CANCER CONSORTIUM
FRED HUTCH • UNIVERSITY OF WASHINGTON • SEATTLE CHILDREN'S

Office of Community Outreach & Engagement

A REPORT TO THE COMMUNITY

2023 COMMUNITY HEALTH NEEDS ASSESSMENT

Front cover photo: Photo by Toan Lu
Mt. Baker, Washington

Our Mission

Fred Hutchinson Cancer Center unites innovative research and compassionate care to prevent and eliminate cancer and infectious disease. We're driven by the urgency of our patients, the hope of our community and our passion for discovery to pursue scientific breakthroughs and healthier lives for every person in every community.

Values

Our values are grounded in and expressed through the principles of diversity, equity, and inclusion (DEI). Our mission is directly tied to the humanity, dignity, and inherent value of each employee, patient, community member, and supporter. Our commitment to learning across our differences and similarities make us stronger.

Collaboration — We embrace a diversity of perspectives, approaches, and methods, advancing our mission through understanding and inclusion by demonstrating active listening, inquiring and then advocating, advancing solutions, seeking out and valuing diverse perspectives and approaches, respecting potential partners as valuable contributors, and forming teams with inclusion in mind.

Compassion — We acknowledge the humanity and unique lived experience of our colleagues, patients, families, and ourselves by demonstrating respect, patience, and kindness.

Determination — We are committed to overcoming obstacles to deliver on our mission as quickly as possible by making decisions and meeting challenges with a focus on the ultimate goal of lifesaving impact; acting with urgency, persistence and creativity; focusing on solutions and achievement; being driven by quality; finding new ways around problems; and getting curious rather than discouraged when the going gets tough.

Excellence — We define the standard through the exceptional quality of our work by continuing to educate ourselves in our role and in our professional domain; being accountable for our work and outcomes; striving to maintain high-quality research, care and administrative service; ensuring teams are appropriately staffed; and valuing all employees and colleagues.

Innovation — We challenge conventional thinking and seek and foster transformative ideas and practices by supporting and embracing a continuous learning environment, seeking to understand by asking questions, listening with an open mind, and encouraging the activation of bold and creative ideas.

Integrity — We are a trustworthy and responsible partner to our patients, colleagues, and community. We achieve this by following through on commitments; holding each other and ourselves accountable; being transparent, honest, and acting with best intentions; and demonstrating public and private actions consistent with our values and mission.

Respect — We regard and honor each person's individuality, experiences, and traditions by listening and responding; speaking with truth and honoring others' truths; appreciating and responding to everyone's purpose as contributors to our mission; giving due consideration to others as equals to ourselves; and seeking to understand the motivations and drivers of our colleagues', patients', and community's behaviors.

A Commitment to Diversity

Lifesaving research demands more than innovation and dedication. It requires curiosity, creativity, and fresh and varied perspectives. That's why diversity is a core Fred Hutch value that is integral to our work.

We were the first U.S. cancer center to pledge commitment to CEO Action for Diversity & Inclusion, and we cultivate a workplace that welcomes diverse perspectives and experiences. The Office of Diversity, Equity & Inclusion — in partnership with an executive council of senior leaders and an employee advisory group — leads our efforts to build a fully inclusive and informed workforce.

Fred Hutch is an equal opportunity employer that is committed to workforce diversity. We strongly encourage applications from women, minorities, individuals with disabilities, and veterans.

Cancer Consortium Mission

The Fred Hutch/University of Washington/Seattle Children's Cancer Consortium unites innovative research and compassionate care to prevent and eliminate cancer and related disease. We're driven by the urgency of our patients, the hope of our community, and our passion for discovery to pursue scientific breakthroughs and healthier lives for every person in every community.

Bringing together cancer-focused researchers from across its three participating institutions to promote collaboration and support research among its members, the Cancer Consortium aims to increase understanding, strengthen prevention and diagnostic capabilities, and develop effective therapies for cancer.

Acknowledgements

We would like to thank all the individuals who offered their time, assistance, and expertise in preparing this report, including OCOE leaders, faculty and staff. We gratefully acknowledge all the cancer registries and their staff for their work in collecting and reporting cancer case information.

> Lead writer: Jean A. McDougall, PhD, MPH
>
> Data analysis and visualization: David Doody, MS
>
> Project management: Elizabeth Carosso
>
> Production management & graphic design: Sara Norman & Theary A. Chhim, PharmD

This report was funded in part through the NIH/NCI Cancer Center Support Grant P30 CA015704.

Contents

Addendum

Fred Hutch/University of Washington/Seattle Children's Cancer Consortium, Office of Community Outreach & Engagement. A Report to the Community: 2023 Community Health Needs Assessment. Seattle: Cancer Consortium; 2023.

Letter to the Community

Dear Community Members,

The Fred Hutch/University of Washington/Seattle Children's Cancer Consortium (the Consortium), an NCI-designated Comprehensive Cancer Center, is pleased to provide you with this 2023 Community Health Needs Assessment Report.

Our Consortium clinicians and scientists work together to address basic science, prevention and early detection, treatment and cures, and cancer survivorship. Our research teams and clinical care teams work together to decrease the time between discovery and delivery of the most advanced treatments for our patients. We are indebted to the communities we serve for their support of, and commitment to, the Consortium.

The Consortium recognizes the importance of equity in cancer prevention, research, treatment, and outcomes for all Washingtonians, including the importance of prioritizing the underserved. We are broadening our community partnerships to tackle the most pressing cancer issues. Our Office of Community Outreach and Engagement (OCOE) focuses on engaging underrepresented populations across Washington state, such as Black and African-descent populations, American Indian and Alaska Native (Indigenous) populations, rural-dwelling residents, and under-resourced, urban-dwelling residents. We now have offices with Community Health Educators in Seattle, Sunnyside, and Spokane and we are exploring ways to build partnerships across our state. Our community engagement work is complemented with the service of Patient Navigators who guide patients through the cancer care process and help them secure needed resources to complete cancer care. Just as the Cancer Consortium leads in groundbreaking cancer treatments such as immunotherapy, our greatly expanded commitment to equity will ensure that we lead in research and programs for cancer health equity as well.

This 2023 Community Health Needs Assessment Report presents the cancer incidence and mortality rates of different cancers in our region. It notes barriers and facilitators to cancer care encountered by individuals residing in the communities we serve, and challenges organizations face in attempting to meet communities' needs. This report also outlines the critical areas in which the Consortium will be focusing efforts over the coming years to address the cancer burden in Washington, including continuing research on female breast, prostate, lung, hematologic, and colorectal cancers, leukemia in children ages 0-14, and ovarian cancer among individuals ages 65 and older. We also emphasize our priority to reduce the disproportionate burden of cancer experienced by Indigenous and Black/African American populations in Washington.

Thank you for taking time to read this report. We could not do our work without the support of communities and organizations throughout the state. Working together we can improve health outcomes in Washington.

Sincerely,

Tom Lynch

Thomas Lynch Jr., MD
Raisbeck Endowed Chair for the President and Director
James D. and Sherry Raisbeck Foundation

Message from the Comprehensive Cancer Control Coordinator

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
Prevention and Community Health

It is my pleasure to write in support of the Fred Hutch/University of Washington/Seattle Children's Cancer Consortium's 2023 Community Report. I appreciate the work that has gone into this report and know that it will contribute to a deeper understanding of the cancer burden in Washington State.

Comprehensive cancer control requires monitoring the cancer burden in the state and identifying the significant disparities that underserved populations experience. The 2023 Community Report uses population-based cancer statistics to characterize the burden and inequities of cancer in Washington State. The data are then used to set specific, actionable priorities for the Fred Hutch/ University of Washington/Seattle Children's Cancer Consortium.

The data and identification of research priorities reported here aid in the development of a Comprehensive Control Plan for Washington State. The Washington State Department of Health and Fred Hutch are currently working together to co-convene a state-wide Comprehensive Cancer Coalition, consisting of organizations and individuals with the shared goal of identifying problems and developing solutions to better use limited resources and create better outcomes. We invite the participation of all who read this document.

This report is an important step in understanding and addressing cancer health inequities for Washingtonians, I thank you for your continued work promoting cancer health equity in Washington State. I look forward to continuing to work together to reduce cancer health disparities and to build a Comprehensive Cancer Control Plan for Washington State.

Sincerely,

K. Treend

Katie Treend, MPH
Comprehensive Cancer Control Coordinator
Office of Healthy and Safe Communities
Prevention and Community Health
Washington State Department of Health

Fred Hutch/University of Washington/Seattle Children's Cancer Consortium

The Fred Hutch/University of Washington/Seattle Children's Cancer Consortium (the Consortium) brings together cancer-focused researchers from across its three participating institutions. As of April 1, 2022, the long-standing relationship between Fred Hutchinson Cancer Research Center, Seattle Cancer Care Alliance and University of Washington (UW) Medicine has led to an adult-focused clinical program led by a newly-created Fred Hutchinson Cancer Center (Fred Hutch) and a separate pediatric clinical program led by Seattle Children's. These programs are collaborative and driven by the innovative cancer research at Fred Hutch, UW Medicine and Seattle Children's. The unified organization will be a clinically integrated part of UW Medicine and UW Medicine's cancer program with a continued commitment to scientific research in vaccines and infectious diseases, basic and human biology, computational science and public health, diversity, equity and inclusion, and to reducing health disparities.

The Consortium aims to increase understanding, strengthen prevention and diagnostic capabilities, and develop effective therapies for cancer. Members of the Consortium collaborate across basic science, clinical and translational research, and public health. The Consortium's efforts are centered around six strategic areas of research **(Figure 1)**.

The Consortium is funded by a Cancer Center Support Grant (CCSG) and receives accompanying National Cancer Institute (NCI) designation for successfully meeting its highest scientific and organizational standards. As of May 2023, the Consortium is one of 54 National Cancer Institute-designated Comprehensive Cancer Centers nationwide. CCSG grants provide funding for formalized cancer research programs, shared research resources, scientific and administrative management, planning and evaluation activities, development of new scientific opportunities, and centralized clinical trial oversight and functions.

Figure 1. Strategic Areas of Research in the Fred Hutch/UW/Seattle Children's Cancer Consortium

Office of Community Outreach and Engagement (OCOE)

The Consortium has a long-standing relationship with, and commitment to, the population of Washington State. Established in 2017, the Office of Community Outreach and Engagement (OCOE) evolved from the former Health Disparities Research Center (2010-2017). Led by Jason A. Mendoza, MD, MPH, Director of the OCOE and Katherine J. Briant, MPH, Assistant Director of the OCOE, the OCOE's vision is to promote health equity by generating and facilitating cancer research that addresses and reduces cancer health inequities in the catchment area using a community-engaged/community-based participatory research approach and education driven by community need. The OCOE is supported by the CCSG to thoroughly analyze the demographics and cancer burden of our catchment area, defined as the geographic area that the Consortium serves. In addition, the OCOE engages community partners to decrease the cancer burden. In other words, the Consortium's OCOE works with communities within Washington State to decrease their cancer burden, particularly among underrepresented populations, to inform cancer research and control efforts of relevance to the population.

The purpose of this OCOE Community Report is to:

- Describe the population of Washington State and the major factors that characterize and influence the cancer burden in the state, which is also the Consortium catchment area
- Identify priorities for ongoing and future research
- Inform and guide community initiatives and activities
- Amplify community solutions and areas for investment

Steptoe Butte, WA showing the rolling hills of the Palouse. Photo by Dave Hoeffler.

Data Sources

Data from the following sources were used in the development of this community report:

- **U.S. Census Bureau**
  - 2010 Census
  - American Community Survey, 2019
- **National Cancer Institute (NCI)**
  - Surveillance, Epidemiology, and End Results Program (SEER)
- **Cancer Surveillance System (CSS)**
- **Washington State Cancer Registry**
- **Centers for Disease Control and Prevention (CDC)**
  - National Program of Cancer Registries (NPCR)
  - Behavioral Risk Factor Surveillance System (BRFSS)
- **Fred Hutch Community Needs Assessment: Conversations Across Washington**

Diablo Lake, WA. Photo by RC Victorino.

Cancer Statistics Definitions and Methods

Throughout this report, we will describe the cancer burden, or the impact of cancer, measured by several common indicators including:

Cancer incidence: the average annual rate of new cancers diagnosed per 100,000 people in the population.

Cancer mortality: the average annual rate of deaths due to cancer per 100,000 people.

The lower the number, the lower the rate of cancer in the community.

Examining cancer incidence and mortality rates per 100,000 people allows us to make comparisons among demographic subgroups within Washington in a way that is not influenced by the size of the population. Confidence intervals (CIs) provide a range of values that describe the uncertainty around our estimates of cancer incidence and mortality. We indicate a CI by its endpoints; for example, the 95% CI for the incidence rate for all types of invasive cancer in Washington State females (425.7 per 100,000) from 2015 to 2019 is 422.9 per 100,000 to 428.5 per 100,000. Because the size of the sample that we draw impacts the uncertainty around our estimate, **confidence intervals are important for comparing incidence and mortality across population subgroups of differing population size.** As a general rule, when the 95% confidence intervals around incidence or mortality rates between different population subgroups overlap, we cannot say that the magnitude of the difference in rates between the two groups is ***statistically significant* at the p<0.05 level.**

In this report, we include data on all new cases of invasive cancer that were diagnosed in Washington State from 2015 to 2019. Invasive cancer is defined as cancer that has spread beyond the layer of tissue in which it developed and is growing into surrounding, healthy tissues. For consistency with other major sources of information on cancer statistics, we do not include ***in situ*** disease in our calculations of cancer incidence. Hematologic malignancies, including various types of leukemia (acute lymphocytic (ALL), chronic lymphocytic (CLL), acute myeloid (AML), chronic myeloid (CML), myeloma, and lymphoma (Hodgkin's and non-Hodgkin's (NHL)), were combined into a single group to examine the burden of these cancers that affect the blood, bone marrow, and lymph nodes of individuals living in Washington.

Information on race and ethnicity is collected by central cancer registries based on what is written in the medical record. Prior research has shown that individuals with American Indian/ Alaska Native (AI/AN) heritage, including those diagnosed with cancer, are frequently mislabeled as "White" in medical records.[1] To address the resulting undercounting of AI/AN[2] cancer cases in cancer registry data, registries supported by CDC's National Program of Cancer Registries Program (NPCR) and the National Cancer Institute's Surveillance Epidemiology End Results (SEER) Program link their central cancer registry data to the Indian Health Service (IHS) administrative records database.[3] For this report, data were analyzed by five major racial/ethnic groups: non-Hispanic White, non-Hispanic Black, AI/AN,

Asian/Pacific Islander (A/PI), and Hispanic. We acknowledge that this classification of race as a social construct has often been used as a tool of oppression and violence. We recognize the heterogeneity within these broad racial and ethnic categories and honor the substantial variation in lived experience within and between groups. In our commitment to becoming an antiracist institution, we actively seek to understand and decrease disparities in cancer. We present data by race and ethnicity in alignment with the antiracist efforts of the Consortium.

Catchment Area Profile

On January 1, 2022, the catchment area for the Consortium grew from the 13-counties of Western Washington to the entire state. Please see the addendum, "***Why Widen?***," for a comprehensive discussion of the rationale and process of community outreach and engagement that went into this decision. Here we share the demographic and socioeconomic characteristics, and cancer risk factors of people living in Washington State with the goal of providing context about our diverse catchment area and the many factors contributing to the unique cancer burden in Washington State.

Demographic Characteristics

The demographic characteristics of Washington State are presented in **Table 1** and compared proportionately to the United States (US). Washington State has a slightly lower proportion of adults ≥65 years of age (15.9% versus 16.4%) compared to the US as a whole. Washington also has a higher proportion of White (67.3% versus 60.0%), AI/AN (1.1% versus 0.7%) and A/PI (9.6% versus 5.8%) residents. The proportion of people in Washington State who are foreign born is also slightly higher than the proportion in the US (14.8% versus 13.6%).

Several indicators highlight the relative socioeconomic differences of Washington to the US. Specifically, Washington has a higher proportion of individuals in the highest income and educational attainment categories. For example, 15.1% of individuals in Washington State have a graduate or professional degree compared to 13.8% of individuals in the U.S. The proportion of people who are uninsured is also lower in Washington (6.4% versus 8.6%).

Table 1. Demographic Characteristics of the Washington State and United States Populations, 2019

Characteristic	WA Population %	US Population %
Sex		
Male	50.0	49.2
Female	50.0	50.8
Age[a]		
0–14	18.2	18.4
15–44	41.1	39.7
45–64	24.8	25.3
≥65	15.9	16.4
Race & Ethnicity		
Hispanic or Latino (of any race)	13.0	18.4
Non-Hispanic		
White	67.3	60.0
Black	3.9	12.4
American Indian or Alaska Native	1.1	0.7
Asian or Pacific Islander	9.6	5.8
Employment Status[b]		
Employed	61.2	60.2
Unemployed	2.9	2.9
Armed Forces	1.0	0.5
Not in labor force	34.9	36.4
Annual Household Income		
<$10,000	4.4	5.8
$10,000–$14,999	3.0	4.0
$15,000–$24,999	6.5	8.3
$25,000–$34,999	6.6	8.4
$35,000–$49,999	10.5	11.9
$50,000–$74,999	16.9	17.4
$75,000–$99,999	13.3	12.8
$100,000–$149,999	18.3	15.7
$150,000–$199,999	9.1	7.2
≥ $200,000	11.4	8.5
Educational Attainment[c]		
< 9th grade	3.6	4.8
9th to 12th grade, no diploma	4.1	5.9
High school graduate (includes equivalency)	21.6	26.3
Some college, no degree	21.7	19.3
Associate's degree	10.1	8.8
Bachelor's degree	23.8	21.2
Graduate or professional degree	15.1	13.8

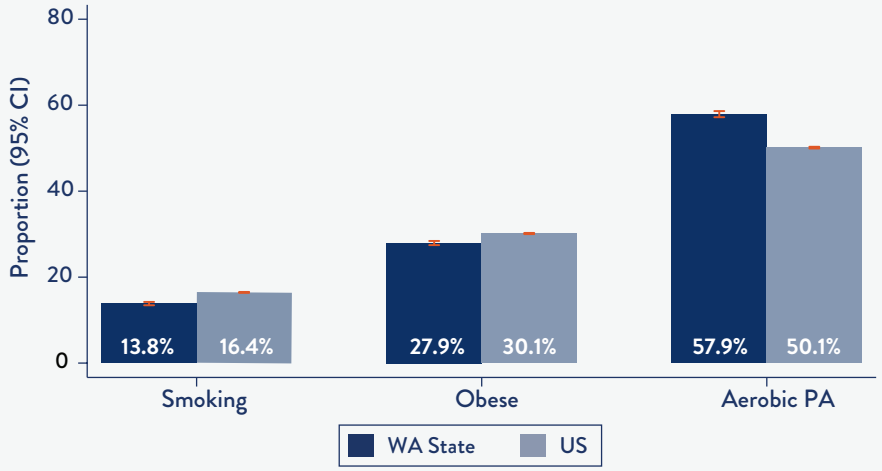
Table 1. Demographic Characteristics of the Washington State and United States Populations, 2019 *(continued)*

Characteristic	WA Population %	US Population %
Foreign born (yes)	14.8	13.6
Language spoken at home[d]		
English only	79.2	78.4
Language other than English	20.8	21.6
Speak English less than "very well"	7.9	8.3
Insurance		
Private insurance	70.5	67.0
Public coverage	36.5	36.8
No insurance	6.4	8.6
Reference		
[a] Age measured in years since birth.		
[b] Employment status only assessed among individuals ≥16 years of age.		
[c] Educational attainment only assessed among individuals ≥25 years of age.		
[d] Language only reported for individuals ≥5 years of age.		
[e] Health insurance only reported for the civilian, noninstitutionalized population.		

Cancer Risk Factors

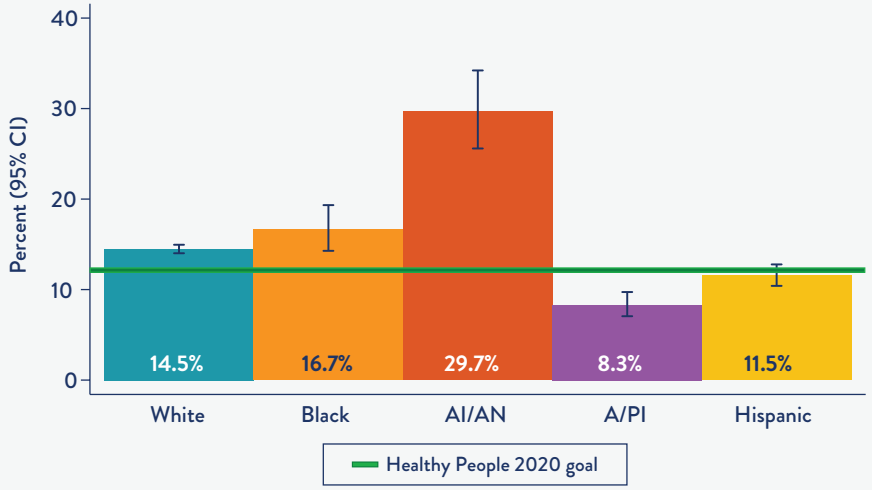
To understand the frequency of several common behaviors related to the development of cancer in our catchment area, we looked at age-adjusted prevalence data from the Behavioral Risk Factor Surveillance System (BRFSS). BRFSS data are self-reported and collected annually by telephone from a sample of >400,000 including Washington State adult US residents.[3] Prevalence data from 2015-2019 was then compared to the Healthy People 2020 targets, corresponding to the same time frame. Prevalence here refers to the proportion of people engaging in a specific behavior, or with a specific trait (e.g. smoking, obesity, or physical activity) out of everyone in the population. Comparing the prevalence of smoking in Washington State (13.8%) to that in the US population (16.4%), we see that fewer Washingtonians smoke tobacco **(Figure 2)**. Obesity is also lower in Washington State (27.9% versus 30.1%), while the prevalence of people meeting aerobic physical activity guidelines is notably higher in Washington than for the US (57.9% versus 50.1%).

Figure 2 Cancer Health Behaviors in Washington Compared to the United States, 2015–2019



Source: Behavioral Risk Factor Surveillance System (BRFSS), 2015–2019
Age–standardized to US Population, 2000

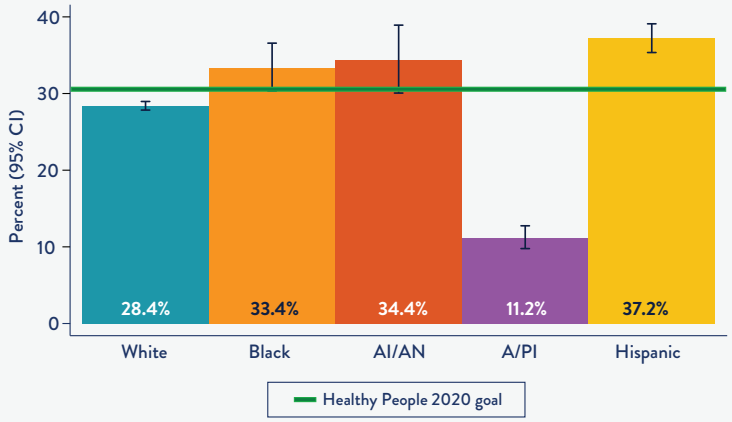
Figure 3 Tobacco Smoking Prevalence in Washington State by Race and Ethnicity



Source: Behavioral Risk Factor Surveillance System (BRFSS), 2015–2019
Age–standardized to US Population, 2000

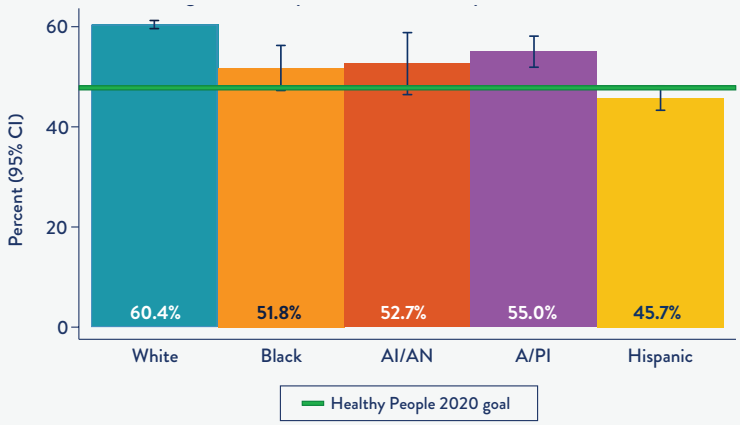
While the profile of cancer risk factors shown in Figure 2 looks favorable for Washington State, substantial differences exist by population subgroup within the State. For example,the A/PI population is the only group with a smoking prevalence below the Healthy People 2020 goal of 12.0% **(Figure 3)**, a national benchmark for healthy behaviors.[4] Similarly, Black, AI/AN, and Hispanic populations in Washington State all have a prevalence of obesity above the Healthy People 2020 goal of 30.5% **(Figure 4)** and Hispanic individuals may not be meeting the Healthy People goal of 47.9% for physical activity of 150 minutes of moderate (or vigorous-equivalent) activity per week **(Figure 5)**.

Figure 4 Prevalence of Obesity in Washington State by Race and Ethnicity



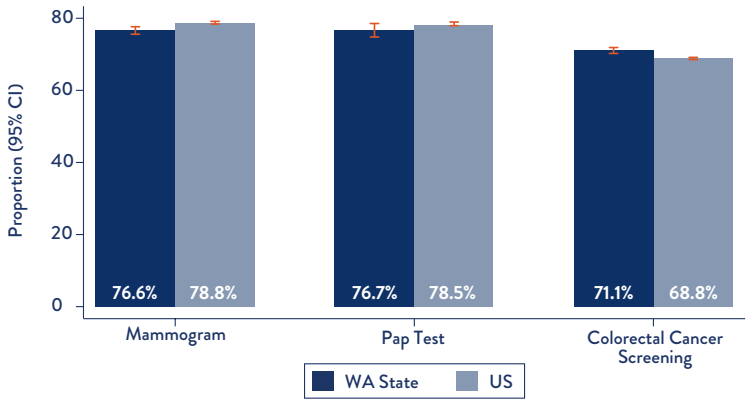
Source: Behavioral Risk Factor Surveillance System (BRFSS), 2015–2019
Age-standardized to US Population, 2000

Figure 5 Proportion of Individuals Meeting Physical Activity Recommendations in Washington State by Race and Ethnicity



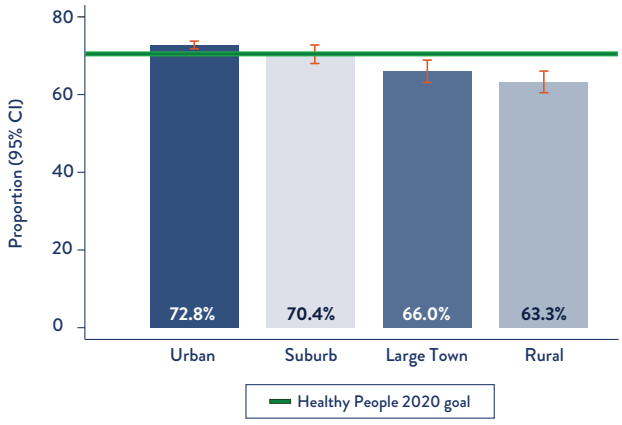
Source: Behavioral Risk Factor Surveillance System (BRFSS), 2015–2019
Age-standardized to US Population, 2000

Figure 6 Proportion of Individuals Meeting Cancer Screening Recommendations in Washington State and the United States, 2015–2019



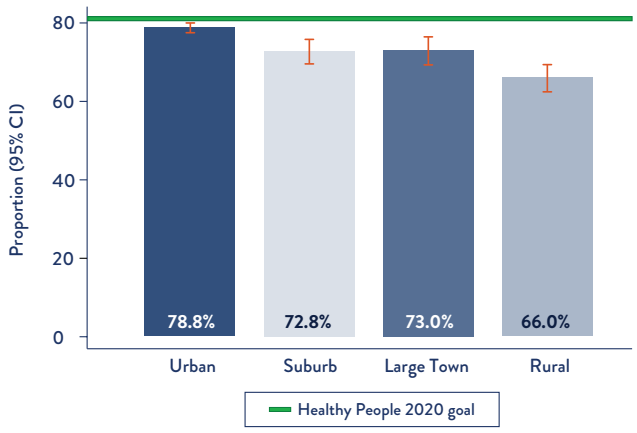
Source: Behavioral Risk Factor Surveillance System (BRFSS), 2015–2019
Age-standardized to US Population, 2000

Figure 7 Proportion of Individuals Meeting Colorectal Cancer Screening Recommendations in Washington State by Catchment Area Definition and Rurality, 2015–2019



Source: Behavioral Risk Factor Surveillance System (BRFSS), 2015–2019
Age-standardized to US Population, 2000

Figure 8 Proportion of Individuals Meeting Mammography Screening Recommendations in Washington State by Catchment Area Definition and Rurality, 2015-2019



Source: Behavioral Risk Factor Surveillance System (BRFSS), 2015–2019
Age-standardized to US Population, 2000

Early Detection of Cancers

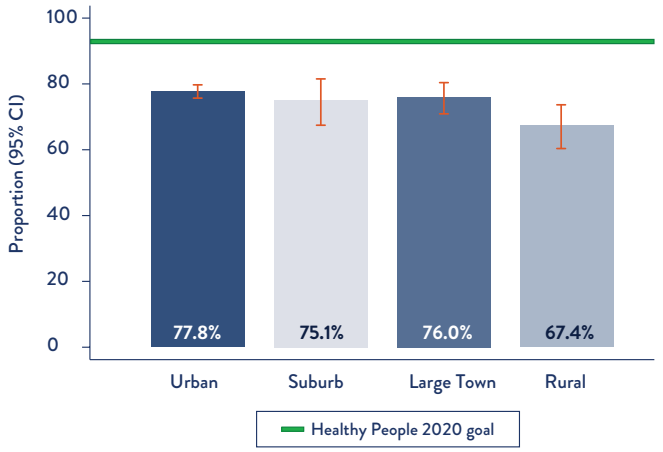
Regular screening for colorectal, female breast, and cervical cancers all increase the likelihood that a cancer will be detected early, when it is more easily treatable. Colorectal cancer screening is defined by BRFSS as receipt of one or more of the recommended colorectal cancer screening tests, including a blood stool test in the past year, blood stool test in the past 3 years and sigmoidoscopy, or colonoscopy in the past 10 years. Individuals in Washington State were slightly more likely to meet colorectal cancer screening recommendations compared to the US (71.1% versus 68.8%) **(Figure 6)**. The proportion of females meeting Pap test screening recommendations for cervical cancer and Mammogram screening recommendations for breast cancer was slightly lower in Washington compared to the US.

Within Washington State, the propoportion of individuals meeting recommendations for colorectal cancer screening rates differed between urban and rural areas, with rural areas falling below the Healthy People 2020 goal of 70.5% **(Figure 7)**. All areas of Washington State lagged behind the Healthy People 2020 goals for both Mammography and Pap test screening **(Figures 8 & 9)**.

Burden of Cancer in Washington State

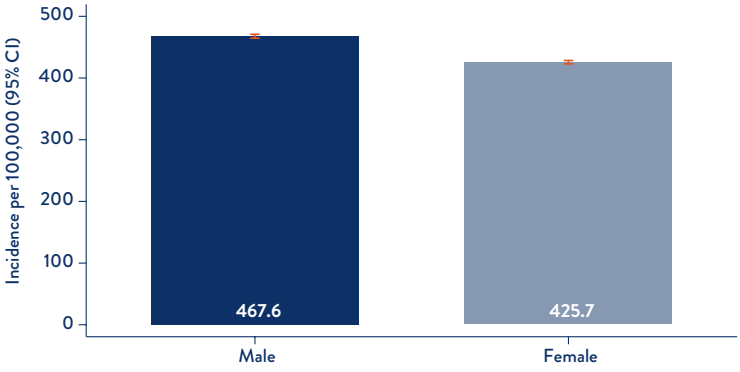
From 2015 to 2019, annually there were 425.7 persons diagnosed with all types of invasive cancer per 100,000 females in Washington State and 467.6 persons diagnosed with all types of invasive cancer per 100,000 males **(Figure 10)**. Over this same time period, females in Washington State experienced 131.0 cancer deaths per 100,000 while males experienced 174.1 cancer deaths per 100,000 **(Figure 11)**.

Figure 9 Proportion of Individuals Meeting Pap Test Screening Recommendations in Washington State by Catchment Area Definition and Rurality, 2015-2019



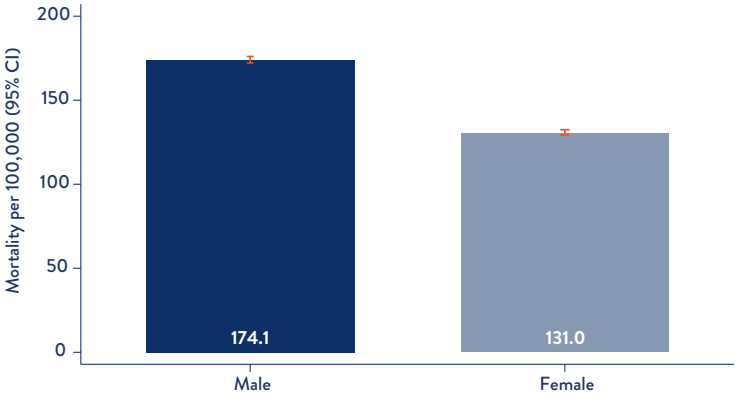
Source: Behavioral Risk Factor Surveillance System (BRFSS), 2015–2019
Age-standardized to US Population, 2000

Figure 10 Incidence Rates of Cancer in Washington State by Sex, 2015-2019



Source: NPCR/SEER, 2015–2019
Age-standardized to US Population, 2000

Figure 11 Mortality Rates of Cancer in Washington State by Sex, 2015-2019

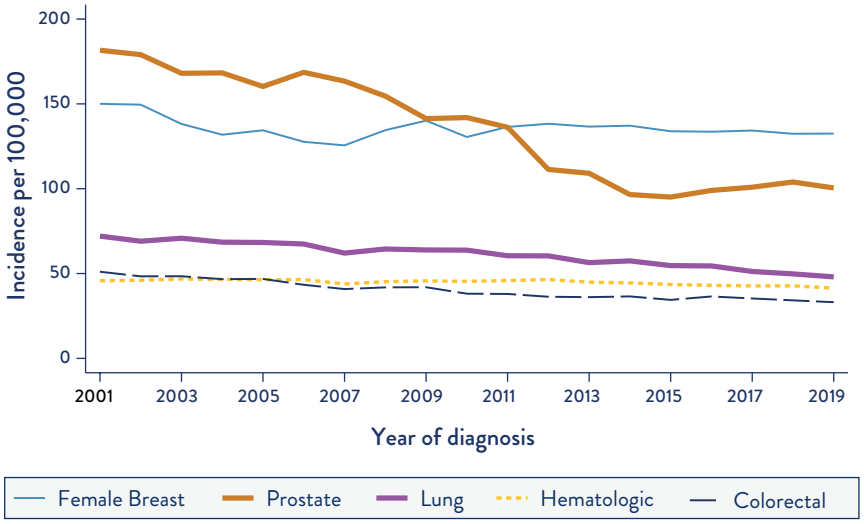


Source: SEER Mortality, 2015–2019
Age-standardized to US Population, 2000

Incidence rates of each of these cancers declined over the past few decades **(Figure 12)**, most notably for prostate cancer, which fell from a high of 181.6 cases per 100,000 in 2001 to 100.5 cases per 100,000 in 2019. These cancer types also comprised the most common causes of cancer death from 2001 to 2019 **(Figure 13)**. Mortality rates declined for each of these cancer types, most sharply for lung cancer which fell from a high of 72.1 deaths per 100,000 in 2001 to 48.0 deaths per 100,000 in 2019.

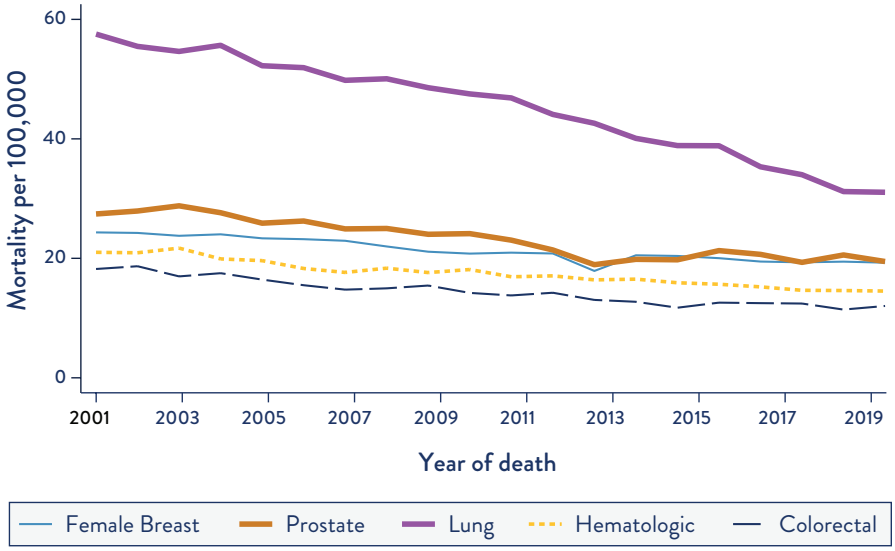
Top 5 Most Common Cancer Sites

Figure 12 Incidence Trends for the Top 5 Most Common Cancer Sites in Washington State, 2001-2019



Source: NPCR/SEER, 2001–2019
Age-standardized to US Population, 2000

Figure 13 Mortality Trends for the Top 5 Most Common Cancer Sites in Washington State, 2001-2019



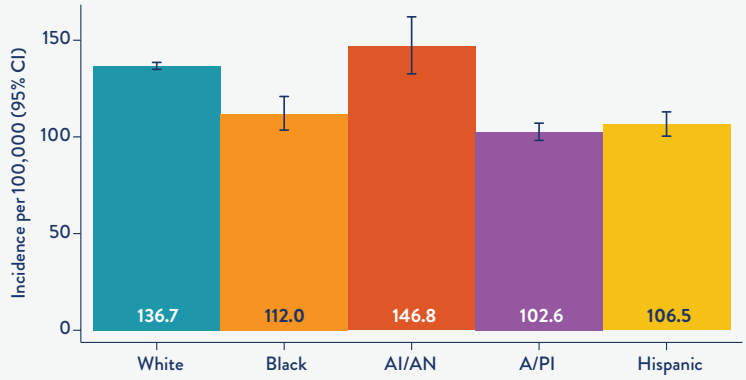
Source: NPCR/SEER, 2001–2019
Age-standardized to US Population, 2000

Female Breast Cancer

The incidence of female breast cancer from 2015-2019 was highest among AI/AN (146.8 per 100,000) residents of Washington State **(Figure 14)**. Black (112.0 per 100,000), A/PI (102.6 per 100,000), and Hispanic (106.5 per 100,000) individuals all had rates of female breast cancer that were significantly lower than rates observed for both AI/AN and White (136.7 per 100,000) individuals over the same time period.

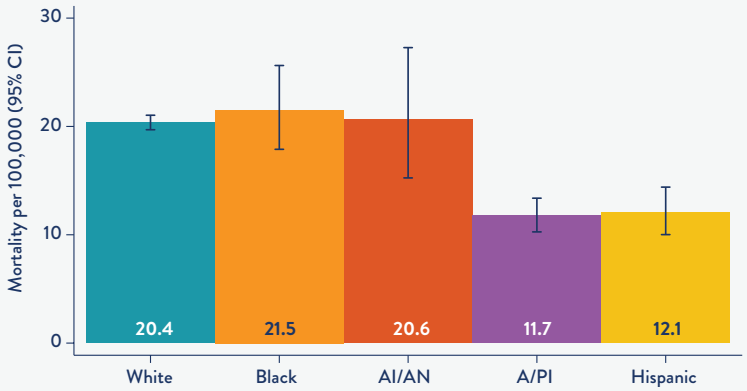
Despite the relatively lower incidence of female breast cancer among Black women, they had the highest female breast cancer mortality rate (21.5 per 100,000) of any group from 2015 to 2019 **(Figure 15)**. White (20.4 per 100,000) and AI/AN (20.6 per 100,000) individuals also had female breast cancer mortality rates that were significantly higher than the mortality rates of either A/PI (11.7 per 100,000) or Hispanic (12.1 per 100,000) residents of Washington State.

Figure 14 Female Breast Cancer Incidence Rates by Race and Ethnicity, Washington State, 2015-2019



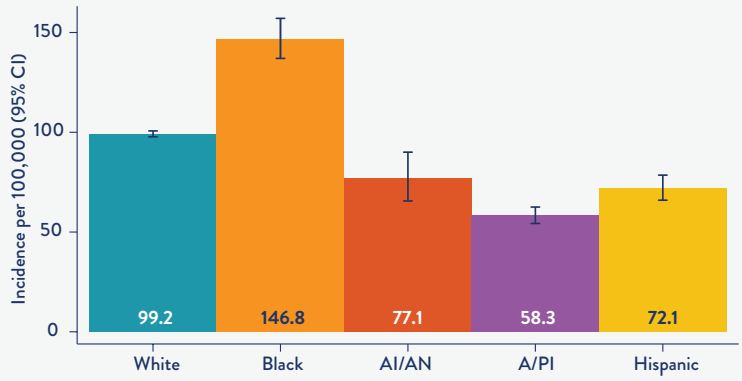
Source: NPCR/SEER, 2015–2019
Age-standardized to US Population, 2000

Figure 15 Female Breast Cancer Mortality Rates by Race and Ethnicity, Washington State, 2015-2019



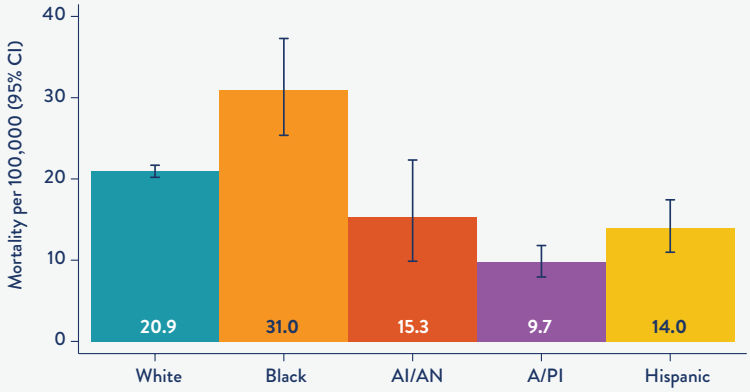
Source: SEER Mortality, 2015–2019
Age-standardized to US Population, 2000

Figure 16 Prostate Cancer Incidence Rates by Race and Ethnicity, Washington State, 2015-2019



Source: NPCR/SEER Mortality, 2015–2019
Age-standardized to US Population, 2000

Figure 17 Prostate Cancer Mortality Rates by Race and Ethnicity, Washington State, 2015-2019



Source: SEER Mortality, 2015–2019
Age-standardized to US Population, 2000

Prostate Cancer

Prostate cancer incidence was significantly higher for Black (146.8 per 100,000) individuals than for any other group **(Figure 16)**. Conversely, A/PI (58.3 per 100,000) individuals had the lowest incidence of prostate cancer over this time period.

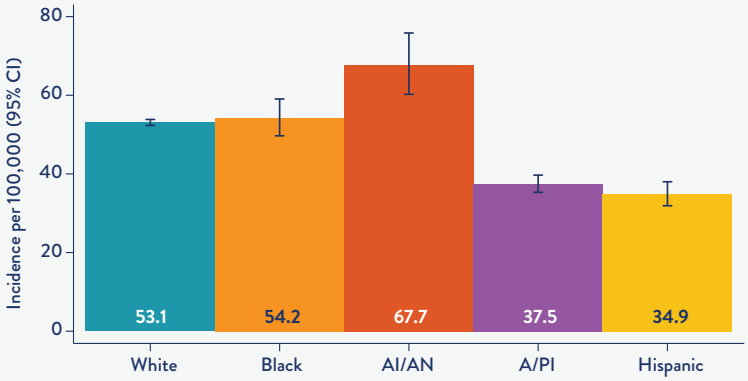
Black (31.0 per 100,000) individuals also had the highest mortality from prostate cancer of any group **(Figure 17)**. Whereas A/PI (9.7 per 100,000) and Hispanic (14.0 per 100,000) individuals had considerably lower mortality rates from prostate cancer.

Lung Cancer

AI/AN individuals had the highest incidence of lung cancer (67.7 per 100,000) in Washington State from 2015 to 2019 **(Figure 18)**. Lung cancer incidence was lower and similar for White (53.1 per 100,000) and Black (54.2 per 100,000) individuals over this time period. The lowest lung cancer incidence rates were observed among A/PI (37.5 per 100,000) and Hispanic (34.9 per 100,000) individuals.

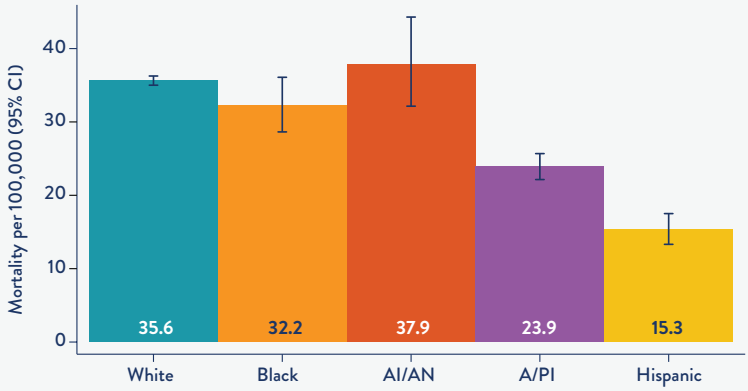
Lung cancer mortality rates were similar for White (35.6 per 100,000), Black (32.2 per 100,000), and AI/AN (37.9 per 100,000) residents of Washington State from 2015 to 2019 **(Figure 19)**. A/PI (23.9 per 100,000) and Hispanic (15.3 per 100,000) residents experienced significantly lower lung cancer mortality rates than White, Black, and AI/AN individuals.

Figure 18 Lung Cancer Incidence Rates by Race and Ethnicity, Washington State, 2015-2019



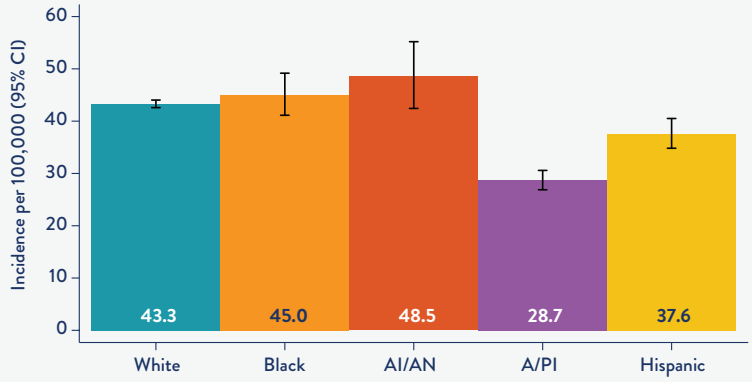
Source: NPCR/SEER Mortality, 2015–2019
Age-standardized to US Population, 2000

Figure 19 Lung Cancer Mortality Rates by Race and Ethnicity, Washington State, 2015-2019



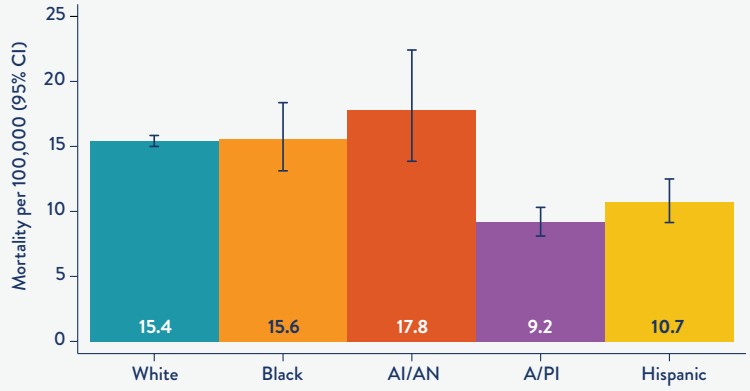
Source: SEER Mortality, 2015–2019
Age-standardized to US Population, 2000

Figure 20 Hematologic Malignancy Incidence Rates by Race and Ethnicity, Washington State, 2015-2019



Source: NPCR/SEER Mortality, 2015–2019
Age-standardized to US Population, 2000

Figure 21 Hematologic Malignancy Mortality Rates by Race and Ethnicity, Washington State, 2015-2019



Source: SEER Mortality, 2015–2019
Age-standardized to US Population, 2000

Hematologic Malignancies

AI/AN (48.5 per 100,000), Black (45.0 per 100,000), and White (43.3 per 100,000) residents of Washington State had incidence rates of hematologic malignancies that were significantly higher than either A/PI (28.7 per 100,000) or Hispanic (37.6 per 100,000) residents **(Figure 20)**.

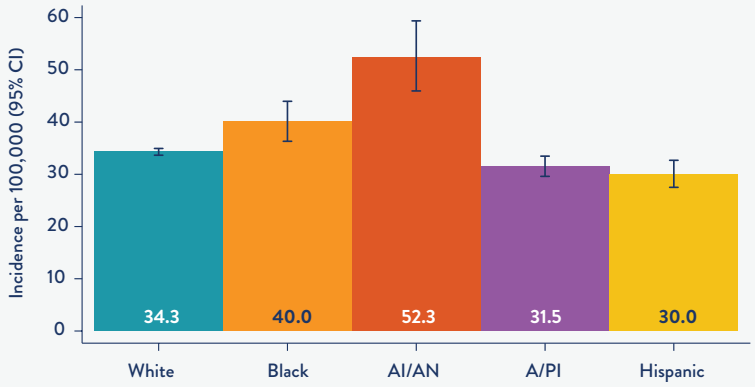
Similarly, mortality rates from hematologic malignancies were higher among AI/AN (17.8 per 100,000), Black (15.6 per 100,000), and White (15.4 per 100,000) residents of Washington State **(Figure 21)**, while A/PI (9.2 per 100,000) and Hispanic (10.7 per 100,000) residents had significantly lower mortality rates.

Colorectal Cancer

AI/AN individuals in Washington State had the highest incidence rate of colorectal cancer (52.3 per 100,000) of any group **(Figure 22)**. A/PI (31.5 per 100,000) and Hispanic (30.0 per 100,000) individuals in Washington State had incidence rates of colorectal cancer that were significantly lower than the rates of White (34.3 per 100,000), Black (40.0 per 100,00), or AI/AN populations.

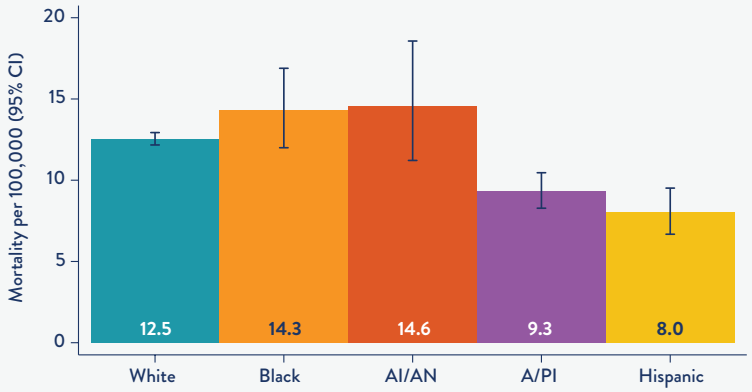
Similarly, AI/AN (14.6 per 100,000), Black (14.3 per 100,000) and White (12.5 per 100,000) populations in Washington State all had colorectal cancer mortality rates that were substantially and significantly higher than the colorectal cancer mortality rates for A/PI (9.3 per 100,000) or Hispanic (8.0 per 100,000) populations **(Figure 23)**.

Figure 22 Colorectal Cancer Incidence Rates by Race and Ethnicity, Washington State, 2015-2019



Source: NPCR/SEER Mortality, 2015–2019
Age-standardized to US Population, 2000

Figure 23 Colorectal Cancer Mortality Rates by Race and Ethnicity, Washington State, 2015-2019



Source: SEER Mortality, 2015–2019
Age-standardized to US Population, 2000

Cancers of Unusual Incidence or Mortality in Washington State

From 2015 – 2019, the overall incidence rate of invasive cancer in Washington State (441.3 per 100,000) was slightly lower than of the overall incidence in the US (449.2 per 100,000) **(Table 2).**

Cancer sites with significantly higher incidence rates in Washington State than in the US include:

Female Breast
133.3 per 100,000
v. 128.0 per 100,000

Melanoma
26.3 per 100,000
v. 22.9 per 100,000

Bladder
20.7 per 100,000
v. 19.4 per 100,000

Oral
12.5 per 100,000
v. 12.0 per 100,000

Liver
9.1 per 100,000
v. 8.6 per 100,000

Conversely, Washington State experienced significantly lower incidence rates than the US for the following cancer types:

Prostate
100.0 per 100,000
v. 109.8 per 100,000

Lung
51.5 per 100,000
v. 56.3 per 100,000

Colorectal
34.7 per 100,000
v. 37.6 per 100,000

Kidney
15.6 per 100,000
v. 17.3 per 100,000

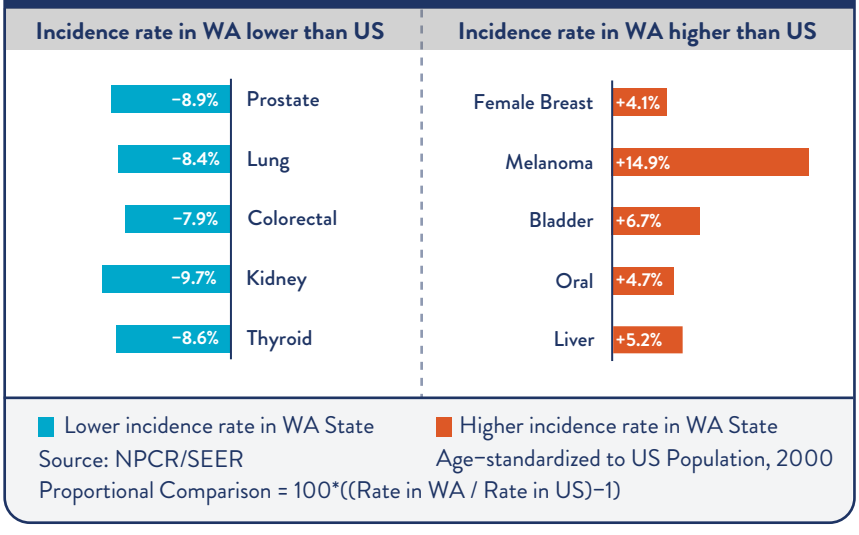
Thyroid
12.6 per 100,000
v. 13.8 per 100,000

Table 2 Invasive cancer incidence in WA compared to US
All cases, 2015-2019

Rank	Cancer Type	Washington	United States
		Incidence rate per 100,000 (95% confidence interval)	
--	Overall	**441.3** (439.2–443.3)	**449.2** (448.8–449.5)
1	Female Breast	**133.3** (131.8–134.9)	**128.0** (127.8–128.3)
2	Prostate	**100.0** (98.6–101.4)	**109.8** (109.6–110.0)
3	Lung	**51.5** (50.8–52.2)	**56.3** (56.1–56.4)
4	Hematologic	**42.7** (42.0–43.3)	**42.7** (42.6–42.8)
5	Colorectal	**34.7** (34.1–35.3)	**37.6** (37.6–37.7)
6	Melanoma	**26.3** (25.8–26.8)	**22.9** (22.8–22.9)
7	Corpus Uteri	**26.1** (25.5–26.8)	**26.7** (26.6–26.8)
8	Bladder	**20.7** (20.2–21.1)	**19.4** (19.3–19.4)
9	Kidney	**15.6** (15.3–16.0)	**17.3** (17.3–17.4)
10	Pancreas	**13.2** (12.8–13.5)	**13.2** (13.2–13.3)
11	Thyroid	**12.6** (12.3–13.0)	**13.8** (13.8–13.9)
12	Oral	**12.5** (12.2–12.9)	**12.0** (11.9–12.0)
13	Ovary	**10.1** (9.7–10.6)	**10.4** (10.4–10.5)
14	Liver	**9.1** (8.8–9.4)	**8.6** (8.6–8.7)

Source: NPCR/SEER Age–standardized to US Population, 2000

Figure 24 Invasive cancer incidence in WA compared to US
All cases, 2015-2019



Cancer mortality rates were significantly lower in Washington State than in the US for the following cancer sites **(Table 3 & Figure 25):**

Lung
33.9 per 100,000
v. 36.7 per 100,000

Colorectal
12.2 per 100,000
v. 13.4 per 100,000

On the other hand, compared to the US, Washington State appears to have a slightly and significantly higher burden of cancer mortality for several types of cancer, including:

Prostate
20.2 per 100,000
18.9 per 100,000

Ovary
7.3 per 100,000
v. 6.5 per 100,000

Brain and Other Nervous System
5.1 per 100,000
v. 4.4 per 100,000

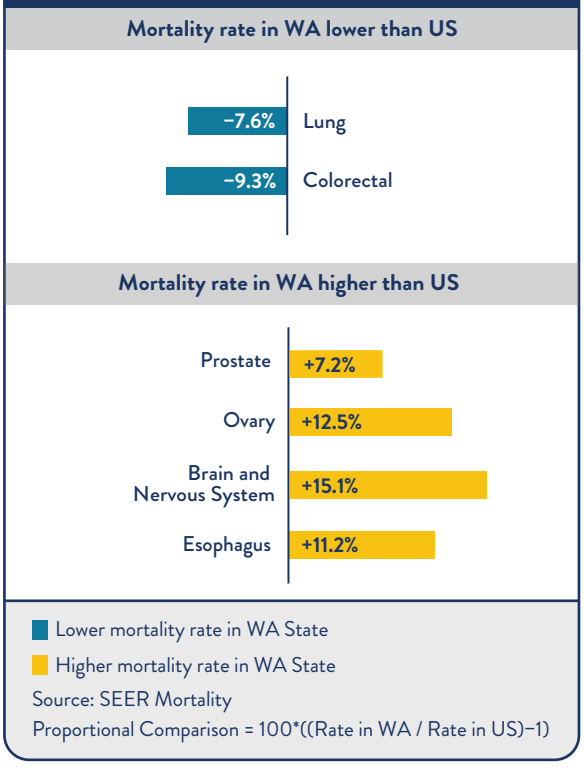
Esophagus
4.3 per 100,000
v. 3.9 per 100,000

Table 3 **Cancer mortality in WA compared to US All cases, 2015-2019**

Rank	Cancer Type	Washington	United States
		Mortality rate per 100,000 (95% confidence interval)	
--	Overall	**149.5** (148.3–150.7)	**152.4** (152.3–152.6)
1	Lung	**33.9** (33.4–34.5)	**36.7** (36.6–36.8)
2	Prostate	**20.2** (19.6–20.9)	**18.9** (18.8–19.0)
3	Female Breast	**19.5** (18.9–20.1)	**19.9** (19.8–20.0)
4	Hematologic	**14.9** (14.5–15.3)	**14.8** (14.8–14.9)
5	Colorectal	**12.2** (11.8–12.5)	**13.4** (13.4–13.5)
6	Pancreas	**10.7** (10.4–11.1)	**11.1** (11.0–11.1)
7	Ovary	**7.3** (6.9–7.6)	**6.5** (6.4–6.5)
8	Liver	**6.9** (6.7–7.2)	**6.6** (6.6–6.7)
9	Brain and Other Nervous System	**5.1** (4.9–5.3)	**4.4** (4.4–4.4)
10	Bladder	**4.4** (4.2–4.7)	**4.2** (4.2–4.3)
11	Esophagus	**4.3** (4.1–4.5)	**3.9** (3.8–3.9)
12	Kidney	**3.4** (3.2–3.6)	**3.6** (3.5–3.6)
13	Oral	**2.7** (2.6–2.9)	**2.5** (2.5–2.6)
14	Corpus Uteri	**2.6** (2.4–2.8)	**2.6** (2.6–2.7)

Source: SEER Mortality, 2015–2019 Age-standardized to US Population, 2000

Figure 25 **Cancer mortality in WA compared to US All cases, 2015-2019**



When examining population subgroups, several notable differences in cancer incidence rates between Washington State and the US exist.

Comparing cancer incidence and mortality in Washington State relative to cancer incidence in the US for Black residents from 2015 to 2019 **(Table 4 & Figure 26)**, we see that incidence rates of the following cancer sites are significantly higher among Black residents in Washington State than Black residents in the US:

Liver
16.9 per 100,000
v. 10.7 per 100,000

Bladder
14.3 per 100,000
v. 11.5 per 100,000

Conversely, Black residents in Washington State have significantly lower incidence rates of the following cancer types:

Prostate
146.8 per 100,000
v. 176.0 per 100,000

Female Breast
112.0 per 100,000
v. 127.8 per 100,000

Table 4 Cancer incidence in WA compared to US Black, 2015-2019

Rank	Cancer Type	Washington	United States
		Incidence rate per 100,000 (95% confidence interval)	
--	Overall	**437.3** (424.9–449.8)	**453.5** (452.6–454.5)
1	Prostate	**146.8** (137.0–157.1)	**176.0** (175.1–176.9)
2	Female Breast	**112.0** (103.5–120.9)	**127.8** (127.2–128.5)
3	Lung	**54.2** (49.7–59.1)	**58.2** (57.9–58.6)
4	Hematologic	**45.0** (41.1–49.2)	**42.0** (41.7–42.3)
5	Colorectal	**40.0** (36.3–44.0)	**43.0** (42.7–43.3)
6	Corpus Uteri	**25.6** (21.7–30.1)	**26.5** (26.2–26.8)
7	Kidney	**21.4** (18.9–24.2)	**19.1** (18.9–19.3)
8	Liver	**16.9** (14.6–19.4)	**10.7** (10.5–10.8)
9	Pancreas	**14.3** (12.1–16.8)	**16.2** (16.0–16.3)
10	Bladder	**14.3** (11.9–16.9)	**11.5** (11.4–11.7)
11	Stomach	**8.8** (7.0–10.8)	**9.7** (9.5–9.8)
12	Oral	**8.5** (6.9–10.3)	**8.7** (8.6–8.8)
13	Ovary	**8.3** (6.1–11.0)	**8.5** (8.4–8.7)
14	Cervix	**7.9** (6.0–10.4)	**8.8** (8.6–9.0)

Source: NPCR/SEER Age-standardized to US Population, 2000

Figure 26 Invasive cancer incidence in WA compared to US Black, 2015-2019

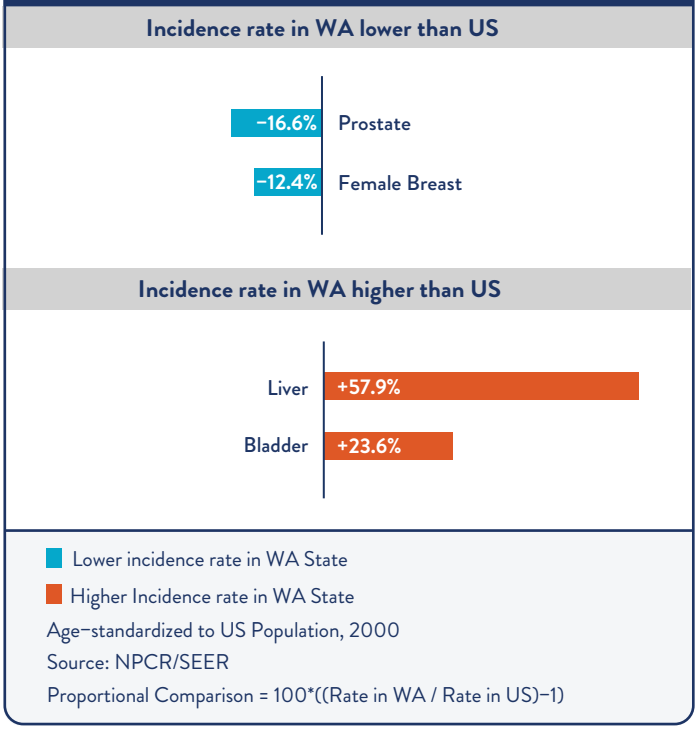
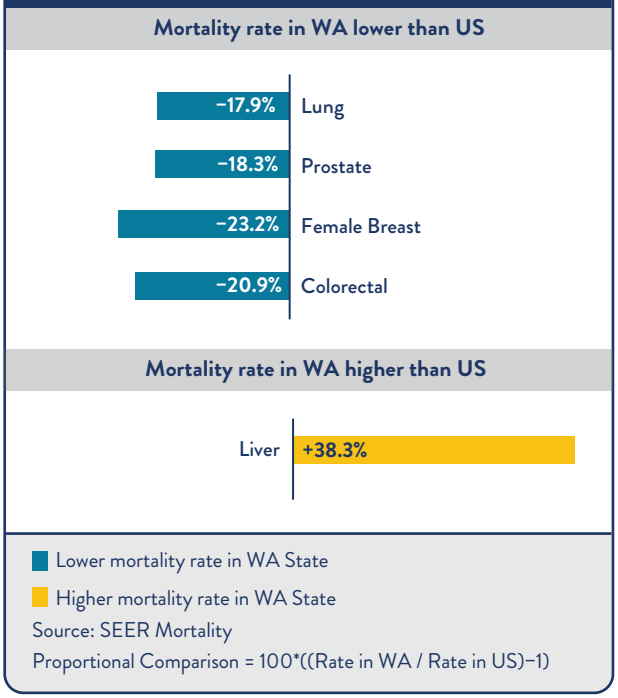


Table 5 **Cancer mortality in WA compared to US Black, 2015-2019**

Rank	Cancer Type	Washington	United States
		Mortality rate per 100,000 (95% confidence interval)	
--	Overall	**158.2** (150.2–166.4)	**178.6** (178.0–179.2)
1	Lung	**32.2** (28.6–36.1)	**39.2** (38.9–39.5)
2	Prostate	**31.0** (25.4–37.3)	**37.9** (37.4–38.4)
3	Female Breast	**21.5** (17.9–25.6)	**28.0** (27.7–28.3)
4	Hematologic	**15.6** (13.1–18.4)	**15.6** (15.4–15.7)
5	Colorectal	**14.3** (12.0–16.9)	**18.1** (17.9–18.3)
6	Pancreas	**12.1** (10.0–14.5)	**13.7** (13.5–13.8)
7	Liver	**11.7** (9.8–13.9)	**8.5** (8.3–8.6)
8	Ovary	**5.1** (3.4–7.3)	**5.9** (5.7–6.0)
9	Stomach	**4.8** (3.4–6.4)	**5.1** (5.0–5.2)
10	Corpus Uteri	**4.8** (3.2–6.8)	**4.4** (4.2–4.5)
11	Bladder	**4.2** (2.9–5.8)	**3.5** (3.4–3.5)
12	Brain and Other Nervous System	**3.5** (2.5–4.9)	**2.7** (2.7–2.8)
13	Kidney	**2.8** (1.9–4.0)	**3.5** (3.4–3.6)
14	Oral	**2.6** (1.7–3.8)	**2.6** (2.5–2.7)

Source: SEER Mortality, 2015–2019 Age-standardized to US Population, 2000

Figure 27 **Cancer mortality in WA compared to US Black, 2015-2019**



Source: SEER Mortality

Proportional Comparison = 100*((Rate in WA / Rate in US)-1)

Patterns of cancer mortality rates from 2015-2019 **(Table 5 & Figure 27)** also show that Black residents of Washington State have significantly higher mortality rates for liver cancer (11.7 per 100,000 v. 8.5 per 100,000) than Black US residents. However, the mortality rate from all cancer types combined is 11.4% lower among Black residents in Washington State than Black residents in the US. This is driven by significantly lower mortality rates in several common cancer types, including:

Lung
32.2 per 100,000
v. 39.2 per 100,000

Prostate
31.0 per 100,000
v. 37.9 per 100,000

Female Breast
21.5 per 100,000
v. 28.0 per 100,000

Colorectal
14.3 per 100,000
v. 18.1 per 100,000

From 2015 to 2019, AI/AN residents in Washington State had an overall cancer incidence rate that was 22% higher than AI/AN residents in the US **(Table 6)**. Cancer incidence rates for AI/AN residents of Washington State were significantly higher than for AI/AN residents in the US for numerous cancer sites, including:

Female Breast
146.8 per 100,000
v. 107.4 per 100,000

Lung
67.7 per 100,000
v. 60.9 per 100,000

Colorectal
52.3 per 100,000
v. 43.7 per 100,000

Hematologic
48.5 per 100,000
v. 36.6 per 100,000

Liver
21.3 per 100,000
v. 15.8 per 100,000

Bladder
18.4 per 100,000
v. 12.9 per 100,000

Thyroid
17.5 per 100,000
v. 12.4 per 100,000

Oral
15.2 per 100,000
v. 10.9 per 100,000

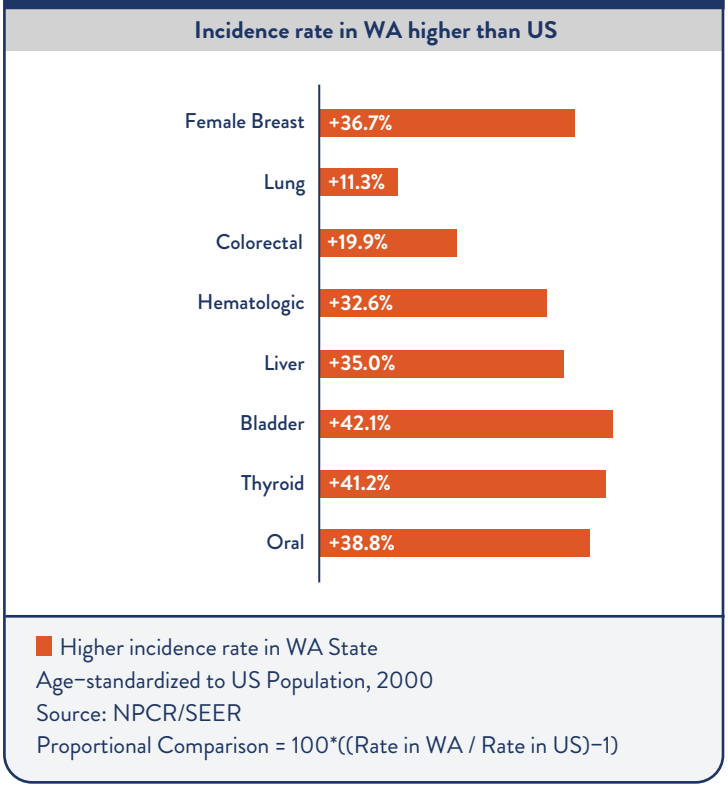
Cancer incidence rates for prostate and kidney cancers appear lower among AI/AN populations in Washington State than in the US, however these differences do not reach statistical significance.

Table 6 **Cancer incidence in WA compared to US AI/AN, 2015-2019**

Rank	Cancer Type	Washington	United States
		Incidence rate per 100,000 (95% confidence interval)	
--	Overall	**513.9** (493.6–534.8)	**421.3** (417.1–425.5)
1	Female Breast	**146.8** (132.6–162.1)	**107.4** (104.6–110.3)
2	Prostate	**77.1** (65.6–90.0)	**78.2** (75.6–80.9)
3	Lung	**67.7** (60.2–75.8)	**60.9** (59.2–62.5)
4	Colorectal	**52.3** (46.0–59.4)	**43.7** (42.3–45.0)
5	Hematologic	**48.5** (42.4–55.2)	**36.6** (35.3–37.8)
6	Corpus Uteri	**31.7** (25.5–39.0)	**25.0** (23.7–26.4)
7	Kidney	**21.8** (17.9–26.4)	**25.7** (24.7–26.8)
8	Liver	**21.3** (17.6–25.6)	**15.8** (15.0–16.6)
9	Bladder	**18.4** (14.5–23.0)	**12.9** (12.2–13.7)
10	Thyroid	**17.5** (14.2–21.5)	**12.4** (11.7–13.2)
11	Pancreas	**15.2** (11.8–19.3)	**12.5** (11.8–13.3)
12	Oral	**15.2** (11.9–19.1)	**10.9** (10.3–11.6)
13	Ovary	**14.1** (10.1–19.4)	**10.7** (9.8–11.6)
14	Stomach	**9.9** (7.1–13.5)	**7.7** (7.2–8.3)

Source: NPCR/SEER Age-standardized to US Population, 2000

Figure 28 **Invasive cancer incidence in WA compared to US AI/AN, 2015-2019**



Higher incidence rate in WA State
Age-standardized to US Population, 2000
Source: NPCR/SEER
Proportional Comparison = 100*((Rate in WA / Rate in US)-1)

AI/AN residents of Washington State experienced an overall cancer mortality rate that was approximately 16% higher than that of AI/AN residents in the US **(Table 7)**. The AI/AN cancer mortality rates were significantly higher in Washington State than in the US for the following cancer site **(Figure 29)**:

> **Hematologic**
> 17.8 per 100,000
> v. 10.6 per 100,000

Although not statistically significant, in part due to the small population size, large disparities in cancer mortality rates were also seen comparing AI/AN residents of Washington State to AI/AN residents in the US for cancers of the female breast, esophagus, and oral cavity.

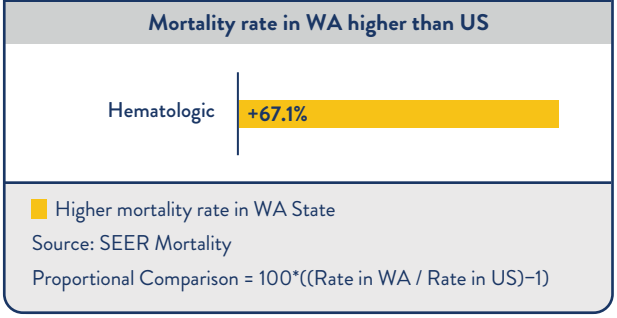
Cancer mortality rates appeared to be lower, though not statistically significantly lower, among Washington State AI/AN residents than US AI/AN residents for prostate, ovary, kidney, and stomach cancers **(Table 7)**.

Table 7 **Cancer mortality in WA compared to US AI/AN, 2015-2019**

Rank	Cancer Type	Washington	United States
		Mortality rate per 100,000 (95% confidence interval)	
--	Overall	**153.1** (141.5–165.3)	**132.0** (129.9–134.2)
1	Lung	**37.9** (32.1–44.3)	**31.9** (30.8–32.9)
2	Female Breast	**20.6** (15.2–27.3)	**15.4** (14.4–16.4)
3	Hematologic	**17.8** (13.9–22.4)	**10.6** (10.0–11.3)
4	Prostate	**15.3** (9.9–22.3)	**16.3** (15.1–17.6)
5	Colorectal	**14.6** (11.2–18.6)	**13.6** (12.9–14.3)
6	Liver	**10.6** (7.9–14.0)	**9.5** (8.9–10.0)
7	Pancreas	**9.4** (6.7–12.7)	**8.5** (7.9–9.0)
8	Esophagus	**4.9** (3.1–7.4)	**3.1** (2.8–3.5)
9	Ovary	**4.8** (2.4–8.4)	**5.2** (4.7–5.8)
10	Kidney	**4.1** (2.3–6.7)	**4.7** (4.3–5.1)
11	Stomach	**3.6** (1.9–5.9)	**3.9** (3.5–4.2)
12	Oral	**3.0** (1.7–4.9)	**2.0** (1.8–2.3)
13	Bladder	**2.7** (1.4–4.8)	**2.4** (2.1–2.7)
14	Brain Other Nervous System	**2.6** (1.4–4.4)	**2.4** (2.1–2.7)

Source: SEER Mortality, 2015–2019 Age-standardized to US Population, 2000

Figure 29 **Cancer mortality in WA compared to US AI/AN, 2015–2019**



The overall cancer incidence rate for A/PI residents of Washington State is nearly 7% higher than for A/PI residents of the US **(Table 8)**. A/PI residents in Washington State have a significantly higher incidence rate than A/PI residents in the US for the following cancer sites **(Figure 30)**:

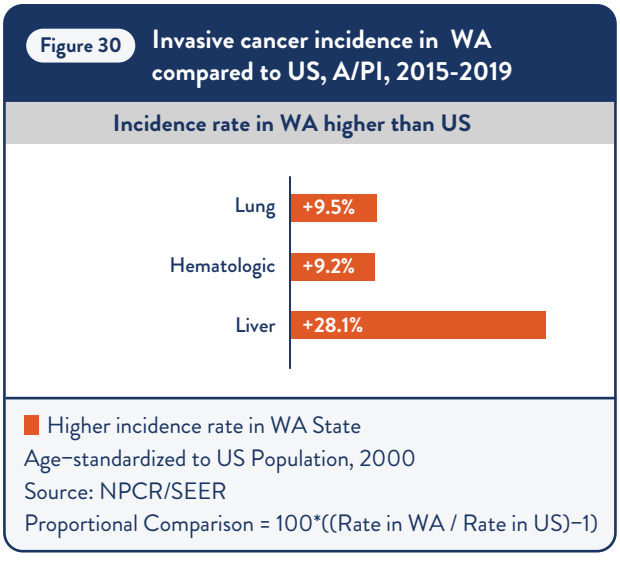
> **Lung**
> 37.5 per 100,000
> v. 34.2 per 100,000
>
> **Hematologic**
> 28.7 per 100,000
> v. 26.3 per 100,000
>
> **Liver**
> 15.6 per 100,000
> v. 12.2 per 100,000

Table 8 **Cancer incidence in WA compared to US A/PI, 2015-2019**

Rank	Cancer Type	Washington	United States
		Incidence rate per 100,000 (95% confidence interval)	
--	Overall	**315.4** (309.4–321.5)	**295.3** (294.3–296.4)
1	FemaleBreast	**102.6** (98.2–107.1)	**101.3** (100.4–102.1)
2	Prostate	**58.3** (54.3–62.5)	**57.2** (56.5–57.9)
3	Lung	**37.5** (35.3–39.7)	**34.2** (33.8–34.6)
4	Colorectal	**31.5** (29.6–33.5)	**29.4** (29.0–29.7)
5	Hematologic	**28.7** (26.9–30.6)	**26.3** (25.9–26.6)
6	Corpus Uteri	**22.0** (20.0–24.1)	**20.5** (20.1–20.8)
7	Liver	**15.6** (14.3–17.0)	**12.2** (12.0–12.4)
8	Thyroid	**13.5** (12.3–14.7)	**15.2** (14.9–15.4)
9	Pancreas	**10.8** (9.6–12.0)	**9.6** (9.4–9.8)
10	Stomach	**9.4** (8.4–10.6)	**9.3** (9.1–9.5)
11	Bladder	**9.3** (8.3–10.5)	**8.3** (8.1–8.5)
12	Kidney	**8.8** (7.8–9.8)	**8.2** (8.0–8.3)
13	Ovary	**8.0** (6.8–9.3)	**9.1** (8.8–9.3)
14	Oral	**7.7** (6.8–8.6)	**8.2** (8.0–8.4)

Source: NPCR/SEER Age-standardized to US Population, 2000

Figure 30 **Invasive cancer incidence in WA compared to US, A/PI, 2015-2019**



Overall cancer mortality is approximately 9% higher among A/PI residents of Washington State than among US A/PI residents **(Table 9)**. The mortality rate for the following types of cancer is significantly higher among A/PI residents in Washington State than A/PI residents in the US **(Figure 31)**:

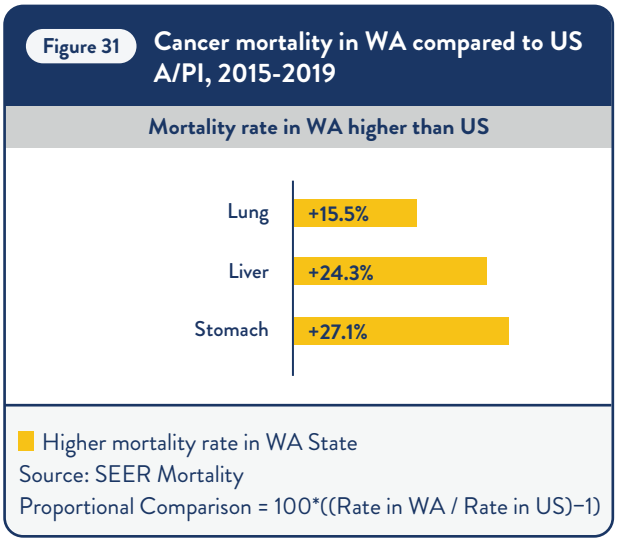
> **Lung**
> 23.9 per 100,000
> v. 20.7 per 100,000
>
> **Liver**
> 10.7 per 100,000
> v. 8.6 per 100,000
>
> **Stomach**
> 6.2 per 100,000
> v. 4.9 per 100,000

Table 9 **Cancer mortality in WA compared to US A/PI, 2015-2019**

Rank	Cancer Type	Washington	United States
		Mortality rate per 100,000 (95% confidence interval)	
--	Overall	**105.3** (101.7–109.0)	**96.5** (95.9–97.1)
1	Lung	**23.9** (22.1–25.7	**20.7** (20.4–21.0)
2	Female Breast	**11.7** (10.3–13.4	**11.8** (11.5–12.0)
3	Liver	**10.7** (9.6–11.9)	**8.6** (8.4–8.8)
4	Prostate	**9.7** (7.9–11.8)	**8.6** (8.3–9.0)
5	Colorectal	**9.3** (8.3–10.5)	**9.4** (9.2–9.6)
6	Hematologic	**9.2** (8.1–10.3)	**8.9** (8.7–9.1)
7	Pancreas	**7.8** (6.8–8.8)	**7.6** (7.4–7.8)
8	Stomach	**6.2** (5.3–7.1)	**4.9** (4.7–5.0)
9	Ovary	**4.6** (3.7–5.7)	**4.4** (4.3–4.6)
10	Brain Other Nervous System	**2.6** (2.0–3.2)	**2.3** (2.2–2.4)
11	Corpus Uteri	**2.4** (1.7–3.1)	**1.8** (1.6–1.9)
12	Bladder	**2.1** (1.6–2.7)	**1.7** (1.6–1.8)
13	Oral	**2.0** (1.5–2.5)	**2.1** (2.0–2.2)
14	Esophagus	**1.6** (1.2–2.1)	**1.5** (1.5–1.6)

Source: SEER Mortality, 2015–2019 Age-standardized to US Population, 2000

Figure 31 **Cancer mortality in WA compared to US A/PI, 2015-2019**



The overall cancer incidence rate for Hispanic individuals living in Washington State (352.3 per 100,000) is nearly identical to that of US Hispanics (352.2 per 100,000) **(Table 10)**. Despite this similarity in overall incidence rates, compared to Hispanic individuals in the US, Hispanic residents of Washington have significantly higher incidence rates of the following types of cancer **(Figure 32)**:

> **Female Breast**
> 106.5 per 100,00
> v. 99.2 per 100,000
>
> **Lung**
> 34.9 per 100,000
> v. 29.1 per 100,000
>
> **Melanoma**
> 7.8 per 100,000
> v. 4.7 per 100,000

The incidence of stomach cancer in Washington State is notably unusual because it appears among the 15 most common sites for underrepresented populations, but not for the population overall.

Conversely, Hispanic residents of Washington State have a significantly lower incidence rate than Hispanic individuals in the US for the following cancer types **(Figure 32)**:

> **Prostate**
> 72.1 per 100,000
> v. 87.2 per 100,000
>
> **Colorectal**
> 30.0 per 100,000
> v. 33.7 per 100,000
>
> **Thyroid**
> 11.8 per 100,000
> v. 13.7 per 100,000

Table 10 **Cancer incidence in WA compared to US Hispanic, 2015-2019**

Rank	Cancer Type	Washington	United States
		Incidence rate per 100,000 (95% confidence interval)	
--	Overall	**352.3** (343.6–361.2)	**352.2** (351.4–353.1)
1	Female Breast	**106.5** (100.4–112.9)	**99.2** (98.6–99.8)
2	Prostate	**72.1** (66.0–78.5)	**87.2** (86.5–87.8)
3	Hematologic	**37.6** (34.8–40.5)	**38.0** (37.7–38.2)
4	Lung	**34.9** (31.9–38.0)	**29.1** (28.9–29.4)
5	Colorectal	**30.0** (27.5–32.7)	**33.7** (33.4–34.0)
6	Corpus Uteri	**25.4** (22.6–28.5)	**24.3** (24.0–24.6)
7	Kidney	**17.5** (15.6–19.5)	**17.5** (17.3–17.7)
8	Liver	**14.1** (12.4–16.0)	**13.8** (13.6–14.0)
9	Bladder	**12.5** (10.7–14.6)	**10.8** (10.6–10.9)
10	Pancreas	**11.9** (10.2–13.7)	**11.9** (11.7–12.0)
11	Thyroid	**11.8** (10.5–13.1)	**13.7** (13.6–13.9)
12	Ovary	**10.2** (8.4–12.3)	**10.0** (9.8–10.2)
13	Stomach	**8.2** (6.9–9.6)	**9.4** (9.3–9.6)
14	Melanoma	**7.8** (6.6–9.2)	**4.7** (4.6–4.8)

Source: NPCR/SEER Age-standardized to US Population, 2000

Figure 32 **Invasive cancer incidence in WA compared to US Hispanic, 2015-2019**

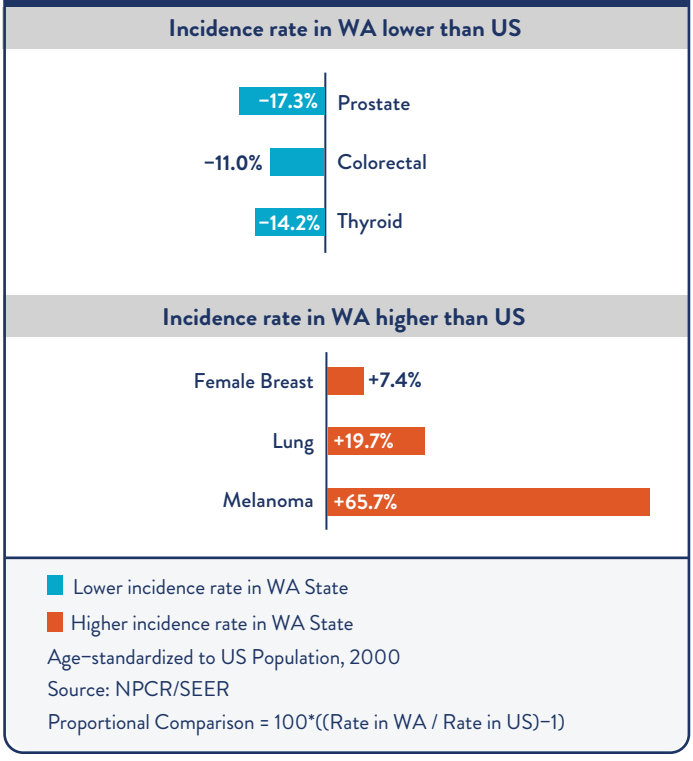
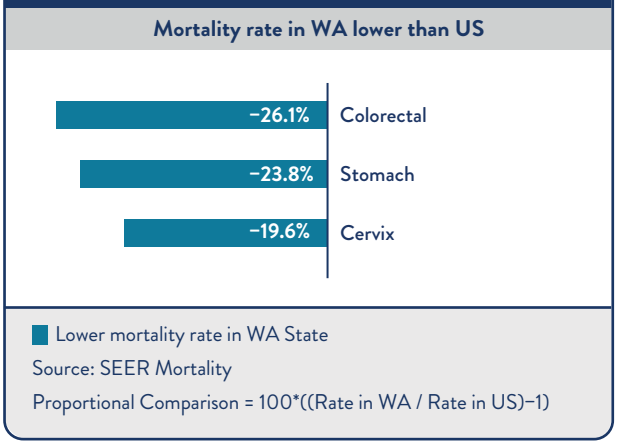


Table 11 **Cancer mortality in WA compared to US Hispanic, 2015–2019**

Rank	Cancer Type	Washington	United States
		Mortality rate per 100,000 (95% confidence interval)	
--	Overall	**102.1** (97.1–107.4)	**110.0** (109.5–110.5)
1	Lung	**15.3** (13.3–17.5)	**16.2** (16.0–16.4)
2	Prostate	**14.0** (11.0–17.4)	**15.7** (15.3–16.0)
3	Female Breast	**12.1** (10.0–14.4)	**13.8** (13.6–14.0)
4	Hematologic	**10.7** (9.1–12.5)	**11.9** (11.7–12.1)
5	Liver	**9.8** (8.3–11.5)	**9.3** (9.2–9.5)
6	Pancreas	**8.3** (6.8–9.9)	**8.7** (8.6–8.9)
7	Colorectal	**8.0** (6.7–9.5)	**10.9** (10.7–11.0)
8	Ovary	**5.0** (3.6–6.7)	**5.0** (4.9–5.1)
9	Stomach	**3.7** (2.8–4.7)	**4.9** (4.8–5.0)
10	Kidney	**3.5** (2.6–4.5)	**3.4** (3.3–3.5)
11	Brain and Other Nervous System	**3.3** (2.6–4.2)	**3.1** (3.0–3.2)
12	Esophagus	**2.4** (1.7–3.2)	**2.0** (1.9–2.1)
13	Cervix	**2.0** (1.3–3.1)	**2.5** (2.4–2.6)
14	Bladder	**1.9** (1.2–2.8)	**2.4** (2.3–2.4)

Source: SEER Mortality, 2015–2019 Age-standardized to US Population, 2000

Figure 33 **Cancer mortality in WA compared to US Hispanic, 2015–2019**



Compared to Hispanic residents in the US, Hispanic residents in Washington State have a 7.2% lower mortality rate for all types of cancer combined **(Table 11)**. Significantly lower cancer mortality rates for Hispanics in Washington are observed for the following cancer sites **(Figure 33)**:

> **Colorectal**
> 8.0 per 100,000
> v. 10.9 per 100,000
>
> **Stomach**
> 3.7 per 100,000
> v. 4.9 per 100,000
>
> **Cervix**
> 2.0 per 100,000
> v. 2.5 per 100,000

Although the mortality rate for several types of cancer appears to be higher among Hispanic residents in Washington than Hispanics in the US, including for liver, kidney, brain and other nervous system, and esophagus, none of these differences reach statistical significance **(Table 11)**.

Cancer Burden Across the Lifespan

Different patterns of cancer exist for different age groups. Exploring cancer incidence and mortality across the lifespan informs efforts to prevent, treat, and promote the well-being of cancer survivors at every age.

Children, Ages 0–14

Among children ages 0 to 14, hematologic malignancies are by far the most common type of cancer diagnosed in Washington State (6.4 per 100,000) **(Table 12)**, followed by cancers of the brain (3.6 per 100,000). Cancer mortality for this age group is low **(Table 13)** and does not differ between children in Washington State (2.0 per 100,000) and children in the US (2.0 per 100,000).

Table 12 Cancer incidence in WA compared to US Ages 0–14, 2015-2019

Rank	Cancer Type	Washington	United States
		Incidence rate per 100,000 (95% confidence interval)	
--	Overall	**18.2** (17.2–19.2)	**17.3** (17.2–17.5)
1	Hematologic	**6.4** (5.8–7.1)	**6.7** (6.6–6.8)
2	Brain	**3.6** (3.2–4.1)	**3.0** (3.0–3.1)
3	Soft Tissue	**1.3** (1.0–1.5)	**1.0** (1.0–1.1)
4	Kidney	**0.9** (0.7–1.1)	**0.9** (0.9–0.9)
5	Other Endocrine	**0.8** (0.6–1.1)	**0.8** (0.7–0.8)
6	Bone	**0.6** (0.5–0.8)	**0.8** (0.8–0.8)
7	Other Nervous System	**0.6** (0.4–0.8)	**0.5** (0.5–0.5)
8	Eye	**0.6** (0.4–0.8)	**0.5** (0.5–0.5)
9	Liver	**0.5** (0.3–0.7)	**0.4** (0.3–0.4)
10	Thyroid	**0.4** (0.3–0.6)	**0.4** (0.3–0.4)
11	Colorectal	**0.4** (0.2–0.6)	**0.2** (0.2–0.3)

Source: NPCR/SEER | Crude rates

Table 13 Cancer mortality in WA compared to US Ages 0–14, 2015-2019

Rank	Cancer Type	Washington	United States
		Mortality rate per 100,000 (95% confidence interval)	
--	Overall	**2.0** (1.7–2.3)	**2.0** (2.0–2.1)
1	Hematologic	**0.7** (0.5–0.9)	**0.6** (0.6–0.6)
2	Brain and Other Nervous System	**0.7** (0.5–0.9)	**0.7** (0.7–0.7)
3	Other Endocrine	**0.2** (0.1–0.3)	**0.2** (0.2–0.2)

Source: SEER Mortality | Crude rates

Adolescents and Young Adults, Ages 15–39

The incidence rate of melanoma among adolescents and young adults ages 15–39 in Washington State (7.4 per 100,000) is significantly higher than the melanoma incidence rate for US residents of the same age group **(Table 14)**. Similarly, colorectal cancer among adolescents and young adults in this age group in Washington State is significantly higher than for the US for the following **(Figure 34)**:

> **Melanoma**
> 7.4 per 100,00
> v. 6.2 per 100,00
>
> **Colorectal**
> 5.7 per 100,000
> v. 4.9 per 100,000

Conversely, the incidence rate of ovarian cancer among adolescents and young adults ages 15–39 in Washington State is significantly lower than that of US residents of the same age group for the following:

> **Ovary**
> 2.2 per 100,000
> v. 2.8 per 100,000

Table 14 Cancer incidence in WA compared to US Ages 15–39, 2015-2019

Rank	Cancer Type	Washington	United States
		Incidence rate per 100,000 (95% confidence interval)	
--	Overall	**74.3** (72.9–75.9)	**73.3** (73.1–73.6)
1	Female Breast	**20.8** (19.7–21.9)	**21.1** (21.0–21.3)
2	Testis	**11.9** (11.1–12.8)	**11.1** (10.9–11.2)
3	Thyroid	**11.3** (10.8–11.9)	**11.2** (11.1–11.3)
4	Hematologic	**10.5** (9.9–11.0)	**11.1** (11.0–11.2)
5	Melanoma	**7.4** (7.0–7.9)	**6.2** (6.2–6.3)
6	Cervix	**6.0** (5.4–6.7)	**6.2** (6.1–6.3)
7	Colorectal	**5.7** (5.3–6.1)	**4.9** (4.8–4.9)
8	Corpus Uteri	**3.2** (2.7–3.6)	**3.7** (3.6–3.8)
9	Brain	**3.1** (2.8–3.4)	**2.7** (2.7–2.8)
10	Kidney	**2.3** (2.1–2.6)	**2.4** (2.4–2.5)
11	Ovary	**2.2** (1.9–2.6)	**2.8** (2.7–2.8)
12	Soft Tissue	**1.6** (1.4–1.8)	**1.6** (1.6–1.6)
13	Oral	**1.5** (1.3–1.7)	**1.4** (1.3–1.4)
14	Lung	**0.9** (0.8–1.1)	**1.0** (0.9–1.0)

Source: NPCR/SEER | Crude rates
Proportional Comparison = 100*((Rate in WA / Rate in US)–1)

Figure 34 Cancer incidence in WA compared to US Ages 15–39, 2015-2019

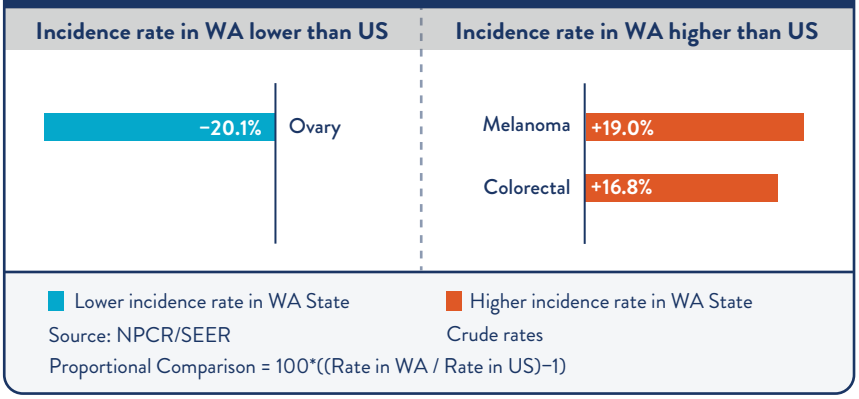


Table 15 **Cancer mortality in WA compared to US Ages 15–39, 2015-2019**

Rank	Cancer Type	Washington	United States
		Mortality rate per 100,000 (95% confidence interval)	
--	Overall	**7.6** (7.2–8.1)	**8.4** (8.3–8.4)
1	Female Breast	**1.7** (1.4–2.0)	**2.1** (2.0–2.1)
2	Hematologic	**1.2** (1.0–1.4)	**1.3** (1.3–1.4)
3	Brain Other Nervous System	**1.0** (0.8–1.2)	**0.9** (0.9–1.0)
4	Colorectal	**0.7** (0.5–0.8)	**0.8** (0.8–0.8)
5	Cervix	**0.5** (0.4–0.8)	**0.9** (0.8–0.9)
6	Soft Tissue	**0.5** (0.4–0.6)	**0.4** (0.4–0.4)
7	Ovary	**0.4** (0.3–0.6)	**0.4** (0.4–0.4)
8	Liver	**0.3** (0.2–0.4)	**0.2** (0.2–0.2)
9	Stomach	**0.3** (0.2–0.4)	**0.3** (0.3–0.3)
10	Melanoma	**0.3** (0.2–0.4)	**0.2** (0.2–0.3)
11	Bone	**0.3** (0.2–0.4)	**0.3** (0.3–0.3)
12	Testis	**0.3** (0.2–0.4)	**0.4** (0.3–0.4)
13	Lung	**0.2** (0.2–0.3)	**0.3** (0.3–0.4)
14	Pancreas	**0.2** (0.1–0.3)	**0.2** (0.2–0.2)

Source: SEER Mortality, 2015–2019 | Crude rates

Cancer mortality among adolescents and young adults ages 15–39 in Washington State is slightly lower than the mortality rate for US residents in the same age group **(Table 15)**. However, differences in the mortality rates of individual cancer sites do not reach statistical significance comparing individuals ages 15–39 in Washington to the US.

Ferndale, WA. Photo by Sarah Peterson

Middle Age Adults, Ages 40–64

The overall incidence rate of cancer among individuals ages 40 to 64 in Washington is significantly lower than that of US residents in the same age group (603.5 per 100,000 v. 643.0 per 100,000) **(Table 16)**. This is largely driven by significant differences in the incidence rates of the following **(Figure 35)**:

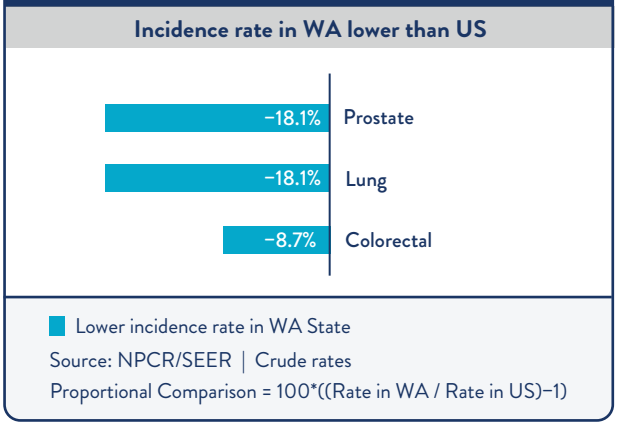
> **Prostate**
> 132.2 per 100,000
> v. 161.5 per 100,000
>
> **Lung**
> 52.2 per 100,000
> v. 63.7 per 100,000
>
> **Colorectal**
> 50.7 per 100,000
> v. 55.5 per 100,000

Table 16 Cancer incidence in WA compared to US Ages 40–64, 2015–2019

Rank	Cancer Type	Washington	United States
		Incidence rate per 100,000 (95% confidence interval)	
--	Overall	**603.5** (599.1–608.0)	**643.0** (642.3–643.7)
1	Female Breast	**241.0** (237.1–245.0)	**234.5** (233.9–235.1)
2	Prostate	**132.2** (129.3–135.2)	**161.5** (161.0–161.9)
3	Corpus Uteri	**53.7** (51.8–55.6)	**53.6** (53.3–53.9)
4	Lung	**52.2** (50.9–53.6)	**63.7** (63.5–64.0)
5	Colorectal	**50.7** (49.4–52.0)	**55.5** (55.3–55.7)
6	Hematologic	**49.4** (48.1–50.7)	**50.2** (50.0–50.4)
7	Melanoma	**37.6** (36.5–38.7)	**32.4** (32.3–32.6)
8	Kidney	**24.1** (23.2–25.0)	**28.5** (28.3–28.6)
9	Oral	**21.4** (20.6–22.3)	**22.4** (22.3–22.5)
10	Thyroid	**20.6** (19.8–21.4)	**23.4** (23.2–23.5)
11	Bladder	**17.8** (17.0–18.5)	**17.6** (17.4–17.7)
12	Ovary	**16.5** (15.5–17.6)	**17.5** (17.3–17.6)
13	Liver	**15.6** (14.8–16.3)	**14.7** (14.6–14.8)
14	Pancreas	**14.5** (13.9–15.2)	**15.5** (15.4–15.6)

Source: NPCR/SEER | Crude rates

Figure 35 Cancer incidence in WA compared to US Ages 40–64, 2015-2019



Source: NPCR/SEER | Crude rates
Proportional Comparison = 100*((Rate in WA / Rate in US)−1)

The overall cancer mortality rate in this age group is nearly 11% lower for residents of Washington State than for those in the US (138.5 per 100,000 v. 155.5 per 100,000) **(Table 17)**. However, the mortality rate for cancers of the brain and other nervous system among middle age adults in Washington is significantly higher than for middle age adults in the US as follows **(Figure 36)**:

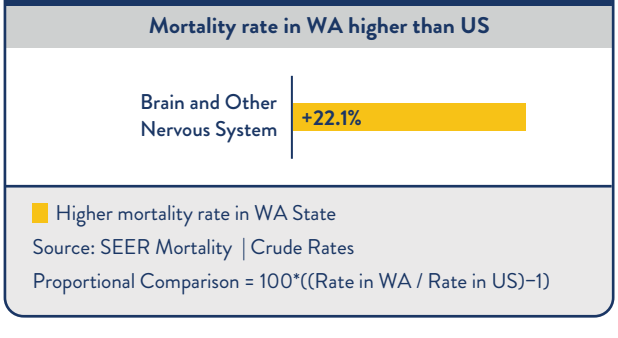
> **Brain and Other Nervous System**
> 7.4 per 100,000
> v. 6.1 per 100,000

Table 17 **Cancer mortality in WA compared to US Ages 40–64, 2015-2019**

Rank	Cancer Type	Washington	United States
		Mortality rate per 100,000 (95% confidence interval)	
--	Overall	**138.5** (136.4–140.6)	**155.1** (154.7–155.4)
1	Lung	**29.2** (28.2–30.2)	**36.0** (35.8–36.1)
2	Female Breast	**25.2** (23.9–26.5)	**28.3** (28.1–28.5)
3	Colorectal	**13.0** (12.4–13.7)	**15.2** (15.1–15.3)
4	Pancreas	**9.8** (9.3–10.4)	**11.1** (11.0–11.2)
5	Liver	**9.6** (9.0–10.1)	**9.4** (9.3–9.5)
6	Hematologic	**9.3** (8.8–9.9)	**10.4** (10.3–10.5)
7	Ovary	**8.8** (8.1–9.6)	**8.3** (8.2–8.4)
8	Brain and Other Nervous System	**7.4** (6.9–7.9)	**6.1** (6.0–6.1
9	Prostate	**5.6** (5.1–6.3)	**6.4** (6.3–6.5)
10	Esophagus	**4.8** (4.4–5.2)	**4.9** (4.9–5.0)
11	Oral	**3.6** (3.3–4.0)	**3.6** (3.6–3.7)
12	Cervix	**3.5** (3.0–4.0)	**4.1** (4.1–4.2)
13	Corpus Uteri	**3.2** (2.8–3.7)	**3.2** (3.1–3.3)
14	Kidney	**3.1** (2.8–3.5)	**3.8** (3.7–3.8)

Source: SEER Mortality, 2015–2019 | Crude rates

Figure 36 **Cancer mortality in WA compared to US Ages 40–64, 2015–2019**



Senior Adults, Ages ≥65

The risk of cancer increases substantially with age, leading to the highest cancer incidence rates seen among senior adults, ages ≥65 years **(Table 18)**. Within this age group, Washington State residents have significantly higher incidence rates for the following cancers **(Figure 37)**:

Female Breast
459.1 per 100,000
v. 426.6 per 100,000

Bladder
119.4 per 100,000
v. 113.1 per 100,000

Melanoma
101.8 per 100,000
v. 90.0 per 100,000

Oral
49.3 per 100,000
v. 44.3 per 100,000

Liver
40.7 per 100,000
v. 38.6 per 100,000

Conversely, Washington State senior adults, ages ≥65 years have lower incidence rates for the following cancer sites:

Prostate
560.5 per 100,000
v. 581.5 per 100,000

Lung
290.6 per 100,000
v. 311.0 per 100,000

Colorectal
140.3 per 100,000
v. 160.3 per 100,000

Kidney
63.6 per 100,000
v. 67.1 per 100,000

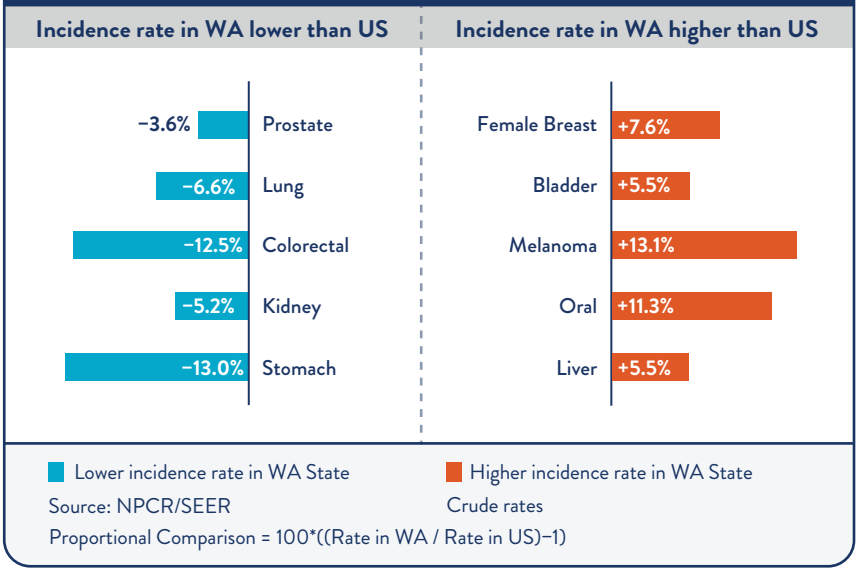
Stomach
25.6 per 100,000
v. 29.4 per 100,000

Table 18 Cancer incidence in WA compared to US Ages ≥65, 2015-2019

Rank	Cancer Type	Washington	United States
		Incidence rate per 100,000 (95% confidence interval)	
--	Overall	**1938.0** (1926.5–1949.6)	**1941.1** (1939.4–1942.9)
1	Prostate	**560.5** (551.4–569.8)	**581.5** (580.1–582.9)
2	Female Breast	**459.1** (451.5–466.8)	**426.6** (425.5–427.7)
3	Lung	**290.6** (286.1–295.1)	**311.0** (310.3–311.7)
4	Hematologic	**185.4** (181.9–189.0)	**183.3** (182.7–183.8)
5	Colorectal	**140.3** (137.2–143.4)	**160.3** (159.8–160.8)
6	Bladder	**119.4** (116.5–122.3)	**113.1** (112.7–113.6)
7	Melanoma	**101.8** (99.2–104.5)	**90.0** (89.7–90.4)
8	Corpus Uteri	**90.5** (87.2–94.0)	**91.3** (90.8–91.8)
9	Pancreas	**70.4** (68.2–72.6)	**70.0** (69.7–70.3)
10	Kidney	**63.6** (61.5–65.7)	**67.1** (66.8–67.4)
11	Oral	**49.3** (47.5–51.2)	**44.3** (44.1–44.v6)
12	Liver	**40.7** (39.0–42.4)	**38.6** (38.4–38.8)
13	Ovary	**37.0** (34.9–39.3)	**35.4** (35.1–35.7)
14	Stomach	**25.6** (24.3–27.0)	**29.4** (29.2–29.6)

Source: NPCR/SEER Age-standardized to US Population, 2000

Figure 37 Cancer incidence in WA compared to US Ages ≥65, 2015-2019



Source: NPCR/SEER Crude rates
Proportional Comparison = 100*((Rate in WA / Rate in US)-1)

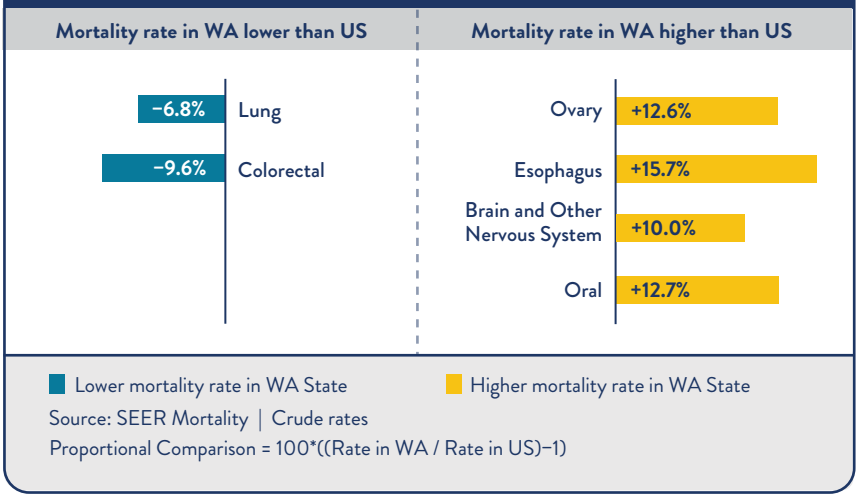
Cancer mortality rates among senior adults, ages ≥65 years living in Washington State are significantly lower than cancer mortality rates for this age group in the US for several types of cancer, including the following **(Figure 38)**:

Table 19 Cancer mortality in WA compared to US
Ages ≥65, 2015-2019

Rank	Cancer Type	Washington	United States
		Mortality rate per 100,000 (95% confidence interval)	
--	Overall	**829.2** (821.7–836.8)	**841.2** (840.1–842.3)
1	Lung	**198.8** (195.2–202.6)	**213.3** (212.7–213.9)
2	Prostate	**125.8** (121.5–130.2)	**121.2** (120.5–121.8)
3	Female Breast	**94.5** (91.1–98.0)	**91.5** (91.0–92.0)
4	Hematologic	**87.7** (85.3–90.2)	**87.3** (87.0–87.7)
5	Colorectal	**63.3** (61.2–65.4)	**70.0** (69.7–70.4)
6	Pancreas	**62.2** (60.2–64.3)	**63.2** (62.8–63.5)
7	Ovary	**37.0** (34.9–39.3)	**32.9** (32.6–33.2)
8	Liver	**35.2** (33.7–36.8)	**33.5** (33.3–33.7)
9	Bladder	**28.2** (26.8–29.6)	**28.1** (27.8–28.3)
10	Esophagus	**23.3** (22.1–24.6)	**20.2** (20.0–20.3)
11	Brain and Other Nervous System	**19.8** (18.6–21.0)	**18.0** (17.8–18.1)
12	Kidney	**19.3** (18.1–20.4)	**19.6** (19.4–19.8)
13	Corpus Uteri	**13.9** (12.6–15.3)	**14.3** (14.1–14.5)
14	Oral	**13.8** (12.9–14.9)	**12.3** (12.1–12.4)

Source: SEER Mortality, 2015–2019 | Crude rates

Figure 38 Cancer mortality in WA compared to US
Ages ≥65, 2015-2019



Source: SEER Mortality | Crude rates
Proportional Comparison = 100*((Rate in WA / Rate in US)−1)

Lung
198.8 per 100,000
v. 213.3 per 100,000

Colorectal
63.3 per 100,000
v. 70.0 per 100,000

However, Washington State senior adults, ages ≥65 years have significantly higher cancer mortality rates than those in the United States for the following cancer types **(Figure 38)**:

Ovary
37.0 per 100,000
v. 32.9 per 100,000

Esophagus
23.3 per 100,000
v. 20.02 per 100,000

Brain and Other Nervous System
19.8 per 100,000
v. 18.0 per 100,000

Oral
13.8 per 100,000
v. 12.3 per 100,000

Priorities for Advancing Cancer Health Equity in Washington State

The data on the burden of cancer in Washington State provided in this report highlight several areas where our efforts in outreach and engagement may be working to lessen the cancer burden for some of our priority populations. Specifically, we note the lower cancer mortality rates for the Hispanic population in Washington State as a sign of progress. The Consortium has a rich history of collaboration with community partners and the Hispanic community in rural areas, such as the Lower Yakima Valley in Central Washington, as well as urban and suburban areas in Western Washington. With the recent extension of the catchment area to include all of Washington State, the Consortium's long-standing satellite office in Sunnyside and the newer satellite office in Spokane will further improve outreach to Hispanic communities across the state. The lower mortality rates among the Hispanic population in Washington v. the US for female breast (12.4 % lower) colorectal (26.1% lower) and cervical (19.6% lower) cancers suggest that ongoing collaborative outreach efforts to promote screening among Hispanic residents of Washington State are helping to reduce the burden of cancer in this population.

AI/AN communities in Washington State have a disproportionately high burden of many types of cancer compared with other groups and compared to AI/AN populations in the US. Persistent inequities in access to healthcare in tribal communities may contribute to the high rates of cancer incidence and cancer mortality. We were unable to separate the data between AI/AN populations living in urban areas and those living within federally defined tribal lands. However, we recognize that genocide, assimilation, racism, and the purposeful destruction of lands, languages, and traditional practices gave rise to the health disparities presented in this report and we acknowledge the Tribal Sovereignty of the 29 federally recognized tribes in Washington State to set their own priorities for cancer control. To assist in this priority setting, the Consortium launched the Indigenous-led Indigenous Cancer Health Equity Initiative (ICHE-i) in 2022. In addition to the faculty and staff involved in ICHE-i, the Consortium supports a Patient Navigator for Indigenous patients. Together, this team guides and informs outreach and education, clinical care and research for Indigenous people.

Despite having lower cancer incidence and mortality than other racial and ethnic groups in our catchment area, A/PI communities in Washington State have a disproportionate burden of cancer compared to their counterparts in the US. Specifically, the 28.1% higher incidence rate and the 24.3% higher mortality rate for liver cancer among the A/PI population in Washington State compared to that of the US warrants further research. Similarly large disparities in cancer mortality were seen when comparing A/PI individuals in Washington State to those in the US for stomach (27.1% higher), corpus uteri (34.4% higher) and bladder (22.5% higher) cancers. We recognize that the A/PI group represents one of the most heterogenous grouping of any subpopulation defined in this report. In other words, many unique cultures, languages, and belief systems are represented within and across A/PI communities in Washington State. While the Consortium has added a Patient Navigator for A/PI patients, understanding the different needs among the multiple communities that comprise this group requires additional investment in research and disaggregation of data by Asian and Pacific Islander subgroups to better understand the cancer burden, and culturally relevant outreach that addresses cancer prevention, early detection and access to cancer care.

Looking out over grass toward the straight at Sucia Island Marine State Park, Orcas Island, WA. Photo by K. Lee Corey.

Conversations with Community Organizations Providing Health and Social Services Across Washington State

In our ongoing efforts to understand the needs of diverse communities across the State of Washington, the Consortium conducted interviews and focus groups in 2022 to learn more about how organizations throughout the state are addressing health concerns and how the Consortium could better meet the needs of Washingtonians , which resulted in the Conversations Across Washington report.[5] The Consortium's OCOE is identifying ways to address some of these challenges through its Community Health Educator-led outreach throughout the state.

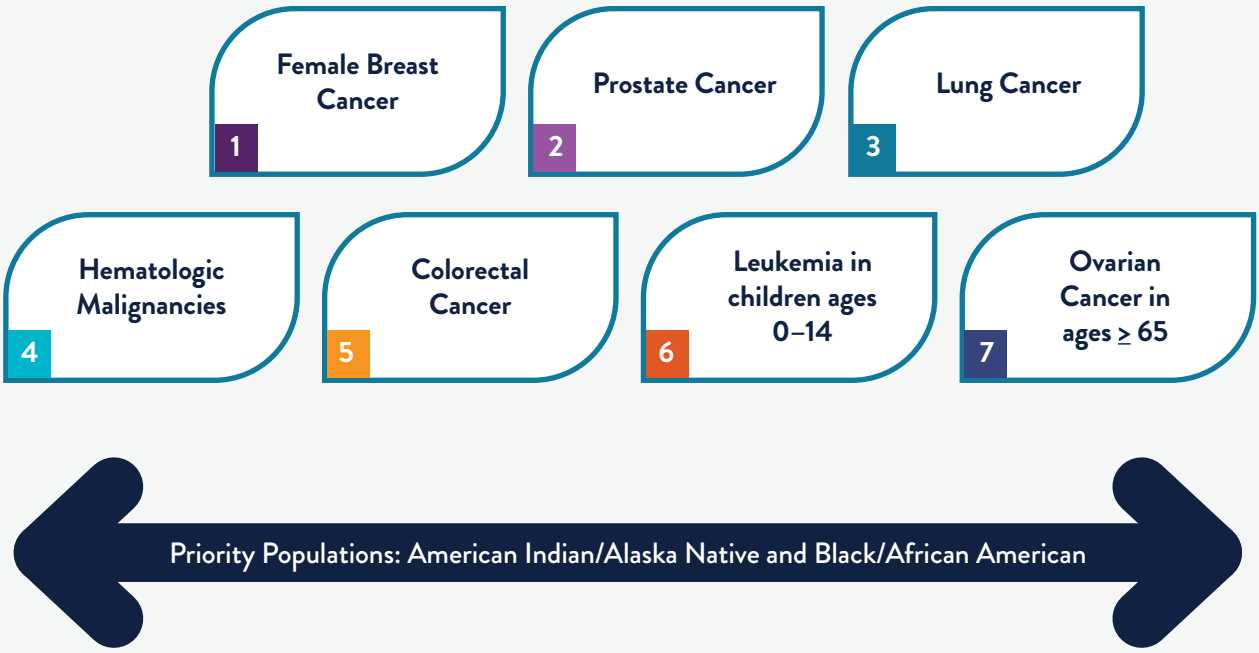
Conversations Across Washington report highlights key themes identified by organizations:

- The need for dedicated, bilingual staff (such as navigators, care coordinators, and community health workers) that mirror the communities served and support outreach operations.
- Community-informed outreach is a critical element that can result in gaining trust from the community via trusted messengers who provide high-quality and culturally relevant information.
- The role of traditional and non-traditional community partnerships was evident in the patient referral process, development of easy-to-read outreach materials, and blended resources to meet client needs across a continuum.
- A range of media such as Facebook, newspapers, flyers and email was common practice to reach clients.
- Lack of funding to support outreach operations, healthcare systems engendering mistrust, service disruption, and vast catchment areas are barriers to effective outreach. Underfunded organizations have limited outreach staff.
- Lack of knowledge around best practices for conducting outreach and providing services in rural regions.
- Rural-related challenges included limited knowledge about best practices for effectively reaching clients, lack of linguistically accessible services aligned with client need and availability, and sizeable distances of available services relative to where clients live.

Consortium Priorities

The Consortium continues to prioritize high-impact research on the top 5 most common cancers in our catchment area (female breast, prostate, lung, hematologic malignancies, and colorectal). Additionally, with guidance from the Community Action Coalitions, the Consortium has identified populations within our catchment area for which we are prioritizing research opportunities. **Figure 39** shows sites that have been prioritized for research given their unique burden among populations in the catchment area, opportunities for prevention, early detection and treatment, and the Consortium-specific clinical and research excellence within these areas. AI/AN and Black populations are noted as priority populations across all cancer sites because they have the highest cancer incidence and mortality rates of any group, respectively. In addition, the focus of leukemia in ages 0–14 was chosen because it is the most common type of cancer in the youngest members of our population. Conversely, ovarian cancer was chosen because it is the 6th most common cause of cancer death among women ≥65, and the mortality rate of ovarian cancer in this age group is significantly higher in Washington State than in the US (37.0 per 100,000 v. 32.9 per 100,000).

Figure 39. Catchment area priorities



Next Steps

With the publication and dissemination of this 2023 Community Report, the Consortium is actively seeking ongoing community input on our stated priorities. We recognize that this report is incomplete without the participation of community members and leaders across the state. OCOE continuously monitors the burden of cancer and cancer disparities in our catchment area, and we have shared and sought feedback from our three Community Action Coalitions across the state on the data and priorities set by this report. As we continue engaging with communities, patients, caregivers, and individuals in our catchment area, we invite everyone to consider whether these priorities resonate, to examine the extent to which the data match the experiences of the community, and to propose community-led initiatives to lessen the burden of cancer and advance cancer health equity in Washington State.

Please share your thoughts, feedback, or questions about this report with the **Fred Hutch Office of Community Outreach and Engagement via email at enddisparities@fredhutch.org**

References

1. Gartner DR, Maples C, Nash M, Howard-Bobiwash H. Misracialization of Indigenous People in Population Health and Mortality Studies: A Scoping Review to Establish Promising Practices. Epidemiol Rev. 2023 Apr 6:mxad001. doi: 10.1093/epirev/mxad001. Epub ahead of print. PMID: 37022309.National Program of Cancer Registries and Surveillance, Epidemiology and End Results Program SEER*Stat Database: NPCR and SEER Incidence - U.S. Cancer Statistics Public Use Research Database, 2021 Submission (2001-2019). United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute. Released June 2022. Accessed at www.cdc.gov/cancer/uscs/public-use.
2. Jim, M.A., et al., Racial misclassification of American Indians and Alaska Natives by Indian Health Service Contract Health Service Delivery Area. Am J Public Health, 2014. 104 Suppl 3(Suppl 3): p. S295-302.
3. Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System. 2023 [cited 2023 January 6].
4. Office of Disease Prevention and Health Promotion, U.S.DHHS. Healthy People 2020. 2014 [cited 2023 January 6].
5. Fred Hutchinson Cancer Center Office for Community Outreach and Engagement (2023). 2021-2022 Conversations Across Washington Published online at https://www.fredhutch.org/content/dam/www/research/institute-networks-ircs/ocoe/FINAL%20OCOE%20QNA%20Report%2012-16-22.pdf.

2023 Addendum
Why Widen?

Why Widen? Including all of Washington State in the Fred Hutch /University of Washington/Seattle Children's Cancer Consortium Catchment Area

An Addendum to the 2023 Report to the Community

Prepared by Jean McDougall, PhD, MPH, Office of Community Outreach & Engagement
June 2, 2023

Introduction

Just as water converges into a single point in the land, the Fred Hutch/University of Washington/Seattle Children's Cancer Consortium (the Consortium) acts as a focal point for community ideas and scientific breakthroughs. Several elements of the mission of the Consortium, to unite innovative research and compassionate care to prevent and eliminate cancer and infectious disease and to pursue scientific breakthroughs and healthier lives for every person in every community,[1] highlight the importance of defining the geographic area and communities it serves. The National Cancer Institute (NCI) defines a catchment area as a defined geographic area that each NCI-designated Comprehensive Cancer Center serves or intends to serve in the research it conducts, the communities it engages, and the outreach it performs.[2] Of the 54 NCI-designated Comprehensive Cancer Centers, some catchment areas are smaller than a single county and others incorporate more than 200 counties. Accordingly, it is not the size of the catchment area that matters, but rather the extent to which the cancer center serves the people and communities within this defined area. This report discusses the history, rationale, and consideration of community input into the decision to widen the Consortium catchment area from 13-counties of Western Washington to the entire State of Washington.

History and Purpose of the Consortium Catchment Area

The history and purpose of the catchment area can be traced back to the National Cancer Act of 1971, in which a National Cancer Program was developed to conduct cancer control activities in collaboration with other federal, state, or local public agencies and private industry.[3] From Fred Hutch's founding in 1973, the cancer center strived to pursue excellence in science and patient care throughout Washington State, the United States, and internationally. In 1974, the NCI's Surveillance Epidemiology and End Results (SEER) Program provided funding for the establishment of the Cancer Surveillance System (CSS) with the goal of monitoring cancer incidence, treatment, and follow-up in the 13 counties of Western Washington (Clallam, Grays Harbor, Island, Jefferson, King, Kitsap, Mason, Pierce, San Juan, Skagit, Snohomish, Thurston and Whatcom) **(Figure 1)**. When in 2012, NCI provided specific guidance for defining a Comprehensive Cancer Center's catchment area, the Consortium leveraged the CSS as a resource and demonstrated the ability to monitor cancer burden in the 13-county Western Washington region and conduct high-quality cancer research. In 2022, the Consortium redefined its catchment area to include the entire State of Washington.

A well-defined catchment area provides researchers the opportunity to monitor cancer trends, identify health-related disparities, and guide the implementation of evidence-based interventions in clinical and community settings.[4] This research draws focus to issues that are most relevant to the communities served by the Consortium. Information about the sociodemographic characteristics of the residents of the catchment area is important to ensure that accrual to cancer clinical trials reflects local population-based (as opposed to institution-based) cancer case sociodemographic profiles. Moreover, the knowledge gained from catchment area analyses informs efforts to ensure that all segments of the population benefit from scientific advances in cancer prevention, early detection, treatment, and survivorship care.[2]

In 2019, the Consortium's Office of Community Outreach & Engagement (OCOE) proposed an exploratory process to examine extending the catchment area to include the entire State of Washington. Several key factors motivated the desire to widen the catchment area to the entire state. The Consortium is the only NCI-designated Comprehensive Cancer Center in the Washington, Wyoming, Alaska, Montana and Idaho (WWAMI) region. Recognizing the myriad research that the Consortium was already conducting outside of the 13-county region of Washington State, OCOE identified opportunities to strengthen community connections and focus on working with all communities to accelerate cancer prevention, early detection, treatment, and survivorship care. Examples of ongoing research and engagement by the Consortium in Washington State outside of the 13-county catchment area include: Fred

Hutch's Center for Community Health Promotion in Sunnyside Washington; the Hutchinson Institute for Cancer Outcomes Research (HICOR)'s network of more than 25 oncology clinics, patient orgs, industry leaders, insurers, and policymakers throughout Washington State; rural research by the University of Washington's (UW) WWAMI Practice and Research Network; and the UW Health Promotion Research Center. A statewide catchment area would ensure that all counties in Washington are provided resources for community outreach and engagement activities and would match the geographic scope of other cancer centers in Large Western states (e.g. Oregon, New Mexico, Colorado) that have statewide catchment areas.

The OCOE then undertook quantitative and qualitative studies to better understand and compare the populations of the 13-county catchment area to the rest of Washington State. Data from CSS, Washington State Cancer Registry (WSCR), and Washington Department of Health Mortality files were obtained to characterize and compare cancer burden in the 13-county catchment area and in the entire state. Population characteristics including race and ethnicity in the Catchment Area and State were obtained from the Washington State Office of Financial Management annual population estimates.[5] Washington State Behavioral Risk Factor Surveillance System (BRFSS) data were used to characterize cancer prevention behaviors and risk factors, in addition to a statewide survey on cancer control, behaviors, and risk factors (n=2000) conducted by the OCOE with funding by Washington State's Andy Hill Cancer Research Endowment (CARE) Fund. Consortium patient/research participant enrollment data were also used to determine the case density and the demographic characteristics of Consortium patients. OCOE also interviewed key stakeholders and leaders across the state and held focus groups with community members to understand the needs of populations in the catchment area. The OCOE also sought guidance from their external review committee and approval from the Consortium's External Advisory Board.

Deception Falls, WA. Photo by Dave

Comparison of the Prior 13-County Catchment Area to the Rest of Washington State

In 2020, 5,265,850 individuals lived within the 13-county catchment area, and 7,656,200 individuals resided in all of Washington State. **Table 1** compares the racial and ethnic diversity of the 13-county catchment area to Washington State. Compared to the 13-county catchment area, Washington state has a slightly higher proportion of Hispanic or Latino residents (13% v. 10%). Widening the catchment area to all of Washington State would thus add >473,000 Hispanic or Latino residents. In addition, widening to all of Washington State presents the opportunity for the Consortium to work with an additional 56,278 American Indian and Alaska Native residents, 71,457 Asian residents, 11,183 Hawaiian or Other Pacific Islander residents, 41,418 Black/African American residents, 2,118,167 White residents, and 91,847 individuals of more than one race.

Table 1 also highlights the population of cancer cases residing in the catchment area and those residing in Washington State in calendar year 2017, which can be compared to the patient population of the Consortium, including newly registered patients for fiscal year 2020, interventional treatment accruals, and interventional non-treatment accruals for fiscal year 2021. Overall, the newly registered patients in the Consortium mirrored the racial and ethnic distribution of cancer cases in the 13-county catchment area and Washington State, with the proportion of Asian and Black/African American patients slightly higher in the Consortium patient population. Accruals to interventional treatment trials had higher percentages for all underrepresented groups than for cancer cases in the 13-county catchment area or Washington State.

Figure 1. Map of Washington State

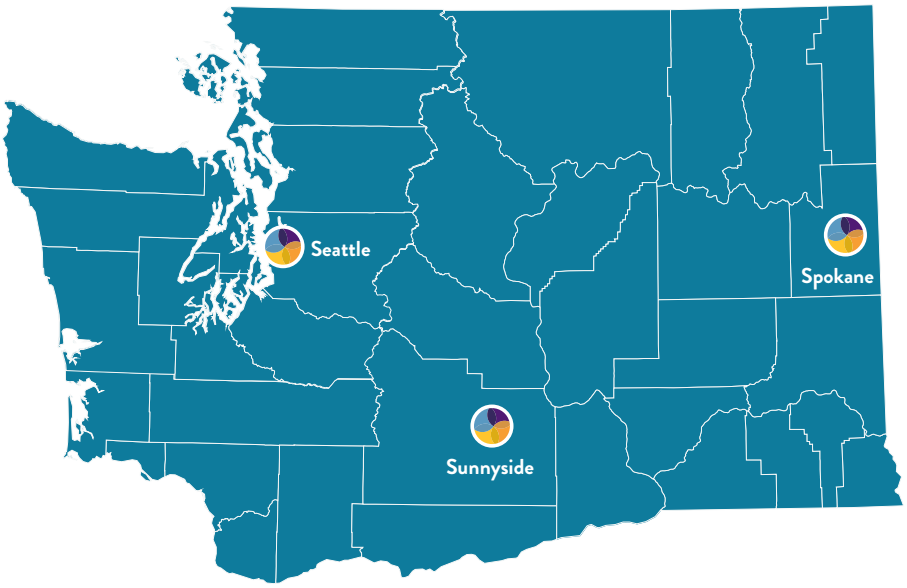


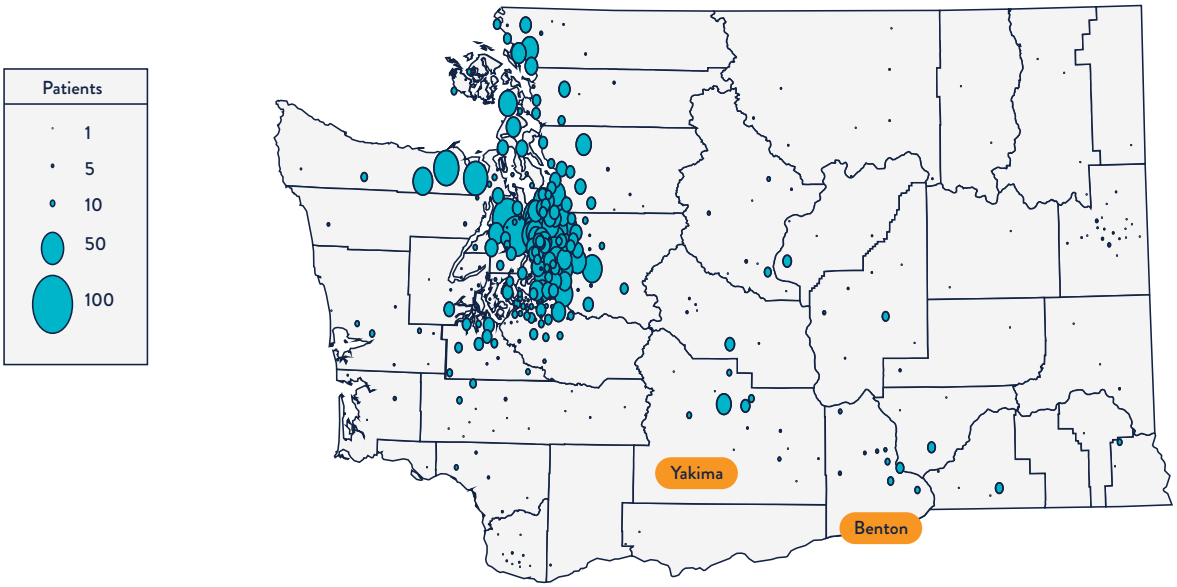
Table 1. Demographic characteristics of Washington State, 13-County catchment area residents and cancer cases

	13-County Catchment Area Demographics (CY 2020)	WA State Demographics (CY 2020)	Cancer Cases in Catchment Area (2017)	Cancer Cases in WA State (CY2017)	Newly Registered Patients (CY2020)	Interventional Treatment Accruals (FY 2021)	Interventional Non-Treatment Accruals (FY 2021)
Total	5,265,850	7,656,200	33,116	42,435	4,910	1,143	651
Race/ Ethnicity							
Hispanic or Latino	549,552 (10%)	1,022,677 (13%)	1,163 (4%)	1,786 (4%)	212 (4%)	91 (8%)	27 (4%)
Not Hispanic or Latino	4,716,298 (90%)	6,633,523 (87%)	31,953 (97%)	40,649 (96%)	4,186 (85%)	1,021 (89%)	610 (94%)
Declined to Answer	N/A	N/A	N/A	N/A	127 (3%)	19 (2%)	12 (2%)
Unknown	N/A	N/A	N/A	N/A	385 (8%)	12 (1%)	12 (2%)
Racial Categories							
American Indian/ Alaska Native	84,067 (2%)	140,3345 (2%)	217 (1%)	379 (1%)	60 (1%)	12 (1%)	8 (1%)
Asian	663,970 (13%)	735,427 (10%)	2,201 (6%)	2,207 (5%)	337 (7%)	78 (7%)	8 (1%)
Native Hawaiian or Other Pacific Islander	50,501 (1%)	61,684 (1%)	173 (1%)	193 (0.5%)	45 (1%)	19 (2%)	4 (1%)
Black or African American	288,943 (5%)	330,361 (4%)	1,147 (3%)	1,219 (3%)	178 (4%)	68 (6%)	18 (3%)
White	3,873,036 (74%)	5,991,203 (78%)	28,491 (86%)	36,888 (87%)	3,860 (79%)	905 (79%)	545 (84%)
More than One Race	305,333 (6%)	397,180 (5%)	561 (2%)	577 (1%)	61 (1%)	17 (1%)	17 (3%)
Declined to Answer	N/A	N/A	N/A	N/A	177 (1%)	29 (3%)	15 (2%)
Unknown	N/A	N/A	426 (1%)	N/A	192 (4%)	15 (1%)	5 (1%)

Case Density

An important metric in defining a cancer center's catchment area is the case density. Case densities reported by other NCI-designated Comprehensive Cancer Centers range from 2% to 28%.[4] We attempted to estimate case density by dividing the annual number of the Consortium's newly-registered patients by the number of annual incident cases from geographical areas in Washington State **(Figure 2)**, and found approximate densities of 15% for the 13-county catchment area and 12% for all of Washington State. The largest share of the non-catchment area cases came from Yakima (n=116) and Benton (n=74) counties **(Figure 2)**.

Figure 2. Distribution of Consortium Patient Residence, 2019



New Opportunities & Challenges

The decision to widen the Consortium catchment area depended not only on the quantitative data presented above, but also on the recognized opportunities and challenges identified from community members. OCOE was especially interested in understanding the perspectives of individuals living outside of the 13-county catchment area and learning more about how organizations throughout the state are addressing health concerns and how the Cancer Consortium could better meet the needs of Washingtonians. OCOE conducted interviews and focus groups with individuals from 23 community-based organizations and healthcare organizations from across the state and found a strong presence of collaboration, convening and creative problem solving in addressing needs, especially in rural regions.[7] Challenges noted by community members included limited and costly housing, communities with limited healthy food options, disparate broadband coverage, and limited access to healthcare services due to high cost, lack of transportation, and understaffed or no local services.

OCOE is also leading several new initiatives to understand how widening the catchment area may impact the lives of residents who now find themselves part of the Consortium catchment area for the first time. Recognizing the urgent need to respect and promote the rights of American Indian and Alaska Native tribes and acknowledging the fundamental importance of their right to self-determination,[6] the Consortium launched the Indigenous Cancer Health Equity Initiative, led by Craig Dee (Diné), Snowy Johnson (Apsáalooke, Kainai, & Bitterroot Salish), and Dr. Myra Parker (Mandan & Hidatsa), with funding provided by a generous gift from the Vadon Foundation. The Consortium's 2022 Pathways to Equity Symposium focus on achieving Indigenous health equity through policy and systems change shared ideas for conducting science while maintaining Tribal Sovereignty, ensuring ownership of data and Tribal involvement in every step of the partnership.[8]

Continuing a long partnership with Hispanic and rural communities living in the Yakima Valley, the Center for Community Health Promotion (CCHP), located in Sunnyside, Washington plays a key role in bringing Consortium activities in cancer prevention, early detection, treatment, and survivorship care to Central Washington. Since its founding in 1995, CCHP works closely with Consortium investigators to conduct community outreach through home health parties, radio talk shows, health fairs, and local presentations. In addition, community-based participatory research projects funded by NCI and other National Institutes of Health grants have built sustainable research programs with ethnically, geographically, and socioeconomically diverse communities in the Yakima Valley.

Notably, to extend outreach in Eastern Washington, the Consortium added a satellite office in Spokane, Washington. A new team of Community Health Educators, located within the new Health Peninsula campus,[9] are building new, equitable partnerships with existing organizations and communities in the Spokane area.

Summary

The data presented in this report demonstrate the potential reach of the Consortium to monitor cancer trends, identify health-related disparities, and guide the implementation of evidence-based interventions in clinical and community settings throughout Washington State. As the catchment area widens, creating equitable partnerships to decolonize knowledge, rather than to expand into areas where others are already working requires a commitment to acknowledging, respecting, and recognizing the excellent work and examples of successful cancer control efforts that already exist in Washington State. The purpose of the catchment area has always been to identify and amplify the needs and ideas of the communities within a geographic area. As information flows into the Consortium from the communities in the new catchment area, the goal is to develop new strategies to lessen the burden of cancer and other diseases in Washington State.

References

1. Fred Hutchinson Cancer Center. Mission & Values. 2022 [cited 2022 October 25]; Available from: https://www.fredhutch.org/en/about/about-the-hutch/mission-values.html.
2. DelNero, P.F., et al., A National Map of NCI-Designated Cancer Center Catchment Areas on the 50th Anniversary of the Cancer Centers Program. Cancer Epidemiol Biomarkers Prev, 2022. 31(5): p. 965-971.
3. National Cancer Institute. National Cancer Act of 1971. 2021 [cited 2022 October 27]; Available from: https://www.cancer.gov/about-nci/overview/history/national-cancer-act-1971.
4. Tai, C.G. and R.A. Hiatt, The Population Burden of Cancer: Research Driven by the Catchment Area of a Cancer Center. Epidemiol Rev, 2017. 39(1): p. 108-122.
5. Office of Financial Management. Estimates of April 1 population by age, sex, race and Hispanic origin. 2019 December 2, 2022.
6. United Nations, United Nations Declaration on the Rights of Indigenous Peoples, Resolution adopted by the General Assembly on 13 September 2007, Editor. 2007.
7. Fred Hutchinson Cancer Center Office for Community Outreach and Engagement (2023). 2021-2022 Conversations Across Washington Published online at https://www.fredhutch.org/content/dam/www/research/institute-networks-ircs/ocoe/FINAL%20OCOE%20QNA%20Report%2012-16-22.pdf.
8. Mapes, D., Indigenous health equity focus of Pathways Symposium, in Hutch News 2022, Fred Hutch Cancer Center: Published online at https://www.fredhutch.org/en/news/center-news/2022/05/indigenous-health-equity-focus-of-pathways-symposium.html.
9. Emerald Initiative, Health Peninsula. 2022: Published online at https://www.spokanehealthpeninsula.com/#:~:text=The%20Health%20Peninsula%20is%20a,major%20health%20care%20education%20centers.

CANCER CONSORTIUM

FRED HUTCH • UNIVERSITY OF WASHINGTON • SEATTLE CHILDREN'S

Office of Community Outreach & Engagement

Created 06/2023 | OCOE-0323-00129 | Rev. 06/28/23