

Melanoma of the Skin

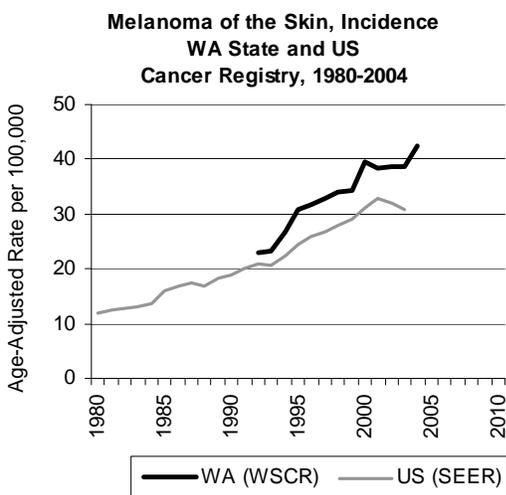
Definition: Melanoma of the skin is characterized by uncontrolled growth of neoplastic cells developing from the melanocytes in the skin with the potential to invade and spread to other sites. In the Washington State Cancer Registry, new cases of melanoma are coded to ICD-03 codes C44.0—C44.9 with histology codes 8720—8790. The term “sun smart” behaviors is used to indicate behaviors that protect the skin from sunburn including seeking shade, wearing wide-brimmed hats, long sleeve shirts or pants, sunglasses and sunscreen with SPF of at least 15.

Summary

Melanoma of the skin is the fifth leading type of cancer in Washington State. Incidence rates have nearly doubled from 23 per 100,000 in 1992, the year the Washington State Cancer Registry was created, to 42 per 100,000 in 2004. In 2004, 2,611 Washington residents (1,393 men and 1,217 women) were diagnosed with melanoma. Melanoma is the most deadly of the skin cancers. In 2005, 170 people in Washington (105 men and 65 women) died of melanoma.

Melanoma is associated with sunburns, particularly sunburns that occur early in life. Reducing exposure to ultraviolet rays can prevent sunburn and might reduce risk of melanoma.

Time Trends



According to the [Washington State Cancer Registry](#) (WSCR) data, the melanoma [age-adjusted](#) incidence rate in Washington increased from 23 per 100,000 (+1) in 1992 to 42 per 100,000 (+2) in 2004. Nationally, according to

the Surveillance Epidemiology and End Results (SEER) program data, the age-adjusted incidence rate for melanoma increased more slowly, from 21 per 100,000 in 1992 to 31 per 100,000 in 2003, the most recent year of data available.

Year 2010 Goals

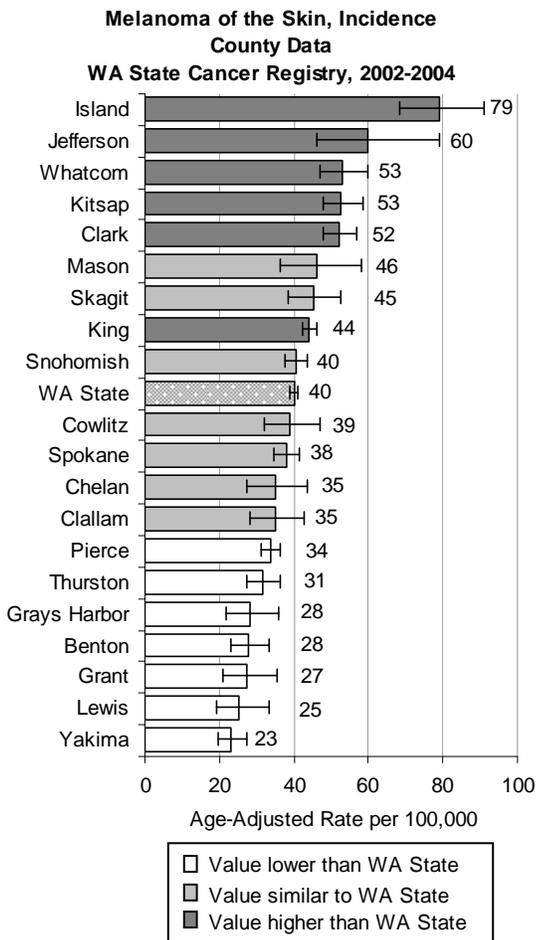
The national *Healthy People 2010, Midcourse Review* target for “sun smart” behavior is to increase to 85% the percent of adults ages 18 years and older who regularly use at least one of the identified sun protective measures: avoid the sun between 10am and 4pm, wear sun-protective clothing when exposed to sunlight, use sunscreen with a sun-protective factor (SPF) of 15 or higher, and avoid artificial sources of ultraviolet light. These behaviors are to reduce all types of skin cancer. The 2000 [Behavioral Risk Factor Surveillance System](#) (BRFSS) was the last sun smart assessment of Washington residents. It showed that 56% ($\pm 2\%$) of Washington adults reported that they always or nearly always used at least one of the sun smart protective measures studied (using sunscreen with SPF of at least 15, wearing a hat or long-sleeve shirt, staying in the shade, or not going out in the sun for more than an hour).

The national *Healthy People 2010, Midcourse Review* target for mortality reduction is to reduce the melanoma age-adjusted mortality rate to 2.3 per 100,000. In Washington, from 1990–2005, the annual mortality rates ranged from 2.2 to 3.4 per 100,000. Washington met the goal only in 1994 with a rate of 2.2 per 100,000. In 2005, Washington’s mortality rate was 2.7 per 100,000 or more than 17% higher than the 2010 goal. Thus, while Washington is relatively close to the goal, at this time it is not possible to predict whether Washington will again meet the national 2010 target.

Geographic Variation

The age-adjusted melanoma incidence rates in Washington counties for 2002–2004 combined

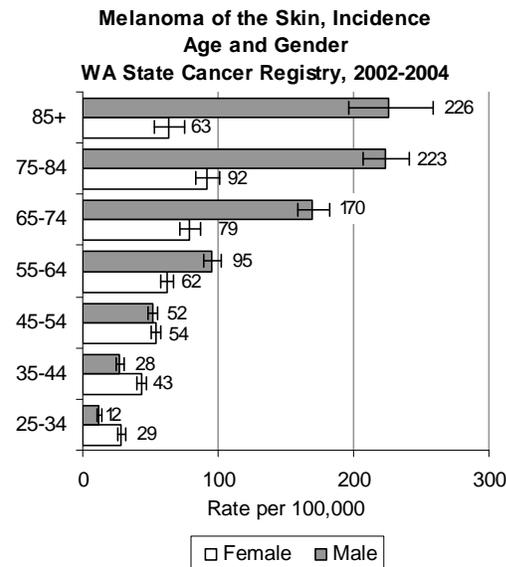
ranged from a high of 79 (± 12) per 100,000 in Island County to a low of 23 (± 3) per 100,000 in Yakima County compared with the state rate of 40 (± 1) per 100,000. Nineteen counties had [fewer than 20](#) cases for 2002–2004 and are not reported.



Age and Gender

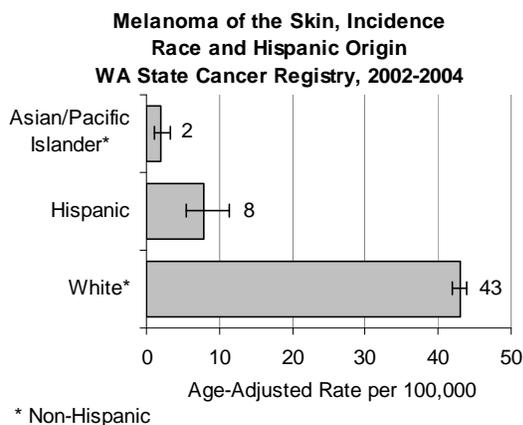
Melanoma varies both by age and gender. It is more common among older people. For all ages, the age-adjusted incidence rate for 2002–2004 was 47 (± 1) per 100,000 for men and 36 (± 1) per 100,000 for women. Incidence rates were especially high among people ages 65 and older. In 2002–2004, adults in this age group made up 11% of the population but accounted for 37% of melanoma cases. In ages younger than 45, women had higher incidence rates than men. Women and men then had similar rates in the age group of 45–54, but beginning at age 55, the incidence rates for men were greater than those for women. In the 65–74 age group, men had more than twice the melanoma rates of

women. Among people ages 85 and older, rates among men were more than three times the rates of women.



Race and Hispanic Origin

In Washington State in 2002–2004, non-Hispanic whites had the highest age-adjusted incidence rate of melanoma, 43 (± 1) per 100,000 people. Asian and Pacific Islanders had a rate of 2 (± 1) per 100,000. The melanoma incidence rate among people of Hispanic origin was 8 (± 1) per 100,000. Fewer than 20 people in other race groups in Washington developed melanoma during 2002–2004. Nationally, whites also have the highest rates of melanoma.¹ Whites have sunburns more frequently than people in other groups,^{2,3} and sunburn, especially in early life, is a major risk factor for melanoma.^{4,5}



Nationally, five-year survival rates for melanoma are about 90% for whites but 72% to 81% for other

groups.⁶ Differences in stage at diagnosis may contribute to these disparities in survival rates.⁶

Income and Education

Melanoma incidence rates in Washington are not available by income and education. A special study reported in the *Health of Washington State 2004 Supplement*,⁷ however, found that melanoma incidence increased as the proportion of people living in poverty decreased and the proportion of people with a college education increased. These findings are consistent with the 2003 and 2004 BRFSS findings that respondents with more than a high school education were more likely to report a sunburn in the last year than were people with less education. Similarly, people who earned \$20,000 a year or more were more likely to report a sunburn in the last year than were people with lower incomes.

These findings are also consistent with previous studies finding that college graduates^{8,9} and people holding professional jobs^{10,11} have higher rates of melanoma. In general it appears that melanoma incidence rates are higher among people with higher socioeconomic position (SEP) than among lower SEP populations.^{12,13} This might occur because high-SEP individuals might be more likely to have other risk factors for developing melanoma, such as being of lighter skin color or having more frequent sunburns in childhood. In lower SEP populations, melanoma tends to be diagnosed at a later stage of the disease, which results in lower survival rates.⁶ These groups might be less likely to have access to educational campaigns, screening examinations, and effective treatment.^{12,13}

Other Measures of Impact and Burden

Mortality. For 2003, the most recent year for which national data are available, the national mortality rate from melanoma was 2.7 per 100,000. Washington's melanoma mortality rate during the same year was similar to the nation's at 2.9 per 100,000 ($\pm <1$). Washington's age-adjusted melanoma death rate remained relatively stable from 1990, when there were 3.0 (± 1) deaths per 100,000, to 2005, the most recent year for which Washington data are available, when there were 2.7 ($\pm <1$) deaths per 100,000.

Stage at diagnosis. In Washington in 2004, 89% of melanomas were diagnosed at an early stage before they had spread beyond the skin (that is, *in situ* or localized). Nationally, in 2003, when melanoma is diagnosed early, death rates are low: 98%–100% of people diagnosed early will still be alive in five years. When melanoma is diagnosed after spreading beyond the skin to different organs, death rates are high: only 14% of people diagnosed at this stage are still alive in five years.¹⁴

Risk and Protective Factors

Risk factors. Unprotected exposure to the sun during childhood and adolescence is a major risk factor for developing melanoma.^{15,16,17,18,19} Intense, intermittent exposure for this age group that results in a sunburn confers particular risk.^{15,20} Individuals with fair to light skin or eyes, freckles, unusual moles or many moles, those with a history of blistering from sunburns, or those with both personal and family history of melanoma and other types of skin cancer are also at an increased risk.^{15,19,21,22,23}

Tanning bed use is popular in the United States, particularly among teenage and young adult women.^{15,17,21} Recent studies suggest that exposure to artificial ultraviolet (UV) radiation is a risk factor for melanoma.^{20,21,24} A recent report by the International Agency for Research on Cancer concluded that there is an unequivocal risk of melanoma associated with the use of tanning beds among teenagers and young adults.²⁵

Protective factors. The primary means of prevention for melanoma is limiting UV exposure. Avoiding sun exposure during times of the day when the sun is most intense, covering exposed skin, seeking shade, and properly using sunscreen with an SPF of 15 or greater limits UV exposure and sunburns.^{15,20} Children and adolescents tend to copy the sun-protective behaviors of their parents.^{15,16,17}

Melanoma is highly curable when detected early.^{18,20,22} Some argue that self examinations might reduce mortality from melanoma.^{22,26} The American Cancer Society, American Academy of Dermatology, and the Skin Cancer Foundation promote the use of self examination for early detection.²⁵ The American Cancer Society offers the following ABCD guidelines to help distinguish a normal mole from melanoma: Melanoma is more likely to be **A**symmetrical, have **B**order irregularities, irregular **C**olor, and a **D**iameter of greater than a quarter inch. Size, shape, and color changes or abnormalities are noteworthy and warrant further attention. The National Cancer Institute also recommends self-screening and regular physician skin checks to detect melanoma

early.²⁷ The United States Preventive Services Task Force, however, did not find that evidence is sufficient to conclude that skin self-examinations reduce the incidence or improve the outcomes of melanoma.¹⁹

Intervention Strategies

The Independent Task Force on Community Preventive Services completed a comprehensive, evidence-based evaluation of skin cancer prevention interventions in 2003. From that assessment, the task force recommended two primary intervention strategies: 1) “covering-up” or wearing protective clothing, and 2) limiting sun exposure during peak hours and seeking shade. The task force concluded that the current evidence is sufficient to recommend these interventions in primary schools and recreation and tourism centers.²⁰

The 2002 CDC guidelines for school programs recommend seven interventions to reduce the risk of skin cancer:

- Policies that reduce UV exposure
- Environmental changes that promote safe exposure to the sun
- Educational tools to prevent cancer
- Familial commitment to improved prevention tactics
- Professional training programs for teachers and school administrators
- School health services to support prevention measures, and
- Evaluation of policy implementation.¹⁸

Because of the melanoma risk associated with indoor tanning, coupled with the popularity of tanning bed use among female adolescents, interventions geared toward this population are crucial.^{15,17} Proven interventions are limited, however. Continued research is necessary to identify successful intervention strategies.

In Australia, where melanoma rates are the highest in the world,¹⁵ a broad-based Slip! Slop! Slap! Campaign began in the early 1980s. This campaign encourages people to slip on a long-sleeve shirt, slop on some SPF 15 sunscreen, and slap on a hat that will shade the face and neck. The campaign also warns people to avoid the sun during peak ultraviolet times. Other aspects include rating clothing for its sun protective ability, instituting a “no hat-no play”

policy in elementary school playgrounds, providing sunscreen at public swimming pools, and removing taxes from sunscreens.

This intervention has been highly successful. Rates of sunburn have decreased, the thickness of melanoma tumors has decreased, and incidence and mortality rates of melanoma has leveled-off for those in the younger populations targeted by the campaign.²⁸

Data Sources (For additional detail, see [Appendix B.](#))

Washington State Cancer Incidence: Washington State Department of Health, Washington State Cancer Registry, October 2006.

Washington State Death Certificate data: Washington State Department of Health, Vital Registration System Annual Statistical Files, Deaths 1980–2005, released December 2006

National Death data: SEER*Stat Database: Mortality-All Causes of Death (COD), Public-Use With State, Total U.S. (1969–2003), National Cancer Institute (NCI), Division of Cancer Control and Population Sciences, Surveillance Research Program, Cancer Statistics Branch, released April 2006. Underlying COD mortality data provided by the National Center for Health Statistics.

National Incidence data: SEER*Stat 6.2, Sept 2006 release, NCI, National Institutes of Health – 9 SEER regions.

Washington State Behavioral Risk Factor Surveillance System (BRFSS) data: 1987–2006. The data for 2003–2006 were also weighted to reflect the county population estimates from the Washington State Office of Financial Management (OFM). Data release for 2003–2005: November 2006; data release for 2006: June 2007.

U.S. Behavioral Risk Factor Surveillance System Data: 1994–2005, downloaded from http://www.cdc.gov/brfss/technical_infodata/surveydata.htm August 2006

Washington State Population Counts: U.S. Census provided through Washington State Office of Financial Management (OFM), OFM intercensal and postcensal estimates, Krupski Consulting.

For More Information

Melanoma of the Skin Chapter, *2002 Health of Washington State*, http://www.doh.wa.gov/HWS/doc/CD/CD_MEL.doc.

Washington State Cancer Registry, <http://www3.doh.wa.gov/WSCR/>

National Cancer Institute
<http://www.nci.nih.gov/>

American Cancer Society
<http://www.cancer.org>

Comprehensive Cancer Control Program
<http://www.doh.wa.gov/ccc/>, (360) 236-3784

Technical Notes

The data sources for the United States and Washington have different years of availability. For the United States, melanoma mortality and incidence data are available for 1980 to 2003. For Washington state, mortality data are available from 1980 to 2005, and incidence data are available from 1992 to 2004. (The Washington State Cancer Registry was established in 1992.)

Endnotes

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¹⁴ Washington State Cancer Registry Report. (2007). *2004 Cancer in Washington. Cancer by Site. Melanoma of the Skin*. Retrieved January 11, 2008 from <http://www3.doh.wa.gov/WSCR/PDF/04REPORT/CancerBySite04.pdf>.

¹⁵ Boe, K., & Tillotson, E. A. (2006). Encouraging Sun Safety for Children and Adolescents. *The Journal of School Nursing*, 22, 136-141.

¹⁶ Lazovich, D., & Forster, J. (2005). Indoor Tanning by adolescents: prevalence, practices, and policies. *European Journal of Cancer*, 41, 20-27.

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