West Virginia Cancer Burden Report

2016

WVU Cancer Institute

WEST VIRGINIA Department of Health & Human Resources

Report Prepared by:
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the West Virginia Department of Health and Human Resources

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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
www.wvucancer.org/cancer-prevention-control/

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Cover photo attributed to Bruce W. Adkins, Agent of Hope (in the Mountains of Hope Cancer Coalition) for 14+ years.

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Preface

The 2016 West Virginia Cancer Burden Report looks somewhat different than in previous years as it reflects a collaborative effort between the office of Cancer Prevention and Control at the WVU Cancer Institute and the West Virginia Cancer Registry. Although our offices have worked together over the years on many projects, this year we partnered 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 that we highlighted the screening related cancers – breast, cervical, lung, and colorectal (also known as colon and rectum). There are summaries, one page infographics, and WV resource pages to address each of these cancers. 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 during 2009-2013. 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 56,884 new cases (approximately 11,377 cases annually) of invasive (and in situ bladder) cancer was diagnosed among WV residents from 2009 to 2013. During this time period, 29,605 cases (52%) were diagnosed among males and 27,279 cases (48%) were diagnosed among females.

From 2009 to 2013, the most common cancers reported among WV residents were lung and bronchus (18%), female breast (12%), prostate (11%), and colon and rectum (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 (5%), melanoma (4%), non-Hodgkin lymphoma (4%), kidney and renal pelvis (4%), corpus and uterus (3%), and thyroid (3%). Prostate cancer was the most commonly diagnosed cancer in men and accounted for just over one-fifth (21%) 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 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 8 and 17 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. Some cancers, such as thyroid and testicular, peak at much younger ages. There are also cancers that affect children and Appendix A of this report contains data for pediatric cancers in WV.

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), genetics, and cancer screening practices. Appendix B includes county level data for 13 different cancers. In future editions of this report, we plan to increase the amount and depth of county level data presented.

We hope that you enjoy the new look and updated format. 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,

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Overview of Cancer Prevention and Control

Cancer Prevention and Control (CPC), a premier program at the West Virginia University Cancer Institute, has connected WV communities for the past 30 years to the University and to our Institute to address cancer health disparities unique to WV and Appalachia. Central to the Institute's mission, CPC fosters community relationships to promote community engagement and innovative service opportunities; develops culturally appropriate education and outreach initiatives; and translates cancer-related science and research for WV communities. Of historical interest, the CPC led the National Cancer Institute (NCI) Mid-Atlantic Cancer Information Service, which was based in Morgantown for 20 years. This program provided the essential platform on which this extensive community network and engagement for both cancer educational and service activities evolved at our Institute for the benefit of the entire state. Presently, under the leadership of Dr. Stephenie Kennedy, Associate Center Director for Cancer Prevention and Control, the CPC has the following primary programmatic pursuits:

Program	Funding Source	Brief Summary
WV Breast and Cervical Cancer Screening Program (WVBCCSP)	Centers for Disease Control and Prevention through a partnership with the WV Bureau for Public Health	Provides three of the mandated CDC components including public education and targeted outreach, professional development, and partnership/collaboration
Bonnie Wells Wilson Mobile Mammography Program (also known as Bonnie's Bus)	Various grant funds, donations, and insurance reimbursement for services	Provides breast cancer screening throughout the state
Appalachia Community Cancer Network (ACCN)	National Cancer Institute through a partnership with the University of Kentucky, Ohio State, Pennsylvania State University, and Virginia Tech	Includes community-based participatory research, training of junior investigators, and engagement of community partners
Mountains of Hope WV Cancer Coalition (MOH)	Centers for Disease Control and Prevention through a partnership with the WV Bureau for Public Health	Develops and implements the WV Cancer Plan; manages statewide coalition; facilitates collaboration among coalition partners
WV Program to Increase Colorectal Cancer Screening (WV PICCS)	Centers for Disease Control and Prevention	Initiative to conduct systems-based change with primary care practices, health systems, and payers to increase colorectal cancer screening
WV Lung Cancer Screening Project (WVLCP)	Patient Advocate Foundation	Enrolls eligible Medicaid managed care patients into lung cancer screening, addresses public and provider education regarding the need for such screening, and refers lung cancer patients to appropriate case management services
WV Lung Cancer Survivorship Project, Bridge to Good Living: Thriving Beyond Lung Cancer	Bristol-Myers Squibb Foundation	Includes development and implementation of patient survivorship services and broader community components for family members and caregivers

While each CPC program has unique goals, all come together as part of a strategic, comprehensive approach to control and prevent cancer in the Mountain State. These programs empower communities and West Virginians to become more active participants in their healthcare through cancer education, information, access to services, and community-based participatory research (CBPR).

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 tumors (CNS). 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 2013 (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 WVCR Advisory Committee.

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, 2015. 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 between populations. It is usually expressed as a rate per 100,000 population. Age-adjustment is important when looking at cancer rates because cancer is usually a disease of aging. The rates in this report are age-adjusted using the 2000 U.S. standard population.

6. What is a confidence interval?
   A confidence interval is a range of values for a variable of interest (e.g., 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.

7. What are case counts?
   State and county data are presented as total counts for the 5-year period (2009-2013) unless otherwise noted. For an average annual count, divide the 5-year count by 5.

8. How were the data analyzed?
   SEER*Stat software (version 8.3.2) 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).

9. Why are some data 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.

10. How are the data explained and displayed?
    The 2016 WV Cancer Burden Report focuses on cancers where screening is readily available including breast, cervical, lung, and colorectal (also known as colon and rectum). The average annual age-adjusted incidence rates for 13 cancer sites by county are included in the Appendices.

11. What is cancer?
    Cancer is a group of 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.

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. 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
    - WVU Cancer Institute - http://wvucancer.org/

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 addressing 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.

    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 http://wvucancer.org/cancer-prevention-control/mountains-of-hope/ or visit us on Facebook.

15. Where can I direct my questions or suggestions about the WV Cancer Burden Report?
    Questions regarding data in the 2016 West Virginia Cancer Burden Report may be directed to 304.356.4953.

    Questions or suggestions regarding the 2016 West Virginia Cancer Burden Report should be sent to cpc@hsc.wvu.edu.

References

- American Cancer Society, http://www.cancer.org/cancer/index
- Center for Disease Control and Prevention, https://www.cdc.gov/cancer/
- Mountains of Hope WV Cancer Coalition, http://wvucancer.org/cancer-prevention-control/mountains-of-hope/
- National Cancer Institute - https://www.cancer.gov/about-cancer
- West Virginia Cancer Registry, http://www.dhhr.wv.gov/oeps/cancer/pages/aboutwvcr.aspx
- WVU Cancer Institute - http://wvucancer.org/

2009-2013 Cancer Incidence Data

- Five-Year Incidence Rate Changes for All Ages, Both Sexes, All Races Figure
- Average Annual Age-Adjusted All Site Cancer Incidence Rate By Gender
  - Table
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- Average Annual Age-Adjusted Cancer Incidence Rates, Top 10 Sites among Men and Women
  - Table
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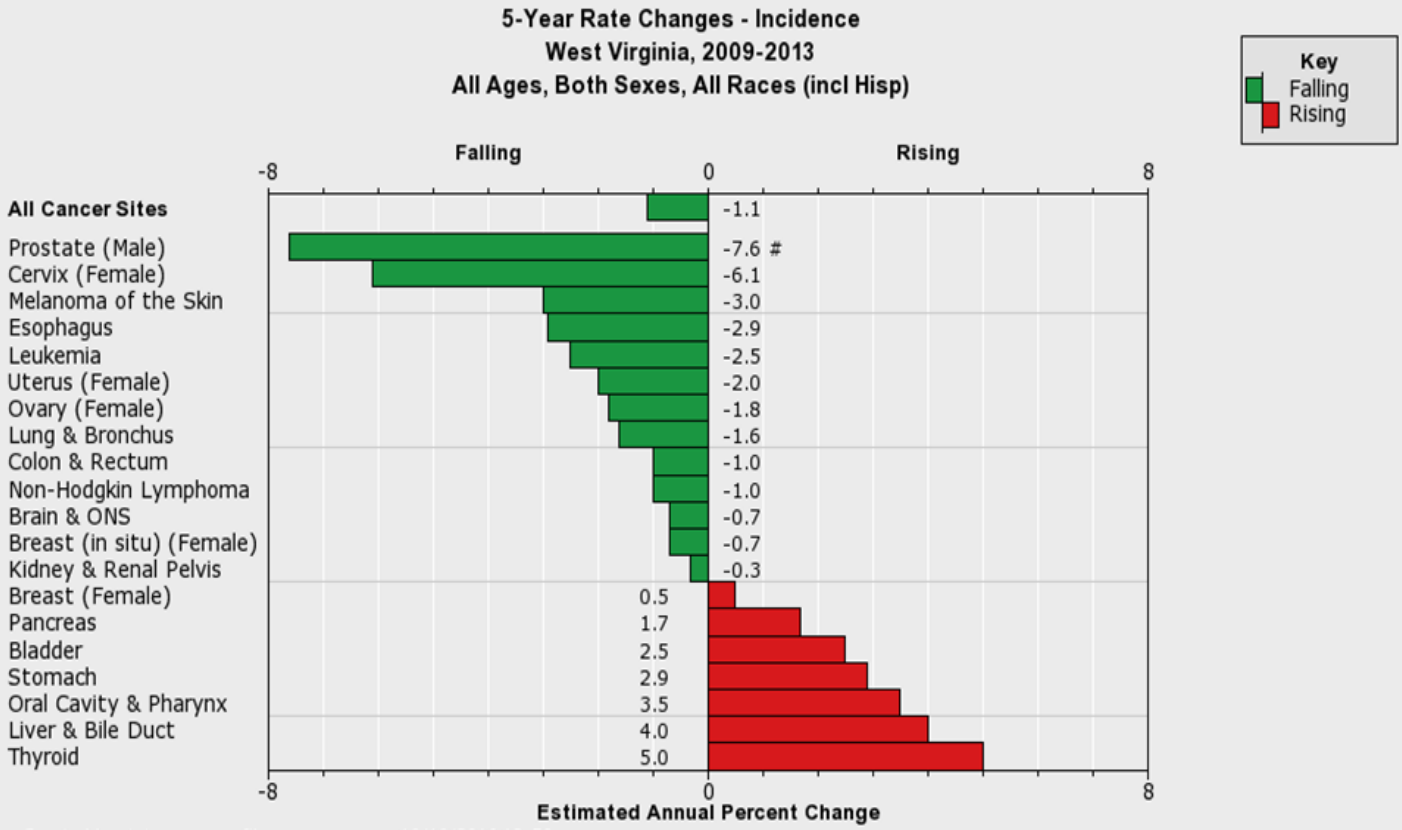
- Average Annual Age-Adjusted Cancer Incidence Rates, Top 10 Sites among Men
  - Table
  - Figure
- Average Annual Age-Adjusted Cancer Incidence Rates, Top 10 Sites among Women
  - Table
  - Figure
- Average Annual Age-Adjusted Cancer Incidence Rates, 95% Confidence Intervals, and 5-Year Counts by Select Sites and Gender Tables

5-Year Rate Changes – Incidence, West Virginia, 2009-2013



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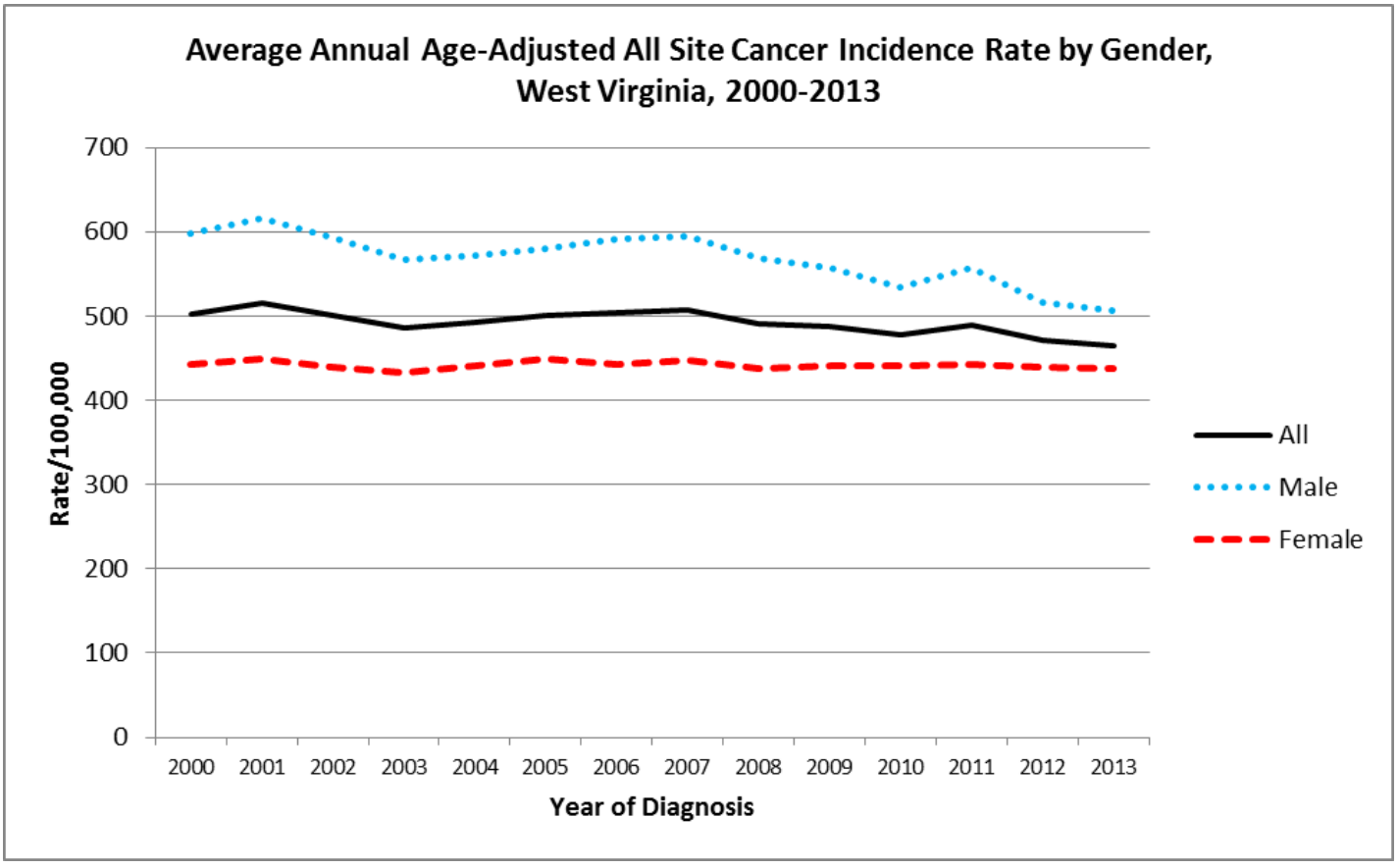
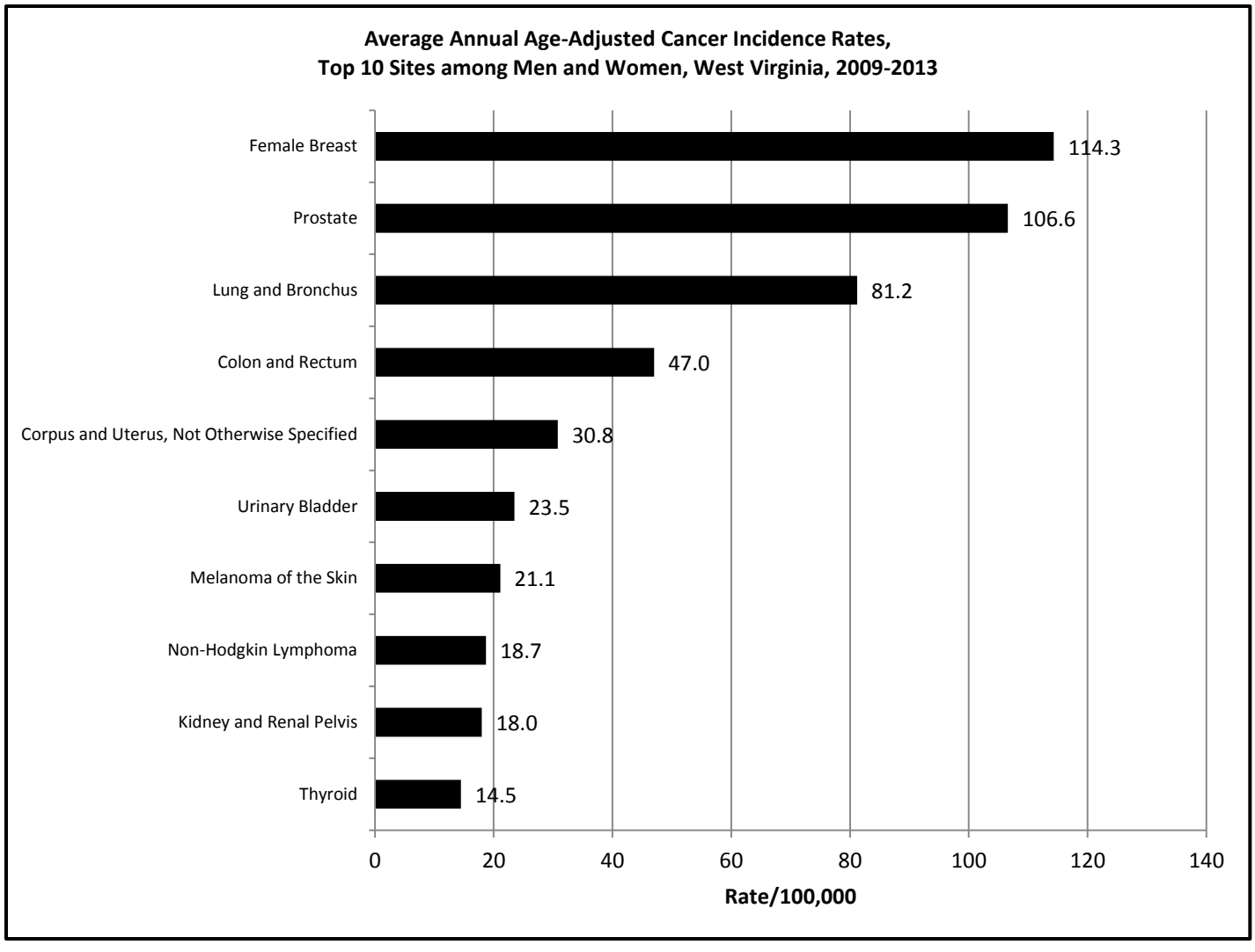
Source: Incidence data provided by the National Program of Cancer Registries (NPCR). EAPCs calculated by the National Cancer Institute using SEER*Stat. Rates are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ... , 80-84,85+). Rates are for invasive cancer only (except for bladder cancer which is invasive and in situ) or unless otherwise specified. Population counts for denominators are based on Census populations as modified by NCI. The 1969-2014 US Population Data File is used with NPCR November 2015 data.
Please note that the data comes from different sources. Due to different years of data availablility, most of the trends are AAPCs based on APCs but some are EAPCs calculated in SEER*Stat. Please refer to the source for each graph for additional information.

- The annual percent change is significantly different from zero (p<0.05).

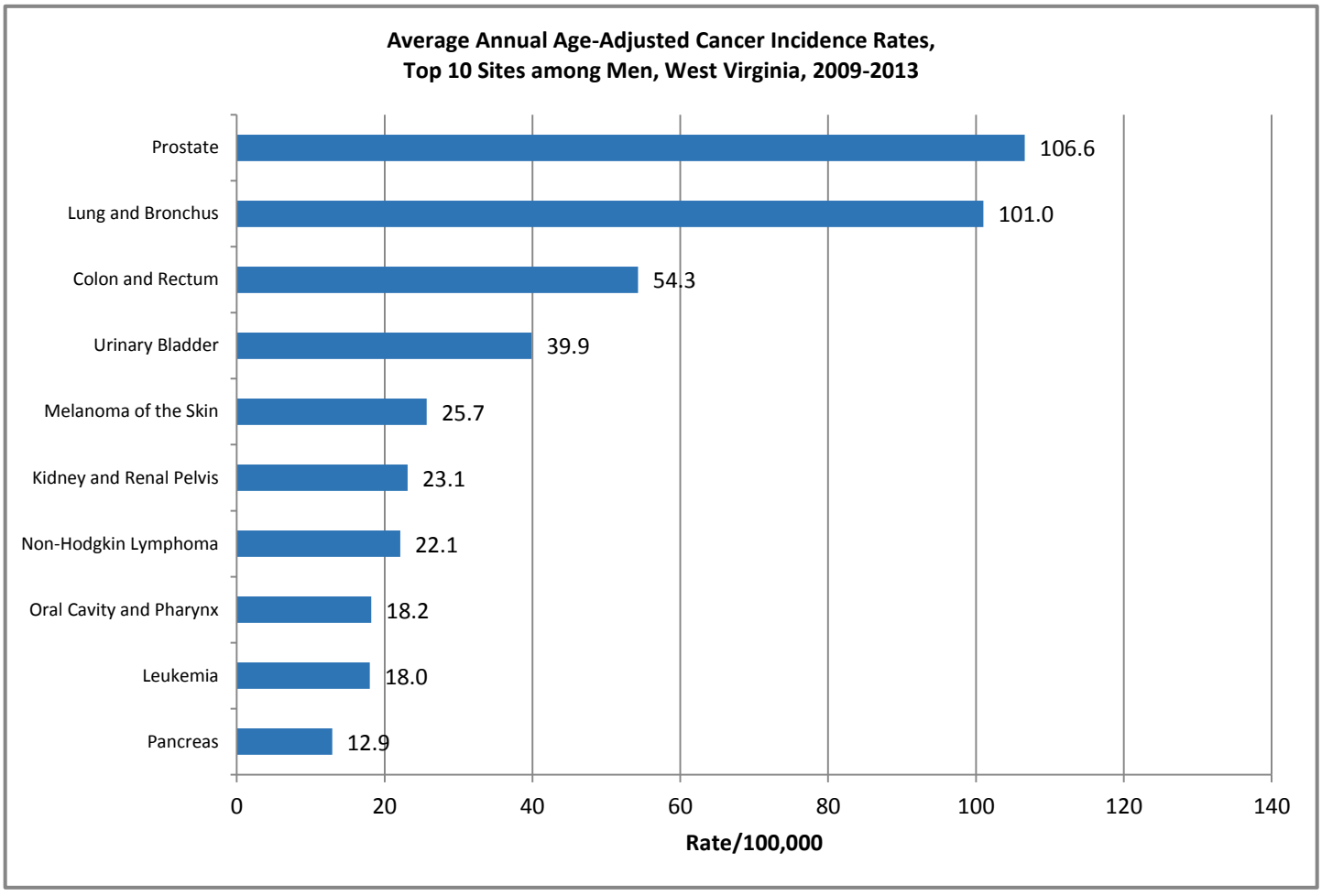
Average Annual Age-Adjusted All Site Cancer Incidence Rate (per 100,000), by Gender, West Virginia, 2000-2013			
Year	All	Male	Female
2000	502.4	598.1	442.2
2001	514.8	615.2	448.3
2002	500.8	592.9	438.8
2003	485.1	566.3	432.6
2004	491.8	571.6	441.2
2005	501.2	579.4	449.8
2006	503.1	590.8	441.8
2007	507.9	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	489.5	557.2	442.1
2012	470.7	516.2	439.2
2013	463.8	505.7	436.8



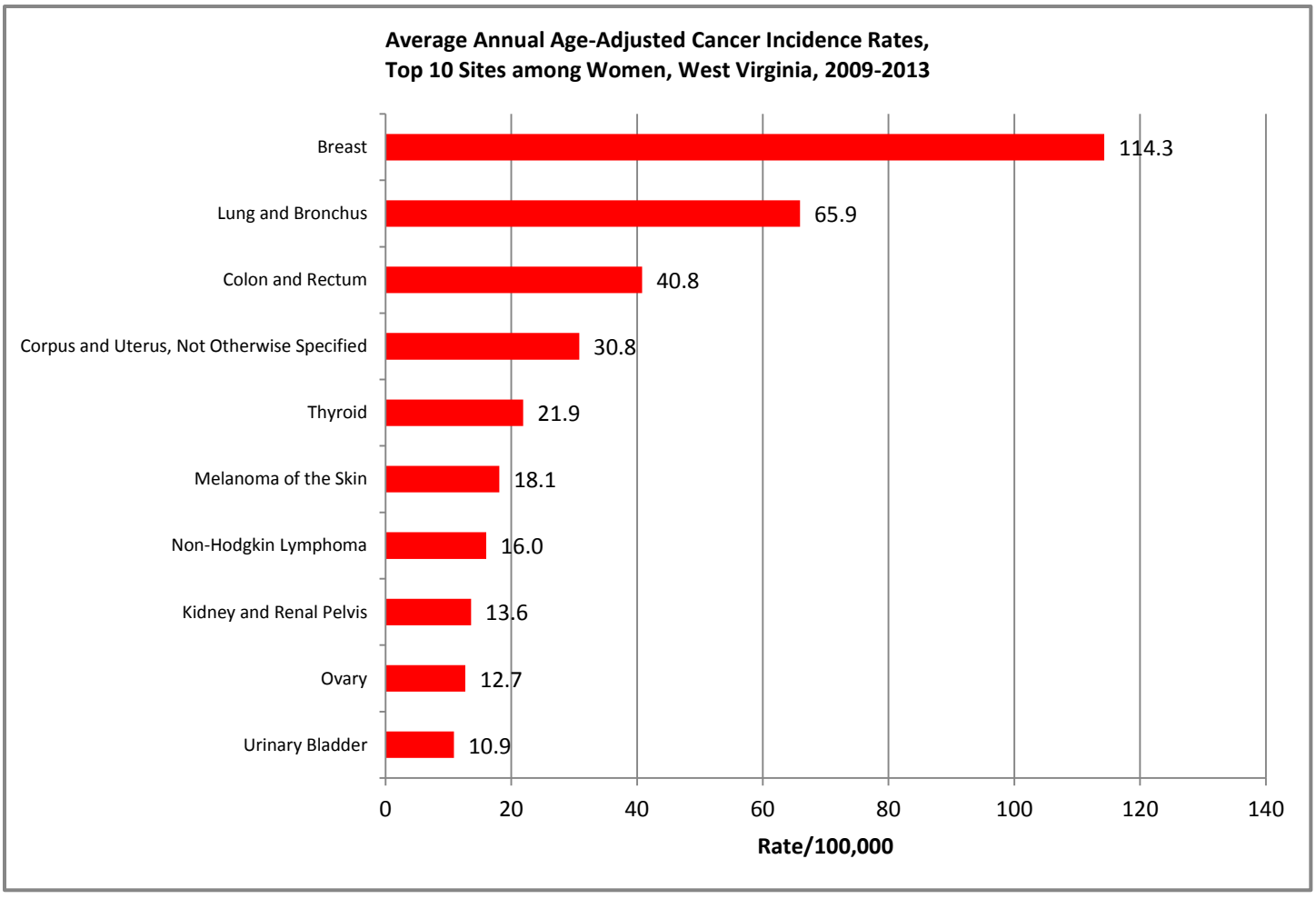
Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000), Top 10 Sites among Men and Women, West Virginia, 2009-2013	
Female Breast	114.3
Prostate	106.6
Lung and Bronchus	81.2
Colon and Rectum	47.0
Corpus and Uterus, Not Otherwise Specified	30.8
Urinary Bladder	23.5
Melanoma of the Skin	21.1
Non-Hodgkin Lymphoma	18.7
Kidney and Renal Pelvis	18.0
Thyroid	14.5



Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000), Top 10 Sites among Men, West Virginia, 2009-2013	
Prostate	106.6
Lung and Bronchus	101.0
Colon and Rectum	54.3
Urinary Bladder	39.9
Melanoma of the Skin	25.7
Kidney and Renal Pelvis	23.1
Non-Hodgkin Lymphoma	22.1
Oral Cavity and Pharynx	18.2
Leukemia	18.0
Pancreas	12.9



Average Annual Age-Adjusted Cancer Incidence Rates (per 100,000), Top 10 Sites among Women, West Virginia, 2009-2013	
Breast	114.3
Lung and Bronchus	65.9
Colon and Rectum	40.8
Corpus and Uterus, Not Otherwise Specified	30.8
Thyroid	21.9
Melanoma of the Skin	18.1
Non-Hodgkin Lymphoma	16.0
Kidney and Renal Pelvis	13.6
Ovary	12.7
Urinary Bladder	10.9



Average Annual Age-Adjusted Cancer Incidence Rates, 95% Confidence Intervals, and 5-Year Counts By Select Sites and Gender, West Virginia, 2009-2013

Cancer Site	Male and Female				Males				Females			
	Rate	Lower CI	Upper CI	5-Year Count	Rate	Lower CI	Upper CI	5-Year Count	Rate	Lower CI	Upper CI	5-Year Count
All Sites	477.8	473.8	481.8	56,884	533.4	527.1	539.7	29,605	439.9	434.6	445.4	27,279
Oral Cavity and Pharynx	11.9	11.3	12.6	1,440	18.2	17.1	19.4	1,050	6.1	5.5	6.8	390
Esophagus	5.4	5.0	5.8	667	9.7	8.9	10.6	562	1.6	1.3	2.0	105
Stomach	6.4	5.9	6.9	773	8.9	8.1	9.8	497	4.3	3.8	4.9	276
Small Intestine	2.2	1.9	2.5	259	2.4	2.0	2.8	134	2.1	1.7	2.5	125
Colon and Rectum	47.0	45.7	48.2	5,608	54.3	52.3	56.3	2,964	40.8	39.2	42.4	2,644
Liver and Intrahepatic Bile Duct	5.7	5.3	6.2	715	9.2	8.4	10.1	530	2.8	2.4	3.2	185
Gallbladder	1.1	0.9	1.3	127	0.8	0.6	1.1	44	1.2	1.0	1.6	83
Pancreas	11.3	10.7	12.0	1,390	12.9	12.0	13.9	719	9.9	9.2	10.7	671
Larynx	5.3	4.9	5.7	662	8.5	7.7	9.3	500	2.6	2.2	3.0	162
Lung and Bronchus	81.2	79.6	82.8	10,015	101.0	98.3	103.7	5,663	65.9	63.9	67.9	4,352
Bones and Joints	0.8	0.7	1.0	83	1.0	0.8	1.4	49	0.7	0.4	0.9	34
Soft Tissues including Heart	3.0	2.7	3.4	333	3.8	3.3	4.4	194	2.4	2.0	2.9	139
Melanoma of the Skin	21.1	20.2	22.0	2,350	25.7	24.3	27.2	1,359	18.1	16.9	19.3	991
Breast	61.0	59.6	62.5	7,116	1.6	1.3	2.0	90	114.3	111.6	117.2	7,026
Cervix Uteri	---	---	---	---	---	---	---	---	10.0	9.1	10.9	494
Corpus and Uterus, NOS	---	---	---	---	---	---	---	---	30.8	29.4	32.3	1,943
Ovary	---	---	---	---	---	---	---	---	12.7	11.8	13.7	777
Prostate	---	---	---	---	106.6	103.9	109.4	6,340	---	---	---	---
Testis	---	---	---	---	6.0	5.3	6.8	250	---	---	---	---
Urinary Bladder	23.5	22.6	24.4	2,847	39.9	38.2	41.7	2,128	10.9	10.1	11.7	719
Kidney and Renal Pelvis	18.0	17.2	18.8	2,125	23.1	21.8	24.4	1,275	13.6	12.7	14.6	850
Brain and Other Nervous System	6.6	6.1	7.1	703	7.6	6.8	8.4	393	5.7	5.0	6.4	310
Thyroid	14.5	13.8	15.3	1,493	7.0	6.3	7.8	377	21.9	20.6	23.3	1,116
Hodgkin Lymphoma	2.5	2.2	2.8	235	2.9	2.4	3.4	134	2.1	1.7	2.6	101
Non-Hodgkin Lymphoma	18.7	18.0	19.6	2,225	22.1	20.9	23.5	1,198	16.0	15.1	17.1	1,027
Myeloma	5.7	5.3	6.1	696	7.3	6.6	8.0	398	4.4	3.9	5.0	298
Leukemia	14.0	13.3	14.7	1,594	18.0	16.9	19.3	937	10.8	10.0	11.7	657

Average Annual Age-Adjusted Cancer Incidence Rates, 95% Confidence Intervals, and 5-Year Counts By Select Cancer Sites and Gender for Whites, West Virginia, 2009-2013

Cancer Site	White Males and Females				White Males				White Females			
	Rate	Lower CI	Upper CI	5-Year Count	Rate	Lower CI	Upper CI	5-Year Count	Rate	Lower CI	Upper CI	5-Year Count
All Sites	478.6	474.5	482.7	54,936	533.3	527.0	539.7	28,551	441.2	435.7	446.7	26,385
Oral Cavity and Pharynx	12.0	11.4	12.7	1,399	18.4	17.2	19.6	1,017	6.2	5.6	6.9	382
Esophagus	5.4	5.0	5.9	651	9.8	9.0	10.7	550	1.6	1.3	2.0	101
Stomach	6.3	5.8	6.8	733	8.8	8.0	9.7	474	4.2	3.7	4.8	259
Small Intestine	2.2	1.9	2.5	245	2.3	1.9	2.8	126	2.0	1.7	2.5	119
Colon and Rectum	46.9	45.6	48.2	5,405	54.3	52.3	56.4	2,859	40.7	39.0	42.3	2,546
Liver and Intrahepatic Bile Duct	5.6	5.2	6.1	670	8.9	8.1	9.8	491	2.8	2.4	3.2	179
Gallbladder	1.0	0.8	1.2	117	0.8	0.6	1.1	40	1.2	0.9	1.5	77
Pancreas	11.3	10.7	11.9	1,339	13.1	12.1	14.1	703	9.7	9.0	10.6	636
Larynx	5.3	4.9	5.8	643	8.5	7.8	9.4	487	2.6	2.2	3.0	156
Lung and Bronchus	81.8	80.1	83.4	9,751	101.5	98.7	104.2	5,503	66.5	64.5	68.6	4,248
Bones and Joints	0.8	0.7	1.0	79	1.0	0.8	1.4	47	0.6	0.4	0.9	32
Soft Tissues including Heart	3.0	2.7	3.4	318	3.8	3.2	4.4	185	2.4	2.0	2.9	133
Melanoma of the Skin	21.8	20.9	22.7	2,335	26.5	25.0	28.0	1,350	18.7	17.5	20.0	985
Breast	60.9	59.5	62.4	6,849	1.6	1.3	2.0	85	114.0	111.2	116.9	6,764
Cervix Uteri	---	---	---	---	---	---	---	---	10.1	9.1	11.1	478
Corpus and Uterus, NOS	---	---	---	---	---	---	---	---	30.8	29.3	32.3	1,870
Ovary	---	---	---	---	---	---	---	---	12.6	11.7	13.6	743
Prostate	---	---	---	---	104.4	101.7	107.2	5,992	---	---	---	---
Testis	---	---	---	---	6.4	5.6	7.2	249	---	---	---	---
Urinary Bladder	23.8	22.9	24.7	2,790	40.4	38.6	42.2	2,087	11.0	10.2	11.8	703
Kidney and Renal Pelvis	18.0	17.2	18.8	2,054	23.1	21.8	24.5	1,229	13.7	12.7	14.7	825
Brain and Other Nervous System	6.7	6.2	7.2	684	7.8	7.0	8.6	385	5.7	5.0	6.4	299
Thyroid	14.7	13.9	15.5	1,438	7.1	6.4	7.9	362	22.1	20.8	23.5	1,076
Hodgkin Lymphoma	2.5	2.2	2.9	224	2.9	2.4	3.5	127	2.1	1.7	2.6	97
Non-Hodgkin Lymphoma	18.8	18.0	19.7	2,164	22.2	20.9	23.6	1,163	16.2	15.1	17.2	1,001
Myeloma	5.6	5.2	6.1	664	7.2	6.5	8.0	379	4.4	3.9	4.9	285
Leukemia	14.0	13.3	14.8	1,537	17.8	16.7	19.1	895	11.0	10.1	11.9	642

Average Annual Age-Adjusted Cancer Incidence Rates, 95% Confidence Intervals, and 5-Year Counts By Select Cancer Sites and Gender for Blacks, West Virginia, 2009-2013

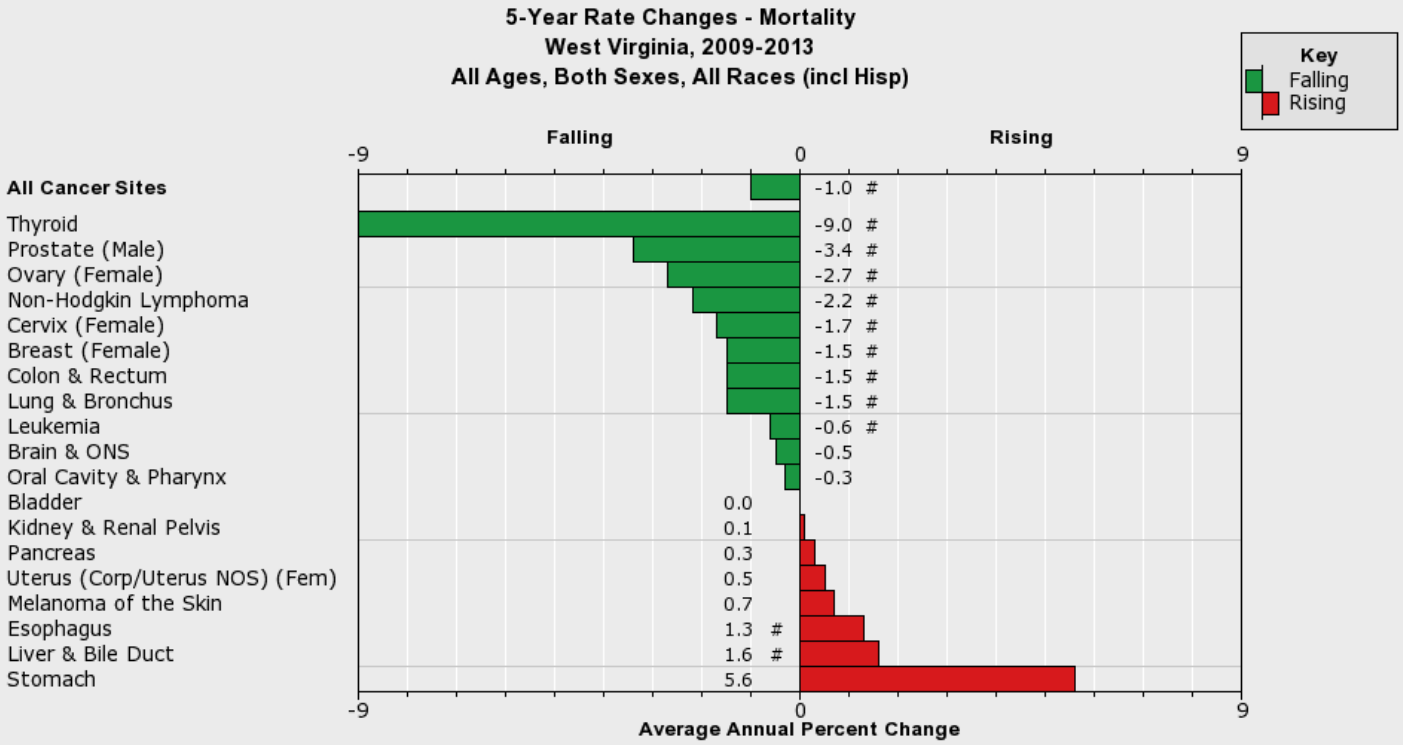
Cancer Site	Black Males and Females				Black Males				Black Females			
	Rate	Lower CI	Upper CI	5-Year Count	Rate	Lower CI	Upper CI	5-Year Count	Rate	Lower CI	Upper CI	5-Year Count
All Sites	442.5	419.5	466.3	1,487	525.8	487.6	566.0	841	378.2	348.9	409.2	646
Oral Cavity and Pharynx	10.5	7.2	14.8	34	17.7	11.3	26.2	28	4.0	1.4	8.6	6
Esophagus	3.7	1.9	6.4	12	4.8	2.0	9.7	8	2.6	0.7	6.6	4
Stomach	9.4	6.3	13.4	31	11.2	6.3	18.2	19	6.9	3.5	12.2	12
Small Intestine	4.5	2.4	7.6	14	5.5	2.2	11.2	8	3.7	1.3	8.1	6
Colon and Rectum	47.9	40.5	56.2	158	54.2	42.4	68.2	86	41.9	32.6	53.0	72
Liver and Intrahepatic Bile Duct	11.1	8.0	15.2	43	20.0	13.6	28.4	37	3.1	1.1	7.0	6
Gallbladder	2.6	1.1	5.1	8	1.7	0.3	5.3	3	3.4	1.1	7.9	5
Pancreas	13.0	9.2	17.7	42	8.4	4.3	14.6	14	15.4	10.2	22.5	28
Larynx	4.1	2.2	6.9	15	4.7	2.0	9.5	9	3.4	1.2	7.6	6
Lung and Bronchus	65.7	56.9	75.4	213	92.5	76.0	111.3	131	46.5	36.9	58.0	82
Bones and Joints	0.8	0.2	2.5	3	0.4	0.0	3.1	1	1.2	0.1	4.3	2
Soft Tissue including Heart	4.3	2.3	7.2	14	5.5	2.2	11.2	8	3.8	1.3	8.3	6
Melanoma of the Skin	0.6	0.1	2.3	2	0.5	0.0	3.2	1	0.9	0.0	4.2	1
Breast	61.3	52.9	70.6	202	3.0	0.7	7.8	4	118.5	102.1	136.6	198
Cervix Uteri	---	---	---	---	---	---	---	---	5.0	2.1	9.8	8
Corpus and Uterus, NOS	---	---	---	---	---	---	---	---	19.8	13.7	27.8	36
Ovary	---	---	---	---	---	---	---	---	11.0	6.5	17.3	19
Prostate	---	---	---	---	169.8	149.0	192.6	283	---	---	---	---
Testis	---	---	---	---	0.0	0.0	2.5	0	---	---	---	---
Urinary Bladder	13.0	9.2	17.7	42	21.2	13.8	31.0	31	6.8	3.3	12.2	11
Kidney and Renal Pelvis	18.4	14.0	23.8	62	21.8	15.3	30.2	40	13.4	8.3	20.5	22
Brain and Other Nervous System	3.8	2.0	6.7	12	3.8	1.3	8.4	6	3.3	1.2	7.3	6
Thyroid	8.9	6.0	12.7	32	5.1	2.4	9.6	11	12.5	7.6	19.2	21
Hodgkin Lymphoma	1.8	0.8	3.8	8	2.0	0.6	5.3	5	1.5	0.3	4.7	3
Non-Hodgkin Lymphoma	12.3	8.7	16.8	40	13.1	7.8	20.5	22	10.9	6.4	17.3	18
Myeloma	9.1	6.0	13.1	30	12.9	7.1	21.0	18	6.8	3.5	12.0	12
Leukemia	12.1	8.6	16.6	41	19.0	12.2	28.0	29	6.9	3.5	12.2	12

2009-2013 Cancer Mortality Data

- Five-Year Mortality Rate Changes for All Ages, Both Sexes, All Races Figure
- Average Annual Age-Adjusted All Site Cancer Mortality Rate By Gender
  - Table
  - Figure
- Average Annual Age-Adjusted Cancer Mortality Rates, Top 10 Sites among Men and Women
  - Table
  - Figure
- Average Annual Age-Adjusted Cancer Mortality Rates, Top 10 Sites among Men
  - Table

    Figure
- Average Annual Age-Adjusted Cancer Mortality Rates, Top 10 Sites among Women
  - Table
  - Figure

5-Year Rate Changes – Mortality, West Virginia, 2009-2013

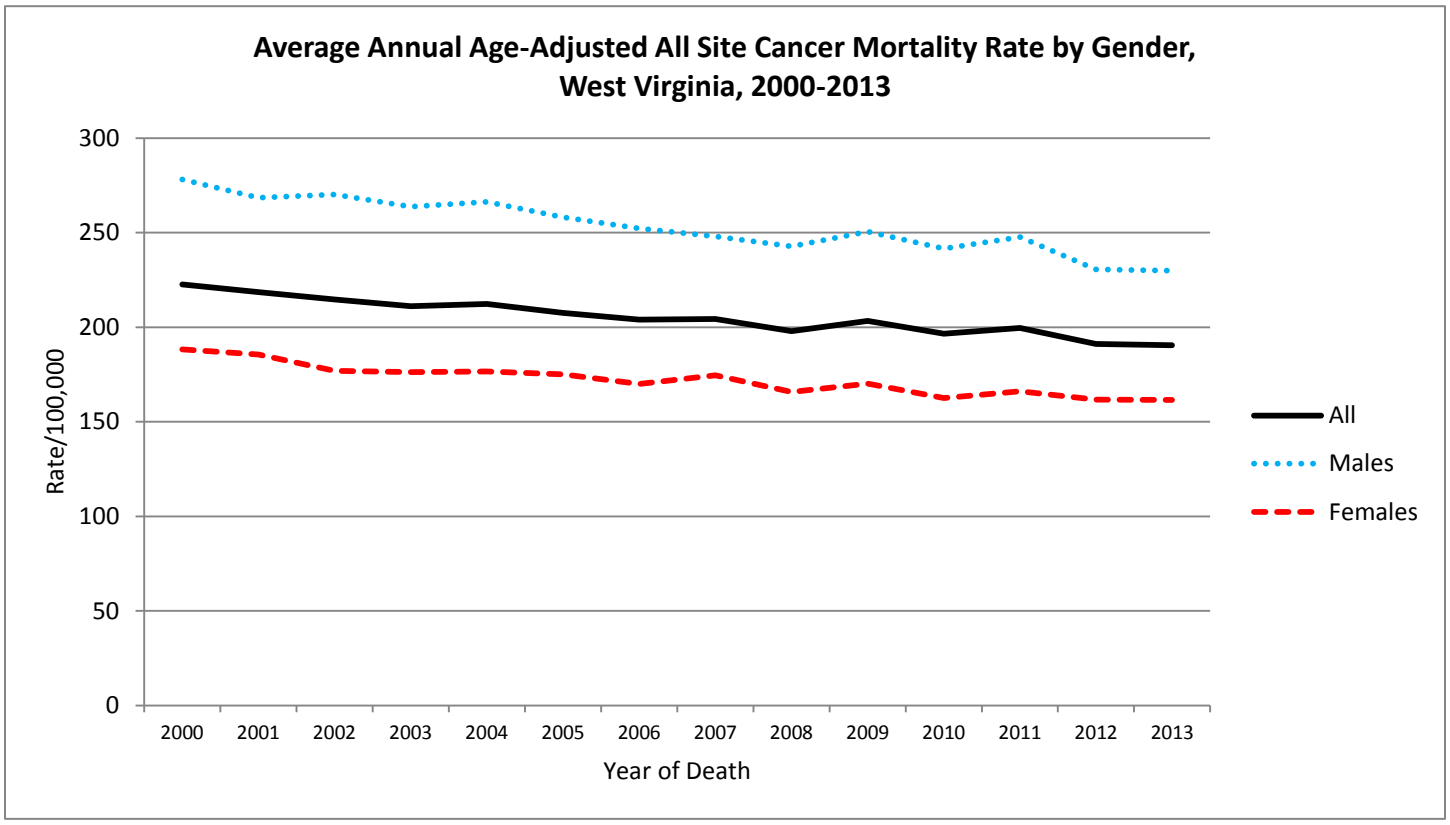


Created by statecancerprofiles.cancer.gov on 12/09/2016 12:02 pm.

Source: Death data provided by the National Vital Statistics System public use data file. Death rates calculated by the National Cancer Institute using SEER*Stat . Death rates (deaths per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ... , 80-84, 85+). Population counts for denominators are based on Census populations as modified by NCI. The 1969-2014 US Population Data File is used with mortality data.
Please note that the data comes from different sources. Due to different years of data availablility, most of the trends are AAPCs based on APCs but some are EAPCs calculated in SEER*Stat. Please refer to the source for each graph for additional information.

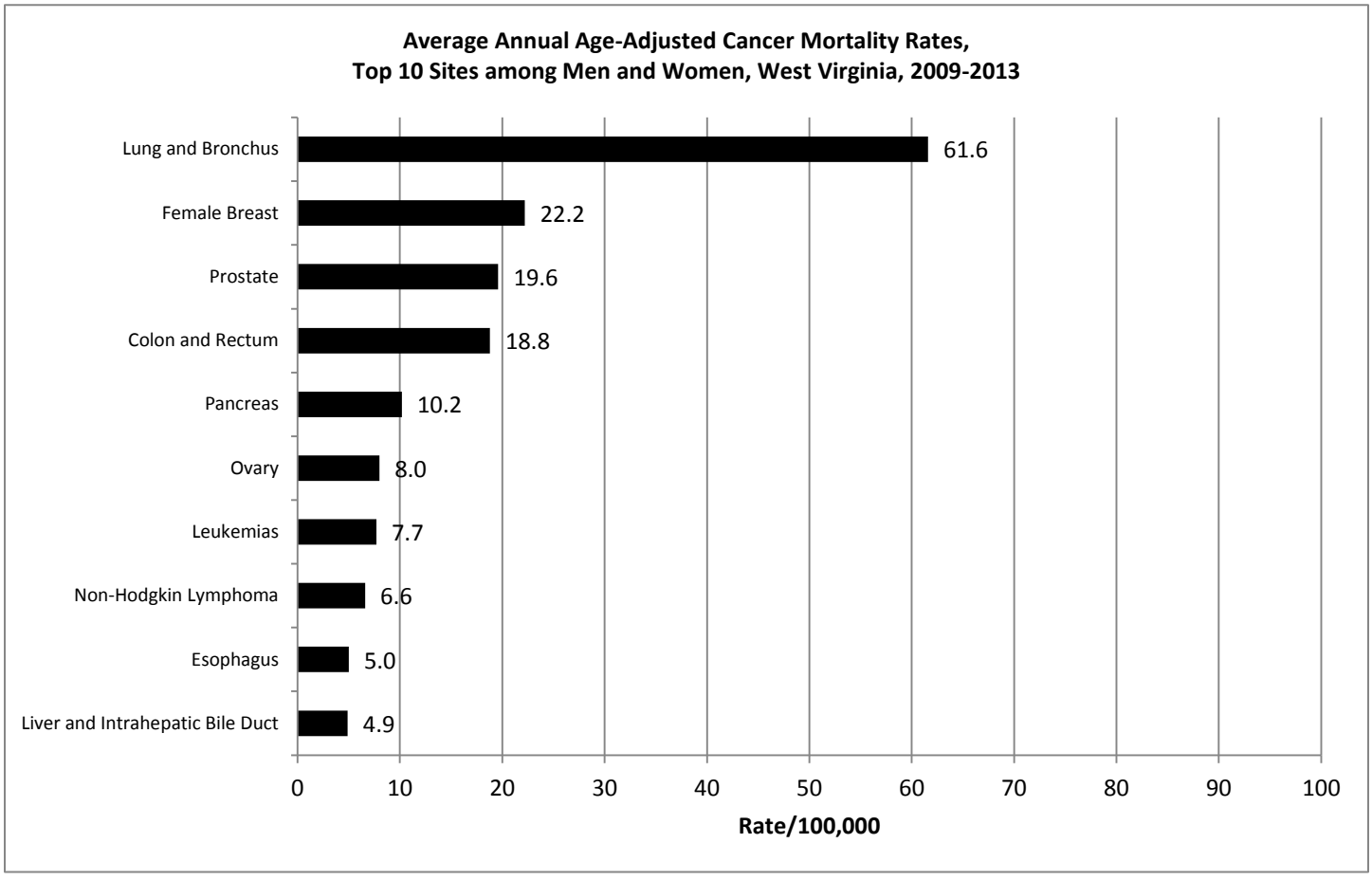
- The annual percent change is significantly different from zero (p<0.05).

Average Annual Age-Adjusted All Site Cancer Mortality Rate (per 100,000), by Gender, West Virginia, 2000-2013			
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	161.7
2013	190.5	229.9	161.6



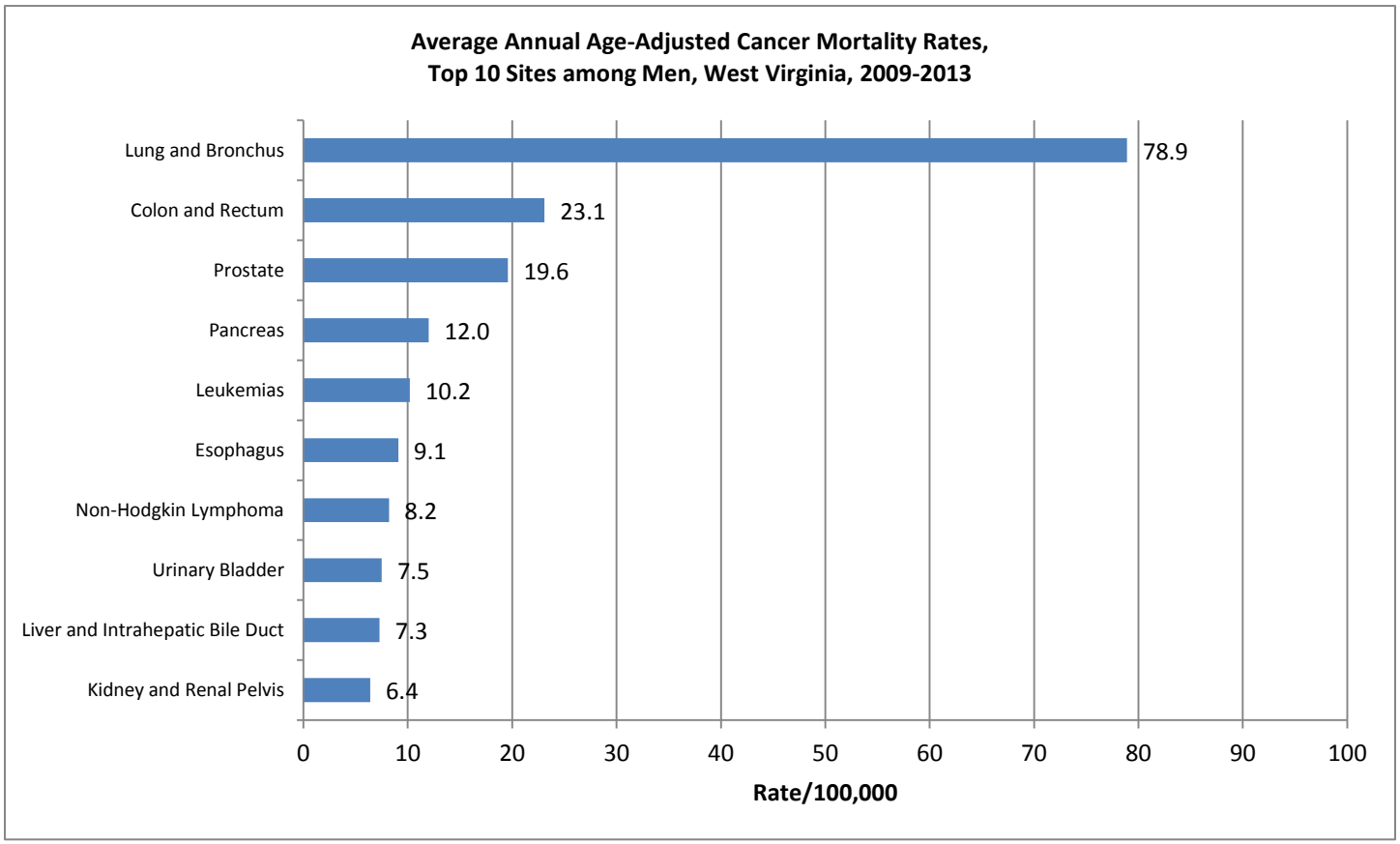
United States Cancer Statistics: 1999 - 2013 Mortality, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention; 2016. Accessed at http://wonder.cdc.gov/CancerMortv2013.html on Nov 15, 2016 12:33:29 PM

Average Annual Age-Adjusted Cancer Mortality Rates (per 100,000), Top 10 Sites among Men and Women, West Virginia, 2009-2013			
Site	Age-adjusted Rate	Deaths	Population
Lung and Bronchus	61.6	7,537	9,266,841
Female Breast	22.2	1,438	4,695,921
Prostate	19.6	940	4,570,920
Colon and Rectum	18.8	2,244	9,266,841
Pancreas	10.2	1,250	9,266,841
Ovary	8.0	533	4,695,921
Leukemia	7.7	893	9,266,841
Non-Hodgkin Lymphoma	6.6	794	9,266,841
Esophagus	5.0	620	9,266,841
Liver and Intrahepatic Bile Duct	4.9	602	9,266,841



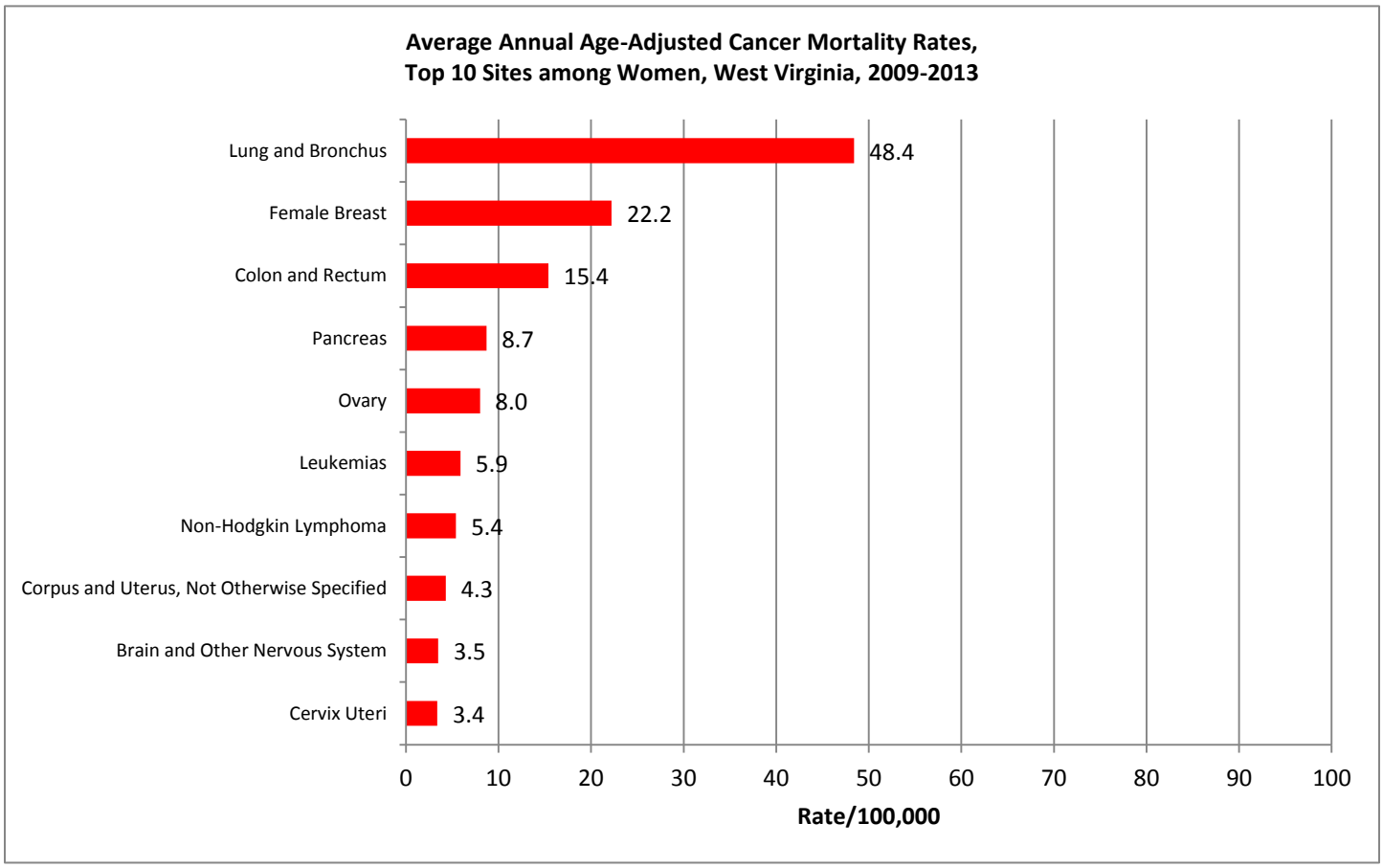
United States Cancer Statistics: 1999 - 2013 Mortality, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention; 2016. Accessed at http://wonder.cdc.gov/CancerMortv2013.html on Nov 15, 2016 12:33:29 PM

Average Annual Age-Adjusted Cancer Mortality Rates (per 100,000), Top 10 Sites among Men, West Virginia, 2009-2013			
Site	Age-adjusted Rate	Deaths	Population
Lung and Bronchus	78.9	4,317	4,570,920
Colon and Rectum	23.1	1,209	4,570,920
Prostate	19.6	940	4,570,920
Pancreas	12.0	652	4,570,920
Leukemia	10.2	506	4,570,920
Esophagus	9.1	512	4,570,920
Non-Hodgkin Lymphoma	8.2	431	4,570,920
Urinary Bladder	7.5	379	4,570,920
Liver and Intrahepatic Bile Duct	7.3	409	4,570,920
Kidney and Renal Pelvis	6.4	341	4,570,920



United States Cancer Statistics: 1999 - 2013 Mortality, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention; 2016. Accessed at http://wonder.cdc.gov/CancerMortv2013.html on Nov 15, 2016 12:33:29 PM

Average Annual Age-Adjusted Cancer Mortality Rates (per 100,000), Top 10 Sites among Women, West Virginia, 2009-2013			
Site	Age-adjusted Rate	Deaths	Population
Lung and Bronchus	48.4	3,220	4,695,921
Female Breast	22.2	1,438	4,695,921
Colon and Rectum	15.4	1,035	4,695,921
Pancreas	8.7	598	4,695,921
Ovary	8.0	533	4,695,921
Leukemias	5.9	387	4,695,921
Non-Hodgkin Lymphoma	5.4	363	4,695,921
Corpus and Uterus, Not Otherwise Specified	4.3	298	4,695,921
Brain and Other Nervous System	3.5	223	4,695,921
Cervix Uteri	3.4	186	4,695,921



United States Cancer Statistics: 1999 - 2013 Mortality, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention; 2016. Accessed at http://wonder.cdc.gov/CancerMortv2013.html on Nov 15, 2016 12:33:29 PM

Summaries, Infographics, and Program Information

- Breast Cancer
- Cervical Cancer
- Colorectal Cancer (also known as colon and rectum)
- Lung Cancer

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.[1] An individual woman has a 1 in 8 chance of developing breast cancer over an 80-year lifespan.[2]

Breast cancer is the most common cancer diagnosed in women in the United States. Getting mammograms regularly can lower the risk of dying from breast cancer.[3] 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.[4] 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.[5] Each year in WV, approximately 1,405 women[5] are diagnosed and 288 women die of breast cancer.[6] Over half (54%) of the women with breast cancer in WV are diagnosed with localized breast cancer.[5]

Risk factors for breast cancer include being female, increased age, and certain genetic changes. Other factors that increase risk include long-term use of combination hormone replacement therapy, personal history of breast cancer or non-cancerous breast diseases, family history of breast cancer, treatment with radiation therapy to the breast/chest, exposure to diethylstilbestrol (DES), dense breasts, and drinking alcohol. Factors that decrease risk include starting menstruation at a later age, starting menopause at an earlier age, giving birth to more children, being younger at birth of first child, breastfeeding, engaging in regular physical activity, and maintaining a healthy weight.[7]

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

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1. American Cancer Society. Accessed at http://www.cancer.org/cancer/breastcancer/detailedguide/breast-cancer-what-is-breast-cancer on 12/15/16 at 1:10 PM.
2. National Cancer Institute. Accessed at https://www.cancer.gov/types/breast/risk-fact-sheet on 12/15/16 at 2:15 PM.
3. Centers for Disease Control and Prevention. Accessed at https://www.cdc.gov/cancer/breast/ on 12/15/16 at 1:20 PM.
4. Centers for Disease Control and Prevention. Accessed at https://www.cdc.gov/cancer/breast/basic_info/screening.htm on 12/15/16 at 1:30 PM.
5. WV Cancer Registry.
6. United States Cancer Statistics: 1999 - 2013 Mortality, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention; 2016. Accessed at http://wonder.cdc.gov/CancerMortv2013.html on Nov 15, 2016 12:33:29 PM.
7. Centers for Disease Control and Prevention. Accessed at https://www.cdc.gov/cancer/breast/basic_info/risk_factors.htm on Nov 15, 2016 1:43 PM.

Breast Cancer in West Virginia

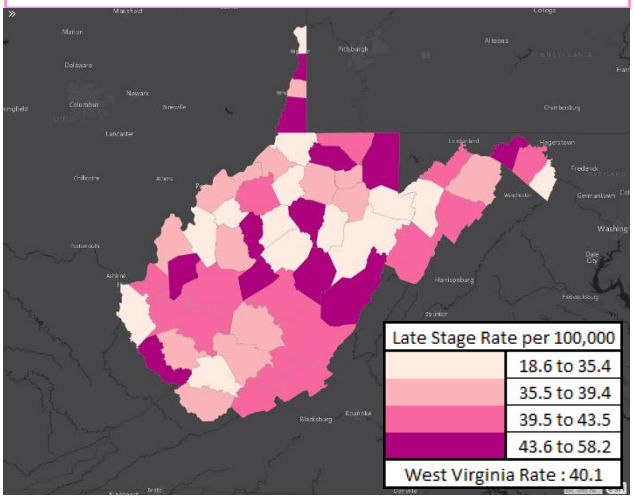
Breast Cancer Incidence in West Virginia per 100,000 women: **114.3**

Breast Cancer Deaths in West Virginia per 100,000 women: **22.2**

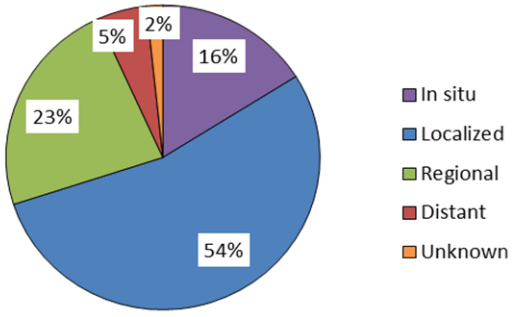
Breast cancer is a leading cause of cancer-related deaths among West Virginia women.

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

Age-Adjusted Late-Stage Breast Cancer Diagnosis by County



Percentage of Female Breast Cancer Cases by Stage at Diagnosis, West Virginia, 2009-2013



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	Personal history of breast cancer and non-cancerous breast conditions
Giving birth to more children, being younger at birth of first child, and breastfeeding	Family history of breast cancer
Engaging in regular physical activity	Treatment with radiation to the breast or chest
Maintaining a healthy weight	Exposure to diethylstilbestrol (DES)
	Alcohol intake

Breast Cancer Programs in West Virginia

BONNIE'S BUS

Bonnie's Bus, a 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 11,000 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/

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.

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/

WVBCCSP Income Guidelines

Family Size	Monthly	Yearly
1	$2,475	$29,700
2	$3,338	$40,056
3	$4,200	$50,400
4	$5,063	$60,756
5	$5,925	$71,100

Effective 6/30/2016-6/29/2017

Bonnie Wells Wilson Mobile Mammography Program

West Virginia Breast & Cervical Cancer Screening Program

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.[1] 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.[2]

Screening with Pap and Human Papillomavirus (HPV) tests is the easiest ways 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.[3] Completing these screening tests as recommended 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.

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.[4]

Each year in WV, approximately 99 women[5] are diagnosed and 37 women die of cervical cancer.[6] 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 (52%) of the women with cervical cancer in WV are diagnosed with regional or distant metastasis.[5]

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, and having several sexual partners.[7]

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.

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1. American Cancer Society. Accessed at http://www.cancer.org/cancer/cervicalcancer/detailedguide/cervical-cancer-what-is-cervical-cancer on 12/12/16 at 3:10 PM.
2. Centers for Disease Control and Prevention. Accessed at https://www.cdc.gov/cancer/cervical/ on 12/12/16 at 3:15 PM.
3. Centers for Disease Control and Prevention. Accessed at https://www.cdc.gov/cancer/cervical/basic_info/screening.htm on 12/12/16 at 3:30 PM.
4. Centers for Disease Control and Prevention. Accessed at https://www.cdc.gov/std/HPV/STDFact-HPV.htm#a4 on 12/12/16 at 3:40 PM.
5. WV Cancer Registry.
6. United States Cancer Statistics: 1999 - 2013 Mortality, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention; 2016. Accessed at http://wonder.cdc.gov/CancerMortv2013.html on Nov 15, 2016 12:33:29 PM.
7. Centers for Disease Control and Prevention. Accessed at https://www.cdc.gov/cancer/cervical/basic_info/risk_factors.htm on 12/12/2016 at 4:00 PM

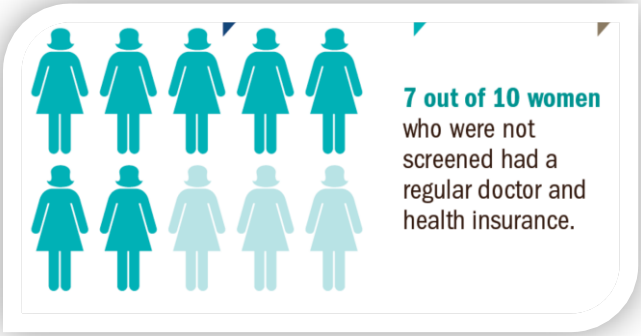
Cervical Cancer in West Virginia

Cervical Cancer Incidence in West Virginia per 100,000 women: **10.0**

Cervical Cancer Deaths in West Virginia per 100,000 women: **3.4**

West Virginia has the highest 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.



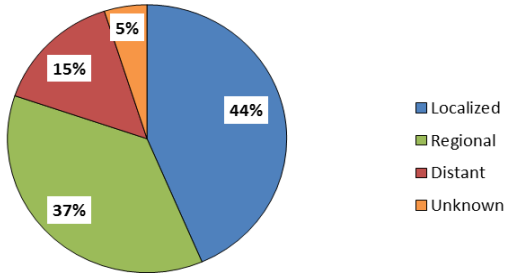
Up to 93% of cervical cancers can be prevented by screening and HPV vaccination

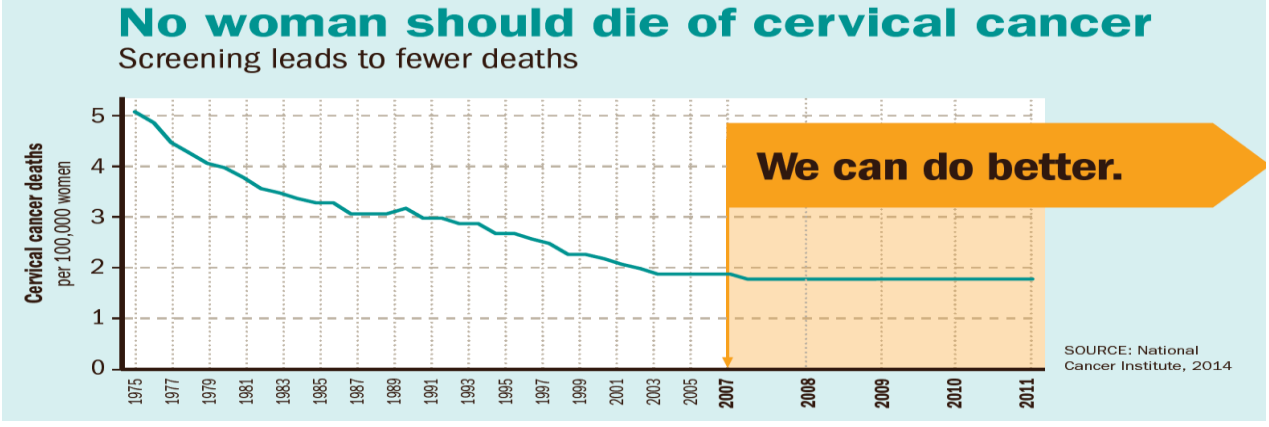
HPV Vaccination Rates in West Virginia and the United States, Male and Female				
	Male 1 Dose	Male 3 Doses (series completion)	Female 1 Dose	Female 3 Doses (series completion)
WV	45%	27%	62%	39%
US	50%	28%	63%	42%

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

Percentage of Cervical Cancer Cases by Stage at Diagnosis, West Virginia, 2009-2013





Cervical 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 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.

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	$2,475	$29,700
2	$3,338	$40,056
3	$4,200	$50,400
4	$5,063	$60,756
5	$5,925	$71,100

Effective 6/30/2016-6/29/2017

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/

WV IMMUNIZATION NETWORK

The West Virginia Immunization Network 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. Unfortunately, insufficient or misleading information about vaccine safety and effectiveness often creates confusion among adults who are considering immunization for their children or themselves.

CONTACT: WV Immunization Network at 304.397.4071
RESOURCES: http://immunizenow.org/

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 children, adolescents, and adults in WV. WVDIS offers the Vaccines for Children program that provides free vaccines to eligible children including those without health insurance, all those enrolled in Medicaid, American Indians/Alaskan Natives, those with health insurance plans that do not cover vaccines, and those receiving care at Federally Qualified Health Centers or Rural Health Clinics. This federally funded program is available at more than 400 provider locations across the state including 54 local health departments.

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

West Virginia Breast & Cervical Cancer Screening Program

West Virginia Immunization Network
A PROGRAM OF The Center for Rural Health Development

WEST VIRGINIA Department of Health & Human Resources
BUREAU FOR PUBLIC HEALTH
Division of Immunization Services

Colorectal Cancer in West Virginia

Colorectal cancer is cancer that starts in the colon or rectum. 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 **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.[2]

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.[3] 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 1,122 people[4] are diagnosed with colorectal cancer, and 449 die from this cancer.[5] In West Virginia, from 2009 to 2013, forty-five percent (45%) of colorectal cancers were diagnosed in the earlier stages of in situ (5%) or localized (40%) cancer. However, fifty percent (50%) of colorectal cancers in West Virginia during this time period were diagnosed at regional (31%) or distant (19%) stages.[6]

Regular screening saves lives. There are several screening options approved by the United States Preventive Services Task Force.[7] 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 pre-cancer. No West Virginian should die of colorectal cancer.

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1. American Cancer Society, Colorectal Cancer. Accessed at http://www.cancer.org/cancer/colonandrectumcancer/detailedguide/colorectal-cancer-what-is-colorectal-cancer?&gclid=CI_L2NK29tACFdiIswod16wI9w&mkwid=s2XvT75Hc_dc on 12/15/16 at 9:45 a.m.
2. American Cancer Society, Colorectal Cancer. Accessed at http://www.cancer.org/cancer/colonandrectumcancer/detailedguide/colorectal-cancer-what-is-colorectal-cancer?&gclid=CI_L2NK29tACFdiIswod16wI9w&mkwid=s2XvT75Hc_dc on 12/15/16 at 10:00 a.m.
3. Center for Disease Control and Prevention, Colorectal Cancer. Accessed at https://www.cdc.gov/cancer/colorectal/basic_info/risk_factors.htm on 12/15/16 at 10:15 a.m.
4. WV Cancer Registry.
5. United States Cancer Statistics: 1999 - 2013 Mortality, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention; 2016. Accessed at http://wonder.cdc.gov/CancerMortv2013.html on Nov 15, 2016 12:33:29 PM.
6. WV Cancer Registry.
7. 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 12/15/16 at 10:20 a.m.

Colorectal Cancer in West Virginia

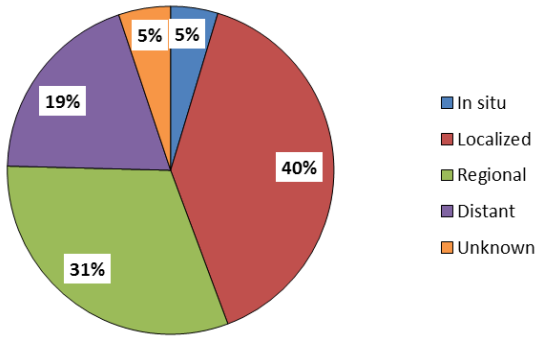
Colorectal Cancer Incidence in West Virginia per 100,000 people **47.0**

Colorectal Cancer Deaths in West Virginia per 100,000 people **18.8**

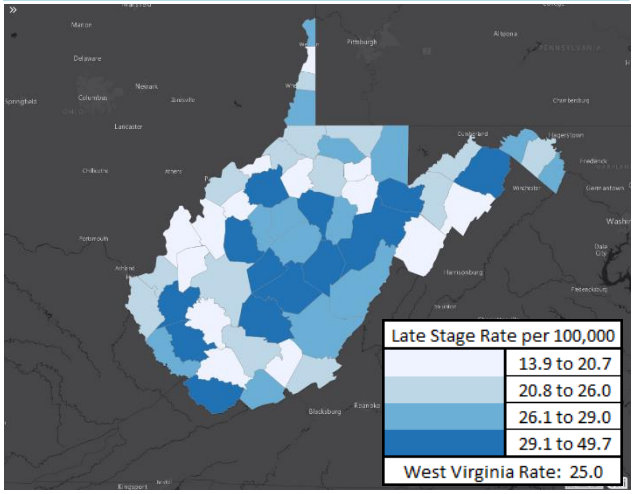
Colorectal cancer is the second leading cause of cancer related deaths in West Virginia.

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, 2009-2013



Age-Adjusted Late-Stage Colorectal Cancer Diagnosis by County



Colorectal Cancer Screening Guidelines: Seven Screening Options	
Screening Method	**Frequency**
Stool Based Screening Tests	
Guaiac Fecal Occult Blood Test	Every year
Fecal Immunochemical Test (FIT)	Every year
Fecal Immunochemical Test-DNA (FIT-DNA)	Every 1 or 3 years
Direct Visualization Tests	
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 2016

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
- Person has Ulcerative Colitis, Crohn's disease, or Lynch Syndrome
- Person smokes

Colorectal Cancer Programs in West Virginia

WEST VIRGINIA PROGRAM TO INCREASE COLORECTAL CANCER SCREENING

The *West Virginia Program to Increase Colorectal Cancer Screening* (WV PICCS), is a CDC-funded program directed in West Virginia by Cancer Prevention and Control at the WVU Cancer Institute. The purpose of WV PICCS is to increase colorectal cancer screening rates in persons aged 50-75 by partnering with health care systems throughout WV. In the first two years, WV PICCS partnered with 24 primary care clinics, using a systems-change approach, to implement evidence based interventions (EBIs) shown to increase colorectal cancer screening. Partnering clinics chose at least two EBIs from a menu that includes: provider assessment and feedback, client reminders, provider recall, reducing structural barriers, and supportive activities of small media development, patient navigation, and one-on-one education. Regular cancer screening can find colorectal cancer early when it is easier to treat and cure. It can also find polyps and remove them before they can turn to cancer.

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 404.327.6559
RESOURCES: http://nccrt.org/tools/80-percent-by-2018/ and http://www.acscan.org/action/wv

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: http://wvucancer.org/cancer-prevention-control/mountains-of-hope/

WVU Cancer Institute

WV Program to Increase Colorectal Cancer Screening

American Cancer Society®

Mountains of Hope
West Virginia Cancer Coalition
Collaborating to Conquer Cancer

Lung Cancer in West Virginia

Cancer is a disease in which cells in the body grow out of control. When cancer starts in the lungs, it is called lung cancer. Lung cancer is usually grouped into two main types called small cell and non-small cell. These types of cancer grow differently and are treated differently. Non-small cell lung cancer is more common than small cell lung cancer.[1]

The only recommended screening test for lung cancer is low-dose computed tomography (also called a low-dose CT scan, or LDCT). In this test, an X-ray machine scans the body and uses low doses of radiation to make detailed pictures of the lungs.[2] The United States Preventive Services Task Force recommends annual screening for lung cancer with LDCT in adults aged 55 to 80 years who have a 30 pack-year smoking history and currently smoke or have quit within the past 15 years.[3] This means that an adult over the age of 55 who smoked an average of one pack of cigarettes per day for 30 years, two packs a day for 15 years, or any other combination that would equal 30 pack-years would be eligible for screening.

Lung cancer (both small cell and non-small cell) is the second most common cancer in both men and women.[4] In WV 18% of all new cancers are lung cancers.

Each year in WV, approximately 2,003 people are diagnosed and 1,507 die of lung cancer.[5] More people die of lung cancer than colorectal, prostate, and breast cancer combined. Half (50%) of the people with lung cancer in WV are diagnosed with distant metastasis.[5]

The number one risk factor for lung cancer is smoking. In the United States, cigarette smoking is linked to about 80% to 90% of lung cancers. Other risk factors include secondhand smoke, radon, other substances (including asbestos, arsenic, diesel exhaust, and some forms of silica and chromium), personal or family history of lung cancer, radiation therapy to the chest, and possibly diet.[6]

The bottom line is most lung cancers can be prevented as they are related to smoking, secondhand smoke, and exposure to radon or other environmental factors. Using LDCT lung cancer can be found at an earlier stage, which can increase treatment options, improve quality of life, and increase life span for lung cancer survivors.[7]

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1. Centers for Disease Control and Prevention. Accessed at https://www.cdc.gov/cancer/lung/basic_info/what-is-lung-cancer.html on 12/14/16 at 12:51 PM.
2. Centers for Disease Control and Prevention. Accessed at https://www.cdc.gov/cancer/lung/basic_info/screening.htm on 12/14/16 at 12:57 PM.
3. U.S. Preventive Services Task Force. Accessed at: https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/lung-cancer-screening on 12/14/16 at 1:00 PM.
4. American Cancer Society. Accessed at http://www.cancer.org/cancer/lungcancer-non-smallcell/detailedguide/non-small-cell-lung-cancer-key-statistics on 12/14/16 at 1:06 PM.
5. WV Cancer Registry.
6. Centers for Disease Control and Prevention. Accessed at https://www.cdc.gov/cancer/lung/basic_info/risk_factors.htm on 12/14/16 at 1:25 PM.
7. American Cancer Society. Accessed at http://www.cancer.org/cancer/lungcancer-non-smallcell/moreinformation/lungcancerpreventionandearlydetection/lung-cancer-ped-toc on 12/14/16 at 1:36 PM.

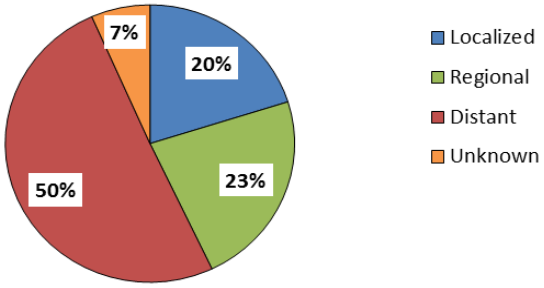
Lung Cancer in West Virginia

Lung Cancer Incidence in West Virginia per 100,000 people	81.2
Lung Cancer Deaths in West Virginia per 100,000 people	61.6

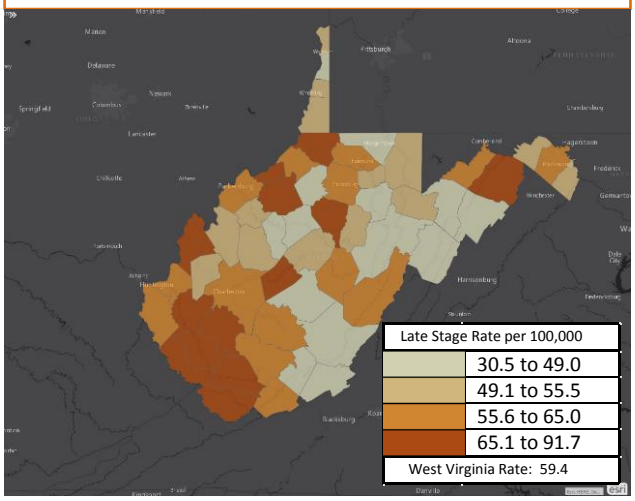
Lung cancer is the leading cause of cancer related deaths in West Virginia.

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

Percentage of Lung Cancer Cases by Stage at Diagnosis, West Virginia, 2009-2013



Average Annual Age-Adjusted Late Stage Lung Cancer Incidence Rates



Lung Cancer Risk Factors

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

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 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 Program 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.

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/ and https://wvlungcancer.pafcareline.org/index.php

WEST VIRGINIA TOBACCO QUITLINE

Smoking is the biggest risk factor for the development of lung cancer. West Virginia's Tobacco Quitline is free to all WV residents over the age of 18. The Quitline offers smoking cessation services and unlimited coaching calls. Participants are eligible for eight weeks of free nicotine replacement therapy that include a choice of patches, gum, or lozenges. The WV Tobacco Quitline has operated since July 2000 and has enrolled over 75,000 West Virginians.

CONTACT: 1.800.QUIT.NOW (1.800.784.8669) or 1.877.966.8784 to speak to a Quitline representative
RESOURCES: http://www.bebetter.net/wvquitline_home.html

WEST VIRGINIA LUNG CANCER SURVIVORSHIP PROGRAM

This Survivorship Program, based at the WVU Cancer Institute, is designed to develop 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://www.wvucancer.org/cancer-prevention-control/

WV Lung Cancer Project

WVU Cancer Institute

WV Lung Cancer Survivorship Program

West Virginia TOBACCO QUITLINE 1-800-QUIT-NOW 1-877-966-8784

Supplemental Information

A. Pediatric Cancers
B. All Sites Cancer by Counties and Select Cancers by Counties

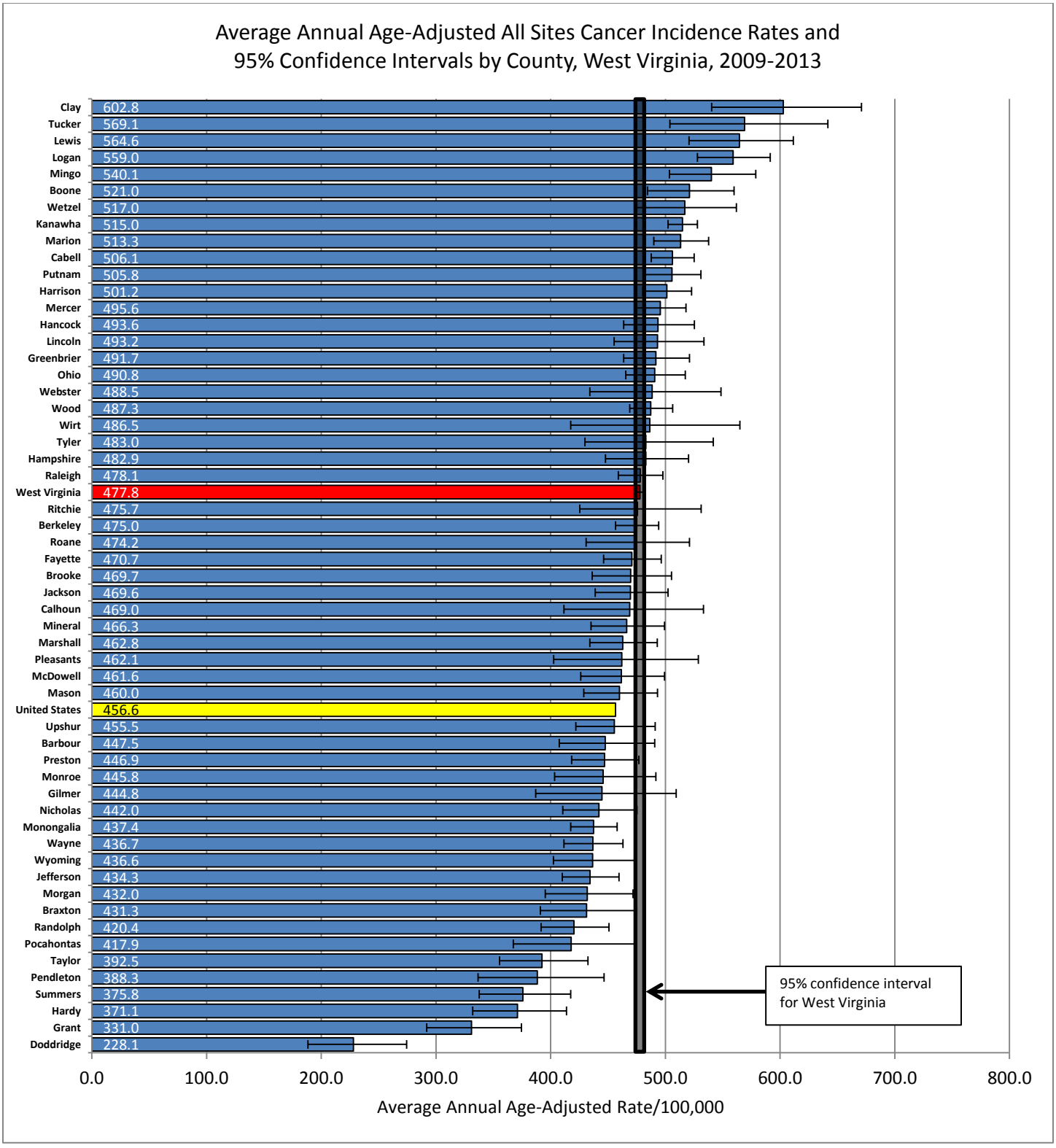
Appendix A.

Average Annual Age-Adjusted Pediatric Cancer (Ages 0-19) Incidence Rates And 5-Year Counts, West Virginia and United States, 2009-2013				
International Classification of Childhood Cancer Grouping	**West Virginia**		**United States**	
	Rate per Million	**5-Year Count**	**Rate per Million**	**5-Year Count**
All Pediatric Invasive Cancer Sites	**177.1**	**388**	**180.3**	**74,697**
Leukemias, myeloproliferative and myelodysplastic diseases	40.7	88	47.5	19,573
Lymphomas and reticuloendothelial neoplasms	25.8	57	27.5	11,432
Central nervous system and miscellaneous intracranial and intraspinal neoplasms	34.1	74	31.8	13,053
Neuroblastoma and other peripheral nervous cell tumors	9.4	20	8.6	3,542
Retinoblastoma	4.2	9	3.3	1,339
Renal tumors	7.4	16	7.1	2,924
Hepatic tumors	3.2	7	2.5	1,020
Malignant bone tumors	8.6	19	8.8	3,653
Soft tissue and other extraosseous sarcomas	11.9	26	12.1	4,986
Germ cell and trophoblastic tumors, and neoplasms of gonads	9.8	22	11.4	4,782
Other malignant epithelial neoplasms and melanomas	20.7	47	18.8	7,931
Other and unspecified malignant neoplasms	0.0	0	0.8	338
Not classified by International Classification of Childhood Cancer, or in situ	1.3	3	0.3	124
Sources: West Virginia rates provided by the West Virginia Cancer Registry; United States rates provided by United States Cancer Statistics: 1999-2013 Incidence, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2016. Accessed at http://wonder.cdc.gov/cancer-v2013.html				

Appendix B.

Average Annual Age-Adjusted All Sites Cancer Incidence Rates (per 100,000), 95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2009-2013

County	Rate	Lower CI	Upper CI	5-yr Count	County	Rate	Lower CI	Upper CI	5-yr Count
West Virginia	**477.8**	**473.8**	**481.8**	**56,884**	Mercer	495.6	473.9	518.0	2,112
Barbour	447.5	407.4	490.7	484	Mineral	466.3	435.2	499.3	885
Berkeley	475.0	456.6	494.1	2,645	Mingo	540.1	503.6	578.7	870
Boone	521.0	484.3	559.9	794	Monongalia	437.4	417.5	457.9	1,922
Braxton	431.3	391.0	475.1	446	Monroe	445.8	403.5	491.8	443
Brooke	469.7	436.2	505.3	803	Morgan	432.0	395.3	471.7	546
Cabell	506.1	487.7	525.1	2,981	Nicholas	442.0	410.6	475.2	786
Calhoun	469.0	411.5	533.3	257	Ohio	490.8	465.4	517.3	1,521
Clay	602.8	540.4	670.9	360	Pendleton	388.3	336.7	446.6	231
Doddridge	228.1	188.3	274.5	122	Pleasants	462.1	402.6	528.7	228
Fayette	470.7	446.1	496.4	1,458	Pocahontas	417.9	367.4	474.3	273
Gilmer	444.8	386.9	509.4	219	Preston	446.9	418.3	476.9	960
Grant	331.0	291.9	374.5	277	Putnam	505.8	481.5	531.0	1,707
Greenbrier	491.7	463.7	521.0	1,257	Raleigh	478.1	458.9	497.8	2,477
Hampshire	482.9	447.8	520.1	753	Randolph	420.4	391.6	450.9	840
Hancock	493.6	463.7	525.2	1,086	Ritchie	475.7	425.3	531.1	345
Hardy	371.1	332.0	413.9	348	Roane	474.2	430.8	521.0	473
Harrison	501.2	480.3	522.9	2,260	Summers	375.8	337.7	417.5	382
Jackson	469.6	438.8	502.2	907	Taylor	392.5	355.5	432.6	433
Jefferson	434.3	410.1	459.6	1,279	Tucker	569.1	503.9	641.6	303
Kanawha	515.0	502.3	528.0	6,544	Tyler	483.0	429.8	541.8	322
Lewis	564.6	520.6	611.6	642	Upshur	455.5	422.0	491.1	721
Lincoln	493.2	455.3	533.6	666	Wayne	436.7	411.6	463.1	1,184
Logan	559.0	528.0	591.4	1,303	Webster	488.5	434.2	548.4	320
Marion	513.3	489.8	537.7	1,895	Wetzel	517.0	475.0	562.0	606
Marshall	462.8	434.2	492.9	1,052	Wirt	486.5	417.4	564.9	193
Mason	460.0	428.8	493.1	849	Wood	487.3	469.0	506.3	2,780
McDowell	461.6	426.2	499.3	679	Wyoming	436.6	402.4	473.0	655

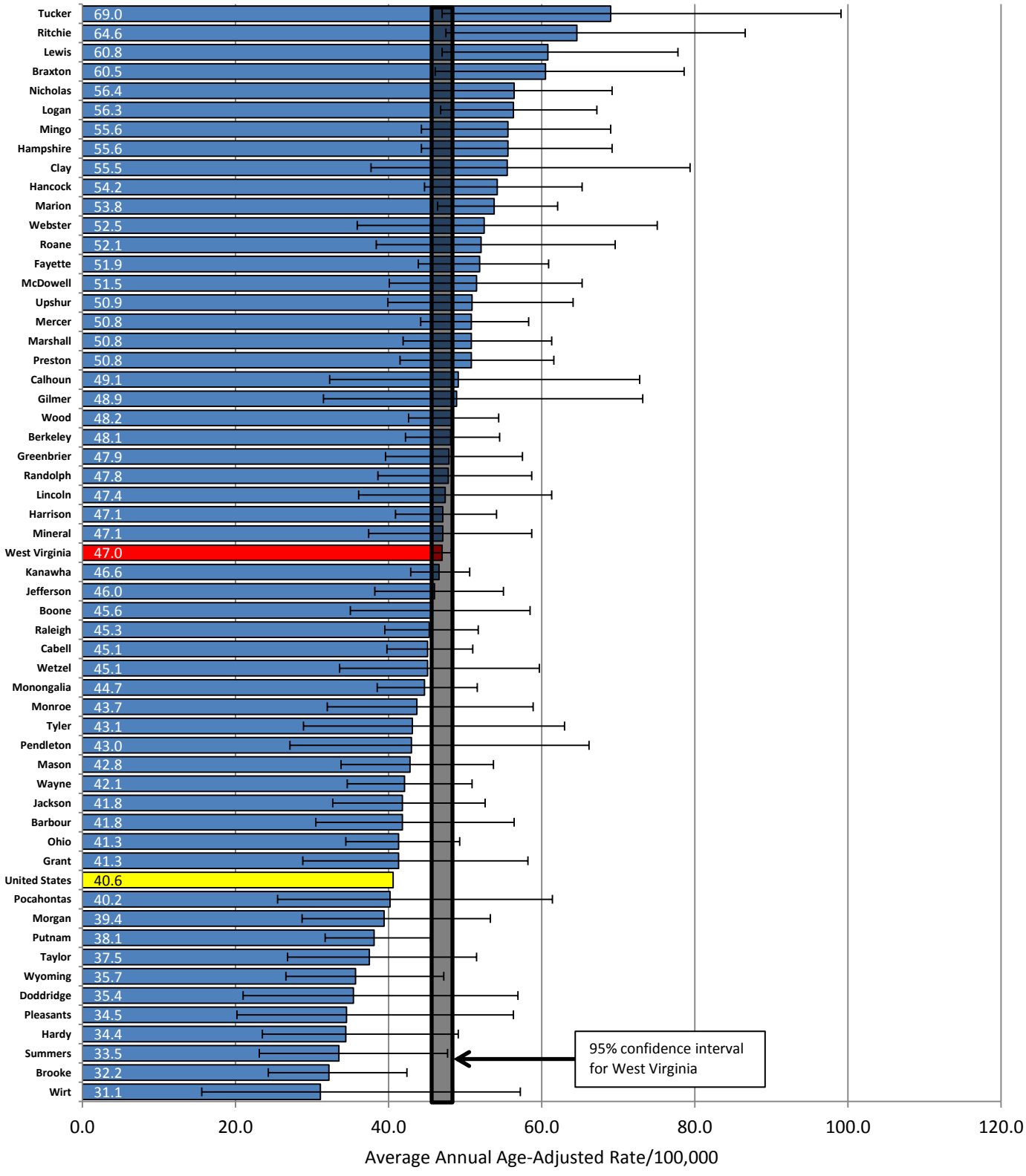


Sources: West Virginia and county rates provided by the West Virginia Cancer Registry; United States rate provided by United States Cancer Statistics: 1999-2013, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2016. Accessed at http://wonder.cdc.gov/cancer-v2013.html on Nov 15, 2016 1:08:42 PM

Average Annual Age-Adjusted Colon and Rectum Cancer Incidence Rates (per 100,000), 95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2009-2013

County	Rate	Lower CI	Upper CI	5-yr Count	County	Rate	Lower CI	Upper CI	5-yr Count
West Virginia	**47.0**	**45.7**	**48.2**	**5,608**	Mercer	50.8	44.2	58.3	221
Barbour	41.8	30.5	56.4	46	Mineral	47.1	37.4	58.7	85
Berkeley	48.1	42.2	54.5	257	Mingo	55.6	44.3	69.0	89
Boone	45.6	35.0	58.5	66	Monongalia	44.7	38.5	51.6	194
Braxton	60.5	46.1	78.6	62	Monroe	43.7	32.0	58.9	48
Brooke	32.2	24.3	42.4	58	Morgan	39.4	28.7	53.3	48
Cabell	45.1	39.8	51.0	268	Nicholas	56.4	45.6	69.2	100
Calhoun	49.1	32.3	72.8	29	Ohio	41.3	34.4	49.3	135
Clay	55.5	37.7	79.4	32	Pendleton	43.0	27.1	66.2	26
Doddridge	35.4	21.0	56.9	19	Pleasants	34.5	20.2	56.3	18
Fayette	51.9	43.9	60.9	159	Pocahontas	40.2	25.5	61.4	26
Gilmer	48.9	31.5	73.2	25	Preston	50.8	41.5	61.6	110
Grant	41.3	28.8	58.2	37	Putnam	38.1	31.7	45.5	130
Greenbrier	47.9	39.6	57.5	126	Raleigh	45.3	39.5	51.7	231
Hampshire	55.6	44.3	69.2	87	Randolph	47.8	38.6	58.7	99
Hancock	54.2	44.7	65.3	121	Ritchie	64.6	47.5	86.6	49
Hardy	34.4	23.5	49.1	33	Roane	52.1	38.4	69.6	51
Harrison	47.1	40.9	54.1	213	Summers	33.5	23.1	47.7	35
Jackson	41.8	32.7	52.6	78	Taylor	37.5	26.8	51.5	41
Jefferson	46.0	38.2	55.0	129	Tucker	69.0	47.0	99.1	36
Kanawha	46.6	42.9	50.6	604	Tyler	43.1	28.9	63.0	30
Lewis	60.8	47.0	77.8	69	Upshur	50.9	39.9	64.1	78
Lincoln	47.4	36.1	61.3	62	Wayne	42.1	34.6	50.9	115
Logan	56.3	46.8	67.2	130	Webster	52.5	35.9	75.1	35
Marion	53.8	46.4	62.1	198	Wetzel	45.1	33.6	59.7	54
Marshall	50.8	41.9	61.3	119	Wirt	31.1	15.6	57.2	12
Mason	42.8	33.8	53.7	80	Wood	48.2	42.6	54.4	275
McDowell	51.5	40.1	65.3	75	Wyoming	35.7	26.6	47.2	55

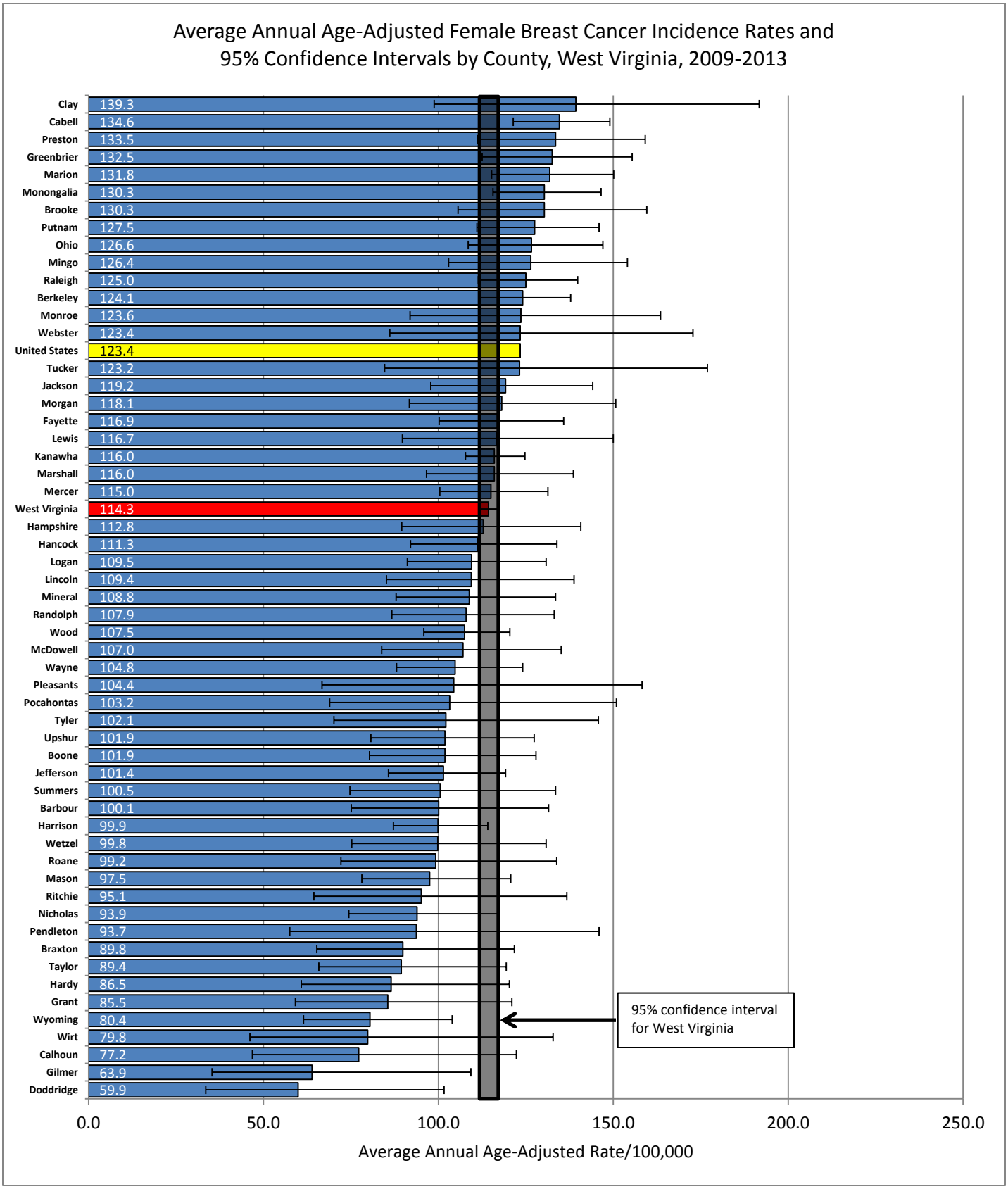
Average Annual Age-Adjusted Colon and Rectum Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2009-2013



Sources: West Virginia and county rates provided by the West Virginia Cancer Registry; United States rate provided by United States Cancer Statistics: 1999-2013, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2016. Accessed at http://wonder.cdc.gov/cancer-v2013.html on Nov 15, 2016 1:08:42 PM

Average Annual Age-Adjusted Female Breast Cancer Incidence Rates (per 100,000), 95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2009-2013

County	Rate	Lower CI	Upper CI	5-yr Count		County	Rate	Lower CI	Upper CI	5-yr Count
West Virginia	**114.3**	**111.6**	**117.2**	**7,026**		Mercer	115.0	100.4	131.3	252
Barbour	100.1	75.1	131.5	57		Mineral	108.8	87.9	133.5	103
Berkeley	124.1	111.5	137.8	365		Mingo	126.4	102.9	154.0	108
Boone	101.9	80.3	127.9	82		Monongalia	130.3	115.6	146.5	297
Braxton	89.8	65.2	121.7	47		Monroe	123.6	91.9	163.5	58
Brooke	130.3	105.6	159.6	111		Morgan	118.1	91.7	150.7	74
Cabell	134.6	121.4	149.0	413		Nicholas	93.9	74.4	117.5	85
Calhoun	77.2	46.8	122.3	21		Ohio	126.6	108.5	147.0	201
Clay	139.3	98.8	191.7	41		Pendleton	93.7	57.5	145.9	24
Doddridge	59.9	33.5	101.6	16		Pleasants	104.4	66.7	158.2	25
Fayette	116.9	100.2	135.8	190		Pocahontas	103.2	68.9	150.9	33
Gilmer	63.9	35.3	109.3	16		Preston	133.5	111.3	159.1	137
Grant	85.5	59.1	121.0	38		Putnam	127.5	111.0	145.9	224
Greenbrier	132.5	112.5	155.4	173		Raleigh	125.0	111.4	139.8	339
Hampshire	112.8	89.5	140.7	87		Randolph	107.9	86.7	133.1	99
Hancock	111.3	92.0	133.9	129		Ritchie	95.1	64.4	136.7	34
Hardy	86.5	60.8	120.3	39		Roane	99.2	72.1	133.8	49
Harrison	99.9	87.1	114.1	235		Summers	100.5	74.7	133.5	54
Jackson	119.2	97.8	144.1	117		Taylor	89.4	65.8	119.4	51
Jefferson	101.4	85.7	119.2	155		Tucker	123.2	84.6	176.9	35
Kanawha	116.0	107.7	124.7	799		Tyler	102.1	70.1	145.7	35
Lewis	116.7	89.7	150.0	68		Upshur	101.9	80.7	127.4	85
Lincoln	109.4	85.1	138.8	72		Wayne	104.8	88.0	124.1	147
Logan	109.5	91.1	130.8	135		Webster	123.4	86.1	172.8	40
Marion	131.8	115.2	150.1	252		Wetzel	99.8	75.2	130.8	61
Marshall	116.0	96.6	138.6	138		Wirt	79.8	46.1	132.8	17
Mason	97.5	78.1	120.7	93		Wood	107.5	95.8	120.4	325
McDowell	107.0	83.8	135.1	80		Wyoming	80.4	61.4	103.9	65



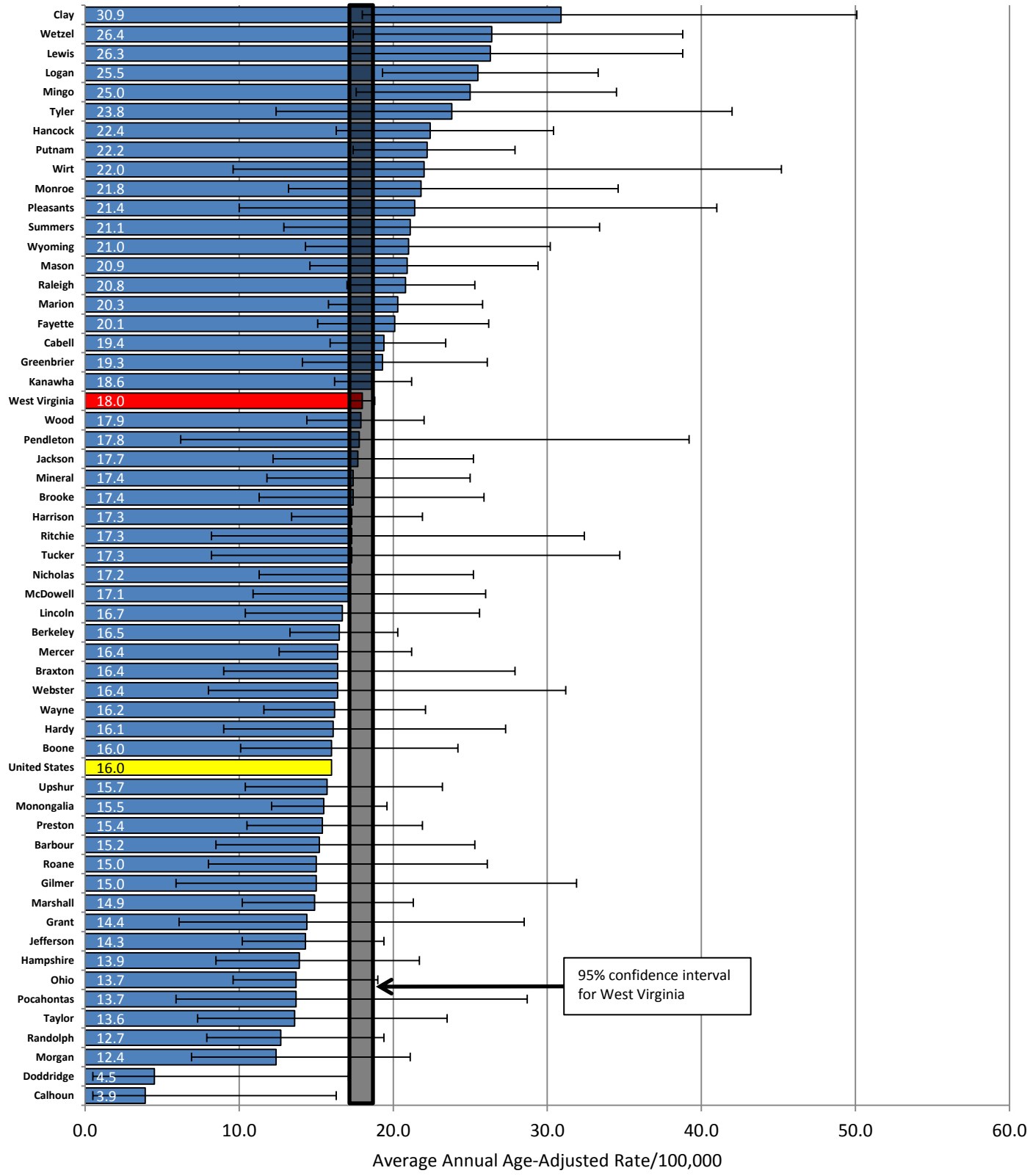
Sources: West Virginia and county rates provided by the West Virginia Cancer Registry; United States rate provided by United States Cancer Statistics: 1999-2013, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2016. Accessed at http://wonder.cdc.gov/cancer-v2013.html on Nov 15, 2016 1:08:42 PM

Average Annual Age-Adjusted Kidney and Renal Pelvis Cancer Incidence Rates (per 100,000), 95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2009-2013

County	Rate	Lower CI	Upper CI	5-yr Count	County	Rate	Lower CI	Upper CI	5-yr Count
West Virginia	**18.0**	**17.2**	**18.8**	**2,125**	Mercer	16.4	12.6	21.2	66
Barbour	15.2	8.5	25.3	16	Mineral	17.4	11.8	25.0	33
Berkeley	16.5	13.3	20.3	98	Mingo	25.0	17.6	34.5	40
Boone	16.0	10.1	24.2	24	Monongalia	15.5	12.1	19.6	74
Braxton	16.4	9.0	27.9	16	Monroe	21.8	13.2	34.6	21
Brooke	17.4	11.3	25.9	28	Morgan	12.4	6.9	21.1	16
Cabell	19.4	15.9	23.4	117	Nicholas	17.2	11.3	25.2	29
Calhoun	3.9	0.5	16.3	^	Ohio	13.7	9.6	19.0	40
Clay	30.9	18.0	50.1	18	Pendleton	17.8	6.2	39.2	7
Doddridge	4.5	0.5	17.1	^	Pleasants	21.4	10.0	41.0	10
Fayette	20.1	15.1	26.2	60	Pocahontas	13.7	5.9	28.7	9
Gilmer	15.0	5.9	31.9	7	Preston	15.4	10.5	21.9	33
Grant	14.4	6.1	28.5	9	Putnam	22.2	17.4	27.9	78
Greenbrier	19.3	14.1	26.1	49	Raleigh	20.8	17.0	25.3	108
Hampshire	13.9	8.5	21.7	22	Randolph	12.7	7.9	19.4	24
Hancock	22.4	16.3	30.4	47	Ritchie	17.3	8.2	32.4	11
Hardy	16.1	9.0	27.3	16	Roane	15.0	8.0	26.1	14
Harrison	17.3	13.4	21.9	74	Summers	21.1	12.9	33.4	22
Jackson	17.7	12.2	25.2	34	Taylor	13.6	7.3	23.5	14
Jefferson	14.3	10.2	19.4	43	Tucker	17.3	8.2	34.7	10
Kanawha	18.6	16.2	21.2	235	Tyler	23.8	12.4	42.0	14
Lewis	26.3	17.2	38.8	28	Upshur	15.7	10.4	23.2	28
Lincoln	16.7	10.4	25.6	23	Wayne	16.2	11.6	22.1	44
Logan	25.5	19.3	33.3	61	Webster	16.4	8.0	31.2	11
Marion	20.3	15.8	25.8	74	Wetzel	26.4	17.4	38.8	30
Marshall	14.9	10.2	21.3	34	Wirt	22.0	9.6	45.2	9
Mason	20.9	14.6	29.4	37	Wood	17.9	14.4	22.0	98
McDowell	17.1	10.9	26.0	25	Wyoming	21.0	14.3	30.2	33

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

Average Annual Age-Adjusted Kidney and Renal Pelvis Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2009-2013

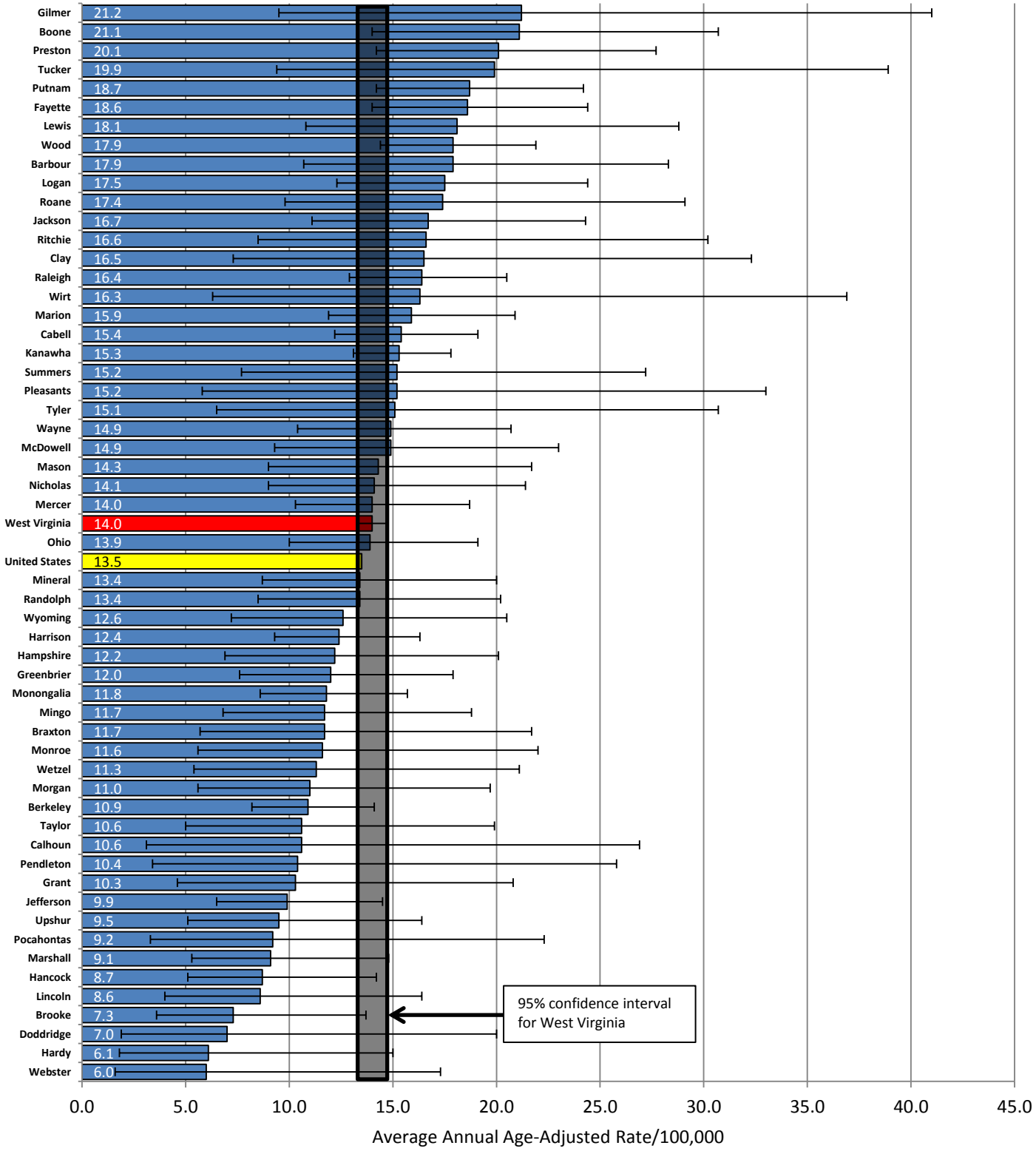


Sources: West Virginia and county rates provided by the West Virginia Cancer Registry; United States rate provided by United States Cancer Statistics: 1999-2013, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2016. Accessed at http://wonder.cdc.gov/cancer-v2013.html on Nov 15, 2016 1:08:42 PM

Average Annual Age-Adjusted Leukemia Cancer Incidence Rates (per 100,000), 95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2009-2013

County	Rate	Lower CI	Upper CI	5-yr Count	County	Rate	Lower CI	Upper CI	5-yr Count
West Virginia	**14.0**	**13.3**	**14.7**	**1,594**	Mercer	14.0	10.3	18.7	52
Barbour	17.9	10.7	28.3	20	Mineral	13.4	8.7	20.0	27
Berkeley	10.9	8.2	14.1	59	Mingo	11.7	6.8	18.8	19
Boone	21.1	14.0	30.7	29	Monongalia	11.8	8.6	15.7	49
Braxton	11.7	5.7	21.7	11	Monroe	11.6	5.6	22.0	11
Brooke	7.3	3.6	13.7	12	Morgan	11.0	5.6	19.7	13
Cabell	15.4	12.2	19.1	88	Nicholas	14.1	9.0	21.4	25
Calhoun	10.6	3.1	26.9	5	Ohio	13.9	10.0	19.1	44
Clay	16.5	7.3	32.3	9	Pendleton	10.4	3.4	25.8	6
Doddridge	7.0	1.9	20.0	4	Pleasants	15.2	5.8	33.0	7
Fayette	18.6	14.0	24.4	57	Pocahontas	9.2	3.3	22.3	6
Gilmer	21.2	9.5	41.0	9	Preston	20.1	14.2	27.7	40
Grant	10.3	4.6	20.8	9	Putnam	18.7	14.2	24.2	61
Greenbrier	12.0	7.6	17.9	27	Raleigh	16.4	12.9	20.5	81
Hampshire	12.2	6.9	20.1	17	Randolph	13.4	8.5	20.2	25
Hancock	8.7	5.1	14.2	19	Ritchie	16.6	8.5	30.2	12
Hardy	6.1	1.8	15.0	5	Roane	17.4	9.8	29.1	16
Harrison	12.4	9.3	16.3	55	Summers	15.2	7.7	27.2	13
Jackson	16.7	11.1	24.3	30	Taylor	10.6	5.0	19.9	10
Jefferson	9.9	6.5	14.5	28	Tucker	19.9	9.4	38.9	10
Kanawha	15.3	13.1	17.8	184	Tyler	15.1	6.5	30.7	9
Lewis	18.1	10.8	28.8	20	Upshur	9.5	5.1	16.4	14
Lincoln	8.6	4.0	16.4	10	Wayne	14.9	10.4	20.7	38
Logan	17.5	12.3	24.4	38	Webster	6.0	1.6	17.3	4
Marion	15.9	11.9	20.9	56	Wetzel	11.3	5.4	21.1	11
Marshall	9.1	5.3	14.8	19	Wirt	16.3	6.3	36.9	7
Mason	14.3	9.0	21.7	24	Wood	17.9	14.4	21.9	99
McDowell	14.9	9.3	23.0	23	Wyoming	12.6	7.2	20.5	18

Average Annual Age-Adjusted Leukemia Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2009-2013



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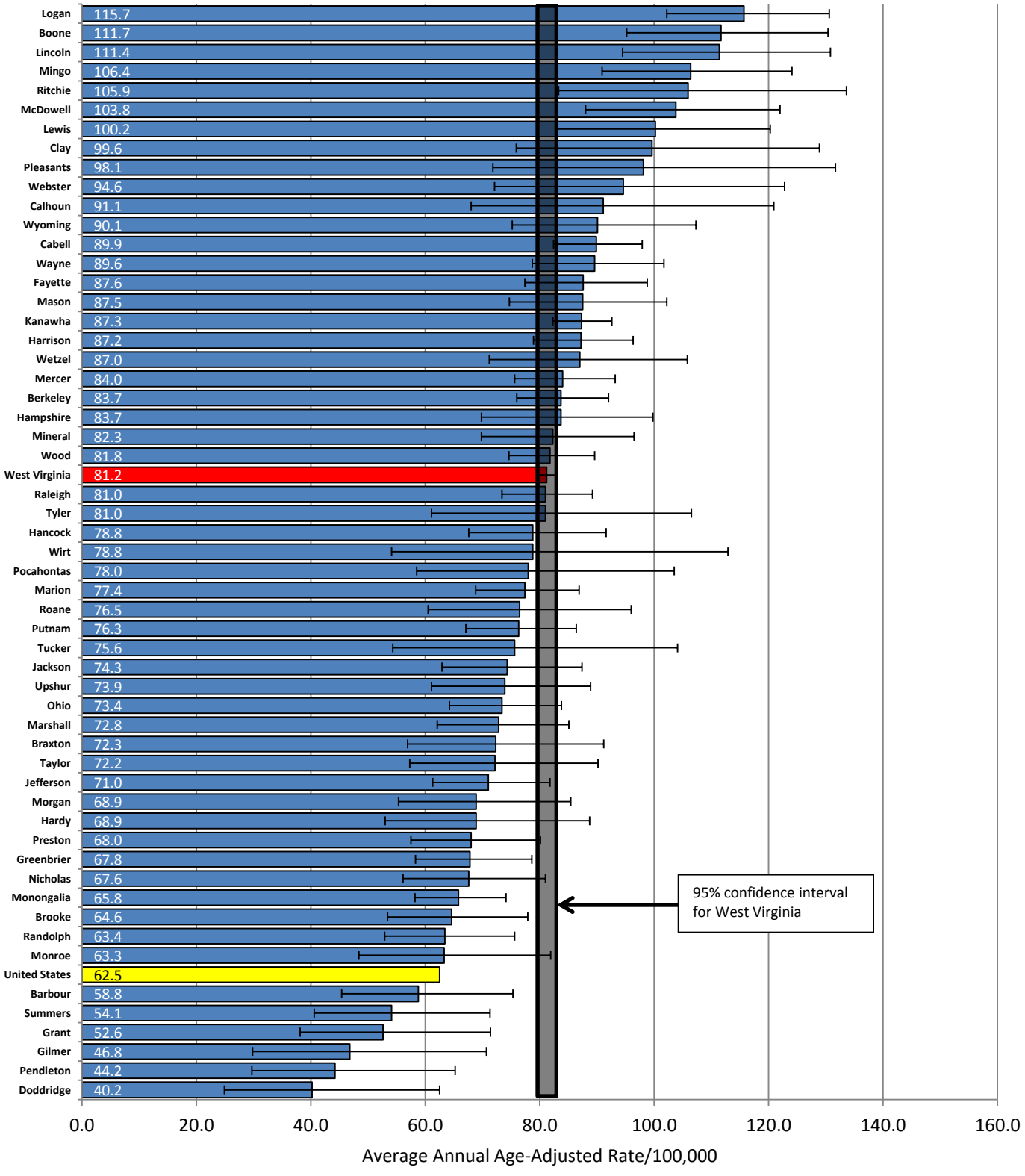
Average Annual Age-Adjusted Lung and Bronchus Cancer Incidence Rates (per 100,000), 95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2009-2013

County	Rate	Lower CI	Upper CI	5-yr Count	County	Rate	Lower CI	Upper CI	5-yr Count
West Virginia	**81.2**	**79.6**	**82.8**	**10,015**	Mercer	84.0	75.6	93.2	377
Barbour	58.8	45.4	75.3	67	Mineral	82.3	69.8	96.5	161
Berkeley	83.7	76.0	92.0	459	Mingo	106.4	90.9	124.1	175
Boone	111.7	95.2	130.4	172	Monongalia	65.8	58.2	74.1	280
Braxton	72.3	56.9	91.2	78	Monroe	63.3	48.4	81.9	66
Brooke	64.6	53.4	77.9	120	Morgan	68.9	55.3	85.4	91
Cabell	89.9	82.4	97.9	547	Nicholas	67.6	56.1	81.0	126
Calhoun	91.1	68.0	120.9	53	Ohio	73.4	64.2	83.8	236
Clay	99.6	75.9	128.9	63	Pendleton	44.2	29.7	65.2	30
Doddridge	40.2	24.9	62.5	22	Pleasants	98.1	71.8	131.7	48
Fayette	87.6	77.4	98.8	281	Pocahontas	78.0	58.5	103.5	55
Gilmer	46.8	29.8	70.7	24	Preston	68.0	57.5	80.1	153
Grant	52.6	38.1	71.4	45	Putnam	76.3	67.1	86.4	260
Greenbrier	67.8	58.3	78.6	189	Raleigh	81.0	73.4	89.2	429
Hampshire	83.7	69.8	99.8	136	Randolph	63.4	52.9	75.6	133
Hancock	78.8	67.6	91.6	181	Ritchie	105.9	83.3	133.6	79
Hardy	68.9	53.0	88.7	66	Roane	76.5	60.5	96.0	81
Harrison	87.2	78.9	96.3	410	Summers	54.1	40.6	71.3	56
Jackson	74.3	62.9	87.4	153	Taylor	72.2	57.3	90.2	83
Jefferson	71.0	61.3	81.8	205	Tucker	75.6	54.3	104.1	43
Kanawha	87.3	82.3	92.6	1,153	Tyler	81.0	61.1	106.5	57
Lewis	100.2	83.0	120.3	123	Upshur	73.9	61.1	88.9	120
Lincoln	111.4	94.5	130.8	161	Wayne	89.6	78.7	101.7	253
Logan	115.7	102.2	130.6	280	Webster	94.6	72.1	122.8	63
Marion	77.4	68.8	86.9	304	Wetzel	87.0	71.2	105.8	110
Marshall	72.8	62.1	85.1	172	Wirt	78.8	54.1	112.9	34
Mason	87.5	74.7	102.2	169	Wood	81.8	74.6	89.6	485
McDowell	103.8	88.0	122.0	161	Wyoming	90.1	75.2	107.3	137

Average Annual Age-Adjusted Lung and Bronchus Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2009-2013



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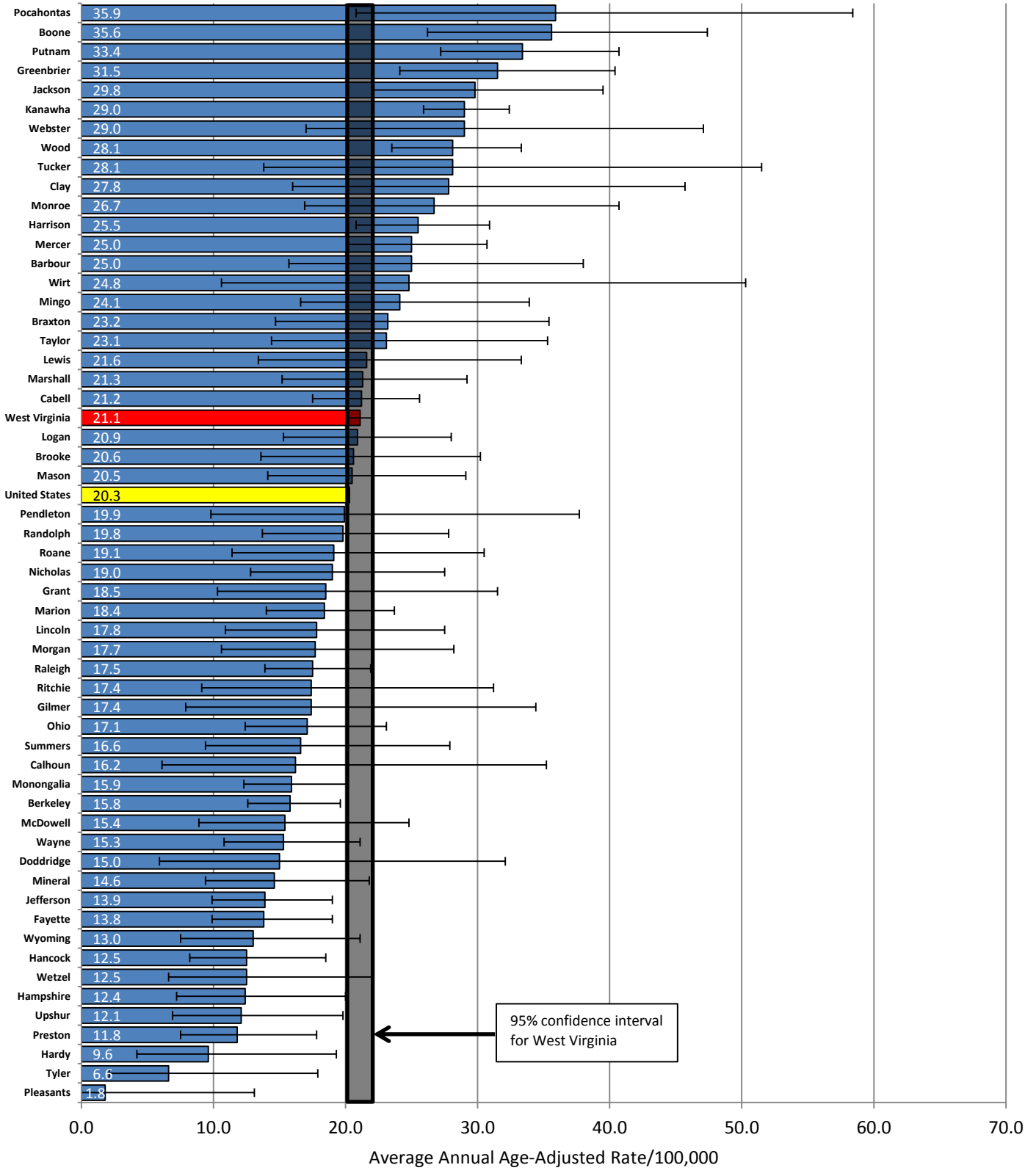
Average Annual Age-Adjusted Melanoma Skin Cancer Incidence Rates (per 100,000), 95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2009-2013

County	Rate	Lower CI	Upper CI	5-yr Count	County	Rate	Lower CI	Upper CI	5-yr Count
West Virginia	**21.1**	**20.2**	**22.0**	**2,350**	Mercer	25.0	20.1	30.7	101
Barbour	25.0	15.7	38.0	24	Mineral	14.6	9.4	21.8	26
Berkeley	15.8	12.6	19.6	88	Mingo	24.1	16.6	33.9	36
Boone	35.6	26.2	47.4	51	Monongalia	15.9	12.3	20.2	72
Braxton	23.2	14.7	35.4	24	Monroe	26.7	16.9	40.7	25
Brooke	20.6	13.6	30.2	31	Morgan	17.7	10.6	28.2	21
Cabell	21.2	17.5	25.6	118	Nicholas	19.0	12.8	27.5	31
Calhoun	16.2	6.1	35.2	7	Ohio	17.1	12.4	23.1	48
Clay	27.8	16.0	45.7	17	Pendleton	19.9	9.8	37.7	12
Doddridge	15.0	5.9	32.1	7	Pleasants	1.8	0.0	13.1	^
Fayette	13.8	9.9	19.0	43	Pocahontas	35.9	20.8	58.4	19
Gilmer	17.4	7.9	34.4	9	Preston	11.8	7.5	17.8	25
Grant	18.5	10.3	31.5	15	Putnam	33.4	27.2	40.7	105
Greenbrier	31.5	24.1	40.4	71	Raleigh	17.5	13.9	21.9	85
Hampshire	12.4	7.2	20.0	18	Randolph	19.8	13.7	27.8	37
Hancock	12.5	8.2	18.5	28	Ritchie	17.4	9.1	31.2	13
Hardy	9.6	4.2	19.3	9	Roane	19.1	11.4	30.5	20
Harrison	25.5	20.8	30.9	109	Summers	16.6	9.4	27.9	17
Jackson	29.8	22.1	39.5	53	Taylor	23.1	14.4	35.3	23
Jefferson	13.9	9.9	19.0	41	Tucker	28.1	13.8	51.5	12
Kanawha	29.0	25.9	32.4	339	Tyler	6.6	2.1	17.9	^
Lewis	21.6	13.4	33.3	23	Upshur	12.1	6.9	19.8	18
Lincoln	17.8	10.9	27.5	22	Wayne	15.3	10.8	21.1	40
Logan	20.9	15.3	28.0	50	Webster	29.0	17.0	47.1	19
Marion	18.4	14.0	23.7	64	Wetzel	12.5	6.6	22.1	14
Marshall	21.3	15.2	29.2	43	Wirt	24.8	10.6	50.3	9
Mason	20.5	14.1	29.1	35	Wood	28.1	23.5	33.3	141
McDowell	15.4	8.9	24.8	18	Wyoming	13.0	7.5	21.1	18

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

Average Annual Age-Adjusted Melanoma Skin Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2009-2013



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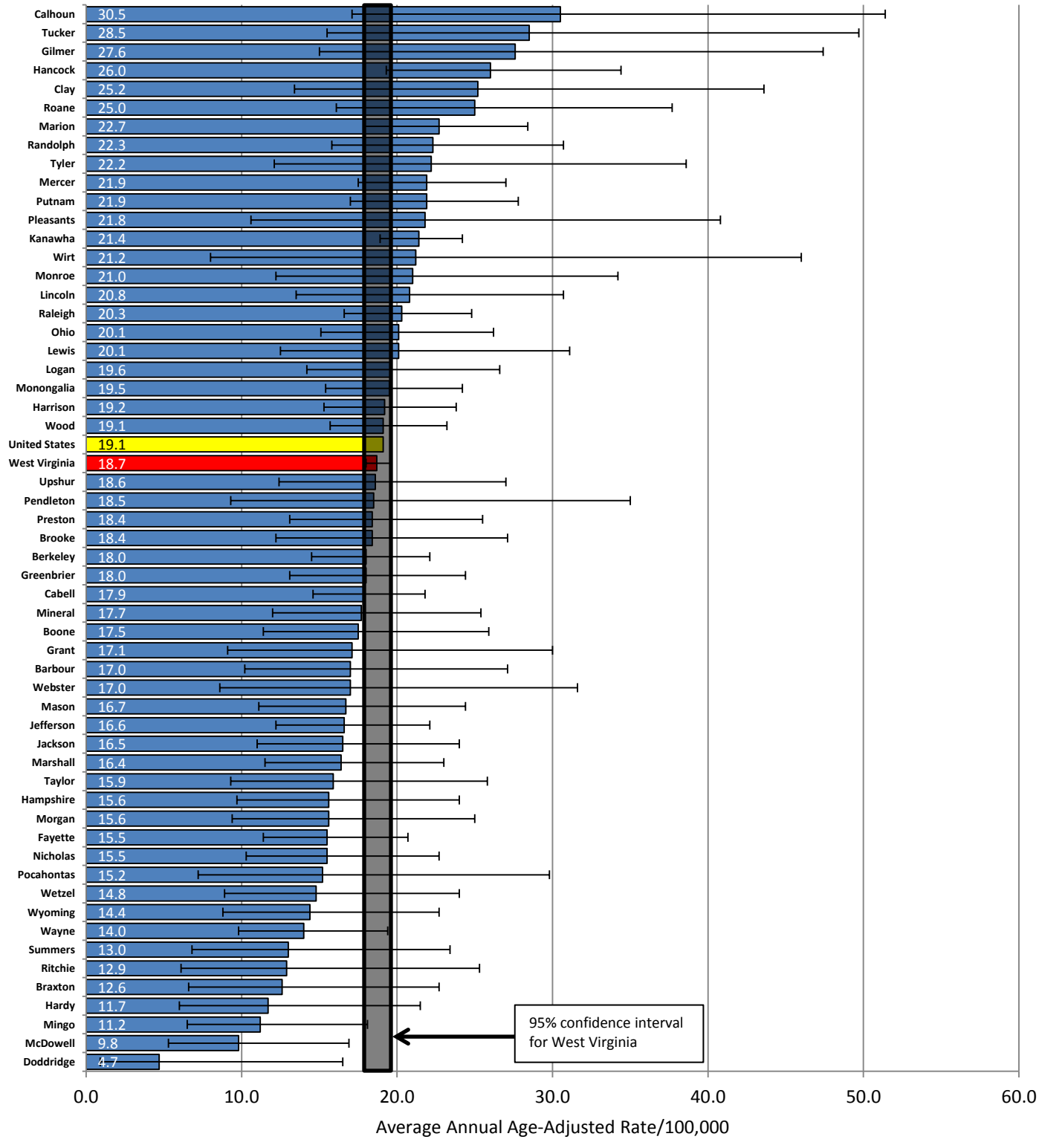
Average Annual Age-Adjusted Non-Hodgkin Lymphoma Cancer Incidence Rates (per 100,000), 95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2009-2013

County	Rate	Lower CI	Upper CI	5-yr Count	County	Rate	Lower CI	Upper CI	5-yr Count
West Virginia	**18.7**	**18.0**	**19.6**	**2,225**	Mercer	21.9	17.5	27.0	93
Barbour	17.0	10.2	27.1	19	Mineral	17.7	12.0	25.4	32
Berkeley	18.0	14.5	22.1	97	Mingo	11.2	6.5	18.1	18
Boone	17.5	11.4	25.9	27	Monongalia	19.5	15.4	24.2	84
Braxton	12.6	6.6	22.7	13	Monroe	21.0	12.2	34.2	19
Brooke	18.4	12.2	27.1	30	Morgan	15.6	9.4	25.0	21
Cabell	17.9	14.6	21.8	108	Nicholas	15.5	10.3	22.7	29
Calhoun	30.5	17.1	51.4	16	Ohio	20.1	15.1	26.2	62
Clay	25.2	13.4	43.6	14	Pendleton	18.5	9.3	35.0	12
Doddridge	4.7	0.9	16.5	^	Pleasants	21.8	10.6	40.8	11
Fayette	15.5	11.4	20.7	49	Pocahontas	15.2	7.2	29.8	10
Gilmer	27.6	15.0	47.4	14	Preston	18.4	13.1	25.5	40
Grant	17.1	9.1	30.0	14	Putnam	21.9	17.0	27.8	71
Greenbrier	18.0	13.1	24.4	47	Raleigh	20.3	16.6	24.8	106
Hampshire	15.6	9.7	24.0	23	Randolph	22.3	15.8	30.7	41
Hancock	26.0	19.3	34.4	55	Ritchie	12.9	6.1	25.3	10
Hardy	11.7	6.0	21.5	12	Roane	25.0	16.1	37.7	25
Harrison	19.2	15.3	23.8	87	Summers	13.0	6.8	23.4	13
Jackson	16.5	11.0	24.0	30	Taylor	15.9	9.3	25.8	18
Jefferson	16.6	12.2	22.1	50	Tucker	28.5	15.5	49.7	15
Kanawha	21.4	18.9	24.2	275	Tyler	22.2	12.1	38.6	14
Lewis	20.1	12.5	31.1	22	Upshur	18.6	12.4	27.0	30
Lincoln	20.8	13.5	30.7	27	Wayne	14.0	9.8	19.4	38
Logan	19.6	14.2	26.6	46	Webster	17.0	8.6	31.6	12
Marion	22.7	17.9	28.4	81	Wetzel	14.8	8.9	24.0	19
Marshall	16.4	11.5	23.0	38	Wirt	21.2	8.0	46.0	^
Mason	16.7	11.1	24.4	30	Wood	19.1	15.7	23.2	111
McDowell	9.8	5.3	16.9	15	Wyoming	14.4	8.8	22.7	22

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

Average Annual Age-Adjusted Non-Hodgkin Lymphoma Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2009-2013



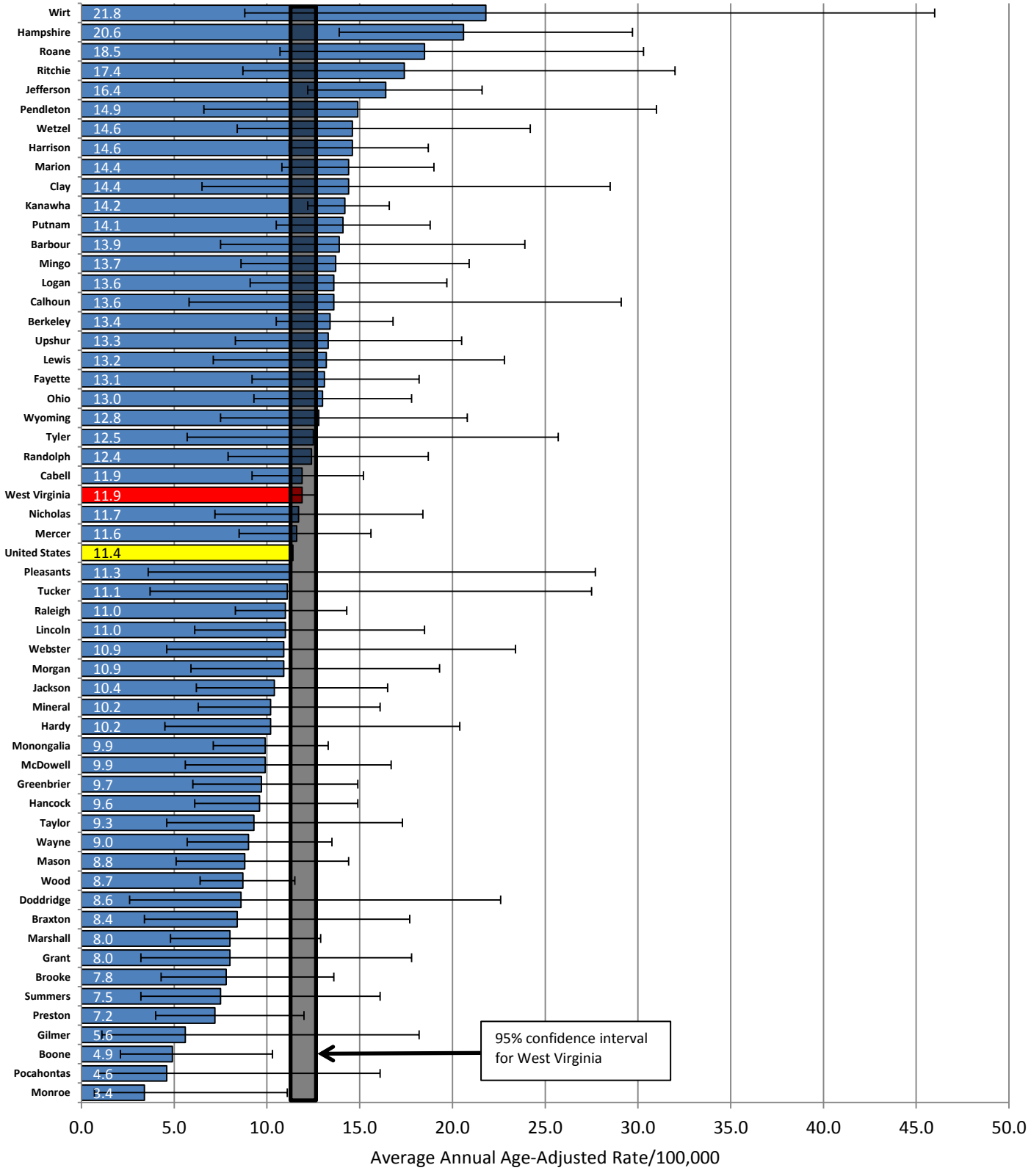
Sources: West Virginia and county rates provided by the West Virginia Cancer Registry; United States rate provided by United States Cancer Statistics: 1999-2013, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2016. Accessed at http://wonder.cdc.gov/cancer-v2013.html on Nov 15, 2016 1:08:42 PM

Average Annual Age-Adjusted Oral Cavity and Pharynx Cancer Incidence Rates (per 100,000), 95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2009-2013

County	Rate	Lower CI	Upper CI	5-yr Count	County	Rate	Lower CI	Upper CI	5-yr Count
West Virginia	**11.9**	**11.3**	**12.6**	**1,440**	Mercer	11.6	8.5	15.6	48
Barbour	13.9	7.5	23.9	14	Mineral	10.2	6.3	16.1	21
Berkeley	13.4	10.5	16.8	78	Mingo	13.7	8.6	20.9	24
Boone	4.9	2.1	10.3	8	Monongalia	9.9	7.1	13.3	44
Braxton	8.4	3.4	17.7	8	Monroe	3.4	0.7	11.1	^
Brooke	7.8	4.3	13.6	15	Morgan	10.9	5.9	19.3	14
Cabell	11.9	9.2	15.2	69	Nicholas	11.7	7.2	18.4	22
Calhoun	13.6	5.8	29.1	8	Ohio	13.0	9.3	17.8	43
Clay	14.4	6.5	28.5	9	Pendleton	14.9	6.6	31.0	9
Doddridge	8.6	2.6	22.6	5	Pleasants	11.3	3.6	27.7	5
Fayette	13.1	9.2	18.2	40	Pocahontas	4.6	0.9	16.1	^
Gilmer	5.6	1.1	18.2	^	Preston	7.2	4.0	12.0	16
Grant	8.0	3.2	17.8	7	Putnam	14.1	10.5	18.8	51
Greenbrier	9.7	6.0	14.9	24	Raleigh	11.0	8.3	14.3	59
Hampshire	20.6	13.9	29.7	32	Randolph	12.4	7.9	18.7	25
Hancock	9.6	6.1	14.9	23	Ritchie	17.4	8.7	32.0	12
Hardy	10.2	4.5	20.4	9	Roane	18.5	10.7	30.3	18
Harrison	14.6	11.2	18.7	67	Summers	7.5	3.2	16.1	8
Jackson	10.4	6.2	16.5	20	Taylor	9.3	4.6	17.3	11
Jefferson	16.4	12.2	21.6	53	Tucker	11.1	3.7	27.5	6
Kanawha	14.2	12.2	16.6	181	Tyler	12.5	5.7	25.7	9
Lewis	13.2	7.1	22.8	14	Upshur	13.3	8.3	20.5	22
Lincoln	11.0	6.1	18.5	15	Wayne	9.0	5.7	13.5	25
Logan	13.6	9.1	19.7	31	Webster	10.9	4.6	23.4	8
Marion	14.4	10.8	19.0	55	Wetzel	14.6	8.4	24.2	17
Marshall	8.0	4.8	12.9	19	Wirt	21.8	8.8	46.0	8
Mason	8.8	5.1	14.4	17	Wood	8.7	6.4	11.5	50
McDowell	9.9	5.6	16.7	16	Wyoming	12.8	7.5	20.8	19

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

Average Annual Age-Adjusted Oral Cavity and Pharynx Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2009-2013



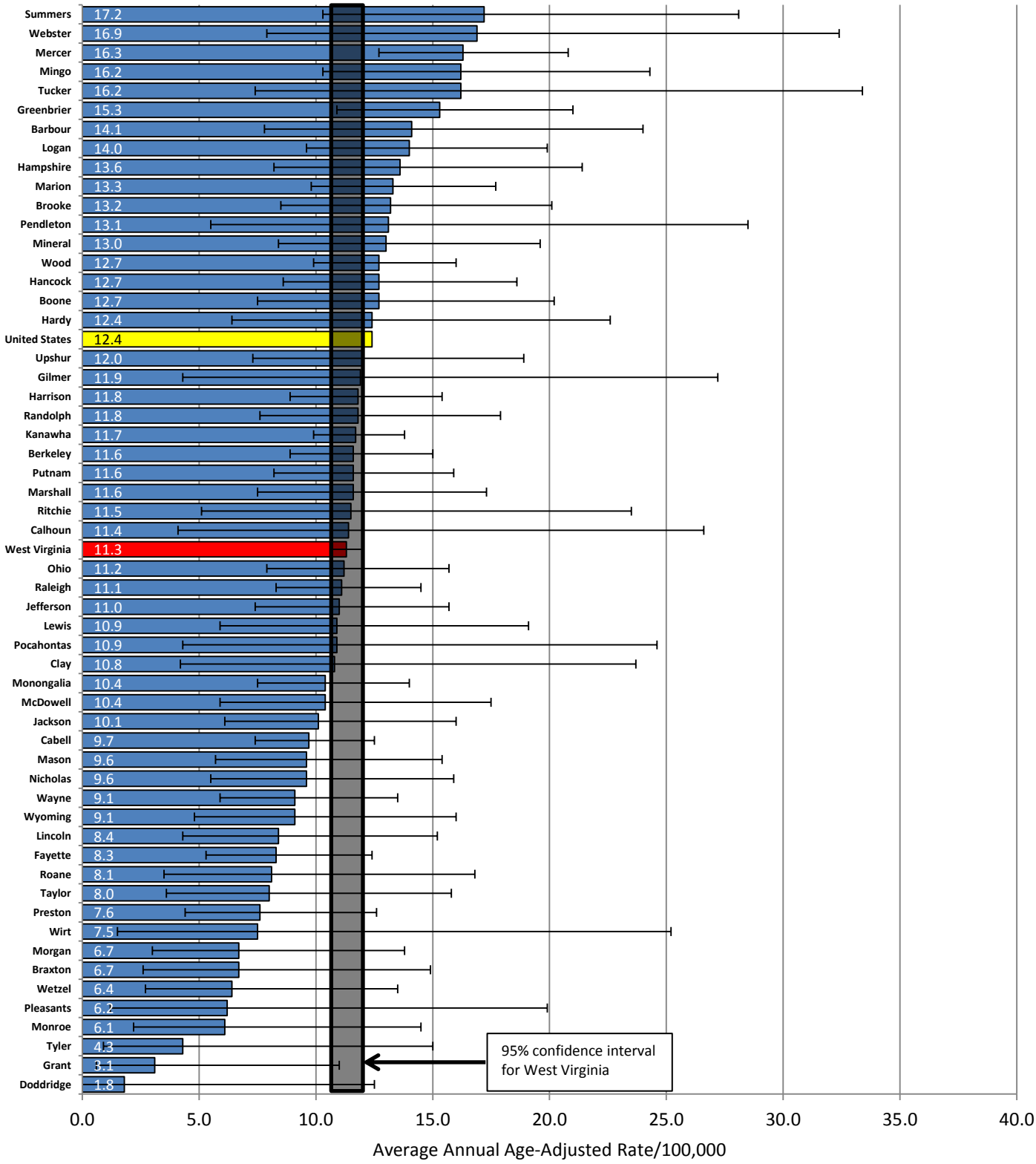
Sources: West Virginia and county rates provided by the West Virginia Cancer Registry; United States rate provided by United States Cancer Statistics: 1999-2013, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2016. Accessed at http://wonder.cdc.gov/cancer-v2013.html on Nov 15, 2016 1:08:42 PM

Average Annual Age-Adjusted Pancreas Cancer Incidence Rates (per 100,000), 95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2009-2013

County	Rate	Lower CI	Upper CI	5-yr Count	County	Rate	Lower CI	Upper CI	5-yr Count
West Virginia	**11.3**	**10.7**	**12.0**	**1,390**	Mercer	16.3	12.7	20.8	73
Barbour	14.1	7.8	24.0	15	Mineral	13.0	8.4	19.6	26
Berkeley	11.6	8.9	15.0	63	Mingo	16.2	10.3	24.3	25
Boone	12.7	7.5	20.2	19	Monongalia	10.4	7.5	14.0	44
Braxton	6.7	2.6	14.9	7	Monroe	6.1	2.2	14.5	6
Brooke	13.2	8.5	20.1	25	Morgan	6.7	3.0	13.8	9
Cabell	9.7	7.4	12.5	63	Nicholas	9.6	5.5	15.9	17
Calhoun	11.4	4.1	26.6	6	Ohio	11.2	7.9	15.7	39
Clay	10.8	4.2	23.7	7	Pendleton	13.1	5.5	28.5	8
Doddridge	1.8	0.0	12.5	^	Pleasants	6.2	1.2	19.9	^
Fayette	8.3	5.3	12.4	26	Pocahontas	10.9	4.3	24.6	7
Gilmer	11.9	4.3	27.2	6	Preston	7.6	4.4	12.6	17
Grant	3.1	0.6	11.0	^	Putnam	11.6	8.2	15.9	40
Greenbrier	15.3	10.9	21.0	42	Raleigh	11.1	8.3	14.5	58
Hampshire	13.6	8.2	21.4	20	Randolph	11.8	7.6	17.9	25
Hancock	12.7	8.6	18.6	30	Ritchie	11.5	5.1	23.5	9
Hardy	12.4	6.4	22.6	12	Roane	8.1	3.5	16.8	9
Harrison	11.8	8.9	15.4	58	Summers	17.2	10.3	28.1	19
Jackson	10.1	6.1	16.0	20	Taylor	8.0	3.6	15.8	9
Jefferson	11.0	7.4	15.7	32	Tucker	16.2	7.4	33.4	9
Kanawha	11.7	9.9	13.8	152	Tyler	4.3	0.9	15.0	^
Lewis	10.9	5.9	19.1	14	Upshur	12.0	7.3	18.9	20
Lincoln	8.4	4.3	15.2	12	Wayne	9.1	5.9	13.5	27
Logan	14.0	9.6	19.9	34	Webster	16.9	7.9	32.4	10
Marion	13.3	9.8	17.7	51	Wetzel	6.4	2.7	13.5	8
Marshall	11.6	7.5	17.3	26	Wirt	7.5	1.5	25.2	^
Mason	9.6	5.7	15.4	19	Wood	12.7	9.9	16.0	75
McDowell	10.4	5.9	17.5	16	Wyoming	9.1	4.8	16.0	13

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

Average Annual Age-Adjusted Pancreas Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2009-2013

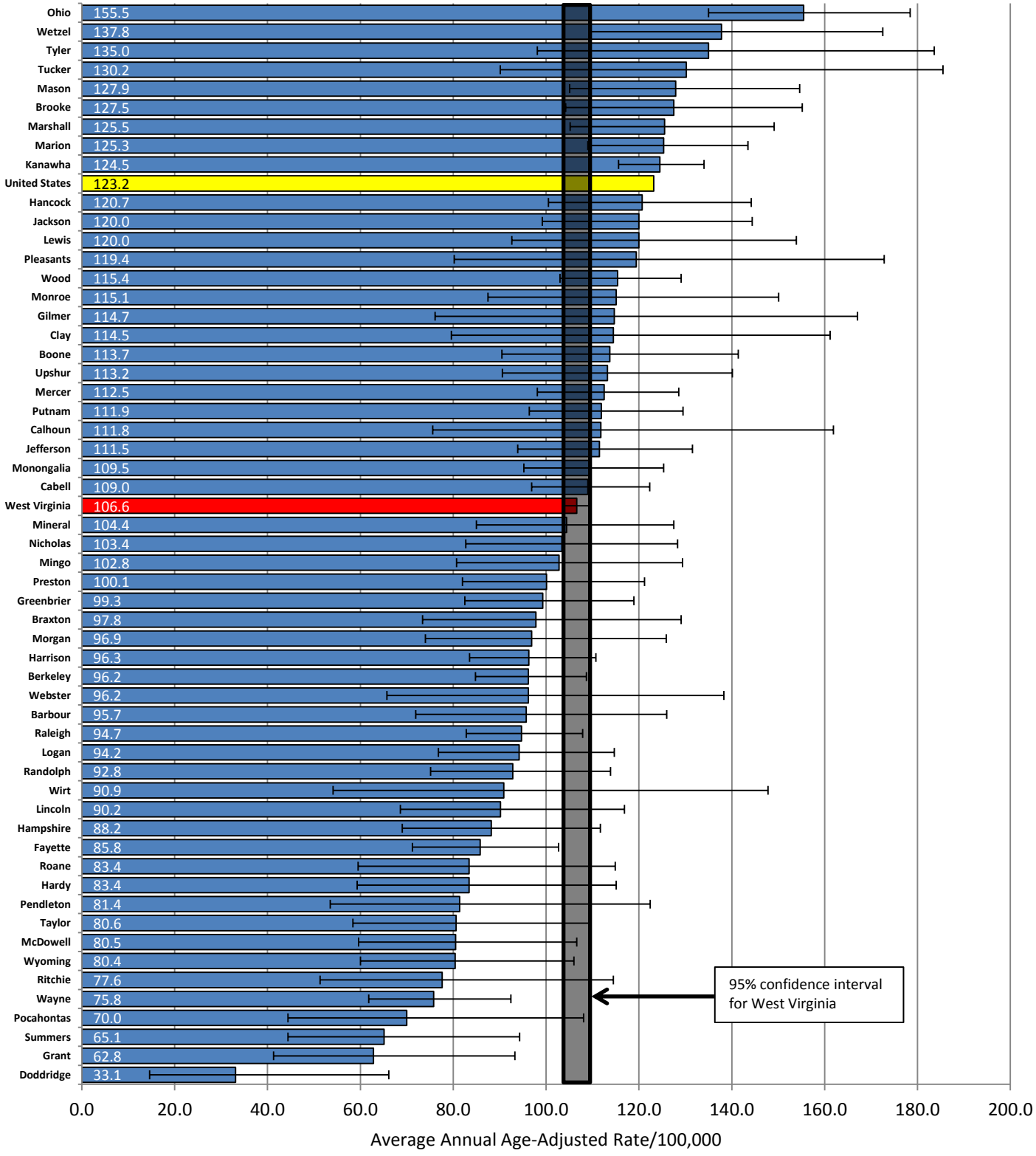


Sources: West Virginia and county rates provided by the West Virginia Cancer Registry; United States rate provided by United States Cancer Statistics: 1999-2013, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2016. Accessed at http://wonder.cdc.gov/cancer-v2013.html on Nov 15, 2016 1:08:42 PM

Average Annual Age-Adjusted Prostate Cancer Incidence Rates (per 100,000), 95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2009-2013

County	Rate	Lower CI	Upper CI	5-yr Count	County	Rate	Lower CI	Upper CI	5-yr Count
West Virginia	**106.6**	**103.9**	**109.4**	**6,340**	Mercer	112.5	98.1	128.6	232
Barbour	95.7	71.9	126.0	56	Mineral	104.4	85.0	127.5	106
Berkeley	96.2	84.8	108.7	283	Mingo	102.8	80.7	129.4	83
Boone	113.7	90.5	141.4	91	Monongalia	109.5	95.2	125.3	230
Braxton	97.8	73.4	129.1	56	Monroe	115.1	87.5	150.1	61
Brooke	127.5	104.2	155.2	109	Morgan	96.9	74.0	125.9	63
Cabell	109.0	96.9	122.3	305	Nicholas	103.4	82.7	128.3	92
Calhoun	111.8	75.6	161.9	32	Ohio	155.5	135.0	178.4	219
Clay	114.5	79.6	161.2	36	Pendleton	81.4	53.5	122.4	27
Doddridge	33.1	14.6	66.1	9	Pleasants	119.4	80.2	172.8	32
Fayette	85.8	71.2	102.7	131	Pocahontas	70.0	44.4	108.1	25
Gilmer	114.7	76.1	167.1	29	Preston	100.1	82.0	121.2	113
Grant	62.8	41.3	93.3	28	Putnam	111.9	96.4	129.5	196
Greenbrier	99.3	82.5	118.9	130	Raleigh	94.7	82.8	107.9	245
Hampshire	88.2	69.0	111.7	76	Randolph	92.8	75.1	113.9	100
Hancock	120.7	100.5	144.2	130	Ritchie	77.6	51.3	114.5	29
Hardy	83.4	59.3	115.1	41	Roane	83.4	59.5	114.9	44
Harrison	96.3	83.5	110.7	211	Summers	65.1	44.4	94.3	33
Jackson	120.0	99.2	144.4	119	Taylor	80.6	58.4	109.2	46
Jefferson	111.5	93.9	131.5	160	Tucker	130.2	90.1	185.5	36
Kanawha	124.5	115.6	134.0	753	Tyler	135.0	98.1	183.6	47
Lewis	120.0	92.6	153.9	67	Upshur	113.2	90.6	140.1	91
Lincoln	90.2	68.6	116.9	64	Wayne	75.8	61.8	92.4	106
Logan	94.2	76.8	114.7	112	Webster	96.2	65.7	138.3	34
Marion	125.3	109.0	143.5	223	Wetzel	137.8	109.3	172.5	83
Marshall	125.5	105.2	149.1	142	Wirt	90.9	54.1	147.8	20
Mason	127.9	105.1	154.6	116	Wood	115.4	103.0	129.1	323
McDowell	80.5	59.6	106.6	55	Wyoming	80.4	60.0	106.0	60

Average Annual Age-Adjusted Prostate Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2009-2013



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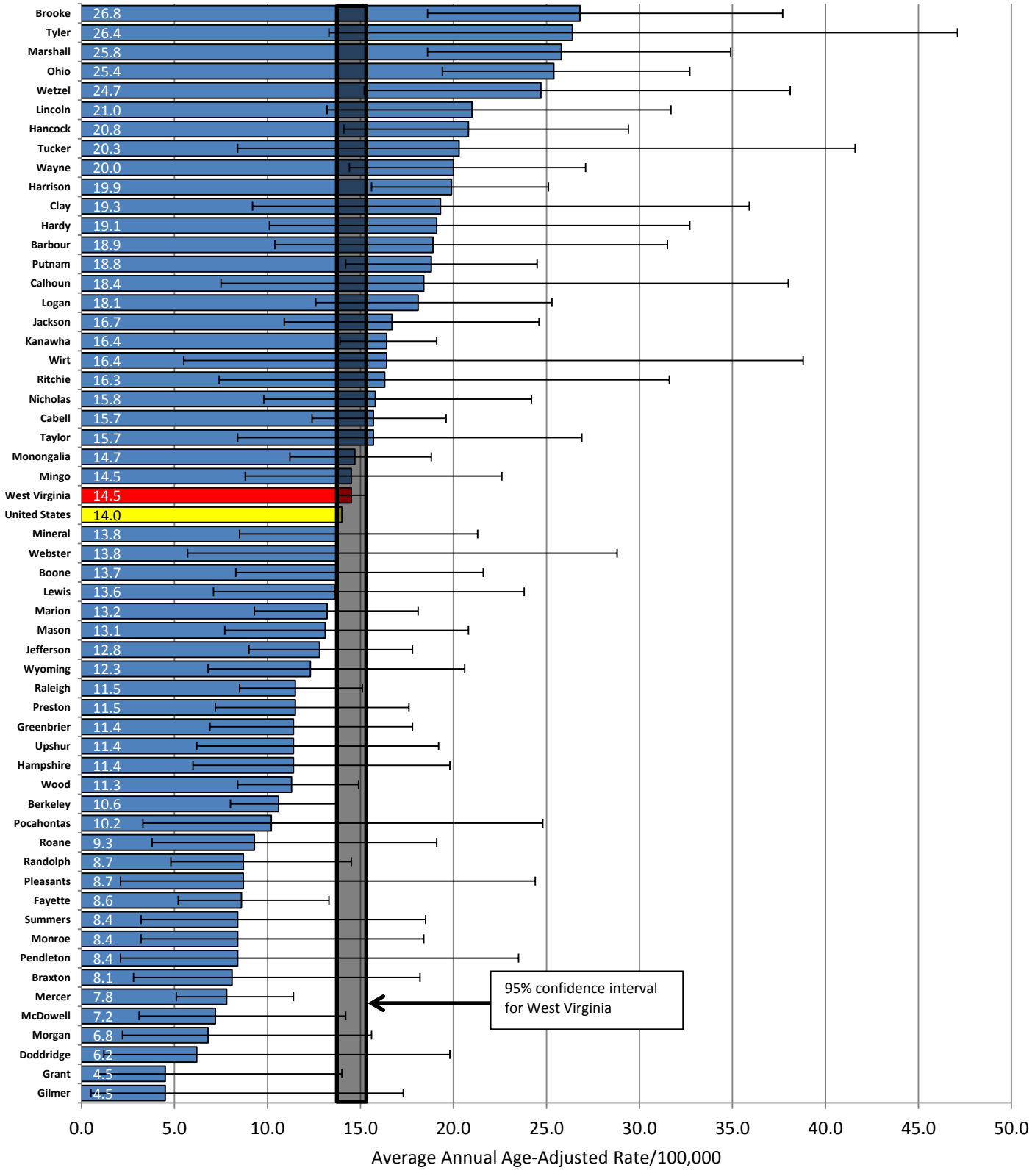
Average Annual Age-Adjusted Thyroid Cancer Incidence Rates (per 100,000), 95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2009-2013

County	Rate	Lower CI	Upper CI	5-yr Count	County	Rate	Lower CI	Upper CI	5-yr Count
West Virginia	**14.5**	**13.8**	**15.3**	**1,493**	Mercer	7.8	5.1	11.4	30
Barbour	18.9	10.4	31.5	15	Mineral	13.8	8.5	21.3	22
Berkeley	10.6	8.0	13.7	57	Mingo	14.5	8.8	22.6	21
Boone	13.7	8.3	21.6	21	Monongalia	14.7	11.2	18.8	67
Braxton	8.1	2.8	18.2	6	Monroe	8.4	3.2	18.4	7
Brooke	26.8	18.6	37.7	39	Morgan	6.8	2.2	15.6	6
Cabell	15.7	12.4	19.6	80	Nicholas	15.8	9.8	24.2	23
Calhoun	18.4	7.5	38.0	8	Ohio	25.4	19.4	32.7	67
Clay	19.3	9.2	35.9	11	Pendleton	8.4	2.1	23.5	4
Doddridge	6.2	1.2	19.8	^	Pleasants	8.7	2.1	24.4	4
Fayette	8.6	5.2	13.3	22	Pocahontas	10.2	3.3	24.8	6
Gilmer	4.5	0.5	17.3	^	Preston	11.5	7.2	17.6	23
Grant	4.5	0.9	14.0	^	Putnam	18.8	14.2	24.5	59
Greenbrier	11.4	6.9	17.8	22	Raleigh	11.5	8.5	15.1	54
Hampshire	11.4	6.0	19.8	13	Randolph	8.7	4.8	14.5	16
Hancock	20.8	14.1	29.4	36	Ritchie	16.3	7.4	31.6	10
Hardy	19.1	10.1	32.7	14	Roane	9.3	3.8	19.1	8
Harrison	19.9	15.6	25.1	77	Summers	8.4	3.2	18.5	7
Jackson	16.7	10.9	24.6	28	Taylor	15.7	8.4	26.9	14
Jefferson	12.8	9.0	17.8	37	Tucker	20.3	8.4	41.6	8
Kanawha	16.4	13.9	19.1	173	Tyler	26.4	13.3	47.1	13
Lewis	13.6	7.1	23.8	13	Upshur	11.4	6.2	19.2	15
Lincoln	21.0	13.2	31.7	24	Wayne	20.0	14.4	27.1	44
Logan	18.1	12.6	25.3	37	Webster	13.8	5.7	28.8	8
Marion	13.2	9.3	18.1	41	Wetzel	24.7	15.2	38.1	23
Marshall	25.8	18.6	34.9	48	Wirt	16.4	5.5	38.8	6
Mason	13.1	7.7	20.8	19	Wood	11.3	8.4	14.9	54
McDowell	7.2	3.1	14.2	9	Wyoming	12.3	6.8	20.6	16

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

Average Annual Age-Adjusted Thyroid Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2009-2013



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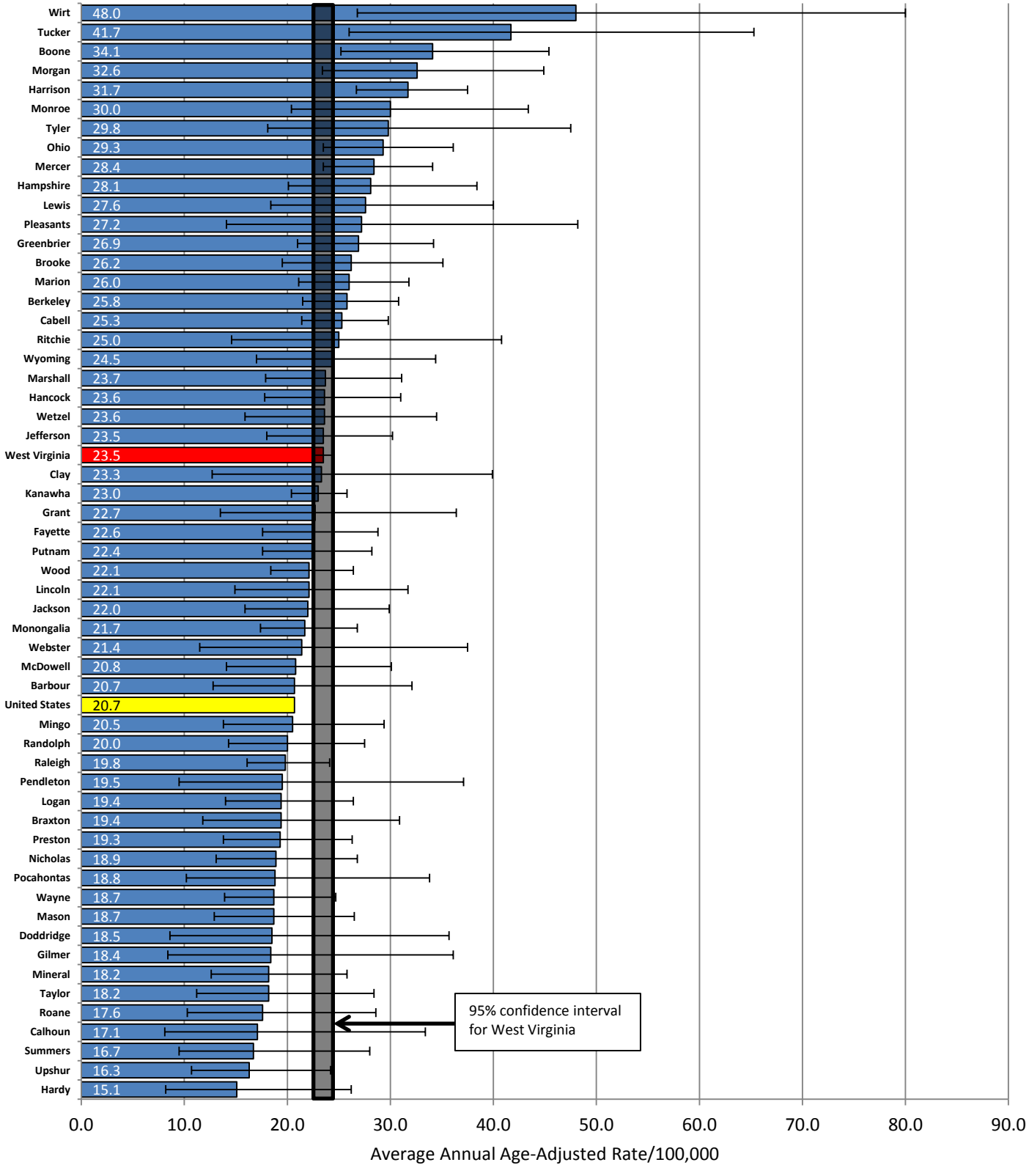
Average Annual Age-Adjusted Urinary Bladder Cancer Incidence Rates (per 100,000), 95% Confidence Intervals, and 5-Year Counts by County, West Virginia, 2009-2013

County	Rate	Lower CI	Upper CI	5-yr Count	County	Rate	Lower CI	Upper CI	5-yr Count
West Virginia	**23.5**	**22.6**	**24.4**	**2,847**	Mercer	28.4	23.5	34.1	125
Barbour	20.7	12.8	32.1	22	Mineral	18.2	12.6	25.8	35
Berkeley	25.8	21.5	30.8	130	Mingo	20.5	13.8	29.4	31
Boone	34.1	25.2	45.4	51	Monongalia	21.7	17.4	26.8	90
Braxton	19.4	11.8	30.9	20	Monroe	30.0	20.4	43.4	32
Brooke	26.2	19.5	35.1	52	Morgan	32.6	23.4	44.9	42
Cabell	25.3	21.4	29.8	152	Nicholas	18.9	13.1	26.8	35
Calhoun	17.1	8.1	33.4	10	Ohio	29.3	23.5	36.1	96
Clay	23.3	12.7	39.9	14	Pendleton	19.5	9.5	37.1	12
Doddridge	18.5	8.6	35.7	10	Pleasants	27.2	14.1	48.2	13
Fayette	22.6	17.6	28.8	72	Pocahontas	18.8	10.2	33.8	14
Gilmer	18.4	8.4	36.1	9	Preston	19.3	13.8	26.3	42
Grant	22.7	13.5	36.4	19	Putnam	22.4	17.6	28.2	77
Greenbrier	26.9	21.0	34.2	72	Raleigh	19.8	16.1	24.1	103
Hampshire	28.1	20.1	38.4	43	Randolph	20.0	14.3	27.5	42
Hancock	23.6	17.8	31.0	56	Ritchie	25.0	14.6	40.8	18
Hardy	15.1	8.2	26.2	14	Roane	17.6	10.3	28.6	18
Harrison	31.7	26.7	37.5	145	Summers	16.7	9.5	28.0	17
Jackson	22.0	15.9	29.9	44	Taylor	18.2	11.2	28.4	21
Jefferson	23.5	18.0	30.2	65	Tucker	41.7	26.0	65.3	23
Kanawha	23.0	20.4	25.8	303	Tyler	29.8	18.1	47.5	20
Lewis	27.6	18.4	40.0	30	Upshur	16.3	10.7	24.2	27
Lincoln	22.1	14.9	31.7	32	Wayne	18.7	13.9	24.7	53
Logan	19.4	14.0	26.4	44	Webster	21.4	11.5	37.5	14
Marion	26.0	21.1	31.8	101	Wetzel	23.6	15.9	34.5	30
Marshall	23.7	17.9	31.1	57	Wirt	48.0	26.8	80.0	16
Mason	18.7	12.9	26.5	35	Wood	22.1	18.4	26.4	130
McDowell	20.8	14.1	30.1	32	Wyoming	24.5	17.0	34.4	37

Average Annual Age-Adjusted Urinary Bladder Cancer Incidence Rates and 95% Confidence Intervals by County, West Virginia, 2009-2013



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