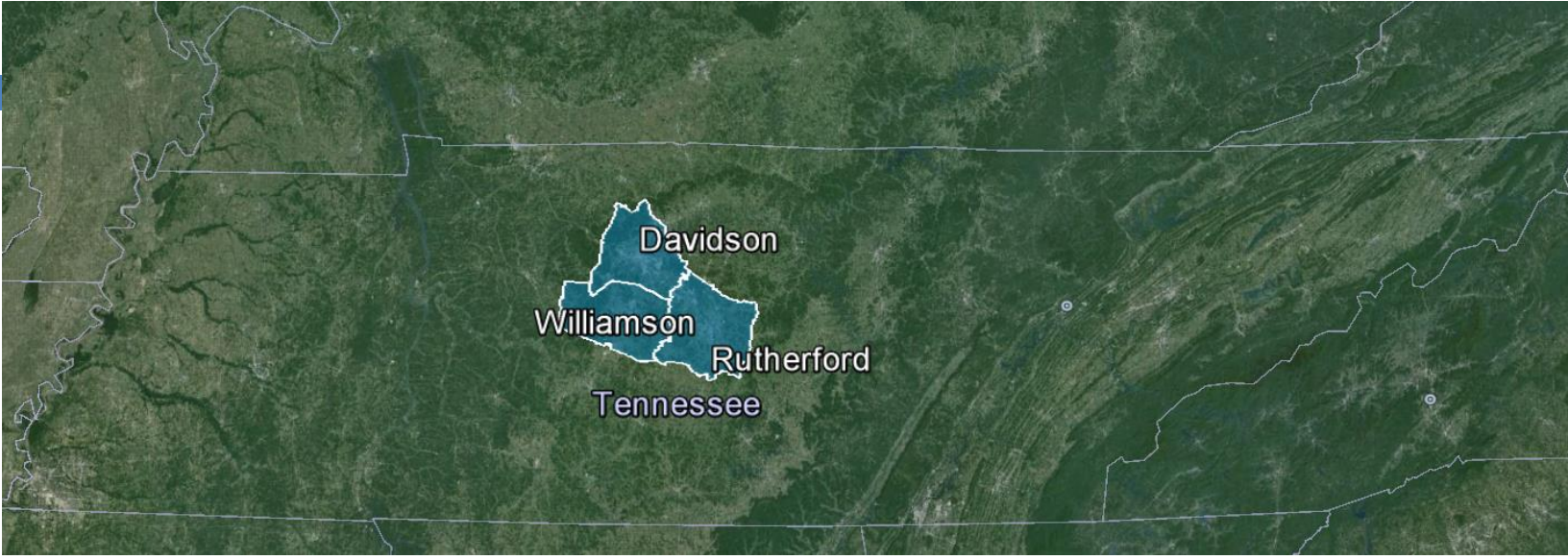
August 2016

VUMC COMMUNITY HEALTH NEEDS ASSESSMENT

VANDERBILT UNIVERSITY MEDICAL CENTER

Joint Community Health Needs Assessment for
Vanderbilt University Hospitals &
Vanderbilt Stallworth Rehabilitation Hospital



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***Cover graphic: Words heard most often at community listening sessions**

Executive summary

Vanderbilt University Medical Center owns and operates three hospitals, Vanderbilt University Hospital Adult Hospital, Monroe Carell Jr. Children's Hospital and Vanderbilt Psychiatric Hospital, under the single Vanderbilt University Hospitals facility license. In addition, VUMC owns 50% of Vanderbilt Stallworth Rehabilitation Hospital, a joint venture with HealthSouth Corp. Vanderbilt University Hospitals and Vanderbilt Stallworth Rehabilitation Hospital are collectively referred to as "VUMC" for purposes of the Community Health Needs Assessment.

In this report, VUMC assesses the health needs of Davidson, Rutherford, and Williamson Counties in Middle Tennessee. These are three distinct counties, each full of diversity in socio-economic status, race and ethnicity, health factors, and health outcomes.

Throughout this needs assessment, VUMC and its collaborators examined vast amounts of existing data and heard from stakeholders throughout the three counties about issues related to health, what are the greatest needs, and what those individuals would like to see done to improve health and well-being in the community. VUMC and its collaborators have benefited from the input of a wide-range of individual voices, each kind enough to share their time, expertise, and experience in helping VUMC to identify the most significant health needs in the community.

Life Expectancy in years (2013)	Davidson	Rutherford	Williamson	TN	USA
Female	79.6	80.4	84.1	78.9	81.2
Male	74.6	73.7	80.2	73.7	76.5

Table 1: Institute for Health Metrics and Evaluation

Figure 1: Prioritized Significant Health Needs

What became clear is that, while this is an area rich with resources for some, many in the community still face daily challenges meeting basic needs. There are disparities in outcomes and opportunity depending on place, race and other factors. There are meaningful differences in outcomes for indicators such as infant mortality, poverty, and life expectancy.

At three local community summits, VUMC presented data on a broad range of needs. The community prioritized four health needs; Access to Care / Coordination of Care, Mental & Emotional Health/Substance Abuse, Social Determinants, and Wellness & Disease Prevention. VUMC adopted all four prioritized needs that were identified by the community.

This report outlines the needs assessment process, shares the results of primary and secondary data

collection and describes how the needs were identified and prioritized. Where possible, data is hyperlinked to its source to facilitate easy access to community health data online. A more comprehensive data table, compiled in collaboration with Saint Thomas Health, is available in Appendix F. VUMC's accompanying Implementation Strategy ("IS") outlines the programs and resources that will be committed to address these needs in the upcoming years.

Introduction

Vanderbilt University Medical Center ("VUMC") is located in Nashville, Tennessee, and serves Tennessee, northern Alabama, and southern Kentucky. Although licensed as Vanderbilt University Hospitals under a single hospital facility license, VUMC owns and operates three separate hospitals: The Vanderbilt University Adult Hospital ("VUAH"), Monroe Carell Jr. Children's Hospital ("the Children's Hospital") and the Vanderbilt Psychiatric Hospital ("VPH"). As part of a joint venture with HealthSouth Corporation, VUMC also owns 50% of Vanderbilt Stallworth Rehabilitation Hospital ("Stallworth"). The licensed hospital facilities of Vanderbilt University Hospitals and Stallworth are collectively referred to as "VUMC" for purposes of this Community Health Needs Assessment and Implementation Strategy ("CHNA"/IS).

The 2016 (FY 17)[1] VUMC CHNA is a joint CHNA that covers the licensed hospital facilities of Vanderbilt University Hospitals and Stallworth. The CHNA serves as a health profile for the community in which VUMC patients live. The CHNA describes significant health needs identified in collaboration with the community, as well as gaps between current and desired health status, and broad multi-sectorial perspectives on health and health care – with a focus on the underserved, low-income and minority populations.

[1] This CHNA and accompanying IS was adopted on August 3, 2016 during VUMC's FY 2017, which is tax year 2016 per Form 990, Return of Organization Exempt from Income Tax. To be consistent with CHNA/ IS reporting on Form 990, Schedule H, these documents are referred to herein as the "2016 CHNA" and "2016 IS."

Description of Hospitals

Annually, the VUMC hospitals have roughly 62,000 discharges, 315,000 inpatient days, and 2.1 million outpatient visits. In FY2015, VUMC provided $513 million in charity care and community benefits.

VUMC is a comprehensive 1,025-bed healthcare facility dedicated to patient care, research, and post-graduate medical education. Its reputation for excellence in each of these areas has made VUMC a major patient referral center for the Mid-South.

Vanderbilt University Adult Hospital ("VUAH")

Each year, people throughout Tennessee and the Southeast choose VUMC for their health care needs, not only because of its excellence in medical science, but also because the faculty and staff are dedicated to treating patients with dignity and compassion. VUMC's mission is to advance health and wellness through preeminent programs in patient care, post-graduate medical education, and research.

VUAH is home to the region's only Level 1 Trauma Center, the Vanderbilt Regional Burn Center, the National Cancer Institute's designated Comprehensive Cancer Center, and the Vanderbilt Transplant Center, the only transplant center in Tennessee to offer all major solid organ transplants. Last year, VUAH had more than 40,000 inpatient admissions, performed more than 37,000 surgeries and treated more than 66,000 patients in its Adult Emergency Department. VUAH's outpatient clinics performed more than 1.6 million ambulatory visits.

Monroe Carell Jr. Children's Hospital ("Children's Hospital")

The Children's Hospital is nationally recognized as a leading provider of pediatric health care services. Providing the highest level of pediatric care, the Children's Hospital is a top-level teaching and research facility, yet the hospital also treats and helps prevent all health issues that affect children ranging from simple colds and broken bones. The Children's Hospital operates the region's only Level 1 Pediatric Trauma Unit and a neonatal intensive care unit with the highest designated level of care in Tennessee.

The Children's Hospital is dedicated to serving the children of Middle Tennessee and beyond. Annually, the Children's Hospital admits more than 14,500 patients, performs more than 16,000 surgeries and sees more than 250,000 outpatient clinic visits. No child who needs emergent services is denied care on the basis of limited ability to pay.

Vanderbilt Psychiatric Hospital ("VPH")

VPH provides an age-appropriate, restorative environment for mental health care. In addition to adult care, VPH is the only inpatient mental health provider for young children (ages 4-12) in Middle Tennessee and offers highly specialized services for children and teens (ages 13-17). VPH serves patients with many conditions, including: depressive disorders, anxiety disorders, adjustment disorders, post-traumatic stress disorder (PTSD), bipolar affective disorder, attention deficit/hyperactivity disorder, schizophrenia and psychotic disorders. VPH has approximately 3,600 annual discharges and its clinics provide care through approximately 70,000 annual mental health visits. In addition to clinics on the main campus, Vanderbilt Behavioral Health– the programmatic umbrella for much of VUMC's work on mental illness and substance abuse - collaborates with approximately 35 Davidson County schools to provide counseling services and provides mental health services to youth who are in state custody or at risk of a custodial situation.

Vanderbilt Stallworth Rehabilitation Hospital ("Stallworth")

Stallworth is an 80-bed inpatient rehabilitation hospital that offers comprehensive inpatient rehabilitation services designed to return patients to leading active and independent lives. Stallworth opened in November of 1993 and is a 50/50 joint venture between VUMC and HealthSouth Corp., one of the nation's leading rehabilitation services providers.

In addition to caring for general rehabilitation diagnoses such as orthopedics, pulmonary and cardiac conditions, Stallworth has specialized inpatient programs for stroke, brain injury, spinal cord injury, amputations, hip fractures and neurological conditions. Not only has Stallworth achieved Center of Excellence status within the HealthSouth network of hospitals, the hospital has achieved Joint Commission disease-specific certification for stroke, spinal cord injury, and traumatic brain injury rehabilitation programs and was the first and only to achieve the spinal cord certification in the state. The largest number of patient discharges from Stallworth comes from Davidson and Williamson Counties.

For the purposes of this report, all four hospitals – Vanderbilt University Adult Hospital, Monroe Carell Jr. Children's Hospital, Vanderbilt Psychiatric Hospital, and Vanderbilt Stallworth Rehabilitation Hospital will be referred to as "VUMC."

Background

As part of the 2010 Patient Protection and Affordable Care Act, non-profit hospital organizations such as VUMC are required to complete a Community Health Needs Assessment and an accompanying Implementation Strategy every three years.

Previously, Vanderbilt University ("VU"), a not-for-profit educational institution, operated an academic medical center ("the Medical Center") as an operating unit within the University. The Medical Center housed healthcare activities, including the four hospitals – VUAH, the Children's Hospital, VPH, and (50% ownership of) Stallworth. In the fall of 2014, VU announced its plan to split the Medical Center from the university as a separate, financially distinct, not-for-profit entity. On April 29, 2016, certain assets and operations of the Medical Center were transferred from VU to Vanderbilt University Medical Center, the newly formed not-for-profit corporation.

VU's first CHNA/IS ("VU 2013 CHNA/IS"), which included VUAH, the Children's Hospital and VPH, was adopted in April 2013. Vanderbilt University Medical Center is a newly formed entity, and the 2016 CHNA is its first CHNA as a legally independent entity. However, the hospital facilities included in this CHNA were previously included in the VU 2013 CHNA; therefore, this report makes reference to the VU 2013 CHNA/IS.

As with the VU 2013 CHNA, for the 2016 CHNA Vanderbilt's Institute for Medicine and Public Health, now a part of VUMC, conducted a process that incorporated the collection and analysis of a broad range of primary and secondary data. In an effort to maximize VUMC's ability to impact the needs prioritized through the CHNA process, and after careful consideration by VUMC's leadership, the number of counties considered in the assessment was narrowed from four to three. Primary data collection included face-to-face interviews and community listening sessions with a range of community members across the three counties. There was an extensive review of publicly available data on health, including health determinants and health outcomes. In addition, VUMC and Stallworth solicited feedback on the VU 2013 CHNA /IS via the Community Health Improvement Website and the Stallworth website, respectively. At the time of writing this report, no written feedback had been submitted for VUMC or Stallworth.

VUMC's 2016 CHNA and IS are available at the Vanderbilt Community Health Improvement Website (http://www.vanderbilthealth.com/main/38766) where public comment on the CHNA/IS can also be provided. The portal for comments is regularly monitored so comments can be addressed. Any comments provided will be reviewed by VUMC's CHNA/IS Advisory Committee which consists of VUMC and Stallworth senior leaders. Comments will also be taken into account during the next CHNA/IS cycle.

VUMC Community

VUMC serves individuals and communities across the southeast and from around the world. However, a large number of VUMC's patients live in three counties in middle Tennessee: Davidson County, Rutherford County, and Williamson County (see Table 2 below). Based on discharge data from VUMC hospitals, for the purposes of this needs assessment, VUMC will focus on the community located in this geographic area as the community served.

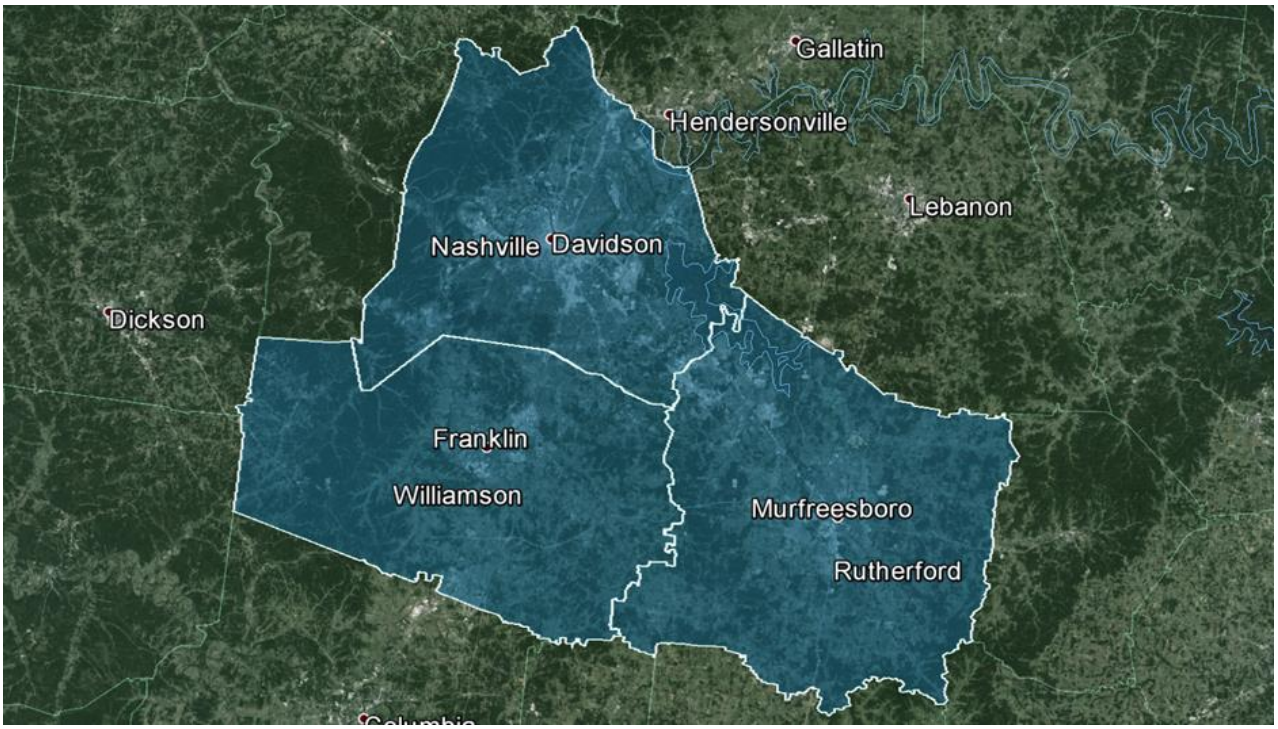


Figure 2: VUMC's "community" for the purposes of this assessment

Davidson County is home to Nashville, and has a population of around 670,000 individuals. Rutherford County, containing Murfreesboro, is home to around 290,000 individuals. Williamson County, including its largest city of Franklin, is home to around 205,000 individuals. Within each of these three very distinct counties, there are a number of communities that are racially, linguistically, economically, and socially diverse.

Discharges from VUMC Hospitals (FY-2014)

	Adult Hospital		Children's Hospital		Psychiatric Hospital		Stallworth Hospital		TOTAL (all hospitals)
TOTAL (all counties)	**40,817**		**14,612**		**3,647**		**1,524**		**60,600**
Davidson	11,684	29%	5,304	36%	1,514	42%	442	29%	**18,944**
Rutherford	2,069	5%	1,025	7%	247	8%	57	4%	**3,398**
Williamson	2,153	5%	830	6%	284	8%	132	9%	**3,399**

Table 2

Collaborations

In Davidson and Rutherford Counties, VUMC partnered on the CHNA with Saint Thomas Health, another local non-profit hospital system. Saint Thomas Health is a family of Middle Tennessee hospitals and physician practices united by the mission of providing spiritually centered, holistic care that sustains and improves community health. Saint Thomas Health is a part of Ascension Health, and runs nine hospitals across Middle Tennessee. Collaboration included nearly every component of the planning and data collection process, including interviews and listening sessions, secondary data collection, and community summits in both Davidson and Rutherford Counties.

In Davidson County, the Metro Health Department shared expertise in identifying interviewees and in putting together the community summits in Davidson County. United Way of Metropolitan Nashville and the Family Resource Centers across the county hosted community listening sessions and recruited listening session participants.

In Rutherford County, VUMC partnered with the Rutherford County Health Department. The Rutherford County Health Department and staff were critical in identifying interview participants, as well as recruiting participants and securing space for listening sessions. In addition, the Rutherford County Health Department partnered in the planning and implementation of the community summit in Rutherford County.

In Williamson County, VUMC partnered with the Williamson County Health Department. The Williamson County Health Department and staff assisted in identifying interview participants as well as recruiting participants and securing space for listening sessions. In addition, they helped plan and implement the Williamson County Community Health Summit.

Purpose / Objective

To fulfill IRS regulations related to 501 (c) (3) non-profit hospital status for federal income taxes, this report aims to do the following:

1. Describe the community served by the hospital facility and its demographics, while providing a comprehensive assessment of health needs by considering input from across the community (including those with special expertise in public health) as well as publicly available secondary data. Special attention was given to the needs of underserved populations such as those in poverty, minority populations, and those without health insurance.

2. The VUMC Board of Trustees adopted the report in August of 2016 and it has been made widely available to the public via VUMC's Community Health Improvement Platform and used to guide VUMC's community health improvement efforts in the communities served. The Stallworth Board of Trustees adopted the report in July of 2016 and it has been made widely available to the public via Stallworth's website.

Determinants of Health

Individual and population health are determined by many factors, the majority of which are outside of health care delivery; social and economic factors contribute 40%, health behaviors 30%, genetics 10%, the physical environment 10% and clinical care 10%, according to the Center for Health and Learning (CHL), an outgrowth of an initiative by the Center for Disease Control and Prevention's (CDC) Division of Adolescent and School Health. According to the CDC, poverty limits access to healthy foods and safe neighborhoods, while higher educational attainment is a predictor of better health. Differences in health and health outcomes are striking in communities with poor social determinants of health such as unstable housing, low income levels, unsafe neighborhoods, or substandard education.

As a result, this health needs assessment will likely reveal factors that span across multiple sectors of the economy and that the achievement of individual and community health will require a collaborative and comprehensive approach, well beyond the boundaries of a hospital and its clinics. To that end, VUMC has collaborated with local health departments, as well as Saint Thomas Health, for this needs assessment and will work with and encourage other sectors of the local community to work toward achieving better health for all.

Methodology

Input from persons representing the broad interests of the community, including those with expertise in public health, was obtained through face-to-face interviews and via community listening sessions. VUMC and its collaborators also conducted a comprehensive review of relevant secondary data. In addition, VUMC solicited written feedback on the most recent CHNA/IS on the VUMC Community Health Improvement website.

Community Interviews

In collaboration with Saint Thomas Health, VUMC identified leaders from public health, government, education, the faith community, private foundations, community organizations, and academia, among others as interviewees. Interviewees were selected based on their understanding of the broad interests of the community and underserved populations. Interviewees also included Health Department Directors from the community served, community physicians, public health researchers, and community based organizations that have special knowledge and expertise in public health. In all, 81 community leaders were interviewed, with particular attention to underserved, low-income, and minority populations.

The interview protocol included both open-ended and close-ended questions, which focused on health concerns, determinants of health, health system issues, community resources, and unnecessary use of the emergency room. In each county, interviewees were identified in collaboration with local Health Departments. Interview data were entered in to an electronic database (REDCap) by VUMC and Saint Thomas Health staff, as well as graduate students, from

the graduate public health programs at Vanderbilt University's Institute for Medicine and Public Health and Meharry Medical College's Masters of Science in Public Health Program. A total of 33 interviews were conducted in Davidson County and 28 in Rutherford County with Saint Thomas Health, VUMC staff and student collaborators. In Williamson County 20 interviews were conducted by VUMC staff and one external contractor.

Community Listening Sessions

To understand community members' opinions of health needs and assets within the county, eleven listening sessions were held across the community. Nine were conducted in English, and two in Spanish. The community listening session guide can be found in Appendix C. VUMC and Saint Thomas Health provided gift cards to listening session participants as compensation for their time.

The moderator's guide for the listening sessions covered topics such as community assets and issues, health and healthcare issues, priority actions, and use of the emergency room for primary care. A brief self-administered survey was used to obtain participant demographic info. Thematic analysis of listening session data was done using a team of four reviewers from Saint Thomas Health and VUMC. The survey data were entered into REDCap and exported into Microsoft Excel for analysis.

In Davidson County, six community listening sessions were held, each in collaboration with the United Way of Metropolitan Nashville. Sessions were held at the following United Way Family Resource Centers (FRCs): McGruder; Napier Elementary; Salvation Army Magness Potter Community Center; St. Luke's Community House; and South Nashville (2). The Family Resource Centers are supported by United Way of Metropolitan Nashville and serve 32,000 low-income residents annually. One listening session was conducted in Spanish; all others were conducted in English. United Way of Metropolitan Nashville recruited participants and secured space for listening sessions, in partnership with the FRCs and VUMC.

In Rutherford County, three community listening sessions were held, each in collaboration with the Rutherford County Health Department. Sessions were held at the Rutherford County Health Department location in Smyrna, Primary Care & Hope Clinic, and First Baptist Church in Murfreesboro. The sessions were conducted in English, but one conversation included Spanish speakers communicating through an interpreter.

In Williamson County, two community listening sessions were held in collaboration with the Williamson County Health Department. Both listening sessions were held at the Health Department, with one in English and one in Spanish.

Secondary Data Analysis

To describe the health status of those in the community, VUMC considered indicators from the CDC's "Community Health Assessment for Population Health Improvement: Resource of Most Frequently Recommended Health Outcomes and Determinants." Categories included "Demographics and Socioeconomic Status," "Social and Natural Environment," "Access to Health Care," and "Health Status" (including morbidity/mortality, birth outcomes, preventive care/risk factor behaviors, chronic disease, infectious disease, and mental & emotional health.) Data were drawn from publicly available sources including the US Census Bureau, the Tennessee Department of Health, the CDC, and others. In addition, VU's 2013 CHNA and other available Needs Assessments for each county, such as those from Saint Thomas Health, Metro Social Services, and the Metro Public Health Department were reviewed. The data and sources used in this report are listed in full in the appendices. County data were compared to state and national averages, and when possible, the Healthy People 2020 goals. Healthy People 2020 is a program of the US Department of Health and Human Services which provides science-based, 10-year national objectives for improving the health of all Americans.

Identifying and Prioritizing Needs: Overview

Community Summits

Primary and secondary data were collected in the spring and summer of 2015, culminating in three community summits held in September of 2015. Primary data collection included community interviews and community listening sessions with individuals and community leaders representing or working with medically underserved, low-income, and minority populations. Results of the community interviews, community listening sessions, and secondary data analysis were presented in three separate Community Health Summits – one in each of Davidson, Rutherford, and Williamson counties. Summit invitees included all participants in interviews and community listening sessions, as well as community members with expertise in public health or who work with medically under-served, minority, or low income populations. Leadership from VUMC and VUMC's Collaborators on the needs assessment were also present. The purpose of the Summits was to solicit input and take into account the broad interests of the community in identifying and prioritizing the community's health needs. In Davidson County, the Summit was facilitated jointly by VUMC and Saint Thomas Health. In Rutherford County, the Summit was facilitated by VUMC, Saint Thomas Health, and the Rutherford County Health Department. In Williamson County, the Summit was facilitated by VUMC in collaboration with the Williamson County Health Department.

After being presented with primary and secondary data on a number of needs, Summit attendees provided input into prioritizing the most important health needs within the community. Each individual selected three health issues, which were grouped into categories by the Summit facilitators and shared with Summit attendees. The health needs prioritized by Summit participants for Davidson and Rutherford Counties were:

- **Access to Care / Coordination of Care**
- **Mental and Emotional Health / Substance Abuse**
- **Social Determinants**
- **Wellness & Disease Prevention**

In Williamson County, participants selected the first three health needs, but did not prioritize social determinants as a health need in Williamson County. Following this exercise, participants in each county provided further insight regarding each prioritized need by working in groups to answer questions such as; "What would a healthy community look like regarding this issue?"; "Who is already working on this issue?"; "What are potential goals related to the issue?" and "What are potential barriers regarding this issue?"

Following the Summits, VUMC consulted the "Community Health Improvement Working Group", a group of internal program managers and directors who interface with the

community to review the needs the community prioritized. The Working Group was tasked with making a recommendation to VUMC's CHNA/IS Advisory Committee--a group of senior leaders responsible for high-level guidance on the CHNA/IS--on the needs that VUMC should adopt. The Working Group considered criteria such as the scope, severity, and the ability of VUMC to impact an issue and recommended that VUMC adopt all four identified needs. Prioritized needs are considered of equal importance, and are listed in this report in alphabetical order. The Advisory Committee chose to adopt all four identified needs and these needs guided development of VUMC's Implementation Strategy.

The CHNA / IS were adopted by the Board of Directors of Vanderbilt Stallworth Rehabilitation Hospital in July of 2016, and by the VUMC Board of Directors in August of 2016.

Results

Secondary Data

Socio-economic and Demographic information

Davidson, Rutherford, and Williamson Counties are home to more than 1 million individuals, and harbor neighborhoods that are rich in racial, cultural, economic, linguistic, and social diversity. Each county is expanding rapidly in both population and economic growth relative to the rest of the state.

Davidson County is home to approximately 668,000 individuals as of 2014, most of them in the city of Nashville. It is a young county, with a median age of 34.1, relative to the state (38.2) and the nation (37.3). There are fewer seniors over age 65 in Davidson County (10.9%) relative to the state (14.7%) and the nation (14.1%). It is an ethnically and racially diverse county, with 9.9% of individuals in Davidson County identifying as having a Hispanic ethnicity. In Davidson County, 66% identify as white, 28% as black, 3% as Asian, and 3% as "more than one race" or a race that is not listed. 15.5% of individuals in Davidson County speak a language other than English at home, a rate much higher than the rest of Tennessee (6.6%). Davidson County is growing rapidly, and it's 6.7% population growth from 2010-2014 is more than twice the rate of the state (3.2%) or the nation (3.3%). Davidson County does have a higher poverty rate (19.9%) than either the state or the nation, with one in three children living in poverty – a rate which is growing.

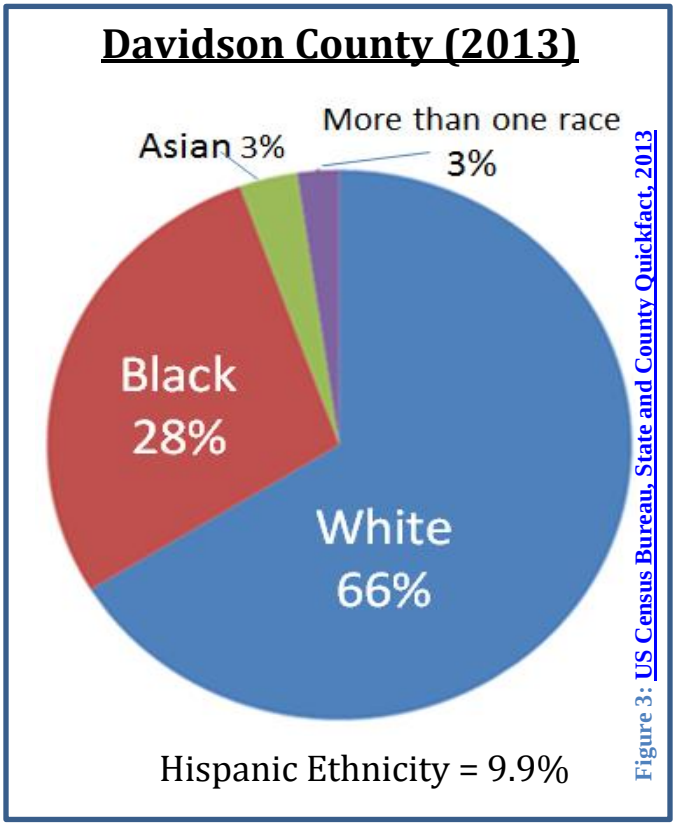


Figure 3: US Census Bureau, State and County Quickfact, 2013

Rutherford County is home to approximately 289,000 individuals as of 2014, with more than half residing in the cities of Murfreesboro and Smyrna. It is a young county, with a median age of 32.6, relative to the state (38.2) and the nation (37.3). More than one in four residents is under 25 years of age. There are fewer seniors over age 65 in Rutherford County (9.3%) relative

to the state (14.7%) and the nation (14.1%). It is similarly diverse compared to the state as a whole, with 7% identifying as having Hispanic ethnicity. Across the county 81% identify as white, with 14% identifying as black, 3% as Asian, and 2% as "more than one race" or as a race that is not listed. 9.9% of families in Rutherford County speak a language other than English at home, a rate higher than the state (6.6%) but lower than the nation (20.7%). Rutherford County is growing rapidly, with its 10% population growth from 2010-2014 being more than three times the rate for the state (3.2%) and the nation (3.3%). Rutherford County has a 15.7% poverty rate, up from 11.3% as recently as 2011.

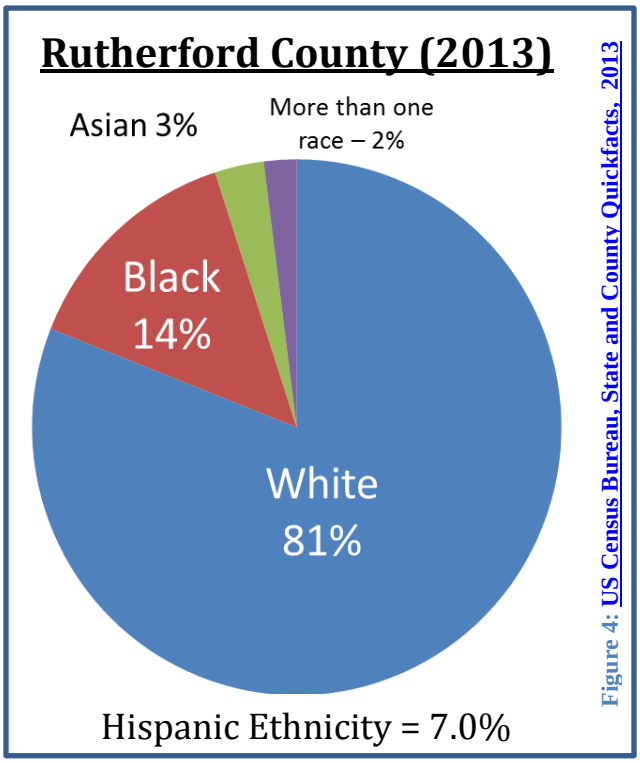


Figure 4: US Census Bureau, State and County Quickfacts, 2013

Williamson County is home to approximately 205, 000 individuals as of 2014, with around half residing in the cities of Brentwood and Franklin. The median age of Williamson County (38.5) is higher than either the state (38.2) or the nation (37.3). Still, more than one in four individuals (28.1%) in the county is under 18 years of age. There are also fewer seniors in Williamson County (11.6%) relative to the state (14.7%) and the nation (14.1%). While there are pockets of racial and ethnic diversity, the vast majority (90%) of Williamson County residents identify as white, with 5% identifying as black, 4% identifying as Asian, around 1% identifying as "more than one race" or a race not listed, and 4.5% identifying as having Hispanic ethnicity. In Williamson County, 7.5% of families speak a language other than English at home, a rate higher than the state (6.6%). Williamson County is, by some measures, the fastest growing county in the state. Its 12% population change from 2010-2014 is nearly four times the growth rate of the state (3.2%) and the nation (3.3%). Williamson County is a relatively affluent county, with a median household income ($89,779) more than twice the state average ($44,298). Despite this affluence, Williamson County has a total poverty rate of 5.5%, and a childhood poverty rate of 5.6%.

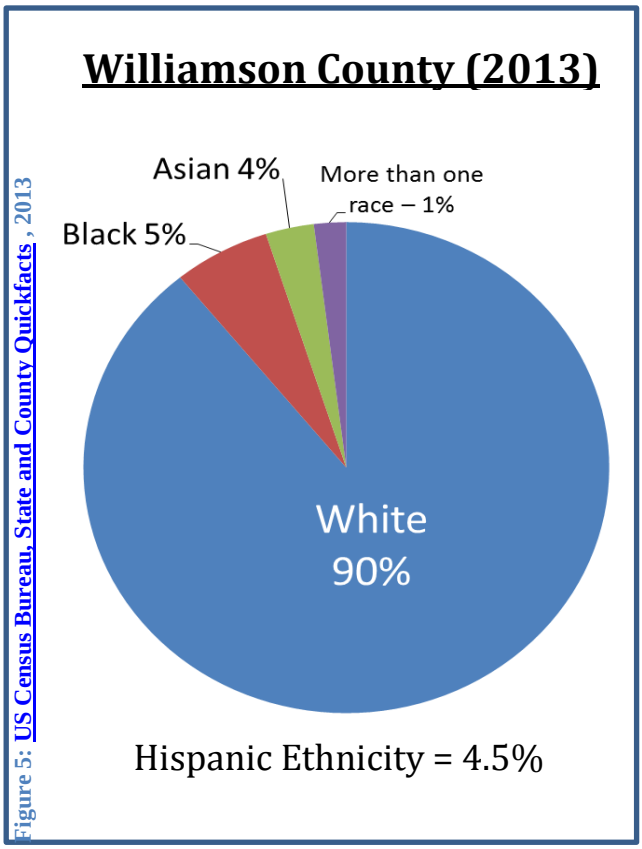


Figure 5: US Census Bureau, State and County Quickfacts , 2013

Poverty

In 2015, the federal poverty threshold was $11,770 for an individual, and $24,250 for a family of four. Poverty is one of the most critical indicators of future health and well-being, according to leading health agencies such as the World Health Organization (WHO.) Lacking resources, particularly from a young age, can have immediate and dramatic negative effects on individual health outcomes, physical and neurological development, educational quality, access to medical care, safe and affordable housing, and nutritional food. Total poverty rates range from 19.9% in Davidson County to 5.5% in Williamson County.

Poverty (2014)					
	Davidson	Rutherford	Williamson	TN	USA
Poverty	19.9%	15.7%	5.5%	18.3%	15.5%
Child Poverty	33.1%	17.7%	5.6%	26.2%	21.7%

Table 3: American Community Survey, 1-Year Estimate

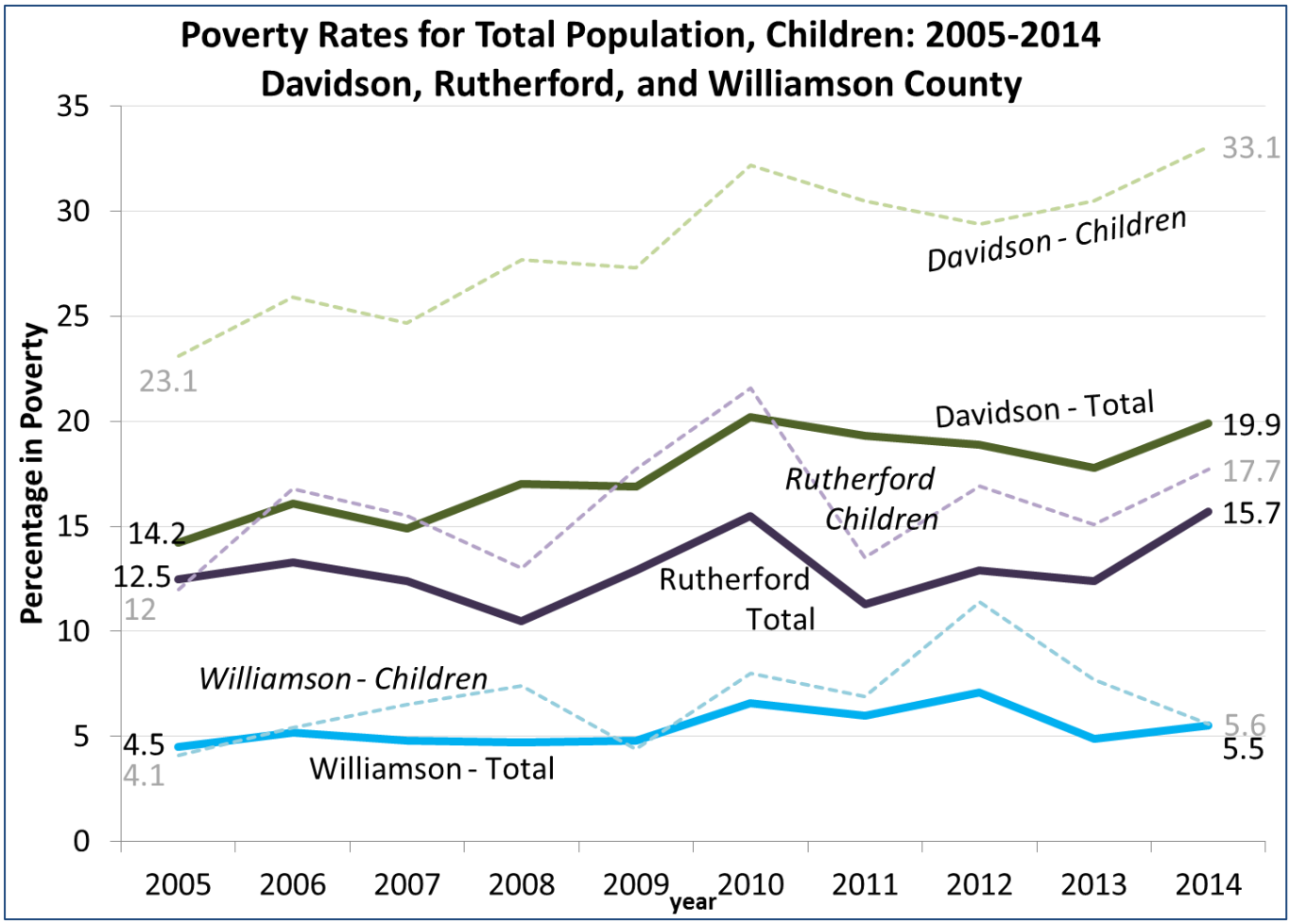


Figure 6: American Community Survey, 1-Year Estimate

> *"Poverty is the single largest determinant of health."*
>
> - World Health Organization

Figure 7: WHO: Poverty and Social Determinants

Tennessee has a higher poverty rate than the nation, and Davidson County's rate is higher than both. Poverty rates in Davidson are highest around the urban core, although recent inner-city gentrification has resulted in more low-income minority families moving to suburban areas, where health and social services can be more difficult to access. There are sixteen census tracts in Davidson County where poverty was at or above 40%, seven census tracts where poverty exceeds 50% and three that exceed 75% as of 2013. This indicates that despite the affluence and resources available to many in Davidson County, there are still neighborhoods where the vast majority of individuals are struggling to meet basic needs. Poverty also varies by race. In Davidson County, 13.7% of white individuals live in poverty, but nearly one in three (31.8%) black individuals and more than one in three (36.1%) Hispanic individuals face the daily challenges of poverty.

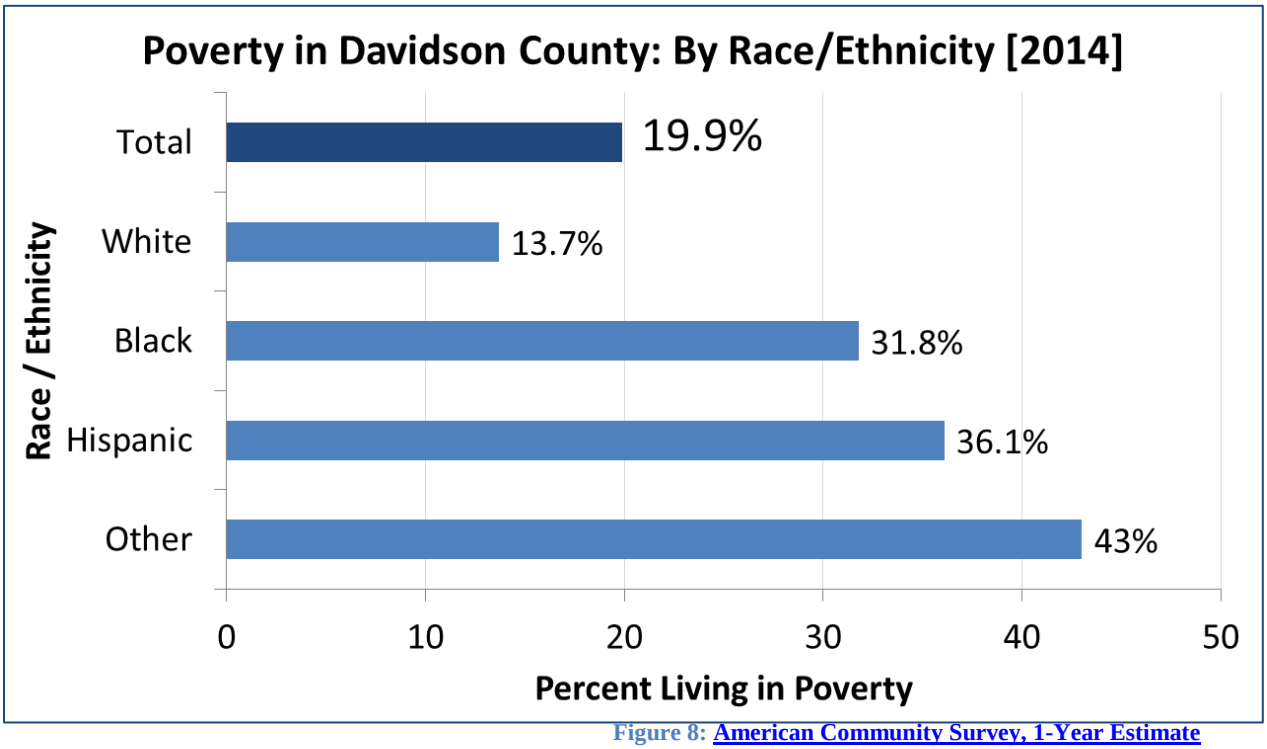


Figure 8: American Community Survey, 1-Year Estimate

Poverty records at the census tract level give a better perspective on the impacts of poverty at the neighborhood level. Census tracts contain around 4,000 individuals, and can often provide a more in depth perspective of local conditions. It is important to note that each of the three counties show wide variability, neighborhood to neighborhood. In each county, there are census tracts with no financial poverty. However, in each county, there are areas that face an excessive burden in overcoming the challenges of poverty.

In all, nearly 130,000 individuals in Davidson County face the daily challenges of poverty. But, the challenges of poverty are not faced by adults alone. One in three children (33.1%) lives with poverty in Davidson County, and that number has been rising steadily over the last decade. As seen in Figure 9, there are census tracts in Davidson County that have nearly universal child poverty. In all, more than 47,000 children in Davidson County live in poverty.

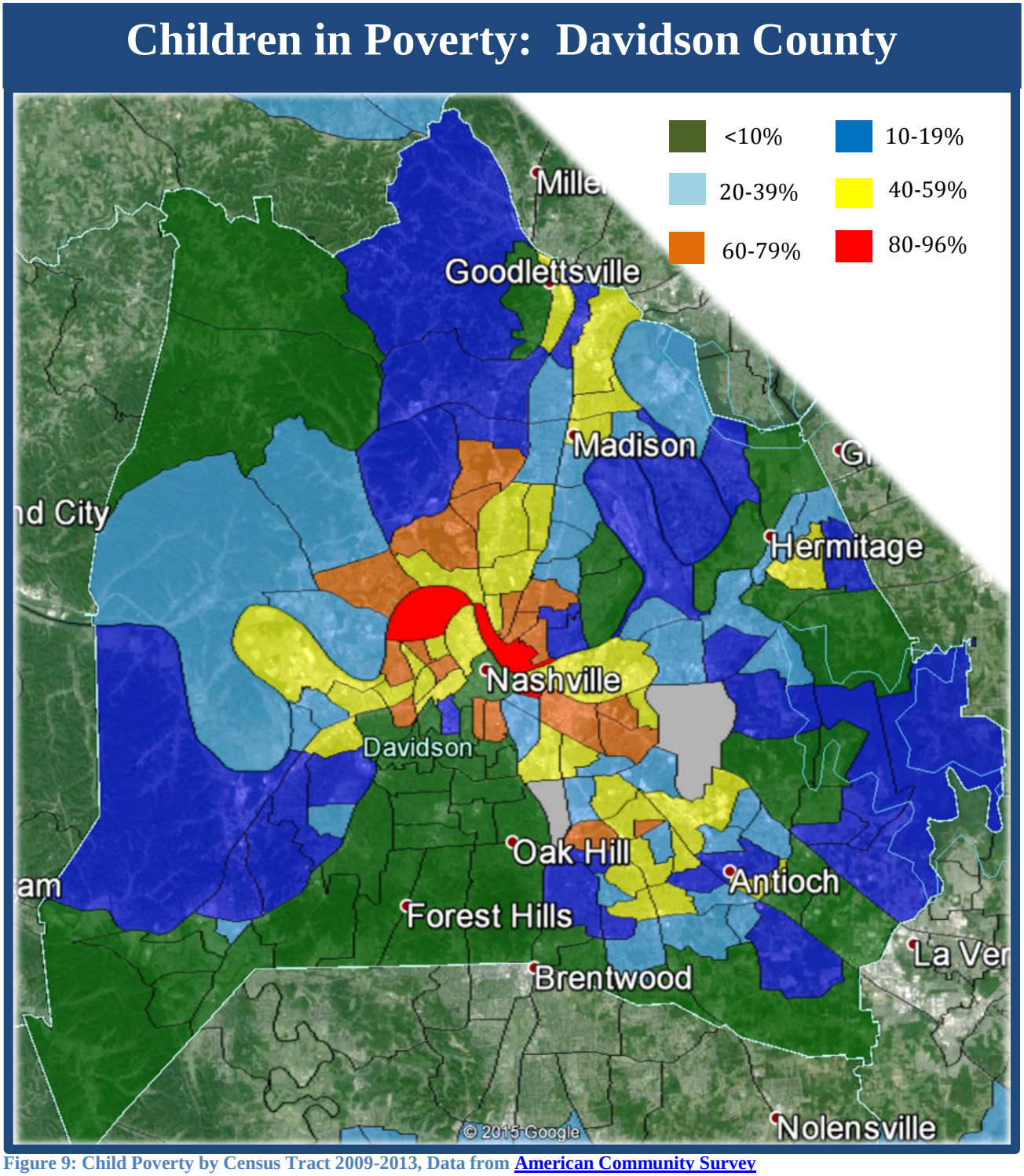


Figure 9: Child Poverty by Census Tract 2009-2013, Data from American Community Survey

Rutherford County faces a 15.7% poverty rate, which has risen in recent years. Rutherford County also has a higher median household income ($55,401) than the state ($44,298) or the nation ($53,046). The child poverty rate in Rutherford County is 17.7% and rising. Ten census tracts in Rutherford County show child poverty rates of above 30%, and in two of those census tracts in Murfreesboro, more than half of children are being raised in poverty. There is a significant racial disparity in poverty levels in Rutherford County, with 13.4% of whites, 23.9% of blacks, and 33% of Hispanic individuals living in poverty.

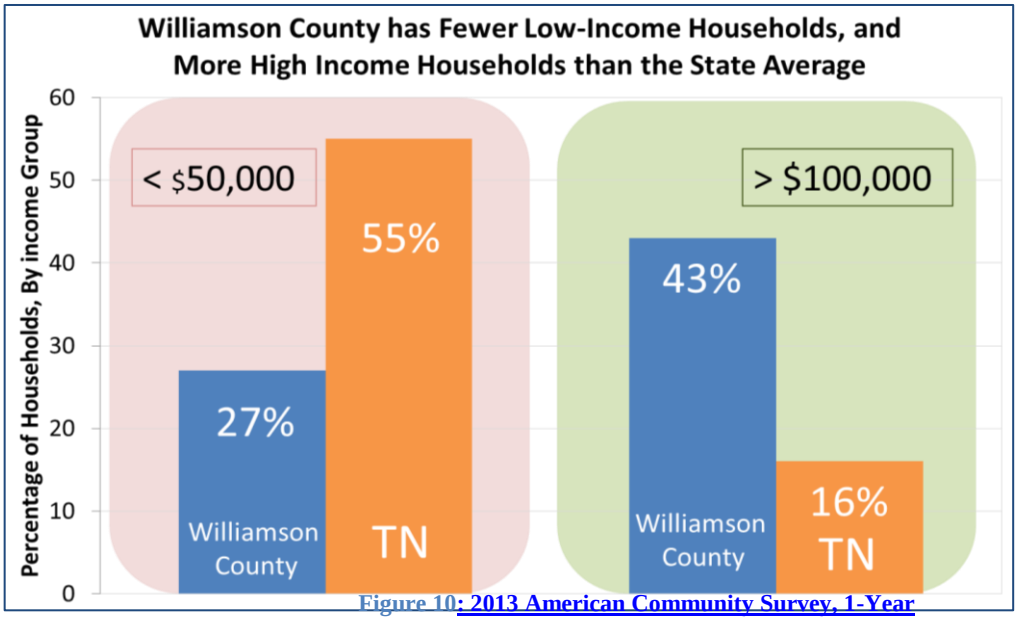


Figure 10: 2013 American Community Survey, 1-Year

By some measures, Williamson County is one of the most financially affluent counties in the nation, with a median household income that is more than double the state average. The rate of households in Williamson County making less than $50,000 annually is just 27%, less than half the state rate of 55%. At the same time, the rate of high-income households bringing in more than $100,000 / year is 43%, more than double the state rate of 16%. In Williamson County, more than 15% of households bring in more than $200,000 / year. Williamson County is the "fastest growing county in the state" according to the County Chamber of Commerce. However, resources and the burdens of poverty are not shared uniformly. Like Davidson and Rutherford Counties, Williamson County has significant racial disparities in poverty rates. 5.5% of white individuals are living with poverty as of 2014, while the rate for black individuals is nearly double that (9.9%), and the rate for Hispanics is four times as high (21.9%).

In summary, poverty remains a challenge across the region, particularly for many families in Davidson County. While there continues to be job growth, low unemployment relative to the state, and prosperity for some, there are still many individuals and families within these three counties who struggle to meet basic needs, and are burdened by the challenges of low-wealth and low-income. Adult and childhood poverty continues to rise, which may impact health access, mental and emotional health, education, access to quality food, violent crime, neighborhood safety, substance abuse, and nearly every other determinant of health.

Education

The residents of Davidson, Rutherford, and Williamson County have relatively high levels of success in traditional academic settings. However, across each county, levels of formal educational attainment are lower among non-white populations. Educational attainment is linked with improved health behaviors, longer life, and improved health outcomes. County Health Rankings says "better educated individuals live longer, healthier lives than those with less education, and their children are more likely to thrive."

Educational Attainment (2013)					
	Davidson	Rutherford	Williamson	TN	USA
High School Diploma	86.4%	89.7%	94.6%	84.4%	86%
Undergraduate Degree	35.9%	28.3%	52.8%	26.2%	28.8%

Table 4: County Health Rankings

In Davidson County, 86.4% of the population has a high school diploma, a higher rate than either the state (84.4%) or the nation (86.0%). However, there is a significant difference by race. 10.7% of white individuals lack a high school diploma, compared with 15.1% of black individuals. Davidson County also boasts a significantly higher rate of college graduates (35.9%) than either the state or the nation.

Rutherford County has a higher rate of high school graduates, with nearly 9 out of 10 adults having at least a high school diploma. The racial discrepancy in Rutherford County is relatively low, with 9.5% of white individuals and 11.5% of black individuals lacking a high school diploma. The rate of college graduates in Rutherford County (28.3%) is higher than the state rate of 23.8%, and similar to the national rate of 28.8%.

"Better educated individuals live longer, healthier lives than those with less education, and their children are more likely to thrive."
- County Health Rankings

Figure 11: County Health Rankings

Williamson County residents have high levels of educational attainment, with nearly 95% of residents having graduated high school, and nearly 53% having graduated college, a rate more than double Tennessee (26%) as a whole. At the same time, there is disparity in educational attainment by race. In Williamson County, a black individual is nearly four times as likely as a white individual not to have a high school diploma. Across Williamson County, 16.4% of black individuals don't have a high school diploma, compared to 4.6% of white individuals in Williamson County.

Graduation Rates and Educational Achievement

Although the community may have a relatively high number of formally educated individuals in the area, children currently seeking educational attainment face mixed challenges depending on their race, location and income.

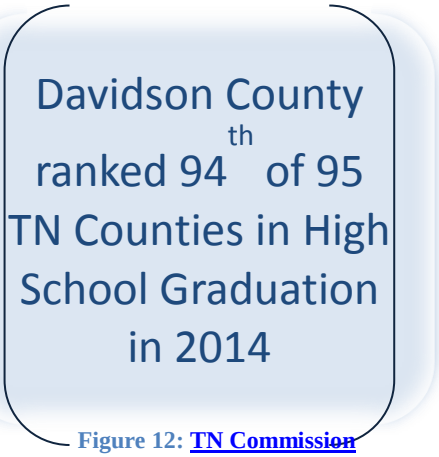


Figure 12: TN Commission on Children and Youth

In Davidson County, as of 2014, less than four out of five high-schoolers (79%) received their diploma on time, placing Davidson County 94th out of 95 counties across the state. Of more than 82,000 students in the public school system, 72% qualify for free and reduced lunch. In Davidson County, educational achievement patterns are both relatively low and stratified by race from a young age. Overall, just 41% of students in grades 3-8 are proficient in reading. But that ranges from 57% of white students, to 33% of Hispanics students, to 32% of black students. Math proficiency scores are equally stratified. 45% of students in grades 3-8 are proficient in math. However, that ranges from 58% of white students, to 41% of Hispanic students, to 35% of black students. There are disparities in high school graduation rates as well. 87% of Asian students graduated on time, along with 81% of white students, 78% of black students, and 73% of Hispanic students. The "college going rate" for Davidson County is 54.3%, lower than the state average of 58.1%.

Of the more than 41,000 students in Rutherford County public schools 42% are eligible for free and reduced lunch. Graduation rates in Rutherford County are 92.5%, well above the state rate of 87%. More than 3 of 5 students grades 3-8 are proficient in reading, although the scores for white students (67%) are more than 20 points higher than Hispanic students (46%) and black students (46%) reading proficiency scores. There are also disparities in achievement for math, with 60% of students in grades 3-8 achieving proficiency in math, ranging from 68% for white students, to 56% for Hispanic students, to 49% for black students. The "college going rate" for Rutherford County is 57.1%, lower than the state average of 58.1%

In Williamson County, the high school graduation rate in 2014 was 94%, much higher than the state average (87%). The "college going rate" for Williamson County is 79.3%, the highest in the state and more than twenty points higher than the state average of 58.1%. In 2014, Williamson County students averaged 23.5 on the ACT, the highest in the history of the county, and far outpacing the state and national averages, of 19.8 and 21, respectively. In 2014, the district showed excellent scores for both attainment *and* growth.

In Davidson, Rutherford, and Williamson Counties, a student's educational path is likely to reflect their place, race, and income status. Many individuals never complete high school, a

key predictor of future well-being. Educational attainment is linked with better health and longer life. Mothers who have graduated from college are more than twice as likely as a mother who has not graduated high school to see their child live to their first birthday, and researchers estimate that a college graduate is expected to live 9 years longer than a high school dropout. Educational attainment is also a critical tool for lifting individuals, families, and neighborhoods out of poverty.

Socio-economic and Demographic Summary

- The community is racially, linguistically, economically, and culturally diverse.
- The community is growing and changing rapidly, presenting new challenges.
- Many individuals, particularly children and low-income people of color face high levels of poverty, and barriers to educational success.
- There are a high number of very well-educated people in the community, although educational achievement and high school graduation is low for many in the community.
- Economic and cultural diversity is a strength, and there are some available resources within the community to support the planning and implementation of programs addressing social determinants such as poverty and education.

Social and Natural Environment

Housing and Homelessness

Housing is the largest expenditure for most individuals and families. Housing impacts physical and emotional health, social connectedness, and ability to access resources and services. Area residents face many challenges with safe housing, housing affordability, and homelessness.

Housing Data				
	Davidson	Rutherford	Williamson	TN
Homeownership Rate	54.7%	67.6%	81.3%	67.8%
Median Household Income	$47,335	$55,401	$89,779	$44,298
Median Value, Owner Occupied Households	$167,500	$159,100	$334,900	$139,200
House Value / Income	3.5	2.9	3.7	3.1
Cost Burdened Households	36.6%	31.4%	27.2%	31%
Cost Burdened Renters	47.4%	47.2%	43.6%	45.9%
Poverty (2014)	19.9%	15.7%	5.5%	18.3%

Table 5: Data from US Census Bureau

Davidson County residents face many challenges when it comes to housing. The 2013-2018 Consolidated Plan for the Nashville-Davidson County Metropolitan Development and Housing Agency notes that "low-to moderate income, people of color and elderly persons are particularly vulnerable to housing challenges." Davidson County has a much lower rate of home-ownership (54.7%) than the state (67.8%). In addition, those in Davidson County tend to be more transient – with 79.2% of the population living in the same house they lived in one year ago. This is lower than the state (84.6%) and national (84.9%) rates. Homeowners and renters who spend at least 30% of their income on housing are considered "cost-burdened," and in Davidson County more than one-third of renters (36.6%) and nearly half of homeowners (47.4%) are considered "cost-burdened." Additionally, in Davidson County, it takes an average of 3.5 years of median household income to equal the median value of an owner-occupied home. This is higher than the state average of 3.1 years of salary per median home value. A recent housing report on equitable housing development, commissioned

Figure 13: Nashville Metro Housing and Development Agency, Point In Time Count (2014)

by Nashville Next, also notes that "…the neighborhoods most attractive to new Nashvillians are currently home to those most in need of affordable housing to retain existing residents" – raising concerns of gentrification and displacement. Homelessness in Davidson County remains a major issue. Across the county there are more than 2,300 individuals experiencing homelessness at any given time, according to the January 2014 "point-in-time" count.

Figure 14: Murfreesboro Consolidated

Rutherford County has a higher household income than the state, at $55,401, but relatively low cost of the average owner occupied home, at $159,100. In Rutherford County, it takes comparatively less time to purchase a home of median value with a median household income – just 2.9 years. At 67.6%, Rutherford County's homeownership rate mirrors the rate for Tennessee. However, nearly a third (31.4%) of Rutherford County homeowners are cost-burdened, along with nearly half of renters (47.2%). In addition, a lower percentage of Rutherford County residents live in the same house they were in a year ago (81.2%) compared to the state (84.6%) or the nation (84.9%). Under the Department of Education definition of homelessness, more than 1,600 individuals in Rutherford County experience homelessness at some point throughout the year. Of those 1600+ experiencing homelessness, roughly half of them (829) are children. Rutherford County's homelessness task-force notes that support for policies to increase housing options is high in the community. In a survey they conducted on homelessness needs in the community, they found that more than 4 of every 5 residents believe providing facilities and services to women with children is a high priority, and more than 90% of respondents see a need for additional facilities to assist the unsheltered homeless.

Williamson County has a high median household income ($89,779) as well as a high median value of an owner-occupied home ($334, 900). However, Williamson County also has a relatively high home-ownership rate of 81.3%, meaning that more residents have greater financial and social stability. In addition, 27.2% of homeowners and 43.6% of renters are cost-burdened, a significant portion of the population. In all, it takes 3.7 years of median income to equal the median home value in Williamson County, higher than Tennessee, and the country as a whole. While equivalent county-wide numbers were unavailable, a point-in-time count was conducted in January 2015 by the Franklin Police Department, identifying four individuals experiencing homelessness. Williamson County Schools indicated that the district is not aware of any enrolled students or faculty who meet the HUD definition of homelessness.

Violent Crime

Violent crimes are defined as offenses that involve face-to-face confrontation between the victim and the perpetrator, including homicide, forcible rape, robbery, and aggravated assault. Violent crime rates fell more than 45% from 1995-2014 in the United States, according to the Federal Bureau for Investigation (FBI.)

Across the community, and particularly in Davidson County, violent crime has an impact on the population. Davidson County ranks 94th of 95 Tennessee counties for rates of violent crime rates, with 1,153 incidents per 100,000 population. As seen in Figure 15, violent crime is particularly high around downtown Nashville and the urban core. Homicide is the number one killer of black males age 1-50 in Davidson County, and the fourth leading cause of "years of potential life lost" for black males in Tennessee. Davidson County has a lower rate of substantiated cases of child abuse and neglect, at 3.8 per 1000 children, than the Tennessee as a whole (4.9 / 1000 children), and there are more than 12,000 victims of domestic violence each year.

Rutherford County has a violent crime rate of 431 incidents per 100,000 population, a substantiated child abuse/neglect rate of 3.6 per 1000 children, and roughly 3,500 victims of domestic violence annually.

Williamson County has an annual violent crime rate of 124 incidents per 100,000, and a substantiated child abuse/neglect rate of 3.6 per 100,000 population. This rate improved in all three counties, as well as across the state, from 2009-2013.

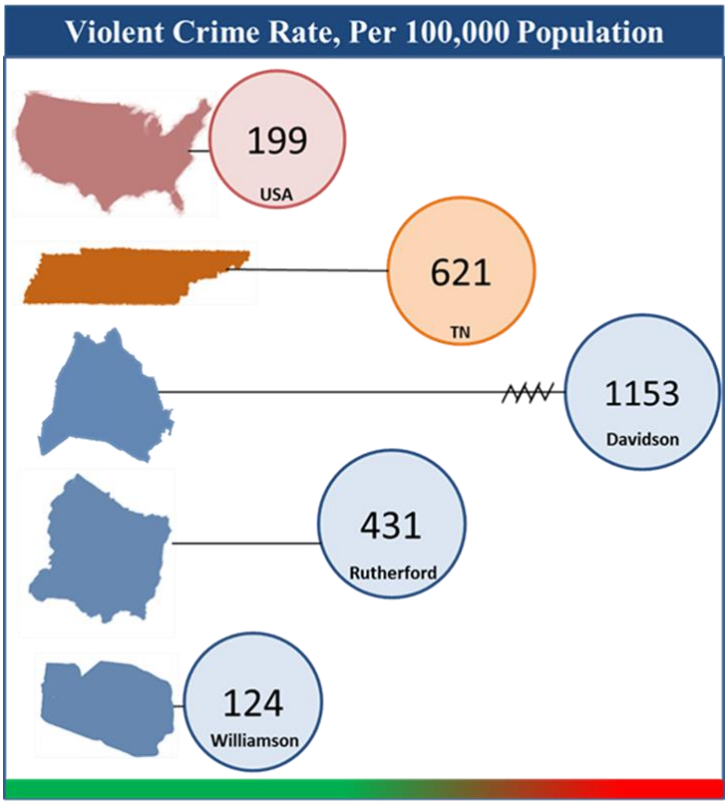


Figure 15: Data from County Health Rankings, 2010-12

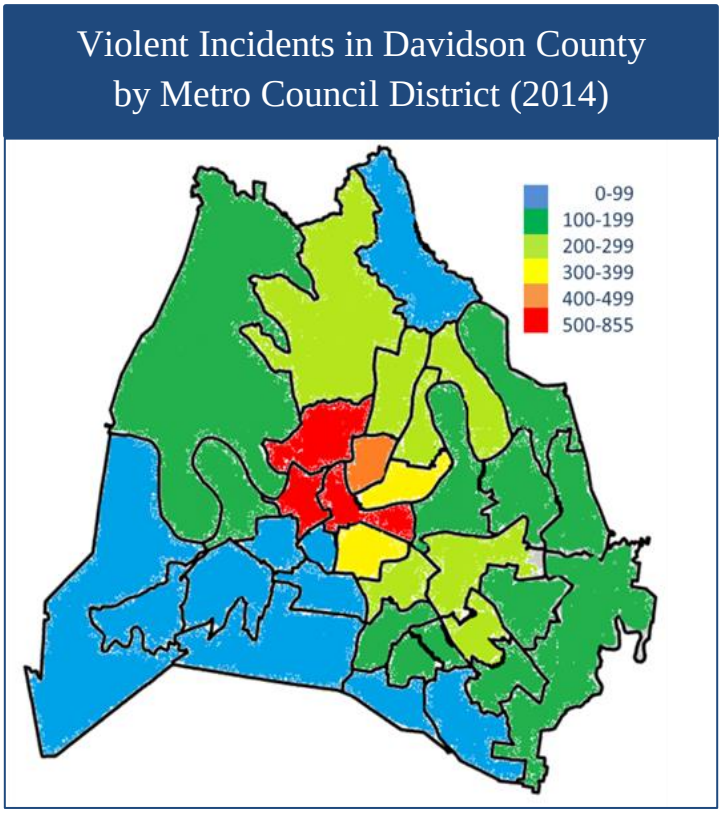


Figure 16: Data from Metropolitan Police Department of Nashville and Davidson County , Map by VUMC

Transportation

Transportation and the built environment impact the natural environment, how those in the area connect with the community, and how neighborhoods interface with jobs, education, food, healthcare, and other resources. Davidson, Rutherford, and Williamson Counties each face unique transportation issues associated with rapid, sprawling growth around populated city centers. The community has low access to public transportation and high rates of driving alone. Transportation planning and behavior impacts congestion, traffic, and highway quality, but can also directly affect health via increased social isolation, additional air pollution, and decreased physical activity.

(2010-2014)	Davidson	Rutherford	Williamson
Drives Alone to Work	80%	86%	81%
Drives Alone to Work: > 30 Minutes	30%	40%	41%
No Access to Vehicle	7.5%	3.5%	2.3%
Public Transit Use	2.1%	0.5%	0.5%

Table 6: Data from HealthyNashville.org

In Davidson County, 7.5% of households do not have access to a vehicle, 80% of us drive alone to work, and 30% drive alone longer than 30 minutes. In Rutherford County, 3.5% don't have access to a vehicle, 86% drive alone to work, and 40% drive alone longer than 30 minutes. And, in Williamson County, 2.3% don't have access to a vehicle, 81% drive alone to work, and 41% drive along longer than 30 minutes. Healthy People 2020 has targets of 5.5% workers commuting by public transit by 2020; Davidson Co. is currently at 2.1% using public transportation, while Rutherford and Williamson County are both at 0.5% using public transportation.

Access to Quality Food

Large numbers of individuals and families in the region face challenges in accessing, affording, and incorporating healthy foods into daily life. Statewide, 17% of Tennesseans are food insecure, leaving more than 1.1 million Tennesseans with a lack of access to enough food for an active healthy life for all household members. 17% of households in Tennessee receive benefits from the Supplemental Nutrition Assistance Program (SNAP.) In addition, more Tennesseans fall short of daily fruit and vegetable consumption guidelines than the national average.

Davidson Co: Areas with Limited Access to Healthy Food

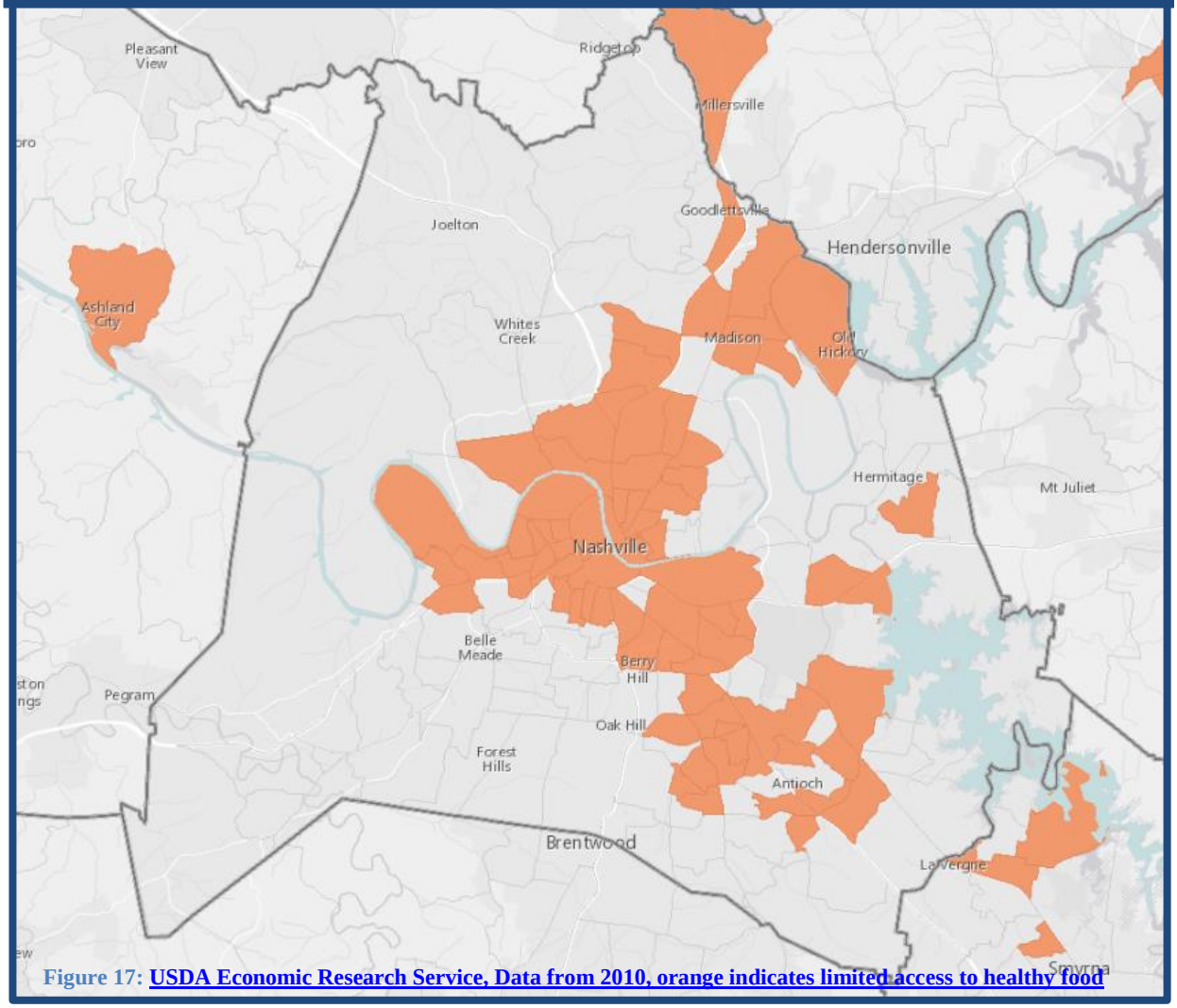


Figure 17: USDA Economic Research Service, Data from 2010, orange indicates limited access to healthy food

In Davidson County, 17.4% of adults and 23.2% of children are food insecure – adding up to more than 32,000 children and nearly 111,000 residents overall who are experiencing food insecurity, according to "Feeding America." In Davidson County, 54% live at less than 130% of

the federal poverty level, making them likely to be eligible for federal nutrition assistance such as SNAP, WIC, free school meals, and other services. Meanwhile, 24.6% have limited access to a grocery store. SNAP serves 15% of the population, while WIC redemptions per capita rose to 21.9 in 2012.

In Rutherford County, 14% of adults and 20.8% of children are food insecure – adding up to more than 14,000 children and more than 37,000 residents overall who are experiencing food insecurity. Meanwhile, 48% live at less than 130% of the federal poverty threshold and 23.6% have low access to a grocery store, while WIC redemptions per capita were 14.5.

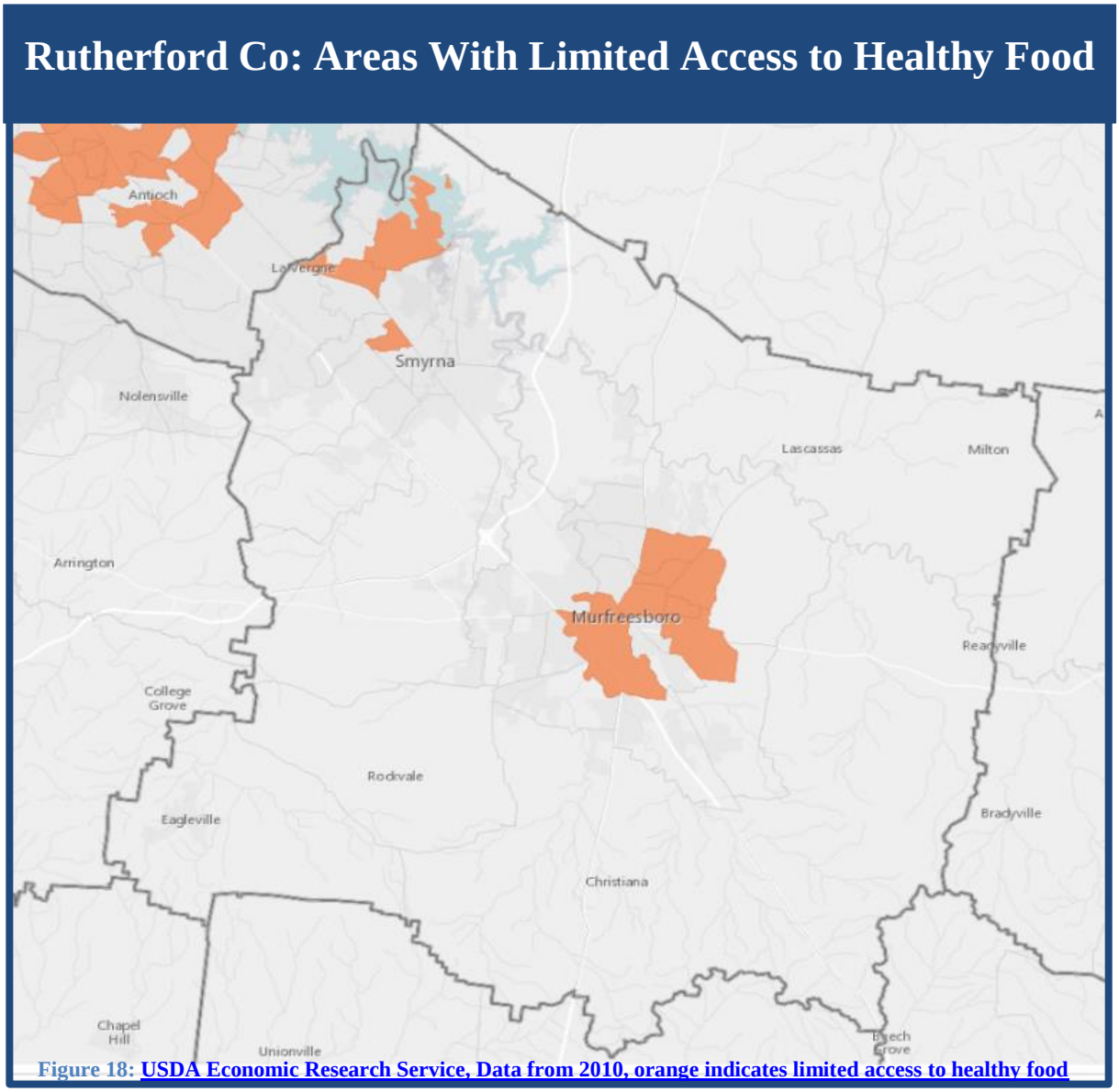


Figure 18: USDA Economic Research Service, Data from 2010, orange indicates limited access to healthy food

In Williamson County, 9.4% of adults and 17.1% of children are food insecure, adding up to more than 9,300 children and17,600 individuals overall. Meanwhile, 25.8% of Williamson County residents have limited access to a grocery store.

Natural Environment

The natural environment not only provides a source of scenery and biodiversity, but is a tremendous boon to the region's economy (the tourism industry in Tennessee employs more than 175,000 people) and the health of the residents of Davidson, Rutherford, and Williamson Counties. The air we breathe and the water we drink are critical building blocks of health, while providing open spaces for recreation and physical activity facilitates healthy behaviors.

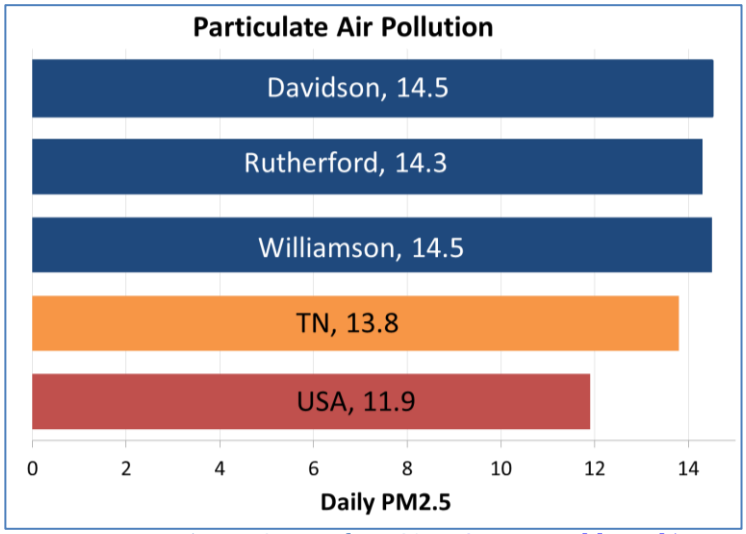


Figure 19: Data from 2011, County Health Rankings

Every year, more than 200,000 Americans die a premature death due to air pollution, according to the American Lung Association. Unfortunately, air pollution presents a particular problem for much of Tennessee. Most of the air-pollution related mortality across Tennessee is related to the burning of coal and other fossil fuels locally and across the Ohio River Valley, according to the American Lung Association. Tennessee has a higher amount of particulate air pollution than the national average, and each of the three counties considered in this assessment have relatively high levels of particulate matter – even for Tennessee. Davidson and Williamson counties show a daily PM2.5 count of 14.5, while Rutherford County is slightly lower, at 14.3 average daily density of fine particulate matter in micrograms per cubic meter (PM2.5) The consequences of higher rates of particulate pollution include "decreased lung function, chronic bronchitis, asthma, and other adverse pulmonary effects," according to the American Lung Association. Partially as a result of high levels of air pollution, there are 10s of 1000s of children and adults suffer from asthma, COPD, and lung cancer.

Though air quality is improving for most, and water quality is improving for many, an increased understanding of global climate change confounds the ability to predict what the coming years hold for the relationship of human health and the natural environment.

Individuals with air pollution sensitive conditions			
	Davidson	Rutherford	Williamson
Pediatric Asthma	11,560	5,757	4,434
Adult Asthma	38,622	15,538	10,757
COPD	43,488	17,271	13,079
Lung Cancer	510	217	152

Table 7:Data from American Lung Association, 2014

Flooding has impacted the community greatly in recent years. CDC estimates of the number of individuals living in FEMA designated flood hazard areas at 23,379 in Davidson County, 10,725 in Rutherford County, and 5,967 individuals in Williamson County. In addition, many of the creeks, streams and rivers in the community are unhealthy as a result of polluted urban storm-water runoff**,** pasture grazing, land development, landfills, or wastewater treatment plants. According to the 2014 draft 303(d) list of unhealthy waters of Tennessee, more than 640 miles of streams are listed as unhealthy in Davidson, Rutherford, and Williamson Counties. The problems in these streams impact residents' ability to fully enjoy and utilize water resources, while many waters the region are impacted in ways that threaten human health. In Davidson County alone, 136 miles of streams are impacted by pathogens, indicating the presence of human or animal waste. Persons who come into contact with pathogens found in water can suffer headaches, diarrhea, cramps, nausea or other gastrointestinal illness. Two common pathogens found in water are Giardia and Cryptosporidium. These parasites are the cause of two of the most common waterborne diseases in the U.S. Young children and people with compromised immune systems may be particularly at risk from pathogens.

Social and Natural Environment Summary

- Many are burdened by housing costs, and 1000s of individuals – including many families with young children – are facing homelessness at any given moment
- Violent crime and domestic abuse presents a challenge to many in the community, particularly in Davidson County
- The built environment – particularly transportation infrastructure – does not support healthy lifestyles such as walking and biking. Most drive to work alone.
- Food access is an issue for both children and adults across the community. Many neighborhoods are disconnected from both food production and healthy food access, while depending on SNAP, WIC, and other food assistance programs.
- The natural environment is a valuable asset, although air pollution represents a regional challenge for health.

Photo 7: Cumberland River, photo by JW Randolph

Health Care Access

Davidson, Rutherford, and Williamson County have tremendous medical and clinical resources. For a more complete list of community health resources in the area, please see Appendix E.

Population per provider					
	Davidson	Rutherford	Williamson	TN	Top 10% of USA Counties
Primary Care	1059 : 1	2231 : 1	699 : 1	1388 : 1	1045 : 1
Dental Care	1401 : 1	2036 : 1	1362 : 1	1996 : 1	1377 : 1
Mental Health	395 : 1	1358 : 1	751 : 1	786 : 1	386 : 1

Table 8: Data from 2012, County Health Rankings

One important measure of health access is provider availability. Primary care providers are considered "non-federal practicing physicians (M.D.s and D.O.s) under age 75, specializing in general practice medicine, family medicine, internal medicine, and pediatrics," according to County Health Rankings. Dental providers include all dentists within the county, and mental health providers considers "psychiatrists, licensed social workers, counselors, marriage and family therapists and advanced practice nurses specializing in mental health care," as well as "marriage and family therapists and mental health providers that treat alcohol and other drug abuse," according to County Health Rankings.

Davidson County betters the state rates for primary care, dental care, and mental health care, and is very near the top 10% of US Counties in primary care, dental care, and mental healthcare providers relative to the population. Rutherford County has fewer providers in each of the three categories, falling behind the statewide rates, with one primary care provider per 2,231 individuals, one dental care

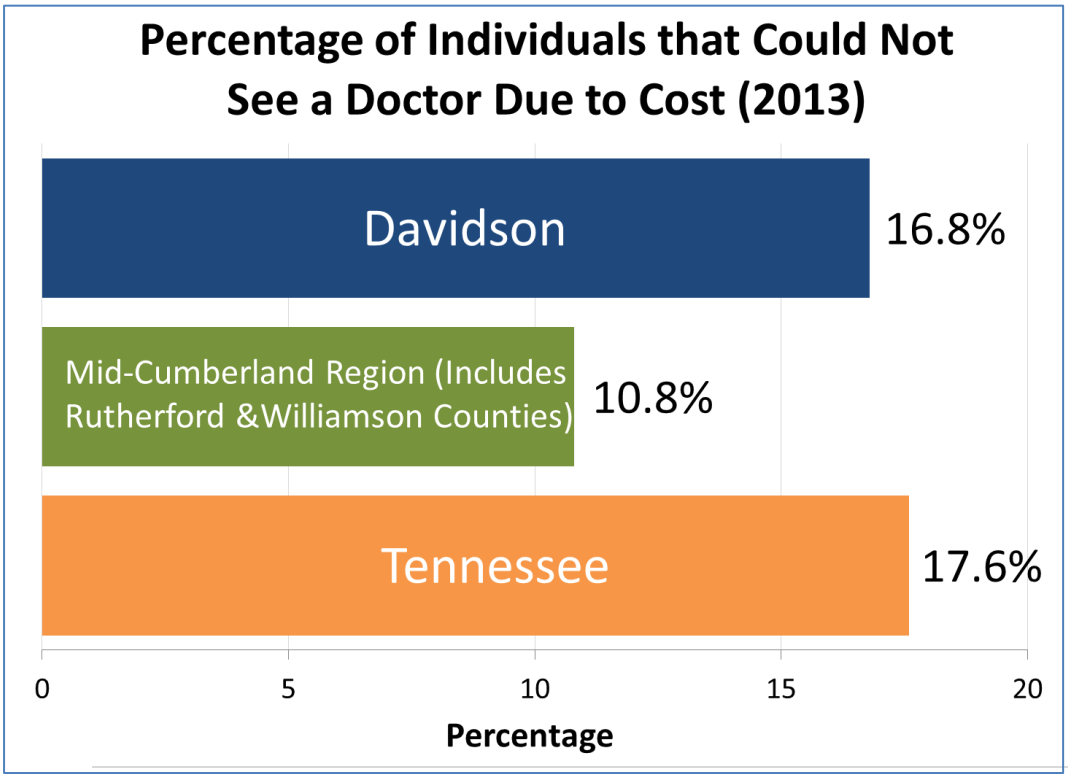


Figure 20: TN Department of Health

provider per 2,036 individuals, and one mental healthcare provider per 1,358 individuals. Williamson County outperforms the statewide rates across all three categories - far outperforms the top 10% of counties for primary care providers, lining up with the top 10% of counties for dental care providers, but falling far behind for the number of mental healthcare providers relative to the population. Despite relatively high provider rates, there remain a high number of individuals in the community that are not able to see a doctor due to cost. In Davidson County, despite high provider rates, more than one in six residents (16.8%) could not see a doctor due to the cost. The Tennessee Department of Health defines the Mid-Cumberland Public Health Region as a 12-county area in Middle Tennessee, and includes both Rutherford and Williamson Counties. Across the Mid-Cumberland region, more than one in ten individuals (10.8%) could not see a doctor due to cost. Across the state, more than one in six Tennesseans could not see a doctor due to cost in 2013.

"Preventable hospital stays" looks at potential over-use of hospitals for conditions treatable in outpatient settings. The annual rate of preventable hospital stays is defined as the age-adjusted hospital discharge rate for ambulatory-care conditions per 1,000 fee-for-service Medicare enrollees – most of whom are 65 years of age or older.

Preventable Hospital Stays (for ambulatory sensitive conditions, per 1000 Medicare enrollees)				
Davidson	Rutherford	Williamson	TN	US
62	85	47	73	65

Table 9: Data from 2012, County Health Rankings

Davidson (62) and Williamson (47) Counties County show a lower number of preventable hospital stays than the state (73) or the nation (65), indicating a higher level of care in outpatient settings. Rutherford County, meanwhile, has a higher rate of preventable hospital stays than either the state or the nation.

Health Insurance

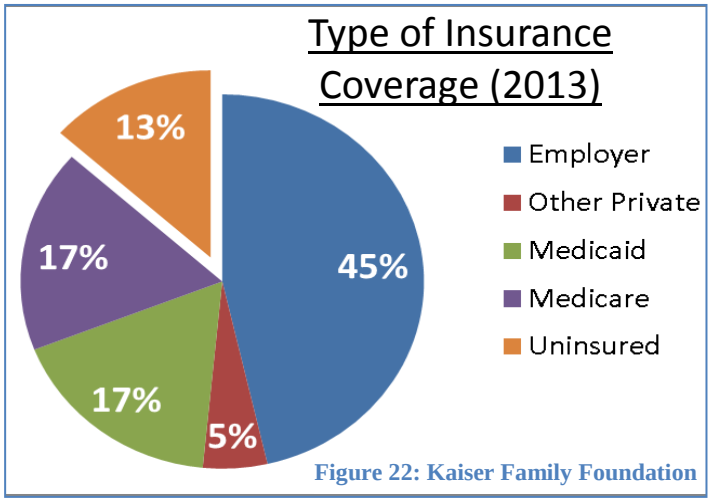


Figure 22: Kaiser Family Foundation

Across Tennessee in 2013, employer-based health insurance covered 45% of residents. Medicare and Medicaid both cover 17% apiece, while 5% of Tennesseans had another type of private insurance. 13% of Tennesseans were uninsured in 2013, a number that fell to 12% in 2014. Davidson, Rutherford, and Williamson counties have differing levels of health insurance coverage across age, race, and income.

In Davidson County, adult health insurance coverage increased from 75.7% to 80.5% between the years 2010-2014. Although children under 18 are more likely to have coverage in Davidson County – 92.3% are insured – that number has dropped slightly since 2010, when it was at 93.2%. Hispanic and Latino children have the lowest rate of coverage, at 80.7%, while black children are insured at the highest rate of any race/ethnicity (98.4 %.) Considering coverage for adults below age 65, those between the ages of 25-34 and 35-44 were lowest, at 77%. Those aged 55-64 had the highest rates of coverage, at 88.2%. There is some disparity in coverage by gender, as females were covered at 83.1%, while men were covered at just 77.6%. There is, however, an even larger disparity in health insurance coverage by race/ethnicity. The overall uninsured rate in Davidson County is 19.5%, with white and black individuals having the lowest uninsured rates, at 12.4% and 17.2%, respectively. However, more than one in three Asian individuals in Davidson County is uninsured (35.2%) and two of three Hispanic individuals are uninsured (62.1%). But, for those identifying as "other race," nearly three out of every four (73.4%) lacks even basic health insurance coverage.

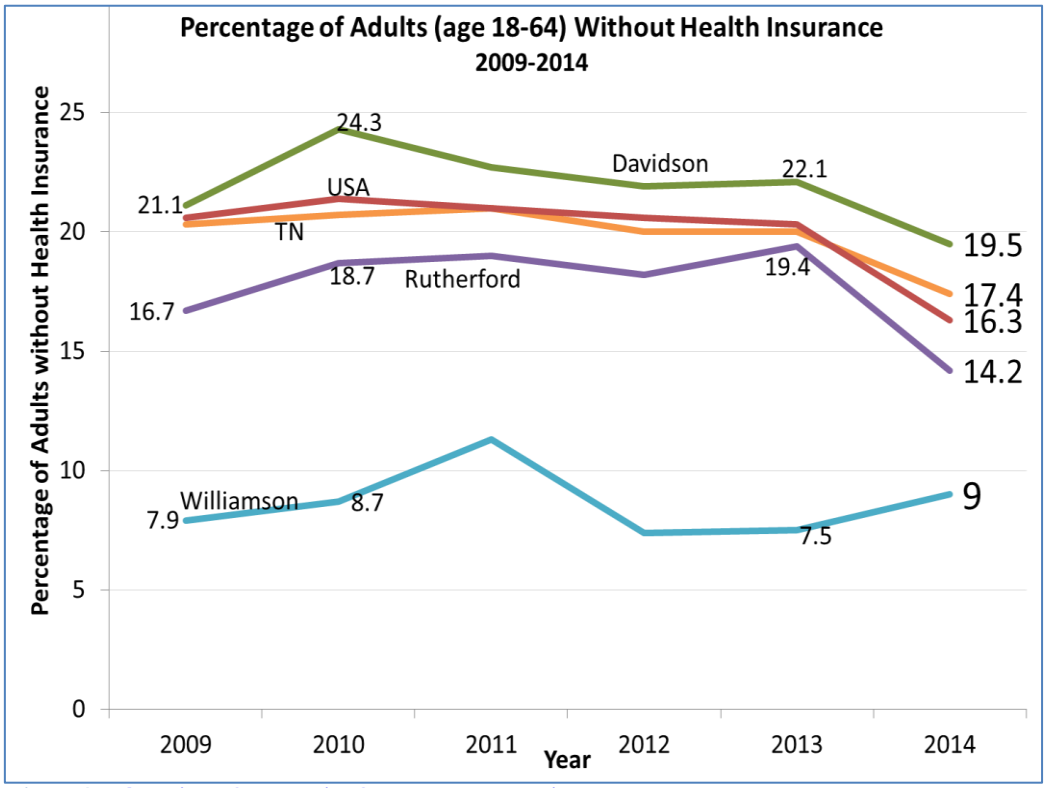


Figure 21: American Community Survey, 1-Year Estimates

In Rutherford County, adult health insurance coverage increased more than 5% points from 2013 to 2014, from a five year low of 80.6% to 85.8%, in just one year. Children under 18 with health insurance jumped more than two points from 92.3% in 2013 to 94.6% in 2014. While white, black, and Asian children were insured at levels varying from 97% to 100%, just 72.5% of Hispanic and Latino children were insured. Considering coverage of adults up to age 65, the lowest rates of coverage were among 25-34 year olds, with just 78.6% coverage, while the highest rate was for 55-64 year olds, at 90.2%. There was slight gender disparity, with females having slightly higher coverage rates than males (87.3% over 84.2%). There is significant disparity in coverage by race/ethnicity. The overall rate of uninsured was 14.2%, with white and Asian residents both exceeded the countywide rate at 9.9% and 13.4%, respectively, and black residents slightly higher at 16.1% uninsured. Hispanic and Latino residents, however, were uninsured at a rate of 50%.

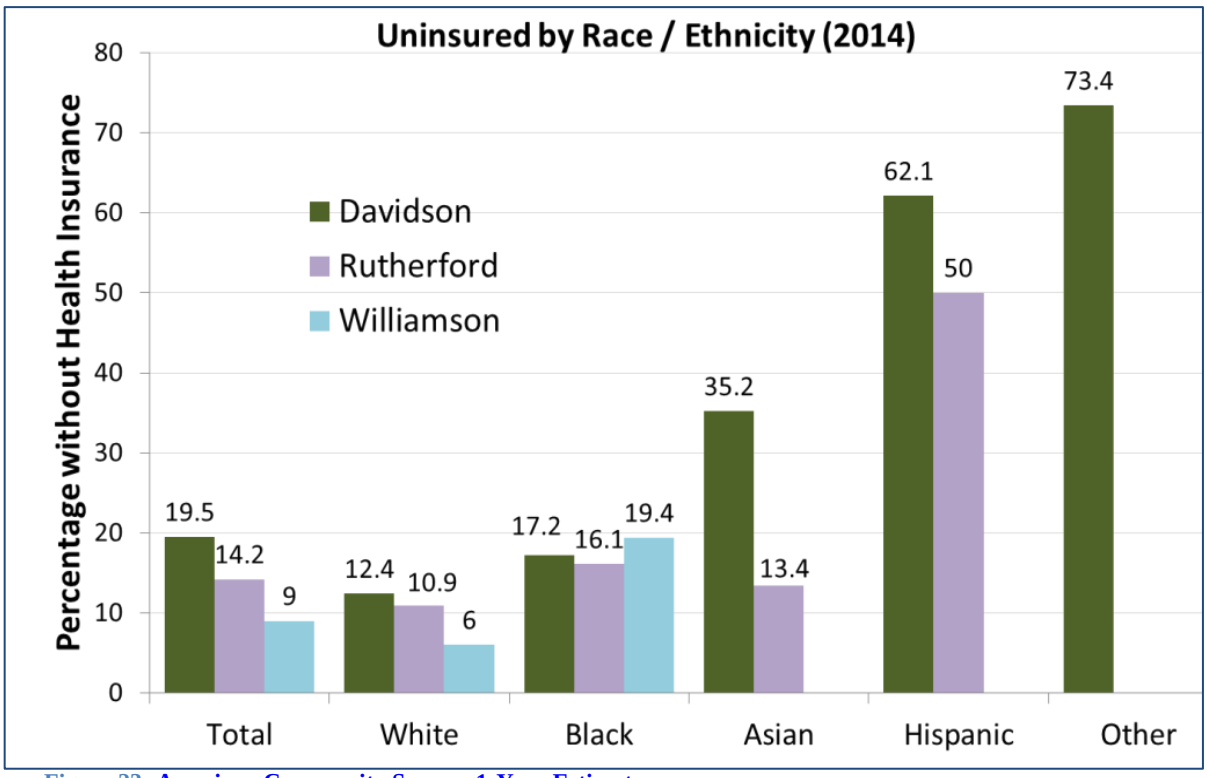


Figure 23: American Community Survey, 1-Year Estimates

Williamson County, while retaining a high coverage rate, fell slightly between 2013 and 2014 – from 92.5% to 91.0%. Among children, the rate of coverage rose from 95% to 96.4% from 2013 to 2014. Among adults 18-65, 25-34 year olds have the lowest levels of coverage, at 84.2%. 55-64 year olds have the highest levels of coverage, at 95.2%, Coverage among the genders was equal, with 91.5% of females, and 90.5% of males, overall, having health insurance coverage. There is tremendous racial disparity, as black residents were more than three times more likely than white residents to lack insurance – 19.4% compared to 6%, respectively.

Health Status
Mortality and Morbidity

Figure 24 shows five selected causes of death in the United States from 1900-2013. The data drive home the point that the types of communities and society we build impact the way we live, and the ways in which we die.

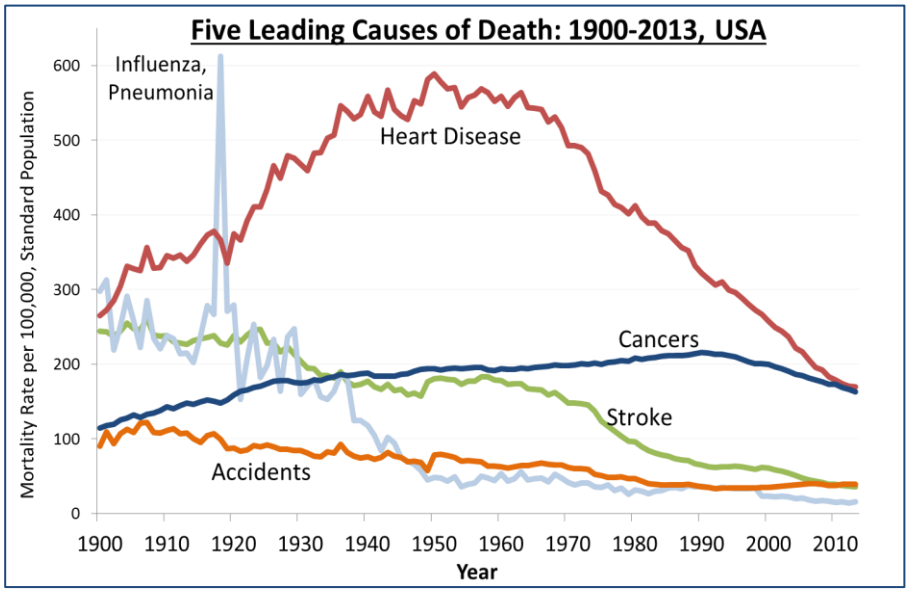


Figure 24: CDC, NCHS Data

The leading causes of death in each of the counties within the VUMC community, across Tennessee, and nationwide are heart disease and cancer. In roughly equal proportion, heart disease and cancer add up to 45% of deaths in Davidson and Rutherford Counties. In Williamson County, heart disease and cancer add up to 46%, but with cancer (25%) slightly higher than heart disease (21%). While Davidson, Rutherford and Williamson County have some similarities, they have three distinct stories to tell when considering mortality. This section will examine each county separately, considering leading causes of death, leading causes of premature death (years of potential life lost), and highlight disparities in both risks and outcomes faced by different populations within the community served by VUMC, based on gender, race, and age. Common themes such as heart disease, cancer, unintentional injury / accidents, and birth outcomes more generally are reviewed in the following sections.

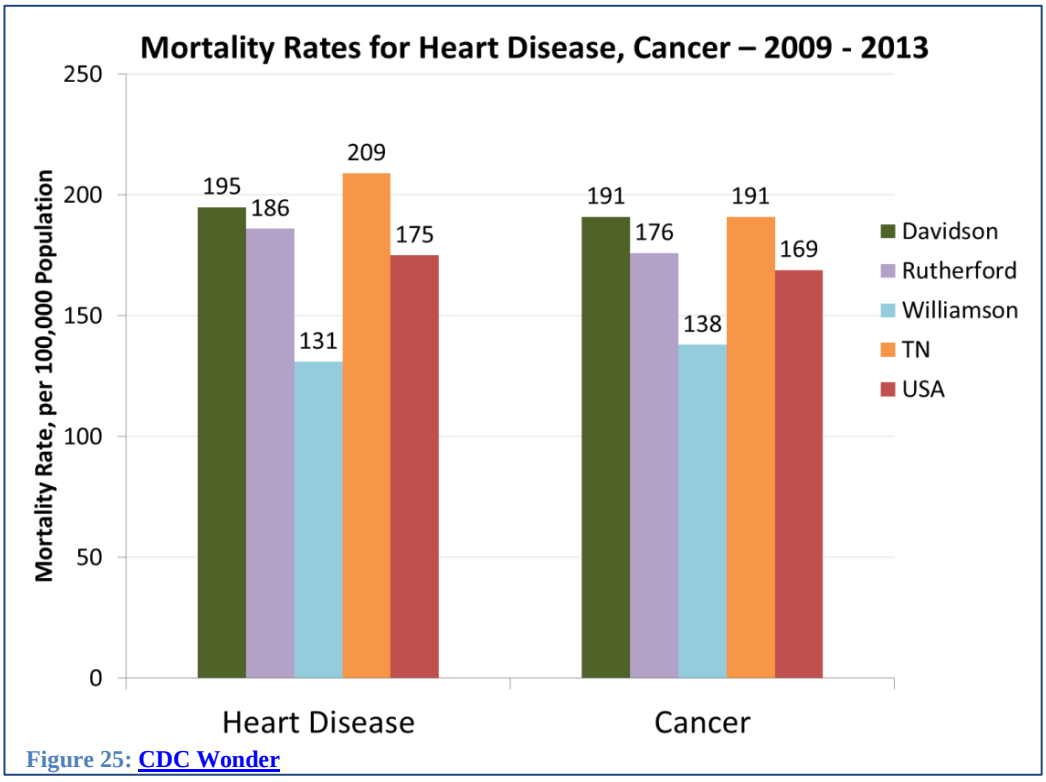


Figure 25: CDC Wonder

Mortality and Morbidity (Davidson)

There are approximately 5,000 deaths every year in Davidson County. For 2013, heart disease (23%), cancer (22%), and unintentional injury/ accidents (8%) were the three leading causes of death, followed by lung disease (5%), stroke (5%), Alzheimer's disease (4%), diabetes (3%), influenza / pneumonia (2%), suicide (2%), and liver disease (1%). Taken together, these top 10 causes account for 75% of the deaths across Davidson County.

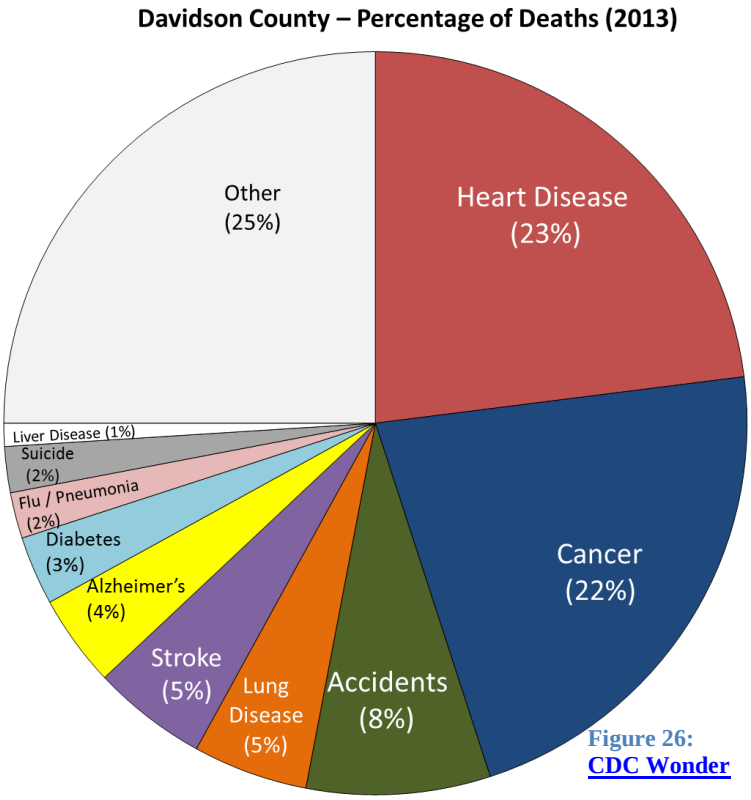


Figure 26: CDC Wonder

The age-adjusted mortality rate per 100,000 population has improved 16% from a recent high of 991 in 2002, to 831 in 2013, although there are significant disparities based on race and gender. With age-adjusted mortality rates of 704 for white females, 801 for black females, 940 for white males, and 1,168 for black males, the difference in mortality risk is nearly 40% depending on your race and gender.

Another way of looking at mortality is premature death, or the rate of "Years of Potential Life Lost" (YPLL) before age 75, per 100,000 members of the population. For instance, if someone dies at age 70, that is five years of potential life lost. If someone dies at age 25, that is 50 years of potential life lost. Thus, a low YPLL score is indicative that more of the population is living into advanced ages, while a higher YPLL is indicative that more of the population is dying at younger ages. The YPPL rate for Davidson County is 7,681, lower than the Tennessee rate of 8,636, but higher than the national rate of 6,605, or the rates in Rutherford (6,592) or Williamson (3,862) Counties.

	YPLLs (2011-13)
Davidson	7782
TN	8636
USA	6605

Table 10: NVSS-M

Cancer is the leading cause of YPLLs in Davidson County at 18.7%, heart disease is second at 14.1%, and accidents / unintentional injury is the third leading cause of YPLLs at 12.4%. Davidson County has a lower percentage of YPLLs from the leading three causes, than either the state or the nation. However, Davidson County has much higher rates of YPLLs due to suicide / homicide (11%) than the state or the nation. Davidson County also has a higher percentage of YPLL due to deaths in the perinatal period (4.9%), defined in the ICD-10 codes as 154 completed days of gestation to seven days after birth.

Accidents, suicide, and homicide – all generally preventable causes of death - make up just around 11% of deaths but more than 23% of YPLLs in Davidson County.

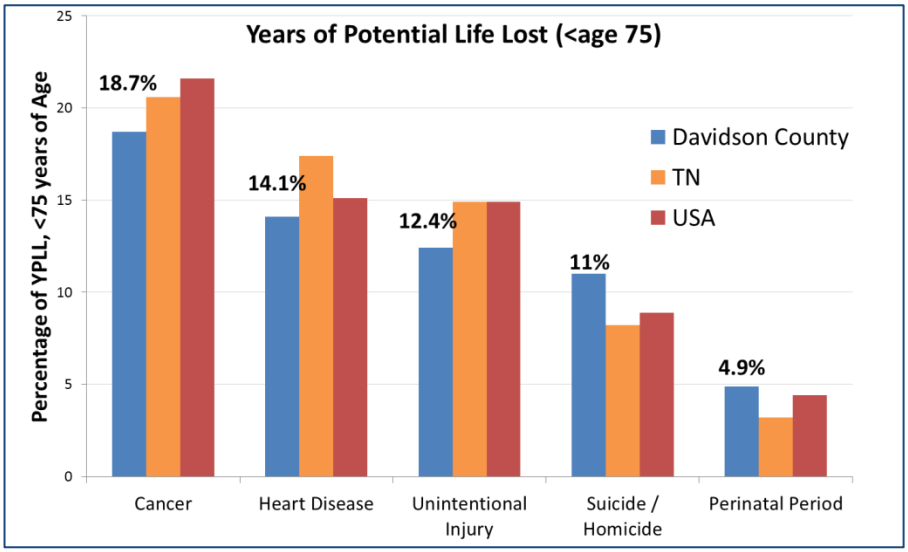


Figure 28: CDC (TN/USA, 2014), TN Department of Health (County, 2009)

In Davidson County, across Tennessee, and across the country, accidents/unintentional injury are the leading cause of death for those aged 1-49. However, the risks for this age cohort depend highly on race and gender. In Davidson County, black males face a higher risk of homicide than either black or white females face from the top three risks combined, while facing higher risk of heart disease death than any other group. Accidental death is the leading cause of death for white males aged 1-49. For white males in this age group, heart disease and suicide are the second and third leading causes of death. Cancer, the leading cause of death for Davidson County females aged 1-49, is the leading killer of black females in this age group, followed by heart disease and accidents. For white females accidents, cancer, and heart disease are the leading three causes of death for those aged 1-49. For ages 50-75, cancer is the leading cause of death. Heart disease is the leading cause of death for those above age 75.

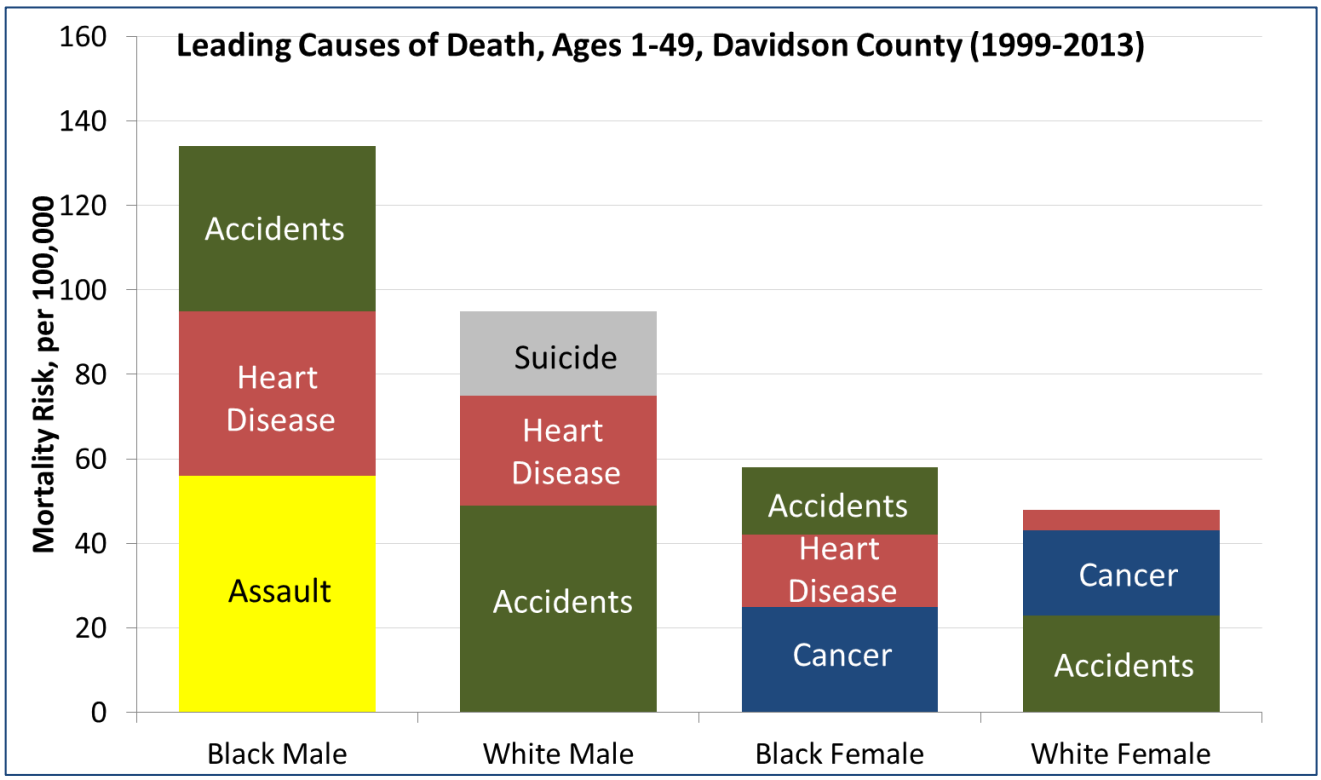


Figure 27: Data from CDC Wonder

Mortality and Morbidity (Rutherford)

In Rutherford County, there are approximately 1600 deaths every year. From 2011-2013, cancer (23%), heart disease (22%) and lung disease (6%) were the leading three causes of death, followed by accidents (5%), stroke (5%), Alzheimer's disease (4%), diabetes (3%), influenza / pneumonia (3%), suicide (2%) and liver disease (2%). Taken together, these top 10 causes account for 75% of the deaths across Rutherford County from 2011-2013.

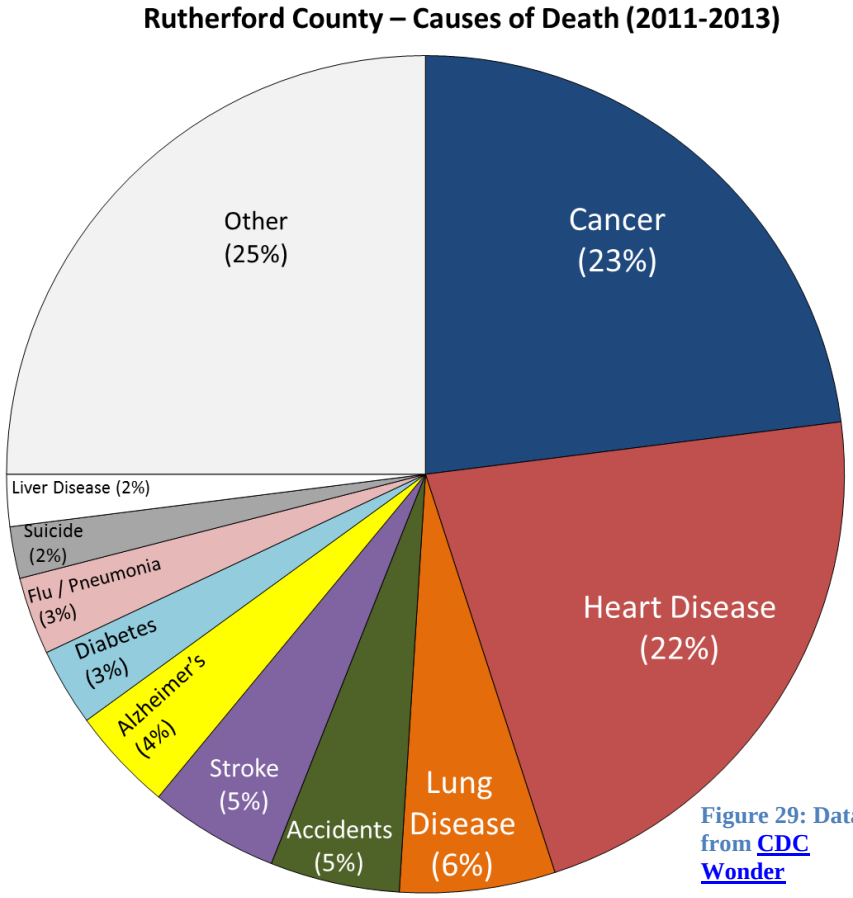


Figure 29: Data from CDC Wonder

The age-adjusted mortality rate per 100,000 population has improved 21% from a recent high of 964 in 2000, to 755 in 2013, although there are significant disparities based on race and gender. With age-adjusted mortality rates of 646 for white females, 856 for black females, 872 for white males, and 998 for black males, the difference in mortality risk is more than 35% depending on your race and gender.

The YPPL rate for Rutherford County is 6,592 - lower than the Tennessee rate of 8,636 and the Davidson County rate of 7,681- but higher than the national rate of 6,605 and the Williamson County rate of 3,862.

	YPLLs (2011-13)
Rutherford	6281
TN	8636
USA	6605

Table 11: NVSS-M

Cancer is the leading cause of YPLLs in Rutherford County at 22.2%, heart disease is second at 15.3%, and accidents / unintentional injury is the third leading cause of YPLLs at 12.8%. Rutherford County has a higher rate of YPLLs from cancer than either the state or the nation, a rate of YPLLs from heart disease roughly lower than the state but roughly equal to the nation and an YPLL rate from accidents / unintentional injury lower than either the state or the nation. Rutherford County's rate of YPLLs due to suicide / homicide (11%) is similar to the state and the nation. Considered apart however, Rutherford County has a higher rate of YPLLs due to suicide (6.3%) than the state (5.2%) or the nation (5.7%). Rutherford County also has a lower percentage of YPLLs due to homicide (2.2%) than either the state (3%) or the nation (3.2 %.) YPLLs due to problems during the perinatal period are roughly equal to

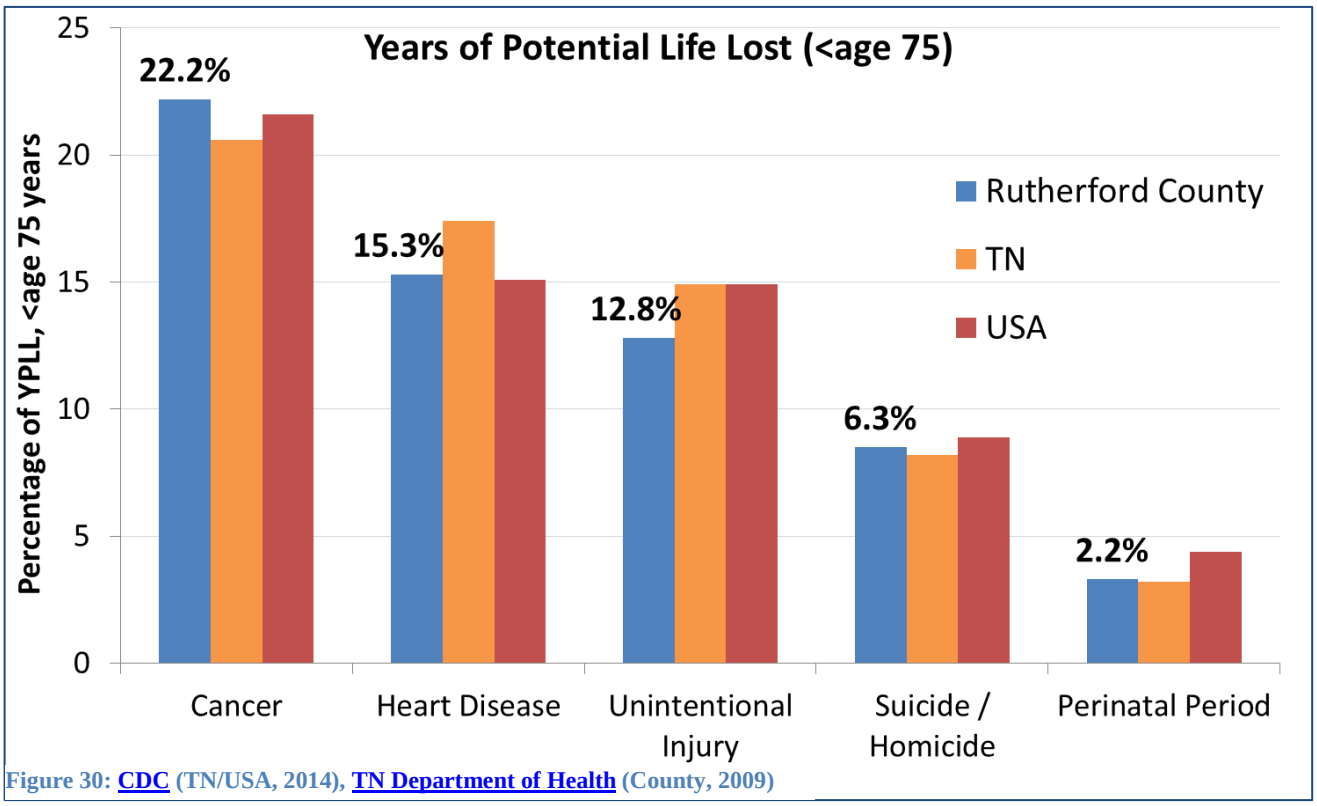


Figure 30: CDC (TN/USA, 2014), TN Department of Health (County, 2009)

the state and lower than the national rate. Accidents, suicide, and homicide – generally preventable causes of death - make up roughly 8% of the deaths, but together add up to around 19% of YPLLs.

From 1999-2013, the leading causes of death for individuals aged 1-49 in Rutherford County were accidents, cancer, and heart disease, followed by suicide and homicide. The leading causes of death for black males are heart disease (32.7 deaths per 100,000 population), accidents (24.9/100k), and homicide (19/100k). For black females aged 1-49, cancer (17.4/100k) and heart disease (12.3/100k) are the leading causes of death. For white males aged 1-49 in Rutherford County, accidents are the leading cause of death, at 37.9 deaths per 100,000 population, followed by heart disease (22/100k), cancer (17.6/100k) and suicide (15.2/100k). For white females, accidents (18.3/100k), cancer (18.2/100k), and heart disease (10.7/100k) are the three leading causes of death in Rutherford County for those aged 1-49. For ages 50-75, cancer is the leading cause of death. Heart disease is the leading cause of death for those above age 75.

Mortality and Morbidity (Williamson)

In Williamson County, there are approximately 1,000 deaths every year. From 2011-2013, cancer (24%), heart disease (20%) and Alzheimer's disease (7%) were the leading three causes of death, followed by accidents (6%), stroke (5%), lung disease (5%), diabetes (3%), suicide (3%), influenza / pneumonia (2%), and liver disease (1%). Taken together, these top 10 causes account for 76% of the deaths across Williamson County from 2011-2013.

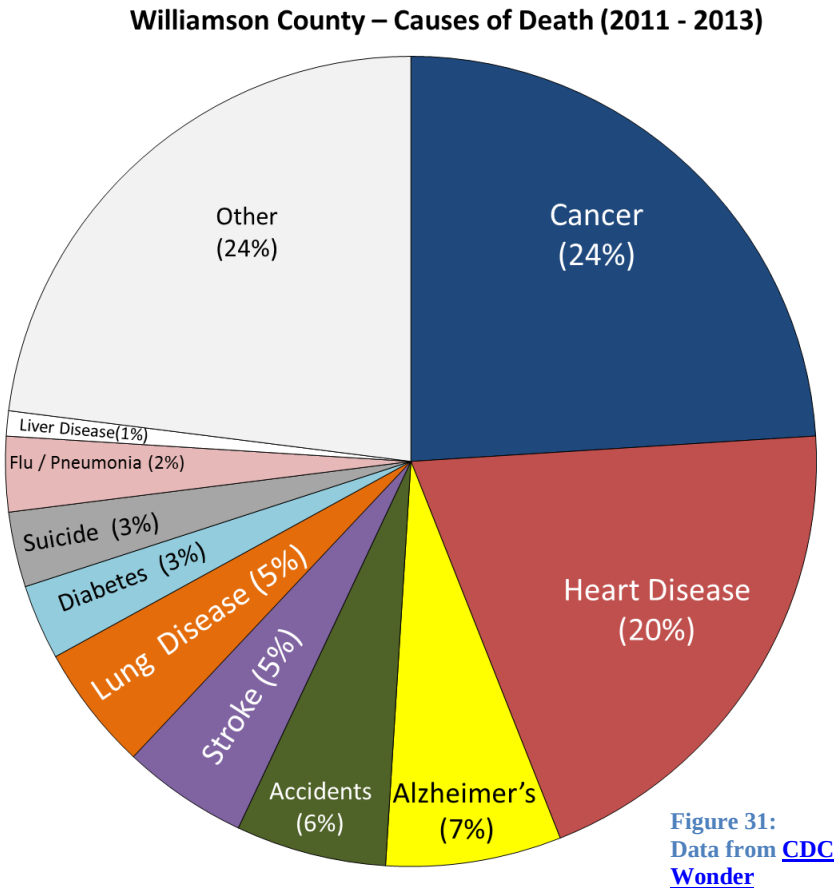


Figure 31: Data from CDC Wonder

Williamson County is a high-achieving county in many measures of public health, including many mortality indicators. According to the 2015 release of County Health Rankings, Williamson County had the 11th lowest rate of premature death for counties in the nation with at least 1,000 deaths. Williamson County had the lowest rate of child mortality in counties with at least 20 deaths, and had the fourth lowest rates of infant mortality of any county in the nation.

The age-adjusted mortality rate per 100,000 population has improved nearly 30% from a recent high of 813 in 2000, to 575 in 2013, with the most gains seen among males. In 2013, the age-adjusted mortality rates were 500 for females and 667 for males.

	YPLLs (2011-13)
Williamson	3683
TN	8636
USA	6605

Table 12: NVSS-M

The YPPL rate for Williamson County is 3,862, the lowest in the state and one of the lowest in the nation. Astoundingly, more than one in three YPLLs (33.7%) is attributable to cancer, nearly as many as the 2-5 leading causes of YPLL combined. The second largest cause of YPLLs in Williamson County is heart disease (14.3%), followed by unintentional injury (9.8%), suicide (7.3%), and stroke (4.7%).

The high percentage of YPLLs due to cancer can be attributed mainly to the deaths of adults between the ages of 45-74, and the highest percentage of cancer deaths in this group are from lung cancer, followed by breast, lymphatic, colorectal, and pancreatic cancers.

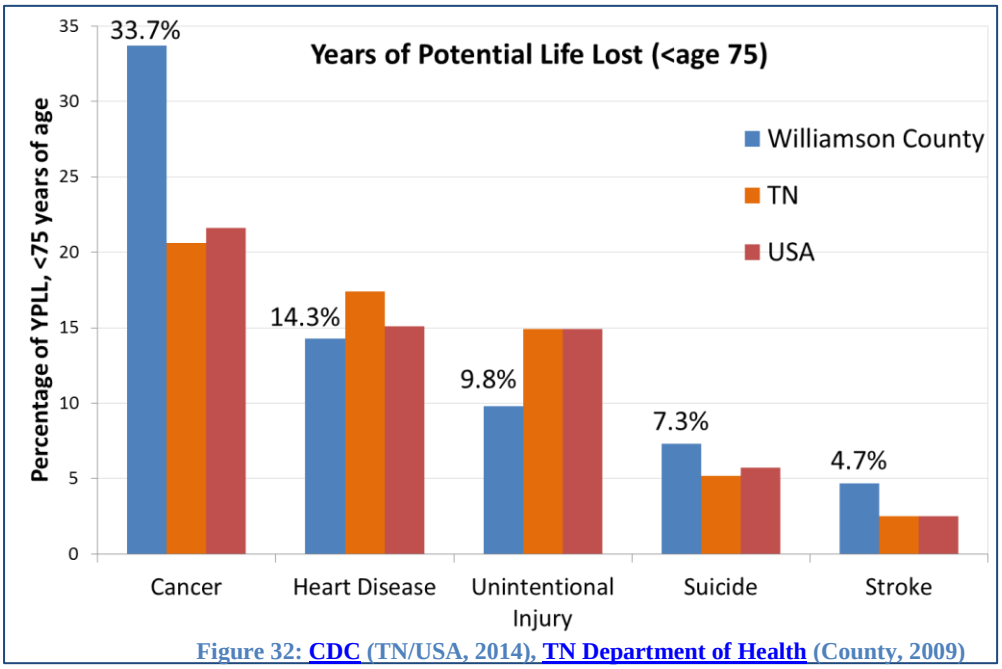


Figure 32: CDC (TN/USA, 2014), TN Department of Health (County, 2009)

The leading causes of death for individuals aged 1-49 in Williamson County are accidents, cancer, and suicide. Cancer is the leading cause of death for females aged 1-49, with 13 deaths per 100,000 population, followed by accidents (9/100k) and suicide (3/100k). For males, accidents present the highest risk (25/100k), followed by cancer (16/100k), with heart disease and suicide a close third and fourth at 13 deaths per 100,000 population.

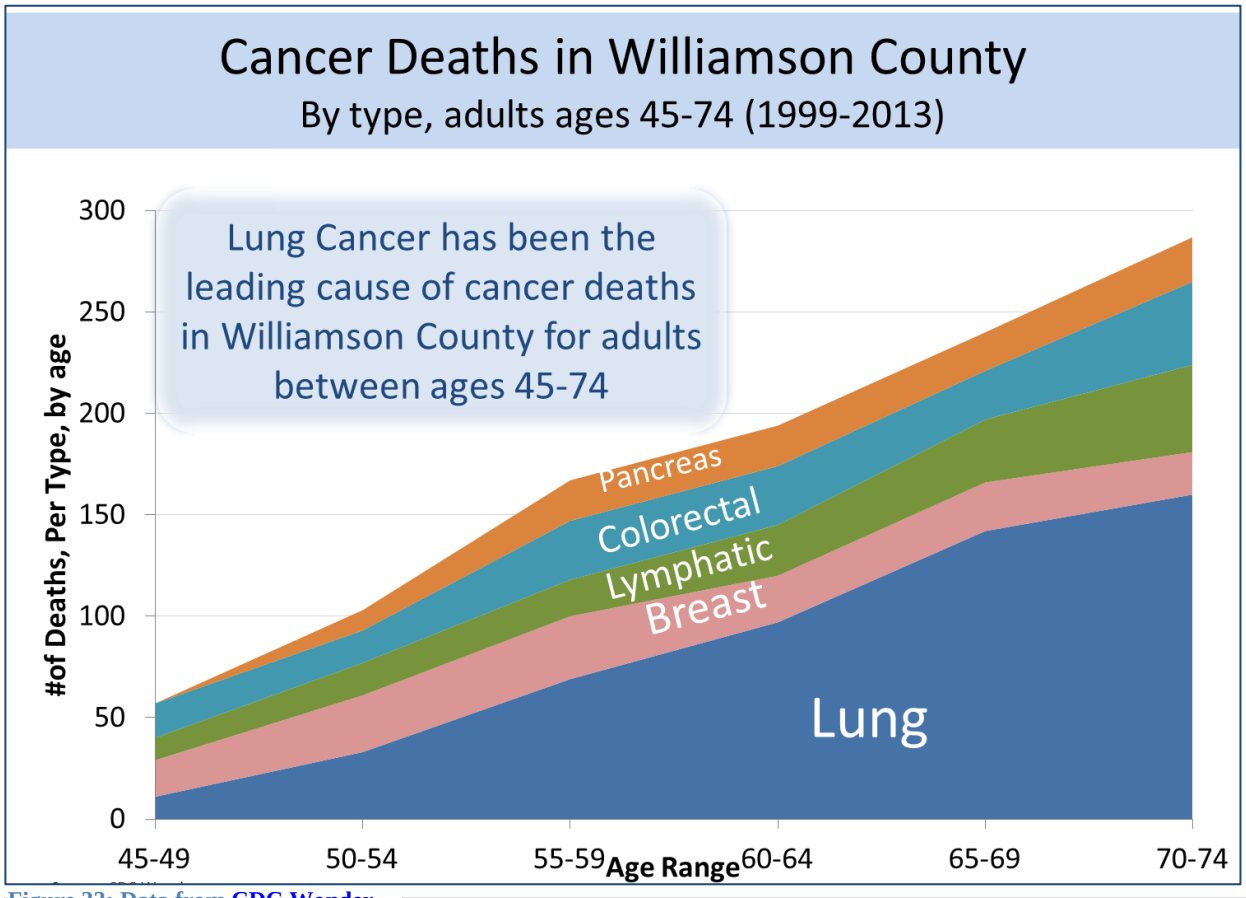


Figure 33: Data from CDC Wonder

Heart Disease

Heart disease was the leading cause of death in Tennessee and the United States in 2014. Heart disease also had the highest age-adjusted death rate in in Davidson, Rutherford, and Williamson Counties for 2014. The national mortality rate for heart disease rates from 2010-2014 was 172 deaths per 100,000 individuals. Rutherford and Davidson Counties had higher rates, at 182 and 193 deaths per 100,000, respectively. Both were lower than the Tennessee state rate of 207 per 100,000. Williamson County had the best rates in the state, at just 133 deaths per 100,000 individuals.

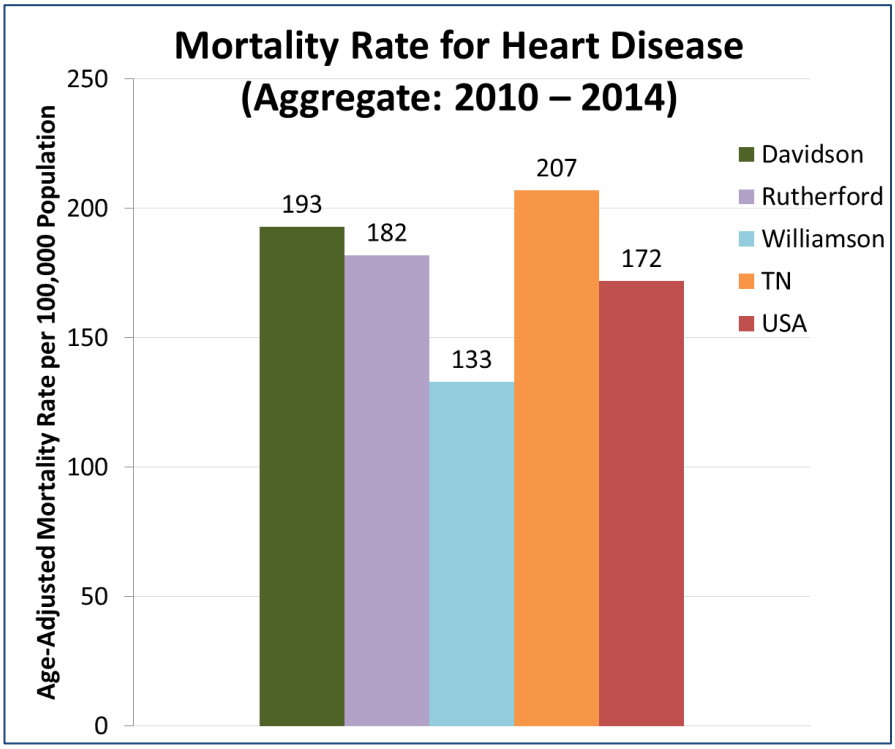


Figure 35: Data from CDC Wonder

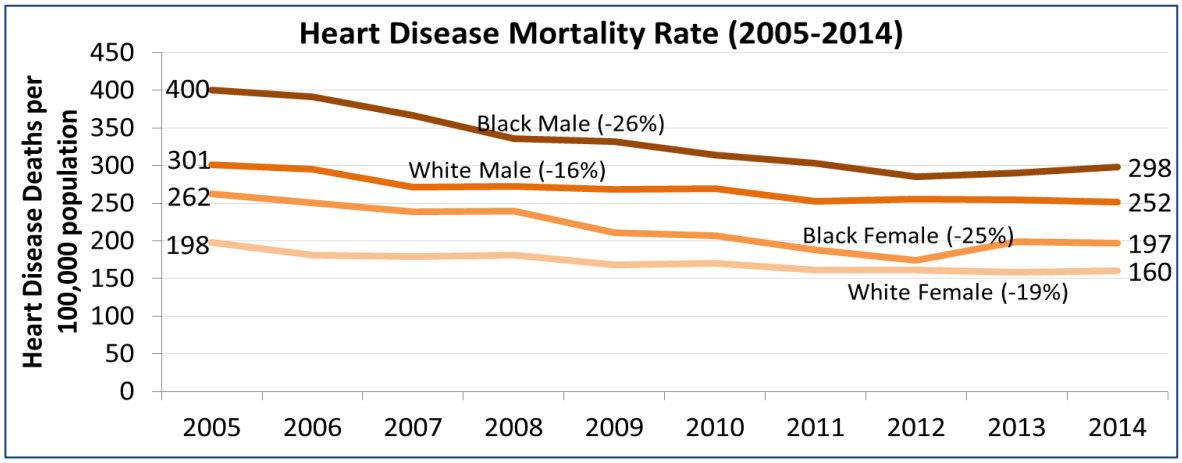


Figure 34:Data from CDC

In 2013, in Tennessee, heart diseases were responsible for more than 15,000 deaths, with the age-adjusted mortality risk for men (255 deaths per 100,000 individuals) being nearly 65% higher than the risk for females (165 deaths per 100,000). Leading sub-causes of heart disease death in Tennessee include atherosclerotic heart disease, myocardial infarction, and congestive heart failure. According to the CDC, the three greatest risk factors for heart disease are high blood pressure, high cholesterol, and smoking. About half of Americans (47%) have at least one of these three risk factors. Other risk factors include diabetes, unhealthy eating, and lack of physical activity, obesity, excessive alcohol consumption, and use of tobacco.

Tennessee shows a general decline in the rate of deaths due to "diseases of the heart" (ICD-10 I00-I09, I11, I13, I120-I51). While declines over the last decade are encouraging, recent data indicate that gains made in lowering heart disease death may be slowing down in the last 2-4 years. The rate for black females rose 5% over this time period, although this may be a correction for the tremendous gains made by this group from 2008-2012, which saw a reduction of 27% over the course of just 5 years.

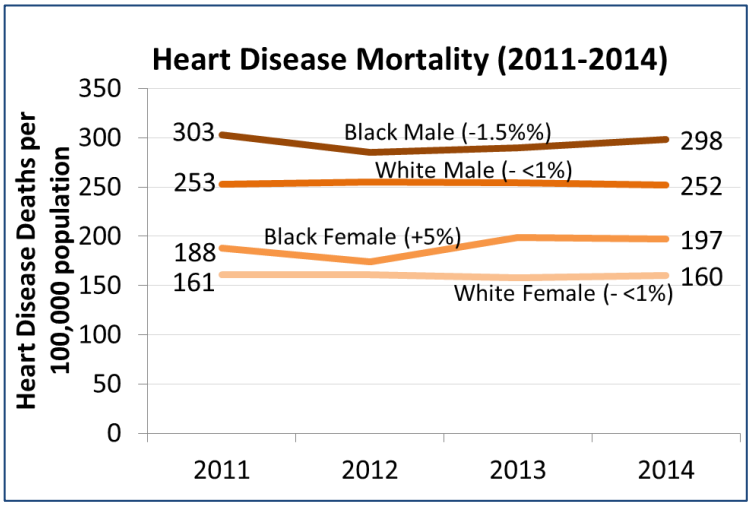
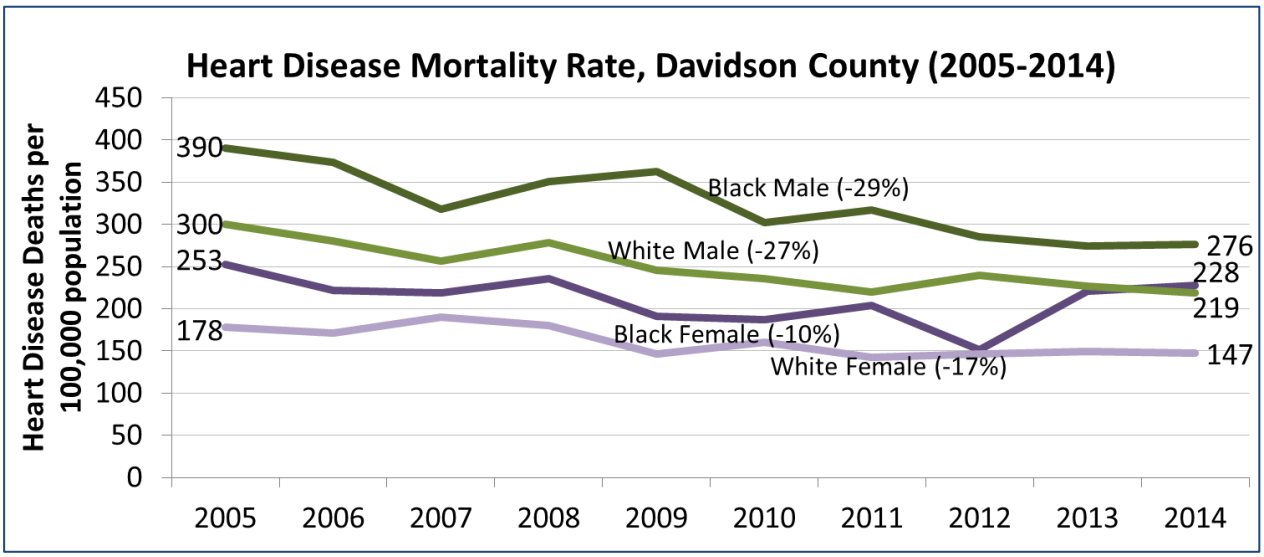


Figure 36:Tennesseans, Data from CDC Wonder

In Davidson County, a similar picture emerges, with strong declines in heart disease deaths, particularly among black and white males. Much like Tennessee as a whole, black females in Davidson County saw tremendous gains from 2008-2012, dropping from a rate of 236 deaths per 100,000 to a rate of just 151/100k, a drop of more than 35%. However, subsequent years have seen those gains erased. White females in Davidson County maintain the lowest rates of heart disease death.

Figure 37: Data from CDC



The heart disease death rate in Rutherford County has also fallen over the last decade. In 2005 the heart disease death rate was 230 per 100,000 population. The rate fell 24% to 174 deaths per 100,000 population in 2014, with gains being made for both men and women.

Williamson County boasts the lowest heart disease death rate in the state over the 2010-2014 time period. The heart disease death rate has fallen over the last decade, from a high of 171 deaths per 100,000 population in 2005, toa low of 121 deaths per 100,000 in 2012, then ticking up slightly to 145 deaths per 100,000 in 2014.

Cancer

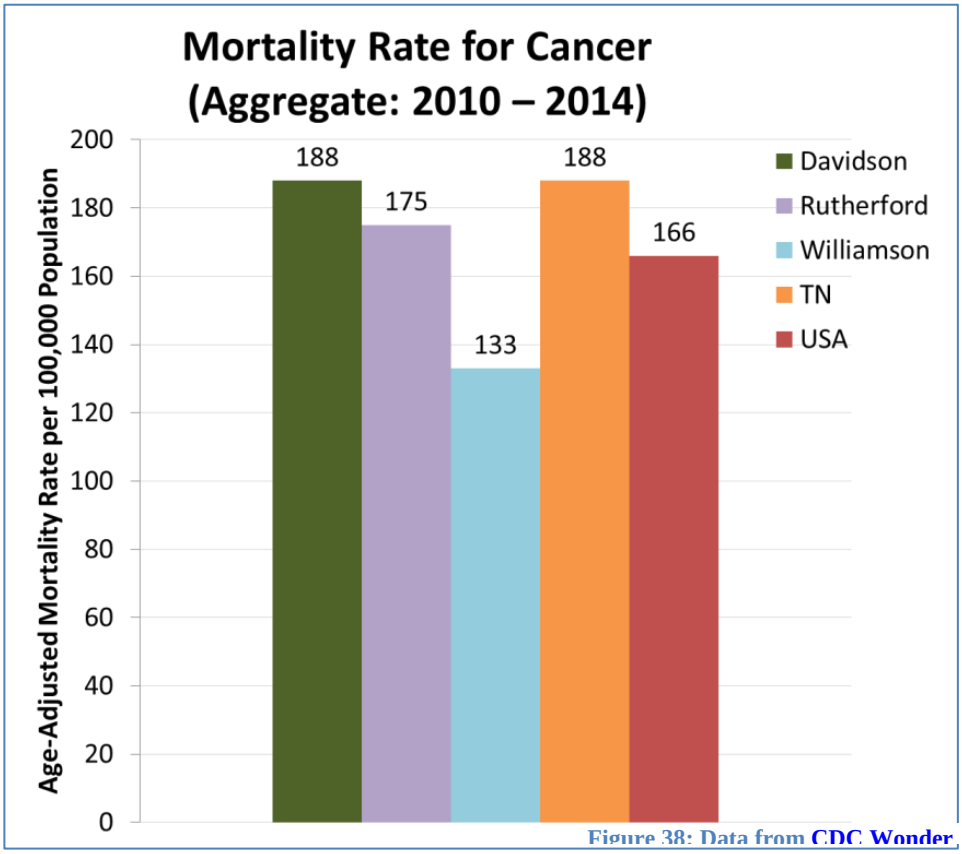


Figure 38: Data from CDC Wonder

Cancers were the second leading cause of death in the United States and in Tennessee in 2013. It was the second leading cause of death in Davidson County, and the leading cause of death in Rutherford and Williamson County. It is the leading cause of YPLLs in each of the three counties. The national rate for cancer deaths from 2009-2013 was 169 deaths per 100,000 individuals, while the Tennessee rate and Davidson County rate were much higher, at 191 deaths per 100,000 individuals. Rutherford County fell inbetween the state and national rates, at 176 deaths per 100,000 population, while Williamson County had the lowest rates at just 138 deaths per 100,000. According to the CDC, the leading types of cancer incidence per 100,000 across Tennessee in 2012 were female breast cancer, prostate cancer, and lung cancer. Detailed tables are provided in Appendix F, illustrating the varying rates of cancer types for various populations by geography, gender, and race. County, state, and national cancer mortality rates are compared to the Healthy People 2020 goals. Healthy People 2020 is a program of the US Department of Health and Human Services which provides science-based, 10-year national objectives for improving the health of all Americans. For all cancer sites, the Healthy People 2020 (HP2020) goal is to lower the cancer mortality rate to160.6 deaths per 100,000 members of the poopulation. Only Williamson County – at 143 deaths per 100,000 beats the target for total cancer mortality. However, most demographic groups in Williamson County have higher rates than the HP2020 goal. White females (110 deaths per 100,000 population) are the only group better than the HP 2020 goal. Black females (179), white males (185) and black males (267) all fall below the HP 2020 target, even in Williamson County.

Davidson County, Rutherford County, and Tennessee as a whole do worse than both the HP 2020 goal (161) and the national mortality rate (171) for total cancer mortality. Rutherford County experiences 182 cancer deaths per 100,000 population, followed by Davidson County at 195 deaths per 100,000 population. White females across Tennessee and the US, as well as Davidson, Rutherford, and Williamson Counties all do better than the HP 2020 target for cancer deaths. In each of the three counties in this analysis, and across Tennessee, black males experience cancer mortality at more than double the rate of white females, highlighting the disparities in both gender and race in cancer incidence and mortality.

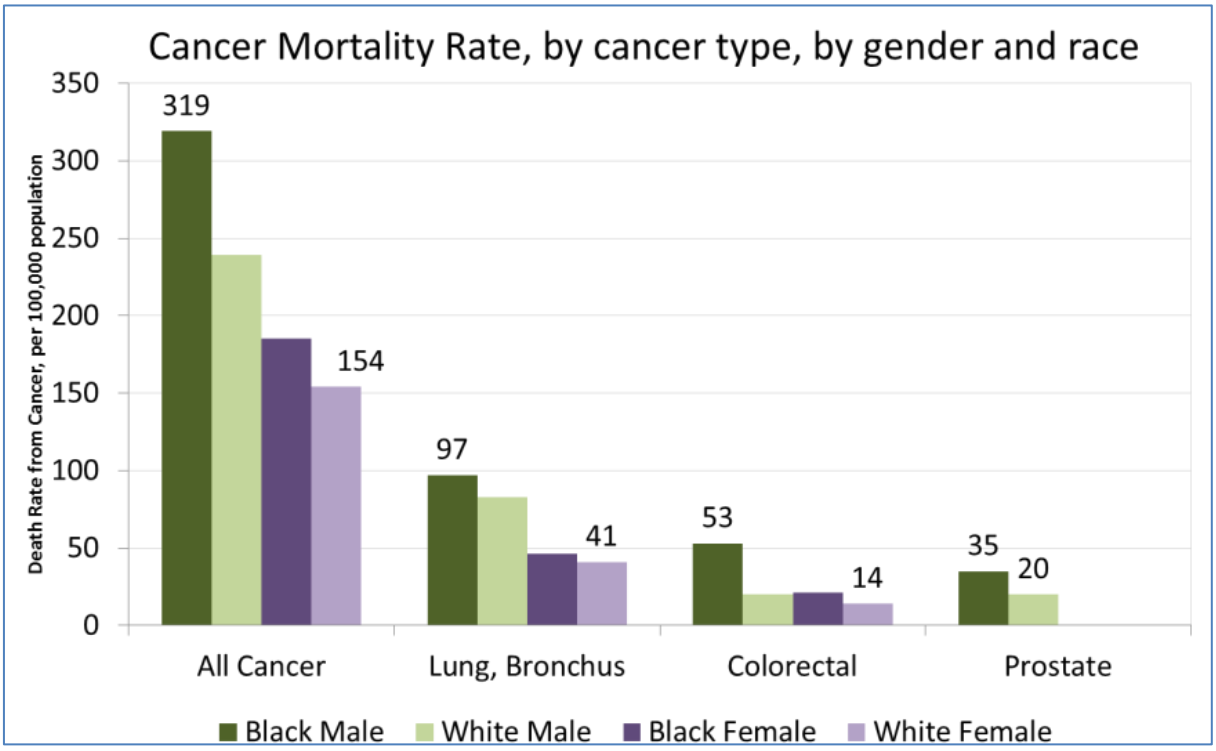


Figure 39: CDC Wonder, US Cancer Statistics, Data is age-adjusted statewide rate for Tennesseeans in 2012

In Davidson County, the rate for all cancer deaths is 195 deaths per 100,000 individuals. Both white females (148) and black females (190) do better than the county average. The rate for white males (244) is roughly 2/3rds higher than the rate for white females. The total cancer mortality rate for black males (320) is the worst of any demographic group considered in this analysis, and is roughly 2/3rds higher than the rate for black females in Davidson County.

Davidson County females have a higher incidence of breast cancer (129) than either the state or the nation, but similar mortality rates (~23). Although both black and white females in Davidson County have the same breast cancer incidence rate (~129), black females (31) have a mortality rate almost 50% higher than white females (21) from breast cancer.

Men in Davidson County have a prostate cancer incidence rate of 143 cases per 100,000, higher than the state or the nation. Black males have an incidence rate of 206, roughly similar to

the state and national averages for black males, but roughly 2/3rds higher than white males in Davidson County, who have an incidence rate of 125 per 100,000 individuals.

Racial disparities also exist in mortality due to prostate cancer. White males in Davidson County face a prostate cancer mortality rate of 19 deaths per 100,000 individuals, lower than the state or national average, and lower than the HP 2020 goal. Black males in Davidson County, however, face a prostate cancer mortality rate of 54 deaths per 100,000, the highest of any group considered in this analysis, and nearly three times higher than white males in the same county.

Finally, the rates of lung and bronchial cancers are considered. In Davidson County, the incidence rate is 73 cases per 100,000 individuals, better than the state rate (78) but well behind the national rate (64). The incidence rate for black females is 57, while the rate for black males is 106. The incidence rate for white females is 61, while the rate for white males is 92. For lung cancer mortality, Davidson County (59) does better than the state rate of 61, but worse than the HP 2020 goal of 46. White females in Davidson County have better rates than the HP 2020 goals, but all other groups – including black females (49), white males (79), and black males (97) do much worse.

Cancer Incidence Rate (2008-2012), by race and gender					
	Davidson	Rutherford	Williamson	TN	USA
All Cancers	**472**	**450**	**443**	**468**	**454**
- **Black female**	416	376	421	400	394
- **Black male**	612	615	662	593	572
- **White female**	422	417	400	418	418
- **White male**	542	500	497	537	506

Table 13: Rates per 100,000 individuals. Data from State Cancer Profiles, CDC and National Cancer Institute, and HealthyPeople2020

In Rutherford County, the rate for all cancer deaths is 185 deaths per 100,000 individuals. Both white females (146) and black females (172) do better than the county average. The rate for white males is roughly 3/5ths higher than the rate for white females. The total cancer mortality rate for black males (307) is roughly 4/5ths higher than the rate for white females in Rutherford County. Rutherford County females have a breast cancer incidence rate of 113 cases per 100,000 individuals, better than Davidson or Williamson County, Tennessee, and the nation as a whole.

The breast cancer mortality rate (20) is better than Davidson County, Tennessee, and the United States, as well as being below the HP 2020 target of 21.

Men in Rutherford County have a prostate cancer incidence rate of 138, higher than the state and national average. Black males have an incidence rate of 221, higher than the state or national average for black males, and more than 70% higher than white males (129) in the same

county. The overall rate of prostate cancer mortality is 23, similar to the state rate, and higher than the national prostate cancer mortality rate (21). Rutherford County females have a breast cancer incidence rate of 113 cases per 100,000 individuals, better than Davidson or Williamson County, Tennessee, and the nation as a whole.

In Rutherford County, the incidence of lung and bronchial cancers is 72 cases per 100,000 individuals, better than the state rate (78) but well behind the national rate (64). The incidence rate for black females is 68, while the rate for black males is 142. The incidence rate for white females is 60, while the rate for white males is 87. For lung cancer mortality, Rutherford County (56) does better than the state rate of 61, but worse than the HP 2020 goal of 46. White females (43) in Rutherford County do better, and black females (46) roughly equal the HP 2020 goals. Meanwhile, white males (71) and black males (115) far exceed the HP 2020 goals, as well as the state and national averages.

In Williamson County, the rate for all cancer deaths is 143 deaths per 100,000 individuals, the best among any of the three counties, and better than the state rate, national rate, and HP 2020 goals. White females (110) in Williamson County have the lowest cancer mortality rate of any group considered in this analysis, despite having a higher incidence rate than black females in Rutherford County. White females in Williamson County are the only group in Williamson County to do better than the HP 2020 goals, as black females (179), white males (239), and black males (267) all fall below the HP 2020 targets.

Williamson County females have a breast cancer incidence rate of 134 cases per 100,000 population, worse than Davidson or Rutherford County, Tennessee, or the national rate. However, the breast cancer mortality rate is 17 deaths per 100,000, the lowest of any county considered in this analysis, and better than the state and national averages, as well as the HP 2020 goals. Men in Williamson County have a prostate cancer incidence rate of 143 cases per 100,000, higher than the state or the nation.

While white males in Williamson County have an incidence rate of 140, black males in Williamson County have a prostate cancer incidence rate of 229, the highest of any group considered in this analysis, and more than 70% higher than white males in the same county. Despite relatively high incidence rates, the prostate cancer mortality rate in Williamson County is 18 per 100,000, better than the prostate cancer mortality rates for Davidson County, Rutherford County, the state and national rates, and the HP 2020 goals. In Williamson County, the incidence of lung and bronchial cancers is 50 cases per 100,000 individuals, by far the lowest in the state. The incidence rate for white females is 39 per 100,000 – the lowest of any group considered in this analysis, while the rate for white males is 62 per 100,000. For lung cancer mortality, Williamson County (38/100k) does better than the state and national rates, while comfortably beating the HP 2020 goals of 46 per 100,000. However, white women (27/100k) in Williamson County – who have the lowest rate of any group considered – have a lung cancer mortality rate roughly half of the male lung cancer mortality rate of 53 per 100,000.

Diabetes

There are three main types of diabetes – Type 1, Type 2, and gestational diabetes. Type 1 diabetes usually develops in childhood, and results in the body ceasing to make sufficient amounts of insulin due to an attack of the body's immune system on the cells that make insulin. Type 2 diabetes, once called "adult onset diabetes," generally develops later in life, although it is increasingly being seen in children and teens. Type 2 diabetes generally begins with insulin resistance, leading to lower insulin production. Risk factors include being overweight or physically inactive. Gestational diabetes develops during pregnancy, when a woman can make hormones leading to insulin resistance.

Rates of diagnosed diabetes have been rising in Tennessee since the late 90s, from a low of 4.3% in 1997 to a high of 11.5% in 2007. As of 2012, the percentage of adults living with diabetes in Davidson County (10.8%) and Rutherford County (10.2%) is similar to the state as a whole, while Williamson County, at 8.6%, maintains the lowest percentage of diagnosed diabetes of any county in the state.

In all, more than 29 million people (9.3% of the population) have diabetes in America, as of 2012. One in four of those cases are undiagnosed. An additional 86 million Americans are estimated to have prediabetes, and between 15-30% of those individuals are expected to develop type 2 diabetes within 5 years. The national cost of diabetes is $245 billion in lost work and wages across the country, and individuals with diabetes can expect to pay twice as much for their medications as someone without diabetes.

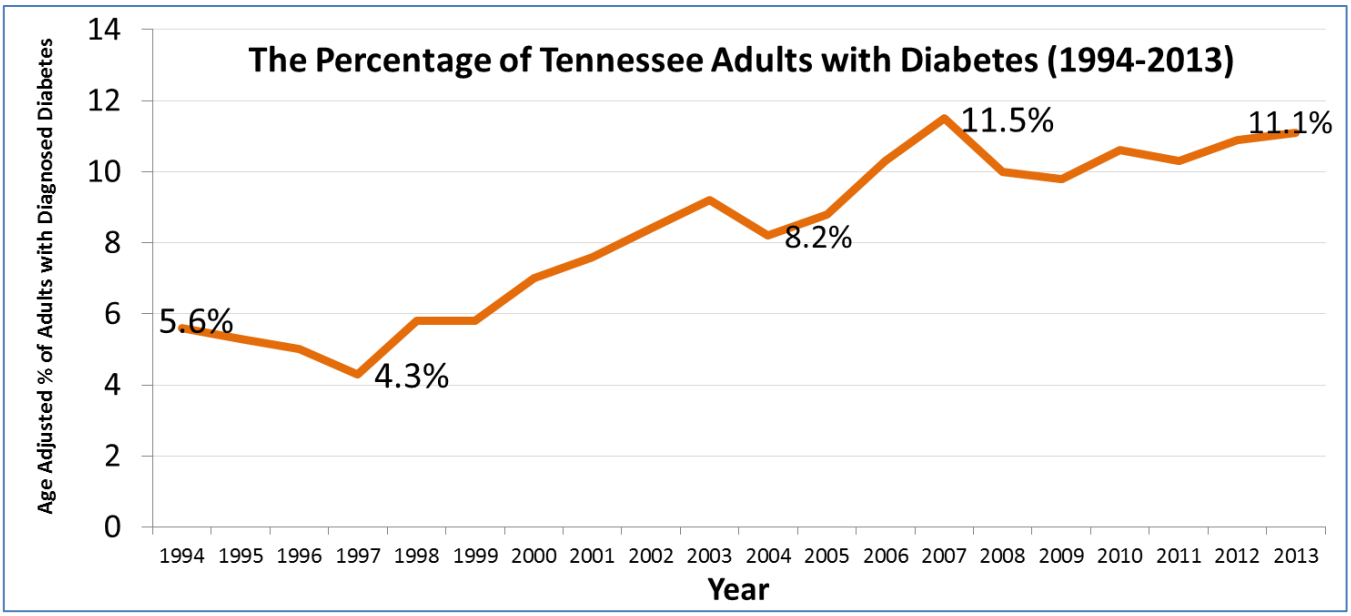


Figure 40: Data from National Diabetes Surveillance System

Accidents and Violence

According to the CDC, accidents and unintentional injury led to 3 million hospitalizations and nearly 30 million emergency department visits in 2013. In the same year, there were more than 3,500 deaths in Tennessee, and nearly 193,000 deaths due to accidents across the country, making it the fourth leading cause of death both in both the state and the nation (behind heart disease, cancer, and chronic lower respiratory diseases). In America, someone dies an accidental death every three minutes. Accidents are the leading causes of death for Americans 1-44, and the third leading cause of YPLLs. The CDC estimates that accidental fatal injuries cost upwards of $214 billion dollars, with the total economic impact of accidental injury and violence exceeding $670 billion in 2013. The leading causes of accidental death nationwide are unintentional poisoning, car accidents, and falls. However, when considering all methods of suicide together, there were over 41,000 deaths by suicide in 2013, higher than any of these three.

Cause of Accidental or Violent Death (USA, 2013)	Total Deaths
Unintentional poisoning	38,851
Unintentional Motor Vehicle Accident	33,804
Unintentional Fall	30,208
Suicide – Firearm	21,175
Homicide – Firearm	11,208
Suicide – Suffocation	10,062
Suicide - Poisoning	6,637
Unintentional Suffocation	6,601

Table 14: Data from CDC, NCHS

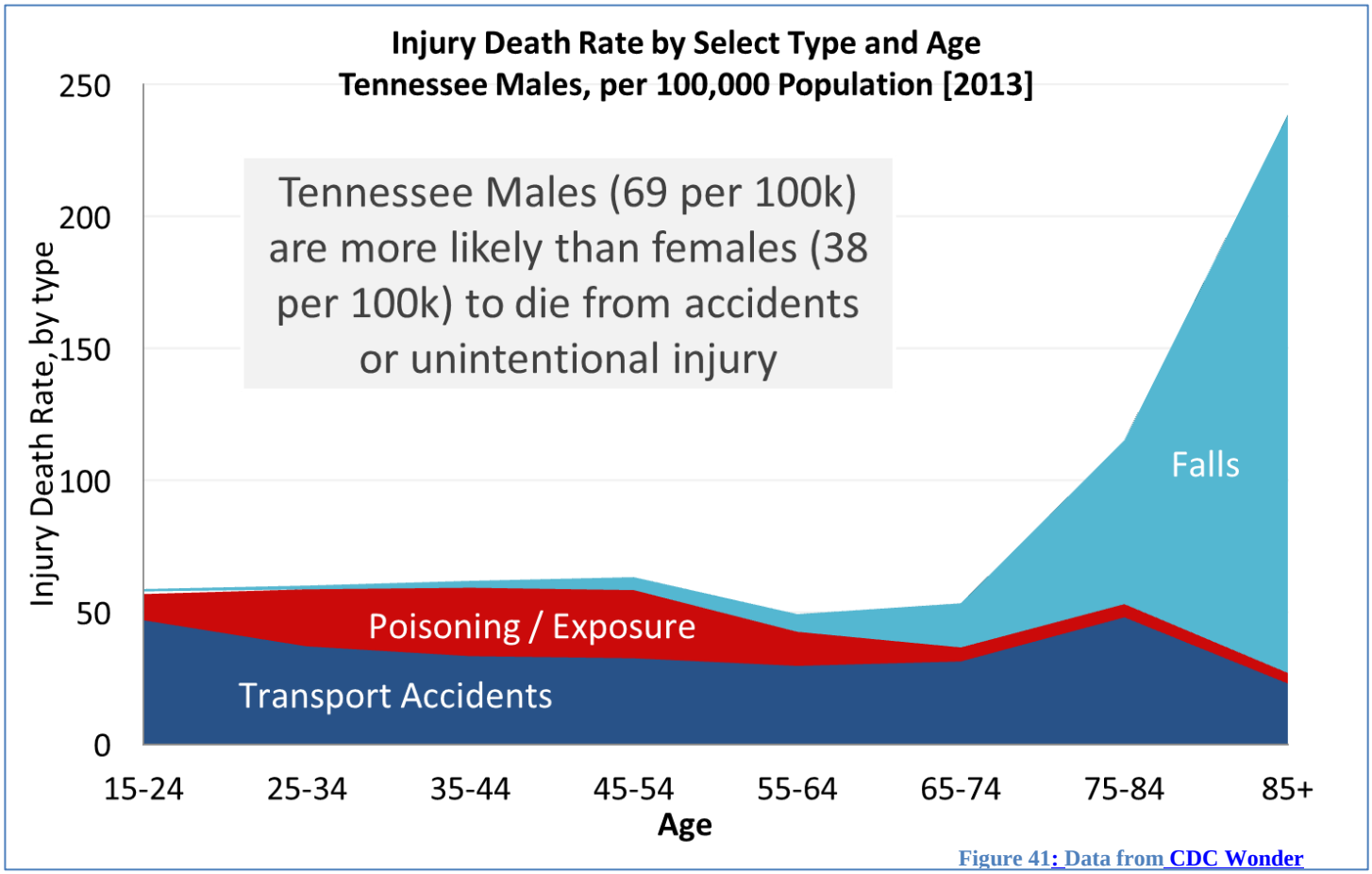


Figure 41: Data from CDC Wonder

The risks of different types of accidental death in the United States vary greatly by age, gender, and race. For those less than a year of age, the leading cause of accidental death is unintentional suffocation, while for those aged 1-4, the leading cause is unintentional drowning. For ages 5-24, the leading cause of accidental death is unintentional motor vehicle crashes, while the leading cause of accidental death for those aged 25-64 is unintentional poisoning. For those aged 65 and above, falls kill more than 25,000 people a year - by far the leading cause of accidental death among any 10-year age group.

"Injuries and violence are so common that we often accept them as just a part of life. But they can be prevented, and their consequences reduced. We know prevention works."

- Centers for Disease Control

Figure 42: CDC

In Davidson County, accidents are the third leading cause of death behind heart disease and cancer in 2013. Together with homicide and suicide – they represent roughly 11% of deaths, but nearly 1 in 4 YPLLs (23.4%). In other words, a large number of those killed by accidents, suicide, and homicide are younger individuals. The leading cause of accidental death in Davidson County from 2009-2013 was accidental poisoning and exposure (521 deaths), with more than half coming from those aged 45-64 (279 deaths). The second leading cause of accidental death was falls (479 deaths), with roughly half (233) coming from those aged 85 and above. The third leading cause of accidental death was motor vehicle accidents (351 deaths.)

In Rutherford County, accidents were the fourth leading cause of death behind cancer, heart disease, and chronic lung disease from 2009-2013. In 2013 accidental death surpassed chronic lung disease and rose to third. Together with homicide and suicide – accidental death represents roughly 8% of deaths, but more than 1 in 5 YPLLs (21.3%). The leading cause of accidental deaths in Rutherford County from 2009-2013 was motor vehicle accidents (134 deaths), accidental poisoning and exposure (125 deaths) and falls (68 deaths). In all, accidents killed 102 individuals in Rutherford County in 2013.

In Williamson County, accidents were the fourth leading cause of death behind cancer, heart disease, and Alzheimer's disease from 2009-2013. From 2009-2013, the leading causes of accidental deaths in Williamson County were falls (106 deaths), accidental poisoning and exposure (64 deaths), and motor vehicle accidents (52 deaths.)

Deaths coded as "Accidental Poisoning and Exposure" largely fall into two categories in Tennessee. The leading cause – responsible for 54% of such deaths statewide in 2013 - is "unspecified drugs, medicaments and biological substances." The second – responsible for 34% of "Accidental Poisoning and Exposure" deaths - is "narcotics and psychodysleptics [hallucinogens] not elsewhere classified." Alcohol was responsible for another 4% of deaths, as was "anti-epileptic, sedative-hypnotic, antiparkinsonian and psychotropic drugs not elsewhere listed."

Homicide / Suicide

Davidson County ranks 94th of 95 in Tennessee Counties for violent crime, and experiences a high rate of homicides relative to other counties in Tennessee. However, 2013 saw a dramatic drop in homicides to a recent low of 39 individuals (5.3 deaths per 100,000 individuals), less than half the rate of homicide death from just 4 years prior in 2009 (11.3/100k). According to preliminary reports from Metro Police, that number stayed at a historically low 41 in 2014, but was back on the rise in 2015, with 62 homicide deaths reported in the first 10 months of the year.

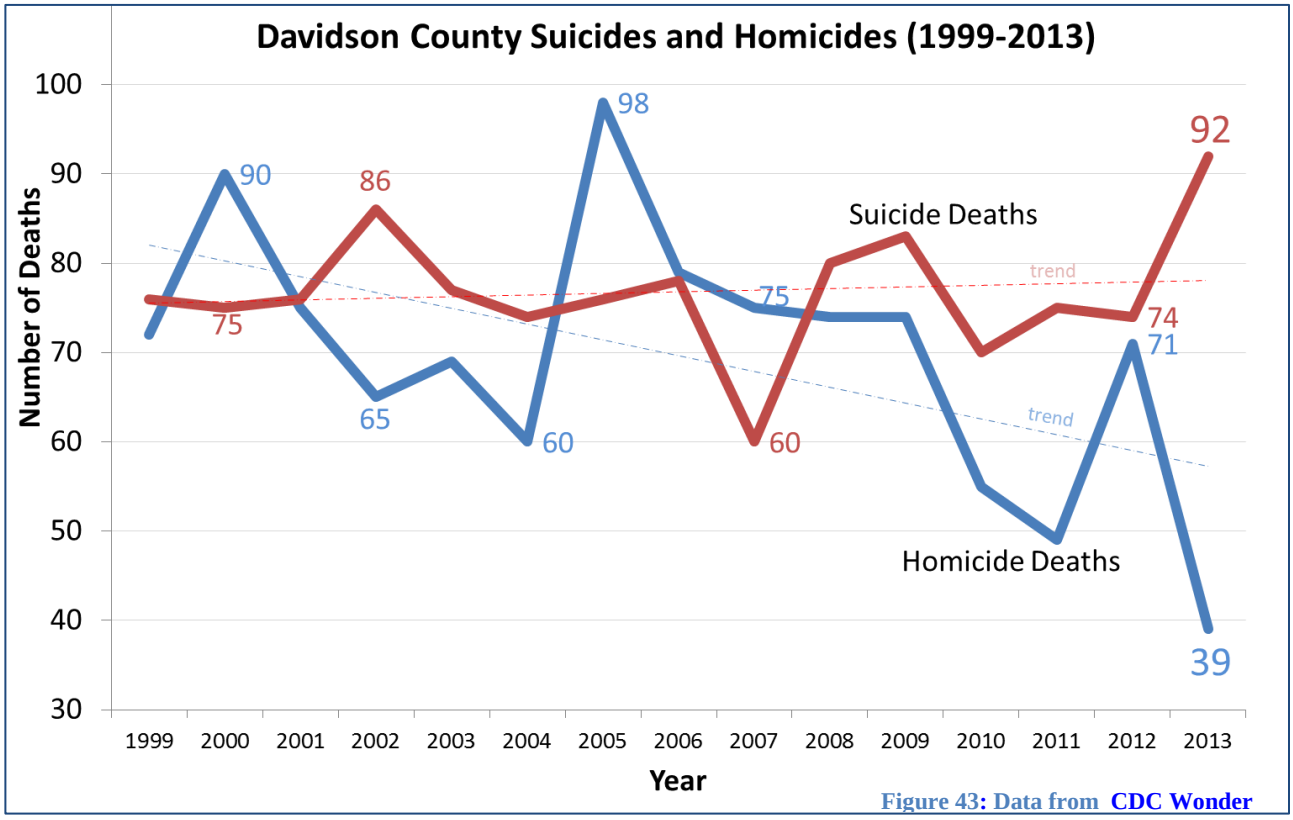


Figure 43: Data from CDC Wonder

2013 saw a record number of suicides, however, with 92 suicide deaths totaling nearly 25% more than the previous year and up more than 50% from the recent low of 60 in 2007. The vast majority of those suicides (55) in Davidson were committed with a firearm.

Homicide and suicide play differing roles in the lives of Davidson County men based on race. The chart below shows the combined mortality rate over the last 15 years for white and black males from homicide and suicide throughout the course of their adult lives here in Davidson County. Homicide is the leading cause of death for black males age 1-50. For white males aged 1-50, suicide is the third leading cause of death.

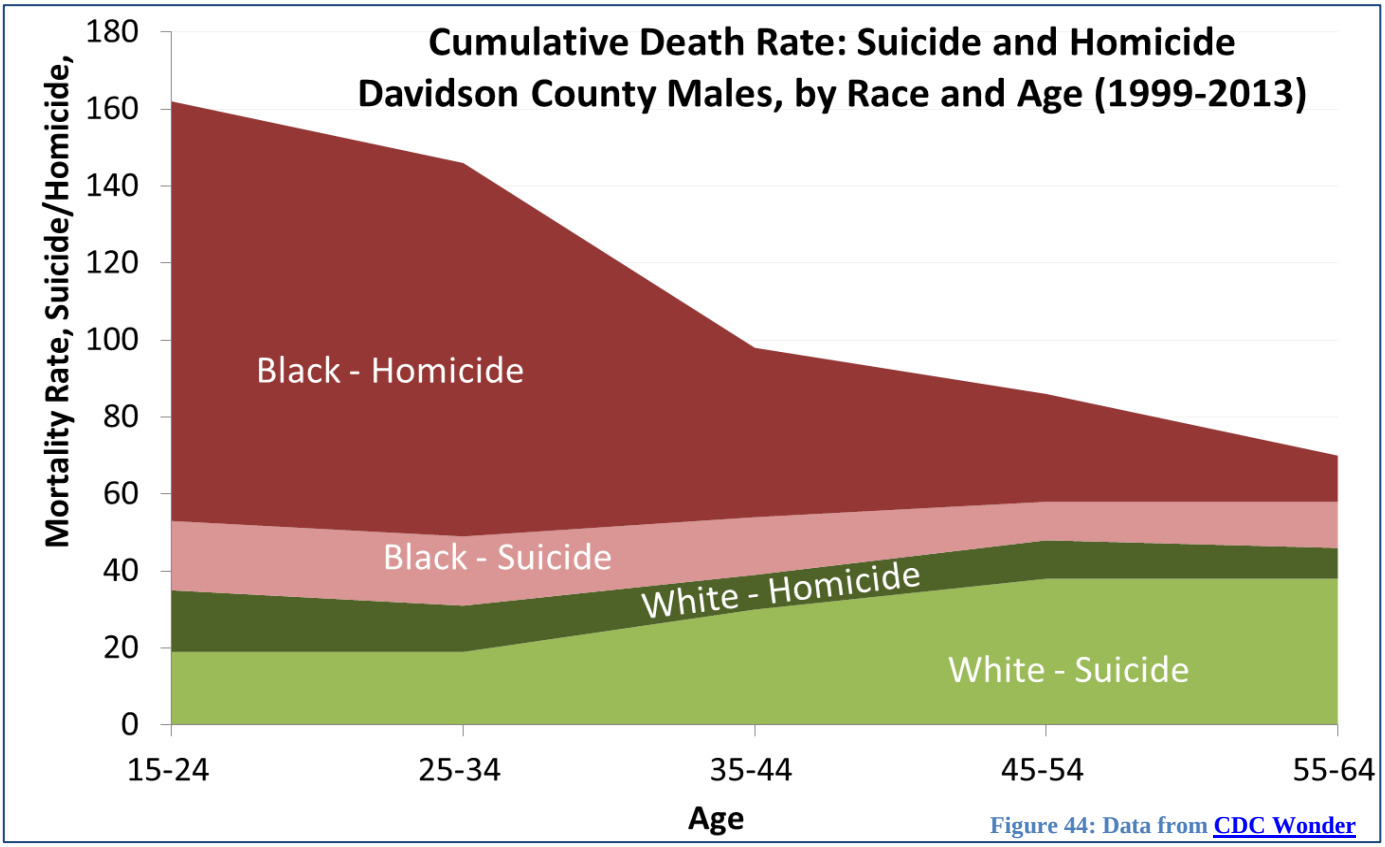


Figure 44: Data from CDC Wonder

What becomes clear is that the majority of those experiencing violent deaths are young men – mostly young black men – between the ages of 15-34. Homicide is the leading cause of death for black males aged 1-50 in Davidson County and the 4th leading cause of YPLLs for black Tennesseans. The age adjusted homicide rate for black males is more than five times higher than for white males in Davidson County. White males do not face the same homicide risk at any point throughout their lives, but are much more likely to commit suicide. The suicide rate for white males was nearly four times higher than for black males in Davidson County (2009-2013).

In Rutherford and Williamson County, the population contains a much larger percentage of white individuals, who face a higher risk of suicide than homicide. From 1999-2013 there were 400 suicide deaths in Rutherford County. More than 75% (305) of victims were male, while 93% were white individuals. Suicides and homicides are trending upwards in the county, although suicides are increasing at a faster rate.

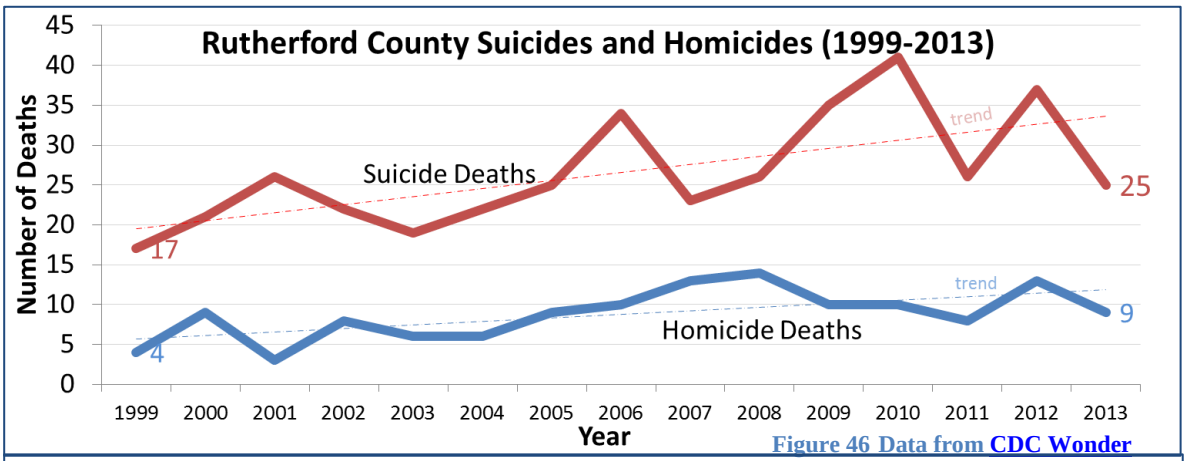


Figure 46 Data from CDC Wonder

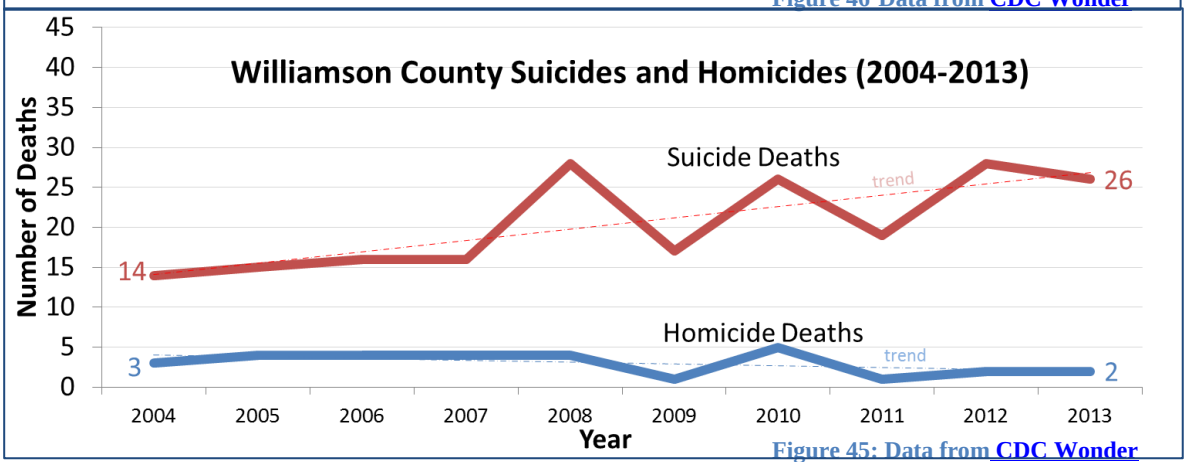


Figure 45: Data from CDC Wonder

A similar trend holds true in Williamson County. From 1999-2013, there were 251 victims of suicide, of which 79% were male, and more than 95% were white. Although it remains remarkably safe in regards to homicides, the recent increase in suicides is a worrying trend in Williamson County.

In Tennessee, the suicide mortality rate rises until more than 50 years of age.

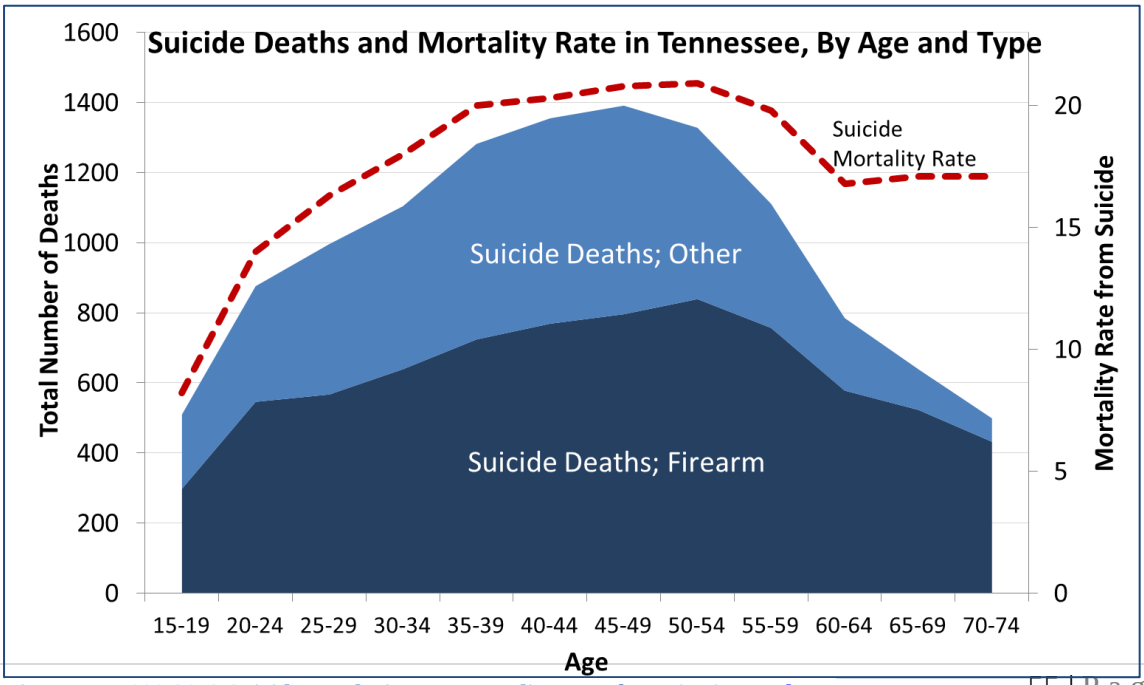


Figure 47: 1999-2013 Suicide Deaths in TN, Mortality Data from CDC Wonder

Birth Outcomes

The chart below tells the story of infant mortality in the United States over the last 100 years. It is a testament to how advancements in science, medicine, and collaboration and communities can lead to better outcomes for the most vulnerable populations. However, it is also a concerning example of the disparities in access and outcomes faced by some Americans, particularly those of color.

In 1915, the United States lost roughly 1-in-10 white babies within the first year of life, and nearly twice as many (1-in-5) black babies. The country has been able to reduce both rates by roughly 95% over the previous century, to the point when just 1-in-200 white babies die before they turn one. However, the infant mortality rate for black babies in America remains twice as high. In fact, the relative disparity in black and white birth outcomes has grown over the last 40 years, and is worse than it was 100 years ago.

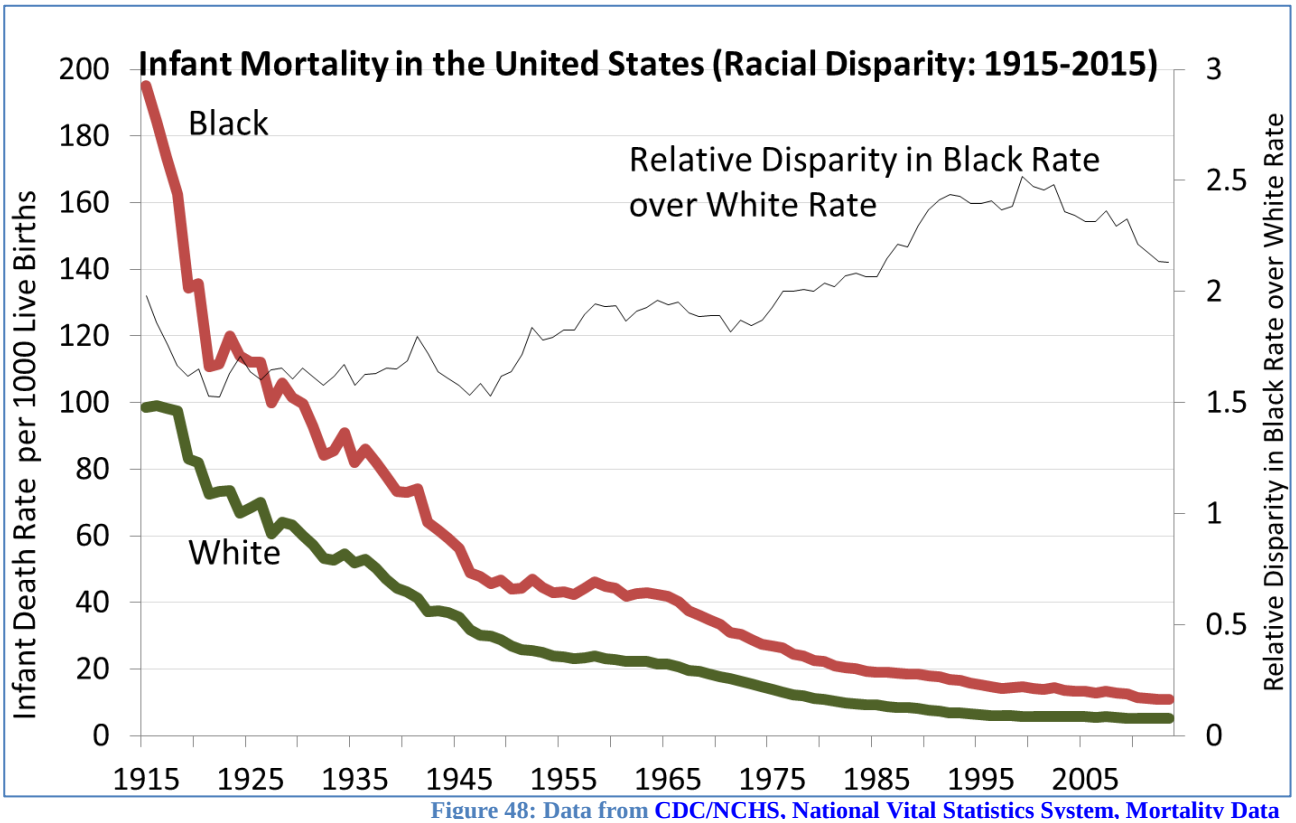


Figure 48: Data from CDC/NCHS, National Vital Statistics System, Mortality Data

Despite improvements over the last century, the United States lags behind in worldwide infant mortality reduction. The 2014 World Factbook ranked the United States 55th in infant mortality, behind much of Europe and Asia. Davidson County's infant mortality rate is much worse, similar to that of Kuwait, and behind many Asian and Middle Eastern Countries such as Russia. Much of Western Europe has infant mortality rates that are roughly half of the United States. According to a study by the National Center for Health Statistics, the main reason for United States' higher rates of infant mortality compared to Europe is the higher percentage of babies born pre-term.

Overall, the infant mortality rate in the United States is 6 deaths per 1,000 live births. Unfortunately, Tennessee routinely is among the worst states in the nation for infant mortality. In 2013, the infant mortality rate for Tennessee stood at 6.8 deaths per 1,000 live births, similar to Qatar (6.4) and Russia (7.0). Although Tennessee has less enviable numbers than the country as a whole, the good news is that the number has fallen from a high of 9.2 in 2003 to its current standing at 6.8, a drop of more than 25%.

Davidson County ranks worse still, at 7.7 deaths per 1,000 live births – worse than Kuwait. Rutherford County – at 4.5 deaths per 1,000 live births had a much better infant mortality rate than Davidson County, the state, or the nation. The county rate still remains similar to Cuba (4.7/1k) and more than double that of Japan (2.1/1k).

Williamson County is a truly elite county nationwide in infant mortality outcomes, with an infant mortality rate of just 3.3 deaths per 1,000 live births. This is similar to many western European countries such as Spain and France, (3.3/1k) but still trails many nations worldwide, where Scandinavian countries such as Sweden (2.6/1k), Finland (2.5/1k), and Iceland (2.1/1k) perform better still.

There are significant racial disparities in birth outcomes across the country, within Tennessee, and within each of the three counties considered in this assessment. The largest non-white populations in the VUMC community live in Davidson County where, much like the rest of the country, black babies born in 2013 were roughly twice as likely to die in their first year of life, as white babies born in the same area.

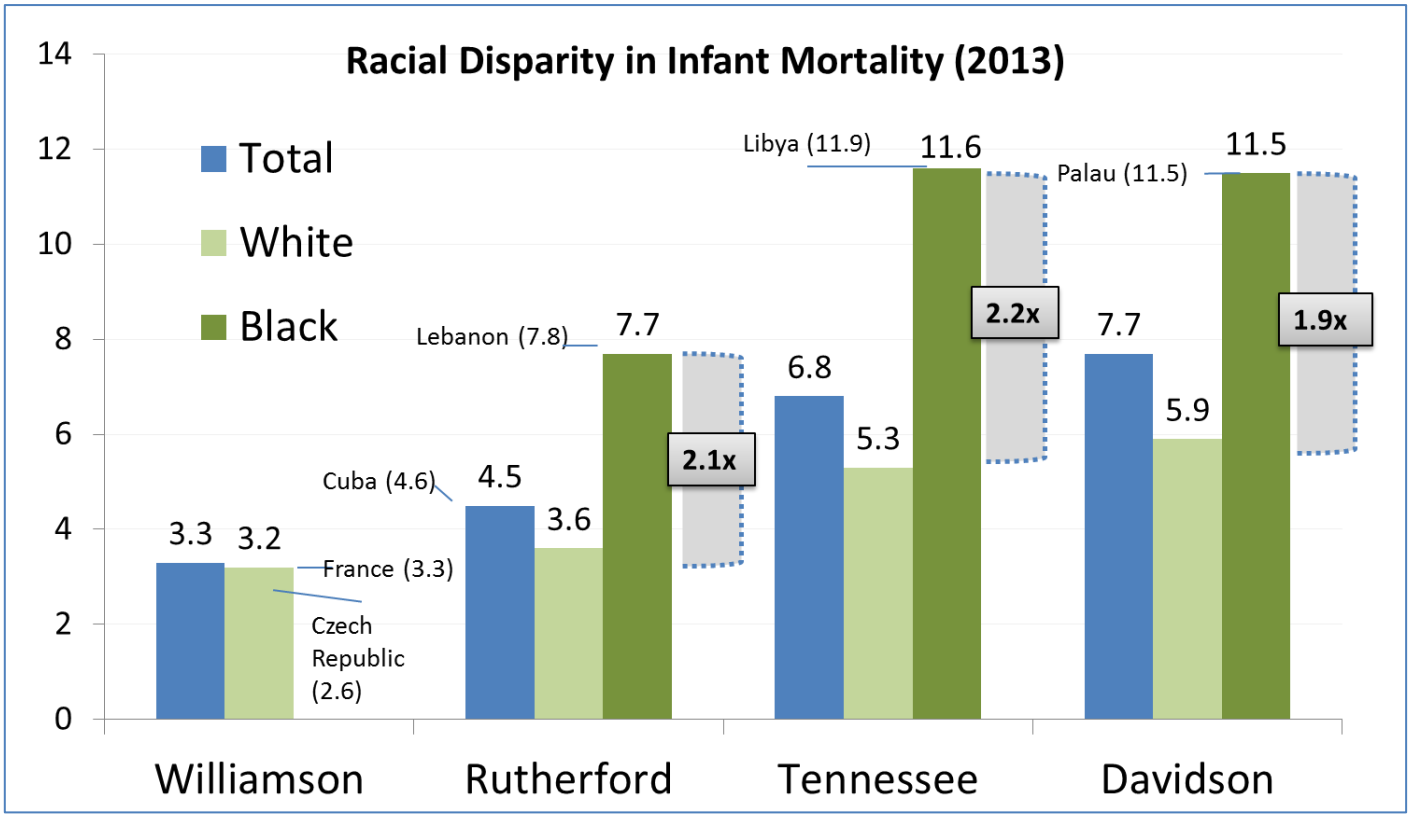


Figure 49: Data from CDC Wonder. International Data from 2014 World Fact Book

Preventive Care / Behavioral Risk Factors

Tennesseans face many health risks from behaviors and lifestyle choices such as diet and exercise habits, transportation choices, workplace behaviors, hobbies, and recreational use of substances. The 2015 County Health Rankings show that Tennessee had a higher level of adult smoking, adult obesity, physical inactivity, and sexually transmitted diseases than the country as a whole. Meanwhile, statistics show that Davidson, Rutherford, and Williamson Counties have room for improvement in healthy behavior.

Tobacco

One positive is that Davidson, Rutherford, and Williamson County tend to have slightly lower smoking rates than the state as a whole, contributing to better health outcomes. The Tennessee Department of Health has called the use of tobacco "the most preventable cause of premature mortality and morbidity in the state," and tobacco cessation remains a key focus for many county health departments across the state. The CDC estimates that the overall mortality among smokers is three times higher than the population of those who do not smoke, and that life expectancy is at least 10 years shorter than that of non-smokers. Quitting smoking before the age of 40, they estimate, reduces the risk of dying from smoking-related diseases by about 90%. Every year, cigarette smoking is linked to more than 278,000 deaths among men and more than 201,000 deaths among women annually including deaths from second hand smoke. Secondhand smoke alone is responsible for more than 40,000 deaths every year.

	Davidson	Mid-Cumberland Region	TN	*HP 2020*
Smoking Rate (2013)	21%	23%	24%	*12%*
Population at Risk	101,744	188, 314	1,162,524	

Table 15: CDC BRFSS

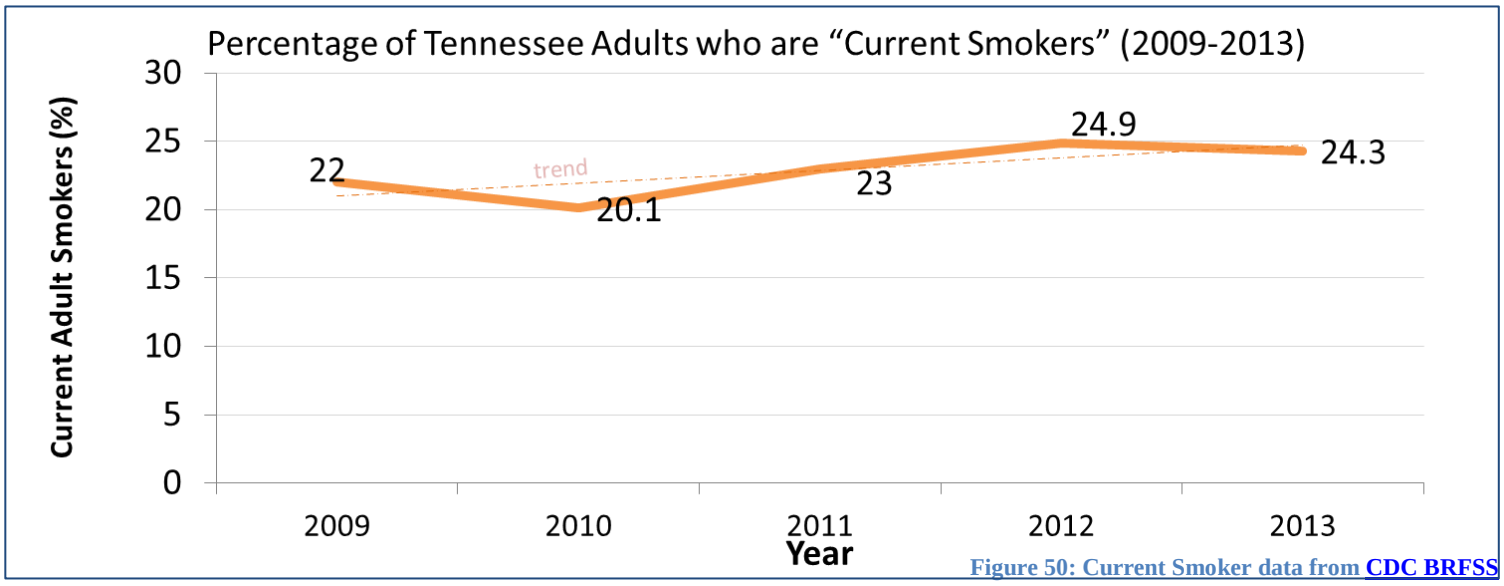


Figure 50: Current Smoker data from CDC BRFSS

While the national smoking rate has dropped from 42% in 1965 to less than 15% in 2015, Tennessee remains well above that level for adult smokers, and there is some indication that recent years have seen a rise in smoking rates in Tennessee. The groups at highest risk of smoking are adults 20 and older with less than a high school education (40%), males (26.8%), and white individuals (25.4%).

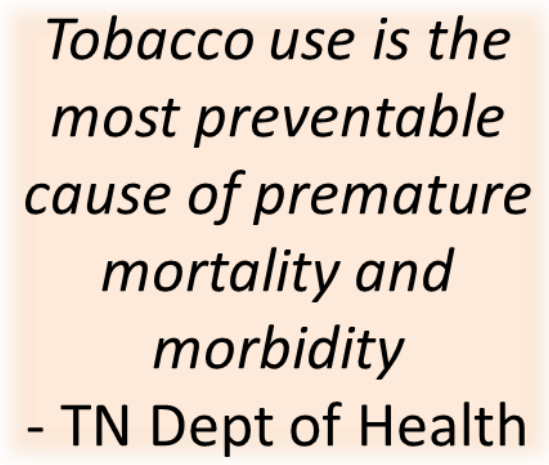


Figure 51: TN Department of Health

In 2013, 25% of Tennessee teens reported having used tobacco of some kind within the last 30 days. 15.4% of Tennessee high-schoolers reported having smoked in the last month, while 44% reported having tried smoking at some point in their lives. 12% of Tennesseans smoked a whole cigarette before they turned 13 years old. 6.2% of teens smoked at least 20 cigarettes in the last 30 days, 11% have smoked at least one cigarette every day in the last 30 days, and 10% smoke more than 10 cigarettes a day. 13% use smokeless tobacco while 15.3% have had a cigar within the last 30 days. Each of these data points, representing Tennessee as a whole, is worse than the national average.

Tobacco use during pregnancy is an enormous risk factor in infant mortality. According to the State of Tennessee, in 2012, the infant mortality rate among women who smoked at any time during pregnancy was 11.3 deaths per 1,000 live births, compared to the statewide infant mortality rate of non-smokers of 6.3 deaths per 1,000 births. The prevalence of white mothers who smoked (20.9%) was much higher than the prevalence of black (9.1%) or Hispanic (2.5%) who smoked during pregnancy.

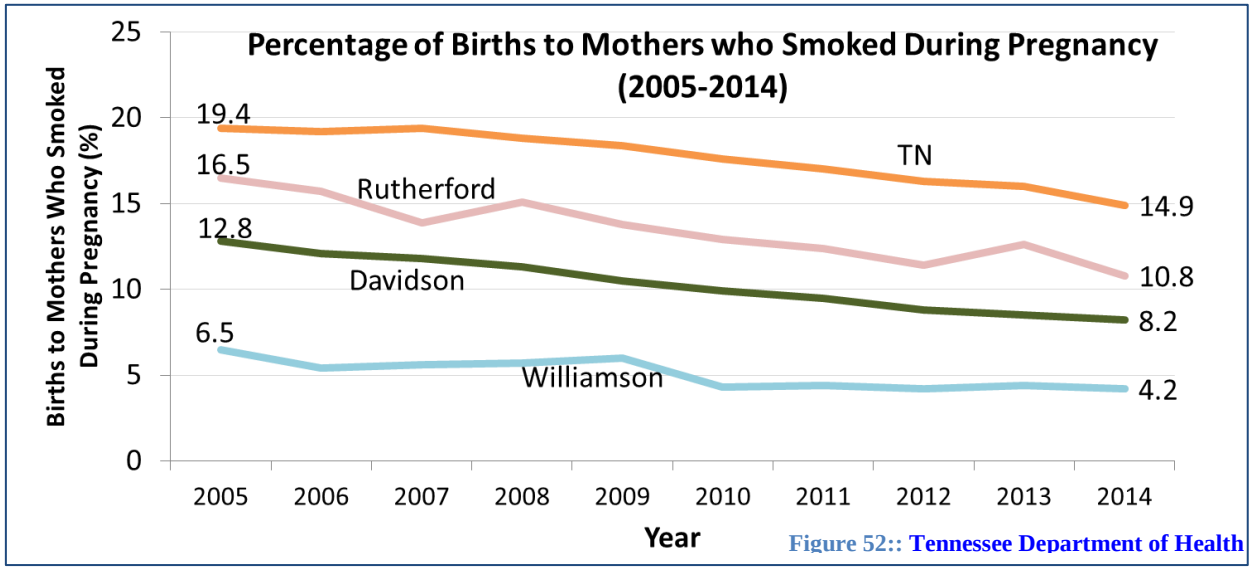


Figure 52:: Tennessee Department of Health

Nutrition and Physical Activity

Obesity has become the most visible malnutrition problem in America in the 21st century, with more than one-third (34.9%) of American adults being classified as obese. Adults with a Body Mass Index (BMI) of >30 are classified as "obese," and >25 as "overweight." The average American adult male is 5'9" according to the CDC. For an individual of that height, a weight of more than 169 would translate to a BMI indicating that one is likely "overweight," while a weight of 203 pounds or more would translate to a BMI of 30, meaning that one is likely obese. Nationally, non-Hispanic blacks have the highest age-adjusted rates of obesity (47.8%), followed by Hispanics (42.5%), non-Hispanic whites (32.6%), and non-Hispanic Asians (10.8%).

Photo 5 : photo by JW Randolph

Tennessee routinely ranks among the most overweight and obese states. From 2011-2013, the rates of combined overweight and obese adults in Tennessee rose from 66.5% to 68.4%. While the 2014 Behavioral Risk Factor Surveillance Survey (BRFSS) indicates that the overall self-reported obesity rate in Tennessee was 31.2% - including 30.7% among non-Hispanic whites, 31.7% among Hispanics, and 40.6% among non-Hispanic blacks. The obesity rates also vary by age, with 16.9% of high school students being obese, 18.6% of those aged 18-25, 32.5% of those aged 26-44, 38.7% of those age 45-64, and 23.9% of those above 65 being obese.

As of 2013, the percentage of adults in Davidson County who were obese (BMI >30) grew to 34.4%, while the number of individuals in Davidson County who are either overweight or obese has climbed to 63.7%. In the Mid-Cumberland Public Health Region, which includes Rutherford and Williamson Counties, the obesity rate is 33.5%, while the number of individuals who are either overweight or obese has risen to 69.1%. Statewide, more than one-third of Tennesseans (33.7%) are obese, while roughly 7 in 10 (68.4%) are overweight or obese. This includes 73.3% of white males, 61.7% of white females, 73.6% of non-white males, and 69.8% of non-white females.

Increased physical activity is one strategy for addressing issues of weight and obesity. County Health Rankings tracks "access to exercise opportunities" for residents who live within half mile of a park, within one mile of a recreational center in urban areas, or three miles of a recreational center in rural areas. By this measure, in 87% have access to exercise opportunities in Davidson County, 77% have access to exercise opportunities in Rutherford County, and 67% have access to exercise opportunities in Williamson County. Statewide, 70% of Tennesseans enjoy access to exercise opportunities.

Photo 6: photo by JW Randolph

Despite relatively high levels of access to parks and recreational facilities, 37% of Tennesseans have not participated in any physical activity in the last month, as of 2013. This includes 33% of Davidson County residents and 29% individuals in the Mid-Cumberland Region, which includes Rutherford and Williamson Counties.

The recommended intake of fruits and vegetables is at least five servings per day, but statewide, 90% of us are falling short of that goal. Just 9.2% of Tennesseans consumed five or more servings of fruits and vegetables per day. Davidson County did slightly better; with 11.6% doing better than all public health regions placing Davidson County second best among the 14 public health regions in the state. The Mid-Cumberland region, containing Rutherford and Williamson Counties performed worse than the state as a whole, with just 8.0% of adults getting more than five servings of fruits and vegetables per day.

Photo 4: Stones Creek Greenway, photo by JW Randolph

Alcohol and Substance Abuse

Excessive alcohol use comes at a social, physical, and financial cost. The CDC estimates that excessive alcohol use cost $249 billion in losses in the United States, as of 2010. The majority came from losses in workplace productivity ($179 billion), followed by healthcare costs ($28 billion), criminal justice costs ($25 billion), and motor vehicle accidents ($13 billion). In Tennessee alone, the costs are around $4.6 billion, an average of $738 per capita each year. Annually, excessive drinking is responsible for 88,000 deaths nationwide and more than 2,000 in Tennessee.

Binge drinking is both the most costly and the most common type of excessive alcohol use. 9.3% of Tennessee adults reported binge drinking in the last 30 days, including 11.7% in Davidson County, 8.2% in Rutherford County, and 14.9% in Williamson County, putting it second to last in the entire state. Binge drinking is one of the few indicators considered in this report where Williamson County performs near the bottom of Tennessee Counties.

Use, within the past month			
Age 12+	Davidson	Mid-Cumb	TN
Illicit Drugs	8.6%	6.6%	7%
Marijuana	6.6%	5%	5.2%
Illicit Drugs, Other than Marijuana	3.7%	3.3%	3.6%
Alcohol	44.5%	44%	40%
Binge Alcohol	21.3%	19.2%	18%
Cigarettes	27.9%	26.2%	26.5%
Tobacco	32.6%	34%	33.6%
Age 12-20	Davidson	Mid-Cumb	TN
Alcohol	22.1%	21.2%	19.7%
Binge Alcohol	15.4%	14.4%	13.2%

Table 16: 2010-12 data from SAMSHA

In 2013, 20% of Tennessee high-schoolers reported riding with a driver who had been drinking alcohol and 7% reported driving after consuming alcohol. A full 61% had consumed at least one drink of alcohol in their lives, 28% had at least one drink in the last 30 days and 16% had a binge drinking episode in the last 30 days. 4.9% of high school aged individuals aged 12-17 reported having a dependence on, or abuse of, illicit drugs in the past year. Nearly one in twenty Tennessee high school children has used methamphetamines.

Williamson County ranked 2nd to last of TN Counties for binge drinking in the last 30 days

Figure 53: County Health Rankings, 2015

The number is higher for adults, as 8.2% – nearly 400,000 Tennesseans – report a dependence on, or abuse of alcohol or illicit drugs in the past year. In Davidson County, roughly one in ten (9.7%) report dependence or abuse of alcohol or illicit drugs within the last year, with Rutherford and Williamson (8.7%) not far behind. There are a high number of individuals in the three counties with dependency issues.

The most common substance of abuse for treatment admissions by the Tennessee Department of Mental Health is alcohol (44.2%), followed by opioids (40.2%), and "other illicit drugs" (38.6%). In Davidson County, "other illicit drugs" (49.5%) was the most common, followed by alcohol (42.9%), and opioids (21.6%). In Rutherford County, alcohol was most common, followed by other illicit drugs, and opioids (36.9%). In Williamson County, alcohol (53.3%) was the most common, followed by opioids (33.3%) and "other illicit drugs" (28.3%). Heroin admissions to TDMHSAS treatment facilities more than doubled in Davidson County and across Tennessee from 2012-2014.

Vaccinations

The widespread use of vaccines has seen a dramatic drop in both incidence and deaths related to vaccine-preventable diseases across the United States, all but erasing diseases such as diphtheria, polio, and measles from the country. Vaccine preventable childhood diseases includes influenza, diphtheria, haemophilus influenza type b, hepatitis A and B, HPV, measles, mumps, pertussis (whooping cough), pneumococcal disease, polio, rubella, smallpox, tetanus, and varicella (chickenpox.)

"Dr. Jenner's discovery of vaccination and the global eradication of smallpox rank among the greatest achievements in human history."

- Belongia EA, Naleway AL. Smallpox Vaccine: The Good, the Bad, and the Ugly. *Clinical Medicine and Research*. 2003;1(2):87-92.

Figure 54: CMR

Diseases Prevented by Childhood Vaccines	Pre-Vaccine Era Estimated Morbidity in the US, Annual	Most Recent Reported Cases in US, 2013	% Decrease
Diphtheria	21,053	0	100%
Haemophilus influenzae type b (Hib)	20,000	31	>99%
Hepatitis A	117,333	2,890	98%
Hepatitis B	66,232	18,800	72%
Measles	530,217	187	>99%
Mumps	162,344	584	>99%
Pertussis (whooping cough)	200,752	28,639	86%
Pneumococcal (<5 yrs)	16,069	1,900	88%
Polio	16,316	1	>99%
Rubella	47,745	9	>99%
Smallpox	29,005	0	100%
Tetanus (lockjaw)	580	26	96%
Varicella (chickenpox)	4,085,120	167,490	89%

Table 17:Data from CDC - Reduction in Childhood Vaccine Related Diseases (link)

Across Tennessee, 73% of 24 month olds are fully vaccinated in the 4:3:1:3*:3:1:4 series, which includes vaccinations for DTaP (diphtheria, tetanus, and pertussis), poliomyelitis (polio vaccine), MMR (measles, mumps, rubella), hepatitis B, Hib (haemophilus influenza type b), chickenpox (varicella), and pneumococcus (PCV13).

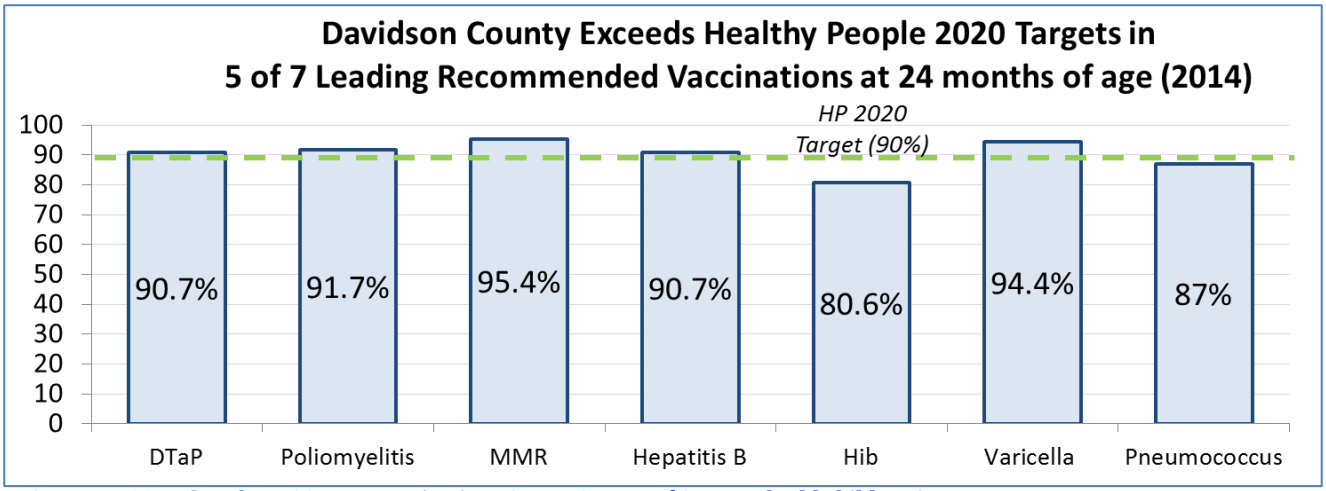


Figure 55: 2014 data from 2014 Immunizations Status Survey of 24-month-old children in Tennessee

Davidson County's rate for on-time vaccinations among 24 month olds is 74%. In addition, Davidson County exceeds Healthy People 2020 target of 90% in 5 of the 7 vaccination rates in the series, falling short on Hib (80.6%) and pneumococcus (87%). Davidson County exceeds the HP2020 target of 90% for DTaP (90.7%), polio vaccine (91.7%), MMR (95.4%), Hepatitis B (90.7%) and Varicella (94.4%).

The Mid-Cumberland public health region, which includes Rutherford and Williamson Counties, has an on-time vaccination rate of 77% for 24 month olds, higher than the state average. The Mid-Cumberland region exceeds Healthy People 2020 target of 90% in 6 of the 7 vaccination rates in the series, falling short on Hib (83.8%), but exceeding the HP2020 target of 90% for DTaP (92.4%), polio vaccine (97.1%), MMR (96.2%), Hepatitis B (96.2%), Varicella (97.1%) and pneumococcus (93.3%).

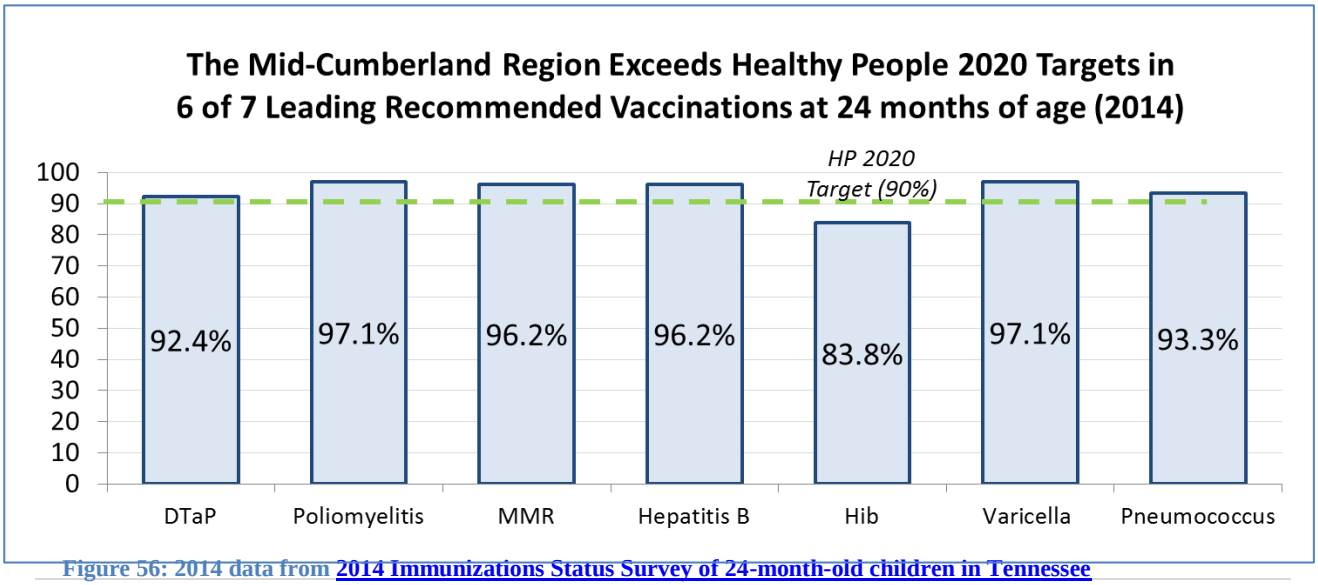


Figure 56: 2014 data from 2014 Immunizations Status Survey of 24-month-old children in Tennessee

Influenza/Pneumonia

Nationwide, influenza and pneumonia cause more deaths each year than any other vaccine-preventable disease. According to the CDC, "over a period of 31 seasons between 1976 and 2007, estimates of flu-associated deaths in the United States range from a low of about 3,000 to a high of about 49,000 people." While 80-90% of deaths occur among those aged 65 and above, hospitalization rates are highest among children under one year old.

Influenza/pneumonia is the 8th leading cause of death in Tennessee, with just 45% of adults and 73.4% of seniors over 65 years of age saying they have had a seasonal flu vaccine within the last 12 months. In Davidson County, just 41.4% of adults and 78.5% of seniors have had a flu vaccine in the past year. In the Mid-Cumberland region, 48.7% of adults and 72.7% of seniors have had a flu vaccine in the past year. Influenza/pneumonia led to an average of 143 deaths across Davidson, Rutherford, and Williamson County from 2010-2014. Age-adjusted mortality rates (deaths per 100,000 population) ranged from 11.7 in Williamson County, to 15.0 in Davidson County to 19.5 in Rutherford County from 2010-2014.

Pneumococcal vaccines are given once or twice in a person's lifetime. In Tennessee, 30.8% of adults and 69.7% of seniors report having received the vaccine, along with just 24.7% of adults and 80.2% of seniors in Davidson County, and 26.2% of adults and 70.8% of seniors in the Mid-Cumberland region.

HIV/AIDS

Human Immunodeficiency Virus (HIV) weakens the immune systems of those infected, making a person susceptible to opportunistic infections or infection-related cancers. By lowering the count of CD4 cells, or "T cells," HIV impacts the body's ability to fight off infection and disease. This can lead to AIDS, the most severe phase of HIV infection. According to the CDC, while 86% of those with HIV have received a diagnosis, just 40% are engaged in care, and only 30% are virally suppressed. While the rates of diagnosis and treatment are similar among genders and races/ethnicities, younger individuals are significantly less likely to have received a diagnosis. For 18-24 year olds, only 49% of those with HIV have received a diagnosis, just 22% are engaged in care, and only 13% are virally suppressed. For 25-34 year olds, the numbers are slightly better, with 74% diagnosed, 34% engaged in care, and 23% virally suppressed.

More than 17,000 Tennesseans live with HIV, including nearly 4,000 in greater Nashville area. Tennessee saw an estimated 817 new cases of HIV infection diagnosed in 2014, including 180 individuals in Davidson County and 18 in Rutherford County. The HIV diagnosis rate in Davidson County (32.6 per 100,000) is more than twice the state rate of 15.5 per 100,000.

Place, gender, and race/ethnicity strongly impact HIV risk. The HIV prevalence rate for males is more than three times the female rate in Tennessee and in Davidson, Rutherford, and Williamson County. In Davidson County, 712 of every 100,000 individuals were living with HIV in 2012. However, that rate per 100,000 ranged from 486 for Hispanic individuals, to 489 for white individuals, to 1,348 per 100,000 for black individuals.

In Rutherford County, an estimated 350 people are living with HIV infection, a rate of 157 cases per 100,000 people. However, the HIV rate per 100,000 ranges from 104 for white individuals, to 197 for Hispanic individuals, to 467 per 100,000 for black individuals.

In Williamson County, an estimated 127 people are living with HIV infection, a rate of 82 cases per 100,000 people. However, the rate per 100,000 ranges from 59 for white individuals, to 79 for Hispanic individuals, to 566 for black individuals.

HIV related mortality is in decline across Tennessee over the last decade, particularly for black individuals. In 2004, 195 black Tennesseans and 94 white Tennesseans died from HIV related causes. By 2014, those numbers had fallen to 100 deaths for black individuals, and 65 deaths for whites. Similar trends are visible in Davidson County, where HIV related deaths fell from 82 in 2004 to 25 in 2014. The rate of decline is particularly noticeable for black individuals, from a high of 52 in 2004, to just 13 in 2014. The Healthy People 2020 target for deaths associated with HIV is 3.3 per 100,000. Davidson County, at 4.6 falls short of that goal, although the age adjusted mortality rate from HIV has consistently fallen

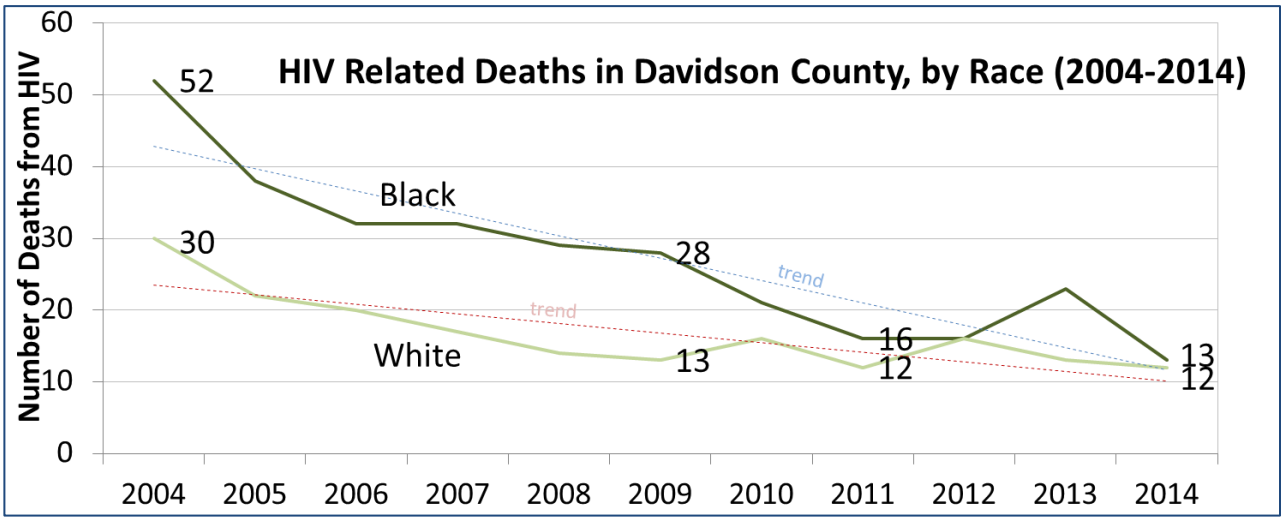


Figure 57: CDC Wonder

Photo 7, Photo by Jed Grubbs

Sexually Transmitted Infections (STI)

There are an estimated 110 million sexually transmitted infections at any given time in the United States. Each year, there are around 20 million new infections, half of which occur in young men and women aged 15-24. Several of the most common STIs' have either mild or no signs or symptoms for those infected.

Chlamydia and gonorrhea are the two most commonly reported notifiable diseases in the United States, according to the CDC. More than 1.4 million cases of chlamydia and more than 350,000 cases of gonorrhea were reported across the country in 2014, and it is estimated that the total number of cases – including those which go undiagnosed or unreported – are more than double that. In Tennessee as well as Davidson, Rutherford, and Williamson Counties the incidence rate for chlamydia and gonorrhea has gone up in recent years.

Davidson County has a higher incidence rate than the state for both chlamydia (599 per 100,000) and gonorrhea (206 per 100,000). Between 2008 and 2012 the incidence rate for chlamydia rose 9% and the incidence rate for gonorrhea rose 18%, respectively.

Rutherford County has a lower incidence rate than the state as a whole for both chlamydia (474 per 100,000) and gonorrhea (90 per 100,000). However, between 2008 and 2012 the incidence rate for chlamydia rose 31%, while the incidence rate for gonorrhea rose 48%. These were both much faster rates of growth than experienced by Davidson and Williamson County, or Tennessee as a whole.

Williamson County has relatively low levels of sexually transmitted diseases, with the incidence rate for both chlamydia and gonorrhea being much lower than the state, Davidson, or Rutherford Counties.

Across Tennessee and the United States, there are racial disparities in the incidence of both chlamydia and gonorrhea, with black Tennesseans facing chlamydia rates more than three times the state average, and gonorrhea rates more than four times the state average.

Mental and Emotional Health

Good mental and emotional health is directly related to – and supportive of - good physical health. Studies have indicated that just 17% of Americans are in a state of optimal mental health, defined by CDC as **"**a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community." While little is currently being done to protect and promote mental health in those free of mental illness, researchers suggest that the three key domains of positive mental health are emotional, psychological, and social well-being.

> "It is estimated that only about 17% of Americans are in a state of optimal mental health."
> - Centers for Disease Control

Figure 58: CDC

Mental illness is defined by the CDC as ""collectively all diagnosable mental disorders" or "health conditions that are characterized by alterations in thinking, mood, or behavior (or some combination thereof) associated with distress and/or impaired functioning."" They note that "depression is the most common type of mental illness, affecting more than 26% of the U.S. adult population." SAMSHA estimates that 9.8 million adults in the US had serious mental illness in 2014. 1.7 of those individuals was aged 18-25. Meanwhile, 15.7 million adults and 2.8 million youth (aged 12-17) had a major depressive episode within the last year.

Mental illness is strongly related to the occurrence of many chronic diseases, including diabetes, cancer, heart disease, asthma, and obesity. Mental disorders also impact risk behaviors for chronic disease, including sleep habits, tobacco use, alcohol and substance abuse, and physical inactivity.

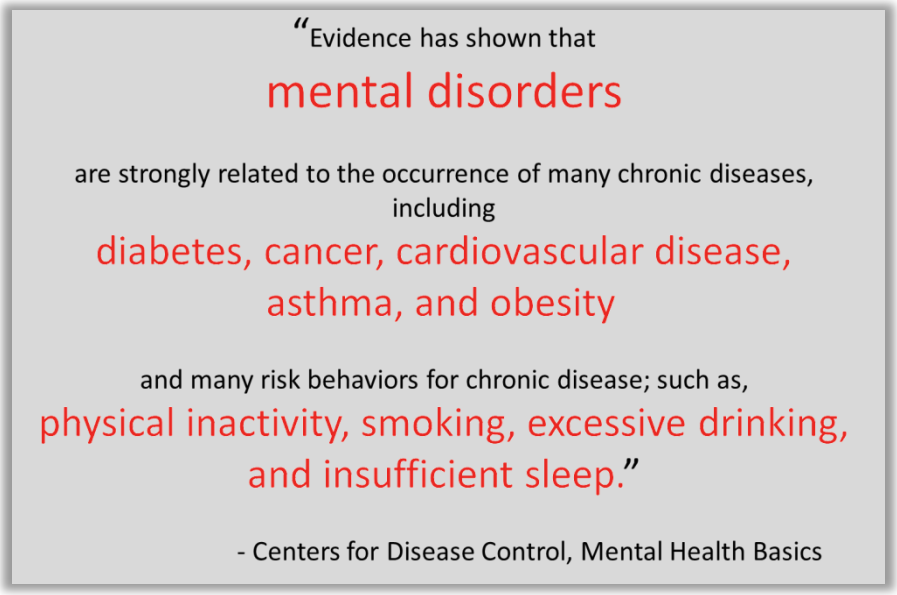


Figure 59: CDC – Mental Health Basics

In Davidson County, as well as in the Mid-Cumberland Region (which contains Rutherford and Williamson Counties) more than one in five adults have experienced mental illness within the last year, meaning "a diagnosable mental, behavioral, or emotional disorder other

than substance use disorder that met the criteria found in the DSM-IV."

The average American had 3.5 "poor mental health days" within the last 30 days, similar to the Tennessee rate of 3.4. In Davidson and Rutherford County, individuals experienced 2.7 poor mental health days within the last 30 days, and in Williamson County, individuals experienced and average of 1.9 poor mental health days within the last 30 days.

Based on 2014 data from the Tennessee Department of Mental Health and Substance Abuse Services, more than 30,000 individuals in Davidson, Rutherford, and Williamson County experience "Serious Mental Illness" (SMI) every year, including roughly 21,000 in Davidson County alone.

Serious mental illness includes Schizophrenia, Bipolar Disorder, and other major depressive disorders. A number of reviews and studies have shown that people with SMI have excess mortality two or three times higher than that in the general population. This mortality gap can translate to life expectancy shortened by as much as 30 years in SMI patients, and the gap is widening. Both lamentable and encouraging is the fact that – according to leading research on the subject - the increased morbidity and mortality seen in this population are largely due to a higher prevalence of modifiable risk factors.

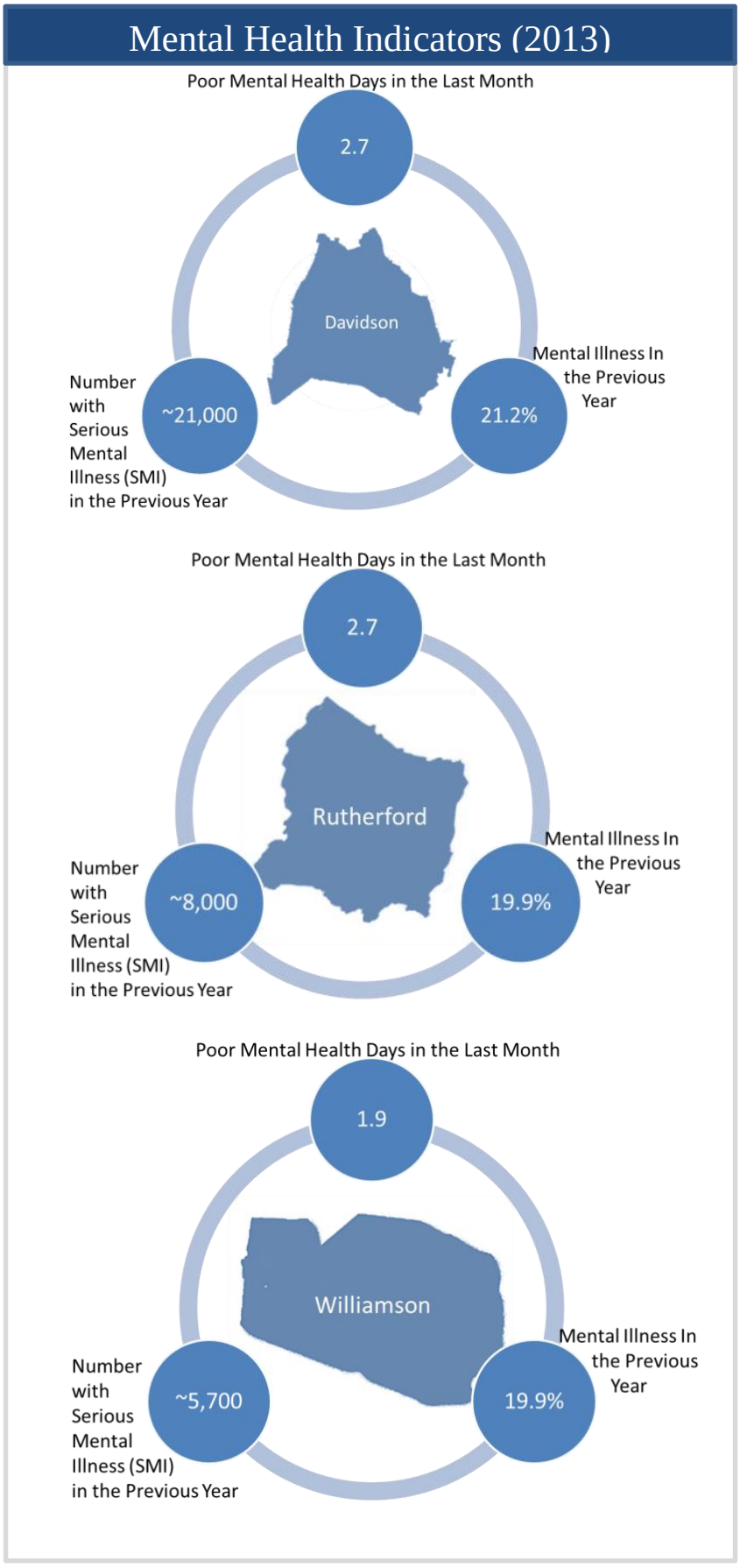


Figure 60: Data from County Health Rankings and 2014 Tennessee Behavioral Health County Data Book, SMI Calculations based on 2013 population estimates from US Census

Adverse Childhood Experiences (ACEs)

ACES in TN (2012)	
# ACEs	% (TN)
0	48%
1	20%
2	11%
3	7%
4(or more)	14%

Table 18: TN Department of Health

Adverse Childhood Experiences" (ACEs) are "stressful or traumatic events that disrupt the safe, nurturing relationships and environments that children need to thrive." ACEs may include abuse, neglect, or household challenges such as violence, incarceration, or substance abuse within the household. The negative effects of ACEs are often life-long, impacting physical and mental health. Studies show a strong link between adverse childhood experiences and adult onset of chronic illness. More than half of Tennesseans have experienced at least one ACE, with one in every seven of us having experienced more than four. Those with ACE scores of four or more had significantly higher rates of heart disease and diabetes than those with ACE scores of zero. The likelihood of depression increased 460%, while the likelihood of suicide went up 1,220%. Individuals with six or more ACEs died nearly 20 years earlier on average than those without ACEs — 60.6 years versus 79.1 years.

ACEs Impact Health

Those with ACE scores of four or more have significantly higher rates of chronic disease than those with ACE scores of zero.

Additionally, their likelihood of depression increases 460%

The likelihood of suicide increases 1,220%

The prevention, treatment, and mitigation of ACEs goes beyond clinical care. CDC indicates that "safe, stable, and nurturing relationships and environments (SSNREs) can have a positive impact in helping children reach their full potential.

SAMSHA estimates that "by 2020 mental and substance use disorders will surpass all physical diseases as a major cause of disability worldwide." The Institute of Medicine and National Research Council estimates that "cost-benefit ratios for early treatment and prevention programs for addictions and mental illness programs range from 1:2 to 1:10," meaning that every dollar invested in prevention yields anywhere from $2 to $10 in cost savings related to health, juvenile justice, education and lost productivity."

It was heard again and again in interviews and listening sessions in the community during this needs assessment – mental health is a critical issue in Davidson, Rutherford, and Williamson Counties, and the impact of mental health reach into every aspect of our lives. Research is beginning to show that while it may say "heart attack" on the death certificate, too often the heart attack was related to obesity, for which over-eating contributed, which may have begun as a lack of social support after a depressive episode. Across racial, gender, and economic lines, many struggle with mental illness, and evidence is increasingly making clear that strong mental and emotional health is one of the best ways to combat unhealthy behaviors, physical ailments, disease and death.

Disability

Around 38 million Americans live with disabilities, or 12.6% of the population. The rates of disability are higher in Tennessee – at 15.7%. The rates in the VUMC community are somewhat lower, however. In Davidson County, 11.9% live with disability. In Rutherford County, the rate is 10.3%, and in Williamson County it is 7.4%.

Disability Characteristics, by age (2014)

	Davidson	Rutherford	Williamson	TN	USA
Age 5-17: Disability total	5.7%	7.4%	2.8%	6.2%	5.4%
- Hearing difficulty	0.9%	1.3%	0.0%	0.7%	0.6%
- Vision difficulty	0.7%	0.2%	0.8%	0.9%	0.8%
- Cognitive difficulty	4.2%	5.2%	1.8%	4.7%	4.1%
- Ambulatory difficulty	0.3%	1.0%	0.6%	0.6%	0.6%
- Self-care difficulty	1.0%	0.9%	1.1%	1.0%	1.0%
Age 18-64: Disability total	10.5%	9.2%	5.7%	14.1%	10.5%
- Hearing difficulty	1.8%	1.7%	1.4%	2.7%	2.1%
- Vision difficulty	2.2%	2.4%	1.0%	2.8%	1.9%
- Cognitive difficulty	4.6%	3.8%	1.3%	6.1%	4.4%
- Ambulatory difficulty	5.5%	4.6%	2.7%	7.8%	5.2%
- Self-care difficulty	2%	2.2%	0.6%	2.5%	1.9%
- Independent living difficulty	3.8%	3.5%	1.7%	5.2%	3.7%
Age 65+: Disability total	35.5%	30%	29.2%	39.4%	36%
- Hearing difficulty	11.7%	14.4%	17%	16.2%	15%
- Vision difficulty	5.9%	7.6%	3.8%	7.9%	6.7%
- Cognitive difficulty	7.9%	10.3%	9.4%	10.4%	9.1%
- Ambulatory difficulty	23.9%	21.7%	16.4%	25.9%	23%
- Self-care difficulty	6.4%	8.6%	5.2%	9.3%	8.4%
- Independent living difficulty	14%	14.4%	10.7%	17%	15.2%

Table 19: American Communities Survey (2014, 1 year estimates)

An estimated 1.7 Americans sustain a traumatic brain injury (TBI) each year. In Tennessee alone, around 8,000 people are admitted to the hospital each year with TBI, mainly from falls, motor vehicle accidents, and homicide or violent injuries. From June-December of 2014, 47% of injury-related TBI hospital admissions were due to accidental falls, including 76% of TBI hospitalizations for those aged 65 and older.

Intellectual and Developmental Disability

Around 30 million individuals have cognitive disability in the US, as of FY 2013; around 12.2 million with "severe, persistent mental illness," 6.4 million with a "brain injury," 5.4 million with Alzheimer's disease, 5.1 million with intellectual disabilities, and around 1 million are living with stroke.

An intellectual or developmental disability is a condition that "is significant and ongoing, begins before age 22, and substantially limits functioning in daily activities of living," according to the Vanderbilt Kennedy Center. Examples include ADHD, autism spectrum disorder, cerebral palsy, hearing loss, intellectual disability, learning disability, vision impairment, and sensory-related disabilities. According to the CDC, around one in six children aged 3-17 have at least one developmental disability. Although just 37% of Tennessee children under age six have received a developmental screening, that number is higher than the national rate (30%).

Those with intellectual and developmental disabilities are more likely to face challenges such as poverty and unemployment than the general population. Approximately 30% of Tennesseans with disability are employed, working many different types of jobs, including building and maintenance, food preparation and services, and retail.

While poverty is both a challenge faced as a consequence of dealing with disability, poverty can also be predictive of developmental disability. As of 2012, the poverty rate of those with a cognitive disability (36%) was nearly two and a half times the poverty rate for those without a cognitive disability in Tennessee (15%). Meanwhile, the rate of Tennessee children aged 0-5 who live above 200% of the federal poverty level and are at risk for developmental delays is 15%. The risk for those living below 200% FPL rises to 21%.

Across Tennessee in 2014, 12.1% of students aged 6-21 receive special education services. Davidson (10.5%), Rutherford (10%), and Williamson (8.5%) Counties each have lower rates of students receiving special education services than the state, according to KIDS Count.

Rate of Students (Age 3-21) Receiving Special Ed Services, by Type, per 1000				
	Davidson	Rutherford	Williamson	TN
Learning Disability	32.6	47.0	31.5	50.1
Language Impaired	27.3	20.2	21.9	34.2
Health Impaired	15.6	12.2	15.5	15.6
Developmentally Delayed	10.5	9.2	7.1	9.3
Intellectual Disability	10.0	5.4	3.5	7.6
Autism	10.2	8.7	10.1	8.2
Emotionally Disturbed	7.2	1.7	1.5	3.1
Other disabilities	4.5	4.6	3.8	5.5

Table 20: **KIDSCOUNT, 2013**

Results

Primary Data

As previously noted, primary data were collected through a series of listening sessions and interviews across the community. Topics of interest included community assets and resources, health concerns, community concerns beyond the health system, emergency room use for non-emergencies, as well as strategies that could be used in addressing pressing health concerns in the community.

> "We are good at Band-Aids, but not so good at addressing what is doing the cutting."
> - *Interviewee*

Participants across the community listening sessions were largely female; many were uninsured or on Medicaid. Interviews were done with community leaders and stakeholders from across the community served. Sectors represented include public health, government, health care, education, faith communities, private foundations, and academia among others. The listening session guide, interview protocol and full results may be found in Appendices B, C, and G. A county by county description of themes is below.

In each county, differing sets of issues, assets, and strategies that might be used to address the most pressing needs were raised. Many common themes, however, ran across the counties. Mental and emotional health was brought up consistently across each county. Substance use and abuse, and the co-occurrence of mental illness and substance abuse were also highlighted in each county. There was common perception that mental illness was less stigmatized than in the past, and an increasing recognition that mental and emotional health impacts physical health.

There was a general frustration, particularly in under-served neighborhoods, with accessing resources and services. In particular, the health system was often described as inaccessible and unwelcoming. There were frustrations with waiting times to get appointments, availability of clinics during non-business hours, and a feeling that medical care in general is not person-centered. Many individuals were similarly frustrated in trying to access basic social services such as qualifying for and collecting disability, public transportation, or housing assistance. Cost was commonly cited as a barrier to accessing prescriptions, medical care (primary, dental, specialty), and health insurance. The impact of traffic and transportation were cited across the counties, in varying contexts. Some expressed great frustration with sitting in traffic on a day-to-day basis, while others cited lack of public transportation options, sidewalks, and walkability issues as leading frustrations.

> "The village [that raised us] has left us."
> - *Listening session participant*

Davidson County Listening Session and Interview Themes

In Davidson County, there are many individuals and families who face a daily challenge in meeting basic needs such as food and shelter. As of 2014, there are more than 129,000 individuals in Davidson County facing the challenges of poverty, including 47,000 children under the age of 18. The constant stress of poverty, along with the challenges of meeting basic needs dominated responses received from both interviews and listening sessions.

Davidson County interviewees' top responses for the greatest health concerns in the community were *Access to Care* (48%), *Affordable Housing / Homelessness* (42%), *Poverty* (39%), and *Mental & Emotional Health (33%).* More than half of respondents chose "*Poverty / Working Poor*" (52%) as the most pressing socioeconomic and demographic factor in improving community health. When asked about other factors which impact community health, a majority cited "*Affordable Housing / Homelessness*" (63%), "*Healthy Food Access"* (54%), and "*Transportation" (54%).*

"What Conditions and Diseases are Causing Illness and Death in your Community?"		
Davidson	Mental / Emotional Health	42 %
	Cardiovascular Disease	39 %
	Chronic Disease	39 %
	Obesity	36 %

Interviewees were asked "What conditions and diseases are causing illness and death in your community?" Top responses were "*Mental & Emotional Health*" (42%), "*Cardiovascular Disease*" (39%), and "*Chronic Disease*" (39%).

When asked about the greatest issues in accessing and utilizing the health system, the top responses were "*Access – Overall" (42%)* and *Coordination of Care* (36%). Interviewees cited "*Nutrition"* (48%) and "*Physical Activity"* (48%) as the behaviors that have the largest negative impact on health.

In both interviews and community listening sessions, participants were asked what causes the use of the emergency room for conditions that can be treated in a primary care setting. Interviewees cited convenience, hours of operation, transportation, lack of health insurance, and challenges in health navigation and health literacy. Listening session participants also focused on the challenges of accessing primary care, the belief that the emergency room does not require up-front payments for care, and the perceived lack of wait times.

In both interviews and community listening sessions, participants were asked what supports health and well-being in the community. Both interview and listening session participants identified organizations and groups focused on the underserved, such as safety net providers, family resource centers, faith communities, and non-profit organizations. In addition, interviewees identified access to recreational activities such as parks and greenways as an asset.

Listening session participants were asked about the greatest health / healthcare issues in the community. Access to care due to cost, insurance gaps, or lack of insurance were the top responses. Appointment wait times and access to health care providers, access to affordable

healthy food, mental and emotional health, and substance abuse were also raised as important issues and the health care delivery system was described as often fragmented, uncoordinated, and unwelcoming.

Listening session participants were also asked to think about social and environmental factors that impact well-being. In Davidson County, participant's responses related to meeting basic needs, including transportation, chronic stress related to crime, lack of opportunity, lack of safe spaces for youth, housing, the cost of childcare and parent/family support.

In both interviews and community listening sessions, participants were asked what strategies the county should focus on to improve community health. The top response for both interviewees and listening session participants in Davidson County was increasing access to affordable quality insurance and health care for all. Transportation barriers, health education, investment in safe, walkable neighborhoods, workforce development, the built environment, housing and child care were also identified as community priorities.

In sum, a main theme in Davidson County is the inability of many individuals to meet basic needs. Additional common themes included challenges addressing mental and emotional health, difficulty accessing and navigating the health system, and difficulty accessing information on health and social services.

Rutherford County Listening Session and Interview Themes

Rutherford County is facing many of the challenges typical of a relatively large county facing rapid growth and change. Transportation and traffic pose challenges for connectivity, physical health, as well as mental and emotional health - a significant theme across the data in Rutherford County. Another central theme was challenges at the confluence of physical activity, nutrition, and obesity.

"What are the Greatest and/or Health Care Concerns in your Community?"		
Rutherford	Mental / Emotional Health	50 %
	Obesity	46 %
	Affordability of Care	39 %
	Access to Care	36 %

Rutherford County interviewees' top responses for the greatest health concerns in the community were *Mental & Emotional Health* (50%), *Obesity* (46%), *Affordability of Care* (39%), and *Access to Care (36%).* More than half of respondents chose "Health Insurance Coverage" (54%) as the most pressing socioeconomic and demographic factor in addressing community health.

When asked about other factors which impact community health, a majority cited "*Healthy Food Access"* (57%)*, "Affordable Housing and Homelessness"* (54%), and "*Transportation" (54%).*

Interviewees were asked "What conditions and diseases are causing illness and death in your community?" Top responses were "*Alcohol and Drug Abuse*" (50%), "*Mental / Emotional Health*" (46%), and "*Obesity*" (43%).

When asked about the greatest barriers in the health system, the top responses were "*Affordability" (39%)* and *ER use for Non-Emergencies (32%).* Interviewees cited "*Alcohol and Drug Abuse"* (54%), "*Nutrition"* (46%) and "*Physical Activity"* (46%) as the behaviors that have the largest negative impact on health.

In both interviews and community listening sessions, participants were asked what causes the use of the emergency room for non-emergencies. Interviewees focused on lack of a consistent source of primary care, convenience, hours of operation, transportation, lack of health insurance, and challenges in health navigation and health literacy as barriers. Listening session participants also focused on the perception that the emergency room does not require up-front payments for care, the challenges of being uninsured or under-insured, transportation as a barrier to accessing care, and the challenges of accessing the primary care system.

In both interviews and community listening sessions, participants were asked what supports health and well-being in the community. Interviewees identified safety net health care and service providers such as the local health department, community cohesiveness, and greenways and recreational opportunities as assets. Listening session participants also identified parks and greenways as assets, as well as the central location of highways, the growth of businesses, and the availability of activities for children and families.

Listening session participants were asked about the greatest health / healthcare issues in the community. Access to care due to cost, insurance gaps, lack of insurance, and the cost of prescriptions were top responses. A culture of unhealthy eating, mental and emotional health, substance abuse, and access to specialty care were highlighted as critical health issues. Listening session participants were also asked to think about social and environmental factors that impact well-being. In Rutherford County, top issues included traffic and transportation, walkability, the cost of living (particularly housing and childcare), lack of connection between resources and the populations that might utilize these resources, and a long wait for services and benefits such as public housing or unemployment benefits.

In both interviews and community listening sessions, participants were asked what actions the county should focus on to support and improve community health. The top response for interviewees was increasing access to affordable primary care. Addressing substance abuse, mental health, and healthy lifestyles (healthy food access / obesity / physical activity) were also seen as top priorities. Listening session participants identified transportation, transit, and connectivity across the county as a top priority. Coordination and collaboration across the community, increasing access to care (including mental health care and adult dental care), and expanding affordable insurance options were also seen as high priority.

In summary, main themes in Rutherford County included challenges with transportation and the lack of connectivity across the county, alcohol and drug abuse, mental and emotional health, and challenges regarding accessing and navigating the health system.

Williamson County Listening Session and Interview Themes

Williamson County fares better in terms of resources, and yet a theme of the data was the challenges of mental and emotional health, as well as substance abuse, among both adults and children. A high cost of living, particularly housing, challenges many in the county.

Williamson County interviewees' top responses for the greatest health care concerns in the community were *Mental & Emotional Health* (45%), *Obesity* (45%), *Access to Care* (40%), and *Affordable Housing / Homelessness (33%).*When asked about environmental factors which impact community health, a majority cited "*Affordable Housing / Homelessness"* (60%) *and "Transportation"* (55%).

"What Behaviors Have the most Negative Impact on Health in your Community?"		
Williamson	Alcohol and Drug Abuse	50 %
	Texting While Driving	40 %
	Domestic Violence	35 %
	Tobacco Use	35 %

Interviewees were asked "What conditions and diseases are causing illness and death in your community?" Top responses were "*Mental & Emotional Health*" (50%), "*Cancer*" (50%), and "*Alcohol and Drug Abuse*" (40%). When asked about the greatest barriers in the health system, the top responses were "*Affordability" (50%)* and "*Coordination of Care (36%).* Interviewees cited "*Alcohol and Drug Abuse"* (50%) and "*Texting While Driving"* (48%) as the behaviors that have the largest negative impact on health.

In both interviews and community listening sessions, participants were asked what causes the use of the emergency room for non-emergencies. Interviewees focused on the challenges of health navigation and literacy, lack of insurance, cost of care, and lack of relationship with a primary care provider. Listening session participants also focused on the perception that one could receive a high level of care, regardless of insurance coverage.

In both interviews and community listening sessions, participants were asked what supports health and well-being in the community. Interviewees identified the availability of resources such as the health department, schools, and community activities and programs as assets. They also identified Williamson County as a good, safe place to live. Community listening session participants recognized the hospitals and healthcare system as an asset, while also identifying the collaboration of non-profit organizations and service providers, and parks and recreational opportunities as beneficial to community health.

Listening session participants were asked about the greatest health / healthcare issues in the community. Access to care was a top response, particularly access for individuals who are undocumented. Transportation barriers, the challenges of navigating the health system, and insufficient dental care for the uninsured were also highlighted as critical issues. When asked about social and environmental issues that impact well-being, participants also noted affordable housing and the cost of living.

In both interviews and community listening sessions, participants were asked what actions the county should focus on to support and improve community health. The top response for interviewees was increasing access to affordable care and insurance. Health education and assistance in navigating the health system, supporting healthy lifestyles, and addressing mental and emotional health were also seen as important priorities. Listening session participants identified affordable health insurance as a top priority. Facilitating access to medical and social services, increased specialty care, and creating and sharing sources of information for activities and services were also seen as priorities.

In summary, Williamson County themes included challenges related to transportation and connectivity, challenges to accessing quality health insurance and health services, the high cost of living, and the need to address mental health. The availability of resources was commonly raised as an asset.

Identifying and Prioritizing Needs

Community Summits

Results of the community interviews, community listening sessions, and secondary data analysis were presented in three separate Community Health Summits – one in each of Davidson, Rutherford, and Williamson counties. Summit invitees included all participants in interviews and community listening sessions, as well as community members with expertise in public health or who work with medically under-served, minority, or low income populations. Leadership from VUMC and VUMC's Collaborators on the needs assessment were also present. The purpose of the Summits was to solicit input and take into account the broad interests of the community in identifying and prioritizing the community's health needs. In Davidson County, the Summit was facilitated jointly by VUMC and Saint Thomas Health. In Rutherford County, the Summit was facilitated by VUMC, Saint Thomas Health, and the Rutherford County Health Department. In Williamson County, the Summit was facilitated by VUMC in collaboration with the Williamson County Health Department.

After being presented with primary and secondary data on a number of needs, Summit attendees provided input into prioritizing the most important health needs within the community. Each individual selected three health issues, which were grouped into categories by the Summit facilitators and shared with Summit attendees. The health needs prioritized by Summit participants for Davidson and Rutherford Counties were:

Prioritized Needs

The prioritized health needs for Davidson and Rutherford Counties are:

- **Access to Care / Coordination of Care**
- **Mental and Emotional Health / Substance Abuse**
- **Social Determinants**
- **Wellness & Disease Prevention**

In Williamson County, participants did not prioritize social determinants as a health need. Following this exercise, participants in each county provided further insight regarding each prioritized need by working in groups to answer questions such as; "What would a healthy community look like regarding this issue?"; "Who is already working on this issue?"; "What are potential goals related to the issue?" and "What are potential barriers regarding this issue?"

Following the Summits, VUMC consulted the "Community Health Improvement Working Group", a group of internal program managers and directors who interface with the community to review the needs the community prioritized. The Working Group was tasked with

making a recommendation to VUMC's CHNA/IS Advisory Committee--a group of senior leaders responsible for high-level guidance on the CHNA/IS--on the needs that VUMC should adopt. The Working Group considered criteria such as the scope, severity, and the ability of VUMC to impact an issue and recommended that VUMC adopt all four identified needs. Prioritized needs are considered of equal importance, and are listed in this report in alphabetical order. The Advisory Committee chose to adopt all four identified needs and these needs guided development of VUMC's Implementation Strategy.

The CHNA / IS were adopted by the Board of Directors of Vanderbilt Stallworth Rehabilitation Hospital in July of 2016, and by the VUMC Board of Directors in August of 2016. The CHNA is available to the public at VUMC's Community Health Improvement Platform (http://vanderbilthealth.com/main/38766) where individuals can comment on the CHNA/IS or receive a copy free of charge upon request. The CHNA was used to guide in the development of VUMC's Implementation Strategy.

Summary of Prioritized Needs:

Access to Care / Coordination of Care - Summary

"Access to Care/Coordination of Care" represents a broad category of issues relating to accessing, utilizing, and navigating the health system. Common themes in the data included access to medical care, access to insurance, access to a medical home, access to primary care, and coordination of care.

Both the primary and secondary data pointed to challenges in accessing care for the community. Although health insurance rates have been improving (as in Davidson and Rutherford) or stable (as in Williamson County, which already has low rates of uninsured individuals), there are frustrations that come with accessing insurance, utilizing insurance, and affording quality insurance. Davidson County – as of 2014 – had a higher uninsured rate (14.9%) than Rutherford County (10.7%), Williamson County (6.5%), Tennessee (12%), or the nation as a whole (11.7%). Ongoing discussions about Tennessee's potential expansion of Medicaid impact how individuals, hospitals, and other Tennesseans consider their options related to insurance.

Whether insured or not, the primary and secondary data highlighted many challenges to accessing medical care in the region, including long waits for appointment times, affordability, the coordination of care, and access to mental health care. Interviewees named "health insurance coverage" the third most important socio-economic factor in Williamson County, the second most important in Davidson, and first in Rutherford. Interviewees in Rutherford and Williamson County cited "affordability" as the greatest barrier within the health system. Increasing access to care and insurance was seen as a key solution for both interviewees and listening session participants in all three counties.

> "Any door [into the health system] should be the right door to get you where you need to be to receive the correct care."
> - *Community summit participant*

Secondary data indicate that one in six adults in Davidson County could not visit a doctor within the last year due to cost; while one in five doesn't have a usual source of care in the county. On the positive side, Davidson and Williamson Counties tend to have patient-to provider ratios that are better than most other areas in Tennessee.

Coordination of care can be difficult, particularly with individuals who face complex conditions, need multiple medications, and who require multiple caretakers.

A more comprehensive listing of resources to address the community identified need of "Access to Care / Coordination of Care" can be found in the 2016 Implementation Strategy and in Appendix E.

Mental & Emotional Health / Substance Abuse - Summary

Mental and emotional health was seen as a major issue in this needs assessment process. Both the primary and secondary data indicate extremely high levels of chronic stress, emotional strain, and mental illness in the community.

In interviews and community listening sessions, it was observed that mental and emotional health have an enormous impact on physical health. When interviewees were asked "*What conditions and diseases are causing illness and death in your community*?" more chose "mental and emotional health" than any other response. In other words, mental health was ranked above heart disease, cancer, obesity, diabetes, chronic disease, and a number of other illnesses and risky behaviors for its impact on illness and death. Additionally, when interviewees were asked about the greatest health and/or healthcare concerns in their community, mental and emotional health was the top response.

Davidson and Rutherford County residents reported having around three poor mental health days in the last 30 days, similar to the state and national average of four. In addition, one in five individuals in each of Davidson, Rutherford, and Williamson County has lived with diagnosable mental illness within the previous year.

Nearly one in twenty five has lived with Serious Mental Illness (SMI) in the previous year, adding up to roughly 30,000 individuals who face daily battles with debilitating ailments such as schizophrenia, bipolar disorder, or major depressive disorders.

More than one in five Tennesseans has lived with a diagnosable mental illness in the last year.

TDMHSAS: 2014 Tennessee Behavioral Health County Data Book

Substance abuse was also raised as an issue, often co-occurring with mental illness. In Rutherford and Williamson Counties, interviewees saw "alcohol and drug abuse" as the *behavior* having the greatest negative impact on health, while tobacco use ranked fourth in both counties. Listening session participants also raised substance use/abuse as a top health concern in Davidson and Rutherford Counties, particularly with prescription drugs. Whereas Williamson County – which frequently ranks at the top of the state in health outcomes, ranked poorly at second to bottom for binge drinking, according to County Health Rankings in 2015.

A more comprehensive listing of resources to address the community identified need of "Mental & Emotional Health /Substance Abuse" can be found in the 2016 Implementation Strategy and in Appendix E.

Social Determinants - Summary

Researchers point to social and economic factors as the most important determinants of health. The World Health Organization (WHO) describes poverty as "the single largest determinant of health." According to the Center for Health and Learning, social and economic factors contribute 40%, health behaviors 30%, genetics 10%, the physical environment 10% and clinical care 10% to overall health. Disparities in health are striking in communities with poor social determinants of health such as unstable housing, low income, unsafe neighborhoods, or substandard education.

The primary and secondary data point to significant challenges faced by many in the community when it comes to meeting basic needs, facing the daily stress of poverty, and securing adequate affordable housing, food, transportation, and even basic safety. In all, there are more than 180,000 individuals living in poverty in Davidson, Rutherford, and Williamson Counties – including roughly 63,000 children. Poverty rates are highest for children, those without a high-school degree, and minority populations. Davidson County is 94th of 95 Tennessee counties (ranked from best to worst) for both its high violent crime and low high school graduation rates. Meanwhile, many across the region face chronic homelessness or are cost-burdened by housing.

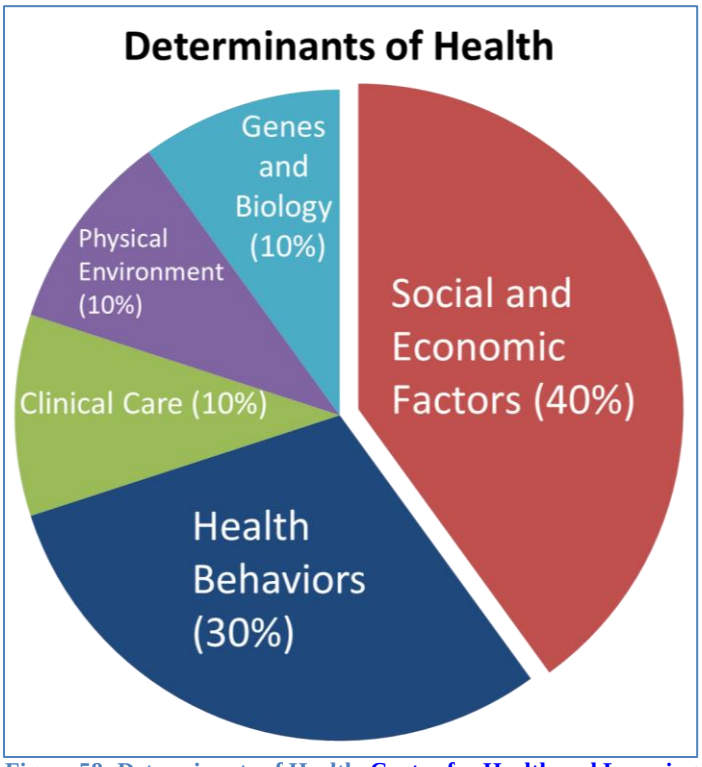


Figure 58: Determinants of Health, Center for Health and Learning

Interviewees described poverty as the third most important health concern, and the biggest socioeconomic/demographic factor impacting health in Davidson County. Affordable housing / homelessness emerged as either the first or second most important environmental factor impacting health in each county. Listening sessions highlighted challenges such as the cost of living, housing availability and affordability, lack of basic needs, and chronic stress associated with poverty, as well as concerns about violence, crime, neighborhood safety, and safe spaces for youth.

A more comprehensive listing of resources to address the community identified need of "Social Determinants" can be found in the Implementation Strategy and in Appendix E.

Wellness & Disease Prevention - Summary

Promoting health and preventing disease begins far beyond the hospital walls. As in the VU 2013 CHNA, the primary and secondary data pointed to many challenges associated with the broad category of "wellness and disease prevention" in the community. These ranged from obesity, to the access to and consumption of fresh and healthy food, or getting recommended amounts of physical activity. In addition, health education and literacy, and infant/child health ranked high on the list of challenges and concerns, along with prevention of chronic diseases.

When asked "*what are the greatest health/healthcare concerns in your community?*" interviewees in Rutherford County listed "obesity" as second, and interviewees in Williamson County cited "obesity" as the greatest health /healthcare concern, tied with mental health. In Davidson County, interviewees said that healthy food access was the second most important environmental factor impacting health, while Rutherford County interviewees called healthy food access the top environmental factor impacting health. "Nutrition" and "physical activity" tied for second in Rutherford County, and tied for first in Davidson County when interviewees were asked "*what behaviors have the most negative impact on health in your community?"* Additionally, when asked about "priority actions" the county should focus on, interviewees and listening session participants in all three counties raised the need to build-upon or renew health education / literacy efforts, generally by improving or building upon existing collaborative relationships.

Secondary data point to tobacco use as the leading cause of preventable death both nationwide and here in Tennessee. Only Williamson County (11%) does better than the Healthy People 2020 target of 12% for rates of tobacco use. Chronic diseases such cancer, heart disease, and chronic lung disease cause more than half of the deaths across the three counties discussed in this needs assessment. Nearly two thirds of individuals in the community are overweight or obese, while rates of physical activity in the area fall far short of the national average.

A more comprehensive listing of resources to address the community identified need of "Wellness & Disease Prevention" can be found in the 2016 Implementation Strategy and in Appendix E.

Limitations and Information Gaps

The limitations of this needs assessment are as follows:

Response categories on the interview guide for some questions were not mutually exclusive. For instance, respondents could choose either “chronic disease” or “diabetes” (which is itself a chronic disease). In addition, there was variability in the number of responses some interviewees chose for each question.

In community listening sessions, there were potential language and cultural barriers to communication. A targeted, convenience sample was used for listening sessions, and thus participants in the listening session are not representative of the population overall.

Of note in terms of the secondary data, as with all secondary data, there is source variability, with a variety of sources available for similar or identical indicators. In addition, many indicators considered were not available for some racial and ethnic sub-populations which impacted considering such sub-populations in some of the analysis.

Despite these limitations, there were not significant information gaps that limited VUMC’s ability to assess the community’s health needs.

Evaluation of VU 2013 CHNA / IS Programs

Since 2013, Vanderbilt University Hospitals and Vanderbilt Stallworth Rehabilitation Hospital have continued to meet the goals outlined in the VU 2013 *Community Health Needs Assessments* and *Implementation Strategies*, and Stallworth 2013 Community Health Needs Assessments and Implementation Strategies, respectively, including "increasing access to quality health care," "advancing care coordination across the health care system," and "supporting evidence-based preventive health services and preventive health behaviors" in Davidson, Montgomery, Rutherford, and Williamson Counties*.

Access to Care

In addition to the continuation of most programs listed in VUMC's 2013 Implementation Strategy, VUMC has continued to prioritize access to care in Davidson, Montgomery, Rutherford, and Williamson Counties. From FY 2013 to FY 2015, Vanderbilt University Hospitals provided $1.207 billion in charity care and community benefit. The payer mix of the Vanderbilt University Hospitals' patient population included 4.7% uninsured, 18% TennCare/Medicaid, and 29.5% Medicare/Managed Medicare in FY 2015. VUAH and the Children's Hospital were responsible for more than 1.9 million outpatient visits, 120,000 Emergency Department visits and more than 65,000 inpatient discharges in FY 2015. In addition VUMC provided 500 Lifeflights, 4,000 Ambulance transports, and nearly 100 Angel Neonatal Transports for those in Davidson, Montgomery, Rutherford, and Williamson Counties in 2015 alone. At Stallworth, 4.2% of patients were insured through Medicaid in 2015. Through these and other efforts, VUMC has successfully increased access to quality health care in the community in the time since the VU and Stallworth 2013 CHNA and IS were published.

Coordination of Care

In addition to the continuation of most programs listed in VU's 2013 IS, VUMC has continued to prioritize coordination of care in Davidson, Montgomery, Rutherford, and Williamson Counties. The Vanderbilt Health Affiliated Network (VHAN) continues to expand the network of high quality hospitals and associated clinics. VUMC offers services such as StarPanel, allowing physicians across Middle Tennessee who are credentialed at the Children's Hospital to access their patients' electronic medical records as needed. Services such as the Vanderbilt Poison Center and Tennessee Disability Pathfinder connect hundreds of individuals annually with resources such as social service agencies, clinics, and recreational programs. Stallworth uses a Dixon Hughes database to provide data on demographics and specific areas of need within the patient population, throughout the service areas, and within both primary and secondary markets. Through these and other efforts, VUMC has successfully advanced care coordination across the health care system and in the community since the VU 2013 CHNA and IS were adopted.

Wellness / Disease Prevention

In addition to the continuation of most programs listed in VU's 2013 Implementation Strategy, VUMC has continued to prioritize disease prevention in Davidson, Montgomery, Rutherford, and Williamson Counties. Vanderbilt Health and Wellness – an umbrella division for three programs that provide support for the health and productivity of faculty and staff - delivers information to thousands of corporate partners and their employees in Davidson County, provides trainings on injury prevention such as the "Be in the Zone" – Teen Motor Vehicle Safety Program," and trains DCS and Youth Services Staff which serve youth from across the region. In addition, VUMC provided more than 900 behavioral health services for students in Metro Nashville Public Schools and more than 2,000 mental health consultations across the counties in 2015 alone. VUMC's Shade Tree Clinic serves roughly 350 uninsured Spanish and English-speaking residents of Davidson County every year, totaling roughly 1,300 annual visits. VUMC also offers numerous programs and camps for kids, adults, and seniors, offering everything from continuous learning to social support physical activity. Stallworth has annually sponsored efforts such as Achilles Nashville – which partners able bodied runners with athletes with disabilities. In addition, Stallworth hosts numerous support groups for patients or those involved in the care for those experiencing the impacts of stroke, traumatic brain injury, or amputation. Through the continuation of these and other efforts, VUMC has successfully supported evidence-based preventive health services and preventive health behaviors in the community in the time since the VU 2013 CHNA and IS were adopted.

**As noted above, in an effort to maximize the VUMC's ability to impact the needs identified through the CHNA process, and after careful consideration by VUMC's leadership, the number of counties considered in VUMC's current community health needs assessment was narrowed from four to three and thus Montgomery was not included in this CHNA. Montgomery County is part of VU's 2013 Evaluation strategy.*

Appendices

Appendix A: Acknowledgements

Appendix B: Interviews

Appendix C: Community Listening Sessions

Appendix D: Community Health Summits

Appendix E: Community Health Resources

Appendix F: Secondary Data

Appendix G: Primary Data

Appendix A: Acknowledgements

VUMC's 2016 CHNA and IS were completed primarily within the Institute for Medicine and Public Health, and was made possible with invaluable contributions from those both within VUMC and from other areas of the community.

We would like to acknowledge the invaluable input of Rhonda Ashley-Dixon, Sandy Cherry, Lee Ann Benson as well as the expertise provided by Vanderbilt's Community Health Improvement Working Group, and VUMC's CHNA/IS Advisory Committee. VUMC's CHNA / IS Advisory Committee (listed below), is a group of senior leaders responsible for high-level guidance on the CHNA/IS. We are deeply appreciative of the Community Health Improvement Working Group (listed below) for their time, perspective, energy, and attention to detail. In addition, we would like to thank John Griffith and Abby Palmer from VUMC Finance for their guidance. We would like to thank Vanderbilt's Office of Community, Neighborhood, and Government Relations for the work they have done on the "Vanderbilt in Tennessee: County by County" report.

VUMC collaborators at Saint Thomas Health were invaluable, and helped to add perspective, experience, and value to both the process and the end product. In particular, we would like to acknowledge the contributions made by Nancy Lim and Cindy Garland, as well as Nancy Anness, Greg Pope, and Michael Gatch. We hope that the collaboration between the two hospital systems not only serves as a springboard for future collaboration, but also offers a model for other hospitals seeking to have a more collaborative process for their CHNAs, Implementation Strategies, and - most importantly – for driving changes in collaborative efforts to improve community health.

This report would have been impossible without the participation of more than 100 individuals who took time out of their busy schedules to participate in face-to-face interviews and/or community listening sessions. Their feedback and expertise helped us understand the challenging and complex issues facing low-income, minority, and under-served populations in the community.

We would also like to thank participants in each of the three community summits, each of whom took several hours of their valuable time to discuss the assessment, offer their own perspectives on community health and well-being, and to identify the most important health needs within the community.

In Davidson County, we would like to recognize the leadership of Dr. Bill Paul – Metro Nashville's Public Health Department Director. We would like to thank Dr. Paul and his team for the useful data and statistics they've made available, and for the use of the Lentz Public Health Center for the community summit in Davidson County.

In Rutherford County, we would like to recognize the leadership of County Health Department Director Dana Garret and her staff – particularly LaShan Mathews – for their help in identifying interview participants, and helping to facilitate community listening sessions in Rutherford County. We would like to thank Primary Care and Hope Clinic, First Baptist Church, and the Smyrna branch of the Rutherford County Health Department for hosting community listening sessions. Finally we would like to acknowledge the Lane Agri-Park Community Center / Rutherford County Agricultural Extension for their hospitality in hosting the Rutherford County Community Health Summit.

We would like to recognize the leadership of Williamson County Health Department Director Cathy Montgomery, and acknowledge the important contributions of Yolanda Garcia, Carolina Tabares, and Lilia Marmol. The Health Department was an essential partner in identifying and contacting community participants for interviews, for recruiting participants and providing space for listening sessions, and for designing, securing space and participants, and executing the community summit.

We would like to acknowledge and thank Judi Knecht M.P.H., a Williamson County resident who assisted in scheduling, performing, transcribing, and data-basing many of the face-to-face interviews done during the primary data collection process.

We would like to acknowledge a talented group of student team members; Christopher Artis from Meharry Medical College, Dr. Althea Robinson of Vanderbilt University, and Shellese Shemwell of Vanderbilt University.

Family and Children's Services – particularly Mike Kessen and Katherine Delgado - played an integral part in providing both data and context regarding 2-1-1 service calls in Davidson, Rutherford and Williamson Counties.

John Michael Ford and Rebecca Carter of the United Way of Metropolitan Nashville were important collaborators in providing assistance for recruitment of listening session participants in Davidson County. In addition, United Way's connection with the Family Resource Centers (FRCs) allowed us to have a safe, accessible place for participants to provide critical community input into the process of producing this needs assessment. Thank you to the staff at McGruder FRC, Napier Elementary FRC, Salvation Army FRC, St. Luke's FRC, and South Nashville FRC.

We would like to recognize the work done by Metropolitan Social Services for Nashville and Davidson County. The annual "Community Needs Evaluations" produced by Metro Social Services were an important guide for content, narrative, and data.

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Appendix B: Interviewing Community Leaders

Vanderbilt University Medical Center & Saint Thomas Health

2016 Community Health Needs Assessment

Community Leaders & Representatives Interview Summary Sheet

INTERVIEWER NAME: _____

RECORDER NAME: _____

CHNA AREA/COUNTY: _____

INTERVIEWEE NAME: _____

DATE: _____

DATA ENTRY DATE: _____

DATA ENTRY BY: _____

Hello, my name is _____. I am a student/representative of _____ and am working with Vanderbilt University Medical Center and Saint Thomas Health on the 2016 Community Health Needs Assessment. Also, with me is _____ from _____.

Thank you for taking your time to meet with us and agreeing to participate in the Community Health Needs Assessment. As part of the assessment we are interviewing Community Leaders and Representatives as a way of understanding and identifying the priority health needs of _____ County.

We anticipate the interview will take approximately 30 minutes. We have a set of questions we will be asking. For most of the questions we will provide you with a list of responses to select from. Both _____ and myself will be recording your selections and comments, so that the information may be combined with the responses of the other interview participants.

Please note: As required by the IRS Community Health Needs Assessment (CHNA) guidelines, the CHNA which will be made publically available and posted on the hospital's website. We will be acknowledging the participation of community leaders and representatives by industry

grouping. Your responses will be summarized and aggregated with others and your name will not be linked to specific responses or comments.

Here is a set of cards with the questions and, where indicated, the response options.

We greatly appreciate your time, expertise and collaboration. Thank you.

[HAND SET OF QUESTION CARDS TO INTERVIEWEE]

Are you ready to begin?

Community Health Needs

1. Given your experience in the community and the concerns of your constituency and stakeholders, what are the top health and/or health care concerns for _____ _ County?
   (Please select 1-5 of the issues listed, there is an option to select "Other" should there be an issue that you feel is a priority, but is not listed.)

- O **Access to care**
- O **Affordability – Cost of care**
- O **Alcohol & drug abuse prevention/treatment**
- O **Asthma**
- O **Built and natural environment to enhance health**
- O **Bullying**
- O **Cancer**
- O **Cardiovascular disease - Hypertension**
- O **Child abuse and neglect**
- O **Chronic disease**
- O **Coordination of Care across the system**
- O **Diabetes**
- O **Domestic Violence**
- O **Education attainment**
- O **Emergency care**
- O **Health disparities**
- O **Health Education - Health Literacy - Health Promotion**
- O **Health Navigation**
- O **Healthy Food access**
- O **HIV/AIDS prevention and care**
- O **Housing and Homelessness**
- O **Immunizations/vaccinations**
- O **Infant mortality and morbidity**
- O **Mental and Emotional Health**
- O **Nutrition - Healthy eating**
- O **Obesity - healthy weight**
- O **Oral-Dental Health**
- O **Parenting Skills/Prenatal/Postnatal care**
- O **Physical Activity**
- O **Poverty**
- O **Preventative health services and health**
- O **Risky Sexual behaviors**
- O **Seniors – Aging population**
- O **Tobacco Use/Smoking**
- O **Transportation**
- O **Unintentional injuries**
- O **Violent Crime**
- O **Wellness and lifestyle**
- O **Workforce and Economic opportunity**
- O **Other _____**

2. Health Issues may be affected by many areas or factors. We would appreciate your insight on the follow specific areas that contribute to overall health and wellbeing.
(Please select 1-3 of the issues listed in each of the areas, there is an option to select "Other" should there be an issue that you feel is a priority, but is not listed.)

   A. Socioeconomic/Demographic (The social and economic determinants that contribute to health)

      - O **Changing population - demographics**
      - O **Education attainment**
      - O **Food insecurity**
      - O **Health Insurance coverage**
      - O **Housing - Homelessness**
      - O **Income-Wealth dispersion**
      - O **Language barriers**
      - O **Local Culture & Cultural Competency**
      - O **Poverty-working poor**
      - O **Rural/Suburban/Urban Setting**
      - O **Social isolation**
      - O **Travel time to work**
      - O **Unemployment**
      - O **Other _____**

B. Environment (Where we live matters, how the natural, social and structural environment contribute to health in our community)

- O **Air & Environmental Pollution**
- O **Emergency Preparedness**
- O **Healthy Food access**
- O **Housing - Affordable & Homelessness**
- O **Limited sidewalks / Safe recreational space**
- O **Neighborhood safety**
- O **Rural/Suburban/Urban Setting**
- O **Sanitation**
- O **Second hand smoke**
- O **Transportation**
- O **Violent Crime**
- O **Other _____**

C. Health Status (The conditions/diseases that are causing illness and death in your community)

- O **Alcohol and drug abuse/addiction**
- O **Alzheimer's and Dementia**
- O **Asthma**
- O **Cancer**
- O **Cardiovascular disease - Hypertension**
- O **Chronic disease**
- O **Chronic stress**
- O **Chronic pain management**
- O **Diabetes**
- O **Domestic violence**
- O **Health literacy**
- O **HIV/AIDS**
- O **Infant morbidity & mortality**
- O **Emotional and Mental health**
- O **Obesity**
- O **Oral-Dental Health**
- O **Sexually transmitted diseases**
- O **Teen pregnancy**
- O **Unintentional Injuries**
- O **Other _____**

D. Healthcare and Health System (How, from whom, where we receive care and how it is coordinated)

- O **Access to care - Overall**
- O **Access to care - Mental health care**
- O **Access to care - Oral-Dental health care**
- O **Access to care - Perinatal care**
- O **Access to care - Preventative care**
- O **Access to care - Specialty care**
- O **Affordability/Cost of Care**
- O **Coordination of care across system**
- O **Cultural and language competency of system and providers**
- O **Disease and treatment focused - Not prevention focused**
- O **Emergency department use for non-emergencies**
- O **Health disparities in access and outcomes**
- O **Health education - health literacy**
- O **Health Navigation**
- O **Provider availability within the community**
- O **System not focused on health, patient or community**
- O **Transportation barrier to care**
- O **Other _____**

E. Health Behaviors (The choices we make that promote or risk health)

- O **Adherence to medical regimen**
- O **Alcohol and drug abuse/addiction**
- O **Bullying**
- O **Child abuse and neglect**
- O **Domestic violence**
- O **Health Education - Health Literacy**
- O **Immunizations/vaccinations**
- O **Preventative care**
- O **Physical Activity**
- O **Nutrition - Healthy Eating**
- O **Risky sexual behaviors**
- O **Texting while driving**
- O **Tobacco Use/Smoking**
- O **Unintentional injury**
- O **Violent crime**
- O **Other _____**

3. Emergency Room Use

Many people use the Emergency Room for non-emergencies, which is very expensive and also not the best way to get treatment for issues that are not emergencies. What reasons or barriers exist that cause the use of Emergency Rooms for non-emergencies?

[OPEN ENDED QUESTION – RECORD RESPONSES]

4. Community Health Assets

What is working well in your county that supports health and wellbeing: include assets that should be tapped to improve the health and wellbeing of your community?

[OPEN ENDED QUESTION – RECORD RESPONSES]

5. Priority Community Health Actions

If you were asked by the mayor, governor or president what top health initiatives the county should focus on in the next three years, what would your top 1-3 priority initiatives be?(Please consider and take into account your counties' greatest health needs, available resources and community will for health improvement)

[OPEN ENDED QUESTION – RECORD RESPONSES]

Thank you for your time. We appreciate your participation and willingness to share your and your constituents' concerns.

The complete Community Health Needs Assessment is anticipated to be finished at the end of 2015/beginning of 2016 and will be posted on the website for both hospitals.

Thank you again for your participation.

INTERVIEWER NOTES RE: INTERVIEW (OPTIONAL):

Appendix C: Community Listening Sessions

Introduction

Good Morning/Afternoon/Evening. My name is _____ and I'll be your moderator today for this very important discussion on [Community Health Needs]. My role as the moderator is to direct the content and flow of the discussion and to make sure that we cover the main topics.

[If an assistant is present, introduce him/her]
I would like to introduce _____ who will be observing and assisting in this discussion.

[If a transcriber is present, introduce him/her]
I would like to introduce _____ who will be taking notes during this discussion.

Objectives and Agenda

Currently the Vanderbilt University Medical Center and Saint Thomas Health are conducting a Community Health Needs Assessment on health and healthcare in the counties served by these health systems. We are collecting several types of data including the first-hand opinions of community members through the use of listening sessions, like this one. We want to take into account the broad interest of this community, which is why each of you has been invited to join this listening session. Today we want to get your understanding of the health issues that face your community.

Description of process and consent

As noted on the letter we handed out, your participation in this listening session is voluntary. You are free to withdraw from this group at any time. The questions we ask will focus on your thoughts and feelings about the health needs of yourself and your community. We are interested in all feedback and opinions.
The group discussion will be audio recorded. This allows me, as the moderator, to focus on you, rather than trying to jot down specific details about the discussion. Please speak in a voice as loud as mine, so that the microphone can pick it up. The tapes will be used to assist with analysis and reporting and will be destroyed when the reports are completed.

While your name may be included in the recording as part of our discussion, we will not include your name or any other information that might identify you in any reports.

We will also ask you to complete a brief background survey so that we can describe the composition of our groups. Please do not include your name on this survey.

The group discussion will last about one hour. Once the group discussion is over, your participation is finished. Please see me to receive your gift card.

The reports describing what we learned from this and other groups will be shared with leadership at both hospitals, with the community and will also be publically available on the Vanderbilt University Medical Center and Saint Thomas Health web sites. It will also be shared with the federal tax entity (i.e., the IRS) that both hospitals are required to report to annually.

If you stay in this group, we will assume you agree with what I have shared. Please do know that you can leave the group or ask me questions at any time.

Ground Rules

Before we begin I would like to go over a few basic ground rules for our discussion.

- There are no right or wrong answers.
- You do not have to speak in any particular order.
- When you do have something to say, please do so. It is helpful for me to obtain the views of each of you.
- You do not have to agree with the views of other people in the group.
- Only one person should speak at a time. There may be temptation to jump in when someone is talking but please wait until they have finished.
- Does anyone have any questions? Are any ground rules missing?

Introductions

I would like to quickly go around the group and give each person a moment to introduce him or herself. We will go by first names only. In particular, please tell me:

- How long you lived in <county>?

Community Health Issues

First, let's talk about the health issues in your community. By community, we mean your friends, neighbors, family, coworkers, and other people you have contact with on a regular basis. I am going to start by asking you about broad issues

1. What do you think are your community's strongest assets and strengths?

2. Based on your experience, what are the top three issues that you are most concerned about in your community? Probe: think broadly, beyond health

3. What do you think are the barriers to addressing these issues?

4. What do you think are the top 3 health concerns in your community?

5. What do you think are the challenges to addressing these health issues?

6. Many people use the Emergency Room for non-emergencies, which is very expensive and also not the best way to get treated for things that are not emergencies. What reasons do you think exist for people to use emergency rooms for non-emergencies?

7. If you had a magic want, what would you have your county focus on in the next three years? What would be your top 1-3 initiatives?

8. Was there anything you wanted to discuss today that we didn't cover?

9. Do you have any questions for us?

Those are all my questions. Thank you for your participation. Your feedback is very valuable to us.

Appendix D: Community Health Summits

1) Davidson County Agenda and Exercise Worksheet
2) Rutherford County Agenda and Exercise Worksheet
3) Williamson County Agenda and Exercise Worksheet

Community Health Summit – Davidson County, TN
September 10, 2015
Metro Public Health Department, Lentz Public Health Center
Agenda

8:00 am	Continental Breakfast	
8:15	Welcome	Elisa Friedman and Nancy Lim
8:25	Opening Remarks	David Posch, Associate Vice Chancellor for Population Health, Vanderbilt University Medical Center Greg Pope, SVP, Chief Mission Officer, Saint Thomas Health
8:35	County Health Priorities	Bill Paul, MD, MPH, Director, Metro Public Health Department
9:00	Community Health Data	Nancy Lim, Exec. Director, Community Health & Benefit, Saint Thomas Health JW Randolph, Research Coordinator, Institute for Medicine and Public Health, Vanderbilt University
9:35	Break	
9:40	Community Input	Nancy Anness, VP Advocacy & Community Outreach, Saint Thomas Health Elisa Friedman, Director of Planning and Community Engagement, Institute for Medicine and Public Health, Vanderbilt University
10:10	Exercise 1	All Participants
10:25	Break	
10:35	Exercise 2	All Participants
11:05	Report Out	Table Leaders
11:30	Summary	
12:00 noon	Closing Remarks & Adjourn	Elisa and Nancy

Davidson County Community Health Summit

Worksheet

Health Issue: _____

- What would a healthy community look like regarding this issue? (two or three sentence description)

- What are 1-3 goals around this issue? What would you like to see improved?

- Who is already working on this Health Issue? What agencies? What programs?

Community Health Summit – Rutherford County, TN
September 3, 2015
UT Extension, Rutherford Co. Lane Agri-Park
Agenda

8:00 am	Continental Breakfast	
8:15	Welcome	Dana Garrett, Elisa Friedman and Nancy Lim
8:25	Opening Remarks	Dr. Robert Dittus, Executive Vice President for Public Health and Health Care, Director of the Institute for Medicine and Public Health, Vanderbilt University Medical Center; Senior Associate Dean for Population Health Sciences, Professor of Medicine, Albert and Bernard Werthen Chair in Medicine, Vanderbilt University Gordon B. Ferguson, FACHE, President & CEO, Saint Thomas Rutherford Hospital and President, Saint Thomas Regional Hospitals
8:35	State/County Health Department	Dana Garrett, Director, Rutherford County Health Department
9:00	Community Health Data	Nancy Lim, Exec. Director, Community Health & Benefit, Saint Thomas Health JW Randolph, Research Coordinator, Institute for Medicine and Public Health, Vanderbilt University
9:35	Break	
9:40	Community Input	Elisa Friedman, Director of Planning and Community Engagement, Institute for Medicine and Public Health, Vanderbilt University J. Michael Gatch, Director, Mission Integration, Saint Thomas Rutherford Hospital
10:10	Exercise 1	All Participants
10:25	Break	
10:35	Exercise 2	All Participants
11:05	Report Out	Table Leaders
11:30	Summary	
12:00 noon	Closing Remarks & Adjourn	Dana, Elisa and Nancy

Rutherford County Community Health Summit

Worksheet

Health Issue: _____

- What would a healthy community look like regarding this issue? (two or three sentence description)

- What are 1-3 goals around this issue? What would you like to see improved?

- Who is already working on this Health Issue? What agencies? What programs?

Community Health Summit – Williamson County, TN
September 2, 2015

AGENDA

Time	Agenda Item	Facilitator
10:00 a.m.	Welcome	Cathy Montgomery, Director, Williamson County Health Department Jerry Winton, Administrator, NHC Place – Cool Springs
10:10 a.m.	Opening Remarks	Dr. Robert Dittus, MD, MPH, Executive Vice President for Public Health and Health Care, Director of the Institute for Medicine and Public Health, Vanderbilt University Medical Center; Senior Associate Dean for Population Health Sciences Professor of Medicine, Albert and Bernard Werthen Chair in Medicine, Vanderbilt University Cathy Montgomery
10:20 a.m.	Overview of VUMC's Community Health Needs Assessment Process	Elisa Friedman, Director, Planning and Community Engagement, Vanderbilt University, Institute for Medicine and Public Health JW Randolph, Research Coordinator, Vanderbilt University, Institute for Medicine and Public Health
10:25 a.m.	Williamson County Health Profile	
10:55 a.m.	Community Needs Data	
11:20 a.m.	Exercise 1: Identify Needs	All
11:35 a.m.	Break / Preparation for Working Lunch	All
11:45 a.m.	Exercise 2: Resources, Gaps, Goals	All
12:30 p.m.	Report Out	Table Leaders
12:45 p.m.	Closing Remarks	Cathy Montgomery / Elisa Friedman

Williamson County Community Health Summit

Exercise 2 Worksheet

Health Issue: _____

- Who is already working on this Health Issue? What agencies? What programs?

- What gaps exist in terms of working on this health issue? What other services, programs or initiatives need to be in place or enhanced?

- What are 1-3 goals around this issue? What would you like to see improved?

Appendix E: Community Resources

Assisted Living[1]

Davidson (21)	Abe's Garden/Park Manor Apartments Azalea Trace Assisted Living Barton House Belmont Village Burton Court at the Blakeford Elmcroft at Brentwood Elmcroft at Twin Hills Emeritus at Bellevue Place Grace Manor Hickory Gardens Assisted Living By Americare Homewood Residence at Brookmont Terrace Knowles Home Assisted Living and Adult Day Services Mary Queen of Angels Maybelle Carter Senior Adult Community McKendree Village Morningside of Belmont Provisional Living of Hermitage Schrader Acres Assisted Living Center Sycamore Terrace, LLC The Cumberland at Green Hills The Health Center at Richland Place
Rutherford (9)	Adams Place Azalea Court Broadmore Assisted Living Creekside at Three Rivers Park View Meadows Stones River Manor, Inc Sunnington Senior Care Sunnington, LLC The Waterford in Smyrna
Williamson (10)	Belvedere Commons of Franklin Brighton Gardens of Brentwood Fountains of Franklin Morning Pointe of Brentwood Morningside of Franklin NHC Place at Cool Springs Southerland Place Southern Care, Inc. The Maristone of Franklin Wellington Place

Ambulatory Surgical Treatment Centers[1]	
Davidson (30)	American Endoscopy Center, PC Associated Endoscopy, ASC Baptist Ambulatory Surgery Center Baptist Plaza Surgicare, LP Centennial Surgery Center Delozier Surgery Center, LLC Digestive Disease Endoscopy Center Eye Surgery Center of Middle Tennessee Eye Surgery Center of Nashville, LLC Gurley Surgery Center LVC Outpatient Surgery Center Mid-State Endoscopy Center Nashville Endoscopy Center Nashville Gastrointestinal Endoscopy Center Nashville Surgery Center Nashville Vision Correction, LLC NFC Surgery Center, LLC Northridge Surgery Center, LP Oral Facial Surgery Center Premier Orthopaedic Surgery Center, LLC Radiology Pain Management Center Saint Thomas Campus Surgicare, LP Saint Thomas Outpatient Neurosurgical Center, LLC Southern Endoscopy Center St. Thomas Medical Group Endoscopy Center Summit Surgery Center Tennessee Pain Surgery Center, LLC The Center for Assisted Reproductive Technologies, LLC Urology Surgery Center, LP Wesley Ophthalmic Plastic Surgery Center
Rutherford (6)	Middle Tennessee Ambulatory Surgery Center Mid-State Endoscopy Center, LLC Physicians Pavilion Surgery Center Sine and Pain Surgery Center, LLC Surgicenter of Murfreesboro Medical Clinic, PA Williams Surgery Center, Inc.
Williamson (4)	Cool Springs Surgery Center Crossroads Surgery Center, LLC Franklin Endoscopy Center, LLC Vanderbilt-Ingram Cancer Center at Franklin

Community Health Centers [5]

Davidson (21)	Cayce Family Clinic Downtown Clinic & Mobile Clinic Faith Family Medical Clinic Hope Clinic for Women Interfaith Dental Clinic Madison Family Clinic Main Street Family Clinic Matthew Walker Comprehensive Health Center Nashville General Hospital Ambulatory Clinics Northeast Family Clinic Parthenon Towers Clinic ProHealth Medical Center – Nashville Saint Thomas Family Health Center South Saint Thomas Family Health Center West Siloam Family Health Center Southside Family Clinic Franklin Road Women's Health Center Vine Hill Community Clinic Wallace Road Family Clinic Waverly Family Clinic Youth Opportunity Center Clinic
Rutherford (1)	Primary Care & Hope Clinic
Williamson (3)	Graceworks Health Clinic Mercy Community Healthcare ProHealth Rural Health Services

Home Health [1]

Davidson (21)	Alere Women's and Children's Health, LLC Amedisys Home Care Amedisys Home Health Services Amedisys Home Health, Care All Continuous Care Services, LLC Coram Specialty Infusion Services Elk Valley Health Services, Inc Friendship Home Healthcare, Inc Friendship Private Duty, Inc Gentiva Health Services Home Health Care of Middle Tennessee, LLC Innovative Senior Care Home Health of Nashville, LLC Intrepid USA Healthcare Services, LHC HomeCare of Tennessee, LLC Maxim Healthcare Services, Inc. Premiere Home Health, Inc

	Suncrest Home Health Vanderbilt Community and Home Services Vanderbilt Home Care Services Willowbrook Home Health Care Agency, Inc.
Rutherford (3)	Amedisys Home Health Amedisys Home Health Care NHC Homecare
Williamson (3)	Guardian Home Care of Nashville, LLC Home Health Care Services, LLC Walgreens Infusion and Respiratory Services, LLC

Hospice[1]

Davidson (9)	Alive Hospice, Inc AseraCare Hospice Avalon Hospice Caris Healthcare, LP Hospice Advantage, Inc. Mahogany Hospice Care, Inc. Odyssey Hospice Priority Hospice Care, Inc. The Residence at Alive Hospice
Rutherford (1)	Caris Healthcare, LP
Williamson (2)	Guardian Hospice of Nashville, LLC Willowbrook Hospice

Hospitals

Davidson (15)	Kindred Hospital - Nashville Metropolitan Nashville General Hospital Middle Tennessee Mental Health Institute Nashville Rehabilitation Hospital Saint Thomas Hospital for Spinal Surgery Saint Thomas Midtown Hospital Saint Thomas West Hospital Select Specialty Hospital Nashville TriStar Centennial Medical Center TriStar Skyline Medical Center TriStar Skyline Madison Campus TriStar Southern Hills Medical Center TriStar Summit Medical Center Vanderbilt Stallworth Rehabilitation Hospital Vanderbilt University Medical Center
Rutherford (3)	Saint Thomas Rutherford Hospital TriStar StoneCrest Medical Center Trustpoint
Williamson (2)	Rolling Hills Hospital Williamson Medical Center

Medical Group Practice	
Davidson (94)	Ace Research Specialists LLC, Associates in Gastroenterology, Baptist Women's Treatment Center-Nashville, Bryan R Kurtz MD, Cardiovascular Surgery Associates, CCA Metro, Centennial Pediatrics, 25th Ave., Centennial Pediatrics, Dickerson Pike, Centennial Pediatrics, Highway 70S, Centennial Pediatrics, Recovery Rd., Centennial Pediatrics, Ward Dr., Children's Medical Group, Concentra Medical Center, Concentra Medical Center, Elm Hill Pike, Concentra Medical Center, Sidco Dr., D Phillips Altenbern MD Ob/Gyn, David L Harrom MD, Doctor Alper Wolf Allen and Sutton, Doctor Elam Harbison and Hanson, Endocrin Diabetes Association, Endocrin Resource Network, Eye Health Partners and Glaucoma Center, Family Medical Associates, Frist Cardiology, Green Hill Medical, Greenhill Pediatrics, Gynecologic Oncology Associates, Hanes Pathology, Harding Place Care Center, Heart Group, Heritage Medical Associates, Heritage Medical Associates PC, Internal Medical Group, James D Bomboy Jr MD, Lifesigns of Nashville, Marcia A Montgomery MD, Maternal and Infant care Program, Metropolitan Primary Care Clinic, Michael J Magee MD, Michael Zanolli MD, Nashville ENT, Nashville Gastrointestinal Specialicist-2010 Church St., Nashville Gastrointestinal Specialist- 4230 Harding Road, Nashville Gastrointestinal Specialist-3443 Dickerson Road, Nashville Gastrointestinal Specialist- 397 Wallace Road,

	Nashville Oncology Associates PC, Nashville Orthopaedic Specialists, Nashville Skin and Cancer PLC, Nashville Surgical Associates, Nephrology Association- 28 White Bridge Road, Nephrology Association- 397 Wallace Road, Neurosurgical Associates, Old Harding Road Pediatric, Page - Campbell Cardiology Group, Pain Management Group, Pediatric Association -Davidson County, Premier Orthopaedics, Priest Lake Medical Clinic, Rivergate Pediatrics, Saint ThomasHeart-1195 Old Hickory Blvd., Saint Thomas Heart- 222 2nd Ave., Saint Thomas Heart-4230 Harding Road, Sharon M Piper MD, Skyline Care Center, South Madison Wellness Center, Southern Hills Pediatrics Dr Lee An, Southern Ob/Gyn, Southside Health Center, St Thomas Cardiology Consultants, St Thomas Family Health Center, St Thomas Medical Group-Bellevue, St Thomas Outpatient Cardiac Cath C, St Thomas Outpatient Neurological, Stephen L Hammerman MD, Stones River Medical Consultants, Summit Care Center, Summit Eye Associates, Summit Family Practice, Summit Medical Associates, Tennessee Breast Specialists, Tennessee Orthopaedic Alliance, Tennessee Orthopaedic Alliance – SK, The Allergy Asthma & Sinus Center, The Consultant Group - Rheumatology, The Heart and Vascular Clinic, Thomas J Friddell MD, Urology Associates, Urology Associates - Southern Hills, Vanderbilt General Internal Medicine, Vanderburg Joint Replacement, Waverly Belmont Medical Center, Women’s Health Alliance,

	Women's Health Group
Rutherford (22)	Baptist Women's Treatment Center-Murfreesboro, Centennial Pediatrics, Community Med Practices, EC Tolbert MD, Family Health Association, Murfreesboro Ob/Gyn, Murfreesboro Care Center, Peter A Dicorleto MD, Robert J Dray, Robert T Knight MD, SB Pinto MD, Smyrna Care Center, Smyrna Clinic, Stephen G Odom MD, StoneCrest Gateway Primary Care, Susan Andrews MD and Randall Rickar, The Eye Center, Thomas E, Sulkowski MD, Urology Associates, Warren O Langworthy MD, Women's Clinic of Murfreesboro, Women's Health Specialist
Williamson (18)	Brentwood Dermatology, Centennial Pediatric Brentwood, Deborah Byer MD, Doctor Staggs Presley Burch Jr, Medi-Weightloss Clinic - Cool Springs, Saint Thomas Heart, Tennessee Pediatrics, All Season Allergy Specialists, Biological Therapy Institute, Cool Springs Care Center, Dophin Medical, Family Practice & Diagnostic Center, Franklin Gastroenterologists, Graceworks Health Clinic, LasikPlus, The Bone and Joint Clinic, Williamson Baptist Medical Group, Tennessee Pediatrics

Nursing Home[1]	
Davidson (20)	Belcourt Terrace Bethany Health Care Center Bordeaux Long Term Care Crestview Nursing Home Cumberland Manor Donelson Place Care and Rehab Good Samaritan Health and Rehab Center Grace Healthcare of Whites Creek Green Hills Health and Rehab Center Imperial Manor Convalescent Center Lakeshore Heartland Life Care Center of Old Hickory Madison Healthcare and Rehabilitation Center McKendree Village, Inc. The Health Center at Richland Place The Meadows, Trevecca Health Care Center Vanco Manor Nursing and Rehabilitation Center West Meade Place Woodcrest at Blakeford
Rutherford (8)	Adams Place Boulevard Terrace Rehabilitation and Nursing Center Community Care of Rutherford County Mayfield Rehabilitation and Special Care Center NHC Healthcare, Murfreesboro Northside Health Care Nursing and Rehabilitation Center Peachtree Center Nursing and Rehabilitation Tennessee Veterans Home
Williamson (5)	Claiborne and Hughes Health Center Grace Healthcare of Franklin NHC HealthCare, Franklin NHC Place at Cool Springs Somerfield at the Heritage

Outpatient Diagnostic Centers[1]	
Davidson (13)	Hillsboro Imaging Imaging Alliance-Nashville PET, LLC Millennium MRI, LLC Next Generation Imaging, LLC One Hundred Oaks Imaging Outpatient Diagnostic Center of Nashville Premier Orthopaedics and Sports Medicine, PLC Premier Radiology at Baptist Hospital Premier Radiology Belle Meade Premier Radiology Hermitage Premier Radiology Nashville Specialty MRI Vanderbilt Imaging Belle Meade
Rutherford (4)	Middle Tennessee Imaging Middle Tennessee Imaging Smyrna Tennessee PET Scan Center, LLC The Imaging Center of Murfreesboro
Williamson (3)	Cool Springs Imaging Premier Radiology Brentwood Premier Radiology Cool Springs

Public Health Clinic [2, 3, 4, 5]	
Davidson (3)	Lentz Public Health Center East Public Health Center Woodbine Public Health Center
Rutherford (2)	Murfreesboro Clinic Smyrna Clinic
Williamson (2)	Franklin Clinic Fairview Clinic

Additional Resources

Free and Low Cost Health Services (Davidson County)

Alignment Nashville Resource Guides (Davidson County)

Sources for Appendix E

[1] TN Department of Health (2013) Joint Annual Report. Retrieved on 7/31/15, from: http://health.tn.gov/publicjars/default.aspx

[2] Rutherford County Health Department

[3] Williamson County Health Department, Retrieved from: http://www.williamsoncounty-tn.gov/index.aspx?NID=120

[4] Metro Public Health Department, Retrieved from: http://www.nashville.gov/Health-Department/Clinic-Locations.aspx

[5] Tennessee Primary Care Association. Find a Health Center Near You. Retrieved on 8/14/15, Retrieved from: http://www.tnpca.org/?Find_HC

Appendix F: Secondary Data and Sources

The following is a list of publicly available secondary data, which was compiled by VUMC and Saint Thomas Health for the purposes of this Community Health Needs Assessment.

Sections include:

- **Demographic / Socioeconomic Data**
- **Social / Natural Environment**
- **Access to Health Care**
- **Mortality and Morbidity**
- **Birth Outcomes**
- **Preventive / Risk Behaviors**
- **Infectious Disease**
- **Mental and Emotional Health**

Data is hyperlinked back to the online source, and sources are described at the bottom of each section. Statistics for each of the counties is listed in light blue, Tennessee in orange, and the United States in light red. Where no data are available, the box is left gray.

DEMOGRAPHICS / SOCIOECONOMIC					
Geography	Davidson	Rutherford	Williamson	TN	USA
Land area in square miles, 2010	504	619	583	41,235	3,531,905
Persons per square mile, 2009-2013	1,266.0	435.1	324.4	155.3	88.2
Population, 2014 estimate	668,347	288,906	205,226	6,549,352	318,857,056
Percent of States (Countries) Population in County	10.2%	4.4%	3.1%	2.1%	
Population, percent change - April 1, 2010 to July 1, 2014	6.7%	10.0%	12.0%	3.2%	3.3%
Growth projections (2010-2020)	10.8%	32.7%	27.8%	9.6%	
Population growth by sector - elderly	40.9%	69.9%	69.6%	36.9%	
Projected Population growth 2010-2040	~60%	~103%	~156%	~35%	
Urban-Rural Population mix - Percent Urban	96.6%	83.0%	80.6%	66.4%	80.9%
Urban-Rural mix - Percent Rural	3.4%	17.0%	19.4%	33.6%	19.1%
Persons per household, 2009-2013	2.39	2.73	2.84	2.52	2.63
Gender	Davidson	Rutherford	Williamson	TN	USA
Female persons, percent, 2013	51.7%	50.7%	51.3%	51.2%	50.8%
Special Populations	Davidson	Rutherford	Williamson	TN	USA
% Veterans (of total popul age 18 and older)	7.8%	9.6%	7.0%	9.9%	8.9%
Population with Any Disability, percent	11.3%	8.9%	7.4%	15.1%	12.1%
Foreign born persons, percent, 2009-2013	11.7%	7.0%	5.9%	4.6%	12.9%
Age	Davidson	Rutherford	Williamson	TN	USA
Median age, years	34.1	32.6	38.5	38.2	37.3
Persons under 5 years, percent, 2013	7.0%	6.7%	5.9%	6.2%	6.3%
Persons under 18 years, percent, 2013	21.6%	25.3%	28.3%	23.0%	23.3%
Persons 65 years and over, percent, 2013	10.9%	9.3%	11.2%	14.7%	14.1%
Race/Ethnicity	Davidson	Rutherford	Williamson	TN	USA
White alone, percent, 2013 (a)	65.8%	80.4%	90.2%	79.1%	77.7%
Black or African American alone, percent, 2013 (a)	28.1%	13.5%	4.6%	17.0%	13.2%
American Indian and Alaska Native alone, percent, 2013 (a)	0.5%	0.5%	0.3%	0.4%	1.2%
Asian alone, percent, 2013 (a)	3.2%	3.2%	3.5%	1.6%	5.3%
Native Hawaiian / Other Pacific Islander along, %, 2013 (a)	0.1%	0.1%	0.1%	0.1%	0.2%
Two or More Races, percent, 2013	2.3%	2.3%	1.4%	1.7%	2.4%
Hispanic or Latino, percent, 2013 (b)	9.9%	7.0%	4.7%	4.9%	17.1%

White alone, not Hispanic or Latino, percent, 2013	57.1%	74.3%	85.9%	74.9%	62.6%
Language (non-English) spoken at home, age 5+ (2009-13)	15.5%	9.9%	7.5%	6.6%	20.7%
Income/Poverty	Davidson	Rutherford	Williamson	TN	USA
Median household income, 2009-2013	$47,335	$55,401	$89,779	$44,298	$53,046
Per capita money income in past 12 months (2013 dollars), 2009-2013	$28,467	$25,077	$41,292	$24,409	$28,155
Population in Poverty, 2009-2013, percent	18.5%	13.1%	5.7%	17.7%	15.4%
- White	13.2%	11.5%	5.1%	14.8%	12.5%
- Black or African American	27.7%	18.8%	9.1%	29.1%	27.1%
- Asian	15.4%	19.8%	4.1%	13.2%	27.1%
- Some Other Race	37.1%	25.7%	46.3%	35.7%	12.5%
- Multiple Races	22.9%	17.1%	8.5%	27.9%	19.6%
- Hispanic / Latino	32.8%	26.3%	25.7%	33.5%	24.7%
Children in Poverty, percent (2009-2013)	29%	16%	7%	27%	24%
- White	15.59%	12.01%	5.16%	18.45%	12.96%
- Black or African American	43.32%	22.68%	8.51%	41.93%	38.18%
- Asian	25.11%	26.43%	6.47%	15.46%	13.14%
- Some Other Race	46.99%	26.95%	65.07%	46.36%	35.80%
- Multiple Races	25.49%	18.30%	14.84%	31.63%	22.63%
Poverty - Children Below 200% FPL	53.83%	39.97%	16.75%	49.24%	43.81%
Children eligible for Free/Reduced Price Lunch, percent	72.35%	43.73%	14.49%	58.59%	51.70%
Percent of public school student who are economically disadvantaged, 2013-2014	72.7%	42.2%	11.9%	58.8%	
Households Receiving SNAP Benefits	15.3%	11.6%	4.2%	16.9%	12.4%
Households with Cash Public Assistance Income	3.7%	2.8%	1.1%	3.1%	2.8%
Income inequality: Ratio of household income at the 80th percentile to income at the 20th percentile (the higher the ratio the greater inequality)	4.6	3.9	4.1	4.8	4.4
Income inequality, County 80th Percentile Income	$93,006	$99,637	$164,343		
Income inequality, County 20th Percentile Income	$20,383	$25,662	$40,011		
Federal Poverty Threshold, Family of 1	$11,770	$11,770	$11,770	$11,770	$11,770
Federal Poverty Threshold, Family of 4	$24,250	$24,250	$24,250	$24,250	$24,250
Education	Davidson	Rutherford	Williamson	TN	USA
High School Graduation Rates, 2012	78.4%	90.7%	92.2%	87.2%	81%

High School Graduation Rates, 2013	76.6%	91.9%	93.8%	86.3%	81.4%
High School Graduation Rates, 2014	78.7%	92.5%	94.4%	87,2%	
Adults 25+, No High School Diploma, 2009-2013	13.56%	10.29%	5.36%	15.61%	13.98%
--- White	10.69%	9.50%	4.61%	14.64%	11.89%
--- Black	15.07%	11.50%	16.36%	18.18%	17.38%
--- Asian	20.27%	15.66%	3.92%	15.25%	14.39%
--- Some Other Race	52.10%	33.80%	34.08%	47.84%	42.37%
Event High School Dropouts, 2014	6.00%	1.50%	0.7	3.40%	
Bachelor's degree or higher, percent, 2009-2013	35.90%	28.30%	52.80%	23.80%	28.80%
3-8th grade proficient or advanced - language, 2013-2014	40.7%	60.8%	83.5%	49.5%	
3-8th grade proficient or advanced - math, 2013-2014	44.6%	63.0%	80.8%	51.3%	
Student-to-Teacher Ratio, 2012-2013	15.2	15.3	16.12	14.96	
Unemployment	Davidson	Rutherford	Williamson	TN	USA
Unemployment rate, seasonally adjusted Nov 2015	4.2%	4.2%	3.9%	5.6%	5.0%
Number Employed, 2015	618,891	155,284	143,628		
Projected Employed, 2025	687,059	187,195	196,539		
Projected Employed, 2035	755,684	2,265	269,755		
Population, 2015	654,879	288,734	229,052		
Projected Population, 2025	702,871	349,083	308,328		
Projected Population, 2035	752,326	409,986	387,970		

Sources:

- US Census Bureau: State and County QuickFacts, American Communities Survey
- Community Commons (2015).
- Tennessee Department of Health, Division of Policy, Planning and Assessment
- Capehart, T. and Lindeman, N., Nashville Metropolitan Planning. .Nashville Next. Demographic Trends (4/13)
- County Health Rankings, 2015.
- CDC, National Center for Health Statistics and Division of Behavioral Surveillance
- Dartmouth Institute for Health Policy & Clinical Practice
- National Center for Education Statistics, NCES - Common Core of Data. 2012-13.
- US Census Bureau, American Community Survey. 2009-13
- KIDS Count
- Tennessee Department of Education
- National Center for Education Statistics
- TN Department of Labor and Workforce Development
- Nashville Metro Planning Organization, Population and Employment Forecast
- US Department of Health & Human 2015 Poverty Guidelines
- CBER Population Projections

SOCIAL/NATURAL ENVIRONMENT					
Housing	Davidson	Rutherford	Williamson	TN	USA
Living in same house 1 year & over, percent, 2009-2013	79.2%	81.2%	87.3%	84.6%	84.9%
Housing units, 2013	288,863	106,433	72,044	2,840,914	132,802,859
Households, 2009-2013	256,745	96,731	66,364	2,475,195	115,610,216
Homeownership (percentage), 2009-2013	54.70%	67.60%	81.30%	67.80%	64.90%
Persons per household, 2009-2013	2.39	2.73	2.84	2.52	2.63
Median value of owner-occupied housing units, 2009-2013	$167,500	$159,100	$334,900	$139,200	$176,700
Median household income, 2009-2013	$47,335	$55,401	$89,779	$44,298	$53,046
House value: Income	3.5 : 1	2.9 : 1	3.7 : 1	3.1 : 1	3.3 : 1
Persons below poverty level, percent, 2009-2013	18.5%	13.0%	5.7%	17.6%	15.4%
Housing Cost Burden (>30% monthly income), 2009-2013	36.64%	31.36%	27.20%	31.02%	35.47%
% of Rental Households Cost Burdened, 2009-2013	47.39%	47.18%	43.58%	45.88%	48.31%
Severe Housing Problems, 2007-2011	19%	14%	11%	15%	14%
Overcrowded housing, 2008-2012	3.73%	2.45%	1.00%	2.38%	4.21%
Homelessness	2,301	1,675	NA	9,426 (2012)	633,782 (2012)
Transportation	Davidson	Rutherford	Williamson	TN	USA
Mean travel time (min) to work workers age 16+, 2009-13	23.3%	26.9%	26.7%	24.3%	25.5%
Households with No Vehicles	7.47%	3.45%	2.30%	6.26%	9.07%
Driving Alone to work, 2009-2013	80%	86%	81%	84%	80%
Long commute - driving alone	30%	40%	41%	32%	29%
Workers Commuting by Public Transportation, 2009-2013	2.1%	0.5%	0.5%	0.8%	5.0%
Workers who Bike to Work	0.3%				
Workers who Walk to Work	1.9%				
Motor Vehicle death rate / 100k population, 2007-2011	7.53	5.79	3.72	10.35	7.55
Pedestrian accident death per 100k population 2011-2013	2.50	0.51	0.36	1.33	1.66
Neighborhood Safety - Crime	Davidson	Rutherford	Williamson	TN	USA
Substantiated Child abuse/neglect / 1,000 children, 2013	3.80	3.60	0.60	4.90	
Domestic Violence, Rate per 1,000, 2014	18.9	12.7	3.0	11.6	
Domestic Violence, Number of Victims, 2014	12,602	3,497	614	76,012	
Domestic Violence, Number of Victims, 2013	12,274	3,353	607	77,545	
Domestic Violence, Number of Victims, 2012	12,034	3,404	597	81,884	

Domestic Violence, Number of Victims, 2011	12,587	3,255	710	84,091	
Domestic Violence, Number of Victims, 2010	12,182	3,478	697	84,369	
Violent Crime Rate, rate per 100,000, 2010-2012	1,153	431	124	621	199
Injury deaths, per 100,000, 2008-2012	74	49	44	78	73.8
Social / emotional supports	Davidson	Rutherford	Williamson	TN	USA
Linguistically isolated population, 2009-2013	4.9%	1.8%	1.0%	1.7%	4.8%
Lack of social or emotional support	17.4%	13.4%	16.1%	18.9%	20.7%
Social associations, memberships per 10,000 pop., 2012	13.5	7.3	12.8	11.5	12.6
Children in single-parent households, 2009-2013	44%	29%	15%	36%	31%
Access to Healthy Food	Davidson	Rutherford	Williamson	TN	USA
Food Insecurity Rate, 2013	17.51%	13.68%	8.88%	17.07%	15.94%
Food Insecurity Rate, Overall, 2013	17.4%	14.0%	9.4%	17.10%	15.80%
Child Food Insecurity, 2013	23.2%	20.8%	17.1%	25.40%	21.40%
Population Receiving SNAP Benefits	15.27%	11.58%	4.19%	16.90%	12.40%
Limited Access to Healthy Foods	8%	6%	3%	8%	
Fast Food Restaurant Access, rate per 100,000 pop., 2013	98.8	77.7	85.7	72.5	72.7
Fast Food Restaurant Access, rate per 100,000 pop., 2012	97.0	72.7	85.2	72.2	72.0
Fast Food Restaurant Access, rate per 100,000 pop., 2011	91.6	65.1	81.3	69.0	69.2
Fast Food Restaurant Access, rate per 100,000 pop., 2010	94.6	67.0	82.4	69.5	68.3
Fast Food Restaurant Access, rate per 100,000 pop., 2009	91.6	65.1	80.3	69.4	67.4
Grocery Store Access, rate per 100,000 pop. 2013	21.06	12.95	16.92	17.52	21.20
Liquor Store Access, 2013	12.29	10.66	14.74	9.33	10.48
Population with Low Food Access	26.18%	28.58%	45.40%	27.40%	23.61%
Air	Davidson	Rutherford	Williamson	TN	USA
Air Pollution - Particulate Matter, Avg. daily density of fine particulate matter in micrograms per cubic meter, 2011	13.8	14.5	14.5	13.8	11.9

Sources:

- US Census Bureau: State and County QuickFacts, American Communities Survey
- Community Commons, 2015
- County Health Rankings, 2015
- Metro Nashville Social Services, Homelessness Commission. Nashville Point In Time Counts, January 2014.
- HealthyNashville.org
- KidsCount 2015
- Tennessee Bureau of Investigation; Tennessee Crime On-line
- Feeding America, Map the Meal Gap, 2015

Access to Health Care					
Provider Availability	Davidson	Rutherford	Williamson	TN	USA
Primary Care Provider Ratio, (population:provider), 2012	1059:1	2231:1	699:1	1388:1	2015:1
Dentists Ratio, (population:provider), 2012	1401:1	2036:1	1362:1	1996:1	2670:1
Mental Health Provider Ratio, (population:provider), 2012	395:1	1358:1	751:1	786:1	1128:1
Population in a Health Professional Shortage Area, Percent	13.9%	0.0%	0.0%	36.04%	34.07%
No Usual source of care (Adult), Percent - TN BRFSS 2013	20.1%			17.3%	16.8%
Percent Adults who needed to see a doctor but could NOT due to Cost, TN BRFSS 2013	16.8%			17.6%	15.3%
Have one person you think of as a personal doctor or health care provider, percent, TN BRFSS 2013	72.2%			77.4%	77.1%
Adults aged 65 and older who have had all their natural teeth extracted, percent TN BRFSS 2012	21.3%			24.8%	16.1%
Adults aged 18 and older that have had ANY permanent teeth extracted, percent, TN BRFSS 2012	43.8%			53.6%	44.5%
Have Not visited a dentist, dental hygienist or dental clinic within the past year, TN BRFSS 2012	34.4%			38.6%	32.8%
Preventable Hospital Stays /1000 Medicare enrollees, 2012	62	85	47	73	65
Health Insurance	Davidson	Rutherford	Williamson	TN	USA
Percent Uninsured, Total civilian non9nstitutionalized population. American FactFinder 2011-2013 ACS Health Insurance Status	16.7%	13.9%	6.5%	14.1%	14.8%
Percent Uninsured, age Under 18 years American FactFinder 2011-2013 ACS Health Insurance Status	7.4%	6.1%	3.9%	5.7%	7.3%
Percent Uninsured, age 18-64 yrs American FactFinder 2011-2013 ACS Health Insurance Status	22.1%	18.6%	8.6%	20.3%	20.6%
Percent Uninsured, age 65 years and older American FactFinder 2011-2013 ACS Health Insurance Status	1.3%	1.2%	0.5%	0.5%	1.0%
Percent Uninsured, age 19 to 25 years American FactFinder 2011-2013 ACS Health Insurance Status	23.1%	24.0%	14.4%	25.5%	26.7%
Adults with Health Insurance, 2009-2013	77.90%				
Adults with Health Insurance, 2009-2013, Asian	73.20%				
Adults with Health Insurance, 2009-2013, Black or African American	79.30%				
Adults with Health Insurance, 2009-2013, Hispanic or Latino	35.50%				
Adults with Health Insurance, 2009-2013, Other	20.70%				
Adults with Health Insurance, 2009-2013, Two or more races	75.70%				
Adults with Health Insurance, 2009-2013, White, non-Hispanic	84.30%				
Uninsured Population	16.79%	13.60%	6.07%	14.09%	14.87%

Uninsured Population by Race: Non-Hispanic White	11.65%	10.81%	4.68%	11.81%	10.42%
Uninsured Population by Race: Black or African American	15.57%	11.46%	8.21%	16.43%	17.52%
Uninsured Population by Race: Native American / Alaska Native	39.56%	43.29%	14.75%	27.98%	27.92%
Uninsured Population by Race: Asian	19.58%	21.64%	11.41%	19.14%	14.95%
Uninsured Population by Race: Native Hawaiian / Pacific Islander	0.00%	49.33%	23.81%	10.77%	17.60%
Uninsured Population by Race: Non-Hispanic Other	55.09%	45.52%	25.99%	47.20%	33.22%
Uninsured Population by Race: Non-Hispanic Multiple Race	17.71%	14.48%	10.94%	14.17%	14.07%
Uninsured Population by Ethnicity Alone: Hispanic/Latino	48.93%	45.00%	25.11%	40.86%	29.62%
Adults with No Health Insurance (Age 18-64), 2012	22.6%	19.5%	10.3%	20.18%	20.76%
Children with No Health Insurance (<19), 2012	7.0%	5.7%	3.9%	5.87%	7.54%
Uninsured 2013, Enroll America (non-elderly Adult)	17%	14%	6%		
Uninsured 2014, Enroll America (non-elderly Adult)	14%	12%	7%		
Change in insured rate 2013 to 2014 (non-elderly Adult)	3%	2%	-1%		
Insurance - Population Receiving Medicaid, 2009-2013	20.76%	15.68%	6.21%	21.90%	20.21%
Ins. - Population Receiving Medicaid by Age: Under age 18	42.70%	28.63%	10.75%	38.81%	35.95%
Ins. - Population Receiving Medicaid by Age: Age 18-64	9.51%	7.47%	3.33%	12.13%	10.57%
Ins. - Population Receiving Medicaid by Age: Age 65+	14.11%	14.22%	6.82%	10.57%	14.55%

Sources:

- County Health Rankings, 2015
- Tennessee Department of Health, Behavioral Risk Factor Surveillance System
- US Census Bureau: State and County QuickFacts, American Communities Survey
- HealthyNashville.org (2015)
- CommunityCommons.org
- Enroll America

Health Status					
Selected Leading Causes of Death, by %	Davidson	Rutherford	Williamson	TN	USA
	2013	**2011-13**	**2011-2013**	**2013**	**2013**
Heart Disease (%)	23	22	20	23	24
Cancer (%)	22	23	24	22	23
Accidents (%)	8	5	6	6	6
Lung Disease (%)	5	6	5	6	5
Stroke (%)	5	5	5	5	5
Alzheimer's Disease (%)	4	4	7	4	3
Diabetes	2	3	3	3	3
Influenza / Pneumonia (%)	2	3	2	2	2
Suicide (%)	2	2	2	2	2
Liver Disease / Cirrhosis (%)	1	2	1	1	1
Age Adjusted Mortality Rates (deaths per 100k)	Davidson	Rutherford	Williamson	TN	USA
	2013	**2011-13**	**2011-13**	**2013**	**2013**
Cancer	179	172	133	186	163
Heart Disease	194	183	124	204	170
Accidents	61	36	38	53	39
Chronic Lower Respiratory Disease	47	53	32	53	42
Stroke	41	43	35	44	36
Alzheimer's Disease	33	44	48	37	24
Diabetes	26	23	15	25	21
Influenza / Pneumonia	17	22	13	22	16
Suicide	13	11	12	15	13
Premature Death (YPLL <75 per 100k) (2011-2013)	Davidson	Rutherford	Williamson	TN	USA
Years of Potential Life Lost before 75 Years of Age	7782	6281	3683	8636	6605
YPLL by cause	Davidson	Rutherford	Williamson	TN	USA
	2009	**2009**	**2009**	**2009**	**2013**
% YPLL from Cancer (TN, US)	18.7	22.2	33.7	20.6	21.6
% YPLL from Heart Disease (TN, US)	14.1	15.3	14.3	17.4	15.1
% YPLL from Accidents (TN, US)	12.4	12.8	9.8	14.9	14.9
% YPLL from Suicide (TN, US)	6	6.3	7.3	8.2	8.9

%YPLL from deaths in Perinatal Period (TN, US)	4.9	3.3		3.2	4.4
% YPLL from Homicide (TN, US)	6	2.2		3	3.2
% YPLL from Stroke (TN, US)	3.3	3.3	4.7	2.5	2.5
% YPLL from Chronic Lung Disease (TN, US)	3.1		2.6	3.3	2.9
% YPLL from Diabetes (TN, US)	3.1		2.1	2.7	2.7

Sources:

- Centers for Disease Control CDC Wonder
- Tennessee Department of Health
- National Vital Statistics System – Mortality Data

BIRTH OUTCOMES					
Infant Mortality	Davidson	Rutherford	Williamson	TN	USA
Infant Mortality Rate (/1000 live births) (2013)	7.7	4.5	3.3	6.80	6.00
Infant Mortality Rate - Black	11.5	7.7	na	11.60	10.80
Infant Mortality Rate - White	5.9	3.6	3.2	5.30	5.10
Child Mortality (<18 year aged deaths per 100k) (2009-2012)	74.3	51.7	22.8	63.8	na
Low Birth Weight	Davidson	Rutherford	Williamson	TN	USA
Low birth weight, % (2013)	8.8	8.7	6.7	9.10	8.00
Low birthweight - black	12.9	14.2	7.8	14.10	7.00
Low birthweight - white	6.9	7.7	6.5	7.80	12.80
Very Low birth weight, % (2013)	1.8	1.5	0.6	1.60	1.41
Very Low Birthweight - black	2.9	2.7	1.1	3.10	2.80
Very Low Birthweight - white	1.4	1.3	0.5	1.30	1.10
Prenatal Care	Davidson	Rutherford	Williamson	TN	USA
Adequate Prenatal Care, 2013	56.5%	57.8%	79.2%	60.0%	
Adequate Prenatal Care, 2012	55.4%	56.4%	73.5%	59.1%	
Adequate Prenatal Care, 2011	46.8%	50.7%	66.7%	56.8%	
Teen Pregnancy	Davidson	Rutherford	Williamson	TN	USA
Teen Pregnancy, rate/1,000 females age 15-17, 2013	20.9	12.8	5.7	18.2	
Teen Pregnancy, rate/1,000 females age 15-17, 2012	21.9	14.2	6	21.2	
Teen Pregnancy, rate/1,000 females age 15-17, 2011	23.3	16.8	6.4	22.4	
Teen Pregnancy, rate/1,000 females age 15-17, 2010	29.3	19.9	7.8	24.8	
Teen Pregnancy, rate/1,000 females age 15-17, 2009	41.0	26.2	7.0	29.6	
Teen Birth, rate/1,000 females age 15-17, 2013	15.6	10.6	4.2	15.3	
Teen Birth, rate/1,000 females age 15-17, 2012	15.8	10.9	4	17.4	
Teen Birth, rate/1,000 females age 15-17, 2011	17.4	13.9	4.1	18.5	
Teen Birth, rate/1,000 females age 15-17, 2010	22.6	15.2	5.7	20.2	
Teen Birth, rate/1,000 females age 15-17, 2009	29.7	21.2	4.3	24.0	

Sources:

- Kids Count 2015
- Tennessee Department of Health
- County Health Rankings

Preventive / Risk Care Behaviors					
Well-being	Davidson	Rutherford	Williamson	TN	USA
Poor or Fair health, Adults, 2006-2012	14%	15%	7%	19%	17%
Poor physical health days, past 30 days, 2006-2012	3.0	3.9	2.0	4.3	3.7
Poor mental health days, past 30 days, 2006-2012	2.7	2.7	1.9	3.4	3.5
Tobacco & Substance Use	Davidson	Rutherford	Williamson	TN	USA
During the past 12 months, have you stopped smoking for one day or longer because you were trying to quit smoking? (Adults) 2013	64.3%	66.6%*	66.6%*	62.6%	
Are you a Current Smoker? (Adults) 2013	20.9%	22.9%*	22.9%*	24.3%	
Adult Smoking, 2006-2012	17.0%	17.0%	11.0%	23.0%	21.0%
Dependence on or abuse of illicit drugs or alcohol in past year, 2010-12	9.72%	8.69%*	8.69%*	7.88%	
Excessive drinking, 2006-2012	11%	9%	14%	9%	16%
Alcohol-impaired driving deaths, 2009-2013	25%	27%	23%	28%	31%
Obesity & Nutrition	Davidson	Rutherford	Williamson	TN	USA
In past month, Participated in any Physical Activities or exercises other than regular job (Adults) 2013	67.2%	70.9%*	70.9%*	62.8%	74.7%
Adults who have a Body Mass Index Greater than 25 (Overweight or Obese), 2013	63.7%	69.1%*	69.1%*	68.4%	64.8%
Adults who have a Body Mass Index Greater than 30 (Obese), 2013	34.4%	33.5%*	33.5%*	33.7%	29.4%
Access to Exercise Opportunities, 2013	87%	77%	67%	70%	65%
Vaccinations	Davidson	Rutherford	Williamson	TN	USA
During past 12 mths, had a seasonal flu shot or vaccine spray (Adults) 2013	41.4%	48.7%*	48.7%*	45.0%	
During past 12 mths, had a seasonal flu shot or vaccine spray (Adults 65 yo +) 2014	78.5%	72.7%*	72.7%*	73.4%	62.8%
Ever had a pneumonia shot (Adult) 2013	24.7%	26.2%*	26.2%*	30.8%	
Ever had a pneumonia shot (Adult Age 65+) 2014	80.2%	70.8%*	70.8%*	69.7%	69.5%
24-Month Vaccinations, 7 vaccine series, % complete	74%	77%*	77%*	73%	
24-Month Vaccinations,DTaP, % complete	90.7%	92.4%*	92.4%*		
24-Month Vaccinations, Poliomyelitis, % complete	91.7%	97.1%*	97.1%*		
24-Month Vaccinations, MMR, % complete	95.4%	96.2%*	96.2%*		
24-Month Vaccinations, Hepatitis B, % complete	90.7%	96.2%*	96.2%*		
24-Month Vaccinations, Hib, % complete	80.6%	83.8%*	83.8%*		
24-Month Vaccinations, Varicella, % complete	94.4%	97.1%*	97.1%*		

24-Month Vaccinations, Pneumococcus, % complete	87.0%	93.3%*	93.3%*		
Youth Risk Behavior Survey	Davidson	Rutherford	Williamson	TN	USA
High School Youth, Ever tried cigarette smoking				43.6%	41.1%
High School Youth, Smoked a whole cigarette before age 13 yrs. for first time				12.0%	9.3%
High School Youth, Currently smoke cigarettes				15.4%	15.7%
High School Youth, Currently smoke cigarettes, White				18.1%	18.6%
High School Youth, Currently smoke cigarettes, Black or African American Students				5.3%	8.3%
High School Youth, Currently smoke cigarettes, Hispanic/Latino				29.7%	14.0%
High School Youth, Currently smoked cigarettes frequently				6.2%	5.6%
High School Youth, were obese				16.9%	13.7%
High School Youth, were overweight				15.4%	16.6%
High School Youth, did not eat vegetables				9.0%	6.6%
High School Youth, did not participate in at least 60 min of Physical activity on at least 1 day				19.6%	15.2%
High School Youth, Were not physically active at least 60 min per day on 5 or more days				58.6%	52.7%
High School Youth, did not play on at least one sports team				46.5%	46.0%

Sources:

- CDC, Youth Risk Behavior Surveillance System, High School Youth Risk Behavior Sur vey, 2013
- TN Department of Health (2013). Behavioral Risk Factor Surveillance System
- TN Department of Health (2014). 2014 Immunization Status Survey
- County Health Rankings, 2016
- Community Commons (2015)
- TN Department of Mental Health and Substance Abuse Services - 2014 Behavioral Health County Data Book

Infectious / Sexually Transmitted Disease					
Chlamydia	Davidson	Rutherford	Williamson	TN	USA
Chlamydia Incidence Rate, per 100,000 pop. 2012	598.6	473.7	131	507.94	456.70
Chlamydia Incidence Rate, per 100,000 pop. 2011	639.2	427.6	109.8	490.14	454.12
Chlamydia Incidence Rate, per 100,000 pop. 2010	557.9	397.2	89.5	446.37	420.56
Chlamydia Incidence Rate, per 100,000 pop. 2009	570.5	379.7	101.8	471.88	402.72
Chlamydia Incidence Rate, per 100,000 pop. 2008	550.5	361.1	107.9	451.14	395.54
Chlamydia Incidence Rate, per 100,000 pop. 2012, Non-Hispanic White				251.50	171.72
Chlamydia Incidence Rate, per 100,000 pop. 2012, Non-Hispanic Black				1,629.88	1,140.79
Chlamydia Incidence Rate, per 100,000 pop. 2012, Hispanic or Latino				364.54	377.52
Gonorrhea	Davidson	Rutherford	Williamson	TN	USA
Gonorrhea Incidence Rate, per 100,000 2012	206.1	90.4	26.0	142.08	107.50
Gonorrhea Incidence Rate, per 100,000 2011	195.6	72.1	14.8	120.81	103.09
Gonorrhea Incidence Rate, per 100,000 2010	153.8	70.8	15.3	112.21	99.08
Gonorrhea Incidence Rate, per 100,000 2009	137.0	70.0	13.6	125.88	96.96
Gonorrhea Incidence Rate, per 100,000 2008	174.2	60.6	22.7	141.27	109.46
Gonorrhea Incidence Rate, per 100,000 2012, Non-Hispanic White				36.52	29.70
Gonorrhea Incidence Rate, per 100,000 2012, Non-Hispanic Black				627.17	422.05
Gonorrhea Incidence Rate, per 100,000 2012, Hispanic or Latino				50.81	60.70
HIV	Davidson	Rutherford	Williamson	TN	USA
HIV Prevalence rate, per 100,000 2010	745.7	155.1	82.5	300.53	340.37
HIV Prevalence rate, per 100,000 2010, Non-Hispanic White	533.8	107.4	60.8	145.63	180.16
HIV Prevalence rate, per 100,000 2010, Non-Hispanic Black	145.6	483.6	616.6	1,093.56	1,235.54
HIV Prevalence rate, per 100,000 2010, Hispanic or Latino	180.2	155.4	ND	249.96	464.11
Tuberculosis	Davidson	Rutherford	Williamson	TN	USA
Tuberculosis Incidence Rate, per 100,000 population, 2014	5.6	2.3	1.5	2.3	3.0

Sources:

- Community Commons (2015)
- Tennessee Department of Health

Mental and Emotional Health					
Mental and Emotional Health	Davidson	Rutherford	Williamson	TN	USA
Poor Mental Health Days, last 30 days	2.7	2.7	1.9	3.7 (2014)	3.7 (2014)
Mental Illness in the Previous Year	21.2%	19.9%*	19.9%*	22.2%	18.2%
Serious Mental Illness (past year) (18+) (2010-12)	3.92%	3.86*	3.86*	5.18%	4.10%
Number with Serious Mental Illness (previous year)	~21,000	~8,000	~5,700		
Percent Adults with 0 Adverse Childhood Experiences, 2012				48%	
Percent Adults with 1 Adverse Childhood Experiences, 2012				20%	
Percent Adults with 2 Adverse Childhood Experiences, 2012				11%	
Percent Adults with 3 Adverse Childhood Experiences, 2012				7%	
Percent Adults with 4 or more Adverse Childhood Experiences, 2012				14%	

Sources:

- County Health Rankings (2015)
- Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality.
- National Survey on Drug Use and Health, Substance Abuse and Mental Health Services Administration.
- 2014 TN Behavioral Health County Data Book: Tennessee Department of Mental Health And Substance Abuse Services
- Tennessee Department of Health, Division of Policy, Planning and Assessment and Division of Family health and Wellness. (2015). Adverse Childhood Experiences in Tennessee

The following table was compiled from the StateCancerProfiles.Cancer.Gov, a collaboration of the National Cancer Institute and the Centers for Disease Control and Prevention. The first page shows cancer incidence, and the second page shows cancer mortality. Data is meant to show the great disparities in which race and gender matters when considering the risks posed by cancer in the community, in Tennessee, and across the United States. Healthy People 2020 has set cancer mortality targets for total cancer mortality, as well as breast cancer, prostate cancer, and lung/bronchial cancer mortality, which may be used for comparison.

Cancer Incidence Rate (2008-2012)					
	Davidson	Rutherford	Williamson	TN	USA
All Sites	472	450	443	468	454
Female Breast	129	113	134	121	123
Prostate	143	138	143	136	132
Lung, Bronchus	73	72	50	78	64

Cancer Incidence Rate (2008-2012), by race and gender					
	Davidson	Rutherford	Williamson	TN	USA
All Cancers	**472**	**450**	**443**	**468**	**454**
- **Black female**	416	376	421	400	394
- **Black male**	612	615	662	593	572
- **White female**	422	417	400	418	418
- **White male**	542	500	497	537	506
Female Breast	**129**	**113**	**134**	**121**	**123**
- **Black female**	129	94	149	126	121
- **White female**	129	113	134	121	123
Prostate	**143**	**138**	**143**	**136**	**132**
- **Black male**	206	221	229	203	204
- **White male**	125	129	140	126	122
Lung, Bronchus	**73**	**72**	**50**	**78**	**64**
- **Black female**	57	68	~	53	50
- **Black male**	106	142	~	109	91
- **White female**	61	60	39	63	56
- **White male**	92	87	62	98	76

Cancer Mortality Rate (2008-2012)						
	Davidson	Rutherford	Williamson	TN	USA	HP2020
All Sites	195	182	143	193	171	*161*
Female Breast	23	20	17	23	22	*21*
Prostate	25	23	18	23	21	*21*
Lung	59	56	38	61	47	*46*

Cancer Mortality Rate (2008-2012), by race and gender						
	Davidson	Rutherford	Williamson	TN	USA	HP2020
All Cancers	**195**	**182**	**143**	**193**	**171**	
- **Black female**	190	172	179	185	166	*161*
- **Black male**	320	307	267	319	262	
- **White female**	148	146	110	154	146	
- **White male**	244	232	185	239	206	
Female Breast	**23**	**20**	**17**	**23**	**22**	
- **Black female**	31	~	~	34	30	*21*
- **White female**	21	20	16	21	21	
Prostate	**25**	**23**	**18**	**23**	**21**	
- **Black male**	54	~	~	53	46	*21*
- **White male**	19	21	18	20	20	
Lung, Bronchus	**59**	**56**	**38**	**61**	**47**	
- **Black female**	49	46	~	41	36	*46*
- **Black male**	97	115	~	97	73	
- **White female**	43	43	27	46	29	
- **White male**	79	71	53	83	60	

Table 21: Data from State Cancer Profiles, CDC and National Cancer Institute, and HealthyPeople2020

Appendix G: Detailed Primary Data Results

Primary Data

Interviews

"What are the Greatest Health and/or Health Care Concerns in your Community?"

Table 22

Davidson	Access to Care	48 %
	Housing / Homelessness	42 %
	Poverty	39 %
	Mental / Emotional Health	33 %
Rutherford	Mental / Emotional Health	50 %
	Obesity	46 %
	Affordability of Care	39 %
	Access to Care	36 %
Williamson	Mental / Emotional Health	45 %
	Obesity	45 %
	Access to Care	40 %
	Housing / Homelessness	35 %

"What Socioeconomic and Demographic Factors have the Biggest Impact on Community Health?"

Table 24

Davidson	Poverty / Working Poor	52 %
	Educational Attainment	39 %
	Health Insurance Coverage	39 %
	Income / Wealth Dispersion	36 %
Rutherford	Health Insurance Coverage	54 %
	Poverty / Working Poor	39 %
	Educational Attainment	32 %
	TIE: Income / Wealth Dispersion, Language Barriers	25 %
Williamson	Changing Population	40 %
	Travel Time to Work	40 %
	TIE: Income / Wealth Dispersion, Language Barriers, Health Insurance Coverage	35 %

"What Environmental Factors have the Biggest Impact on Community Health?"

Table 23

Davidson	Affordable Housing / Homelessness	63 %
	Healthy Food Access	54 %
	Transportation	54 %
	Neighborhood Safety	48 %
Rutherford	Healthy Food Access	57 %
	Housing / Homelessness	54 %
	Transportation	54 %
	Limited Sidewalks	29 %
Williamson	Affordable Housing / Homelessness	60 %
	Transportation	55 %
	Emergency Preparedness	30 %
	Rural/Suburban/Urban Setting	25 %

"What Conditions and Diseases are Causing Illness and Death in Your Community?"

Table 26

Davidson	Mental / Emotional Health	42 %
	Cardiovascular Disease	39 %
	Chronic Disease	39 %
	Obesity	36 %
Rutherford	Alcohol and Drug Abuse	50 %
	Mental / Emotional Health	46 %
	Obesity	43 %
	Diabetes	39 %
Williamson	Mental / Emotional Health	50 %
	Cancer	50 %
	Alcohol and Drug Abuse	40 %
	TIE: Cardiovascular Disease, Alzheimer's Disease	35 %

"What Are the Greatest Barriers within the Health System?"

Table 25

Davidson	Access – Overall	42 %
	Coordination of Care	36 %
	Health Disparities	24 %
	TIE: Affordability, Access – Mental Health	21 %
Rutherford	Affordability	39 %
	ER use for Non-Emergencies	32 %
	Coordination of Care	25 %
	Health Education	25 %
Williamson	Affordability	50 %
	Access – Mental Health	35 %
	Access – Oral / Dental Care	25 %
	5-Way Tie	20 %

Table 27

"What Behaviors Have the most Negative Impact on Health in your Community?"

Davidson	Nutrition	48 %
	Physical Activity	48 %
	Preventive Care	30 %
	Alcohol and Drug Abuse	30 %
Rutherford	Alcohol and Drug Abuse	54 %
	Nutrition	46 %
	Physical Activity	46 %
	Tobacco Use	36 %
Williamson	Alcohol and Drug Abuse	50 %
	Texting While Driving	40 %
	Domestic Violence	35 %
	Tobacco Use	35 %

Interviews and Community Listening Sessions

"What Reasons/Barriers Exist that Cause the Use of ER for Non-Emergencies?"

Table 28

Davidson

Why is the Emergency Room (ER) used in non-emergencies?	
Interviews	**Listening Sessions**

- Convenience, hours of operation, and transportation
  - *Difficult to find a doctor at non-business hours*
- No health insurance
  - *Can't be turned away for failure to pay*
- Health navigation / literacy
  - *Not sure what constitutes an emergency*
  - *Not knowing where or when to go for care*
- Lack of consistent source of medical care
  - *Lack of affordable / timely alternatives*
  - *Lack of preventive care*
	- Challenges of accessing primary care system and limitations of availability, for example:
	  - Work hours
	  - Fear of job loss
	  - Transportation issues
	- No co-pays or need for cash up front
	- Care regardless of ability to pay or level of insurance
	- Wait times for appointments in primary care system

Rutherford

Why is the Emergency Room (ER) used in non-emergencies?	
Interviews	**Listening Sessions**

- Lack of a consistent source of medical care
  - *There are not enough primary care providers for people to see when needed urgently or for prevention*
- Convenience, hours of operation and transportation
  - *The ER provides immediate access to care during non-business hours*
  - *Lack of after hours availability to primary care providers*
- No health insurance
  - *Many without insurance aren't familiar with the financial impact of unnecessary ER use*
- Health Navigation / Literacy
  - *Many homeless families are more concerned about shelter than preventive healthcare*
	- No co-pays or need for cash upfront
	- Care regardless of ability to pay or comprehensiveness of insurance coverage
	- Transportation barrier to local care providers
	- Challenges of accessing primary care system, and limitations of available hours for primary care visits

Williamson

Why is the Emergency Room (ER) used in non-emergencies?	
Interviews	**Listening Sessions**

- Health navigation and literacy
  - *Lack of understanding of what constitutes an emergency*
  - *Not knowing where or when to go for care*
- No Health Insurance – cost of care
  - *Can't be turned away for failure to pay*
- Lack of relationship with primary care provider
  - *Lack of preventative care*
  - *Hours of operation & transportation to/from care*
	- Can receive care even without insurance
	- Access to a high level of care
	- Not seen as a prevalent issue among Spanish speakers

"What Community Assets Support Health and Well-being in Your Community?

Table 29

	Community Assets	
	Interviews	**Listening Sessions**

Davidson	- Organizations & Groups Focused on Underserved
	  - *Safety net providers, hospitals, and health systems*
	  - *Local health department*
	  - *Local non-profits, social service agencies*
	- Access to Recreational Activities
	  - *Greenways, trails, sidewalks, bike paths*
	  - *Mayor's health initiatives*
	  - *Neighborhood activities, including walks / runs*
		- Community resources
		  - *211*
		  - *Schools*
		  - *Family Resource Centers (FRCs)*
		  - *Non-profit organizations*
		  - *Faith community*

	Community Assets	
	Interviews	**Listening Sessions**

Rutherford	- Safety net healthcare & service providers
	  - *Local health department*
	  - *Mobile health unit & safety net clinics*
	  - *Basic service agencies*
	- Community cohesiveness
	  - *We work well together*
	  - *Degree of perceived collaboration and engagement within the county*
	- Hospitals & Healthcare availability in the county
	- Greenways & Recreational opportunities
	  - *Walking trails, farmers' markets*
	  - *Local recreational facilities*
		- Parks, greenways
		- Centralized location and highways
		- Growth of businesses
		- Activities for kids and recreational opportunities
		  - *Many opportunities offered by faith community*

	Community Assets	
	Interviews	**Listening Sessions**

Williamson	- Availability of Resources
	  - *Health Department*
	  - *Schools*
	  - *Community activities and programs*
	  - *Parks and recreational facilities*
	
	- Good, safe place to live
		- Hospital & Healthcare system
		  - *Availability of walk-in clinics*
		  - *Access to variety of health services*
		
		- Collaboration of non-profit organization and service providers
		  - *Local health department*
		
		- Parks & Recreational opportunities
		  - *Greenways*
		  - *Fitness facilities*

"What Priority Actions Should Your County Focus On?"

Table 30

	Priority Actions	
	Interviews	**Listening Sessions**

Davidson	- Increase access to insurance for all
	  - *Connecting to affordable, quality insurance*
	- Address the barriers to accessing health system
	  - *Coordination of care*
	  - *Transportation*
	  - *Affordability*
	- Environment (built, social, natural)
	  - *Healthy food access*
	  - *Walkability/physical activity*
	- Health Education and Promotion
	  - *Navigation / literacy*
	  - *Multi-level perspective*
		- Broadening access to care and insurance for all
		- Improve transportation
		- Improve workforce development
		- Affordable housing and child care
		- Community safety and reduction of crime
		- Expand opportunities for youth and teens
		- Parent/family support and community building and connectedness

Rutherford	Priority Actions	
	Interviews	**Listening Sessions**

	- Increase access to affordable primary care
	  - *Address transportation barriers*
	  - *More providers for low income individuals*
	  - *Integration of services*
	- Substance abuse
	- Mental health
	- Lifestyle component
	  - *Healthy food access/nutrition/obesity*
	  - *Walkability/physical activity*
	- Increase access to adult dental care
		- Transportation, transit, connectivity across the county
		- Coordination and collaboration across community and health resources
		- Access to care:
		  - *Mental health*
		  - *Adult dental*
		- Expand affordable insurance options and address insurance gap

Williamson	Priority Actions	
	Interviews	**Listening Sessions**

	- Expand access to care
	  - *Insurance & care affordability*
	- Health education
	  - *Connection to resources and understanding health system*
	- Healthy lifestyle support
	  - *Focus on children and seniors*
	- Mental and emotional health
		- Affordable Health insurance
		- Easier access to necessary medical and social services
		- More specialty care
		- Good sources of information for activities and service resources within the community
		  - *Available across multiple mediums*

The following question was asked in community listening sessions.

Table 31

"What are the Top Community Issues?"	
Davidson	**Top Community Issues** - Transportation - Chronic stress related to crime, lack of opportunity, challenges meeting basic needs - Opportunities and safe spaces for youth - Housing - Cost of childcare - Family / parent support - Social breakdown of communities - "The village has left us…It raised us." - Violence / Crime - Resources available but community not using or aware of them

Rutherford	**Top Community Issues**
	- Traffic
	- Transportation and difficulty navigating different areas of the county
	- Walkability
	- Cost of living
	  - Affordable childcare
	  - Affordable housing
	- Resources available but community not using or aware of them
	- Long wait for services / benefits (i.e. housing and unemployment)

Williamson	**Top Community Issues** - Affordable housing - Cost of living - Cost of insurance / coverage gaps - House and availability of clinics - Need for specialty care (eye, dental, pediatric)

Primary Data: Themes

Table 32

Davidson County Themes	
Interviews	**Listening Sessions**
Basic Needs of Many are Unmet	Challenge in meeting Basic Needs
Mental and Emotional Health	Mental and Emotional Health
Access to and Coordination of Care	Health System is Difficult to Access and Challenging to Navigate
	Information on Health and Social Services can be Difficult to Access

Rutherford County Themes	
Interviews	**Listening Sessions**
Alcohol & Drug Abuse / Addiction	Transportation and Lack of Connectivity Across the County
Mental and Emotional Health	Mental and Emotional Health
Nutrition / Physical Activity	Health System is Difficult to Access and Challenging to Navigate
Work Well Together to Address Issues	Information on Health and Social Services can be Difficult to Access

Williamson County Themes	
Interviews	**Listening Sessions**
Hope / Frustration with Transportation, Walkability, and Connectedness	Access to Quality Insurance and Health Services is Challenging Due to both Cost and Complexity
Mental and Emotional Health	Need for Affordable Specialty Care
The Cost of Living is Extremely High, Particularly Housing	The Cost of Living is Extremely High
Resource Rich Community, Communication about Available Resources and Services can Improve	Many Resources Available