HealthStatisticsCenter
West Virginia Department of Health and Human Resources

HSC Statistical Brief No. 26 Update

Cancer Prevalence and Survivorship in West Virginia, 2010

Introduction

The Lance Armstrong Foundation (2003) defines a cancer survivor as anyone who has been diagnosed with cancer including those in treatment and those whose cancer has been successfully treated. For the purposes of this brief, cancer prevalence is defined as the proportion of West Virginia adults who have ever been diagnosed with cancer. The Health Statistics Center first collected data about cancer survivorship issues in 2009, and again in 2010, using the Behavioral Risk Factor Surveillance System (BRFSS). Data collected in 2010 included age at diagnosis, type of cancer, and treatment status. Beginning in 2011 these data will be collected on a yearly basis. The data are used by the West Virginia Comprehensive Cancer Program to plan, implement, and evaluate evidence based interventions focusing on cancer survivorship issues.

Research has found that disparities in gender, race, ethnicity, age, education, and income are associated with cancer (Brownson & Joshu, 2010). For example, Jemal, Siegel, Ward, Murray, Xu, and Thun (2007) found that men's lifetime risk of developing cancer (45% or 1 in 2) is higher than women's risk (38% or 1 in 3). Due to low number of responses, analysis of cancer prevalence by race yielded unreliable estimates and will not be reported. Data was not collected for the United States, therefore, the following findings will describe any disparities found in relation to cancer prevalence among West Virginia adults.

Cancer Prevalence

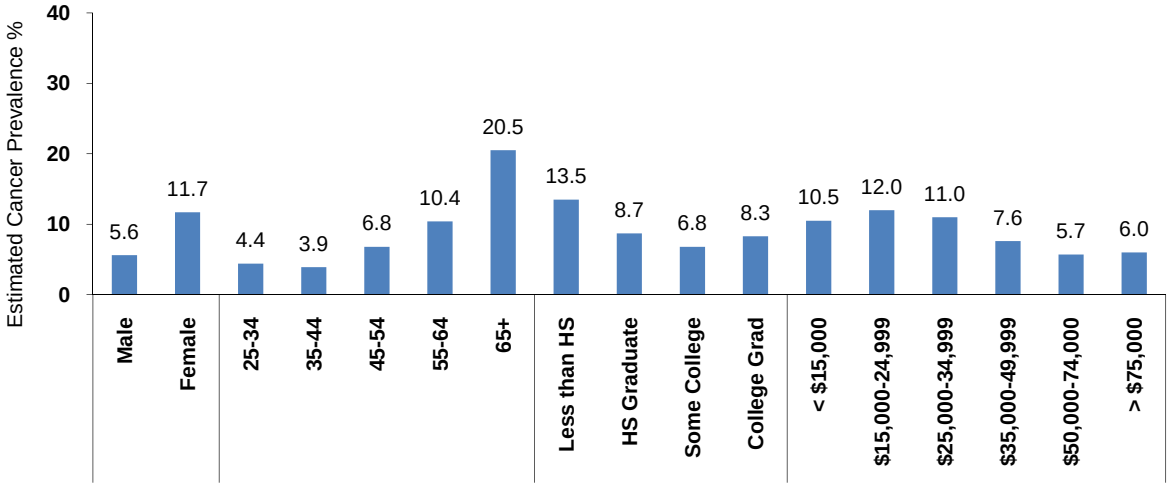
In West Virginia, approximately 1 in 12 adults (8.8%) have been diagnosed with cancer (BRFSS, 2010). This translates to about 123,850 adults in the state who have had cancer at some point in their lives. Discussing prevalence of cancer can be complicated because it includes both newly diagnosed cancer patients as well as people who have survived cancer for decades. A high rate of cancer prevalence can reflect both a high incidence of the disease (new cases or diagnoses of cancer) and excellent treatment of the disease allowing people to survive for years after diagnosis.

Figure 1 presents cancer prevalence by gender, age group, education level, and household income. The results indicate that there is a statistically significant gender difference in cancer prevalence. Cancer prevalence among females (11.7%) is significantly higher than the prevalence among males (5.6%). This represents approximately 37,344 males in the state and 86,507 females in the state who are cancer survivors. The results also indicate that 1 in 5 West

Virginia adults aged 65 and older (20.5%) have been diagnosed with cancer at some point in their life. The prevalence among seniors is nearly double that of the next youngest age group, those aged 55-64. In general, cancer prevalence increases with age.

Analysis of cancer prevalence by educational attainment and household income (also presented in Figure 1) yielded interesting results. Cancer prevalence was highest among those with less than a high school education. In general, cancer prevalence is highest among those with low income and lowest among those with high income.

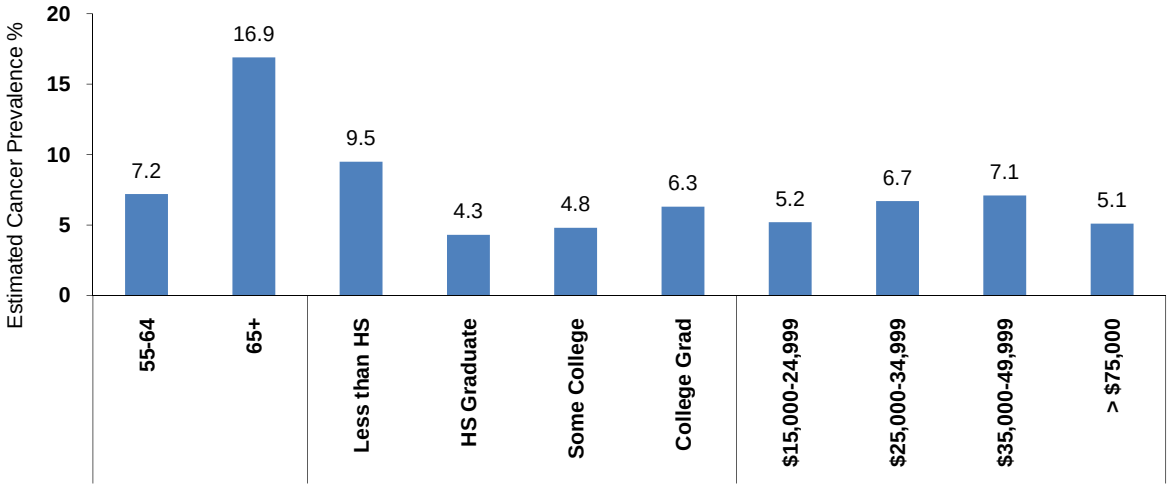
Figure 1. Percentage of WV adults who have ever been diagnosed with cancer by gender, age group, education, and income, 2010



Data Source: WV Health Statistics Center, Behavioral Risk Factor Surveillance System

Due to the gender differences described above, analyses were also conducted for men and women individually. Figure 2 displays cancer prevalence among male adult West Virginians by age group, education level, and household income. Similar to the results above, as expected, cancer prevalence among males increases with age. Cancer prevalence is highest among males with less than a high school education, though this was not significantly different than other educational categories. There were no significant findings for household income for males.

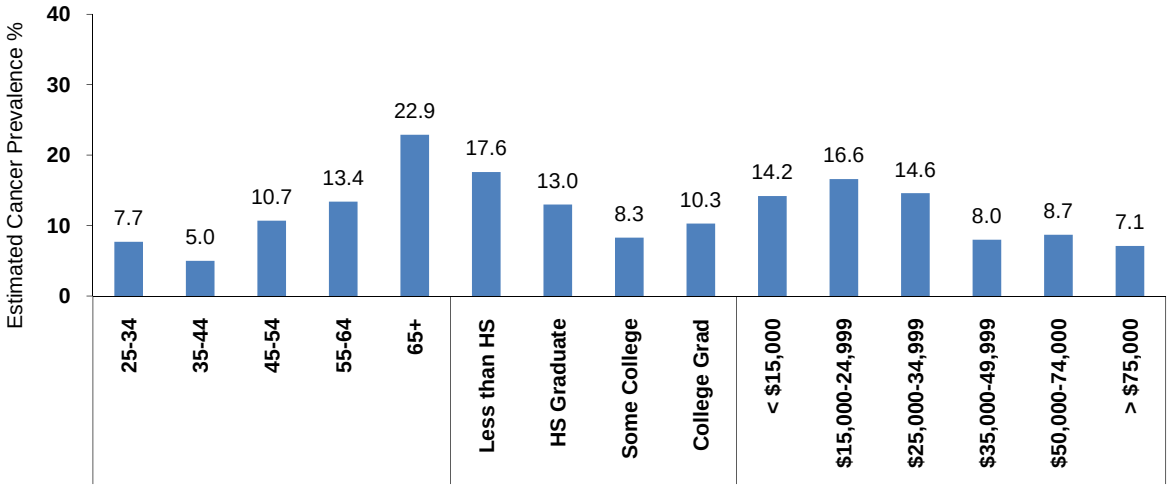
Figure 2. Percentage of WV male adults who have ever been diagnosed with cancer by age group, education, and income, 2010



Data Source: WV Health Statistics Center, Behavioral Risk Factor Surveillance System

Figure 3 displays cancer prevalence among female adult West Virginians by age group, education level, and household income. The prevalence of cancer among females also increases with age. Senior women have the highest cancer prevalence of any age group. Cancer prevalence is significantly higher among females with less than a high school education as compared to those with a college education. Additionally, the highest cancer prevalence for women is found among those with low income.

Figure 3. Percentage of WV female adults who have ever been diagnosed with cancer by age group, education, and income, 2010



Data Source: WV Health Statistics Center, Behavioral Risk Factor Surveillance System

The results presented above represent all types of cancer reported by the 537 cancer survivors surveyed in 2010. Table 1 presents the prevalence of each type of cancer for these cancer survivors ranked from the most prevalent to the least prevalent. The table also includes the number of BRFSS respondents with each type of cancer and the weighted number or estimated number of West Virginia adults with each type of cancer.

Table 1. Prevalence of type of cancer among West Virginia adult cancer survivors.

Type of Cancer	Prevalence (%)	# Respondents	Weighted #
Skin Cancer	18.6	109	25340
Cervical Cancer	16.5	76	22368
Breast Cancer	14.7	110	20024
Prostate Cancer	9.4	48	12743
Melanoma	7.6	47	10266
Colorectal Cancer	5.2	35	7072
Ovarian Cancer	4.2	26	5760
Endometrial Cancer	4.2	31	5746
Thyroid Cancer	4.0	15	5415
Lung Cancer	3.8	17	5098
Bladder Cancer	2.1	13	2865
Hodgkin's Disease	1.9	7	2608
Renal Cancer	1.5	8	2006
Leukemia	0.9	6	1162
Brain Cancer	0.9	2	1244
all other cancers	0.8	7	1080
Head and Neck Cancer	0.8	5	1056
Non-Hodgkin's Lymphoma	0.7	5	1009
Bone Cancer	0.7	5	907
Pharyngeal Cancer	0.3	2	417
Testicular Cancer	0.3	1	391
Stomach Cancer	0.3	2	461
Pancreatic Cancer	0.3	3	469
Oral Cancer	0.2	2	265
Liver Cancer	0.1	1	135
Esophageal Cancer	0.0	0	0
Heart Cancer	0.0	0	0
Neuroblastoma	0.0	0	0

Data Source: WV Health Statistics Center, Behavioral Risk Factor Surveillance System, 2010

Table 2 presents the top 10 types of cancer prevalence among adult cancer survivors in West Virginia for each gender. Among men diagnosed with cancer, skin cancer is the most prevalent followed by prostate cancer and melanoma. For women with cancer, cervical cancer is most prevalent followed by breast cancer and skin cancer.

Table 2. Top 10 types of cancer prevalence among West Virginia cancer survivors by gender.

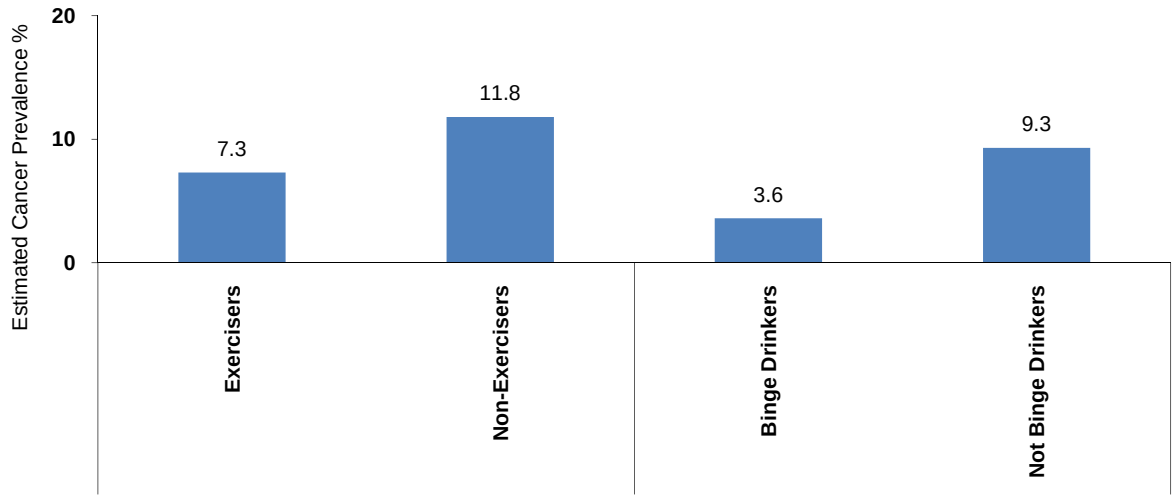
Rank	Males	Prevalence (%)	Females	Prevalence (%)
1	Skin Cancer	26.2	Cervical Cancer	26.1
2	Prostate Cancer	25.3	Breast Cancer	23.2
3	Melanoma	13.3	Skin Cancer	14.2
4	Lung Cancer	7.0	Ovarian Cancer	6.7
5	Colorectal Cancer	5.7	Endometrial Cancer	6.7
6	Thyroid Cancer	5.5	Colorectal Cancer	4.9
7	Bladder Cancer	4.2	Melanoma	4.2
8	Hodgkin's Disease	2.9	Thyroid Cancer	3.1
9	Brain Cancer	2.0	Lung Cancer	1.8
10	Renal Cancer	1.3	Renal Cancer	1.6

Data Source: WV Health Statistics Center, Behavioral Risk Factor Surveillance System, 2010

Risk Factors for Cancer

Brownson and Joshu (2010) report that causes of cancer include tobacco use, physical inactivity, alcohol use, and obesity. Figure 4 displays the WV adult cancer prevalence by several behavioral risk factors. The results of this analysis indicate that cancer prevalence is significantly higher among the sedentary than among those who exercise. Contrary to expectations, cancer prevalence was higher among moderate drinkers than binge drinkers. No significant findings were found for smoking, overweight, obesity, or heavy drinking.

Figure 4. WV adult cancer prevalence by physical activity and binge drinking, 2010

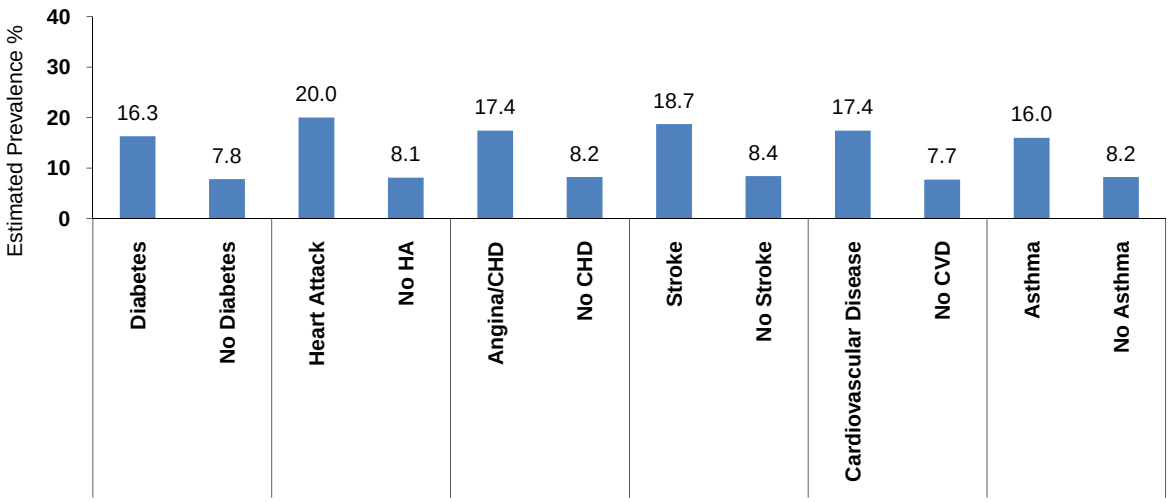


Data Source: WV Health Statistics Center, Behavioral Risk Factor Surveillance System

Cancer and Other Chronic Diseases

The data were also examined for co-morbid conditions to determine the prevalence of cancer among those with other chronic diseases and conditions. Figure 5 displays the prevalence of cancer among those with diabetes, heart attack, coronary heart disease or angina, stroke, cardiovascular disease, and asthma. As can be seen in the graph, cancer prevalence is higher among those with these various chronic diseases and conditions than among those without the disease. The prevalence of cancer was also found to be higher among those who reported being disabled (13.2%) than those who are not disabled (7.1%).

Figure 5. WV adult cancer prevalence among other chronic diseases, 2010



Data Source: WV Health Statistics Center, Behavioral Risk Factor Surveillance System

Cancer Survivorship

As discussed above, the cancer prevalence statistic includes both newly diagnosed cancer patients as well as people who have survived cancer for decades. According to the 2010 BRFSS, West Virginia adults who have been diagnosed with cancer have survived for an average of 12.3 years (range 0-64 years). It is also important to distinguish between those currently in treatment and those who are not in treatment. The results indicate that 14.4% of cancer survivors in the state are currently in treatment and 85.6% are not in treatment.

While smoking, lack of physical activity, poor nutrition, alcohol use, and obesity are risk factors for the development of cancer, they are also unhealthy behaviors that may impact the health of cancer survivors. Table 3 presents prevalence of these behaviors among cancer survivors as compared to the rest of the WV adult population. Only lack of physical activity and binge drinking were significantly different for cancer survivors than other adults.

Table 3. Prevalence of unhealthy behaviors among WV cancer survivors.

	Prevalence (%)	
Unhealthy Behavior	**Cancer Survivors**	**Other Adults**
Lack of Physical Activity	44.2%	31.8%
Cigarette Smoking	25.9%	27.0%
Overweight	35.1%	34.9%
Obesity	34.5%	32.9%
Binge Drinking	3.7%	9.4%
Heavy Drinking	2.1%	2.8%

Data Source: WV Health Statistics Center, Behavioral Risk Factor Surveillance System, 2010

Also important for cancer survivorship is the presence of other diseases that a cancer survivor must endure. Table 4 presents the prevalence of other chronic diseases among cancer survivors in the state. Results indicate that all of the chronic diseases in table below are significantly higher among cancer survivors than other adults.

Table 4. Prevalence of chronic diseases among WV cancer survivors.

	Prevalence (%)	
Chronic Disease	**Cancer Survivors**	**Other Adults**
Diabetes	21.6%	10.7%
Heart Attack	14.1%	5.4%
Heart Disease	11.7%	5.3%
Stroke	7.4%	3.1%
Cardiovascular Disease	22.5%	10.3%
Asthma	13.1%	6.6%

Data Source: WV Health Statistics Center, Behavioral Risk Factor Surveillance System, 2010

Several other factors impact the quality of life of cancer survivors including psychosocial adjustment, physical factors, and economic stability. The prevalence of disability was found to be fairly high among cancer survivors (42.2%) indicating issues with physical, mental, or emotional problems. Interestingly, analyses revealed that cancer survivors experience a high level of emotional support (83.5%) and life satisfaction (94.5%).

Conclusion

Overall, these findings indicate that cancer prevalence in West Virginia is a complex issue. Because prevalence is influenced by both the number of new cases of cancer diagnosed in the state and the effectiveness of treatment, it is not easy to define. On one hand, cancer prevalence may be high due to high incidence rates. On the other hand, cancer prevalence may be higher due to large numbers of people surviving cancer for long periods of time. In essence, we cannot say whether we want cancer prevalence to increase or decrease because of the complexity associated with its definition and various factors that influence it. This brief examined several important factors related to cancer survivorship that further expand upon what we know about the burden of cancer in West Virginia and should be viewed as preliminary data findings

regarding cancer prevalence and survivorship. Because this brief reports on only one year of data, it will be updated as additional data are collected.

As stated above, the information contained in this brief can be used by the West Virginia Comprehensive Cancer Program to plan, implement, and evaluate evidence based interventions focusing on cancer survivorship issues. The statewide cancer coalition, Mountains of Hope, can also use this information to update the *West Virginia Cancer Plan* and set new objectives based on this valuable new data source.

References

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For questions about this brief, please contact the author:

Birgit A. Shanholtzer
Cancer Epidemiologist
Health Statistics Center
WV Bureau for Public Health
350 Capitol Street, Room 165
Charleston, WV 25301
phone: (304) 356-4172
fax: (304) 558-1787
birgit.a.shanholtzer@wv.gov

West Virginia Health Statistics Center
350 Capitol Street, Room 165
Charleston, WV 25301-3701
Phone: (304) 558-9100 Fax: (304) 558-1787
Web: http://www.wvdhhr.org/bph/hsc/

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