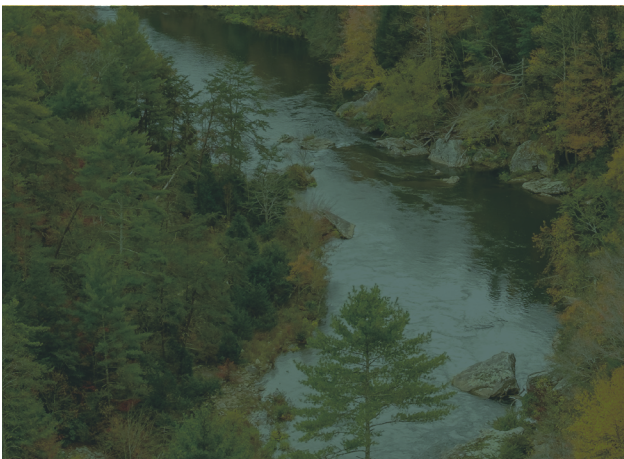
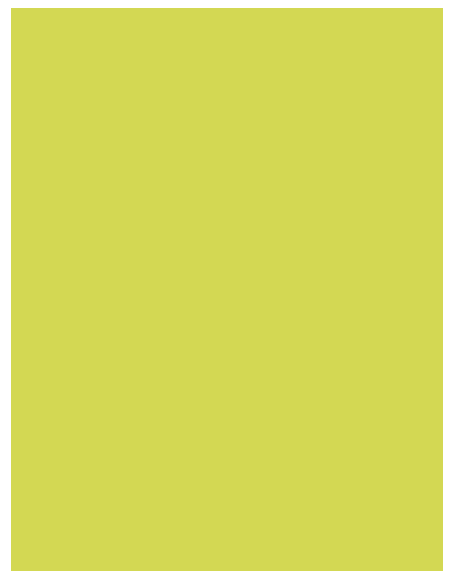
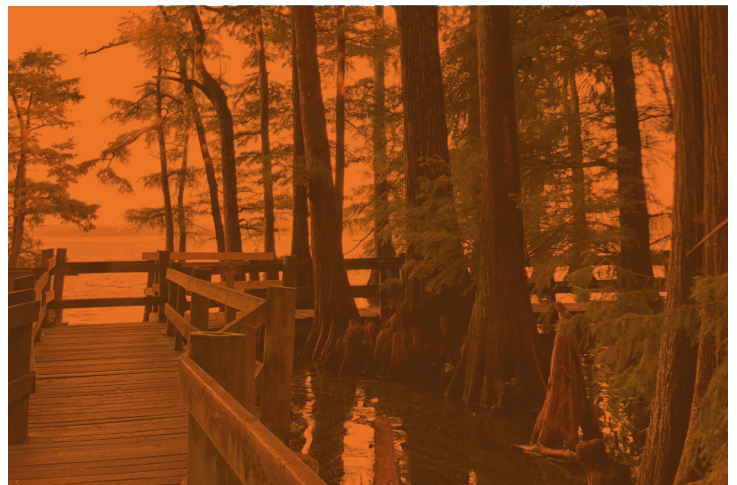




# STATE OF TENNESSEE



# CANCER PLAN



2018 - 2022

The photos used throughout this piece were submitted for the 2019 State Employee photo contest "Explore Rural Tennessee". Front cover in order from top to bottom- *Exploring Small Town History*- Chip Payne; *Exploring Reelfoot Lake*- Brittany Benderman; *The Obed River Passing By*- Emily Passino

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# Introduction to the State Cancer Plan

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Cancer remains the second leading cause of death in our state and affects every individual, family and community in Tennessee. During the past year, partners from across the state, including non-for-profit organizations, academic institutions, public health agencies, government offices, community-based organizations, individuals, private businesses and healthcare organizations under the direction and joint efforts of the Tennessee Cancer Coalition and the Tennessee Department of Health, came together to produce the State of Tennessee Cancer Plan (2018-2022). This working document presents a framework of priority goals and strategies to eliminate preventable cancers and minimize deaths and disabilities. It provides guidance for designing, implementing, monitoring and evaluating cancer-related actions and issues. This plan is also intended to be a resource for use by partner organizations, communities and individuals to create, implement and sustain activities aimed at improving health and reducing the burden of cancer.

We are extremely thankful and appreciate the individuals and organizations who dedicated their time, expertise, skill and talent in developing this plan. It is through this collaborative effort that we have a blueprint for action for the next five years. Finally, this plan is dedicated to those who fight the battle against cancer: patients, survivors and their families.

The Tennessee Cancer Coalition invites you to join us in our effort to eliminate cancer and make a difference in the health and quality of life for all Tennesseans as we work together to transform the vision of a cancer-free nation and state into a reality.

Wishing you the best,

*Helen J. Pinkerton*, MPH  
Tennessee Cancer Coalition Chair

*Monique Anthony*, MPH, CHES  
Tennessee Cancer Coalition Co-Chair



## **Tennessee Cancer Coalition Mission Statement:**

To measurably reduce the burden of cancer for Tennesseans.

The Tennessee Cancer Coalition is a dynamic group formed in October 2003. Members of the TC2 are divided into seven regional coalitions and represent organizations such as state government agencies, hospitals, colleges/universities, faith-based organizations and insurance companies to name a few. The regional coalitions are tasked with the implementation of objectives and strategies in the state cancer plan. Activities within each coalition are divided into sections of the state and are aligned to each region's specific cancer priority. Membership is free and open to anyone interested in helping reduce the burden of cancer in the Volunteer State. Join us!

# Acknowledgments

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Breast Cancer Support & Services

Breast Cancer Survivors

Breast+Connect Knoxville

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Cancer Support Community East  
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Candlelighters of Middle TN

Carin' and Sharin'

CATCH Global Foundation

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CHI Memorial Hospital

Children's Hospital at Erlanger

Church Health

Citizens for Radioactive Radon  
Reduction

Common Table Health Alliance

Community Action Team of Shelby  
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Cookeville Regional Medical Center

Cooper Trooper Foundation

Courage to Conquer Cancer

Covenant Air

Covington Healthcare

Crossroads Hospice

Cumberland Regional Medical  
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Delete Blood Cancer

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East Tennessee Children's Hospital

Emily's Power for a Cure

Exact Sciences

Food City

Gabe's My Heart

Gastroenterology Associates

Gilda's Club of Middle Tennessee

Greater White Stone Church

Hatch's House of Hope

Healthy Families

Hospice of Chattanooga

Jackson Family Medical  
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Johnson City Schools  
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Kirkland Cancer Center  
Lana's Love Foundation  
Lily's Garden  
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Make-A-Wish Foundation-East  
Tennessee  
Meharry Medical College  
Memphis Area Cancer Club  
Memphis Breast Cancer Consortium  
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Cancer Center  
Nashville General Hospital at  
Meharry  
Neighborhood Health  
Niswonger Children's Hospital  
Our Sisters Keeper  
Parkridge Medical Center  
Pink With A Purpose  
Provision CARES Proton Therapy  
Center  
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Putnam County Schools  
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Regional One Health

Ronald McDonald House Charities  
Salvus Center, Inc.  
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TriStar Health  
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St. Jude Children's Research Hospital  
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St. Thomas Outpatient Rehabilitation  
STAARS  
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The Children's Hospital at TriStar  
Centennial  
The West Clinic Cancer Center  
Thompson Cancer Survival Center  
Tennessee Commission on Children  
& Youth  
Tennessee Department of  
Environment and Conservation  
Tennessee Department of Health  
and affiliate Metro, Regional and  
County Health Departments  
Tennessee Men's Health Network  
Tri-State Health Inc.  
United Cancer Support Foundation  
University of Tennessee  
VA Medical Center - Memphis  
Vanderbilt University Medical Center  
Volunteer State Health Plan  
West TN Women's Center



The Road Less Traveled- Aaron Blake



# The Burden of Cancer in Tennessee

The Obed River Passing By- Emily Passino



Cancer develops when abnormal cells divide and spread inside the body. There are over 100 different types of cancer, with varying prognoses, which affect the physical, economic and social well-being of individuals, families and caregivers. As reported in Cancer Facts & Figures 2018 (American Cancer Society, 2018), the Agency for Healthcare Research and Quality estimates that the direct medical costs associated with cancer in the United States were \$80.2 billion in 2015. Tennessee experienced the 19th highest cancer incidence rate and the seventh

highest cancer mortality rate in the United States. The health care expenditures associated with cancer in Tennessee are expected to be proportionately higher than in most states.

From 2011-2015, the age-adjusted cancer incidence rate was 456.4 cases per 100,000 people in Tennessee with a total of 175,571 newly diagnosed cancers. The most common types of newly diagnosed cancers in Tennessee residents by count of cases were: lung, female breast, prostate and colorectal (Figure 1). At the same time period, the age-adjusted mortality rate was 185.4 deaths per 100,000 people with a total of 69,358 deaths. The most common types of cancers principally leading to death by count of cases were lung, colorectal, female breast and pancreas (Figure 2). Cancer resulted in over 579,000 years of potential life lost in Tennesseans during the five-year period and remains the second leading cause of death.

A greater cancer burden among Tennessee's male population might account for the observed higher cancer incidence rate relative to other states. The age-adjusted cancer incidence rate is 11th highest in the US with 514.8 cases per 100,000 Tennessee men, which is significantly higher than the national level (483.8 per 100,000 men). The age-adjusted incidence rate among Tennessee females ranks 29th highest in the US with a higher rate than the national average (415.2 vs 412.5 per 100,000 females). Both Tennessee males and females experience the seventh highest cancer mortality rates in the US, respectively.

Lung cancer is the most common type of cancer in Tennesseans. The age-adjusted incidence and mortality rates are 1.3 times as high as the national average. From 2011 to 2015, there were 29,253 newly diagnosed lung cancer cases and 21,688 lung cancer deaths (Figure 1). The fact that lung cancer is the leading type of cancer in Tennesseans is largely due to the greater prevalence of smoking. In 2017, 22.6 percent of Tennessee adults ( $\geq 18$  years) were current smokers compared to 17.1 percent nationally (Table 1). Smoking accounts for over 80 percent of lung cancers in the US and is also a major risk factor of many other types of cancer including oropharyngeal, laryngeal, colorectal, esophageal, stomach, urinary bladder, kidney, pancreatic, liver and cervical cancers, some of which are among the top ten newly diagnosed cases and/or cancer deaths (Figure 1, 2). By substantially reducing the prevalence of smoking, Tennessee could prevent considerable numbers of both new cancer cases and cancer deaths.


In terms of racial disparities in Tennessee, the black population has a disproportionately higher cancer mortality rate than the white population. From 2011-2015, the mortality rate for all cancers was 218.6 deaths per 100,000 people for blacks versus 183.5 for whites (Table 1). On average, during the same period, each black person who died from cancer lost an estimated 10.7 years of life, whereas each white person who died of cancer lost an estimated 7.9 years of life. Half (50.6 percent) of blacks were diagnosed at late stages (i.e., at the regional or distant stage) compared to 45.9 percent of whites diagnosed at the same stages. This difference was statistically significant, which may partially explain why blacks have a higher mortality rate.

Cancer also demonstrates geographic disparities by county in Tennessee with age-adjusted incidence rates ranging from 386.2 to 553.8 cases per 100,000 people and mortality rates from 121.9 to 264 deaths per 100,000 people (Figures 3 & 4). Generally, the East region displays the highest overall cancer incidence rate of all regions in Tennessee, whereas the Northwest region displays the highest overall cancer mortality rate. For all new cases of cancer combined, the following are the top five Tennessee counties, in descending order (by incidence rate): Hancock, Claiborne, Benton, Trousdale and Marion. For overall cancer mortality, the following are the top five Tennessee counties in descending order (by mortality rate): Trousdale, Cheatham, Scott, Claiborne and Hancock.

## EVERY DAY in Tennessee during 2011 - 2015

**96** people are diagnosed with **cancer**

**38** people died from cancer

**16** people were diagnosed with **lung cancer** 



**14** women were diagnosed with breast cancer



**12** men were diagnosed with prostate cancer



**12** people died from lung cancer

**9** people were diagnosed with colorectal cancer



**3** people died from colorectal cancer 



**2** women died from breast cancer



**2** men died from prostate cancer

# Health Equity and Cancer Disparities in Tennessee

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Health equity, according to the Robert Wood Johnson Foundation, “means that everyone has a fair and just opportunity to be healthier. This requires removing obstacles to health such as poverty, discrimination and their consequences, including powerlessness and lack of access to good jobs with fair pay, quality education and housing, safe environments and health care.” This definition reflects scientific evidence of the impact of social inequity on human illness and disease, including cancer incidence and mortality. It also represents ethical principles about human rights and establishes the responsibility of communities and governments to address barriers to health. Promoting health equity is a way to address health disparities.

The Centers for Disease Control and Prevention defines health disparities as “preventable differences in the burden of disease, injury, violence or in opportunities to achieve optimal health experienced by social disadvantaged racial, ethnic and other populations and communities.” In Tennessee, disparities in cancer incidence and mortality are associated with social and race/ethnicity inequalities, including lack of health care insurance, lack of bilingual services, limited access to services, discrimination, living in a rural area, mistrust in the health care system and cultural values associated with risky behaviors (such as tobacco use). The CDC explains that social determinants of health include social, economic and environmental conditions that shape a wide range of health risks and outcomes. These include poverty, discrimination, lack of access to quality education and employment opportunities.

Community characteristics that contribute to cancer health disparities in Tennessee<sup>1</sup> include the following social determinants of health:

- Environmental hazards
- Quality of and access to health care
- Crowding
- Low socioeconomic status
- Substandard housing
- Community stress
- Residential segregation
- Limited access to resources, such as playgrounds and healthy foods

## Health Equity and Cancer Disparities: Cross-Cutting Objectives

The National Cancer Institute notes that transdisciplinary research has identified specific social determinants of health related to the disproportionate incidence, prevalence, mortality and burden of cancer in specific groups. These “unfair and avoidable” factors are the targets of cross-cutting objectives to increasing health equity<sup>2</sup>. Striving to improve health equity for all and to address cancer disparities requires:

- Health-related communication that considers health literacy, culture and language of specific groups;
- Access to screening, treatment and survivorship resources in terms of cost, mobility and geography;
- High quality education for all age groups; and
- Culturally sensitive health care providers.

In addition to the specific objectives described in other sections of this plan, the following cross-cutting objectives have been identified:

**Objective 1:** Provide data linking social determinants of health to cancer-related health disparities in Tennessee to cancer control advocates and the general public.

### Strategies

1. Identify sources of available data regarding cancer-related health disparities.
2. Identify gaps in data regarding cancer-related health disparities.
3. Develop proposals and sources of funding to address gaps in relevant data.
4. Identify relevant research linking cancer-related health disparities to social determinants of health, as well as gaps in what is known.
5. Establish a schedule of annual meetings with experts (state and local public health departments, university researchers, health care providers, cancer patients and their family members, community organizations, etc.) to prioritize social determinants of health that can be addressed within one, two, three, four and five years.



# Primary Prevention of Cancer

## MELANOMA

From 2011–2015, melanoma of the skin was the fifth most common type of cancer newly diagnosed in Tennessee residents with an incidence rate of 20.4 per 100,000 and ranked the 34th highest incidence rate and the fifth highest melanoma mortality rate in the US. Melanoma incidence rates in whites were about 25 times higher than blacks. However, a significantly higher percentage of blacks in Tennessee (26.0 percent) were diagnosed with melanoma at late stages than whites (10.2 percent), which may partially explain the high mortality-to-incidence ratio for melanoma among black Tennesseans. The US Preventive Services Taskforce recommends advising individuals ages ten to 24 years about minimizing their exposure to ultraviolet radiation to reduce risk for skin cancer.

**Objective:** Stabilize the incidence rate of melanoma at 20.4 per 100,000 persons (age-adjusted to the 2000 US standard population by 2022), as melanoma incidence rates increased 1.0 percent per year from 2011-2015<sup>1</sup>.

## Strategies

### Policy, Systems and Environmental Changes

1. Advocate for shade planning in the overall process of designing, building and improving outdoor spaces (parks, playgrounds, pools, etc.).
2. Ban the use of tanning beds for minors.
3. Increase taxation of tanning bed providers.
4. Incorporate sun safety education into required school curriculum at the state level.

### Provider Training and Professional Development

1. Educate university healthcare related programs (medical schools, nursing schools, etc.) on sun safety and skin cancer.
2. Increase clinician counseling in primary care settings to patients with fair skin aged 10-24 to minimize UV exposure and reduce the risk of skin cancer.

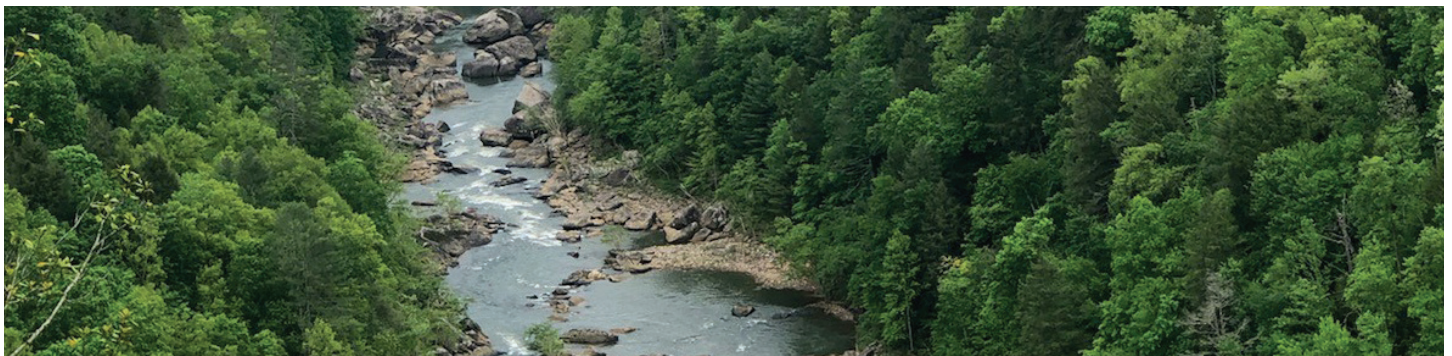
## Patient Access, Education and Programming

1. Increase educational interventions in outdoor occupational, recreational and tourism settings to promote sun protective behaviors among workers.
2. Establish agreements with vendors in outdoor recreational areas to sell sun protection equipment.
3. Provide broad-spectrum sunscreen with an SPF of 15 or higher in dispensers with prompts and signs that tell people how to apply sunscreen in high ultraviolet areas.
4. Develop and promote effective messaging that educates on sun safety and skin cancer prevention education in schools, workplaces, health systems and outdoor spaces.
5. Include sun safety and skin cancer education as part of comprehensive cancer prevention and control curriculum in secondary education settings.
6. Include sun safety and skin cancer education with all people regardless of age, race, ethnicity or gender.
7. Work with media to create PSAs featuring melanoma survivors, with a focus on Skin Cancer Awareness Month in May.

## Progress and Evaluation

1. Work with Tennessee's Youth Risk Behavior Survey coordinator to add a question on indoor/outdoor tanning to the state's Youth Risk Behavior Survey.
2. Establish a baseline to assess the proportion of adolescents who follow protective measures that may reduce the risk of skin cancer using the Tennessee Youth Risk Behavior Survey.
3. Maintain and promote surveillance systems to monitor and respond to related adult and youth behavior trends.

Sweet Serenity- April Bradley



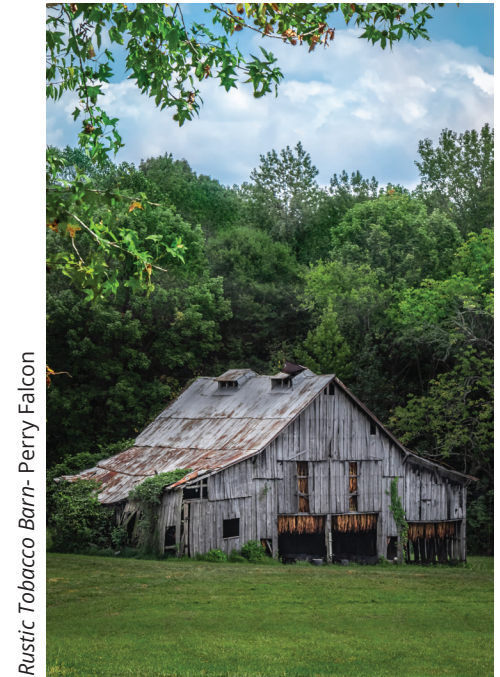
Reference:

<sup>1</sup> Cancer in Tennessee, 2011-2015: Richards J.E., Whiteside M.A., Tennessee Department of Health, Division of Public Health Assessment, Tennessee Cancer Registry; Nashville, Tennessee, March, 2019



## HPV IMMUNIZATION

The human papillomavirus or HPV vaccination is a vital component of cancer prevention. The vaccine protects against six different types of cancers caused by HPV infection including: anal, cervical, oropharyngeal, penile, vaginal and vulvar, as well as genital warts. Although the HPV vaccine prevents cancer, vaccination rates in the US and Tennessee remain relatively low. In addition, there is a greater burden of HPV-associated cancers in Tennessee and the Southeast compared to the US overall. To address this alarming issue, the HPV Cancer Free Tennessee Coalition, an outgrowth of the Tennessee Cancer Coalition, works to convene passionate leaders together to decrease the incidence of HPV-related cancers in Tennessee through vaccination, screening and early detection.



Rustic Tobacco Barn- Perry Falcon

**Objective 1:** Increase the number of female adolescents aged 13 – 17 years who are up-to-date with the HPV vaccine series from 47 percent in 2017<sup>1</sup> to 57 percent by 2022.

**Objective 2:** Increase the number of male adolescents aged 13 – 17 years who are up-to-date with the HPV vaccine series from 31 percent in 2017<sup>1</sup> to 41 percent by 2022.

## Strategies

### Policy, Systems and Environmental Changes

1. Support inclusion of HPV vaccination as a part of the vaccination regimen for students entering seventh grade by emphasizing all three recommended vaccines (tetanus-diphtheria-pertussis or Tdap, meningococcal and HPV) be administered on the same day and in the same way.
2. Achieve insurer-based incentives for providers who increase their adolescent vaccine completion outcomes to achieve a 95 percent adolescent vaccination rate in the patient populations.

3. Implement provision of vaccination reminders into electronic medical record as well as patient reminder/recall systems to improve vaccination series completion.
4. Promote the use of for Tennessee Immunization Information System for immunization management and evidence-based reminder recall messaging.
5. Advocate for pharmacy-based opportunities to offer HPV vaccinations and Tennessee Immunization Information System tracking.
6. Advocate for dental providers to capitalize on biannual visits via patient and parent education to reduce the incidence of HPV-related oropharyngeal cancer by promoting HPV vaccination.

### **Provider Training and Professional Development**

1. Target HPV vaccination communication messaging to pediatricians who report adolescent vaccinations, but not HPV.
2. Encourage clear communication from doctors, nurses and other health care professionals about the negative health impact of HPV infection and the importance of the HPV vaccine to cancer prevention.
3. Encourage healthcare professionals to routinely and strongly recommend HPV vaccination as part of the adolescent vaccination platform at ages 11-12 years (MCV4, HPV, Tdap and influenza).
4. Offer HPV vaccine continuing education for primary care, family medicine obstetrics and advanced practice healthcare providers.
5. In partnership with the Tennessee Immunization Program and Tennessee American Academy of Pediatrics, support physician quality improvement initiatives around HPV recommendation and delivery, as well as reporting of delivered HPV vaccine into Tennessee Immunization Information System.

### **Patient Access, Education and Programming**

1. Achieve a standing order allowing all adolescent vaccinations be covered in non-traditional settings by insurers.
2. Improve access to HPV vaccination through programs that bring vaccination to schools and organized child-care settings.
3. Conduct educational campaigns to increase public awareness of the link between HPV and cancer.

4. Actively participate in Tennessee’s statewide immunization coalition ImmunizeTN and regional HPV Cancer Free Tennessee Coalitions, to promote pro-vaccine messaging across the state and provide public and provider education.

### Progress and Evaluation

1. Issue a “Cancer Vaccine Report Card” for Tennessee.
2. Promote the use of data from national surveillance systems.
3. Promote the use of Tennessee Immunization Information System by all healthcare providers across the state of Tennessee including but not limited to pediatricians, primary care providers, dentists, internal medicine providers, pharmacists, etc.



Country Road- Hannah Chandler

Source:

<sup>1</sup> CDC NIS - Teen VaxView up-to-date, 2017

## HEALTHY WEIGHT

Obesity is a risk factor for a number of cancers, and about one-third of cancer deaths are linked to modifiable lifestyle factors: diet, physical activity and weight. Body mass index is a measure of body fat based on height and weight with range <18.5 for underweight, between 18.5-24.9 for a healthy weight, 25-29.9 for overweight and  $\geq 30$  for obesity. Tennessee's adult obesity rates have increased steadily from 11.6 percent in 1990 to 32.8 percent in 2018.

To prevent obesity in adulthood, it is important to help children and teens maintain a healthy weight. The prevalence of public school students in grades K-12 with overweight or obesity has significantly declined since the implementation of Coordinated School Health statewide from 41.2 percent in 2007-2008 to 39.3 percent in 2017-2018.

**Objective 1:** Increase the percentage of adult Tennesseans at a healthy BMI from 29.8 percent in 2017<sup>1</sup> to 34.8 percent by 2022.

**Objective 2:** Increase the percentage of youth Tennesseans at a healthy BMI from 57.8 percent in 2017<sup>2</sup> to 62.8 percent by 2022.

## Strategies

### Policy, Systems and Environmental Changes

1. Increase number of Tennesseans served by healthy built environments and support public transportation improvements to ensure:
  - Healthy eating options are more accessible;
  - Safe options for outdoor physical activity. i.e. exercise, safe routes to school; and
  - Access to medical services.
2. Encourage all school districts to implement physical activity throughout the school day.
3. Develop and strengthen policies and programs that increase access to healthy foods and physical activity in places that we live, work, pray and play.
4. Support programs and educational campaigns designed to reduce barriers to initiation, duration and exclusivity of breastfeeding.

### **Provider Training and Professional Development**

1. Train healthcare providers on how to identify and treat obesity in their patients.
2. Train healthcare providers on brief action planning and motivational interviewing.
3. Partner with the Tennessee Department of Education to support training on how to implement physical activity into daily instruction.
4. Promote active space planning with building construction or renovation.
5. Encourage utilization of electronic medical records for screening for obesity and referral to treatment.

### **Patient Access, Education and Programming**

1. Develop and strengthen programs that increase access to more options for physical activity in communities, workplaces, parks, schools and child care environments.
2. Support educational campaigns that emphasize the benefits of physical activity and risks of inactivity and cancer.
3. Promote educational campaigns that emphasize the benefits of healthy nutrition and the risk of poor dietary choices and cancer.
4. Support programs and educational campaigns designed to reduce barriers to initiation, duration and exclusivity of breastfeeding.

### **Progress and Evaluation**

1. Maintain and promote surveillance systems to monitor and respond to related adult and youth behavior trends, such as Behavioral Risk Factor Surveillance System and the Tennessee Department of Education Coordinated School Health body mass index collection.
2. Monitor and promote number of schools implementing nutrition programs (e.g. Farm to School, Second Chance Breakfast-Action for Healthy Kids, breakfast in the classroom, Jr. Chef, SMART Snacks etc.).

Source:

<sup>1</sup> TN Behavioral Risk Factor Surveillance System (BRFSS), 2017

<sup>2</sup> TN Department of Education, Office of Coordinated School Health, 2017-2018

## RADON

Radon is a naturally occurring radioactive gas produced by the breakdown of uranium in rocks and soils. Radon gas is tasteless, colorless and odorless. The only way to know if it is in your home is to test for it. The Tennessee Department of Environment and Conservation considers radon to be a serious problem in our state. Tennessee does have higher than the national average of radon in homes. No matter where you live in Tennessee, there is the potential for radon to enter your home. Regardless of your zone designation or geographic location, all homes should be tested for radon. Radon gas has been identified as the second leading cause of lung cancer, second only to cigarette smoking. For more information or to order a free test kit for your home, go to [tn.gov](http://tn.gov) and type “*Tennessee radon program*” in the search box.

**Objective:** Increase the number of homes tested annually for radon by the Tennessee Department of Environment and Conservation Radon Program from 1,410 in 2018<sup>1</sup> to 2,500 by 2022.

## Strategies

### Policy, Systems and Environmental Changes

1. Require radon testing every two years and mitigation policies for public places including: worksites, local schools and school districts, day care centers and licensed home day care providers and city, county and state-owned public buildings.
2. Require radon disclosures tested in last two years as part of single or multifamily homes or apartment sales.
3. Require home mortgage lending sources to require radon testing and mitigation.
4. Require new homebuilders to use radon-resistant techniques as outlined in the International Residential Code for One- and Two-Family Dwellings.

### Provider Training and Professional Development

1. Educate K-12 teachers through a Radon Teacher Workshop with continuing education credits.
2. Educate radon professionals through training for large building measurement and mitigation.
3. Reduce the incidence of radon-induced lung cancer by increasing radon education for certified professionals to better serve the citizens of Tennessee.
4. Support professional training classes to increase radon awareness consultation during real estate transactions and home inspections.

### Patient Access, Education and Programming

1. Educate realtors on the dangers of radon.
2. Educate home inspectors on the dangers of radon.
3. Provide free or reduced-cost radon test kits.
4. Promote National Radon Action Month in January of each year.
5. Promote citizen resolutions to test homes.

### Progress and Evaluation

1. Promote citizen science in testing for radon to increase data.
2. Support the Centers of Disease Control and Prevention mapping project for states.
3. Support a mapping project with layovers of tobacco use, lung cancer incidence and radon levels.

The Road Less Traveled- Aaron Blake



Source:

<sup>1</sup> Tennessee Department of Environment and Conservation Radon Program, 2018, <https://www.tn.gov/health/cedep/environmental/epht/radon.html>

## TOBACCO

Smoking accounts for 80 percent of lung cancer in the US and at least 30 percent of all cancer deaths. People who smoke cigarettes are 15 to 30 times more likely to get lung cancer or die from lung cancer than people who do not smoke (American Cancer Society, 2015). In 2017, 22.6 percent of Tennessee adults aged 18 years or older were current smokers, compared to 17.1 percent nationally. Due to the greater prevalence of smoking in Tennessee, Tennesseans experienced higher cancer incidence and mortality rates during 2011-2015.

The Tennessee Cancer Coalition will continue collaborating with all community organizations to decrease tobacco use among adults. Moreover, to address the alarming increase in the number of youth using electronic nicotine delivery systems such as e-cigarettes, vape devices and JUULs, the Tennessee Department of Health supports a youth advocacy initiative called TNSTRONG. TNSTRONG stands for Tennessee Stop Tobacco and Revolutionize Our New Generation. TNSTRONG youth advocates work to support ongoing tobacco and nicotine prevention activities in their communities across the state.

**Objective 1:** Decrease the percentage of Tennesseans who are current cigarette smokers from 22.6 percent in 2017<sup>1</sup> to 17 percent among adults, and from 9.4 percent<sup>2</sup> to 4.4 percent among youth by 2022.

**Objective 2:** Decrease the percentage of Tennesseans who are currently using an electronic vapor product from 5.9 percent in 2017<sup>1</sup> to 5.0 percent among adults, and from 11.5 percent<sup>2</sup> to 10 percent among youth by 2022.

**Objective 3:** Decrease the percentage of Tennesseans who are currently using smokeless tobacco from 6.0 percent in 2017<sup>1</sup> to 2.0 percent among adults, and from 7.3 percent<sup>2</sup> to 5.0 percent among youth by 2022.

## Strategies

### Policy, Systems and Environmental Changes

1. Increase tobacco taxes.
2. Enforce tobacco-free policies.



3. Advocate to repeal preemption.
4. Increase funding for Tennessee Tobacco Control Program.

### Provider Training and Professional Development

1. Increase awareness and knowledge of addressing tobacco use and exposure with patients.
2. Increase referrals to cessation treatment, including the Tennessee Tobacco QuitLine.
3. Educate providers on advocating to repeal preemption and promote insurance coverage for cessation treatment.

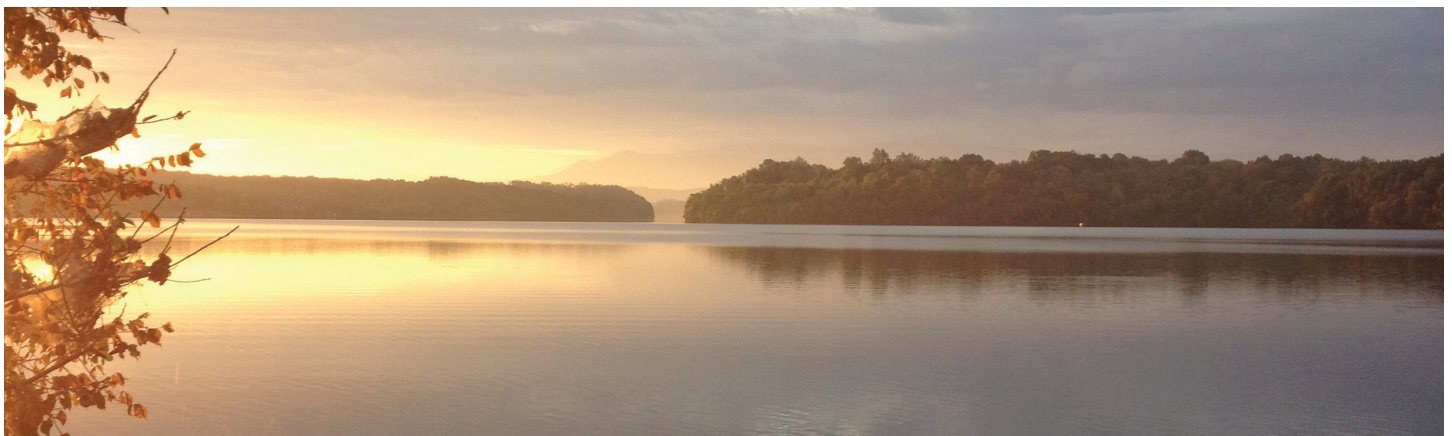
### Patient Access, Education and Programming

1. Improve tobacco-related health literacy among vulnerable populations with higher tobacco use rates.
2. Identify barriers to quitting tobacco and provide alternative tools for success.
3. Educate youth on Big Tobacco tactics to grow awareness that they are targets for aggressive marketing.
4. Increase screening of youth for nicotine dependence and tobacco/ENDS/Juul use.
5. Increase youth-specific cessation resources.
6. Engage youth in advocacy and peer prevention.

### Progress and Evaluation

1. Make usable data available for agencies and community partners.
2. Evaluate existing programs or create new programs based on data.

A Fall Morning on Tellico Lake- Justin Rexrode



Source:

<sup>1</sup> TN Behavioral Risk Factor Surveillance System (BRFSS), 2017

<sup>2</sup> TN Youth Risk Behavioral Surveillance System (YRBSS), 2017

## Screening and Early Detection

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Cancer screening may find cancers early, when treatment is likely to work best. Cancer screening is an important part of a healthy lifestyle and may increase an individual's longevity and quality of life. Screening guidelines may differ dependent upon the assessed risk of the individual. A thorough medical history as well as a physical examination estimates an individual's risk of cancer. The United States Preventive Services Task Force is an independent panel of national experts that makes evidence-based recommendations about clinical preventive and detection services such as screenings, counseling services and preventive medications.

Currently, United States Preventive Services Task Force offers screening guidelines for lung, colorectal, breast and cervical cancers. Additionally, genetic testing may be beneficial in selected individuals and families. It is critical to increase the use of cancer screening among high-risk populations in reducing cancer mortality.

**Objective 1 (LUNG):** Increase the percentage of at-risk adults screened for lung cancer (measurement under development).

**Objective 2 (COLORECTAL):** Increase percentage of adults aged 50-75 who have fully met the USPSTF recommendation from 66.4 percent in 2016<sup>1</sup> to 70.5 percent by 2022.

**Objective 3 (BREAST):** Increase the percentage of women aged 50-74 who have had a mammogram within the past two years from 77.1 percent in 2016<sup>1</sup> to 81.1 percent by 2022.

**Objective 4 (CERVICAL):** Increase the percentage of women aged 21-65 who have had a Pap test in the past three years from 79.8 percent in 2016<sup>1</sup> to 90 percent by 2022.

**Objective 5 (INHERITED CANCERS):** Increase the percentage of Tennessee residents with a personal and/or family history of breast, colorectal, endometrial, ovarian, pancreatic and/or prostate cancer at high-risk for inherited disease that are offered appropriate genetic counseling and/or testing for inherited cancer predisposition (measurement under development).

## Strategies

### Policy, Systems and Environmental Changes

1. Reducing out-of-pocket costs—strategies to minimize or remove economic barriers that impede access to cancer screening services.
2. Client reminders—written or telephone messages advising patients they are due or overdue for screening.
3. Provider reminder and recall systems—information for providers that clients are due (reminder) or overdue (recall) for specific cancer screening tests; they can be generated electronically or manually.
4. Establish patient navigation programs—individualized help offered to patients, families and caregivers to overcome healthcare system barriers and facilitate timely access to high-quality screening.
5. Mobilize grassroots advocates for legislative change.
6. Legislate for a framework of funding for lung cancer screening. Advocate for third party coverage.
7. Advocate for increased lung cancer research funding and equitable access, coverage and reimbursement for screening, treatment, diagnostics and testing.
8. Increase system-level approaches to family history collection, risk assessment and referral across public health and primary care settings, with a focus on populations with existing health disparities including African Americans and rural populations.
9. Increase the number of health plans that have cancer genomic best practices for hereditary cancer syndromes, including hereditary breast and ovarian cancer and Lynch syndrome, as recommended by United States Preventive Services Task Force, National Comprehensive Cancer Network and Evaluation of Genomic Applications in Practice and Prevention.
10. Develop multi-level strategies to identify and refer individuals at risk for inherited cancer predisposition for appropriate genetic counseling and genetic testing. Promote cascade genetic screening among families in which inherited cancer predisposition has been confirmed through genetic test results.

11. Reduce noneconomic burdens or obstacles that impede access to screening, such as expanding clinic hours or offering services in alternative or nonclinical settings.
12. Increase the number of Tennessee Department of Health Breast and Cervical Screening Program providers by recruiting community-based clinics and Federally Qualified Health Centers to participate.

### **Provider Training and Professional Development**

1. Provider assessment and feedback—evaluation of provider performance in offering or delivering screening (assessment) and presentation of information about performance in providing services (feedback) to help improve performance.
2. Ensure that best practices for low-dose computed tomography screening and follow-up care are utilized at hospitals, cancer centers and imaging centers throughout the state.
3. Promote education to Tennessee providers (with a focus on oncologists, oncology nurses, nurse navigators, surgeons and pathologists) to increase compliance to meet national standards on genetic counseling and testing, as recommended by national organizations (i.e. NCCN, American Society of Clinical Oncology, CoC, etc).

### **Patient Access, Education and Programming**

1. Utilize evidence-based one-on-one, small group and small media patient education.
2. Promote the use of available financial resources for routine screening for uninsured and underinsured patients.
3. Promote low-dose computed tomography screening of Tennesseans who are at high-risk. High-risk qualifies as 55 years or older with a 30-year pack history or current smokers or who have quit in the last 15 years.
4. Conduct statewide Tennessee education campaigns about cancer-related diseases and the risks and benefits of early detection.
5. Promote patient and public education on underlying genetic/heritable causes of common cancers and the importance of genetic counseling and testing when recommended.

6. Conduct a public awareness campaign to promote awareness and use of family history and other existing tools developed through various agencies (e.g., US Surgeon General Family History tool, Center for Disease Control Inherited Cancer Resources, etc.).

### Progress and Evaluation

1. Establish a registry of lung cancer screening programs in Tennessee.
2. Determine the lung cancer screening rates across the state on annual basis in accredited centers.
3. Document outcomes of screening in Tennessee by establishing a Tennessee Registry of CT-screened patients to determine real-world costs and benefits.
4. Request the addition of questions related to lung cancer screening to the Behavioral Risk Factor Surveillance System.
5. Develop and sustain a surveillance system to collect rates of genetic counseling and testing for inherited cancer (e.g., Behavioral Risk Factor Surveillance System, electronic medical records, Tennessee Cancer Registry, commercial testing laboratories, etc.)
6. Establish and improve surveillance systems to track screening rates for a defined population.



The Silence of the Country- Krystin Bandy

Source:

<sup>1</sup> TN Behavioral Risk Factor Surveillance System (BRFSS), 2016

# Treatment

Red Barn- April Stranger



There are many types of cancer treatment. The types of treatment that one receives will depend on the type of cancer and the stage of cancer at diagnosis. Some people with cancer will have only one treatment, but most people have a combination of treatments such as surgery with chemotherapy and/or radiation therapy. During this crucial time in an individual's life, it is important that the medical community follow evidence-based standards of care, which includes an interactive discussion with the patient and family in regard to their treatment plan.

The Commission on Cancer, a program of the American College of Surgeons, recognizes cancer care programs for their commitment to providing comprehensive,

high-quality and multidisciplinary patient centered care. The CoC offers cancer programs an organizational model for the delivery of comprehensive, multidisciplinary cancer care. The standards require facilities to create meaningful processes for implementation of patient-centered care. Currently, there are 30 CoC-accredited cancer centers in Tennessee serving patients throughout the state.

**Objective:** Increase adherence to evidence-based standards of care for cancer treatment (measurement under development).

## Strategies

### Policy, Systems and Environmental Changes

1. Utilize the electronic medical record to help improve utilization of standard of care/evidence-based care.
2. Utilize electronic medical record as a mechanism to increase enrollment in clinical trials.
3. Promote opportunities to retain/increase the number of healthcare professionals in underserved areas.
4. Promote collaborations to reduce duplication of services and maximize reach and effectiveness.
5. Create an incentive program for commitment to rural practice (e.g. student loan repayment assistance) in addition to those available from the federal government.
6. Encourage universal patient screening for the need for palliative care carried out upon admission to hospital or nursing home and for outpatients living with serious or complex illnesses to improve access to palliative care by promoting and standardizing early recognition and intervention.
7. Improve TennCare reimbursement for clinical trials and ability for TennCare patients to be reimbursed at “out of network” sites for clinical trial purposes.
8. Discuss available clinical trials in multi-disciplinary tumor board meetings.
9. Develop methods to encourage referral for appropriate clinical trials when not available in the local community/practice.
10. Increase participation by diverse populations in clinical trials to help ensure research conducted is relevant to and serves the needs of diverse communities.
11. Develop and implement provider reminder systems that identify patients eligible for available clinical trials.

### Provider Training and Professional Development

1. Improve use of clear and evidence-based national guidelines (National Comprehensive Cancer Network, American College of Surgeons and/or American Society of Hematology).
2. Better define the role of informed consent.

3. Focus on treatment of the “person” not only treatment of the “cancer” and also consider “non-treatment” of cancer as appropriate.
4. Educate physicians and patients about the availability of reputable internet sites with clinical trial listings.
5. Increase awareness of role and responsibility cancer care teams have in implementing advance care planning.
6. Expand the Medicare Care Choices Model in Tennessee.

### **Patient Access, Education and Programming**

1. Improve payer clinical trial coverage policies.
2. Inform and educate cancer patients about the availability, purpose and potential benefits and risks of clinical trials. Improve duration of time on hospice (e.g. improved enrollment on hospice at an earlier time).
3. Improve education of patients and access to appropriate literacy-level resources as well as non-English resources to assist patients in self-education.
4. Ensure patients have access to reputable resources for complementary and integrative medicine.
5. Encourage understanding of patient and family preferences (goals and concerns) regarding cancer treatment.
6. Increase free or low-cost transportation and housing options for persons in remote areas who have to travel for treatment services.
7. Conduct public educational campaigns about the purpose and importance of advance care planning.
8. Promote enrollment of people who are currently eligible for health care services through TennCare or the Health Insurance Marketplace.
9. Develop a database of resources for patients; creating a website centralizing resources for ease of access.
10. Educate patients that Medicare will reimburse for a physician visit to discuss advance directives/palliative care services.
11. Expand the network of patient navigators, including volunteers and trained social workers.



## Progress and Evaluation

1. Present the latest American College of Surgeons Commission on Cancer standards to tumor boards throughout the state.
2. Advocate shared decision making questions be added to the Tennessee Behavioral Risk Factor Surveillance System.
3. Support the development of tools to identify and mitigate the risk of clinical trial associated financial hardship.



Gentle Neighbors- Sharon Holderman

# Palliative Care

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Tennessee Palliative Care Advisory Council has defined palliative care as specialized care for people facing serious illness, focusing on providing relief of suffering (physical, psychosocial and spiritual) to maximize quality of life for both the patient and family. The advisory council has defined serious illness as a health condition that carries a high risk of mortality and negatively impacts a person's daily function, negatively impacts a person's quality of life and/or excessively strains the person's caregiver. Palliative care can be helpful for patients of any age and at any point in their illness trajectory from the time of diagnosis through the end of life.

**Objective:** Increase the number of healthcare professionals trained in effective palliative care techniques through providing workgroups, summits and conferences from 110 in 2018 to 800 by 2022.

## Strategies

### Policy, Systems and Environmental Changes

1. Encourage cancer care programs (inpatient and outpatient) to integrate palliative care into their current patient care practices for both adults and pediatric populations.
2. Encourage cancer care programs (inpatient and outpatient) to provide palliative care services either through their own organizations or through local community partnerships.
3. Educate all clinical staff to facilitate culturally competent conversations on advance care planning and goals of care discussions (example: Honoring Choices TN).
4. Coordinate education and outreach efforts with the State Palliative Care and Quality of Life Advisory Council.
5. Monitor changes in state and federal legislation and/or funding as it relates to palliative care.

### **Provider Training and Professional Development**

1. Educate clinical staff on the definition and scope of palliative care services and how this is different from hospice care.
2. Coordinate education and outreach efforts with the State Palliative Care and Quality of Life Advisory Council.
3. Encourage all cancer care providers to follow national guidelines (i.e. National Cancer Care Network) on the integration of palliative care services into the care of the cancer patient.
4. Promote training of clinical staff on the fundamental aspects of palliative care as it relates to symptom management, communication and advance care planning (example: State Palliative Care and Quality of Life Conference).

### **Patient Access, Education and Programming**

1. Adopt the council-approved definition of palliative care to differentiate between palliative versus hospice care.
2. Educate healthcare practitioners, patients and the public on the definition and scope of palliative care services and how this is different from hospice care.
3. Educate patients and families on the importance of advance care planning and local resources available for advance care planning.
4. Educate patients and families on how they can access palliative care services in their local community.

### **Progress and Evaluation**

1. In partnership with the State Palliative Care and Quality of Life Advisory Council, assess the current scope of palliative care services available across the state.
2. In partnership with the State Palliative Care and Quality of Life Advisory Council, assess the unmet need for palliative care services across the state.

Source:

<sup>1</sup> Tennessee Hospital Association and Tennessee Hospital Education and Research Foundation, Inc., 2018

# Survivorship

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With the continuous improvements in the field of cancer, many people are living a long life after a cancer diagnosis. Survivorship focuses on the health and life of a person with cancer post treatment until the end of life. Family members, friends and caregivers are also considered part of the survivorship experience. It covers the physical, psychosocial and economic issues of cancer, beyond the diagnosis and treatment phases. Survivorship includes issues related to the ability to get health care and follow-up treatment, late effects of treatment, second cancers and quality of life.

The Institute of Medicine recommends that every cancer patient have an individualized survivorship care plan<sup>1</sup>, which is a record of an individual's cancer and treatment history, as well as any checkups or follow-up tests. It may also list possible long-term effects of treatments and ideas for staying healthy. The survivorship care plan is a tool to help navigate life as a cancer survivor, and should be used to address the medical and psychosocial challenges that may arise post-treatment.

**Objective:** Increase the five-year relative cancer survival rate (measurement under development).

## Strategies

### Policy, Systems and Environmental Changes

1. Promote and support funding for basic, clinical and population-based survivorship research in cancer treatment follow-up care.
2. Build existing treatment summaries into systems of care.
3. Design benefits, payment policies and reimbursement mechanisms to facilitate coverage for evidence-based aspects of care and care plan services.
4. Support systems to auto-populate survivorship care plans.
5. Minimize adverse effects of cancer on employment.

### **Provider Training and Professional Development**

1. Support for pediatric, medical, surgical and radiation oncologists in utilizing electronic medical records to continuously update and improve the patient survivorship care plan throughout and beyond treatment.
2. Support Tennessee providers in achieving national standards for distributing survivorship care plans.
3. Increase practitioner awareness of evidence-based survivorship guidelines such as those published by the National Comprehensive Cancer Network and the Children’s Oncology Group.
4. Promote coordinated care within healthcare teams to assist survivors in receiving appropriate follow-up care.
5. Provide educational opportunities to health care professionals to educate them on the post-treatment care and quality of life issues facing cancer survivors of all ages.
6. Recognize survivorship care as an essential part of cancer care.

### **Patient Access, Education and Programming**

1. Provide resources and educational opportunities throughout treatment and planning that speak to a diverse cancer patient population.
2. Ensure cancer survivors have access to adequate and affordable health insurance.
3. Ensure caregivers have access to support services that will assist them in self-care and understanding the needs of the patient during and post-treatment.

### **Progress and Evaluation**

1. Support surveillance systems that increase the use and quality of data.
2. For Commission of Cancer accredited institutions, follow the participation in survivorship care plans.
3. Advocate that a cancer survivorship question be added to the Tennessee Behavioral Risk Factor Surveillance System.

Reference:

<sup>1</sup> American Cancer Society: Survivorship Care Plans  
<https://www.cancer.org/treatment/survivorship-during-and-after-treatment/survivorship-care-plans.html>

## Childhood Cancer

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Cancer in children and adolescents is rare compared to that diagnosed in adults, yet it is still the leading cause of death due to disease in children younger than 20 years of age<sup>1</sup>. Based on 2011–2015 data<sup>2</sup>, Tennessee had the

- 21<sup>st</sup> highest incidence rate in the US with age-adjusted incident rate of 184 per 1,000,000 children;
- Fourth highest mortality rate in the US with age-adjusted mortality rate of 24.5 per 1,000,000 children; and
- 85.1 percent of children survived > five years from their initial diagnosis.

The distribution of cancers is different in children than in adults and varies by age in children. The cause of most childhood cancers is not well-understood, though not strongly linked to either lifestyle or environment. Therefore, research is a key component in the overall goal to reduce/eliminate the suffering and death due to childhood and adolescent cancers.

Most children with cancer are treated in academic medical centers or other hospital-based settings across the state. There are six hospitals in Tennessee that treat children for cancer. Two hospitals are National Cancer Institute designated comprehensive cancer centers, Vanderbilt-Ingram Cancer Center (Monroe Carell Jr. Children's Hospital at Vanderbilt) and St. Jude Children's Research Hospital. The others are East Tennessee Children's Hospital, Children's Hospital at Erlanger, The Children's Hospital at TriStar Centennial and Niswonger Children's Hospital. Together, these hospitals treat children from Tennessee, surrounding states and globally (Figure 5).

Given high cure rates in children and young adults, treatment should be focused on optimizing long-term, disease-free survival without adverse health-related consequences. Family-centered care encompassing medical, psychosocial, functional and educational domains is most important. The Tennessee Cancer Coalition aims to provide patients/survivors and families the services needed to live meaningful and productive lives.

**Objective:** Improve the medical, psychosocial and educational outcomes and needs of childhood cancer patients in Tennessee by providing the highest quality, state-of-the-art, comprehensive cancer care during and following therapy (measurable objective is under development).

## Strategies

### Policy, Systems and Environmental Changes

1. Promote, advocate for legislation and support expanded funding for clinical trials, translational and basic science research.
2. Work collaboratively with local, regional and national organizations to promote childhood cancer advocacy, awareness, prevention, research, treatment and supportive care and to promote September as Childhood Cancer Awareness Month.
3. Collaborate with health insurers and legislators to provide coverage of all required services for patients and family members throughout the cancer care continuum to include prevention and early detection, treatment, palliative care and survivorship needs.
4. Advocate that all hospitals treating children with cancer have the full range of sub-specialty medical and supportive care services to provide care throughout the cancer care continuum to include prevention and early detection, treatment, palliative care and survivorship.
5. Identify and address disparities and gaps in care due to age, race, ethnicity, gender, diagnosis, socioeconomic status, educational level and rural versus urban setting.
6. Identify opportunities for telehealth for childhood cancer during and following treatment.

### **Provider Training and Professional Development**

1. Educate health care providers and teachers/educators about 1) signs/symptoms of childhood cancer; 2) facilities providing treatment and supportive care services; 3) fluidity of care between primary care and oncology; 4) cross-cultural awareness and strategies when communicating with culturally diverse patients and families; 5) specialized educational needs of children/adolescents during and following treatment; and 6) goals of care throughout the cancer care continuum.
2. Help develop and promote webinars and conduct at least one statewide workshop with virtual access for healthcare providers and educators to address the multifaceted educational needs of patients/survivors/families.

### **Patient Access, Education and Programming**

1. Support research/clinical trials for novel therapies so all children/adolescents in Tennessee have the opportunity to benefit from basic research and to enroll in clinical trials designed to maximize therapeutic efficacy while minimizing toxicity.
2. Recognize and support the need for increased capacity at pediatric cancer centers, as a result of the increase in number of patient visits per year.
3. Educate patients and parents about 1) signs/symptoms of childhood cancer; 2) facilities providing treatment and supportive care services; 3) transition of care between primary care and oncology; 4) communication strategies with their health care team; and 5) goals of care throughout the cancer care continuum.
4. Support/promote specialized survivorship programs that include a treatment summary and survivorship plan (based on Children’s Oncology Group guidelines).
5. Educate patients and parents about the need for ongoing surveillance for oncologic and non-oncologic outcomes during and following treatment.
6. Educate patients and parents about the specialized educational needs of children and adolescents during and following treatment. Help develop and promote webinars and conduct at least one statewide workshop with virtual access for patients and parents to address these educational needs.
7. Ensure that patients have access to care with affordable health insurance that covers, prevention and early detection, treatment, palliative care and survivorship.



8. Help families address the major financial burdens of cancer and its treatment, including direct medical expenses, ongoing insurance coverage, missed work, transportation costs, child care and, for those who succumb to their cancer, cost of funeral and bereavement services.
9. Encourage incorporation of palliative care early in the cancer care trajectory.
10. Encourage expansion of both inpatient and outpatient hospice services.

### Progress and Evaluation

1. Support surveillance systems that allow systematic collection of outcome data.
2. Help develop surveys for pediatric cancer programs in Tennessee to collect outcomes other than survival and to also include available services and resources for patients and parents available on-site and via telehealth.



Gone Fishing- Kathy Hendley

Reference:

<sup>1</sup> National Cancer Institute: <https://www.cancer.gov/>

<sup>2</sup> Cancer in Tennessee, 2011 - 2015: Richards J.E., Whiteside M.A., Tennessee Department of Health, Division of Public Health Assessment, Tennessee Cancer Registry, Nashville, Tennessee, March, 2019

# Surveillance and Evaluation

The Centers for Disease Prevention and Control defines public health surveillance as “the ongoing, systematic collection, analysis and interpretation of health-related data essential to planning, implementation and evaluation of public health practice” (CDC, 2018). In particular, disease surveillance is used to monitor the burden of cancer over time and to evaluate the effectiveness of control and preventative measures.

Evaluation is the systematic method used in collecting, analyzing and using data to evaluate the effectiveness of interventions and preventative measures. Tennessee utilizes cancer-related data to measure, direct, expand and improve

Tennessee Cancer Coalition partnership-based interventions and activities focusing on reducing cancer and cancer-related incidences, morbidity, mortality, risk factors and disparities.

## GENERAL SURVEILLANCE AND DATA COLLECTION

The Tennessee Comprehensive Cancer Control Program and Tennessee Cancer Coalition utilize data from the Tennessee Cancer Registry, vital records, the Behavioral Risk Factor Surveillance System, the Youth Risk Behavior Surveillance System, Center for Disease Control VaxView, TennIS, the National Cancer Institute, the American Cancer Society and other Tennessee and national data sources to assess the following: 1) cancer incidence, mortality, vaccination, behavioral risk factors and screening/early detection rates; and 2) the impact of cancer within the state and the impact of direct interventions pertaining to prevention, reduction and control of cancer-related morbidity and mortality.



God's Promise and Home Sweet Home- Melissa Dunn

**Objective 1:** Increase the number of requests for cancer-related information submitted to the Tennessee Department of Health Population Health Assessment Data Request System from 25 unique requests in 2018 to 50 in 2022.

## Process Measures

- Increase awareness of various cancer-related data sources.
- Improve utilization of existing and new data sources to promote cancer-related education, research and policy and project development through identification of needs including health disparities as well as related causal factors.
- Develop opportunities for cancer-related education, research, and policy and project development by improving access to these data sources.

## Strategies

1. Produce a comprehensive surveillance action plan outlining specific projects and interventions (based on the strategies below), available resources and responsible parties.
2. Inventory existing cancer data sources and determine any missing data that are needed for programmatic purposes. Through collaboration with partners and stakeholders (e.g., Vanderbilt-Ingram Cancer Center Environmental Health Scan, hospital and healthcare systems, third-party payers), identify possible new data sources to address these gaps.
3. Create a work group of stakeholders and interested parties to study and make recommendations regarding the feasibility and potential benefits of population based surveillance for recurrent metastatic breast cancer.
4. Conduct a comprehensive needs assessment of health equity and disparities (e.g., gender, race/ethnicity, socio-economic, geographic) related to cancer.
5. Promote the inclusion of the Cancer Survivorship, Lung Cancer Screening and Excess Sun Exposure optional modules and other cancer-related state added questions (e.g. radon) in the Behavioral Risk Factor Surveillance Survey. Explore adding questions to the Youth Risk Behavioral Surveillance regarding sun exposure and tanning bed use as well as other issues identified by the Tennessee Cancer Coalition.

6. In addition to quantitative data collection (e.g., vital statistics, registries, surveys) focus on qualitative methods (e.g., key informant interviews, focus groups) to identify needs, disparities and related causal factors.
7. Collaborate closely with the Tennessee Comprehensive Cancer Control Plan and develop other organizational affiliations.
8. Execute statewide media efforts to raise awareness of cancer-related data.
9. Participate in education activities at various cancer-related events and meetings.
10. Create a permanent Tennessee Cancer Coalition surveillance and evaluation committee.

## Program Evaluation

(Related to the State Cancer Plan, Tennessee Comprehensive Cancer Control Plan and Tennessee Cancer Coalition)

Tennessee utilizes evaluation to assess the implementation and efficacy of the State Cancer Plan and the impact of Tennessee Comprehensive Cancer Control Plan and Tennessee Cancer Coalition interventions on the reduction of cancer incidence, morbidity, mortality and disparities in Tennessee.

**Objective 2:** Promote the awareness and use of Tennessee Comprehensive Cancer Control Plan evaluation analyses and findings by increasing the number of evaluation presentations, workshops, reports and materials targeted toward the Governor’s Office, Tennessee Department of Health leadership, the legislature, the Tennessee Cancer Coalition and other key stakeholders from one in 2018 to five by 2022.

## Process Measures

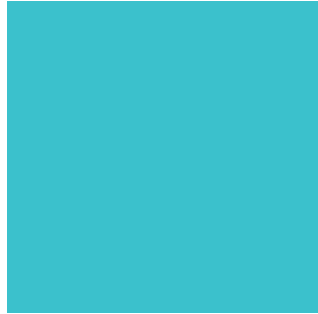
- Develop a framework for assessing the implementation and efficacy of the State Cancer Plan.
- Increase awareness among coalition members and other stakeholders regarding the essential role and use of evaluation in sustaining and promoting the mission of the Tennessee Cancer Coalition and Tennessee Comprehensive Cancer Control Plan.

- Increase the utilization and accessibility of all cancer-related data sources to assess the State Cancer Plan and to inform and improve Tennessee Cancer Coalition and Tennessee Comprehensive Cancer Control Plan initiatives, activities and interventions.
- Improve and expand evaluation tools, methods and stakeholders.
- Increase collaborative efforts to promote participation in evaluation initiatives, including analyses related to health equity and disparities.

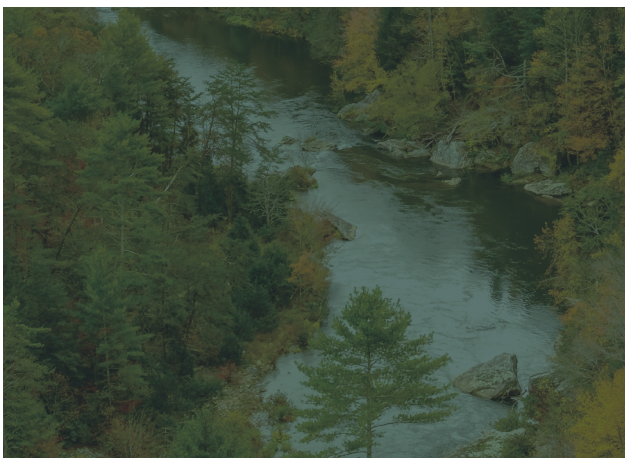
## Strategies

1. Produce a comprehensive evaluation plan for the State Cancer Plan that would include key evaluation questions, qualitative and quantitative performance measures and targets, data sources and data collection, analytical methodologies and dissemination of findings.
2. Provide workshops, webinars and other educational sessions to coalition members and stakeholders regarding accessibility and content of data sources and the importance of data collection and evaluation for program improvement.
3. Train coalition members and stakeholders on basic evaluation techniques and provide guidance materials and tools specific to Tennessee Cancer Coalition and Tennessee Comprehensive Cancer Control Plan interventions.
4. Actively seek, identify and develop a collaborative of individuals and organizations dedicated to conducting evaluation of evidence-based activities and interventions, including impact on health disparities.
5. Promote qualitative evaluation in addition to quantitative evaluation.
6. Create a permanent Tennessee Cancer Coalition surveillance and evaluation committee.
7. Periodically revise and improve State Cancer Plan, Tennessee Cancer Coalition and Tennessee Comprehensive Cancer Control Plan goals, objectives, strategies and work plans in response to evaluation findings.





# APPENDICES





Simply Love- Cecily Turkett

**Figure 1** Most common types of cancers newly diagnosed in TN residents by gender, 2011-2015 (counts and age-adjusted rates per 100,000 people in parentheses).



## FEMALE

**Breast**  
24,550 (122.5)

**Lung and Bronchus**  
12,987 (61.7)

**Colon and Rectum**  
7,264 (35.6)

**Corpus and Uterus**  
4,846 (23.4)

**Thyroid**  
3,268 (18.7)

**Melanoma of the Skin**  
3,130 (16.4)

**Non-Hodgkin Lymphoma**  
2,977 (14.5)

**Kidney and Renal Pelvis**  
2,526 (12.5)

**Pancreas**  
2,263 (10.7)

**Ovary**  
2,197 (11.0)

**All Sites**  
84,672 (421.0)



## BOTH GENDERS

**Lung and Bronchus**  
29,253 (75.8)

**Breast**  
24,550 (66.3)

**Prostate**  
21,329 (114.6)

**Colon and Rectum**  
15,133 (40.4)

**Melanoma of the Skin**  
7,476 (20.4)

**Urinary Bladder**  
7,274 (19.3)

**Kidney and Renal Pelvis**  
6,690 (17.6)

**Thyroid**  
3,268 (18.7)

**Non-Hodgkin Lymphoma**  
6,603 (17.8)

**Leukemia**  
5,057 (14.0)

**Pancreas**  
2,263 (10.7)

**Oral Cavity and Pharynx**  
4,860 (12.6)

**All Sites**  
175,571 (463.7)



## MALE

**Prostate**  
21,329 (114.6)

**Lung and Bronchus**  
16,266 (94.4)

**Colon and Rectum**  
7,264 (35.6)

**Urinary Bladder**  
5,571 (34.2)

**Melanoma of the Skin**  
4,346 (26.0)

**Kidney and Renal Pelvis**  
4,164 (23.7)

**Non-Hodgkin Lymphoma**  
3,626 (21.6)

**Oral Cavity and Pharynx**  
3,553 (21.6)

**Leukemia**  
2,948 (17.9)

**Pancreas**  
2,376 (13.8)

**All Sites**  
90,899 (523.9)



**Figure 2** Most common types of cancers principally leading to death in Tennesseans by gender, 2011-2015 (counts and rate per 100,000 people in parentheses).



## FEMALE

**Lung and Bronchus**  
9,088 (43.0)

**Breast**  
4,532 (21.9)

**Colon and Rectum**  
2,816 (13.5)

**Pancreas**  
2,063 (9.8)

**Ovary**  
1,575 (7.6)

**Leukemia**  
1,046 (5.1)

**Non-Hodgkin Lymphoma**  
997 (4.8)

**Corpus and Uterus**  
884 (4.2)

**Liver and Intrahepatic  
Bile Duct**  
809 (3.9)

**Brain and Other  
Nervous System**  
763 (3.8)

**All Sites**  
31,730 (152.0)



## BOTH GENDERS

**Lung and Bronchus**  
21,688 (56.7)

**Colon and Rectum**  
5,977 (16.1)

**Breast**  
4,582 (12.3)

**Pancreas**  
4,213 (11.1)

**Prostate**  
2,826 (7.8)

**Leukemia**  
2,517 (6.9)

**Non-Hodgkin Lymphoma**  
2,260 (6.2)

**Brain and Other  
Nervous System**  
1,731 (4.7)

**Esophagus**  
1,606 (4.1)

**All Sites**  
69,358 (184.6)



## MALE

**Lung and Bronchus**  
12,600 (74.8)

**Colon and Rectum**  
3,161 (19.5)

**Prostate**  
2,826 (19.8)

**Pancreas**  
2,150 (12.6)

**Liver and Intrahepatic  
Bile Duct**  
1,838 (10.2)

**Leukemia**  
1,471 (9.6)

**Esophagus**  
1,326 (7.6)

**Non-Hodgkin Lymphoma**  
1,263 (8.2)

**Urinary Bladder**  
1,130 (7.6)

**Kidney and Renal Pelvis**  
1,048 (6.3)

**All Sites**  
37,628 (229.7)

**Table 1** Summarized data on selected Tennessee cancer incidence and mortality rates and risk factors with national comparisons.

	HP 2020 Goal <sup>6</sup>	United States	Tennessee	Males	Females	Non-Hispanic Black	Hispanic (any race)	Non-Hispanic White	Black vs. White	Hispanic vs. White
	Percent of Rate (per 100,000) <sup>7</sup>								Relative Percent Difference	
<b>Social Factors<sup>1</sup></b>										
Have a Health Care Provider	84%	77%	77%	70%	84%	75%	60%	79%	-5%	-24%
Median Household Income <sup>2</sup>	--	\$57,652	\$48,708	\$50,589	\$40,760	\$35,371	\$40,145	\$51,801	-32%	-23%
Less than High School Education	--	12%	14%	15%	13%	15%	27%	13%	15%	108%
<b>Prevention<sup>1,3</sup></b>										
Adult Cigarette Smoking	12%	17%	23%	24%	21%	23%	19%	22%	6%	-15%
Youth Cigarette Smoking	16%	9%	9%	10%	9%	2%	7%	13%	-85%	-46%
Youth e-Cigarette Use	--	13%	12%	14%	9%	3%	13%	14%	-79%	-7%
Adult Obesity	31%	32%	33%	33%	32%	45%	47%	31%	44%	51%
Youth Obesity	16%	15%	21%	24%	17%	21%	22%	20%	5%	10%
Youth Physical Activity	24%	26%	26%	18%	33%	20%	23%	28%	-29%	-18%
Adult Physical Activity	20%	20%	17%	19%	15%	18%	17%	17%	6%	0%
HPV Vaccination <sup>4</sup>	80%	49%	39%	31%	48%	33%	54%	40%	-17%	34%
<b>Early Detection<sup>1</sup></b>										
Female Breast Cancer Screening	81%	78%	77%	--	77%	84%	N/A	76%	10%	N/A
Cervical Cancer Screening	93%	80%	80%	--	80%	82%	N/A	80%	3%	N/A
Colorectal Cancer Screening	71%	67%	66%	64%	68%	67%	N/A	63%	7%	N/A
Prostate Cancer Screening	--	40%	43%	43%	--	38%	39%	45%	-16%	-13%
<b>New Cancer Cases<sup>5</sup></b>										
All Cancers Combined	--	441.2	456.4	514.8	415.2	457.1	235	462.2	-1%	-49%
Cervical	--	7.5	8.5	--	8.5	10.5	10.4	8.3	27%	25%
Colorectal	--	39.2	40.4	46.3	35.6	41.1	18.1	39.9	3%	-55%

	HP 2020 Goal <sup>6</sup>	United States	Tennessee	Males	Females	Non-Hispanic Black	Hispanic (any race)	Non-Hispanic White	Black vs. White	Hispanic vs. White
	Percent of Rate (per 100,000) <sup>7</sup>								Relative Percent Difference	
<b>New Cancer Cases<sup>5</sup></b>										
Female Breast Cancer	--	124.7	122.2	--	122.2	125.7	69.2	122.8	2%	-44%
Lung	--	60.2	75.7	94.3	61.7	71.3	26.6	77.6	-8%	-66%
Melanoma of the Skin	--	21.3	20.4	26	16.4	0.9	4	24	-96%	-83%
Pancreatic	--	12.6	12.1	13.8	10.8	15.9	4.2	11.8	35%	-64%
Prostate	--	109	114.4	114.4	--	178.6	54.9	106.8	67%	-49%
<b>Cancer Deaths<sup>5</sup></b>										
All Cancers Combined	161.4	164.5	185.4	230.7	152.7	218.6	235	70.9	19%	4%
Cervical	2.2	2.3	2.8	--	2.8	4.8	10.4	2.6	92%	4%
Colorectal	14.5	14.5	16.3	19.7	13.6	23.3	18.1	3.9	49%	-75%
Female Breast	20.7	20.9	22	--	22	31.4	69.2	11.5	52%	-44%
Lung	45.5	43.4	57	75.1	43.2	58.9	26.6	14.2	2%	-75%
Melanoma of the Skin	2.4	2.6	3.1	4.9	1.7	0.4	4	N/A	-89%	N/A
Pancreatic	--	10.9	11.1	12.6	9.8	14.1	4.2	4.9	31%	-55%
Prostate	21.8	19.5	19.1	19.9	--	178.6	44.6	16	155%	-9%

## Racial/Ethnic Disparities: Relative Percent Difference

- Black or Hispanic was the same or better than White
- Black or Hispanic was moderately worse than White (less than 25% relative difference)
- Black or Hispanic was much worse than White (25% or greater relative difference)
- N/A**— Data not available

### Data Sources:

<sup>1</sup> Centers for Disease Control and Prevention: BRFSS Prevalence & Trends Data 2016/2017 <https://www.cdc.gov/brfss/brfssprevalence/> Accessed on [03/12/2019]

<sup>2</sup> United States Census, Median Household Income in the Past Twelve Months 2017 ACS Estimates: <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml/> Accessed on [03/12/2019]

<sup>3</sup> Centers for Disease Control and Prevention: 1991-2017 High School Youth Risk Behavior Survey Data <http://nccd.cdc.gov/youthonline/> Accessed on [03/12/2019]

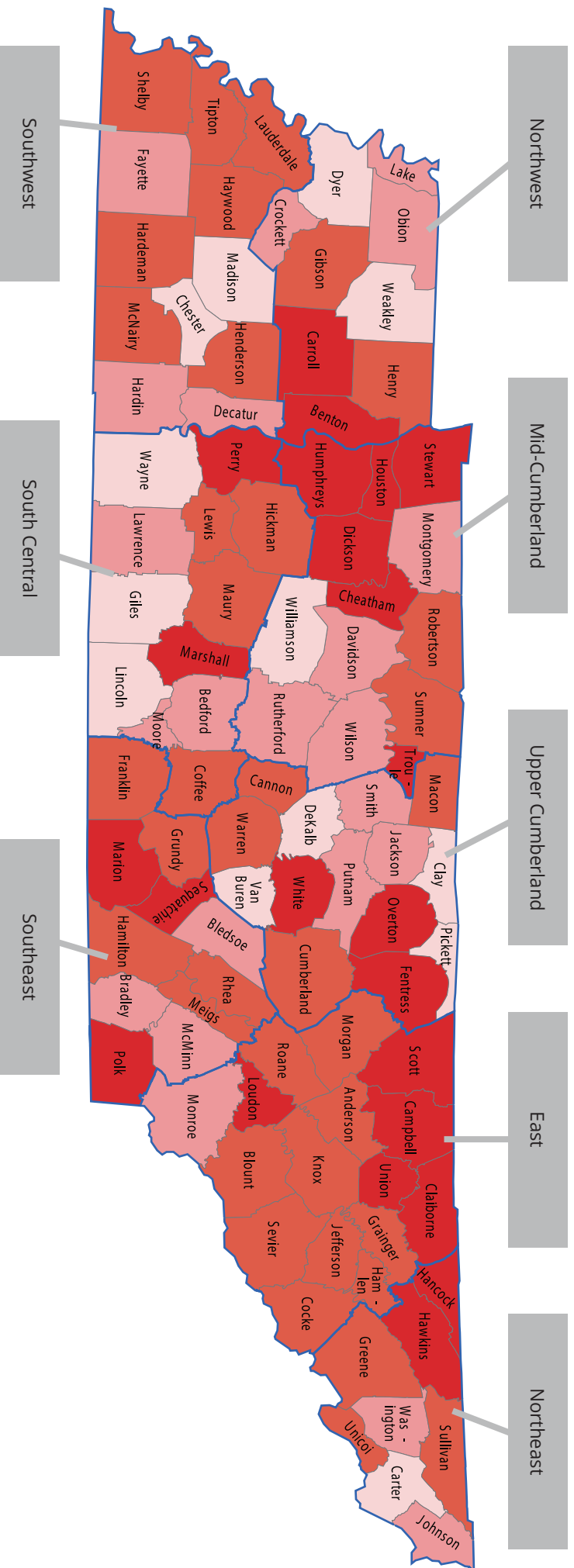
<sup>4</sup> Centers for Disease Control and Prevention: TeenVaxView-HPV Vaccine Up to Date <https://www.cdc.gov/vaccines/imz-managers/coverage/teenvaxview/data-reports/hpv/trend/index.html/> Accessed on [03/12/2019]

<sup>5</sup> Centers for Disease Control and Prevention: State Cancer Profiles <https://statecancerprofiles.cancer.gov/quick-profiles/index.php?statename=tennessee/> Accessed on [03/12/2019]

<sup>6</sup> Healthy People 2020: ODPHP. 2020 Topics and Objectives – Objectives A–Z <https://www.healthypeople.gov/2020/topics-objectives/> Accessed on [03/12/2019]

<sup>7</sup> Rates (per 100,000 population per year) are age-adjusted to the 2000 US standard population.






**Figure 3** Age-adjusted cancer incidence rates by resident county, all sites combined, Tennessee 2011-2015



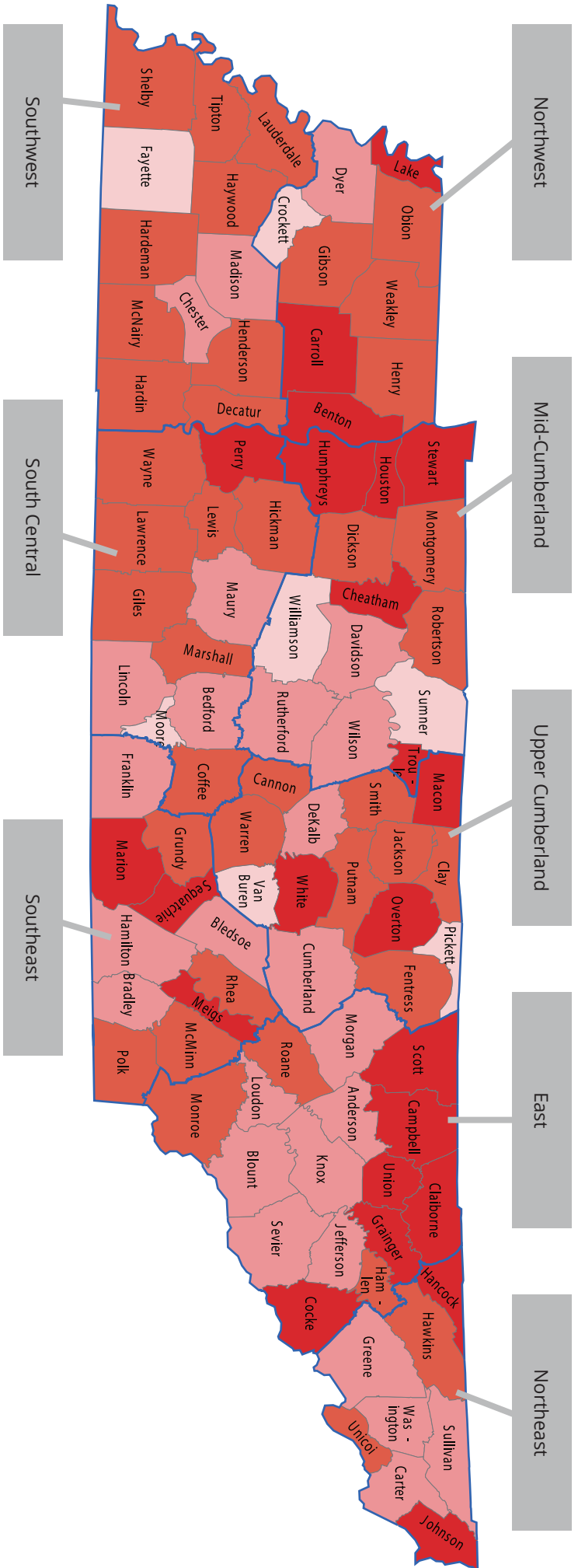
Cancer incidence counts and age-adjusted rates by region, all sites combined, TN, 2011-2015

Name	County	Rate
Northwest Region	7,734	465
Upper Cumberland Region	10,808	463.2
Southwest Region	32,268	457.6
South Central Region	10,954	456.6
East Region	36,242	477.2
Northeast Region	16,019	463.6
Southeast Region	19,802	467.7
Mid-Cumberland Region	41,615	459

TN 8 regional boundaries	Age-adjusted mortality rates (deaths per 100,000)
	386.2 - 441.2
	441.3 - 456.4
	456.5 - 494.6
	494.7 - 553.8
TN 95 county boundaries	
	






**Figure 4** Age-adjusted cancer mortality rates by resident county, all sites combined, Tennessee 2011-2015



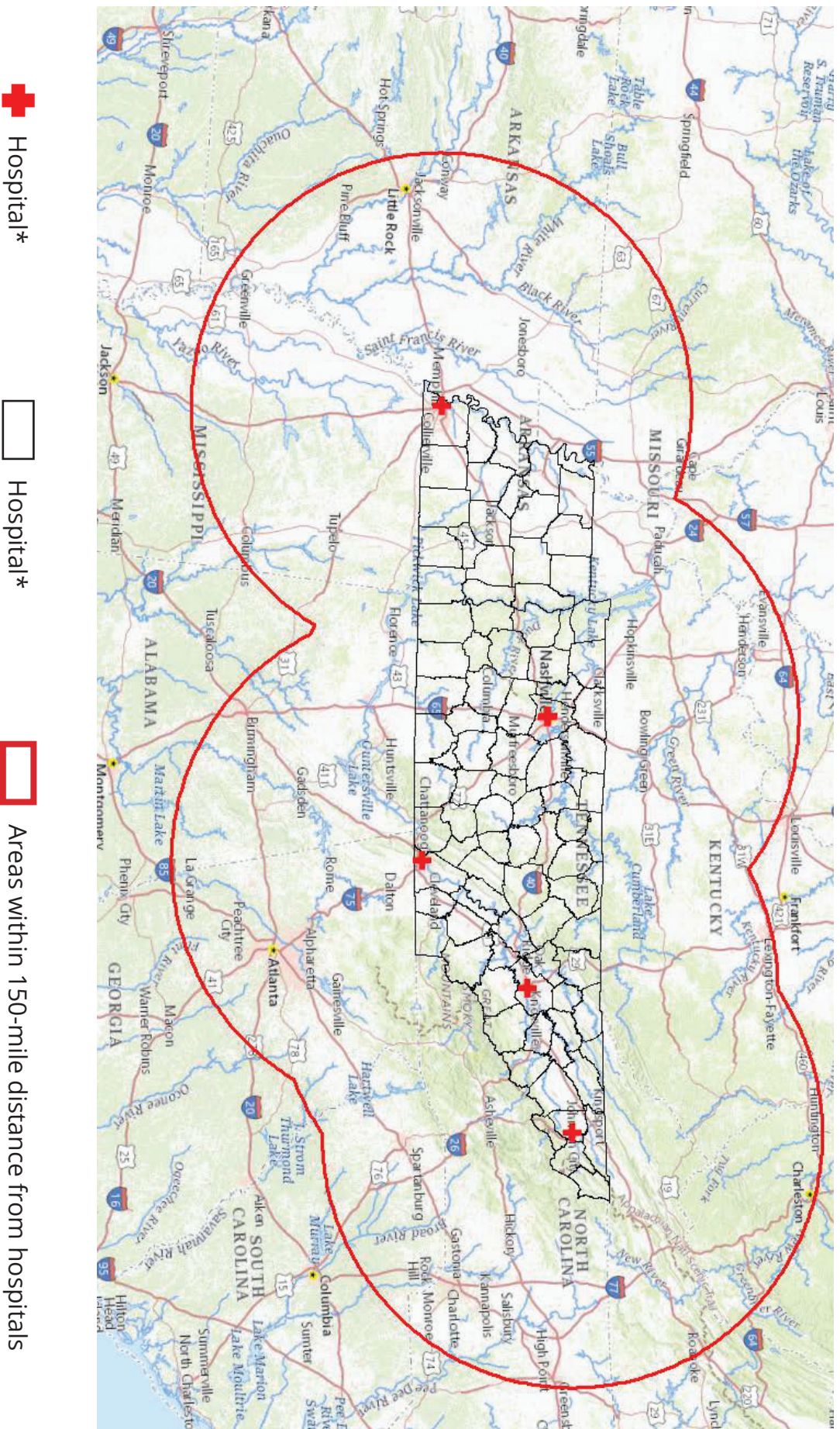
Cancer mortality counts and age-adjusted rates by region, all sites combined, TN, 2011-2015

Name	County	Rate
Northwest Region	3,430	200.8
Upper Cumberland Region	4,594	193.3
Southwest Region	13,110	190.8
South Central Region	4,562	188.8
East Region	14,188	185.3
Northeast Region	6,574	184.3
Southeast Region	7,788	182
Mid-Cumberland Region	15,122	175.5

TN 8 regional boundaries	Age-adjusted mortality rates (deaths per 100,000)
	121.9 - 163.5
	163.6 - 185.4
	185.5 - 211.4
	211.5 - 264.0
TN 95 county boundaries	
	

**Figure 5** Location of Tennessee hospitals that treat children for cancer and geographic coverage within 150 miles from the hospitals



*Note: A total of six hospitals treat childhood cancer; two are in Nashville and represented by one icon on the map.*