



Melanoma Skin Cancer and Sun Safety Habits

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Definitions

- **Skin Cancer:** Skin cancer is from abnormally growing skin cells that is typically divided into three main types: basal cell carcinoma, squamous cell carcinoma, and melanoma skin cancers. Basal cell and squamous cell carcinomas are common skin conditions that are highly treatable and do not carry the same risks as melanoma skin cancer.
 - **Melanoma Skin Cancer:** A type of cancer that develops in melanocytes, the cells that produce a pigment called melanin which give your skin its color. While melanoma can occur in other locations of the body, such as in the eyes or in the mouth, these cancers are most commonly found in the skin and throughout this report “melanoma” will be used to refer to melanomas of the skin.
- **Ultraviolet (UV) Radiation:** UV radiation is a form of radiation that is emitted by the sun and some artificial light sources, like the lights used for tanning beds. While exposure to UV radiation can be important and aid in the creation of Vitamin D in the body, over-exposure to UV radiation can result in serious health issues, like skin cancer.
- **Stages of Cancer:** Stage is an important measure to describe how far a cancer has progressed at the time of diagnosis. Please note: the use of the term “melanoma” will refer to melanomas at one of the invasive stages (defined below) unless otherwise stated.
 - **In Situ:** Generally considered to be a pre-invasive or pre-malignant stage of cancer, in situ is the stage of cancer when there are abnormal cells present, but they have not yet spread to nearby tissue. In situ melanomas are diagnosed when the abnormal cells are confined to the top layer of the skin known as the epidermis.
 - **Localized:** The stage at which cancer cells are present in the body, however, these cells have not spread beyond the organ where they started. Localized melanomas are diagnosed when the cancer cells have spread beneath the epidermis to deeper levels of skin, such as the dermis and subcutis, but not to the lymph nodes or nearby tissue.
 - **Regional:** The stage when cancer cells have spread to other nearby/surrounding tissues, organs and lymph nodes.
 - **Distant:** The stage when cancer cells have begun to spread to distant parts of the body, organs and distant lymph nodes.
- **Early vs. Advanced Stage:** In this report, the terms early or advanced stage cancer may be used. In situ and localized cancers are considered early stage, when disease

has not begun to spread throughout the body. Regional and distant are considered advanced stages, when the disease has spread beyond the initial location.

- **Invasive:** Invasive, or malignant, cancers are those that have the potential to spread beyond their site of origin. Cancers staged as localized, regional, or distant are considered invasive. For melanoma, this is when the abnormal cells have begun to spread into deeper layers of the skin or beyond.
- **Age Adjusted Rates:** Not all populations are the same and can vary widely in terms of size and age. Age adjusting rates allows us to control differences in the ages between two populations, which is important for diseases like cancer where age is a significant risk factor.
- **Annual Percent Change (APC):** Annual percent change is a method for characterizing rates over time in which cancer rates are assumed to change by a constant percentage relative to the previous year. APC is reported when it represents a significant change.
- **Physical Activity:** Throughout this report, youth measures of physical activity are based on self-reported measures of times during the past week when more than 60 minutes were spent doing any physical activity that increased heart rate. Adult measures of physical activity are based on self-reported measures based on whether the respondent met the CDC physical activity recommendations defined as 150 of moderate aerobic activity or 75 minutes of vigorous aerobic activity per week.
- **Rurality:** Measured by [Rural-Urban and Commuting Area Codes \(RUCA\)](#). This report uses the RUCA C classifications which combines large rural cities, small rural towns and isolated rural towns into a single “rural” category.
- **Race & Ethnicity:**
 - **White, Non-Hispanic (WnH):** Self-reported race of white with an ethnicity of not Hispanic.
 - **Black, Indigenous and People of Color (BIPOC):** Self-reported race of Hispanic, Latino/a, or Spanish origin, and/or responded that their race is one or more of the following: Black or African American, American Indian and/or Alaska Native, Asian, Pacific Islander
- **Perceived Social Economic Status (SES):** Perceived SES is based on a self-reported measure of how high school students feel their family compares to the families of their peers in terms of money, education and job quality.

Background

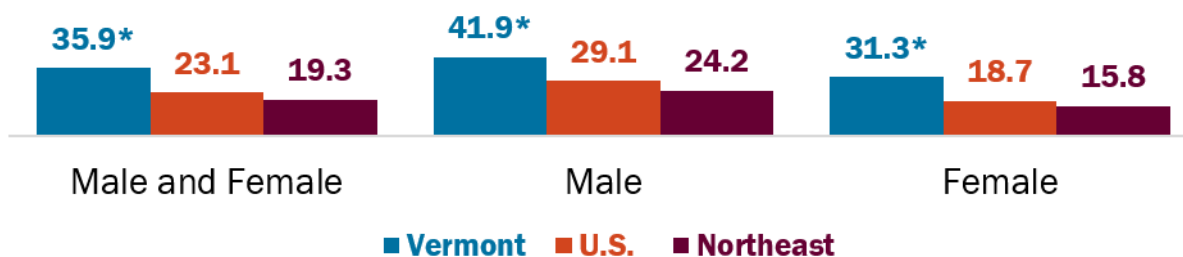
Skin cancers are the most common type of cancer in the United States, with over 6 million Americans diagnosed and treated each year. While melanomas of the skin are less common than other forms of skin cancer, such as basal and squamous cell carcinomas, melanomas are the most serious form of skin cancer and pose a greater risk, as they are more likely to spread if not diagnosed and treated at an early stage.

In Vermont, melanoma is the second leading cause of new cancer after lung and bronchus cancer. Likewise, Vermont has one of the highest rates of melanoma in the country. When compared to the U.S. and Northeast region, Vermont reports significantly higher incidence rates of melanoma.

One major risk factor for the development of these cancers is intense ultraviolet (UV) radiation exposure, which can come from natural sources like the sun or through artificial sources like indoor tanning beds. UV exposure accounts for an estimated 65% to 90% of skin cancers being caused by UV exposure.¹ In addition to UV exposure, other risk factors for the development of skin cancer include age, family history of skin cancer and fair skin.

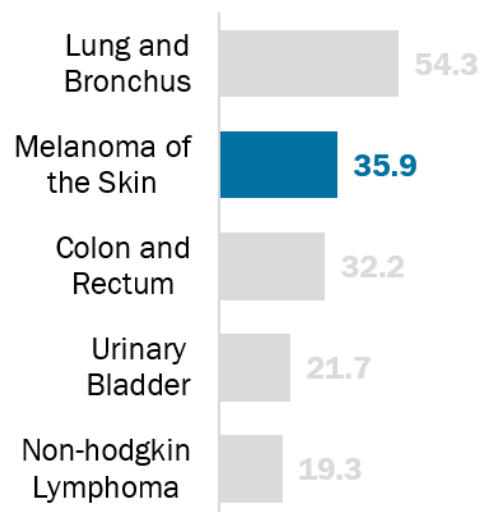
If you need help accessing or understanding this information, contact ahs.vdhdpdpanalytics@vermont.gov.

Vermont has one of the highest incidence rates of invasive melanoma in the country with significantly higher rates than both the **U.S.** and the **Northeast** region.



Data source: Vermont Cancer Registry (2018-2022); National Program of Cancer Registries (NPCR) and Surveillance, Epidemiology, and End Results (SEER) Program (2018-2022)
Age Adjusted Rates per 100,000 population

Melanomas of the skin are the second leading cause of new cancer in Vermont.



Data source: Vermont Cancer Registry (2018-2022)
Age Adjusted Rates per 100,000 population

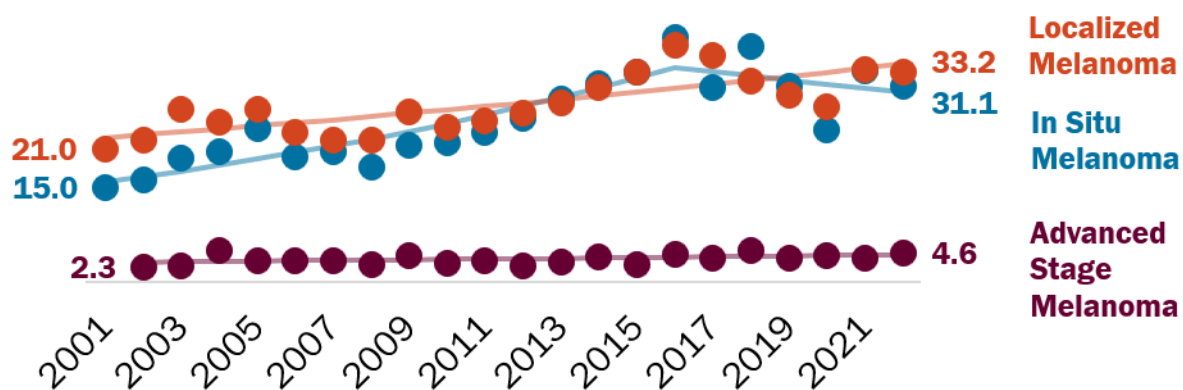
Melanoma Incidence and Mortality

Vermont has experienced a significant rise in the number of melanoma cases diagnosed each year. The age adjusted incidence rate of invasive melanoma increased from 22.7 per 100,000 Vermonters in 2001 to 37.9 per 100,000 Vermonters in 2022. This represents a trend that is increasing with a statistically significant annual percent change (APC) of 1.7%.

This trend is largely driven by an increase in early diagnoses of invasive melanoma. There was not a large increase in advanced stage diagnoses.

- The age adjusted incidence rate of melanoma diagnosed at a **localized stage** increased significantly with an APC of 2.0% from 2001, when the incidence rate was 21.0 per 100,000 Vermonters, to 2022, when the incidence rate was 33.2 per 100,000 Vermonters.
- By comparison, the rate of **advanced stage melanoma** diagnoses in Vermont remained low and the trend from 2002 to 2022* does not show a statistically significant increase or decrease. The age adjusted incidence rate of advanced stage melanomas increased slightly during this period, from 2.3 per 100,000 Vermonters in 2002 to 4.6 per 100,000 Vermonters in 2022.
- While not counted among invasive melanoma cases, the incidence rate of **in situ melanoma** has also significantly increased in Vermont. The age adjusted incidence rate for these melanomas increased from 15.0 per 100,000 Vermonters in 2001 to a rate of 38.8 per 100,000 Vermonters in 2016, a statistically significant trend with an APC of 5.2%. After 2016, the year-to-year trend stabilized and only decreased slightly from its peak to a rate of 31.1 per 100,000 Vermonters in 2022.

While the rates of in situ melanoma and localized, invasive melanoma have increased, advanced stage diagnoses have remained stable.



Data source: Vermont Cancer Registry (2001-2022)

Age Adjusted Rates per 100,000 Vermonters

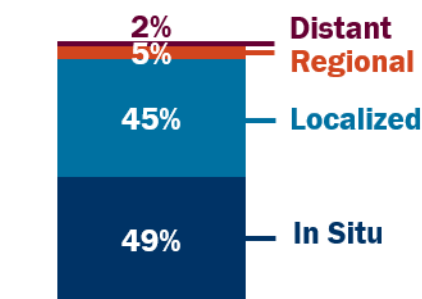
*Due to low case counts in 2001, trend analysis for advanced stage melanoma begins in 2002.

Several potential factors may be contributing to these trends, both in the U.S. and Vermont. These factors include more exposure to UV radiation over a person's lifetime, an increased awareness of skin cancer and the importance of early detection, as well as changes to clinical terminology and diagnostic criteria used among clinicians.²

While incidence rates have increased, **the mortality rate of melanomas in Vermont has remained low.** The age adjusted mortality rate for melanoma has declined from 3.1 per 100,000 Vermonters in 2001 to 2.4 per 100,000 Vermonters in 2022, with trends indicating a significant decrease by an APC of 2.1%.

One reason that melanoma mortality rates have not increased alongside incidence rates is likely explained by the rates of early diagnosis. In Vermont, 94% of melanoma are diagnosed as either in situ or at the localized stage. When diagnosed at an early stage, the prognosis for melanoma is good. At the national level, when diagnosed at a localized stage, there is a 99.5% five-year relative survival rate.³

Most melanoma are diagnosed at an early stage in Vermont.

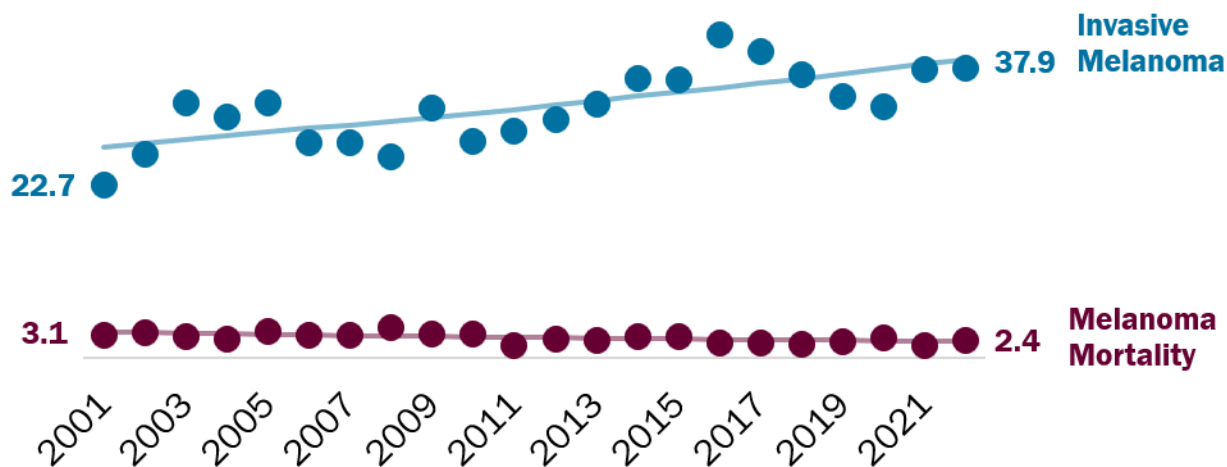


Melanoma of the Skin

Data source: Vermont Cancer Registry (2018-2022); Due to rounding errors, data may exceed 100%

Melanoma Incidence by Sex

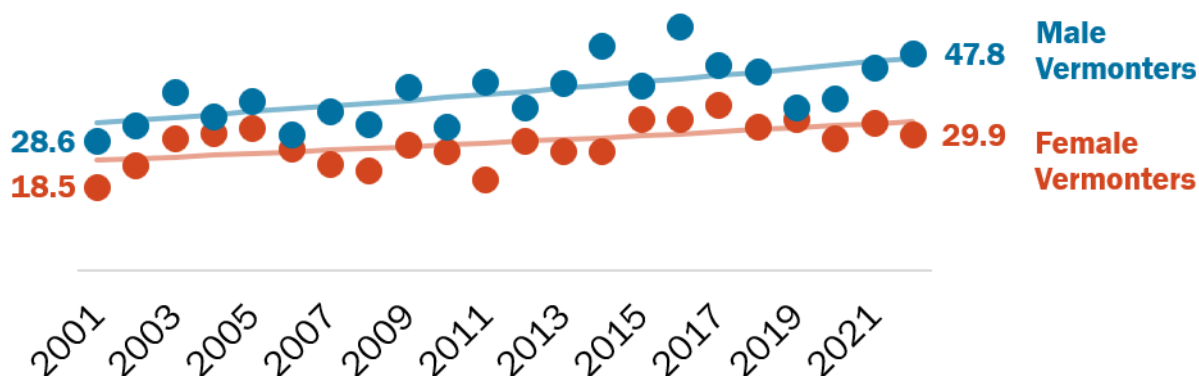
The overall incidence rate of invasive melanoma has significantly increased while mortality rates have remained low in Vermont from 2001 to 2022.



Data source: Vermont Cancer Registry (2001-2022)
Age Adjusted Rates per 100,000 Vermonters

Melanoma incidence rates have trended significantly upward for both male and female Vermonters. The incidence rate increased from 28.6 per 100,000 among male Vermonters in 2001 to 47.8 per 100,000 in 2022. At the same time, the incidence rate increased from 18.5 per 100,000 female Vermonters to 29.9 per 100,000.

From 2001-2022, the incidence rate of invasive melanoma increased significantly for both male and female Vermonters.

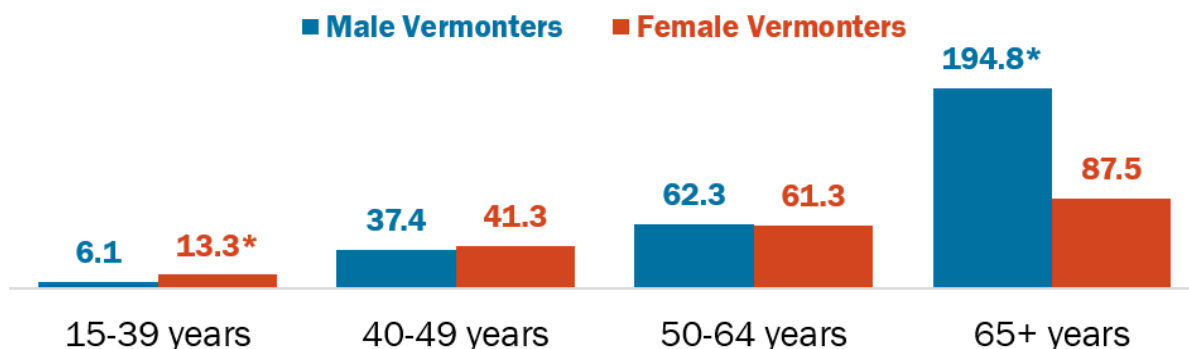


Data source: Vermont Cancer Registry (2001-2022)

Age Adjusted Rates per 100,000 Vermonters

Melanoma can occur at any age, including adolescence. Younger, female Vermonters, ages 15-39 years old, have statistically higher rates of invasive melanoma than their male counterparts. Incidence rates level out through middle adulthood, ages 40-64. After age 64, the trend reverses, and older, male Vermonters have a statistically higher rate, more than twice that of older, females.

Younger, female Vermonters have a higher incidence of invasive melanoma than their male counterparts. This trend is reversed among older Vermonters.

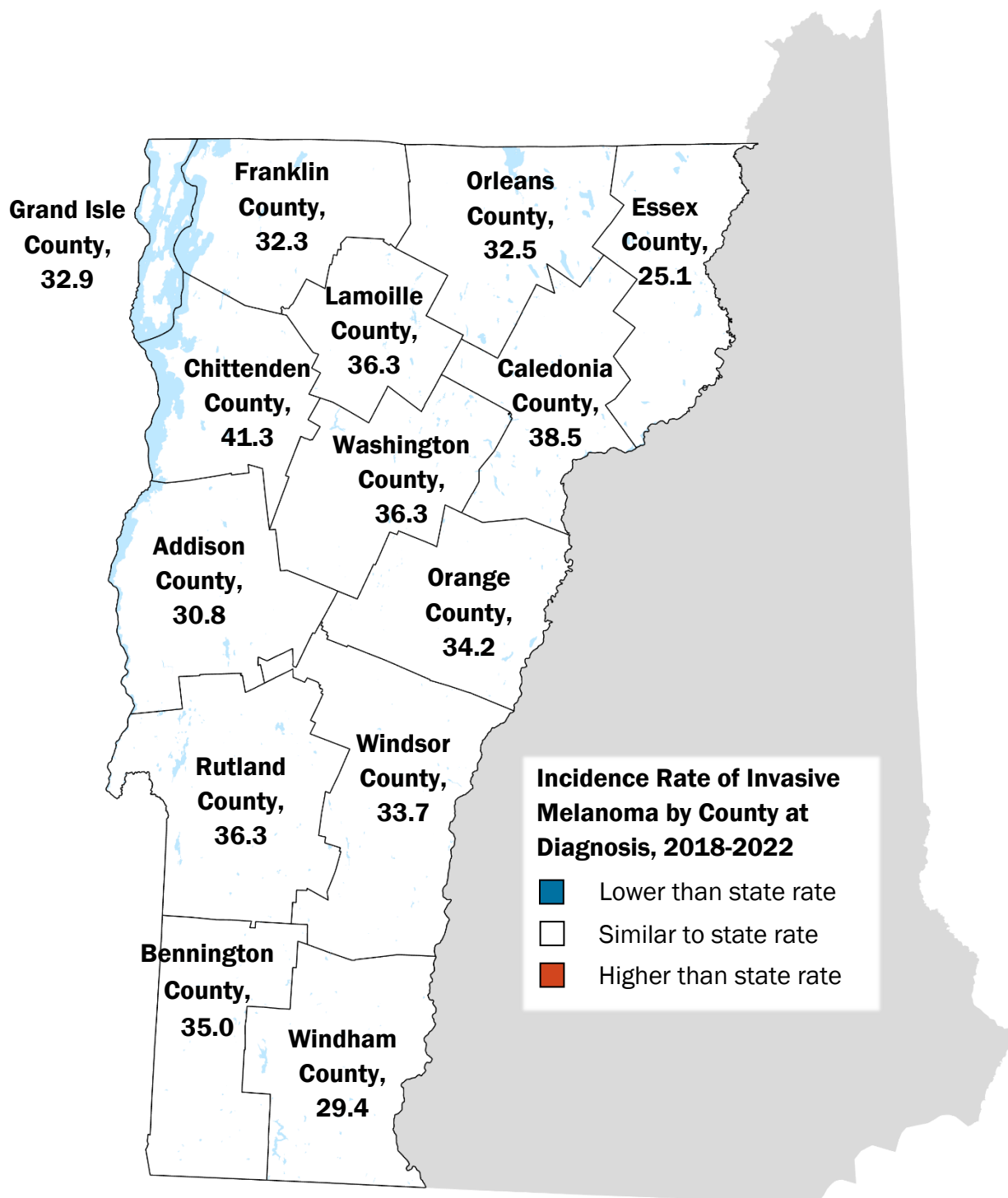


Data source: Vermont Cancer Registry (2018-2022)

Age Adjusted Rates per 100,000 Vermonters

Melanoma Incidence by County

All Vermont counties have an incidence rate of invasive melanoma similar to the overall Vermont rate (35.9 per 100,000 Vermonters).



Data source: Vermont Cancer Registry (2018-2022)
Age Adjusted Rates per 100,000 Vermonters

Sun Safety Habits

Youth Sun Safety

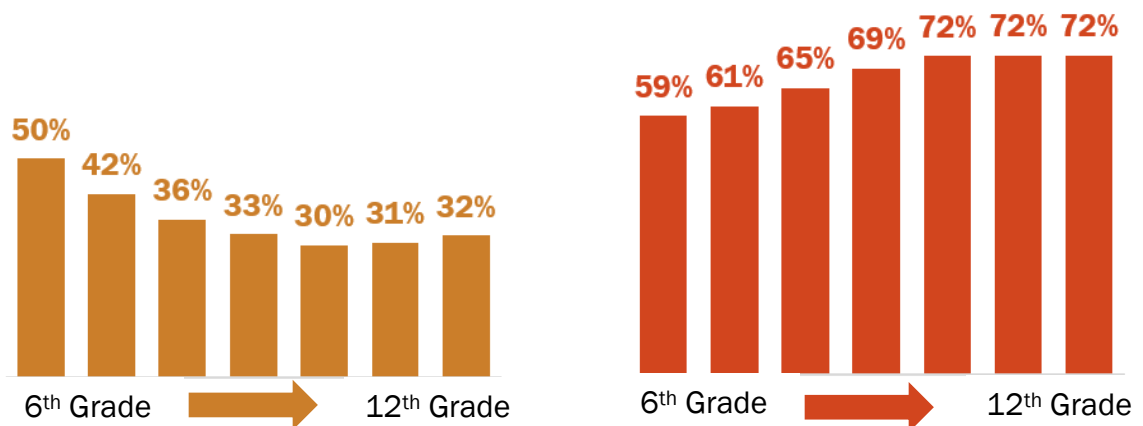
Exposure to UV radiation affects our health. While UV exposure can be beneficial for the formation of vitamin D3, prolonged or intense exposure can lead to sunburn, DNA damage, and skin cancer. While any exposure to UV radiation that leads to sunburn is a risk factor for the development of melanoma at any age, an estimated 25% of a person's total lifetime UV exposure occurs during our youth, making it a critical and formative time for developing sun safe behaviors.⁴ Research has also shown that one or more sunburns during childhood and adolescence significantly increases the risk of developing melanomas later in life.¹

In Vermont:

- Three out of five middle school students (62%) and almost three quarters of high school students (72%) report that they had at least one sunburn in the past year.
- When outside for more than an hour, less than half of middle school students (42%) and only around three out of 10 high school students (32%) report wearing sunscreen most of the time or always.
- The use of sunscreen decreases significantly as grade level increases among middle school students before evening out among high school students.



Sunscreen use decreases as grade level increases while the prevalence of sunburns increases.



Data source: Vermont YRBS (2023)

Youth Sunscreen Use

Not all young Vermonters use sunscreen at the same rate. Among both middle school and high school students, when outside for more than an hour:

- Female students report using sunscreen more than their male students.
- Students who identify as white, non-Hispanic (WH) use sunscreen more than students identifying as Black, indigenous or as a person of color (BIPOC).
- Students who participate in at least sixty minutes of regular physical activity one day a week report using sunscreen more often than less physically active students.

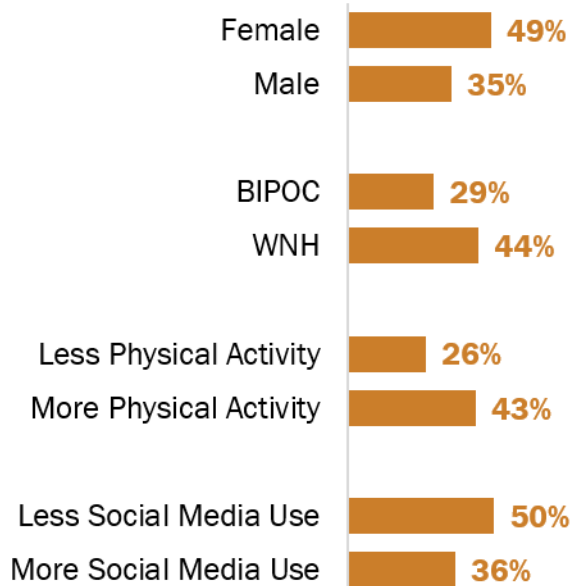
Among middle school students:

- Students with high social media use report lower rates of sunscreen use.

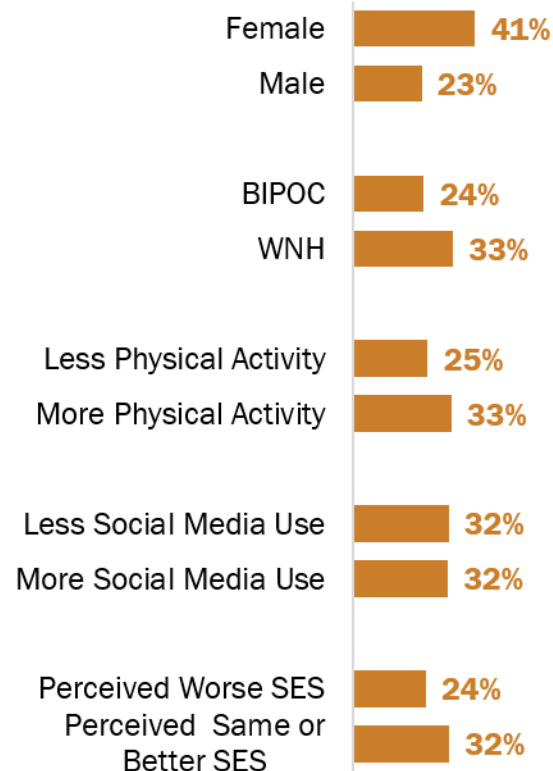
Among high school students:

- Those who perceive their socio-economic status is equal to or better than others use sunscreen at higher rates.

Sunscreen use among middle school aged students.



Sunscreen use among high school aged students.



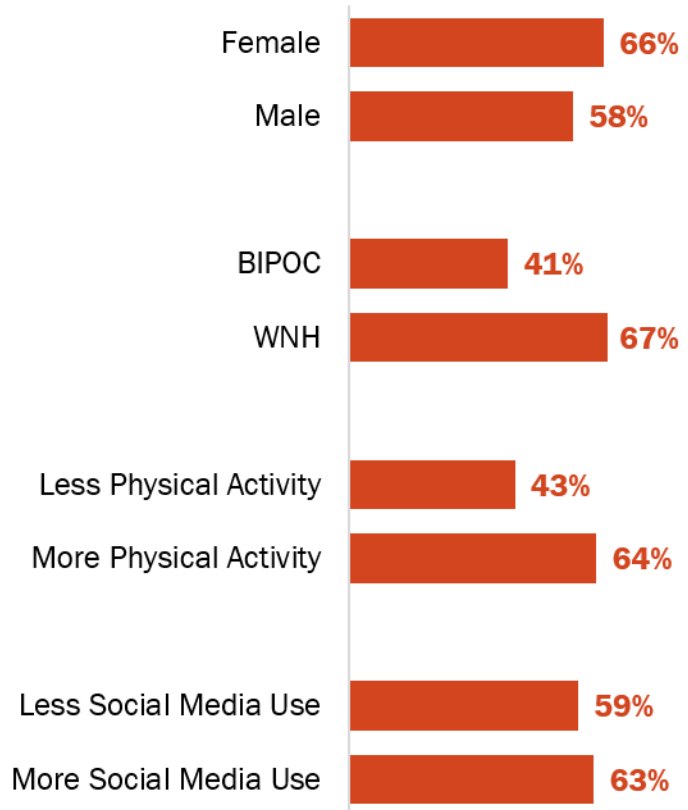
Data source: Vermont YRBS (2023)

Youth Sunburns

Among middle school students, patterns in who reports at least one sunburn can differ:

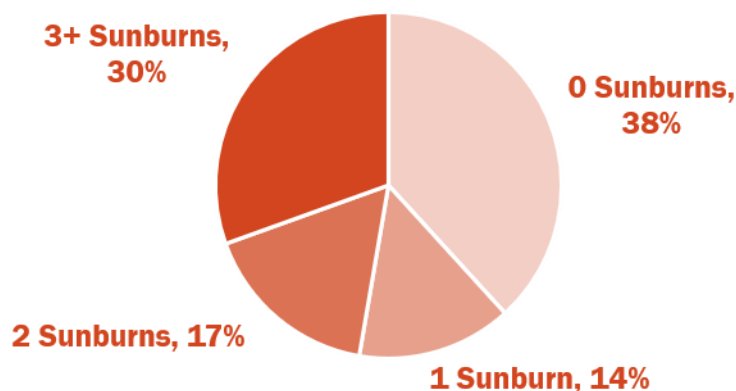
- Female students have at least one sunburn more often than male students.
- Students who identify as WNH are more likely to have at least one sunburn than BIPOC students.
- Students who participate in more physical activity are more likely to have at least one sunburn than students who do not participate in routine physical activity.
- Students with high social media use are more likely to report at least one sunburn.

Middle school students who had at least one sunburn in the past year.



Data source: Vermont YRBS (2023)

Middle school students who get a sunburn in the past year are significantly more likely to report **three or more sunburns** than **one or two sunburns**.

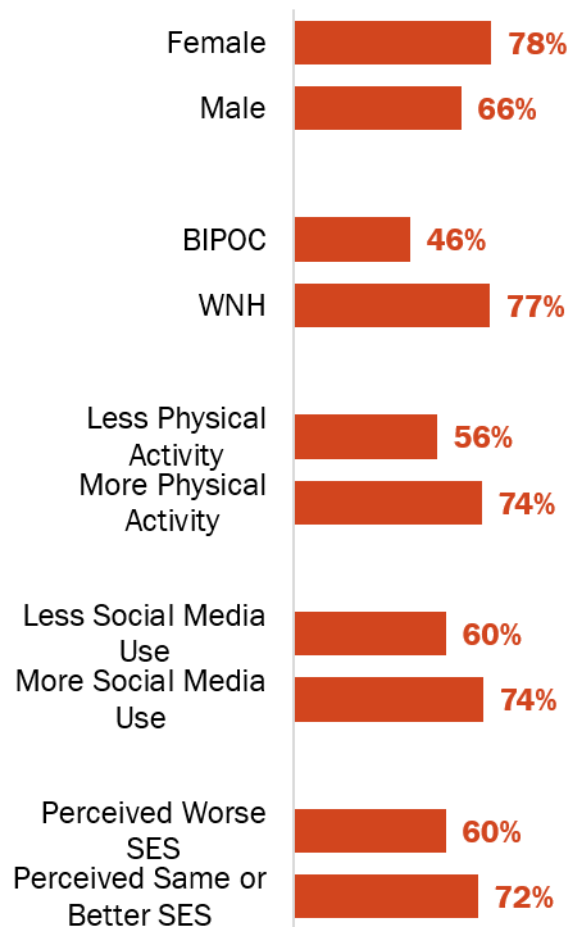


Data source: Vermont YRBS (2023)

High school students who report at least one sunburn follow a similar pattern to their middle school counterparts:

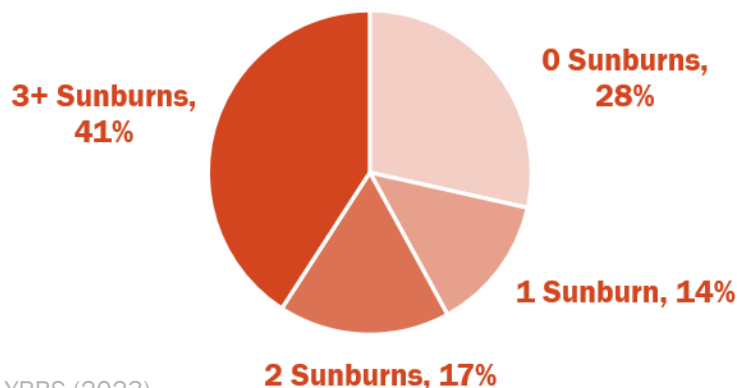
- Female high school students are more likely to report having at least one sunburn than their male counterparts.
- Students who identify as WNH are more likely to report at least one sunburn than BIPOC students.
- Students who perceive that their socio-economic condition is equal to or better off than others get sunburned more often than students who perceive that they are worse off.
- Students participating in at least 60 minutes of regular physical activity at least one day in the previous week are more likely to report getting a sunburn than students who do not participate in routine physical activity.
- Students who use more social media are more likely to get at least one sunburn.

High school students who had at least one sunburn in the past year.



Data source: Vermont YRBS (2023)

High school students who report getting a sunburn in the past year are significantly more likely to report **three more sunburns** than **one or two sunburns**.



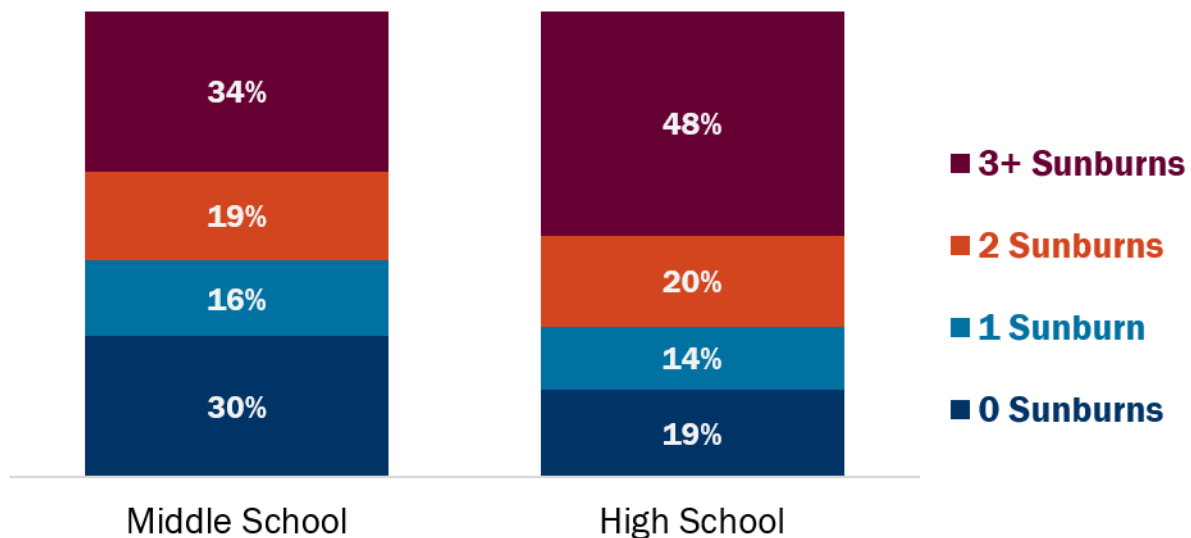
Data source: Vermont YRBS (2023)

The Limits of Using Only Sunscreen

While sunscreen use is an important and effective way to reduce exposure to UV radiation while outdoors, it should be considered apart of broader sun safety strategy. People who spend long periods outdoors may overestimate the level of protection sunscreen can provide, often leading to situations where they do not re-apply sunscreen when necessary, seek shade, or wear protective clothing. It's typically recommended to reapply sunscreen every two hours and to take breaks in the shade while spending time in the sun.

- Seven in 10 middle school students who use sunscreen regularly while outdoors for more than an hour report that they also received at least one sunburn in the past year (70%).
- This outcome continues throughout high school, where four out of five students (81%) had at least one sunburn while also regularly using sunscreen when outside.

Both middle school and high school students who report regularly using sunscreen are also more likely to report that they had **three or more sunburns in the past year than they are reporting **zero, one or two** sunburns.**



Data source: Vermont YRBS (2023)

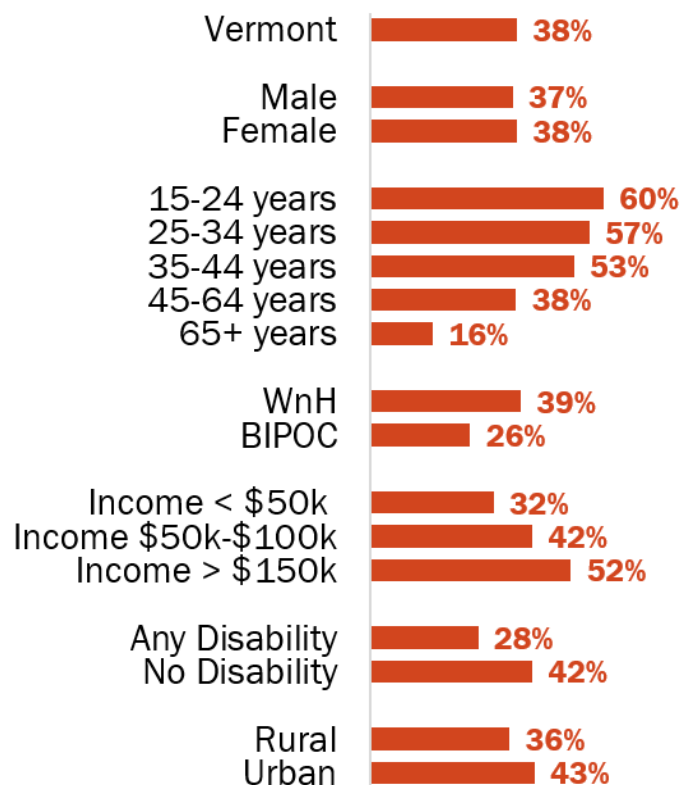
Adult Sunburns

As we age, our patterns of being outdoors change as does our sensitivity to UV radiation. This means that sun safety remains important across our lifetimes. Outdoor workers, for instance, are at an increased risk of developing melanoma due to prolonged and repeated exposure to UV radiation from the sun. Older adults are also at an increased risk of melanoma due to more cumulative time in the sun, as well as physical changes, like skin losing fat and water content allowing the UV radiation to penetrate deeper. The natural decline of our immune system can also lead to a weaker ability to repair DNA damaged by the sun.

In Vermont:

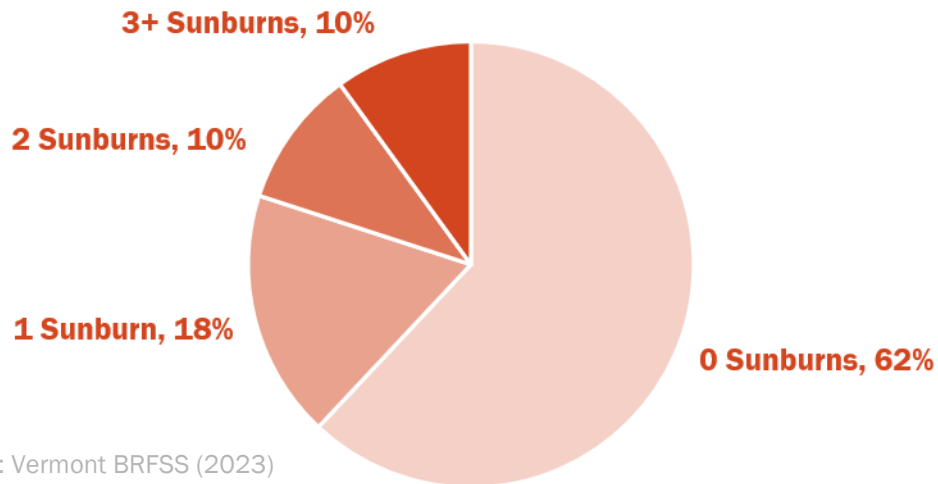
- Nearly two-fifths (38%) of Vermonters aged 18 or older had at least one sunburn in the past year.
- The prevalence of sunburn tends to decrease as adults get older. Adults 18-44 all report at least one sunburn in the last year at statistically similar rates. This is at a significantly higher rate than adults 45-64 and over the age of 65.
- White, non-Hispanic adults who report getting are statistically more likely to report at least one sunburn.
- The prevalence of sunburn increases as annual household income increases.
- Adults with no disability are more likely to report at least one sunburn than adults who report having any disability.

Vermont adults who had at least one sunburn in the past year



Data source: Vermont BRFSS (2023)

About two in five (38%) of Vermont adults had at least one sunburn in the past year.



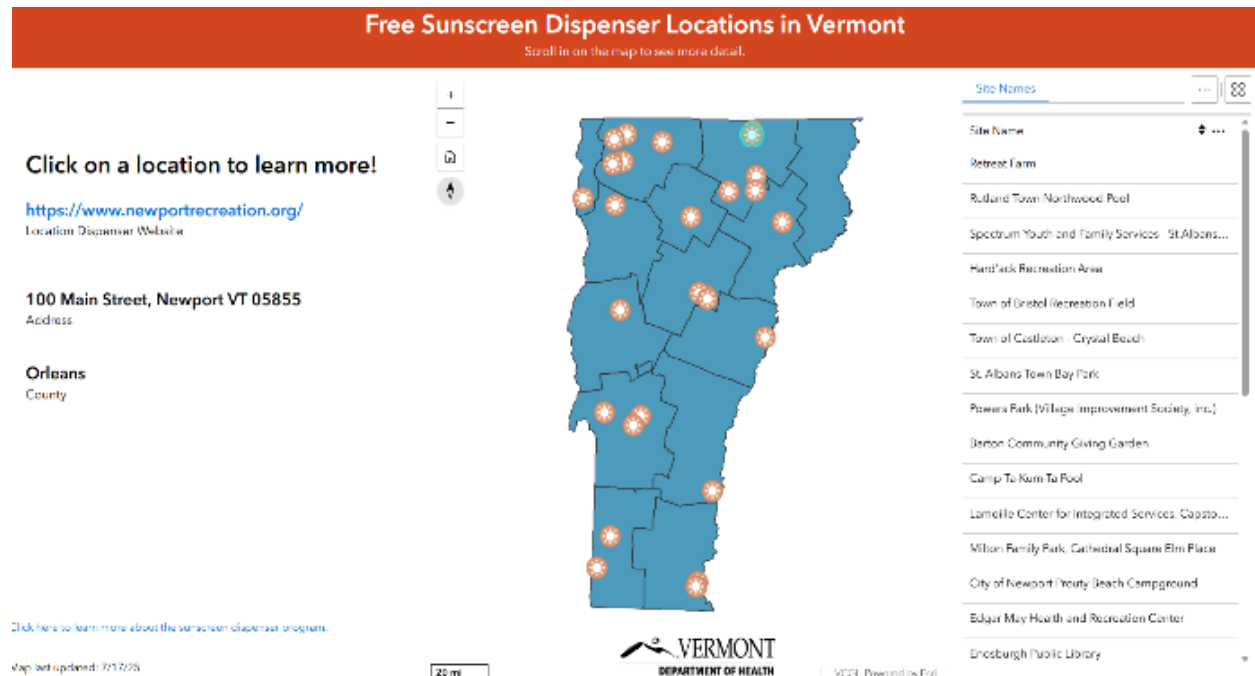
Conclusion

While melanomas are a leading cause of new cancer diagnoses in Vermont and many of these cancers may be preventable and are detected at an early stage which has helped melanoma mortality rates remain low. Research has shown that just one blistering sunburn or five sunburns can significantly increase the risk of developing melanoma. By reinforcing good sun safety habits during childhood and adolescence, such as using sunscreen with 30+ SPF and reapplying every two hours, seeking shade during peak hours of the day and wearing sun safe clothing, can build skills that can be applied across a lifetime to reduce the risk of melanoma.

Staying Sun Safe

Vermont's [community sunscreen dispenser program](#), coordinated by the Vermont Department of Health, Vermonters Taking Action Against Cancers (VTAAC), Dartmouth Cancer Center, UVM Cancer Center, and IMPACT Melanoma, provides free automated sunscreen dispensers to high-traffic outdoor community sites across the state.

Use the Department of Health's [interactive free sunscreen dispenser map](#) to locate dispensers near you.



Technical Notes and Sources

1. Saraiya, Mona, et al. "Interventions to prevent skin cancer by reducing exposure to ultraviolet radiation: a systematic review." *American journal of preventive medicine* 27.5 (2004): 422-466.
2. Guy et al., "Vital Signs: Melanoma Incidence and Mortality Trends and Projections — United States, 1982–2030." *Morbidity and Mortality Weekly Report (MMWR)*, June 5, 2015 / 64(21);591-596.
3. CiNA Explorer: An interactive tool for quick access to key NAACCR cancer statistics based on the Cancer in North America (CiNA) dataset from the North American Association of Central Cancer Registries. Available at www.naaccr.org/interactive-data-on-line/.
4. Godar, D.E., Urbach, F., Gasparro, F.P. and van der Leun, J.C. (2003), UV Doses of Young Adults ¶. *Photochemistry and Photobiology*, 77: 453-457.
[https://doi.org/10.1562/0031-8655\(2003\)0770453UD0YA2.0.CO2](https://doi.org/10.1562/0031-8655(2003)0770453UD0YA2.0.CO2)

Rates are calculated per 100,000 and are age-adjusted to the 2000 U.S. standard population (19 age groups – Census P25–1130) and exclude basal cell and squamous cell skin cancers. Incidence rates exclude in situ carcinomas except urinary bladder. Incidence data were coded using the International Classification of Disease for Oncology (ICD-O) coding system. Vermont cases include Vermont residents only. The Vermont and U.S. incidence and mortality rates are based on the Vermont Cancer Registry, Vermont Department of Health (1994-2022) and the NPCR and SEER Incidence - U.S. Cancer Statistics Public Use Database, 2024 submission (2001-2022), United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute. Released June 2025. Available at www.cdc.gov/cancer/uscs/public-use. Northeast Region (N.E.) includes Connecticut, Maine, Massachusetts, New Hampshire, New York, Pennsylvania, Rhode Island, and Vermont. A reporting delay by Department of Veterans Affairs (VA) has resulted in incomplete reporting of VA hospital cases in 2011-2014, 2017-2022. As of 2025, new data sharing legislation has resumed data reporting from VA hospitals, however, due to the existing backlog case counts may continue to be affected.

Learn more about how the way these data were collected may impact this data brief:
HealthVermont.gov/EquityData