

# West Virginia Cancer Burden Report

2018



 **WVU**CancerInstitute.

WEST VIRGINIA  
Department of  
**Health & Human  
Resources**



Report Prepared by:  
WVU Cancer Institute for  
the West Virginia Department of Health and Human Resources

Authors/Editors:

|                            |                        |
|----------------------------|------------------------|
| Stephenie Kennedy, EdD, MA | Steven Blankenship, MS |
| Amy R. Allen, MA, MS       | Jenny Ostien, MS       |
| Mary Ellen Conn, MS        | Lauren Wright, MPH     |
| Markie McCoy, MPH          |                        |

Contributors:

Shawn Farley, MHA, CTR  
Myra Fernatt, BS  
Leslie Boner, CTR  
Neal Kerley, CTR

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

This report is made possible thanks to the efforts of the WVCR staff, personnel at reporting facilities that see cancer patients throughout West Virginia, and the employees at other state central cancer registries who provided incidence data for this report.

[www.cancerregistry.wv.gov](http://www.cancerregistry.wv.gov)  
[www.wvucancer.org/cancer-prevention-control/](http://www.wvucancer.org/cancer-prevention-control/)

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# Preface

The 2018 West Virginia Cancer Burden Report reflects a collaborative effort between the office of Cancer Prevention and Control at the WVU Cancer Institute and the West Virginia Cancer Registry. We continue to partner together to better serve our state, maximize resources, build on the inherent strengths of staff, and generate a user-friendly document. Inside this edition, you will find the usual updates on incidence and mortality, but you will also discover highlighted cancers – breast, cervical, lung, colorectal (also known as colon and rectum), HPV-associated cancers, and new sections on obesity-related cancers and tobacco use. There are summaries, one page infographics, and WV resource pages that are easy to understand, replicate and use in the community. We also included a Frequently Asked Questions section that defines confusing terms and showcases Mountains of Hope, our statewide Cancer Coalition. We encourage everyone to consider joining this organization and assisting in the implementation of the WV Cancer Plan.

This report provides updated statewide, age-adjusted incidence rates and counts for cancers diagnosed among West Virginia residents from 2011 to 2015. The purpose of the report is to provide WV cancer data to cancer prevention and control partners, researchers, policy makers, and the public.

A total of 57,867 new cases (approximately 11,573 cases annually) of invasive (and in situ bladder) cancer was diagnosed among WV residents from 2011 to 2015. During this time period, 29,743 cases (51%) were diagnosed among males and 28,124 cases (49%) were diagnosed among females.

From 2011 to 2015, the most common cancers reported among WV residents were lung and bronchus (10,195; 18%), female breast (7,252; 13%), prostate (5,887; 10%), and colon and rectum (5,703; 10%). These four cancer sites accounted for over half of West Virginia's cancer burden. Other cancers commonly reported in our state included urinary bladder (2,895; 5%), melanoma of the skin (2,347; 4%), non-Hodgkin lymphoma (2,250; 4%), kidney and renal pelvis (2,241; 4%), corpus and uterus (1,987; 3%), leukemia (1,668; 3%), and thyroid (1,634; 3%). Prostate cancer was the most commonly diagnosed cancer in men and accounted for one-fifth (20%) of all cancers diagnosed among men. Breast cancer continues to be the most commonly diagnosed cancer among females accounting for more than a quarter (26%) of all cancers diagnosed in WV women. Lung and bronchus cancer and colon and rectum cancer were the second and third most commonly diagnosed cancers in both sexes, but have higher mortality rates.

Over the past five years there have been increasing and decreasing trends for certain kinds of cancers. Incidence and mortality trends are illustrated on pages 11 and 21 respectively.

Cancer can occur at any age, but is primarily a disease of aging. For most cancer sites the risk of developing cancer increases with age, from birth through ages 75-84. Cancer risk then decreases slightly among those aged 85 and older. However, this is not true for all cancers. Thyroid and testicular cancer, for example, peak at much younger ages. There are also cancers that affect children and data for pediatric cancers in WV can be found on page 19 of this report.

Statewide geographic differences in incidence rates were noted for specific cancer types. There are a variety of reasons why cancer incidence rates vary by county. These reflect random variation, differences in exposure to risk factors (e.g. smoking, diet, physical inactivity, environmental influences), genetics, and cancer screening practices. Appendix B includes county level data for 28 different cancers.

We hope that you find this information helpful and easy to read. We encourage you to use the data and infographic pages for presentations, reports, and grant applications. We truly enjoyed the process of developing this resource and hope the citizens of the Mountain State find it useful and informative.

Sincerely in service,

*Stephenie K. Kennedy-Rea, Ed.D.*

Stephenie K. Kennedy-Rea, EdD, MA  
Director, Cancer Prevention and Control  
WVU Cancer Institute  
Assoc. Dir., WVU Health Disparities Program  
Research Assistant Professor  
WVU School of Medicine

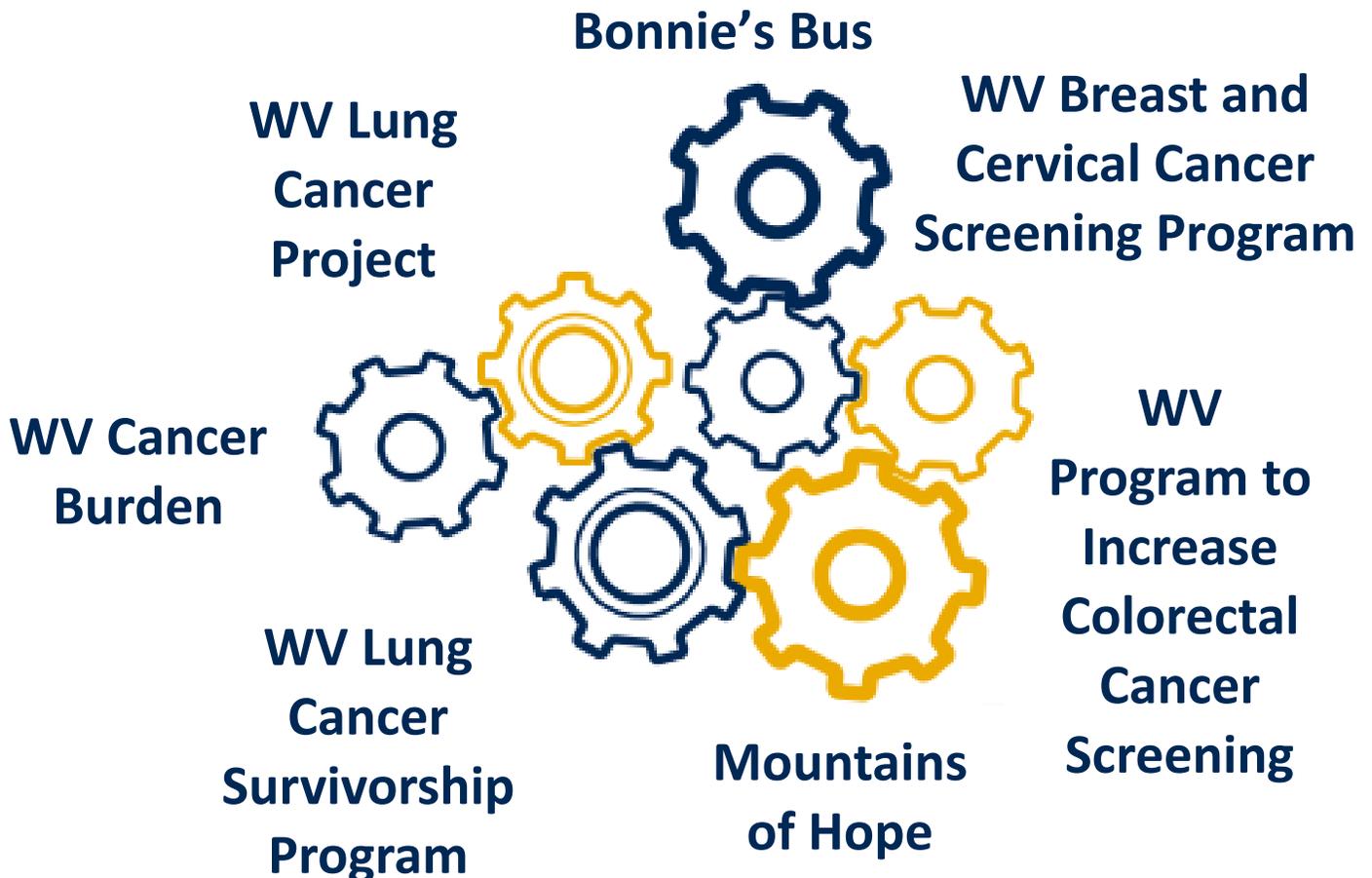
*Steven E. Blankenship, MS*

Steven E. Blankenship, MS  
Epidemiologist  
Division of Cancer Epidemiology  
WV Department of Health and Human Resources  
Bureau for Public Health  
Office of Epidemiology and Prevention Services

# Overview of Cancer Prevention and Control

Cancer Prevention and Control (CPC) at the West Virginia University Cancer Institute addresses cancer health disparities unique to WV and Appalachia. Central to the Institute's mission, CPC fosters relationships to promote community engagement and innovative service opportunities; develops culturally appropriate education and outreach initiatives; conducts community-based participatory research; and translates cancer-related science and research for WV communities. CPC has served the state with its innovative programs for more than 30 years and connects WV communities to the University and the Cancer Institute. CPC houses seven programs illustrated below. While each CPC program has unique goals, all come together as part of a strategic, comprehensive approach to empower West Virginians to become more active participants in their healthcare through cancer education, information, access to services, and community-based participatory research that benefit the Mountain state. For more information about CPC and specific programs, visit <http://wvucancer.org/cancer-prevention-control/>.

## CPC Programs



# Overview of West Virginia Cancer Registry

The West Virginia Cancer Registry (WVCR) was established by the West Virginia Department of Health and Human Resources in 1991 as a breast and cervical cancer registry. In 1993, the WVCR became an all-site registry, collecting data on all cancers except basal and squamous cell carcinoma of the skin and in situ cervical cancer. In 2002, the WVCR began collecting data on non-malignant brain and other central nervous system (CNS) tumors. WVCR is funded by both state and federal funding with the latter administered through a cooperative agreement with the Centers for Disease Control and Prevention's National Program of Cancer Registries. Chapter 16-5A-2a of the West Virginia Code and Title 64, West Virginia Administrative Rules, Division of Health, Cancer Registry, Series 68, provide the legal basis of the WVCR.

The mission of the WVCR is to collect and analyze cancer data to determine incidence rates by anatomical site, sex, race, geographic location, and other factors. Registry staff also monitor trends in cancer incidence among WV residents.

The WVCR collects information on all cancers diagnosed and/or treated in the state of WV and, through lawful, reciprocal data sharing agreements, cancers diagnosed and/or treated among WV residents by health care providers outside the state. A WV resident is defined as a person reporting a WV address at the time of a cancer diagnosis.

The WVCR's reference date (the date after which reportable cancer cases must be included in the Registry) is January 1, 1993, for all cancer sites. The reference date for benign brain and CNS neoplasms is January 1, 2002.

The WVCR is subject to certification by the North American Association of Central Cancer Registries (NAACCR). Certification is based on timeliness, completeness, and quality of data. WVCR was certified at the "silver" level for diagnosis years 1997 and 1998 and at the "gold" (highest) level for diagnosis years 1999 through 2015 (the most recent year for which certification results were available at the time of this writing). In addition, WVCR data met the 24-month standards of the National Program of Cancer Registries.

The WVCR is committed to the use of cancer incidence data as a critical component of cancer control and publishes this annual report on cancer incidence in West Virginia to be used by community-based, state, regional, and national cancer control groups. The WVCR provides de-identified data to the Centers for Disease Control and Prevention for the publication of the United States Cancer Statistics and to the North American Association of Central Cancer Registries for the Cancer in North America (CINA) publications. Researchers may obtain access to case level data under strict controls including approval by the relevant Institutional Review Board and the WV Cancer Advisory Committee.

| <b>WV Cancer Advisory Committee</b>                              |   |  |
|--|---|--|
| Mohammed Almubarak, MD<br>Mary Babb Randolph Cancer Center       | Chaste Truman Barclay<br>American Lung Association of West Virginia | Steve Blankenship, MS<br>DHHR, Bureau for Public Health                      |
| Sheryn Carey, BA<br>DHHR, Bureau for Public Health               | Michelle Chappell, MS<br>American Cancer Society                    | Juliana Frederick Curry, MS<br>American Cancer Society Cancer Action Network |
| Phyllis Edwards, RHIT, CTR<br>Cabell Huntington Hospital         | Shawn Farley, MHA, CTR<br>DHHR, Bureau for Public Health            | Tony J. Gregory<br>West Virginia Hospital Association                        |
| Loretta Haddy, PhD, MA, MS<br>DHHR, Bureau for Public Health     | Julie Huron, RN, LNHA<br>WV Nurses Association                      | Steven Jubelirer, MD<br>CAMC Cancer Center                                   |
| Stephenie Kennedy-Rea, EdD<br>Mountains of Hope Cancer Coalition | Brittany Richo, MS, HAS<br>DHHR, Bureau for Public Health           |  |

# Frequently Asked Questions

## 1. What is a cancer registry?

A cancer registry is an information system for the collection, management, and analysis of data on people diagnosed with cancer. The registry collects detailed information about cancer patients and the treatments they receive, and stores it in a secure computer database. This information comes from patients' medical records. All names and data that could identify a patient are kept confidential. For every cancer case, the registry includes:

- When the cancer was diagnosed,
- Where the cancer occurred in the body,
- How far advanced the cancer was when it was found,
- The specific type of cancer,
- The type of treatment the patient received, and
- Demographics like age, race, gender, and county of residence.

The cancer registry information can help to answer questions like:

- Are more or fewer people getting colon cancer this year compared to last year?
- Is there a certain area of the state where women are finding out they have breast cancer at a later stage, when it is harder to treat?
- What groups of people are most likely to get lung cancer?

## 2. How will this report be used?

Public health professionals, researchers, the medical community, and policy makers need information about the number of newly diagnosed cancer cases (called **incidence**) and deaths from cancer (called **mortality**) to understand and address the nation's cancer burden.

Cancer registry information is used to:

- Monitor cancer trends over time,
- Show cancer patterns in various populations and identify high-risk groups,
- Guide planning and evaluation of cancer control programs,
- Help set priorities for allocating health resources, and
- Advance clinical, epidemiologic, and health services research.

The cancer registry information is used by many groups, like the state comprehensive cancer control coalition. Based on the registry data, cancer control partners may find that some people are not getting the cancer screening tests they need or they are making choices that increase their risk of cancer. They can then work with the community to fix the problem. Over time the cancer registry data will help show if their solution reduced the incidence of cancer.

## 3. How are the data obtained?

The figures and tables on the following pages summarize cancer incidence data for West Virginia for all cancers combined and select cancer types. The data are extracted from patient records and reported directly to the West Virginia Cancer Registry (WVCR). This report includes cases reported to the WVCR as of November 1, 2017. Data included in this report may change in future reports since missed cases are added to the WVCR database.

4. What is a cancer incidence rate?

A cancer incidence rate is defined as the number of new cancer cases that occur for a specified population at risk for developing the disease during a specified time period. Cancer rates are most commonly expressed as the number of cancers per 100,000 population. Rates allow us to compare groups of different population sizes.

5. What are age-adjusted rates?

An age-adjusted rate is statistically modified to account for the different age distributions among populations. Age-adjustment is important when looking at cancer rates because cancer is usually a disease of aging. This is, areas with a more elderly population generally have more cases of cancer, and age-adjustment accounts for this. The rates in this report are age-adjusted using the 2000 U.S. standard population, and are expressed as the rate per 100,000 unless otherwise noted.

6. What is a confidence interval?

A confidence interval is a range of values for a variable of interest (such as a rate) that has a specified probability of containing the true population value. The 95% confidence interval is one of the most common levels of confidence reported. Year to year fluctuations in case counts make the exact rate difficult to determine. With a 95% confidence interval, we can be 95% sure that the true rate lies within that range.

7. What are case counts?

State and county data are presented as total counts for the 5-year period (2011-2015) unless otherwise noted. For an average annual count, divide the 5-year count by 5. In this report, case counts are the number of people who have been diagnosed with an illness in a particular calendar year or span of years.

8. Why are some case counts not available?

Counts were suppressed (indicated by ^) in the tables if the number of cases was less than four. An important reason for suppressing counts is to protect the confidentiality of individuals whose data are included in the report.

9. How were the data analyzed?

SEER\*Stat software (version 8.3.5) was used to calculate all cancer incidence rates and counts presented in this report. All rates were expressed per 100,000 population except for pediatric cancers which are shown as the rate per million population. Age-adjusted rates were standardized to the 2000 U.S. standard population (19 age groups).

10. How are the data explained and displayed?

Most of the data in this report are shown as rates per 100,000 people to allow for “apples to apples” comparisons of areas with different population sizes. Ninety-five percent confidence intervals are shown to allow for statistical comparisons. Average annual rates over a 5-year period are shown to provide a more stable estimate of incidence than would be possible with yearly incidence rates. Five-year case counts are provided to show the volume of cases diagnosed and treated each year.

11. What is cancer?

Cancer is a group of more than 100 diseases that develop when cells in the body grow and divide uncontrollably. If the growth and spread is not controlled, it can result in death. Uncontrolled cell growth is nearly the only common feature of different types of cancer. Lung and bronchus cancer, liver cancer, breast cancer, and leukemia, for example, all have very different causes, symptoms, treatments, and after-care requirements.

12. Who is at risk of developing cancer?

Anyone can develop cancer, but risk increases with age. In the United States, men and women combined have about a 1 in 3 lifetime risk of developing invasive cancer.

13. How is cancer staged?

For the purpose of this document we discuss cancer diagnosed at the **local**, **regional**, and **distant stages**. Cancer diagnosed at the **local stage**, otherwise known as a localized tumor, describes a tumor limited to only the tissue or organ where it began. Cancer diagnosed at the **regional stage** defines a tumor that has spread beyond the original tissue or organ into surrounding tissue, organs, or regional lymph nodes. Cancer diagnosed at the **distant stage** describes a tumor whose cells have broken away and traveled from the primary tumor to areas of the body distant from that primary tumor. The earlier a tumor is found, the easier it is to treat, and survival rates are usually higher. This demonstrates the importance of regular screening for these dangerous diseases.

14. What is Mountains of Hope?

Mountains of Hope WV Cancer Coalition (MOH) is dedicated to reducing the human and economic impact of cancer in our state. The founding members of the Coalition include the American Cancer Society, WV Breast and Cervical Cancer Screening Program, WV Comprehensive Cancer Program, and the WVU Cancer Institute.

Part of the Centers for Disease Control and Prevention's National Comprehensive Cancer Control Program, MOH Coalition members meet face-to-face to pool resources and collaborate to address the goals and priorities of the WV Cancer Plan. The WV Cancer Plan is the State's ambitious comprehensive cancer plan that serves as a blueprint to address the needs of the State to improve the overall health equity of all affected by cancer. It is designed to be used by communities, organizations, universities, and legislators who want to decrease the impact of cancer on WV residents. The Coalition selects priority areas to address every two years. The priority areas for 2018-2020 are:

1. Reduce the use of tobacco products and electronic nicotine delivery systems among adults, youth, and young adults.
2. Increase the immunization rates for vaccines shown to decrease the risk of cancer.
3. Increase risk-appropriate screening for colorectal cancer.
4. Increase risk-appropriate screening for lung cancer.
5. Improve the quality of life for cancer survivors in WV.

Coalition members include more than 350 health care professionals, volunteers, cancer survivors and community advocates representing over 200 community-based organizations, research and academic institutions, public and private agencies, coalitions, voluntary associations, patient advocacy groups, and other cancer-related organizations from West Virginia. Learn more about MOH by visiting [www.moh.wv.gov](http://www.moh.wv.gov).

15. Where can I find additional information on cancer?

Cancer information is available from a variety of credible resources including the following:

- Centers for Disease Control and Prevention—<https://www.cdc.gov/cancer/>,
- National Cancer Institute—<https://www.cancer.gov/about-cancer>,
- American Cancer Society—<http://www.cancer.org/cancer/index>, and
- WVU Cancer Institute—<http://wvucancer.org/>.

16. Where can I direct my questions or suggestions about the WV Cancer Burden Report?

Questions regarding data in the 2018 West Virginia Cancer Burden Report may be directed to 304.356.4953.

Questions or suggestions regarding the 2018 West Virginia Cancer Burden Report should be sent to [cpc@hsc.wvu.edu](mailto:cpc@hsc.wvu.edu).

**References**

- American Cancer Society—<http://www.cancer.org/cancer/index>
- Centers for Disease Control and Prevention—<https://www.cdc.gov/cancer/>
- Mountains of Hope WV Cancer Coalition—[www.moh.wv.gov](http://www.moh.wv.gov)
- National Cancer Institute—<https://www.cancer.gov/about-cancer>
- West Virginia Cancer Registry—<http://dhhr.wv.gov/oeps/cancer>
- WVU Cancer Institute—<http://wvucancer.org/>

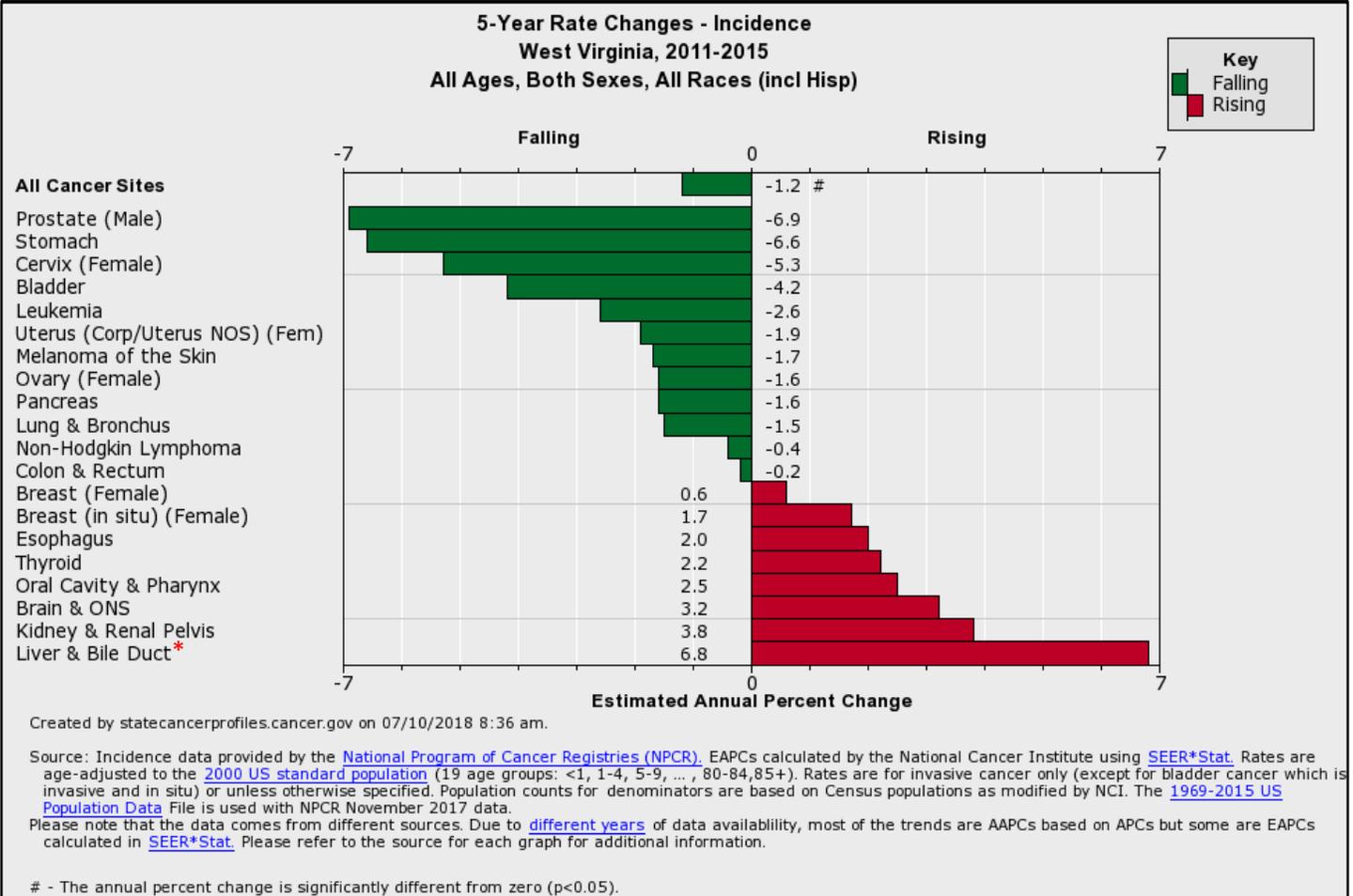


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## 2011-2015 Trends in Cancer Incidence

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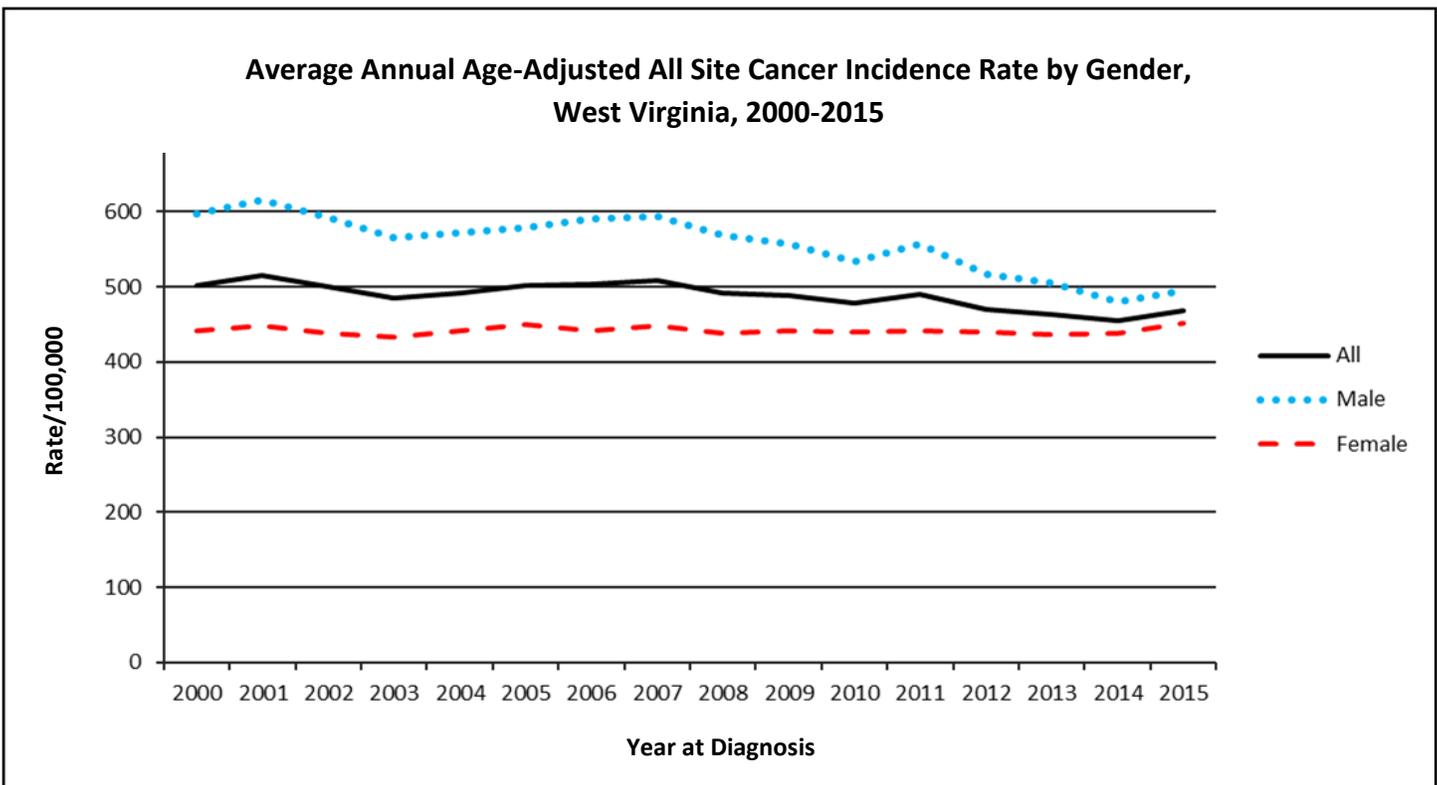
## 5-Year Rate Changes – Incidence, West Virginia, 2011-2015



\* Although this graphic shows the 6.8% annual rate increase in Liver & Bile Duct cancers is not statistically significant, this increasing trend has continued for several years. In light of high Hepatitis B and C rates in West Virginia, it is likely Liver & Bile Duct cancers will continue to increase in the foreseeable future.

## Average Annual Age-Adjusted All Site Cancer Incidence Rate (per 100,000), by Gender, West Virginia, 2000-2015

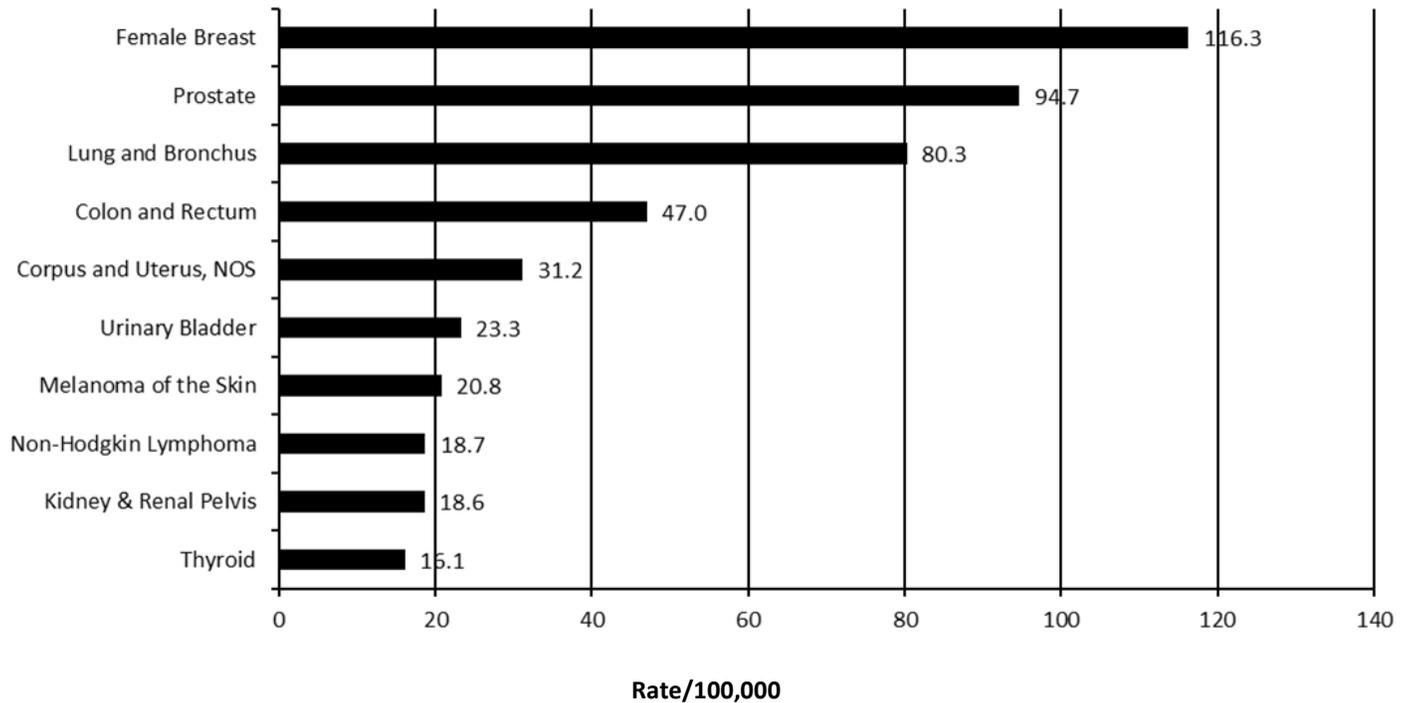
| Year | All   | Male  | Female |
|------|-------|-------|--------|
| 2000 | 502.4 | 598.1 | 442.2  |
| 2001 | 514.8 | 615.2 | 448.3  |
| 2002 | 500.8 | 592.9 | 438.8  |
| 2003 | 485.1 | 566.3 | 432.6  |
| 2004 | 491.8 | 571.6 | 441.2  |
| 2005 | 501.2 | 579.4 | 449.8  |
| 2006 | 503.1 | 590.8 | 441.8  |
| 2007 | 507.9 | 594.0 | 447.8  |
| 2008 | 491.5 | 568.3 | 437.9  |
| 2009 | 488.1 | 556.9 | 441.2  |
| 2010 | 477.7 | 533.8 | 440.5  |
| 2011 | 489.7 | 557.3 | 442.3  |
| 2012 | 470.7 | 516.2 | 439.4  |
| 2013 | 464.0 | 505.8 | 437.0  |
| 2014 | 454.4 | 479.6 | 438.9  |
| 2015 | 467.7 | 494.4 | 451.7  |



## Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000), Top 10 Sites among Men and Women, West Virginia, 2011-2015

|  |       |
|--|-------|
| Female Breast                              | 116.3 |
| Prostate                                   | 94.7  |
| Lung and Bronchus                          | 80.3  |
| Colon and Rectum                           | 47.0  |
| Corpus and Uterus, Not Otherwise Specified | 31.2  |
| Urinary Bladder                            | 23.3  |
| Melanomas of the Skin                      | 20.8  |
| Non-Hodgkin Lymphoma                       | 18.7  |
| Kidney and Renal Pelvis                    | 18.6  |
| Thyroid                                    | 16.1  |

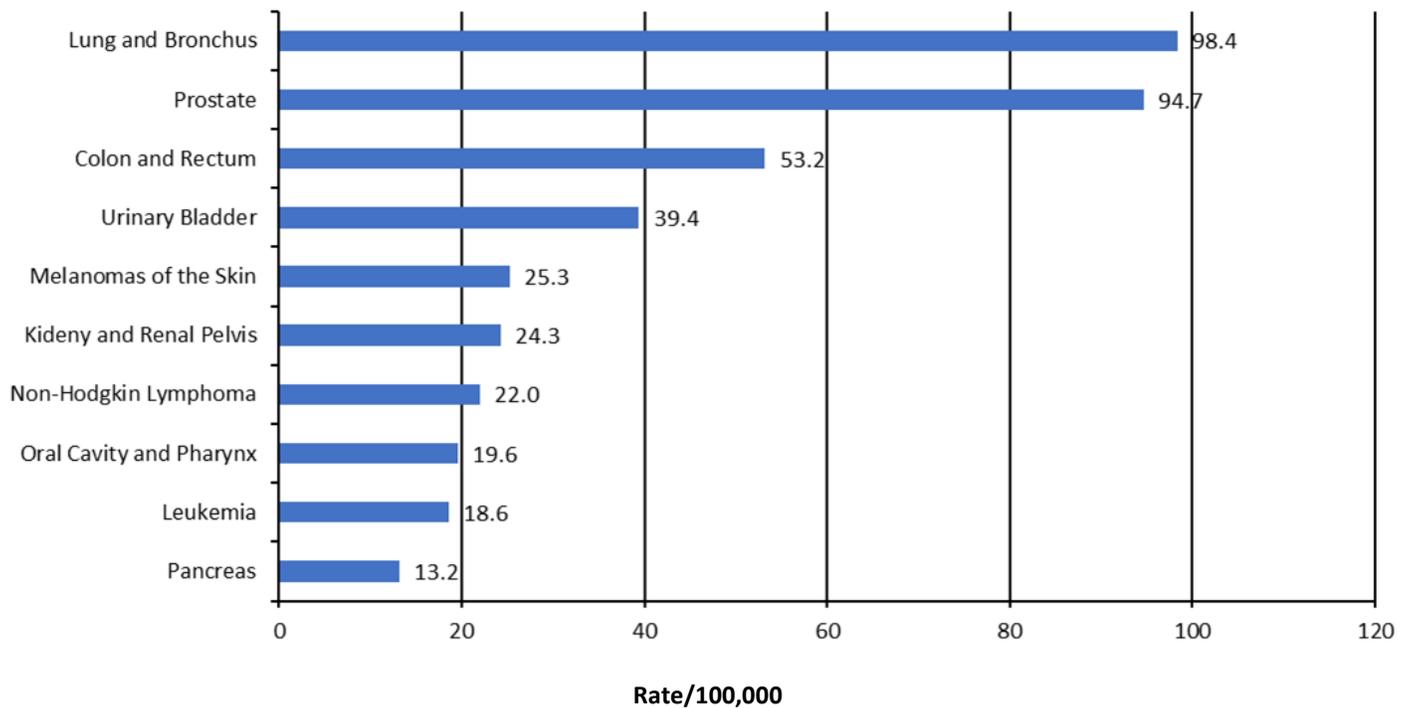
Average Annual Age-Adjusted Cancer Incidence Rates,  
Top 10 Sites among Men and Women, West Virginia, 2011-2015



## Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000), Top 10 Sites among Men, West Virginia, 2011-2015

|                         |      |
|-------------------------|------|
| Lung and Bronchus       | 98.4 |
| Prostate                | 94.7 |
| Colon and Rectum        | 53.2 |
| Urinary Bladder         | 39.4 |
| Melanomas of the Skin   | 25.3 |
| Kidney and Renal Pelvis | 24.3 |
| Non-Hodgkin Lymphoma    | 22.0 |
| Oral Cavity and Pharynx | 19.6 |
| Leukemia                | 18.6 |
| Pancreas                | 13.2 |

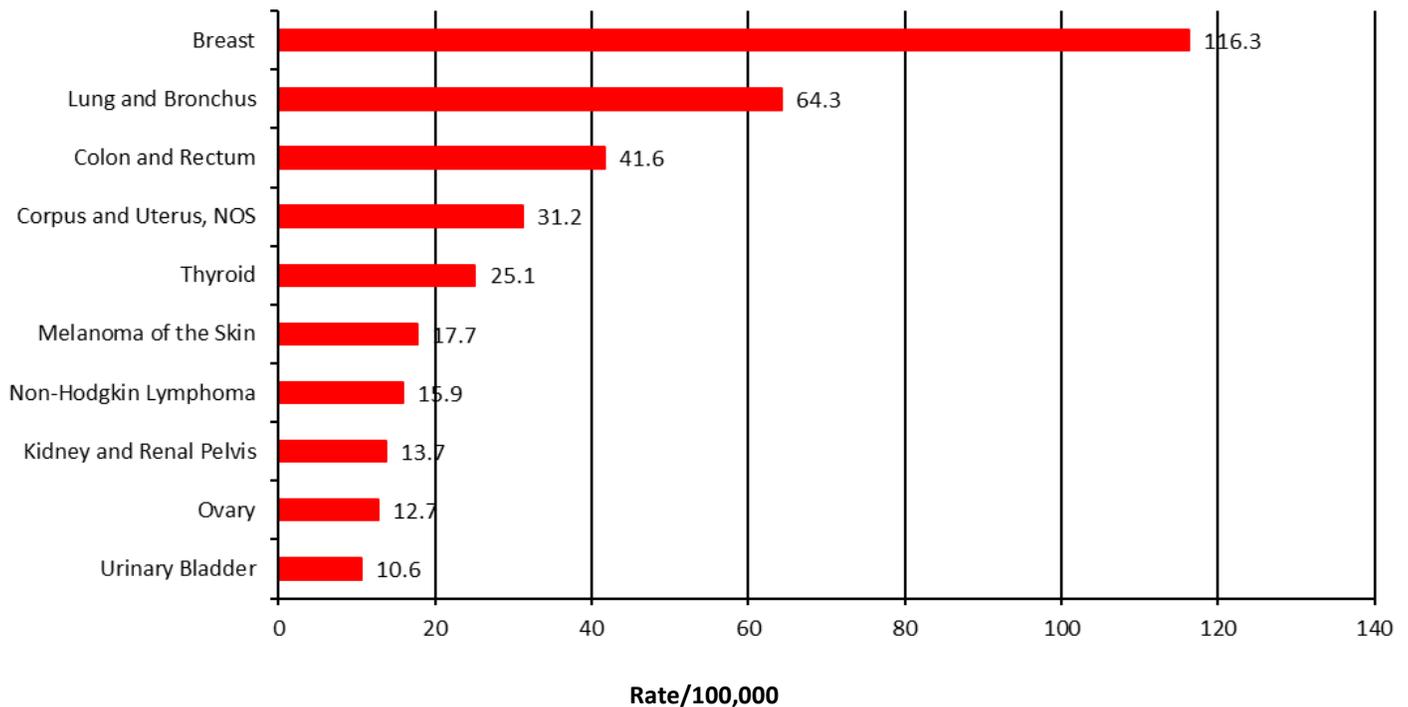
Average Annual Age-Adjusted Cancer Incidence Rates,  
Top 10 Sites among Men, West Virginia, 2011-2015



## Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),

|  |       |
|--|-------|
| Breast                                     | 116.3 |
| Lung and Bronchus                          | 64.3  |
| Colon and Rectum                           | 41.6  |
| Corpus and Uterus, Not Otherwise Specified | 31.2  |
| Thyroid                                    | 25.1  |
| Melanoma of the Skin                       | 17.7  |
| Non-Hodgkin Lymphoma                       | 15.9  |
| Kidney and Renal Pelvis                    | 13.7  |
| Ovary                                      | 12.7  |
| Urinary Bladder                            | 10.6  |

Average Annual Age-Adjusted Cancer Incidence Rates,  
Top 10 Sites among Women, West Virginia, 2011-2015



## Average Annual Age-Adjusted Cancer Incidence Rates, 95% Confidence Intervals, and 5-Year Counts by Select Sites and Gender, West Virginia, 2011-2015

| Cancer Site                      | Male and Female |       |       | Males  |       |       | Females |        |       |       |       |        |
|----------------------------------|-----------------|-------|-------|--------|-------|-------|---------|--------|-------|-------|-------|--------|
|                                  | Rate            | Lower | Upper | Rate   | Lower | Upper | Rate    | Lower  | Upper |       |       |        |
|                                  |                 | CI    | CI    |        | CI    | CI    |         | CI     | CI    | CI    |       |        |
|                                  | Count           |       | Count | Count  |       | Count | Count   |        | Count |       |       |        |
| All Sites                        | 476.8           | 472.8 | 480.8 | 57,867 | 519.5 | 513.4 | 525.7   | 29,743 | 448.2 | 442.8 | 453.7 | 28,124 |
| Oral Cavity and Pharynx          | 12.8            | 12.2  | 13.5  | 1,569  | 19.6  | 18.5  | 20.8    | 1,147  | 6.6   | 6.0   | 7.3   | 422    |
| Esophagus                        | 5.4             | 5.0   | 5.9   | 691    | 9.4   | 8.6   | 10.3    | 564    | 1.9   | 1.6   | 2.3   | 127    |
| Stomach                          | 6.2             | 5.8   | 6.7   | 772    | 8.3   | 7.5   | 9.1     | 474    | 4.5   | 4.0   | 5.0   | 298    |
| Small Intestine                  | 2.2             | 2.0   | 2.5   | 269    | 2.5   | 2.1   | 2.9     | 141    | 2.1   | 1.7   | 2.5   | 128    |
| Colon and Rectum                 | 47.0            | 45.8  | 48.3  | 5,703  | 53.2  | 51.2  | 55.2    | 2,974  | 41.6  | 40.0  | 43.3  | 2,729  |
| Liver and Intrahepatic Bile Duct | 6.5             | 6.1   | 7.0   | 846    | 10.3  | 9.5   | 11.2    | 630    | 3.2   | 2.8   | 3.7   | 216    |
| Gallbladder                      | 0.9             | 0.7   | 1.1   | 111    | 0.7   | 0.5   | 1.0     | 37     | 1.1   | 0.8   | 1.4   | 74     |
| Pancreas                         | 11.8            | 11.2  | 12.5  | 1,475  | 13.2  | 12.2  | 14.2    | 761    | 10.5  | 9.8   | 11.4  | 714    |
| Larynx                           | 5.1             | 4.7   | 5.5   | 660    | 8.1   | 7.4   | 8.9     | 498    | 2.5   | 2.1   | 2.9   | 162    |
| Lung and Bronchus                | 80.3            | 78.7  | 81.9  | 10,195 | 98.4  | 95.8  | 101.1   | 5,725  | 66.2  | 64.3  | 68.2  | 4,470  |
| Bones and Joints                 | 0.9             | 0.7   | 1.1   | 82     | 0.9   | 0.6   | 1.2     | 42     | 0.8   | 0.6   | 1.2   | 40     |
| Soft Tissues including Heart     | 3.1             | 2.7   | 3.4   | 341    | 3.6   | 3.1   | 4.2     | 187    | 2.7   | 2.3   | 3.2   | 154    |
| Melanoma of the Skin             | 20.8            | 19.9  | 21.7  | 2,347  | 25.3  | 24.0  | 26.8    | 1,364  | 17.7  | 16.5  | 18.9  | 983    |
| Breast                           | 61.7            | 60.2  | 63.2  | 7,320  | 1.2   | 0.9   | 1.5     | 68     | 116.3 | 113.5 | 119.1 | 7,252  |
| Cervix Uteri                     | —               | —     | —     | —      | —     | —     | —       | —      | 9.1   | 8.2   | 10.0  | 442    |
| Corpus and Uterus, NOS           | —               | —     | —     | —      | —     | —     | —       | —      | 31.2  | 29.8  | 32.6  | 1,987  |
| Ovary                            | —               | —     | —     | —      | —     | —     | —       | —      | 12.7  | 11.8  | 13.7  | 796    |
| Prostate                         | —               | —     | —     | —      | 94.7  | 92.3  | 97.2    | 5,887  | —     | —     | —     | —      |
| Testis                           | —               | —     | —     | —      | 5.6   | 4.9   | 6.3     | 232    | —     | —     | —     | —      |
| Urinary Bladder                  | 23.3            | 22.4  | 24.2  | 2,895  | 39.4  | 37.7  | 41.1    | 2,185  | 10.6  | 9.8   | 11.4  | 710    |
| Kidney and Renal Pelvis          | 18.6            | 17.9  | 19.5  | 2,241  | 24.3  | 23.0  | 25.7    | 1,370  | 13.7  | 12.7  | 14.6  | 871    |
| Brain and Other Nervous System   | 6.9             | 6.4   | 7.4   | 737    | 7.8   | 7.1   | 8.7     | 407    | 6.1   | 5.4   | 6.8   | 330    |
| Thyroid                          | 16.1            | 15.3  | 17.0  | 1,634  | 7.1   | 6.4   | 7.9     | 383    | 25.1  | 23.6  | 26.6  | 1,251  |
| Hodgkin Lymphoma                 | 2.4             | 2.0   | 2.7   | 227    | 2.6   | 2.2   | 3.1     | 124    | 2.1   | 1.7   | 2.6   | 103    |
| Non-Hodgkin Lymphoma             | 18.7            | 17.9  | 19.5  | 2,250  | 22.0  | 20.8  | 23.4    | 1,217  | 15.9  | 15.0  | 17.0  | 1,033  |
| Myeloma                          | 6.0             | 5.6   | 6.5   | 752    | 7.8   | 7.1   | 8.6     | 441    | 4.5   | 4.0   | 5.1   | 311    |
| Leukemia                         | 14.6            | 13.8  | 15.3  | 1,668  | 18.6  | 17.4  | 19.8    | 986    | 11.2  | 10.3  | 12.1  | 682    |

## Average Annual Age-Adjusted Cancer Incidence Rates, 95% Confidence Intervals, and 5-Year Counts by Select Cancer Sites and Gender for Whites, West Virginia, 2011-2015

| Cancer Site                      | White Males and Females |       |       |                 |       | White Males |       |                 |       |       | White Females |                 |       |       |                 |
|----------------------------------|-------------------------|-------|-------|-----------------|-------|-------------|-------|-----------------|-------|-------|---------------|-----------------|-------|-------|-----------------|
|                                  | Rate                    | Lower | Upper | 5-Year<br>Count | Rate  | Lower       | Upper | 5-Year<br>Count | Rate  | Lower | Upper         | 5-Year<br>Count | Lower | Upper | 5-Year<br>Count |
|                                  |                         | CI    | CI    |                 |       | CI          | CI    |                 |       | CI    | CI            |                 | CI    | CI    |                 |
| All Sites                        | 477.0                   | 472.9 | 481.1 | 55,753          | 518.1 | 511.9       | 524.3 | 28,578          | 449.5 | 444.0 | 455.2         | 27,175          | 444.0 | 455.2 | 27,175          |
| Oral Cavity and Pharynx          | 13.0                    | 12.3  | 13.7  | 1,524           | 19.8  | 18.6        | 21.1  | 1,113           | 6.7   | 6.0   | 7.4           | 411             | 6.0   | 7.4   | 411             |
| Esophagus                        | 5.5                     | 5.1   | 5.9   | 675             | 9.5   | 8.7         | 10.4  | 552             | 1.9   | 1.6   | 2.3           | 123             | 1.6   | 2.3   | 123             |
| Stomach                          | 6.1                     | 5.6   | 6.5   | 726             | 8.2   | 7.4         | 9.0   | 451             | 4.2   | 3.7   | 4.8           | 275             | 3.7   | 4.8   | 275             |
| Small Intestine                  | 2.2                     | 1.9   | 2.5   | 255             | 2.4   | 2.0         | 2.8   | 130             | 2.1   | 1.7   | 2.5           | 125             | 1.7   | 2.5   | 125             |
| Colon and Rectum                 | 47.0                    | 45.7  | 48.3  | 5,492           | 52.9  | 51.0        | 55.0  | 2,855           | 41.7  | 40.1  | 43.4          | 2,637           | 40.1  | 43.4  | 2,637           |
| Liver and Intrahepatic Bile Duct | 6.2                     | 5.8   | 6.7   | 773             | 9.9   | 9.0         | 10.7  | 574             | 3.0   | 2.6   | 3.5           | 199             | 2.6   | 3.5   | 199             |
| Gallbladder                      | 0.9                     | 0.7   | 1.1   | 106             | 0.7   | 0.5         | 1.0   | 35              | 1.1   | 0.8   | 1.4           | 71              | 0.8   | 1.4   | 71              |
| Pancreas                         | 11.8                    | 11.1  | 12.4  | 1,416           | 13.2  | 12.2        | 14.2  | 735             | 10.4  | 9.6   | 11.3          | 681             | 9.6   | 11.3  | 681             |
| Larynx                           | 5.2                     | 4.8   | 5.6   | 641             | 8.2   | 7.5         | 9.0   | 485             | 2.5   | 2.1   | 2.9           | 156             | 2.1   | 2.9   | 156             |
| Lung and Bronchus                | 80.6                    | 79.0  | 82.3  | 9,895           | 98.4  | 95.8        | 101.1 | 5,539           | 66.9  | 64.8  | 68.9          | 4,356           | 64.8  | 68.9  | 4,356           |
| Bones and Joints                 | 0.9                     | 0.7   | 1.1   | 77              | 0.9   | 0.6         | 1.2   | 38              | 0.9   | 0.6   | 1.2           | 39              | 0.6   | 1.2   | 39              |
| Soft Tissues including Heart     | 3.1                     | 2.7   | 3.4   | 324             | 3.5   | 3.0         | 4.1   | 177             | 2.7   | 2.3   | 3.2           | 147             | 2.3   | 3.2   | 147             |
| Melanoma of the Skin             | 21.3                    | 20.4  | 22.3  | 2,316           | 25.9  | 24.5        | 27.4  | 1,346           | 18.2  | 17.0  | 19.4          | 970             | 17.0  | 19.4  | 970             |
| Breast                           | 61.5                    | 60.0  | 63.0  | 7,037           | 1.1   | 0.9         | 1.5   | 64              | 115.9 | 113.1 | 118.8         | 6,973           | 113.1 | 118.8 | 6,973           |
| Cervix Uteri                     | —                       | —     | —     | —               | —     | —           | —     | —               | 9.1   | 8.3   | 10.1          | 425             | 8.3   | 10.1  | 425             |
| Corpus and Uterus, NOS           | —                       | —     | —     | —               | —     | —           | —     | —               | 31.4  | 30.0  | 33.0          | 1,924           | 30.0  | 33.0  | 1,924           |
| Ovary                            | —                       | —     | —     | —               | —     | —           | —     | —               | 12.7  | 11.8  | 13.7          | 766             | 11.8  | 13.7  | 766             |
| Prostate                         | —                       | —     | —     | —               | 92.4  | 89.9        | 95.0  | 5,537           | —     | —     | —             | —               | —     | —     | —               |
| Testis                           | —                       | —     | —     | —               | 5.9   | 5.2         | 6.8   | 232             | —     | —     | —             | —               | —     | —     | —               |
| Urinary Bladder                  | 23.6                    | 22.7  | 24.5  | 2,837           | 39.9  | 38.2        | 41.7  | 2,145           | 10.7  | 9.9   | 11.5          | 692             | 9.9   | 11.5  | 692             |
| Kidney and Renal Pelvis          | 18.7                    | 17.9  | 19.6  | 2,171           | 24.3  | 23.0        | 25.8  | 1,322           | 13.8  | 12.9  | 14.8          | 849             | 12.9  | 14.8  | 849             |
| Brain and Other Nervous System   | 7.0                     | 6.4   | 7.5   | 718             | 7.9   | 7.1         | 8.8   | 396             | 6.1   | 5.4   | 6.9           | 322             | 5.4   | 6.9   | 322             |
| Thyroid                          | 16.3                    | 15.4  | 17.1  | 1,572           | 7.2   | 6.4         | 8.0   | 368             | 25.2  | 23.7  | 26.7          | 1,204           | 23.7  | 26.7  | 1,204           |
| Hodgkin Lymphoma                 | 2.4                     | 2.1   | 2.8   | 219             | 2.7   | 2.2         | 3.2   | 121             | 2.1   | 1.7   | 2.6           | 98              | 1.7   | 2.6   | 98              |
| Non-Hodgkin Lymphoma             | 18.8                    | 18.0  | 19.6  | 2,186           | 22.1  | 20.8        | 23.4  | 1,178           | 16.1  | 15.1  | 17.2          | 1,008           | 15.1  | 17.2  | 1,008           |
| Myeloma                          | 5.8                     | 5.4   | 6.3   | 702             | 7.5   | 6.8         | 8.3   | 411             | 4.4   | 3.9   | 4.9           | 291             | 3.9   | 4.9   | 291             |
| Leukemia                         | 14.5                    | 13.8  | 15.2  | 1,599           | 18.4  | 17.2        | 19.7  | 945             | 11.2  | 10.3  | 12.1          | 654             | 10.3  | 12.1  | 654             |

## Average Annual Age-Adjusted Cancer Incidence Rates, 95% Confidence Intervals, and 5-Year Counts by Select Cancer Sites and Gender for Blacks, West Virginia, 2011-2015

| Cancer Site                      | Black Males and Females |             |             |                 |       | Black Males |             |       |             |             | Black Females   |       |             |             |                 |
|----------------------------------|-------------------------|-------------|-------------|-----------------|-------|-------------|-------------|-------|-------------|-------------|-----------------|-------|-------------|-------------|-----------------|
|                                  | Rate                    | Lower<br>CI | Upper<br>CI | 5-Year<br>Count | Rate  | Lower<br>CI | Upper<br>CI | Rate  | Lower<br>CI | Upper<br>CI | 5-Year<br>Count | Rate  | Lower<br>CI | Upper<br>CI | 5-Year<br>Count |
| All Sites                        | 453.3                   | 430.3       | 477.1       | 1,571           | 529.2 | 492.0       | 568.4       | 389.4 | 359.9       | 420.7       | 891             | 389.4 | 359.9       | 420.7       | 680             |
| Oral Cavity and Pharynx          | 11.1                    | 7.7         | 15.4        | 37              | 17.5  | 11.1        | 26.1        | 6.2   | 2.9         | 11.5        | 27              | 6.2   | 2.9         | 11.5        | 10              |
| Esophagus                        | 2.7                     | 1.3         | 5.2         | 10              | 3.5   | 1.3         | 7.6         | 1.8   | 0.3         | 5.3         | 7               | 1.8   | 0.3         | 5.3         | 3               |
| Stomach                          | 10.2                    | 6.9         | 14.4        | 34              | 10.7  | 6.1         | 17.4        | 9.0   | 4.9         | 14.9        | 19              | 9.0   | 4.9         | 14.9        | 15              |
| Small Intestine                  | 4.6                     | 2.4         | 7.7         | 14              | 8.0   | 3.8         | 14.6        | 1.9   | 0.4         | 5.6         | 11              | 1.9   | 0.4         | 5.6         | 3               |
| Colon and Rectum                 | 49.4                    | 41.9        | 57.8        | 167             | 56.5  | 44.6        | 70.4        | 41.9  | 32.7        | 52.9        | 93              | 41.9  | 32.7        | 52.9        | 74              |
| Liver and Intrahepatic Bile Duct | 14.3                    | 10.8        | 18.5        | 61              | 20.6  | 15.1        | 27.9        | 7.3   | 3.9         | 12.5        | 47              | 7.3   | 3.9         | 12.5        | 14              |
| Gallbladder                      | 1.2                     | 0.3         | 3.1         | 4               | 1.1   | 0.1         | 4.2         | 1.3   | 0.1         | 4.7         | 2               | 1.3   | 0.1         | 4.7         | 2               |
| Pancreas                         | 13.9                    | 10.0        | 18.7        | 46              | 13.1  | 7.8         | 20.4        | 13.4  | 8.5         | 20.2        | 22              | 13.4  | 8.5         | 20.2        | 24              |
| Larynx                           | 4.1                     | 2.2         | 6.9         | 15              | 5.1   | 2.3         | 9.9         | 2.9   | 0.9         | 6.9         | 10              | 2.9   | 0.9         | 6.9         | 5               |
| Lung and Bronchus                | 68.1                    | 59.2        | 77.9        | 227             | 96.2  | 79.7        | 114.9       | 47.7  | 38.0        | 59.3        | 142             | 47.7  | 38.0        | 59.3        | 85              |
| Bones and Joints                 | 1.1                     | 0.3         | 2.8         | 4               | 1.5   | 0.3         | 4.8         | 0.6   | 0.0         | 3.3         | 3               | 0.6   | 0.0         | 3.3         | 1               |
| Soft Tissue including Heart      | 4.2                     | 2.2         | 7.1         | 14              | 4.4   | 1.6         | 9.5         | 4.3   | 1.7         | 8.9         | 7               | 4.3   | 1.7         | 8.9         | 7               |
| Melanoma of the Skin             | 0.6                     | 0.1         | 2.3         | 2               | 0.0   | 0.0         | 2.4         | 1.5   | 0.2         | 5.1         | 0               | 1.5   | 0.2         | 5.1         | 2               |
| Breast                           | 64.0                    | 55.4        | 73.5        | 213             | 2.5   | 0.5         | 7.0         | 123.8 | 107.1       | 142.3       | 4               | 123.8 | 107.1       | 142.3       | 209             |
| Cervix Uteri                     | —                       | —           | —           | —               | —     | —           | —           | 2.3   | 0.6         | 5.9         | —               | 2.3   | 0.6         | 5.9         | 4               |
| Corpus and Uterus, NOS           | —                       | —           | —           | —               | —     | —           | —           | 20.2  | 14.2        | 28.0        | —               | 20.2  | 14.2        | 28.0        | 39              |
| Ovary                            | —                       | —           | —           | —               | —     | —           | —           | 12.2  | 7.5         | 18.7        | —               | 12.2  | 7.5         | 18.7        | 22              |
| Prostate                         | —                       | —           | —           | —               | 156.5 | 137.5       | 177.3       | —     | —           | —           | 285             | —     | —           | —           | —               |
| Testis                           | —                       | —           | —           | —               | 0.0   | 0.0         | 2.4         | —     | —           | —           | 0               | —     | —           | —           | —               |
| Urinary Bladder                  | 11.9                    | 8.3         | 16.4        | 38              | 19.1  | 12.2        | 28.3        | 5.5   | 2.6         | 10.4        | 28              | 5.5   | 2.6         | 10.4        | 10              |
| Kidney and Renal Pelvis          | 17.6                    | 13.4        | 22.7        | 62              | 23.7  | 16.7        | 32.6        | 11.5  | 6.9         | 18.0        | 42              | 11.5  | 6.9         | 18.0        | 20              |
| Brain and Other Nervous System   | 2.4                     | 1.0         | 4.8         | 8               | 2.9   | 0.9         | 6.9         | 1.8   | 0.4         | 5.3         | 5               | 1.8   | 0.4         | 5.3         | 3               |
| Thyroid                          | 11.3                    | 8.0         | 15.5        | 41              | 5.6   | 2.8         | 10.1        | 17.5  | 11.5        | 25.3        | 12              | 17.5  | 11.5        | 25.3        | 29              |
| Hodgkin Lymphoma                 | 1.3                     | 0.5         | 3.0         | 6               | 0.8   | 0.1         | 3.5         | 1.9   | 0.5         | 5.2         | 2               | 1.9   | 0.5         | 5.2         | 4               |
| Non-Hodgkin Lymphoma             | 12.5                    | 8.9         | 17.0        | 43              | 15.6  | 9.8         | 23.5        | 9.4   | 5.4         | 15.3        | 26              | 9.4   | 5.4         | 15.3        | 17              |
| Myeloma                          | 12.7                    | 9.0         | 17.4        | 42              | 17.4  | 10.7        | 26.6        | 9.7   | 5.7         | 15.6        | 24              | 9.7   | 5.7         | 15.6        | 18              |
| Leukemia                         | 15.4                    | 11.3        | 20.4        | 51              | 20.8  | 13.7        | 30.1        | 10.9  | 6.4         | 17.2        | 32              | 10.9  | 6.4         | 17.2        | 19              |

**Average Annual Age-Adjusted Pediatric Cancer (Ages 0-19) Incidence Rates  
and 5-Year Counts, West Virginia and United States, 2011-2015**

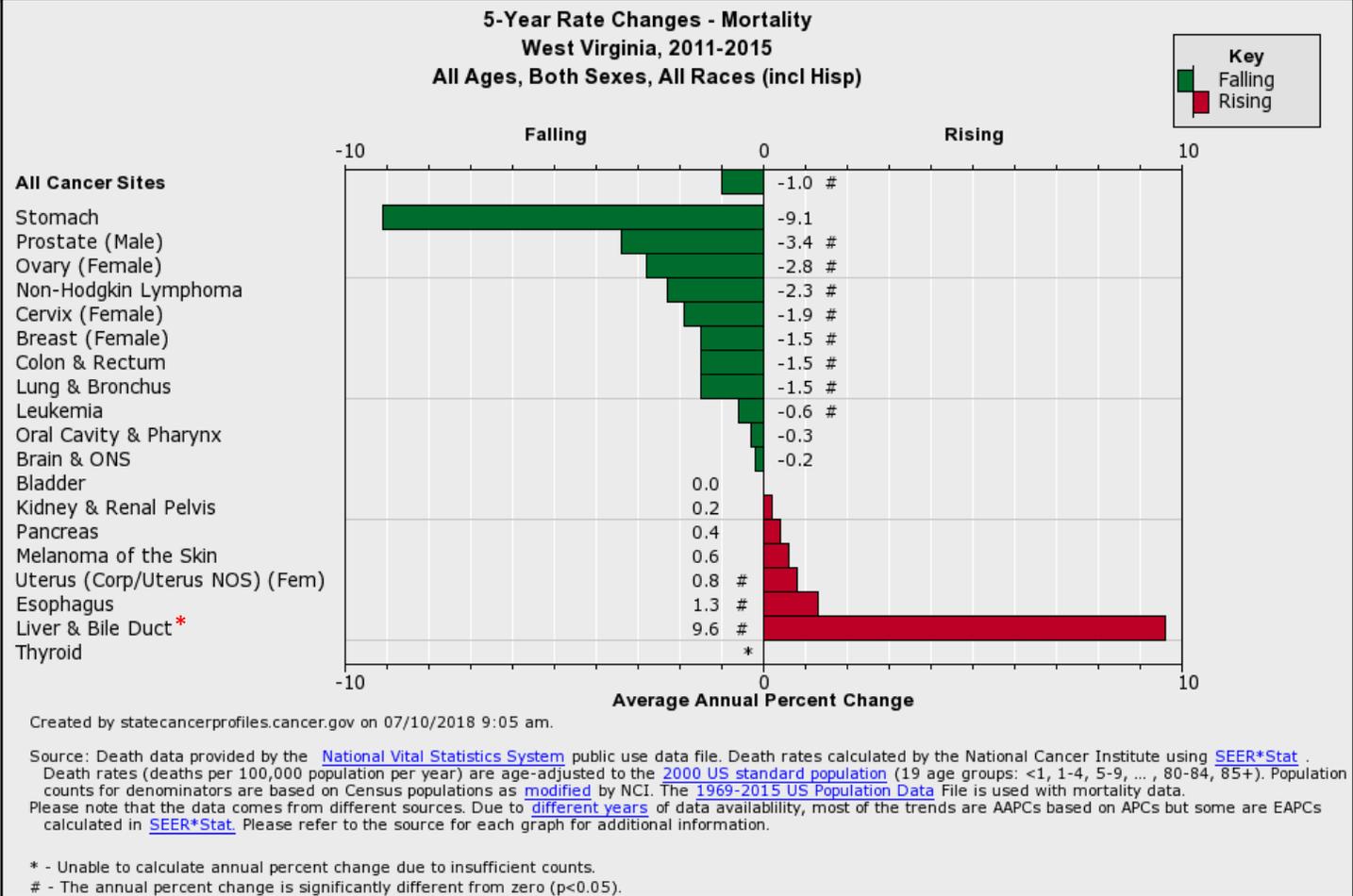
| International Classification of Childhood Cancer Grouping                       | West Virginia    |              | United States    |              |
|---|------------------|--------------|------------------|--------------|
|   | Rate per Million | 5-Year Count | Rate per Million | 5-Year Count |
| <b>All Pediatric Invasive Cancer Sites</b>                                      | 178.5            | 384          | 186.1            | 76,943       |
| Leukemias, myeloproliferative and myelodysplastic diseases                      | 41.0             | 88           | 48.0             | 19,779       |
| Lymphomas and reticuloendothelial neoplasms                                     | 25.8             | 56           | 29.4             | 12,169       |
| Central nervous system and miscellaneous intracranial and intraspinal neoplasms | 35.1             | 75           | 32.3             | 13,293       |
| Neuroblastoma and other peripheral nervous cell tumors                          | 12.7             | 27           | 9.0              | 3,719        |
| Retinoblastoma  | 7.5              | 16           | 3.3              | 1,360        |
| Renal tumors  | 8.0              | 17           | 7.4              | 3,033        |
| Hepatic tumors  | 1.4              | 3            | 2.6              | 1,085        |
| Malignant bone tumors   | 8.4              | 18           | 9.1              | 3,753        |
| Soft tissue and other extraosseous sarcomas                                     | 10.3             | 22           | 12.1             | 4,982        |
| Germ cell and trophoblastic tumors, and neoplasms of gonads                     | 7.8              | 17           | 11.4             | 4,738        |
| Other malignant epithelial neoplasms and melanomas                              | 20.1             | 44           | 20.6             | 8,601        |
| Other and unspecified malignant neoplasms                                       | 0.0              | 0            | 0.8              | 325          |
| Not classified by International Classification of Childhood Cancer, or in situ  | 0.5              | 1            | 0.3              | 106          |

Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2018. Accessed at <http://wonder.cdc.gov/cancerv2015.htm> on Oct. 18, 2018 at 3:16 PM

## 2011-2015 Trends in Cancer Mortality

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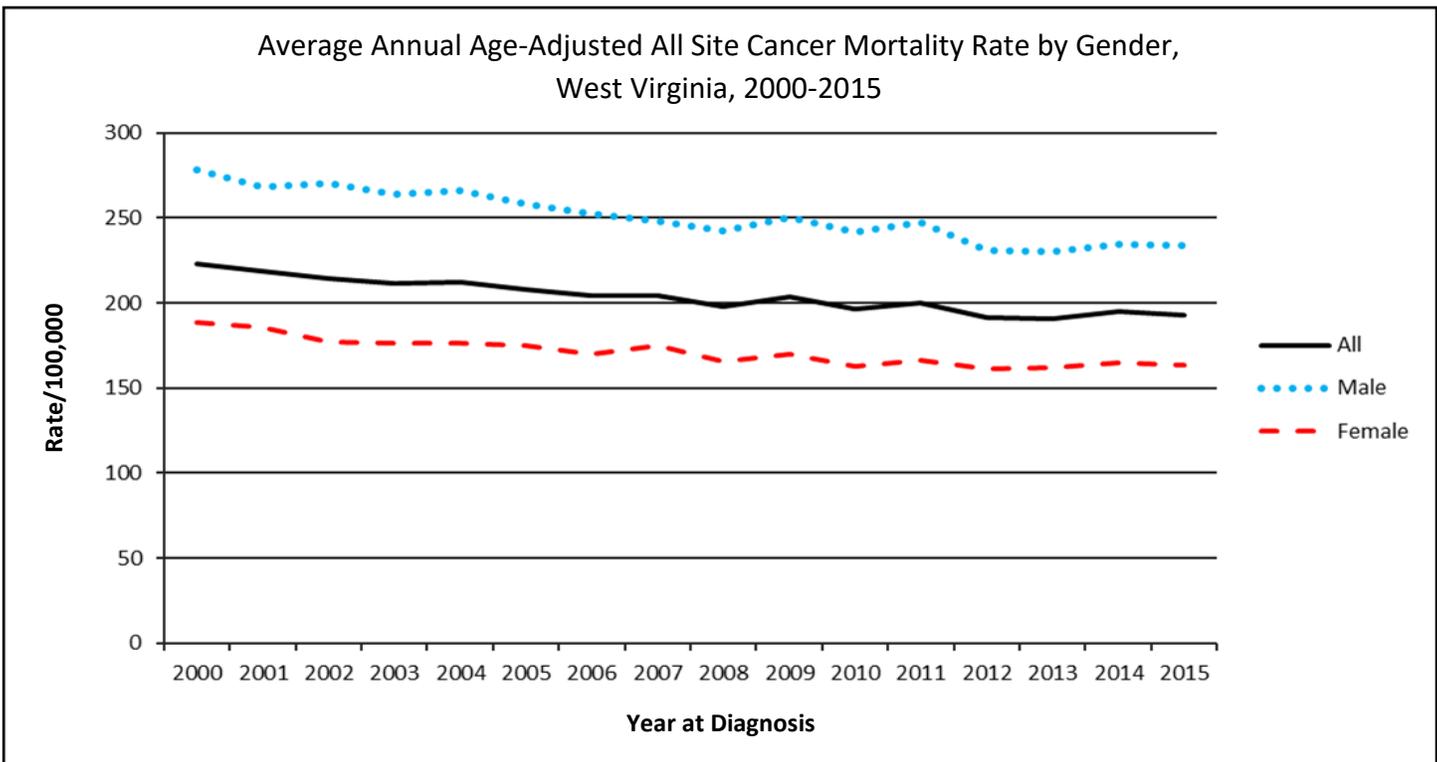
# 5-Year Rate Changes for Select Cancers – Mortality, West Virginia, 2011-2015



\* As mentioned on page 11, Liver and Bile Duct cancers are increasing, and this graphic shows a significant increasing trend in deaths from this cancer. High Hepatitis B and C rates in West Virginia suggest this trend will continue to increase for the foreseeable future.

## Average Annual Age-Adjusted All Site Cancer Mortality Rate (per 100,000), by Gender, West Virginia, 2000-2015

| Year | All   | Males | Females |
|------|-------|-------|---------|
| 2000 | 222.7 | 278.1 | 188.3   |
| 2001 | 218.5 | 268.4 | 185.6   |
| 2002 | 214.7 | 270.1 | 177.0   |
| 2003 | 211.2 | 263.7 | 176.2   |
| 2004 | 212.3 | 266.3 | 176.6   |
| 2005 | 207.6 | 258.1 | 175.1   |
| 2006 | 204.0 | 252.3 | 170.0   |
| 2007 | 204.3 | 248.0 | 174.6   |
| 2008 | 197.9 | 242.7 | 165.8   |
| 2009 | 203.3 | 250.6 | 170.2   |
| 2010 | 196.6 | 241.5 | 162.6   |
| 2011 | 199.7 | 247.7 | 166.1   |
| 2012 | 191.1 | 230.6 | 161.6   |
| 2013 | 190.5 | 229.9 | 161.7   |
| 2014 | 194.7 | 234.4 | 164.8   |
| 2015 | 193.1 | 233.5 | 163.2   |

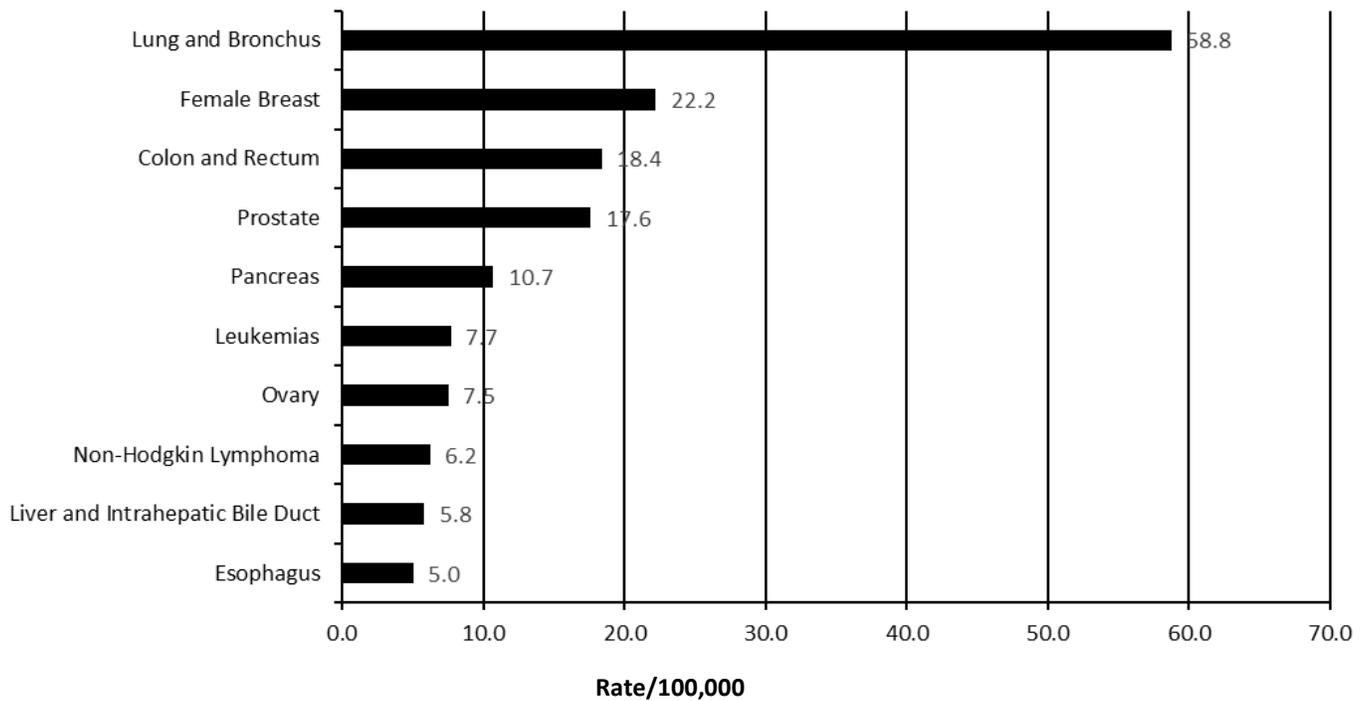


U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on November 2017 submission data (1999-2015): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; [www.cdc.gov/cancer/dataviz](http://www.cdc.gov/cancer/dataviz), June 2018.

## Average Annual Age-Adjusted Cancer Mortality Rates (per 100,000),

| Site                             | Age-adjusted<br>Rate | Deaths | Population |
|----------------------------------|----------------------|--------|------------|
| Lung and Bronchus                | 58.8                 | 7,410  | 9,254,330  |
| Female Breast                    | 22.2                 | 1,453  | 4,682,484  |
| Colon and Rectum                 | 18.4                 | 2,254  | 9,254,330  |
| Prostate                         | 17.6                 | 874    | 4,571,846  |
| Pancreas                         | 10.7                 | 1,337  | 9,254,330  |
| Leukemias                        | 7.7                  | 924    | 9,254,330  |
| Ovary                            | 7.5                  | 512    | 4,682,484  |
| Non-Hodgkin Lymphoma             | 6.2                  | 770    | 9,254,330  |
| Liver and Intrahepatic Bile Duct | 5.8                  | 736    | 9,254,330  |
| Esophagus                        | 5.0                  | 639    | 9,254,330  |

Average Annual Age-Adjusted Cancer Mortality Rates,  
Top 10 Sites among Men and Women, West Virginia, 2011-2015

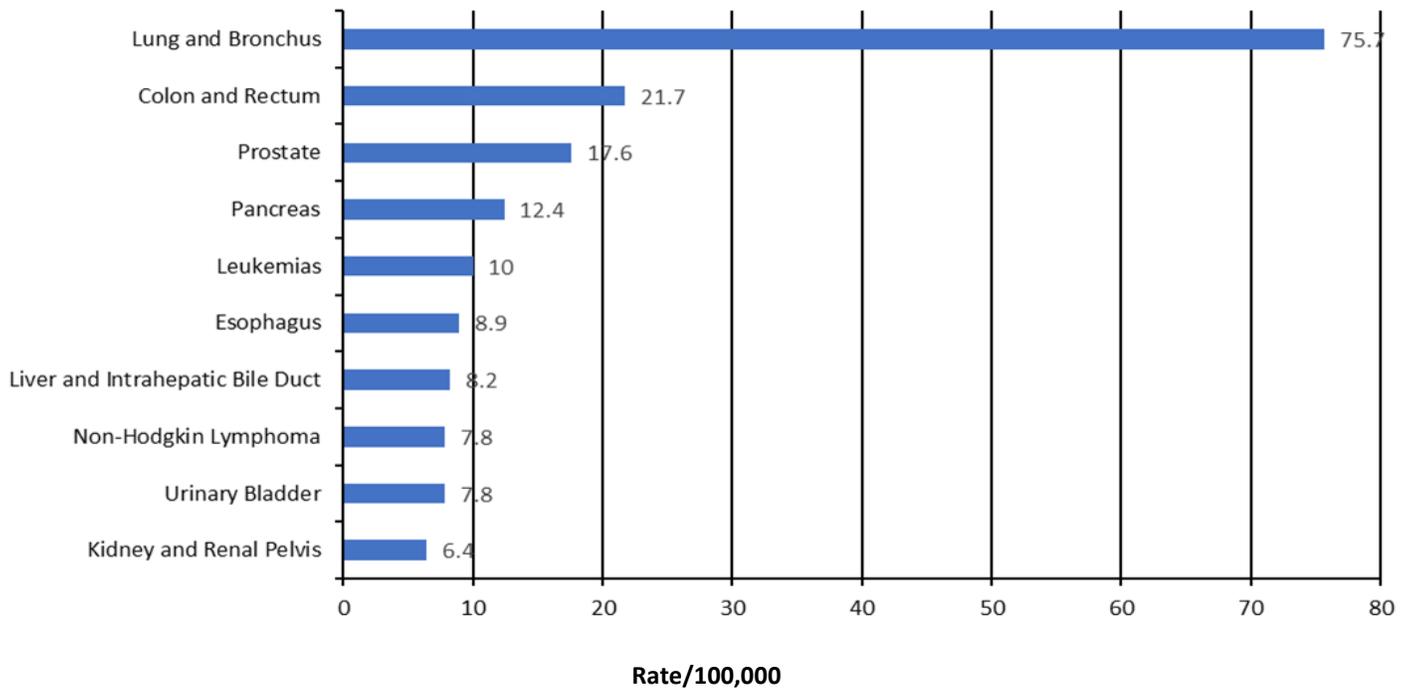


U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on November 2017 submission data (1999-2015): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; [www.cdc.gov/cancer/dataviz](http://www.cdc.gov/cancer/dataviz), June 2018.

## Average Annual Age-Adjusted Cancer Mortality Rates (per 100,000), Top 10 Sites among Men, West Virginia, 2011-2015

| Site                             | Age-adjusted Rate | Deaths | Population |
|----------------------------------|-------------------|--------|------------|
| Lung and Bronchus                | 75.7              | 4,311  | 4,571,846  |
| Colon and Rectum                 | 21.7              | 1,186  | 4,571,846  |
| Prostate                         | 17.6              | 874    | 4,571,846  |
| Pancreas                         | 12.4              | 707    | 4,571,846  |
| Leukemias                        | 10.0              | 515    | 4,571,846  |
| Esophagus                        | 8.9               | 520    | 4,571,846  |
| Liver and Intrahepatic Bile Duct | 8.2               | 490    | 4,571,846  |
| Urinary Bladder                  | 7.8               | 409    | 4,571,846  |
| Non-Hodgkin Lymphoma             | 7.8               | 425    | 4,571,846  |
| Kidney and Renal Pelvis          | 6.4               | 359    | 4,571,846  |

Average Annual Age-Adjusted Cancer Mortality Rates,  
Top 10 Sites among Men, West Virginia, 2011-2015

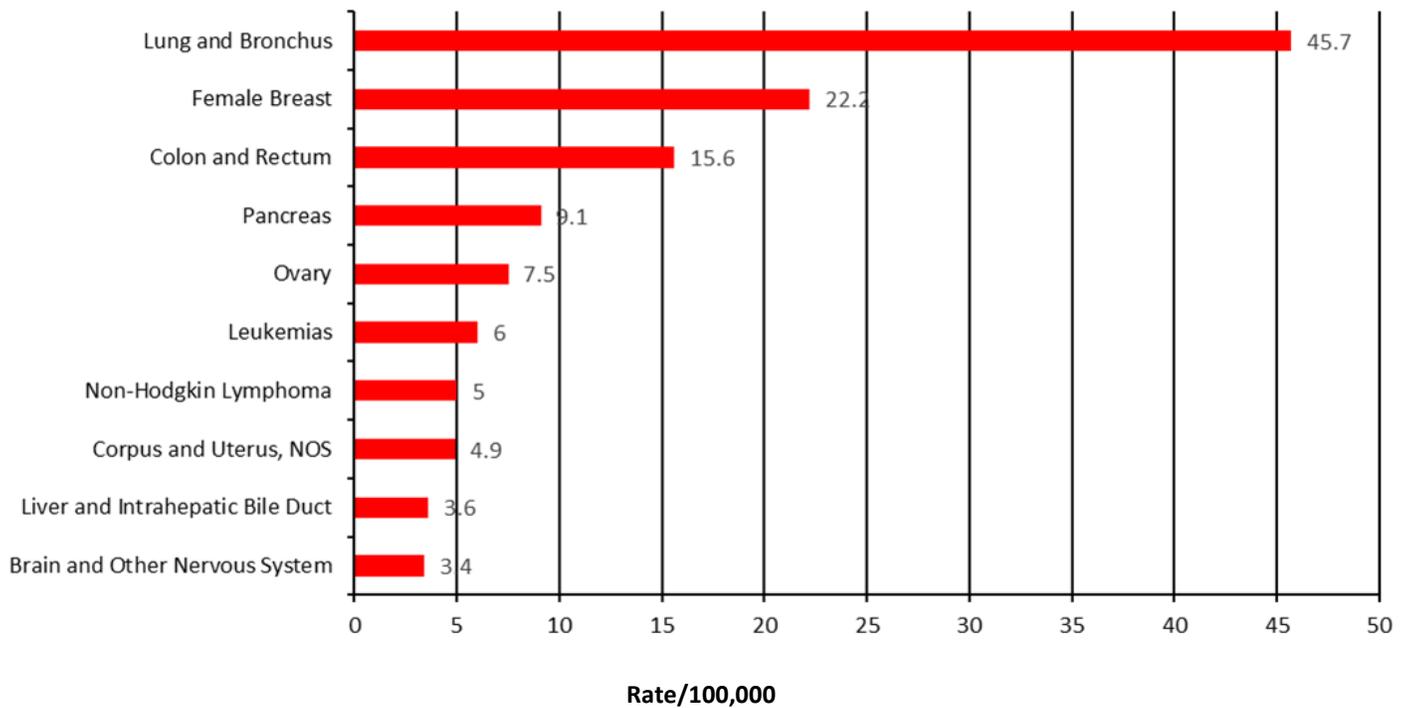


U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on November 2017 submission data (1999-2015): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; [www.cdc.gov/cancer/dataviz](http://www.cdc.gov/cancer/dataviz), June 2018.

## Average Annual Age-Adjusted Cancer Mortality Rates (per 100,000),

| Site                                       | Age-adjusted Rate | Deaths | Population |
|--|-------------------|--------|------------|
| Lung and Bronchus                          | 45.7              | 3,099  | 4,682,484  |
| Female Breast                              | 22.2              | 1,453  | 4,682,484  |
| Colon and Rectum                           | 15.6              | 1,068  | 4,682,484  |
| Pancreas                                   | 9.1               | 630    | 4,682,484  |
| Ovary                                      | 7.5               | 512    | 4,682,484  |
| Leukemias                                  | 6.0               | 409    | 4,682,484  |
| Non-Hodgkin Lymphoma                       | 5.0               | 345    | 4,682,484  |
| Corpus and Uterus, Not Otherwise Specified | 4.9               | 342    | 4,682,484  |
| Liver and Intrahepatic Bile Duct           | 3.6               | 246    | 4,682,484  |
| Brain and Other Nervous System             | 3.4               | 217    | 4,682,484  |

Average Annual Age-Adjusted Cancer Mortality Rates,  
Top 10 Sites among Women, West Virginia, 2011-2015



U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on November 2017 submission data (1999-2015): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; [www.cdc.gov/cancer/dataviz](http://www.cdc.gov/cancer/dataviz), June 2018.

## Summaries, Infographics, and Program Information

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## Breast Cancer in West Virginia

Breast cancer starts when cells in the breast begin to grow out of control. These cells usually form a tumor that can often be seen on an x-ray, called a mammogram, or felt as a lump. Breast cancer occurs almost entirely in women, but men can get it, too.<sup>1</sup> An individual woman has a 1 in 8 chance of developing breast cancer over an 80-year lifespan.<sup>2</sup>

Not counting some types of skin cancer, breast cancer is the most common cancer diagnosed in women in the United States regardless of race and ethnicity. Getting mammograms regularly can lower the risk of dying from breast cancer.<sup>3</sup> Mammograms are the best way to find breast cancer early, when it is easier to treat and before it is big enough to feel or cause symptoms.<sup>4</sup> The screening guidelines for breast cancer vary from one national organization to another so women are encouraged to talk to their health care provider about what screening schedule is best for them.

Breast cancer is the most commonly diagnosed cancer and the second leading cause of cancer-related death in WV women.<sup>5</sup> Each year in WV, approximately 1,450 women are diagnosed and 290 women die of breast cancer.<sup>6</sup> Over half (55%) of the women with breast cancer in WV are diagnosed with localized breast cancer.<sup>5</sup>

Risk factors for breast cancer include being female, increased age, and certain genetic mutations. Other factors that increase risk include early menstrual period, late or no pregnancy, starting menopause after age 55, not being physically active, being overweight or obese after menopause, having dense breasts, using combination hormone therapy, taking oral contraceptives, personal history of breast cancer, personal history of certain non-cancerous breast diseases, family history of breast cancer, previous treatment using radiation therapy, exposure to diethylstilbestrol (DES), and drinking alcohol. Research suggests that other factors such as smoking, being exposed to chemical that can cause cancer (carcinogens), and night shift working may also increase breast cancer risk.<sup>7</sup> Actions that a person can take to help lower their risk of breast cancer include: breastfeeding, limiting alcoholic drinks to no more than one per day, limiting exposure to carcinogens, limiting exposure to radiation, asking about the risks of hormone replacement therapy and oral contraceptives before taking them, engaging in regular physical activity, getting enough sleep, and maintaining a healthy weight.<sup>8</sup>

The bottom line is that breast cancer screening saves lives and mammograms are the best early detection test currently available.

1. American Cancer Society. Accessed at <http://www.cancer.org/cancer/breastcancer/detailedguide/breast-cancer-what-is-breast-cancer> on 8/23/18 at 12:26 AM.

2. National Cancer Institute. Accessed at <https://www.cancer.gov/types/breast/risk-fact-sheet> on 8/23/18 at 12:27 AM.

3. Centers for Disease Control and Prevention. Accessed at <https://www.cdc.gov/cancer/breast/statistics> on 9/25/18 at 8:56 AM.

4. Centers for Disease Control and Prevention. Accessed at [https://www.cdc.gov/cancer/breast/basic\\_info/screening.htm](https://www.cdc.gov/cancer/breast/basic_info/screening.htm) on 10/5/17 at 3:00 PM.

5. WV Cancer Registry.

6. United States Cancer Statistics: 2011 - 2015 Data Visualizations Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2018. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

7. Centers for Disease Control and Prevention. Accessed at [https://www.cdc.gov/cancer/breast/basic\\_info/risk\\_factors.htm](https://www.cdc.gov/cancer/breast/basic_info/risk_factors.htm) on 8/23/18 at 11:52 AM.

8. Centers for Disease Control and Prevention. Accessed at [https://www.cdc.gov/cancer/breast/basic\\_info/prevention.htm](https://www.cdc.gov/cancer/breast/basic_info/prevention.htm) on 8/23/18 at 11:54 AM.

# Breast Cancer in West Virginia

Breast Cancer Incidence in West Virginia per 100,000 women



Breast Cancer Deaths in West Virginia per 100,000 women



## Breast Cancer Risk Factors

- Being female
- Increasing age
- Genetic mutations

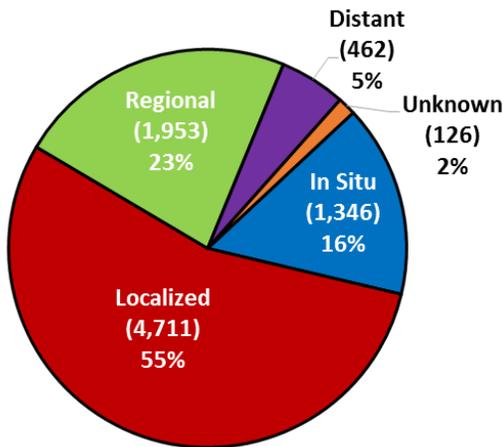
Other factors that:

| Decrease Risk   | Increase Risk   |
|---|---|
| Starting first period at a later age  | Long-term use of HRT  |
| Starting menopause at an earlier age  | Family history of breast cancer                                       |
| Giving birth to more children, being younger at birth of first child, and breastfeeding | Personal history of breast cancer and non-cancerous breast conditions |
| Engaging in regular physical activity   | Treatment with radiation to the breast or chest                       |
| Maintaining a healthy weight  | Exposure to diethylstilbestrol (DES)                                  |
| Getting enough sleep  | Alcohol intake  |

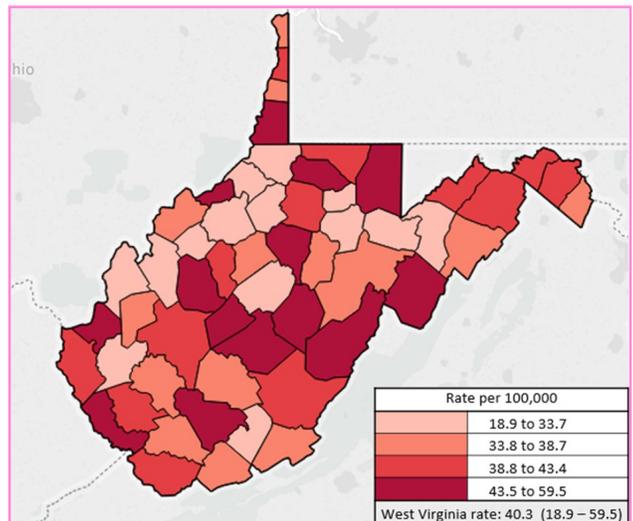
**ONLY**  
**73.7%**  
**OF WV WOMEN AGED 40 AND OLDER HAVE HAD A MAMMOGRAM WITHIN THE PAST 2 YEARS**

<http://www.wvdhhr.org/bph/hsc/pubs/brfss/2014/BRFSS2014.pdf>

Percentage of Female Breast Cancer Cases by Stage at Diagnosis, West Virginia, 2011-2015



Average Annual Age-Adjusted Late Stage Breast Cancer Incidence Rates by County, West Virginia, 2011-2015



**Breast cancer is the most commonly diagnosed cancer among women in our state.**

**Breast cancer screening saves lives and women are encouraged to talk with their health care provider about what screening schedule is best for them.**

# Breast Cancer Programs in West Virginia

## WV BREAST AND CERVICAL CANCER SCREENING PROGRAM

The West Virginia Breast and Cervical Cancer Screening Program (WVBCCSP) is a public health program that helps uninsured and underinsured women gain access to free or low-cost breast and cervical cancer screening services. For the prevention of breast cancer, the WVBCCSP provides clinical breast exams and mammograms to eligible women, as well as diagnostic testing for those whose screening outcome is abnormal.

### Who is eligible for these free or low-cost services?

Women:

- between the ages of 25 and 64
- with no health insurance or who are underinsured
- who meet income guidelines, and
- who are WV residents

WVBCCSP Income Guidelines

| Family Size | Monthly | Yearly   |
|-------------|---------|----------|
| 1           | \$2,529 | \$30,348 |
| 2           | \$3,429 | \$41,148 |
| 3           | \$4,329 | \$51,948 |
| 4           | \$5,229 | \$62,748 |
| 5           | \$6,129 | \$73,548 |

Effective 6/30/2018-6/29/2019

CONTACT: WVBCCSP at 304.558.5388 or 1.800.642.8522 and ask to speak to someone in the Program

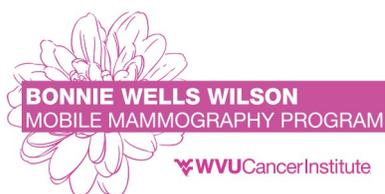
RESOURCES: <http://www.wvdhhr.org/bccsp/>

## BONNIE'S BUS

Bonnie's Bus, a 3-D mobile mammography unit, travels across West Virginia providing breast cancer screening in a comfortable, easy to access environment close to a patient's home. The Bus serves women with private insurance, Medicare, Medicaid, and those enrolled in the West Virginia Breast and Cervical Cancer Screening Program. Grant funds and donations are available to pay for women without any other coverage, so no woman over the age of 40 is ever turned away. Bonnie's Bus is a program of the WVU Cancer Institute and WVU Medicine. It has served the state since 2009 and provided over 17,900 mammograms.

CONTACT: WVU Office of Cancer Prevention and Control at 304.293.2370 or 1.877.287.2272

RESOURCES: <http://wvucancer.org/cancer-prevention-control/bonnies-bus/>





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# Cervical Cancer in West Virginia

Cancer of the cervix or cervical cancer is cancer that begins to grow in the lining of the cervix, the lower, narrow end of the uterus.<sup>1</sup> Cervical cancer usually begins as a pre-cancer and takes years to develop. A Pap test easily detects pre-cancerous or cancer cells, and when found early this cancer is highly treatable with good outcomes and long survival.<sup>2</sup>

Screening with Pap and Human Papillomavirus (HPV) tests is the easiest way to find cervical changes early. Cervical cancer screening saves lives and women should start getting a Pap test at age 21. Between the ages of 21 and 30, women should receive screening every three years. After age 30 women have a choice: Pap tests alone every three years or Pap tests plus HPV test every five years. All positive results require follow-up with a healthcare provider.<sup>3</sup> Completing these screening tests from ages 21 through 65 aids in the prevention and early detection of cervical cancer. In fact, up to 93% of cervical cancer can be prevented by screening and HPV vaccination.<sup>4</sup>

In addition to the Pap test, another way to prevent this cancer is use of the HPV vaccine. This vaccine is recommended for both boys and girls starting at ages 11-12. The vaccine works best before exposure to HPV so the shot is given at these ages, prior to the initiation of any sexual contact. If not vaccinated at younger ages, catch up vaccines are suggested for males up to age 21 and females up to age 26.<sup>5</sup>

In 2015 in WV, 80 women were diagnosed with and 28 women died of cervical cancer.<sup>6</sup> Although these numbers are small, WV usually ranks in the top five for both cervical cancer incidence and mortality when compared with other states. Over half (51%) of the women with cervical cancer in WV are diagnosed with regional or distant metastasis.<sup>7</sup>

Risk factors for cervical cancer include infection with HPV, smoking, using birth control for five years or more, giving birth to three or more children, having several sexual partners, or having human immunodeficiency virus.<sup>6</sup>

The bottom line is that cervical cancer is a preventable cancer that can be found early, even as a pre-cancer. Vaccination and screening lead to prevention and early detection of cervical cancer. No West Virginia woman should die of cervical cancer.

1. American Cancer Society. Accessed at <http://www.cancer.org/cancer/cervicalcancer/detailedguide/cervical-cancer-what-is-cervical-cancer> on 8/22/2018 at 12:31 PM.

2. Centers for Disease Control and Prevention. Accessed at <https://www.cdc.gov/cancer/cervical/> on 8/22/2018 at 12:32 PM.

3. Centers for Disease Control and Prevention. Accessed at [www.cdc.gov/cancer/cervical/basic\\_info/screening.htm](http://www.cdc.gov/cancer/cervical/basic_info/screening.htm) on 8/15/2018 at 10:47 AM.

4. Vital Signs 2014, Centers for Disease Control and Prevention. Accessed at [www.cdc.gov/vitalsigns/cervical-cancer/index.html](http://www.cdc.gov/vitalsigns/cervical-cancer/index.html) on 8/15/2018 at 10:56 AM.

5. Centers for Disease Control and Prevention. Accessed at <https://www.cdc.gov/std/HPV/STDFact-HPV.htm#a4> on 8/22/2018 at 1:13 PM.

6. Centers for Disease Control and Prevention. Accessed at [www.cdc.gov/cancer/dataviz/](http://www.cdc.gov/cancer/dataviz/) on 8/22/2018 at 1:45 PM.

7. North American Association of Central Cancer Registries. Accessed at <https://faststats.naaccr.org/selections.php?#Output> on 8/22/2018 at 1:17 PM.

# Cervical Cancer in West Virginia

Cervical Cancer Incidence in West Virginia per 100,000 women

9.1

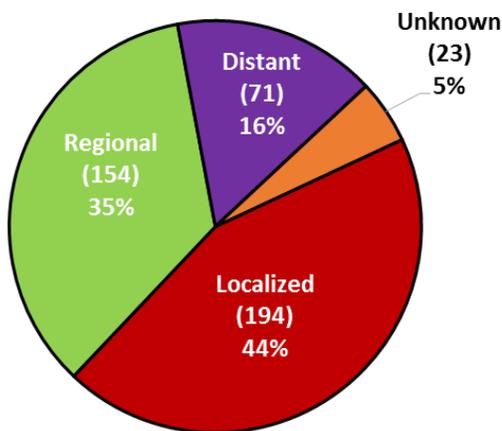
Cervical Cancer Deaths in West Virginia per 100,000 women

3.3

*West Virginia has the fifth highest incidence rate and third highest death rate of cervical cancer in the nation.*

*Cervical cancer screening saves lives. Women should start getting a Pap test at age 21. Between the ages of 21 and 30, women should receive screening every 3 years. After age 30, women have a choice: Pap tests alone every 3 years or Pap tests plus HPV test every 5 years. All positive results require follow-up with a healthcare provider.*

Percentage of Cervical Cancer Cases by Stage at Diagnosis, West Virginia, 2011-2015



Up to 93% of cervical cancer can be prevented by screening and HPV vaccination.

## Cervical Cancer Risk Factors

- Infection with Human Papillomavirus
- Smoking
- Using birth control for five years or more
- Giving birth to three or more children
- Having several sexual partners

**THIS YEAR, AN ESTIMATED 13,240 WOMEN WILL BE DIAGNOSED WITH CERVICAL CANCER AND A PREDICTED 4,170 WILL DIE FROM THE DISEASE NATIONALLY.**

## How HPV infection can lead to cervical cancer

It could take years to decades



Source: Saslow et al., *American Journal of Clinical Pathology*, 2012

# Cervical Cancer Programs in West Virginia

## WV IMMUNIZATION NETWORK

The West Virginia Immunization Network, a program of The Center for Rural Health Development, is a statewide coalition that works to foster comprehensive and sustained state and community programs to ensure residents are protected from vaccine-preventable diseases throughout their lifespan. The group is made up of more than 300 people from both the public and private sector making sure that every resident is appropriately immunized. Vaccination is safe, effective, and the best line of defense against certain illnesses, including HPV, one of the major causes of cervical cancer.

CONTACT: WV Immunization Network at 304.397.4071

RESOURCES: <https://dhhr.wv.gov/oeps/immunization/WIN/Pages/default.aspx>

## WV DIVISION OF IMMUNIZATION SERVICES

The mission of the West Virginia Division of Immunization Services (WVDIS) is to prevent and control vaccine-preventable diseases among the children, adolescents, and adults of WV. WVDIS administers the Vaccines for Children (VFC) program that provides free vaccines to eligible children. Eligible children are those without health insurance, those enrolled in Medicaid, American Indian and Alaskan natives, and those with health insurance that does not cover some or all vaccines. This federally funded program is available at more than 400 health care provider locations across the state including all county health departments. Children with insurance through the Children's Health Insurance Program (CHIP) are also eligible for free vaccines at all the provider locations participating in the VFC program. WVDIS provides a limited amount of vaccines for uninsured adults through county health departments. Vaccines provided for adults include pneumococcal, tetanus-diphtheria-pertussis (Tdap), influenza, and shingles.

CONTACT: WV Division of Immunization Services at 304.558.2188 or 1.800.642.3634

RESOURCES: <http://www.dhhr.wv.gov/oeps/immunization/Pages/default.aspx>

## WV BREAST AND CERVICAL CANCER SCREENING PROGRAM

The West Virginia Breast and Cervical Cancer Screening Program (WVBCCSP) is a public health program that helps uninsured and underinsured women gain access to free or low-cost cervical cancer and breast cancer screening services. For the prevention of cervical cancer, the WVBCCSP provides Pap tests and pelvic exams to eligible women, as well as diagnostic testing for those whose screening outcome is abnormal.

WVBCCSP Income Guidelines

### Who is eligible for these free or low-cost services?

Women:

- between the ages of 25 and 64
- with no health insurance or who are underinsured
- who meet income guidelines, and
- who are WV residents

| Family Size | Monthly | Yearly   |
|-------------|---------|----------|
| 1           | \$2,529 | \$30,348 |
| 2           | \$3,429 | \$41,148 |
| 3           | \$4,329 | \$51,948 |
| 4           | \$5,229 | \$62,748 |
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Effective 6/30/2018-6/29/2019

CONTACT: WVBCCSP at 304.558.5388 or 1.800.642.8522 and ask to speak to someone in the Program

RESOURCES: <http://www.wvdhhr.org/bccsp/>





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# Colorectal Cancer in West Virginia

Colorectal cancer is cancer that starts in the colon or rectum.<sup>1</sup> Sometimes it is called colon cancer, for short. Most colorectal cancers begin as a growth on the inner lining of the colon or rectum called a polyp. Some types of polyps can change into cancer over several years, but not all polyps become cancer.

The type of polyp that sometimes turns into cancer is called an adenomatous polyp or adenoma. This type of polyp is called a pre-cancerous condition. Two other types of polyps that are more common are hyperplastic polyps and inflammatory polyps. In general, these types of polyps are not pre-cancerous.<sup>1</sup>

Both men and women are at risk of colorectal cancer, but risk goes up with age. Ninety percent (90%) of colorectal cancer cases are found in people aged 50 and older.<sup>2</sup> Other risk factors include previous polyps in the colon or rectum; having had colorectal cancer or cancer of the ovary, uterus, or breast; having a parent, sibling, or child who has had colorectal cancer; having Ulcerative Colitis, Crohn's disease, or Lynch Syndrome; or smoking.

All men and women between the ages of 50 and 75 should be regularly screened for colorectal cancer. Colorectal cancer screening can find cancer early when it is smaller and easier to treat and cure. Colorectal screening can also find polyps and remove them before they have a chance to grow into cancer.

Each year in West Virginia, approximately 1,140 people are diagnosed with colorectal cancer, and 450 die from this cancer.<sup>3</sup> In West Virginia, from 2011 to 2015, forty-five percent (45%) of colorectal cancers were diagnosed in the earlier stages of in situ (5%) or localized (40%) cancer. However, fifty-one percent (51%) of colorectal cancers in West Virginia during this time period were diagnosed at regional (31%) or distant (20%) stages.<sup>4</sup>

Regular screening saves lives. There are several screening options approved by the United States Preventive Services Task Force.<sup>5</sup> The stool-based, at-home testing options include the 1) Guaiac Fecal Occult Blood Test (FOBT) done annually, 2) the Fecal Immunochemical Test (FIT) done annually, or the 3) Fecal Immunochemical Test-DNA (FIT-DNA) done either annually or every three years depending on the brand. The direct visualization tests, done in a doctor's office or at the hospital, include the 1) Colonoscopy done every ten years, 2) CT Colonography done every five years, 3) Flexible sigmoidoscopy without FIT done every five years, or 4) Flexible Sigmoidoscopy with FIT done every ten years with a FIT every year. Talk with your provider to discuss which screening test is right for you.

The bottom line is that colorectal cancer is a preventable cancer that can be found early, even as a precancer. No West Virginian should die of colorectal cancer.

1. American Cancer Society, Colorectal Cancer. Accessed at <https://www.cancer.org/cancer/colon-rectal-cancer/about/what-is-colorectal-cancer.html> on 8/23/18 at 5:17 PM.

2. Center for Disease Control and Prevention, Colorectal Cancer. Accessed at [https://www.cdc.gov/cancer/colorectal/basic\\_info/risk\\_factors.htm](https://www.cdc.gov/cancer/colorectal/basic_info/risk_factors.htm) on 8/23/18 at 5:25 PM.

3. United States Cancer Statistics: 2011 - 2015 Accessed at <https://gis.cdc.gov/Cancer/USCS/DataViz.html> on 8/29/18 at 9:30 AM.

4. WV Cancer Registry.

5. United States Preventive Services Task Force 2016 Colorectal Cancer Screening Guidelines. Accessed at <https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/colorectal-cancer-screening2#tab> on 8/23/18 at 5:41 PM.

# Colorectal Cancer in West Virginia

Colorectal Cancer Incidence in West Virginia per 100,000 people

47.0

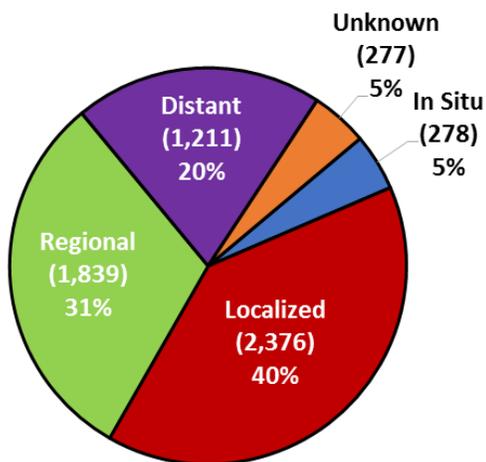
Colorectal Cancer Deaths in West Virginia per 100,000 people

18.4

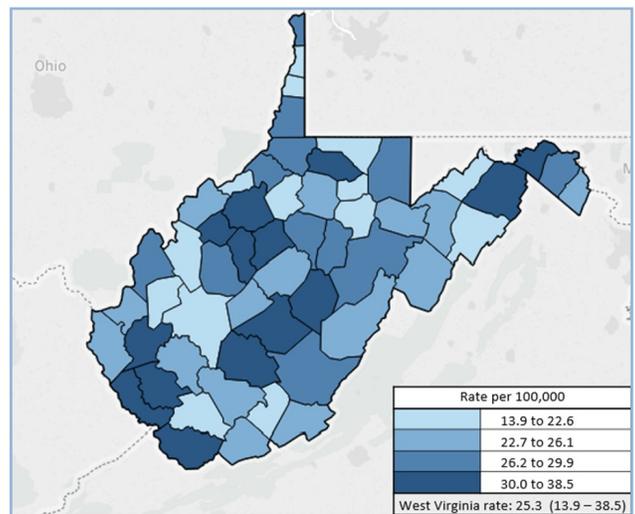
*Colorectal cancer is the second leading cause of cancer related deaths in West Virginia.*

*Regular colorectal cancer screening can detect cancer early when it is easier to treat and cure.*

Percentage of Colorectal Cancer Cases by Stage at Diagnosis, West Virginia, 2011-2015



Average Annual Age-Adjusted Late-Stage Colorectal Cancer Incidence Rates by County, 2011-2015



## Colorectal Cancer Screening Guidelines: Seven Screening Options

| Screening Method                        | Frequency   |
|---|---|
| <b>Stool Based Screening Tests</b>      |   |
| Guaiac Fecal Occult Blood Test          | Every year  |
| Fecal Immunochemical Test (FIT)         | Every year  |
| Fecal Immunochemical Test-DNA (FIT-DNA) | Every 1 or 3 years  |
| <b>Direct Visualization Tests</b>       |   |
| Colonoscopy                             | Every 10 years  |
| CT Colonography                         | Every 5 years   |
| Flexible Sigmoidoscopy without FIT      | Every 5 years   |
| Flexible Sigmoidoscopy with FIT         | Flexible Sigmoidoscopy every 10 years with FIT every year |

Current as of December 2017

## Colorectal Cancer Risk Factors

Everyone is at risk of colorectal cancer. Risk increases if:

- Over age 50
- Polyps have been found in the colon or rectum
- History of cancer of the ovary, uterus, or breast
- History of colorectal cancer for a parent, sibling, or child

# Colorectal Cancer Programs in West Virginia

## MOUNTAINS OF HOPE WEST VIRGINIA CANCER COALITION

The Mountains of Hope WV Cancer Coalition (MOH), managed by Cancer Prevention and Control at the WVU Cancer Institute, is dedicated to reducing the human and economic impact of cancer in our state. WVU Cancer Institute, American Cancer Society (ACS), WV Breast and Cervical Cancer Screening Program (WVBCCSP), and WV Comprehensive Cancer Program (WVCCP) founded the Coalition in 1998. In 2016, the organization chose colorectal cancer screening as one of its primary aims. Educational resources and strategies for increasing screening and reducing the impact of colorectal cancer incidence and mortality are available to healthcare teams and community members.

CONTACT: WVU Office of Cancer Prevention and Control at 304.293.2370 or 1.877.287.2272

RESOURCES: [www.moh.wv.gov](http://www.moh.wv.gov)

## WEST VIRGINIA PROGRAM TO INCREASE COLORECTAL CANCER SCREENING

The West Virginia Program to Increase Colorectal Cancer Screening (WV PICCS) is directed by Cancer Prevention and Control at the WVU Cancer Institute. WV PICCS partners with health care systems to implement evidence-based interventions (EBIs) shown to increase colorectal cancer screening. Partnering clinics choose from a menu that includes: provider assessment and feedback; client reminders; provider recall; reducing structural barriers; and implement these over a two year period.

CONTACT: WVU Office of Cancer Prevention and Control at 304.293.2370 or 1.877.287.2272

RESOURCES: <http://www.wvucancer.org/cancer-prevention-control/wv-program-to-increase-colorectal-cancer-screening/>

## WEST VIRGINIA - AMERICAN CANCER SOCIETY AND THE “80% BY 2018” CAMPAIGN

The WV American Cancer Society leads the National Colorectal Cancer Roundtable (NCCRT) efforts in WV to increase colorectal cancer screening to “80% by 2018.” The “80% by 2018” campaign is committed to substantially reducing colorectal cancer as a major public health problem for those 50 and older. The WV American Cancer Society, in collaboration with hundreds of other organizations across the nation, works to share information, identify needs and opportunities for screening and prevention as well as address gaps in research, programs, activities and services. Staff and resources are available to all West Virginians.

CONTACT: American Cancer Society at 1.800.227.2345

RESOURCES: <http://nccrt.org/tools/80-percent-by-2018/> and <http://www.acscan.org/action/wv>



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## Lung Cancer in West Virginia

Cancer happens when cells in the body begin to grow out of control. When this occurs in the lungs, it is called lung cancer. There are two main types of lung cancer: small cell and non-small cell. Although both occur in the lung, they grow very differently and are treated differently. Non-small cell lung cancer is the more common of the two and has many subtypes including adenocarcinoma, squamous cell carcinoma, and large cell carcinoma.<sup>1</sup>

At present, the only recommended screening test for lung cancer is low-dose computed tomography (also known as a low-dose CT scan, or LDCT). An x-ray machine scans the body with low doses of radiation in order to create detailed pictures of the lungs.<sup>2</sup> The United States Preventive Services Task Force recommends annual screening with LDCT for individuals between 55 and 80 years old who have a 30 pack-year smoking history and currently smoke or have quit in the last 15 years.<sup>3</sup> Therefore, an adult aged 55 or older who smoked an average of one pack of cigarettes a day for 30 years, or two packs a day for 15 years, or any combination that equals 30 pack-years or more, is eligible.

Lung cancer (all types combined) is the second most common cancer in both men and women<sup>4</sup> and accounts for 18% of all new cancer cases diagnosed in West Virginia.<sup>5</sup> Every year in WV, approximately 2,039 people are diagnosed with lung cancer and 1,482 will die from the disease.<sup>5,6</sup> Half of all people with lung cancer diagnoses have distant metastasis, meaning the cancer has spread. Because of this, more people die of lung cancer than colorectal, prostate, and breast cancer combined.<sup>7</sup>

In the United States, cigarette smoking is linked to 80% to 90% of lung cancers, making it the number one risk factor for the disease. Other factors include secondhand smoke, radon, other substances and pollutants (including asbestos, arsenic, diesel exhaust, and some forms of silica and chromium), personal family history of lung cancer, previous radiation therapy to the chest, and possibly diet.<sup>8</sup>

Most lung cancers can be prevented as they are connected to smoking, secondhand smoke, or exposure to radon or other environmental factors. Lung cancer screening using LDCT can help find lung cancer at an earlier stage when it is most treatable, thus improving quality of life and increasing life span for lung cancer survivors.<sup>7</sup>

1. American Cancer Society. Accessed at <https://www.cancer.org/cancer/non-small-cell-lung-cancer/about/what-is-non-small-cell-lung-cancer.html> on 8/21/18 at 1:01 PM.

2. Centers for Disease Control and Prevention. Accessed at [https://www.cdc.gov/cancer/lung/basic\\_info/screening.htm](https://www.cdc.gov/cancer/lung/basic_info/screening.htm) on 8/21/18 at 1:05 PM.

3. U.S. Preventive Services Task Force (2014). Screening for Lung Cancer: U.S. Preventive Services Task Force Recommendation Statement. *Annals of Internal Medicine*, 160(5).

4. American Cancer Society. Accessed at <http://www.cancer.org/cancer/non-small-cell-lung-cancer/about/key-statistics.html> on 8/21/18 at 1:10 PM.

5. WV Cancer Registry.

6. United States Cancer Statistics: 1999 - 2014 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs). Accessed on 8/21/18 at 1:12 PM.

7. American Cancer Society. Accessed at <http://www.cancer.org/cancer/lung-cancer/prevention-and-early-detection.html> on 8/21/17 at 1:15 PM.

8. Centers for Disease Control and Prevention. Accessed at [https://www.cdc.gov/cancer/lung/basic\\_info/risk\\_factors.htm](https://www.cdc.gov/cancer/lung/basic_info/risk_factors.htm) on 8/21/17 at 1:20 PM.

# Lung Cancer in West Virginia

Lung Cancer Incidence in West Virginia per 100,000 people

80.3

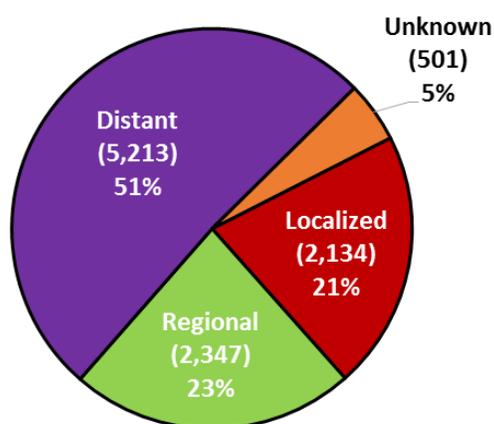
Lung Cancer Deaths in West Virginia per 100,000 people

58.8

*Lung cancer is the leading cause of cancer related deaths in West Virginia.*

*Regular lung cancer screening can detect cancer early when it is easier to treat and cure.*

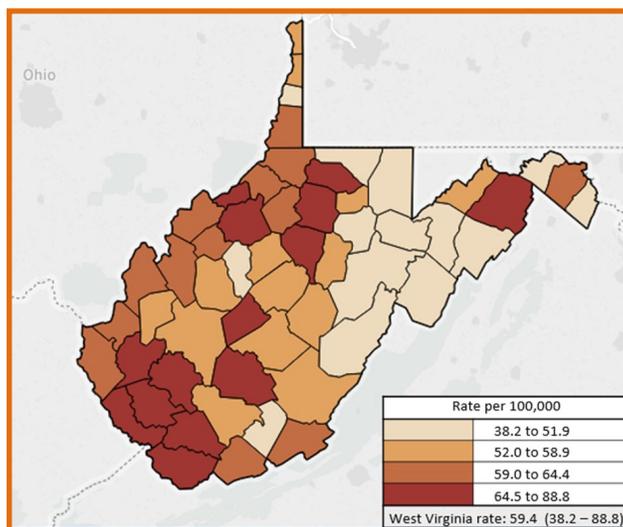
Percentage of Lung and Bronchus Cancer Cases by Stage at Diagnosis, West Virginia, 2011-2015



## Lung Cancer Risk Factors

- Smoking
- Secondhand smoke
- Radon
- Environmental exposures
- Personal or family history of lung cancer

Average Annual Age-Adjusted Late Stage Lung Cancer Incidence Rates by County, West Virginia, 2011-2015



## Lung Cancer Screening Guidelines:

### Low-Dose Computed Tomography (CT)

Yearly CT (low-dose) is recommended for people who:

- Are 55 to 80 years old, and
- Have a 30 pack-year\* smoking history, and
- Are either current smokers or smokers who quit in the past 15 years.

\* pack-year = packs a day x number of years smoking  
(ex: 2 packs a day x 15 years = 30 pack-year smoking history)

# Lung Cancer Programs in West Virginia

## WEST VIRGINIA TOBACCO QUITLINE

The biggest risk factor in the development of lung cancer is smoking. West Virginia's Tobacco Quitline has operated since July 2000 enrolling over 73,000 West Virginians. The Quitline offers smoking cessation services to residents over the age of 18 who are uninsured, underinsured, or whose insurance does not provide its own smoking cessation services. Participants are eligible for four free proactive coaching calls and a supply of free nicotine replacement therapy (NRT) with a choice of patches, gum, or lozenges. Medicaid patients are to receive an NRT prescription through their doctor.

CONTACT: 1.800.QUIT.NOW (1.800.784.8669) or 1.877.966.8784 to speak to a Quitline representative  
RESOURCES: <http://www.dhhr.wv.gov/wvntp/quitline/Pages/default.aspx>

## WEST VIRGINIA LUNG CANCER PROJECT

WVU Cancer Institute's Cancer Prevention and Control (CPC) through a partnership with the Patient Advocate Foundation (PAF) addresses lung cancer disparities in WV. The overall goals are to decrease lung cancer mortality, improve early diagnosis of lung cancer, and to provide support services to lung cancer patients through the WV Lung Cancer CareLine. This multi-faceted approach works with Medicaid managed care organizations to identify their enrollees at need for lung cancer screening. The Project also works to educate health care providers and the general public about lung cancer screening benefits, guidelines, and eligibility. Finally, WV lung cancer patients are given access to the WV Lung Cancer CareLine, a resource specific to WV patients that assists with barriers to treatment and survivorship, including assistance with access to care, finances, insurance, and job retention. This service is provided by the PAF and is free for all patients diagnosed with lung cancer or in the process of being screened or diagnosed.

CONTACT: WVU Office of Cancer Prevention and Control at 304.293.2370 or 1.877.287.2272  
RESOURCES: <http://www.wvucancer.org/cancer-prevention-control/wv-lung-cancer-project/> and <https://wvlungcancer.pafcareline.org/index.php>

## BRIDGE PROGRAM

This Bridge Program, previously known as the West Virginia Lung Cancer Survivorship Program, based at the WVU Cancer Institute, is implementing an innovative model of care for lung cancer patients completing definitive curative treatment. The program goal is to improve the overall coordination of care and decrease the consequences of treatment for patients diagnosed with lung cancer in West Virginia. "Bridge to Good Living: Thriving beyond Lung Cancer" also aims to reach healthcare providers through conferences and podcasts, as well as disseminate information about lung cancer survivorship and the model to the community of patients, families, and advocates across WV.

CONTACT: WVU Office of Cancer Prevention and Control at 304.293.2370 or 1.877.287.2272  
RESOURCES: <http://wvucancer.org/cancer-prevention-control/bridge-program/>



## HPV-Associated Cancers in West Virginia

Human Papillomavirus (HPV) is a recognized cause of cancer. Although most HPV infections are asymptomatic and clear spontaneously, persistent infections can progress to pre-cancer or cancer. HPV causes most cervical cancers, as well as some cancers of the vagina, vulva, penis, anus, and oropharynx (cancers of the back of the throat, including the base of the tongue and tonsils).<sup>1</sup>

Based on data from 2011 to 2015, approximately 42,700 new cases of HPV-associated cancers occurred in the United States each year, including an estimated 24,400 among women and 18,300 among men. Cervical cancer is the most common HPV-associated cancer among women, and oropharyngeal cancers are the most common among men.<sup>1</sup>

HPV-associated cancers are estimated by examining cancer in parts of the body and cancer cell types that are more likely to be caused by HPV. Cancer registries do not collect data on the presence or absence of HPV in cancer tissue at the time of diagnosis. In general, HPV is thought to be responsible for more than 90% of anal and cervical cancers, about 70% of vaginal and vulvar cancers, and more than 60% of penile cancers. Studies also show that around 70% of cancers of the oropharynx may be linked to HPV or a combination of tobacco, alcohol, and HPV.<sup>2</sup>

There is no one way to prevent infection with all the different types of HPV, but there are things you can do to lower your chances of being infected.<sup>3</sup> People who are not sexually active almost never develop genital HPV infections. Receiving the HPV vaccination before sexual activity can reduce the risk of infection by the HPV types targeted by the vaccine.<sup>4</sup> Over 90% of all HPV cancers are preventable through HPV vaccination.<sup>1</sup>

The Food and Drug Administration first approved three vaccines to prevent HPV infection for girls in 2006<sup>5</sup> and for boys and girls in 2011. As of May 2017, Gardasil 9 is the only HPV vaccine available for use in the United States. This vaccine provides strong protection against new HPV infections, but is not effective at treating established HPV infections or disease caused by HPV.<sup>6</sup> The National Cancer Institute has also identified a few factors with adequate evidence of an increased risk of oral cavity and oropharyngeal cancer. They are tobacco use, alcohol use, tobacco and alcohol use, and betel-quin chewing.<sup>7</sup> Reducing or eliminating these factors may reduce the chances of developing a HPV-associated cancer.

1. Centers for Disease Control and Prevention. Accessed at <https://www.cdc.gov/cancer/hpv/pdf/USCS-DataBrief-No4-August2018-508.pdf> on 9/18/18 at 12:53 PM.

2. Centers for Disease Control and Prevention. Accessed at <https://www.cdc.gov/cancer/hpv/statistics/index.htm> on 8/21/18 at 5:15 PM.

3. American Cancer Society. Accessed at <https://www.cancer.org/cancer/cancer-causes/infectious-agents/hpv/hpv-and-cancer-info.html> on 8/21/18 at 5:20 PM.

4. National Cancer Institute. Accessed at <https://www.cancer.gov/about-cancer/causes-prevention/risk/infectious-agents/hpv-fact-sheet> on 8/21/18 at 5:35 PM.

5. Centers for Disease Control and Prevention. Accessed at <https://www.cdc.gov/hpv/hcp/need-to-know.pdf> on 10/29/18 at 8:50 AM.

6. National Cancer Institute. Accessed at <https://www.cancer.gov/about-cancer/causes-prevention/risk/infectious-agents/hpv-vaccine-fact-sheet> on 8/21/18 at 5:40 PM.

7. National Cancer Institute. Access at <https://www.cancer.gov/types/head-and-neck/hp/oral-prevention-pdq> on 8/21/18 at 5:45 PM.

# HPV-Associated Cancers in West Virginia

| HPV Vaccination Rates in West Virginia and the United States, Male and Female, 2018 |              |                                |                |                                  |
|---|--------------|--------------------------------|----------------|----------------------------------|
|   | 1 dose, male | Males who completed the series | 1 dose, female | Females who completed the series |
| <b>WV</b>   | 54.7%        | 39.3%                          | 67.5%          | 48.6%                            |
| <b>US</b>   | 62.6%        | 44.3%                          | 68.6%          | 53.1%                            |

National Immunization Survey-Teen, United States, 2018

*Human papillomavirus (HPV) causes most cervical cancers, as well as some cancers of the vagina, vulva, penis, anus, rectum, and oropharynx (cancers of the back of the throat, including the base of the tongue and tonsils).*

*HPV vaccines are recommended for preteen girls and boys to protect against HPV infection.*

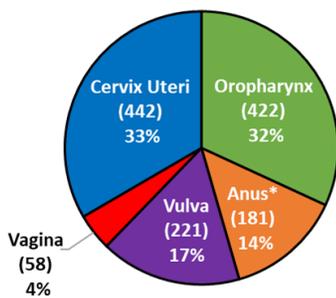
**Other factors that may increase the risk that an infection with a high-risk HPV type will persist and possibly develop into cancer include:**

- Smoking or chewing tobacco (for ↑ risk of oropharyngeal cancer)
- Having a weakened immune system
- Having many children (for ↑ risk of cervical cancer)
- Poor oral hygiene (for ↑ risk of oropharyngeal cancer)
- Chronic inflammation

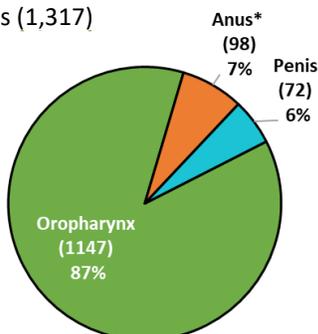
|  Myths:  |  Facts:                      |
|---|---|
| People with HPV always have symptoms.   | You can have HPV even if you do not have any signs or symptoms.   |
| You can get HPV from toilet seats, hugging or holding hands, swimming pools or hot tubs, sharing food or utensils, or by being unclean. | HPV is spread through skin-to-skin contact, not through an exchange of bodily fluid.                            |
| The HPV vaccine can cure the infection.   | The HPV vaccine prevents infection in someone who has never had HPV but can not treat someone already infected. |
| HPV only affects women.   | Both men and women are affected by the HPV viruses.   |
| Smoking is not a risk-factor for cervical cancer.   | Smoking raises your risk of HPV-associated cancer.  |
| There is only one type of HPV.  | There are approximately 100 types of HPV.   |

**Percentage of HPV-Associated Cancers\*\* by Site and Sex, West Virginia, 2011-2015**

Females (1,324)



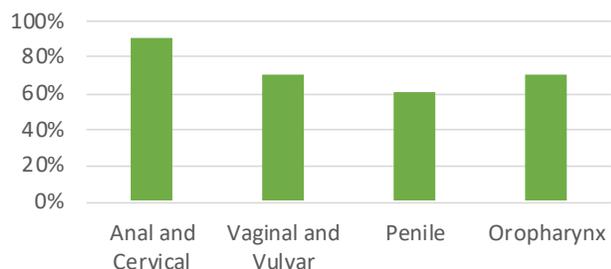
Males (1,317)



\*Anus, Anal Canal, and Anorectum

\*\*Not all incidence are directly attributed to the HPV virus

**% of Cancer Diagnosis that are HPV-Associated**



# Obesity-Related Cancers in West Virginia

Obesity is a prevalent problem throughout both West Virginia and the United States. In 2015-2016, the prevalence of obesity in the United States was 39.8%, and in 2016 in West Virginia, the prevalence of obesity was 37.7% which placed West Virginia first in the nation for obesity.<sup>1,2</sup> Obesity is linked to an increased cancer risk.<sup>3</sup> In fact, it is estimated that one out of three cancer deaths that occur in the United States is linked to a combination of obesity, poor nutrition, and physical inactivity. Of these three factors, obesity, or excess body weight, shows the strongest link to cancer risk.<sup>3</sup> The types of cancer linked to obesity include esophageal, pancreatic, colorectal, breast, ovarian, uterine, kidney, thyroid, and gallbladder.<sup>3</sup>

There are several mechanisms that may explain how obesity increases the risk of getting certain cancers. For example, obese individuals are more likely to have chronic inflammation in their bodies that can lead to DNA damage that leads to cancer.<sup>4</sup> Chronic inflammation produces certain chemicals within the body's cells, and these chemicals damage the nucleic acids that make up DNA. This damage causes DNA to mutate at high rates eventually leading to the formation of cancer.<sup>4</sup> This inflammation can appear in various forms such as gastroesophageal reflux disease, gallstones, or chronic ulcerative colitis.<sup>5</sup> Also, excess fat tissue produces larger amounts of estrogen which is linked to breast, endometrial, and ovarian cancers.<sup>5</sup> From 2011-2015, the most common obesity related cancers in West Virginia included post-menopausal breast (6,189 cases), colon and rectum (5,703 cases), and kidney and renal pelvis (2,241 cases).<sup>6</sup>

There is some evidence suggesting that weight loss reduces the risk of breast, endometrial, colon, and prostate cancers specifically.<sup>5</sup> Further studies focused on determining the impact of weight loss on cancer risk are needed. When a person is already obese, losing weight creates changes in the body that reduce the risk of cancer.<sup>3</sup> Mostly the change is a reduction in hormones such as excess estrogen that contributes to multiple types of cancer.<sup>3</sup> There are many studies that show that individuals who maintain a lower, healthier weight throughout adulthood have a decreased cancer risk, specifically for colorectal cancer, kidney cancer, post-menopausal breast, endometrial, and ovarian cancers.<sup>5</sup> Reaching and maintaining a healthy weight is important in working toward cancer prevention.

1. Centers for Disease Control and Prevention. Accessed at [www.cdc.gov/obesity/data/adult/html](http://www.cdc.gov/obesity/data/adult/html) on 8/13/2018 at 9:17 AM.

2. West Virginia Department of Health and Human Resources. Accessed at [www.dhhr.wv.gov/dpcd/data-reports/Pages/Fast-Facts.aspx](http://www.dhhr.wv.gov/dpcd/data-reports/Pages/Fast-Facts.aspx) on 8/13/2018 at 10:34 AM.

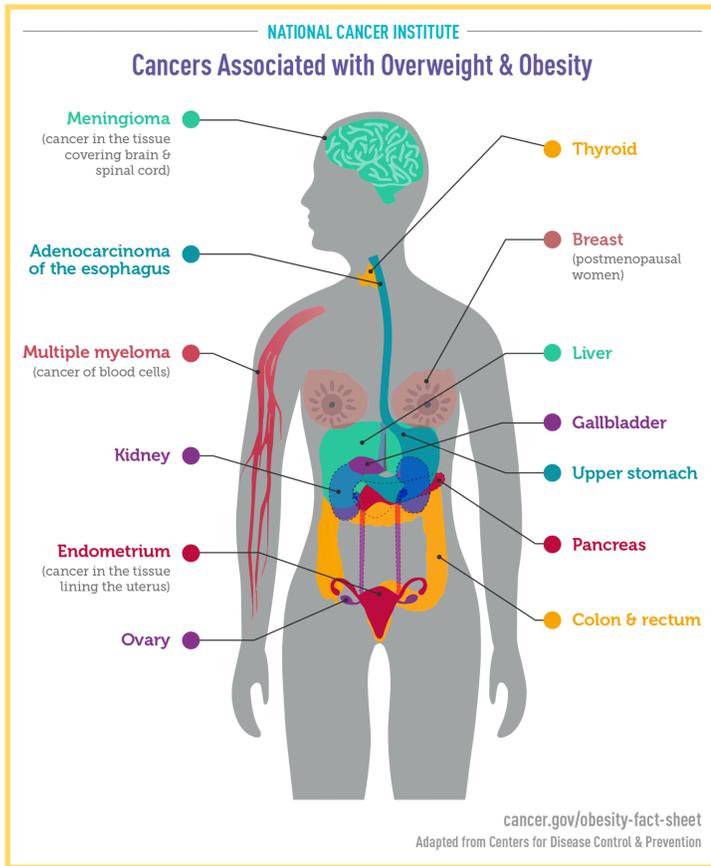
3. West Virginia Department of Health and Human Resources. Accessed at <https://dhhr.wv.gov/oeps/cancer/document/obesity-related-cancers.pdf> on 8/13/2018 at 10:15 AM.

4. Kawanishi, S., Ohnishi, S., Ma, N., Hiraku, Y., & Murata, M. (2017). Crosstalk between DNA Damage and Inflammation in the Multiple Steps of Carcinogenesis. *International Journal of Molecular Sciences*, 18(8), 1808. <http://doi.org/10.3390/ijms18081808>.

5. National Cancer Institute. Accessed at <https://www.cancer.gov/about-cancer/causes-prevention/risk/obesity/obesity-fact-sheet> on 8/13/2018 at 11:17 AM.

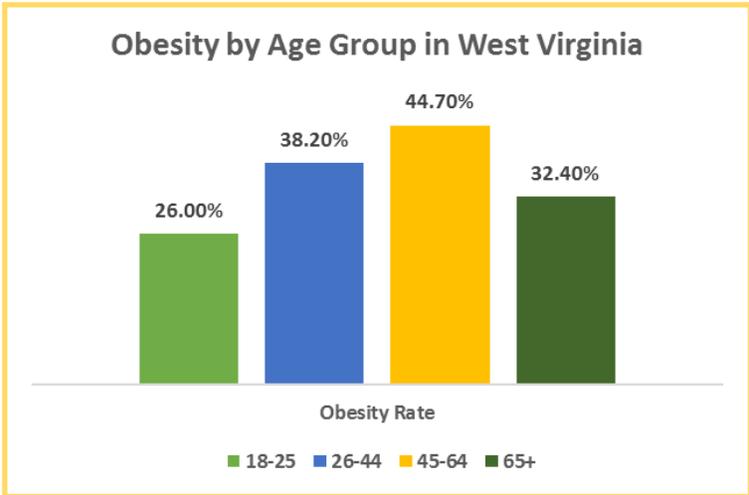
6. West Virginia Cancer Registry

# Obesity-Related Cancers in West Virginia



### Counts of Obesity-Related Cancers in West Virginia, 2011-2015

|                                 |               |
|---------------------------------|---------------|
| Post-Menopausal Breast (Female) | 6,189         |
| Colon and Rectum                | 5,703         |
| Kidney and Renal Pelvis         | 2,241         |
| Endometrium                     | 1,863         |
| Thyroid                         | 1,634         |
| Pancreas                        | 1,475         |
| Ovary                           | 796           |
| Liver                           | 720           |
| Multiple Myeloma                | 709           |
| Adenocarcinoma of the Esophagus | 480           |
| Gallbladder                     | 111           |
| Upper Stomach                   | 33            |
| Meningiomas                     | 8             |
| <b>TOTAL:</b>                   | <b>21,962</b> |



### How do you find your BMI?

$$\frac{\text{Weight}}{(\text{Height in inches})^2} \times 730$$


## Tobacco-Related Cancers in West Virginia

Tobacco use is the leading preventable cause of cancer and death from cancer.<sup>1</sup> There are many forms of tobacco available, but there is no safe form of tobacco use; all tobacco causes health problems. Smoking leads to disease and disability and harms nearly every organ in the body.<sup>2</sup> Smoking causes about one in five, or 20%, of all deaths in the United States.<sup>3</sup>

Tobacco use can lead to cancers of the lung, larynx (voice box), mouth, esophagus, throat, bladder, kidney, liver, stomach, pancreas, colon, rectum, cervix, and blood (acute myeloid leukemia). Use of smokeless tobacco increases the risk for cancers of the mouth, esophagus, and pancreas.<sup>1</sup>

WV currently has the highest adult smoking rate in the country and there are clear health disparities related to smoking and tobacco use. The highest smoking rates are seen among those with less than a high school education and the lowest rates are among college graduates. As educational level increases, use of tobacco products significantly decreases; a nearly identical trend is seen for the US. A similar pattern is observed when looking at income levels. The highest smoking rates are observed among those with a household income less than \$30,000 per year (30.9%) and lowest among those with a household income of \$100,000 per year or more (11.4%).<sup>4</sup>

People who stop using tobacco products reduce their risk of developing cancer and experience health benefits. Heart rate and body temperature begin to change in as little as 20 minutes after someone stops smoking. Many people find quitting the use of tobacco products very hard and require both medical assistance and psychosocial support to stop. There are community, state, and national resources available to assist those interested in quitting. According to the Centers for Disease Control and Prevention, “Quitting smoking is a marathon, not a sprint.”

---

1. Tobacco. National Cancer Institute. Accessed at <https://www.cancer.gov/about-cancer/causes-prevention/risk/tobacco> on 8/29/18 at 1:00 PM.

2. Centers for Disease Control and Prevention. Accessed at [https://www.cdc.gov/tobacco/data\\_statistics/fact\\_sheets/index.htm?s\\_cid=osh-stu-home-spotlight-001](https://www.cdc.gov/tobacco/data_statistics/fact_sheets/index.htm?s_cid=osh-stu-home-spotlight-001) on 8/29/18 at 1:05 PM.

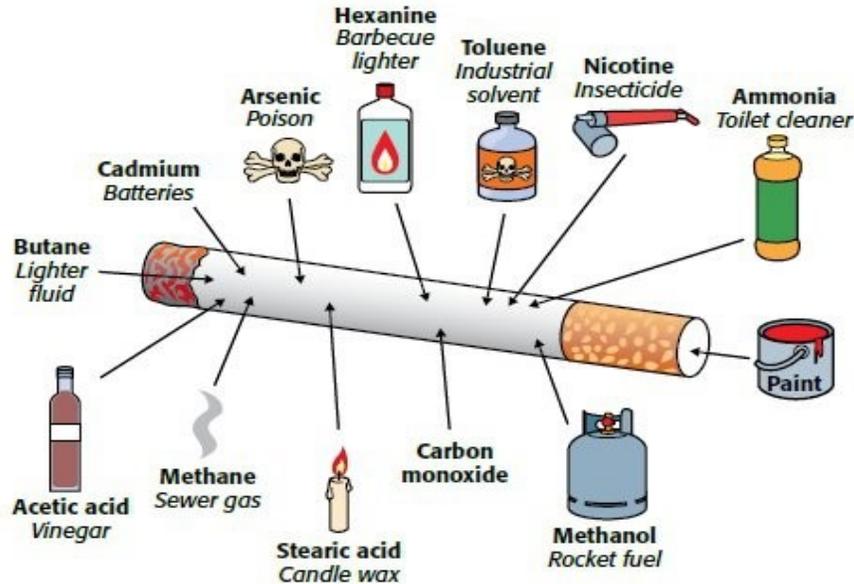
3. American Cancer Society. Accessed at <https://www.cancer.org/cancer/cancer-causes/tobacco-and-cancer/health-risks-of-smoking-tobacco.html> on 8/29/18 at 1:10 PM.

4. West Virginia Prevention Research Center. Findings from the 2014 West Virginia Adult Tobacco Survey.

# Tobacco-Related Cancers in West Virginia

*Tobacco is the leading cause of cancer and death from cancer.*

There is **NO** safe level of tobacco use!



**1 in 5 U.S. deaths is related to smoking**



## Tobacco Causes These Cancers:

1. Lung
2. Larynx (voice box)
3. Mouth
4. Esophagus
5. Throat
6. Bladder
7. Kidney
8. Liver
9. Stomach
10. Pancreas
11. Colon and rectum
12. Cervix
13. Acute Myeloid Leukemia



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# How to Read These Tables

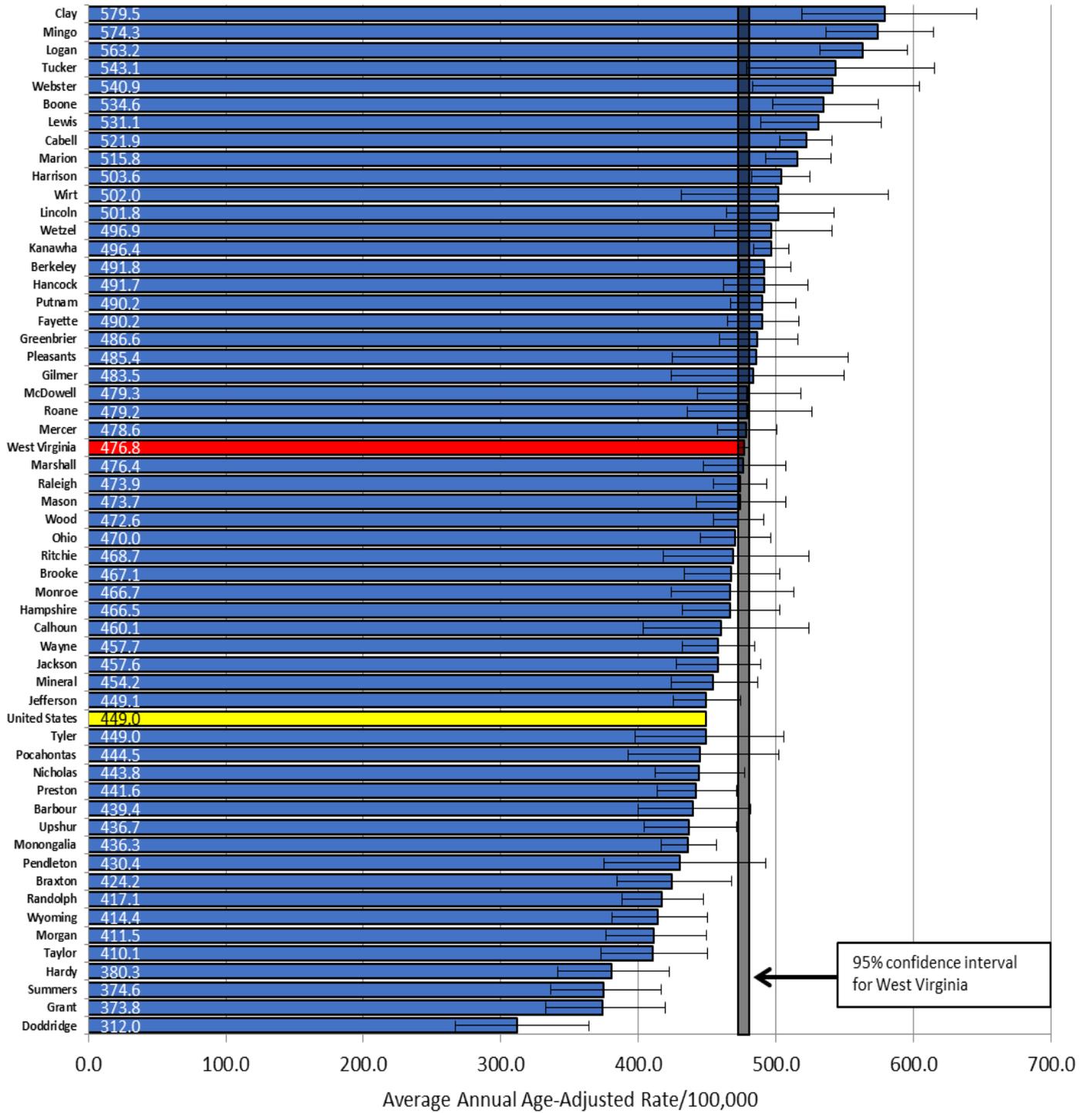
The county-level graphs on the following pages, arranged in alphabetical order by primary site, are packed with information. With a quick glance at these graphs, you can answer such questions as:

- **What is the lung and bronchus cancer incidence rate for Mingo County?**
  - The average annual incidence rate for each county is shown at the left margin of each bar. On page 82, you can see that Mingo County, at the top of the graph, has an annual average incidence rate of 114.7.
- **Which 5 counties have the highest breast cancer incidence rate?**
  - Each graph is arranged in order from the county with the highest average annual incidence rate to the lowest. On page 60, you can see that the 5 counties with the highest breast cancer incidence rates are Webster, Cabell, Marion, Ohio, and Greenbrier.
- **Is the melanoma skin cancer incidence rate for Putnam County significantly higher than the West Virginia average?**
  - The thin black lines extending from each bar are called “error bars,” and show the 95% confidence interval for each county’s average annual estimate. If the error bars for any two counties do not touch or overlap, then we can be 95% certain that the two average annual estimates are statistically different. The 95% confidence interval for West Virginia appears as a gray vertical bar to allow easy comparisons with any given county. On page 84, you can see that the average annual melanoma skin cancer rate for Putnam County (second from the top) is 32.2, compared to 20.8 for West Virginia (the red bar). Are they significantly different? Look at the left edge of the thin black error bar for Putnam County, and you can see that it does not overlap or touch the gray vertical bar. This means that the rate for Putnam County is significantly higher than the state average.
- **Is West Virginia higher or lower than the national average in lung and bronchus cancer incidence?**
  - The average annual incidence rate for West Virginia is shown as a red bar on the graphs. The average annual incidence rate for the United States is shown as a yellow bar. On page 82, you can see that the West Virginia rate for lung and bronchus cancer (80.3) is significantly higher than the United States rate (59.9).
- **How can I easily find rates for my county?**
  - For convenience, we have included a data table for each site that shows the average annual rates and 95% confidence intervals for each county arranged in alphabetical order. Your county will appear on the same line in each of the tables. The West Virginia average annual rate is shown as the first entry at the top left of each table.

**All Sites - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate  | Lower CI | Upper CI | 5-yr Count | County     | Rate  | Lower CI | Upper CI | 5-yr Count |
|---------------|-------|----------|----------|------------|------------|-------|----------|----------|------------|
| West Virginia | 476.8 | 472.8    | 480.8    | 57,867     | Mercer     | 478.6 | 457.3    | 500.8    | 2,056      |
| Barbour       | 439.4 | 399.9    | 481.9    | 486        | Mineral    | 454.2 | 423.6    | 486.7    | 875        |
| Berkeley      | 491.8 | 473.5    | 510.6    | 2,912      | Mingo      | 574.3 | 536.3    | 614.5    | 911        |
| Boone         | 534.6 | 497.4    | 574.1    | 822        | Monongalia | 436.3 | 416.8    | 456.5    | 1,995      |
| Braxton       | 424.2 | 384.4    | 467.5    | 451        | Monroe     | 466.7 | 423.7    | 513.3    | 477        |
| Brooke        | 467.1 | 433.6    | 502.8    | 807        | Morgan     | 411.5 | 376.4    | 449.4    | 544        |
| Cabell        | 521.9 | 503.1    | 541.2    | 3,093      | Nicholas   | 443.8 | 412.5    | 477.0    | 804        |
| Calhoun       | 460.1 | 403.2    | 523.8    | 258        | Ohio       | 470.0 | 445.0    | 496.1    | 1,449      |
| Clay          | 579.5 | 518.6    | 646.1    | 353        | Pendleton  | 430.4 | 374.9    | 492.8    | 256        |
| Doddridge     | 312.0 | 266.6    | 363.8    | 180        | Pleasants  | 485.4 | 425.0    | 552.6    | 245        |
| Fayette       | 490.2 | 465.0    | 516.5    | 1,531      | Pocahontas | 444.5 | 392.8    | 502.0    | 298        |
| Gilmer        | 483.5 | 424.3    | 549.3    | 245        | Preston    | 441.6 | 413.6    | 471.1    | 980        |
| Grant         | 373.8 | 332.7    | 419.2    | 329        | Putnam     | 490.2 | 466.8    | 514.5    | 1,735      |
| Greenbrier    | 486.6 | 458.8    | 515.8    | 1,265      | Raleigh    | 473.9 | 454.8    | 493.7    | 2,481      |
| Hampshire     | 466.5 | 432.2    | 503.0    | 749        | Randolph   | 417.1 | 388.5    | 447.4    | 850        |
| Hancock       | 491.7 | 461.6    | 523.5    | 1,083      | Ritchie    | 468.7 | 418.0    | 524.4    | 338        |
| Hardy         | 380.3 | 341.5    | 422.7    | 374        | Roane      | 479.2 | 436.0    | 525.9    | 493        |
| Harrison      | 503.6 | 482.7    | 525.1    | 2,316      | Summers    | 374.6 | 336.2    | 416.8    | 382        |
| Jackson       | 457.6 | 427.7    | 489.3    | 919        | Taylor     | 410.1 | 372.8    | 450.5    | 468        |
| Jefferson     | 449.1 | 425.1    | 474.2    | 1,401      | Tucker     | 543.1 | 478.4    | 615.2    | 286        |
| Kanawha       | 496.4 | 483.8    | 509.2    | 6,359      | Tyler      | 449.0 | 397.7    | 505.9    | 302        |
| Lewis         | 531.1 | 488.9    | 576.3    | 617        | Upshur     | 436.7 | 404.1    | 471.3    | 707        |
| Lincoln       | 501.8 | 463.9    | 542.0    | 698        | Wayne      | 457.7 | 432.1    | 484.6    | 1,261      |
| Logan         | 563.2 | 532.0    | 595.8    | 1,319      | Webster    | 540.9 | 483.4    | 604.1    | 358        |
| Marion        | 515.8 | 492.3    | 540.2    | 1,924      | Wetzel     | 496.9 | 455.7    | 541.1    | 589        |
| Marshall      | 476.4 | 447.5    | 507.0    | 1,098      | Wirt       | 502.0 | 431.5    | 581.9    | 201        |
| Mason         | 473.7 | 442.0    | 507.3    | 885        | Wood       | 472.6 | 454.5    | 491.2    | 2,730      |
| McDowell      | 479.3 | 442.7    | 518.4    | 692        | Wyoming    | 414.4 | 381.2    | 449.9    | 629        |

### All Sites - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

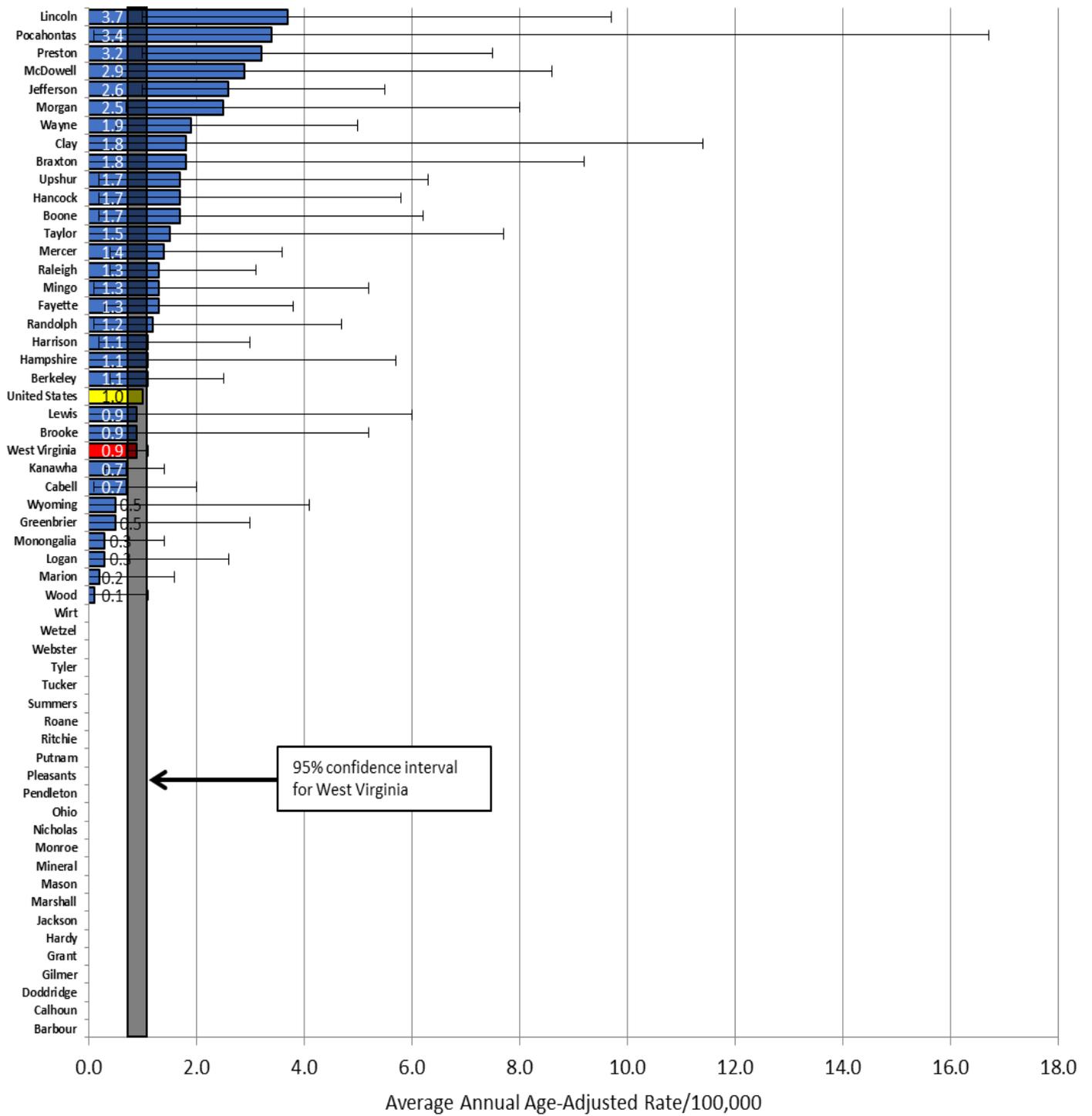


Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Bones and Joints - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 0.9  | 0.7      | 1.1      | 82         | Mercer     | 1.4  | 0.4      | 3.6      | 4          |
| Barbour       | 0.0  | 0.0      |          | 0          | Mineral    | 0.0  | 0.0      |          | 0          |
| Berkeley      | 1.1  | 0.4      | 2.5      | 6          | Mingo      | 1.3  | 0.1      | 5.2      | ^          |
| Boone         | 1.7  | 0.2      | 6.2      | ^          | Monongalia | 0.3  | 0.0      | 1.4      | ^          |
| Braxton       | 1.8  | 0.0      | 9.2      | ^          | Monroe     | 0.0  | 0.0      |          | 0          |
| Brooke        | 0.9  | 0.0      | 5.2      | ^          | Morgan     | 2.5  | 0.7      | 8.0      | 4          |
| Cabell        | 0.7  | 0.1      | 2.0      | ^          | Nicholas   | 0.0  | 0.0      |          | 0          |
| Calhoun       | 0.0  | 0.0      |          | 0          | Ohio       | 0.0  | 0.0      |          | 0          |
| Clay          | 1.8  | 0.0      | 11.4     | ^          | Pendleton  | 0.0  | 0.0      |          | 0          |
| Doddridge     | 0.0  | 0.0      |          | 0          | Pleasants  | 0.0  | 0.0      |          | 0          |
| Fayette       | 1.3  | 0.3      | 3.8      | ^          | Pocahontas | 3.4  | 0.1      | 16.7     | ^          |
| Gilmer        | 0.0  | 0.0      |          | 0          | Preston    | 3.2  | 1.0      | 7.5      | 5          |
| Grant         | 0.0  | 0.0      |          | 0          | Putnam     | 0.0  | 0.0      |          | 0          |
| Greenbrier    | 0.5  | 0.0      | 3.0      | ^          | Raleigh    | 1.3  | 0.4      | 3.1      | 5          |
| Hampshire     | 1.1  | 0.0      | 5.7      | ^          | Randolph   | 1.2  | 0.1      | 4.7      | ^          |
| Hancock       | 1.7  | 0.2      | 5.8      | ^          | Ritchie    | 0.0  | 0.0      |          | 0          |
| Hardy         | 0.0  | 0.0      |          | 0          | Roane      | 0.0  | 0.0      |          | 0          |
| Harrison      | 1.1  | 0.2      | 3.0      | ^          | Summers    | 0.0  | 0.0      |          | 0          |
| Jackson       | 0.0  | 0.0      |          | 0          | Taylor     | 1.5  | 0.0      | 7.7      | ^          |
| Jefferson     | 2.6  | 1.0      | 5.5      | 7          | Tucker     | 0.0  | 0.0      |          | 0          |
| Kanawha       | 0.7  | 0.3      | 1.4      | 8          | Tyler      | 0.0  | 0.0      |          | 0          |
| Lewis         | 0.9  | 0.0      | 6.0      | ^          | Upshur     | 1.7  | 0.2      | 6.3      | ^          |
| Lincoln       | 3.7  | 1.0      | 9.7      | 4          | Wayne      | 1.9  | 0.5      | 5.0      | 4          |
| Logan         | 0.3  | 0.0      | 2.6      | ^          | Webster    | 0.0  | 0.0      |          | 0          |
| Marion        | 0.2  | 0.0      | 1.6      | ^          | Wetzel     | 0.0  | 0.0      |          | 0          |
| Marshall      | 0.0  | 0.0      |          | 0          | Wirt       | 0.0  | 0.0      |          | 0          |
| Mason         | 0.0  | 0.0      |          | 0          | Wood       | 0.1  | 0.0      | 1.1      | ^          |
| McDowell      | 2.9  | 0.6      | 8.6      | ^          | Wyoming    | 0.5  | 0.0      | 4.1      | ^          |

### Bones and Joints - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

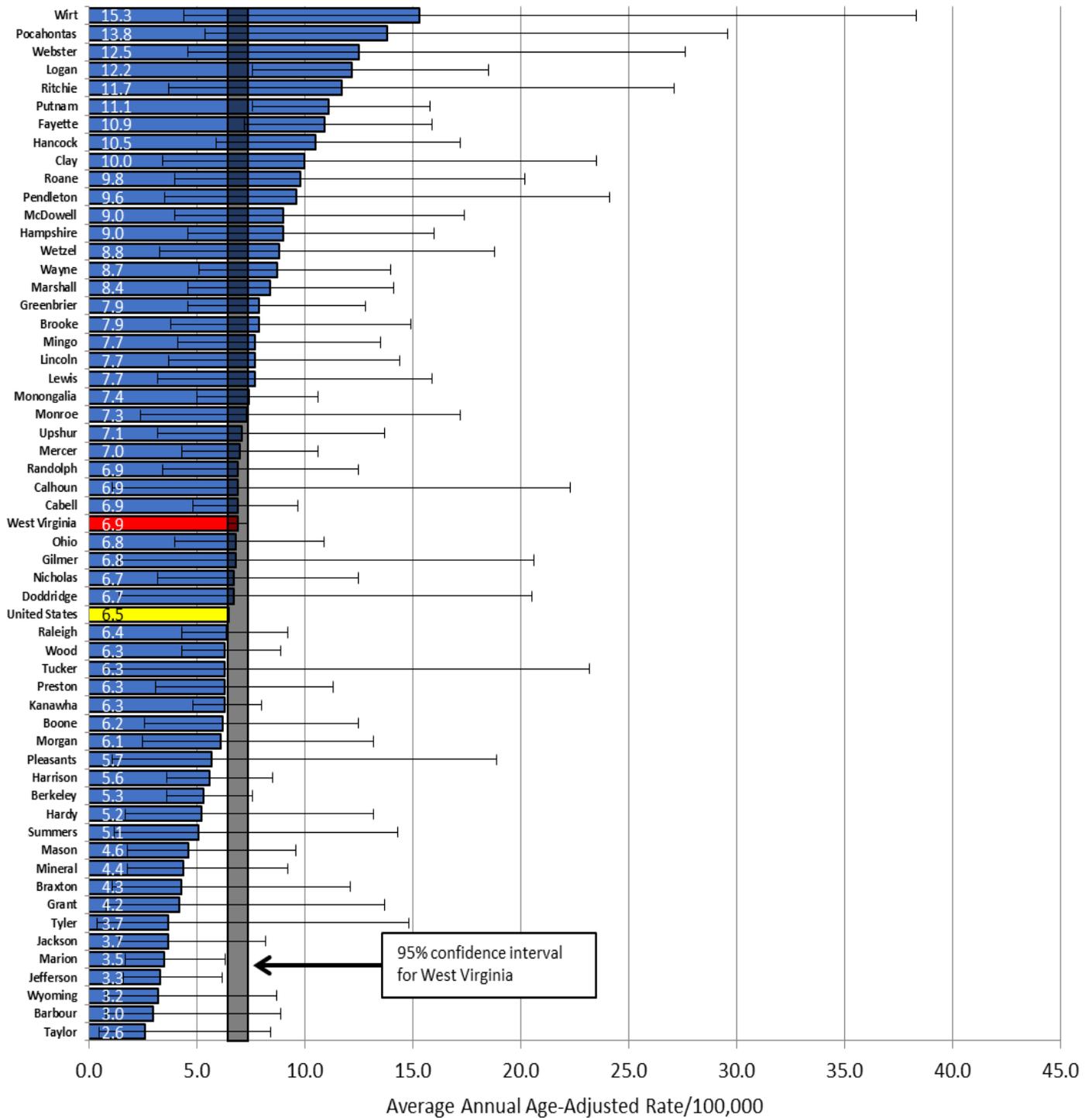


Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Brain and Other Nervous System - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 6.9  | 6.4      | 7.4      | 737        | Mercer     | 7.0  | 4.3      | 10.6     | 25         |
| Barbour       | 3.0  | 0.8      | 8.9      | 4          | Mineral    | 4.4  | 1.8      | 9.2      | 8          |
| Berkeley      | 5.3  | 3.6      | 7.6      | 32         | Mingo      | 7.7  | 4.1      | 13.5     | 14         |
| Boone         | 6.2  | 2.6      | 12.5     | 8          | Monongalia | 7.4  | 5.0      | 10.6     | 31         |
| Braxton       | 4.3  | 1.1      | 12.1     | 4          | Monroe     | 7.3  | 2.4      | 17.2     | 6          |
| Brooke        | 7.9  | 3.8      | 14.9     | 11         | Morgan     | 6.1  | 2.5      | 13.2     | 8          |
| Cabell        | 6.9  | 4.8      | 9.7      | 36         | Nicholas   | 6.7  | 3.2      | 12.5     | 11         |
| Calhoun       | 6.9  | 1.1      | 22.3     | ^          | Ohio       | 6.8  | 4.0      | 10.9     | 19         |
| Clay          | 10.0 | 3.4      | 23.5     | 6          | Pendleton  | 9.6  | 3.5      | 24.1     | 6          |
| Doddridge     | 6.7  | 1.4      | 20.5     | ^          | Pleasants  | 5.7  | 1.1      | 18.9     | ^          |
| Fayette       | 10.9 | 7.2      | 15.9     | 30         | Pocahontas | 13.8 | 5.4      | 29.6     | 8          |
| Gilmer        | 6.8  | 1.4      | 20.6     | ^          | Preston    | 6.3  | 3.1      | 11.3     | 12         |
| Grant         | 4.2  | 0.8      | 13.7     | ^          | Putnam     | 11.1 | 7.6      | 15.8     | 33         |
| Greenbrier    | 7.9  | 4.6      | 12.8     | 19         | Raleigh    | 6.4  | 4.3      | 9.2      | 32         |
| Hampshire     | 9.0  | 4.6      | 16.0     | 13         | Randolph   | 6.9  | 3.4      | 12.5     | 12         |
| Hancock       | 10.5 | 5.9      | 17.2     | 18         | Ritchie    | 11.7 | 3.7      | 27.1     | 5          |
| Hardy         | 5.2  | 1.7      | 13.2     | 5          | Roane      | 9.8  | 4.0      | 20.2     | 8          |
| Harrison      | 5.6  | 3.6      | 8.5      | 25         | Summers    | 5.1  | 1.2      | 14.3     | 4          |
| Jackson       | 3.7  | 1.4      | 8.2      | 7          | Taylor     | 2.6  | 0.5      | 8.4      | ^          |
| Jefferson     | 3.3  | 1.6      | 6.2      | 11         | Tucker     | 6.3  | 0.7      | 23.2     | ^          |
| Kanawha       | 6.3  | 4.8      | 8.0      | 72         | Tyler      | 3.7  | 0.4      | 14.8     | ^          |
| Lewis         | 7.7  | 3.2      | 15.9     | 8          | Upshur     | 7.1  | 3.2      | 13.7     | 9          |
| Lincoln       | 7.7  | 3.7      | 14.4     | 11         | Wayne      | 8.7  | 5.1      | 14.0     | 18         |
| Logan         | 12.2 | 7.6      | 18.5     | 24         | Webster    | 12.5 | 4.6      | 27.6     | 7          |
| Marion        | 3.5  | 1.7      | 6.3      | 12         | Wetzel     | 8.8  | 3.3      | 18.8     | 7          |
| Marshall      | 8.4  | 4.6      | 14.1     | 16         | Wirt       | 15.3 | 4.4      | 38.3     | 5          |
| Mason         | 4.6  | 1.8      | 9.6      | 8          | Wood       | 6.3  | 4.3      | 8.9      | 34         |
| McDowell      | 9.0  | 4.0      | 17.4     | 9          | Wyoming    | 3.2  | 0.8      | 8.7      | 4          |

## Brain and Other Nervous System - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

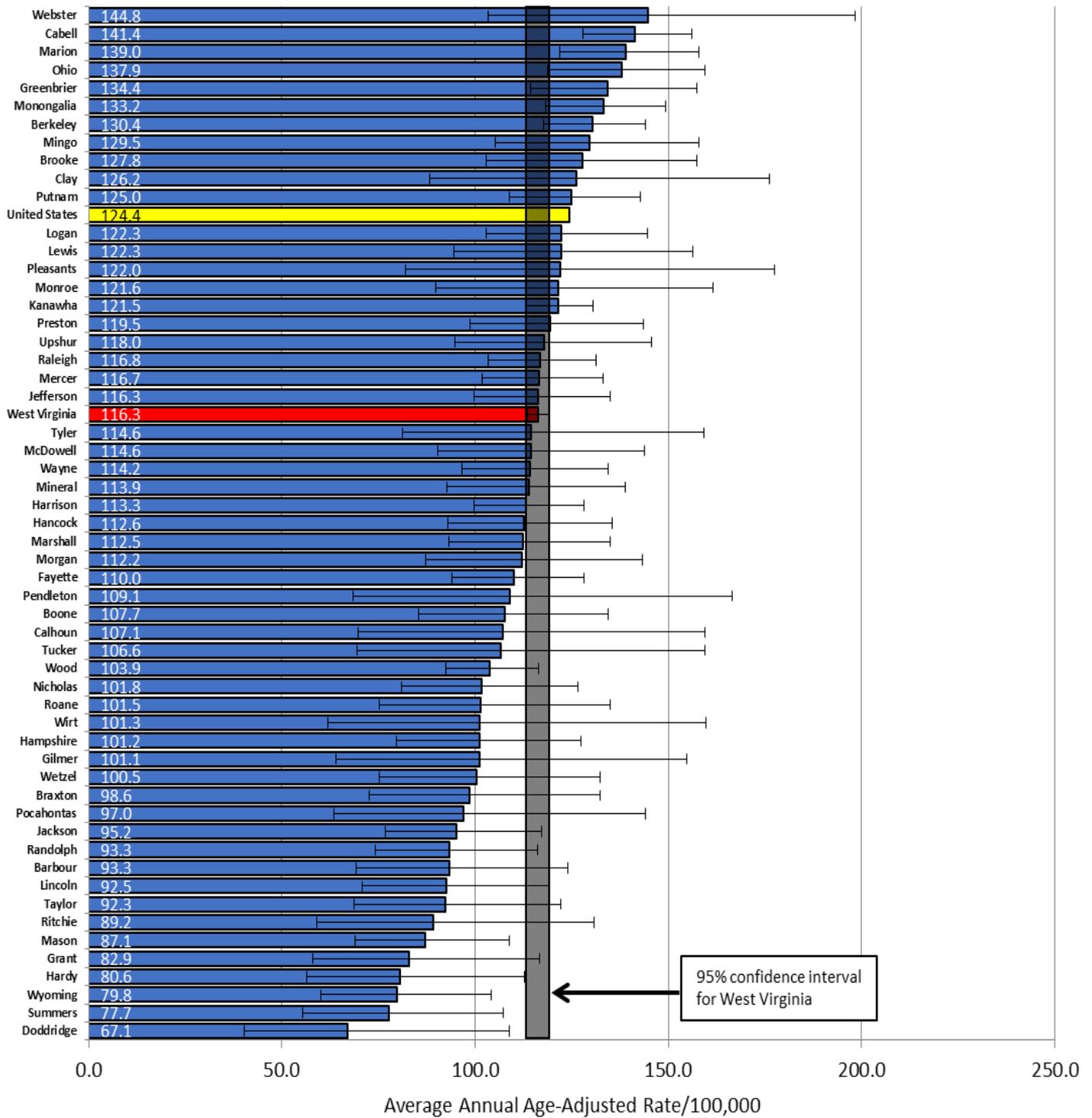


Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Breast (Female) - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate  | Lower CI | Upper CI | 5-yr Count | County     | Rate  | Lower CI | Upper CI | 5-yr Count |
|---------------|-------|----------|----------|------------|------------|-------|----------|----------|------------|
| West Virginia | 116.3 | 113.5    | 119.1    | 7,252      | Mercer     | 116.7 | 101.9    | 133.1    | 255        |
| Barbour       | 93.3  | 69.1     | 123.9    | 53         | Mineral    | 113.9 | 92.6     | 139.0    | 111        |
| Berkeley      | 130.4 | 117.8    | 144.1    | 408        | Mingo      | 129.5 | 105.3    | 157.9    | 107        |
| Boone         | 107.7 | 85.5     | 134.4    | 87         | Monongalia | 133.2 | 118.4    | 149.4    | 312        |
| Braxton       | 98.6  | 72.5     | 132.3    | 52         | Monroe     | 121.6 | 89.9     | 161.6    | 57         |
| Brooke        | 127.8 | 103.0    | 157.3    | 108        | Morgan     | 112.2 | 87.1     | 143.3    | 74         |
| Cabell        | 141.4 | 127.9    | 156.0    | 440        | Nicholas   | 101.8 | 81.0     | 126.7    | 90         |
| Calhoun       | 107.1 | 69.7     | 159.5    | 29         | Ohio       | 137.9 | 118.9    | 159.4    | 214        |
| Clay          | 126.2 | 88.2     | 176.2    | 38         | Pendleton  | 109.1 | 68.5     | 166.5    | 28         |
| Doddridge     | 67.1  | 40.2     | 108.8    | 20         | Pleasants  | 122.0 | 81.9     | 177.5    | 31         |
| Fayette       | 110.0 | 94.0     | 128.3    | 183        | Pocahontas | 97.0  | 63.5     | 144.0    | 31         |
| Gilmer        | 101.1 | 63.9     | 154.7    | 25         | Preston    | 119.5 | 98.6     | 143.6    | 126        |
| Grant         | 82.9  | 57.9     | 116.8    | 40         | Putnam     | 125.0 | 108.9    | 142.9    | 229        |
| Greenbrier    | 134.4 | 114.4    | 157.3    | 182        | Raleigh    | 116.8 | 103.5    | 131.4    | 311        |
| Hampshire     | 101.2 | 79.7     | 127.3    | 82         | Randolph   | 93.3  | 74.1     | 116.3    | 91         |
| Hancock       | 112.6 | 93.0     | 135.5    | 130        | Ritchie    | 89.2  | 59.0     | 130.7    | 31         |
| Hardy         | 80.6  | 56.4     | 112.8    | 39         | Roane      | 101.5 | 75.2     | 135.0    | 54         |
| Harrison      | 113.3 | 99.7     | 128.3    | 270        | Summers    | 77.7  | 55.3     | 107.4    | 42         |
| Jackson       | 95.2  | 76.8     | 117.2    | 99         | Taylor     | 92.3  | 68.8     | 122.2    | 55         |
| Jefferson     | 116.3 | 99.7     | 134.9    | 186        | Tucker     | 106.6 | 69.6     | 159.6    | 29         |
| Kanawha       | 121.5 | 113.1    | 130.5    | 839        | Tyler      | 114.6 | 81.3     | 159.3    | 41         |
| Lewis         | 122.3 | 94.5     | 156.4    | 71         | Upshur     | 118.0 | 94.7     | 145.7    | 97         |
| Lincoln       | 92.5  | 70.7     | 119.4    | 65         | Wayne      | 114.2 | 96.5     | 134.5    | 159        |
| Logan         | 122.3 | 102.9    | 144.6    | 153        | Webster    | 144.8 | 103.5    | 198.4    | 47         |
| Marion        | 139.0 | 121.8    | 157.9    | 264        | Wetzel     | 100.5 | 75.2     | 132.3    | 59         |
| Marshall      | 112.5 | 93.1     | 135.1    | 133        | Wirt       | 101.3 | 62.0     | 159.8    | 21         |
| Mason         | 87.1  | 69.0     | 108.9    | 86         | Wood       | 103.9 | 92.4     | 116.5    | 322        |
| McDowell      | 114.6 | 90.4     | 143.8    | 85         | Wyoming    | 79.8  | 60.2     | 104.2    | 61         |

### Breast (Female) - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

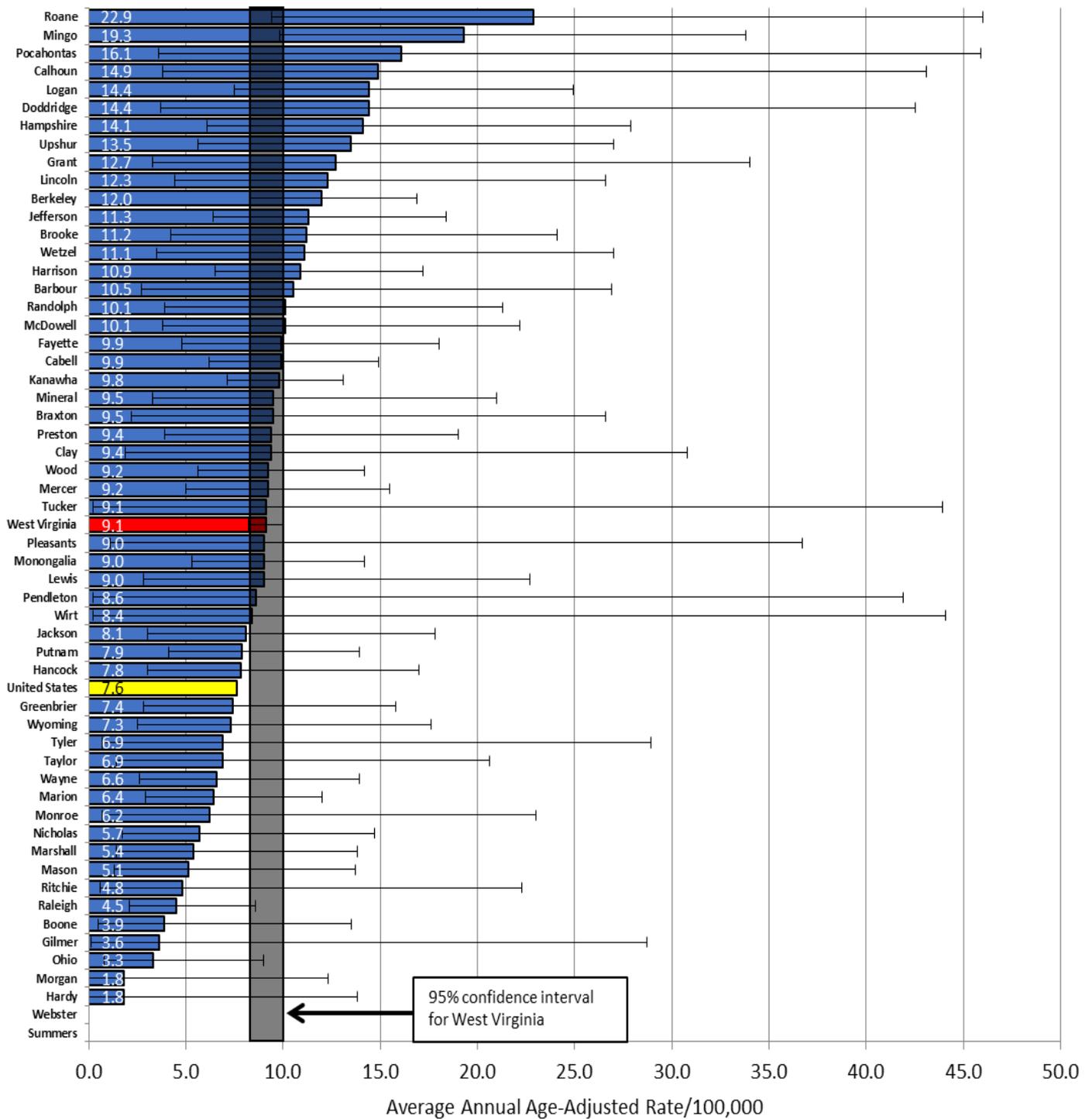


Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Cervix Uteri - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 9.1  | 8.2      | 10.0     | 442        | Mercer     | 9.2  | 5.0      | 15.5     | 16         |
| Barbour       | 10.5 | 2.7      | 26.9     | 4          | Mineral    | 9.5  | 3.3      | 21.0     | 6          |
| Berkeley      | 12.0 | 8.3      | 16.9     | 34         | Mingo      | 19.3 | 9.8      | 33.8     | 12         |
| Boone         | 3.9  | 0.5      | 13.5     | ^          | Monongalia | 9.0  | 5.3      | 14.2     | 18         |
| Braxton       | 9.5  | 2.2      | 26.6     | 4          | Monroe     | 6.2  | 0.7      | 23.0     | ^          |
| Brooke        | 11.2 | 4.2      | 24.1     | 7          | Morgan     | 1.8  | 0.0      | 12.3     | ^          |
| Cabell        | 9.9  | 6.2      | 14.9     | 24         | Nicholas   | 5.7  | 1.7      | 14.7     | 5          |
| Calhoun       | 14.9 | 3.8      | 43.1     | 4          | Ohio       | 3.3  | 0.8      | 9.0      | 4          |
| Clay          | 9.4  | 1.9      | 30.8     | ^          | Pendleton  | 8.6  | 0.2      | 41.9     | ^          |
| Doddridge     | 14.4 | 3.7      | 42.5     | 4          | Pleasants  | 9.0  | 1.1      | 36.7     | ^          |
| Fayette       | 9.9  | 4.8      | 18.0     | 11         | Pocahontas | 16.1 | 3.6      | 45.9     | 4          |
| Gilmer        | 3.6  | 0.1      | 28.7     | ^          | Preston    | 9.4  | 3.9      | 19.0     | 8          |
| Grant         | 12.7 | 3.3      | 34.0     | 4          | Putnam     | 7.9  | 4.1      | 13.9     | 13         |
| Greenbrier    | 7.4  | 2.8      | 15.8     | 7          | Raleigh    | 4.5  | 2.1      | 8.6      | 10         |
| Hampshire     | 14.1 | 6.1      | 27.9     | 9          | Randolph   | 10.1 | 3.9      | 21.3     | 7          |
| Hancock       | 7.8  | 3.0      | 17.0     | 7          | Ritchie    | 4.8  | 0.6      | 22.3     | ^          |
| Hardy         | 1.8  | 0.0      | 13.8     | ^          | Roane      | 22.9 | 9.4      | 46.0     | 8          |
| Harrison      | 10.9 | 6.5      | 17.2     | 20         | Summers    | 0.0  | 0.0      |          | 0          |
| Jackson       | 8.1  | 3.0      | 17.8     | 7          | Taylor     | 6.9  | 1.4      | 20.6     | ^          |
| Jefferson     | 11.3 | 6.4      | 18.4     | 17         | Tucker     | 9.1  | 0.2      | 43.9     | ^          |
| Kanawha       | 9.8  | 7.1      | 13.1     | 49         | Tyler      | 6.9  | 0.7      | 28.9     | ^          |
| Lewis         | 9.0  | 2.8      | 22.7     | 5          | Upshur     | 13.5 | 5.6      | 27.0     | 8          |
| Lincoln       | 12.3 | 4.4      | 26.6     | 6          | Wayne      | 6.6  | 2.6      | 13.9     | 7          |
| Logan         | 14.4 | 7.5      | 24.9     | 14         | Webster    | 0.0  | 0.0      |          | 0          |
| Marion        | 6.4  | 2.9      | 12.0     | 10         | Wetzel     | 11.1 | 3.5      | 27.0     | 5          |
| Marshall      | 5.4  | 1.4      | 13.8     | 4          | Wirt       | 8.4  | 0.2      | 44.1     | ^          |
| Mason         | 5.1  | 1.3      | 13.7     | 4          | Wood       | 9.2  | 5.6      | 14.2     | 21         |
| McDowell      | 10.1 | 3.8      | 22.2     | 7          | Wyoming    | 7.3  | 2.5      | 17.6     | 6          |

### Cervix Uteri - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

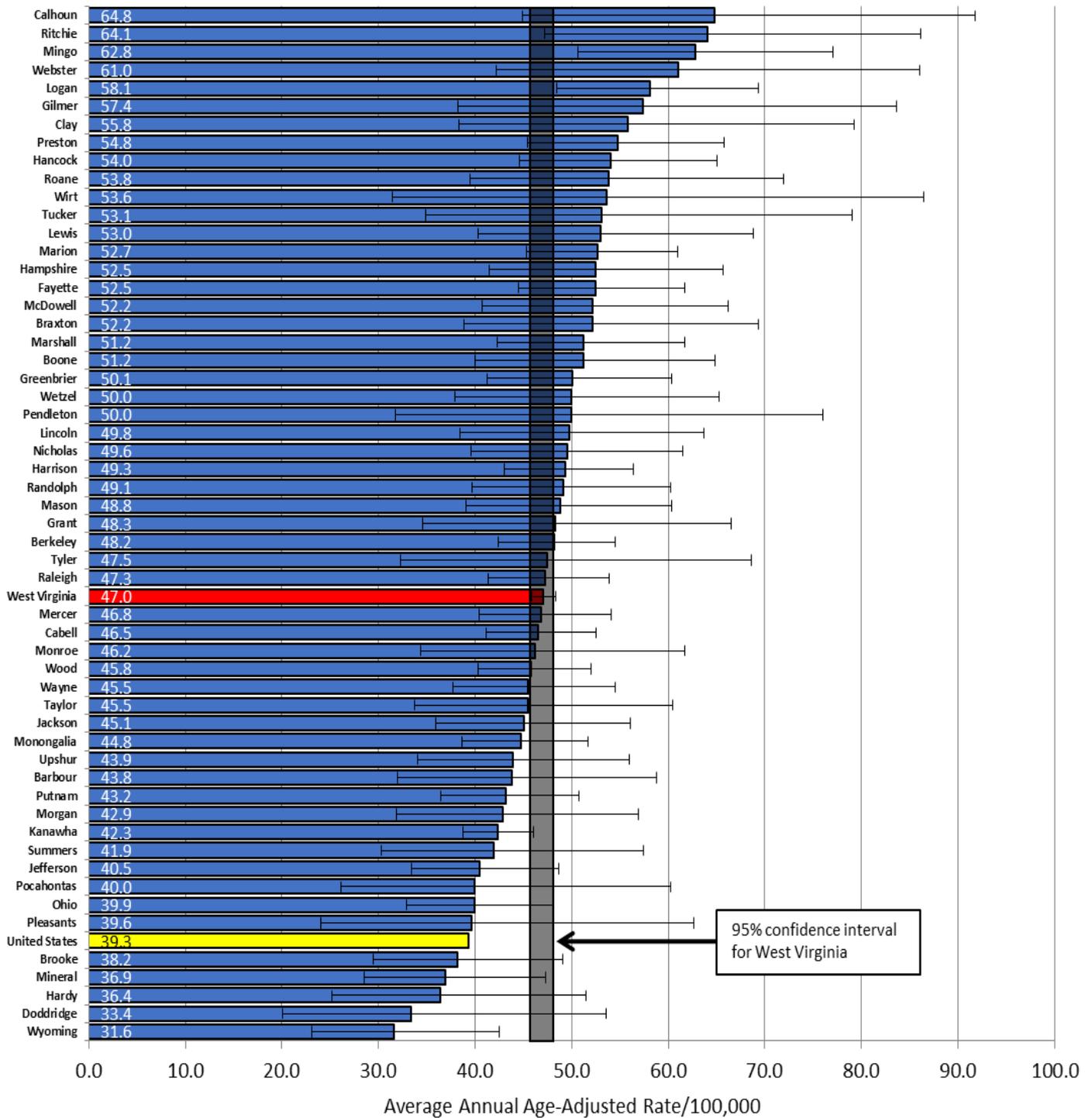


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**Colon and Rectum - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 47.0 | 45.8     | 48.3     | 5,703      | Mercer     | 46.8 | 40.4     | 54.1     | 204        |
| Barbour       | 43.8 | 32.0     | 58.8     | 48         | Mineral    | 36.9 | 28.5     | 47.3     | 68         |
| Berkeley      | 48.2 | 42.4     | 54.5     | 274        | Mingo      | 62.8 | 50.6     | 77.1     | 99         |
| Boone         | 51.2 | 40.0     | 64.8     | 75         | Monongalia | 44.8 | 38.6     | 51.7     | 194        |
| Braxton       | 52.2 | 38.9     | 69.3     | 55         | Monroe     | 46.2 | 34.4     | 61.7     | 52         |
| Brooke        | 38.2 | 29.5     | 49.1     | 70         | Morgan     | 42.9 | 31.9     | 56.9     | 55         |
| Cabell        | 46.5 | 41.1     | 52.5     | 281        | Nicholas   | 49.6 | 39.6     | 61.5     | 91         |
| Calhoun       | 64.8 | 44.9     | 91.8     | 37         | Ohio       | 39.9 | 32.9     | 48.0     | 126        |
| Clay          | 55.8 | 38.3     | 79.2     | 34         | Pendleton  | 50.0 | 31.8     | 76.0     | 29         |
| Doddridge     | 33.4 | 20.1     | 53.6     | 20         | Pleasants  | 39.6 | 24.0     | 62.6     | 20         |
| Fayette       | 52.5 | 44.5     | 61.7     | 161        | Pocahontas | 40.0 | 26.1     | 60.2     | 29         |
| Gilmer        | 57.4 | 38.2     | 83.6     | 29         | Preston    | 54.8 | 45.4     | 65.8     | 124        |
| Grant         | 48.3 | 34.6     | 66.5     | 43         | Putnam     | 43.2 | 36.5     | 50.8     | 154        |
| Greenbrier    | 50.1 | 41.3     | 60.4     | 126        | Raleigh    | 47.3 | 41.4     | 53.9     | 244        |
| Hampshire     | 52.5 | 41.5     | 65.7     | 85         | Randolph   | 49.1 | 39.7     | 60.3     | 101        |
| Hancock       | 54.0 | 44.6     | 65.1     | 122        | Ritchie    | 64.1 | 47.2     | 86.1     | 49         |
| Hardy         | 36.4 | 25.2     | 51.5     | 36         | Roane      | 53.8 | 39.5     | 71.9     | 51         |
| Harrison      | 49.3 | 43.0     | 56.4     | 228        | Summers    | 41.9 | 30.3     | 57.4     | 45         |
| Jackson       | 45.1 | 35.9     | 56.1     | 88         | Taylor     | 45.5 | 33.7     | 60.5     | 51         |
| Jefferson     | 40.5 | 33.4     | 48.7     | 123        | Tucker     | 53.1 | 34.9     | 79.0     | 29         |
| Kanawha       | 42.3 | 38.7     | 46.1     | 548        | Tyler      | 47.5 | 32.3     | 68.6     | 32         |
| Lewis         | 53.0 | 40.3     | 68.8     | 62         | Upshur     | 43.9 | 34.0     | 56.0     | 70         |
| Lincoln       | 49.8 | 38.4     | 63.7     | 68         | Wayne      | 45.5 | 37.7     | 54.5     | 126        |
| Logan         | 58.1 | 48.5     | 69.3     | 137        | Webster    | 61.0 | 42.2     | 86.0     | 39         |
| Marion        | 52.7 | 45.3     | 61.0     | 193        | Wetzel     | 50.0 | 37.9     | 65.3     | 61         |
| Marshall      | 51.2 | 42.3     | 61.7     | 120        | Wirt       | 53.6 | 31.4     | 86.4     | 20         |
| Mason         | 48.8 | 39.1     | 60.4     | 91         | Wood       | 45.8 | 40.3     | 52.0     | 261        |
| McDowell      | 52.2 | 40.7     | 66.2     | 76         | Wyoming    | 31.6 | 23.1     | 42.5     | 49         |

### Colon and Rectum - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

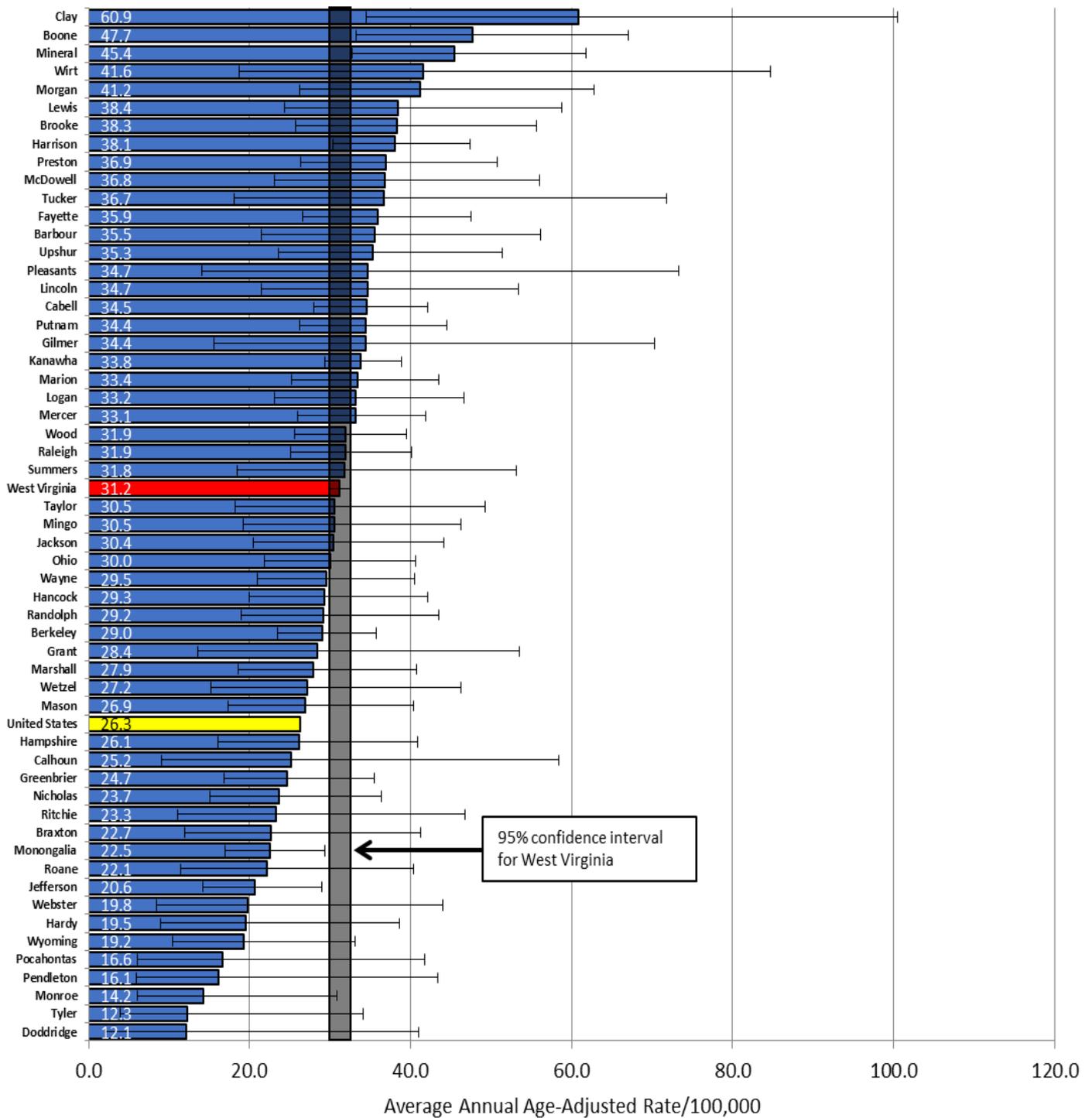


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**Corpus and Uterus, NOS - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 31.2 | 29.8     | 32.6     | 1,987      | Mercer     | 33.1 | 25.9     | 41.9     | 79         |
| Barbour       | 35.5 | 21.4     | 56.1     | 21         | Mineral    | 45.4 | 32.7     | 61.8     | 47         |
| Berkeley      | 29.0 | 23.4     | 35.7     | 95         | Mingo      | 30.5 | 19.2     | 46.2     | 25         |
| Boone         | 47.7 | 33.2     | 67.0     | 38         | Monongalia | 22.5 | 16.9     | 29.4     | 57         |
| Braxton       | 22.7 | 11.9     | 41.3     | 13         | Monroe     | 14.2 | 6.1      | 30.8     | 8          |
| Brooke        | 38.3 | 25.7     | 55.7     | 35         | Morgan     | 41.2 | 26.2     | 62.8     | 26         |
| Cabell        | 34.5 | 27.9     | 42.1     | 106        | Nicholas   | 23.7 | 15.1     | 36.4     | 24         |
| Calhoun       | 25.2 | 9.0      | 58.4     | 7          | Ohio       | 30.0 | 21.8     | 40.6     | 50         |
| Clay          | 60.9 | 34.5     | 100.5    | 17         | Pendleton  | 16.1 | 5.9      | 43.4     | 6          |
| Doddridge     | 12.1 | 2.0      | 41.0     | ^          | Pleasants  | 34.7 | 14.1     | 73.3     | 8          |
| Fayette       | 35.9 | 26.6     | 47.5     | 57         | Pocahontas | 16.6 | 6.0      | 41.8     | 6          |
| Gilmer        | 34.4 | 15.5     | 70.3     | 9          | Preston    | 36.9 | 26.3     | 50.8     | 43         |
| Grant         | 28.4 | 13.6     | 53.5     | 11         | Putnam     | 34.4 | 26.2     | 44.5     | 63         |
| Greenbrier    | 24.7 | 16.8     | 35.5     | 36         | Raleigh    | 31.9 | 25.1     | 40.1     | 86         |
| Hampshire     | 26.1 | 16.1     | 40.9     | 23         | Randolph   | 29.2 | 18.9     | 43.5     | 29         |
| Hancock       | 29.3 | 20.0     | 42.1     | 35         | Ritchie    | 23.3 | 11.0     | 46.7     | 10         |
| Hardy         | 19.5 | 8.9      | 38.6     | 10         | Roane      | 22.1 | 11.4     | 40.4     | 13         |
| Harrison      | 38.1 | 30.4     | 47.4     | 91         | Summers    | 31.8 | 18.4     | 53.1     | 18         |
| Jackson       | 30.4 | 20.4     | 44.1     | 31         | Taylor     | 30.5 | 18.2     | 49.2     | 19         |
| Jefferson     | 20.6 | 14.2     | 29.0     | 36         | Tucker     | 36.7 | 18.1     | 71.8     | 11         |
| Kanawha       | 33.8 | 29.4     | 38.9     | 229        | Tyler      | 12.3 | 3.9      | 34.1     | ^          |
| Lewis         | 38.4 | 24.3     | 58.8     | 24         | Upshur     | 35.3 | 23.6     | 51.4     | 31         |
| Lincoln       | 34.7 | 21.4     | 53.4     | 23         | Wayne      | 29.5 | 21.0     | 40.5     | 42         |
| Logan         | 33.2 | 23.1     | 46.6     | 39         | Webster    | 19.8 | 8.4      | 44.0     | 8          |
| Marion        | 33.4 | 25.2     | 43.5     | 63         | Wetzel     | 27.2 | 15.2     | 46.3     | 16         |
| Marshall      | 27.9 | 18.6     | 40.7     | 34         | Wirt       | 41.6 | 18.7     | 84.7     | 9          |
| Mason         | 26.9 | 17.3     | 40.4     | 27         | Wood       | 31.9 | 25.6     | 39.5     | 95         |
| McDowell      | 36.8 | 23.1     | 56.0     | 25         | Wyoming    | 19.2 | 10.4     | 33.1     | 15         |

### Corpus and Uterus, NOS - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

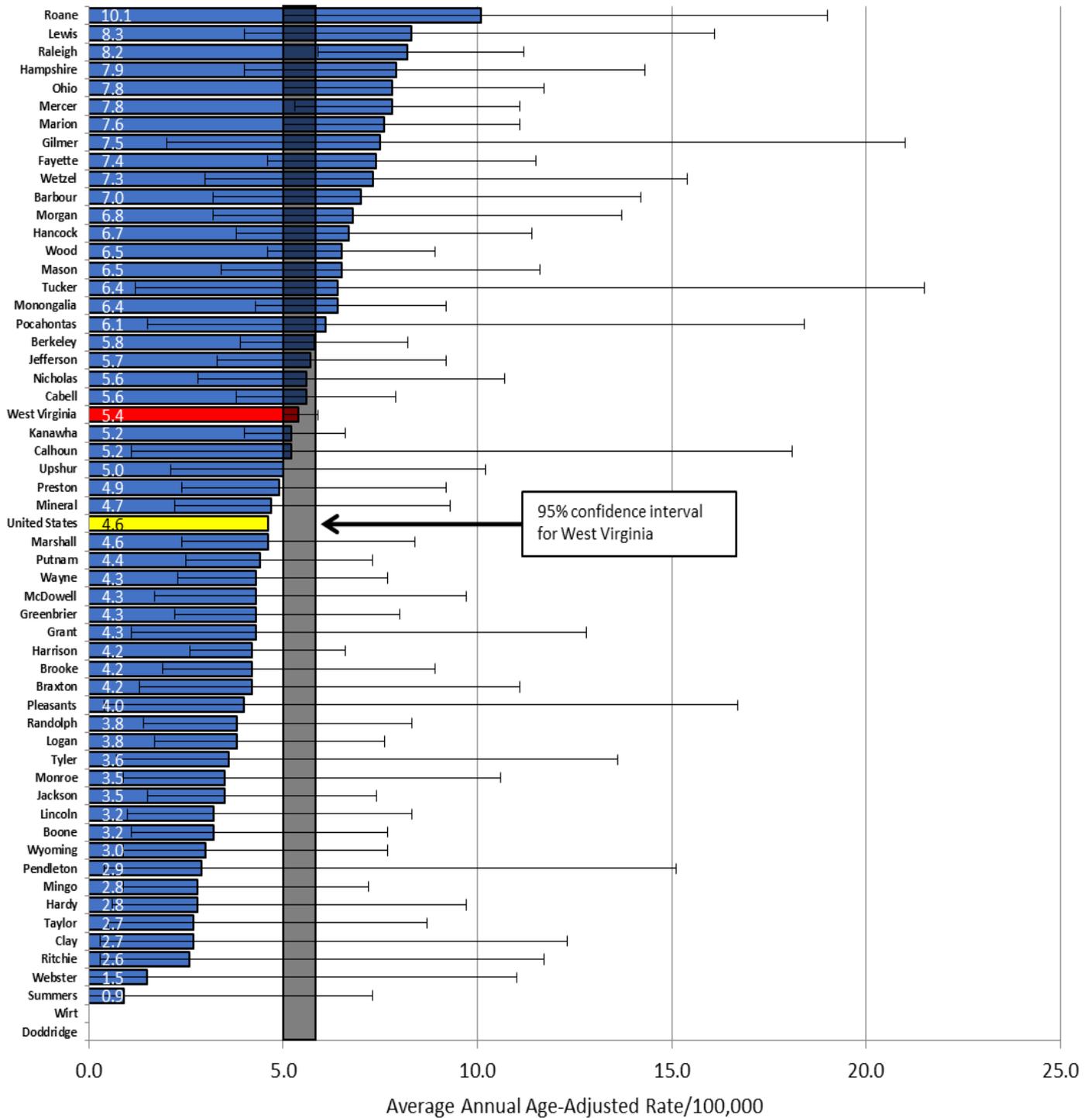


Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Esophagus - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 5.4  | 5.0      | 5.9      | 691        | Mercer     | 7.8  | 5.3      | 11.1     | 34         |
| Barbour       | 7.0  | 3.2      | 14.2     | 9          | Mineral    | 4.7  | 2.2      | 9.3      | 10         |
| Berkeley      | 5.8  | 3.9      | 8.2      | 34         | Mingo      | 2.8  | 0.9      | 7.2      | 5          |
| Boone         | 3.2  | 1.1      | 7.7      | 6          | Monongalia | 6.4  | 4.3      | 9.2      | 30         |
| Braxton       | 4.2  | 1.3      | 11.1     | 5          | Monroe     | 3.5  | 0.9      | 10.6     | 4          |
| Brooke        | 4.2  | 1.9      | 8.9      | 9          | Morgan     | 6.8  | 3.2      | 13.7     | 10         |
| Cabell        | 5.6  | 3.8      | 7.9      | 34         | Nicholas   | 5.6  | 2.8      | 10.7     | 11         |
| Calhoun       | 5.2  | 1.1      | 18.1     | ^          | Ohio       | 7.8  | 5.0      | 11.7     | 26         |
| Clay          | 2.7  | 0.3      | 12.3     | ^          | Pendleton  | 2.9  | 0.4      | 15.1     | ^          |
| Doddridge     | 0.0  | 0.0      |          | 0          | Pleasants  | 4.0  | 0.4      | 16.7     | ^          |
| Fayette       | 7.4  | 4.6      | 11.5     | 23         | Pocahontas | 6.1  | 1.5      | 18.4     | 4          |
| Gilmer        | 7.5  | 2.0      | 21.0     | 4          | Preston    | 4.9  | 2.4      | 9.2      | 11         |
| Grant         | 4.3  | 1.1      | 12.8     | 4          | Putnam     | 4.4  | 2.5      | 7.3      | 16         |
| Greenbrier    | 4.3  | 2.2      | 8.0      | 12         | Raleigh    | 8.2  | 5.9      | 11.2     | 43         |
| Hampshire     | 7.9  | 4.0      | 14.3     | 12         | Randolph   | 3.8  | 1.4      | 8.3      | 7          |
| Hancock       | 6.7  | 3.8      | 11.4     | 16         | Ritchie    | 2.6  | 0.3      | 11.7     | ^          |
| Hardy         | 2.8  | 0.6      | 9.7      | ^          | Roane      | 10.1 | 5.0      | 19.0     | 11         |
| Harrison      | 4.2  | 2.6      | 6.6      | 21         | Summers    | 0.9  | 0.0      | 7.3      | ^          |
| Jackson       | 3.5  | 1.5      | 7.4      | 8          | Taylor     | 2.7  | 0.5      | 8.7      | ^          |
| Jefferson     | 5.7  | 3.3      | 9.2      | 18         | Tucker     | 6.4  | 1.2      | 21.5     | ^          |
| Kanawha       | 5.2  | 4.0      | 6.6      | 67         | Tyler      | 3.6  | 0.7      | 13.6     | ^          |
| Lewis         | 8.3  | 4.0      | 16.1     | 10         | Upshur     | 5.0  | 2.1      | 10.2     | 8          |
| Lincoln       | 3.2  | 1.0      | 8.3      | 5          | Wayne      | 4.3  | 2.3      | 7.7      | 13         |
| Logan         | 3.8  | 1.7      | 7.6      | 9          | Webster    | 1.5  | 0.0      | 11.0     | ^          |
| Marion        | 7.6  | 5.0      | 11.1     | 29         | Wetzel     | 7.3  | 3.0      | 15.4     | 8          |
| Marshall      | 4.6  | 2.4      | 8.4      | 13         | Wirt       | 0.0  | 0.0      |          | 0          |
| Mason         | 6.5  | 3.4      | 11.6     | 14         | Wood       | 6.5  | 4.6      | 8.9      | 41         |
| McDowell      | 4.3  | 1.7      | 9.7      | 7          | Wyoming    | 3.0  | 0.9      | 7.7      | 5          |

### Esophagus - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

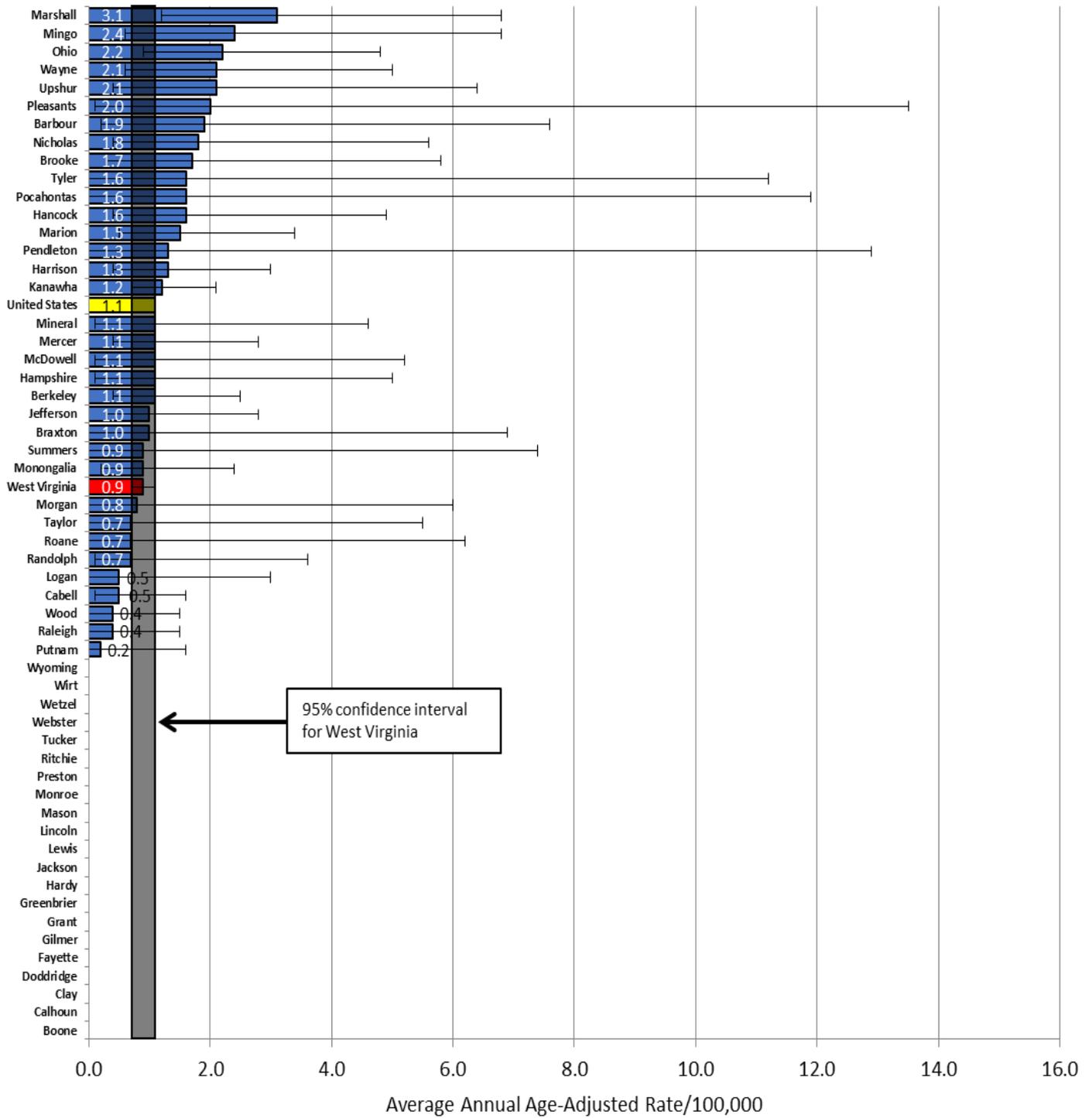


Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Gallbladder** - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 0.9  | 0.7      | 1.1      | 111        | Mercer     | 1.1  | 0.4      | 2.8      | 5          |
| Barbour       | 1.9  | 0.2      | 7.6      | ^          | Mineral    | 1.1  | 0.1      | 4.6      | ^          |
| Berkeley      | 1.1  | 0.4      | 2.5      | 7          | Mingo      | 2.4  | 0.6      | 6.8      | 4          |
| Boone         | 0.0  | 0.0      |          | 0          | Monongalia | 0.9  | 0.2      | 2.4      | 4          |
| Braxton       | 1.0  | 0.0      | 6.9      | ^          | Monroe     | 0.0  | 0.0      |          | 0          |
| Brooke        | 1.7  | 0.3      | 5.8      | ^          | Morgan     | 0.8  | 0.0      | 6.0      | ^          |
| Cabell        | 0.5  | 0.1      | 1.6      | ^          | Nicholas   | 1.8  | 0.4      | 5.6      | ^          |
| Calhoun       | 0.0  | 0.0      |          | 0          | Ohio       | 2.2  | 0.9      | 4.8      | 7          |
| Clay          | 0.0  | 0.0      |          | 0          | Pendleton  | 1.3  | 0.0      | 12.9     | ^          |
| Doddridge     | 0.0  | 0.0      |          | 0          | Pleasants  | 2.0  | 0.1      | 13.5     | ^          |
| Fayette       | 0.0  | 0.0      |          | 0          | Pocahontas | 1.6  | 0.0      | 11.9     | ^          |
| Gilmer        | 0.0  | 0.0      |          | 0          | Preston    | 0.0  | 0.0      |          | 0          |
| Grant         | 0.0  | 0.0      |          | 0          | Putnam     | 0.2  | 0.0      | 1.6      | ^          |
| Greenbrier    | 0.0  | 0.0      |          | 0          | Raleigh    | 0.4  | 0.0      | 1.5      | ^          |
| Hampshire     | 1.1  | 0.1      | 5.0      | ^          | Randolph   | 0.7  | 0.1      | 3.6      | ^          |
| Hancock       | 1.6  | 0.4      | 4.9      | 4          | Ritchie    | 0.0  | 0.0      |          | 0          |
| Hardy         | 0.0  | 0.0      |          | 0          | Roane      | 0.7  | 0.0      | 6.2      | ^          |
| Harrison      | 1.3  | 0.4      | 3.0      | 6          | Summers    | 0.9  | 0.0      | 7.4      | ^          |
| Jackson       | 0.0  | 0.0      |          | 0          | Taylor     | 0.7  | 0.0      | 5.5      | ^          |
| Jefferson     | 1.0  | 0.3      | 2.8      | 4          | Tucker     | 0.0  | 0.0      |          | 0          |
| Kanawha       | 1.2  | 0.7      | 2.1      | 15         | Tyler      | 1.6  | 0.0      | 11.2     | ^          |
| Lewis         | 0.0  | 0.0      |          | 0          | Upshur     | 2.1  | 0.4      | 6.4      | ^          |
| Lincoln       | 0.0  | 0.0      |          | 0          | Wayne      | 2.1  | 0.6      | 5.0      | 5          |
| Logan         | 0.5  | 0.0      | 3.0      | ^          | Webster    | 0.0  | 0.0      |          | 0          |
| Marion        | 1.5  | 0.5      | 3.4      | 6          | Wetzel     | 0.0  | 0.0      |          | 0          |
| Marshall      | 3.1  | 1.2      | 6.8      | 7          | Wirt       | 0.0  | 0.0      |          | 0          |
| Mason         | 0.0  | 0.0      |          | 0          | Wood       | 0.4  | 0.0      | 1.5      | ^          |
| McDowell      | 1.1  | 0.1      | 5.2      | ^          | Wyoming    | 0.0  | 0.0      |          | 0          |

### Gallbladder - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

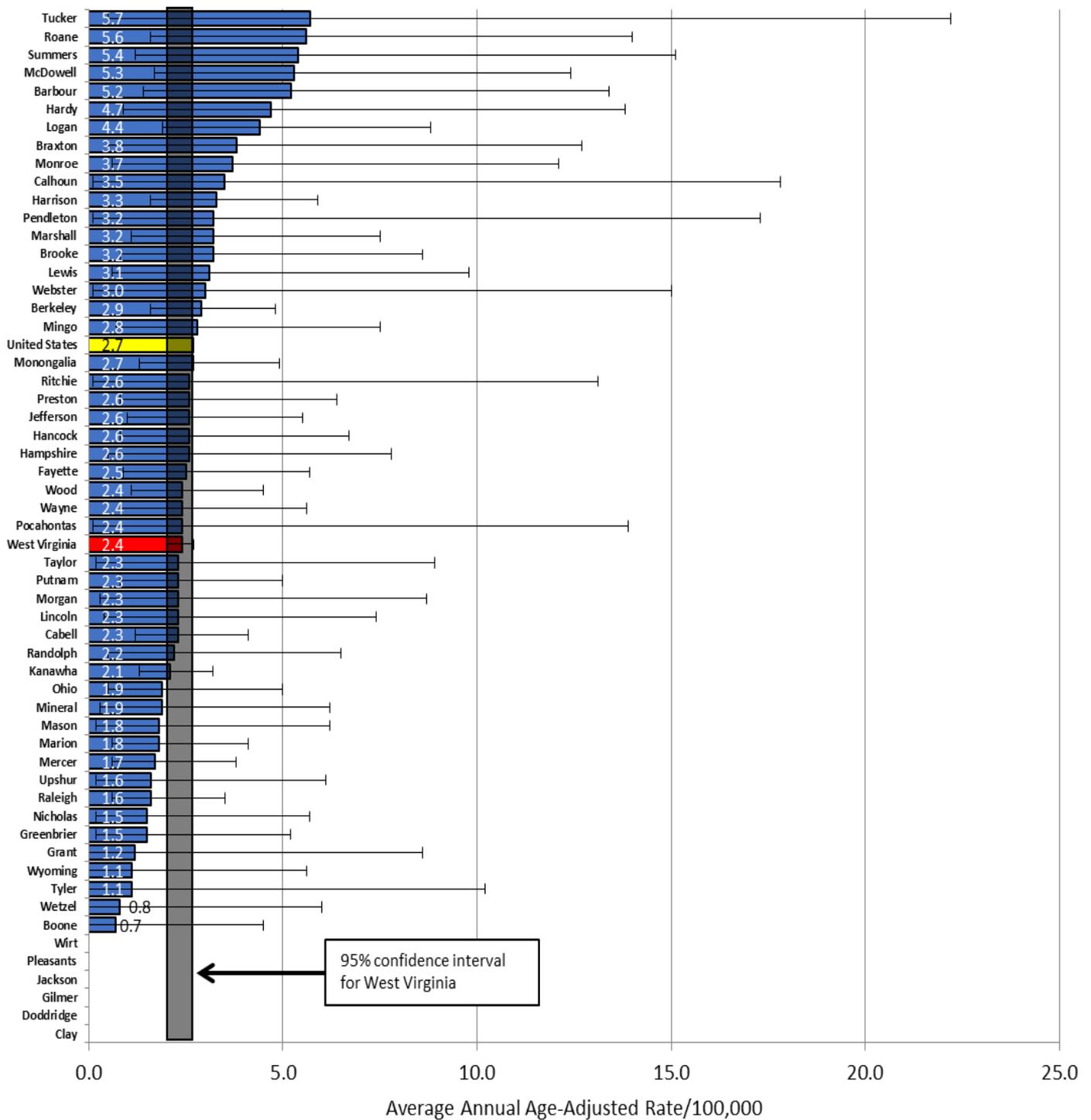


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**Hodgkin Lymphoma - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 2.4  | 2.0      | 2.7      | 227        | Mercer     | 1.7  | 0.6      | 3.8      | 6          |
| Barbour       | 5.2  | 1.4      | 13.4     | 4          | Mineral    | 1.9  | 0.3      | 6.2      | ^          |
| Berkeley      | 2.9  | 1.6      | 4.8      | 15         | Mingo      | 2.8  | 0.7      | 7.5      | 4          |
| Boone         | 0.7  | 0.0      | 4.5      | ^          | Monongalia | 2.7  | 1.3      | 4.9      | 12         |
| Braxton       | 3.8  | 0.5      | 12.7     | ^          | Monroe     | 3.7  | 0.6      | 12.1     | ^          |
| Brooke        | 3.2  | 0.8      | 8.6      | 4          | Morgan     | 2.3  | 0.3      | 8.7      | ^          |
| Cabell        | 2.3  | 1.2      | 4.1      | 13         | Nicholas   | 1.5  | 0.2      | 5.7      | ^          |
| Calhoun       | 3.5  | 0.1      | 17.8     | ^          | Ohio       | 1.9  | 0.5      | 5.0      | 4          |
| Clay          | 0.0  | 0.0      |          | 0          | Pendleton  | 3.2  | 0.1      | 17.3     | ^          |
| Doddridge     | 0.0  | 0.0      |          | 0          | Pleasants  | 0.0  | 0.0      |          | 0          |
| Fayette       | 2.5  | 0.9      | 5.7      | 6          | Pocahontas | 2.4  | 0.1      | 13.9     | ^          |
| Gilmer        | 0.0  | 0.0      |          | 0          | Preston    | 2.6  | 0.8      | 6.4      | 5          |
| Grant         | 1.2  | 0.0      | 8.6      | ^          | Putnam     | 2.3  | 0.8      | 5.0      | 6          |
| Greenbrier    | 1.5  | 0.2      | 5.2      | ^          | Raleigh    | 1.6  | 0.6      | 3.5      | 7          |
| Hampshire     | 2.6  | 0.5      | 7.8      | ^          | Randolph   | 2.2  | 0.5      | 6.5      | ^          |
| Hancock       | 2.6  | 0.8      | 6.7      | 5          | Ritchie    | 2.6  | 0.1      | 13.1     | ^          |
| Hardy         | 4.7  | 0.9      | 13.8     | ^          | Roane      | 5.6  | 1.6      | 14.0     | 5          |
| Harrison      | 3.3  | 1.6      | 5.9      | 12         | Summers    | 5.4  | 1.2      | 15.1     | 4          |
| Jackson       | 0.0  | 0.0      |          | 0          | Taylor     | 2.3  | 0.2      | 8.9      | ^          |
| Jefferson     | 2.6  | 1.0      | 5.5      | 7          | Tucker     | 5.7  | 0.5      | 22.2     | ^          |
| Kanawha       | 2.1  | 1.3      | 3.2      | 22         | Tyler      | 1.1  | 0.0      | 10.2     | ^          |
| Lewis         | 3.1  | 0.6      | 9.8      | ^          | Upshur     | 1.6  | 0.2      | 6.1      | ^          |
| Lincoln       | 2.3  | 0.4      | 7.4      | ^          | Wayne      | 2.4  | 0.8      | 5.6      | 5          |
| Logan         | 4.4  | 1.9      | 8.8      | 8          | Webster    | 3.0  | 0.1      | 15.0     | ^          |
| Marion        | 1.8  | 0.6      | 4.1      | 6          | Wetzel     | 0.8  | 0.0      | 6.0      | ^          |
| Marshall      | 3.2  | 1.1      | 7.5      | 6          | Wirt       | 0.0  | 0.0      |          | 0          |
| Mason         | 1.8  | 0.2      | 6.2      | ^          | Wood       | 2.4  | 1.1      | 4.5      | 9          |
| McDowell      | 5.3  | 1.7      | 12.4     | 5          | Wyoming    | 1.1  | 0.0      | 5.6      | ^          |

### Hodgkin Lymphoma - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015



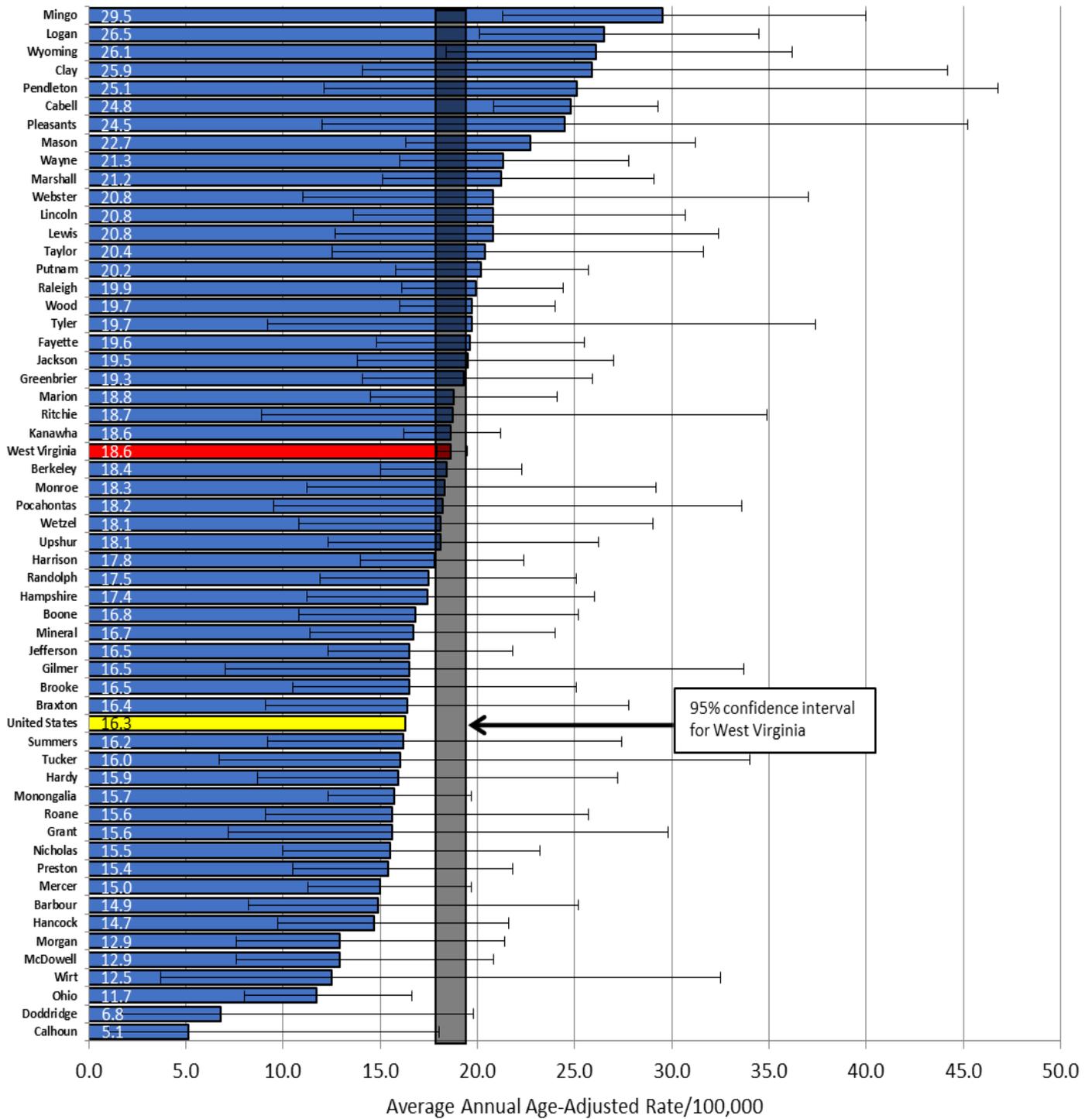
Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Kidney and Renal Pelvis - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 18.6 | 17.9     | 19.5     | 2,241      | Mercer     | 15.0 | 11.3     | 19.7     | 61         |
| Barbour       | 14.9 | 8.2      | 25.2     | 15         | Mineral    | 16.7 | 11.4     | 24.0     | 34         |
| Berkeley      | 18.4 | 15.0     | 22.3     | 111        | Mingo      | 29.5 | 21.3     | 40.0     | 45         |
| Boone         | 16.8 | 10.8     | 25.2     | 26         | Monongalia | 15.7 | 12.3     | 19.7     | 78         |
| Braxton       | 16.4 | 9.1      | 27.8     | 16         | Monroe     | 18.3 | 11.2     | 29.2     | 21         |
| Brooke        | 16.5 | 10.5     | 25.1     | 27         | Morgan     | 12.9 | 7.6      | 21.4     | 18         |
| Cabell        | 24.8 | 20.8     | 29.3     | 148        | Nicholas   | 15.5 | 10.0     | 23.2     | 27         |
| Calhoun       | 5.1  | 1.0      | 18.0     | ^          | Ohio       | 11.7 | 8.0      | 16.6     | 35         |
| Clay          | 25.9 | 14.1     | 44.2     | 15         | Pendleton  | 25.1 | 12.1     | 46.8     | 13         |
| Doddridge     | 6.8  | 1.7      | 19.8     | ^          | Pleasants  | 24.5 | 12.0     | 45.2     | 11         |
| Fayette       | 19.6 | 14.8     | 25.5     | 61         | Pocahontas | 18.2 | 9.5      | 33.6     | 13         |
| Gilmer        | 16.5 | 7.0      | 33.7     | 8          | Preston    | 15.4 | 10.5     | 21.8     | 34         |
| Grant         | 15.6 | 7.2      | 29.8     | 11         | Putnam     | 20.2 | 15.8     | 25.7     | 74         |
| Greenbrier    | 19.3 | 14.1     | 25.9     | 51         | Raleigh    | 19.9 | 16.1     | 24.4     | 105        |
| Hampshire     | 17.4 | 11.2     | 26.0     | 27         | Randolph   | 17.5 | 11.9     | 25.1     | 34         |
| Hancock       | 14.7 | 9.7      | 21.6     | 30         | Ritchie    | 18.7 | 8.9      | 34.9     | 11         |
| Hardy         | 15.9 | 8.7      | 27.2     | 15         | Roane      | 15.6 | 9.1      | 25.7     | 18         |
| Harrison      | 17.8 | 14.0     | 22.4     | 80         | Summers    | 16.2 | 9.2      | 27.4     | 17         |
| Jackson       | 19.5 | 13.8     | 27.0     | 40         | Taylor     | 20.4 | 12.5     | 31.6     | 22         |
| Jefferson     | 16.5 | 12.3     | 21.8     | 54         | Tucker     | 16.0 | 6.7      | 34.0     | 9          |
| Kanawha       | 18.6 | 16.2     | 21.2     | 239        | Tyler      | 19.7 | 9.2      | 37.4     | 11         |
| Lewis         | 20.8 | 12.7     | 32.4     | 22         | Upshur     | 18.1 | 12.3     | 26.2     | 32         |
| Lincoln       | 20.8 | 13.6     | 30.7     | 28         | Wayne      | 21.3 | 16.0     | 27.8     | 59         |
| Logan         | 26.5 | 20.1     | 34.5     | 63         | Webster    | 20.8 | 11.0     | 37.0     | 14         |
| Marion        | 18.8 | 14.5     | 24.1     | 69         | Wetzel     | 18.1 | 10.8     | 29.0     | 21         |
| Marshall      | 21.2 | 15.1     | 29.1     | 44         | Wirt       | 12.5 | 3.7      | 32.5     | 5          |
| Mason         | 22.7 | 16.3     | 31.2     | 43         | Wood       | 19.7 | 16.0     | 24.0     | 108        |
| McDowell      | 12.9 | 7.6      | 20.8     | 20         | Wyoming    | 26.1 | 18.4     | 36.2     | 41         |

^ indicates suppressed data for counties with 3 or fewer cases over the 5-year period

### Kidney and Renal Pelvis - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

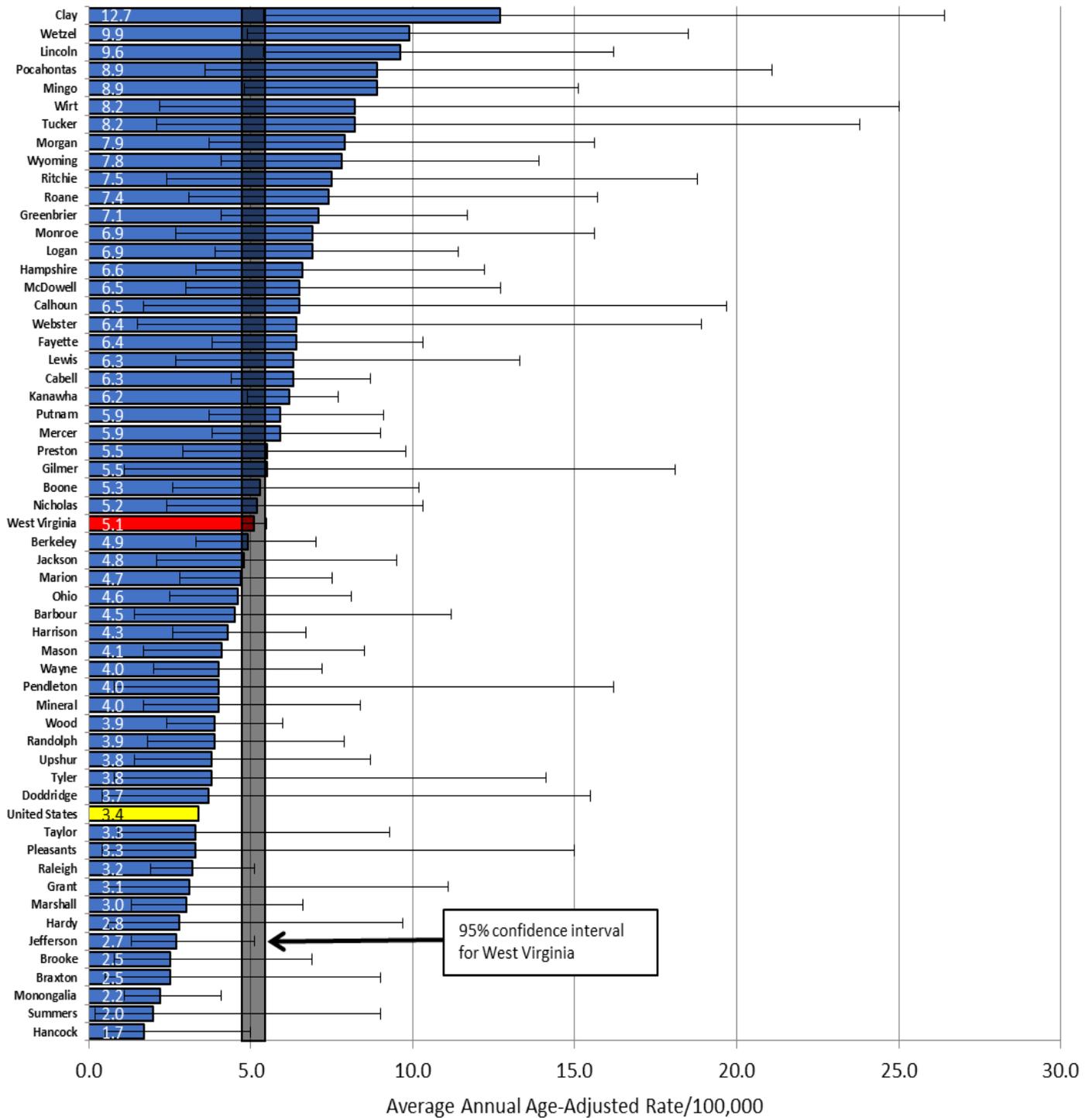


Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Larynx - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 5.1  | 4.7      | 5.5      | 660        | Mercer     | 5.9  | 3.8      | 9.0      | 25         |
| Barbour       | 4.5  | 1.4      | 11.2     | 5          | Mineral    | 4.0  | 1.7      | 8.4      | 8          |
| Berkeley      | 4.9  | 3.3      | 7.0      | 32         | Mingo      | 8.9  | 4.8      | 15.1     | 15         |
| Boone         | 5.3  | 2.6      | 10.2     | 11         | Monongalia | 2.2  | 1.1      | 4.1      | 11         |
| Braxton       | 2.5  | 0.5      | 9.0      | ^          | Monroe     | 6.9  | 2.7      | 15.6     | 7          |
| Brooke        | 2.5  | 0.8      | 6.9      | 5          | Morgan     | 7.9  | 3.7      | 15.6     | 10         |
| Cabell        | 6.3  | 4.4      | 8.7      | 39         | Nicholas   | 5.2  | 2.4      | 10.3     | 10         |
| Calhoun       | 6.5  | 1.7      | 19.7     | 4          | Ohio       | 4.6  | 2.5      | 8.1      | 14         |
| Clay          | 12.7 | 5.4      | 26.4     | 8          | Pendleton  | 4.0  | 0.8      | 16.2     | ^          |
| Doddridge     | 3.7  | 0.4      | 15.5     | ^          | Pleasants  | 3.3  | 0.4      | 15.0     | ^          |
| Fayette       | 6.4  | 3.8      | 10.3     | 20         | Pocahontas | 8.9  | 3.6      | 21.1     | 7          |
| Gilmer        | 5.5  | 1.1      | 18.1     | ^          | Preston    | 5.5  | 2.9      | 9.8      | 13         |
| Grant         | 3.1  | 0.6      | 11.1     | ^          | Putnam     | 5.9  | 3.7      | 9.1      | 22         |
| Greenbrier    | 7.1  | 4.1      | 11.7     | 18         | Raleigh    | 3.2  | 1.9      | 5.1      | 20         |
| Hampshire     | 6.6  | 3.3      | 12.2     | 12         | Randolph   | 3.9  | 1.8      | 7.9      | 9          |
| Hancock       | 1.7  | 0.5      | 5.0      | 4          | Ritchie    | 7.5  | 2.4      | 18.8     | 5          |
| Hardy         | 2.8  | 0.6      | 9.7      | ^          | Roane      | 7.4  | 3.1      | 15.7     | 8          |
| Harrison      | 4.3  | 2.6      | 6.7      | 21         | Summers    | 2.0  | 0.2      | 9.0      | ^          |
| Jackson       | 4.8  | 2.1      | 9.5      | 9          | Taylor     | 3.3  | 0.9      | 9.3      | 4          |
| Jefferson     | 2.7  | 1.3      | 5.1      | 10         | Tucker     | 8.2  | 2.1      | 23.8     | 4          |
| Kanawha       | 6.2  | 4.9      | 7.7      | 84         | Tyler      | 3.8  | 0.8      | 14.1     | ^          |
| Lewis         | 6.3  | 2.7      | 13.3     | 8          | Upshur     | 3.8  | 1.4      | 8.7      | 6          |
| Lincoln       | 9.6  | 5.4      | 16.2     | 16         | Wayne      | 4.0  | 2.0      | 7.2      | 12         |
| Logan         | 6.9  | 3.9      | 11.4     | 18         | Webster    | 6.4  | 1.5      | 18.9     | 4          |
| Marion        | 4.7  | 2.8      | 7.5      | 19         | Wetzel     | 9.9  | 4.9      | 18.5     | 12         |
| Marshall      | 3.0  | 1.3      | 6.6      | 8          | Wirt       | 8.2  | 2.2      | 25.0     | 4          |
| Mason         | 4.1  | 1.7      | 8.5      | 8          | Wood       | 3.9  | 2.4      | 6.0      | 23         |
| McDowell      | 6.5  | 3.0      | 12.7     | 10         | Wyoming    | 7.8  | 4.1      | 13.9     | 14         |

### Larynx - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

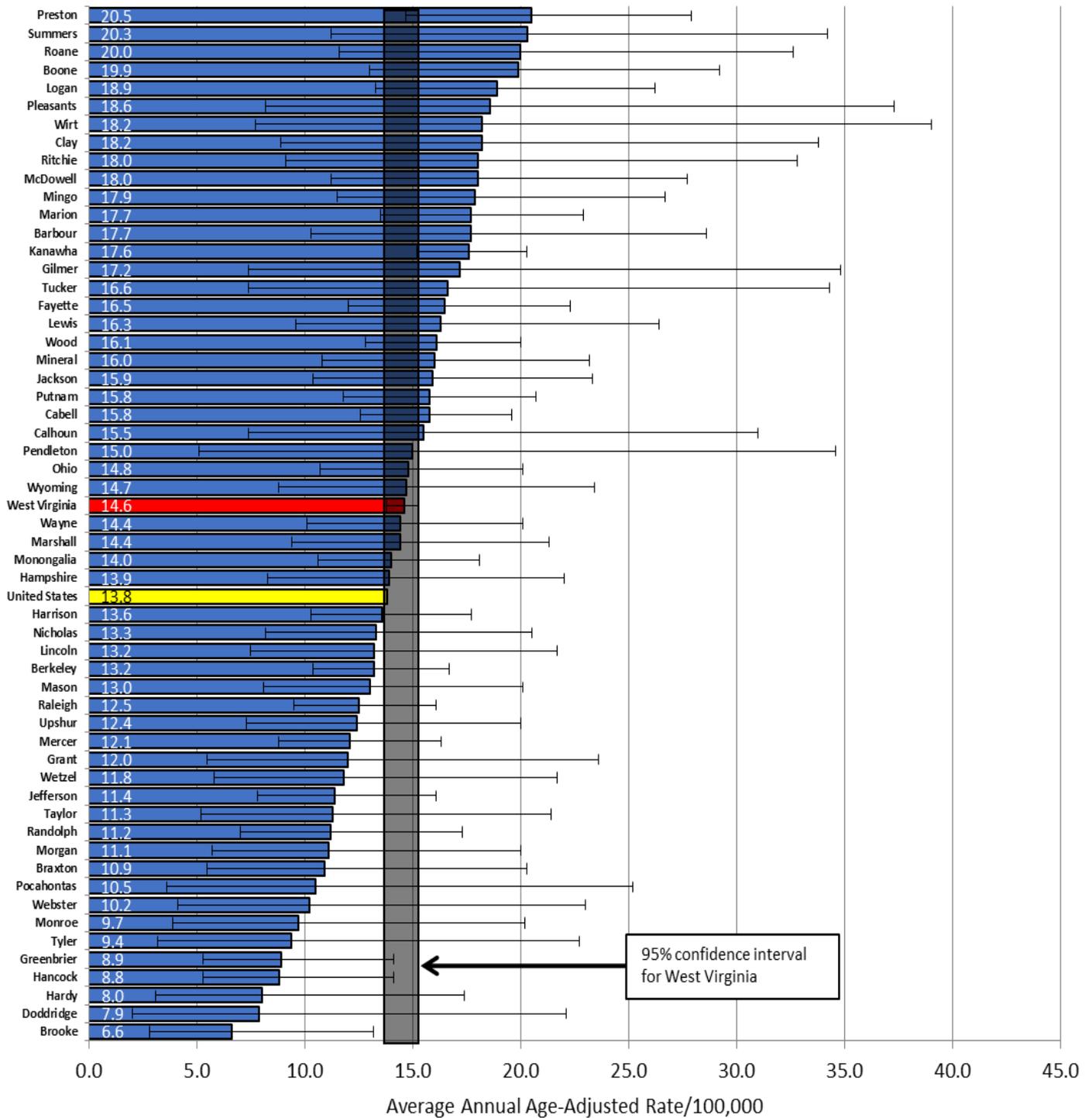


Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Leukemia - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 14.6 | 13.8     | 15.3     | 1,668      | Mercer     | 12.1 | 8.8      | 16.3     | 48         |
| Barbour       | 17.7 | 10.3     | 28.6     | 19         | Mineral    | 16.0 | 10.8     | 23.2     | 32         |
| Berkeley      | 13.2 | 10.4     | 16.7     | 76         | Mingo      | 17.9 | 11.5     | 26.7     | 26         |
| Boone         | 19.9 | 13.0     | 29.2     | 28         | Monongalia | 14.0 | 10.6     | 18.1     | 61         |
| Braxton       | 10.9 | 5.5      | 20.3     | 12         | Monroe     | 9.7  | 3.9      | 20.2     | 8          |
| Brooke        | 6.6  | 2.8      | 13.2     | 9          | Morgan     | 11.1 | 5.7      | 20.0     | 13         |
| Cabell        | 15.8 | 12.6     | 19.6     | 90         | Nicholas   | 13.3 | 8.2      | 20.5     | 23         |
| Calhoun       | 15.5 | 7.4      | 31.0     | 10         | Ohio       | 14.8 | 10.7     | 20.1     | 47         |
| Clay          | 18.2 | 8.9      | 33.8     | 11         | Pendleton  | 15.0 | 5.1      | 34.6     | 7          |
| Doddridge     | 7.9  | 2.0      | 22.1     | 4          | Pleasants  | 18.6 | 8.2      | 37.3     | 9          |
| Fayette       | 16.5 | 12.0     | 22.3     | 47         | Pocahontas | 10.5 | 3.6      | 25.2     | 6          |
| Gilmer        | 17.2 | 7.4      | 34.8     | 8          | Preston    | 20.5 | 14.7     | 27.9     | 43         |
| Grant         | 12.0 | 5.5      | 23.6     | 10         | Putnam     | 15.8 | 11.8     | 20.7     | 55         |
| Greenbrier    | 8.9  | 5.3      | 14.1     | 21         | Raleigh    | 12.5 | 9.5      | 16.1     | 64         |
| Hampshire     | 13.9 | 8.3      | 22.0     | 21         | Randolph   | 11.2 | 7.0      | 17.3     | 23         |
| Hancock       | 8.8  | 5.3      | 14.1     | 20         | Ritchie    | 18.0 | 9.1      | 32.8     | 12         |
| Hardy         | 8.0  | 3.1      | 17.4     | 7          | Roane      | 20.0 | 11.6     | 32.6     | 18         |
| Harrison      | 13.6 | 10.3     | 17.7     | 60         | Summers    | 20.3 | 11.2     | 34.2     | 17         |
| Jackson       | 15.9 | 10.4     | 23.3     | 29         | Taylor     | 11.3 | 5.2      | 21.4     | 10         |
| Jefferson     | 11.4 | 7.8      | 16.1     | 35         | Tucker     | 16.6 | 7.4      | 34.3     | 9          |
| Kanawha       | 17.6 | 15.2     | 20.3     | 207        | Tyler      | 9.4  | 3.2      | 22.7     | 6          |
| Lewis         | 16.3 | 9.6      | 26.4     | 19         | Upshur     | 12.4 | 7.3      | 20.0     | 18         |
| Lincoln       | 13.2 | 7.5      | 21.7     | 17         | Wayne      | 14.4 | 10.1     | 20.1     | 38         |
| Logan         | 18.9 | 13.3     | 26.2     | 39         | Webster    | 10.2 | 4.1      | 23.0     | 7          |
| Marion        | 17.7 | 13.5     | 22.9     | 63         | Wetzel     | 11.8 | 5.8      | 21.7     | 12         |
| Marshall      | 14.4 | 9.4      | 21.3     | 30         | Wirt       | 18.2 | 7.7      | 39.0     | 8          |
| Mason         | 13.0 | 8.1      | 20.1     | 23         | Wood       | 16.1 | 12.8     | 20.0     | 89         |
| McDowell      | 18.0 | 11.2     | 27.7     | 24         | Wyoming    | 14.7 | 8.8      | 23.4     | 20         |

### Leukemia - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

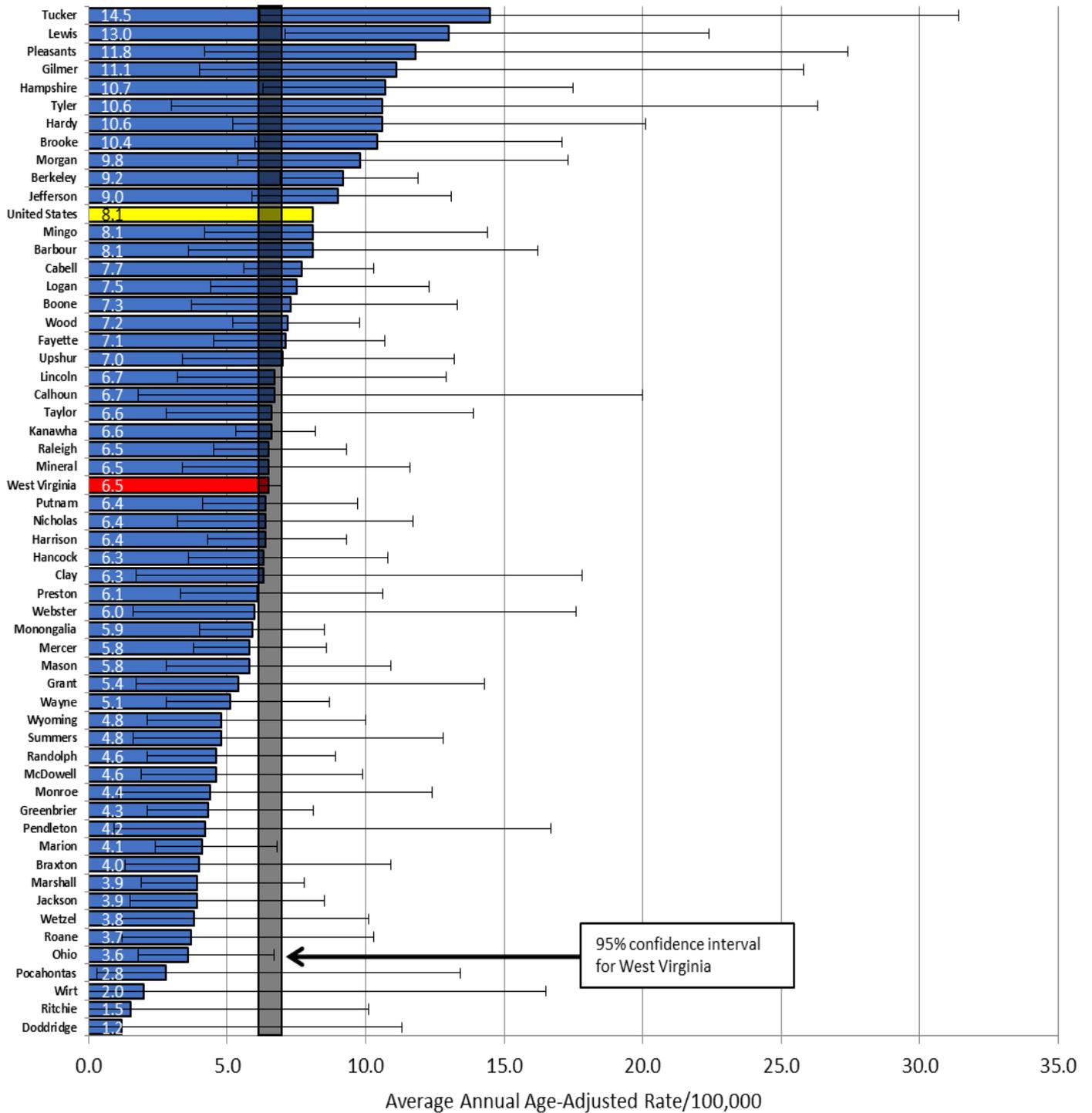


Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Liver and Intrahepatic Bile Duct - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 6.5  | 6.1      | 7.0      | 846        | Mercer     | 5.8  | 3.8      | 8.6      | 28         |
| Barbour       | 8.1  | 3.6      | 16.2     | 9          | Mineral    | 6.5  | 3.4      | 11.6     | 13         |
| Berkeley      | 9.2  | 6.9      | 11.9     | 61         | Mingo      | 8.1  | 4.2      | 14.4     | 13         |
| Boone         | 7.3  | 3.7      | 13.3     | 12         | Monongalia | 5.9  | 4.0      | 8.5      | 31         |
| Braxton       | 4.0  | 1.3      | 10.9     | 5          | Monroe     | 4.4  | 1.1      | 12.4     | 4          |
| Brooke        | 10.4 | 6.0      | 17.1     | 19         | Morgan     | 9.8  | 5.4      | 17.3     | 15         |
| Cabell        | 7.7  | 5.6      | 10.3     | 48         | Nicholas   | 6.4  | 3.2      | 11.7     | 12         |
| Calhoun       | 6.7  | 1.8      | 20.0     | 4          | Ohio       | 3.6  | 1.8      | 6.7      | 12         |
| Clay          | 6.3  | 1.7      | 17.8     | 4          | Pendleton  | 4.2  | 0.9      | 16.7     | ^          |
| Doddridge     | 1.2  | 0.0      | 11.3     | ^          | Pleasants  | 11.8 | 4.2      | 27.4     | 6          |
| Fayette       | 7.1  | 4.5      | 10.7     | 25         | Pocahontas | 2.8  | 0.3      | 13.4     | ^          |
| Gilmer        | 11.1 | 4.0      | 25.8     | 6          | Preston    | 6.1  | 3.3      | 10.6     | 14         |
| Grant         | 5.4  | 1.7      | 14.3     | 5          | Putnam     | 6.4  | 4.1      | 9.7      | 25         |
| Greenbrier    | 4.3  | 2.1      | 8.1      | 12         | Raleigh    | 6.5  | 4.5      | 9.3      | 35         |
| Hampshire     | 10.7 | 6.3      | 17.5     | 19         | Randolph   | 4.6  | 2.1      | 8.9      | 10         |
| Hancock       | 6.3  | 3.6      | 10.8     | 16         | Ritchie    | 1.5  | 0.0      | 10.1     | ^          |
| Hardy         | 10.6 | 5.2      | 20.1     | 11         | Roane      | 3.7  | 1.2      | 10.3     | 5          |
| Harrison      | 6.4  | 4.3      | 9.3      | 31         | Summers    | 4.8  | 1.6      | 12.8     | 5          |
| Jackson       | 3.9  | 1.5      | 8.5      | 7          | Taylor     | 6.6  | 2.8      | 13.9     | 8          |
| Jefferson     | 9.0  | 5.9      | 13.1     | 29         | Tucker     | 14.5 | 6.2      | 31.4     | 8          |
| Kanawha       | 6.6  | 5.3      | 8.2      | 90         | Tyler      | 10.6 | 3.0      | 26.3     | 5          |
| Lewis         | 13.0 | 7.1      | 22.4     | 15         | Upshur     | 7.0  | 3.4      | 13.2     | 11         |
| Lincoln       | 6.7  | 3.2      | 12.9     | 10         | Wayne      | 5.1  | 2.8      | 8.7      | 15         |
| Logan         | 7.5  | 4.4      | 12.3     | 18         | Webster    | 6.0  | 1.6      | 17.6     | 4          |
| Marion        | 4.1  | 2.4      | 6.8      | 17         | Wetzel     | 3.8  | 1.2      | 10.1     | 5          |
| Marshall      | 3.9  | 1.9      | 7.8      | 10         | Wirt       | 2.0  | 0.0      | 16.5     | ^          |
| Mason         | 5.8  | 2.8      | 10.9     | 11         | Wood       | 7.2  | 5.2      | 9.8      | 43         |
| McDowell      | 4.6  | 1.9      | 9.9      | 8          | Wyoming    | 4.8  | 2.1      | 10.0     | 9          |

### Liver and Intrahepatic Bile Duct - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

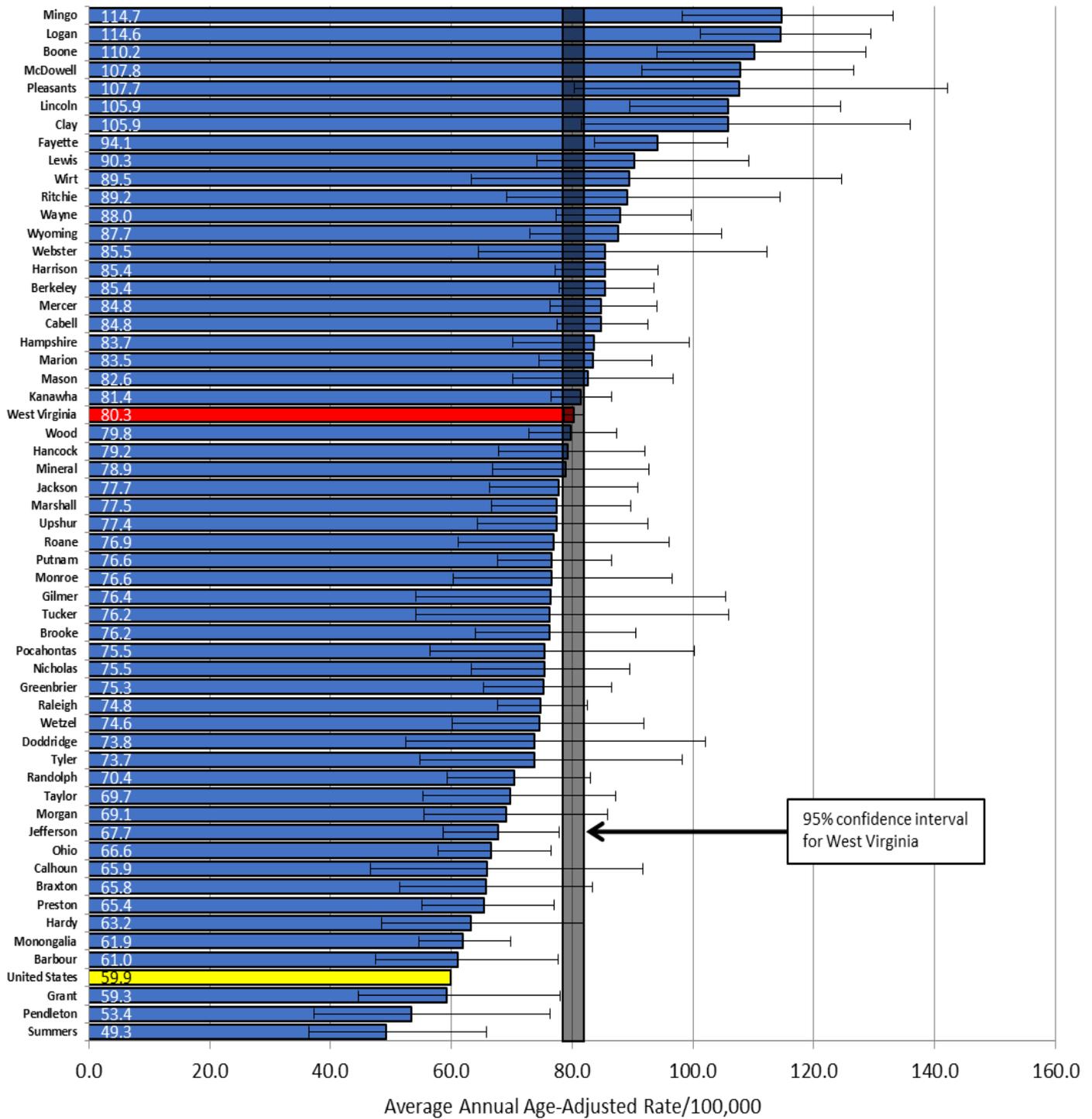


Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Lung and Bronchus - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate  | Lower CI | Upper CI | 5-yr Count | County     | Rate  | Lower CI | Upper CI | 5-yr Count |
|---------------|-------|----------|----------|------------|------------|-------|----------|----------|------------|
| West Virginia | 80.3  | 78.7     | 81.9     | 10,195     | Mercer     | 84.8  | 76.3     | 94.1     | 382        |
| Barbour       | 61.0  | 47.4     | 77.7     | 71         | Mineral    | 78.9  | 66.9     | 92.7     | 159        |
| Berkeley      | 85.4  | 77.8     | 93.5     | 498        | Mingo      | 114.7 | 98.3     | 133.2    | 185        |
| Boone         | 110.2 | 94.0     | 128.6    | 174        | Monongalia | 61.9  | 54.7     | 69.8     | 278        |
| Braxton       | 65.8  | 51.5     | 83.4     | 75         | Monroe     | 76.6  | 60.4     | 96.6     | 81         |
| Brooke        | 76.2  | 64.0     | 90.5     | 144        | Morgan     | 69.1  | 55.5     | 85.8     | 92         |
| Cabell        | 84.8  | 77.6     | 92.6     | 525        | Nicholas   | 75.5  | 63.4     | 89.6     | 143        |
| Calhoun       | 65.9  | 46.7     | 91.8     | 40         | Ohio       | 66.6  | 57.8     | 76.6     | 218        |
| Clay          | 105.9 | 81.5     | 135.9    | 68         | Pendleton  | 53.4  | 37.2     | 76.4     | 36         |
| Doddridge     | 73.8  | 52.5     | 102.0    | 41         | Pleasants  | 107.7 | 80.4     | 142.1    | 54         |
| Fayette       | 94.1  | 83.7     | 105.7    | 307        | Pocahontas | 75.5  | 56.5     | 100.3    | 55         |
| Gilmer        | 76.4  | 54.2     | 105.5    | 39         | Preston    | 65.4  | 55.2     | 77.1     | 152        |
| Grant         | 59.3  | 44.7     | 78.0     | 57         | Putnam     | 76.6  | 67.6     | 86.5     | 274        |
| Greenbrier    | 75.3  | 65.4     | 86.6     | 214        | Raleigh    | 74.8  | 67.6     | 82.6     | 414        |
| Hampshire     | 83.7  | 70.1     | 99.4     | 143        | Randolph   | 70.4  | 59.3     | 83.1     | 149        |
| Hancock       | 79.2  | 67.9     | 92.0     | 185        | Ritchie    | 89.2  | 69.1     | 114.4    | 70         |
| Hardy         | 63.2  | 48.4     | 81.8     | 64         | Roane      | 76.9  | 61.2     | 96.0     | 86         |
| Harrison      | 85.4  | 77.2     | 94.3     | 410        | Summers    | 49.3  | 36.5     | 65.8     | 52         |
| Jackson       | 77.7  | 66.3     | 90.9     | 166        | Taylor     | 69.7  | 55.3     | 87.2     | 83         |
| Jefferson     | 67.7  | 58.6     | 77.9     | 211        | Tucker     | 76.2  | 54.2     | 105.9    | 42         |
| Kanawha       | 81.4  | 76.5     | 86.5     | 1,098      | Tyler      | 73.7  | 54.9     | 98.2     | 53         |
| Lewis         | 90.3  | 74.2     | 109.3    | 113        | Upshur     | 77.4  | 64.4     | 92.5     | 129        |
| Lincoln       | 105.9 | 89.6     | 124.5    | 159        | Wayne      | 88.0  | 77.4     | 99.7     | 258        |
| Logan         | 114.6 | 101.3    | 129.4    | 284        | Webster    | 85.5  | 64.5     | 112.2    | 59         |
| Marion        | 83.5  | 74.6     | 93.3     | 329        | Wetzel     | 74.6  | 60.2     | 91.9     | 97         |
| Marshall      | 77.5  | 66.7     | 89.8     | 192        | Wirt       | 89.5  | 63.4     | 124.6    | 40         |
| Mason         | 82.6  | 70.2     | 96.8     | 162        | Wood       | 79.8  | 72.8     | 87.4     | 485        |
| McDowell      | 107.8 | 91.5     | 126.6    | 164        | Wyoming    | 87.7  | 73.1     | 104.7    | 136        |

### Lung and Bronchus - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015



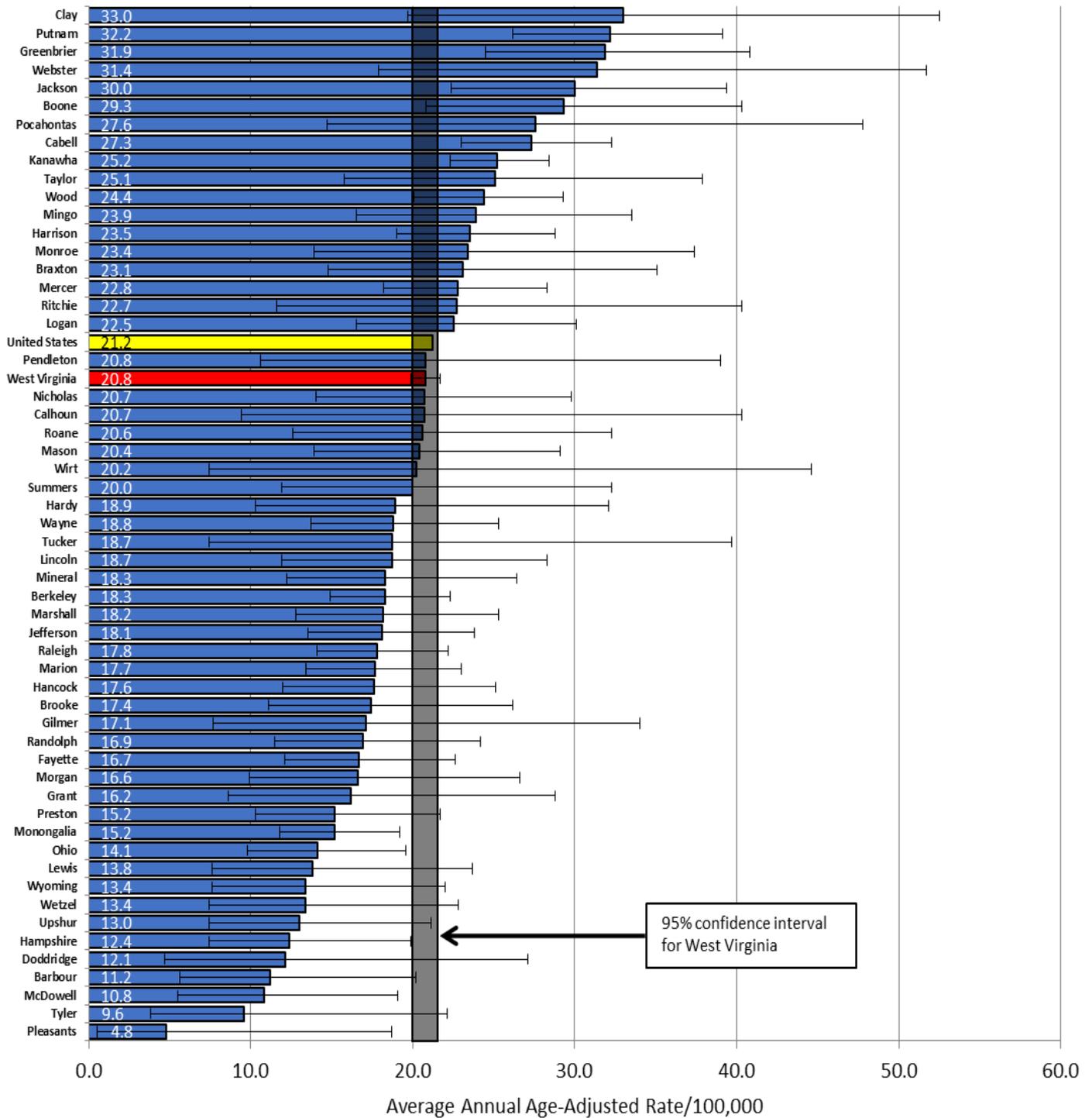
Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Melanoma of the Skin - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 20.8 | 19.9     | 21.7     | 2,347      | Mercer     | 22.8 | 18.2     | 28.3     | 94         |
| Barbour       | 11.2 | 5.6      | 20.2     | 12         | Mineral    | 18.3 | 12.2     | 26.4     | 31         |
| Berkeley      | 18.3 | 14.9     | 22.3     | 106        | Mingo      | 23.9 | 16.5     | 33.5     | 37         |
| Boone         | 29.3 | 20.8     | 40.3     | 42         | Monongalia | 15.2 | 11.8     | 19.2     | 74         |
| Braxton       | 23.1 | 14.8     | 35.1     | 25         | Monroe     | 23.4 | 13.9     | 37.4     | 21         |
| Brooke        | 17.4 | 11.1     | 26.2     | 28         | Morgan     | 16.6 | 9.9      | 26.6     | 20         |
| Cabell        | 27.3 | 23.0     | 32.3     | 149        | Nicholas   | 20.7 | 14.0     | 29.8     | 33         |
| Calhoun       | 20.7 | 9.4      | 40.3     | 10         | Ohio       | 14.1 | 9.8      | 19.6     | 40         |
| Clay          | 33.0 | 19.7     | 52.5     | 20         | Pendleton  | 20.8 | 10.6     | 39.0     | 13         |
| Doddridge     | 12.1 | 4.7      | 27.1     | 7          | Pleasants  | 4.8  | 0.5      | 18.7     | ^          |
| Fayette       | 16.7 | 12.1     | 22.6     | 47         | Pocahontas | 27.6 | 14.7     | 47.8     | 15         |
| Gilmer        | 17.1 | 7.7      | 34.0     | 9          | Preston    | 15.2 | 10.3     | 21.7     | 33         |
| Grant         | 16.2 | 8.6      | 28.8     | 14         | Putnam     | 32.2 | 26.2     | 39.1     | 108        |
| Greenbrier    | 31.9 | 24.5     | 40.8     | 74         | Raleigh    | 17.8 | 14.1     | 22.2     | 86         |
| Hampshire     | 12.4 | 7.4      | 19.9     | 20         | Randolph   | 16.9 | 11.5     | 24.2     | 34         |
| Hancock       | 17.6 | 12.0     | 25.1     | 35         | Ritchie    | 22.7 | 11.6     | 40.3     | 13         |
| Hardy         | 18.9 | 10.3     | 32.1     | 15         | Roane      | 20.6 | 12.6     | 32.3     | 22         |
| Harrison      | 23.5 | 19.0     | 28.8     | 101        | Summers    | 20.0 | 11.9     | 32.3     | 20         |
| Jackson       | 30.0 | 22.4     | 39.4     | 56         | Taylor     | 25.1 | 15.8     | 37.9     | 24         |
| Jefferson     | 18.1 | 13.5     | 23.8     | 55         | Tucker     | 18.7 | 7.4      | 39.7     | 8          |
| Kanawha       | 25.2 | 22.3     | 28.4     | 299        | Tyler      | 9.6  | 3.8      | 22.1     | ^          |
| Lewis         | 13.8 | 7.6      | 23.7     | 15         | Upshur     | 13.0 | 7.4      | 21.1     | 18         |
| Lincoln       | 18.7 | 11.9     | 28.3     | 25         | Wayne      | 18.8 | 13.7     | 25.3     | 48         |
| Logan         | 22.5 | 16.5     | 30.1     | 50         | Webster    | 31.4 | 17.9     | 51.7     | 18         |
| Marion        | 17.7 | 13.4     | 23.0     | 61         | Wetzel     | 13.4 | 7.4      | 22.8     | 16         |
| Marshall      | 18.2 | 12.8     | 25.3     | 40         | Wirt       | 20.2 | 7.4      | 44.6     | 7          |
| Mason         | 20.4 | 13.9     | 29.1     | 35         | Wood       | 24.4 | 20.1     | 29.3     | 125        |
| McDowell      | 10.8 | 5.5      | 19.1     | 13         | Wyoming    | 13.4 | 7.6      | 22.0     | 17         |

^ indicates suppressed data for counties with 3 or fewer cases over the 5-year period

## Melanoma of the Skin - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

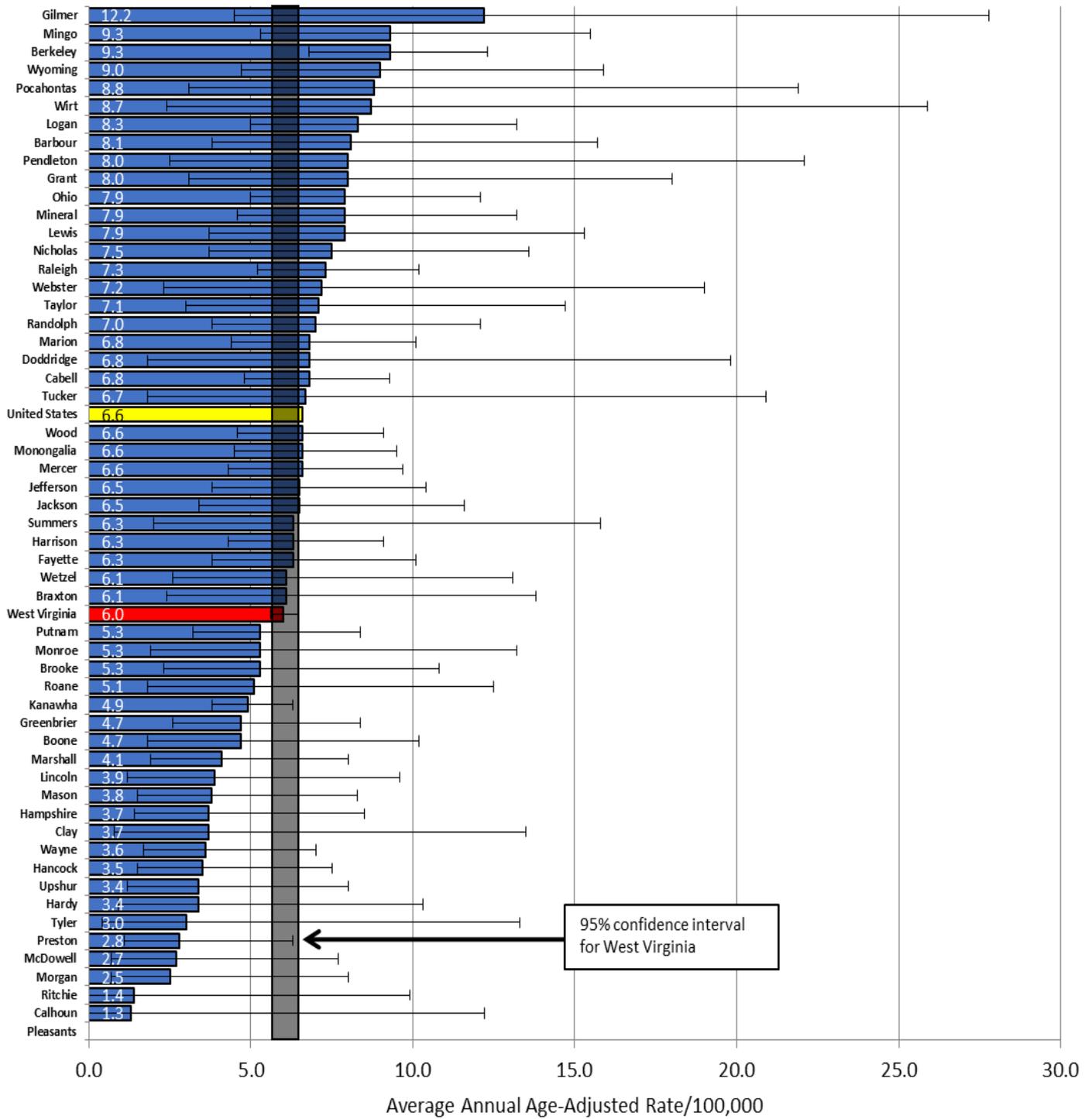


Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Myeloma - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 6.0  | 5.6      | 6.5      | 752        | Mercer     | 6.6  | 4.3      | 9.7      | 29         |
| Barbour       | 8.1  | 3.8      | 15.7     | 10         | Mineral    | 7.9  | 4.6      | 13.2     | 17         |
| Berkeley      | 9.3  | 6.8      | 12.3     | 50         | Mingo      | 9.3  | 5.3      | 15.5     | 17         |
| Boone         | 4.7  | 1.8      | 10.2     | 7          | Monongalia | 6.6  | 4.5      | 9.5      | 31         |
| Braxton       | 6.1  | 2.4      | 13.8     | 7          | Monroe     | 5.3  | 1.9      | 13.2     | 6          |
| Brooke        | 5.3  | 2.3      | 10.8     | 9          | Morgan     | 2.5  | 0.7      | 8.0      | 4          |
| Cabell        | 6.8  | 4.8      | 9.3      | 41         | Nicholas   | 7.5  | 3.7      | 13.6     | 12         |
| Calhoun       | 1.3  | 0.0      | 12.2     | ^          | Ohio       | 7.9  | 5.0      | 12.1     | 25         |
| Clay          | 3.7  | 0.8      | 13.5     | ^          | Pendleton  | 8.0  | 2.5      | 22.1     | 5          |
| Doddridge     | 6.8  | 1.8      | 19.8     | 4          | Pleasants  | 0.0  | 0.0      |          | 0          |
| Fayette       | 6.3  | 3.8      | 10.1     | 19         | Pocahontas | 8.8  | 3.1      | 21.9     | 6          |
| Gilmer        | 12.2 | 4.5      | 27.8     | 6          | Preston    | 2.8  | 1.1      | 6.3      | 7          |
| Grant         | 8.0  | 3.1      | 18.0     | 7          | Putnam     | 5.3  | 3.2      | 8.4      | 20         |
| Greenbrier    | 4.7  | 2.6      | 8.4      | 14         | Raleigh    | 7.3  | 5.2      | 10.2     | 39         |
| Hampshire     | 3.7  | 1.4      | 8.5      | 7          | Randolph   | 7.0  | 3.8      | 12.1     | 15         |
| Hancock       | 3.5  | 1.5      | 7.5      | 8          | Ritchie    | 1.4  | 0.0      | 9.9      | ^          |
| Hardy         | 3.4  | 0.9      | 10.3     | 4          | Roane      | 5.1  | 1.8      | 12.5     | 6          |
| Harrison      | 6.3  | 4.3      | 9.1      | 31         | Summers    | 6.3  | 2.0      | 15.8     | 5          |
| Jackson       | 6.5  | 3.4      | 11.6     | 13         | Taylor     | 7.1  | 3.0      | 14.7     | 8          |
| Jefferson     | 6.5  | 3.8      | 10.4     | 18         | Tucker     | 6.7  | 1.8      | 20.9     | 4          |
| Kanawha       | 4.9  | 3.8      | 6.3      | 67         | Tyler      | 3.0  | 0.4      | 13.3     | ^          |
| Lewis         | 7.9  | 3.7      | 15.3     | 10         | Upshur     | 3.4  | 1.2      | 8.0      | 6          |
| Lincoln       | 3.9  | 1.2      | 9.6      | 5          | Wayne      | 3.6  | 1.7      | 7.0      | 10         |
| Logan         | 8.3  | 5.0      | 13.2     | 20         | Webster    | 7.2  | 2.3      | 19.0     | 5          |
| Marion        | 6.8  | 4.4      | 10.1     | 26         | Wetzel     | 6.1  | 2.6      | 13.1     | 8          |
| Marshall      | 4.1  | 1.9      | 8.0      | 10         | Wirt       | 8.7  | 2.4      | 25.9     | 4          |
| Mason         | 3.8  | 1.5      | 8.3      | 7          | Wood       | 6.6  | 4.6      | 9.1      | 39         |
| McDowell      | 2.7  | 0.7      | 7.7      | 4          | Wyoming    | 9.0  | 4.7      | 15.9     | 13         |

### Myeloma - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015



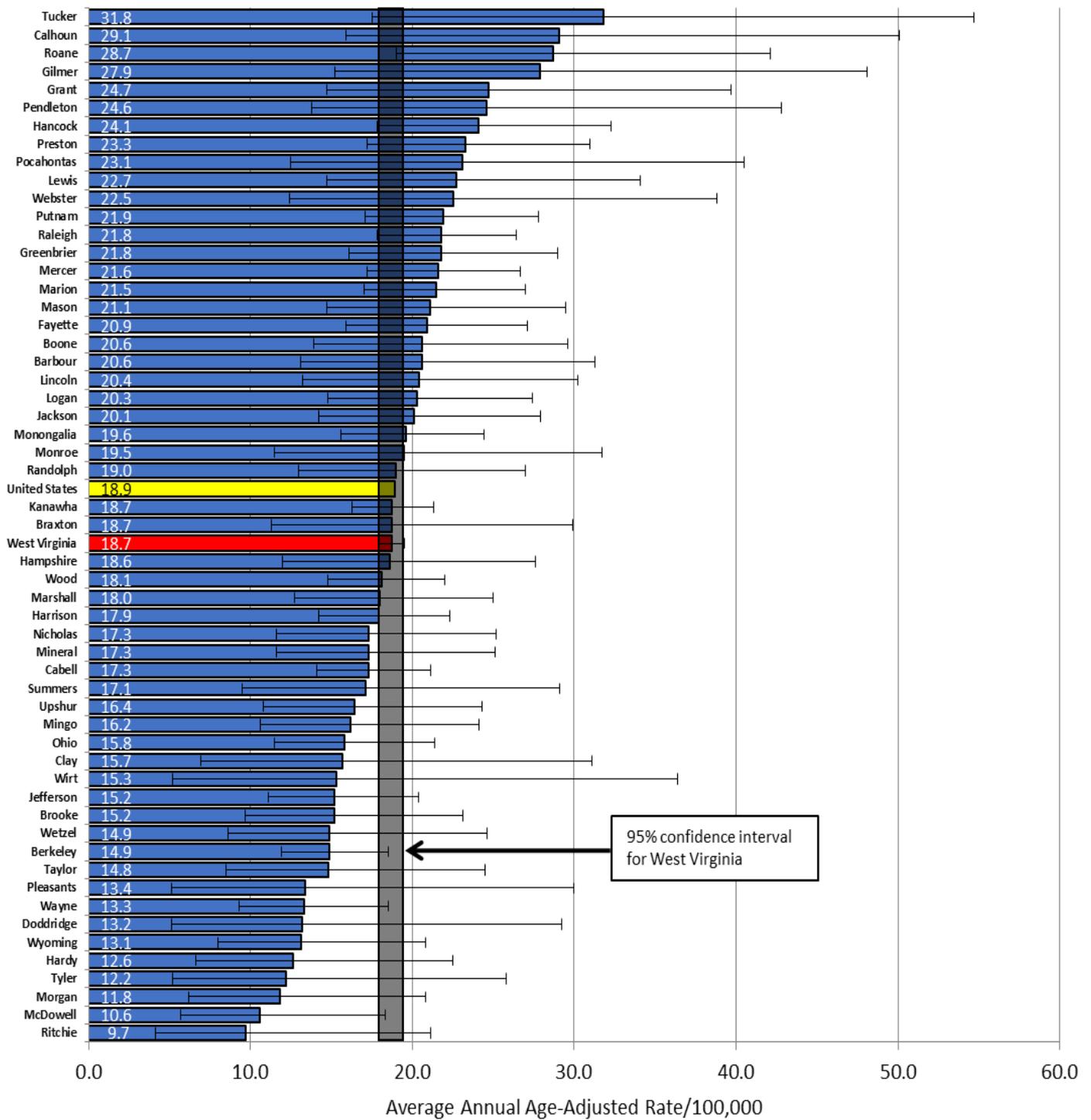
Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Non-Hodgkin Lymphoma - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 18.7 | 17.9     | 19.5     | 2,250      | Mercer     | 21.6 | 17.2     | 26.7     | 92         |
| Barbour       | 20.6 | 13.1     | 31.3     | 24         | Mineral    | 17.3 | 11.6     | 25.1     | 31         |
| Berkeley      | 14.9 | 11.9     | 18.5     | 87         | Mingo      | 16.2 | 10.6     | 24.1     | 28         |
| Boone         | 20.6 | 13.9     | 29.6     | 32         | Monongalia | 19.6 | 15.6     | 24.4     | 88         |
| Braxton       | 18.7 | 11.3     | 29.9     | 21         | Monroe     | 19.5 | 11.5     | 31.7     | 20         |
| Brooke        | 15.2 | 9.7      | 23.1     | 26         | Morgan     | 11.8 | 6.2      | 20.8     | 15         |
| Cabell        | 17.3 | 14.1     | 21.1     | 104        | Nicholas   | 17.3 | 11.6     | 25.2     | 30         |
| Calhoun       | 29.1 | 15.9     | 50.1     | 15         | Ohio       | 15.8 | 11.5     | 21.4     | 48         |
| Clay          | 15.7 | 6.9      | 31.1     | 9          | Pendleton  | 24.6 | 13.8     | 42.8     | 16         |
| Doddridge     | 13.2 | 5.1      | 29.2     | 7          | Pleasants  | 13.4 | 5.1      | 30.0     | 7          |
| Fayette       | 20.9 | 15.9     | 27.1     | 64         | Pocahontas | 23.1 | 12.5     | 40.5     | 15         |
| Gilmer        | 27.9 | 15.2     | 48.1     | 14         | Preston    | 23.3 | 17.2     | 31.0     | 51         |
| Grant         | 24.7 | 14.7     | 39.7     | 21         | Putnam     | 21.9 | 17.1     | 27.8     | 74         |
| Greenbrier    | 21.8 | 16.1     | 29.0     | 54         | Raleigh    | 21.8 | 17.8     | 26.4     | 112        |
| Hampshire     | 18.6 | 12.0     | 27.6     | 28         | Randolph   | 19.0 | 13.0     | 27.0     | 35         |
| Hancock       | 24.1 | 17.8     | 32.3     | 52         | Ritchie    | 9.7  | 4.1      | 21.1     | 8          |
| Hardy         | 12.6 | 6.6      | 22.5     | 13         | Roane      | 28.7 | 19.0     | 42.1     | 29         |
| Harrison      | 17.9 | 14.2     | 22.3     | 85         | Summers    | 17.1 | 9.5      | 29.1     | 16         |
| Jackson       | 20.1 | 14.2     | 27.9     | 40         | Taylor     | 14.8 | 8.5      | 24.5     | 17         |
| Jefferson     | 15.2 | 11.1     | 20.4     | 48         | Tucker     | 31.8 | 17.5     | 54.7     | 16         |
| Kanawha       | 18.7 | 16.3     | 21.3     | 240        | Tyler      | 12.2 | 5.2      | 25.8     | 8          |
| Lewis         | 22.7 | 14.7     | 34.1     | 26         | Upshur     | 16.4 | 10.8     | 24.3     | 28         |
| Lincoln       | 20.4 | 13.2     | 30.2     | 27         | Wayne      | 13.3 | 9.3      | 18.5     | 38         |
| Logan         | 20.3 | 14.8     | 27.4     | 48         | Webster    | 22.5 | 12.4     | 38.8     | 16         |
| Marion        | 21.5 | 17.0     | 27.0     | 80         | Wetzel     | 14.9 | 8.6      | 24.6     | 18         |
| Marshall      | 18.0 | 12.7     | 25.0     | 40         | Wirt       | 15.3 | 5.2      | 36.4     | 6          |
| Mason         | 21.1 | 14.7     | 29.5     | 39         | Wood       | 18.1 | 14.8     | 22.0     | 107        |
| McDowell      | 10.6 | 5.7      | 18.3     | 15         | Wyoming    | 13.1 | 8.0      | 20.8     | 22         |

^ indicates suppressed data for counties with 3 or fewer cases over the 5-year period

## Non-Hodgkin Lymphoma - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015



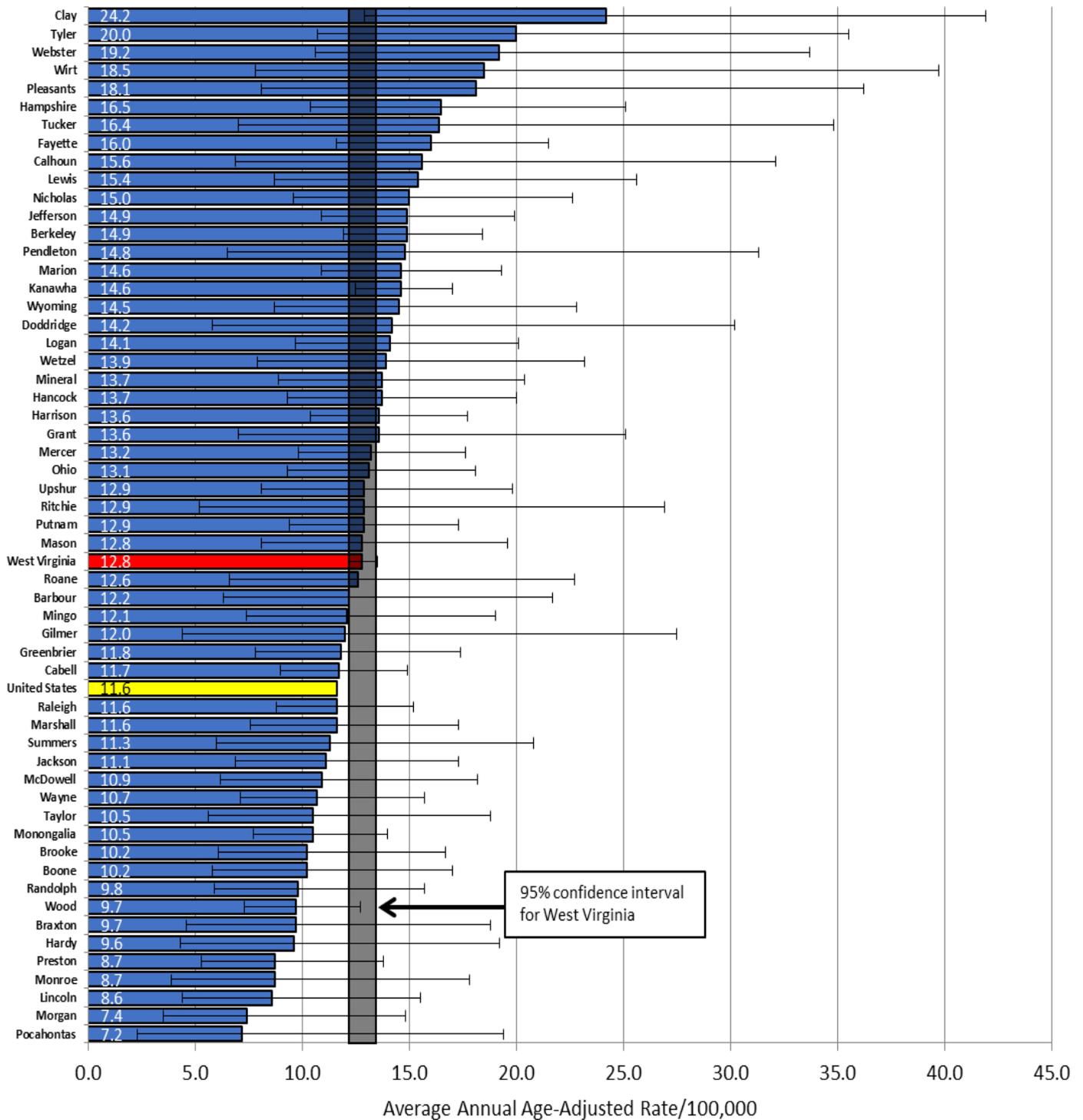
Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Oral Cavity and Pharynx - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 12.8 | 12.2     | 13.5     | 1,569      | Mercer     | 13.2 | 9.8      | 17.6     | 54         |
| Barbour       | 12.2 | 6.3      | 21.7     | 13         | Mineral    | 13.7 | 8.9      | 20.4     | 27         |
| Berkeley      | 14.9 | 11.9     | 18.4     | 92         | Mingo      | 12.1 | 7.4      | 19.0     | 21         |
| Boone         | 10.2 | 5.8      | 17.0     | 17         | Monongalia | 10.5 | 7.7      | 14.0     | 48         |
| Braxton       | 9.7  | 4.6      | 18.8     | 10         | Monroe     | 8.7  | 3.9      | 17.8     | 9          |
| Brooke        | 10.2 | 6.1      | 16.7     | 19         | Morgan     | 7.4  | 3.5      | 14.8     | 10         |
| Cabell        | 11.7 | 9.0      | 14.9     | 70         | Nicholas   | 15.0 | 9.6      | 22.6     | 27         |
| Calhoun       | 15.6 | 6.9      | 32.1     | 9          | Ohio       | 13.1 | 9.3      | 18.1     | 42         |
| Clay          | 24.2 | 12.9     | 41.9     | 14         | Pendleton  | 14.8 | 6.5      | 31.3     | 9          |
| Doddridge     | 14.2 | 5.8      | 30.2     | 8          | Pleasants  | 18.1 | 8.1      | 36.2     | 9          |
| Fayette       | 16.0 | 11.6     | 21.5     | 48         | Pocahontas | 7.2  | 2.3      | 19.4     | 5          |
| Gilmer        | 12.0 | 4.4      | 27.5     | 6          | Preston    | 8.7  | 5.3      | 13.8     | 21         |
| Grant         | 13.6 | 7.0      | 25.1     | 12         | Putnam     | 12.9 | 9.4      | 17.3     | 47         |
| Greenbrier    | 11.8 | 7.8      | 17.4     | 30         | Raleigh    | 11.6 | 8.8      | 15.2     | 60         |
| Hampshire     | 16.5 | 10.4     | 25.1     | 25         | Randolph   | 9.8  | 5.9      | 15.7     | 20         |
| Hancock       | 13.7 | 9.3      | 20.0     | 32         | Ritchie    | 12.9 | 5.2      | 26.9     | 8          |
| Hardy         | 9.6  | 4.3      | 19.2     | 9          | Roane      | 12.6 | 6.6      | 22.7     | 13         |
| Harrison      | 13.6 | 10.4     | 17.7     | 62         | Summers    | 11.3 | 6.0      | 20.8     | 13         |
| Jackson       | 11.1 | 6.9      | 17.3     | 22         | Taylor     | 10.5 | 5.6      | 18.8     | 13         |
| Jefferson     | 14.9 | 10.9     | 19.9     | 49         | Tucker     | 16.4 | 7.0      | 34.8     | 9          |
| Kanawha       | 14.6 | 12.5     | 17.0     | 187        | Tyler      | 20.0 | 10.7     | 35.5     | 14         |
| Lewis         | 15.4 | 8.7      | 25.6     | 16         | Upshur     | 12.9 | 8.1      | 19.8     | 23         |
| Lincoln       | 8.6  | 4.4      | 15.5     | 12         | Wayne      | 10.7 | 7.1      | 15.7     | 29         |
| Logan         | 14.1 | 9.7      | 20.1     | 35         | Webster    | 19.2 | 10.6     | 33.7     | 15         |
| Marion        | 14.6 | 10.9     | 19.3     | 55         | Wetzel     | 13.9 | 7.9      | 23.2     | 17         |
| Marshall      | 11.6 | 7.6      | 17.3     | 27         | Wirt       | 18.5 | 7.8      | 39.7     | 8          |
| Mason         | 12.8 | 8.1      | 19.6     | 24         | Wood       | 9.7  | 7.3      | 12.7     | 57         |
| McDowell      | 10.9 | 6.2      | 18.2     | 17         | Wyoming    | 14.5 | 8.7      | 22.8     | 21         |

^ indicates suppressed data for counties with 3 or fewer cases over the 5-year period

## Oral Cavity and Pharynx - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

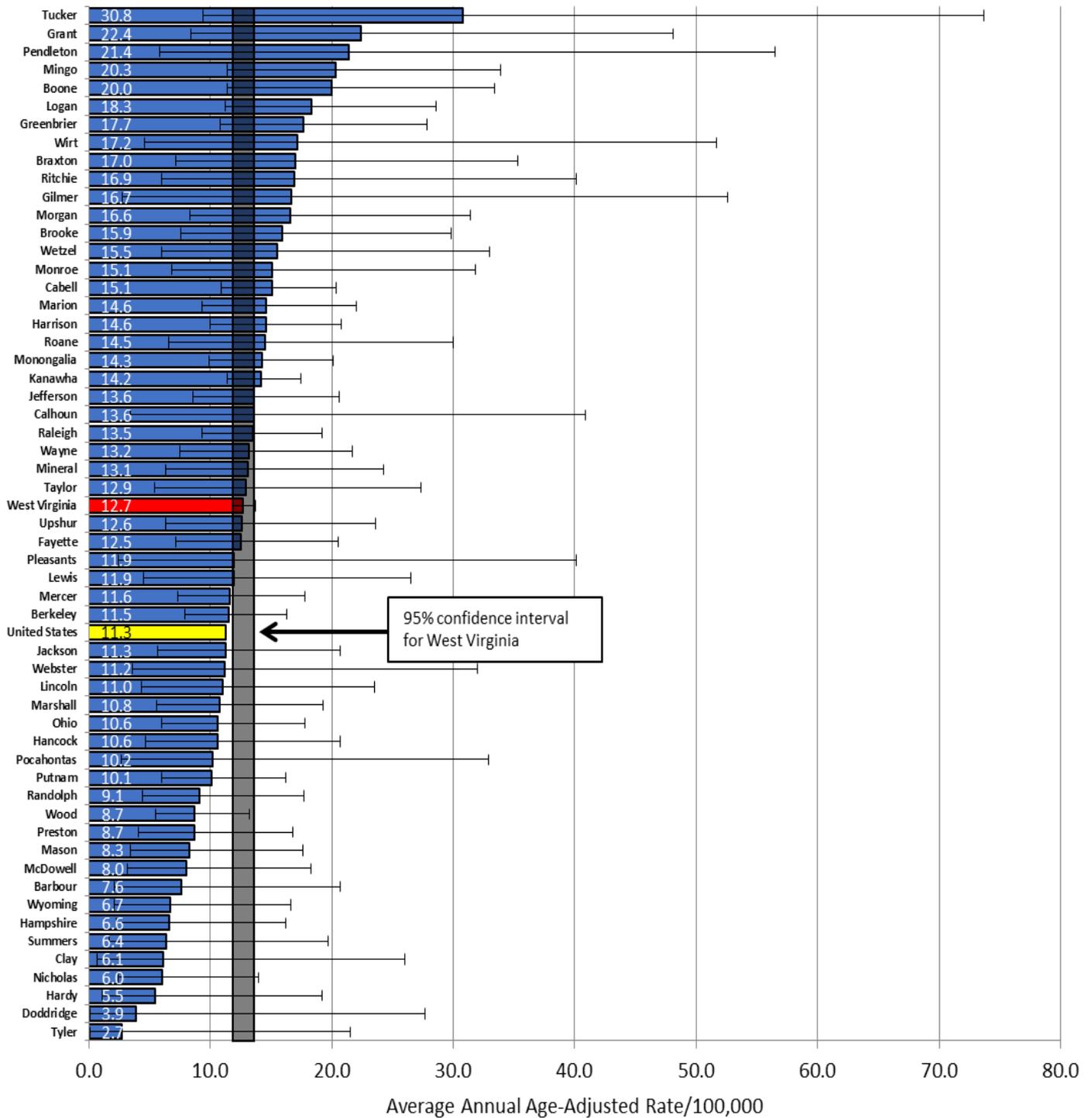


Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Ovary - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 12.7 | 11.8     | 13.7     | 796        | Mercer     | 11.6 | 7.3      | 17.8     | 25         |
| Barbour       | 7.6  | 2.1      | 20.7     | 4          | Mineral    | 13.1 | 6.3      | 24.3     | 12         |
| Berkeley      | 11.5 | 7.9      | 16.3     | 33         | Mingo      | 20.3 | 11.4     | 33.9     | 16         |
| Boone         | 20.0 | 11.4     | 33.4     | 17         | Monongalia | 14.3 | 9.9      | 20.1     | 36         |
| Braxton       | 17.0 | 7.2      | 35.3     | 9          | Monroe     | 15.1 | 6.8      | 31.8     | 9          |
| Brooke        | 15.9 | 7.6      | 29.8     | 12         | Morgan     | 16.6 | 8.3      | 31.4     | 12         |
| Cabell        | 15.1 | 10.9     | 20.4     | 48         | Nicholas   | 6.0  | 2.4      | 14.0     | 7          |
| Calhoun       | 13.6 | 3.4      | 40.9     | 4          | Ohio       | 10.6 | 6.0      | 17.8     | 18         |
| Clay          | 6.1  | 0.7      | 26.0     | ^          | Pendleton  | 21.4 | 5.8      | 56.5     | 5          |
| Doddridge     | 3.9  | 0.1      | 27.7     | ^          | Pleasants  | 11.9 | 2.4      | 40.1     | ^          |
| Fayette       | 12.5 | 7.2      | 20.5     | 19         | Pocahontas | 10.2 | 2.7      | 32.9     | 4          |
| Gilmer        | 16.7 | 2.8      | 52.6     | ^          | Preston    | 8.7  | 4.1      | 16.8     | 11         |
| Grant         | 22.4 | 8.4      | 48.1     | 7          | Putnam     | 10.1 | 6.0      | 16.2     | 19         |
| Greenbrier    | 17.7 | 10.8     | 27.8     | 23         | Raleigh    | 13.5 | 9.3      | 19.2     | 36         |
| Hampshire     | 6.6  | 2.3      | 16.2     | 6          | Randolph   | 9.1  | 4.4      | 17.7     | 11         |
| Hancock       | 10.6 | 4.7      | 20.7     | 10         | Ritchie    | 16.9 | 6.0      | 40.1     | 6          |
| Hardy         | 5.5  | 1.1      | 19.2     | ^          | Roane      | 14.5 | 6.6      | 30.0     | 9          |
| Harrison      | 14.6 | 10.0     | 20.8     | 35         | Summers    | 6.4  | 1.7      | 19.7     | 4          |
| Jackson       | 11.3 | 5.7      | 20.7     | 12         | Taylor     | 12.9 | 5.4      | 27.3     | 8          |
| Jefferson     | 13.6 | 8.6      | 20.6     | 24         | Tucker     | 30.8 | 9.4      | 73.7     | 6          |
| Kanawha       | 14.2 | 11.4     | 17.5     | 100        | Tyler      | 2.7  | 0.1      | 21.5     | ^          |
| Lewis         | 11.9 | 4.5      | 26.5     | 7          | Upshur     | 12.6 | 6.3      | 23.6     | 11         |
| Lincoln       | 11.0 | 4.3      | 23.5     | 7          | Wayne      | 13.2 | 7.5      | 21.7     | 17         |
| Logan         | 18.3 | 11.2     | 28.6     | 22         | Webster    | 11.2 | 3.6      | 32.0     | 5          |
| Marion        | 14.6 | 9.3      | 22.0     | 26         | Wetzel     | 15.5 | 6.0      | 33.0     | 8          |
| Marshall      | 10.8 | 5.6      | 19.3     | 14         | Wirt       | 17.2 | 4.6      | 51.7     | 4          |
| Mason         | 8.3  | 3.4      | 17.6     | 8          | Wood       | 8.7  | 5.5      | 13.2     | 25         |
| McDowell      | 8.0  | 3.2      | 18.3     | 7          | Wyoming    | 6.7  | 2.1      | 16.6     | 5          |

### Ovary - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015



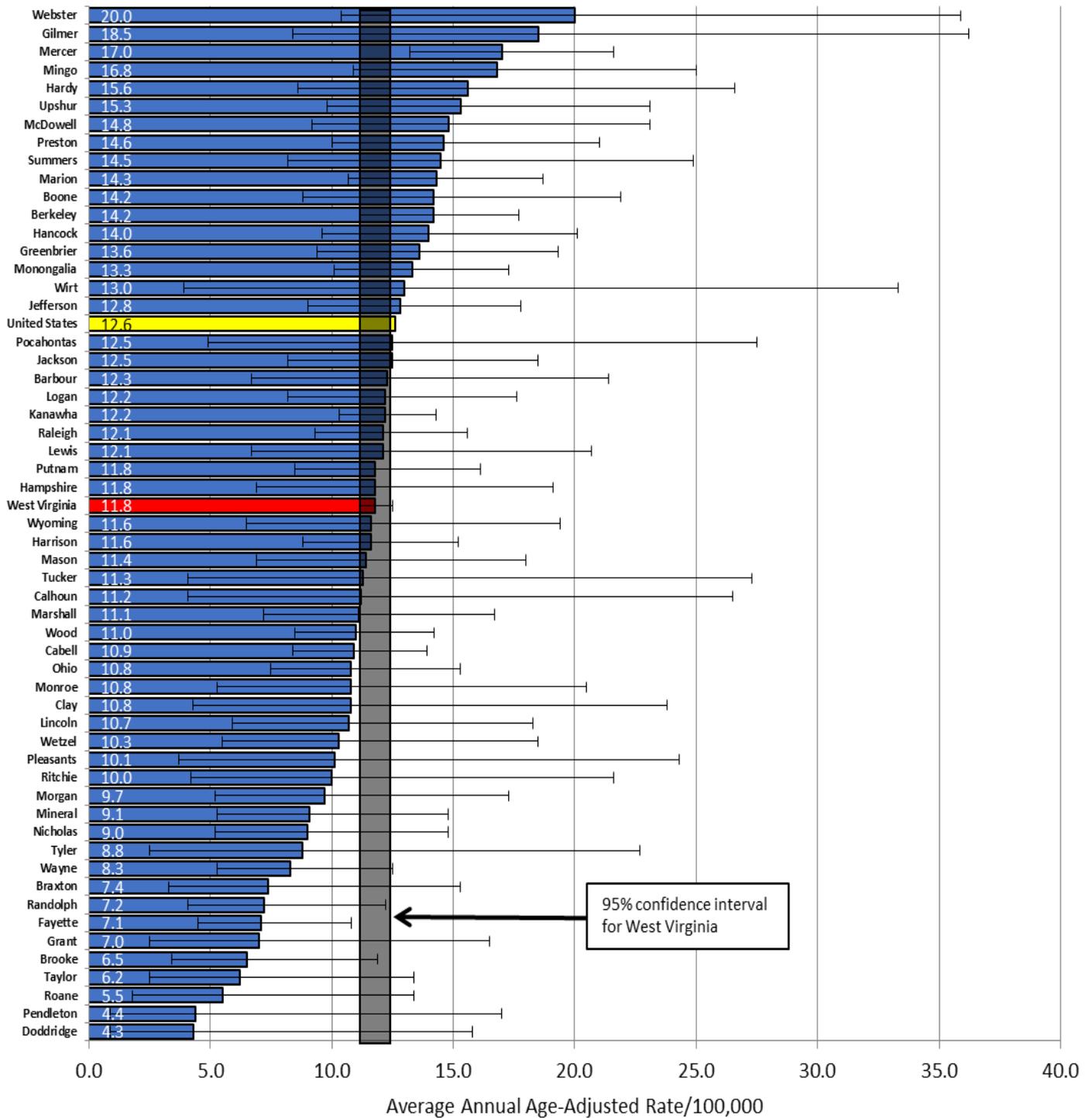
Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Pancreas - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 11.8 | 11.2     | 12.5     | 1,475      | Mercer     | 17.0 | 13.2     | 21.6     | 74         |
| Barbour       | 12.3 | 6.7      | 21.4     | 14         | Mineral    | 9.1  | 5.3      | 14.8     | 18         |
| Berkeley      | 14.2 | 11.2     | 17.7     | 81         | Mingo      | 16.8 | 10.9     | 25.0     | 27         |
| Boone         | 14.2 | 8.8      | 21.9     | 23         | Monongalia | 13.3 | 10.1     | 17.3     | 58         |
| Braxton       | 7.4  | 3.3      | 15.3     | 9          | Monroe     | 10.8 | 5.3      | 20.5     | 11         |
| Brooke        | 6.5  | 3.4      | 11.9     | 13         | Morgan     | 9.7  | 5.2      | 17.3     | 14         |
| Cabell        | 10.9 | 8.4      | 13.9     | 69         | Nicholas   | 9.0  | 5.2      | 14.8     | 18         |
| Calhoun       | 11.2 | 4.1      | 26.5     | 6          | Ohio       | 10.8 | 7.5      | 15.3     | 36         |
| Clay          | 10.8 | 4.3      | 23.8     | 7          | Pendleton  | 4.4  | 0.9      | 17.0     | ^          |
| Doddridge     | 4.3  | 0.9      | 15.8     | ^          | Pleasants  | 10.1 | 3.7      | 24.3     | 6          |
| Fayette       | 7.1  | 4.5      | 10.8     | 24         | Pocahontas | 12.5 | 4.9      | 27.5     | 8          |
| Gilmer        | 18.5 | 8.4      | 36.2     | 9          | Preston    | 14.6 | 10.0     | 21.0     | 32         |
| Grant         | 7.0  | 2.5      | 16.5     | 6          | Putnam     | 11.8 | 8.5      | 16.1     | 43         |
| Greenbrier    | 13.6 | 9.4      | 19.3     | 37         | Raleigh    | 12.1 | 9.3      | 15.6     | 66         |
| Hampshire     | 11.8 | 6.9      | 19.1     | 18         | Randolph   | 7.2  | 4.1      | 12.2     | 16         |
| Hancock       | 14.0 | 9.6      | 20.1     | 33         | Ritchie    | 10.0 | 4.2      | 21.6     | 8          |
| Hardy         | 15.6 | 8.6      | 26.6     | 15         | Roane      | 5.5  | 1.8      | 13.4     | 6          |
| Harrison      | 11.6 | 8.8      | 15.2     | 59         | Summers    | 14.5 | 8.2      | 24.9     | 16         |
| Jackson       | 12.5 | 8.2      | 18.5     | 27         | Taylor     | 6.2  | 2.5      | 13.4     | 7          |
| Jefferson     | 12.8 | 9.0      | 17.8     | 38         | Tucker     | 11.3 | 4.1      | 27.3     | 6          |
| Kanawha       | 12.2 | 10.3     | 14.3     | 155        | Tyler      | 8.8  | 2.5      | 22.7     | 5          |
| Lewis         | 12.1 | 6.7      | 20.7     | 15         | Upshur     | 15.3 | 9.8      | 23.1     | 25         |
| Lincoln       | 10.7 | 5.9      | 18.3     | 15         | Wayne      | 8.3  | 5.3      | 12.5     | 25         |
| Logan         | 12.2 | 8.2      | 17.6     | 32         | Webster    | 20.0 | 10.4     | 35.9     | 13         |
| Marion        | 14.3 | 10.7     | 18.7     | 57         | Wetzel     | 10.3 | 5.5      | 18.5     | 13         |
| Marshall      | 11.1 | 7.2      | 16.7     | 26         | Wirt       | 13.0 | 3.9      | 33.3     | 5          |
| Mason         | 11.4 | 6.9      | 18.0     | 21         | Wood       | 11.0 | 8.5      | 14.2     | 66         |
| McDowell      | 14.8 | 9.2      | 23.1     | 22         | Wyoming    | 11.6 | 6.5      | 19.4     | 16         |

^ indicates suppressed data for counties with 3 or fewer cases over the 5-year period.

### Pancreas - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

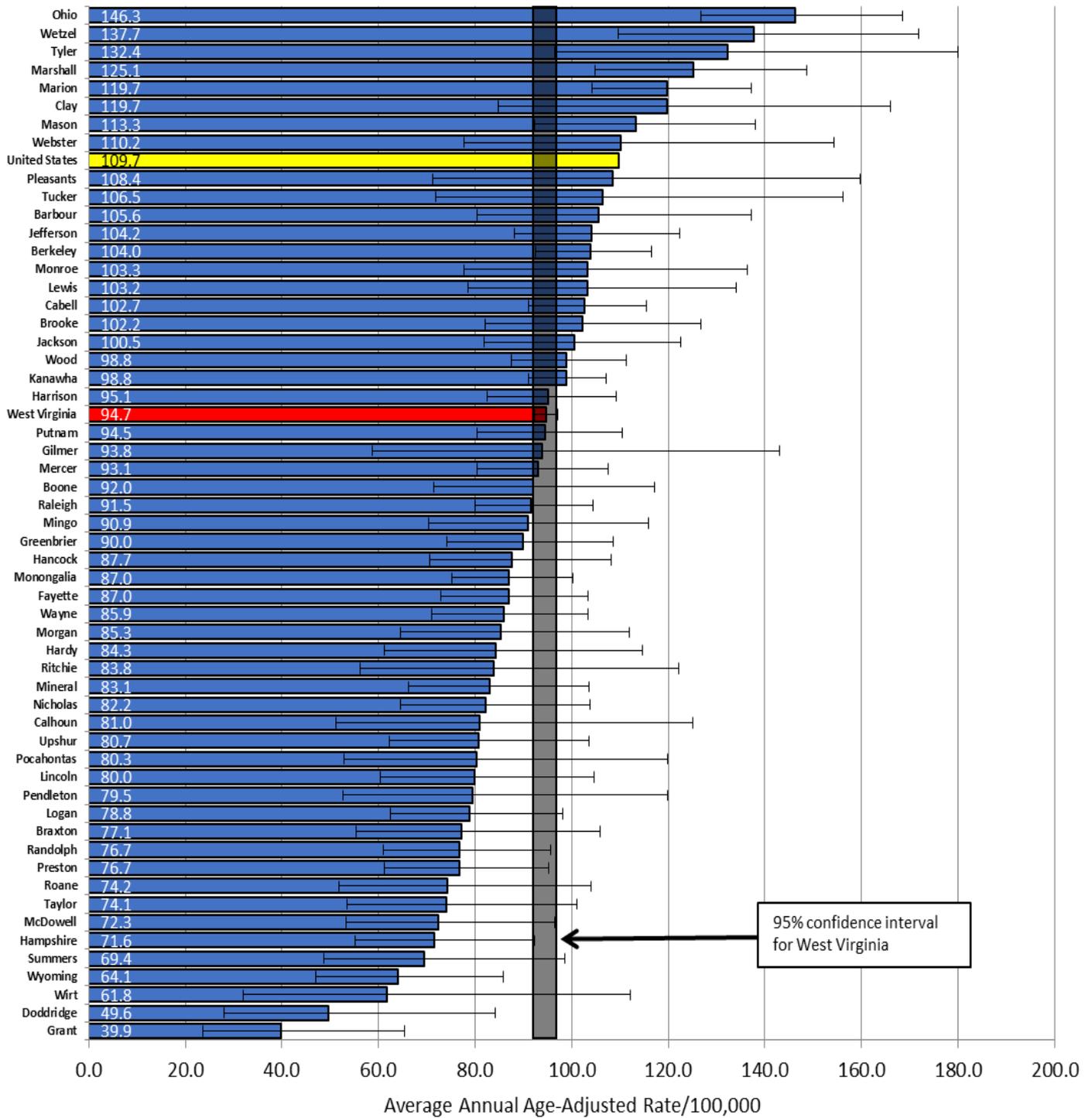


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**Prostate - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate  | Lower CI | Upper CI | 5-yr Count | County     | Rate  | Lower CI | Upper CI | 5-yr Count |
|---------------|-------|----------|----------|------------|------------|-------|----------|----------|------------|
| West Virginia | 94.7  | 92.3     | 97.2     | 5,887      | Mercer     | 93.1  | 80.4     | 107.6    | 201        |
| Barbour       | 105.6 | 80.5     | 137.1    | 62         | Mineral    | 83.1  | 66.3     | 103.6    | 88         |
| Berkeley      | 104.0 | 92.6     | 116.6    | 326        | Mingo      | 90.9  | 70.3     | 116.0    | 74         |
| Boone         | 92.0  | 71.5     | 117.1    | 75         | Monongalia | 87.0  | 75.1     | 100.3    | 207        |
| Braxton       | 77.1  | 55.3     | 105.9    | 44         | Monroe     | 103.3 | 77.7     | 136.3    | 57         |
| Brooke        | 102.2 | 82.0     | 126.8    | 92         | Morgan     | 85.3  | 64.5     | 112.0    | 59         |
| Cabell        | 102.7 | 91.1     | 115.4    | 296        | Nicholas   | 82.2  | 64.6     | 103.8    | 79         |
| Calhoun       | 81.0  | 51.2     | 125.0    | 24         | Ohio       | 146.3 | 126.7    | 168.5    | 212        |
| Clay          | 119.7 | 84.9     | 166.0    | 40         | Pendleton  | 79.5  | 52.7     | 119.8    | 28         |
| Doddridge     | 49.6  | 28.0     | 84.2     | 16         | Pleasants  | 108.4 | 71.3     | 159.7    | 29         |
| Fayette       | 87.0  | 73.0     | 103.4    | 144        | Pocahontas | 80.3  | 52.9     | 119.8    | 29         |
| Gilmer        | 93.8  | 58.8     | 143.0    | 23         | Preston    | 76.7  | 61.2     | 95.2     | 90         |
| Grant         | 39.9  | 23.6     | 65.3     | 19         | Putnam     | 94.5  | 80.4     | 110.5    | 171        |
| Greenbrier    | 90.0  | 74.2     | 108.6    | 119        | Raleigh    | 91.5  | 80.0     | 104.4    | 241        |
| Hampshire     | 71.6  | 55.1     | 92.4     | 68         | Randolph   | 76.7  | 61.1     | 95.6     | 87         |
| Hancock       | 87.7  | 70.7     | 108.1    | 97         | Ritchie    | 83.8  | 56.3     | 122.2    | 31         |
| Hardy         | 84.3  | 61.3     | 114.6    | 46         | Roane      | 74.2  | 51.9     | 104.1    | 40         |
| Harrison      | 95.1  | 82.6     | 109.3    | 214        | Summers    | 69.4  | 48.6     | 98.6     | 38         |
| Jackson       | 100.5 | 81.8     | 122.6    | 104        | Taylor     | 74.1  | 53.5     | 101.0    | 45         |
| Jefferson     | 104.2 | 88.2     | 122.4    | 166        | Tucker     | 106.5 | 71.8     | 156.3    | 32         |
| Kanawha       | 98.8  | 91.0     | 107.1    | 624        | Tyler      | 132.4 | 96.4     | 180.0    | 48         |
| Lewis         | 103.2 | 78.5     | 134.1    | 61         | Upshur     | 80.7  | 62.2     | 103.5    | 68         |
| Lincoln       | 80.0  | 60.4     | 104.7    | 60         | Wayne      | 85.9  | 71.0     | 103.3    | 121        |
| Logan         | 78.8  | 62.5     | 98.2     | 89         | Webster    | 110.2 | 77.7     | 154.3    | 40         |
| Marion        | 119.7 | 104.2    | 137.1    | 223        | Wetzel     | 137.7 | 109.6    | 171.9    | 86         |
| Marshall      | 125.1 | 104.8    | 148.6    | 143        | Wirt       | 61.8  | 31.9     | 112.2    | 13         |
| Mason         | 113.3 | 92.4     | 138.1    | 107        | Wood       | 98.8  | 87.5     | 111.4    | 285        |
| McDowell      | 72.3  | 53.3     | 96.5     | 53         | Wyoming    | 64.1  | 47.1     | 85.9     | 53         |

### Prostate - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

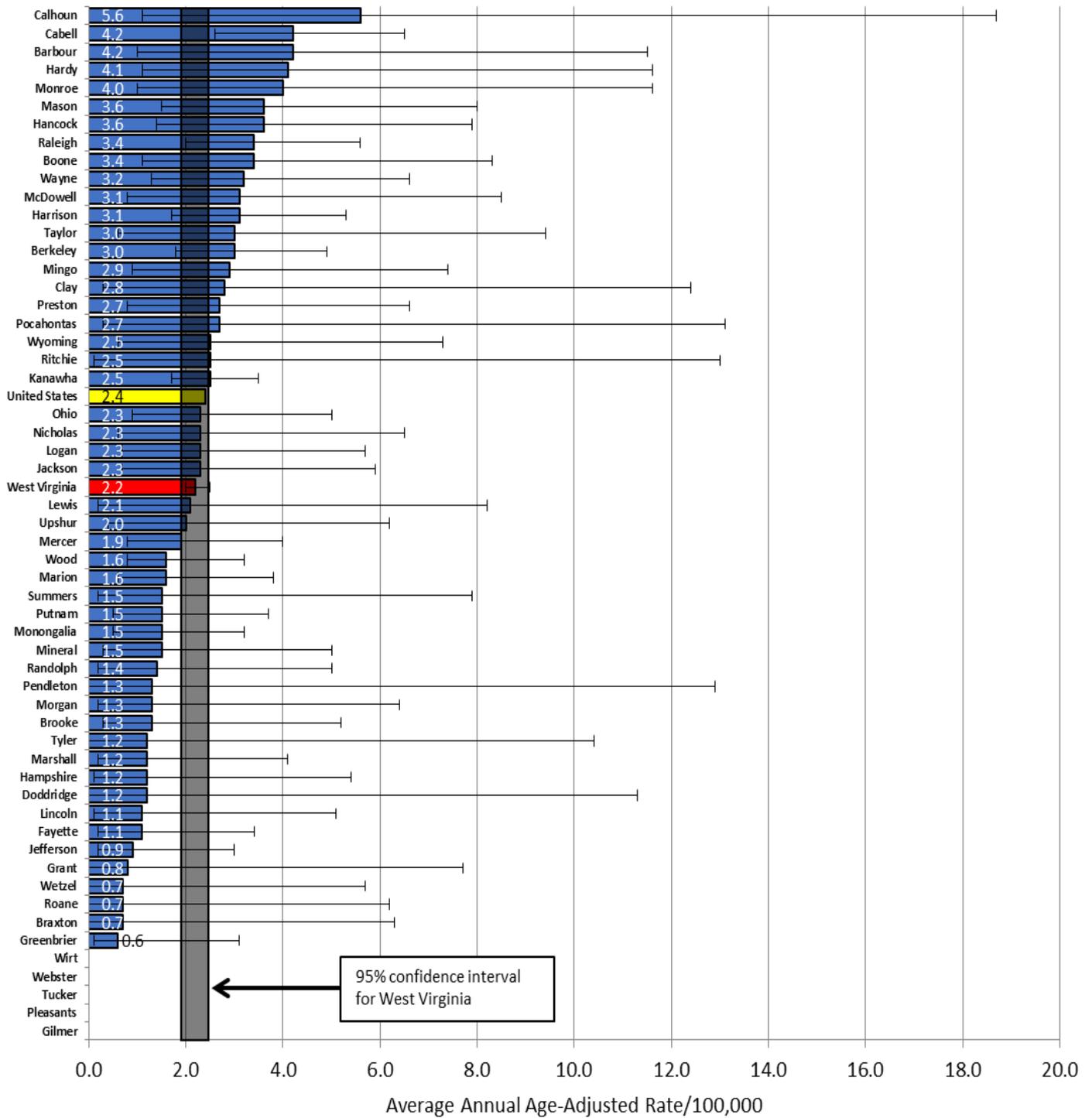


Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Small Intestine - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 2.2  | 2.0      | 2.5      | 269        | Mercer     | 1.9  | 0.8      | 4.0      | 8          |
| Barbour       | 4.2  | 1.0      | 11.5     | 4          | Mineral    | 1.5  | 0.3      | 5.0      | ^          |
| Berkeley      | 3.0  | 1.8      | 4.9      | 18         | Mingo      | 2.9  | 0.9      | 7.4      | 5          |
| Boone         | 3.4  | 1.1      | 8.3      | 5          | Monongalia | 1.5  | 0.5      | 3.2      | 6          |
| Braxton       | 0.7  | 0.0      | 6.3      | ^          | Monroe     | 4.0  | 1.0      | 11.6     | 4          |
| Brooke        | 1.3  | 0.3      | 5.2      | ^          | Morgan     | 1.3  | 0.2      | 6.4      | ^          |
| Cabell        | 4.2  | 2.6      | 6.5      | 22         | Nicholas   | 2.3  | 0.6      | 6.5      | 4          |
| Calhoun       | 5.6  | 1.1      | 18.7     | ^          | Ohio       | 2.3  | 0.9      | 5.0      | 7          |
| Clay          | 2.8  | 0.3      | 12.4     | ^          | Pendleton  | 1.3  | 0.0      | 12.9     | ^          |
| Doddridge     | 1.2  | 0.0      | 11.3     | ^          | Pleasants  | 0.0  | 0.0      |          | 0          |
| Fayette       | 1.1  | 0.2      | 3.4      | ^          | Pocahontas | 2.7  | 0.3      | 13.1     | ^          |
| Gilmer        | 0.0  | 0.0      |          | 0          | Preston    | 2.7  | 0.8      | 6.6      | 5          |
| Grant         | 0.8  | 0.0      | 7.7      | ^          | Putnam     | 1.5  | 0.5      | 3.7      | 5          |
| Greenbrier    | 0.6  | 0.1      | 3.1      | ^          | Raleigh    | 3.4  | 2.0      | 5.6      | 18         |
| Hampshire     | 1.2  | 0.1      | 5.4      | ^          | Randolph   | 1.4  | 0.2      | 5.0      | ^          |
| Hancock       | 3.6  | 1.4      | 7.9      | 7          | Ritchie    | 2.5  | 0.1      | 13.0     | ^          |
| Hardy         | 4.1  | 1.1      | 11.6     | 4          | Roane      | 0.7  | 0.0      | 6.2      | ^          |
| Harrison      | 3.1  | 1.7      | 5.3      | 15         | Summers    | 1.5  | 0.2      | 7.9      | ^          |
| Jackson       | 2.3  | 0.7      | 5.9      | 5          | Taylor     | 3.0  | 0.6      | 9.4      | ^          |
| Jefferson     | 0.9  | 0.2      | 3.0      | ^          | Tucker     | 0.0  | 0.0      |          | 0          |
| Kanawha       | 2.5  | 1.7      | 3.5      | 33         | Tyler      | 1.2  | 0.0      | 10.4     | ^          |
| Lewis         | 2.1  | 0.2      | 8.2      | ^          | Upshur     | 2.0  | 0.4      | 6.2      | ^          |
| Lincoln       | 1.1  | 0.1      | 5.1      | ^          | Wayne      | 3.2  | 1.3      | 6.6      | 8          |
| Logan         | 2.3  | 0.7      | 5.7      | 5          | Webster    | 0.0  | 0.0      |          | 0          |
| Marion        | 1.6  | 0.6      | 3.8      | 6          | Wetzel     | 0.7  | 0.0      | 5.7      | ^          |
| Marshall      | 1.2  | 0.2      | 4.1      | ^          | Wirt       | 0.0  | 0.0      |          | 0          |
| Mason         | 3.6  | 1.5      | 8.0      | 7          | Wood       | 1.6  | 0.8      | 3.2      | 10         |
| McDowell      | 3.1  | 0.8      | 8.5      | 4          | Wyoming    | 2.5  | 0.6      | 7.3      | 4          |

### Small Intestine - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

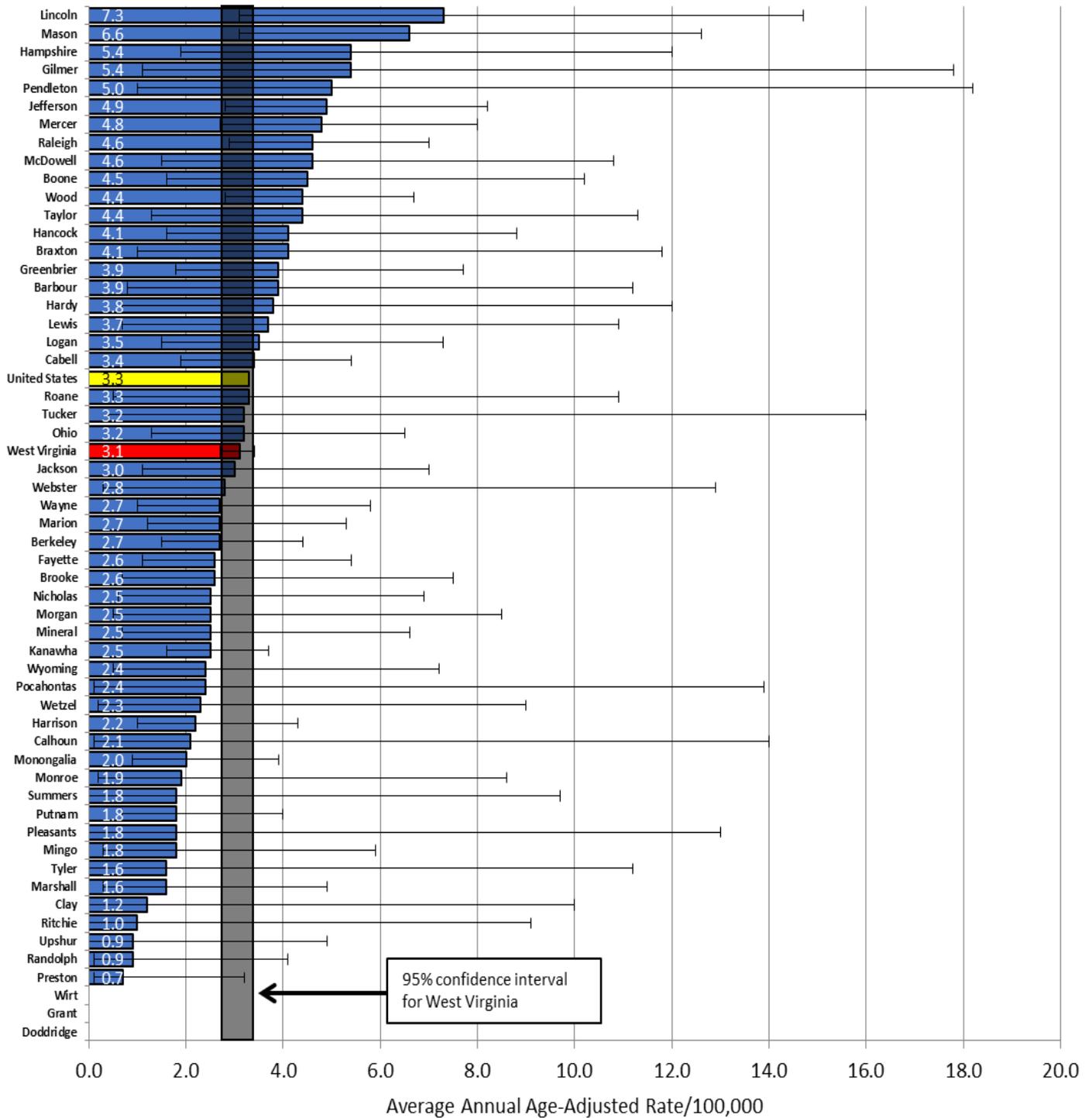


Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Soft Tissue including Heart - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 3.1  | 2.7      | 3.4      | 341        | Mercer     | 4.8  | 2.7      | 8.0      | 17         |
| Barbour       | 3.9  | 0.8      | 11.2     | ^          | Mineral    | 2.5  | 0.7      | 6.6      | 4          |
| Berkeley      | 2.7  | 1.5      | 4.4      | 17         | Mingo      | 1.8  | 0.3      | 5.9      | ^          |
| Boone         | 4.5  | 1.6      | 10.2     | 6          | Monongalia | 2.0  | 0.9      | 3.9      | 10         |
| Braxton       | 4.1  | 1.0      | 11.8     | 4          | Monroe     | 1.9  | 0.2      | 8.6      | ^          |
| Brooke        | 2.6  | 0.7      | 7.5      | 4          | Morgan     | 2.5  | 0.5      | 8.5      | ^          |
| Cabell        | 3.4  | 1.9      | 5.4      | 18         | Nicholas   | 2.5  | 0.6      | 6.9      | 4          |
| Calhoun       | 2.1  | 0.1      | 14.0     | ^          | Ohio       | 3.2  | 1.3      | 6.5      | 8          |
| Clay          | 1.2  | 0.0      | 10.0     | ^          | Pendleton  | 5.0  | 1.0      | 18.2     | ^          |
| Doddridge     | 0.0  | 0.0      |          | 0          | Pleasants  | 1.8  | 0.0      | 13.0     | ^          |
| Fayette       | 2.6  | 1.1      | 5.4      | 8          | Pocahontas | 2.4  | 0.1      | 13.9     | ^          |
| Gilmer        | 5.4  | 1.1      | 17.8     | ^          | Preston    | 0.7  | 0.1      | 3.2      | ^          |
| Grant         | 0.0  | 0.0      |          | 0          | Putnam     | 1.8  | 0.7      | 4.0      | 7          |
| Greenbrier    | 3.9  | 1.8      | 7.7      | 10         | Raleigh    | 4.6  | 2.9      | 7.0      | 24         |
| Hampshire     | 5.4  | 1.9      | 12.0     | 6          | Randolph   | 0.9  | 0.1      | 4.1      | ^          |
| Hancock       | 4.1  | 1.6      | 8.8      | 8          | Ritchie    | 1.0  | 0.0      | 9.1      | ^          |
| Hardy         | 3.8  | 0.7      | 12.0     | ^          | Roane      | 3.3  | 0.5      | 10.9     | ^          |
| Harrison      | 2.2  | 1.0      | 4.3      | 9          | Summers    | 1.8  | 0.0      | 9.7      | ^          |
| Jackson       | 3.0  | 1.1      | 7.0      | 6          | Taylor     | 4.4  | 1.3      | 11.3     | 5          |
| Jefferson     | 4.9  | 2.8      | 8.2      | 16         | Tucker     | 3.2  | 0.4      | 16.0     | ^          |
| Kanawha       | 2.5  | 1.6      | 3.7      | 28         | Tyler      | 1.6  | 0.0      | 11.2     | ^          |
| Lewis         | 3.7  | 0.7      | 10.9     | ^          | Upshur     | 0.9  | 0.0      | 4.9      | ^          |
| Lincoln       | 7.3  | 3.1      | 14.7     | 8          | Wayne      | 2.7  | 1.0      | 5.8      | 7          |
| Logan         | 3.5  | 1.5      | 7.3      | 8          | Webster    | 2.8  | 0.3      | 12.9     | ^          |
| Marion        | 2.7  | 1.2      | 5.3      | 9          | Wetzel     | 2.3  | 0.2      | 9.0      | ^          |
| Marshall      | 1.6  | 0.3      | 4.9      | ^          | Wirt       | 0.0  | 0.0      |          | 0          |
| Mason         | 6.6  | 3.1      | 12.6     | 10         | Wood       | 4.4  | 2.8      | 6.7      | 24         |
| McDowell      | 4.6  | 1.5      | 10.8     | 6          | Wyoming    | 2.4  | 0.5      | 7.2      | ^          |

### Soft Tissue including Heart - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

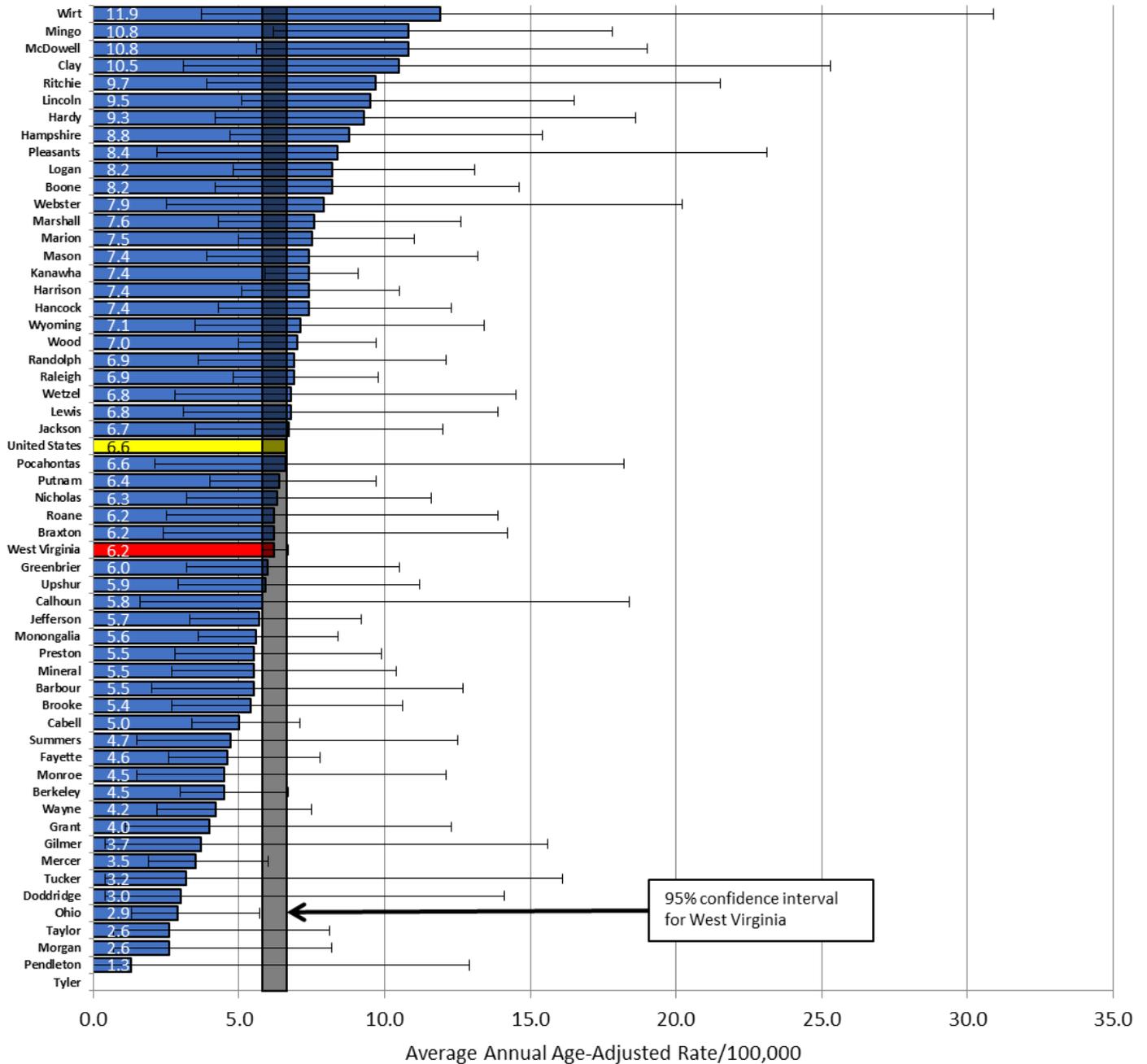


Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Stomach - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 6.2  | 5.8      | 6.7      | 772        | Mercer     | 3.5  | 1.9      | 6.0      | 16         |
| Barbour       | 5.5  | 2.0      | 12.7     | 6          | Mineral    | 5.5  | 2.7      | 10.4     | 11         |
| Berkeley      | 4.5  | 3.0      | 6.7      | 28         | Mingo      | 10.8 | 6.2      | 17.8     | 17         |
| Boone         | 8.2  | 4.2      | 14.6     | 13         | Monongalia | 5.6  | 3.6      | 8.4      | 24         |
| Braxton       | 6.2  | 2.4      | 14.2     | 7          | Monroe     | 4.5  | 1.5      | 12.1     | 5          |
| Brooke        | 5.4  | 2.7      | 10.6     | 11         | Morgan     | 2.6  | 0.7      | 8.2      | 4          |
| Cabell        | 5.0  | 3.4      | 7.1      | 32         | Nicholas   | 6.3  | 3.2      | 11.6     | 12         |
| Calhoun       | 5.8  | 1.6      | 18.4     | 4          | Ohio       | 2.9  | 1.3      | 5.7      | 10         |
| Clay          | 10.5 | 3.1      | 25.3     | 5          | Pendleton  | 1.3  | 0.0      | 12.9     | ^          |
| Doddridge     | 3.0  | 0.4      | 14.1     | ^          | Pleasants  | 8.4  | 2.2      | 23.1     | 4          |
| Fayette       | 4.6  | 2.6      | 7.8      | 16         | Pocahontas | 6.6  | 2.1      | 18.2     | 5          |
| Gilmer        | 3.7  | 0.4      | 15.6     | ^          | Preston    | 5.5  | 2.8      | 9.9      | 12         |
| Grant         | 4.0  | 1.1      | 12.3     | 4          | Putnam     | 6.4  | 4.0      | 9.7      | 24         |
| Greenbrier    | 6.0  | 3.2      | 10.5     | 14         | Raleigh    | 6.9  | 4.8      | 9.8      | 35         |
| Hampshire     | 8.8  | 4.7      | 15.4     | 14         | Randolph   | 6.9  | 3.6      | 12.1     | 13         |
| Hancock       | 7.4  | 4.3      | 12.3     | 18         | Ritchie    | 9.7  | 3.9      | 21.5     | 7          |
| Hardy         | 9.3  | 4.2      | 18.6     | 9          | Roane      | 6.2  | 2.5      | 13.9     | 7          |
| Harrison      | 7.4  | 5.1      | 10.5     | 34         | Summers    | 4.7  | 1.5      | 12.5     | 5          |
| Jackson       | 6.7  | 3.5      | 12.0     | 13         | Taylor     | 2.6  | 0.7      | 8.1      | 4          |
| Jefferson     | 5.7  | 3.3      | 9.2      | 18         | Tucker     | 3.2  | 0.4      | 16.1     | ^          |
| Kanawha       | 7.4  | 5.9      | 9.1      | 96         | Tyler      | 0.0  | 0.0      |          | 0          |
| Lewis         | 6.8  | 3.1      | 13.9     | 9          | Upshur     | 5.9  | 2.9      | 11.2     | 11         |
| Lincoln       | 9.5  | 5.1      | 16.5     | 14         | Wayne      | 4.2  | 2.2      | 7.5      | 13         |
| Logan         | 8.2  | 4.8      | 13.1     | 19         | Webster    | 7.9  | 2.5      | 20.2     | 5          |
| Marion        | 7.5  | 5.0      | 11.0     | 29         | Wetzel     | 6.8  | 2.8      | 14.5     | 8          |
| Marshall      | 7.6  | 4.3      | 12.6     | 17         | Wirt       | 11.9 | 3.7      | 30.9     | 5          |
| Mason         | 7.4  | 3.9      | 13.2     | 13         | Wood       | 7.0  | 5.0      | 9.7      | 41         |
| McDowell      | 10.8 | 5.6      | 19.0     | 13         | Wyoming    | 7.1  | 3.5      | 13.4     | 11         |

### Stomach - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

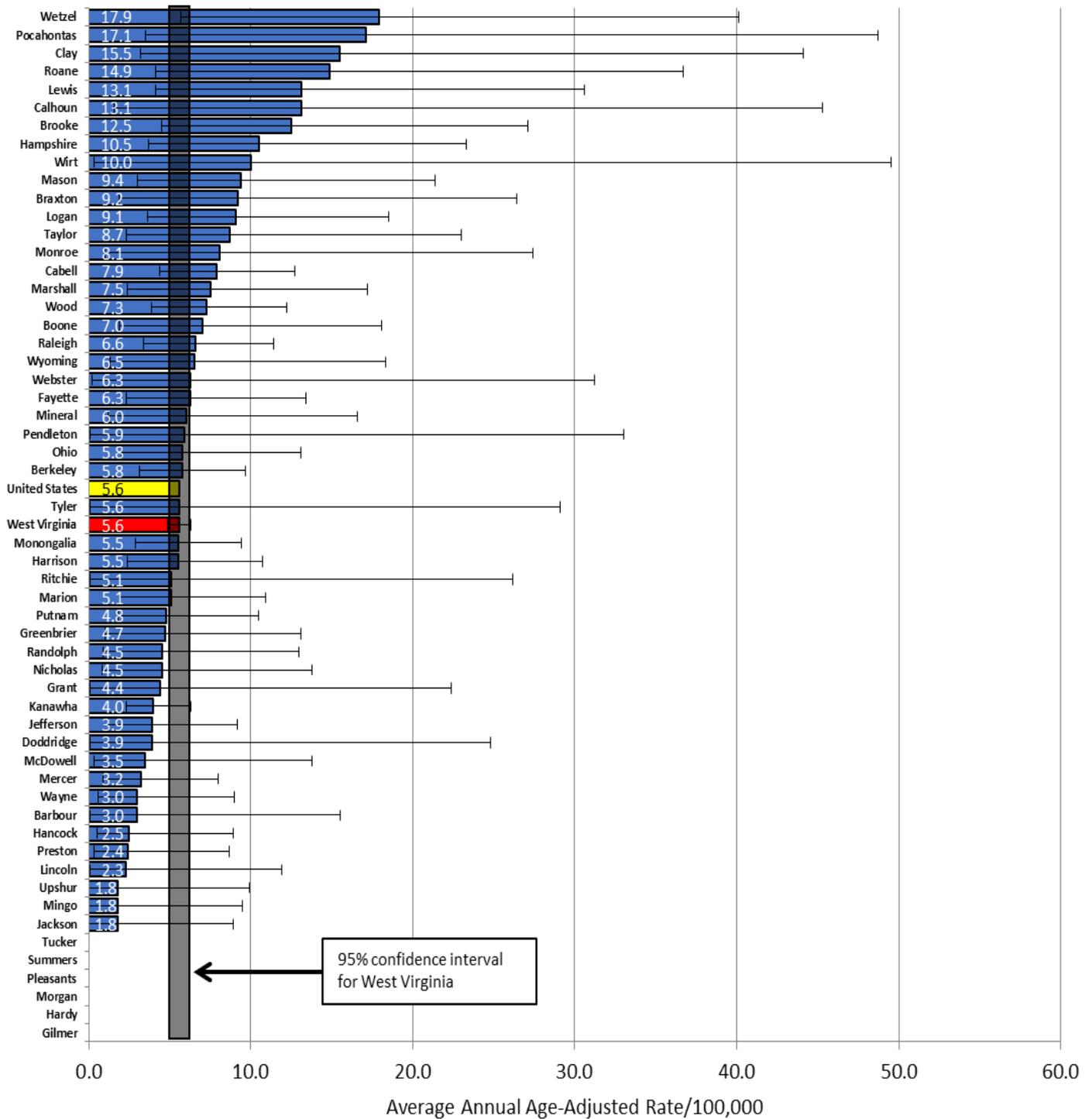


Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Testis - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 5.6  | 4.9      | 6.3      | 232        | Mercer     | 3.2  | 0.9      | 8.0      | 4          |
| Barbour       | 3.0  | 0.1      | 15.5     | ^          | Mineral    | 6.0  | 1.2      | 16.6     | ^          |
| Berkeley      | 5.8  | 3.1      | 9.7      | 14         | Mingo      | 1.8  | 0.0      | 9.5      | ^          |
| Boone         | 7.0  | 1.9      | 18.1     | 4          | Monongalia | 5.5  | 2.9      | 9.4      | 16         |
| Braxton       | 9.2  | 1.9      | 26.4     | ^          | Monroe     | 8.1  | 1.0      | 27.4     | ^          |
| Brooke        | 12.5 | 4.5      | 27.1     | 6          | Morgan     | 0.0  | 0.0      |          | 0          |
| Cabell        | 7.9  | 4.4      | 12.7     | 16         | Nicholas   | 4.5  | 0.8      | 13.8     | ^          |
| Calhoun       | 13.1 | 1.6      | 45.3     | ^          | Ohio       | 5.8  | 2.0      | 13.1     | 6          |
| Clay          | 15.5 | 3.2      | 44.1     | ^          | Pendleton  | 5.9  | 0.1      | 33.0     | ^          |
| Doddridge     | 3.9  | 0.1      | 24.8     | ^          | Pleasants  | 0.0  | 0.0      |          | 0          |
| Fayette       | 6.3  | 2.3      | 13.4     | 6          | Pocahontas | 17.1 | 3.5      | 48.7     | ^          |
| Gilmer        | 0.0  | 0.0      |          | 0          | Preston    | 2.4  | 0.3      | 8.7      | ^          |
| Grant         | 4.4  | 0.1      | 22.4     | ^          | Putnam     | 4.8  | 1.8      | 10.5     | 6          |
| Greenbrier    | 4.7  | 1.0      | 13.1     | ^          | Raleigh    | 6.6  | 3.4      | 11.4     | 12         |
| Hampshire     | 10.5 | 3.7      | 23.3     | 6          | Randolph   | 4.5  | 0.9      | 13.0     | ^          |
| Hancock       | 2.5  | 0.5      | 8.9      | ^          | Ritchie    | 5.1  | 0.1      | 26.2     | ^          |
| Hardy         | 0.0  | 0.0      |          | 0          | Roane      | 14.9 | 4.1      | 36.7     | 4          |
| Harrison      | 5.5  | 2.4      | 10.7     | 8          | Summers    | 0.0  | 0.0      |          | 0          |
| Jackson       | 1.8  | 0.0      | 8.9      | ^          | Taylor     | 8.7  | 2.3      | 23.0     | 4          |
| Jefferson     | 3.9  | 1.2      | 9.2      | 5          | Tucker     | 0.0  | 0.0      |          | 0          |
| Kanawha       | 4.0  | 2.3      | 6.3      | 18         | Tyler      | 5.6  | 0.1      | 29.1     | ^          |
| Lewis         | 13.1 | 4.1      | 30.6     | 5          | Upshur     | 1.8  | 0.0      | 9.9      | ^          |
| Lincoln       | 2.3  | 0.1      | 11.9     | ^          | Wayne      | 3.0  | 0.6      | 9.0      | ^          |
| Logan         | 9.1  | 3.6      | 18.5     | 7          | Webster    | 6.3  | 0.2      | 31.2     | ^          |
| Marion        | 5.1  | 1.9      | 10.9     | 6          | Wetzel     | 17.9 | 5.7      | 40.1     | 5          |
| Marshall      | 7.5  | 2.4      | 17.2     | 5          | Wirt       | 10.0 | 0.3      | 49.5     | ^          |
| Mason         | 9.4  | 3.0      | 21.4     | 5          | Wood       | 7.3  | 3.9      | 12.2     | 14         |
| McDowell      | 3.5  | 0.3      | 13.8     | ^          | Wyoming    | 6.5  | 1.3      | 18.3     | ^          |

### Testis - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015



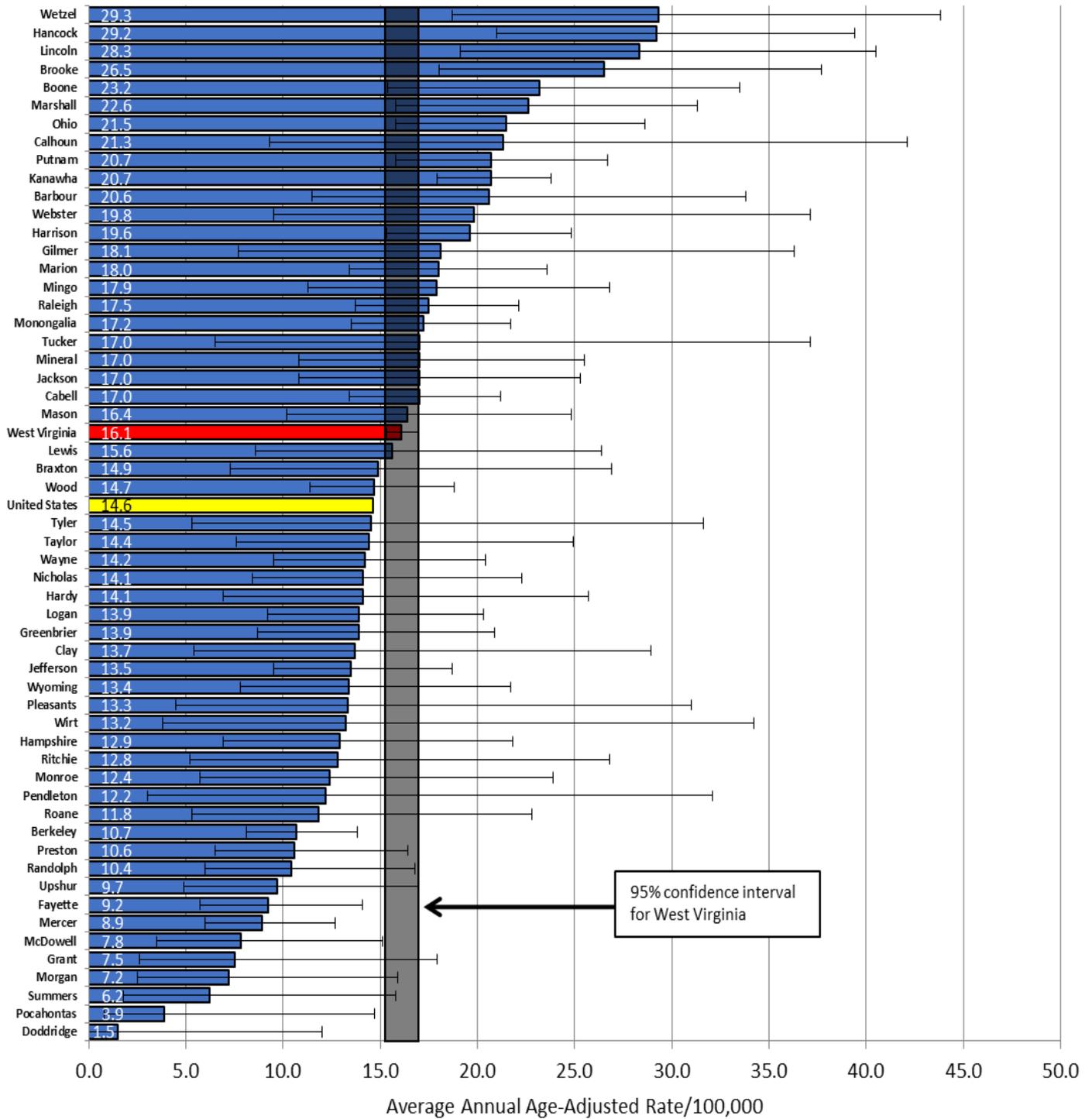
Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Thyroid - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 16.1 | 15.3     | 17.0     | 1,634      | Mercer     | 8.9  | 6.0      | 12.7     | 34         |
| Barbour       | 20.6 | 11.5     | 33.8     | 16         | Mineral    | 17.0 | 10.8     | 25.5     | 26         |
| Berkeley      | 10.7 | 8.1      | 13.8     | 61         | Mingo      | 17.9 | 11.3     | 26.8     | 25         |
| Boone         | 23.2 | 15.4     | 33.5     | 31         | Monongalia | 17.2 | 13.5     | 21.7     | 79         |
| Braxton       | 14.9 | 7.3      | 26.9     | 12         | Monroe     | 12.4 | 5.7      | 23.9     | 11         |
| Brooke        | 26.5 | 18.0     | 37.7     | 36         | Morgan     | 7.2  | 2.5      | 15.9     | 7          |
| Cabell        | 17.0 | 13.4     | 21.2     | 83         | Nicholas   | 14.1 | 8.4      | 22.3     | 21         |
| Calhoun       | 21.3 | 9.3      | 42.1     | 10         | Ohio       | 21.5 | 15.8     | 28.6     | 53         |
| Clay          | 13.7 | 5.4      | 28.9     | 8          | Pendleton  | 12.2 | 3.0      | 32.1     | 4          |
| Doddridge     | 1.5  | 0.0      | 12.0     | ^          | Pleasants  | 13.3 | 4.5      | 31.0     | 6          |
| Fayette       | 9.2  | 5.7      | 14.1     | 23         | Pocahontas | 3.9  | 0.8      | 14.7     | ^          |
| Gilmer        | 18.1 | 7.7      | 36.3     | 8          | Preston    | 10.6 | 6.5      | 16.4     | 22         |
| Grant         | 7.5  | 2.6      | 17.9     | 6          | Putnam     | 20.7 | 15.8     | 26.7     | 65         |
| Greenbrier    | 13.9 | 8.7      | 20.9     | 26         | Raleigh    | 17.5 | 13.7     | 22.1     | 78         |
| Hampshire     | 12.9 | 6.9      | 21.8     | 14         | Randolph   | 10.4 | 6.0      | 16.8     | 18         |
| Hancock       | 29.2 | 21.0     | 39.4     | 48         | Ritchie    | 12.8 | 5.2      | 26.8     | 8          |
| Hardy         | 14.1 | 6.9      | 25.7     | 12         | Roane      | 11.8 | 5.3      | 22.8     | 10         |
| Harrison      | 19.6 | 15.3     | 24.8     | 76         | Summers    | 6.2  | 1.8      | 15.8     | 5          |
| Jackson       | 17.0 | 10.8     | 25.3     | 26         | Taylor     | 14.4 | 7.6      | 24.9     | 14         |
| Jefferson     | 13.5 | 9.5      | 18.7     | 39         | Tucker     | 17.0 | 6.5      | 37.1     | 7          |
| Kanawha       | 20.7 | 17.9     | 23.8     | 210        | Tyler      | 14.5 | 5.3      | 31.6     | 7          |
| Lewis         | 15.6 | 8.6      | 26.4     | 15         | Upshur     | 9.7  | 4.9      | 17.0     | 13         |
| Lincoln       | 28.3 | 19.1     | 40.5     | 32         | Wayne      | 14.2 | 9.5      | 20.4     | 31         |
| Logan         | 13.9 | 9.2      | 20.3     | 30         | Webster    | 19.8 | 9.5      | 37.1     | 11         |
| Marion        | 18.0 | 13.4     | 23.6     | 56         | Wetzel     | 29.3 | 18.7     | 43.8     | 27         |
| Marshall      | 22.6 | 15.8     | 31.3     | 41         | Wirt       | 13.2 | 3.8      | 34.2     | 5          |
| Mason         | 16.4 | 10.2     | 24.8     | 24         | Wood       | 14.7 | 11.4     | 18.8     | 71         |
| McDowell      | 7.8  | 3.5      | 15.1     | 10         | Wyoming    | 13.4 | 7.8      | 21.7     | 19         |

^ indicates suppressed data for counties with 3 or fewer cases over the 5-year period.

### Thyroid - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015

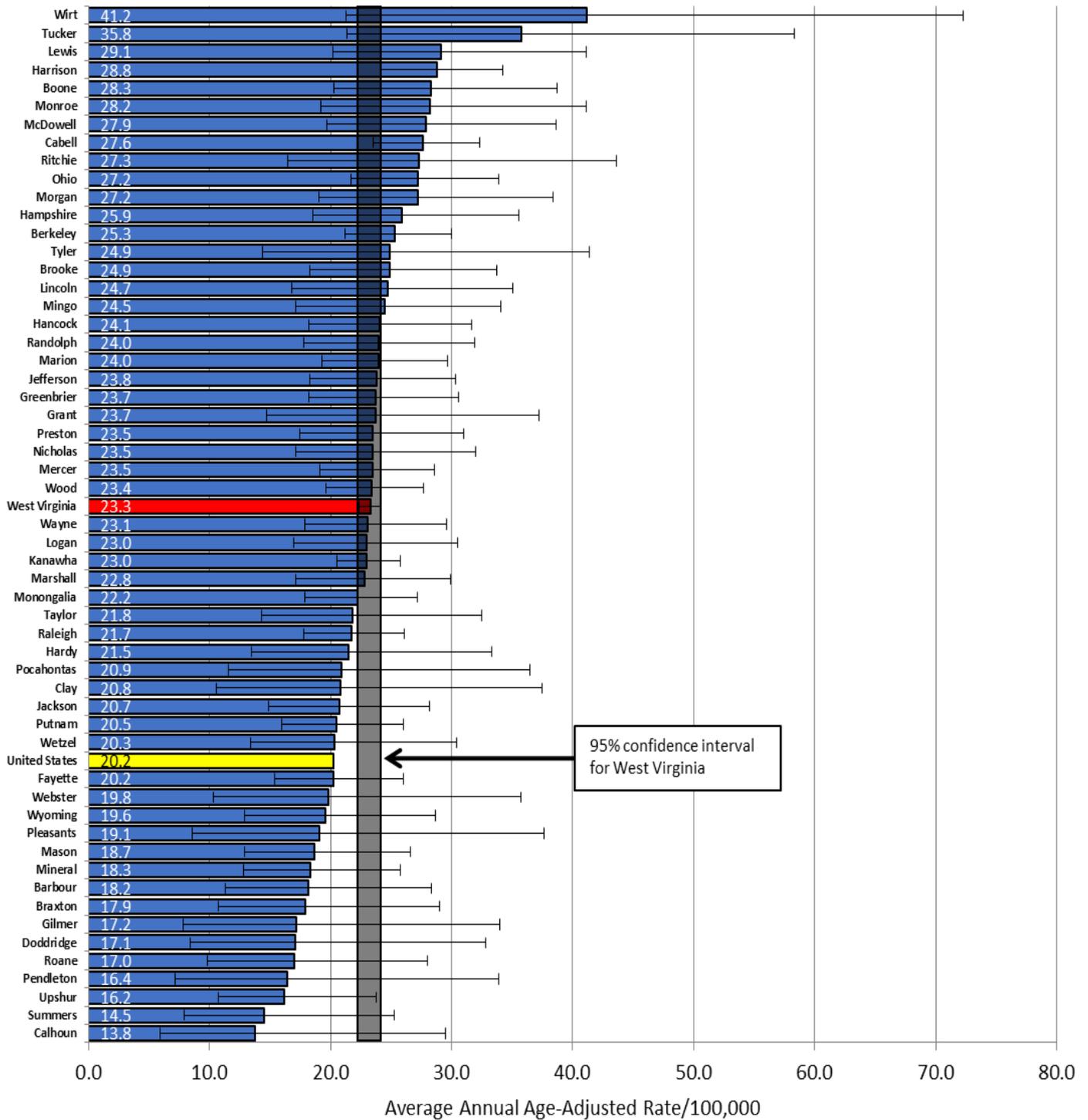


Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).

**Urinary Bladder - Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000),  
95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2011-2015**

| County        | Rate | Lower CI | Upper CI | 5-yr Count | County     | Rate | Lower CI | Upper CI | 5-yr Count |
|---------------|------|----------|----------|------------|------------|------|----------|----------|------------|
| West Virginia | 23.3 | 22.4     | 24.2     | 2,895      | Mercer     | 23.5 | 19.1     | 28.6     | 105        |
| Barbour       | 18.2 | 11.3     | 28.3     | 22         | Mineral    | 18.3 | 12.8     | 25.8     | 36         |
| Berkeley      | 25.3 | 21.2     | 30.0     | 141        | Mingo      | 24.5 | 17.1     | 34.1     | 37         |
| Boone         | 28.3 | 20.3     | 38.7     | 43         | Monongalia | 22.2 | 17.9     | 27.2     | 96         |
| Braxton       | 17.9 | 10.7     | 29.0     | 19         | Monroe     | 28.2 | 19.2     | 41.1     | 32         |
| Brooke        | 24.9 | 18.3     | 33.7     | 49         | Morgan     | 27.2 | 19.0     | 38.4     | 37         |
| Cabell        | 27.6 | 23.5     | 32.3     | 166        | Nicholas   | 23.5 | 17.1     | 32.0     | 45         |
| Calhoun       | 13.8 | 5.9      | 29.5     | 8          | Ohio       | 27.2 | 21.7     | 33.9     | 89         |
| Clay          | 20.8 | 10.6     | 37.5     | 12         | Pendleton  | 16.4 | 7.2      | 33.9     | 10         |
| Doddridge     | 17.1 | 8.4      | 32.8     | 11         | Pleasants  | 19.1 | 8.6      | 37.6     | 9          |
| Fayette       | 20.2 | 15.4     | 26.0     | 64         | Pocahontas | 20.9 | 11.6     | 36.5     | 15         |
| Gilmer        | 17.2 | 7.8      | 34.0     | 9          | Preston    | 23.5 | 17.5     | 31.0     | 53         |
| Grant         | 23.7 | 14.7     | 37.2     | 22         | Putnam     | 20.5 | 16.0     | 26.0     | 74         |
| Greenbrier    | 23.7 | 18.2     | 30.6     | 65         | Raleigh    | 21.7 | 17.8     | 26.1     | 116        |
| Hampshire     | 25.9 | 18.5     | 35.6     | 42         | Randolph   | 24.0 | 17.8     | 31.9     | 52         |
| Hancock       | 24.1 | 18.2     | 31.7     | 57         | Ritchie    | 27.3 | 16.5     | 43.6     | 20         |
| Hardy         | 21.5 | 13.5     | 33.3     | 23         | Roane      | 17.0 | 9.8      | 28.0     | 18         |
| Harrison      | 28.8 | 24.1     | 34.2     | 137        | Summers    | 14.5 | 7.9      | 25.3     | 15         |
| Jackson       | 20.7 | 14.9     | 28.2     | 43         | Taylor     | 21.8 | 14.3     | 32.5     | 27         |
| Jefferson     | 23.8 | 18.3     | 30.3     | 70         | Tucker     | 35.8 | 21.4     | 58.3     | 20         |
| Kanawha       | 23.0 | 20.5     | 25.8     | 306        | Tyler      | 24.9 | 14.4     | 41.4     | 17         |
| Lewis         | 29.1 | 20.2     | 41.1     | 35         | Upshur     | 16.2 | 10.7     | 23.8     | 28         |
| Lincoln       | 24.7 | 16.8     | 35.1     | 34         | Wayne      | 23.1 | 17.9     | 29.6     | 67         |
| Logan         | 23.0 | 17.0     | 30.5     | 51         | Webster    | 19.8 | 10.3     | 35.7     | 13         |
| Marion        | 24.0 | 19.3     | 29.7     | 92         | Wetzel     | 20.3 | 13.4     | 30.4     | 27         |
| Marshall      | 22.8 | 17.1     | 29.9     | 57         | Wirt       | 41.2 | 21.3     | 72.3     | 13         |
| Mason         | 18.7 | 12.9     | 26.6     | 35         | Wood       | 23.4 | 19.6     | 27.7     | 140        |
| McDowell      | 27.9 | 19.7     | 38.6     | 41         | Wyoming    | 19.6 | 12.9     | 28.7     | 30         |

## Urinary Bladder - Average Annual Age-Adjusted Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2011-2015



Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2015 Incidence and Mortality Web-based Report. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2017. Available at [www.cdc.gov/uscs](http://www.cdc.gov/uscs).