease and other chronic conditions (Figure 9-5).<sup>286</sup> Recent research suggests that healthy habits, which

can help prevent cancer, diabetes, and heart disease, might also lower the risk of cognitive decline.<sup>285</sup>

In 2021, 17.5% of older adults, age 50 and older, in Tennessee reported subjective cognitive decline or memory loss that is happening more often or is getting worse. Additionally, 33.9% reported that they needed assistance with daily activities due to cognitive decline or memory loss, and 46% reported subjective cognitive decline or memory issues that affect their ability to participate in social activities or household tasks.<sup>284</sup> In 2017, Alzheimer’s disease had a prevalence of 13% in Hamilton County, making it the 5<sup>th</sup> leading cause of death.<sup>284</sup>

*Falls*

Falls among older adults cause numerous deaths, injuries, and emergency room visits every year.<sup>287</sup> Over 31% of Tennessee older adults, about 320,000 people, reported falling in 2020, a slight decrease from the percentage in 2016 (Table 9-9).<sup>288</sup> The Tennessee falls death rate was 76.6 per 100,000 older adults in 2020 (Table 9-9).

**Table 9-9. Percentage of older adults who reported falling and falls death rate per 100,000 in Tennessee by year. 2016-2020. Source: CDC Injury Center.<sup>288</sup>**

	2016	2018	2020
Older Adult Falls	32.0%	31.1%	31.2%
Deaths from Older Adult Falls	60.8	65.9	76.6

Preventing falls in older adults involves addressing common risk factors like muscle weakness, balance issues, and medication side effects.<sup>287</sup> Regular physical activity focusing on strength, balance, and flexibility maintains physical function and stability. Ensuring a safe home environment by removing hazards and installing grab bars and hand rails is also fundamental. Proper medication management, vision and hearing checks, nutrition and bone health, and health checkups are important to fall prevention.<sup>287</sup> Addressing these aspects of fall prevention can help to ensure safety and quality of life as older adults age.

**Chattanooga Fire Department (CFD) Connect Program**

One way the community is addressing falls by individuals in their homes is the CFD Connect program. Implemented in 2019, CFD Connect identifies frequent non-emergency 911 callers, and connects them with social services. A partnership with UTC, student interns work to address the needs of frequent callers which sometimes involves falls. Since the program started, the intervention has reduced the number of 554 (“lift assist”) calls.<sup>289</sup>

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## Appendices

### Appendix A. Leading causes of death tables.

**Leading Causes of Death with Rates per 100,000 Population in the Hamilton County Health Region by Sex (2020).** Source: Tennessee Death Statistical File, 2020, Tennessee Department of Health, Division of Vital Records and Statistics.<sup>10</sup>

Cause	Male	Female
	Age-Adjusted Rate	Age-Adjusted Rate
Diseases of Heart	241.7	141.5
Malignant Neoplasms	168.8	108.3
Chronic Lower Respiratory Diseases	69.1	43.8
Accidents and Adverse Effects	96.8	44.6
COVID-19	69	39.3
Alzheimer's Disease	35.3	45.1
Cerebrovascular Disease	37.1	41.6
Diabetes Mellitus	35.9	24.4
Chronic Liver Disease and Cirrhosis	21.3	13.7
Parkinson's Disease	*	*
Suicide	*	*

\*Note: Figure is not displayed according to the Tennessee Department of Health Guidelines for Release of Aggregate Data to the Public.

+ Rank not assigned for causes with no deaths.

Rates calculated based on total population counts from the Tennessee Population Estimates Program, 2020, Tennessee Department of Health, Division of Population Health Assessment. Totals may include events with sex "not stated" or "unknown. Age adjusted death rates facilitate the comparison of death rates in populations with difference age structures. They are calculated using the direct methods of standardization and the U.S. standard population age distribution (the projected year 2000 population of the United States).

**Leading Causes of Death with Rates per 100,000 Population in the Hamilton County Health Region by Race (2020). Source: Tennessee Death Statistical File, 2020, Tennessee Department of Health, Division of Vital Records and Statistics.<sup>10</sup>**

Cause	Total				White				Black			
	Rank	Number	Rate	Age-Adjusted Rate	Rank	Number	Rate	Age-Adjusted Rate	Rank	Number	Rate	Age-Adjusted Rate
Diseases of Heart	1	930	250.2	186.4	1	757	268.1	181.2	1	166	233.4	224.8
Malignant Neoplasms	2	668	179.7	134	2	555	196.5	135.1	2	103	144.8	137.3
Chronic Lower Respiratory Diseases	3	281	75.6	54.1	3	236	83.6	54.2	5	43	60.5	58.5
Accidents and Adverse Effects	4	277	74.5	70.3	4	211	74.7	67.2	4	58	81.5	81.9
COVID-19	5	257	69.1	52.6	7	152	53.8	36.5	3	93	130.7	128.9
Alzheimer's Disease	6	213	57.3	41.2	5	193	68.3	43.7	9	20	28.1	31.0
Cerebrovascular Disease	7	201	54.1	40.0	6	157	55.6	37.5	7	40	56.2	53.3
Diabetes Mellitus	8	147	39.6	29.4	8	105	37.2	25.3	6	42	59.0	54.8
Chronic Liver Disease and Cirrhosis	9	77	20.7	17.5	10	65	23.0	19	13	11	15.5	13.6
Parkinson's Disease	10	75	20.2	15.4	9	*	*	*	18	*	*	*
Nephritis, Nephrotic Syndrome, Nephrosis	12	55	14.8	11.2	13	35	12.4	8.3	10	17	23.9	22.9
Hypertension and Renal Disease	14	42	11.3	8.5	15	25	8.9	5.8	10	17	23.9	24.0
Assault (Homicide)	16	38	10.2	10.1	20	*	*	*	8	31	43.6	40.5

\*Note: Figure is not displayed according to the Tennessee Department of Health Guidelines for Release of Aggregate Data to the Public.

\*\*Note: Previous years' data included multiple-race responses that had been "bridged" to White or Black in the respective White or Black counts. That bridging was done according to the methods outlines in the NCHS "Procedures for Multiple-Race and Hispanic Origin Data: Collection, Coding, Editing, and Transmitting". However, the population data used to calculate rates includes only single-race responses in the White and Black populations. Therefore, we are now excluding multiple-race responses from the White and Black counts. Statewide for all causes of death, 70 "bridged" White deaths and 40 "bridged" Black deaths that would have appeared in the respective White or Black counts in previous years are now only represented in the total columns.

Totals summarize the events with race other than White or Black and include "not stated" or "unknown". Rates calculated based on total population counts form the Tennessee Population Estimates Program, 2020. Tennessee Department of Health, Division of Population Health Assessment. Age-adjusted death rates facilitate the comparison of death rates in populations with different age structures. They are calculated using the direct method of standardization and the U.S. standard population age distribution (the projected year 2000 population of the United States).

## **Appendix B. Glossary**

**Acquired Immunodeficiency Syndrome (AIDS)** – HIV infection that progresses to Stage 3, the most severe stage.

**Adverse Childhood Experiences (ACEs)** –Traumatic experiences during childhood that affect health.

**Age-Adjusted Rate** – A measure that controls for the effects of age differences.

**Air Quality Index (AQI)** –Standardized way of measuring air quality classifying concentrations on a 0-500 scale as good, moderate, unhealthy for sensitive groups, unhealthy, very unhealthy, and hazardous.

**Alpha-Gal Syndrome** – A potentially life-threatening allergic condition linked to the bite of a lone star tick.

**Alzheimer’s Disease** – The primary cause of dementia; a memory loss condition.

**American Community Survey (ACS)** – Annual survey of U.S. Census Bureau.

**Asthma** – Chronic respiratory condition that is characterized by airway inflammation and results in symptoms such as wheezing, coughing, shortness of breath, and chest tightness.

**ATSDR** – Agency for Toxic Substances and Disease Registry.

**Behavioral Health Safety Net (BHSN)** – A program that provides behavioral health services to uninsured adults who meet eligibility requirements.

**Behavioral Risk Factor Surveillance System (BRFSS)** – Health-related phone survey system gathering state-specific information on health-related risk behaviors, chronic health conditions, and utilization of preventative services among U.S. residents.

**Binge Drinking** – Defined by the CDC as “consuming four or more drinks on an occasion for a woman or five or more drinks on an occasion for a man.”

**Blood Lead Level (BLL)** – Level of blood lead in children under six years of age. The CDC uses the reference value 3.5 µg/dl of lead in blood.

**Body Mass Index (BMI)** – Measure of body fat calculated from weight and height.

**Cancer** –A disease in which some of the body’s cells grow uncontrollably.

**CDC** – Centers for Disease Control and Prevention.

**CEDEP** – Tennessee Department of Health Communicable and Environmental Diseases and Emergency Preparedness Division.

**Chattanooga/Southeast Continuum of Care (CoC)** – Regional body that is responsible for organizing

funding for housing and services aimed at supported homeless individuals and families.

**Child Opportunity Index** – Composite index of children’s neighborhood opportunity that includes data for census tracts in the United States, 2012-2021.

**Cholesterol** – A waxy, fat-like substance made by your liver.

**Chronic Disease** – Condition that lasts one year or more and requires ongoing medical attention or limits activities of daily living or both.

**Congenital Syphilis** – Sexually transmitted disease passed from a pregnant woman to their unborn baby.

**County Health Rankings & Roadmaps (CHR&R)** – Annual report that compiles health measures for every county in the United States to offer strategies for improving health outcomes.

**COVID-19** – Viral respiratory disease caused by SARS-CoV-2. The disease was first discovered in December 2019 in Wuhan, China, as an outbreak of an atypical pneumonia-like illness.

**CSTE** – Council of State and Territorial Epidemiologists

**Death Rate** – Number of deaths per 100,000 people.

**Dementia** – Conditions that affect cognitive abilities like thinking, reasoning, and speech.

**Diabetes** – A chronic disease that occurs when a person’s blood glucose (blood sugar) is too high.

**DTaP** – Vaccine for diphtheria, tetanus, and pertussis recommended for children and infants younger than 7 years old.

**E-Cigarettes** – Electronic cigarettes produce an aerosol by heating a liquid that usually contains nicotine.

**Elevated Blood Lead Level (EBLL)** – Children under six years of age who have  $\geq 3.5$   $\mu\text{g}/\text{dl}$  of lead in the blood.

**EPA** – Environmental Protection Agency

**Food Insecurity** – a household-level economic and social condition of limited or uncertain access to adequate food.

**Foodborne Diseases Active Surveillance Network (FoodNet)** – A surveillance system by the CDC that tracks various foodborne illnesses.

**Foodborne Disease** – Disease resulting from consumption food contaminated with microorganisms.

**Functional Disabilities** – limitations in performing everyday activities and tasks and includes mobility and cognitive.

**Healthy People 2030** – A set of data-driving national objectives to improve health and well-being over



the next ten years.

**Heart Disease** – Refers to many heart conditions, the most common of which is coronary artery disease.

**Heavy Drinking** – Defined as “8 or more drinks per week for a woman or 15 or more drinks per week for a man.”

**Hemorrhagic stroke** – Artery in the brain ruptures or leaks blood.

**High-intensity drinking** – Involves consuming alcohol at levels two or more times the gender-specific binge drinking thresholds.

**Hispanic** – Hispanic or Latino is defined by the U.S. Census Bureau as a “person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race.”

**Household Pulse Survey** – Survey emerged during the COVID-19 pandemic by the U.S. Census Bureau to determine the social and economic effects experienced in households by the pandemic.

**Human Immunodeficiency Virus (HIV)** – A virus that weakens a person’s immune system. Untreated, it can lead to AIDS.

**Hypertension** – Also called high blood pressure, when blood pressure is higher than normal.

**Incidence Rate** – The rate of people who develop a disease in a given time.

**Infant Mortality** – Death of an infant before their first birthday.

**Influenza-like illness (ILI)** – Indicator of the current influenza season. ILI is defined as fever (temperature of 100°F [37.8°C] or greater) and a cough and/or a sore throat.

**Intellectual and Developmental Disabilities** – a diverse range of conditions that affect cognitive functioning and adaptive behaviors.

**Ischemic stroke** – Blood clots or particles block the blood vessels to the brain.

**JYNNEOS** – Vaccine to help protect at-risk individuals from mpox infections.

**Latent Tuberculosis** – Occurs when a person is infected with *Mycobacterium tuberculosis*, but the person’s immune system is able to keep the bacteria from multiplying.

**Leading Health Indicators (LHI)** – A focused selection of high-priority *Healthy People 2030* objectives aimed at guiding efforts to improve health and well-being.

**Life Expectancy** – The average number of years of life a person can expect to live.

**Live Birth Rate** – Number of live births per 1,000 people of an area’s population.

**Low Birth Weight (LBW)** – Birth weight of less than 2500g.

**Low-Access (LA)** – Census tracts are labeled as low-access based on residents’ distance from a food store.

**Low-Income (LI)** – Census tracts are labeled as low-income based on the area’s poverty rate.

**Mammogram** – Most common form of breast cancer screening and best way to detect breast cancer early.

**Maximum Contaminant Levels (MCLs)** – Highest allowable concentrations of contaminants in drinking water.

**Maximum Residual Disinfectant Levels (MRDLs)** – Highest concentrations of disinfectants allowed in drinking water.

**Methamphetamine** -- Highly addictive central nervous stimulant.

**Minimum Mortality Temperature (MMT)** – Daily average temperature at which the risk of heat-related death is at its lowest.

**MMR** – Vaccine for measles, mumps, and rubella recommended for children age 12 to 15 months and 4 to 6 years, and adults and teens who have not received an MMR vaccine previously.

**Morbidity and Mortality Weekly Report (MMWR)** – A report series prepared by the CDC for scientific publication of timely, reliable, authoritative, accurate, objective, and useful public health information and recommendations.

**Mpox** – A viral infection formerly called monkeypox occurring mostly in central and western Africa.

**MyPlate** – USDA official symbol of the five food groups.

**Naloxone** – An opioid antagonist that reverses opioid overdoses.

**NIMH** – National Institute of Mental Health.

**NORS** – National Outbreak Reporting System

**Obese** – Adults with a BMI of 30 and above.

**Opioids** – class of drugs that includes prescription pain relievers, heroin, fentanyl, and other synthetic drugs.

**Outbreak** – More cases of a disease than expected in a specific location over a specific time period.

**Overweight** – Adults with a BMI of 25 to <30.

**Ozone** – ground-level pollution that is the result of a photochemical reaction.

**Pap Test** – Common type of cervical cancer screening which detects precancerous or abnormal cells on

the cervix.

**Particulate Matter** – Mixture of solid particles and liquid droplets, such as dust and smoke. Particles can be measured as PM10 (particles less than 10 micrometers in diameter) or PM2.5 (particles less than 2.5 micrometers in diameter).

**Point-in-Time (PIT) count** – A count of sheltered and unsheltered individuals and families experiencing homelessness on a single night. This count is conducted yearly and takes place in January. Required by HUD, each count is planned, coordinated, and carried out locally.

**Polychlorinated Biphenyls (PCBs)** – Toxic chemicals used to prevent certain manufactured items from catching on fire.

**Polycyclic Aromatic Hydrocarbons (PAHs)** – Cancer-causing chemicals that are a result of burning coal, oil, gas, wood, garbage, and tobacco.

**Population Level Analysis and Community Estimates (PLACES)** – Collaboration between the CDC, the Robert Wood Johnson Foundation, and the CDC Foundation using small area estimation methods to determine the measure of chronic disease from the county to zip code level.

**Postpartum depression** – Extreme feelings of sadness and hopelessness that do not go away within two weeks after having a baby.

**Pregnancy Risk Assessment Monitoring System (PRAMS)** – An ongoing CDC survey of mothers who have recently given birth.

**Preterm Birth** – Any baby born prior to 37 weeks of gestation.

**Prevalence Rate** – The rate of people who currently have a disease.

**PSA Test** – Primary screening tool for prostate cancer for early detection.

**Reportable Diseases** – Any disease which is communicable, contagious, subject to isolation or quarantine, or epidemic, and required by the Commissioner of Health to be reported in the List.

**SAMHSA** – Substance Abuse and Mental Health Services Administration.

**Serious Mental Illness (SMI)** – Used by SAMHSA and is defined as “someone over 18 having (within the past year) a diagnosable mental, behavior, or emotional disorder that causes serious functional impairment that substantially interferes with or limits one or more major life activities.”

**Sexually Transmitted Infections (STI)** – Diseases that are spread through vaginal, oral, and anal sex, such as chlamydia, gonorrhea, and syphilis.

**SNAP** – Supplemental Nutrition Assistance Program.

**Social Determinants of Health (SDOH)** – The conditions in which individuals are born, grow, live, work, play, worship, and age. SDOH influence individuals’ health, well-being and overall quality of life,

contributing to health disparities.

**Southside Chattanooga Lead Site (SSCL)** – Located in south Chattanooga, EPA Superfund Site encompassing eight neighborhoods: Alton Park, Cowart Place, East Lake, Highland Park, Jefferson Heights, Oak Grove, Richmond, and Southside Gardens.

**Stroke** – A health event that occurs when the blood supply to the brain is blocked or when a blood vessel in the brain bursts.

**Structural Disabilities** – physical abnormalities, malformations, or damage to the body’s anatomical structures.

**Suicide Rate** – Number of suicides per 100,000 people.

**TAWC** – Tennessee American Water Company.

**Tdap** – Vaccine for tetanus, diphtheria, and pertussis recommended for adults (particularly pregnant women in their third trimester), preteens, and children older than 7 years old.

**TDH** – Tennessee Department of Health.

**TDMHSAS** – Tennessee Department of Mental Health and Substance Abuse Services.

**Tecovirimat (TPOXX)** – Treatment for moderate or severe mpox.

**Teen Pregnancy Rate** – Number of teen pregnancies in an area per 1,000 people.

**Tuberculosis (TB)** – Infection with *Mycobacterium tuberculosis* when the bacteria is inhaled into the body and can result in either latent TB infection or TB disease.

**USDA** – United States Department of Agriculture.

**USPSTF** – United States Preventative Services Task Force

**Vector-Borne Diseases** – Diseases transmitted to people by animal vectors through the bite of a tick or mosquito.

**Viral Hepatitis** – Liver infections caused by viruses.

**Vulnerable Populations** – groups of people who experience a higher-than-average risk for certain health issues.

**Waterborne Disease** – Infections that occur when persons breathe in small droplets of contaminated water or swallow contaminated water.

**Xylazine** – A veterinary tranquilizer being used as an illicit drug.

**Youth Risk Behavioral Survey (YRBS)** – Surveys conducted every other year to gather information on a

range of health-related behaviors in students, grades 9 through 12.

**Zoonotic Disease** – Diseases spread between people and animals; the infections themselves are caused by viruses, bacteria, parasites, and fungi.

Hamilton County Health Department  
Chattanooga, TN

# 2023 Public Health Survey Summary

This research has been approved by the IRB at UTC, IRB #23-043. Report written by Epidemiology Department at HCHD. Published January 2024.



**Hamilton County  
Health Department**

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# Introduction

The Hamilton County Health Department administered its first county-wide public health survey to adult residents of Hamilton County ( $\geq 18$  years old), in partnership with the Regional Health Council and the University of Tennessee at Chattanooga. The objective of the survey was to better understand the health issues and concerns of Hamilton County residents.

The survey was administered both online and on paper, in English and in Spanish, from April 3rd to July 24th, 2023. The survey was distributed to residents through various methods, including electronic distribution, in-person events, and mailers to homes in Hamilton County. The survey was estimated to take 10-15 minutes and consisted of 35 questions. There were 3,383 valid survey responses, which represents nearly 1% of the Hamilton County population.



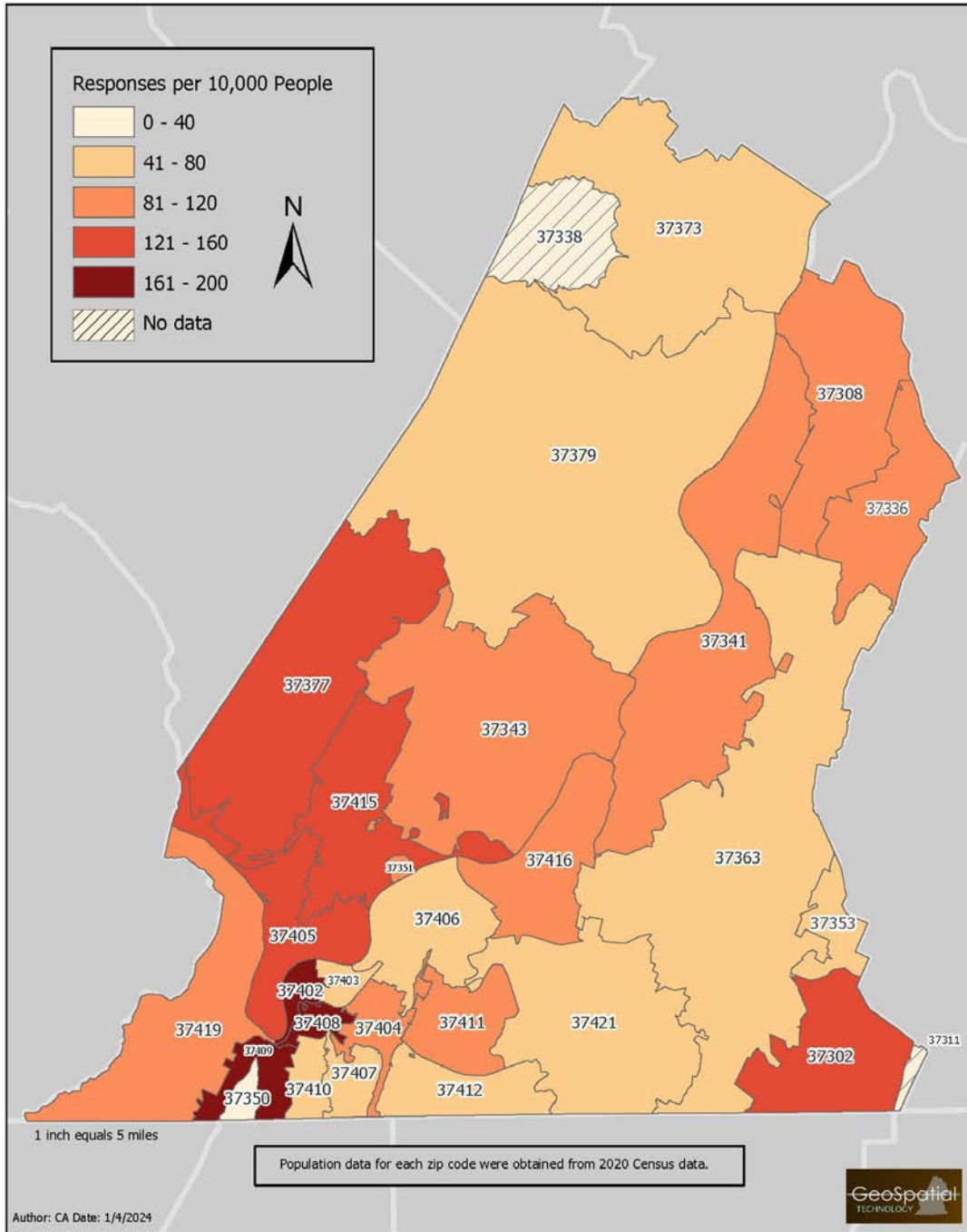
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# Where Respondents Live

All zip codes primarily in Hamilton County were represented in survey responses. The highest response rates (surveys per 10,000 people) were from zip codes 37402, 37408, and 37409. The highest number of survey responses by zip code were from 37343 and 37421.

### Responses per 10,000 by Zip Code



# Demographics of Respondents

## Why do demographics matter?

Looking at different details about people, like age, gender, race, and where they live, is important in understanding the health status of diverse populations. Understanding these demographics can be helpful in identifying groups that may experience different health outcomes.

All survey responses combined were mostly from women (64%), married persons (56%), those 65 years old and over (33%), those with a household income > \$50,000 (60.2%), those with a bachelor’s degree or higher (63%), and white persons (75%). In addition, for all survey responses combined, most respondents reported living in Hamilton County 26 years or more (46%) and having no children under the age of 18 (74%). Survey results are also presented by demographic groups to ensure underrepresented group concerns are described.

**Top 3 responses for select demographic questions for all surveys combined.**

Age	Race	Household Income	Highest Level of Education	Marital Status	How long living in Hamilton County
65 and over (33%)	White (75%)	\$100,000-\$149,000 (18%)	Bachelor’s degree (32%)	Married (56%)	26 years or more (46%)
55-64 (17%)	Black (13%)	\$50,000-\$74,999 (16%)	Graduate degree (31%)	Never married (20%)	1-5 years (15%)
45-54 (16%) /35-44 (16%)	Two or more races (3%)	\$75,000-\$99,999 (13%)	High school diploma or GED (16%)	Divorced (14%)	6-10 years (12%)

# Demographics by Race and Ethnicity

Because the majority of responses were from white residents, it is important to also look at the data by race and ethnicity. Black respondents were about the same age as white respondents but had lived in Hamilton County longer. Those respondents identifying as two or more races were younger and had lived in Hamilton County less time than white and black respondents. Black respondents had a lower education level and lower income level compared to white respondents and those identifying as two or more races.

Those respondents indicating Hispanic ethnicity were young (31.7% aged 25-34), had an education level of 28% less than high school, and have lived in Hamilton County a short time (30.1% lived in Hamilton County 1-5 years).

**Top demographic responses by race and ethnicity. \***

<b>Race/ Ethnicity*</b>	<b>Education level (less than High School)</b>	<b>Age (65+)</b>	<b>Gender (Female)</b>	<b>Income &lt;\$50,000</b>	<b>Lived in Hamilton Co. (&gt;26 years)</b>
White (2,551)	1.1%	35.1%	63.4%	22%	44.5%
Black (454)	6.6%	32.6%	74.7%	50.7%	71.1%
Two or more races (90)	1.1%	23.3%	62.2%	38.9%	36.7%
Hispanic ethnicity (123)	28.4%	6.5%	55.3%	51.2%	6.5%

\*Results are not presented for American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islanders, some other race or ethnicity because of the low numbers of responses for these groups. For 210 surveys, the question was left blank or they chose “prefer not to answer.”

# Health Insurance & Access to Care

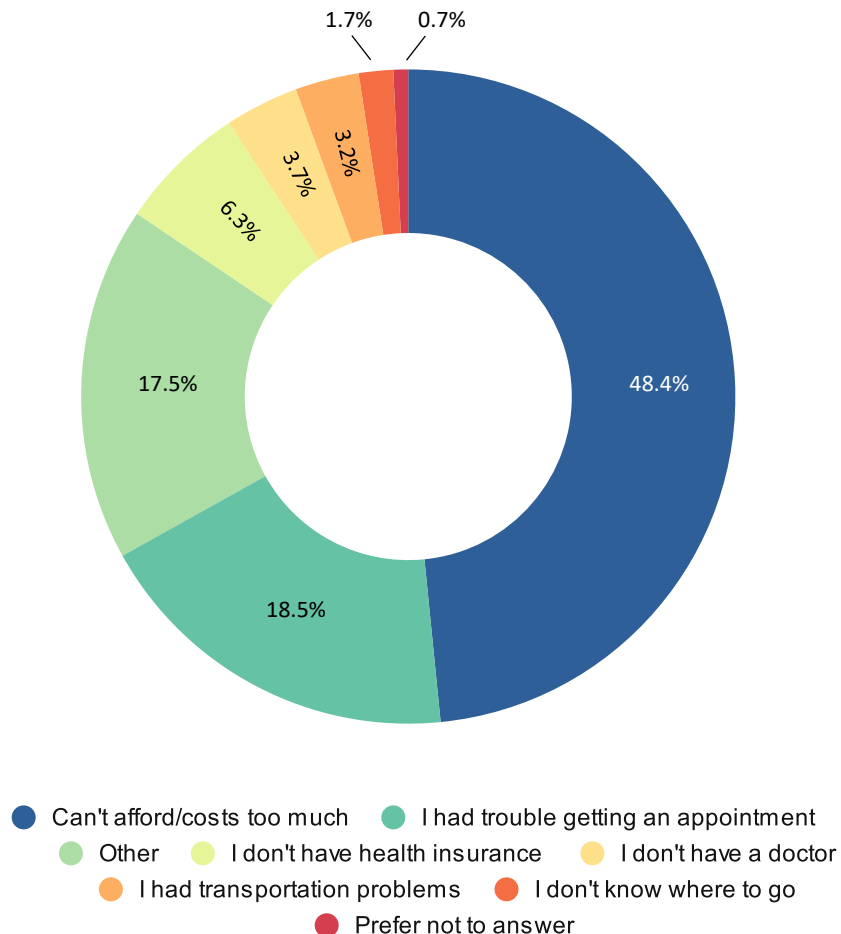
Overall, **95.4%** of respondents *reported having health insurance*.

- Only 63.4% of those identifying as Hispanic have health insurance.

While most people have health insurance, **13.5%** reported *not getting needed medical care in the past 12 months*.

- The age group with the highest proportion of not getting needed medical care was 25-34 years old (22.2%).
- For race/ethnicity, those identifying as two or more races reported the highest proportion of not getting needed medical care (26.7%).
- For all survey responses combined, the primary reason for not getting needed medical care was cost (48.4%), followed by trouble getting an appointment (18.5%).

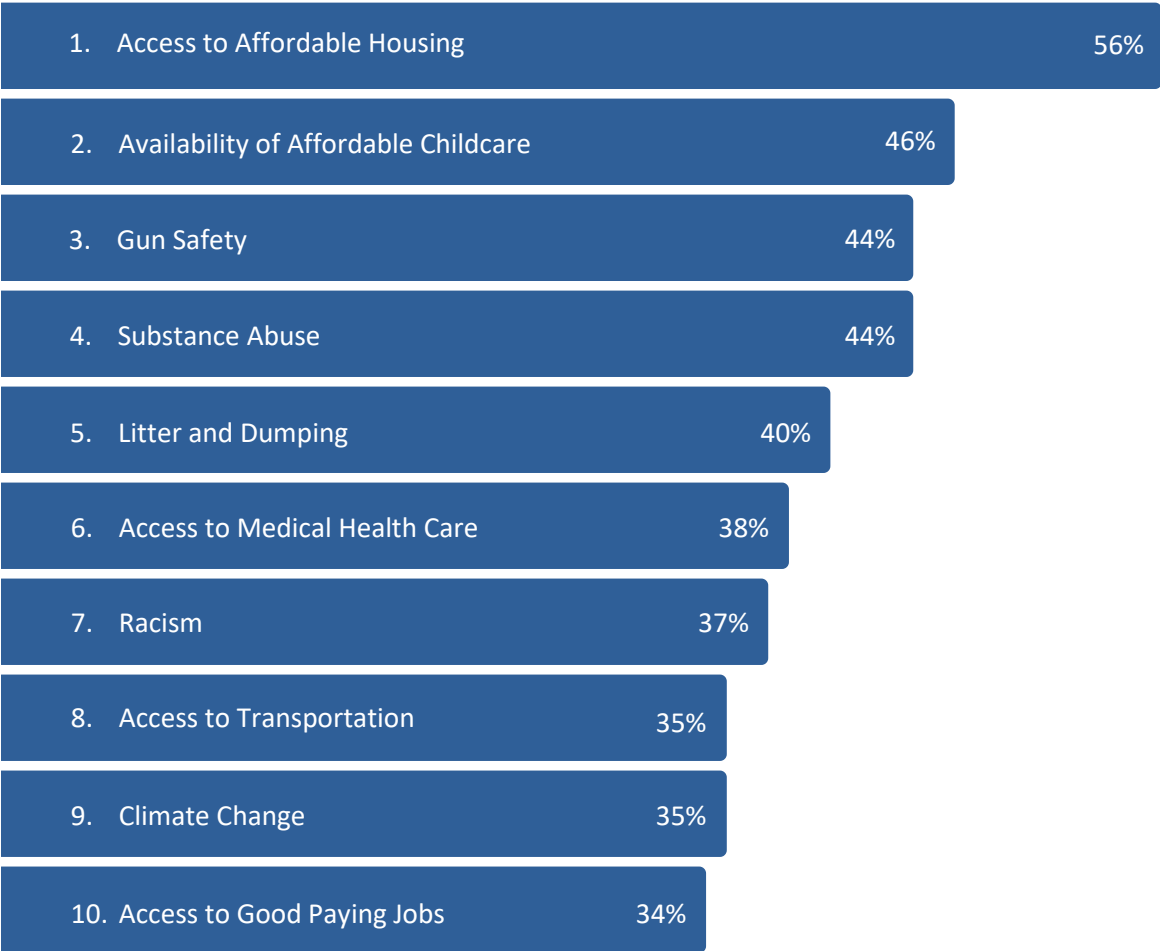
**Primary reasons reported for not getting needed medical care.**



# Major Problems in the Community

In the survey, a *list of 27 issues/concerns* was provided and respondents were asked to indicate if it was “not a problem in my community,” “minor problem in my community,” “major problem in the community,” or “not sure/don’t know.” The top 10 major problems overall are shown below, and the top 10 major problems by income, Black persons, and Hispanic persons are shown on the next page.

### Top 10 “Major Problems” Overall.



# Major Problems in the Community

**Top 10 “Major Problems” by Income, Black Persons, and Hispanic Persons, Ranked.**

	<b>Income (&lt;50,000)</b>	<b>Black Persons</b>	<b>Hispanic Persons</b>
<b>1</b>	Access to affordable housing	Access to affordable housing	Gun safety
<b>2</b>	Substance abuse	Gun safety	Substance abuse
<b>3</b>	Availability of affordable childcare	Availability of affordable childcare	Access to affordable housing
<b>4</b>	Litter and dumping	Substance abuse	Bullying in schools
<b>5</b>	Gun safety	Access to good paying jobs	Racism
<b>6</b>	Access to good paying jobs	Violent Crime	Access to mental health care
<b>7</b>	Racism	Racism	Access to good paying jobs
<b>8</b>	Bullying in schools	Litter and dumping	Litter and dumping
<b>9</b>	Access to mental health care	Bullying in schools	Motor vehicle accidents
<b>10</b>	Access to transportation	Access to mental health care	Violent crime

# Chronic Diseases

When asked about **chronic diseases and conditions**, high blood pressure (40.4%), high cholesterol (36.2%), and asthma (17%) were the top three diseases reported.

- Black persons had the highest proportion reporting high blood pressure (58.7%).
- Those identifying as two or more races had the highest proportion reporting asthma (32.1%).

**Proportion of respondents who answered “yes” to having the following chronic diseases or conditions. Respondents could select more than one.**

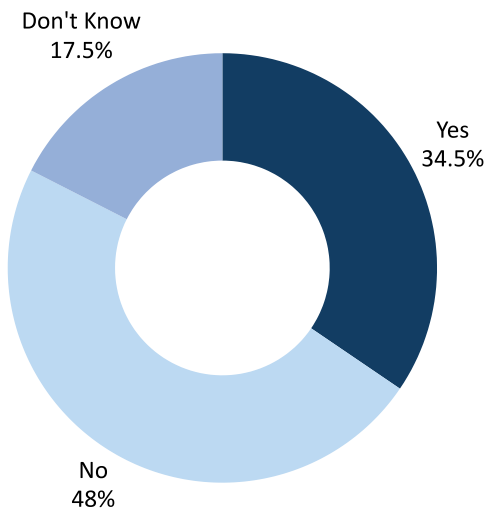
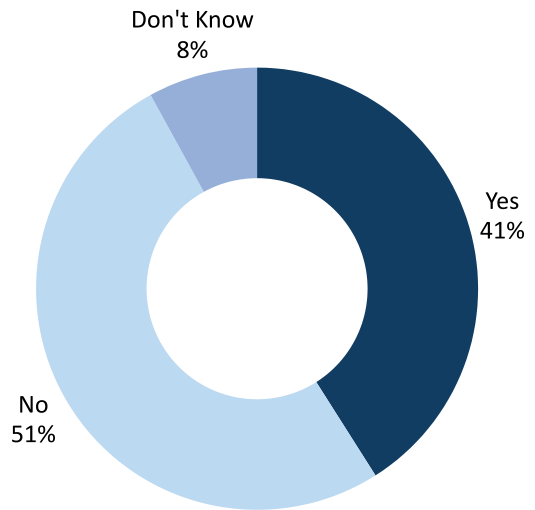
Race/ Ethnicity	High Blood Pressure	High Cholesterol	Asthma	Diabetes type 2	Cancer	Heart disease/heart attack	Stroke	Diabetes type 1
<b>White</b>	38.7%	37%	16.1%	10.7%	13.7%	9.1%	1.8%	1.2%
<b>Black</b>	58.7%	38.4%	19.8%	22.1%	7.7%	6.2%	4.2%	4.8%
<b>Two or more races</b>	29.8%	29.4%	32.1%	17.1%	11.1%	13.4%	2.2%	0.0%
<b>Hispanic ethnicity</b>	20.7%	25%	14.9%	9%	2.5%	5.8%	0.0%	3.4%

Of those with a chronic disease, **92.6% reported having access to medication to keep chronic disease under control.**

- However, those identifying as two or more races had the lowest proportion reporting they have access to medications (86%).
- Only 78.8% of those with a household income less than \$10,000 reported having access to medications to keep chronic disease under control.

# Communicable Diseases

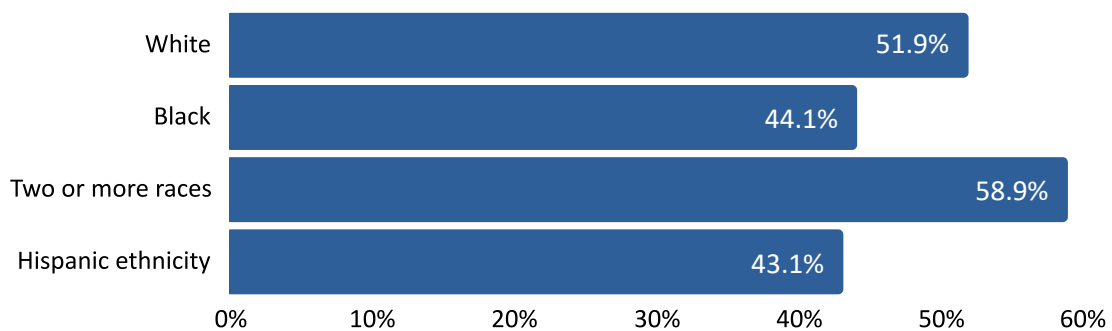
41% of respondents **reported being tested for HIV at some point in their lives.** (right)



34.5% of respondents **reported being tested for Hepatitis C at some point in their lives.** (left)

**When asked questions about issues and health concerns that many communities are facing,** 51% of respondents answered that COVID-19 was a major or minor problem within the community. Individuals identifying as two or more races reported the highest rate of COVID-19 as a problem (58.9%), compared to other races.

**Respondents identifying COVID-19 as a major or minor problem in the community by race and ethnicity.**



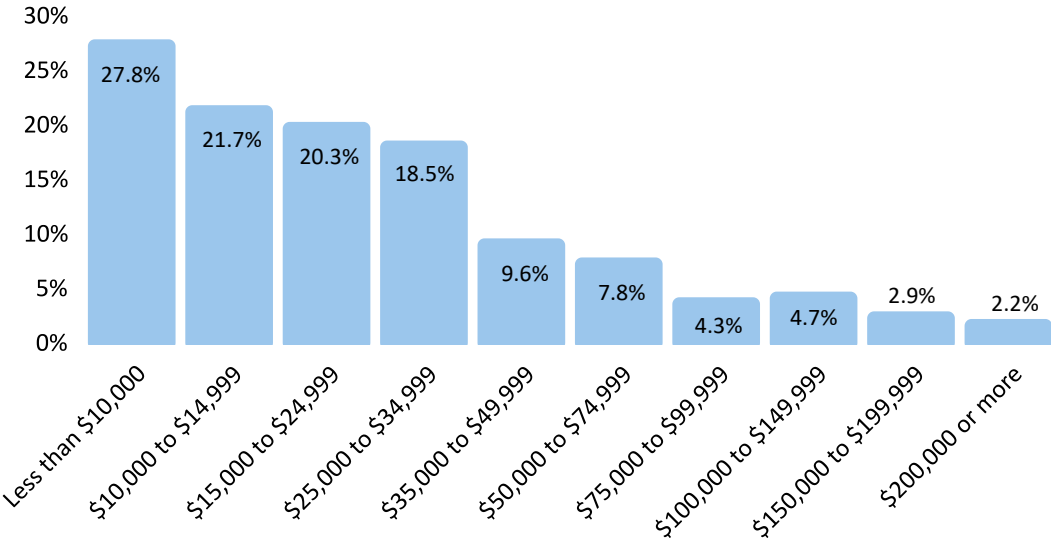


# Mental Health

When asked *if they have access to mental health treatment, either online or in person*, 9% of respondents reported they do NOT and 16% responded that they don't know.

- 15.7% of 18-24 year-olds reported not having access, the highest by age group.
- 31.6% of Hispanic persons reported not having access.
- The lower the income, the higher proportion of not having access, with 27.8% of those earning less than \$10,000 not having access.

**Proportion of respondents by household income who reported they do NOT have access to mental health treatment, either online or in-person.**



When asked *over the last 7 days (1 day or more), how often have you been bothered by feeling down, depressed, or hopeless*, 42.7% reported at least 1-2 days in the last 7 days.

- 15.6% of those identifying as two or more races reported being bothered 5-7 days, which is more than two times that of white and black respondents at 7.3% and 6.2% respectively.

When asked *over the last 7 days (1 day or more), how often have you been bothered by not being able to stop or control worrying*, 42.6% reported at least 1-2 days in the last 7 days.

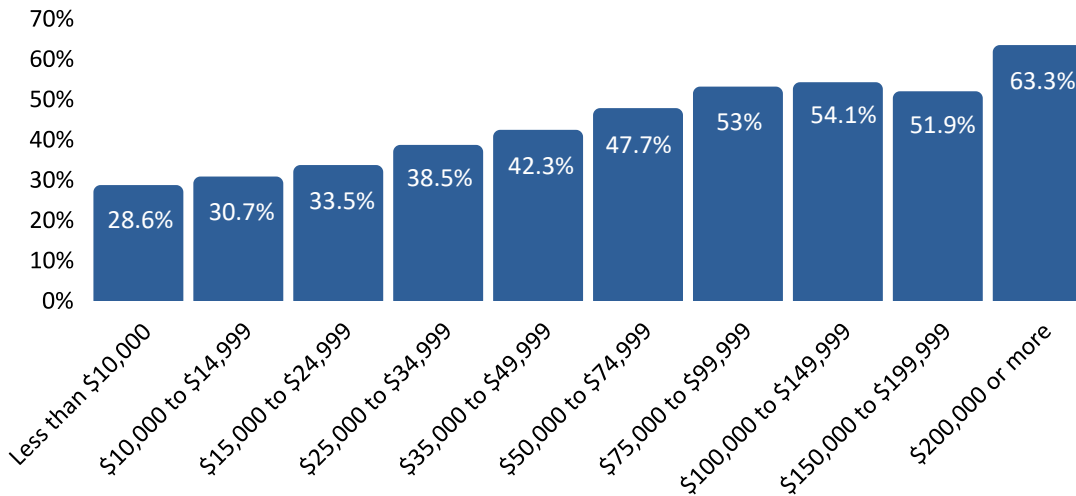
- 14.4% of those identifying as two or more races reported being bothered 5-7 days, which is about two times that of white respondents at 7.3%.

# Substance and Tobacco Use

54.6% of respondents **reported drinking alcohol**.

- Of those reporting drinking, the majority drink some days of the week (46.7%) rather than daily (7.9%).
- Of those reporting drinking every day, the highest proportion is in white persons (9.25%).
- In general, the higher the income, the higher proportion of individuals who drink some days.

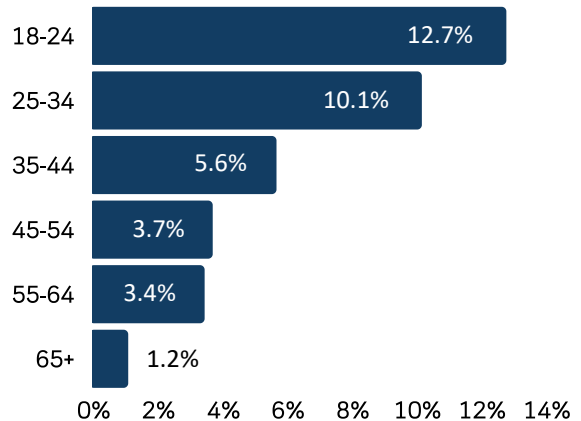
**Proportion of respondents reported drinking alcohol some days by income level.**



**Proportion of respondents by age group reporting vaping/using e-cigarettes.**

Overall, 4.3% of respondents **reported vaping or using e-cigarettes**.

- Among age groups, the highest proportion of e-cigarette users is 18-24 years old (12.7%), followed by 25-34 years old (10.1%).

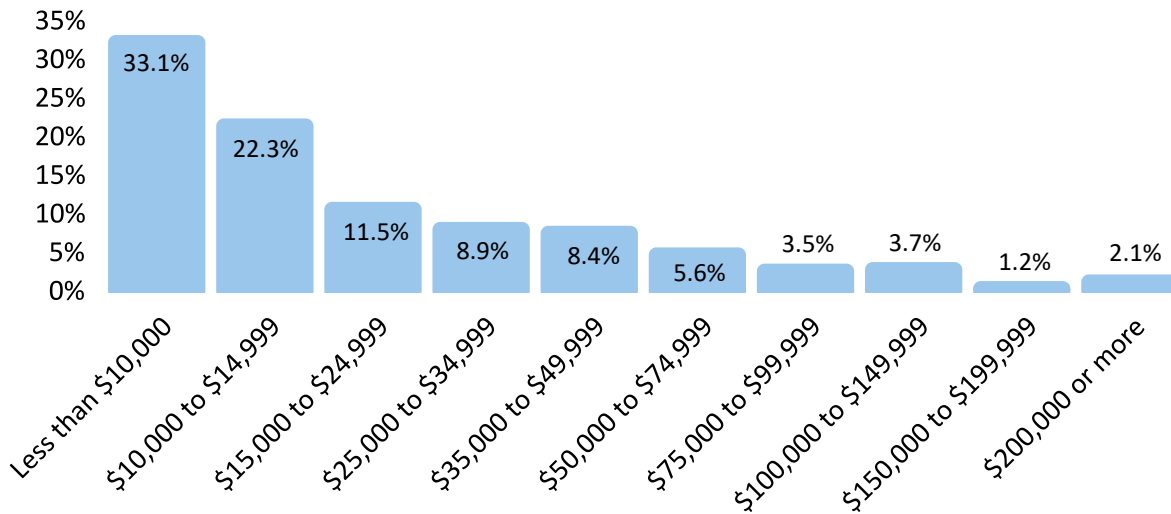


# Substance and Tobacco Use

6.8% of respondents *reported smoking cigarettes*.

- Black persons reported the highest smoking rate overall at 13.4%, compared to white persons (5.7%) and those identifying as two or more races (8.9%). The smoking rate among Hispanic persons was 6.6%.
- In contrast to drinking, the higher the income, the lower the smoking rate. The income group with the highest smoking proportion is among those making less than \$10,000 (33.1%).

**Proportion of respondents by income level smoking cigarettes every day.**



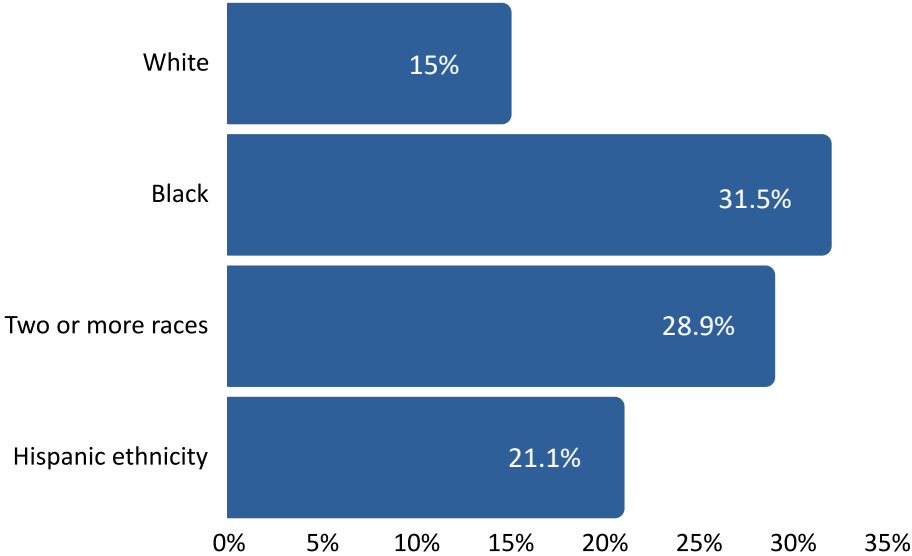
# Nutrition

Questions in the survey asked about options for healthy eating and access to fresh fruits and vegetables.

When asked if their **community has sufficient options for healthy eating**, while the majority agreed or strongly agreed, 30% of all respondents disagreed or strongly disagreed.

By race, only 15% of white respondents disagreed or strongly disagreed with this statement, but 31.5% of black persons and 28.9% of those identifying as two or more races disagreed or strongly disagreed.

**Those disagreeing and strongly disagreeing that their community has sufficient options for healthy eating.**



# Nutrition

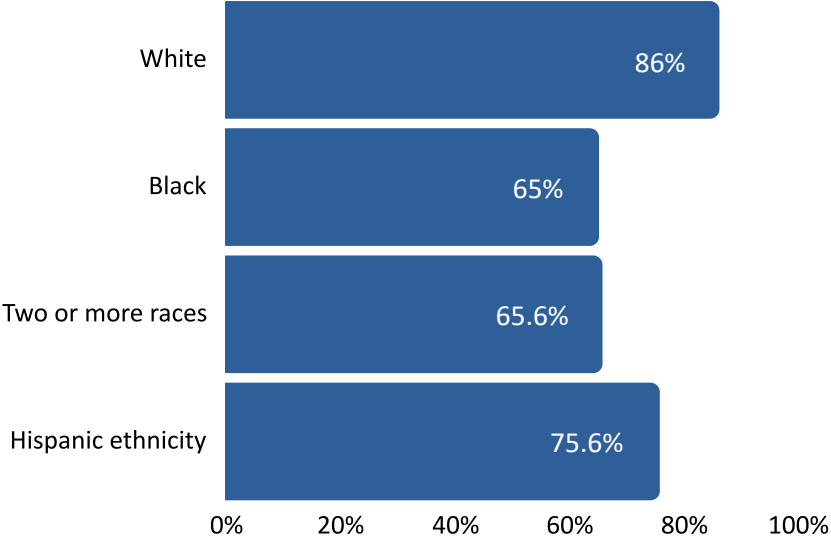
When asked *if they have a grocery store with access to fresh fruits and vegetables within 1/2-mile walking distance or a 10-mile driving distance from home*, 93% of all respondents indicated “yes.”

- However, respondents in two zip codes had more than 30% respond “no”: 37373 and 37406
- The annual household income group with the highest proportion of “no” answers was less than \$10,000 (16.5%).

80% of respondents agreed or strongly agreed that *it is easy to find fresh produce in their community*.

- While 86% of white persons agreed or strongly agreed with this statement, only 64% of black persons and 65.6% of those identifying as two or more races agreed or strongly agreed.

**Proportion of respondents by race/ethnicity agreeing or strongly agreeing that it is easy to find fresh produce in their community.**

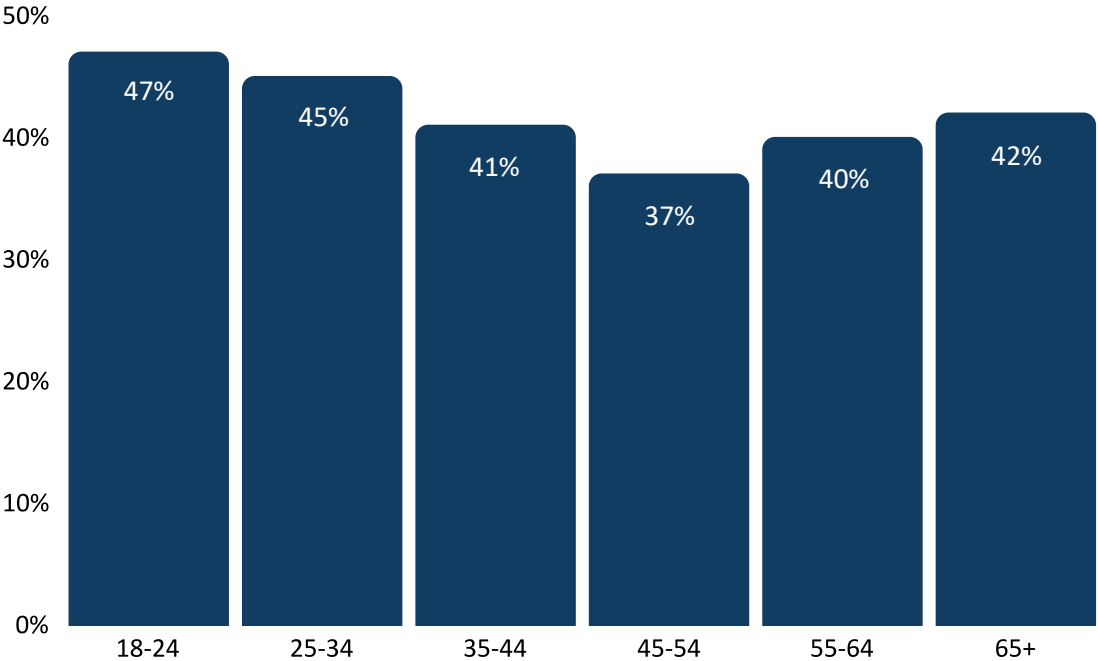


# Physical Activity

When asked, *how many minutes per week do you engage in moderate physical activity*, 42% of all respondents reported at least 150 minutes of physical activity per week.

- 50% of men reported at least 150 minutes compared to 37% of women.
- 47% of 18-24 year-olds reported at least 150 minutes of physical activity per week, while 45-54 year-olds had the lowest proportion at 37%.

**Proportion of respondents by age group who engage in moderate physical activity. \***

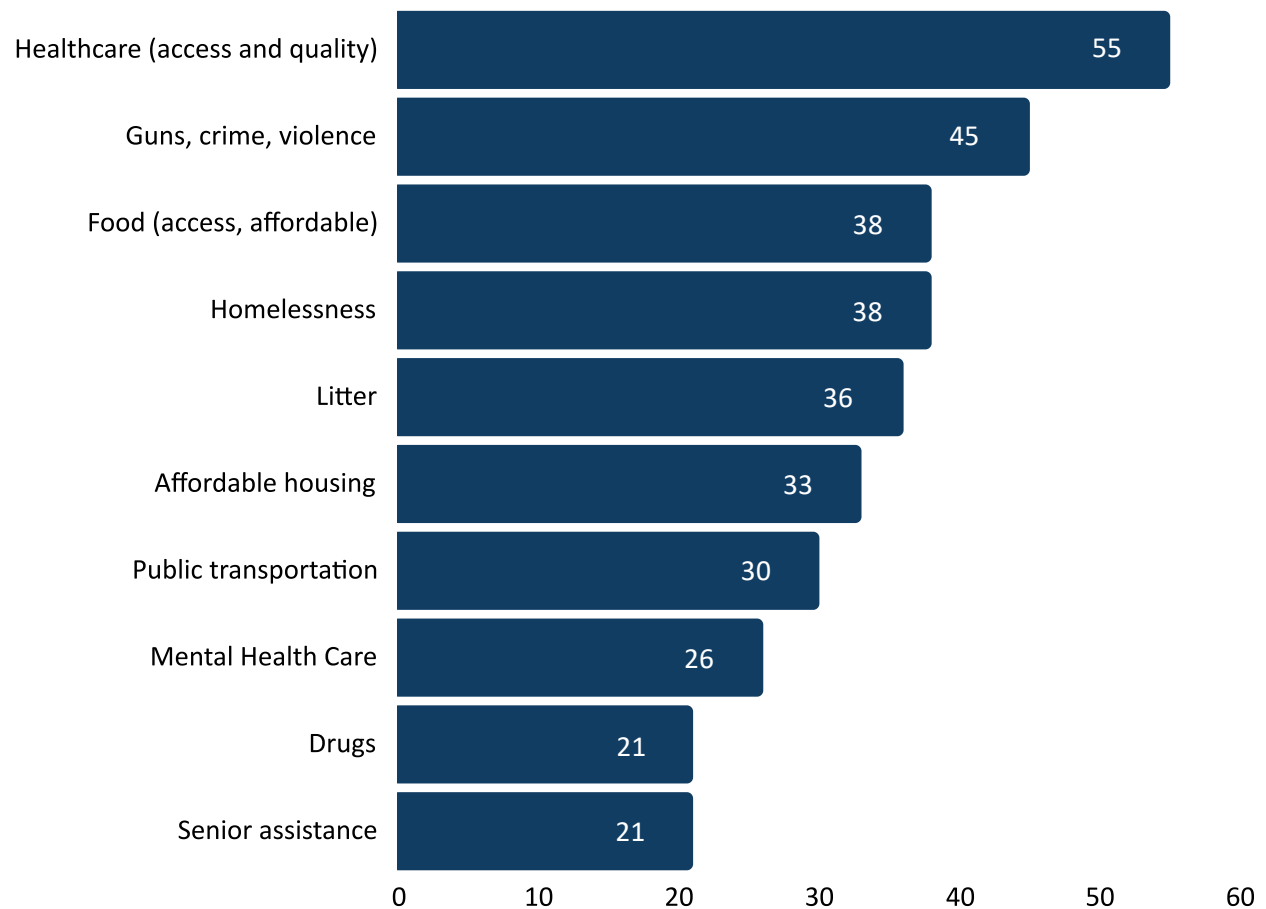


\*Note: The Physical Activity Guidelines for Americans recommends at least 150 minutes of moderate physical activity each week. Moderate-intensity exercise means you are working hard enough to raise your heart rate and break a sweat. For example: walking fast, pushing a lawn mower, riding a bicycle, or dancing.

# Survey Comments

At the end of the survey, respondents were given the opportunity to add comments, concerns, or questions that were not addressed by previous questions in the survey. There were 537 comments that were analyzed for themes. The top 10 themes were concerns about:

**Top 10 Themes from the Comment Section.**



\*Note: above data is by number of comments.

**Homelessness** was not addressed in other parts of the survey, so its appearance in the comments section underscores the importance of this topic in our community and the need to recognize and incorporate the issues into future surveys.

# How Will Results be Used?

Results of the 2023 Hamilton County Public Health Survey provide important insights into the health status and concerns of our residents. While we believe the survey was a success, we plan to improve the survey process to best capture the health concerns of our diverse community. In addition, we plan to expand the community health assessment process to include other types of feedback opportunities, ensuring citizen voices are heard across income levels and minority and rural communities.

The key health concerns faced by our community are similar to those prevalent across Tennessee and the country, as we experience an increase in chronic diseases, substance abuse, and mental health issues. These diseases and conditions such as high blood pressure, high cholesterol, asthma, and depression affect people of color and low-income individuals more, and therefore, should be a focus of intervention efforts. Health data revealed in the survey will help inform the health department's programs and those of our partners in the community. For example, education and outreach can influence changes in physical activity, eating habits, and smoking, to improve health.

It is clear that residents are very concerned about the lack of affordable housing, the lack of affordable child care, gun safety, and substance abuse. Affordable housing and affordable child care help create healthy environments for families, and should be a priority of local agencies and organizations. Gun safety and substance abuse directly impact lives, especially of young persons, and creating safer places to live is a priority in Hamilton County.

Written comments by respondents point to their concern about the homeless. While the Homeless Health Center and other organizations help support the homeless, creation of affordable housing and mental health support can help address this growing issue.

The Health Department would like to recognize the numerous organizations and agencies diligently working together to improve health outcomes for Hamilton County. Distribution of this report to the community at large and our partners is a next step to address the health status and concerns of Hamilton County residents. This report highlights areas that should be future priority areas, and the Hamilton County Health Department will continue to work with partners to move forward on these public health issues.



*Protecting, Connecting and Thriving*  
**We Are All Public Health**



“Attain healthy, thriving lives and well-being free of preventable disease, disability, injury, and premature death.”

– Healthy People 2030