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# The State of Health in Tennessee

2023 Annual Report to the 113<sup>th</sup> Tennessee General Assembly

Tennessee Department of Health | DIVISION OF HEALTH PLANNING | January 2023



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# Executive Summary

## Introduction

The Division of Health Planning (the Division) was created by the General Assembly and is tasked with multiple responsibilities that assist the Tennessee Department of Health (TDH or the Department) in its vision “To protect, promote and improve the health and prosperity of people in Tennessee.” These responsibilities include drafting the State Health Plan, reviewing Certificate of Need, creating the State Oral Health Plan, receiving and evaluating Joint Annual Reports, and assisting in monitoring Certificates of Public Advantage. The Division is tasked with providing an annual report to the General Assembly and annually reviewing the health status of Tennesseans. This State of Health Report serves to provide the General Assembly with a comprehensive overview of health in the state including health outcomes of individuals and information on the health of the state’s healthcare system. This report provides a data-based roadmap to guide recommendations to be included in future State Health Plans.

## State Health Plan Framework

The framework of the State Health Plan focuses on the social determinants of health and integrating the cross-cutting themes of health equity and economic efficiency. This State Health Plan will seek to address four key areas:

1. A Healthy Start: What is the state of health among Tennessee’s children and youth? How can we ensure Tennesseans are able to have “A Healthy Start” in life?
2. A Healthy Life: What is the state of health among Tennessee’s adults and older adults? How can we promote Tennesseans’ health across the lifespan?
3. A Healthy Environment: What is the state of health in Tennessee’s communities? How can we ensure Tennesseans are able to thrive where they live, work, and play?
4. A Healthy System of Care: What is the state of Tennessee’s healthcare system? How can we ensure Tennesseans have access to quality and affordable healthcare when they need it?

## The Current State of Health in Tennessee

After meeting with over 50 staff members across multiple internal Department divisions and offices, sister state agencies, and organizations outside of state government, a list of 103 metrics was compiled to answer the question “How Healthy is Tennessee?” This report details the 33 metrics used to assess A Healthy Start, 35 metrics used to assess A Healthy Life, 19 metrics used to assess A Healthy Environment, and 16 metrics used to assess A Healthy System of Care. By creating a data-based understanding of the state of health in Tennessee, this report will provide the General Assembly with the annual review on the health status of Tennesseans and support the work of the State Health Plan to create informed and actionable recommendations on how to improve health.

| State of Health Metric Overview                 |   |   |                               |   |
|---|---|---|-------------------------------|---|
| A Healthy Start                                 |   |   |                               |   |
| Children in Poverty                             | Child Food Insecurity                     | WIC Coverage                              | SNAP Participation            | Foster Care Instability                               |
| Child Care                                      | School Nurses                             | School Counselors                         | Third Grade Reading Level     | ACEs  |
| Physical Dating Violence                        | Carried a Gun                             | Childhood Vaccinations                    | HPV Vaccinations              | Congenital Syphilis                                   |
| Youth Obesity                                   | Asthma                                    | Electronic Vapor Usage                    | Drugs on School Property      | Hopelessness  |
| Suicide Attempt                                 | Suicide Mortality                         | Prenatal Care                             | Smoking During Pregnancy      | Preterm Births  |
| Low Birthweight                                 | Breastfeeding                             | Postpartum Depression                     | Infant Mortality              | Pregnancy-Related Mortality                           |
| Pregnancy-Associated, but not related, deaths   | Teen Births                               |   |                               |   |
| A Healthy Life                                  |   |   |                               |   |
| Per Capita Personal Income                      | Adult Poverty                             | Food Insecurity                           | Poverty and the Labor Force   | Unemployment  |
| Workplace Benefits                              | Fatal Occupational Injuries               | Adult Numeracy                            | Adult Literacy                | Violent Crime   |
| Domestic Violence                               | Chlamydia                                 | HIV                                       | Hepatitis C                   | COVID-19 Vaccinations                                 |
| Influenza Vaccinations                          | Chronic Conditions                        | Adult Smoking                             | Physical Activity             | Diabetes  |
| Binge Drinking                                  | Nonfatal Drug Overdose                    | Fatal Drug Overdose*                      | Frequent Mental Distress      | Suicidal Ideation                                     |
| Suicide Attempt                                 | Suicide Mortality                         | Premature Death                           | 65+ Poverty                   | Grandparents Living With Grandchildren                |
| Elder Abuse                                     | Social Isolation                          | Falls 65+                                 | Caregiving                    | Dementia  |
| A Healthy Environment                           |   |   |                               |   |
| Severe Housing Problems                         | Severe Housing Cost Burden                | Homelessness                              | Broadband Access              | Access to Parks and Greenways                         |
| Transportation Disadvantaged Communities        | Access to Vehicle                         | Driving Alone to Work                     | Long Commute-Driving Alone    | Roadway Safety  |
| Voter Participation                             | Civic Organizations                       | Social Advocacy Organizations             | Volunteering                  | Water Quality   |
| Community Water Fluoridation                    | Air Pollution-Particulate Matter          | Heat Related ED Visits                    | Heat Related Hospitalizations |   |
| A Healthy System of Care                        |   |   |                               |   |
| Uninsured Adults                                | Uninsured Children                        | Underinsured Children                     | Avoided Care Due to Cost      | Adults with Disabilities who Avoided Care Due to Cost |
| Hospital Closures                               | Hospital Quality                          | Preventable Hospitalizations              | Breast Cancer Screenings      | Colorectal Cancer Screenings                          |
| Primary Care Health Professional Shortage Areas | Mental Health Professional Shortage Areas | Dental Health Professional Shortage Areas | Nurses                        | Palliative Care                                       |
| Home Health Care                                |   |   |                               |   |

## Division of Health Planning, Introduction, and 2022 Year in Review

The Division of Health Planning (the Division) was created by the General Assembly and is tasked with multiple responsibilities that assist the Tennessee Department of Health (TDH or the Department) in its vision “To protect, promote and improve the health and prosperity of people in Tennessee.” These responsibilities include drafting the State Health Plan, reviewing Certificate of Need, creating the State Oral Health Plan, receiving and evaluating Joint Annual Reports, and assisting in monitoring the Certificate of Public Advantage.

### Background on the Division of Health Planning

Recognizing the need for the state to coordinate its efforts to improve the health and welfare of the people of Tennessee, the General Assembly passed Public Chapter 0942 in 2004 (Appendix A). This act created a Division of Health Planning that was charged with three primary roles.

- **Create a State Health Plan** that:
  - guides state health care programs and policies, and
  - guides the allocation of state health care resources.
- **Provide policy guidance** to:
  - respond to requests for comment and recommendations for health care policies and programs, and
  - review and comment on federal laws and regulations.
- **Assess health resources and outcomes** to:
  - conduct an ongoing evaluation of Tennessee’s resources for accessibility,
  - review the health status of Tennesseans, and
  - involve and coordinate functions with such State entities as necessary to ensure the coordination of State health policies and programs.

Additionally, the Division is tasked with providing an annual report to the General Assembly and annually reviewing the health status of Tennesseans. This State of Health Report serves to provide the General Assembly with a comprehensive overview of health in the state including health outcomes of individuals and information on the health of the state’s healthcare system.

The State Health Plan also utilizes the Five Principles for Achieving Better Health that are informed by Tennessee law. The Five Principles are as follows:

1. **Healthy Lives:** The purpose of the State Health Plan is to improve the health of the people in Tennessee.
2. **Access:** Every citizen should have reasonable access to health care.
3. **Economic Efficiencies:** The State’s health and health care resources should be developed to address the needs of Tennesseans while encouraging competitive markets, economic efficiencies, and the continued development of the State’s health care system.
4. **Quality of Care:** Every citizen should have confidence that the quality of health care is continually monitored, and standards are adhered to by providers.
5. **Workforce:** The state should support the development, recruitment, and retention of a sufficient and quality health and health care workforce.

In addition to these statutorily directed responsibilities, the Division has, over time, been awarded the opportunity to work in additional spaces in service to the Department and the state, including the Joint Annual Reports, Certificate of Public Advantage, and several other areas as needed.

## State Health Plan Overview

Over the past two years, the Division has revisited the development and content of the State Health Plan and formed a new guiding framework and creation process. While the Plan continues to serve as an external-facing tool to compliment the Department's strategic plan, these changes ensure the Plan is a useful tool for the Department's public and private partners moving forward.

The goals of the updated State Health Plan are:

- Promote the Department's Vision: "Healthy People, Healthy Communities, Healthy Tennessee."
- Create opportunities for external partners to align with the mission and vision of the Department.
- Provide state leadership with information on the health status of Tennessee and use high quality data to set priorities and inform actionable recommendations.
- Collaborate with and support state-level partners including, state agencies, non-profits, safety-net providers, faith-based institutions, healthcare facilities and providers, and associations.

## State Health Plan Framework

The newly developed framework of the State Health Plan focuses on the social determinants of health and integrating the cross-cutting themes of health equity and economic efficiency. The new State Health Plan will seek to address four key areas:

1. A Healthy Start: What is the state of health among Tennessee's children and youth? How can we ensure Tennesseans are able to have A Healthy Start in life?
2. A Healthy Life: What is the state of health among Tennessee's adults and older adults? How can we promote Tennesseans' health across the lifespan?
3. A Healthy Environment: What is the state of health in Tennessee's communities? How can we ensure Tennesseans are able to thrive where they live, work, and play?
4. A Healthy System of Care: What is the state of Tennessee's healthcare system? How can we ensure Tennesseans have access to quality and affordable healthcare when they need it?

## Health Equity

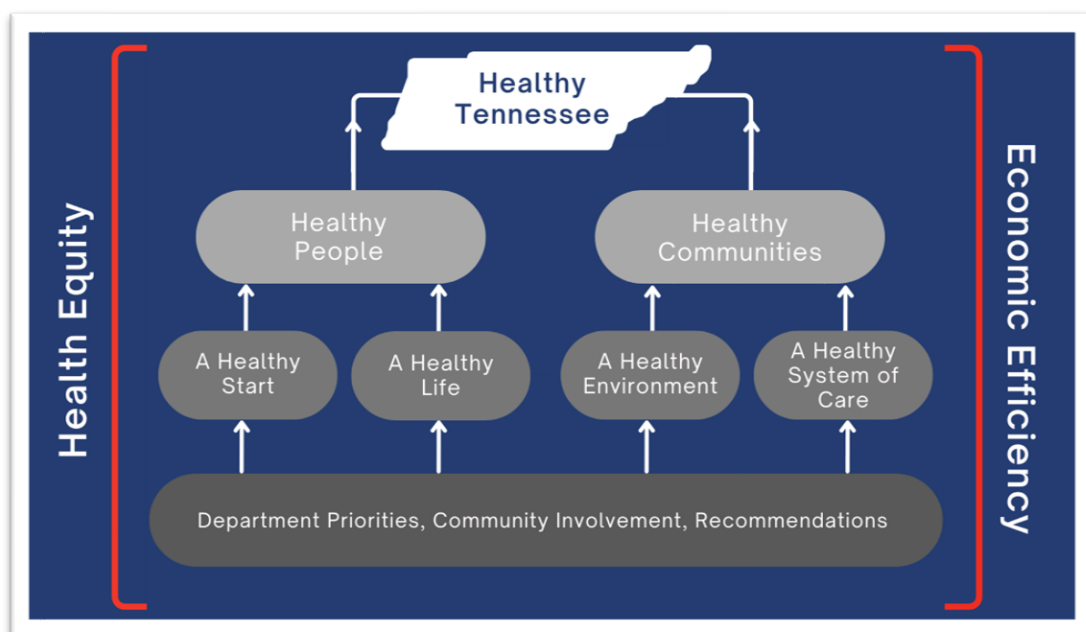
The Center for Disease Control ("CDC") defines health equity as "the state in which everyone has a fair and just opportunity to attain their highest level of health." The Department's office of Health Disparities Elimination seeks to guide the Department's work towards achieving health equity and addressing health disparities, defined as "preventable differences in the burden of disease, injury, violence, or opportunities to achieve optimal health that are experienced by populations that have been disadvantaged by their social or economic status, geographic location, and environment."<sup>1</sup>

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<sup>1</sup> Centers for Disease Control. Health Equity. Accessed December 2022 at <https://www.cdc.gov/healthequity/whatis/index.html#:~:text=Health%20equity%20is%20the%20state,health%20and%20health%20care%3B%20and>

Health equity has been a part of the Department’s greater Strategic Plan for years as well as other department initiatives, some of which are detailed in the most recent State Health Plan.<sup>2</sup> As the metrics assessed in the State of Health report are showcased online, data dashboards will expand on health disparities through use of race and ethnicity data, rural and urban data, data on special populations such as older

adults and persons with disabilities, and more. Through sharing this foundational knowledge on health disparities and working with the Department’s Office of Health Disparities Elimination, the State Health Plan seeks to ensure that the opportunity to live a healthy life is accessible for all Tennesseans.



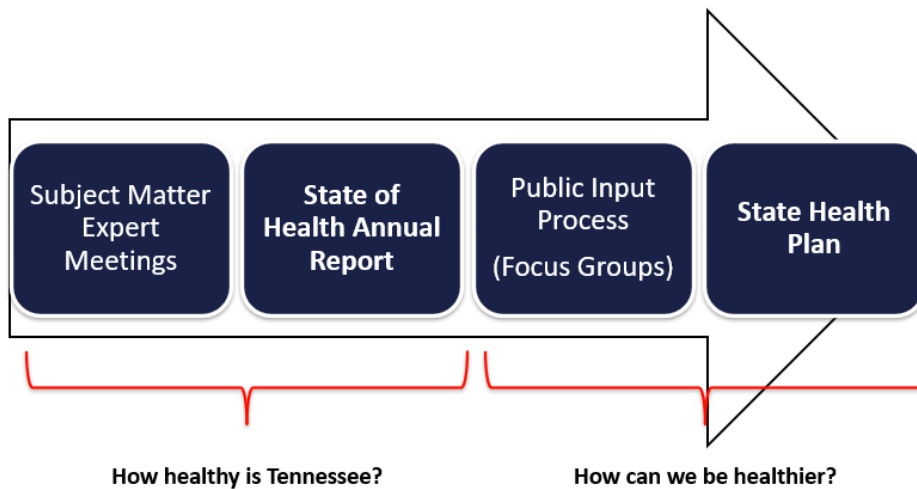
## Economic Efficiency

As detailed by the Five Principles for Achieving Health outlined in statute, “the State’s health and health care resources should be developed to address the needs of Tennesseans while encouraging competitive markets, economic efficiencies, and the continued development of the State’s health care system.” Economic efficiency and fiscal responsibility are integral to the functioning of the Tennessee Department of Health and Tennessee State Government. The 2021-2022 State Health Plan detailed how the Department used new COVID-19 related funding efficiently and effectively to meet the needs of Tennesseans. Future State Health Plans will further build on these principles by having data and evidence-informed recommendations for how to improve health in Tennessee.

<sup>2</sup> To view past editions of the Tennessee State Health Plan visit: <https://www.tn.gov/health/health-program-areas/state-health-plan.html>

## Role of the State Health Report

The revised State Health Plan development process aims to be more inclusive and further partnerships to increase the useability of the Plan. Throughout 2022, the Division met with over 50 staff members across multiple internal Department divisions, sister state agencies, and organizations outside of state government to discuss how to measure health (Appendix B). In these subject matter expert meetings, discussions focused on selecting data for inclusion in this first annual State of Health Report. The State of Health Report uses over 100 metrics to assess the health status of the State. This assessment



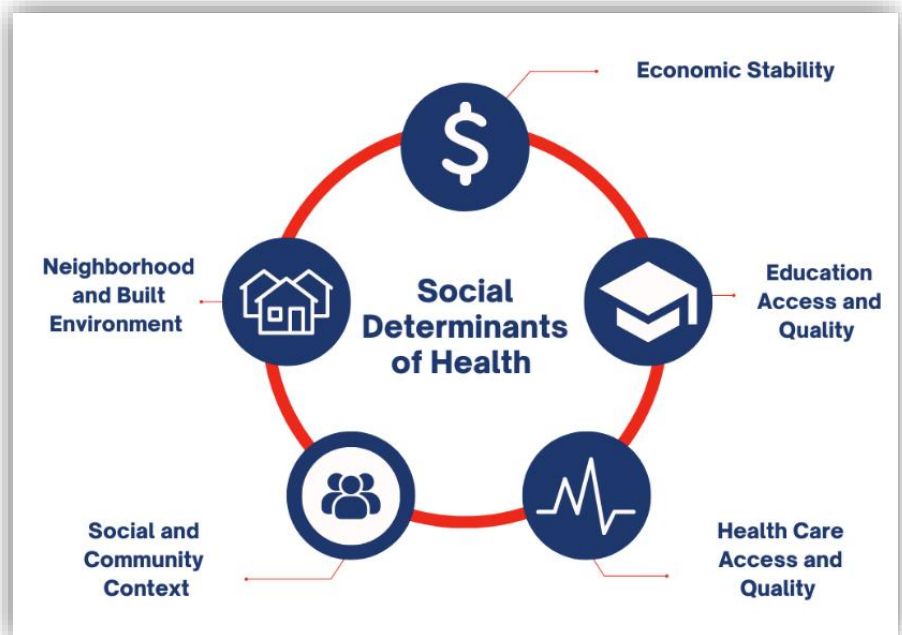
will be used to inform focus groups who will craft actionable recommendations for inclusion in the upcoming 2-year State Health Plan. The Division will work with partners across the state to build cross-sector collaboration and alignment to ensure these priorities and recommendations represent the needs of all Tennesseans and effectively target the social determinants of health that impact health outcomes in the state.

## Social Determinants of Health

In its early years, the State Health Plan focused primarily on the allocation of health care resources. However, recognizing the significant impact that “upstream” prevention efforts have on improving the health outcomes of Tennesseans, the State Health Plan shifted to a focus on population health improvement, highlighting the first principle for achieving better health:

**The purpose of the State Health Plan is to improve the health of the people in Tennessee.**

The updated State Health Plan framework continues to focus on upstream prevention efforts by incorporating social determinants of health (SDOH) throughout the framework. SDOH contribute to the health of individuals and the population, and include economic stability, education access and quality, health care access and quality, social and community context, and neighborhood and built environment.<sup>3</sup> By focusing upstream on



<sup>3</sup> Healthy People 2030. Social Determinants of Health. Accessed December 2022 from <https://health.gov/healthypeople/priority-areas/social-determinants-health>

the SDOH the Department can build cross-sector collaboration to directly address the factors that most impact health outcomes.

# The Current State of Health in Tennessee

As outlined in statute, the State Health Plan must “review the health status of Tennesseans” while “assessing health resources and outcomes.” Guided by subject matter expert meetings and the Department’s Vision, “Healthy People, Healthy Communities, Healthy Tennessee,” the State of Health report assesses the health status of Tennesseans across the four areas of the State Health Plan Framework: A Healthy Start, A Healthy Life, a Healthy Environment, and a Healthy System of Care. In total, the report considers over 100 metrics to assess the State of Health in Tennessee (Appendix C). The data detailed in the State of Health report will be used to craft informed and actionable recommendations in the upcoming State Health Plan.

## Healthy People

The World Health Organization defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”<sup>4</sup> Considering this definition and the role of social determinants of health in determining health outcomes, the metrics reviewing A Healthy People include not only disease incidence or mortality, but the factors that influence Tennesseans’ health and quality of life. Through wholistically assessing both existing health challenges and the circumstances surrounding those challenges, a path for improving health can be forged.

### A Healthy Start

To assess if Tennessee’s children and youth are having a healthy start in life, the State of Health report considers metrics across three areas: social determinants of health such as poverty and education, health behaviors and conditions such as vaccination and mental health, and specific metrics around pregnancy and childbirth.





| A Healthy Start                               |                       |                        |                           |                             |
|---|-----------------------|------------------------|---------------------------|-----------------------------|
| Children in Poverty                           | Child Food Insecurity | WIC Coverage           | SNAP Participation        | Foster Care Instability     |
| Child Care                                    | School Nurses         | School Counselors      | Third Grade Reading Level | ACEs                        |
| Physical Dating Violence                      | Carried a Gun         | Childhood Vaccinations | HPV Vaccinations          | Congenital Syphilis         |
| Youth Obesity                                 | Asthma                | Electronic Vapor Usage | Drugs on School Property  | Hopelessness                |
| Suicide Attempt                               | Suicide Mortality     | Prenatal Care          | Smoking During Pregnancy  | Preterm Births              |
| Low Birthweight                               | Breastfeeding         | Postpartum Depression  | Infant Mortality          | Pregnancy-Related Mortality |
| Pregnancy-Associated, but not related, deaths | Teen Births           |                        |                           |                             |

<sup>4</sup> World Health Organization. Constitution. Accessed December 2022 from <https://www.who.int/about/governance/constitution>

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## Social Determinants of Health

### Poverty and Food Insecurity

- In 2021, 18.1% of Tennessee's children were **Children in Poverty**<sup>5</sup> 
- In 2020, 7.30% of TN households with children had children who were **Food Insecure**.<sup>6</sup> 
- From 2017-2020, less than 30% of children eligible for **WIC** in Tennessee received WIC benefits.<sup>7</sup> 
- In 2018, 90% of Tennesseans who were eligible for **SNAP** were receiving benefits.<sup>8</sup> 

Child poverty is associated with chronic illness, environmental exposure and overall “lifelong hardship.”<sup>9</sup> The percent of **Children in Poverty** in Tennessee and the United States has decreased since 2017. In 2020, 18.1% of Tennessee's children were living below the poverty level compared to 16.9% in the United States.<sup>10</sup> Poverty also leads to poor nutrition and **Child Food Insecurity**. According to a 2019 study, “children in food-insecure households had rates of lifetime asthma diagnosis and depressive symptoms that were 19.1% and 27.9% higher, rates of foregone medical care that were 179.8% higher, and rates of emergency department use that were 25.9% higher.”<sup>11</sup> In 2020, 7.30% of TN households with children had children who were food insecure, compared to 6.77% in the United States.<sup>12</sup>

Programs that seek to combat the impacts of poverty and food insecurity include the Special Supplemental Nutrition Program for Women, Infants, and Children (**WIC**) and Special Nutrition Assistance Program (**SNAP**). Despite being eligible, many families may not access the benefits offered through these programs. Child WIC coverage is defined as the percentage of children ages 1-4 eligible for the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) who received WIC benefits in an average month. From 2017-2021, Tennessee had a lower percentage of eligible children receiving WIC benefits compared to the United States. Across all years, less than 30% of children eligible for WIC in Tennessee received WIC benefits.<sup>13</sup> Overall WIC Coverage, defined as the percentage of women, infants and children eligible for WIC who received WIC benefits, was below 50% across all years. Only 37.4% of all persons eligible for WIC received WIC benefits

*Across all years, less than 50% of children eligible for WIC received WIC benefits.*

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<sup>5</sup> United States Census Bureau. 2015-2019 American Community Survey 1-Year Public Use Estimates.

<sup>6</sup> United States Department of Agriculture, Economic Research Service - Current Population Survey, Food Security Supplement, 1-Year Public Use Estimates 2017-2021. Retrieved from IPUMS CPS, University of Minnesota, [www.ipums.org](http://www.ipums.org) and USDA, ERS [www.ers.usda.gov](http://www.ers.usda.gov).

<sup>7</sup>

United States Department of Agriculture Food and Nutrition Service, National and State Level Estimates of WIC Eligibility and Program Reach in 2020. Retrieved from [National and State Level Estimates of WIC Eligibility and Program Reach in 2020 | Food and Nutrition Service \(usda.gov\)](https://www.fns.usda.gov/nsls/wic-eligibility-and-program-reach-2020)

<sup>8</sup> United States Department of Agriculture Food and Nutrition Service. Retrieved from [www.fns.usda.gov](http://www.fns.usda.gov)

<sup>9</sup> Gitterman, BA et al. Poverty and Child Health in the United States. *American Academy of Pediatrics. Pediatrics* (2016) 137 (4): e20160339. <https://doi.org/10.1542/peds.2016-0339>

<sup>10</sup> United States Census Bureau. 2015-2019 American Community Survey 1-Year Public Use Estimates.

<sup>11</sup> Thomas, MMS, Miller, DP, Morrissey, TW. Food Insecurity and Child Health. *Pediatrics* (2019) 144 (4): e20190397. <https://doi.org/10.1542/peds.2019-0397>

<sup>12</sup> United States Department of Agriculture, Economic Research Service - Current Population Survey, Food Security Supplement, 1-Year Public Use Estimates 2017-2021. Retrieved from IPUMS CPS, University of Minnesota, [www.ipums.org](http://www.ipums.org) and USDA, ERS [www.ers.usda.gov](http://www.ers.usda.gov).

<sup>13</sup>

United States Department of Agriculture Food and Nutrition Service, National and State Level Estimates of WIC Eligibility and Program Reach in 2020. Retrieved from [National and State Level Estimates of WIC Eligibility and Program Reach in 2020 | Food and Nutrition Service \(usda.gov\)](https://www.fns.usda.gov/nsls/wic-eligibility-and-program-reach-2020)

in an average month in 2020. Participation in SNAP in Tennessee was higher than WIC. In 2018, 90% of Tennessee who were eligible for SNAP were receiving benefits compared to 82% in the United States.<sup>14</sup>

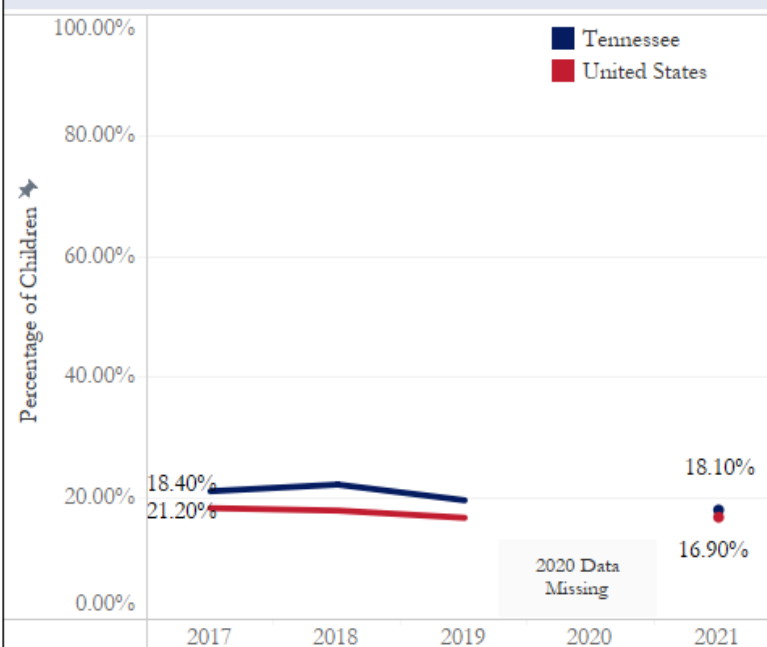
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<sup>14</sup> United States Department of Agriculture Food and Nutrition Service. Retrieved from [www.fns.usda.gov](http://www.fns.usda.gov)

## Children in Poverty

Percentage of all persons under 18 years of age whose income in the past 12 months is below the poverty level.

The number of children living in poverty in Tennessee declined between 2017-2021, but remained above the United States average.



Data Source: United States Census Bureau. 2015-2019 American Community Survey 1-Year Public Use Estimates.

## SNAP Participation

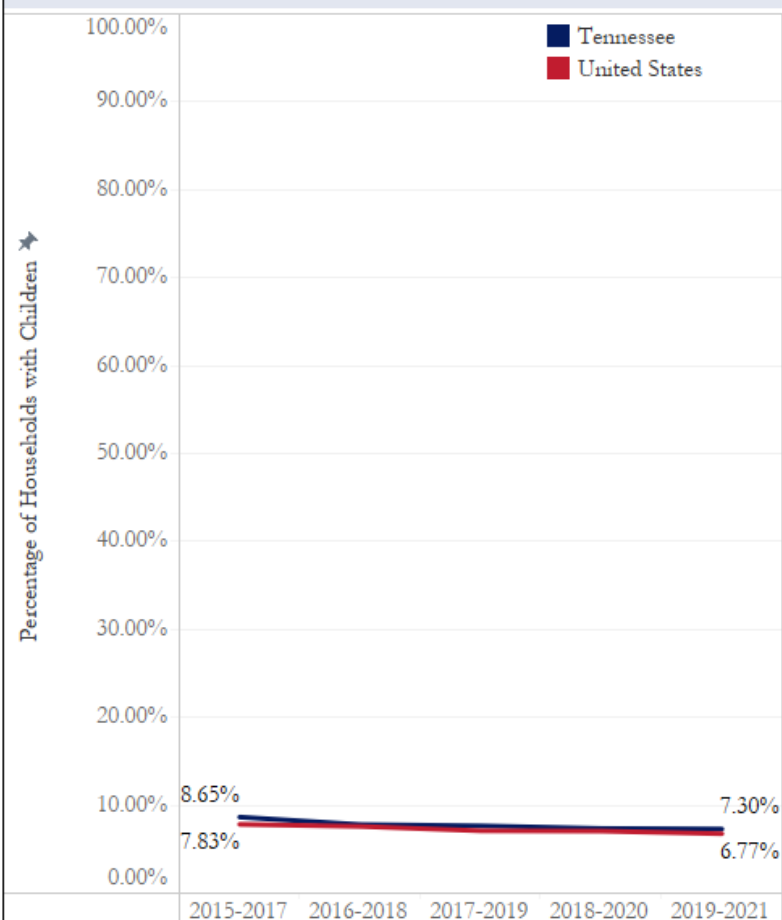
Percentage of people who were eligible for SNAP who actually participated in the program in 2018.

| Tennessee | United States |
|-----------|---------------|
| 90.00%    | 82.00%        |

Data Source: United States Department of Agriculture Food and Nutrition Service. Retrieved from [www.fns.usda.gov](http://www.fns.usda.gov)

## Food Insecurity in Children

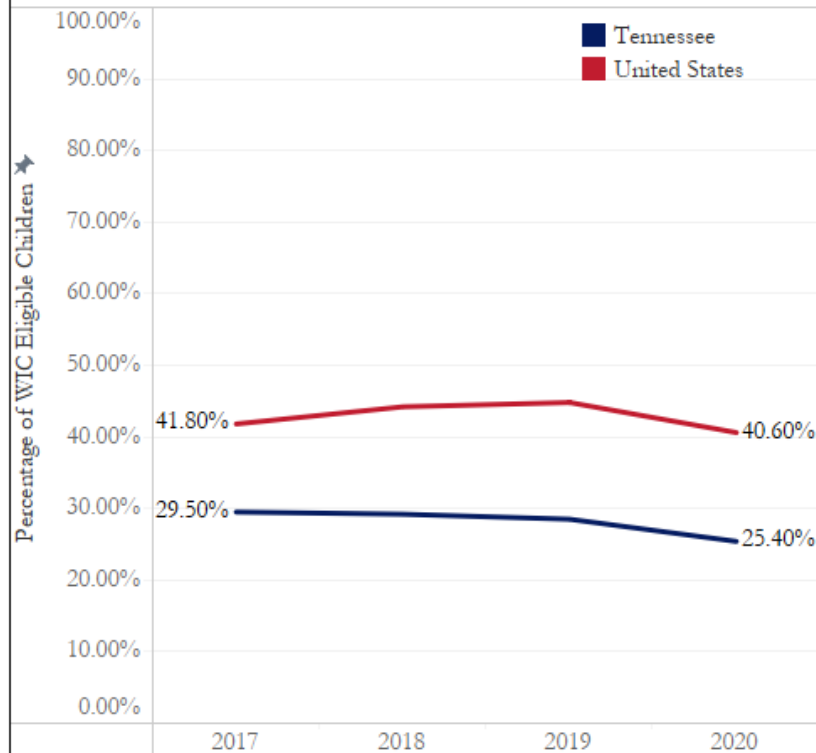
Percentage of households with children who are food insecure (low or very low food security status).



Data Source: United States Department of Agriculture, Economic Research Service - Current Population Survey, Food Security Supplement, 1-Year Public Use Estimates 2017-2021. Retrieved from IPUMS CPS, University of Minnesota, [www.ipums.org](http://www.ipums.org) and USDA, ERS [www.ers.usda.gov](http://www.ers.usda.gov).

## Child WIC Coverage

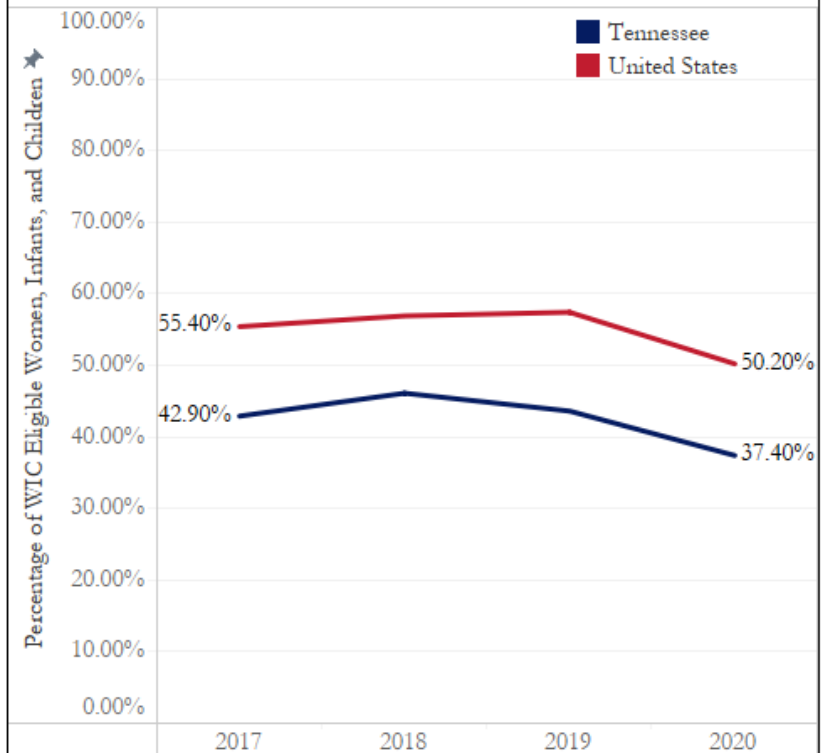
Percentage of children ages 1-4 eligible for the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) who received WIC benefits in an average month.



Data Source: United States Department of Agriculture Food and Nutrition Service, National and State Level Estimates of WIC Eligibility and Program Reach in 2020. Retrieved from [National and State Level Estimates of WIC Eligibility and Program Reach in 2020 | Food and Nutrition Service \(usda.gov\)](#)






## Overall WIC Coverage

Percentage of women, infants, and children eligible for the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) who received WIC benefits in an average month.



Data Source: United States Department of Agriculture Food and Nutrition Service, National and State Level Estimates of WIC Eligibility and Program Reach in 2020. Retrieved from [National and State Level Estimates of WIC Eligibility and Program Reach in 2020 | Food and Nutrition Service \(usda.gov\)](#)

## Child Care Systems and Education

- In 2020, Tennessee had the highest **Foster Care Instability** in the nation.<sup>15</sup> 
- In 2022, only 23.1% of Tennessee counties had **Child Care** facilities licensed through DHS that offered a sliding fee scale.<sup>16</sup> 
- During the 2021-2022 school year, only 45% of nonpublic schools reported having a **School Nurse** compared to 81% of public schools.<sup>17</sup> 
- In the 2020-2021 school year, 82% of Tennessee schools met the recommendation of one **School Counselor** per 500 students.<sup>18</sup> 
- In 2021, 32.2% of Tennessee public school students in grade 3 were reading at the **Third Grade Reading Level**.<sup>19</sup> 

In 2020, Tennessee had the highest **Foster Care Instability** in the nation. Foster care instability is defined as the percent of children in foster care with three or more placements within 12 months. Children in foster care who experience instability are more likely to develop behavioral issues such as difficulty forming attachments and low self-esteem.<sup>20</sup> Since 2016, around 31% of children in Tennessee's foster care system have experienced this instability, compared to only 15% in the United States.<sup>21</sup> In 2020, 33.7% of children in Tennessee's foster care system were placed 3 or more times in a year, the highest in the nation. By comparison, foster care instability in the lowest states, Nebraska and Rhode Island, only affected 9.1% of children in foster care.

**Child Care** availability, capacity, and cost are significant barriers to Tennessee families and may impact a parent's ability participate in the labor force. An analysis by the Economic Policy Institute in 2020 showed that infant care in Tennessee costs approximately 16.7% of median family income (\$52,325).<sup>22</sup> Depending on income, parents may be priced out of accessing child care altogether. In Tennessee, the median child care worker salary is \$19,760 and annual child care costs \$8,732. Therefore, if a child care worker sought care for their own child, they would spend 44.2% of their salary on child care. One way to

*76.8% of TN counties do not have a DHS licensed child care facility that offer a sliding fee scale.*

<sup>15</sup> United States Department of Health and Human Services, Children's Bureau, Child Welfare Outcomes Report Data. Accessed via America's Health Rankings.

<sup>16</sup> Licensed childcare facility list accessed on December 2, 2022 on the Tennessee Department of Human Services website. Population calculated within Tableau built environment using 2018 data.

<sup>17</sup> Tennessee Coordinated School Health Annual School Health Services Report. Retrieved from [www.tn.gov/education](http://www.tn.gov/education)

<sup>18</sup> Tennessee Coordinated School Health Annual Report; Note: Recommended student to counselor ratio varies by state and therefore U.S. and state comparison is not available.

<sup>19</sup> (3rd grade): Tennessee Department of Education; (4th grade): National Assessment of Educational Progress (NAEP) Report Card: Reading, State Achievement Level Results. Retrieved from [www.nationsreportcard.gov](http://www.nationsreportcard.gov)

<sup>20</sup> Rubin DM, O'Reilly AL, Luan X, Localio AR. The impact of placement stability on behavioral well-being for children in foster care. *Pediatrics*. 2007 Feb;119(2):336-44. Doi: 10.1542/peds.2006-1995. PMID: 17272624; PMCID: PMC2693406.

<sup>21</sup> United States Department of Health and Human Services, Children's Bureau, Child Welfare Outcomes Report Data. Accessed via America's Health Rankings.

<sup>22</sup> Economic Policy Institute. Child Care Costs in the United States. October 2020. <https://www.epi.org/child-care-costs-in-the-united-states/>

mitigate cost of child care for families is through use of a sliding fee scale, whereby costs are reduced based on income. Only 23.1% of Tennessee counties have child care facilities licensed through DHS that offer a sliding fee scale and capacity of these facilities is limited. Of all the children in Tennessee that DHS licensed facilities have capacity to serve, only 13.9% would have access to a sliding fee scale.<sup>23</sup> In addition to access and affordability and quality child care positively impacting families economically, participation in quality child care and early education programs can result in health benefits for children. Such benefits may include improvements in blood-pressure, reduction in smoking as adults, and reduction in depression throughout childhood and adulthood.<sup>24</sup>

According to the TN Department of Education, "**School Nurses** provide services such as assessment, planning, care-coordination, critical thinking skills, quality improvement, health education and promotion which benefit schools, families, and children with acute and chronic health conditions." Nonpublic schools are not required to provide a licensed health care provider. During the 2021-2022 school year, only 45% of nonpublic schools reported having a school nurse compared to 81% of public schools.<sup>25</sup> **School Counselors** play an important role in meeting the mental and emotional needs of children in Tennessee schools. Recommended student to counselor ratio varies by state with Tennessee's standard being one certified counselor per 500 students. In the 2020-2021 school year, 82% of Tennessee schools met this recommendation.<sup>26</sup>

Tennessee has assessed **Third Grade Reading Level** as both a measure of health and education for years. Literacy level impacts everything from lifetime earning potential to adherence to medical advice.<sup>27</sup> In 2021, 32.2% of Tennessee public school students in grade 3 tested "on track" or "mastered" for English Language Arts on TN Ready tests.<sup>28</sup> Nationally 4th grade reading level is used to compare testing. In 2022, 30% of Tennessee 4th graders were reading proficiently compared to 32% in the United States overall. Reading proficiency in Tennessee and the United States have decreased in part due to COVID-19 related impacts.

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<sup>23</sup> Licensed childcare facility list accessed on December 2, 2022 on the Tennessee Department of Human Services website. Population calculated within Tableau built environment using 2023 Mapbox Data..

<sup>24</sup> The Effects of Early Care and Education on Children's Health, " Health Affairs Health Policy Brief, April 25, 2019. DOI: 10.1377/hpb20190325.519221

<sup>25</sup> Tennessee Coordinated School Health Annual School Health Services Report. Retrieved from [www.tn.gov/education](http://www.tn.gov/education)

<sup>26</sup> Tennessee Coordinated School Health Annual Report; Note: Recommended student to counselor ratio varies by state and therefore U.S. and state comparison is not available.

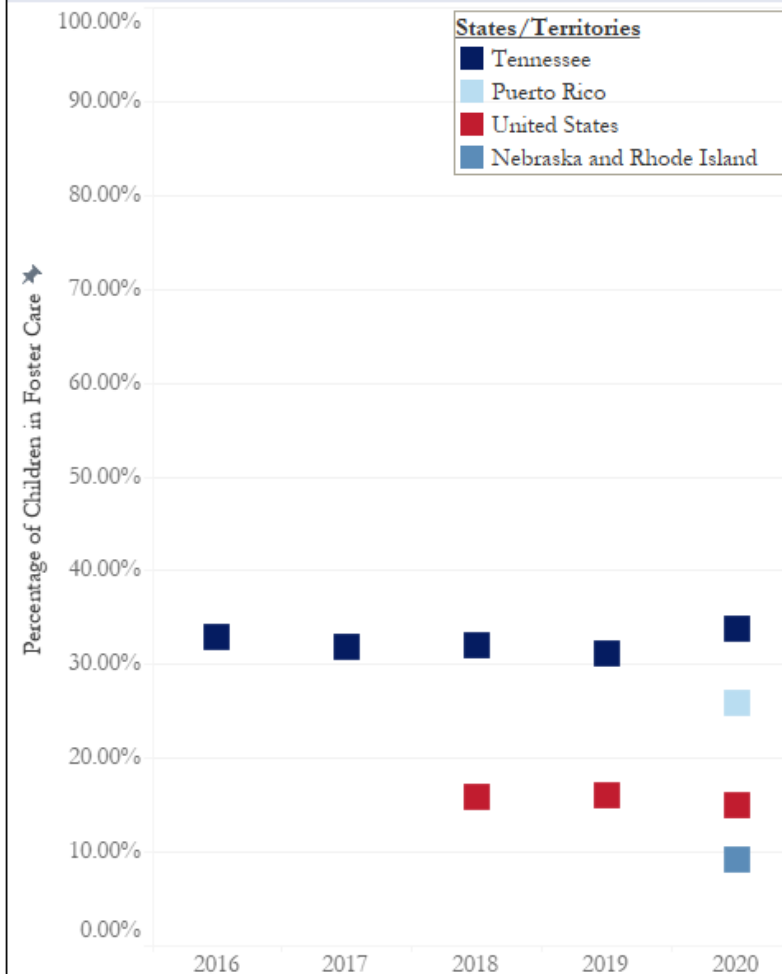
<sup>27</sup> TN Dept of Health. 3<sup>rd</sup> Grade Reading Level. Accessed December 2022 <https://www.tn.gov/health/health-program-areas/tennessee-vital-signs/redirect-tennessee-vital-signs/vital-signs-actions/3rd-grade-reading-level.html>

<sup>28</sup> (3<sup>rd</sup> grade): Tennessee Department of Education; (4<sup>th</sup> grade): National Assessment of Educational Progress (NAEP) Report Card: Reading, State Achievement Level Results. Retrieved from [www.nationsreportcard.gov](http://www.nationsreportcard.gov)

## Foster Care Instability

Percentage of children in foster care with three or more placements within 12 months.

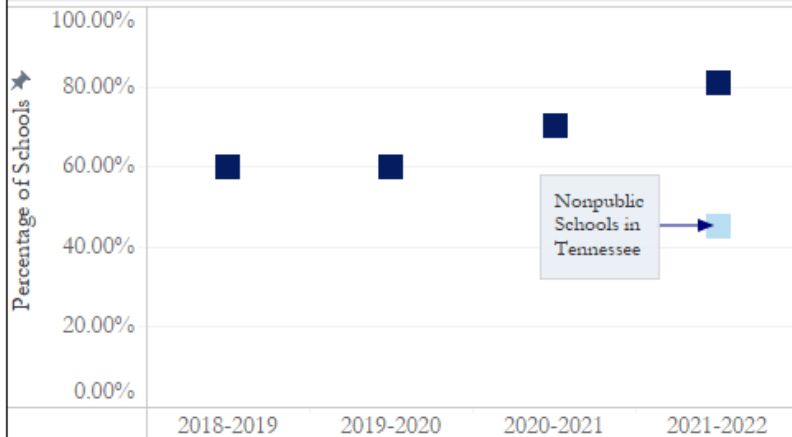
In 2020, Tennessee (33.7%) had the highest foster care instability in the nation, Puerto Rico (25.9%) had the second highest, and Nebraska and Rhode Island (9.1%) had the lowest. Since 2018, foster care instability in Tennessee has been about twice as high as foster care instability in the United States.



Data Source: United States Department of Health and Human Services, Children's Bureau, Child Welfare Outcomes Report Data. Accessed via America's Health Rankings.

## School Nurses

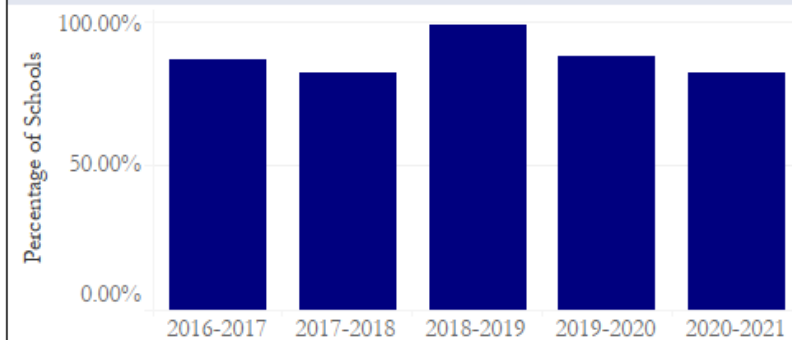
Percentage of Tennessee Public Schools employing a full-time nurse. Nonpublic schools are not required to provide a licensed health care provider. During the 2021-2022 school year, only 45% of nonpublic schools reported having a school nurse compared to 81% of public schools.



Data Source: Tennessee Coordinated School Health Annual School Health Services Report. Retrieved from [www.tn.gov/education](http://www.tn.gov/education)

## School Counselors

Percentage of public school districts in Tennessee with one certified counselor per 500 students.



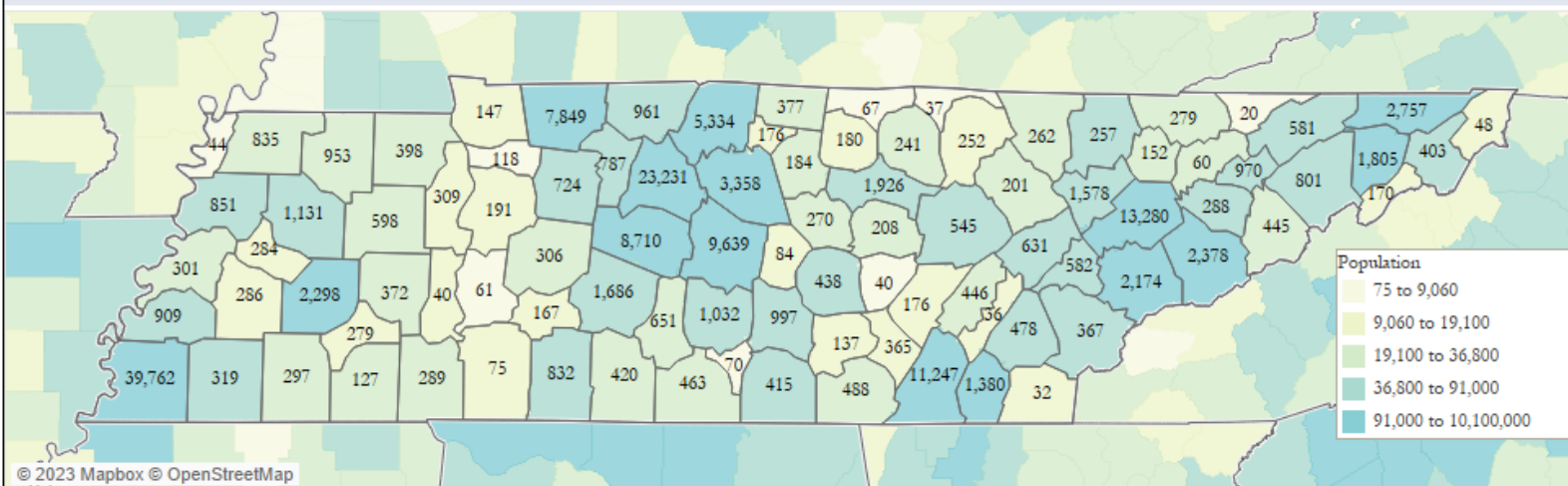
Data Source: Tennessee Coordinated School Health Annual School Health Services Report. Retrieved from [www.tn.gov/education](http://www.tn.gov/education)

Data Note: Recommended student to counselor ratio varies by state and therefore U.S. and state comparison is not available.

## Capacity of Licensed Child Care Facilities

Number of children DHS licensed child care facilities have capacity to serve in 2022.

As an example, in total Gibson County licensed child care facilities have the capacity to serve 1,131 children. Gibson County's total population is between 36,800 and 91,000 people.

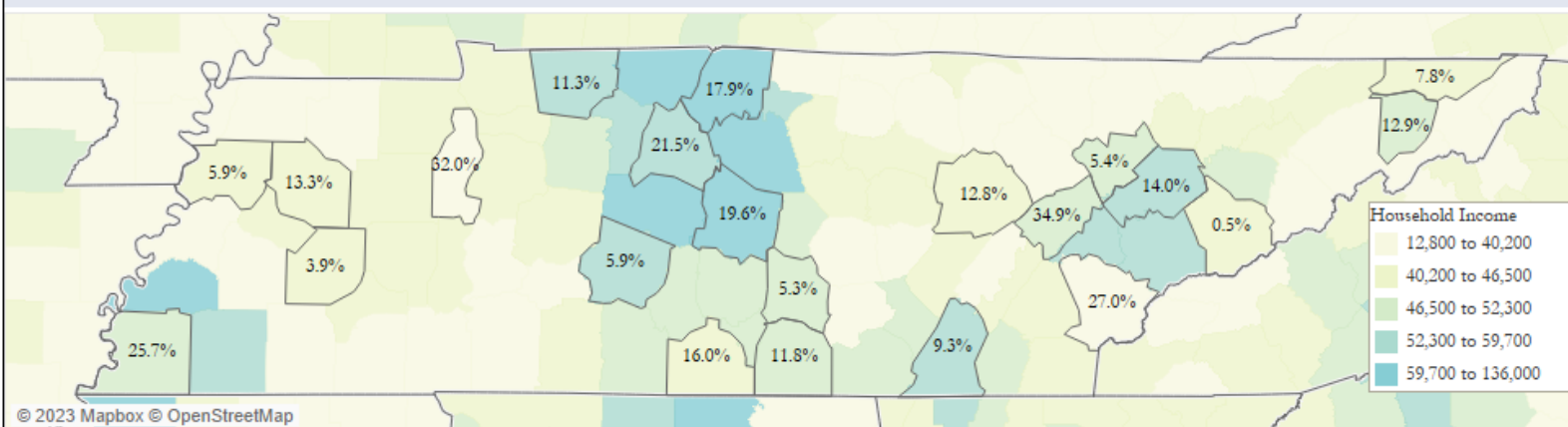


Data Source: Licensed child care facility list accessed on December 2, 2022 on the Tennessee Department of Human Services website. Population calculated within Tableau built environment via 2023 Mapbox OpenStreetMap.

## Child Care Sliding Fee Scale

Percentage of children attending a DHS licensed child care facility with access to a sliding fee payment scale in 2022.

Only 23.1% of Tennessee counties have child care facilities licensed through DHS that offer a sliding fee scale and capacity of these facilities is still limited. Of all the children in Tennessee that DHS licensed facilities have capacity to serve, only 13.9% would have access to a sliding fee scale. As an example, if all Shelby County licensed child care facilities are at full capacity, 25.7% of children attending will have access to a sliding fee payment scale. Shelby County's median annual household income is between \$46,500 and \$52,300.

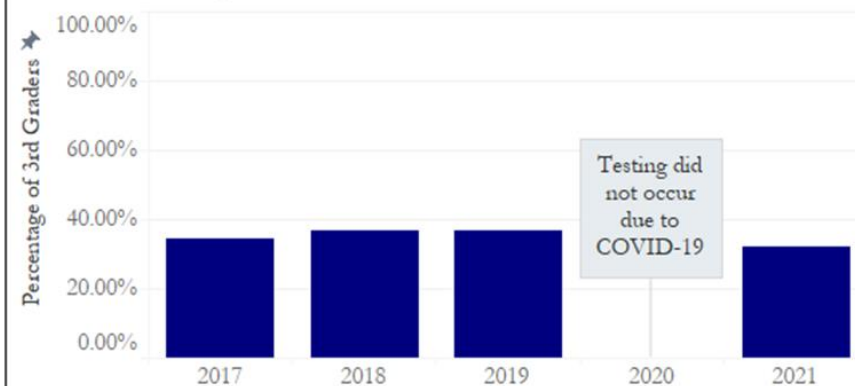


Data Source: Licensed child care facility list accessed on December 2, 2022 on the Tennessee Department of Human Services website. Population calculated within Tableau built environment via 2023 Mapbox OpenStreetMap.

### 3rd Grade Reading Level

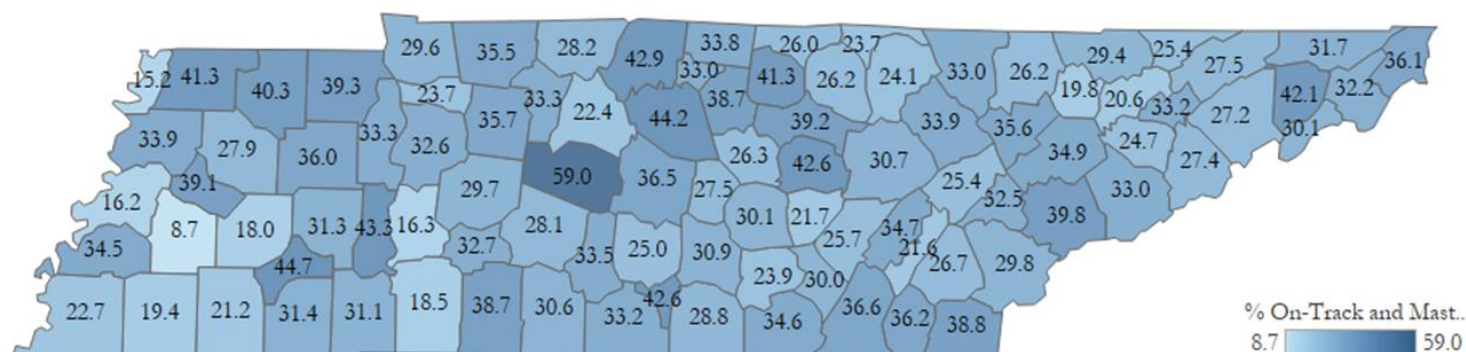
Percentage of public school students in Tennessee in grade 3 that test "on track" and "mastered" for English Language Arts on TN Ready tests.

Nationally 4th grade reading level is used to compare testing. In 2022, 30% of Tennessee 4th graders were reading proficiently compared to 32% in the United States overall. Reading proficiency in Tennessee and the United States has decreased in part due to COVID-19 related impacts.






### 3rd Grade Reading Level in 2021

Percentage of public school students in Tennessee in grade 3 that test "on track" and "mastered" for English Language Arts on TN Ready tests.



## Trauma and Youth Safety

- In 2019, 18.7% of children experienced two or more **Adverse Childhood Experiences**<sup>29</sup> 
- In 2019, the percent of youth who experienced **Physical Dating Violence** in Tennessee (13.8%) was statistically higher than in the United States (8.2%).<sup>30</sup> 
- In 2017 and 2019, the percent of high school students who **Carried a Gun** for a purpose outside of hunting or sport in Tennessee (8.1%) was statistically higher than the in the United States (4.4%).<sup>31</sup> 

**Adverse Childhood Experiences**, or ACEs, are closely linked to health outcomes and socioeconomic status later in life. Adverse Childhood Experiences may include but are not limited to “experiencing violence, abuse or neglect; witnessing violence in the home or community; having a family member attempt or die by suicide; growing up in a household with substance use problems, mental health problems, or instability due to parents’ separation or incarceration of a household member.”<sup>32</sup> Children with a higher number of ACEs are more likely to experience chronic health conditions, such as heart disease and depression, and negative impacts on lifetime earning potential. In 2019, 18.7% of children experienced two or more ACEs in Tennessee. From 2017-2019, ACEs in Tennessee were lower than in the United States.<sup>33</sup> Evidence is emerging on how positive childhood experiences (PCEs) act as protective factors against the health effects of ACEs and contribute to overall positive child well-being.<sup>34</sup> Positive childhood experiences include: being able to talk with family about feelings, feeling that family stood by during difficult times, enjoying participating in community traditions, feeling a sense of belonging in high school, feeling supported by friends, having at least two non-parent adults who take a genuine interest, and feeling safe and protected by an adult in the home. In 2021, 78.16% of Tennesseans had 5-7 positive childhood experiences.<sup>35</sup>

Further violence as children age impacts health including **Physical Dating Violence**. Physical dating violence is defined as being physically hurt on purpose through things such as being hit, slammed into something, or injured with an object or weapon by someone they were dating or going out with. According to the CDC, youth who are victims of dating violence are more likely to “experience depression and anxiety, engage in unhealthy behaviors such as using drugs or alcohol, exhibit antisocial behaviors like bullying, and think about suicide.”<sup>36</sup> In 2019, the percent of youth who were dating someone and experienced physical dating violence in Tennessee (13.8%) was statistically higher than in the United States (8.2%).<sup>37</sup>

Access to lethal means, including guns, should be considered when assessing a child’s risk of harm to self or others. In 2017 and 2019, the percent of high school students who **Carried a Gun** for a purpose outside of hunting or sport in Tennessee

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<sup>29</sup> National Survey of Children's Health. Retrieved from [www.childhealthdata.org](http://www.childhealthdata.org)

<sup>30</sup> Centers for Disease Control, Youth Risk Behavior Surveillance System

<sup>31</sup> Centers for Disease Control, Youth Risk Behavior Surveillance System

<sup>32</sup> CDC. Violence Prevention Facts. ACEs. Accessed December 2022 at <https://www.cdc.gov/violenceprevention/aces/fastfact.html>

<sup>33</sup> National Survey of Children's Health. Retrieved from [www.childhealthdata.org](http://www.childhealthdata.org)

<sup>34</sup> Centers for Disease Control. Creating Positive Childhood Experiences. Accessed January 2022 from <https://www.cdc.gov/injury/features/prevent-child-abuse/index.html>

<sup>35</sup> TN Department of Health. Behavioral Health Risk Surveillance System. 2021.

<sup>36</sup> CDC. Violence Prevention. Teen Dating Violence. Accessed December 2022 at

<https://www.cdc.gov/violenceprevention/intimatepartnerviolence/teendatingviolence/fastfact.html#:~:text=Youth%20who%20are%20victims%20of,%2C%20theft%2C%20bullying%2C%20or%20hitting>

<sup>37</sup> Centers for Disease Control, Youth Risk Behavior Surveillance System

was statistically higher than the in the United States.<sup>38</sup> In Tennessee, 8.10% of high school students carried a gun, not counting days where a gun was carried for only hunting or a sport such as target shooting, compared to 4.40% in the United States. According to the TN Department of Health's Child Fatality Review, "In 2020, firearms in the home were the leading mechanism and location for youth suicide." Of the 70 firearm-related deaths among children, 6 were accidental, 20 were suicide, and 44 were homicide. More detailed information on firearm related deaths can be found in the annual Child Fatality Review report.<sup>39</sup>

In 2022, the Tennessee Departments of Education, Mental Health and Substance Abuse Services, and Safety and Homeland security released a School Safety Toolkit for Tennessee Families. The Toolkit "covers how parents and families can report suspicious or concerning activity through the SafeTN App, access mental health resources for their student through programs administered by the Department of Mental Health & Substance Abuse Services and inquire about their child's school security compliance with Schools Against Violence in Education Act."<sup>40</sup>

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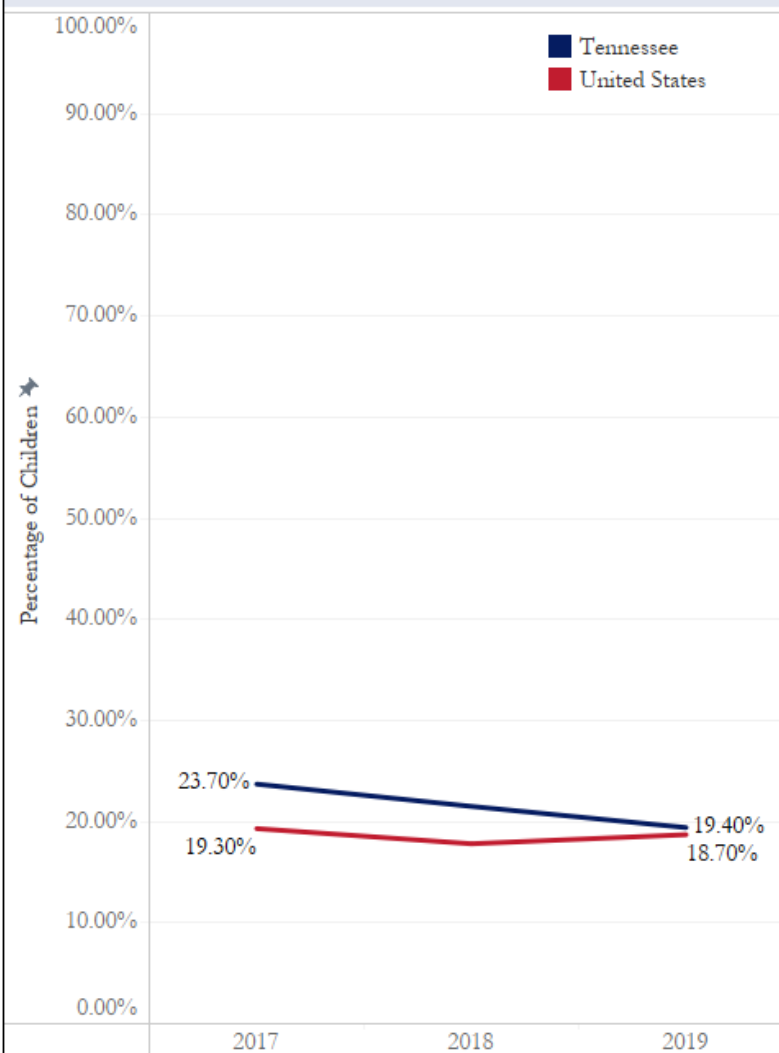
<sup>38</sup> Centers for Disease Control, Youth Risk Behavior Surveillance System

<sup>39</sup> To Access the Child Fatality Review Reports, visit <https://www.tn.gov/health/health-program-areas/fhw/child-fatality-review.html>

<sup>40</sup> To access the School Safety Toolkit for Tennessee Families, visit <https://www.tn.gov/education/student-and-family-resources/school-safety-toolkit-for-tennessee-families.html>

## Adverse Childhood Experiences

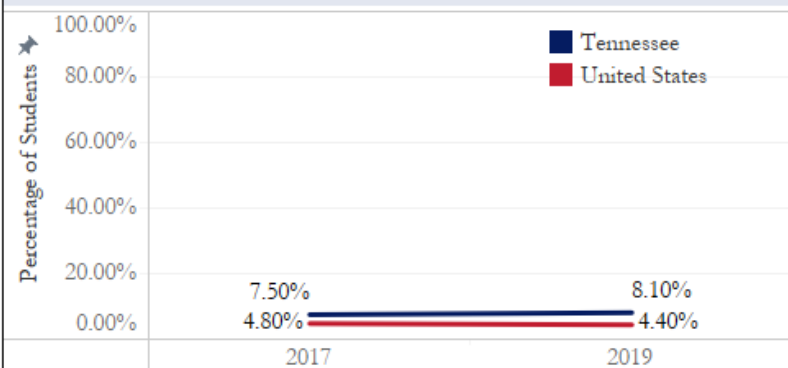
Percentage of children ages 0-17 who experienced two or more Adverse Childhood Experiences (ACEs). Children with a higher number of ACEs are more likely to experience chronic health conditions, such as heart disease and depression, and negative impacts on lifetime earning potential.



Data Source: National Survey of Children's Health. Retrieved from [www.childhealthdata.org](http://www.childhealthdata.org)

## Carried a Gun

Percentage of high school students who carried a gun (on at least 1 day during the 12 months before the survey, not counting the days when they carried a gun only for hunting or for a sport such as target shooting). In 2017 and 2019, the percentage of students who carried a gun in Tennessee was statistically higher than the in the United States.

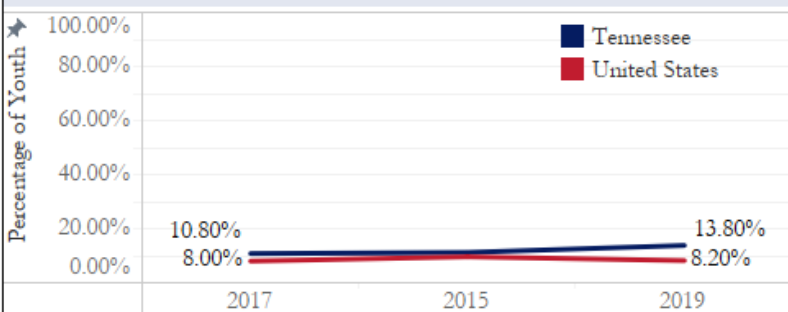


Data Source: Centers for Disease Control, Youth Risk Behavior Surveillance System

## Physical Dating Violence

Percentage of those who experienced physical violence (physically hurt on purpose such things as being hit, slammed into something, or injured with an object or weapon) by someone they were dating or going out with, one or more times during the 12 months before the survey, among students who dated or went out with someone during the 12 months before the survey.

In 2019, the percent of youth who experienced physical dating violence in Tennessee was statistically higher than the United States average.



Data Source: Centers for Disease Control, Youth Risk Behavior Surveillance System

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## Health Behaviors and Conditions

### Infectious Disease

- 75.4% of children born in 2018 in both Tennessee and the United States received the recommended **Childhood Vaccinations** by age 35 months.<sup>41</sup>
- In 2020, 58.6% of adolescents in the United States had received the **HPV** vaccine compared to 52.9% in Tennessee.<sup>42</sup>
- The rate of **Congenital Syphilis** in Tennessee increased from 8.7 cases per 100,000 live births in 2016 to 39.4 cases per 100,000 live births in 2020.<sup>43</sup>

The 7-vaccine series recommended for all children protects against diphtheria, pertussis, tetanus, polio, measles, mumps, rubella, hepatitis B, Haemophilus influenza type b, varicella, and pneumococcal infections. From birth years 2015 to 2018, the percentage of children receiving the combined 7-vaccine series in Tennessee by age 35 months was highest for children born 2018 at 83.0% and lowest for children born in 2017 at 67.6%. In birth year 2018, 75.4% of children in both Tennessee and the United States received the recommended **Childhood Vaccinations**.<sup>44</sup> As children age, further vaccinations are recommended including the **Human Papillomavirus (HPV)** vaccination. HPV is the most common sexually transmitted infection (STI) in the United States and can lead to the development of genital warts and cancers of the cervix, vagina, vulva, penis, anus, and back of the throat (oropharyngeal).<sup>45</sup> The CDC recommends that all children aged 11-12 receive the HPV vaccine. Vaccination is recommended for anyone through age 26 if they are not vaccinated as a child. The percent of adolescents aged 13-17 receiving the HPV vaccination has increased in both Tennessee and the United States in recent years. However, Tennessee remains below the United States value. In 2020, 58.6% of adolescents in the United States had received the HPV vaccine compared to 52.9% in Tennessee.<sup>46</sup> The CDC has a “Vaccines for Your Children” webpage complete with a “Childhood Vaccine Quiz” so parents can determine what vaccines are recommended for their child.<sup>47</sup>

An STI that specifically can impact children is syphilis. Syphilis during pregnancy can result in miscarriage, stillbirth, preterm delivery as well as congenital infection, where syphilis is passed from the mother to the child. **Congenital Syphilis** can result in lifelong disabilities, development delays, and death. The rate of congenital syphilis per 100,000 live births has drastically increased in the United States and in Tennessee in recent years. The number of pregnant patients with syphilis in Tennessee has increased fivefold between 2012 and 2021, but most congenital syphilis cases have been avoided through testing and treatment during pregnancy. In 2020, there were 39.4 congenital syphilis cases per 100,000 live births in Tennessee compared to 57.3 cases per 100,000 live births in the United States.<sup>48</sup>

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<sup>41</sup> Centers for Disease Control and Prevention, National Immunization Survey-Child (Birth Cohort). Accessed via CDC Child Vax View.

<sup>42</sup> Centers for Disease Control and Prevention, National Immunization Survey-Teen. Accessed via CDC Child Vax View.

<sup>43</sup> Department of Health Division of Communicable and Environmental Diseases and Emergency Preparedness; (US) CDC STD Surveillance Report, 2020.

<sup>44</sup> Centers for Disease Control and Prevention, National Immunization Survey-Child (Birth Cohort). Accessed via CDC Child Vax View.

<sup>45</sup> Centers for Disease Control. HPV Fact Sheet. April 2022. Accessed in Dec 2022 from <https://www.cdc.gov/std/hpv/stdfact-hpv.htm>

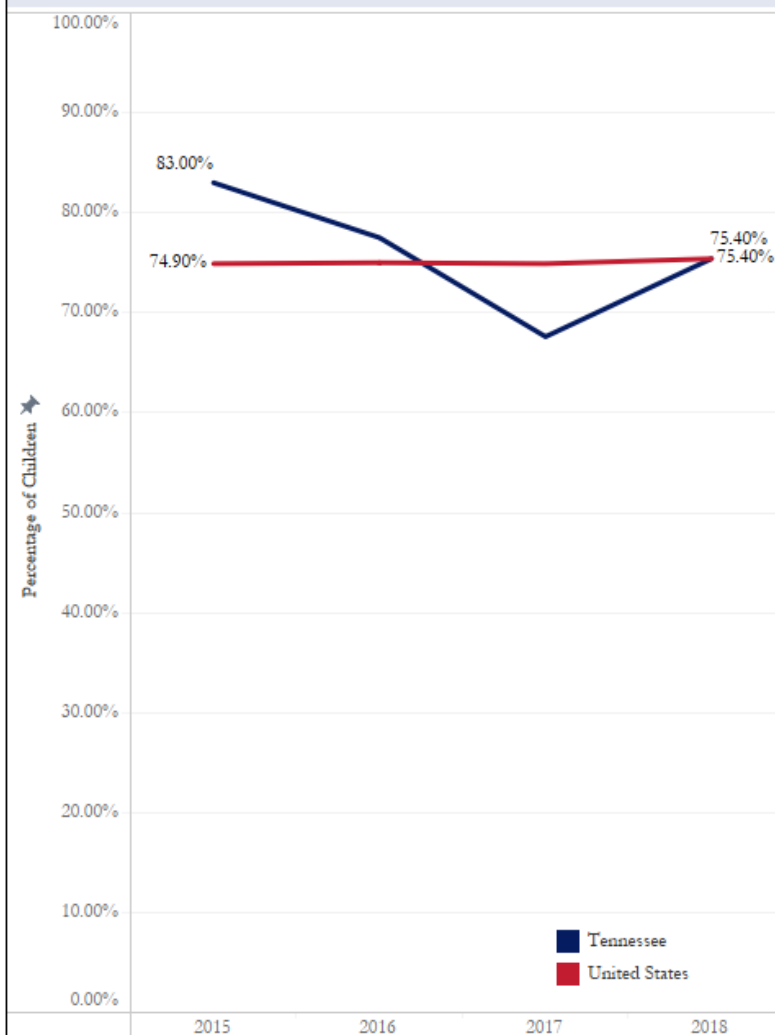
<sup>46</sup> Centers for Disease Control and Prevention, National Immunization Survey-Teen. Accessed via CDC Child Vax View.

<sup>47</sup> To view the CDC's Vaccines for Your Children webpage: <https://www.cdc.gov/vaccines/parents/index.html>

<sup>48</sup> Department of Health Division of Communicable and Environmental Diseases and Emergency Preparedness; (US) CDC STD Surveillance Report, 2020.

## Childhood Vaccinations

Percentage of children by birth year who received by age 35 months all recommended doses of the combined 7-vaccine series: (diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine; measles, mumps and rubella (MMR) vaccine; poliovirus vaccine; Haemophilus influenzae type b (Hib) vaccine; hepatitis B (HepB) vaccine; varicella vaccine; and pneumococcal conjugate vaccine (PCV)).

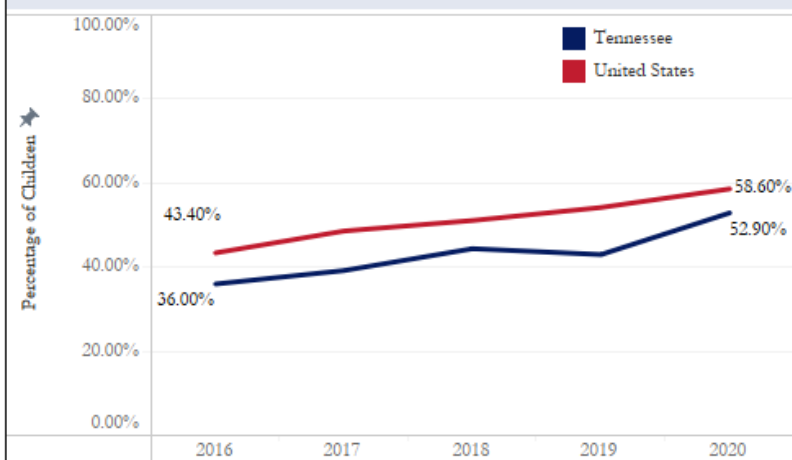


Data Source: Centers for Disease Control and Prevention, National Immunization Survey-Child (Birth Cohort). Accessed via CDC Child Vax View.

## HPV Vaccination

Percentage of adolescents ages 13-17 who received all recommended doses of the human papillomavirus (HPV) vaccine.

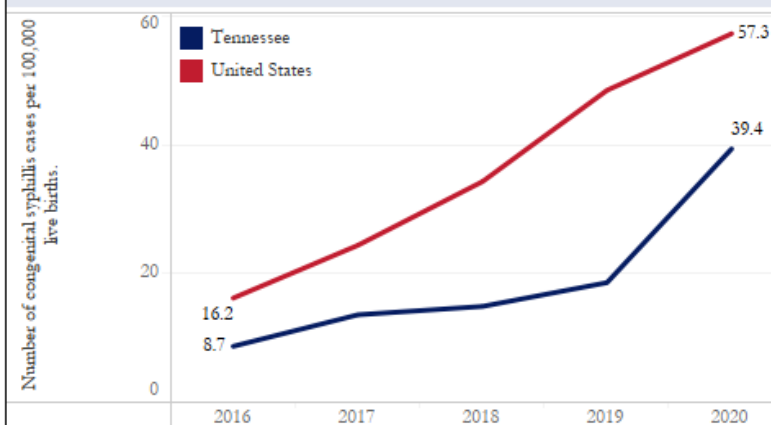
The CDC recommends that all children aged 11-12 receive the HPV vaccination to protect against cancers of the cervix, vagina, vulva, penis, anus, and back of the throat (oropharyngeal).



Data Source: Centers for Disease Control and Prevention, National Immunization Survey-Teen. Accessed via CDC Child Vax View.

## Congenital Syphilis

Number of congenital syphilis cases per 100,000 live births.



Data Source: (TN) Department of Health Division of Communicable and Environmental Diseases and Emergency Preparedness; (US) CDC STD Surveillance Report, 2020.

Data Note: 2016-2019 TN rates are based on counts <20 and should be interpreted with caution.

## Health Indicators

- In the United States, the prevalence of obesity in children aged 2-19 from 2017-2020 was 19.7%. In Tennessee, **Youth Obesity** has remained above 38% since 2012.<sup>49</sup>
- In 2020-2021, 5.6% of children in Tennessee had Asthma.<sup>50</sup>
- In 2019, 50.6% of high school students in Tennessee reported ever using **Electronic Vapor Products**.
- In 2019, 28.1% of Tennessee high school students were offered, sold, or given illegal **Drugs on School Property**.

In both 2017 and 2019, Tennessee's values were statistically higher than the United States' values.<sup>51</sup>

**Youth Obesity** can contribute to the development of health conditions such as Type 2 diabetes, high blood pressure, and joint pain.<sup>52</sup> Obesity in both children and adults can be influenced by genetics, disease or medications, and the physical environment as well as behaviors such as eating, physical activity and sleep.<sup>53</sup> The TN Department of Education and TN Department of Health have monitored youth obesity for years through the Coordinated School Health (CSH) program which issues an annual Body Mass Index (BMI) Data Report.<sup>54</sup> Youth obesity in Tennessee is measured as “Percent of public-school students in Tennessee with a body mass index (BMI) greater than or equal to the 85th percentile for children of the same age and sex.” In Tennessee, youth obesity has remained above 38% since 2012. <sup>55</sup> In the United States, the prevalence of obesity in children aged 2-19 from 2017-2020 was 19.7%. Children who are overweight or obese are also more likely to have **Asthma**.<sup>56</sup> In 2020-2021, 5.6% of children in Tennessee had Asthma, compared to 6.9% in the United States.<sup>57</sup>

The use of **Electronic Vapor Products** can expose users to nicotine and other harmful substances such as heavy metals, carcinogens, and ultrafine particles that can be inhaled deep into the lungs.<sup>58,59</sup> Nicotine specifically can harm adolescent brain development. In 2019, the percentage of Tennessee high school students who reported ever using electronic vapor products was 50.6%, compared to 50.1% in the United States.<sup>60</sup> Accessing electronic vapor products and other substances including illegal drugs can occur on school property. In 2019, 28.1% of Tennessee high school students were offered, sold,

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<sup>49</sup> Tennessee Department of Education Coordinated School Health Annual Body Mass Index Report

<sup>50</sup> National Survey of Children's Health, U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB)

<sup>51</sup> Centers for Disease Control, Youth Risk Behavior Surveillance System. Note: In 2015 Tennessee data was not collected.

<sup>52</sup> Mayo Clinic. Childhood Obesity. Accessed December 2022 from <https://www.mayoclinic.org/diseases-conditions/childhood-obesity/symptoms-causes/syc-20354827>

<sup>53</sup> Centers for Disease Control. Causes of Obesity.

[https://www.cdc.gov/obesity/basics/causes.html?CDC\\_AA\\_refVal=https%3A%2F%2Fwww.cdc.gov%2Fobesity%2Fchildhood%2Fcauses.html](https://www.cdc.gov/obesity/basics/causes.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fobesity%2Fchildhood%2Fcauses.html)

<sup>54</sup> To view the CSH BMI Reports visit: <https://www.tn.gov/education/health-and-safety/coordinated-school-health/csh-reports-data.html>

<sup>55</sup> Tennessee Department of Education Coordinated School Health Annual Body Mass Index Report

<sup>56</sup> Mayo Clinic. Childhood Obesity. Accessed December 2022 from <https://www.mayoclinic.org/diseases-conditions/childhood-obesity/symptoms-causes/syc-20354827>

<sup>57</sup> National Survey of Children's Health, U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB)

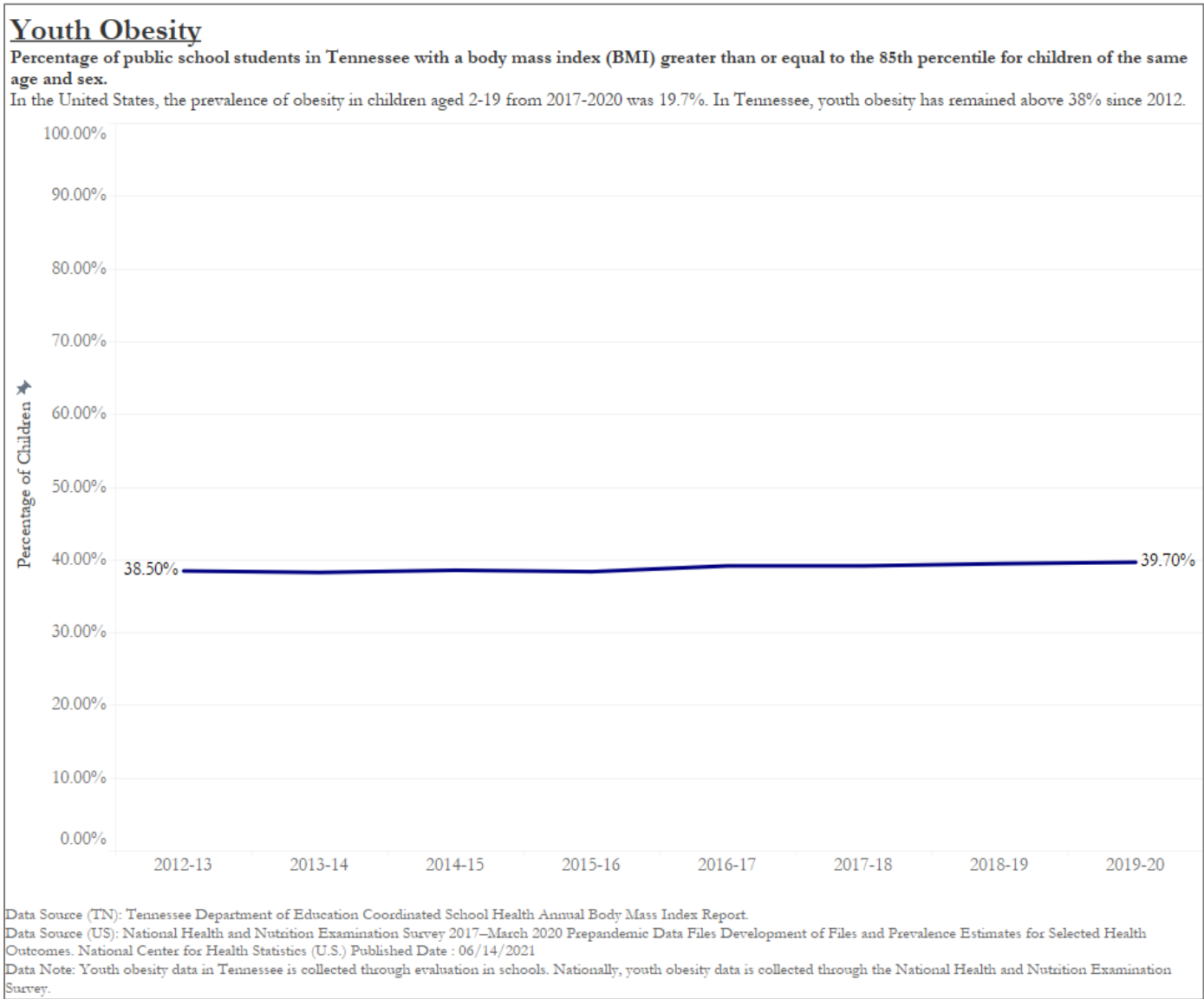
<sup>58</sup> CDC. Smoking and Tobacco Use. Quick Facts of the Risk of E-cigarettes for kids, teens, and young adults. Accessed December 2022 from

[https://www.cdc.gov/tobacco/basic\\_information/e-cigarettes/Quick-Facts-on-the-Risks-of-E-cigarettes-for-Kids-Teens-and-Young-Adults.html#:~:text=The%20use%20of%20e%2Dcigarettes,the%20early%20to%20mid%2D20s.&text=E%2Dcigarettes%20can%20contain%20other%20harmful%20substances%20besides%20nicotine..](https://www.cdc.gov/tobacco/basic_information/e-cigarettes/Quick-Facts-on-the-Risks-of-E-cigarettes-for-Kids-Teens-and-Young-Adults.html#:~:text=The%20use%20of%20e%2Dcigarettes,the%20early%20to%20mid%2D20s.&text=E%2Dcigarettes%20can%20contain%20other%20harmful%20substances%20besides%20nicotine..)

<sup>59</sup> CDC. Electronic Nicotine Delivery Systems. Accessed January 2023 at [Electronic Nicotine Delivery Systems | NIOSH | CDC](https://www.cdc.gov/electronic-nicotine-delivery-systems/)

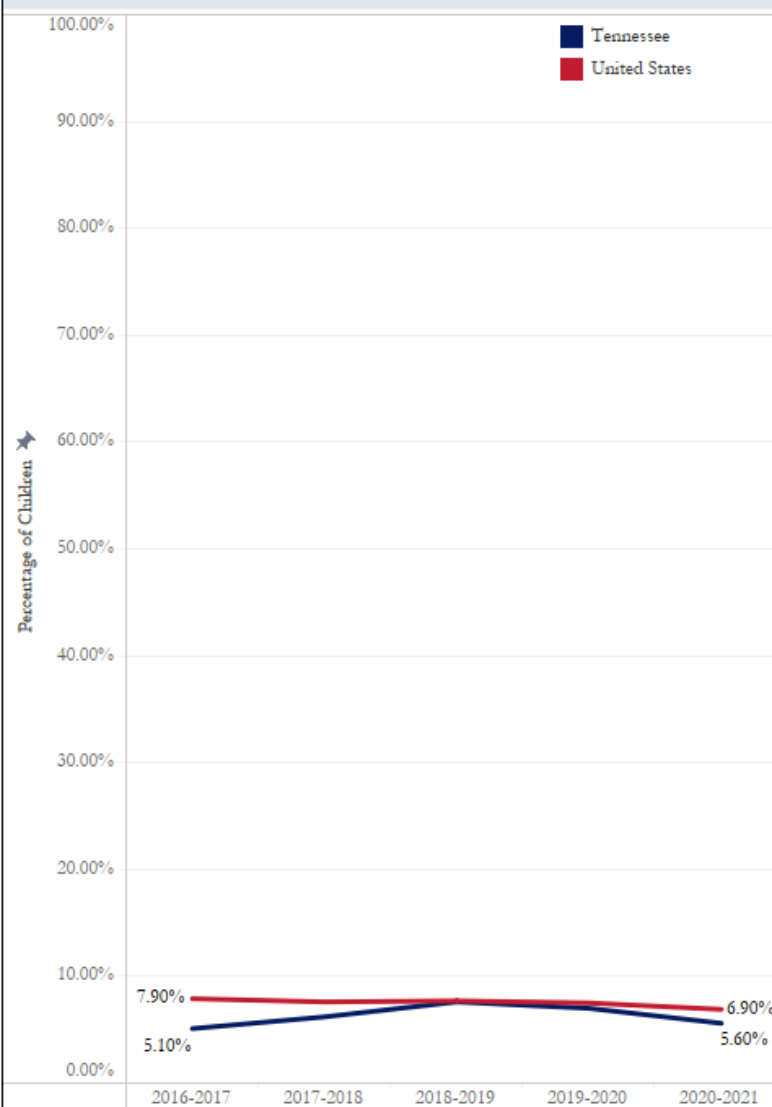
<sup>60</sup> Centers for Disease Control, Youth Risk Behavior Surveillance System

or given illegal **Drugs on School Property**. In both 2017 and 2019, Tennessee's values were statistically higher than the United States' values.<sup>61</sup>



## Asthma

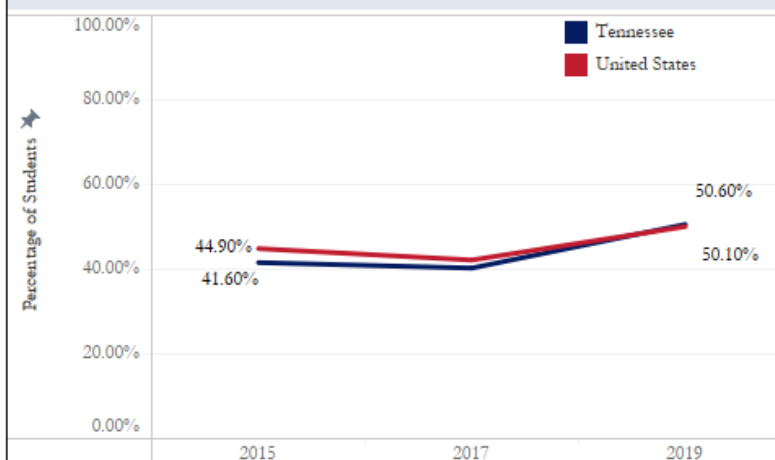
Percentage of children ages 0-17 who currently have asthma (2-year estimate)



Data Source: National Survey of Children's Health, U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB)

## Electronic Vapor Usage

Percentage of high school students who reported ever using electronic vapor products (including e-cigarettes, vapes, vape pens, e-cigars, e-hookahs, hookah pens, and mods). In 2019, 50.6% of Tennessee high school students reported ever using electronic vapor products.

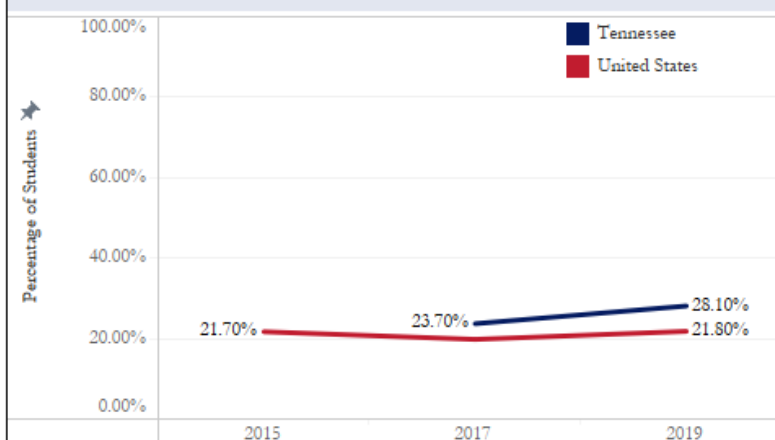


Data Source: Centers for Disease Control, Youth Risk Behavior Surveillance System

## Drugs on School Property

Percentage of high school students who were offered, sold, or given an illegal drug on school property (during the 12 months before the survey).

In 2017 and 2019, Tennessee's values were statistically higher than the United States' values.



Data Source: Centers for Disease Control, Youth Risk Behavior Surveillance System

Data Note: In 2015 Tennessee data was not collected.

## Youth Mental Health

- In 2019, 36.7% of Tennessee high school students experienced **Hopelessness**.<sup>62</sup>
- In 2019, 3.9% of youth in Tennessee had one or more **Suicide Attempt** resulting in an injury, poisoning, or overdose that had to be treated by a doctor or nurse.<sup>63</sup>
- In 2021, the youth **Suicide Mortality** rate was 2.46 deaths per 100,000 population (<18).<sup>64</sup>

In 2019, 36.7% of Tennessee high school students reported being sad or hopeless almost every day for two or more weeks in a row to the point that they stopped doing some usual activities.<sup>65</sup> There was no statistical difference between **Youth Hopelessness** in Tennessee and the United States. In 2019, 3.9% of youth in Tennessee had one or more **Suicide Attempt** resulting in an injury, poisoning, or overdose that had to be treated by a doctor or nurse.<sup>66</sup> While Tennessee's percent of youth with suicide attempts requiring medical attention in 2019 was higher than the United States average, it was not statistically higher. Youth between the ages of 15 and 24 experienced the highest rates for both self-harm injury and suicidal ideation. In a CDC review of suicide from 2017-2019 in the United States, youth who made a suicide plan and attempted suicide increased.<sup>67</sup> Youth **Suicide Mortality** is defined as deaths due to intentional self-harm per 100,000 population (<18). In 2021, the youth suicide mortality rate in Tennessee was 2.46 deaths per 100,000 population. The TN Department of Health 2021 Annual Suicide Prevention noted 32 children dying by suicide.<sup>68</sup> Of the children who died, life stressors prior to death were noted including “experiencing racism (n=9), being victims of bullying (n=9), poverty (n=14), pregnancy (n=3), housing instability (n=3), parents’ divorce/separation (n=9), family discord (n=10) communicating suicidal thoughts or intents, and having divorced parents.”<sup>69</sup> The 2022 Report notes that Suicide has increased for ages 10-24 from 2020-2021. The Tennessee Department of Health’s Suicide Prevention program releases detailed annual data reports on suicide with more information on suicide by age.<sup>70</sup>

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<sup>62</sup> Centers for Disease Control, Youth Risk Behavior Surveillance System

<sup>63</sup> Centers for Disease Control, Youth Risk Behavior Surveillance System

<sup>64</sup> Data Source (TN): Tennessee Department of Health. Death Statistical File - TN Office of Vital Statistics.

<sup>65</sup> Centers for Disease Control, Youth Risk Behavior Surveillance System

<sup>66</sup> Centers for Disease Control, Youth Risk Behavior Surveillance System

<sup>67</sup> Centers for Disease Control, Trends in the Prevalence of Suicide-Related Behaviors National YRBS: 1991-2019.

[https://www.cdc.gov/healthyyouth/data/yrbs/factsheets/2019\\_suicide\\_trend\\_yrbs.htm](https://www.cdc.gov/healthyyouth/data/yrbs/factsheets/2019_suicide_trend_yrbs.htm)

<sup>68</sup> Centers for Disease Control, Youth Risk Behavior Surveillance System

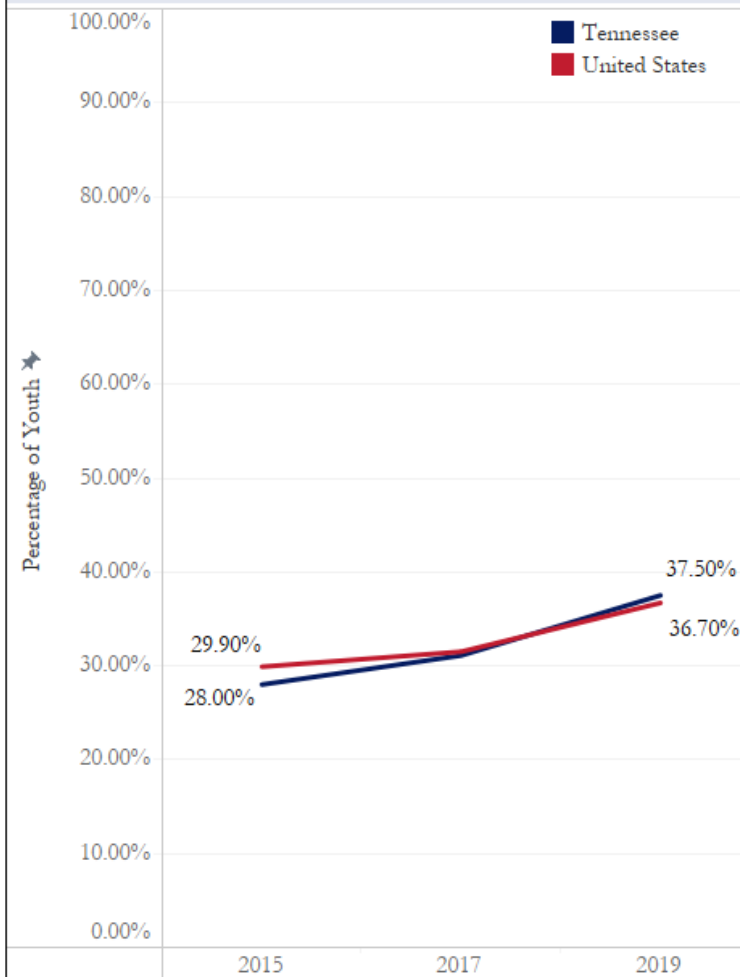
<sup>69</sup> TN Department of Health: 2021 Suicide Prevention Report. <https://www.tn.gov/content/dam/tn/health/program-areas/vipp/2021-Suicide-Annual-Report.pdf>

<sup>70</sup> To access the Department of Health’s Suicide Data and Surveillance Information: <https://www.tn.gov/health/health-program-areas/fhw/vipp/suicide-prevention/data.html>

## Youth Hopelessness

Percentage of high school students enrolled in grades 9 to 12 who reported being sad or hopeless almost every day for 2 or more weeks in a row so that they stopped doing some usual activities, during the 12 months before the survey.

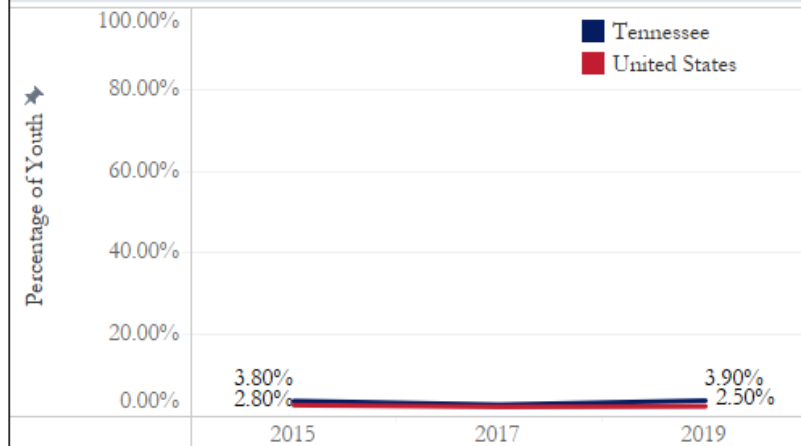
In 2019, there was no statistical difference between youth hopelessness in Tennessee and the United States.



Data Source: Centers for Disease Control, Youth Risk Behavior Surveillance System

## Youth Suicide Attempt

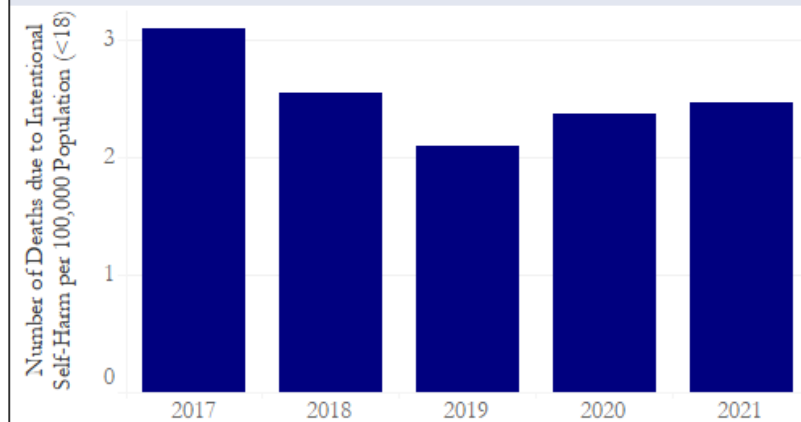
Percentage of youth with one or more suicide attempts resulting in an injury, poisoning, or overdose that had to be treated by a doctor or nurse (during the 12 months before the survey).



Data Source: Centers for Disease Control, Youth Risk Behavior Surveillance System

## Youth Suicide Mortality

Number of deaths due to intentional self-harm per 100,000 population (<18) in Tennessee.



Data Source: Data Source (TN): Tennessee Department of Health, Death Statistical File - TN Office of Vital Statistics.

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## Pregnancy and Childbirth

- In 2021, **Prenatal Care** was initiated in 91.83% of live births in Tennessee.<sup>71</sup>
- In 2020, the percent of mothers **Smoking During Pregnancy** in Tennessee (10.86%) was almost double the percent of mothers smoking during pregnancy in the United States (5.50%). In 2021, 9.11% of Tennessee mothers reported smoking during pregnancy.<sup>72</sup>
- In 2021, 11.27% of live births in Tennessee were **Preterm Births**.<sup>73</sup>
- In 2021, 9.3% of live births in Tennessee had a **Low Birthweight**.<sup>74</sup>
- In 2021, **Breastfeeding** was initiated with 81.08% of live births in Tennessee.<sup>75</sup>
- In 2020, 14.87% of Tennessee women with a recent live birth reported experiencing **Postpartum Depression**.<sup>76</sup>
- In 2020, Tennessee's **Infant Mortality** rate was 6.30 infant deaths per 1,000 live births, compared to 5.42 in the United States. In 2021, Tennessee infant mortality rate was 6.18 infant deaths per 1,000 live births.<sup>77</sup>
- In 2019, the **Pregnancy-Related Mortality** Ratio was 28.6 deaths per 100,000 live births in Tennessee.<sup>78</sup>
- In 2020, there were 42 **Pregnancy-Associated, but not related Deaths**, defined as death within one year of pregnancy where pregnancy was not the aggravating factor.<sup>79</sup>
- In 2020, the **Teen Birth** rate in the United States was 15.40 compared to 23.26 in Tennessee.

**Prenatal Care**, such as following a safe and healthy diet, reducing exposure to harmful substances, and controlling existing conditions such as high blood pressure, can reduce the risk of pregnancy complications.<sup>80</sup> In 2021, prenatal care was initiated in 91.83% of live births in Tennessee during the first and sixth month of pregnancy.<sup>81</sup> Nationally, initiation of prenatal care is measured by trimester. In 2020, 77.7% of all mothers initiated prenatal care during the first trimester. Only 6.2% of mothers in the United States initiated prenatal care late or not at all. **Smoking During Pregnancy**<sup>82</sup> and

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<sup>71</sup> Data Source (TN): Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics. Data Source (US): CDC National Vital Statistics Report Vol. 70 No 17 February 7, 2022. US Value for 2020 available in report only.

<sup>72</sup> Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics.

<sup>73</sup> Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics.

<sup>74</sup> Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics.

<sup>75</sup> Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics.

<sup>76</sup> Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System or State Equivalent

<sup>77</sup> Tennessee Department of Health. Death Statistics - TN Office of Vital Statistics.

<sup>78</sup> Tennessee Department of Health. Death Statistics - TN Office of Vital Statistics. Accessed via the Tennessee Department of Health Maternal Mortality Review Annual Report.

<sup>79</sup> Tennessee Department of Health. Death Statistics - TN Office of Vital Statistics. Accessed via the Tennessee Department of Health Maternal Mortality Review Annual Report.

<sup>80</sup> National Institute of Child Health and Human Development. What is Prenatal Care and why is it important? Accessed December 2022.

<sup>81</sup> <https://www.nichd.nih.gov/health/topics/pregnancy/conditioninfo/prenatal-care>

<sup>82</sup> Data Source (TN): Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics. Data Source (US): CDC National Vital Statistics Report Vol. 70 No 17 February 7, 2022. US Value for 2020 available in report only.

<sup>82</sup> Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics.

secondhand smoke exposure can lead to birth defects, preterm birth, and sudden infant death syndrome (SIDS).<sup>83</sup> In 2020, the percent of mothers smoking during pregnancy in Tennessee (10.86%) was almost double the percent of mothers smoking during pregnancy in the United States (5.50%). In 2021, 9.11% of Tennessee mothers reported smoking during pregnancy.

Engaging in early prenatal care and not smoking during pregnancy can help prevent complications such as **Preterm Births** and **Low Birthweight**. In 2020, 10.92% of live births in Tennessee were preterm, defined as less than 37 weeks gestation.<sup>84</sup> In the United States, 10.09% of live births in 2020 were preterm. While 2021 data for the United States has not been released, 11.27% of live births in Tennessee in 2021 were preterm. Children born early may experience breathing problems, development delays, vision problems and hearing problems. In 2020, 8.9% of live births in Tennessee had a low birthweight, defined as less than 2,500 grams, compared to 8.24% in the United States. In 2021, 9.3% of live births in Tennessee had a low birthweight.

After birth, **Breastfeeding** can play an important role in reducing the risk of health conditions in infants such as asthma, obesity, type 1 diabetes, and SIDS. Additionally, breastfeeding has positive health impacts for mothers including reduced risk of high blood pressure, type 2 diabetes, ovarian and breast cancer.<sup>85</sup> In 2020, breastfeeding was initiated with 83.5% of live births in the United States and 81.2% of live births in Tennessee.<sup>86</sup> Monitoring the mental health of mothers after birth is critical in addition to monitoring physical recovery. **Postpartum Depression** symptoms may include “feeling distant from your baby, thinking about hurting yourself or your baby, and doubting your ability to care for your baby.”<sup>87</sup> In 2020, 14.87% of Tennessee women with a recent live birth reported experiencing depressive symptoms, compared to 13.40% in the United States.<sup>88</sup>

According to the CDC, in the United States in 2020, “preterm birth and low birth weight accounted for about 16% of infant deaths (deaths before 1 year of age).”<sup>89</sup> In 2020, Tennessee experienced 6.30 infant deaths per 1,000 live births, compared to 5.42 in the United States. In 2021, the **Infant Mortality** rate per 1,000 live births in Tennessee was 6.18, down from 7.38 in 2017.<sup>90</sup> **Pregnancy-Related Death**<sup>91</sup> is defined as death within one year of pregnancy where pregnancy was the aggravating factor. The pregnancy related mortality ratio (PRMR) increased from 28.6 in 2019 to 58.5 in 2020. This increase may have occurred due to the increase of overall deaths in 2020 and the implementation of the Utah Criteria when determining the pregnancy relatedness of overdose deaths.<sup>92</sup> The Tennessee Department of Health’s 2022

*The Tennessee Department of Health’s 2022 Maternal Mortality Annual Report noted “In 2020 discrimination contributed to 1 in 3 (33%) of pregnancy-related deaths.”*

Maternal Mortality Annual Report noted “In 2020 discrimination contributed to 1 in 3 (33%) of pregnancy-related deaths.” In 2020, there were 42 **Pregnancy-Associated, but not related Deaths**, defined as death within one year of pregnancy

<sup>83</sup> CDC. Tobacco. Outlook for Mother and Baby. Accessed December 2022 from <https://www.cdc.gov/tobacco/campaign/tips/diseases/pregnancy.html>

<sup>84</sup> Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics.

<sup>85</sup> CDC. Breastfeeding. Accessed December 2022 via <https://www.cdc.gov/breastfeeding/about-breastfeeding/why-it-matters.html>

<sup>86</sup> Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics.

<sup>87</sup> CDC Reproductive Health. Depression During and After Pregnancy. Accessed December 2023 from <https://www.cdc.gov/reproductivehealth/features/maternal-depression/index.html>.

<sup>88</sup> Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System or State Equivalent

<sup>89</sup> CDC. Reproductive Health. Preterm Birth. Accessed December 2022 from <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pretermbirth.htm>

<sup>90</sup> Tennessee Department of Health. Death Statistics - TN Office of Vital Statistics.

<sup>91</sup> Tennessee Department of Health. Death Statistics - TN Office of Vital Statistics. Accessed via the Tennessee Department of Health Maternal Mortality Review Annual Report.

<sup>92</sup> Smidt MC, Maeda J, Stone NM, Sylvester H, Baksh L, Debbink MP, Varner MW, Metz TD. Standardized Criteria for Review of Perinatal Suicides and Accidental Drug-Related Deaths. *Obstet Gynecol.* 2020 Oct;136(4):645-653. Doi: 10.1097/AOG.0000000000003988. PMID: 32925616; PMCID: PMC8086704

where pregnancy was not the aggravating factor.<sup>93</sup> The Tennessee Maternal Mortality Review Committee issues a detailed report annually to the Tennessee General Assembly on maternal mortality and all data and reports are published online.<sup>94</sup>

Teens who become pregnant and have children are less likely to graduate from high school. Additionally, the children of teen parents are “more likely to have lower school achievement and to drop out of high school, have more health problems, be incarcerated at some time during adolescence, give birth as a teenager, and face unemployment as a young adult.”<sup>95</sup> **Teen Births** in Tennessee have been decreasing in recent years. In 2021, there were 21.5 births per 1,000 women aged 15-19, down from 26.6 in 2017.<sup>96</sup> Despite this decrease, teen births in Tennessee remains higher than in the United States overall. In 2020, the teen birth rate in the United States was 15.40 compared to 23.26 in Tennessee. Tennessee is ranked 44<sup>th</sup> in the United States and therefore has one of the highest teen birth rates in the country.

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<sup>93</sup> Tennessee Department of Health. Death Statistics - TN Office of Vital Statistics. Accessed via the Tennessee Department of Health Maternal Mortality Review Annual Report.

<sup>94</sup> To access the TN Maternal Mortality Review Information please visit <https://www.tn.gov/health/health-program-areas/fhw/maternal-mortality-review.html>

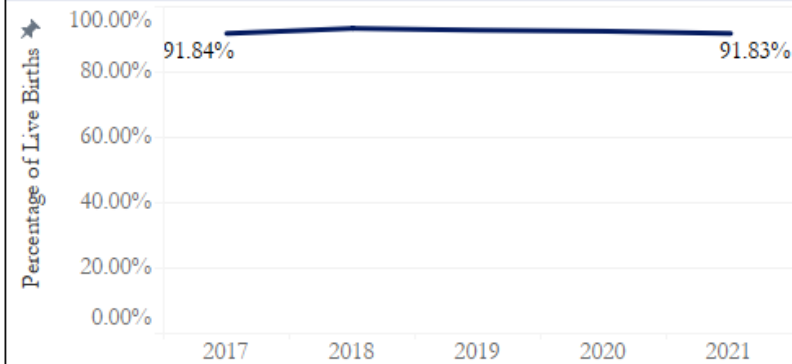
<sup>95</sup> CDC. Teen Pregnancy. Accessed December 2022 from <https://www.cdc.gov/teenpregnancy/about/index.htm#:~:text=The%20US%20teen%20birth%20rate,decrease%20of%204%25%20from%202018.>

<sup>96</sup> Data Source (TN): Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics. Data Source (US): CDC WONDER, Natality Public Use Files. Accessed via America's Health Rankings.

## Prenatal Care

Percentage of live births in which the mother began prenatal care between the first and sixth month of pregnancy.

Nationally, initiation of prenatal care is measured by trimester. In 2020, 77.7% of all mothers initiated prenatal care during the first trimester. Only 6.2% of mothers in the United States initiated prenatal care late or not at all.

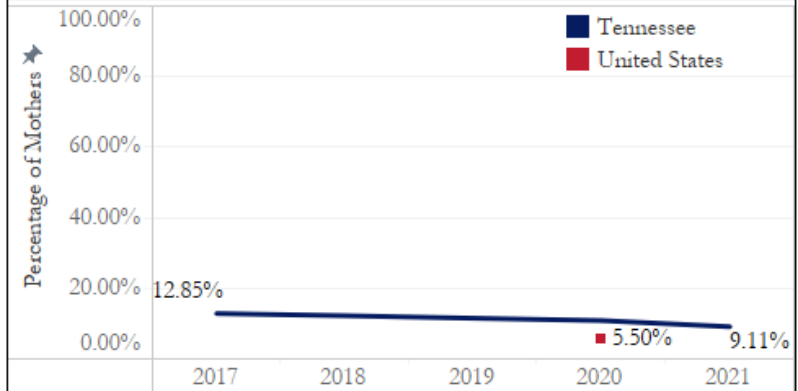


Data Source (TN): Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics. (US): CDC National Vital Statistics Report Vol. 70 No 17 February 7, 2022. US Value for 2020 available in report only.

## Smoking During Pregnancy

Percentage of mothers who reported smoking cigarettes during pregnancy.

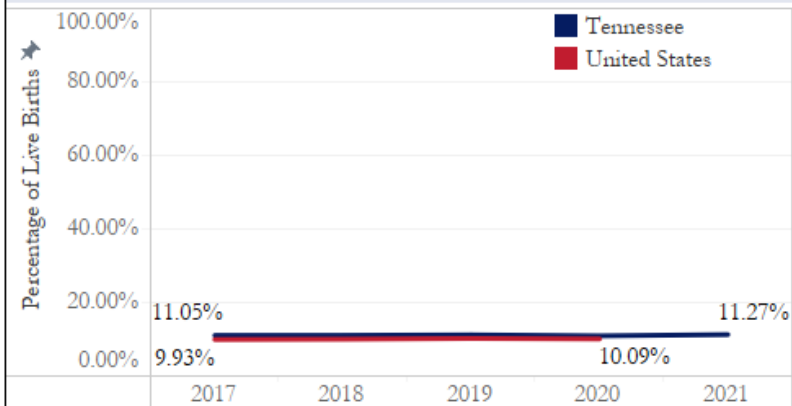
In 2020, the percent of mothers smoking during pregnancy in Tennessee (10.86%) was almost double the percent of mothers smoking during pregnancy in the United States (5.50%).



Data Source (TN): Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics. (US): CDC National Vital Statistics Report Vol. 70 No 17 February 7, 2022. US Value for 2020 available in report only.

## Preterm Births

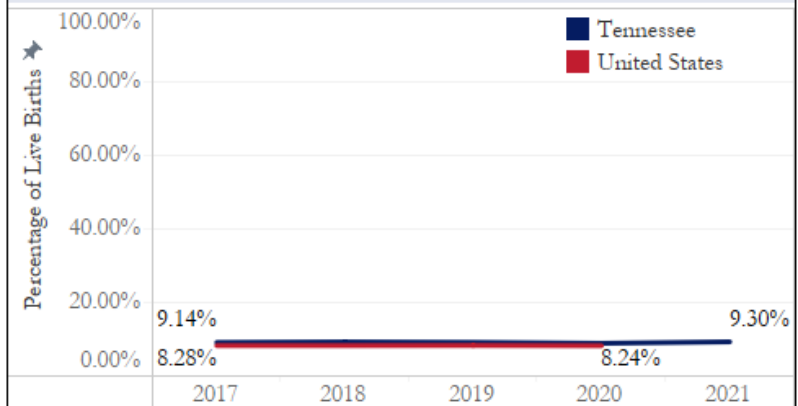
Percentage of live births preterm (<37 weeks gestation)



Data Source (TN): Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics. (US): CDC National Vital Statistics Report Vol. 70 No 17 February 7, 2022. US Value for 2021 not available.

## Low Birthweight

Percentage of live births with low birthweight (<2,500 grams).

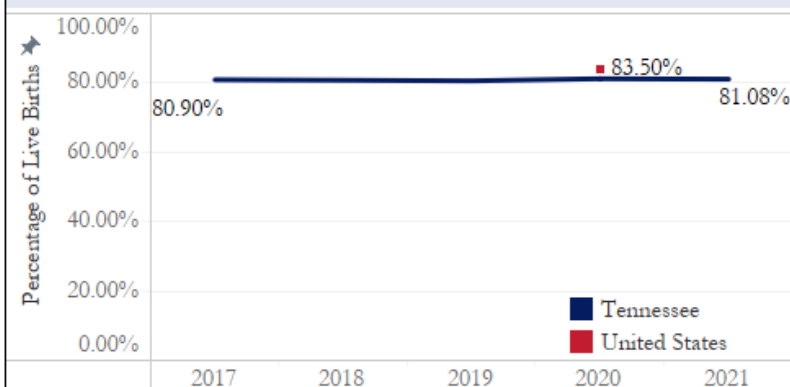


Data Source (TN): Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics. (US): CDC National Vital Statistics Report Vol. 70 No 17 February 7, 2022. US Value for 2021 not available.

## Breastfeeding

Percentage of live births where breastfeeding is initiated at birth.

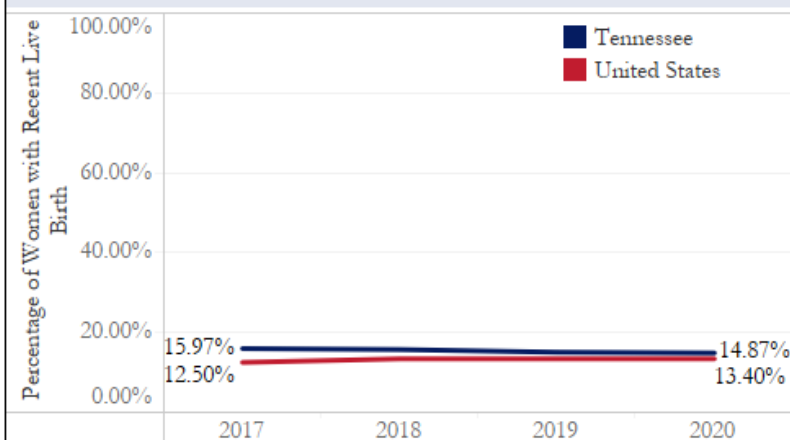
In 2020, breastfeeding was initiated with 83.5% of live births in the United States and 81.2% of live births in Tennessee.



Data Source (TN): Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics. (US): CDC National Vital Statistics Report Vol. 70 No 17 February 7, 2022. US Value for 2020 available in report only.

## Postpartum Depression

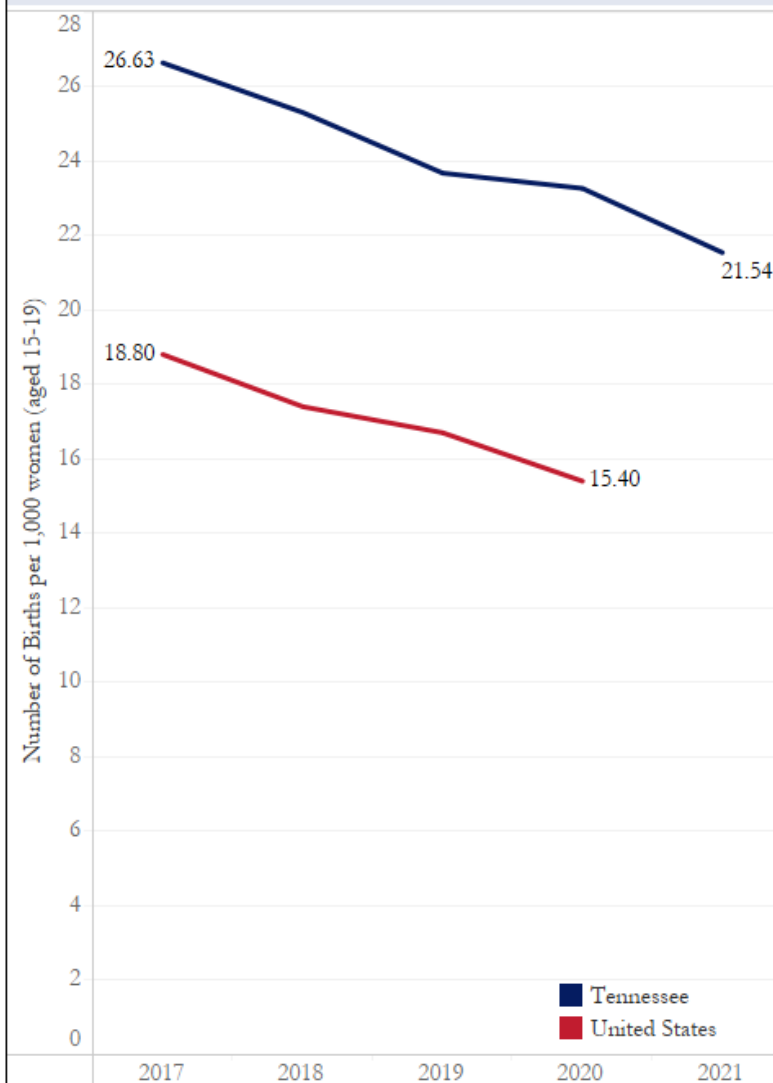
Percentage of women with a recent live birth who reported experiencing depressive symptoms.



Data Source: Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System or State Equivalent

## Teen Births

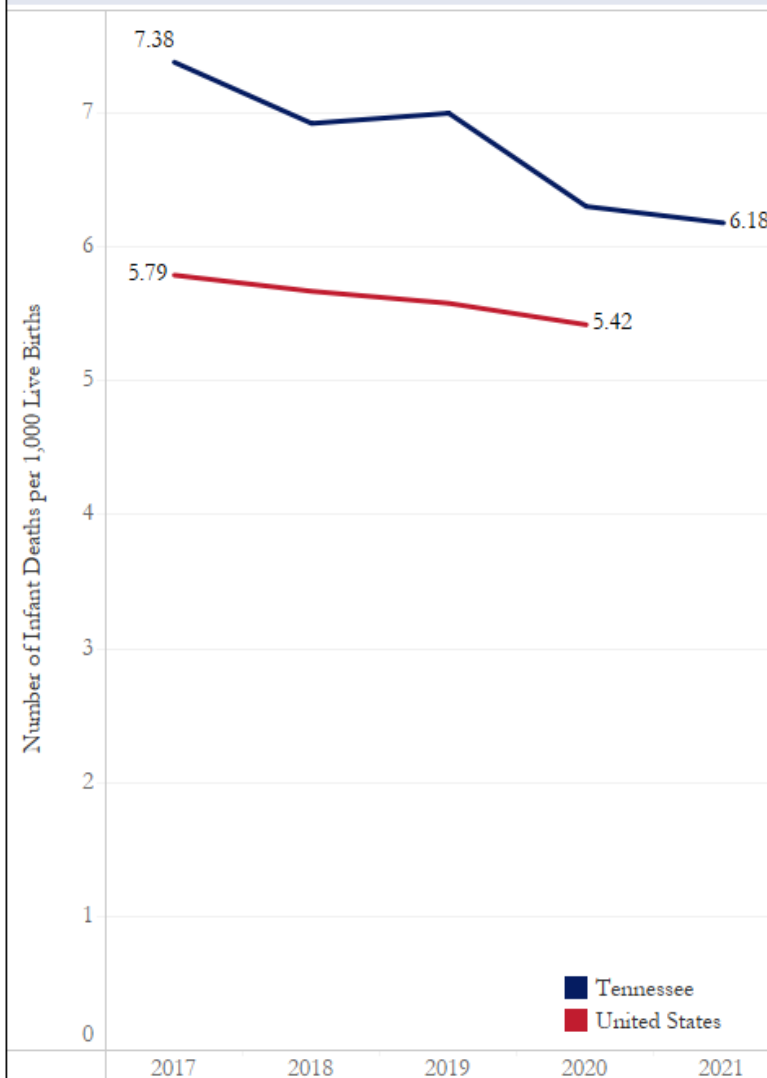
Number of births per 1,000 women aged 15-19 years



Data Source (TN): Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics. (US): CDC WONDER, Natality Public Use Files. Accessed via America's Health Rankings.

## Infant Mortality

Number of infant deaths per 1,000 live births

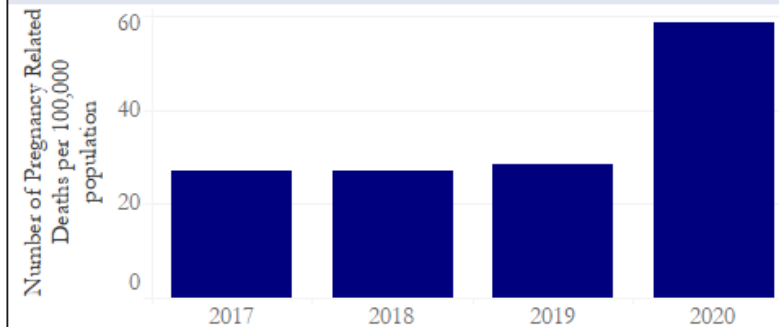


Data Source (TN): Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics. (US): CDC National Vital Statistics Report Vol. 70 No 17 February 7, 2022. US Value for 2021 not listed.

## Pregnancy-Related Mortality Ratio

Number of deaths within one year of pregnancy where pregnancy was the aggravating factor per 100,000 live births in Tennessee.

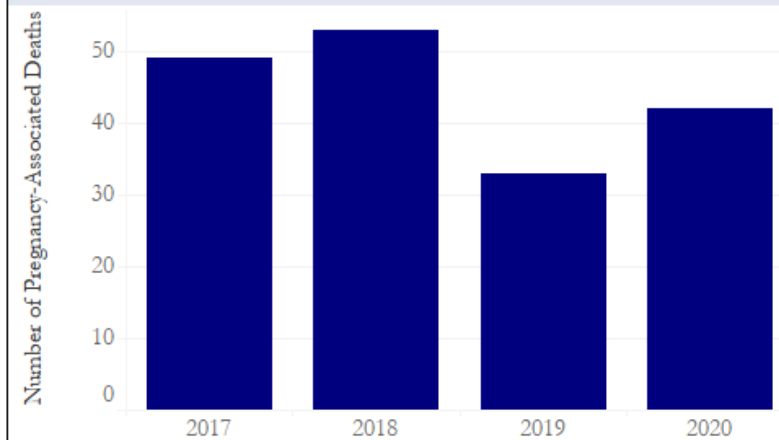
The pregnancy related mortality ratio (PRMR) increased from 28.6 in 2019 to 58.5 in 2020. This increase may have occurred due to the increase of overall deaths in 2020 and the implementation of the Utah Criteria when determining the pregnancy relatedness of overdose deaths.



Data Source: Tennessee Department of Health. Death Statistics - TN Office of Vital Statistics. Accessed via the Tennessee Department of Health Maternal Mortality Review Annual Report.

## Pregnancy Associated (not related) Deaths

Number of deaths within one year of pregnancy where pregnancy was NOT the aggravating factor in Tennessee.



Data Source: Tennessee Department of Health. Death Statistics - TN Office of Vital Statistics. Accessed via the Tennessee Department of Health Maternal Mortality Review Annual Report.





## A Healthy Life

To assess health in Tennessee's adult and older adult populations, the State of Health report considers metrics on social determinants of health such as unemployment and adult literacy, health behaviors and conditions such as diabetes and suicide, as well as specific metrics to assess health in Tennessee's older adults including social isolation and caregiving.

| A Healthy Life             |                             |                      |                             |                                    |
|----------------------------|-----------------------------|----------------------|-----------------------------|------------------------------------|
| Per Capita Personal Income | Adult Poverty               | Food Insecurity      | Poverty and the Labor Force | Unemployment                       |
| Workplace Benefits         | Fatal Occupational Injuries | Adult Numeracy       | Adult Literacy              | Violent Crime                      |
| Domestic Violence          | Chlamydia                   | HIV                  | Hepatitis C                 | COVID-19 Vaccinations              |
| Influenza Vaccinations     | Chronic Conditions          | Adult Smoking        | Physical Activity           | Diabetes                           |
| Binge Drinking             | Nonfatal Drug Overdose      | Fatal Drug Overdose* | Frequent Mental Distress    | Suicidal Ideation                  |
| Suicide Attempt            | Suicide Mortality           | Premature Death      | 65+ Poverty                 | Grandparents Raising Grandchildren |
| Elder Abuse                | Social Isolation            | Falls 65+            | Caregiving                  | Dementia                           |

## Social Determinants of Health

### Income and Workforce




- While Tennessee's **Per Capita Personal Income** is increasing, it remains below the United States average and is increasing more slowly than the United States.<sup>97</sup> 
- In 2021, 12.4% of Tennessee adults were living in **Poverty**.<sup>98</sup> 
- Food Insecurity** in Tennessee was statistically higher than food insecurity in the United States in 2018-2020, but not statistically different in 2019-2021.<sup>99</sup> 
- The 47.2% percent of Tennesseans aged 20-64 who are **living in poverty are participating in the labor force**.<sup>100</sup> 

<sup>97</sup> United States Bureau of Economic Analysis. Retrieved from [www.bea.gov](http://www.bea.gov)

<sup>98</sup> United States Census Bureau, American Community Survey, 1-Year Public Use Estimates.

<sup>99</sup> USDA Economic Research Service

<sup>100</sup> United States Census Bureau, American Community Survey, 1-Year Public Use Estimates.

- In 2019, 4.5% of the labor force in both Tennessee and the United States were **Unemployed**.<sup>101</sup> 
- In 2020, 52.3% of employed workers used some type of paid time off as a **Workplace Benefit**.<sup>102</sup> 
- In 2020, Tennessee experienced 5.1 **Fatal Occupational Injuries** per 100,000 full-time workers.<sup>103</sup> 

Tennessee's **Per Capita Personal Income** increased from \$43,499 in 2016 to \$54,873 in 2021. Nationally, the per capita income increased from \$49,613 in 2016 to \$63,444 in 2021.<sup>104</sup> While Tennessee's per capita personal income is increasing, it remains below the United States average and is increasing more slowly than the United States. In 2021, 12.40% of Tennessee adults were living in **Poverty**, compared to 11.60% nationally.<sup>105</sup> As children in poverty are more likely to experience poverty as an adult, intergenerational cycles of poverty persist that last decades. Poverty is associated with "increased risk of mental illness, chronic disease, higher mortality, and lower life expectancy. One study found that men and women in the top one percent of income were expected to live 14.6 and 10.1 years longer respectively than men and women in the bottom one percent."<sup>106</sup> Additionally, individuals living in poverty are more likely to be food insecure. Food insecurity is associated with "decreased nutrient intakes, increased rates of mental health problems and depression, diabetes, hypertension," and more.<sup>107</sup> **Food Insecurity** in Tennessee was statistically higher than food insecurity in the United States in 2018-2020, but not statistically different in 2019-2021.<sup>108</sup>

Ideally, persons who are engaged in the labor force should not be living in poverty. However, of people aged 20-64 living in poverty in Tennessee, 47.2% were engaged in the labor force (employed or unemployed). The percentage of Tennesseans **in poverty while engaged in the labor force** decreased from 49.9% in 2015 to 47.2% in 2021. . Tennessee's value was slightly below the United States in all years except 2018.<sup>109</sup> **Unemployment** in Tennessee has stayed consistent with national unemployment. In 2019 4.5% of the labor force in both Tennessee and the United States were unemployed.<sup>110</sup> For real time up to date data on the labor force in Tennessee, including information on poverty within the labor force and unemployment, visit the TN Department of Labor and Workforce Development's Labor Force Statistics webpage.<sup>111</sup>

Tennesseans engaged in the labor force must consider access to **Workplace Benefits** and **Workplace Safety** when searching for employment opportunities. In 2020, 52.3% of employed workers in Tennessee used some type of paid time off compared to 54.9% in the United States.<sup>112</sup> In 2020, Tennessee experienced 5.1 **Fatal Occupational Injuries** per 100,000 full-time workers.<sup>113</sup>

<sup>101</sup> United States Census Bureau, American Community Survey, 1-Year Public Use Estimates.

<sup>102</sup> U.S. Census Bureau, Current Population Survey (CPS), Annual Social and Economic Supplement (ASEC). Accessed via National Health Security Preparedness Index.

<sup>103</sup> U.S. Bureau of Labor Statistics, Census of Fatal Occupational Injuries, State Archive

<sup>104</sup> United States Bureau of Economic Analysis. Retrieved from [www.bea.gov](http://www.bea.gov)

<sup>105</sup> United States Census Bureau, American Community Survey, 1-Year Public Use Estimates.

<sup>106</sup> Healthy People 2030. Poverty Literature Summary. <https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries/poverty#:~:text=In%20addition%20to%20lasting%20effects,substance%20use%2C%20and%20chronic%20stress.&text=Finally%2C%20older%20adults%20with%20lower,rates%20of%20disability%20and%20mortality.>

<sup>107</sup> Gundersen, Craig. Ziliak, James. *Food Insecurity and Health Outcomes*. Health Affairs Vol. 34(11). November 2015. <https://doi.org/10.1377/hlthaff.2015.0645>

<sup>108</sup> USDA Economic Research Service

<sup>109</sup> United States Census Bureau, American Community Survey, 1-Year Public Use Estimates.

<sup>110</sup> United States Census Bureau, American Community Survey, 1-Year Public Use Estimates.

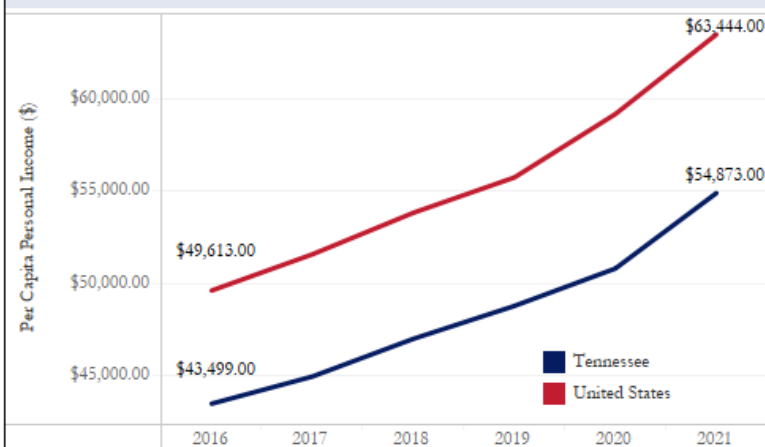
<sup>111</sup> To view the TN Dept of Labor and Workforce Development's Labor Force Statistics Webpage visit: <https://www.tn.gov/workforce/tennessee-economic-data-/labor-force-statistics.html>.

<sup>112</sup> U.S. Census Bureau, Current Population Survey (CPS), Annual Social and Economic Supplement (ASEC). Accessed via National Health Security Preparedness Index.

<sup>113</sup> U.S. Bureau of Labor Statistics, Census of Fatal Occupational Injuries, State Archive

### Per Capita Personal Income

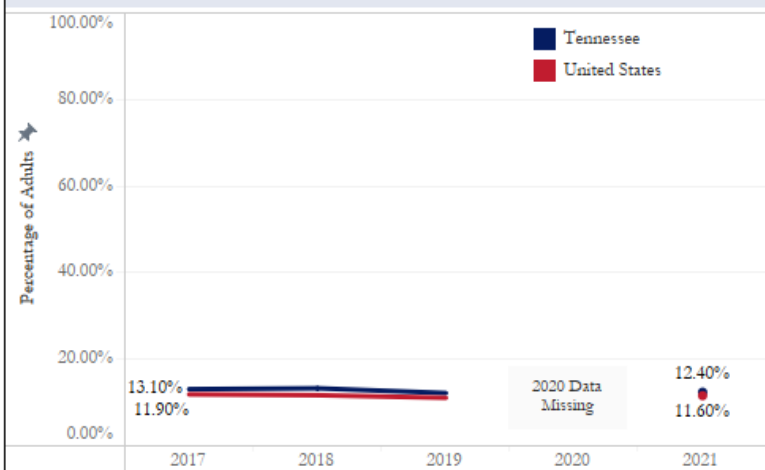
Annual, not seasonally adjusted, per capita personal income in dollars. While Tennessee's per capita personal income is increasing, it remains below the US average and is increasing more slowly than the US average.



Data Source: United States Bureau of Economic Analysis. Retrieved from [www.bea.gov](http://www.bea.gov)

### Adult Poverty

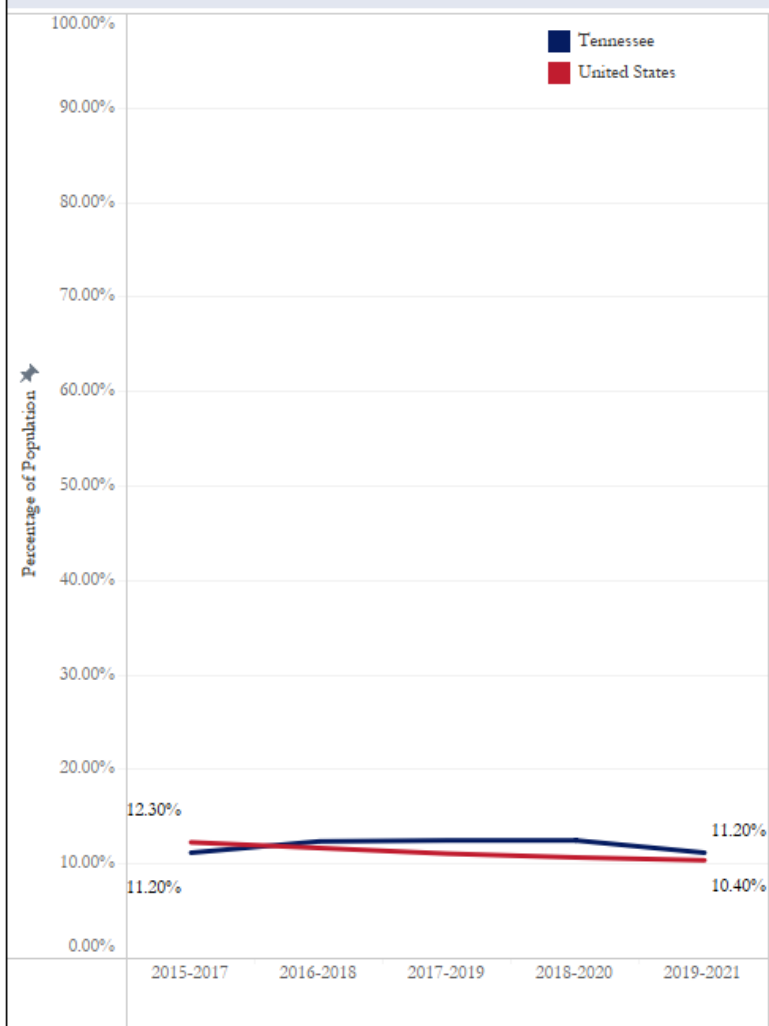
Percentage of all persons 18 years and over whose income in the past 12 months is below the poverty level.



Data Source: United States Census Bureau, American Community Survey, 1-Year Public Use Estimates.

### Food Insecurity

Percentage of population who lack adequate access to food (all ages). Food insecurity in Tennessee was statistically higher than food insecurity in the United States in 2018-2020.

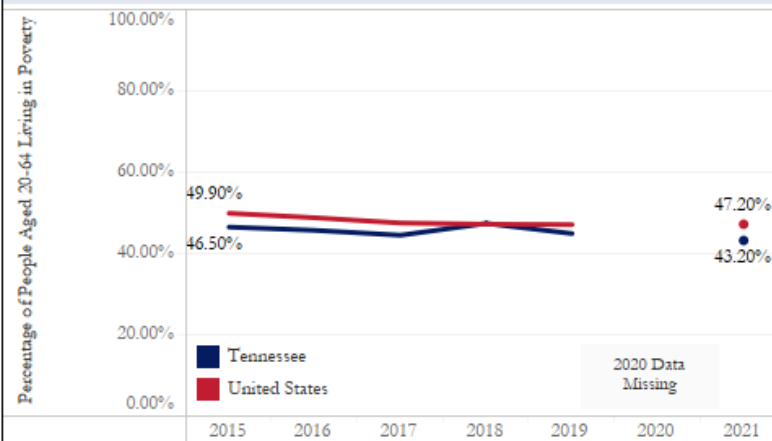


Data Source: USDA Economic Research Service

Data Note: \*Difference from U.S. average was statistically significant with 90 percent confidence ( $t > 1.645$ ). Standard error of differences assumes that there is no correlation between national and individual State estimates.

## Poverty and the Labor Force

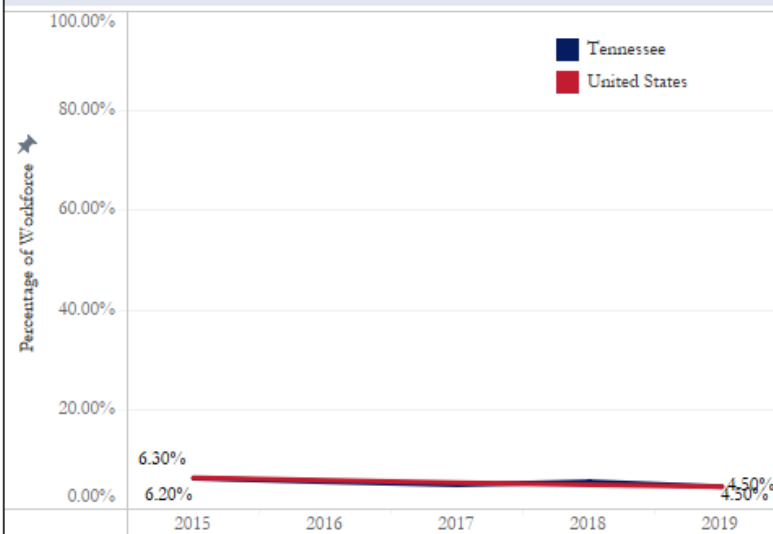
Percentage of people 20-64 years of age who are living below poverty level who are participating in the labor force (employed or unemployed).  
The percentage of Tennesseans aged 20-64 in poverty participating in the labor force remained around 46% between 2015-2019. Tennessee's value was below the United States value in all years except 2018.



Data Source: United States Census Bureau, American Community Survey, 1-Year Public Use Estimates.

## Unemployment

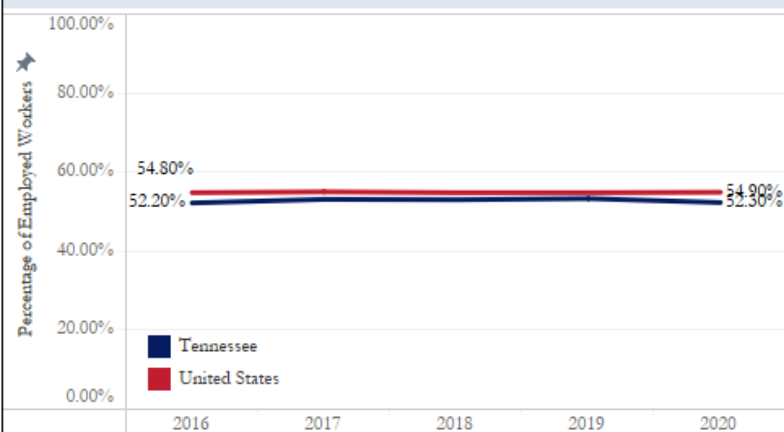
Percentage of the labor force who are unemployed.



Data Source: United States Census Bureau, American Community Survey, 1-Year Public Use Estimates.

## Workplace Benefits

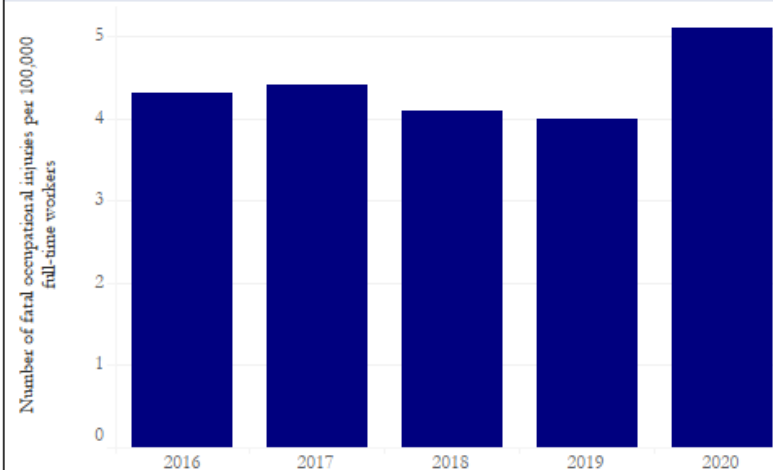
Percentage of employed workers in Tennessee who used some type of paid time off (PTO) benefit.



Data Source: US Census Bureau, Current Population Survey (CPS), Annual Social and Economic Supplement (ASEC). Accessed via National Health Security Preparedness Index.



## Workplace Safety

Number of fatal occupational injuries per 100,000 full-time equivalent workers.



Data Source: U.S. Bureau of Labor Statistics, Census of Fatal Occupational Injuries, State Archive

Education

- **Adult Numeracy** in Tennessee is statistically lower than adult numeracy in the United States.<sup>114</sup> 
- **Adult Literacy** in Tennessee is statistically lower than adult literacy in the United States<sup>115</sup> 



Understanding and digesting mathematical and textual information impacts everything from managing a household budget to health literacy and adherence to medical guidance. **Adult Numeracy**<sup>116</sup> in Tennessee is statistically lower than adult numeracy in the United States. In Tennessee 31% of adults are considered proficient at working with mathematical information and ideas, compared to 36% in the United States. **Adult Literacy**<sup>117</sup> in Tennessee is statistically lower than adult literacy in the United States. In Tennessee, 40% of adults are considered proficient at working with information and ideas in text, compared to 46% in the United States.

| <b>Adult Numeracy</b>   |               |
|---|---------------|
| Average percentage of adults considered proficient at working with mathematical information and ideas from 2013-2017. |               |
| Adult numeracy in Tennessee is statistically lower than adult numeracy in the United States.                          |               |
| Tennessee   | United States |
| 31.00%  | 36.00%        |
| Data Source: National Center for Education Statistics   |               |

| <b>Adult Literacy</b>   |               |
|---|---------------|
| Average percentage of adults considered proficient at working with information and ideas in texts from 2013-2017. |               |
| Adult literacy in Tennessee is statistically lower than adult literacy in the United States.                      |               |
| Tennessee   | United States |
| 40.00%  | 46.00%        |
| Data Source: National Center for Education Statistics   |               |

<sup>114</sup> National Center for Education Statistics  
<sup>115</sup> National Center for Education Statistics  
<sup>116</sup> National Center for Education Statistics  
<sup>117</sup> National Center for Education Statistics

## Community Safety

- In 2019, the **Violent Crime** rate (number of offenses per 100,000 population) was higher in Tennessee (595.2) compared to the United States (366.7).<sup>118</sup> 
- The number of **Domestic Violence** offenses in Tennessee has decreased since 2016 but remains high with 71,263 domestic violence offenses in 2019.<sup>119</sup> 

In 2019, the **Violent Crime** rate (number of offenses per 100,000 population) was higher in Tennessee (595.2) compared to the United States (366.7).<sup>120</sup> Violent crime, defined as murder rape, robbery, and aggravated assault, has remained higher in Tennessee than the United States for multiple years. **Domestic Violence** specifically is a problem in Tennessee. Domestic violence offenses include murder, kidnapping/abduction, forcible rape, forcible sodomy, sexual assault with object, forcible fondling, incest, statutory rape, aggravated assault, simple assault, intimidation, stalking, commercial sex acts or involuntary servitude.”<sup>121</sup> Domestic violence victims can be: “adults or minors who are current or former spouses; adults or minors who live together or who have lived together; adults or minors who are dating or who have dated or who have or had a sexual relationship, but does not include fraternization between two individuals in a business or social context; adults or minors related by blood or adoption; adults or minors who are related or were formerly related by marriage; or Adult or minor children of a person in a relationship” previously listed.<sup>122</sup> The number of domestic violence offenses in Tennessee has decreased since 2016 but remains high with 71,263 domestic violence offenses in 2019 – the equivalent of one domestic violence offense every 7.4 minutes.<sup>123</sup> Healthy People 2030 notes, “In addition to the potential for death, disability, and other injuries, people who survive violent crime endure physical pain and suffering and may also experience mental distress and reduced quality of life. Specific examples of detrimental health effects from exposure to violence and crime include asthma, hypertension, cancer, stroke, and mental disorders.”<sup>124</sup>

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<sup>118</sup> Federal Bureau of Investigation

<sup>119</sup> TN Bureau of Investigation, Annual Domestic Violence Report

<sup>120</sup> Federal Bureau of Investigation

<sup>121</sup> TN Bureau of Investigation, Annual Domestic Violence Report

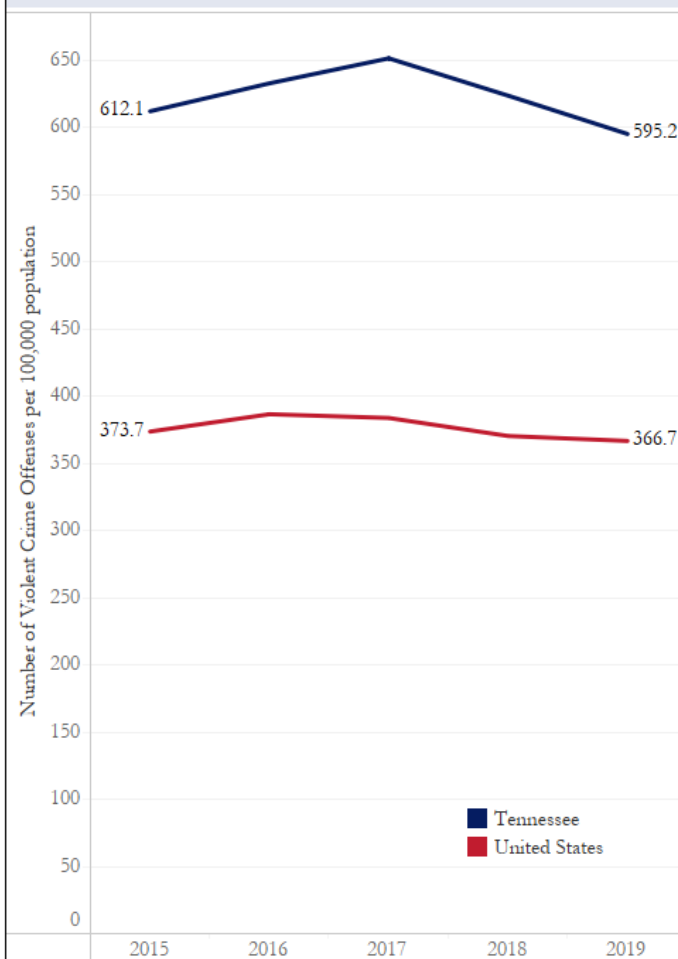
<sup>122</sup> 2010 TN Code Title 39 – Criminal Offenses Chapter 13 – Offenses Against Person Part 1- Assaultive Offenses 39-13-111 – Domestic Assault. Accessed December 2022 <https://law.justia.com/codes/tennessee/2010/title-39/chapter-13/part-1/39-13-111>.

<sup>123</sup> TN Bureau of Investigation, Annual Domestic Violence Report

<sup>124</sup> Healthy People 2030. Crime and Violence Literature Summary. Accessed December 2022. <https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries/crime-and-violence>

### Violent Crime

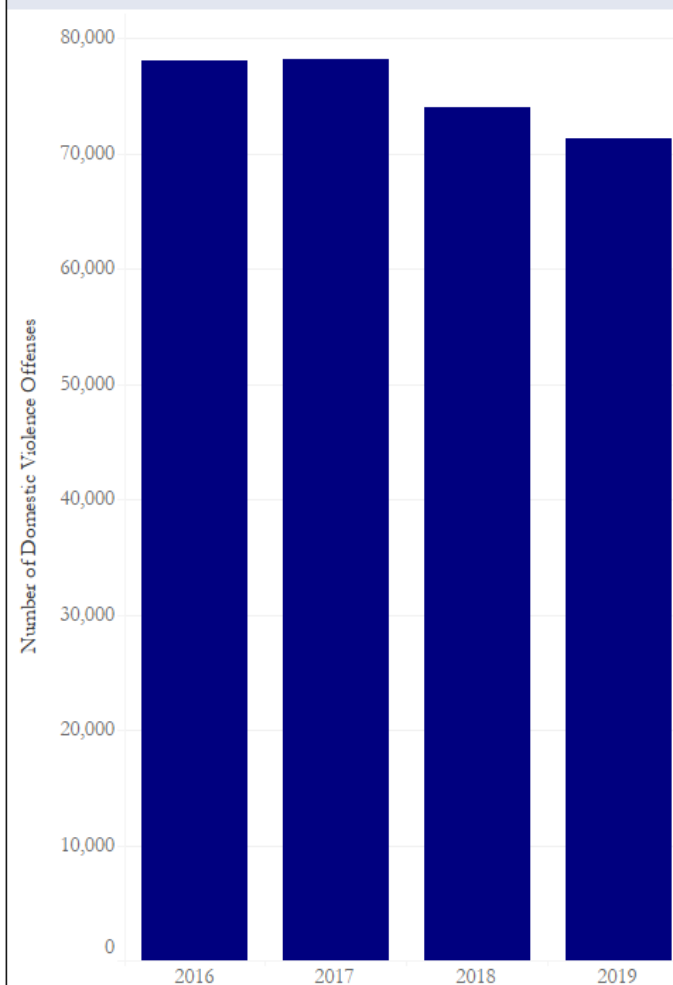
Number of Violent Crime Offenses (offenses of murder, rape (legacy definition), robbery, and aggravated assault) per 100,000 population.



Data Source: Federal Bureau of Investigation

### Domestic Violence

Number of domestic violence offenses.

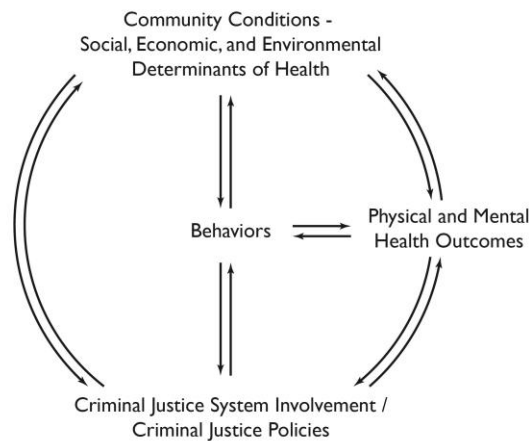


Data Source: TN Bureau of Investigation, Annual Domestic Violence Report

## Justice-Involvement and Health

Justice-involvement can lead to poorer health outcomes for both individuals directly involved in the justice system and their family members. Human Impact Partners, a nonprofit focused on centering equity within public health, developed a Criminal Justice and Health Framework that showcases the cyclical relationship between social determinants of health, justice involvement and individual health.<sup>1</sup>

**Criminal Justice and Public Health Framework**



Individuals who are socially and economically disadvantaged are more likely to become involved in the criminal justice system. Similarly, individuals with health challenges, particularly behavioral and mental health challenges, are more likely to become justice involved. Justice involvement itself then contributes to poorer health and socioeconomic outcomes. Even for individuals never convicted of a crime, justice involvement can have consequences such as economic losses due to disruptions in work schedules and poorer mental health. Formerly incarcerated individuals face reentry challenges including limited access to job opportunities, housing, and education.<sup>2</sup> Formerly incarcerated individuals are also more likely to develop severe chronic illness such as high blood pressure and dementia.

Family and children are also impacted by the justice involvement of a loved one. In 2016-2017, “7.7% of children in the U.S. aged 17 and under had experienced a parent or guardian serving jail time” which is considered an Adverse Childhood Experience (ACE).<sup>2</sup> Children with a parent or guardian who is justice-involved are more likely to experience violence, depression, PTSD, and become justice-involved themselves, perpetuating the intergenerational cycle of justice-involvement, trauma, and poverty.

### Data Sources:

1. Human Impact Partners. A Framework Connecting Criminal Justice and Public Health. 2016. <https://humanimpact.org/a-framework-connecting-criminal-justice-and-public-health/>
2. Pew Charitable Trust Organization. How Involvement in the Criminal Justice System Affects Health. 2018. <https://www.pewtrusts.org/en/research-and-analysis/data-visualizations/2018/how-involvement-in-the-criminal-justice-system-affects-health>
3. Healthy People 2030. Crime and Violence Literature Summary. <https://health.gov/healthypeople/objectives-and-data/browse-objectives/social-and-community-context/reduce-proportion-children-parent-or-guardian-who-has-served-time-jail-sdoh-05>

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## Health Indicators and Disease

### Infectious Disease

- In 2020, the rate of newly diagnosed **Chlamydia** cases in Tennessee was 544.0 cases per 100,000 persons, compared to 481.3 in the United States.<sup>125</sup>
- In 2019, the rate of newly diagnosed **HIV** infections in Tennessee was 13.4 per 100,000 persons age 13+, compared to 13.2 in the United States.<sup>126</sup>
- In 2019, the rate of acute vital **Hepatitis C** in Tennessee was 3 reported cases per 100,000 persons, compared to 1.3 in the United States.<sup>127</sup>
- As of November 2022, 86.3% of Tennesseans age 65+ are fully vaccinated against **COVID-19**.<sup>128</sup>
- In 2021, 43.92% of adults in Tennessee received a seasonal **Influenza** vaccine.<sup>129</sup>

**Chlamydia** is the “most commonly reported bacterial sexually transmitted infection (STI) in the United States.”<sup>130</sup> In 2020, the rate of newly diagnosed chlamydia cases in Tennessee was 544.0 cases per 100,000 persons, compared to 481.3 in the United States.<sup>131</sup> Chlamydia can be treated easily with antibiotics, but many people remain unaware they are infected if they do not experience symptoms and do not access testing. In 2019, the rate of diagnoses of human immunodeficiency virus, or **HIV**, infection in Tennessee was 13.4 per 100,000 persons aged 13+, compared to 13.2 in the United States.<sup>132</sup> For both the Tennessee and the United States, the HIV rate decreased in 2020. However, 2020 HIV data reflect the impact of COVID-19 (intermittent clinic closures, reduction in availability of services resulting in delays in accessing HIV Prevention and care, limited staff capacity to investigate HIV laboratory reports) and should be interpreted with caution. While no cure for HIV currently exists, if appropriately treated HIV can be managed well for individuals living with HIV. The Tennessee Department of Health HIV/STD Program houses a site that provides “practical information on many of the HIV, AIDS, and STD prevention and care activities in Tennessee. You can use this site to gather basic disease facts, information

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<sup>125</sup> Department of Health Division of Communicable and Environmental Diseases and Emergency Preparedness; (US) CDC STD Surveillance Report, 2020.

<sup>126</sup> CDC, National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention. Note: 2020 HIV data reflect the impact of COVID-19 (intermittent clinic closures, reduction in availability of services resulting in delays in accessing HIV Prevention and care, limited staff capacity to investigate HIV laboratory reports) and should be interpreted with caution.

<sup>127</sup> CDC, National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention

<sup>128</sup> Centers for Disease Control and Prevention. COVID Data Tracker. Atlanta, GA: U.S. Department of Health and Human Services, CDC; 2022

<sup>129</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

<sup>130</sup> CDC. STD. Chlamydia. Accessed December 2022 <https://www.cdc.gov/std/chlamydia/stdfact-chlamydia-detailed.htm#:~:text=Chlamydia%20can%20infect%20the%20rectum,and%20vagina%20in%20a%20woman.&text=While%20these%20infections%20often%20have,%2C%20and%20for%20bleeding>.

<sup>131</sup> Department of Health Division of Communicable and Environmental Diseases and Emergency Preparedness; (US) CDC STD Surveillance Report, 2020.

<sup>132</sup> CDC, National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention. Note: 2020 HIV data reflect the impact of COVID-19 (intermittent clinic closures, reduction in availability of services resulting in delays in accessing HIV Prevention and care, limited staff capacity to investigate HIV laboratory reports) and should be interpreted with caution.

regarding counseling and testing, or infection statistics. In addition, this site provides information valuable to health care professionals including reporting, treatment, and legal information.”<sup>133</sup>

The **Hepatitis C Virus (HCV)** is spread through exposure to infected blood, primarily through injection-drug use. In 2019, the rate of acute viral Hepatitis C in Tennessee was 3 reported cases per 100,000 persons, compared to 1.3 in the United States.<sup>134</sup> HCV can become chronic in more than half of infected individuals, infecting the liver, and leading to cirrhosis.<sup>135</sup> In 2019, the case rate for chronic HCV was 130.5 confirmed cases per 100,000 population. The TN Department of Health Viral Hepatitis Epidemiologic Profile Report can be viewed online with more local data.<sup>136</sup>

Influenza can lead to serious illness, hospitalization and death, accounting for 1,549 deaths in 2020 making it the 7<sup>th</sup> leading cause of death in Tennessee.<sup>137</sup> In 2020, Tennessee had the second highest influenza/pneumonia mortality rate in the country (18.5 deaths per 100,000 population), only surpassed by Mississippi (25.1 deaths per 100,000 population). **Influenza Vaccination** is the best way to protect against severe illness and death associated with the flu. In 2021, 43.92% of adults in Tennessee received a seasonal flu vaccine, compared to 45.10% nationally.<sup>138</sup>

*In 2020, Tennessee had the 2nd highest influenza/pneumonia mortality rate in the country.*

In 2020, COVID-19 was the 3<sup>rd</sup> leading cause of death in Tennessee. As of December 24, 2022, 28,577 Tennesseans have died due to COVID-19 since the first recorded death in early 2020. **COVID-19 Vaccination** protects against COVID-19 as cases, hospitalizations, and deaths are higher among those not fully vaccinated. Among adults aged 65 and over, who are most at risk for severe illness and death as a result of COVID-19, 86.3% of Tennesseans are fully vaccinated, defined as 2 doses of Pfizer/Moderna or 1 dose of Janssen).<sup>139</sup> In the United States, 93.4% of older adults are fully vaccinated against COVID-19. Among all Tennesseans, only 55.9% are fully vaccinated, compared to 68.5% of all people in the United States.<sup>140</sup> Detailed data on COVID-19 vaccination including booster data is available through the Tennessee Department of Health and through the CDC.

For real time updated data on infectious diseases in Tennessee, visit the TN Department of Health’s Division of Communicable and Environmental Diseases and Emergency Preparedness webpage.<sup>141</sup>

<sup>133</sup> To access the TN Dept of Health HIV/STD Program website visit: <https://www.tn.gov/health/health-program-areas/std.html>

<sup>134</sup> CDC, National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention

<sup>135</sup> CDC, Viral Hepatitis, Q&As for Health Professionals. Accessed December 2022 at <https://www.cdc.gov/hepatitis/hcv/hcvfaq.htm#b1>.

<sup>136</sup> To view the TN Dept of Health TN Viral Hepatitis Epidemiologic Profile, 2020 Report visit

[https://www.tn.gov/content/dam/tn/health/documents/2020%20Viral%20Hepatitis%20Epidemiological%20Profile\\_FINAL.pdf](https://www.tn.gov/content/dam/tn/health/documents/2020%20Viral%20Hepatitis%20Epidemiological%20Profile_FINAL.pdf)

<sup>137</sup> CDC. National Center for Health Statistics. Influenza Mortality by State.

[https://www.cdc.gov/nchs/pressroom/sosmap/flu\\_pneumonia\\_mortality/flu\\_pneumonia.htm](https://www.cdc.gov/nchs/pressroom/sosmap/flu_pneumonia_mortality/flu_pneumonia.htm)

<sup>138</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

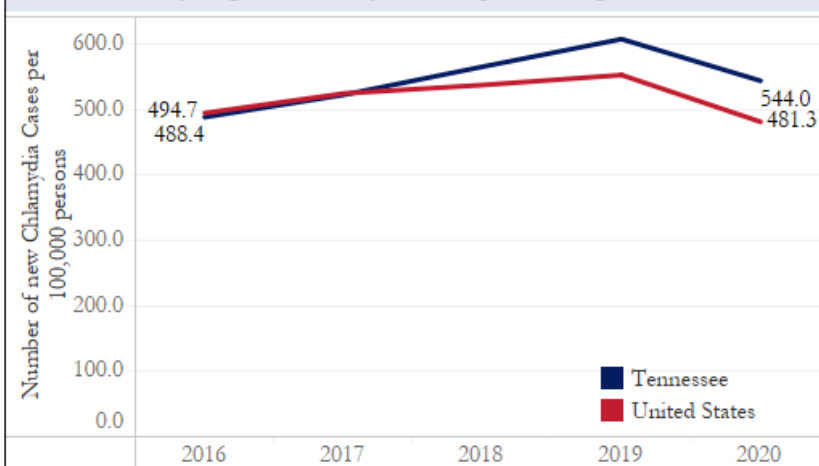
<sup>139</sup> Centers for Disease Control and Prevention. COVID Data Tracker. Atlanta, GA: U.S. Department of Health and Human Services, CDC; 2022

<sup>140</sup> Centers for Disease Control and Prevention. COVID Data Tracker. Atlanta, GA: U.S. Department of Health and Human Services, CDC; 2022

<sup>141</sup> To view the TDH CEDEP Interactive Disease Data visit <https://www.tn.gov/health/ceds-weeklyreports/interactive-disease-data.html>.

## Chlamydia

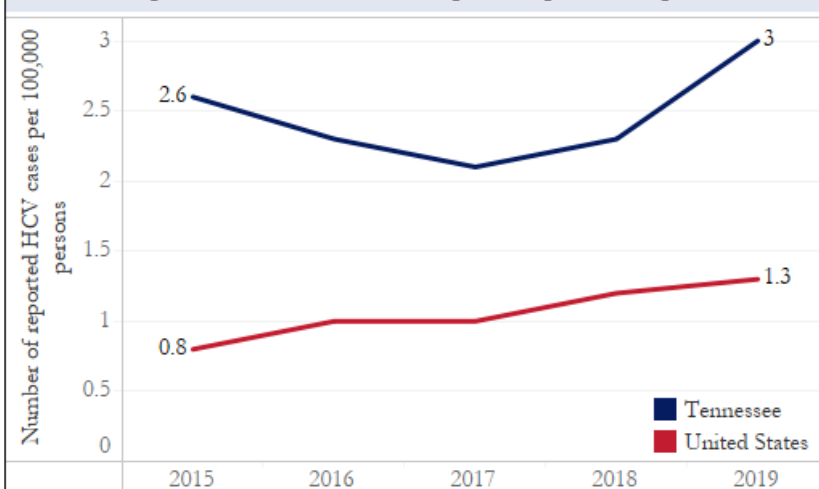
Number of newly diagnosed chlamydia cases per 100,000 persons.



Data Source: (TN) TN Department of Health Division of Communicable and Environmental Diseases and Emergency Preparedness. (US) CDC STD Surveillance Report, 2020.

## Hepatitis C

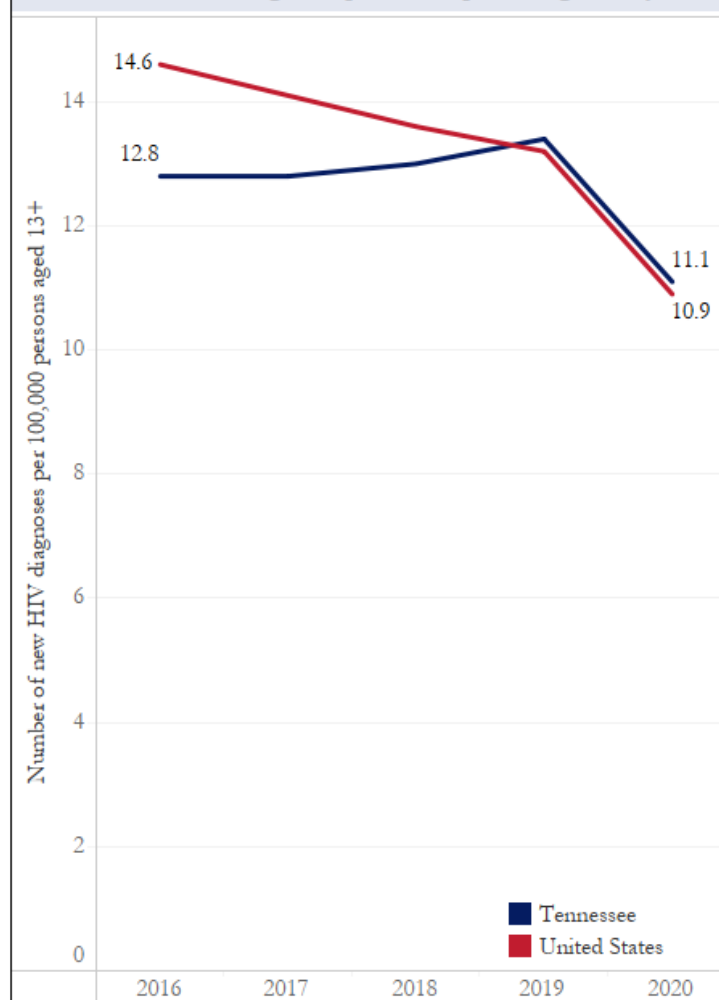
Number of reported cases of acute viral Hepatitis C per 100,000 persons.



Data Source: CDC, National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention

## HIV

Number of new HIV diagnoses per 100,000 persons aged ≥13 years.

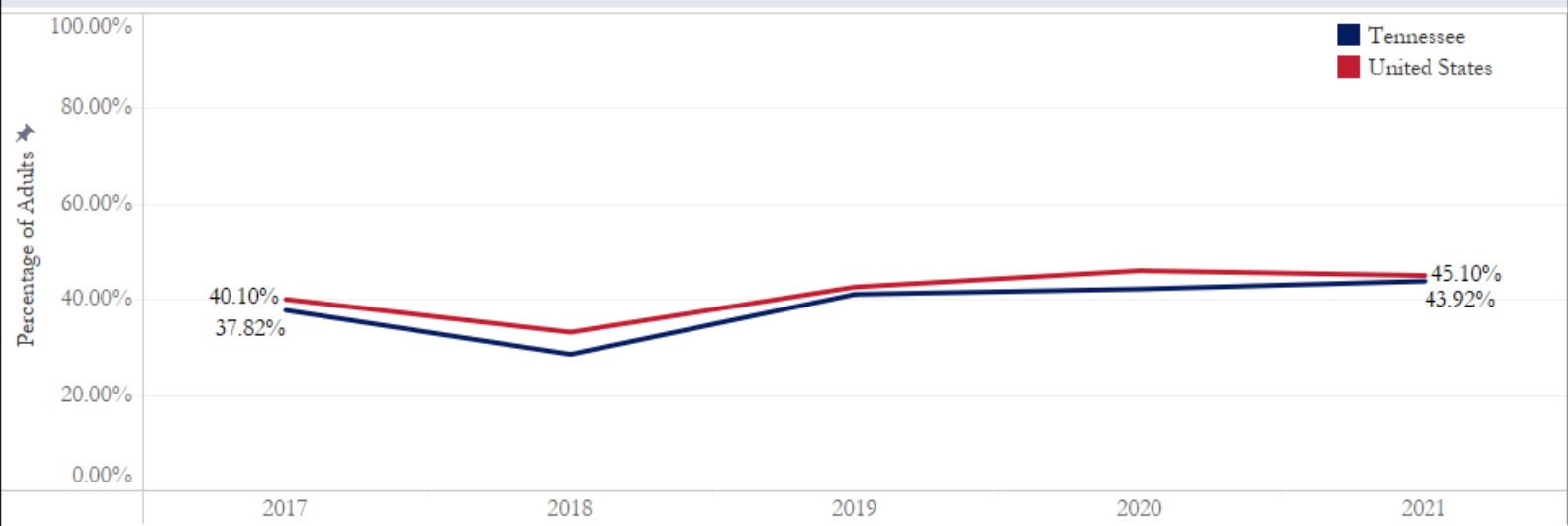


Data Source: CDC, National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention

Data Note: 2020 HIV data reflect the impact of COVID-19 (intermittent clinic closures, reduction in availability of services resulting in delays in accessing HIV Prevention and care, limited staff capacity to investigate HIV laboratory reports) and should be interpreted with caution.

## Influenza Vaccination

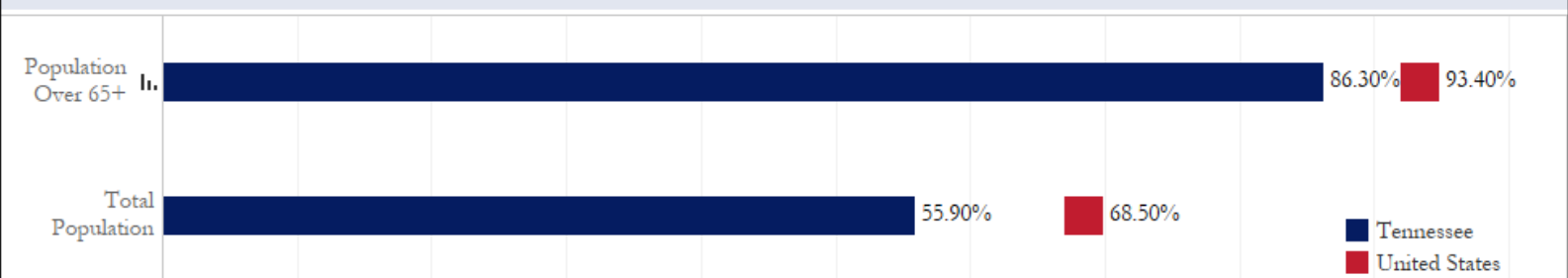
Percentage of adults in Tennessee who reported receiving a seasonal flu vaccine in the past 12 months.



Data Source: Tennessee Department of Health, Behavioral Risk Factor Surveillance System

## COVID-19 Vaccinations

Percentage of Tennesseans fully vaccinated (2 doses of Pfizer/Moderna OR 1 dose of Janssen) against COVID-19 as of November 2, 2022.



Data Source: Centers for Disease Control and Prevention. COVID Data Tracker. Atlanta, GA: US Department of Health and Human Services, CDC; 2022

## Health Indicators

- In 2021, 14.10% of Tennesseans have three or more **Chronic Conditions**, compared to 9.6% in the United States.<sup>142</sup>
- In 2021, 14.0% of adults in Tennessee had **Diabetes**, compared to 11.1% in the United States.<sup>143</sup>
- In 2021, 71.33% of Tennessee adults reported doing **Physical Activity** or exercise during the past month outside their regular job.<sup>144</sup>
- In 2021, 19.67% of adults in Tennessee currently **Smoke**, compared to 14.40% in the United States.<sup>145</sup>
- In Tennessee, the percent of adults who **Binge Drink** has decreased from 17.4% in 2017 to 15.3% in 2021.<sup>146</sup>
- **Nonfatal drug overdoses** resulting in hospital discharges (outpatient visits or inpatient stays) increased in 2020 to a total of 25,796.<sup>147</sup>
- There were 3,032 **fatal drug overdoses** in Tennessee in 2020, up from 1,776 in 2017.<sup>148</sup>
- **Premature Death** is defined as the Years of Potential Life Lost (YPLL) before aged 75 per 100,000 persons. Tennesseans lost 11,467.3 years per 100,000 persons in 2020, compared to 9,401.9 in the United States.<sup>149</sup>

In 2021, 14.10% of Tennesseans had three or more **Chronic Conditions**, compared to 9.6% in the United States.<sup>150</sup> Managing multiple chronic conditions such as arthritis, diabetes and cardiovascular disease is complex and costly for both patients and health care systems. **Diabetes** specifically is costly with people with diabetes having “medical expenditures approximately 2.3 times higher than what expenditures would be in the absence of diabetes.”<sup>151</sup> In 2021, 14.0% of adults in Tennessee had diabetes, compared to 11.1% in the United States.<sup>152</sup>

Key behaviors that impact health in adults include physical activity, smoking, and drinking. **Physical Activity** improves overall health and can prevent health conditions such as obesity and heart disease. In 2021, 71.33% of Tennessee adults reported doing physical activity or exercise during the past month outside their regular job.<sup>153</sup> In the United States, 76.3% of adults were physically active in 2021. Smoking can lead to cancer, heart disease, diabetes and more. As of 2021, 19.67% of adults in Tennessee currently **Smoke**, compared to 14.40% in the United States. While the percent of adults in

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<sup>142</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

<sup>143</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

<sup>144</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

<sup>145</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

<sup>146</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

<sup>147</sup> Tennessee Department of Health, Hospital Discharge Data System

<sup>148</sup> Tennessee Department of Health, Death Statistical File

<sup>149</sup> Centers for Disease Control and Prevention, National Center for Health Statistics - WISQARS

<sup>150</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

<sup>151</sup> American Diabetes Association. Statistics. The Cost of Diabetes. Accessed December 2022 from <https://diabetes.org/about-us/statistics/cost-diabetes#:~:text=People%20with%20diagnosed%20diabetes%20incur,in%20the%20absence%20of%20diabetes.>

<sup>152</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

Data Note: U.S. Data for 2017 and 2018 is missing.

<sup>153</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

Tennessee has decreased slightly since 2017, the percentage of current smokers in Tennessee has remained higher than the United States.<sup>154</sup> In Tennessee, the percent of adults who **Binge Drink** has decreased from 17.4% in 2017 to 15.3% in 2021.<sup>155</sup> Binge-drinking is defined as males having five or more drinks on one occasion or females having four or more drinks on one occasion. In the United States, the percent of adults who are binge drinkers has slightly increased from 13.14% in 2017 to 14.2% in 2021. According to the SAMHSA, “Among people aged 12 or older in Tennessee, the annual average percentage of alcohol use disorder in the past year decreased between 2002–2004 and 2017–2019.”<sup>156</sup>

While drug overdoses have increased across the United States, drug overdoses in Tennessee have increased faster than in the United States.<sup>157</sup> **Nonfatal drug overdoses** resulting in hospital discharges (outpatient visits or inpatient stays) increased in 2020 to a total of 25,796.<sup>158</sup> From 2017-2019, the number of nonfatal drug overdoses remained below 24,000. Nonfatal drug overdoses that do not result in hospitalization are not reported using this data set and therefore this data is expected to be a significant undercount of the number of nonfatal drug overdoses occurring across Tennessee. There were 3,032 **Fatal Drug Overdoses** in Tennessee in 2020, up from 1,776 in 2017.<sup>159</sup> Fatal drug overdoses contribute to premature death. **Premature Death** is defined as the Years of Potential Life Lost (YPLL) before aged 75 per 100,000 persons. Tennesseans lost 11,467.3 years per 100,000 persons in 2020, compared to 9,401.9 in the United States.<sup>160</sup> YPPL increased in 2020 in both Tennessee and the United States, in part due to COVID-19.

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<sup>154</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

<sup>155</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

<sup>156</sup> SAMHSA. Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015-2019. Accessed December 2022 at [https://www.samhsa.gov/data/sites/default/files/reports/rpt32859/Tennessee-BH-Barometer\\_Volume6.pdf](https://www.samhsa.gov/data/sites/default/files/reports/rpt32859/Tennessee-BH-Barometer_Volume6.pdf)

<sup>157</sup> Kaiser Family Foundation. Mental Health and Substance Use State Fact Sheet: Tennessee. Accessed December 2022 <https://www.kff.org/statedata/mental-health-and-substance-use-state-fact-sheets/tennessee/#:~:text=Substance%20use%20disorder%20is%20using,substance%20use%20during%20the%20pandemic.>

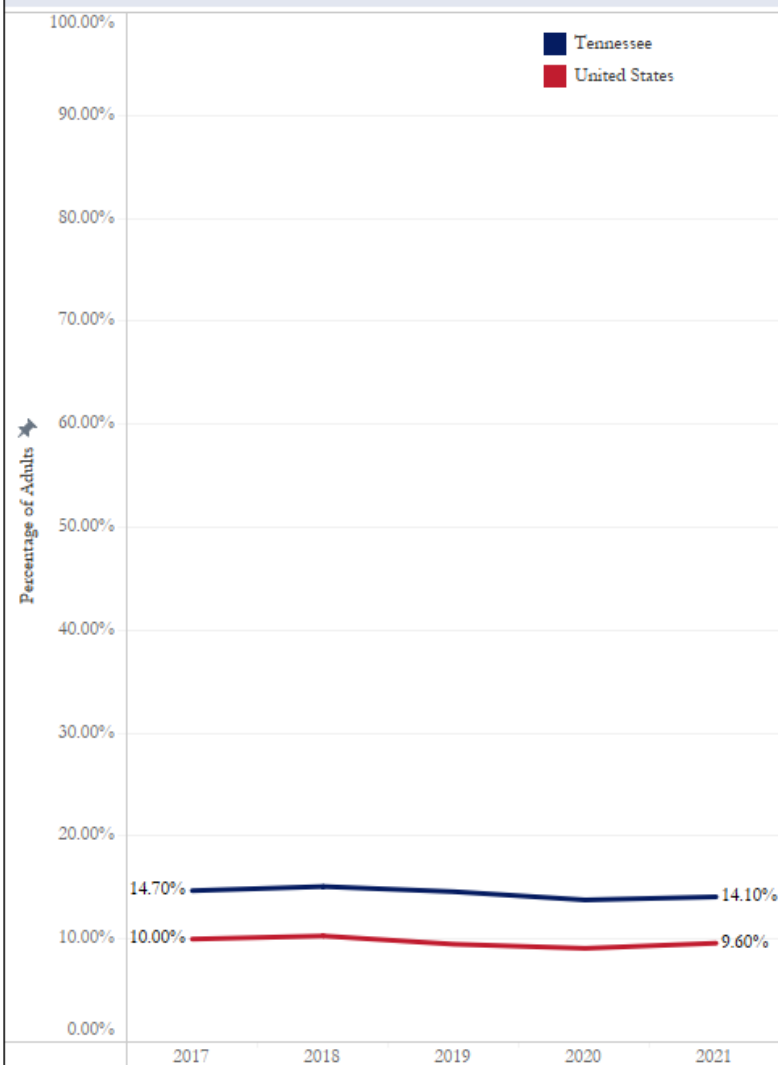
<sup>158</sup> Tennessee Department of Health, Hospital Discharge Data System

<sup>159</sup> Tennessee Department of Health, Death Statistical File

<sup>160</sup> Centers for Disease Control and Prevention, National Center for Health Statistics - WISQARS

## Chronic Conditions

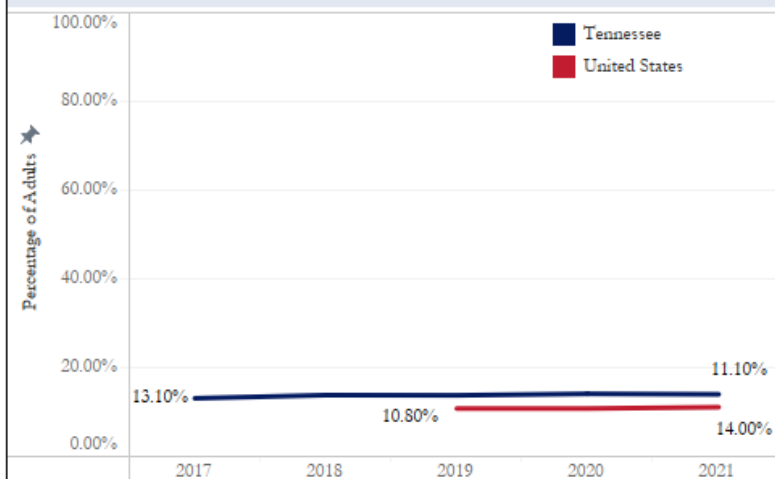
Percentage of adults who have three or more of the following chronic health conditions: arthritis; asthma; chronic kidney disease; chronic obstructive pulmonary disease; cardiovascular disease (heart disease, heart attack or stroke); cancer (excluding skin); depression; diabetes



Data Source: Tennessee Department of Health, Behavioral Risk Factor Surveillance System

## Diabetes

Percentage of adults who have diabetes.

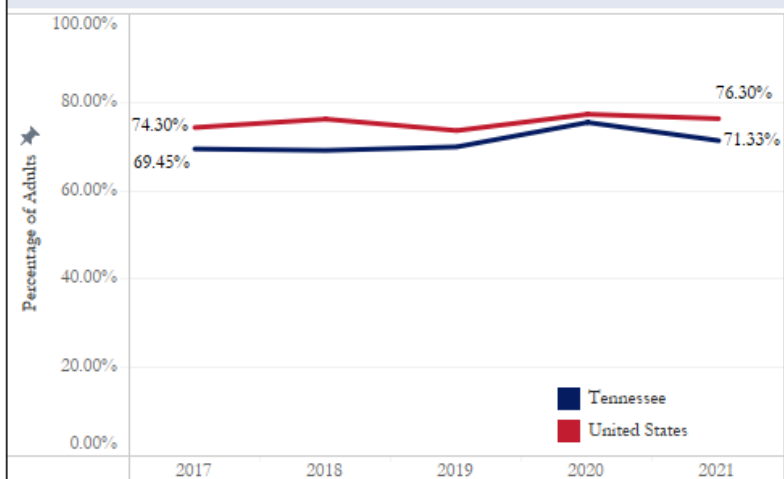


Data Source: Tennessee Department of Health, Behavioral Risk Factor Surveillance System

Data Note: US Data for 2017 and 2018 is missing.

## Physical Activity

Percentage of adults who reported doing physical activity or exercise during the past 30 days other than their regular job.

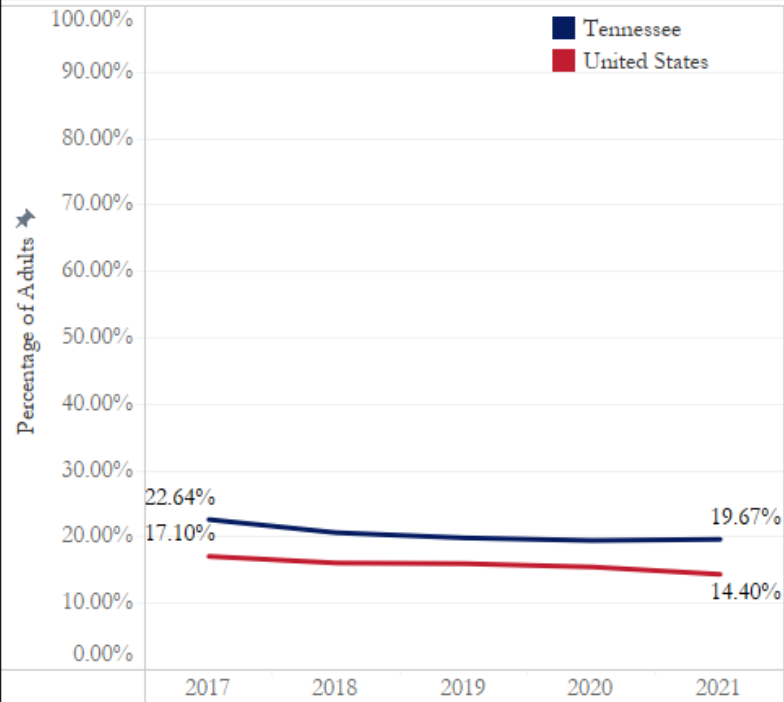


Data Source: Tennessee Department of Health, Behavioral Risk Factor Surveillance System

## Adult Smoking

Percentage of adults who are current smokers.

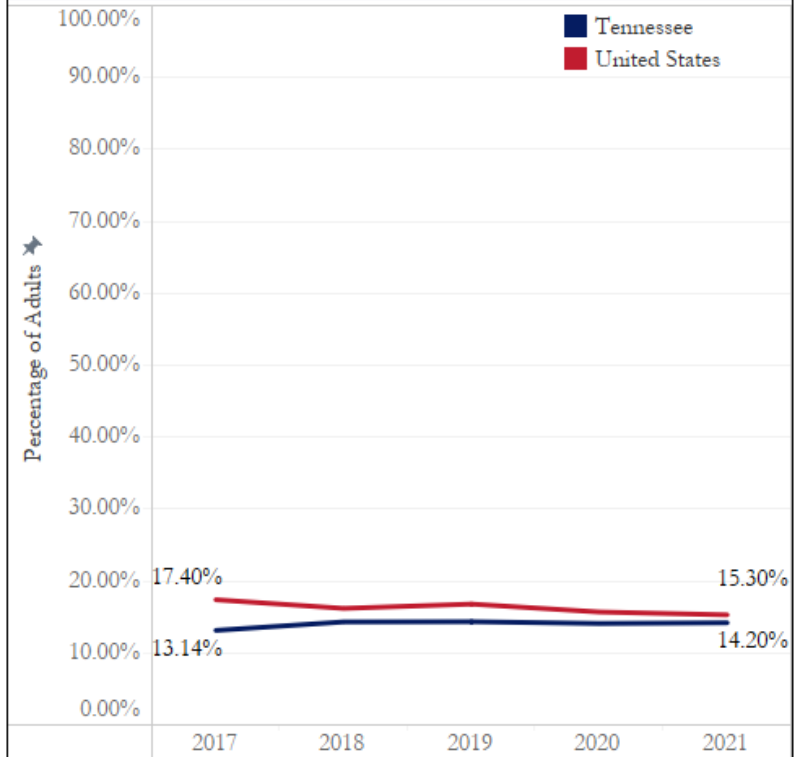
In 2021, 19.67% of adults in Tennessee were current smokers, compared to 14.40% in the United States. While the percent of adults in Tennessee has decreased slightly since 2017, the percent of current smokers in Tennessee has remained above the United States.



Data Source: Tennessee Department of Health, Behavioral Risk Factor Surveillance System

## Binge Drinking

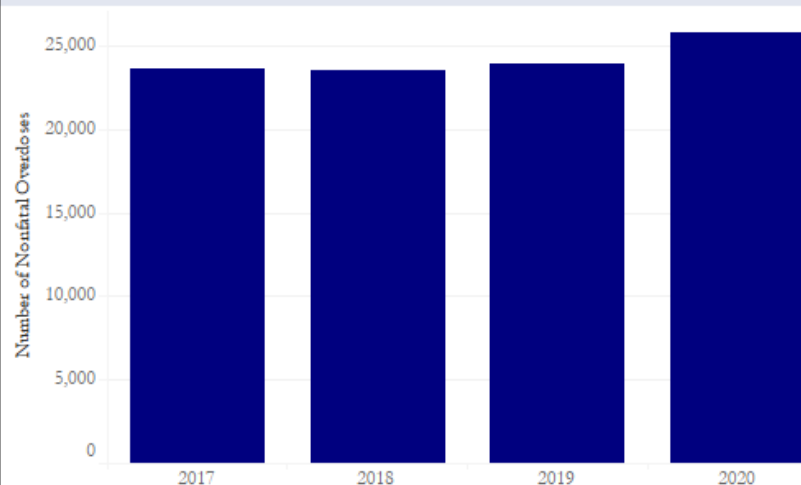
Percentage of adults who are binge drinkers (males having five or more drinks on one occasion, females having four or more drinks on one occasion).



Data Source: Tennessee Department of Health, Behavioral Risk Factor Surveillance System

### Nonfatal Overdoses

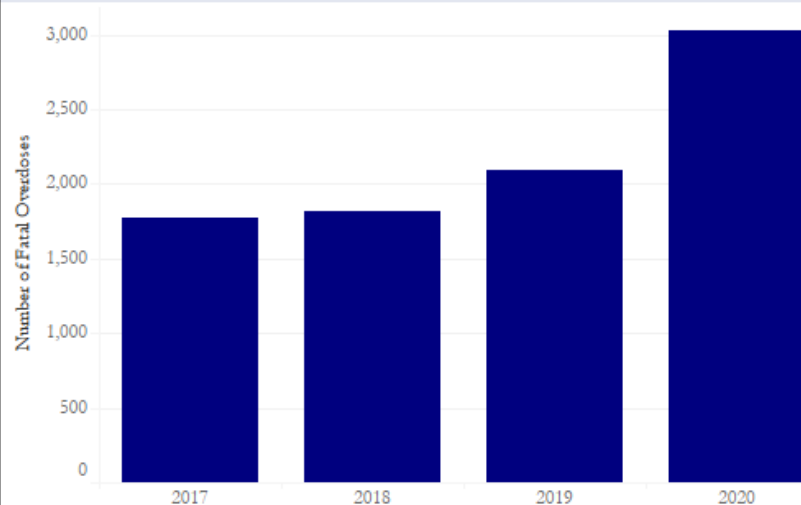
Number of drug overdose hospital discharges (outpatient visits and inpatient stays) caused by non-fatal acute poisonings due to the effects of drugs, regardless of intent in Tennessee.



Data Source: Tennessee Department of Health, Hospital Discharge Data System

### Fatal Overdoses

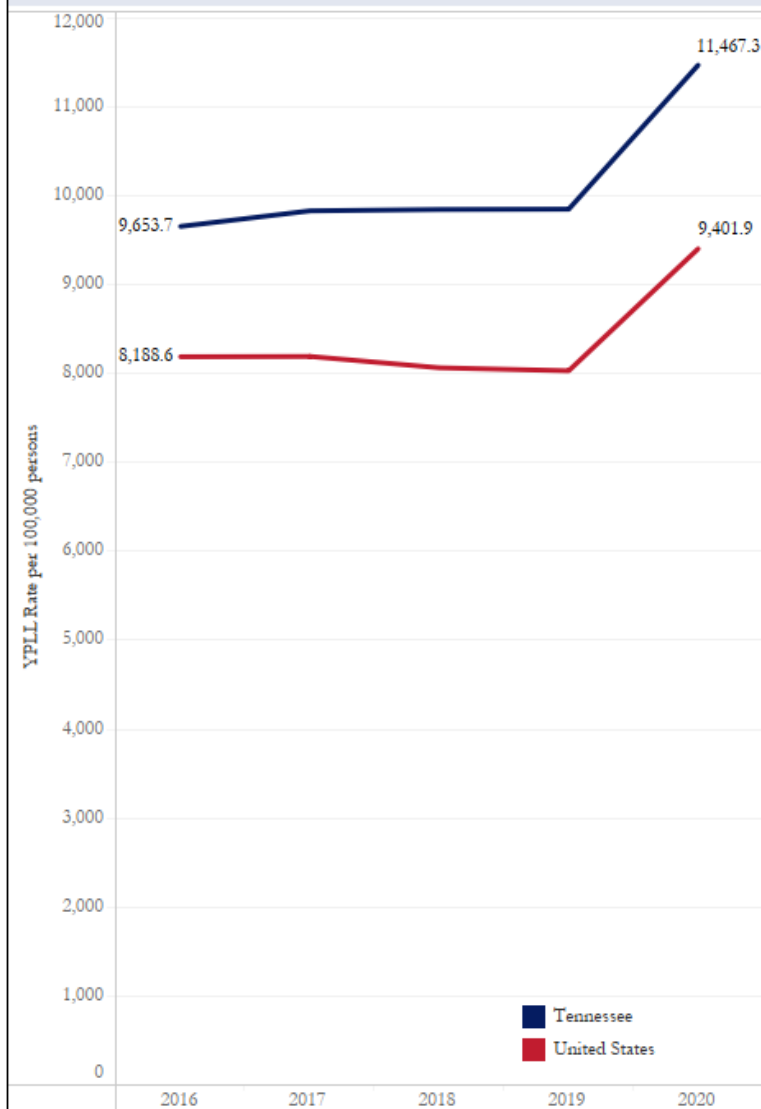
Number of all drug overdose deaths in Tennessee.



Data Source: Tennessee Department of Health, Death Statistical File

### Premature Death

Crude Rate of Years of Potential Life Lost (YPLL) before Age 75 for 10 Leading Causes of Death (All Causes) per 100,000 persons.



Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics - WISQARS

## Mental Health

- In 2021, 18.01% of Tennessee adults reported **Frequent Mental Distress**.<sup>161</sup>
- **Suicidal Ideation** in Tennessee increased steadily from 2016-2019 before decreasing to 60.1 ED visits/Inpatient hospitalizations per 10,000 persons in 2020.<sup>162</sup>
- In 2020, there were 13.1 emergency department visits and inpatient hospitalizations for intentional self-harm injury, or **suicide attempt**, per 10,000 persons in Tennessee, down from 16.2 in 2016.<sup>163</sup>
- In 2021, Tennessee's adult **Suicide Mortality** rate was 21.97 deaths due to intentional self-harm per 100,000 adults.<sup>164</sup>

**Frequent Mental Distress**<sup>165</sup> in adults has increased in both Tennessee and the United States in recent years. In 2021, 18.01% of Tennessee adults reported their mental health was not good for at least 14 days of the past 30 days, up from 13.72% in 2017. In the United States, 14.7% of adults reported frequent mental distress, up from 12.40% in 2017. Mental illness including depression can lead to increased suicidal ideation. **Suicidal Ideation**<sup>166</sup> in Tennessee increased steadily from 2016-2019 before decreasing to 60.1 ED visits/Inpatient hospitalizations per 10,000 persons in 2020. Similar to other hospital-based data, values are expected to be impacted due to COVID-19 as changes in patient decision-making and hospital availability occurred. In 2020, there were 13.1 emergency department visits and inpatient hospitalizations for intentional self-harm injury, or **Suicide Attempts**, per 10,000 persons in Tennessee, down from 16.2 in 2016.<sup>167</sup> Suicide attempts not requiring hospitalization are not reported in this data and therefore these values are expected to be an undercount of the true number of suicide attempts in Tennessee. In 2021, the **Suicide Mortality** rate was 21.97 deaths due to intentional self-harm per 100,000 adults (>18) in Tennessee.<sup>168</sup> The Tennessee Department of Health's Suicide Prevention program releases detailed annual data reports on suicide with more information on suicide by age.<sup>169</sup>

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<sup>161</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

<sup>162</sup> Tennessee Department of Health, Hospital Discharge Data System

<sup>163</sup> Tennessee Department of Health, Hospital Discharge Data System

<sup>164</sup> Tennessee Department of Health. Death Statistics - TN Office of Vital Statistics

<sup>165</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

<sup>166</sup> Tennessee Department of Health, Hospital Discharge Data System

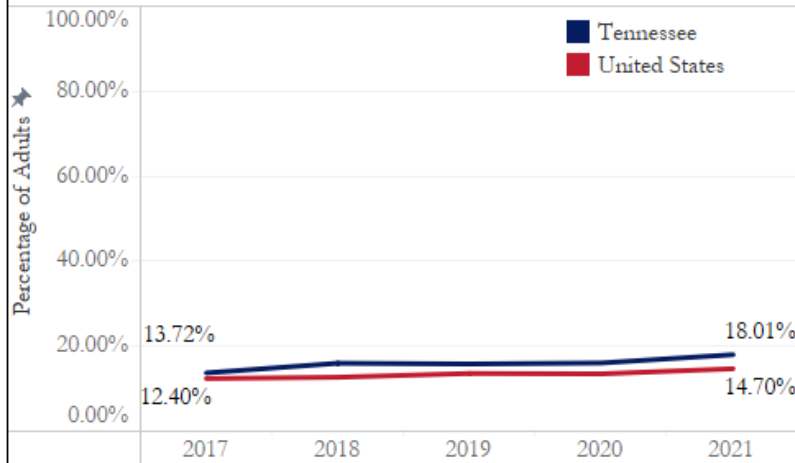
<sup>167</sup> Tennessee Department of Health, Hospital Discharge Data System

<sup>168</sup> Tennessee Department of Health. Death Statistics - TN Office of Vital Statistics

<sup>169</sup> To access the Department of Health's Suicide Data and Surveillance Information: <https://www.tn.gov/health/health-program-areas/fhw/vipp/suicide-prevention/data.html>

## Frequent Mental Distress

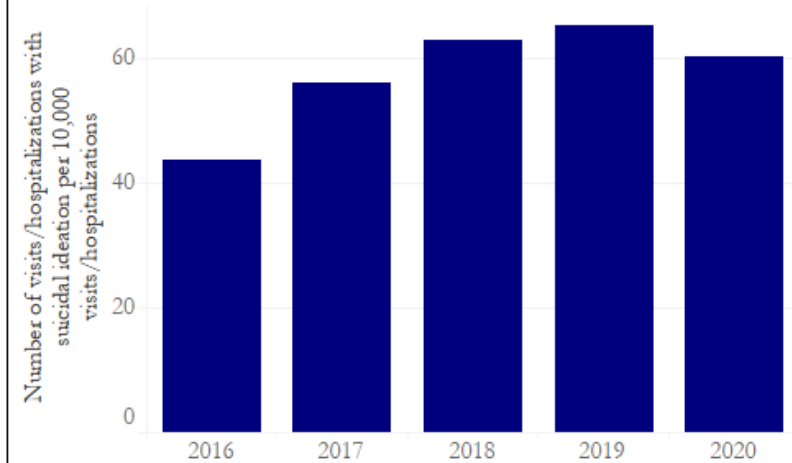
Percentage of adults who reported their mental health was 'not good' 14 or more days during the past 30 days.



Data Source: Tennessee Department of Health, Behavioral Risk Factor Surveillance System

## Suicidal Ideation

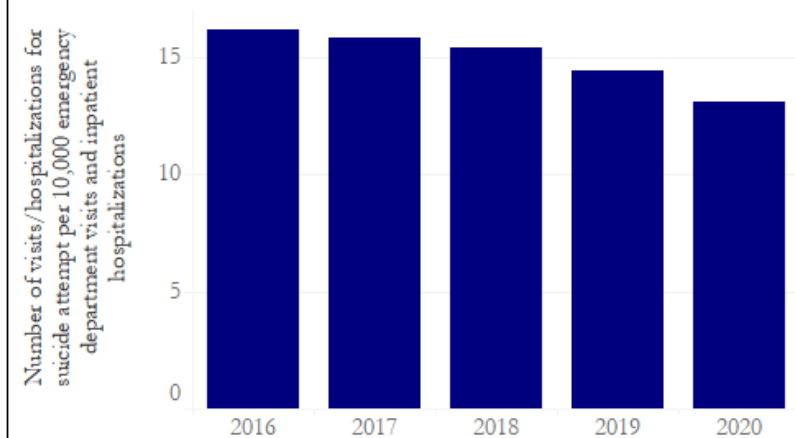
Number of visits/hospitalizations with suicidal ideation per 10,000 emergency department visits and inpatient hospitalizations in Tennessee.



Data Source: Tennessee Department of Health, Hospital Discharge Data System

## Nonfatal Intentional Self-Harm Injury

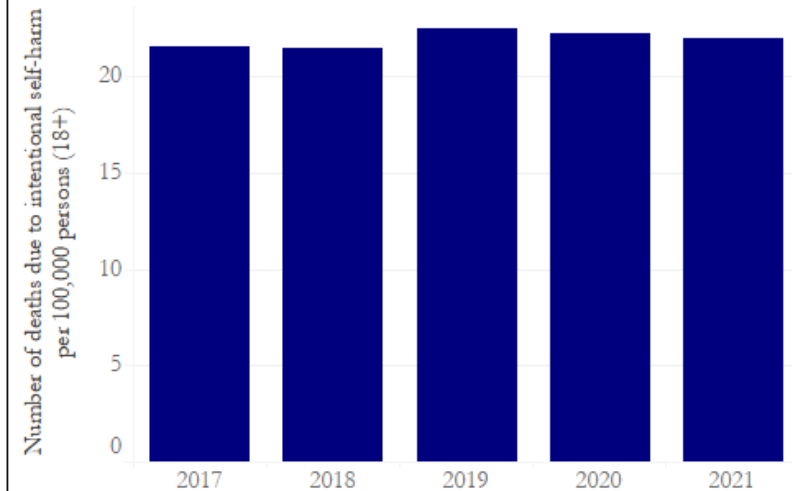
Number of visits/hospitalizations for nonfatal intentional self-harm injury per 10,000 emergency department visits and inpatient hospitalizations in Tennessee.



Data Source: Tennessee Department of Health, Hospital Discharge Data System

## Suicide Mortality





Number of deaths due to intentional self-harm per 100,000 persons (18+).



Data Source: Tennessee Department of Health Death Statistics

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## Older Adults

- In 2019, 9.7% of **older adults were living in poverty**.<sup>170</sup> 
- In 2021, an estimated 157,975 **Grandparents were Living with Grandchildren** in Tennessee.<sup>171</sup> 
- In 2020-2021, there were 8,753 Adult Protective Services abuse investigations, including investigations into **Elder Abuse**.<sup>172</sup> 
- In 2020, 281,636 older adults in Tennessee, or 26.2% of the older adult population, were living alone, a key risk factor for **Social Isolation**.<sup>173</sup> 
- In 2018 and 2020, almost 30% of Tennesseans aged 65 and older reported a **Fall**.<sup>174</sup>
- In 2021, 26.32% of Tennesseans over age 45+ were serving as a **Caregiver** to a loved one, including older adults.<sup>175</sup>
- In 2021, almost 17% of Tennesseans aged 45 years and older reported experiencing **Subjective Cognitive Decline**, compared to 13% in 2019.<sup>176</sup>

Assessing the health of older adults and factors that influence aging is of the utmost importance as the proportion of older adults is expected to grow in the coming decades. The increase in the older adult population will also increase the demand for health care and long-term support services. A 2022 report by the Tennessee Comptroller stated “The number of Tennessee seniors aged 60 and over is expected to increase by 30 percent from 1.6 million in 2020 to 2.1 million in 2040. The number of those aged 80 and over in Tennessee is forecast to double during this time.”<sup>177</sup>

In 2019, 9.7% of older adults in Tennessee were living below the poverty level. The percentage of adults in poverty has stayed constant for the past several years and has not differed significantly from the United States. **Poverty** can have a significant impact on an older adult’s ability to access critical medical care, purchase prescription drugs, and be food secure. For many older adults living on a fixed income, caring for others can further strain finances. Older adults may become the primary caregiver for children in situations such as parental incarceration. The number of older adults serving as primary

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<sup>170</sup> U.S. Census Bureau, American Community Survey

<sup>171</sup> US Census Bureau, American Community Survey. Data in report revised April 2023.

<sup>172</sup> Tennessee Department of Human Services Annual Report

<sup>173</sup> US Census Bureau, American Community Survey

<sup>174</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

<sup>175</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

<sup>176</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

<sup>177</sup> Tennessee Comptroller of the Treasury – Office of Research and Education Accountability. Senior Long-Term Care in Tennessee: Trends and Options. April 2022. Accessed December 2022 at <https://comptroller.tn.gov/content/dam/cot/orea/advanced-search/2022/LTSSExecutiveSummary.pdf>

caregivers for children has increased in recent years particularly as a result of the increase in opioid use disorder and drug overdoses affecting mid-aged adults. In 2021, an estimated 157,975 **Grandparents were Living with their Grandchildren** in Tennessee. Of those living with their grandchildren, 46.6% were responsible for grandchildren, and 23.5% had been responsible for 5 or more years.

Adult Protective Services (APS) investigates reports of abuse, neglect (including self-neglect) and financial exploitation among adults and older adults. Adults and cases must meet certain criteria for the allegation of maltreatment to be investigated, and criteria varies state to state. For example, in 2020 98.2% of states investigated neglect allegations, but only 39.3% of states investigated abandonment allegations.<sup>178</sup> Tennessee's Adult Protective Services manual can be viewed on the TN Department of Human Services' website.<sup>179</sup> In 2020-2021, Tennessee's APS investigated 8,753 reports, including allegations of **Elder Abuse**. Additionally, in 2022, the Tennessee Elder Abuse Task Force released a report "identifying the financial exploitation of older adults, reviewing best practicing, and sharing recommendations to address regulatory gaps." The full report including additional data on elder abuse is available online.<sup>180</sup>

**Social Isolation** in older adults is a risk factor for serious health problems including dementia and premature death. Older adults who lose loved ones, have chronic illness, hearing loss or live alone are more likely to be socially isolated. In 2020, 281,636 older adults in Tennessee, or 26.2% of the older adult population, were living alone. Living alone can be additionally dangerous for older adults at risk of **Falls**. Falls in older adults can lead to severe injuries such as hip fractures and even death. In the United States in 2019, "emergency departments recorded 3 million visits for older adults falls" and falls cost "\$50 billion in medical costs annually, with ¾ paid by Medicare and Medicaid."<sup>181</sup> In 2018 and 2020, almost 30% of Tennesseans aged 65 and older reported falling.<sup>182</sup>

Caregivers, most often family members such as an adult child or spouse, may step up to meet the needs of an aging loved one. In 2021, 26.32% of Tennesseans over age 45+ were serving as a caregiver to a loved one, including older adults. **Caregiving** is particularly prevalent among families of individuals living with dementia. Caregivers of individuals with dementia are more likely to experience stress and chronic health conditions such as high blood pressure compared to non-dementia caregivers. In 2021, 361,000 dementia caregivers in Tennessee provided 489 million hours of unpaid care valued at \$6.901 billion. In 2019, there were 3,252 deaths from Alzheimer's Disease in Tennessee, making it one of the state's leading causes of death. This is a 217.6% increase since 2000 and the 7<sup>th</sup> highest Alzheimer's death rate in the United States.<sup>183</sup>

*In 2021, 361,000 dementia caregivers in Tennessee provided 489 million hours of unpaid care valued at \$6.901 billion.*

Individuals with **Subjective Cognitive Decline** are more likely to develop dementia later in life. Therefore, monitoring the number of adults with subjective cognitive decline can be a predictor of disease burden in future years. In 2021, almost 17% of Tennesseans aged 45 years and older reported experiencing subjective cognitive decline, compared to 13% in 2019.<sup>184</sup> For county specific data, the TN Department of Health's Office of Patient Care Advocacy houses county profiles on Alzheimer's and older adults.<sup>185</sup>

<sup>178</sup> Administration for Community Adult Maltreatment Report 2020. Accessed December 2022 at [https://acl.gov/sites/default/files/programs/2021-10/2020\\_NAMRS\\_Report\\_ADA-Final\\_Update2.pdf](https://acl.gov/sites/default/files/programs/2021-10/2020_NAMRS_Report_ADA-Final_Update2.pdf)

<sup>179</sup> TN Department of Human Services. Publications and Manuals. Accessed December 2022 at <https://www.tn.gov/humanservices/information-and-resources/dhs-publications.html>

<sup>180</sup> To view the 2022 TN Elder Abuse Task Force Report visit: <https://www.tn.gov/aging/publication-reports/elder-abuse-task-force-report.html>

<sup>181</sup> CDC. Older Adult Fall Prevention. Accessed December 2022 from <https://www.cdc.gov/falls/index.html>

<sup>182</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

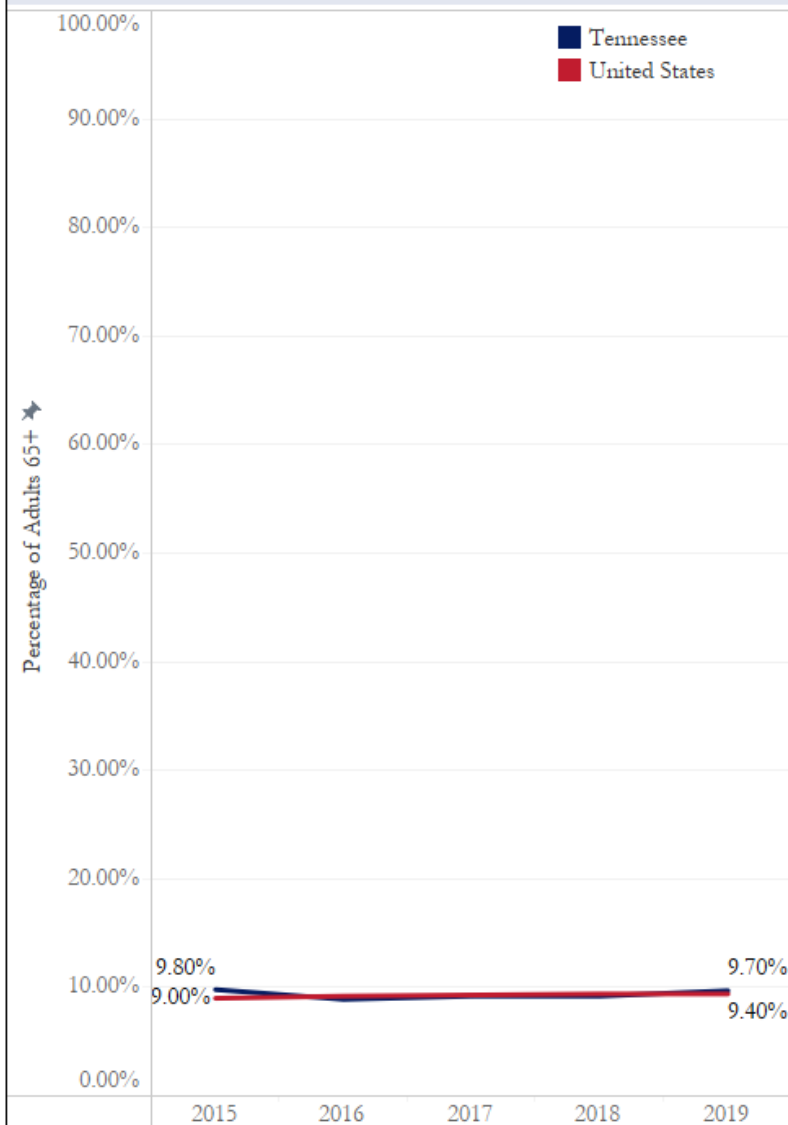
<sup>183</sup> Alzheimer's Association. 2022 Facts and Figures Report. Tennessee State Fact Sheet. Accessed December 2022 from <https://www.alz.org/media/Documents/tennessee-alzheimers-facts-figures-2022.pdf>

<sup>184</sup> Tennessee Department of Health, Behavioral Risk Factor Surveillance System

<sup>185</sup> To access the TN Department of Health's Alzheimer's County Profiles visit: <https://www.tn.gov/health/health-program-areas/office-of-patient-care-advocacy/alzheimer-s-disease/redirect-alzheimers-disease/alzheimers-research.html>

## 65+ Poverty

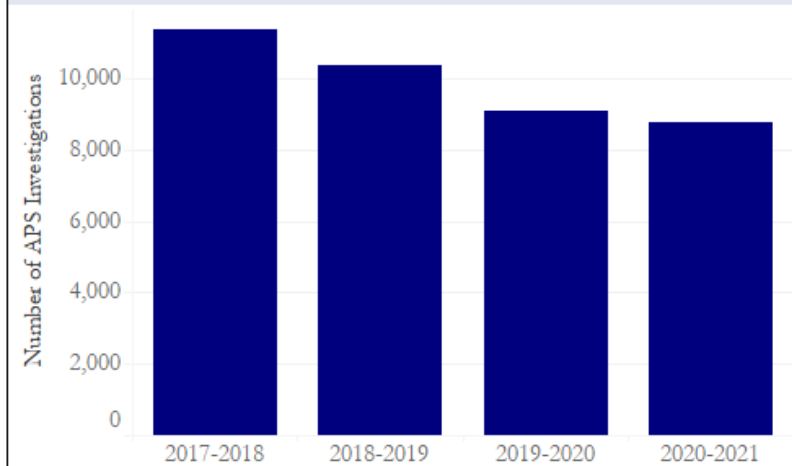
Percentage of adults ages 65 and older who live below the poverty level



Data Source: US Census Bureau, American Community Survey

## Elder Abuse

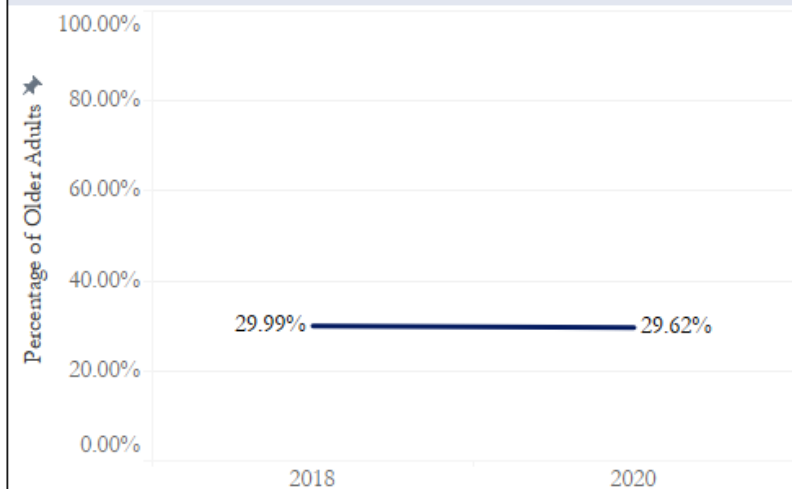
Number of Adult Protective Services abuse investigations.



Data Source: Tennessee Department of Human Services Annual Report

## Falls in Older Adults

Percentage of adults ages 65 and older who reported falling in the past 12 months.

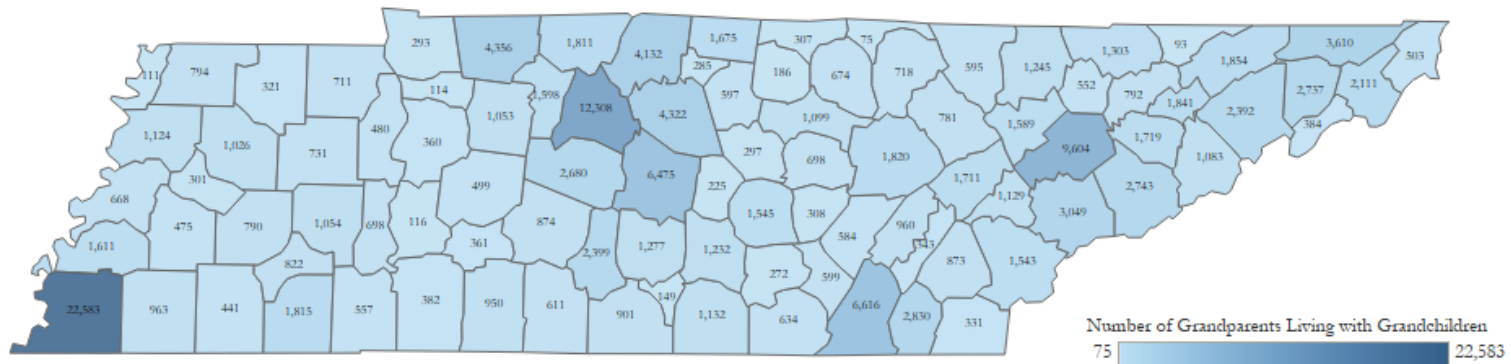


Data Source: Tennessee Department of Health, Behavioral Risk Factor Surveillance System

## Grandparents Living With Grandchildren

Number of grandparents living with own grandchildren under 18 years

In 2021, an estimated 157,975 grandparents in Tennessee were living with their own grandchildren. Of those living with their grandchildren, 46.6% were fully responsible for their grandchildren.

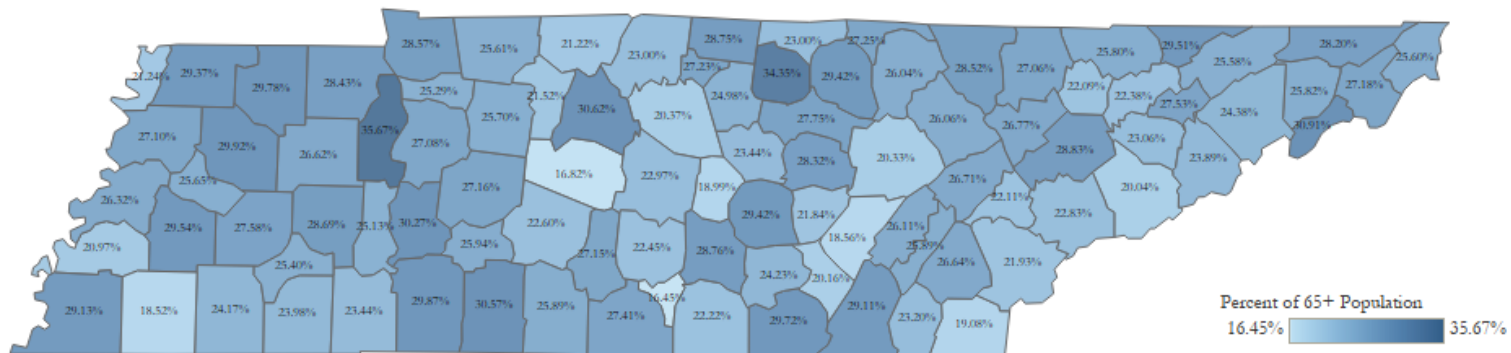


Data Source: US Census Bureau, American Community Survey, 2021 5-year estimate data

## Social Isolation

Percentage of population aged 65+ living alone.

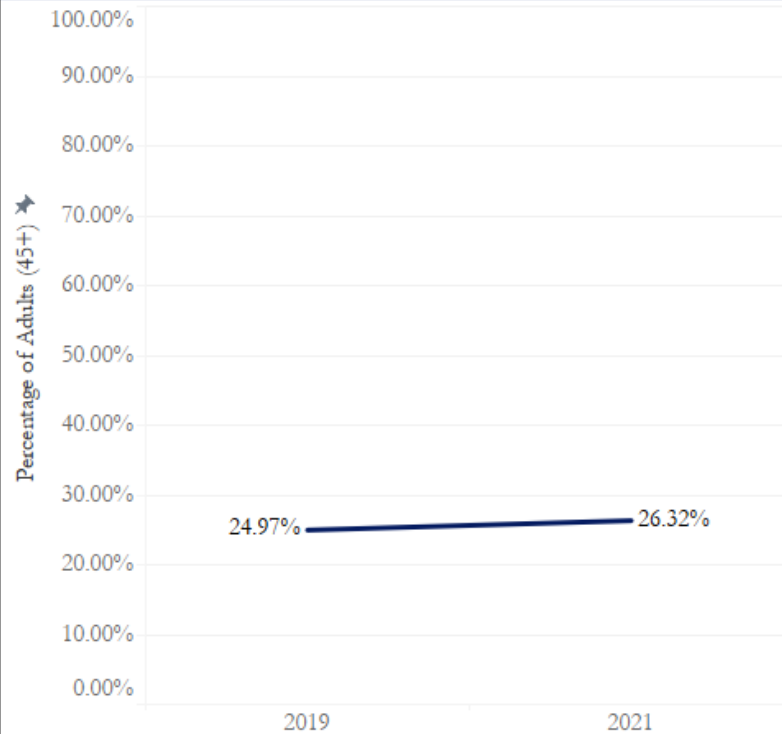
In 2020, 26.2% of older adults in Tennessee were living alone.



Data Source: US Census Bureau, American Community Survey

### Caregiving

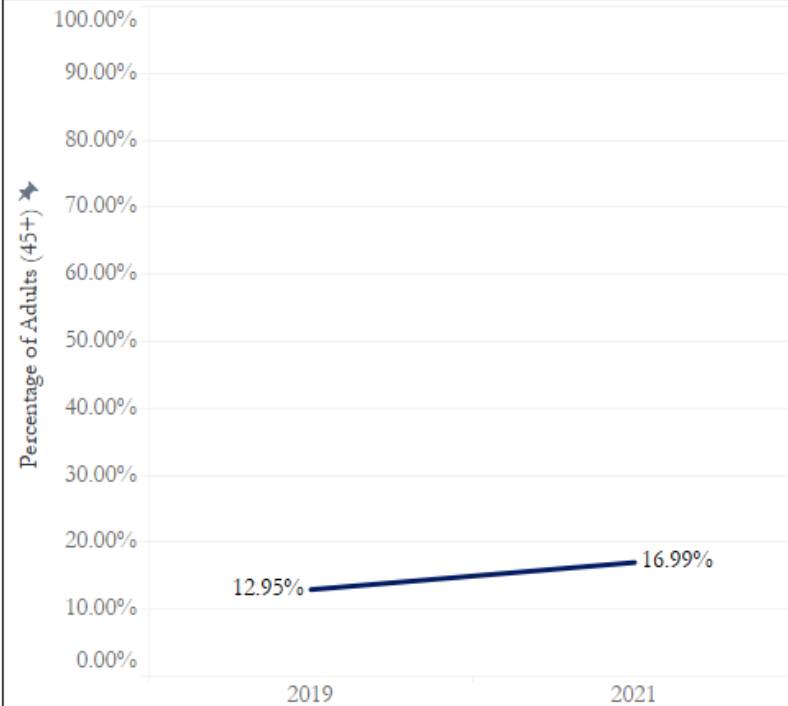
Percentage of adults aged 45 and older serving as a caregiver.



Data Source: Tennessee Department of Health, Behavioral Risk Factor Surveillance System

### Subjective Cognitive Decline

Percentage of adults aged 45 years or older who experience subjective cognitive decline (SCD).



Data Source: Tennessee Department of Health, Behavioral Risk Factor Surveillance System

# Healthy Communities

The second component of the Department’s vision of a Healthy Tennessee is Healthy Communities. A supportive and healthy community should have a healthy environment and a healthy system of care. The communities we live in influence every facet of our lives including our health behaviors, how we get to work or school, and what hospital we access in an emergency. By assessing the health of communities and considering how community health impacts individual health outcomes, larger efforts to improve health at the population health can be identified.

## A Healthy Environment

To assess the health of Tennessee’s environment, the State of Health report considers metrics across two areas: the built environment including housing and transportation and environmental health including the air we breathe and the water we drink. The CDC defines the built environment as “the physical makeup of where we live, learn, work, and play—our homes, schools, businesses, streets and sidewalks, open spaces, and transportation options.”<sup>186</sup> However, the built can only be as healthy as the physical environment in which it is built. For example, a neighborhood may have adequate proximity to a park or greenway, but usability could still be limited by environmental health factors such as poor air quality. The health of the environment affects the air we breathe, the water we drink, and the land we live on. Additionally, environmental emergency events such as floods, tornados and heat waves can negatively impact our health and communities.






| A Healthy Environment                    |                                  |                               |                               |                               |
|--|----------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Severe Housing Problems                  | Severe Housing Cost Burden       | Homelessness                  | Broadband Access              | Access to Parks and Greenways |
| Transportation Disadvantaged Communities | Access to Vehicle                | Driving Alone to Work         | Long Commute-Driving Alone    | Roadway Safety                |
| Voter Participation                      | Civic Organizations              | Social Advocacy Organizations | Volunteering                  | Water Quality                 |
| Community Water Fluoridation             | Air Pollution-Particulate Matter | Heat Related ED Visits        | Heat Related Hospitalizations |                               |

<sup>186</sup> CDC. Division of Nutrition, Physical Activity and Obesity. Built Environment Assessment. <https://www.cdc.gov/nccdphp/dnpao/state-local-programs/built-environment-assessment/index.htm#:~:text=The%20built%20environment%20includes%20the,physical%20activity%20and%20healthy%20eating>. Accessed December 2022.

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## Built Environment

### Housing and Parks

- In 2020, more than 7,256 Tennesseans were experiencing **Homelessness**.<sup>187</sup> 
- From 2014-2018, 13.9% of Tennessee households had **Severe Housing Problems**.<sup>188</sup> 
- From 2014-2018, 11.6% of Tennessee households experienced a **Severe Housing Cost Burden**.<sup>189</sup> 
- In 2019, 83% of households in Tennessee had **Broadband Internet Connection**.<sup>190</sup> 
- In 2022, 62.0% of Tennessee had adequate access to **Parks and Greenways**.<sup>191</sup> 

Safe and stable housing is one of humanity's most basic needs but remains out of reach for many Tennesseans. In 2020, 7,256 Tennesseans were experiencing **Homelessness**, during the annual point-in-time count conducted to assess homelessness. As this data is collected at one specific time annually, it is expected to significantly undercount the persons in Tennessee who experience homelessness during a given year. The relationship between health and homelessness is cyclical. Poor health increases risk of experiencing homelessness and experiencing homelessness increases risk of poor health.<sup>192</sup> As noted by the National Health Care for the Homeless Council, "no amount of health care can substitute for stable housing." Even for individuals who are housed, significant housing challenges that impact health can remain. From 2014-2018, 13.9% of Tennessee households had **Severe Housing Problems**, defined as having a least one of four problems (overcrowding, high housing costs, lack of kitchen facilities, or lack of plumbing facilities) compared to 17.3% in the United States during the same time. High housing cost specifically has been associated with increased odds of poor health including hypertension, arthritis, and cost-related health and prescription nonadherence.<sup>193</sup> In Tennessee from 2014-2018, 11.6% of Tennessee households experienced a **Severe Housing Cost Burden**, defined as spending more than 50% of their income on housing. Severe Housing Cost Burden in the U.S. was 13.9% during the same time period. An additional challenge to ensuring housing meets the needs of today's Tennesseans is **Broadband Internet Connection**. Broadband access is necessary for accessing everything from educational classes, job opportunities, and telehealth appointments to staying connected with family and friends. Broadband access in Tennessee has been increasing in recent years, and in 2019, 83% of households in Tennessee had broadband internet connection. The physical makeup of the community outside the front door also impacts health. For example, individuals with **Access to Parks and Greenways** are more likely to be physically active. In 2022, 62.0% of Tennessee had adequate access to parks and greenways.

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<sup>187</sup> Housing and Urban Development Exchange CoC Homeless Populations and Subpopulations Reports  
Data Note: As a point-in-time count, this number severely undercounts the number of persons experiencing homelessness.

<sup>188</sup> U.S. Department of Housing and Urban Development Comprehensive Housing Affordability Strategy (CHAS) Data

<sup>189</sup> U.S. Department of Housing and Urban Development Comprehensive Housing Affordability Strategy (CHAS) Data

<sup>190</sup> U.S. Census Bureau, American Community Survey, 2015-2019

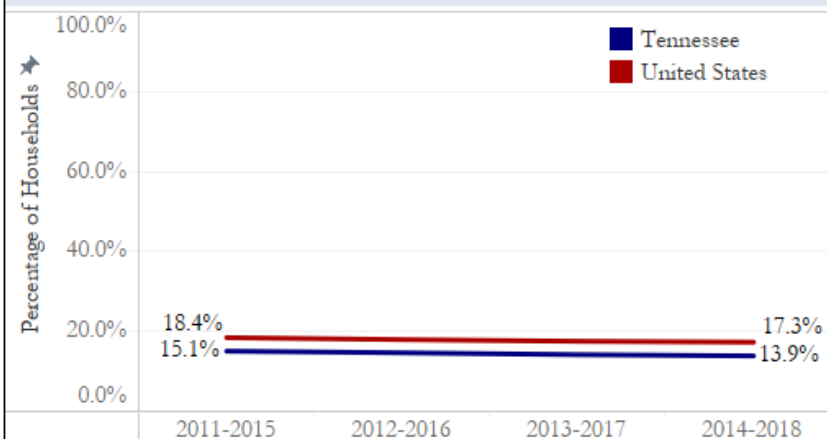
<sup>191</sup> Business Analyst, Delorme map data, ESRI, & U.S. Census Tigerline Files. Accessed through County Health Rankings.

<sup>192</sup> National Health Care for the Homeless Council. Homeless & Health: What's the Connection?. February 2019. Retrieved from: <https://nhchc.org/wp-content/uploads/2019/08/homelessness-and-health.pdf>

<sup>193</sup> Pollack, C. Griffin, B.A. Lynch, J. (2010). Housing Affordability and Health Among Homeowners and Renters. *American Journal of Preventative Medicine*, 39,(6), 515-521. <https://doi.org/10.1016/j.amepre.2010.08.002>

## Severe Housing Problems

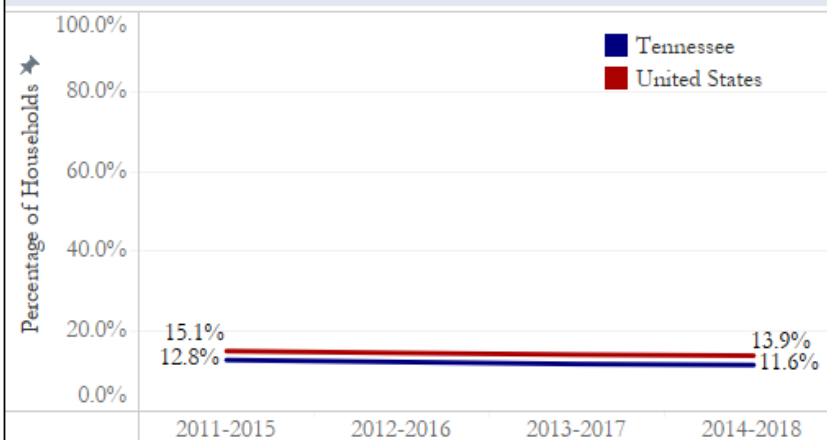
Percentage of households with at least 1 of 4 housing problems: overcrowding, high housing costs, lack of kitchen facilities, or lack of plumbing facilities.



Data Source: US Department of Housing and Urban Development Comprehensive Housing Affordability Strategy (CHAS) Data

## Severe Housing Cost Burden

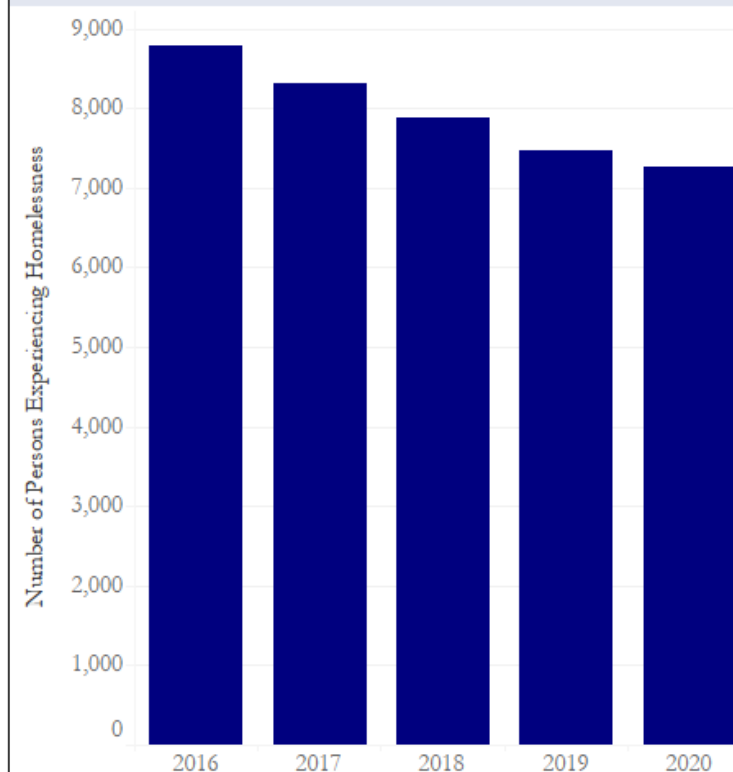
Percentage of households that spend 50% or more of their household income on housing



Data Source: US Department of Housing and Urban Development Comprehensive Housing Affordability Strategy (CHAS) Data

## Homelessness

Annual point-in-time count of persons experiencing homelessness in Tennessee.

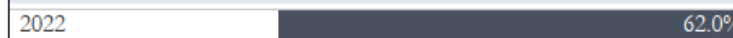


Data Source: Housing and Urban Development Exchange CoC Homeless Populations and Subpopulations Reports

Data Note: As a point-in-time count, this number severely undercounts the number of persons experiencing homelessness.

## Access to Parks and Greenways

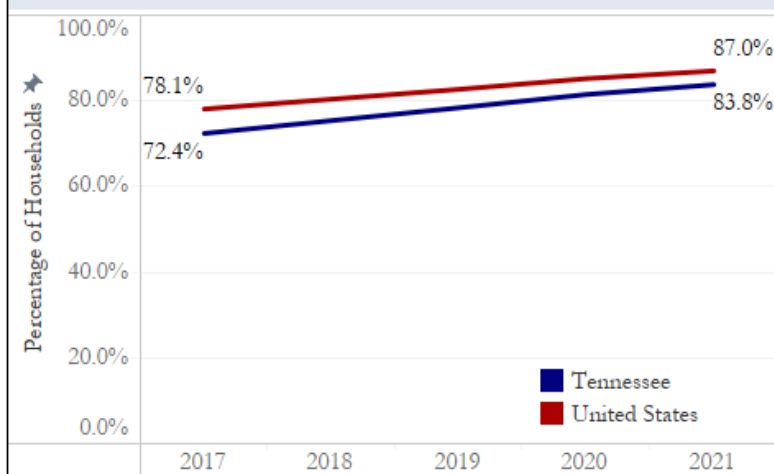
Percentage of population with adequate access to locations



Data Source: Business Analyst, Delorme map data, ESRI, & US Census Tigerline Files. Accessed through County Health Rankings.

## Broadband

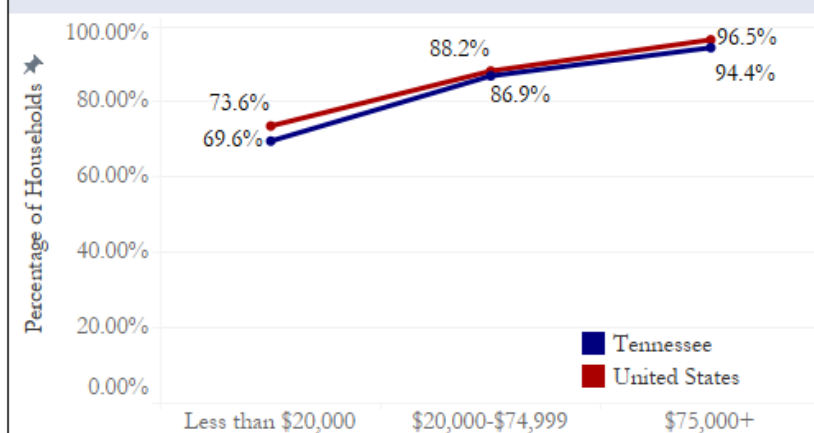
Percentage of households with broadband internet connection



Data Source: U.S. Census Bureau, American Community Survey, 2017-2021 5-Year Estimate Public Use Data

## Broadband by Income

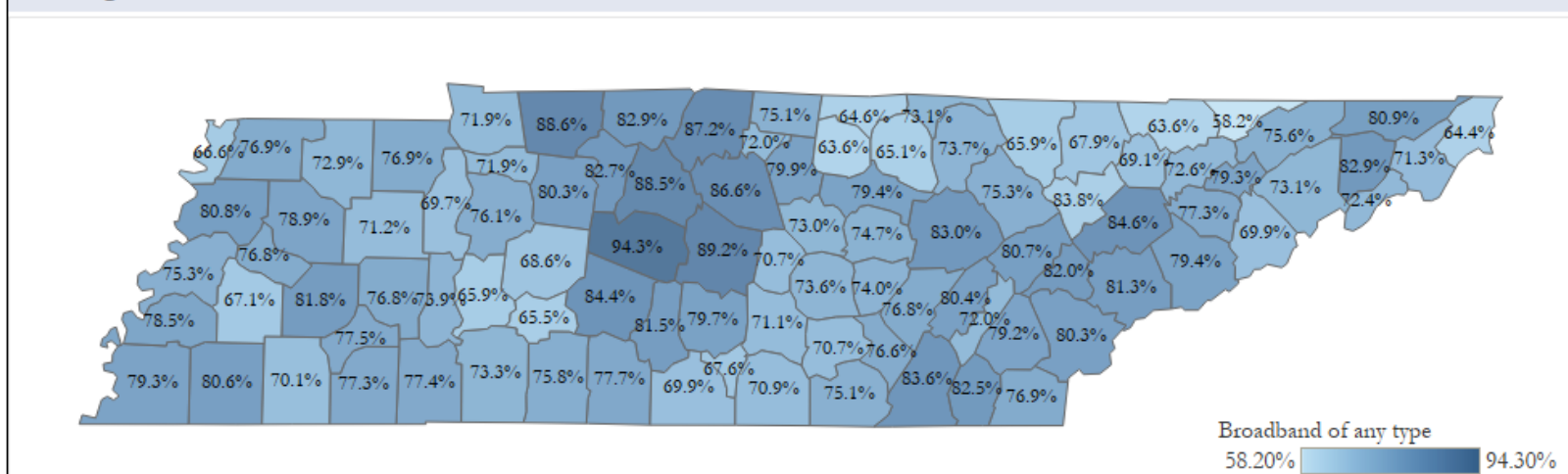
Percentage of households with broadband connection in 2020 by household income level.



Data Source: U.S. Census Bureau, American Community Survey, 2020 5-Year Estimate Public Use Data






## Broadband in Tennessee

Percentage of households in TN with broadband internet connection



Data Source: U.S. Census Bureau, American Community Survey, 2020 5-Year Estimate Public Use Data

## Transportation

- In 2022, 33.7% of Tennessee communities were **Transportation Disadvantaged Communities**<sup>194</sup> 
- In 2019, 18.4% of Tennessee workers aged 16 and over had **Access to a Vehicle**<sup>195</sup> 
- In 2019, 82% of workers aged 16 years and older were **Driving Alone to Work**<sup>196</sup> 
- In 2019, 36.4% of those driving alone to work had a **Long Commute**<sup>197</sup> 
- In 2021, there were 3,198 crashes resulting in fatalities and/or serious injuries **Safety**<sup>198</sup> 

Reliable access to transportation is essential to function in society and affects if individuals can get to everything from work and doctor's appointments to birthday parties and Friday night football. The United States Department of Transportation (US DOT) tracks communities that are considered **Transportation Disadvantaged Communities**. These communities, or census tracts, are identified as disadvantaged using data that evaluates social vulnerability, risk, resilience, and other community-level factors. Transportation disadvantaged communities spend more and take longer to get where they need to go. In 2022, 495 of Tennessee's census tracts were considered transportation disadvantaged communities, constituting 33.7% of all Tennessee communities. Specific census tract designations and indicators can be viewed using the U.S. DOT's mapping tool.<sup>199</sup>

Many communities in Tennessee do not have access to traditional public transit and rely heavily on a personal vehicle. **Access to a Vehicle** is essential where access to traditional public transit is absent or limited. In 2019, 18.4% of Tennessee workers aged 16 and over lived in households with at least one vehicle available, compared to 20.1% in the U.S. While in Tennessee access to a vehicle is largely needed to get from one place to another, relying on a personal vehicle can have negative impacts on the environment by increasing carbon emissions as well as negative effects on individual health. In 2019, 82% of workers aged 16 years and older were **Driving Alone to Work** and 36.4% of those driving alone had a **Long Commute**, defined as more than 30 minutes. In the United States in 2019, 75.9% of workers were driving alone to work and 37.9% of those driving alone had a long commute. Driving alone to work and having a long commute can impact health by decreasing physical activity and increasing the risk of health conditions such as obesity and hypertension. Comparatively using public transit increases physical activity and can improve overall health of individuals and environments.

In 2021, there were 3,198 crashes resulting in fatalities and/or serious injuries in Tennessee, up from 2,680 in 2020. The Tennessee Department of Transportation's Division of Multimodal Transportation looks closely at roadway **Safety** and has local data available publicly through the Pedestrian Safety Prioritization Tool. The Tool identifies the number of injuries and fatalities, presence of sidewalks and bike lanes, speed limits and more for roadways across the state.<sup>200</sup>

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<sup>194</sup> U.S. Department of Transportation, Transportation Disadvantaged Census Tract Data

<sup>195</sup> United States Census Bureau, American Community Survey, 1-Year Public Use Estimates

<sup>196</sup> United States Census Bureau, American Community Survey, 1-Year Public Use Estimates

<sup>197</sup> United States Census Bureau, American Community Survey, 1-Year Public Use Estimates

<sup>198</sup> Tennessee Department of Transportation Fatal and Serious Injury Crashes Data Dashboard

<sup>199</sup> To view local data on Transportation Disadvantaged Communities visit: <https://www.arcgis.com/apps/dashboards/d6f90dfcc8b44525b04c7ce748a3674a>

<sup>200</sup> To view local data from TDOT's Pedestrian Safety Prioritization Tool visit: <https://tdot-lrp-mm.maps.arcgis.com/apps/webappviewer/index.html?id=47c1bf3ae8014d5893c2ed2f075b207e>

## Transportation Disadvantaged Communities

Percentage of Tennessee Communities that spend more and take longer, to get where they need to go (Percent of census tracts with 4 or more transportation disadvantage indicators)

|      |       |
|------|-------|
| 2022 | 33.1% |
|------|-------|

Data Source: US Department of Transportation, Transportation Disadvantaged Census Tract Data

## Safety

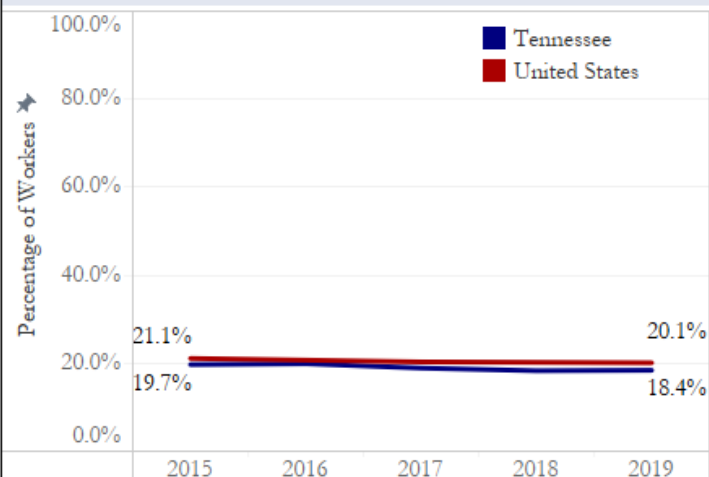
Annual number of crashes resulting in fatalities and/or serious injuries in Tennessee.

|      |       |
|------|-------|
| 2020 | 2,680 |
| 2021 | 3,198 |

Data Source: Tennessee Department of Transportation Fatal and Serious Injury Crashes Data Dashboard

## Access to Vehicle

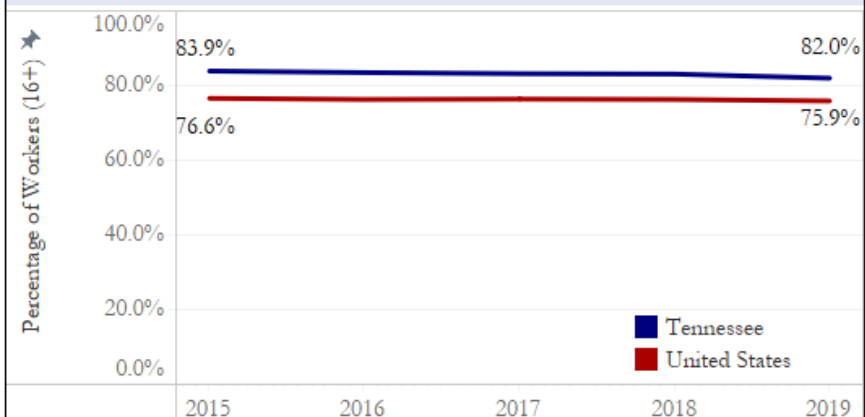
Percentage of workers 16 years and over in households with at least 1 vehicle available



Data Source: United States Census Bureau, American Community Survey, 1-Year Public Use Estimates

## Driving Alone to Work

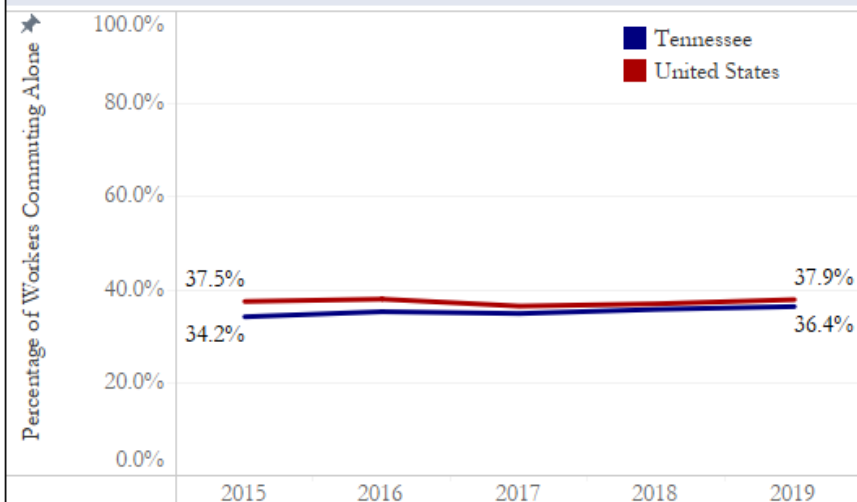
Percentage of workers 16 years and over that drive alone to work



Data Source: United States Census Bureau, American Community Survey, 1-Year Public Use Estimates

## Long Commute Driving Alone

Among workers who commute in their car alone, the percentage that commute more than 30 minutes.



Data Source: United States Census Bureau, American Community Survey, 1-Year Public Use Estimates

## Social Cohesion

- In 2020, **Voter Participation** was 59.5%.<sup>201</sup> 
- In 2020, there were 414 **Civic Organizations**.<sup>202</sup> 
- In 2020, there were 335 **Social Advocacy Organizations**.<sup>203</sup> 
- In 2020, Tennessee ranked 32 in the nation for volunteerism, with only 31.3% of adults **Volunteering**.<sup>204</sup> 

Social cohesion refers to a community or population's investment in "community improvement, social networking, civic engagement, personal recreation, and other activities that create social bonds between individuals and groups."<sup>205</sup>

Individuals living in a socially cohesive community experience trust, solidarity, connectedness, and a sense of belonging with one another. As a result, these communities experience more positive health outcomes including everything from lower rates of frailty in older adults to increased physical activity.<sup>206</sup>

Increased civic engagement can increase a community's social cohesion. The relationship between democracy and health is closely linked, including through a recent Democracy and Health index released by Healthy Democracy Healthy People, a coalition of organizations such as the Association of State and Territorial Health Officials (ASTHO) and American Public Health Association (APHA). In Tennessee, **Voter Participation** is consistently below the U.S. average but follows U.S. trends with higher participation in presidential election years. In 2020, 59.5% of the voting-eligible population participated in the highest office election, compared to 66.0% at the national level.

Civic engagement invests populations with their neighbors and community outcomes. Community engagement is also increased in areas where there is a high presence of **Civic Organizations** and **Social Advocacy Organizations**. Civic organizations are defined as establishments engaged in "promoting the civic and social interests of their members" and include organizations such as parent-teacher associations, alumni associations, veterans' membership organizations and ethnic associations.<sup>207</sup> Social advocacy organizations promote a "particular cause or working for the realization of a specific social or political goal to benefit a broad or specific constituency" and include organizations such as community action advocacy organizations, human rights advocacy organizations, and wildlife preservation organizations.<sup>208</sup> In 2020, there were 414 civic organizations and 335 social advocacy organizations in Tennessee. Community members may spend time **Volunteering**, with these organizations and others such as faith-based organizations. Despite being the Volunteer State, the percent of adults in Tennessee who volunteer, 31.3% is below the U.S. average of 33.4%. In 2020, Tennessee ranked 32 in the nation for volunteerism.

<sup>201</sup> United States Election Project, General Election Turnout Rates.

<sup>202</sup> U.S. Census Bureau, 2016-2020

<sup>203</sup> Data Source: U.S. Census Bureau, 2016-2020

<sup>204</sup> U.S. Census Bureau, Current Population Survey (CPS), Volunteer Supplement Data. Accessed via America's Health Rankings.

<sup>205</sup> CDC Healthy Places. Social Capital. Retrieved from: <https://www.cdc.gov/healthyplaces/healthtopics/social.htm>

<sup>206</sup> Miller HN, Thornton CP, Rodney T, Thorpe RJ Jr, Allen J. Social Cohesion in Health: A Concept Analysis. *ANS Adv Nurs Sci.* 2020 Oct/Dec;43(4):375-390. doi: 10.1097/ANS.0000000000000327. PMID: 32956090; PMCID: PMC8344069.

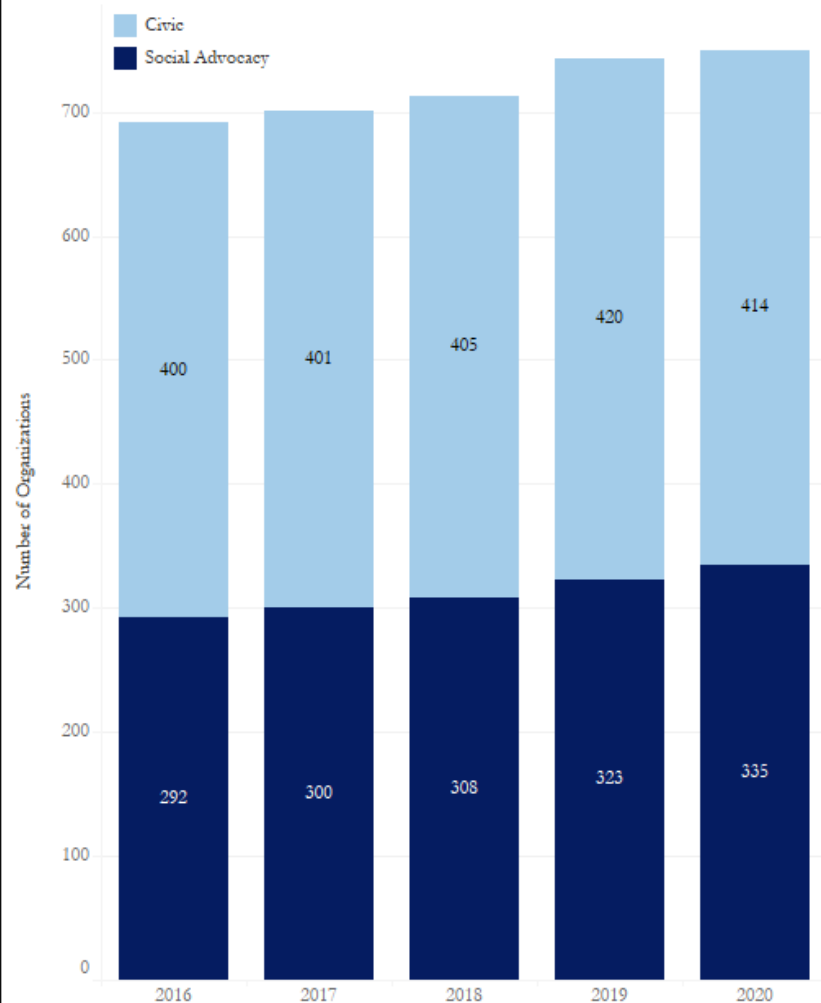
<sup>207</sup> United States Census Bureau North American Industry Classification System. Accessed via: <https://www.census.gov/naics/?input=civic&year=2022&details=813410>

<sup>208</sup> United States Census Bureau North American Industry Classification System. Accessed via: <https://www.census.gov/naics/?input=8133&year=2022&details=81331>

## Civic and Social Advocacy Organizations

### Number of civic organizations and social advocacy organizations in Tennessee

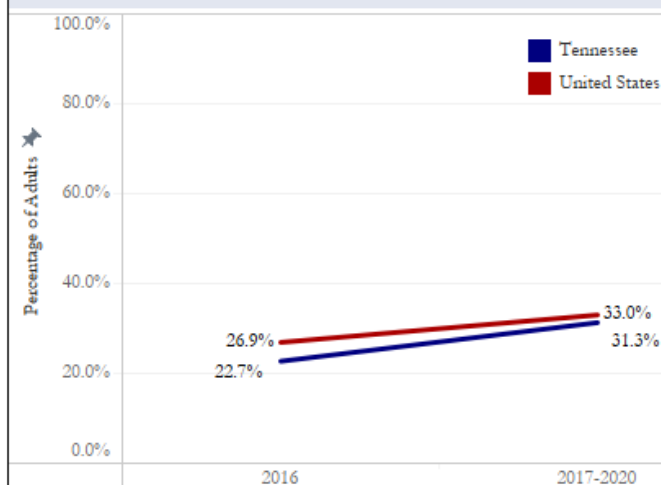
Civic organizations are defined as establishments engaged in "promoting the civic and social interests of their members" and include organizations such as parent-teacher associations, alumni associations, veterans' membership organizations and ethnic associations. Social advocacy organizations promote a "particular cause or working for the realization of a specific social or political goal to benefit a broad or specific constituency" and include organizations such as community action advocacy organizations, human rights advocacy organizations, and wildlife preservation organizations



Data Source: United States Census Bureau

## Volunteerism in Tennessee

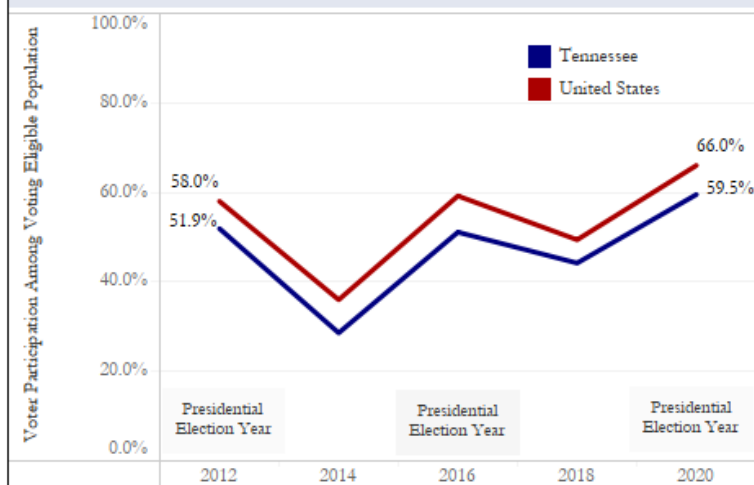
### Percentage of adults in the state who volunteer in their communities.



Data Source: US Census Bureau, Current Population Survey (CPS), Volunteer Supplement Data. Accessed via America's Health Rankings.

## Voter Participation in Tennessee

### Percentage of voting-eligible population in the state participating in the highest office election.






Data Source: United States Election Project, General Election Turnout Rates.

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## Environmental Health

### Water and Air

- In 2020, 93.9% of Tennessee’s water systems met all applicable health-based standards for **Water Quality**.<sup>209</sup> 
- 88.8% of Tennessee’s population is served by **Fluoridated Water**.<sup>210</sup> 
- In 2018, Tennessee’s annual average of fine **Particulate Matter** (PM<sub>2.5</sub>) was 8 µg/m<sup>3</sup>.<sup>211</sup> 

The CDC’s Environmental Public Health Tracking Tool maps multiple environmental health factors including air and water quality. Tennessee’s **Water Quality** in 2020 was slightly above the U.S. average. In 2020, 93.9% of Tennessee’s water systems met all applicable health-based standards, compared to 92.4% in the United States. In addition to maintaining water quality standards, the addition of fluoride into community water systems improves oral health. As detailed in the Tennessee Department of Health 2022 Oral Health Plan, **Community Water Fluoridation** “is the most effective and economical way to prevent tooth decay for all ages.”<sup>212</sup> Approximately 88.8% of Tennessee’s population is served by community water systems receiving fluoridated water.

Particulate matter includes droplets or particles such as dust, dirt, and soot existing in the air that may or may not be visible. Inhalation of particulate matter can lead to serious health problems or worsen existing issues such as asthma. The National Ambient Air Quality Standards (NAAQS) state the that long-term (annual) standard for fine **Particulate Matter** (PM<sub>2.5</sub>) is 12 micrograms per cubic meter of air (µg/m<sup>3</sup>).<sup>213</sup> In 2018, Tennessee’s annual average of PM<sub>2.5</sub> was 8 µg/m<sup>3</sup> and therefore met the standard. However, because air pollution and quality vary significantly by location, data should be used more locally where available. Local data available through the CDC’s Environmental Public Health Tracking tool show areas of Tennessee that have exceeded the short-term (24-hour) NAAQS standard of 35 µg/m<sup>3</sup> despite Tennessee overall meeting the long-term standard. Real-time air quality alerts by zip code are available through “AirNow” which uses data from the U.S. Environmental Protection Agency, National Oceanic and Atmospheric Administration (NOAA), National Park Service, NASA, Centers for Disease Control, and tribal, state, and local air quality agencies.<sup>214</sup>

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<sup>209</sup>Environmental Protection Agency (EPA), Safe Drinking Water Information System Federal (SDWIS/FED) Drinking Water Data. Accessed via National Health Security Preparedness Index.

<sup>210</sup> Centers for Disease Control and Prevention, Water Fluoridation Reporting System, My Water Fluoride Summary Reports

<sup>211</sup> Centers for Disease Control and Prevention (CDC), Environmental Public Health Tracking Network.

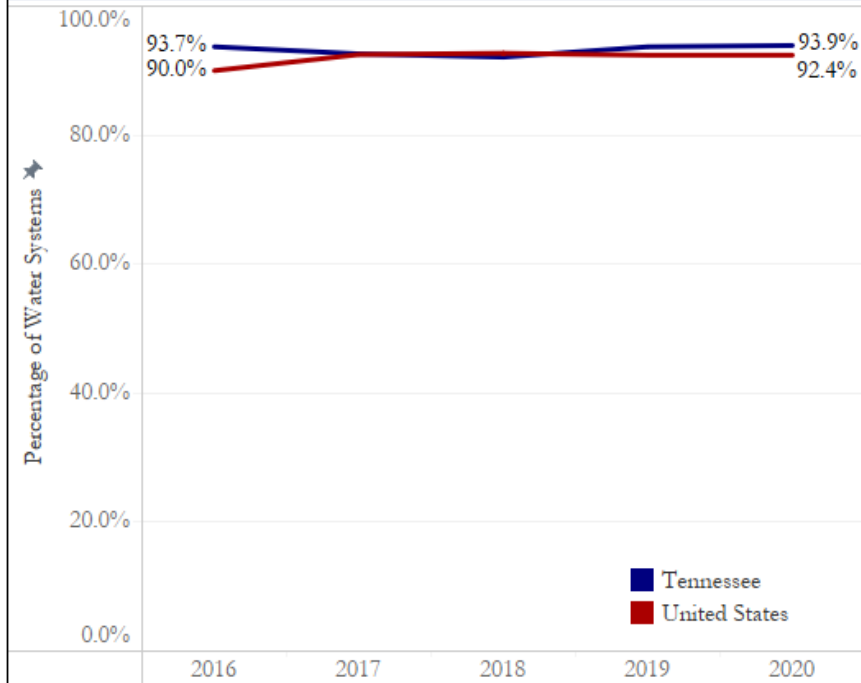
<sup>212</sup> 2022 Tennessee State Oral Health Plan <https://www.tn.gov/content/dam/tn/health/documents/2022%20State%20Oral%20Health%20Plan.pdf>

<sup>213</sup> US EPA. National Ambient Air Quality Standards (NAAQS) for PM. Accessed December 2022. Retrieved from: <https://www.epa.gov/pm-pollution/national-ambient-air-quality-standards-naaqs-pm>

<sup>214</sup> To view real-time local air quality data visit: <https://www.airnow.gov/about-airnow/>

## Water Quality

Percentage of community water systems that meet all applicable health-based standards.



Data Source: Environmental Protection Agency (EPA), Safe Drinking Water Information System Federal (SDWIS/FED) Drinking Water Data. Accessed via National Health Security Preparedness Index.

## Water Fluoridation

Percentage of TN population served by community water systems that are receiving fluoridated water

2017-2021 88.8%

Data Source: Centers for Disease Control and Prevention, Water Fluoridation Reporting System, My Water Fluoride Summary Reports



## Air Pollution - Particulate Matter

Average Daily density of fine particulate matter in micrograms per cubic meter (PM 2.5)

2018 8

Data Source: Centers for Disease Control and Prevention (CDC), Environmental Public Health Tracking Network.

## Weather-Related Illness

- In 2019, the rate of **Heat-Related Emergency Department Visits** was 4.33 visits per 10,000 persons.<sup>215</sup> 
- In 2019, the rate of **Heat-Related Hospitalizations**<sup>216</sup> was 0.43 per 10,000 persons.<sup>217</sup> 

In the United States heat-related weather events cause more fatalities annually than any other weather-related event including floods and tornados.<sup>218</sup> As temperatures rise globally, heat-related deaths and illnesses will increase particularly for vulnerable populations such as pregnant women, children, and older adults. Increased rates of heat-related illness can impact community health care capacity as emergency department visits and hospitalizations increase. In 2019, the crude rate of **Heat-Related Emergency Department Visits** was 4.33 visits per 10,000 Tennesseans. Heat-related emergency department visits in Tennessee were highest among working aged adults. Preventing heat-related illnesses is especially important for individuals who work outside and may have prolonged exposure to heat. In 2019, the crude rate of **Heat-Related Hospitalizations** was 0.43 per 10,000 Tennesseans. Heat-related hospitalizations were highest among older adults. The Centers for Disease Control houses a county-level heat and health tracker to assist communities in “preparing for a responding to extreme heat events.”<sup>219</sup> The Tennessee Climate Office releases a Monthly Climate Report which includes a Monthly Temperature Summary detailing mean temperatures across Tennessee counties and how observed temperatures depart from normal temperatures.<sup>220</sup>

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<sup>215</sup> Tennessee Department of Health, Division of Policy Health Assessment. Hospital Discharge Data System, 2015-2019. Nashville, TN.

<sup>216</sup> Tennessee Department of Health, Division of Population Health Assessment. Hospital Discharge Data System, 2015-2019. Nashville, TN.

<sup>217</sup> Tennessee Department of Health, Division of Population Health Assessment. Hospital Discharge Data System, 2015-2019. Nashville, TN.

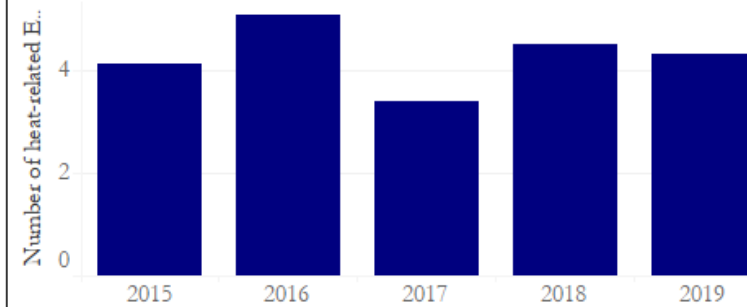
<sup>218</sup> National Oceanic and Atmospheric Administration. National Weather Service. Weather Related Fatality and Injury Statistics. Accessed via <https://www.weather.gov/hazstat/>

<sup>219</sup> To access the CDC Heat & Health Tracker visit: <https://ephtracking.cdc.gov/Applications/heatTracker/>

<sup>220</sup> To access the Tennessee Climate Office Monthly Reports visit: <https://www.etsu.edu/cas/geosciences/tn-climate/monthly-reports/default.php>

## Heat-Related Emergency Department Visits in Tennessee

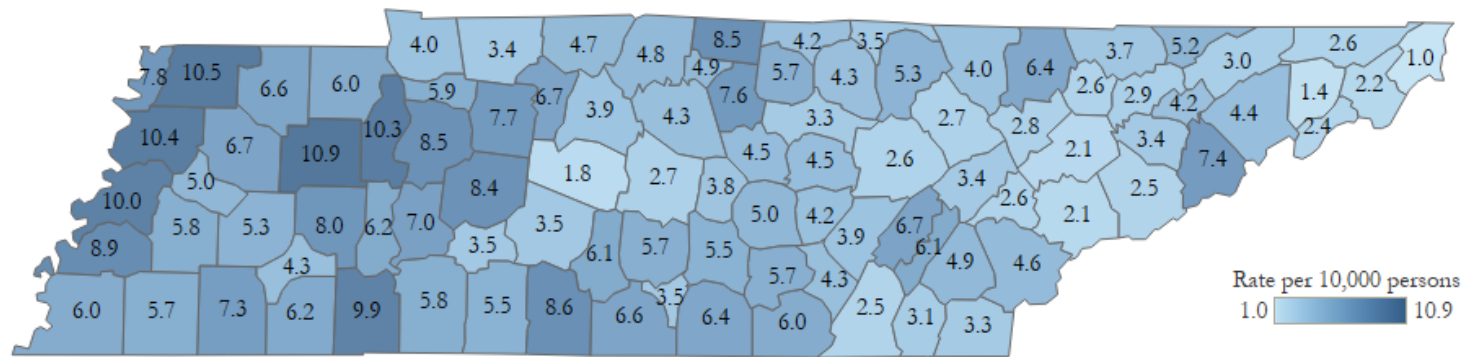
Number of heat-related emergency department visits in Tennessee per 10,000 persons



Data Source: Tennessee Department of Health, Division of Policy Health Assessment. Hospital Discharge Data System, 2015-2019. Nashville, TN.

## Heat-Related Emergency Department Visits by County

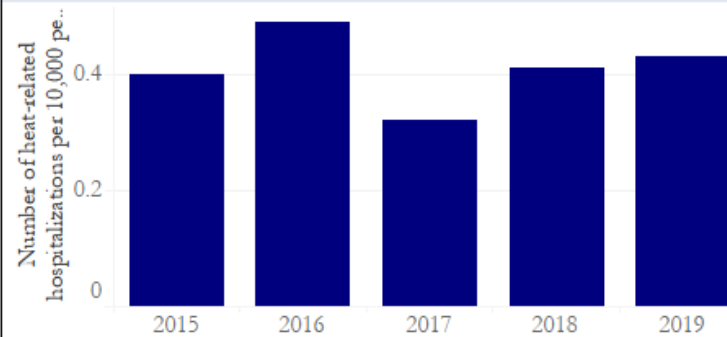
Number of heat-related emergency department visits in Tennessee per 10,000 persons by county from 2015-2019.



Data Source: Tennessee Department of Health, Division of Policy Health Assessment. Hospital Discharge Data System, 2019. Nashville, TN.

## Heat-Related Hospitalizations in Tennessee

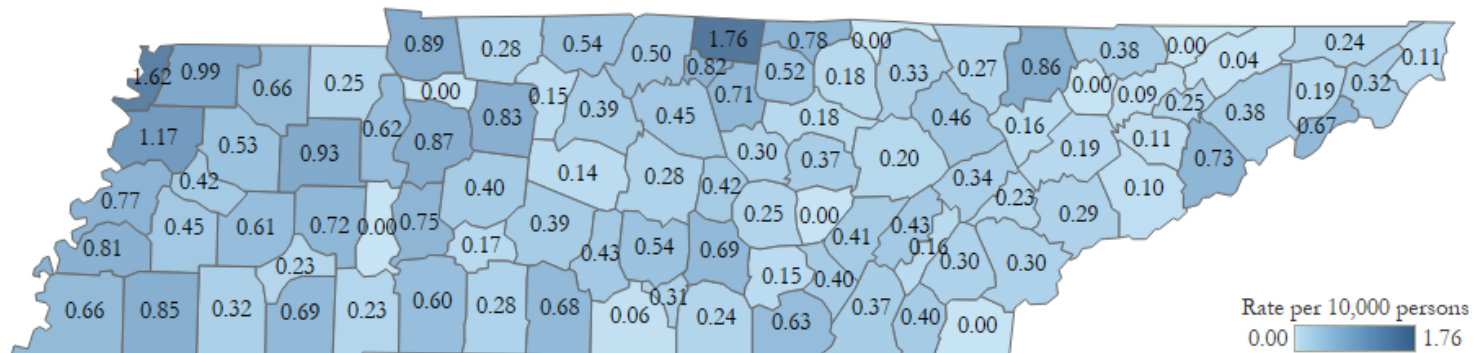
Number of heat-related hospitalizations per 10,000 persons in Tennessee



Data Source: Tennessee Department of Health, Division of Population Health Assessment. Hospital Discharge Data System, 2015-2019. Nashville, TN.  
Note: Counts tallied by date of admission. Counts less than 11 are suppressed.

## Heat-Related Hospitalizations in Tennessee

Number of heat-related hospitalizations per 10,000 persons by county from 2015-2019.



Data Source: Tennessee Department of Health, Division of Policy Health Assessment. Hospital Discharge Data System, 2019. Nashville, TN.

## Emergency Preparedness and Community Resiliency

First responders, smoke detectors, and evacuation plans may come to mind when thinking about emergency preparedness. However, preparing for emergencies also includes building up a community's resiliency which increases a community's ability to respond to and recover from an emergency. Resilient communities are more likely to get kids back to school faster after an emergency, continue to meet non-emergent health care needs through a disaster, and ensure recovery efforts are equitable.

The Tennessee Department of Health's Division of Communicable and Environmental Diseases and Emergency Preparedness (CEDEP) is incorporating the COPEWELL (Composite of Post-Event Well-Being) Model into its community resiliency work. This evidence-based model seeks to understand community resiliency by measuring a community's functioning, population factors, prevention and mitigation factors, social cohesion, preparedness and response, external resource, and resources for recovery. Many of the 43 COPEWELL metrics are captured in the State of Health report including Influenza Vaccination Rates, Severe Housing Problems, Poverty, Voter Participation and more. Improving the factors that contribute to a community's resiliency not only increases its emergency preparedness, but ensures communities are healthier and able to thrive.

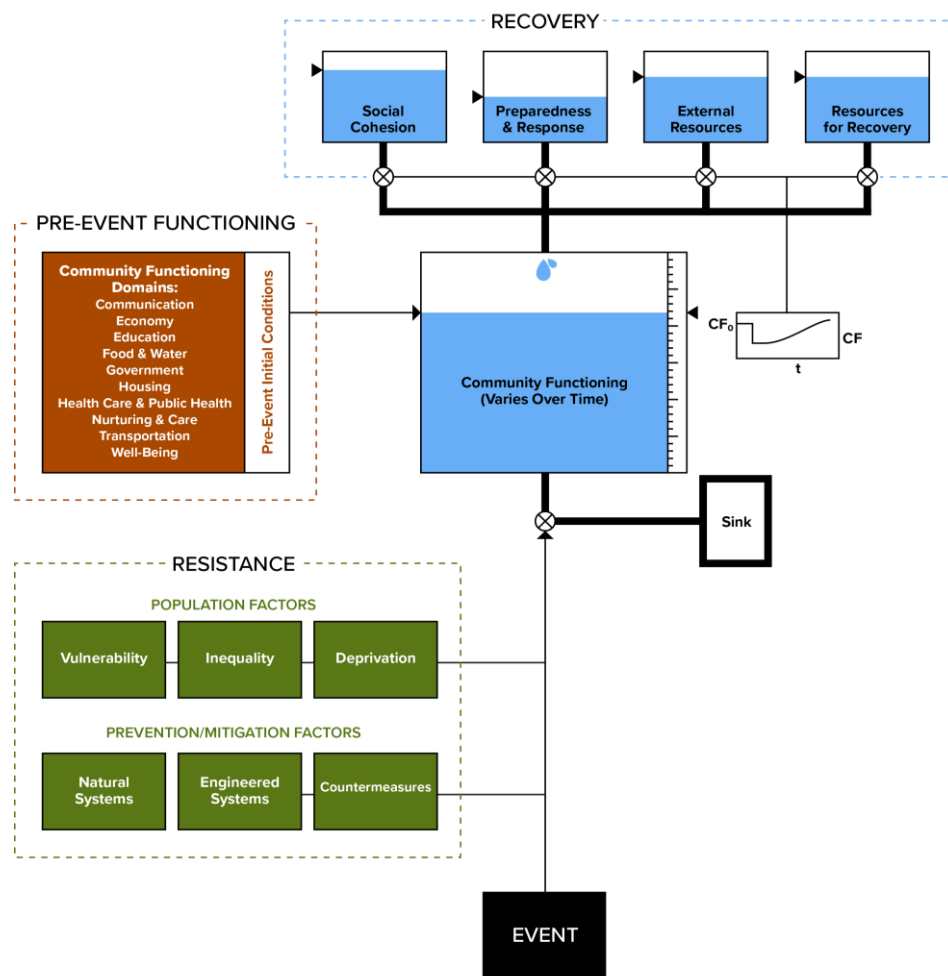


Image source: COPEWELL Framework. Johns Hopkins University.  
To view COPEWELL's county level tool measuring community resiliency visit [www.copewellmodel.org](http://www.copewellmodel.org).







## A Healthy System of Care

To assess the health of Tennessee's system of care, the State of Health report considers three of the Principles for Achieving Health outlined in Tennessee state law: Access, Quality of Care, Workforce.

| A Healthy System of Care                        |   |   |                          |   |
|---|---|---|--------------------------|---|
| Uninsured Adults                                | Uninsured Children                        | Underinsured Children                     | Avoided Care Due to Cost | Adults with Disabilities who Avoided Care Due to Cost |
| Hospital Closures                               | Hospital Quality                          | Preventable Hospitalizations              | Breast Cancer Screenings | Colorectal Cancer Screenings                          |
| Primary Care Health Professional Shortage Areas | Mental Health Professional Shortage Areas | Dental Health Professional Shortage Areas | Nurses                   | Palliative Care                                       |
| Home Health Care                                |   |   |                          |   |

## Access

Every Citizen should have access to reasonable health care.

- In 2021 11.5% of adults in Tennessee were **Uninsured Adults**.<sup>221</sup> 
- In 2021, 4.9% of Tennessee's children were **Uninsured Children**.<sup>222</sup> 
- 13.0% of Tennessee Children are **Underinsured Children**.<sup>223</sup> 
- In 2021, 11.48% of Tennessee adults **Avoided Care due to Cost**.<sup>224</sup> 
- In 2021, 19.63% of adults with disabilities avoided care due to cost, limiting **Access to Care for Adults with Disabilities**.<sup>225</sup> 
- As of 2022, 44% of rural hospitals are at risk of **Hospital Closure**.<sup>226</sup> 

<sup>221</sup> United States Census Bureau, American Community Survey, 1-Year Public Use Estimates

<sup>222</sup> United States Census Bureau, American Community Survey, 1-Year Public Use Estimates

<sup>223</sup> SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2017. Accessed via Mental Health America 2021 Rankings

<sup>224</sup> Behavioral Risk Factors Surveillance System (BRFSS)

<sup>225</sup> Behavioral Risk Factors Surveillance System (BRFSS)

<sup>226</sup> Center for Healthcare Quality and Payment Reform, Rural Hospitals at Risk of Closing, 2022.

The percentage of **Uninsured Adults** in Tennessee has remained above the U.S. average for years. In 2021, 11.5% of adults in Tennessee were uninsured compared to 9.7% in the U.S. However, the percentage of **Uninsured Children** in Tennessee was slightly below the U.S., with 4.9% of Tennessee's children uninsured compared to the 5.4% in the U.S. in 2021. While 95% of children may be insured, some are underinsured. As youth mental health becomes an increasing priority for leaders across the state and nation, considering what that insurance covers is extremely important. Tennessee ranks 48<sup>th</sup> in the nation **Underinsured Children** with 13.0% of children with private insurance not receiving coverage for mental or emotional problems. In the U.S. at large, only 8.1% of children are considered underinsured under this definition. The Tennessee Department of Education considers these underinsured children and their needs in their Best for All Plan. Regardless of insurance status, people may still **Avoid Care due to Cost**. In 2021, 11.48% of Tennessee's adults reported not being able to see a doctor due to cost, compared to 8.80% in the U.S. Delaying medical care due to cost or any reason can have significant long-term health implications including not getting appropriate vaccines, cancer screenings and other preventative measures timely. For individuals with disabilities, the cost for health care can be particularly impactful. In a 2020 report from the University of Tennessee, National Disability Institute, and Stony Brook University, researchers found that "a household containing an adult with a disability that limits their ability to work requires, on average, 28 percent more income (or an additional \$17,690 a year) to obtain the same standard of living as a similar household without a member with a disability."<sup>227</sup> In 2021, 19.63% of adults with disabilities avoided care due to cost, limiting **Access to Care for Adults with Disabilities**. More information on uninsured adults and access to safety net services in Tennessee can be found in the TN Department of Health's Annual Safety Net Report.<sup>228</sup>

Access to health care in rural Tennessee has faced specific challenges in the last few decades including rural **Hospital Closures**. Tennessee has had 16 rural hospital closures since 2005, the second highest in the nation only surpassed by Texas (24 rural hospital closures since 2005). There are currently 21 rural hospitals in Tennessee at risk of closure, constituting 44% of the state's rural hospitals. Tennessee has the 9th highest percentage of rural hospitals at risk of closure in the United States. Rural hospitals face the specific challenge of balancing community needs and financial viability of the services being offered. For example, in a 2022 study assessing obstetric care in rural hospitals in the United States, many administrators noted that while the volume of obstetric care provided is not high enough to be profitable, it is needed by communities that are otherwise isolated and would have severely limited access to care. Despite this need, hospital administrators in the study indicated that within the next 10 years, offering these services may have to cease due to financial reasons.<sup>229</sup>

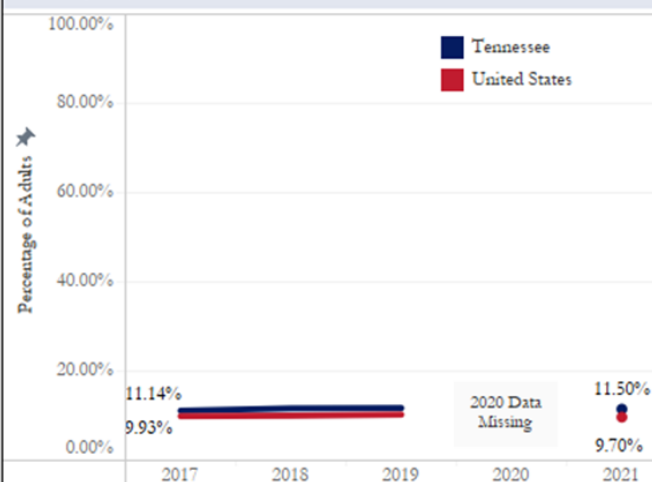
<sup>227</sup> Goodman, Nannette; Morris, Michael; Morris, Zachary; McGarity, Stephen. The Extra Costs of Living with a Disability in the U.S. – Resetting the Policy Table. October 2020. Accessed December 2022 at <https://www.nationaldisabilityinstitute.org/wp-content/uploads/2020/10/extra-costs-living-with-disability-brief.pdf>.

<sup>228</sup> To view the Annual TN Department of Health Safety Net Reports visit: <https://www.tn.gov/health/health-program-areas/division-of-health-disparities-elimination-/rural-health/safety-net-program.html>

<sup>229</sup> Kozhimannil KB, Interrante JD, Admon LK, Basile Ibrahim BL. Rural Hospital Administrators' Beliefs About Safety, Financial Viability, and Community Need for Offering Obstetric Care. *JAMA Health Forum*. 2022;3(3): e220204. doi:10.1001/jamahealthforum.2022.0204

### Uninsured Adults

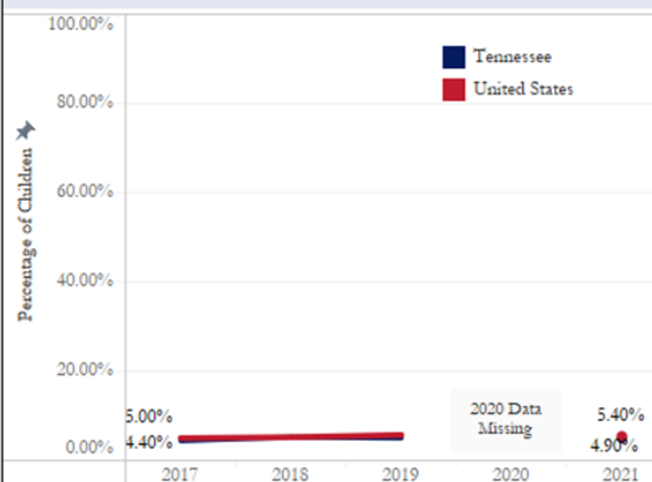
Percentage of persons 19 and older who are uninsured.



Data Source: United States Census Bureau, American Community Survey, 1-Year Public Use Estimates

### Uninsured Children

Percentage of persons 18 and under who are uninsured.

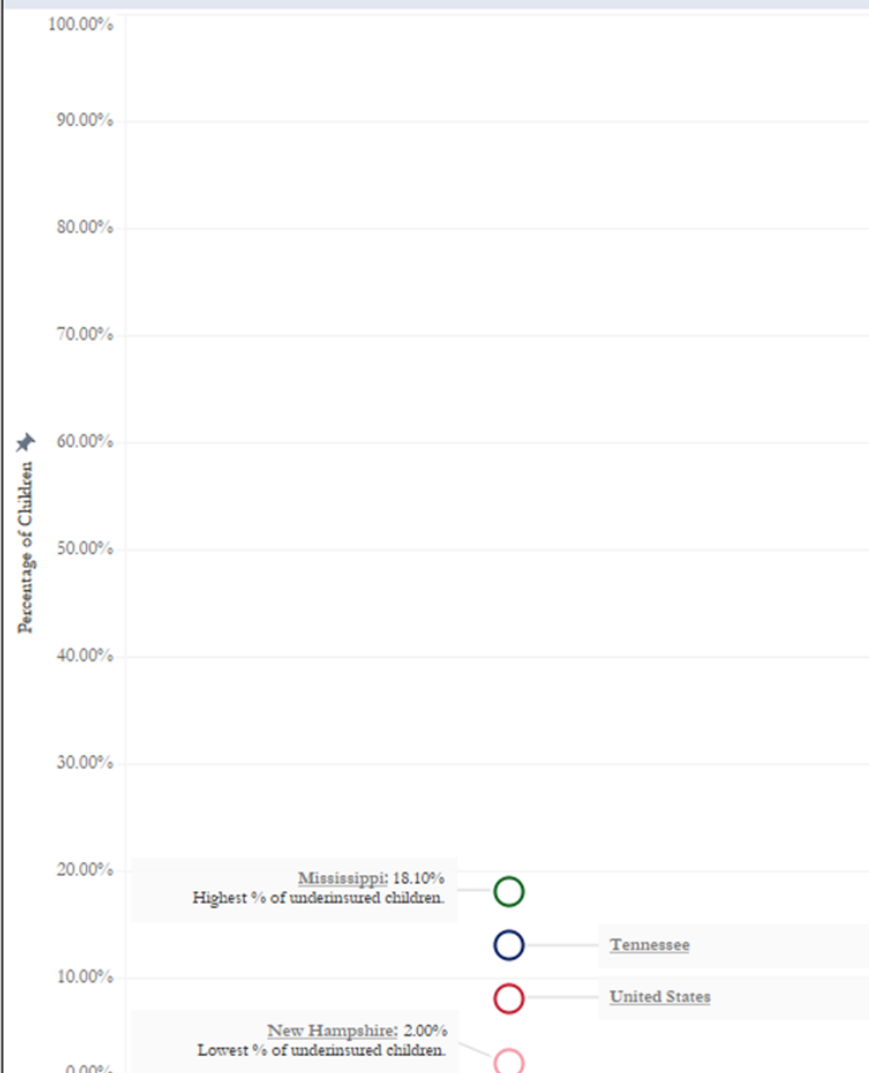


Data Source: United States Census Bureau, American Community Survey, 1-Year Public Use Estimates

### Underinsured Children

Percentage of children with private insurance that did not cover mental or emotional problems.

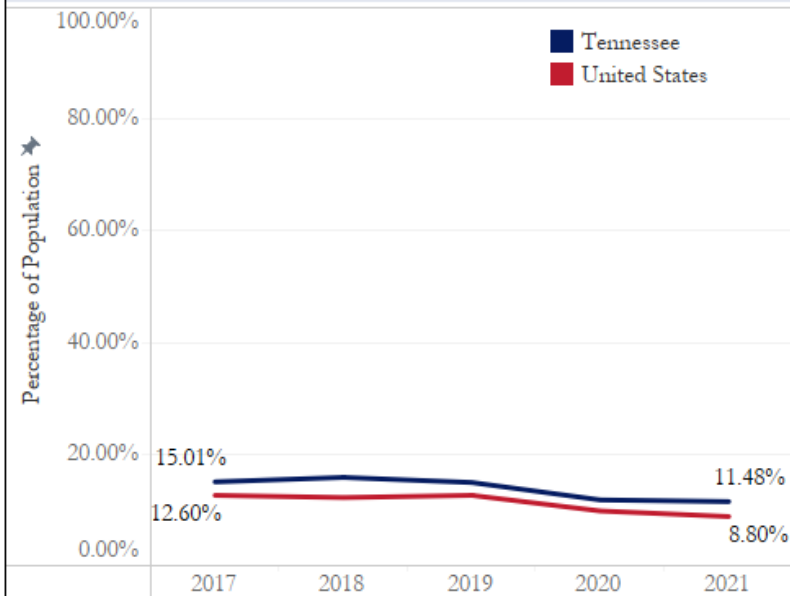
Tennessee ranks 48 in the nation, with 13.0% of children with private insurance not covering mental or emotional problems.



Data Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2017. Accessed via Mental Health America 2021 Rankings.

### Avoided Care Due to Cost

Percentage of Population who could not see a doctor due to cost in the past 12 months among adults 18 years of age or older



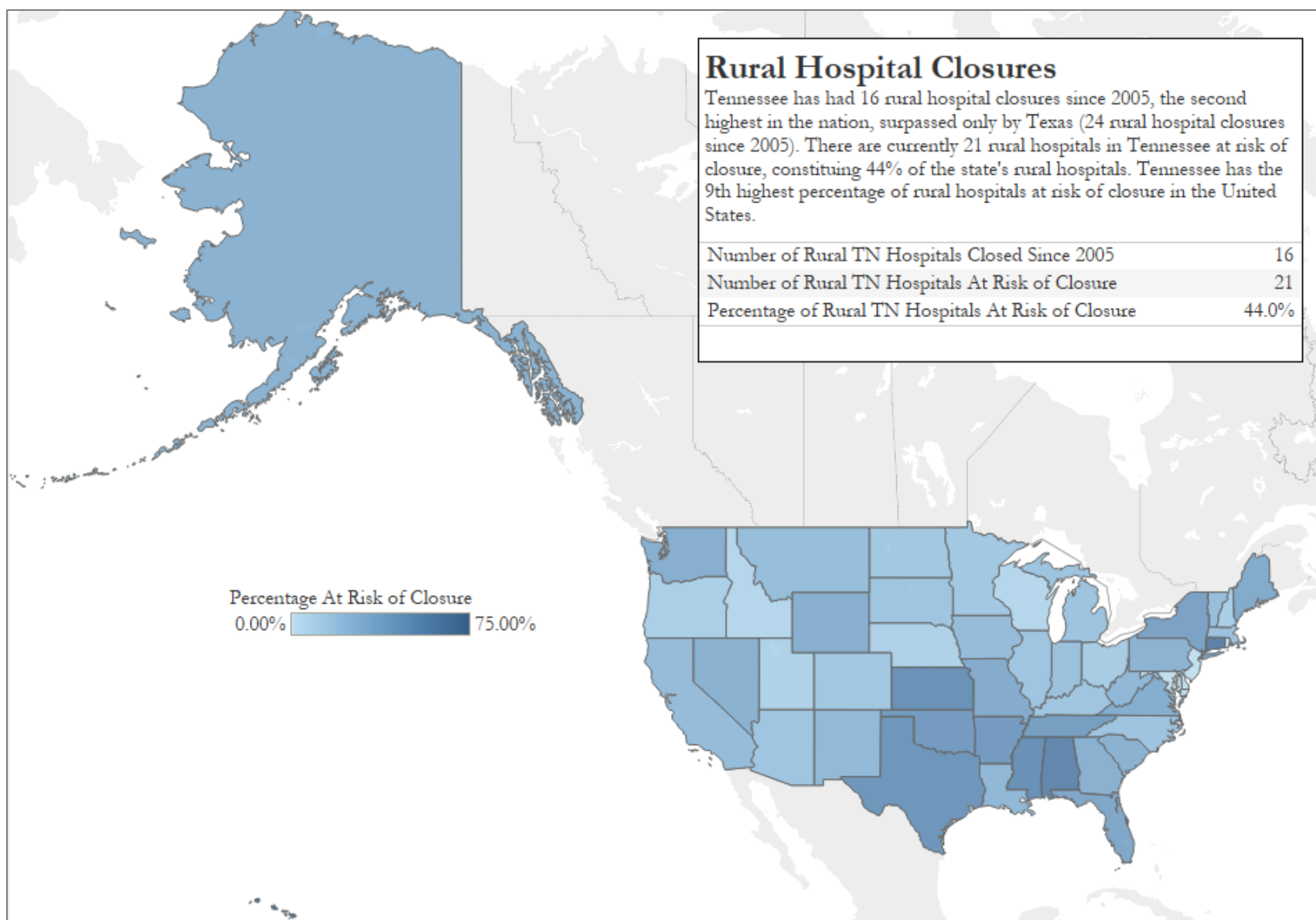
Data Source: Behavioral Risk Factors Surveillance System (BRFSS)

### Adults with Disabilities who Avoided Care Due to Cost

Percentage of Tennessee Population with a disability who could not see a doctor due to cost in the past 12 months among adults 18 years of age or older







Data Source: Behavioral Risk Factors Surveillance System (BRFSS)



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## Quality of Care and Screenings

Every citizen should have confidence that the quality of health care is continually monitored, and standards are adhered to by providers.

- In 2021, 33.3% of hospitals in Tennessee had the top **Hospital Quality** rating (Grade A).<sup>230</sup> 
- In 2019, there were 1513 **Preventable Hospitalizations** per 100,000 Tennesseans.<sup>231, 232</sup> 
- Since 2018, the percentage of females aged 40+ who reported having a mammogram, or **Breast Cancer** screening, in the past 2 years has remained around 71%.<sup>233</sup> 
- In 2020, 74.94% of Tennesseans received the recommended **Colorectal Cancer** screening.<sup>234</sup> 

**Hospital Quality** across Tennessee is similar to hospital quality overall in the U.S. In 2021, 33.3% of hospitals in Tennessee had the top-quality rating (Grade A) on the Hospital Safety Score and 31.2% of hospitals in the U.S. received a Grade A on the Hospital Safety Score.

Another measure indicating quality of care is the rate of **Preventable Hospitalizations**. Preventable hospitalizations refer to inpatient stays/discharges for ambulatory care-sensitive conditions such as diabetes and asthma. These hospitalizations are deemed preventable because evidence shows that consistent quality access to primary care should manage these chronic health conditions sufficiently to prevent hospitalizations. Reducing preventable hospitalizations reduces financial burden on individuals and health care systems and increases health care capacity. In 2019, there were 1513 preventable hospitalizations per 100,000 Tennesseans. While 2020 data on preventable hospitalizations is available, there was a drastic decrease associated with the COVID-19 pandemic which impacted both patient decision making and hospital capacity.

Preventative clinical care is cost-effective and improves patient outcomes. Preventative clinical care includes cancer screenings such as for **Breast Cancer** and **Colorectal Cancer**. Tennessee has an age-adjusted breast cancer incidence rate of 123.8 cases per 100,000 females. The U.S. rate is 128.1 cases per 100,000 females. Since 2018, the percentage of females aged 40+ who reported having a mammogram in the past 2 years has remained around 71% in both Tennessee and the United States. Tennessee's breast cancer mortality rate is 21.6 per 100,000 females compared to the U.S.'s 19.6 per 100,000 females. Tennessee's age-adjusted incidence rate of colorectal cancer is 34.6 per 100,000 persons. The U.S. rate is 33.0 cases per 100,000 persons. Since 2018, the percentage of persons aged 50+ who reported ever having a colorectal endoscopy has increased in both Tennessee and the United States. In 2020, 74.94% of Tennesseans and 74.2% of persons in the United

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<sup>230</sup> The Leapfrog Group, Hospital Safety Score (HSS). Accessed via the National Health Security Preparedness Index.

<sup>231</sup> 2016-2020 Inpatient Hospital Discharge Data System; Division of Population Health Assessment; Tennessee Department of Health. Methodology: Agency for Healthcare Research and Quality, 2018 Methodology for PQI 90

<sup>232</sup> COVID-19 has also been associated with statistically significant decreases in preventable hospitalizations, particularly respiratory-related preventable hospitalizations such as asthma. Despite these seemingly positive decreases in preventable hospitalizations, the pandemic impacted both patient decision making as well as hospital capacity. The decreases should be interpreted with caution.

<sup>233</sup> Behavioral Risk Factors Surveillance System (BRFSS)

<sup>234</sup> Behavioral Risk Factors Surveillance System (BRFSS)

Note: Between 2018 and 2020, screening criteria changed based on age. Results shown are for calculated variable reporting percentage of respondents 50-75 meeting USPTF recommendations for screening.

States received the recommended colorectal cancer screening. Tennessee's colorectal cancer mortality rate is 14.8 per 100,000 persons compared to the U.S.'s 13.1 per 100,000 persons.

## Preventable Hospitalizations

**Hospitalization Rate:** Number of hospitalizations for ambulatory care-sensitive conditions per 100,000 adults.

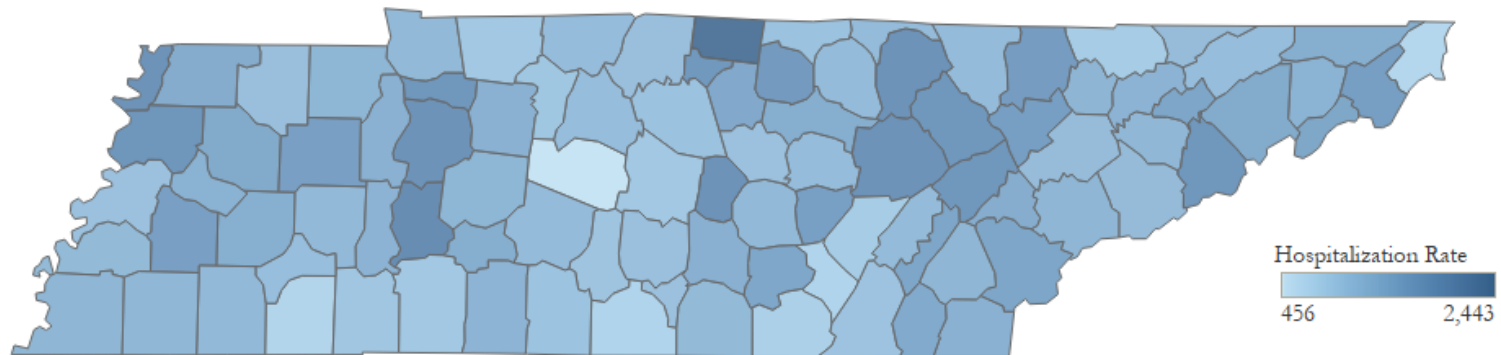
Note: COVID-19 has also been associated with statistically significant decreases in preventable hospitalizations, particularly respiratory-related preventable hospitalizations such as asthma. Despite these seemingly positive decreases in preventable hospitalizations, the pandemic impacted both patient decision making as well as hospital capacity. The decreases should be interpreted with caution.



Data Source: 2016-2020 Inpatient Hospital Discharge Data System; Division of Population Health Assessment; Tennessee Department of Health. Methodology: Agency for Healthcare Research and Quality, 2018 Methodology for PQI 90

## 2020 Preventable Hospitalizations

**Hospitalization Rate:** Number of hospitalizations for ambulatory care-sensitive conditions per 100,000 adults in 2020.

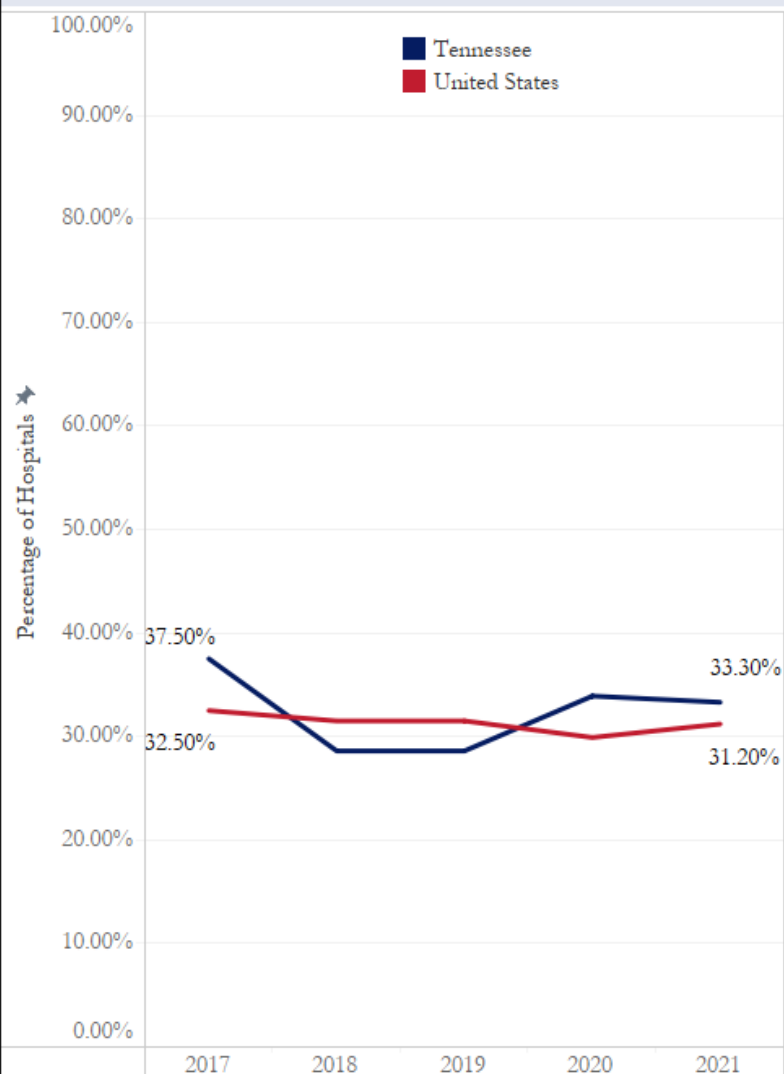


Data Source: 2020 Inpatient Hospital Discharge Data System; Division of Population Health Assessment; Tennessee Department of Health. Methodology: Agency for Healthcare Research and Quality, 2018 Methodology for PQI 90.

Data Note: COVID-19 has also been associated with statistically significant decreases in preventable hospitalizations, particularly respiratory-related preventable hospitalizations such as asthma. Despite these seemingly positive decreases in preventable hospitalizations, the pandemic impacted both patient decision making as well as hospital capacity. The decreases should be interpreted with caution.

## Hospital Quality

Percentage of hospitals in the state with a top quality ranking (Grade A) on the Hospital Safety Score

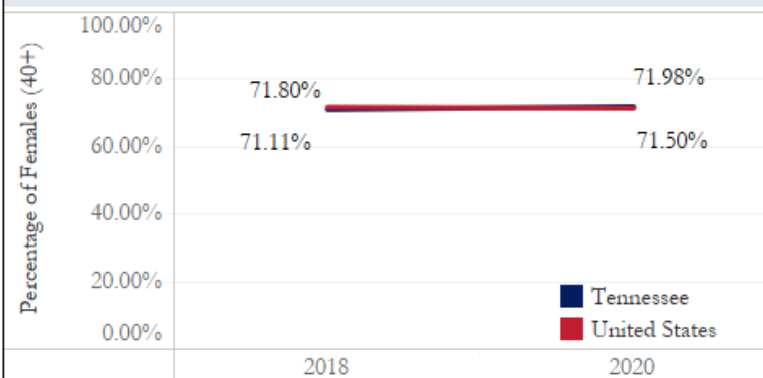


Data Source: The Leapfrog Group, Hospital Safety Score (HSS). Accessed via the National Health Security Preparedness Index.

## Breast Cancer Screenings

Percentage of Females Ages 40+ who reported having a Mammogram in Past 2 Years.

Breast Cancer Screenings in Tennessee increased from 71.11% in 2018 to 71.98% in 2020.

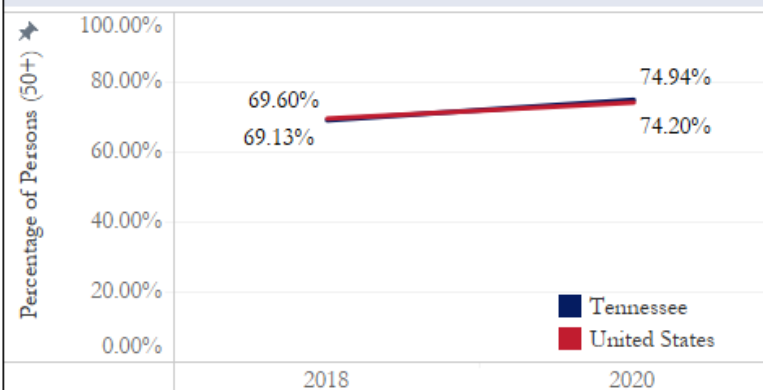


Data Source: Behavioral Risk Factors Surveillance System (BRFSS)

## Colorectal Cancer Screenings

Percentage of persons ages 50+ who reported ever having a Colorectal Endoscopy (Sigmoidoscopy or Colonoscopy).

Screenings in Tennessee increased from 69.13% in 2018 to 74.94% in 2020.









Data Source: Behavioral Risk Factors Surveillance System (BRFSS)

Note: Between 2018 and 2020, screening criteria changed based on age. Results shown are for calculated variable reporting percentage of respondents 50-75 meeting USPTF recommendations for screening.

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## Workforce

The state should support the development, recruitment, and retention of a sufficient and quality health and health care workforce.

- In 2022, 92.6% of Tennessee counties were **Primary Care Health Professional Shortage Areas**.<sup>235</sup> 
- In 2022, 95.8% of Tennessee counties were considered **Dental Health Professional Shortage Areas**.<sup>236</sup> 
- In 2022, 96.8% of Tennessee counties were considered **Mental Health Professional Shortage Areas**.<sup>237</sup> 
- In 2019, there were 2012.1 **Nurses** per 100,000 Tennesseans.<sup>238</sup> 
- In 2022, there were 22.5 **Home Health** aides per 1,000 Tennesseans aged 65+ with a disability.<sup>239</sup> 
- In 2021, 29.4% of Tennessee hospitals provided **Palliative Care** programs.<sup>240</sup> 

Health Professional Shortage Areas (HPSA) are defined as “areas experiencing a shortage of health care services.”<sup>241</sup> Individuals living in HPSAs can have higher rates of hospitalization and overall poorer health.<sup>242</sup> In 2022, 92.6% of Tennessee counties were considered **Primary Care Health Professional Shortage Areas**, 95.8% of Tennessee counties were considered **Dental Health Professional Shortage Areas**, and 96.8% of Tennessee counties were considered **Mental Health Professional Shortage Areas**. Additionally, all out-of-state counties bordering Tennessee were Mental Health Professional Shortage Areas. Living in health professional shortage areas is an issue across the United States, with 99 million Americans living in primary care shortage areas, 70 million living in dental health shortage areas, and 158 million living in mental health professional shortage areas. Nationally, an additional 17,063 primary care practitioners, 11,908 dental health practitioners, and 7,934 mental health practitioners are needed to meet today’s needs.<sup>243</sup> More information on Health Professional Shortage Areas and access to safety net services in Tennessee can be found in the TN Department of Health’s Annual Safety Net Report.<sup>244</sup>

Shortages and workforce challenges extend beyond practitioner staff to nursing staff. In 2019, there were 2012.1 **Nurses** per 100,000 Tennesseans. In the U.S in 2019, there were 2045.9 nurses per 100,000 persons. These numbers are expected to

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<sup>235</sup> Health Services and Resources Administration. Accessed December 2022 via Rural Health Information Hub.

<sup>236</sup> Health Services and Resources Administration. Accessed December 2022 via Rural Health Information Hub.

<sup>237</sup> Health Services and Resources Administration. Accessed December 2022 via Rural Health Information Hub.

<sup>238</sup> National Council of State Boards of Nursing (NCSBN), National Nursing Database. Accessed December 2022 via the National Health Security Preparedness Index.

<sup>239</sup> U.S. Census Bureau, American Community Survey. Accessed via America's Health Rankings.

<sup>240</sup> American Hospital Association (AHA), Annual Survey of Hospitals. Accessed via the National Health Security Preparedness Index.

<sup>241</sup> HRSA Health Workforce. What is a shortage designation? Accessed December 2022. Retrieved from: <https://bhwh.hrsa.gov/workforce-shortage-areas/shortage-designation/modernization-project>

<sup>242</sup> Schlak AE, Poghosyan L, Liu J, Kueakomoldej S, Bilazarian A, Rosa WE, Martsolf G. The Association between Health Professional Shortage Area (HPSA) Status, Work Environment, and Nurse Practitioner Burnout and Job Dissatisfaction. *J Health Care Poor Underserved*. 2022;33(2):998-1016. doi: 10.1353/hpu.2022.0077. PMID: 35574890; PMCID: PMC9306412.

<sup>243</sup> Health Services and Resource Administration. Health Workforce Shortage Areas. Accessed December 2022 form <https://data.hrsa.gov/topics/health-workforce/shortage-areas>

<sup>244</sup> To view the Annual TN Department of Health Safety Net Reports visit: <https://www.tn.gov/health/health-program-areas/division-of-health-disparities-elimination-/rural-health/safety-net-program.html>

be lower in 2022 as shortages have increased during and after the pandemic. Nursing support staff such as certified nursing assistants and personal aides who provide **Home Health** care are also critical to Tennessee’s health care work force. In 2022, Tennessee had half the number of personal care and home health aides per 1,000 adults aged 65+ with a disability than the U.S. Tennessee had a 22.5 aides per 1,000 adults while the U.S. had 57.7 aides per 1,000 adults. Tennessee has an aging population and seeks to support older adults aging in place, but the current nursing infrastructure is inadequate to meet the future population’s needs.

Specialist-level care is also needed for many individuals to treat and manage complex chronic and acute health conditions. **Palliative Care**, is defined as “specialized care for people facing serious illness, focusing on providing relief of suffering (physical, psychosocial, and spiritual), to maximize quality of life for both the patient and family.”<sup>245</sup> Examples of persons who may use palliative care include children with cancer or older adults with dementia. The benefits of palliative care include relieving symptoms, care coordination across multiple specialties, and clarifying treatment goals and options.<sup>246</sup> In 2021, 29.4% of Tennessee hospitals provided palliative care programs compared to 39.7% in the United States.

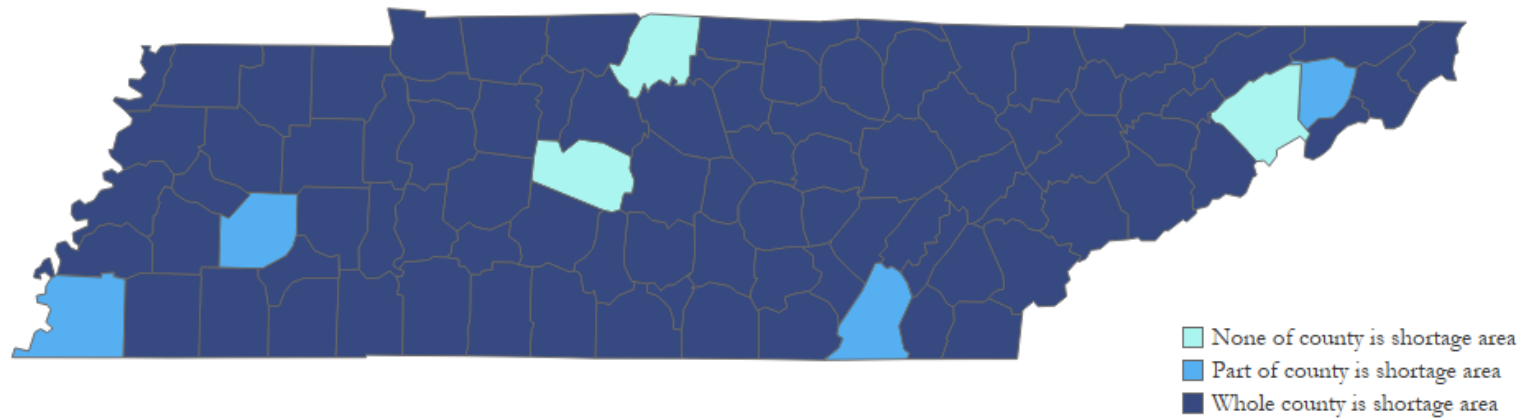
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<sup>245</sup> TN Dept of Health. Palliative Care. Accessed December 2022 from <https://www.tn.gov/health/health-program-areas/office-of-patient-care-advocacy/palliative-care.html#:~:text=Palliative%20care%20is%20specialized%20care,both%20the%20patient%20and%20family>.

<sup>246</sup> Center to Advance Palliative Care. Get Palliative Care – FAQs. Accessed December 2022 from <https://getpalliativecare.org/whatis/faq/>.

### Primary Care Health Professional Shortage Areas

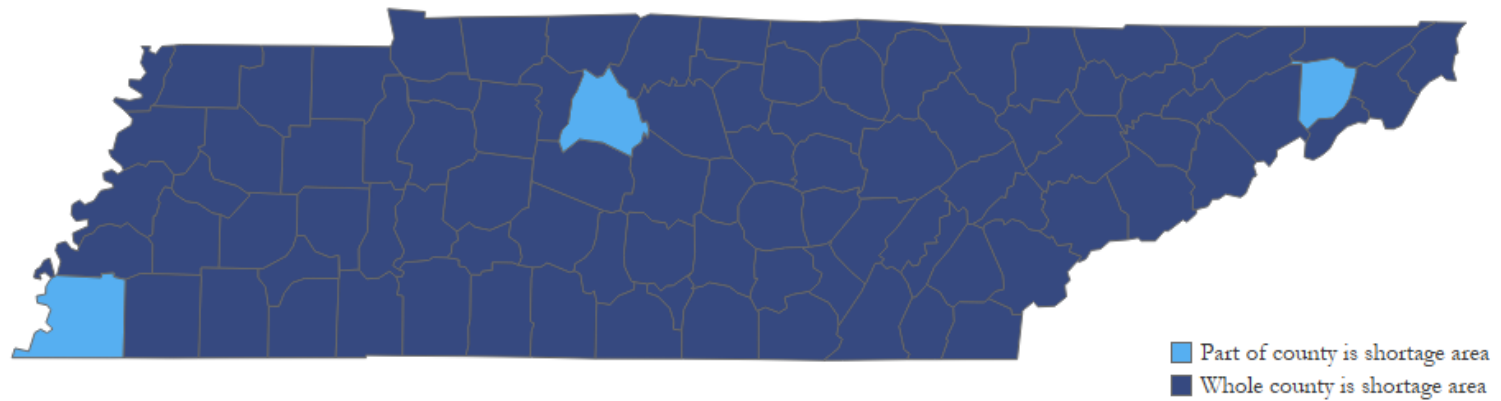
In 2022, 92.6% of Tennessee counties were considered Primary Care Health Professional Shortage Areas.



Data Source: Health Services and Resources Administration. Accessed via Rural Health Information Hub.

### Mental Health Professional Shortage Areas

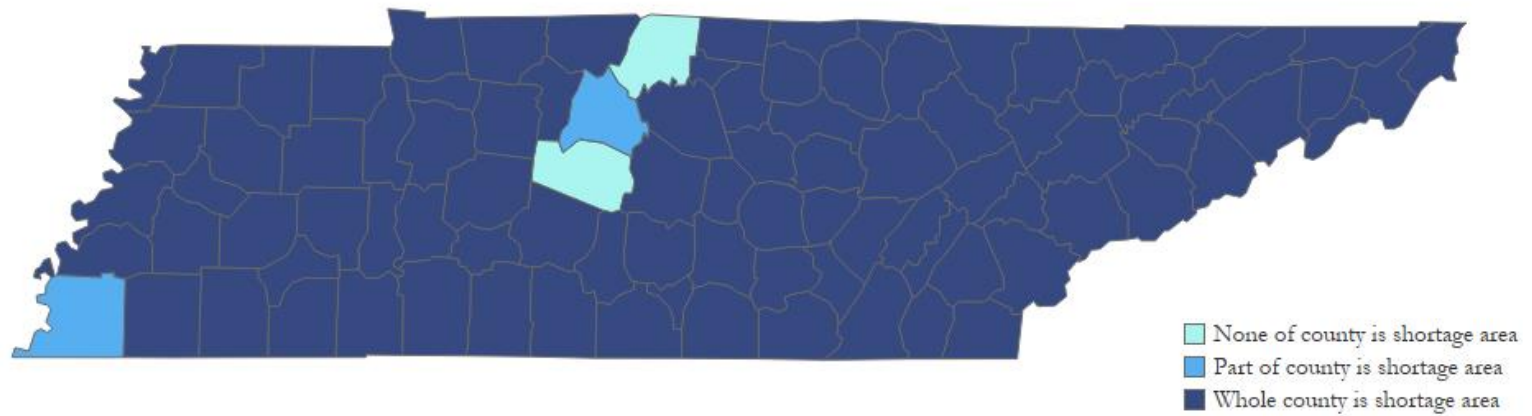
In 2022, 96.8% of Tennessee counties were considered Mental Health Professional Shortage Areas.



Data Source: Health Services and Resources Administration. Accessed via Rural Health Information Hub.

## Dental Health Professional Shortage Areas

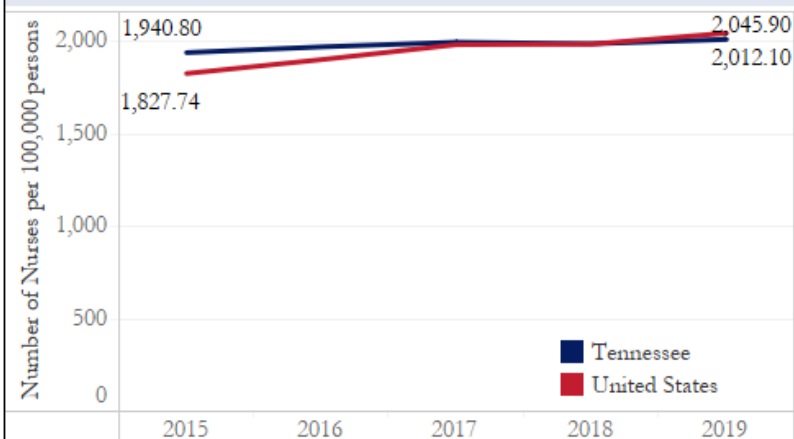
In 2022, 95.8% of Tennessee counties were considered Dental Health Professional Shortage Areas.



Data Source: Health Services and Resources Administration. Accessed via Rural Health Information Hub.

## Nurses

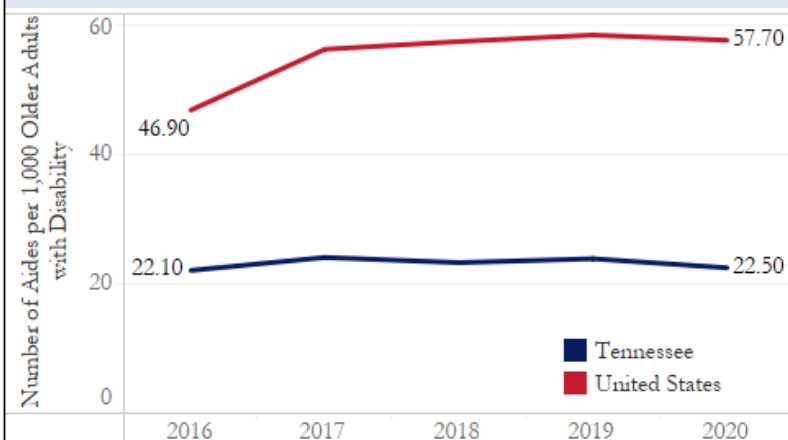
Number of active registered nurse (RN) and licensed practical nurse (LPN) licenses per 100,000 persons.



Data Source: National Council of State Boards of Nursing (NCSBN), National Nursing Database. Accessed via the National Health Security Preparedness Index.

## Home Health Care

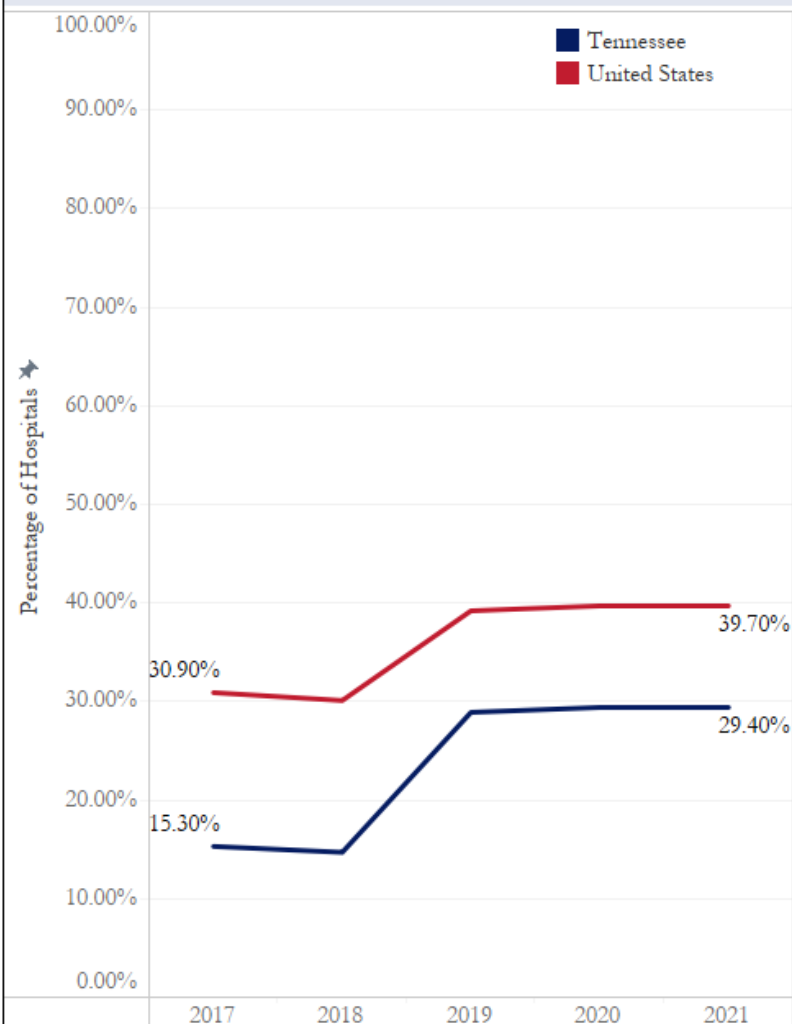
Number of personal care and home health aides per 1,000 adults ages 65 and older with a disability



Data Source: U.S. Census Bureau, American Community Survey. Accessed via America's Health Rankings.

## Palliative Care

Percentage of hospitals providing palliative care programs (includes both palliative care program and/or palliative care inpatient unit, but excludes pain management program, patient-controlled analgesia, and hospice program).



Data Source: American Hospital Association (AHA), Annual Survey of Hospitals. Accessed via the National Health Security Preparedness Index.

## Working Towards a Healthy Tennessee

Using input from subject matter experts and review of the over 100 metrics in this report, this first annual State of Health Report provides a data-based foundation for identifying efforts to improve health in Tennessee. This report will guide focus groups to develop actionable recommendations for inclusion in the upcoming 2-year State Health Plan. Through use of the new State Health Plan Framework, this annual report and the State Health Plan will further guide the Department towards its vision of “Healthy People, Healthy Communities, Healthy Tennessee.”

## Appendix

## Appendix A: Statutory Authority for the State Health Plan

The Division of Health Planning was created by action of the Tennessee General Assembly and signed into law by Governor Phil Bredesen (Tennessee Code Annotated § 68-11-1625). The Division is charged with creating and updating a State Health Plan. The text of the law follows.

- a. There is created the state health planning division of the department of finance and administration<sup>247</sup>. It is the purpose of the planning division to create a state health plan that is evaluated and updated at least annually. The plan shall guide the state in the development of health care programs and policies and in the allocation of health care resources in the state.
- b. It is the policy of the state of Tennessee that:
  1. Every citizen should have reasonable access to emergency and primary care;
  2. The state's health care resources should be developed to address the needs of Tennesseans while encouraging competitive markets, economic efficiencies and the continued development of the state's health care industry;
  3. Every citizen should have confidence that the quality of health care is continually monitored and standards are adhered to by health care providers; and
  4. The state should support the recruitment and retention of a sufficient and quality health care workforce.
- c. The planning division shall be staffed administratively by the department of finance and administration in a manner that the department deems necessary for the performance of the planning division's duties and responsibilities, which may include contracting for the services provided by the division through a private person or entity
- d. The duties and responsibilities of the planning division include:
  1. To develop and adopt a State Health Plan, which must include, at a minimum, guidance regarding allocation of the state's health care resources;
  2. To submit the State Health Plan to the Health Services and Development Agency for comment;
  3. To submit the State Health Plan to the Governor for approval and adoption;
  4. To hold public hearings as needed;
  5. To review and evaluate the State Health Plan at least annually;
  6. To respond to requests for comment and recommendations for health care policies and programs;
  7. To conduct an ongoing evaluation of Tennessee's resources for accessibility, including, but not limited to, financial, geographic, cultural, and quality of care;
  8. To review the health status of Tennesseans as presented annually to the Division by the Department of Health, the Department of Mental Health and Substance Abuse Services, and the Department of Intellectual and Developmental Disabilities;
  9. To review and comment on federal laws and regulations that influence the health care industry and the health care needs of Tennesseans;

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<sup>247</sup> The state health planning division is now located in the Tennessee Department of Health.

10. To involve and coordinate functions with such State entities as necessary to ensure the coordination of State health policies and programs;
11. To prepare an annual report for the General Assembly and recommend legislation for its consideration and study; and
12. To establish a process for timely modification of the State Health Plan in response to changes in technology, reimbursement and other developments that affect the delivery of health care.

## Appendix B: Subject Matter Expert Partners

| State of Health Subject Matter Expert Partners                                 |
|--|
| <b>Tennessee Department of Health</b>  |
| Division of Communicable and Environmental Diseases and Emergency Preparedness |
| Division of Community Health Services  |
| Division of Family Health and Wellness   |
| Division of Health Disparities Elimination                                     |
| Division of Population Health Assessment                                       |
| Office of Information and Analytics  |
| Office of Injury Prevention - Suicide Prevention                               |
| Office of Overdose Response Coordination                                       |
| Office of Patient Care Advocacy  |
| Office of Primary Prevention   |
| Office of Strategic Initiatives  |
| <b>Non-Department of Health</b>  |
| Tennessee Climate Office   |
| Tennessee Department of Education  |
| Tennessee Department of Environment and Conservation                           |
| Tennessee Department of Human Services   |
| Tennessee Department of Mental Health and Substance Abuse Services             |
| Tennessee Department of Transportation   |
| Tennessee Housing Development Agency   |
| University of Tennessee Department of Agriculture                              |

## Appendix C: Detailed State of Health Metric List

| Measure                           | Definition   | Data Source   |
|-----------------------------------|--|---|
| A Healthy Start                   |  |   |
| <b>Children in Poverty</b>        | Percentage of all persons under 18 years of age whose income in the past 12 months is below the poverty level  | United States Census Bureau. 2015-2019 American Community Survey 1-Year Public Use Estimates.   |
| <b>Child Food Insecurity</b>      | Percentage of households with children who are food insecure (low or very low food security status).   | United States Department of Agriculture, Economic Research Service - Current Population Survey, Food Security Supplement, 1-Year Public Use Estimates 2017-2021. Retrieved from IPUMS CPS, University of Minnesota, <a href="http://www.ipums.org">www.ipums.org</a> and USDA, ERS <a href="http://www.ers.usda.gov">www.ers.usda.gov</a> . |
| <b>Child WIC Coverage</b>         | Percentage of children ages 1-4 eligible for the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) who received WIC benefits in an average month             | United States Department of Agriculture Food and Nutrition Service, National and State Level Estimates of WIC Eligibility and Program Reach in 2020. Retrieved from National and State Level Estimates of WIC Eligibility and Program Reach in 2020   Food and Nutrition Service ( <a href="http://usda.gov">usda.gov</a> )                 |
| <b>Overall WIC Coverage</b>       | Percentage of women, infants, and children eligible for the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) who received WIC benefits in an average month. | United States Department of Agriculture Food and Nutrition Service, National and State Level Estimates of WIC Eligibility and Program Reach in 2020. Retrieved from National and State Level Estimates of WIC Eligibility and Program Reach in 2020   Food and Nutrition Service ( <a href="http://usda.gov">usda.gov</a> )                 |
| <b>SNAP Participation</b>         | Percentage of people who are eligible for SNAP who actually participate in the program   | United States Department of Agriculture Food and Nutrition Service. Retrieved from <a href="http://www.fns.usda.gov">www.fns.usda.gov</a>   |
| <b>Foster Care Instability</b>    | Percentage of children in foster care with three or more placements within 12 months   | United States Department of Health and Human Services, Children's Bureau, Child Welfare Outcomes Report Data. Accessed via America's Health Rankings.   |
| <b>Child Care</b>                 | Number of children DHS licensed child care facilities have capacity to serve.  | Licensed child care facility list accessed on December 2, 2022 on the Tennessee Department of Human Services website. Population calculated within Tableau built environment using 2018 data.   |
|                                   | Percentage of children attending a DHS licensed child care facility with access to a sliding fee payment scale.  | Licensed child care facility list accessed on December 2, 2022 on the Tennessee Department of Human Services website. Median household income calculated within Tableau built environment using 2018 data. Note: If a percent is not listed, no facilities in that county offer a sliding fee scale.  |
| <b>School Nurses</b>              | Percentage of TN Public Schools employing a full-time nurse  | Tennessee Coordinated School Health Annual School Health Services Report. Retrieved from <a href="http://www.tn.gov/education">www.tn.gov/education</a>   |
| <b>School Counselors</b>          | Percentage of school districts with one certified counselor per 500 students   | Tennessee Coordinated School Health Annual School Health Services Report. Retrieved from <a href="http://www.tn.gov/education">www.tn.gov/education</a>   |
| <b>Third Grade Reading Level*</b> | Percentage of public-school students in grade 3 that test "on track" and "mastered" for ELA on TN Ready  | (3rd grade): Tennessee Department of Education; (4th grade): National Assessment of Educational Progress (NAEP) Report Card: Reading, State Achievement Level Results. Retrieved from <a href="http://www.nationsreportcard.gov">www.nationsreportcard.gov</a>  |
| <b>ACEs</b>                       | Percentage of children ages 0-17 who experienced two or more ACEs (2 Year Estimate)  | National Survey of Children's Health. Retrieved from <a href="http://www.childhealthdata.org">www.childhealthdata.org</a>   |

|                          |   |  |
|--------------------------|---|--|
| Youth Safety             | <b>Experienced Physical Dating Violence:</b> Percentage of those who experienced physical violence (being physically hurt on purpose (counting such things as being hit, slammed into something, or injured with an object or weapon) by someone they were dating or going out with) one or more times during the 12 months before the survey, among students who dated or went out with someone during the 12 months before the survey | Centers for Disease Control, Youth Risk Behavior Surveillance System   |
|                          | <b>Carried a Gun:</b> Percentage of high school students who carried a gun (on at least 1 day during the 12 months before the survey, not counting the days when they carried a gun only for hunting or for a sport such as target shooting).   | Centers for Disease Control, Youth Risk Behavior Surveillance System   |
| Infectious Disease       | <b>Childhood Vaccinations:</b> Percentage of children who received by age 35 months all recommended doses of the combined 7-vaccine series: diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine; measles, mumps and rubella (MMR) vaccine; poliovirus vaccine; Haemophilus influenzae type b (Hib) vaccine; hepatitis B (HepB) vaccine; varicella vaccine; and pneumococcal conjugate vaccine (PCV)                   | Centers for Disease Control and Prevention, National Immunization Survey-Child (Birth Cohort). Accessed via CDC Child Vax View.  |
|                          | <b>HPV Vaccinations:</b> Percentage of adolescents ages 13-17 who received all recommended doses of the human papillomavirus (HPV) vaccine  | Centers for Disease Control and Prevention, National Immunization Survey-Teen. Accessed via CDC Child Vax View.  |
|                          | <b>Congenital Syphilis:</b> Rate per 100,000 live births  | Department of Health Division of Communicable and Environmental Diseases and Emergency Preparedness; (US) CDC STD Surveillance Report, 2020. Data Note: 2016-2019 TN rates are based on counts <20 and should be interpreted with caution.   |
| Asthma                   | Percentage of children ages 0-17 who currently have asthma (2-year estimate)  | National Survey of Children's Health, U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB)   |
| Youth Obesity*           | Percentage of public-school students with a body mass index (BMI) greater than or equal to the 85th percentile for children of the same age and sex   | (TN): Tennessee Department of Education Coordinated School Health Annual Body Mass Index Report; (US): National Health and Nutrition Examination Survey 2017–March 2020 Prepandemic Data Files Development of Files and Prevalence Estimates for Selected Health Outcomes. National Center for Health Statistics (U.S.) Published Date: 06/14/2021<br>Data Note: Youth obesity data in Tennessee is collected through evaluation in schools. Nationally, youth obesity data is collected through the National Health and Nutrition Examination Survey. |
| Electronic Vapor Usage*  | Percentage of high school students who reported ever using electronic vapor products (including e-cigarettes, vapes, vape pens, e-cigars, e-hookahs, hookah pens, and mods).  | Centers for Disease Control, Youth Risk Behavior Surveillance System   |
| Drugs on School Property | Percentage of high school students who were offered, sold, or given an illegal drug on school property (during the 12 months before the survey).  | Centers for Disease Control, Youth Risk Behavior Surveillance System. Note: In 2015 Tennessee data was not collected.  |
| Youth Mental Health      | <b>Hopelessness:</b> Percentage of high school students enrolled in grades 9 to 12 who reported being sad or hopeless almost every day for 2 or more weeks in a row so that they stopped doing some usual activities, during the 12 months before the survey.   | Centers for Disease Control, Youth Risk Behavior Surveillance System   |

|                                    |  |   |
|------------------------------------|--|---|
|                                    | <b>Suicide Attempt:</b> Percentage of youth with one or more suicide attempts resulting in an injury, poisoning, or overdose that had to be treated by a doctor or nurse (during the 12 months before the survey). | Centers for Disease Control, Youth Risk Behavior Surveillance System  |
|                                    | <b>Suicide Mortality Rate:</b> Number of deaths due to intentional self-harm per 100,000 population (<18)  | Centers for Disease Control, Youth Risk Behavior Surveillance System  |
| <b>Prenatal Care</b>               | Percentage of live births in which the mother began prenatal care between the first and sixth month of pregnancy   | (TN): Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics; (US): CDC National Vital Statistics Report Vol. 70 No 17 February 7, 2022. US Value for 2020 available in report only.  |
| <b>Smoking During Pregnancy</b>    | Percentage of mothers who reported smoking cigarettes during pregnancy   | (TN): Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics. (US): CDC National Vital Statistics Report Vol. 70 No 17 February 7, 2022. US Value for 2020 available in report only.  |
| <b>Preterm Births</b>              | Percentage of live births preterm (<37 weeks gestation)  | (TN): Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics; (US): CDC National Vital Statistics Report Vol. 70 No 17 February 7, 2022. US Value for 2021 not available.   |
| <b>Low Birthweight</b>             | Percentage of live births with low birthweight (<2,500 grams).   | (TN): Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics; (US): CDC National Vital Statistics Report Vol. 70 No 17 February 7, 2022. US Value for 2021 not available.   |
| <b>Breastfeeding</b>               | Percentage of live births where breastfeeding is initiated at birth.   | (TN): Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics; (US): CDC National Vital Statistics Report Vol. 70 No 17 February 7, 2022. US Value for 2020 available in report only.  |
| <b>Postpartum Depression</b>       | Percentage of women with a recent live birth who reported experiencing depressive symptoms   | Centers for Disease Control and Prevention, Pregnancy Risk Assessment Monitoring System or State Equivalent   |
| <b>Infant Mortality*</b>           | Number of infant deaths per 1,000 live births  | (TN): Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics. (US): CDC National Vital Statistics Report Vol. 70 No 17 February 7, 2022. US Value for 2021 not listed.  |
| <b>Maternal Mortality</b>          | <b>Pregnancy-Related Mortality Ratio (PRMR)</b> - deaths within one year of pregnancy where pregnancy was the aggravating factor   | Tennessee Department of Health. Death Statistics - TN Office of Vital Statistics. Accessed via the Tennessee Department of Health Maternal Mortality Review Annual Report.  |
|                                    | <b>Pregnancy-Associated, but not related, deaths:</b> Deaths within one year of pregnancy where pregnancy was NOT the aggravating factor   | Tennessee Department of Health. Death Statistics - TN Office of Vital Statistics. Accessed via the Tennessee Department of Health Maternal Mortality Review Annual Report.  |
| <b>Teen Births</b>                 | Number of births per 1,000 women aged 15-19 years  | (TN): Tennessee Department of Health. Birth Statistical File - TN Office of Vital Statistics. (US): CDC WONDER, Natality Public Use Files. Accessed via America's Health Rankings.  |
| <b>A Healthy Life</b>              |  |   |
| <b>Per Capita Personal Income*</b> | Annual, not seasonally adjusted, per capita personal income in dollars   | United States Bureau of Economic Analysis. Retrieved from <a href="http://www.bea.gov">www.bea.gov</a>  |
| <b>Adult Poverty</b>               | Percentage of all persons 18 years and over whose income in the past 12 months is below the poverty level  | United States Census Bureau, American Community Survey, 1-Year Public Use Estimates.  |
| <b>Food Insecurity</b>             | Percentage of population who lack adequate access to food (all ages)   | USDA Economic Research Service. Note: *Difference from U.S. average was statistically significant with 90 percent confidence (t > 1.645). Standard error of differences assumes that there is no correlation between national and individual State estimates. |

|                                    |   |   |
|------------------------------------|---|---|
| <b>Poverty and the Labor Force</b> | Number of people 20-64 years of age who are living below poverty level who are participating in the labor force (employed or unemployed)  | United States Census Bureau, American Community Survey, 1-Year Public Use Estimates.  |
| <b>Unemployment</b>                | Percentage of the labor force who are unemployed.   | US Census Bureau, American Community Survey   |
| <b>Workplace Benefits</b>          | Percentage of employed workers in the state who used some type of paid time off (PTO) benefit.  | US Census Bureau, Current Population Survey (CPS), Annual Social and Economic Supplement (ASEC). Accessed via National Health Security Preparedness Index.  |
| <b>Fatal Occupational Injuries</b> | The number of fatal occupational injuries per 100,000 full-time equivalent workers  | U.S. Bureau of Labor Statistics, Census of Fatal Occupational Injuries; State Archive   |
| <b>Adult Numeracy</b>              | Percentage of adults considered proficient at working with mathematical information and ideas (at or above Level 3)   | National Center for Education Statistics  |
| <b>Adult Literacy</b>              | Percentage of adults considered proficient at working with information and ideas in texts (at or above Level 3)   | National Center for Education Statistics  |
| <b>Violent Crime</b>               | Violent Crime Rate: Number of violent crime offenses (murder, rape (legacy definition), robbery, and aggravated assault) per 100,000 population   | Federal Bureau of Investigation   |
| <b>Domestic Violence</b>           | Number of Domestic Violence Offenses  | TN Bureau of Investigation, Annual Domestic Violence Report   |
| <b>Infectious Disease</b>          | <b>Chlamydia:</b> Rate of newly diagnosed chlamydia cases per 100,000 population.   | Department of Health Division of Communicable and Environmental Diseases and Emergency Preparedness; (US) CDC STD Surveillance Report, 2020.  |
|                                    | <b>HIV:</b> Rate of diagnoses of HIV infection among persons aged ≥13 years   | CDC, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. Note: 2020 HIV data reflect the impact of COVID-19 (intermittent clinic closures, reduction in availability of services resulting in delays in accessing HIV Prevention and care, limited staff capacity to investigate HIV laboratory reports) and should be interpreted with caution. |
|                                    | <b>Hepatitis C Virus:</b> Rates of reported cases of acute Viral Hepatitis C per 100,000  | CDC, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention  |
|                                    | <b>COVID-19 Vaccinations:</b> Percent of Tennesseans fully vaccinated (2 doses of Pfizer/Moderna OR 1 dose of Janssen) against COVID-19 as of November 2, 2022.   | Centers for Disease Control and Prevention. COVID Data Tracker. Atlanta, GA: US Department of Health and Human Services, CDC; 2022  |
|                                    | <b>Influenza Vaccination:</b> Percentage of adults who reported receiving a seasonal flu vaccine in the past 12 months  | Behavioral Risk Factors Surveillance System (BRFSS)   |
| <b>Chronic Conditions</b>          | Percentage of adults who have three or more of the following chronic health conditions: arthritis; asthma; chronic kidney disease; chronic obstructive pulmonary disease; cardiovascular disease (heart disease, heart attack or stroke); cancer (excluding skin); depression; diabetes | Behavioral Risk Factors Surveillance System (BRFSS)   |
| <b>Adult Smoking</b>               | Percentage of adults who are current smokers (age-adjusted)   | Behavioral Risk Factors Surveillance System (BRFSS)   |
| <b>Physical Activity*</b>          | Percent of adults who reported doing physical activity or exercise during the past 30 days other than their regular job   | Behavioral Risk Factors Surveillance System (BRFSS)   |
| <b>Diabetes</b>                    | Percentage of adults who have diabetes  | Behavioral Risk Factors Surveillance System (BRFSS); US Data for 2017 and 2018 is missing.  |
| <b>Alcohol Consumption</b>         | <b>Binge Drinking:</b> Percentage of adults who are binge drinkers (males having five or more drinks on one occasion, females having four or more drinks on one occasion) (variable calculated from one or more BRFSS questions   | Behavioral Risk Factors Surveillance System (BRFSS)   |

|   |  |   |
|---|--|---|
| <b>Drug Overdose*</b>                         | Number of drug overdose outpatient visits and inpatient stays caused by non-fatal acute poisonings due to the effects of drugs, regardless of intent   | TDH, Hospital Discharge Data System   |
| <b>Drug Overdose*</b>                         | Number of all drug overdose deaths   | TDH, Death Statistical File   |
| <b>Mental Health</b>                          | <b>Frequent Mental Distress:</b> Percentage of adults who reported their mental health was ‘not good’ 14 or more days during the past 30 days  | Behavioral Risk Factors Surveillance System (BRFSS)   |
|   | <b>Suicidal Ideation Rate:</b> Number of ED visits and inpatient hospitalizations with suicidal ideation per 10,000 emergency department visits and inpatient hospitalizations   | Tennessee Department of Health, Hospital Discharge Data System  |
|   | <b>Nonfatal Intentional Self-Harm Injury:</b> Number of ED visits and inpatient hospitalizations for intentional self-harm injury per 10,000 emergency department visits and inpatient hospitalizations                  | Tennessee Department of Health, Hospital Discharge Data System  |
|   | <b>Suicide Mortality:</b> Number of deaths due to intentional self-harm per 100,000 population (18+)   | Tennessee Department of Health Death Statistics   |
| <b>Premature Death</b>                        | Crude Rate Years of Potential Life Lost (YPLL) before Age 75 for 10 Leading Causes of Death (All Causes)   | CDC, National Center for Health Statistics - WISQARS  |
| <b>65+ Poverty</b>                            | Percentage of adults ages 65 and older who live below the poverty level  | US Census Bureau, American Community Survey   |
| <b>Grandparents Living with Grandchildren</b> | Number of grandparents (all ages) living with grandchildren under 18   | US Census Bureau, American Community Survey, 2021 5-year estimate   |
| <b>Elder Abuse</b>                            | Adult Protective Services: Number of Abuse Investigations  | Tennessee Department of Human Services Annual Report  |
| <b>Social Isolation</b>                       | Percentage of population aged 65+ living alone.  | US Census Bureau, American Community Survey   |
| <b>Falls 65+</b>                              | Percentage of adults ages 65 and older who reported falling in the past 12 months  | Behavioral Risk Factors Surveillance System (BRFSS)   |
| <b>Caregiving</b>                             | Caregiving (Caregiving BRFSS Optional module)  | Behavioral Risk Factors Surveillance System (BRFSS)   |
| <b>Dementia</b>                               | Subjective Cognitive Decline (BRFSS Optional Module)   | Behavioral Risk Factors Surveillance System (BRFSS)   |
| <b>A Healthy Environment</b>                  |  |   |
| <b>Housing</b>                                | <b>Severe Housing Problems:</b> Percentage of households with at least 1 of 4 housing problems: overcrowding, high housing costs, lack of kitchen facilities, or lack of plumbing facilities                             | HUD's Comprehensive Housing Affordability Strategy (CHAS) data  |
|   | <b>Severe Housing Cost Burden:</b> Percentage of households that spend 50% or more of their household income on housing  | HUD's Comprehensive Housing Affordability Strategy (CHAS) data  |
|   | <b>Homelessness:</b> Annual point-in-time count of persons experiencing homelessness   | Housing and Urban Development Exchange CoC Homeless Populations and Subpopulations Reports Data Note: As a point-in-time count, this number severely undercounts the number of persons experiencing homelessness. |
| <b>Broadband Access</b>                       | Percentage of households with broadband internet connection  | U.S. Census Bureau, American Community Survey   |
| <b>Access to Parks and Greenways*</b>         | Percentage of population with adequate access to locations for physical activity   | Business Analyst, Delorme map data, ESRI, & US Census Tigerline Files   |
| <b>Transportation</b>                         | <b>Transportation Disadvantaged Communities:</b> Percentage of Tennessee Communities that spend more and take longer, to get where they need to go (Census tracts with 4 or more transportation disadvantage indicators) | US Department of Transportation, Transportation Disadvantaged Census Tract Data   |

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|  | <b>Access to Vehicle:</b> Percentage of workers 16 years and over in households with at least 1 vehicle available.                         | United States Census Bureau, American Community Survey, 1-Year Public Use Estimates  |
|  | <b>Driving Alone to Work:</b> Percentage of the workers 16 years and over that drive alone to work   | United States Census Bureau, American Community Survey, 1-Year Public Use Estimates  |
|  | <b>Long Commute-Driving Alone:</b> Among workers who commute in their car alone, the percentage that commute more than 30 minutes          | United States Census Bureau, American Community Survey, 1-Year Public Use Estimates  |
|  | <b>Safety:</b> annual number of crashes resulting in fatalities and/or serious injuries  | Tennessee Department of Transportation Fatal and Serious Injury Crashes Data Dashboard   |
| <b>Social Capital and Cohesion</b>                 | <b>Voter Participation:</b> Percentage of voting-eligible population in the state participating in the highest office election.            | United States Election Project, General Election Turnout Rates   |
|  | <b>Civic Organizations:</b> Number of Civic Organizations  | US Census Bureau, 2016-2020  |
|  | <b>Social Advocacy Organizations:</b> Number of Social Advocacy Organizations  | US Census Bureau, 2016-2020  |
|  | <b>Volunteering:</b> Percent of adults in the state who volunteer in their communities   | US Census Bureau, Current Population Survey (CPS), Volunteer Supplement Data. Accessed via America's Health Rankings.  |
| <b>Water</b>                                       | <b>Water Quality:</b> Percentage of community water systems in a state that meet all applicable health-based standards.                    | Environmental Protection Agency (EPA), Safe Drinking Water Information System Federal (SDWIS/FED) Drinking Water Data. Accessed via National Health Security Preparedness Index. |
|  | <b>Community Water Fluoridation:</b> *Percent of population served by community water systems that are receiving fluoridated water         | Centers for Disease Control and Prevention, Water Fluoridation Reporting System, My Water Fluoride Summary Reports   |
| <b>Air</b>   | <b>Air Pollution - Particulate Matter:</b> Average Daily density of fine particulate matter in micrograms per cubic meter (PM 2.5)         | Centers for Disease Control and Prevention (CDC), Environmental Public Health Tracking Network.  |
| <b>Weather-Related Illness</b>                     | Heat Related Illness ED Visits: Crude rate of heat-related emergency department visits in Tennessee per 10,000 persons                     | Tennessee Department of Health, Hospital Discharge Data System   |
|  | Heat Related Illness Hospitalizations: Crude rate per 10,000 persons of heat-related hospitalizations.                                     | Tennessee Department of Health, Hospital Discharge Data System   |
| <b>A Healthy System of Care</b>                    |  |  |
| <b>Insurance</b>                                   | Uninsured Adults: Percentage of persons 19 and older who are uninsured   | United States Census Bureau, American Community Survey, 1-Year Public Use Estimates  |
|  | Uninsured Children: Percentage of persons 18 and under who are uninsured   | United States Census Bureau, American Community Survey, 1-Year Public Use Estimates  |
|  | Underinsured Children: Percent of Children with Private Insurance that did not cover mental or emotional problems                          | SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2017. Accessed via Mental Health America 2021 Rankings.                     |
| <b>Avoided Care Due to Cost</b>                    | Percent of Population who could not see a doctor due to cost in the past 12 months among adults 18 years of age or older                   | Behavioral Risk Factors Surveillance System (BRFSS)  |
| <b>Access to Care for Adults with Disabilities</b> | Percent of Population with a disability who could not see a doctor due to cost in the past 12 months among adults 18 years of age or older | Behavioral Risk Factors Surveillance System (BRFSS)  |
| <b>Hospital Closures</b>                           | # Of Rural TN Hospitals at Immediate or High Risk of Closing   | Center for Healthcare Quality and Payment Reform   |
| <b>Hospital Quality</b>                            | Percent of hospitals in the state with a top-quality ranking (Grade A) on the Hospital Safety Score.                                       | The Leapfrog Group, Hospital Safety Score (HSS)  |
| <b>Preventable Hospitalizations*</b>               | Hospitalization rate for ambulatory care-sensitive conditions per 100,000 adults   | Tennessee Department of Health, Hospital Discharge Data System   |

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| <b>Cancer Screenings</b>                  | <b>Breast Cancer:</b> Percentage of Females Ages 40+ who reported having a Mammogram in Past 2 Years   | Behavioral Risk Factors Surveillance System (BRFSS)   |
|   | <b>Colorectal Cancer:</b> Percentage of persons ages 50+ who reported ever having a Colorectal Endoscopy (Sigmoidoscopy or Colonoscopy)  | Behavioral Risk Factors Surveillance System (BRFSS)   |
| <b>Health Professional Shortage Areas</b> | <b>Primary Care:</b> Percent of TN Counties considered Primary Care HPSAs  | Health Services and Resources Administration. Accessed via Rural Health Information Hub.  |
|   | <b>Mental Health:</b> Percent of TN Counties considered Mental HPSAs   | Health Services and Resources Administration. Accessed via Rural Health Information Hub.  |
|   | <b>Dental:</b> Percent of TN Counties considered Dental HPSAs  | Health Services and Resources Administration. Accessed via Rural Health Information Hub.  |
| <b>Nurses</b>                             | Number of active registered nurse (RN) and licensed practical nurse (LPN) licenses per 100,000 population in the state.  | National Council of State Boards of Nursing (NCSBN), National Nursing Database. Accessed via the National Health Security Preparedness Index. |
| <b>Palliative Care</b>                    | Percent of hospitals in the state providing palliative care programs (includes both palliative care program and/or palliative care inpatient unit, but excludes pain management program, patient-controlled analgesia, and hospice program). | American Hospital Association (AHA), Annual Survey of Hospitals. Accessed via the National Health Security Preparedness Index.                |
| <b>Home Health Care</b>                   | Number of personal care and home health aides per 1,000 adults ages 65 and older with a disability   | U.S. Census Bureau, American Community Survey. Accessed via America's Health Rankings.  |

