
# 2019
# COMMUNITY HEALTH NEEDS ASSESSMENT

**Report Date: June 1, 2019**

St. Jude Children's Research Hospital®

Finding cures. Saving children.

ALSAC • DANNY THOMAS, FOUNDER

# Contents

## 1. Executive Summary

### Introduction

St. Jude Children's Research Hospital (St. Jude) in Memphis, Tennessee (TN) is a specialty hospital that treats pediatric catastrophic diseases, with a focus on cancer and blood disorders. Patients at St. Jude are referred by a physician, receive a diagnosis of a disease currently under study, and are eligible for a research protocol. St. Jude is the only pediatric research center for children with catastrophic diseases where families never pay for treatment not covered by insurance. In fact, no family pays St. Jude for anything. Transportation, housing, and food are among the no-cost services provided to ensure that families coming to St. Jude can focus on their child. No child is ever denied treatment due to race, sex, nationality, ethnicity, religion, or the family's ability to pay.

The community served by St. Jude can best be defined by the St. Jude patient population and scope of clinical services. St. Jude serves as a national referral center for children with catastrophic diseases as well as a local referral center for children with cancer, blood disorders, and HIV/AIDS. It does not admit children for any diagnostic groups outside these services and does not offer medical services beyond those necessary to care for children with these diseases.

St. Jude has a network of eight affiliated pediatric hematology/oncology clinics in the United States (U.S.). St. Jude also defines its service area as Memphis and 163 neighboring counties in the states of Alabama, Arkansas. Illinois, Kentucky, Missouri, Mississippi, and Tennessee. Beyond the Surrounding Memphis Area is an Affiliate Market Area of 15 states. Additionally, St. Jude operates St. Jude Global, an international program aimed at sharing knowledge and resources to improve the survival rate of children with cancer and hematologic diseases worldwide.

The purpose of this community health needs assessment (CHNA) is to provide an empirical foundation for future health planning and review progress in community benefit priorities identified in the 2016 CHNA. These purposes were identified to meet the CHNA mandate for non-profit institutions put forth by the Internal Revenue Service (IRS).

### Community Health Needs Assessment Methods

The CHNA process included the following:

- Engaging an advisory committee of St. Jude staff
- Reviewing secondary social, economic, and health data
- Conducting interviews and focus groups with internal and external stakeholders, leaders in public health, patients, and family members
- Reviewing current community benefit efforts
- Prioritizing needs to be addressed by community benefit initiatives.

The St. Jude 2019 CHNA builds on the 2016 CHNA and reflects the activities identified in the St. Jude 2016 Community Benefit Implementation Plan. The 2019 CHNA was led by an internal team of St. Jude staff members. The leadership of this team engaged Health Resources in Action (HRiA), a non-profit public health consultancy organization, to conduct the CHNA. To develop a social, economic, and health portrait of the community served by St. Jude, HRiA

reviewed existing data drawn from local, state, and national sources. In addition to analyzing epidemiological data, HRiA conducted qualitative research with internal and external St. Jude stakeholders as well as patients and family members served in order to supplement quantitative findings with perceptions of community strengths and assets, priority health concerns, and suggestions for future programming and services.

## Key Findings

The following provides a brief overview of key findings that emerged from this assessment. For the purpose of this report, the focus remained on the community of patients served by St. Jude and the geographic community of the Memphis/Shelby County area where St. Jude is located.

### *Health Issues of New St. Jude Patients*

In the last three fiscal years, just under half (49.2%) of new St. Jude patients came from Shelby County and the surrounding Memphis area. Most of St. Jude's new patients were white, non-Hispanic (53.9%), whereas the population of Shelby County is only 36.5% white, non-Hispanic. Most new patients' primary diagnoses were cancer (66.1%), followed by hematological disorders (14.8%), sickle cell disease (7.1%), and HIV (3.8%). The health issues of new St. Jude patients (FY2016-2018) are described below.

*Cancer Care*

- Though leukemia has the highest national incident rate among childhood cancers, the greatest proportion of cancers among our new patients are brain and other nervous system cancers (31.9%), followed by leukemia (23.1%), and lymphomas (9.7%).
- Most new patients with the primary diagnosis of cancer were male (54.2%) and white, non-Hispanic (64.3%). Patients' ages were evenly distributed across childhood and teenage years.
- Internal leaders frequently cited the recent St. Jude HPV program aimed at increasing adolescent vaccination rates as an exciting and successful new program. External stakeholders were also aware of the HPV program and saw real value in St. Jude taking such an active role.

*Sickle Cell Disease and Hematological Disorders*

- Hematological disorders composed the highest proportion of primary diagnoses among new patients from Shelby County (29.6%), whereas cancer composed the highest proportion of primary diagnoses among new patients from the surrounding Memphis area excluding Shelby County (47.3%).
- In Shelby County, the birth prevalence of sickle cell disease (SCD) across all races and among African Americans was higher than national rates, at 1 in 500 across all races and 1 in 287 among African Americans.
- Most new patients with the primary diagnosis of hematological disorder (including SCD) were male (52.0%) and black, non-Hispanic (53.4%), with children younger than 2 years making up the highest proportion at 46.1%.

*HIV/AIDS*

- In 2015, rates of children living with HIV/AIDS in Shelby County ranged from 18.1/100,000 among those aged 0-9 years, 41.4/100,000 among those aged 10-14 years, and 81.6/100,000 among those aged 15-19 years. Shelby County reported 12 new HIV cases among persons aged 0-19 years in 2015.[1]
- Among new patients with the primary diagnoses of HIV/AIDS, most were male (82.2%), aged 15-20 years (60.0%), and black, non-Hispanic (90.0%).

- Participants spoke about HIV/AIDS in Memphis as a “sleeping problem” that not many people know about, partially because of a lack of discussion in the community about HIV/AIDS and how it is spread.

*Mental Health*
- Focus group and interview participants described the difficulties of receiving a diagnosis of a catastrophic disease. Health care providers commented about the importance of the support systems that St. Jude provides, including social work and psychology.
- The need for mental health resources/referrals for parents, caregivers, and siblings was noted by the parent focus group as an area for growth.

*Access and Barriers to Care*
- During the last 12 months in Shelby County, 14.3% of children 0-17 years old had difficulty accessing specialist services; 35.1% had difficulty accessing mental health care, and 12.1% had difficulty receiving a needed referral.
- 12.7% of new St. Jude patients from Shelby County and 6.8% of those from the surrounding Memphis area (excluding Shelby County) were uninsured.
- 17.3% of new St. Jude patients did not have a family physician identified in their medical record.
- Interview participants brought up distrust in the medical community as a barrier to care and a potential driver of racial disparities in clinical trials.

***Health Issues in Memphis/Shelby County***

St. Jude is seen as a leader in the Memphis community and as a well-known and respected institution, employer, and health care provider. Participants frequently referenced St. Jude as a “crown jewel” of Memphis and something that they feel immense pride about. Participants spoke about the need for institutions, including St. Jude, to be engaged in the community to help address social determinants of health (e.g., poverty, employment, food insecurity, and education), as described below.

*Poverty*
- In Shelby County, 33.9% of all children and 39.5% of children younger than 5 years were living below the federal poverty line between 2013-2017.
- Participants discussed the connection between poverty and health outcomes, with a few participants noting the challenge individuals face in accessing daily necessities, which makes it difficult for individuals to think about and address their health issues.

*Employment*
- Shelby County has a higher unemployment rate than TN (4.2% vs. 3.5%, respectively).
- Internal and external stakeholders noted the important role that St. Jude plays in the city as an economic driver, providing employment opportunities and economic development.

*Food Insecurity*
- In Memphis, the issues of food deserts and the lack of access to healthy, affordable food were noted as potential contributors to hunger and obesity. Participants also discussed the high percentage of kids who go to school hungry as an example of how poverty and food access manifest for children in the community.

*Education*

- Shelby County has a higher high school graduation rate than the entire state (87.6% vs. 86.5%, respectively).
- Participants discussed educational disparities in the city, particularly at the zip code level. Graduation rates were discussed as well as the issue of readiness for those that graduate to obtain employment. Interview participants noted the connection between education and health, with one participant articulating, “if the education system could be improved, that could greatly improve our health outcomes.”

*Chronic Disease*

- Chronic diseases mentioned in interviews and focus groups as impacting the community include obesity, asthma, hypertension, and diabetes.
- In TN, 15.6% of children aged 10-17 years are considered obese, as measured by body mass index (BMI) and 4.3% of children have asthma. Although less than 1% of children in TN have diabetes, participants discussed that poor nutrition and obesity were problems for Memphis residents, including children, and were concerned about the development of Type 2 diabetes later in life.

***Priority Areas of Need***

In May of 2019, the St. Jude CHNA Advisory Committee and the Medical Executive Committee (MEC) met to review CHNA findings and discuss priority areas for future community benefit programs and services to supplement the medical research and financial assistance community benefit activities that St. Jude already provides. Given the success of the current St. Jude community benefit activities with its patient population —children with catastrophic disease— the group confirmed continuing the three main priority aims:

AIM 1: Improving Access to Care – St. Jude should continue efforts to improve access to health care coverage, clinical trials (when appropriate), and palliative care services. St. Jude affiliate network relationships and those with other Memphis health care institutions should be maintained and strengthened to expand opportunities for care. To continue to meet the needs of caregivers, CHNA Advisory Committee and MEC members recommend strengthening mental health services and related resources for caregivers. Opportunities may exist to collaborate with other health care systems in Memphis to develop shared strategies in this area.

AIM 2: Improving Coordination of Care – Recommendations were focused on continuing to improve these programs with the use of the St. Jude affiliate programs, the growth in the transitions to adult care programs for patients with cancer and sickle cell disease, and efforts to improve the outpatient care experience. Participants also noted the importance of collaborating with other health care providers and community-based organizations to these efforts’ success.

AIM 3: Improving Child Health Status – St. Jude staff have a wealth of knowledge and interest in educating children, their families and caregivers, school staff, and other health and childcare providers in strategies for limiting poor health outcomes and catastrophic childhood illness. Existing programs and services in this area should be continued and expanded. Engagement of leadership in collaborative efforts, such as the HPV Task Force and the HIV Coalition, should be continued to address policy, systems, and environmental change strategies to improve child health status. Opportunities may exist to collaborate with other health care systems in Memphis to develop shared strategies in this area.

Cutting across all of these aims is the presence of St. Jude as a member of the Memphis–Shelby County community. CHNA Advisory Committee and MEC members noted the

importance of the continued involvement of St. Jude in community-based activities and collaborations such as Memphis Tomorrow and Healthy Shelby County. The CHNA identified the importance of partnerships and collaborations to meet the health and medical needs of children, including but not limited to Shelby County Health Department, Methodist Le Bonheur Healthcare, Baptist Memorial Health Care and Regional One Health, and Church Health Center. Given its focused mission and model of providing specialized services to children in crisis, St. Jude does not have the capacity or resources to meet all needs of all children and their families. However, strategic partnerships with other healthcare providers and partnerships with schools and community-based organizations allow St. Jude to create a network of resources that can be leveraged to meet the health and social needs of a wider community of patients and their families.

## 2. Background

### *2.1. Mission, Values, and Vision*

The mission of St. Jude Children's Research Hospital (St. Jude) is to advance cures and means of prevention for pediatric catastrophic diseases through research and treatment. Consistent with the vision of founder Danny Thomas, no child is denied treatment based on race, religion, or a family's ability to pay.

The values are an integral part of the St. Jude identity and guide its daily actions and decisions. The incorporation of these values directly impacts the organization's ability to make progress toward achieving the mission of St. Jude. These values are as follows:

> Always recognize that advancing treatment for children with catastrophic disease is at the center of everything we do.
>
> Do what is right; take ownership of what you do.
>
> Work with purpose and urgency —your efforts matter.
>
> Embrace the challenge to create a new tomorrow.
>
> Work collaboratively and help others succeed.
>
> Always be respectful of your coworkers, our patients and their families, and visitors to our campus.
>
> Make the most of St. Jude resources, and be mindful of those who provided them.

"When you look at the core mission of St. Jude they are hitting it out of the park; they are an amazing institution and doing amazing work."
-External Interview Participant

The current strategic plan lays out a vision and charts a road map from 2016 to 2021. The vision of St. Jude is to accelerate progress against catastrophic disease at a global level.

St. Jude is a research hospital focusing on research efforts that address a broader scope of health issues than the diseases treated as a primary diagnosis. For the purposes of this report, the focus is limited to those diseases for which children are admitted to St. Jude for treatment and the geographic community of the Memphis/Shelby County area where St. Jude is located.

### *2.2. Facilities Description*

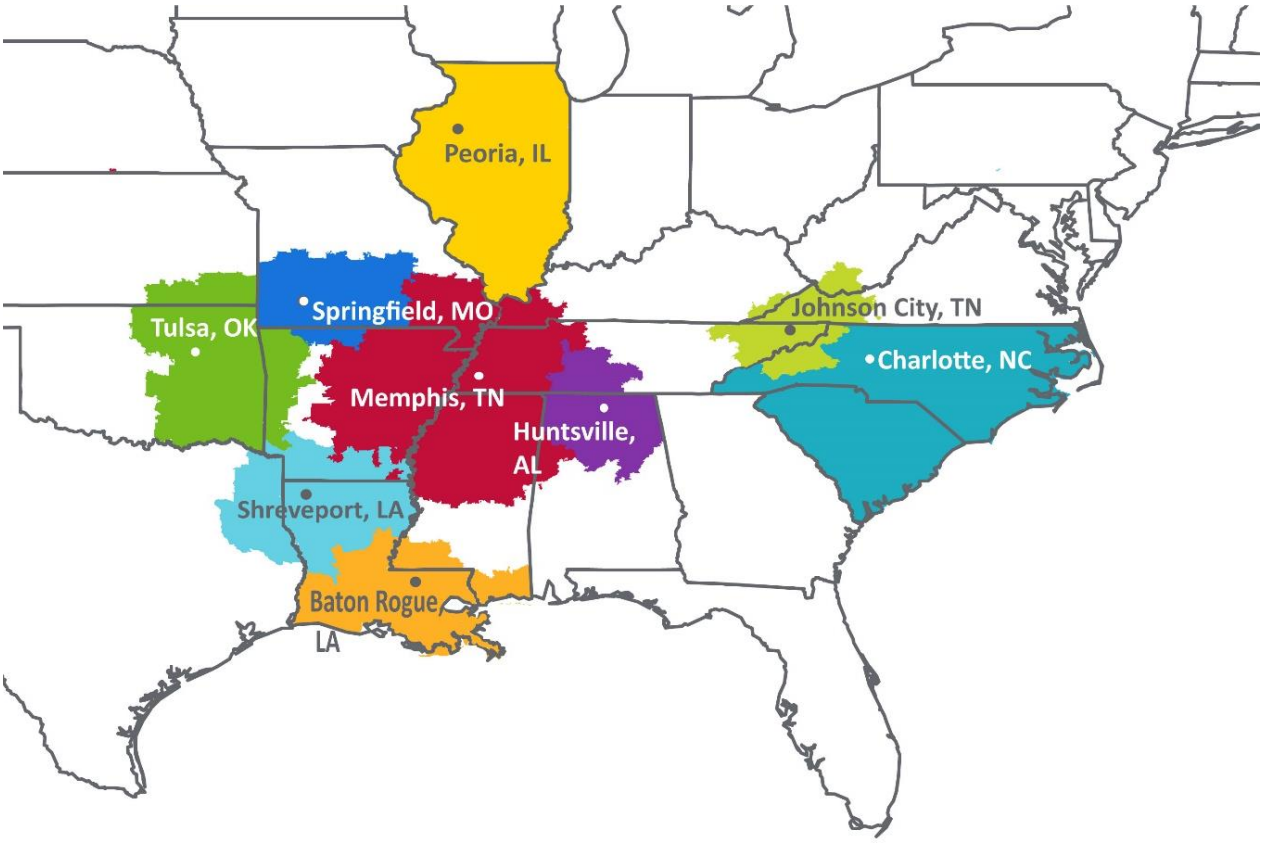
St. Jude is a research-based specialty hospital that treats pediatric catastrophic diseases, with a focus on cancer and blood disorders. Patients at St. Jude are referred by a physician, receive a diagnosis of a disease currently under study, and generally are eligible for a research protocol. St. Jude is the only pediatric research center for children with catastrophic diseases, including cancer and blood disorders, where families never pay for treatment not covered by insurance. In fact, no family ever pays St. Jude for anything. Transportation, housing and food are among the no-cost services provided to ensure families coming to St. Jude can focus on their child. No child is ever denied treatment due to race, sex, nationality, ethnicity, religion, or the family's ability to pay.

Through this care model, St. Jude serves approximately 8,000 patients each year by offering clinical services and engagement in research. The main campus in Memphis has 73 hospital beds, multiple outpatient clinics, and a full set of ancillary and diagnostic services. The campus includes a cafeteria, on-site school, and numerous psychosocial-based services to assist children and families. Outpatients traveling to Memphis to receive care stay in one of our housing facilities; nearly 300 rooms are specifically designed and managed by St. Jude for families of children with catastrophic diseases.

### *2.3. Geographic Areas of Service*

St. Jude has a network of eight affiliated pediatric hematology/oncology clinics in the U.S., allowing it to extend care and benefits to more children and increase the number of children treated in St. Jude clinical trials (Figure 1). St. Jude and the network of affiliates cover a market area of 15 states. St. Jude also operates St. Jude Global, an international program aimed at sharing knowledge and resources to improve the survival rate of children with cancer and hematologic diseases worldwide.

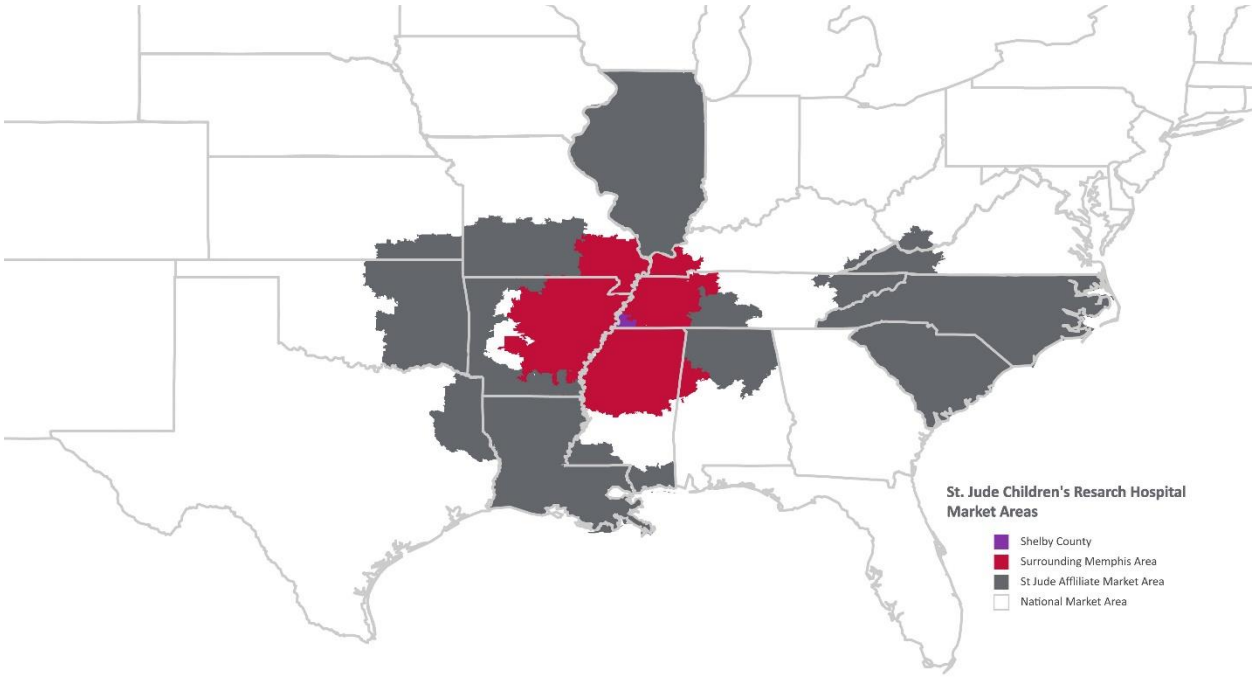
**Figure 1. St. Jude Affiliate Locations and Market Areas**



*2.3.1. St. Jude and Affiliates Market Areas*

Because of the uniqueness of its services and its eight affiliates (Peoria, IL; Springfield, MO; Shreveport, LA; Baton Rouge, LA; Huntsville, AL; Charlotte, NC; Johnson City, TN; Tulsa, OK), St. Jude has concentric service areas (Figure 2). The clinical affiliate sites provide access to St. Jude clinical protocols and standards of care for patients close to home. St. Jude also defines its service area as Memphis and 163 neighboring counties in the states of Alabama, Arkansas. Illinois, Kentucky, Missouri, Mississippi, and Tennessee. Beyond the Surrounding Memphis Area is an Affiliate Market Area of 15 states. The remaining areas of the United States make up the National Market Area.

**Figure 2. St. Jude Market Areas**




***2.4. Purpose***

This community health needs assessment (CHNA) fulfills the requirement of the IRS Schedule H/Form 990 mandate and provides a portrait of the health of the community in order to lay the foundation for future data-driven planning efforts. The CHNA process included:

- Engaging an advisory committee of St. Jude staff
- Reviewing secondary social, economic, and health data
- Conducting interviews and focus groups with internal and external stakeholders, leaders in public health, patients, and family members
- Reviewing current community benefit efforts
- Prioritizing needs to be addressed by community benefit initiatives.

The 2019 CHNA builds upon the 2016 CHNA and reflects the activities identified in the 2016 Community Benefit Implementation Plan for St. Jude. The 2019 CHNA was led by an internal team of St. Jude staff members. The leadership of this team engaged Health Resources in Action (HRiA), a non-profit public health consultancy organization, to conduct the CHNA. New to the St. Jude assessment and community benefit planning activities for 2019 is a collaboration

with the Shelby County Health Department, Methodist Le Bonheur Healthcare, and Baptist Memorial Health Care and Regional One Health. Each institution is working to align its assessment and planning processes, when appropriate, and to coordinate activities related to data collection.

## 3. Geography/Community Served

### *3.1. Definition of Community Served*

Per the IRS CHNA requirements, a hospital's community for the CHNA may be defined in many ways:

- Target population served (e.g., children, women, or the aged)
- Geographic location (e.g., a city, county, or metropolitan region)
- Principal function of the hospital (e.g., a particular specialty area or targeted disease)

The community served by St. Jude can best be defined by the St. Jude patient population and scope of clinical services. St. Jude serves as a national referral center for children with catastrophic diseases, such as cancer, as well as a local referral center for children with cancer, blood disorders, and HIV/AIDS. It does not admit children for any diagnoses outside of these areas and does not offer medical services beyond those necessary to care for children with these diseases.

St. Jude was described by internal and external stakeholders as playing an important national and international role in pediatric cancer treatment and research, as a resource for patients and families dealing with a catastrophic illness diagnosis, and as an economic pillar of the local Memphis community.

For the purpose of this report, the focus is the community of patients served by St. Jude and the geographic community of the Memphis/Shelby County area where St. Jude is located.

### *3.2. Clinical Services Area*

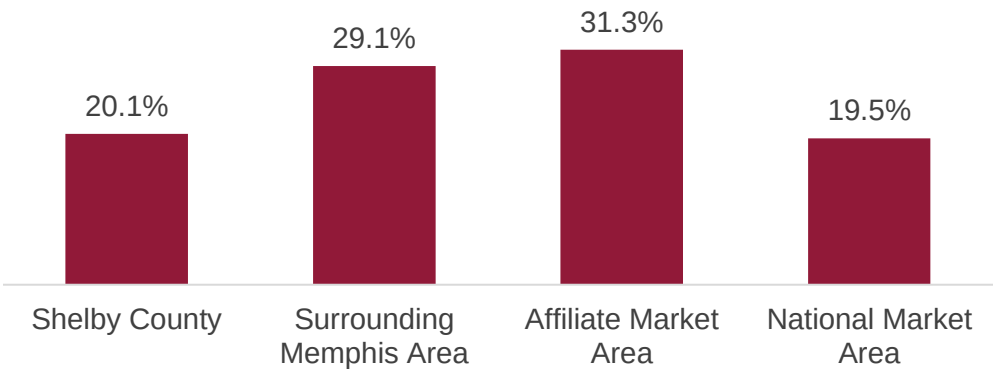
The primary clinical effort at St. Jude centers on providing ground-breaking, research-driven treatments. Although the dominant focus of St. Jude is the treatment of pediatric cancer, it also serves as the primary hematology hospital for patients in the Greater Memphis area, with the largest program being for treatment of sickle cell disease. St. Jude also accepts pediatric patients with HIV/AIDS and serves as the area's primary provider for infants, children, and adolescents with HIV infection.

### *3.3. St. Jude Patient Population*

*3.3.1. Geography of New Patients*

St. Jude, through its location in Memphis and its affiliate sites, draws patients from all over the U.S., including from the local Memphis community. As Figure 3 shows, just under half of new St. Jude patients in the last three fiscal years came from Shelby County and the surrounding Memphis area.

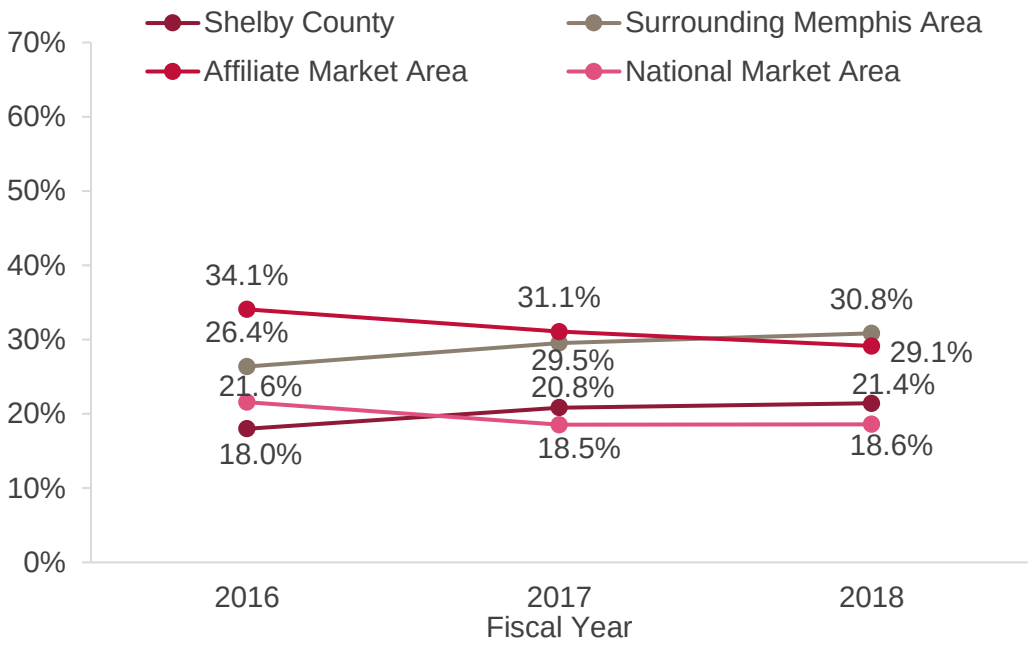
**Figure 3. New St. Jude Patients, United States only, by Geographic Area, FY2016-2018 (N=2,384)**




DATA SOURCE: St. Jude Children's Research Hospital, FY2016-2018
NOTE: Surrounding Memphis Area excludes Shelby County; Affiliate Market Area excludes Surrounding Memphis Area and Shelby County

As Figure 4 displays, from FY2016-2018, the proportion of new patients from Shelby County and the surrounding Memphis area has increased from 44.4% to 52.2%, while the proportion of new patients from the affiliate and national referral areas has decreased from 55.7% to 47.7%. In FY2018, 21.4% of new patients came from Shelby County and 30.8% came from the surrounding Memphis Area.

**Figure 4. New St. Jude Patients, United States, only, by Geographic Area, by Year, FY2016-2018 (N=2,384)**

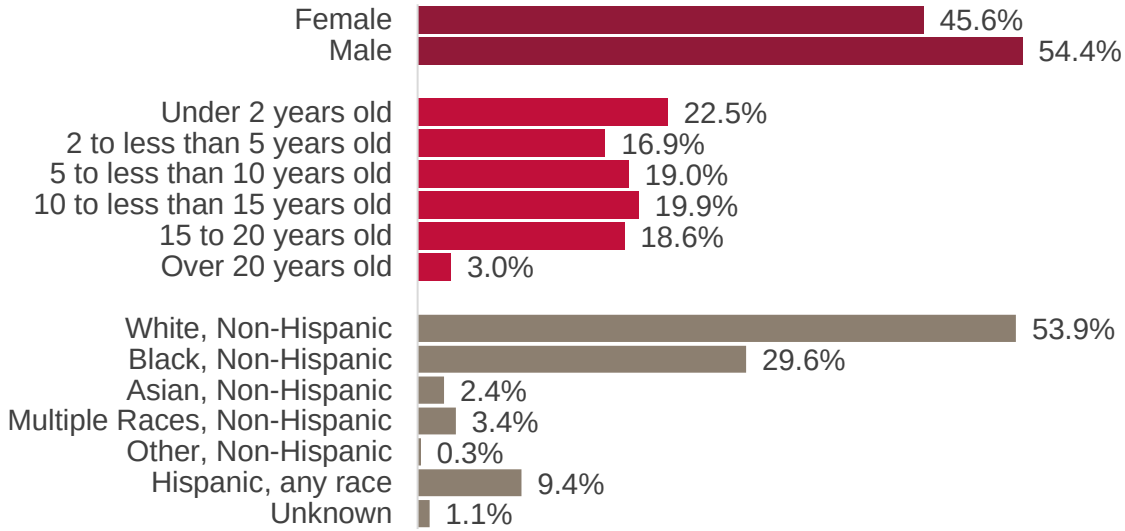



DATA SOURCE: St. Jude Children's Research Hospital, FY2016-2018
NOTE: Surrounding Memphis Area excludes Shelby County; Affiliate Market Area excludes Surrounding Memphis Area and Shelby County

*3.3.2. Demographics of New Patients*

From FY2016 through FY2018, 2,384 children became patients at St. Jude for the first time. The demographics of new patients across those three years were consistent: patients were more likely to be male than female and varied across age, race, and ethnicity (Figure 5). The proportion of new patients was evenly distributed across age groups, except for patients over 20 years old, who comprised only 3.0% of new patients. Most (53.9%) new patients were white, non-Hispanic.

**Figure 5. Demographics of New St. Jude Patients, United States, FY2016-2018 (N=2,384)**




DATA SOURCE: St. Jude Children's Research Hospital, FY2016-2018
NOTE: Multiple races, non-Hispanic includes American Indian/Alaskan and White, Asian and White, Black and White, and Multiple Race (not otherwise specified); Other, non-Hispanic includes American Indian/Alaskan Native and Other; Patients with known race but unknown ethnicity were categorized as "Unknown" race/ethnicity

### *3.4. St. Jude Market Area*

The St. Jude market area includes the immediate City of Memphis and Shelby County; the surrounding Memphis area (includes counties in Alabama, Arkansas, Illinois, Kentucky, Missouri, Mississippi, and Tennessee); the geographic area of its eight affiliates (includes areas in Alabama, Arkansas, Illinois, Kansas, Kentucky, Louisiana, Missouri, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia); and the national market area.

*3.4.1. Population Demographics*

In 2018, a total of 272 new St. Jude patients (30.8%) originated from the surrounding Memphis area. This is a wide service area including counties in Alabama, Arkansas, Illinois, Kentucky, Missouri, Mississippi, and Tennessee. Quantitative data suggest that many residents are vulnerable and underserved. Five of these states (Alabama, Arkansas, Kentucky, Mississippi, and Tennessee) are in the bottom ten rankings of healthy states by the United Health Foundation. High school graduation rates in this area range from 83.4% in Mississippi to 89.2% in Missouri. Of these states, Mississippi has the highest proportion of children living in poverty (30.2%) (range: 18.8% in Illinois – 30.2% in Mississippi) and the highest proportion of children in single parent households (44.0%) (range: 32% in Illinois - 44% in Mississippi). Over 90% of

children in these states are insured (range: 93.2% in Kentucky – 96.5% in Illinois), although only about half of children in these states receive coordinated, on-going, comprehensive care within a medical home (range: 45.4% in Arkansas – 53.4% in Tennessee) (Table 1).

**Table 1. Selected Demographics and Social and Economic Factors for Surrounding Memphis Area, by State**

| | AL | AR | IL | KY | MS | MO | TN | US |
|---|---|---|---|---|---|---|---|---|
| **Demographics** | | | | | | | | |
| Below 18 years of age | 22.7% | 23.7% | 23.0% | 22.9% | 24.3% | 22.9% | 22.7% | 22.9% |
| 65 years of age or older | 15.7% | 16.0% | 14.4% | 15.2% | 14.6% | 15.7% | 15.4% | 14.9% |
| White, Non-Hispanic | 65.9% | 73.0% | 16.8% | 85.1% | 57.0% | 79.8% | 74.3% | 61.5% |
| Black or African, Non-Hispanic | 26.4% | 15.4% | 14.1% | 7.9% | 37.5% | 11.5% | 16.7% | 12.3% |
| Hispanic, any race | 4.1% | 7.2% | 61.9% | 3.4% | 3.0% | 4.0% | 5.2% | 17.6% |
| **Social and Economic Factors** | | | | | | | | |
| High School Graduate | 85.3% | 85.6% | 88.6% | 85.2% | 83.4% | 89.2% | 86.5% | 87.3% |
| Bachelor's degree or higher | 24.5% | 22.0% | 33.4% | 23.2% | 21.3% | 28.2% | 26.1% | 30.9% |
| Unemployment Rate | 3.9% | 3.7% | 4.3% | 4.3% | 4.8% | 3.2% | 3.5% | 3.9% |
| Children below Federal Poverty Level | 26.0% | 25.7% | 18.8% | 24.7% | 30.2% | 20.0% | 24.3% | 20.3% |
| Children in Single Parent Households | 38.0% | 36.0% | 32.0% | 34.0% | 44.0% | 33.0% | 35.0% | 33.0% |
| Severe Housing Problems | 15.0% | 15.0% | 18.0% | 14.0% | 16.0% | 14.0% | 15.0% | 18.0% |
| Violent Crime per 100,000 population | 480 | 516 | 403 | 222 | 279 | 481 | 621 | 386 |
| Children insured at time of survey | 95.5% | 93.9% | 96.5% | 93.2% | 95.3% | 93.7% | 96.3% | 93.9% |
| Children receiving coordinated, ongoing, comprehensive care within a medical home | 50.6% | 45.4% | 50.9% | 53.2% | 49.4% | 50.8% | 53.4% | 48.6% |
| **National Health Ranking** | **48th** | **46th** | **26th** | **45th** | **49th** | **38th** | **42nd** | **-** |

DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2013-2017; Bureau of Labor Statistics, 2017; Comprehensive Housing Affordability Strategy (CHAS) data, 2011-2015; Uniform Crime Reporting, Federal Bureau of Investigations, 2014-2016 as cited by Robert Wood Johnson Foundation and University of Wisconsin Population Health Institute, County Health Rankings; National Survey of Children's Health, 2016-2017; United Health Foundation, America's Health Rankings, 2018
NOTE: High school graduate and Bachelor's degree or higher data are for population 25 years and over; Unemployment data shown are not seasonally adjusted; Data for children insured at time of survey and children receiving coordinated, ongoing, comprehensive care within a medical home defines children as 0-17 years

### *3.5. Memphis/Shelby County*

St. Jude is in Shelby County in the City of Memphis, Tennessee. Interview participants described Memphis as a largely urban community with a lot of assets and resources but also many needs. St. Jude is viewed as a major asset. Focus group and interview participants spoke about the role that St. Jude plays in the community, frequently referring to St. Jude as a *"crown jewel"* of Memphis and a point of pride for the area. Many participants spoke of Memphis's reputation as a benevolent city where people *"feel proud to be a part of the community"* and *"are*

*willing to reach out and help someone."* St. Jude benefits from the Memphis community's positive perception of the hospital through donations, local stewardship of the institution, and partnerships across the city.

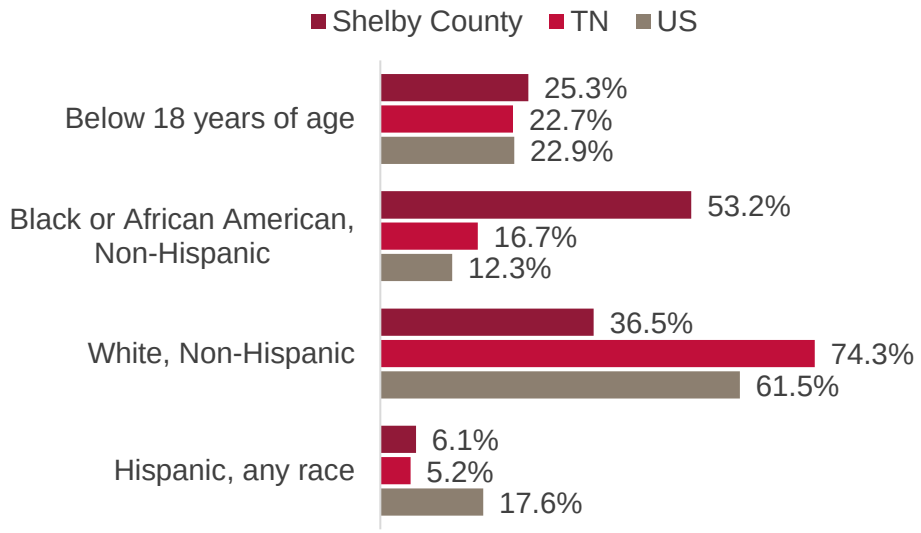
Outside of St. Jude, many other individuals and organizations are working to improve Memphis. Interview participants discussed many different organizations and programs working across the city to address the challenges that residents face and bring services to those in need. One interview participant noted that organizations are increasingly breaking out of their silos and working for the common good through collaboration and coordination.

The population of Memphis was described as predominantly African American, with a growing Hispanic population. Local stakeholders described disparities in the Memphis population relative to social and health indicators and outcomes. Residents struggle with poverty, educational attainment, and unemployment, all of which impact the ability of individuals and families to access housing, food, and health care.

*3.5.1. Population Demographics*

In FY2018, a total of 185 new St. Jude patients (21.4%) came from the Memphis/Shelby County community. As seen in Figure 6, Shelby County has a population that is predominantly African American, non-Hispanic (53.2%).

**Figure 6. Selected Demographics, by Shelby County, Tennessee and United States, 2013-2017**

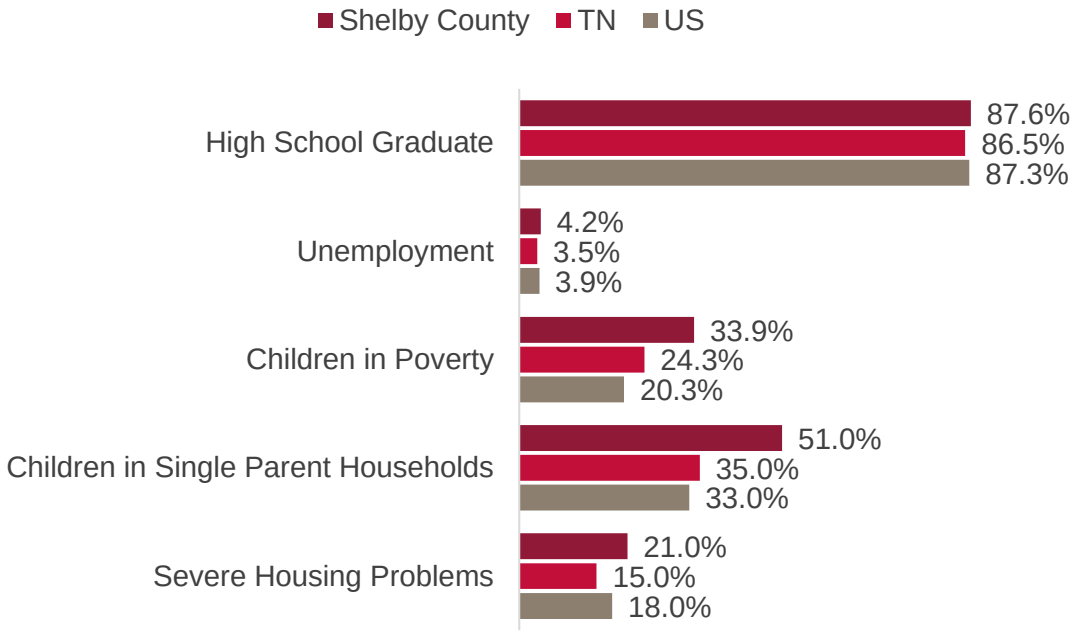



DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2013-2017

Compared with the state of Tennessee, Shelby County has more children in poverty (33.9% vs. 24.3%) and more children in single parent households (51.0% vs. 35.0%) (Figure 7). Of single parent households in Shelby County, 86.8% are single female households.

The issue of poverty in Memphis was discussed in almost all interviews, as were related issues of education and employment. Several interview participants noted the high proportion of children in single parent households. Given that single parent households tend to have lower median incomes and are more likely to live below the federal poverty level, children and adolescents in these families are more likely to experience negative social and health consequences than those in two parent households.

**Figure 7. Selected Social and Economic Characteristics, Shelby County, Tennessee, and United States**

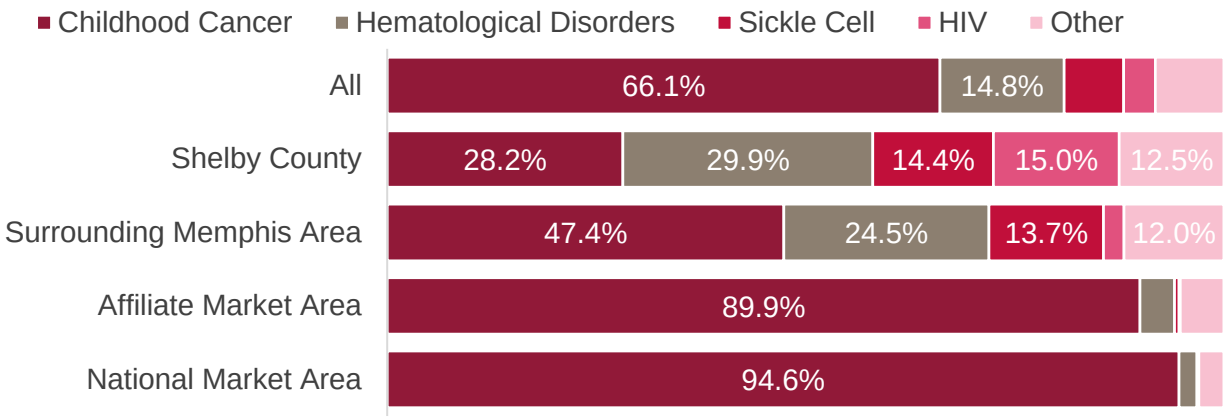



DATA SOURCES: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2013-2017; Bureau of Labor Statistics, 2018; American Community Survey, 2013-2017, and Comprehensive Housing Affordability Strategy (CHAS), 2011-2015, as cited by Robert Wood Johnson Foundation and University of Wisconsin Population Health Institute, County Health Rankings
NOTE: High school graduate here defined as % population 25 years and over who is a high school graduate (or higher); Data shown for unemployment is not seasonally adjust

**4. Health Issues of the St. Jude Patient Population**

Among all new St. Jude patients from FY2016-2018, most had a primary diagnosis of childhood cancer (66.1%), followed by hematological disorders (14.8%), sickle cell disease (7.1%), and HIV (3.8%), with the remainder having unknown/other diagnoses. The highest proportion of primary diagnoses among new patients from Shelby County were hematological disorders (29.9%), followed by childhood cancer (28.2%). New patients from the surrounding Memphis area, excluding Shelby County, had a similar proportion of hematological disorder diagnoses (24.5%) as those from Shelby County but a higher proportion of cancer diagnoses (47.4%). Patients from the affiliate referral area or the national referral area predominantly had a primary diagnosis of childhood cancer (89.9% vs. 94.6%, respectively) (Figure 8).

**Figure 8. Primary Diagnosis of New St. Jude Patients, United States only, by Geographic Area, FY2016-2018 (N=2,384)**




DATA SOURCE: St. Jude Children's Research Hospital, FY2016-2018

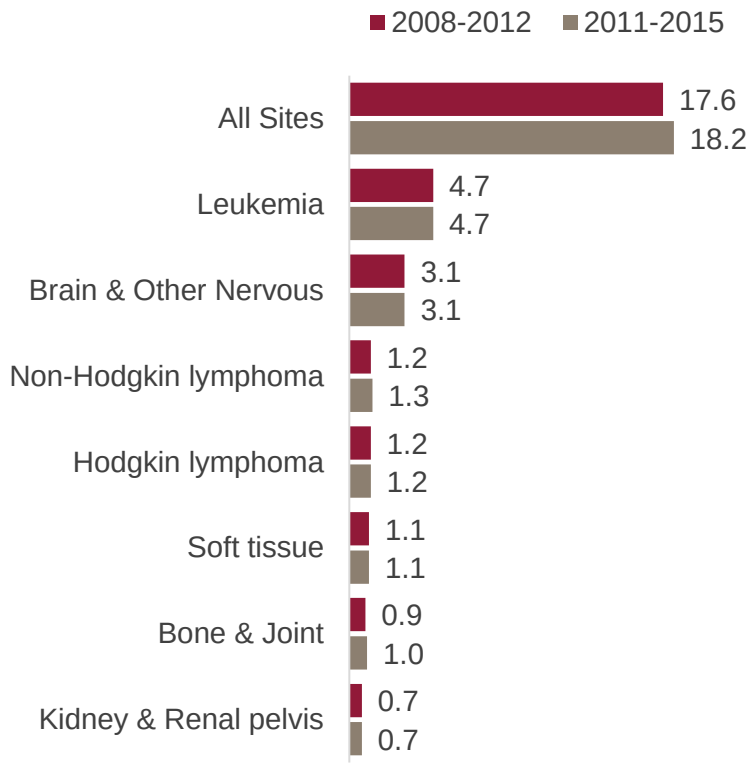
NOTE: Surrounding Memphis Area excludes Shelby County; Affiliate Market Area excludes Surrounding Memphis Area and Shelby County; "Other" includes those with diagnoses that do not fit into the other disease categories; there were 2,384 patients overall, 479 patients from Shelby County, 694 patients from the Surrounding Memphis Area, 746 patients from the Affiliate Market Area, 465 patients from the National Market Area; labels for categories with 10% or less have been omitted in the figure; overall, 7.1% had primary diagnosis of sickle cell, 3.8% had primary diagnosis of HIV, 8.2% had primary diagnosis in other disease categories; in Surrounding Memphis Area, 2.4% had primary diagnosis of HIV, 5.2% other; in the Affiliate Market Area, 4.2% had primary diagnosis of hematological disorders, 0.5% sickle cell, 0.1% HIV; in National Market Area, 2.2% had primary diagnosis of hematological disorders, 0.2% sickle cell, 3.0% other

### *4.1. Cancer Care*

*4.1.1. Pediatric Cancer Incidence Rates*

The primary focus at St. Jude is researching treatments for childhood cancers. National statistics indicate that leukemia was the most prevalent cancer among those aged 19 years or younger from 2011 through 2015 (4.7 cases per 100,000), followed by brain and other nervous systems cancers (3.1 per 100,000) (Figure 9). The overall incidence of cancer in children aged 19 years or younger increased from 17.6 cases per 100,000 in 2008-2012 to 18.2 cases per 100,000 in 2011-2015. An interview participant suggested that more research and education on the causes of and ways to prevent childhood cancer were needed. St. Jude was mentioned as a potential leader in these efforts.

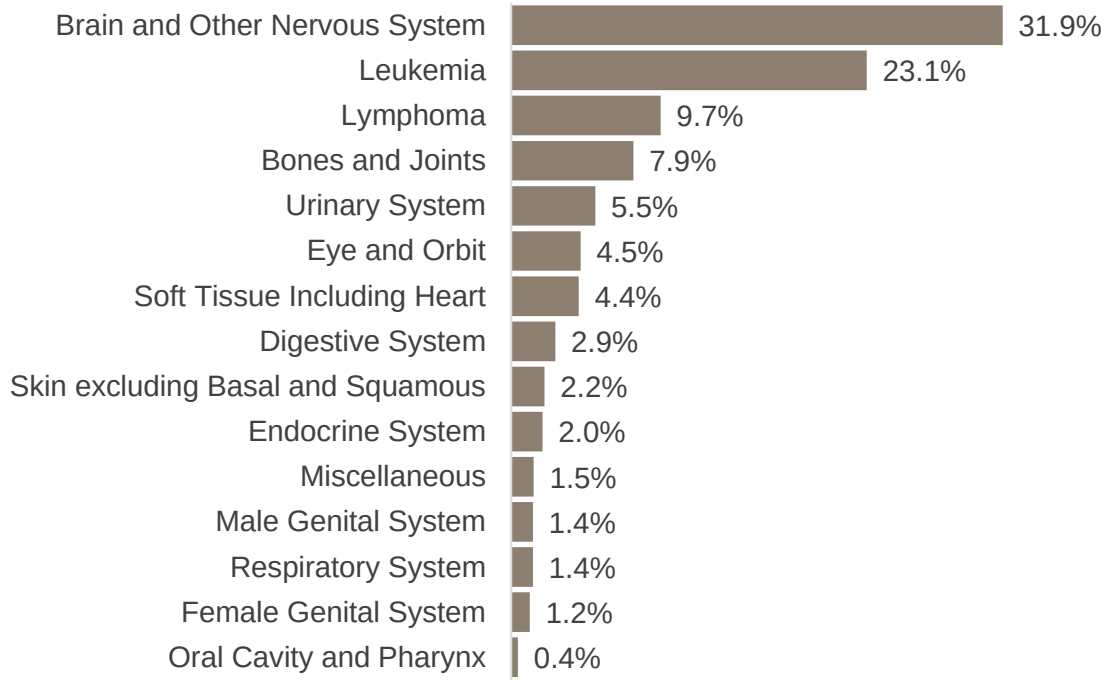
**Figure 9. Age-adjusted SEER Cancer Incidence Rates per 100,000, 0-19 Years, United States, 2008-2012 and 2011-2015**




DATA SOURCE: National Cancer Institute, Surveillance, Epidemiology and End Results Program, SEER Cancer Statistics Review, 2011-2015
NOTE: This is based on the SEER 18 areas (San Fran, CT, Detroit, HI, Iowa, NM, Seattle, Utah, Atlanta, San Jose-Monterey, LA, Alaska Native Registry, Rural Georgia, CA excluding SF/SJM/LA, KY, LA, NJ, GA excluding ATL/RG)

Although leukemia is the most prevalent childhood cancer in the nation, brain and other nervous system cancers were more prevalent among new St. Jude patients in FY2016-2018 (31.9%), followed by leukemia (21.1%), and lymphomas (9.7%) (Figure 10).

**Figure 10. Primary Cancer Diagnoses Among New St. Jude Patients, United States, FY2016-2018 (N=1,575)**




DATA SOURCE: St. Jude Children's Research Hospital, FY2016-2018

Through research efforts, there are now opportunities to prevent cancer. One of those opportunities is vaccination against the human papillomavirus (HPV). HPV can cause cancers of the genital systems and, in rare circumstances, cancer of the mouth or throat (oropharyngeal cancer). St. Jude recently began an HPV program aimed at increasing the vaccination rates among adolescents to prevent cancer later in life. Locally and nationally, data on current vaccination rates are limited; however, the existing data that are available suggest that more can be done to both increase HPV vaccination rates and improve data collection.

The Centers for Disease Control and Prevention (CDC) recommends two doses of HPV vaccine for most persons starting the series before their 15th birthday.[2] Three doses of HPV vaccine are recommended for teens and young adults who start the series at ages 15 through 26 years and for immunocompromised persons. Nationally, 65.5% of adolescents aged 13-17 years have received at least one dose of the HPV vaccine, with 48.6% receiving the recommended dosage.[3] Comparatively, in Tennessee, 56.1% of adolescents aged 13-17 years have received at least one dose of the HPV vaccine, and 39.2% have received the recommended dosage. St. Jude staff interviewed for this CHNA noted, however, that these numbers should be evaluated with caution due to small sample size.

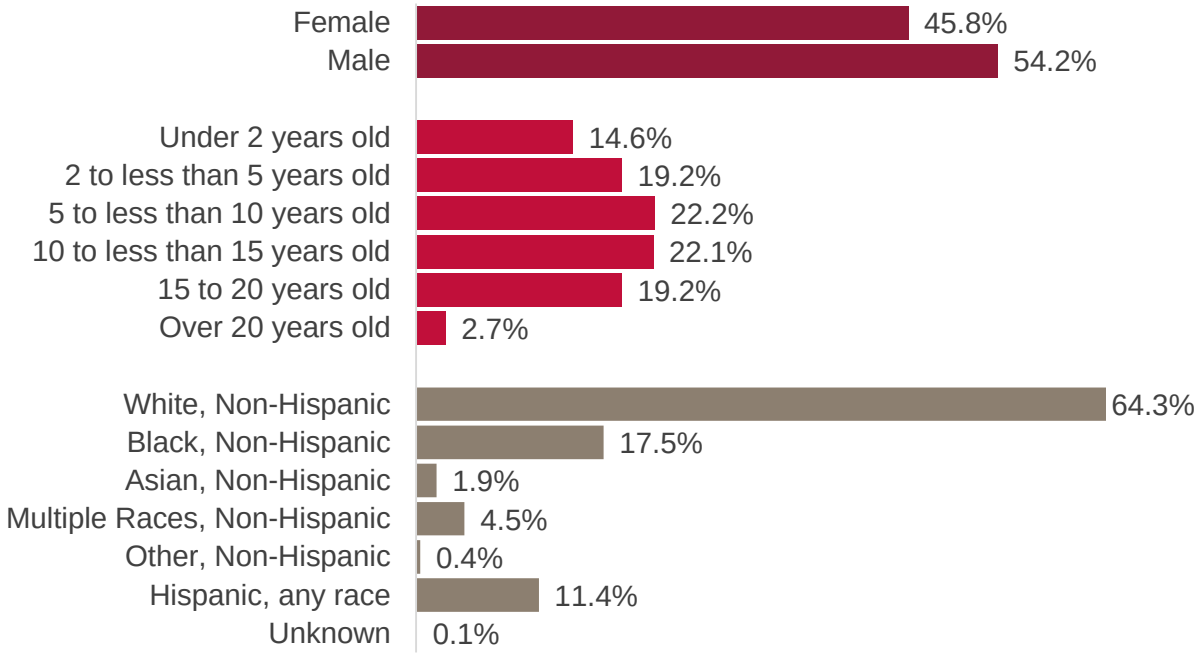
The lack of knowledge and misperceptions about the HPV vaccine create a niche opportunity for St. Jude, a well-respected, international leader in pediatric cancer and treatment, to play a role in educating the community, clinicians, and patients on the importance of the HPV vaccine and its role in preventing cancer. In interviews with leaders at St. Jude, the HPV program came up frequently as an exciting and successful new program. External stakeholders were also aware of the work of the St. Jude in the HPV program and see value in St. Jude taking such an active role.

> "I see [the HPV vaccine] as a high priority and something we could tackle collectively."
> -External Interview Participant

*4.1.2. Demographics of New Patients with Cancer*

Among new St. Jude patients with a primary diagnosis of cancer in FY2016-2018, most were male (54.2%) and white, non-Hispanic (64.3%). The ages of these new patients were evenly distributed across childhood and teenage years, with 2.7% of new patients being older than 20 years (Figure 11).

**Figure 11. Demographics of New St. Jude Patients with Primary Diagnosis of Childhood Cancer, United States, FY2016-2018 (N=1,575)**




DATA SOURCE: St. Jude Children's Research Hospital, FY2016-2018
NOTE: Multiple races, non-Hispanic includes American Indian/ Alaskan and White, Asian and White, Black and White, and Multiple Race (NOS); Other, non-Hispanic includes American Indian/Alaskan Native and Other; Patients with known race but unknown ethnicity were categorized as "Unknown" race/ethnicity

*4.1.3. Transition of Care*

Because of the many advancements in cancer screening, early detection, and treatment, patients are surviving at much higher rates, with survival rates over 80% for many pediatric cancers. This means that more children than ever are living into adulthood and experiencing the long-term effects of cancer and treatment.

St. Jude is taking an active role in conducting research to better understand the long-term impacts of survivorship through its Division of Cancer Survivorship. Better understanding of how cancer treatment impacts later life can inform continued follow-up and supportive care that improves the quality of life for survivors.

Also important are the short-term transitions that patients experience after their active treatment ends at St. Jude. Many patients and their families move to Memphis and live in St. Jude housing while receiving treatment at St. Jude. Transitioning back to home life, wherever that might be, can be challenging for patients and their families as the supports offered by St. Jude, including the community of families experiencing similar diagnoses, are no longer available.

> "It is a challenge to deal with what happens after all the therapy."
> -Adolescent Focus Group Participant

On the clinical side, patients can experience challenges finding providers in their home communities who feel equipped to give them the care that they need. Patients and their families also need to adjust socially, for example, transitioning back to school. Parents and caregivers described a variety of supports that St. Jude provides to ease the transition back to school, including materials about necessary accommodations that are shared with educators.

### *4.2. Sickle Cell Disease and Hematology*

*4.2.1. Pediatric Incidence Rates*

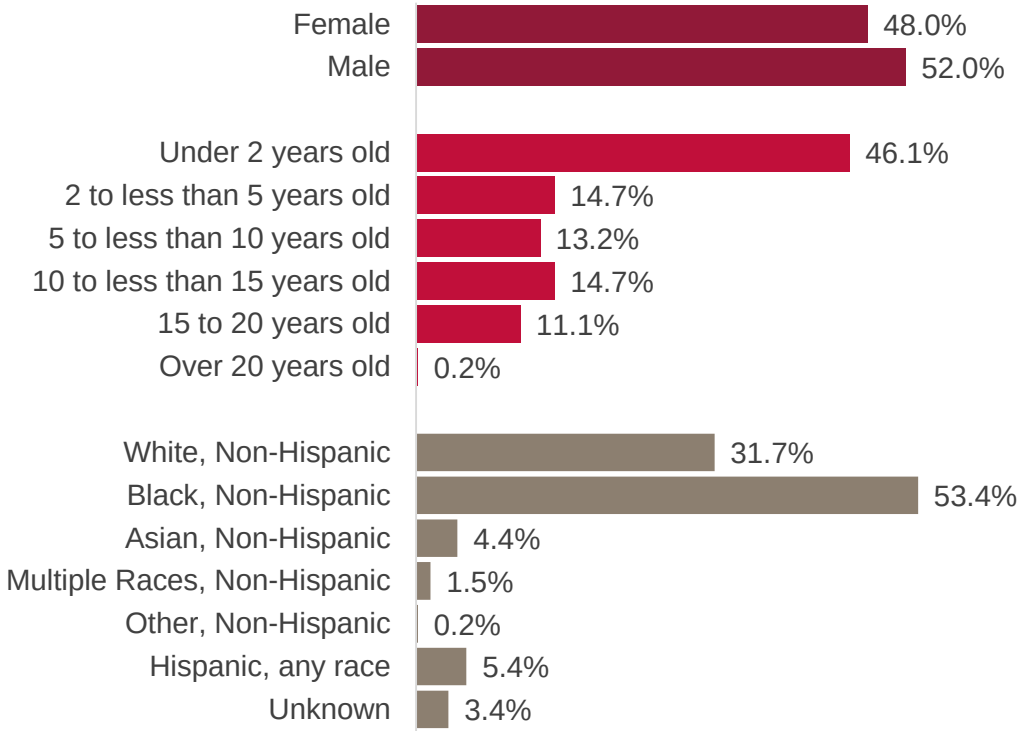
St. Jude serves as a primary hematology hospital for patients in the surrounding Memphis area, with the largest program being for treatment of sickle cell disease (SCD). Other hematological diseases treated include hemophilia, immunodeficiency disorders, and anemia.

From 1991 through 2010, the SCD birth prevalence rate was 1 in 1,927 across all races nationally and 1 in 1,531 in Tennessee.[4] In Shelby County, the birth prevalence rates of SCD across all races and among African Americans were higher than national rates, at 1 in 500 across all races and 1 in 287 among African Americans.[5]

*4.2.2. Demographics of New Patients with Sickle Cell Disease*

Among new St. Jude patients in FY2018 with a primary diagnosis of a hematological disorder (including SCD), most were male (52.0%) and black, non-Hispanic (53.4%). Age-wise, the highest proportion of new patients with hematological disorders were younger than 2 years (46.1%), followed by children aged 2 to 5 years and children aged 10 to 15 years old (both at 14.7%) (Figure 12).

**Figure 12. Demographics of New St. Jude Patients with Primary Diagnosis of Hematological Disorders or Sickle Cell Disease, United States, FY2016-2018 (N=523)**




DATA SOURCE: St. Jude Children's Research Hospital, FY2016-2018
NOTE: Multiple races, non-Hispanic includes American Indian/ Alaskan and White, Asian and White, Black and White, and Multiple Race (not otherwise specified); Other, non-Hispanic includes American Indian/Alaskan Native and Other; Patients with known race but unknown ethnicity were categorized as "Unknown" race/ethnicity

*4.2.3. Transition of Care*

Sickle cell disease is a lifelong, chronic condition, requiring patients with SCD to transition from St. Jude to adult care in the area when they age out of our program. St. Jude has built a partnership with Methodist Le Bonheur Healthcare to ease the transition between institutions. Stakeholders from both spoke highly about this, noting the coordination and communication of providers from St. Jude and Methodist Le Bonheur Healthcare. St. Jude provides many areas of support, including financial, making it challenging to transition to adult services where support services can be very different.

Another challenge, particularly for adolescent patients with SCD, is the frequency of visits that they must make to St. Jude for treatment. This schedule can interfere with school attendance and other life events, resulting in either absences from school or missed appointments. To help reduce the impact of treatment on students, St. Jude provides school services for patients that

includes tutoring assistance and liaisons who work with Memphis City Schools staff to build successful and supportive environments for the students.

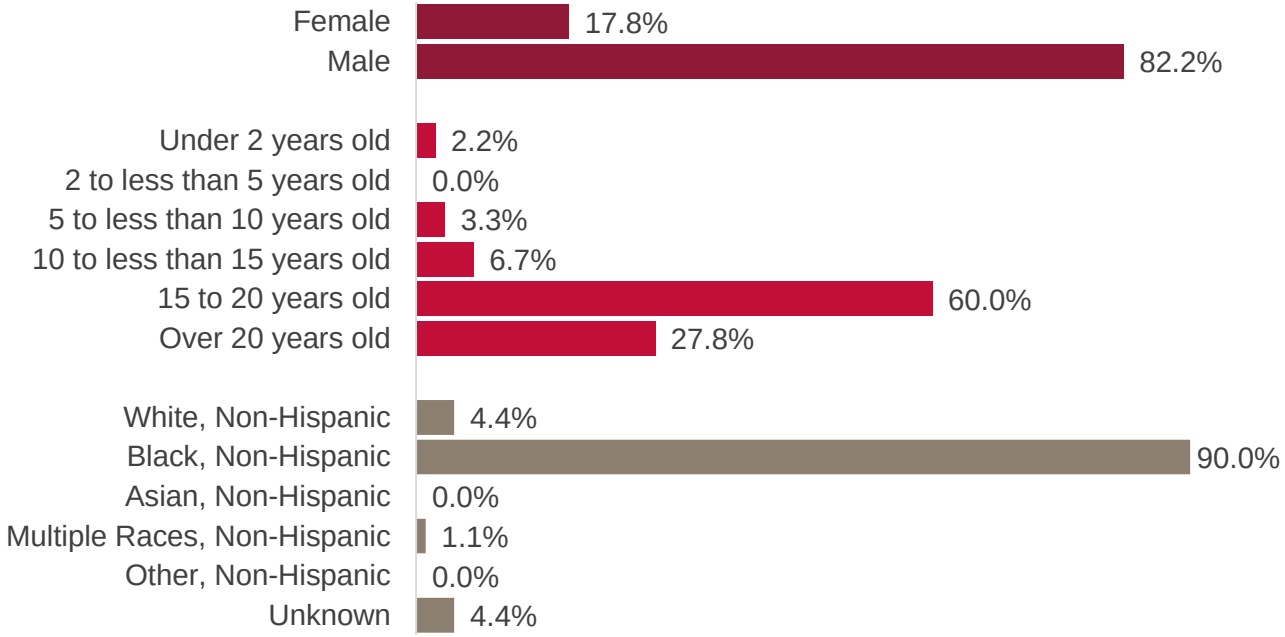
### *4.3. HIV/AIDS*

*4.3.1. Pediatric HIV/AIDS Prevalence Rates*
St. Jude accepts pediatric patients with HIV/AIDS and serves as the area's primary provider for infants, children, and adolescents with HIV infection. In 2015, HIV/AIDS infection rates in Shelby County were 18.1/100,000 among those aged 0-9 years, 41.4/100,000 among those aged 10-14 years, and 81.6/100,000 among those aged 15-19 years.[6] Shelby County reported 12 new HIV cases among persons aged 0-19 years in 2015.[7]

Interview participants spoke about HIV/AIDS in Memphis as a *"sleeping problem"* that not many people know about. They speculated that this could be due, in part, to a lack of discussion in the community about HIV/AIDS and how it is spread. Health professionals interviewed discussed a rise in the local rates of HIV/AIDS in the adult population and the difficulty of managing an HIV diagnosis on top of the other factors in the individual's life (e.g. poverty, homelessness, or housing instability).

*4.3.2. Demographics of New Patients with HIV/AIDS*
Among new St. Jude patients from FY2016 through 2018 with a primary diagnosis of HIV/AIDS, most were male (82.2%), aged 15-20 years (60.0%), and black, non-Hispanic (90.0%) (Figure 13).

**Figure 13. Demographics of New St. Jude Patients with Primary Diagnosis of HIV/AIDS, United States, FY20162018 (N=90)**




DATA SOURCE: St. Jude Children's Research Hospital, FY2016-2018
NOTE: Multiple races, non-Hispanic includes American Indian/ Alaskan and White, Asian and White, Black and White, and Multiple Race (not otherwise specified); Other, non-Hispanic includes American Indian/Alaskan Native and Other; Patients with known race but unknown ethnicity were categorized as "Unknown" race/ethnicity

### *4.4. Mental Health Access and Family Support*

*4.4.1. St. Jude Patients*

In focus groups and interviews, participants described the difficulties that come with receiving a diagnosis of a catastrophic disease. Many health care providers commented on the importance of the systems that St. Jude has in place to support patients, including social work and psychology. Participants in the adolescent patient focus group discussed the difficulty of dealing with a cancer diagnosis; as one explained, *"the mental aspect, not so much the physical, maybe you never had someone in your life with cancer, so you don't understand. Sometimes, all you can think of is death. Working through that [is important]."* Ensuring that programs and resources continue to exist and grow is an important component of the care model at St. Jude.

*4.4.2. Parents/Caregivers/Family Support*

> "Whatever we help the families with, it helps the kids."
> -Internal Interview Participant

Discussing the ripple effects of a diagnosis and treatment on a family was mentioned in many of the internal stakeholder interviews and focus groups. Health care providers and parents/caregivers understood that parental health status and outcomes impact the whole family. Parents spoke of their appreciation for nurses and others at St. Jude who, in some ways, treat the whole family, for example, by making sure that caretakers get outside and take breaks.

However, some noted that, as a specialty pediatric hospital, St. Jude cannot provide services for the whole family. Because many families travel away from their own communities for treatment at St. Jude, they are without their own health care providers or support systems. St. Jude has partnered with Church Health, a local health center to which it refers family members in need of medical care. However, Church Health does not have the resources to meet the demand for mental health services. Parents and caregivers also noted that it can be difficult to leave their children during a hospital stay, making it challenging to access services that are available. The need for mental health resources/referrals for parents, caregivers, and siblings was noted by the parent focus group as an area for growth.

> "Our mental health and well-being is important for their health."
> -Parent Focus Group Participant

### *4.5. Access and Barriers to Care*

*4.5.1. Getting Access to Care at St. Jude*

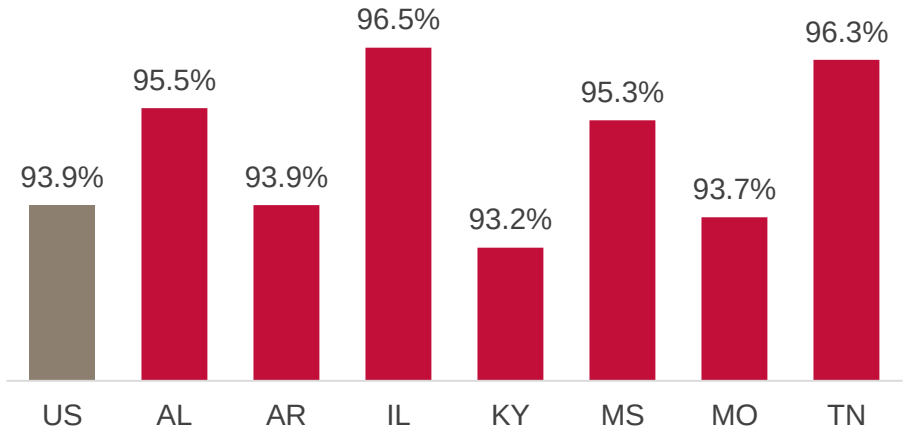
The St. Jude model of care offers many benefits, including financial assistance through clinical care, housing, transportation and food; however, families still face economic hardships, including absences from work to travel to Memphis or an affiliate location. Such hardships can affect choices about whether to seek care from St. Jude. Some interview participants and focus

group participants suggested that more attention should be paid to these barriers to ensure that all families have equal access to health care services and clinical trials.

*4.5.2. Insurance Status*

The 2016-2017 National Survey of Children's Health found that 93.9% of U.S. children younger than 18 years had insurance coverage. Tennessee's coverage rate was higher (96.3%) (Figure 14).

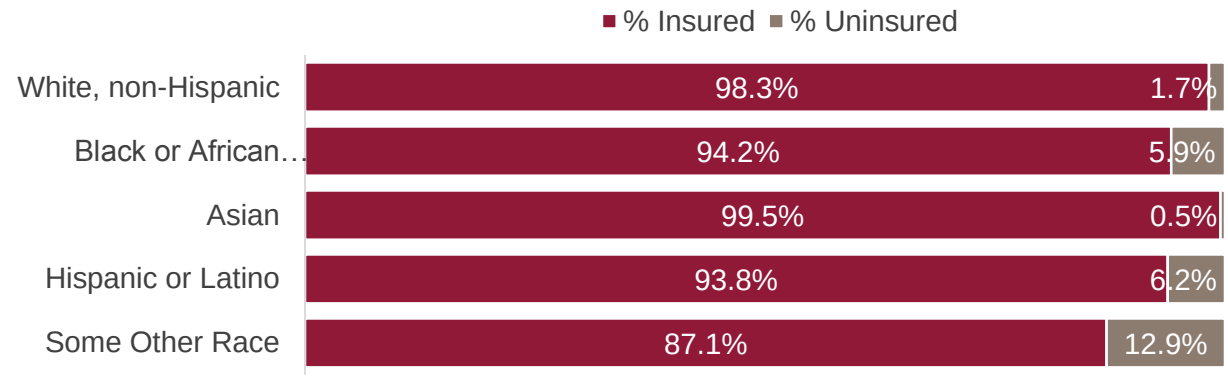
**Figure 14. Percentage of Children 0-17 Insured, Surrounding Memphis Area and United States, 2016-2017**




DATA SOURCE: National Survey of Children's Health, 2016-2017
NOTE: The data above defines children as 0-17 years

For children in Shelby County, insurance coverage varies slightly across race and ethnicity, ranging from 93.8% of Hispanic children to 99.5% of Asian children having insurance coverage (Figure 15).

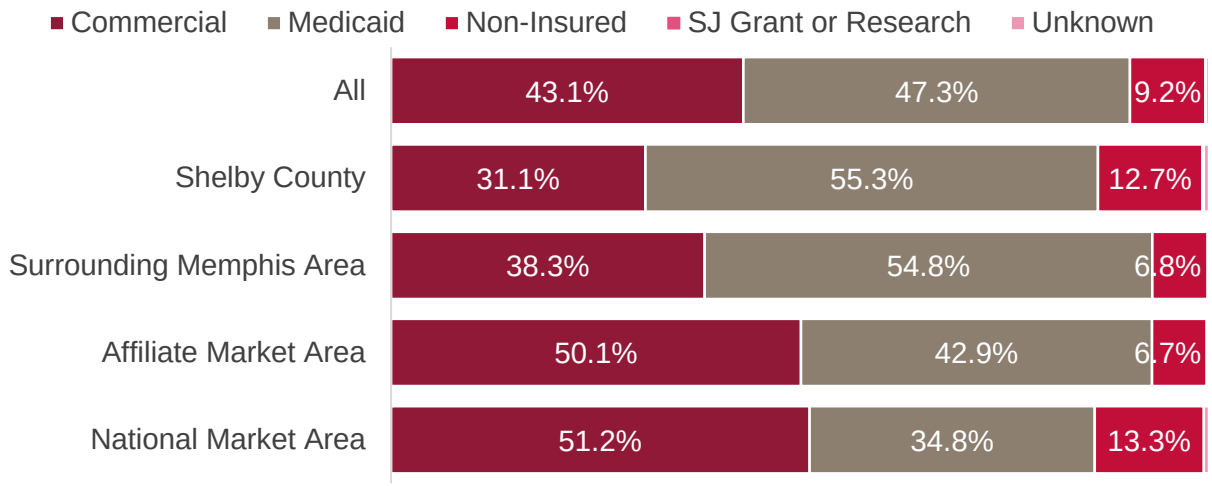
**Figure 15. Percentage of Children Aged 18 Years or Younger with Health Insurance, by Race, Shelby County, 2017**




DATA SOURCE: U.S. Census Bureau, 2017 American Community Survey 1-Year Estimates; data pulled by Shelby County Health Department
NOTE: Data for "American Indian and Alaskan Native," "Native Hawaiian and Other Pacific Islanders," and "Two or More races" were not available due to small sample size; data for non-Hispanic Black or African American, non-Hispanic Asian, and non-Hispanic Other Race are not available

Data about insurance status among St. Jude patients show that almost half (47.3%) of new patients in FY2016-2018 had insurance through Medicaid, and 43.1% of new patients were insured through private commercial insurance. The proportion of new patients with Medicaid insurance was higher among those from Shelby County (55.3%) and the surrounding Memphis area (54.3%) and lower among those from the affiliate market area (42.9%) and national market area (34.8%). New patients from Shelby County and the national market area have the highest proportions of uninsured (12.7% and 13.3%, respectively), followed by the surrounding Memphis area (6.9%) and the affiliated market area (6.7%) (Figure 16).

**Figure 16. Health Care Access, New St. Jude Patients, United States only, by Source of Payment, by Geographic Area, FY2016-2018 (N=2,384)**

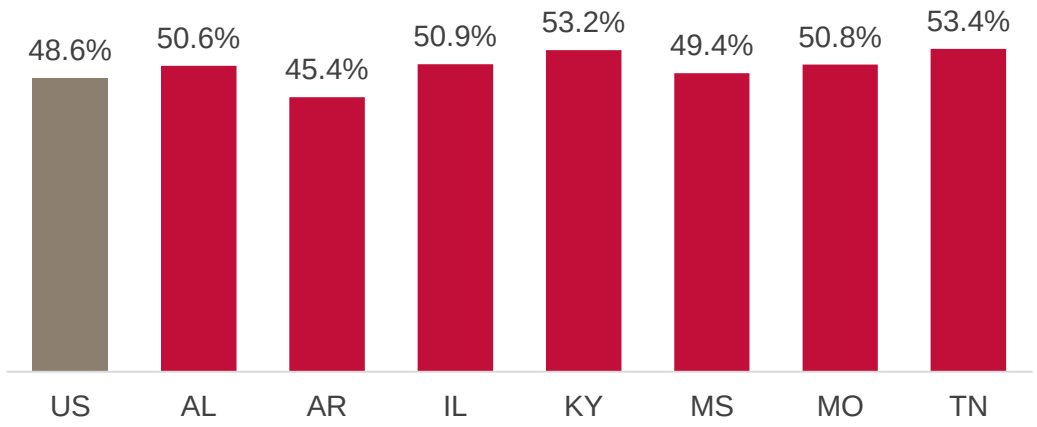



DATA SOURCE: St. Jude Children's Research Hospital, FY2016-2018
NOTE: Surrounding Memphis Area excludes Shelby County; Affiliate Market Area excludes Surrounding Memphis Area and Shelby County; ; there were 2,384 patients overall, 479 patients from Shelby County, 694 patients from the Surrounding Memphis Area, 746 patients from the Affiliate Market Area, 465 patients from the National Market Area; labels for categories with 5% or less have been omitted in the figure; overall, less than 1% had SJ Grant or Research; 0.2% of patients in Shelby County had SJ Grant or Research; Unknown category for each area includes 0.6% in Shelby County, 0.1% in Surrounding Memphis Area, 0.3% in Affiliate Market Area, 0.6% in National Market Area

*4.5.3. Primary Care*

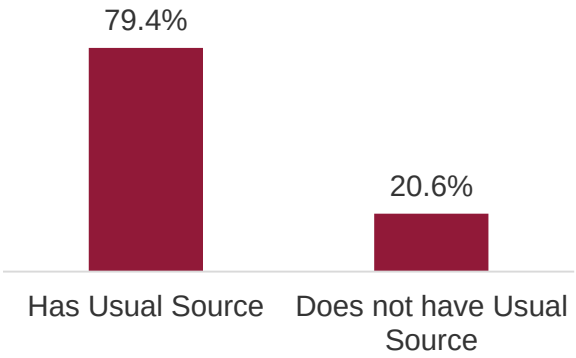
The 2016-2017 National Survey of Children's Health found that, in Tennessee, 53.4% of children younger than 18 years were receiving coordinated, ongoing, comprehensive care within a medical home, whereas the national rate was 48.6% (Figure 17). More than 20% of children in Tennessee lacked a usual source for sick care (Figure 18).

**Figure 17. Percent of Children Who Received Care within a Medical Home, by Surrounding Memphis Area and United States, 2016-2017**




DATA SOURCE: National Survey of Children's Health, 2016-2017
NOTE: The data above defines children as 0-17 years

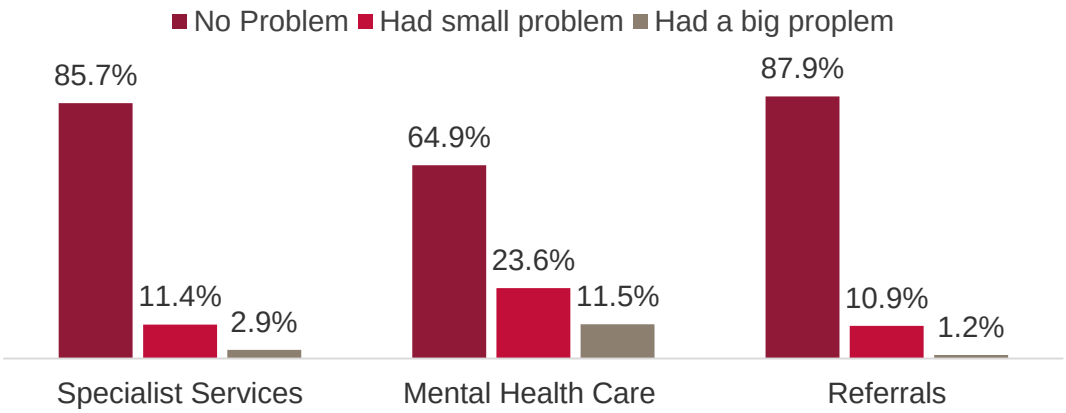
**Figure 18. Child Has a Usual Place of Care, Tennessee, 2016-2017**




DATA SOURCE: DATA SOURCE: Data Center for Child and Adolescent Health, 2017; data pulled by Shelby County Department of Health

Additionally, according to the National Survey of Children's Health, in Tennessee, 14.3% of respondents reported problems getting specialist services, 12.1% reported problems getting referrals, and 25.1% reported problems getting mental health care for their children in the year prior to the survey (Figure 19). More than 10% of respondents reported that they had "a big problem" getting mental health care for their children.

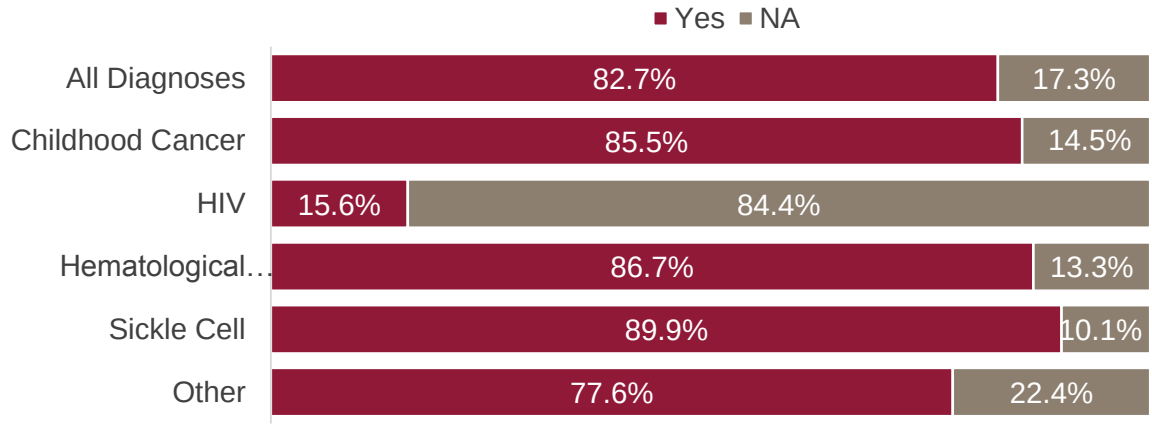
**Figure 19. Encountered Problems in the Past 12 Months When Child, 0-17 years, Needed Medical Care, Tennessee, 2016-2017**




DATA SOURCE: National Survey of Children's Health, 2016-2017; data pulled by Shelby County Department of Health
NOTE: Mental Health Care is for Children 3-17

Coordinating and transitioning care for St. Jude patients is important to ensure that their health concerns outside of the care they receive at St. Jude are met and that they have access to health care providers and services after completing active treatment. Maintaining a family physician is important in helping to coordinate and transition care. Overall, 82.7% of new patients from FY2016-2018 had a family physician identified in their medical record at their last visit, but this varied widely across disease categories (Figure 20). Improving the transition for adult patients with SCD from St. Jude to Methodist Le Bonheur Healthcare has been a priority; notably, the proportion of patients with a family physician was highest among patients with SCD (89.9%). Of the 90 new HIV patients from FY2016-2018, far fewer had an identified family physician (15.6%). One reason for this discrepancy might be that patients with HIV can have a difficult time finding providers who will take them on as patients.

**Figure 20. Family Physician Status of New St. Jude Patients, by Primary Diagnosis, United States, FY2016-2018**




DATA SOURCE: St. Jude Children's Research Hospital, FY2016-2018
NOTE: Data as of last visit at St. Jude; NA signifies that family physician status information was not available for patients; there were 2,384 patients overall, 1,575 patients with a diagnosis of Childhood Cancer, 90 patients with a diagnosis of HIV, 354 patients with a diagnosis of Hematological Disorders, 169 patients with a diagnosis of Sickle Cell and 196 patients with Other diagnoses

*4.5.4. Distrust in Medical Community*

Several interview participants mentioned distrust of the medical community as a barrier to care and a potential driver of racial disparities in clinical trials at any health care institution. The history of medical trials and African American populations was mentioned as a potential driver of these feelings. Others mentioned the need to improve communication with patients and their families to build trust. They suggested that enhanced education and cultural competency of providers and hospital staff could increase trust between the community and the medical community.

## 5. Health Issues in Memphis/Shelby County

### *5.1. Role of St. Jude in Memphis/Shelby County*

St. Jude is viewed as a leader in the Memphis community—it is a well-known and respected institution, employer, and health care provider. Internal and external stakeholders noted the important role that St. Jude plays in the city as an economic driver, providing employment opportunities and economic development. St. Jude employs nearly 5,000 individuals and recently raised its minimum wage to $15 an hour —a decision, internal stakeholders shared, that is a source of institutional pride. St. Jude is also working to redevelop areas of Memphis around the St. Jude campus. Interview participants spoke of St. Jude as *"a big positive for the community"* that provides not only health care for which it is known across the world but also *"provides a lot of economic benefit to Memphis."*

> "St. Jude is a big positive for the community, the investment they are making in the Memphis, the job growth, helps bring strong momentum."
> -External Interview Participant

St. Jude participates in formal collaborations such as Memphis Tomorrow and Healthy Shelby County, efforts focused on improving various aspects of Memphis and Shelby County. Leadership, physicians, and staff from St. Jude also participate in an unofficial capacity on many boards and committees in the community and contribute expertise and time to many causes and organizations. These efforts address economic and community development, social determinants of health, public health, and health care. Numerous interview participants from the community noted the significant role that St. Jude plays in the community as an economic influencer and health care provider.

The city of Memphis is proud to have St. Jude in the community, and the city of Memphis plays an important role for St. Jude. Children and families who come to Memphis to receive care at St. Jude make Memphis their home, so they value having access to resources, education, transportation, food, and health care. Focus group and interview participants discussed these building blocks —housing, education, transportation, food, and health care— as playing an important role in the child's ability to thrive and prosper with their health condition. One challenge for local patients that was shared by interview participants is public transportation; respondents saw a need for improved public transportation to improve access to health care providers and other resources.

St. Jude draws and recruits individuals and families to the Memphis community to work at the institution and make Memphis and Shelby County their home. Access to quality housing,

education, and high-quality food as well as community safety are all important factors in attracting and retaining talent for St. Jude.

> "I see them [St. Jude] as being a good business example for the city and representing the city in a positive way."
> -External Interview Participant

### *5.2. Social Determinants of Health (SDOH)*

*5.2.1. Relevant SDOH Role in Health Outcomes*

Multiple factors affect health, with a dynamic relationship existing between people and their environments (Figure 21). Where and how we live, work, play, and learn are interconnected factors that are critical to consider. That is, not only do people's genes and lifestyle behaviors affect their health, but health is also influenced by more upstream factors such as employment status, quality of housing, and access to food. The social determinants of health framework addresses the distribution of wellness and illness among a population —its patterns, origins, and implications.

**Figure 21. Social Determinants of Health**


DATA SOURCE: https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health

There are several mechanisms by which socioeconomic status may influence health, including the physical, social, and economic context in which people live and work. Persons of lower

income or lower educational attainment generally have less favorable health profiles than do their counterparts with higher income or greater educational attainment.[8] This context influences access to health-promoting resources, such as affordable healthy food and safe places for recreation; exposures to adverse physical environments (toxic substances or unsafe occupational conditions); and the concentration of stressors such as exposure to violence, social, political, and economic exclusion, and discrimination. [9]

Interview participants often discussed poverty in Memphis, stating that Memphis is a city with *"incredible wealth and incredible poverty."* The connections between poverty and health

> "Poverty, economic stability, housing stability, food insecurity – that is health – those are the specific things we need to be focused on in the Memphis community."
> -External Interview Participant

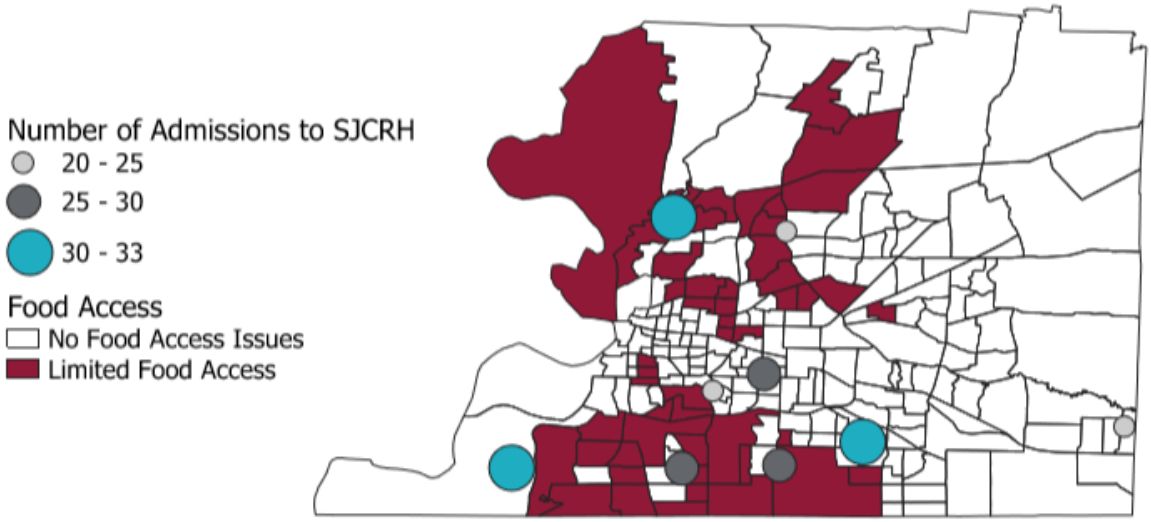
outcomes were acknowledged and discussed, with a few interview participants noting the challenge that some individuals face accessing daily necessities, which makes it difficult to think about and address health issues. Living in poverty and struggling to access food, housing, education, transportation, health care, and other necessities can also make it difficult to get and maintain employment, further reinforcing a "poverty trap." Quantitative data show that poverty is a substantial issue in the local community served by St. Jude: more than one-third of children in Shelby County live in poverty (Figure *7*).

Like-wise, employment is an important social determinant of health. Americans spend more than half of their waking lives at work.[10] Employment can confer income, benefits, and occupational and economic stability, factors that may promote health.[11] Conversely, job loss, unemployment, and underemployment are associated with less favorable health outcomes.[12] Furthermore, length and quality of education predicts employment and income, with graduation from high school being a strong predictor of better health.[13,14] Education and health disparities from childhood extend into adulthood.[15] Interview participants discussed educational disparities in the city, particularly looking across different neighborhoods. Graduation rates were discussed, and some wondered about the readiness of those who graduate to obtain employment. Interview participants noted the connection between education and health, with one participant stating, "*if the education system could be improved, that could greatly improve our health outcomes."*

Access to healthy food is also a social determinant of health. A diet high in fruits and vegetables can reduce the risk of being overweight or obese or developing malnutrition, heart disease, diabetes, osteoporosis, oral disease, and some cancers.[16] However, few Americans meet nutritional guidelines, as indicated by daily consumption of fruit and vegetables.[17] Inadequate financial resources and limited access to healthy, affordable food contribute to these patterns.[18,19] Children and adults in lower income households are less likely to consume a healthful diet than are those of higher income households.[20] In Memphis, the issue of food deserts and the lack of access to healthy, affordable food was noted by interview participants as a potential contributor to hunger and obesity. Others cited the high percentage of students who go to school hungry as an example of how poverty and food access affect children in the community. Availability and access to food varies across the city.

Figure ***22*** shows the distribution of food deserts across Shelby County and maps where new St. Jude patients FY2016-2018 are coming from and living when they receive treatment locally. Many new St. Jude patients are living in food deserts.

**Figure 22. Food Deserts and New St. Jude Admissions, Shelby County, FY2016-2018**

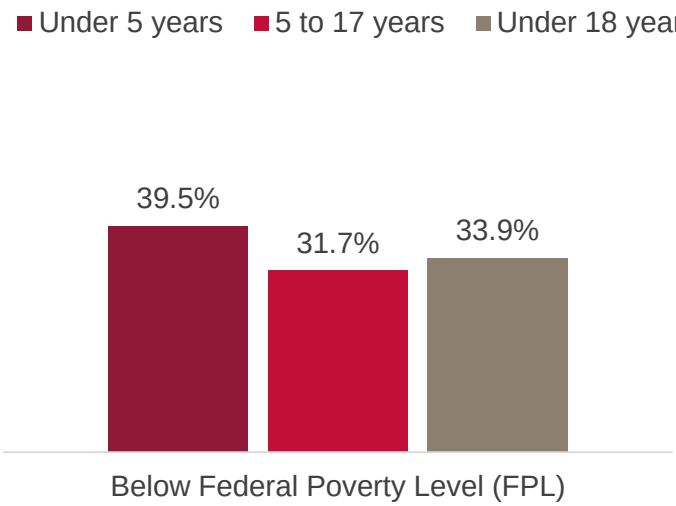



DATA SOURCE: St. Jude Children's Research Hospital, USDA Food Access Research Atlas, U.S. Census Bureau
NOTE: Limited Food Access defined as low income and low access tract measured at 1 mile for urban areas and 10 miles for rural areas by census tract, according to USDA Food Access Research Atlas. Admissions of new patients to St. Jude in FY2016-2018 by zip code.

*5.2.2. Current Conditions in Memphis/Shelby County*

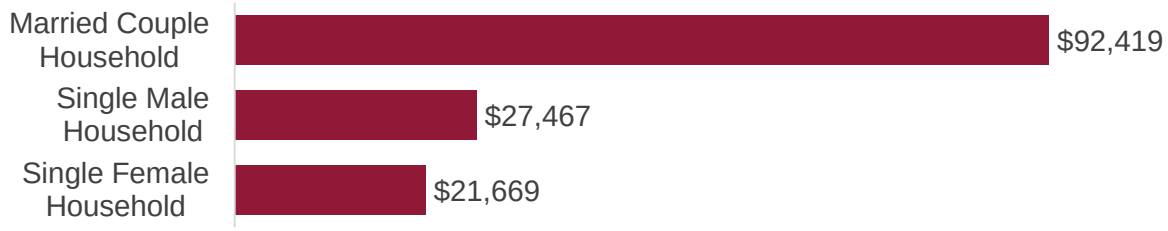
Quantitative data show that 33.9% of children in Shelby County who are younger than 18 years and 39.5% of those younger than 5 years were living below the federal poverty line between 2013-2017[21] (Figure 23). As stated in section 3.4.1, compared with the state of Tennessee, Shelby County has more children in poverty (33.9% vs. 24.3%) and more children in single parent households (51.0% vs. 35.0%). The median household income for families with their own children was $21,669 in single female households, $27,467 for single male households, and $92,419 for married couple households in 2017 (Figure 24). Children in single parent households are at greater risk of unhealthy behaviors, mental health issues, and substance abuse, resulting in greater risk for severe morbidity and mortality.[22]

**Figure 23. Percentage of Children Living Below Federal Poverty Level in the Past 12 Months, Shelby County, 2013-2017**




DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2013-2017

**Figure 24. Median Household Income in the Past 12 Months (2017 Inflation Adjusted Dollars) for Families with Own Children, Shelby County, 2013-2017**




DATA SOURCE: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2013-2017; data pulled by Shelby County Department of Health

Shelby County has a higher high school graduation rate than does the entire state (87.6% vs. 86.5%, Figure 7). However, Shelby County also experiences higher unemployment than the state does (4.2% vs. 3.5%) (Figure 7). Concerns about the Shelby County schools were raised in interviews; one interview participant noted the concern that students in Shelby County graduate from high school without the skills necessary to find employment.

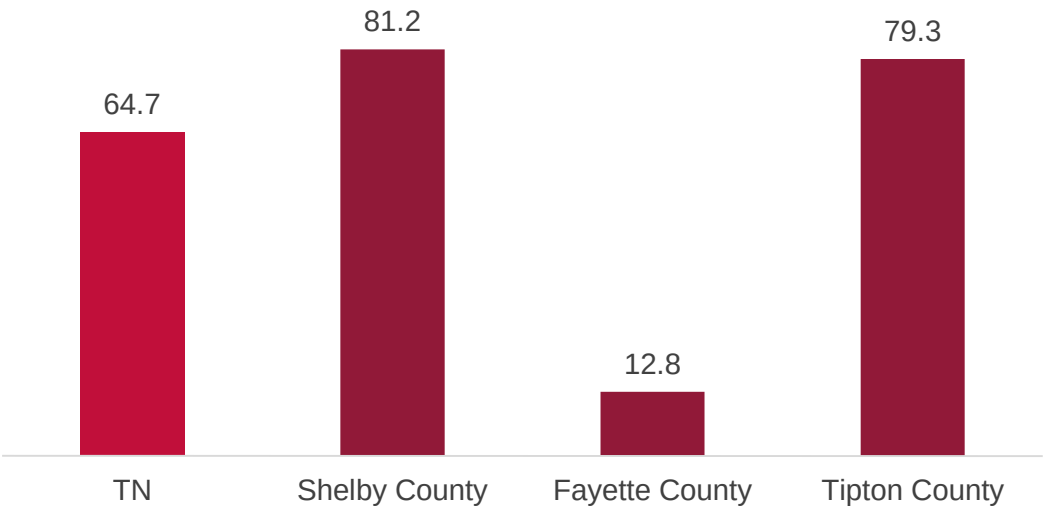
*5.2.3. Opportunities for St. Jude to Address the Social Determinants of Health*
Interview and focus group participants spoke about the need for institutions, including St. Jude, to be engaged in the community to help address social determinants of health. Internal and external participants recognized that St. Jude is involved with efforts to improve quality of life in the community. In particular, people noted the role of St. Jude in Healthy Shelby County and Memphis Tomorrow and the economic impact of these activities on the community.

***5.3. Health Issues***

> "One thing I would expect from any organization is leadership involvement in the community – and we have that from St. Jude."
> -External Interview Participant

*5.3.1. Childhood Fatality*
As highlighted previously, children in Shelby County are more likely to experience adverse social determinants of health, which can directly impact their health outcomes in childhood and adulthood. Children in Shelby County face a higher child fatality rate than that of the state as a whole, 81.2 per 100,000 versus 64.7 per 100,000 (Figure 25). Shelby County also has a higher child fatality rate than neighboring counties do.

**Figure 25. Child Fatality Rate (per 100,000 population), Shelby County and Surrounding Counties, Tennessee, 2016**




DATA SOURCE: 2018 Child Fatality Annual Report, Tennessee Department of Public Health
NOTE: Child defined as population aged 0-17 years

The leading cause of death for children in Shelby County and for the state of Tennessee is accidents (unintentional injuries); but in Shelby County, that is followed closely by assault (homicide) (Table 2). Interview participants and focus group members described violence and crime as sources of trauma for children and a factor that impacts child mortality.

**Table 2. Age-adjusted Rate (per 100,000) Population of Leading Causes of Death (Ages 0-24 years), Shelby County and Tennessee, 2017**

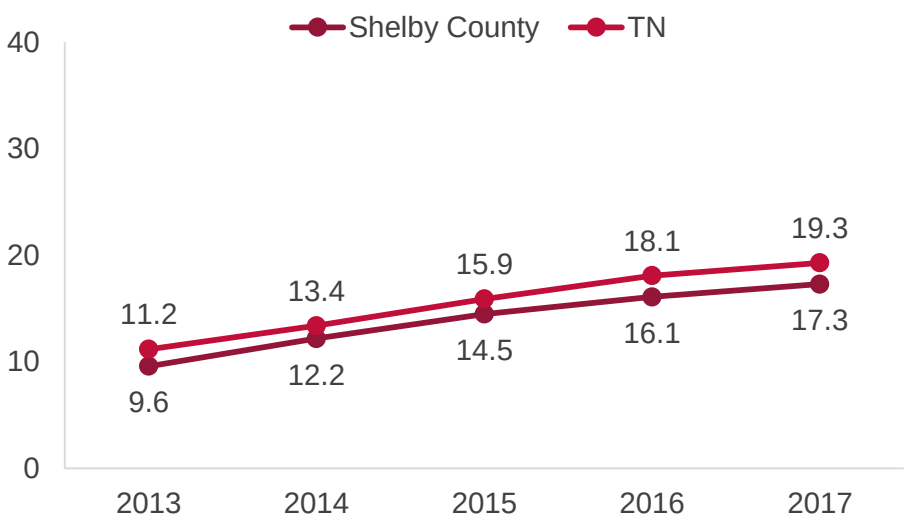
| Cause of Death | Shelby County | Tennessee |
|---|---|---|
| Accidents (unintentional injuries) | 20.9 | 20.7 |
| Assault (homicide) | 19.5 | 8.5 |
| Certain conditions originating in the perinatal period | 18 | 13.1 |
| Congenital malformations, deformations and chromosomal abnormalities | 8.8 | 8 |
| Intentional self-harm (suicide) | Unreliable | 6.4 |
| Cancer | Unreliable | 2.7 |

DATA SOURCE: CDC Wonder Database, 2017
NOTE: Causes were ordered by largest to smallest rates in Shelby County

*5.3.2. Substance Misuse*

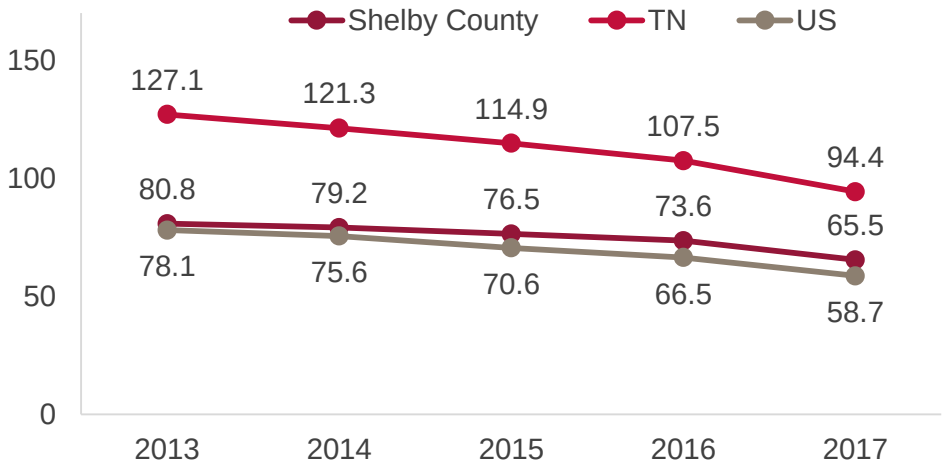
The national opioid crisis was mentioned by interview participants as an emerging health concern for the community. Interview participants stated that, in recent years, East Tennessee has faced an opioid problem and that other health and social issues were seen as more pressing for the city of Memphis. The state of Tennessee has a higher opioid overdose rate than Shelby County (in 2017, 19.3 per 100,000 vs. 17.3 per 100,000) (Figure 26), but both the State and Shelby County have seen a steady increase in overdose rates from 2013 to 2017. During this time, the rate of opioid prescriptions has decreased for the United States, Tennessee, and Shelby County. The state of Tennessee and Shelby County continue to have higher rates of prescriptions dispensed than the United States does, 94.4 per 100 and 65.5 per 100, respectively, and 58.7 per 100 for the nation (Figure 27). In other words, despite significant decreases in the rate of opioid prescriptions dispensed for the state of Tennessee, there was still almost one prescription dispensed per person in 2017.

**Figure 26. Opioid Drug Overdose Rate (age-adjusted rate per 100,000 persons), Shelby County and Tennessee, 2013-2017**




DATA SOURCE: Tennessee Department of Public Health, Drug Overdose Dashboard, 2013-2017

**Figure 27. Rate of Opioid Prescriptions Dispensed per 100 persons, Shelby County, Tennessee and United States, 2013-2017**



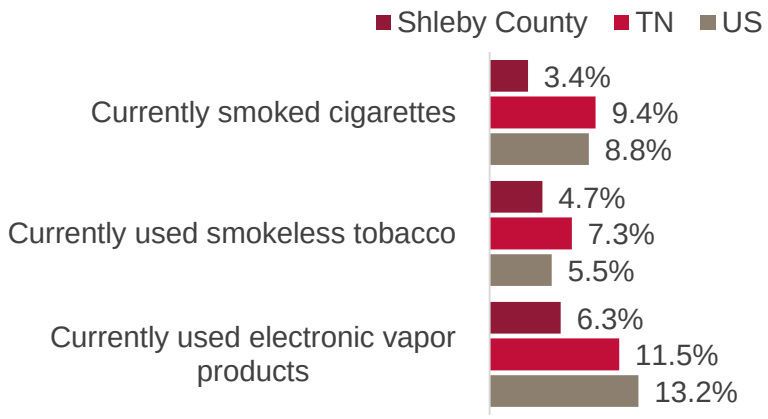

DATA SOURCE: Centers for Disease Control and Prevention, U.S. Opioid Prescribing Rate Maps, 2013-2017

The opioid crisis has far-reaching impacts on the children and families of those experiencing addiction. Children exposed to opioids may experience trauma from witnessing an overdose or death of a family member, separation from family members, incarceration of family members, poverty, and more.[23] Understanding the impacts of the opioid crisis and trauma on children is important in providing trauma-informed care and other resources.

Tobacco use is a well-known cause of cancer in adults, and smoking typically starts at a young age. Additionally, many negative health outcomes are associated with second-hand smoke exposure, putting children at risk when they live in households with smokers. Multiple interview participants mentioned high tobacco use as a health concern in the community. They specifically mentioned the recent introduction of vaping products that they described as having

erased progress in reducing tobacco use. In Shelby County, the proportion of high school students using tobacco products is lower than that in Tennessee or the United States. High schoolers' use of electronic vapor products, by contrast, is much more common than cigarette smoking across all geographies, including Shelby County, 6.3% vs. 3.4% (Figure *28*). Interview participants at St. Jude mentioned smoking cessation programs for parents and caregivers in the community as important resources to reduce exposure for the child and parent/caregiver.

**Figure 28. Use of Tobacco and Tobacco-related Products among High School Students, Shelby County, Tennessee and United States, 2017**




DATA SOURCE: Center for Disease Control and Prevention, Youth Risk Behavior Survey, 2017
NOTE: Current described as use on at least 1 day during the 30 days before the survey

"Smoking cessation has the benefit of preventing cancer in the long run."
-Internal Interview Participant

*5.3.3. Obesity, Chronic Disease*

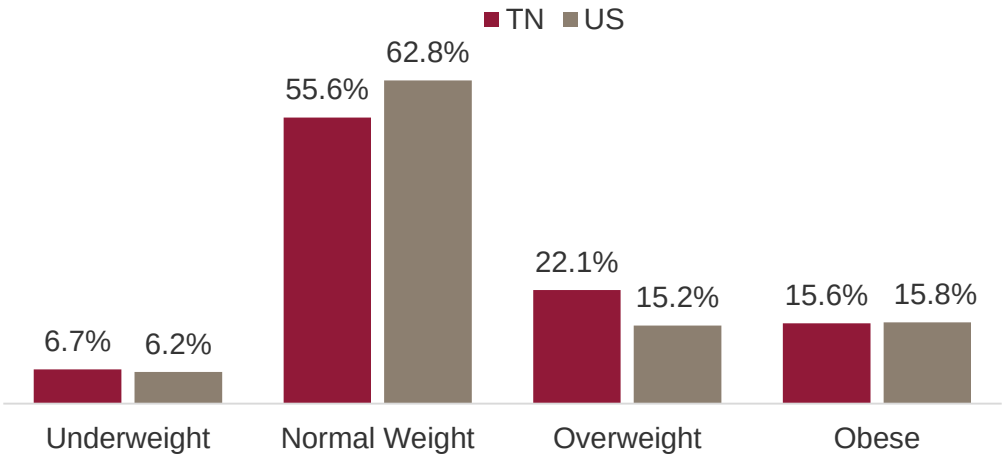
Establishing healthy behaviors to prevent chronic disease is easier and more effective during childhood and adolescence than is trying to change unhealthy behaviors during adulthood.[24] Chronic diseases mentioned in interviews and focus groups that impact the community include obesity, asthma, hypertension, and diabetes.

Memphis is in the so-called "stroke belt"; a few interview participants referred to Memphis as the belt buckle. The Southern diet is known to be high in calories and fat and was mentioned as a contributor to poor nutrition, obesity, and heart disease in the community. Having access to healthy foods and having enough time and knowledge about how to prepare healthy foods can be barriers to eating a healthy diet according to respondents. Interview participants identified some resources in the community, including cooking classes at Church Health Center, that help to improve individuals' knowledge about nutritious foods.

The CDC recognizes that preventing childhood obesity is critical to preventing chronic disease, and reducing the proportion of children considered obese is a Healthy People 2020

objective.[25,26] In Tennessee, 15.6% of children aged 10-17 years were considered obese, as measured by BMI in 2016 (Figure 29).

**Figure 29. Weight Status of Children Aged 10-17 Years Based on Body Mass Index (BMI), Tennessee and United States, 2016-2017**

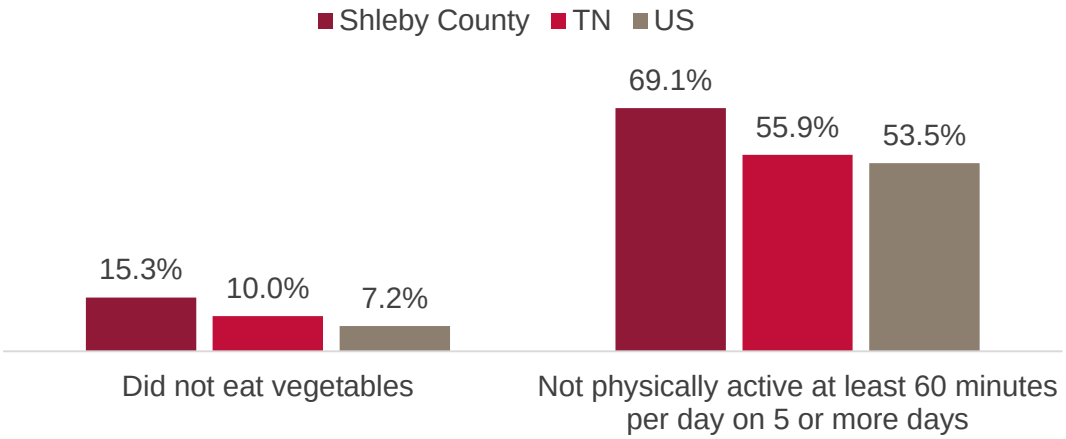



DATA SOURCE: Data Center for Child and Adolescent Health, 2016-2017; data pulled by Shelby County Health Department
NOTE: Percentages and population estimates are weighted to represent child population in U.S.; Underweight is classified as less than 5th percentile, normal weight 5th-84th percentile, overweight 85th-94th percentile and obese 95th percentile or above for BMI

High school students in Shelby County report lower vegetable consumption and physical activity than their peers across the state of Tennessee and the United States do. In 2017, 15.3% of high school students in Shelby County did not eat vegetables in the week prior to the survey, whereas the rate was 10% for students in Tennessee overall, and almost 70% of high school students in Shelby County reported that they did not have regular physical activity (Figure 30

**Figure 30**).

**Figure 30. Healthy Eating and Activity among High School Students, Shelby County, Tennessee and United States, 2017**

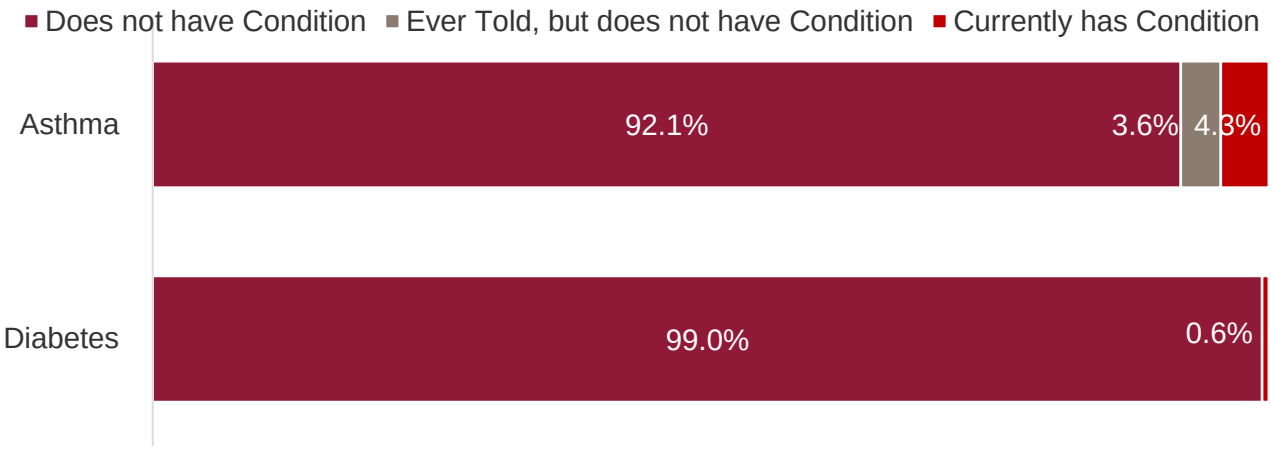



DATA SOURCE: Center for Disease Control and Prevention, Youth Risk Behavior Survey, 2017
NOTE: Vegetables include green salad, potatoes (not counting French fries, fried potatoes, or potato chips), carrots, or other vegetables and consumption was measured during the 7 days before the survey; ~~Physically~~physically active

is specified as doing any kind of physical activity that increased heart rate and breathing during the 7 days before the survey

Chronic diseases among children were discussed as a concern in the Memphis community and for patients of St. Jude. In Tennessee, 4.3% of children have asthma. In Memphis/Shelby County, a higher rate of 14% was cited during interviews. Housing issues such as mold were cited in multiple interviews as exacerbating factors for those with asthma. Although less than 1% of children in Tennessee have diabetes (Figure 31), poor nutrition and obesity were frequently discussed in interviews and focus groups as problems for residents of Memphis, including children. The risk of Type 2 diabetes developing later in life was mentioned as a concern.

**Figure 31. Asthma and Diabetes in Children 0-17 years, Tennessee, 2017**




DATA SOURCE: Data Center for Child and Adolescent Health, 2016-2017
NOTE: Diabetes variables were calculated for a two-year span, 2016-2017

*5.3.3. Opportunities for St. Jude to Address Child Health in Shelby County*

Interview participants recognized that St. Jude provides a specialty set of services and that its strength is in staying focused on its mission. To address chronic health issues and their underlying causes for the pediatric population in Memphis, interview participants suggested that St. Jude partner with Le Bonheur Children's hospital and continue to address social determinants of health.

> "As an institution that focuses on cancer in children, as a research institution – they are a legacy institution."
>
> - External Interview Participant

**6. Review of Current Community Benefit Initiatives**

As a result of its 2013 and 2016 CHNAs and to meet IRS requirements, St. Jude developed Community Benefit Implementation Plans. These plans were narrow in focus as they supplemented the medical research and financial assistance community benefit activities that St. Jude was already engaged in through its mission and purpose. Consistent over the two rounds of assessment, findings highlighted the issues of access to care; childhood cancer;

patients with sickle cell disease, hematologic diseases, or HIV/AIDS; needs of patients' families and caregivers; post-treatment and care transition; health status of the Memphis community; and additional gaps for the general pediatric population. St. Jude chose to address these needs in three general focus areas: access to care; coordination of care; and improving child health status (Table 3).

**Table 3. St. Jude Community Benefit Areas of Focus, 2013, 2016**

| | 2013 | 2016 |
|---|---|---|
| **AIM 1: Improving Access to Care** | | |
| • Transition of patients from pediatric to adult health care services | ✔ | |
| • Access to affordable health insurance coverage | ✔ | ✔ |
| • Palliative care | ✔ | ✔ |
| • Health care of childhood cancer survivors | ✔ | ✔ |
| • Community education | ✔ | |
| • St. Jude Affiliate network | | ✔ |
| **AIM 2: Improving Coordination of Care** | | |
| • Physician coordination of care | ✔ | ✔ |
| • Transition of patient from pediatric to adult healthcare services | | ✔ |
| **AIM 3: Improving Child Health Status** | | |
| • Child knowledge of cancer prevention, nutrition, obesity, and physical activity | ✔ | ✔ |

Highlights from FY2017 and FY2018 activities include:

- **87% of families were provided assistance at the screening and enrollment process:** An audit of the screening process is conducted monthly to ensure that all families are given assistance with the screening and enrollment process. In FY2018, 87% of uninsured patients were offered assistance, and 14 uninsured patients were enrolled in health plans. The remaining 13% were not contacted because they were in the after completion of therapy program and visit St. Jude infrequently.
- **Established Transition Oncology Program:** Survivorship staff have been involved in multidisciplinary efforts to introduce and consistently address survivorship transition issues, particularly psychosocial and rehabilitation needs, at earlier time points after diagnosis. Their efforts are reflected in the newly developed Transition Oncology Program.
- **Transitioned 59 patients with SCD to adult care:** Continued to work with adult sickle cell centers in the community to enhance a seamless transition from pediatric care. St. Jude continues to provide teens with a quarterly transition tour of adult sickle cell care providers in Memphis. In FY2018, 59 patients participated, up from 27 patients in FY2017.
- **Increased educational opportunities for community providers in palliative care medicine**: In FY2017, St. Jude trained over 400 individuals through three palliative care training programs. An additional 350+ individuals were trained in FY2018.
- **Conducted numerous public education radio spots:** St. Jude conducted more than 75 30-second educational radio spots in FY2018. Topics included the HIV Voices Project, AIDS Support, Sickle Cell Transition E-Learning Program (STEP), Blood Donor Center, and the HPV Vaccine for Cancer Prevention.

- **Over 5,000 Memphis-area K-12 students received healthy lifestyles education:** The St. Jude Cancer Education for Children Program developed an elementary curriculum for students in grades 3-5 that uses education and positive reinforcement to help promote healthy lifestyle choices and to reduce a child's lifetime risk of cancer. It specifically addresses obesity, nutrition, smoking, and sun exposure, important issues in promoting childhood health and primary cancer prevention. During the 2017-2018 school year, the school outreach team partnered with 19 schools to deliver educational content to over 5,000 K-12 students in the Memphis area.
- **Established HPV Task Force to develop comprehensive program and strategy to increase HPV vaccination rates:** The Task Force worked over this past year to develop a more comprehensive program and strategy. This plan will be reviewed and evaluated for implementation in FY2019. The proposal is focused on achieving the American Cancer Society's and other organizations' goal of eliminating HPV-related cancers through vaccination and screening. This goal and vision were endorsed by all National Cancer Institute (NCI)–designated cancer centers in June 2018.

To view elements of the 990 Schedule H Form for St. Jude, go to www.communitybenefitinsight.org.

**7. Conclusions and Prioritization of Areas of Need**

In May of 2019, the St. Jude CHNA Advisory Committee and the Medical Executive Committee (MEC) met to review CHNA findings and discuss priority areas for future community benefit programs and services to supplement the medical research and financial assistance community benefit activities that St. Jude already provides. Given the success of the current St. Jude community benefit activities with its patient population —children with catastrophic diseases— the group confirmed continuing the three main priority aims:

AIM 1: Improving Access to Care – St. Jude should continue efforts to improve access to health care coverage, clinical trials (when appropriate), and palliative care services. St. Jude affiliate network relationships and those with other Memphis health care institutions should be maintained and strengthened to expand opportunities for care. To continue to meet the needs of caregivers, CHNA Advisory Committee and MEC members recommend strengthening mental health services and related resources for caregivers. Opportunities may exist to collaborate with other health care systems in Memphis to develop shared strategies in this area.

AIM 2: Improving Coordination of Care – Recommendations were focused on continuing to improve these programs with the use of St. Jude affiliate programs, the growth in the transitions to adult care programs for patients with cancer and sickle cell disease, and efforts to improve the outpatient care experience. Participants also noted the importance of collaborating with other health care providers and community-based organizations to these efforts' success.

AIM 3: Improving Child Health Status – St. Jude staff have a wealth of knowledge and interest in educating children, their families and caregivers, school staff, and other health and childcare providers in strategies for limiting poor health outcomes and catastrophic childhood illness. Existing programs and services in this area should be continued and expanded. Engagement of leadership in collaborative efforts, such as the HPV Task Force and the HIV Coalition, should be continued to address policy, systems, and environmental change strategies to improve child health status. Opportunities may exist to collaborate with other health care systems in Memphis to develop shared strategies in this area.

Cutting across all of these aims is the presence of St. Jude as a member of the Memphis–Shelby County community. CHNA Advisory Committee and MEC members noted the importance of the continued involvement of St. Jude in community-based activities and collaborations such as Memphis Tomorrow and Healthy Shelby County. The CHNA identified the importance of partnerships and collaborations to meeting the health and medical needs of children, including but not limited to those with Shelby County Health Department, Methodist Le Bonheur Healthcare, Baptist Memorial Health Care and Regional One Health, and Church Health Center. Given its focused mission and model of providing specialized services to children in crisis, St. Jude does not have the capacity or resources to meet all needs of all children and their families. However, strategic partnerships with other healthcare providers and with schools and community-based organizations allow St. Jude to create a network of resources that can be leveraged to meet the health and social needs of a wider community of patients and their families.

## 8. Appendix

### *8.1. Methodology*

The following section describes how data for this community health needs assessment were compiled and analyzed as well as the overarching framework used to guide the assessment process.

#### *8.1.1. Quantitative Data*

In an effort to develop a social, economic, and health portrait of the community served by St. Jude in the greater Memphis area and nationally, HRiA reviewed existing data from local, state, and national sources. Data sources include but are not limited to The U.S. Census, National Children's Health Survey, and the National Cancer Institute. To gain more local-level data, St. Jude worked with the Shelby County Health Department to obtain demographic, economic, and health data for Shelby County. Data analyses were conducted by the original data source. New patient data were shared by the St. Jude Department of Information Services to provide a snapshot of the population served by the hospital.

#### *8.1.2. Qualitative Data*

In addition to analyzing epidemiological data, HRiA conducted qualitative research with internal and external St. Jude stakeholders and with patients and family members served. This research supplements quantitative findings with perceptions of community strengths and assets, priority health concerns, and suggestions for future programming and services. Four focus groups and 18 key informant interviews were conducted between November 2018 and April 2019. Participants represented a broad cross-section of stakeholders, including St. Jude staff, patients and families, local government representatives, public health departments, community-based organizations, and health care providers.

<u>Focus Groups</u>

Focus groups were conducted with current and former St. Jude patients, patient caregivers, and St. Jude clinical, research, and administrative staff. Different topic areas were explored on the basis of the unique experiences of each of the groups. The patient and caregiver focus groups, conducted with current patients and representatives of the Patient Family Advisory Council, explored the extent to which St. Jude is meeting the needs of children with catastrophic illnesses and opportunities to bridge patient needs in the future. The clinical, research, and administrative staff focus group explored these topics as well as specific issues related to the greater Memphis community and the role of St. Jude in addressing them. A semi-structured moderator's guide was used across all discussions to ensure consistency in the topics covered. Guides were modified for different groups to ensure that they were age- and developmentally appropriate.

Each focus group was facilitated by an experienced HRiA staff member; a note-taker took detailed notes during the discussion. On average, focus groups lasted 30-90 minutes. Before the start of the groups, HRiA explained the purpose of the study to participants, and participants had an opportunity to ask questions. They were told that group discussions would remain confidential and that no responses would be connected to them personally. Participants were recruited by St. Jude staff, who arranged all logistics for the on-site focus groups. Details about focus group participants are included later in the Appendix.

<u>Key Informant Interviews</u>

HRiA conducted 18 interviews with 27 individuals; 7 interviews were conducted with 10 staff of St. Jude, and 11 interviews were conducted with 17 individuals from outside the organization. Interview participants represent a range of sectors, including leaders in health care, health research, government, and social service organizations focusing on vulnerable populations. As

with the focus groups, a semi-structured interview guide was used across all discussions to ensure consistency in the topics covered. Interviews were 30- to 60-minutes long. A list of stakeholder interview participants' positions and organizations can be found later in the Appendix.

Analyses

The collected qualitative information was analyzed thematically for main categories. Data analysts identified key themes that emerged across all groups and interviews as well as the unique issues that were noted for specific populations. Selected, paraphrased quotes —without personal identifying information— are presented in the narrative of this report to further illustrate points within topic areas.

*8.1.3. Limitations*

As with all research efforts, several limitations related to the assessment's research methods should be acknowledged. For the secondary (quantitative) data analyses, in several instances, regional data could not be disaggregated to the city level because of the small number of children with diseases that St. Jude treats. Additionally, several sources could not provide current data stratified by race/ethnicity, sex, or age; therefore, these data could be analyzed only by total population.

Likewise, survey data from self-reported measures, such as the National Survey of Children's Health, should be interpreted with particular caution. In some instances, respondents may over- or underreport behaviors and illnesses based on fear of social stigma or misunderstanding the question being asked. In addition, respondents may be prone to recall bias —that is, they may attempt to answer accurately but remember incorrectly. In some surveys, reporting and recall bias may differ according to a risk factor or health outcome of interest.

For the qualitative data, it is important to recognize that results are not statistically representative of a larger population because of non-random recruiting techniques and a small sample size. Recruitment for focus groups was conducted by St. Jude staff, and participants may have been more likely to have a positive opinion of St. Jude and its services. Because of this, it is possible that the responses received only provide one perspective of the issues discussed. Although efforts were made to talk to a diverse cross-section of individuals, demographic characteristics of the focus group and interview participants were not collected, so it is not possible to confirm whether they reflect the composition of the region. Lastly, it is important to note that data were collected at one point in time, so findings —although directional and descriptive— should not be interpreted as definitive or causal.

### *8.2 List of Participants*

**2019 CHNA Advisory Group**

- *Chara Abrams, Administrative Director, Psychology
- Sheila Anderson, Case Manager, Hematology, Sickle Cell
- Kate Ayers, Coordinator, Cancer Education Outreach
- Justin Baker, MD, Chief, Division of Quality of Life and Palliative Care
- Kathryn Berry Carter, Director, Family, Guest and Volunteer Services
- Emily Browne, DNP, Director, Transition Program
- *Shari Capers, VP-Strategic Planning and Decision Support
- Yvonne Carroll, Director, Hematology Patient Services
- Pat Cathey, Manager, Family Commons
- Robert R. Clark, Chief Government Affairs Officer
- Jeana Cromer, Director, Clinical Trials Management

- Kaleigh Davis, Staff Attorney
- Tracy Dodd, Director, Physician and Patient Referral Services
- Janice English, Director, Patient Experience
- Pat Flynn, MD, Deputy Clinical Director
- *Phyllis Hall, Director, Revenue Analysis
- Jane Hankins, MD, MS, Associate Member, Department of Hematology
- Colette Hendricks, VP-Clinical Operations
- Melissa M. Hudson, MD, Director, Cancer Survivorship Division
- Echelle Rutschman Jobe, Sr. Director, Content Management, Communications
- Melissa Jones, Director, Cancer Center Operation
- Pat Keel, SVP/CFO
- Christy Matthews, Lead Health Educator
- Nicholas Miller, Administrative Director
- Krisderlawn Motley, Coordinator-Cancer Center Education Outreach
- Daniel Mulrooney, MD, MS, Assistant Member, Cancer Survivorship Division
- Edna Patterson, Manager, Affiliate Program Operations
- Sam Ransone, PhD, Director, Nursing Education
- *Jane Raymond, Director, Managed Care
- Dee Roe, VP-Clinical Research Regulatory & Quality Management
- Kimberly Rossie, Communications Strategist
- Victor Santana, Member, VP – Clinical Trials
- Andrea Stubbs, Manager, Community HIV Program
- Tangie Thomas, VP-Clinical Trials Operations
- Elizabeth Walker, Manager, Print Production/Editor
- Dana Wallace, Director, Cancer Center Administration
- Karen Williams, Nurse Practitioner, Palliative Care

*Steering Committee Member

**Focus Groups**

- Medical Executive Committee
    - Elizabeth Adderson, MD, Infectious Diseases
    - Doralina Anghelescu, MD, Anesthesiology
    - Michael Bishop, MD, Oncology, Solid Tumor
    - Robin Diaz, JD, Chief Legal Counsel
    - Sara Federico, MD, Oncology, Solid Tumor
    - William Greene, PharmD, Vice President, Pharmaceutical Services
    - Ray Morrison, MD, ICU, Critical Care-Pulmonary Medicine
    - Robin Mutz, RN, SVP, Chief Nursing Executive
    - Tracy Parks, Director, Quality Management
    - Richard Rochester, Manager BMT/CT Clinic
    - John Sandlund, MD, Oncology, Leukemia/Lymphoma
    - Brandon Triplett, MD, Bone Marrow Transplant and Cell Therapy
    - Joshua Wolf, MD, Infectious Diseases

- Nursing
    - Mike Burgess, Pediatric Oncology Nurse III WKD, Inpatient, Bone Marrow Transplant
    - Lori Christion, Inpatient Unit Manager
    - Jasmin Elizarraras, Pediatric Oncology Nurse I, Inpatient

- Camille Filoromo, BSN, MEd, PhD, RN, NEA-BC, Senior Director of Clinical Experience
- Angel Parker, Inpatient Unit Coordinator
- Bob Schroeder, Interim Unit Manager, ICU
- Nicole Wright, Nursing Professional Development Educator I

- St. Jude Patient Family Advisory Council
  - Ten members of the council participated

- Adolescent St. Jude Patients
  - Five patients participated

**Internal Key Informant Interviews**

- Robert Clark, MS, FACHE, Chief Government Affairs Officer
- Janice English, Director, Patient and Family Experience Office
- Colette Hendricks, VP-Clinical Operations
- Melissa M. Hudson, MD, Director, Cancer Survivorship Division
- Melissa Jones, Director, Cancer Center Operation
- Pat Keel, SVP/CFO
- Ellis Neufeld, MD, PhD, EVP/Clinical Director
- Carolyn Russo, MD, Associate Member/Medical Director Affiliate Program
- Victor Santana, MD, Member/SVP – Clinical Trials
- Dana Wallace, Director, Cancer Center Administration
- Sheila Anderson, RN, Transition Nurse Case Manager, Hematology

**External Key Informant Interviews**

- Carla Baker, RN, Project Director, Memphis Breast Cancer Equity Consortium, Common Table Health Alliance
- Amy Daniels, Senior Vice President of Investor Relations, Memphis Chamber of Commerce
- Joan Han, MD, Director, Pediatric Obesity Program, Le Bonheur Children's Hospital
- Alisa Haushalter, DNP, RN, PHNA-BC, Director, Shelby County Health Department
- Michelle Heil, Senior Manager, Hospital Systems, American Cancer Society, North Central Region
- Anita Larkin, MSN, RN, Clinical Director, Methodist Le Bonheur
- Marian Levy, DrPH, RD, FAND, Associate Dean, University of Memphis School of Public Health
- Valerie Nagoshiner, Chief of Staff, Tennessee Department of Health
- Gary Shorb, Executive Director, The Urban Child Institute
- Andreana Smith, Director of Clinical Administration, Church Health Center
- Webb A. Smith, PhD, Clinical Exercise Physiologist, Healthy Lifestyles Clinic, Le Bonheur Children's Hospital
- Jamila Smith-Young, DNP, MPH, CPNP-AC, Nurse Practitioner, UT Le Bonheur Pediatric Specialists Division of Pediatric Endocrinology
- Charles Snyder, PhD, MPH, Director, Health Disparities Education and Community Engagement, University of Tennessee Health Science Center
- Katy Spurlock, Deputy Director, The Urban Child Institute
- Robin Womeodu, MD, FACP, Chief Medical Officer, Methodist University Hospital

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