

Vermont Facts

- ❖ **Incidence:** Melanoma is the fifth most common cancer diagnosed among men and women. Each year approximately 114 melanoma cases are diagnosed among men and 95 cases among women.
- ❖ **Mortality:** Each year approximately 15 men and 8 women die from melanoma.
- ❖ **Trends:** Incidence and mortality rates for melanoma have not changed during 2000-2009.
- ❖ **Vermont vs. U.S.:** The melanoma incidence rate among Vermont males and females is higher than the U.S., but melanoma mortality is not different.
- ❖ **Age:** Melanoma affects individuals of all age groups but is one of the most common cancers in adults aged 20 to 49.
- ❖ **Stage:** In Vermont, 83 percent of melanoma cancers are diagnosed at the localized stage (the cancer is limited to the upper layer of skin), nine percent are diagnosed at the regional stage, and three percent are diagnosed at the distant stage (the cancer has extended beyond the skin or has metastasized).
- ❖ **Prevention:** Melanoma is largely preventable when sun protection methods, such as sunscreen, hats, protective clothing, shade, and sunglasses are used. Avoiding tanning beds and sunlamps is also important because they are significant sources of UV radiation. The use of tanning devices starting before the age of 30 increases the risk for developing melanoma by as much as 75 percent.

Table of Contents:

<i>Vermont Facts</i>	1
<i>Background</i>	2
Melanoma of the Skin	2
<i>Incidence and Mortality</i>	3
<i>Trends</i>	4
<i>U.S. Comparisons</i>	6
<i>Age</i>	7
<i>Research</i>	9
<i>Stage at Diagnosis</i>	10
<i>Risk Factors</i>	11
<i>Screening and Prevention</i>	12
Screening	12
Prevention	12
Youth Tanning and Tanning Facility Law	14
<i>Sun Exposure</i>	15
<i>Survival and Treatment</i>	16
<i>Intervention, Policy, & Recommendations</i>	17
The Vermont State Cancer Plan	17
Vermonters Taking Action Against Cancer	17
<i>Data Sources</i>	18
<i>Technical Notes & Definitions</i>	19

Background

Any disease in which abnormal cells develop, divide, grow, and have the potential to spread throughout the body can be called cancer. If the spread of these cancer cells is not controlled, death may result. Cancer cells from a malignant tumor can invade nearby tissues either by direct growth into adjacent tissue or by migration through the bloodstream and lymphatic system to other parts of the body. This process is called metastasis. Cancer that started as a melanoma of the skin and spread to the brain or liver is still melanoma.

In 2007, cancer overtook heart disease as the leading cause of death in Vermont, with approximately 1,200 Vermonters dying from cancer each year. In contrast to the dramatic declines in the death rates for heart disease and stroke, the cancer death rate has risen steadily over the past few decades as a result of the aging population and the continued rise in death rates from lung cancer. Roughly one out of every two men and one out of every three women will develop cancer in their lifetime.

Melanoma of the Skin

Skin cancers are the most common form of cancer. Skin cancers are named for the type of skin cells from which they originate. Basal cell skin cancers start in the outermost layer of the skin and are the most common and least dangerous form of skin cancer. Squamous cell skin cancers originate from the middle layer of skin, are less common than basal cell skin cancers, and more likely to spread if untreated. These two types of cancer are very common and also very treatable. Melanoma is much less common but is the more serious form of skin cancer.

Melanoma is a form of skin cancer that occurs in the melanocytes, which are cells in the outer layer of skin that gives skin its tan coloring and typically protects deeper layers of the skin from harmful sun exposure. When the skin is exposed to sunlight, the melanocytes in the outer layer of skin make more pigment, which causes the skin to darken. Melanomas develop when melanocytes undergo malignant transformation, becoming abnormal, grow uncontrollably, and can aggressively invade surrounding tissues.

Melanomas are the most serious form of skin cancer. Melanoma can be treated early, but if left untreated, it can spread to other parts of the body and become much more difficult to treat. Roughly one out of every 40 men and one out of every 63 women will develop melanoma of the skin in their lifetime.

Incidence and Mortality

Defined as the number of *new* cases occurring in a population during a defined time interval, incidence rates are a useful measure of the risk of disease.

Table 1. The most commonly diagnosed cancers in males and females – Vermont, average number of cases per year, 2005-2009.

Male Cancer Site	Cases (per year)	Percent (per year)	Female Cancer Site	Cases (per year)	Percent (per year)
Prostate	519	29%	Breast	500	29%
Lung	262	14%	Lung	254	15%
Colon and Rectum	149	8%	Colon and Rectum	162	9%
Bladder	136	8%	Uterus	126	7%
Melanoma	114	6%	Melanoma	95	5%
All Sites	1,818	100%	All Sites	1,753	100%

New cases per year exclude basal cell and squamous cell skin cancers and in situ carcinomas except urinary bladder.

- ❖ An average of 1,818 cancers in males and 1,753 cancers in females are diagnosed each year in Vermont. Of those, an average of 114 men and 95 women are diagnosed with melanoma each year.
- ❖ Melanoma is the fifth most common cancer diagnosed among males and females and accounts for roughly six percent of all cancers diagnosed among Vermont men and five percent diagnosed among Vermont women.

The mortality rate is a measure of the number of deaths in a population during a specific period of time.

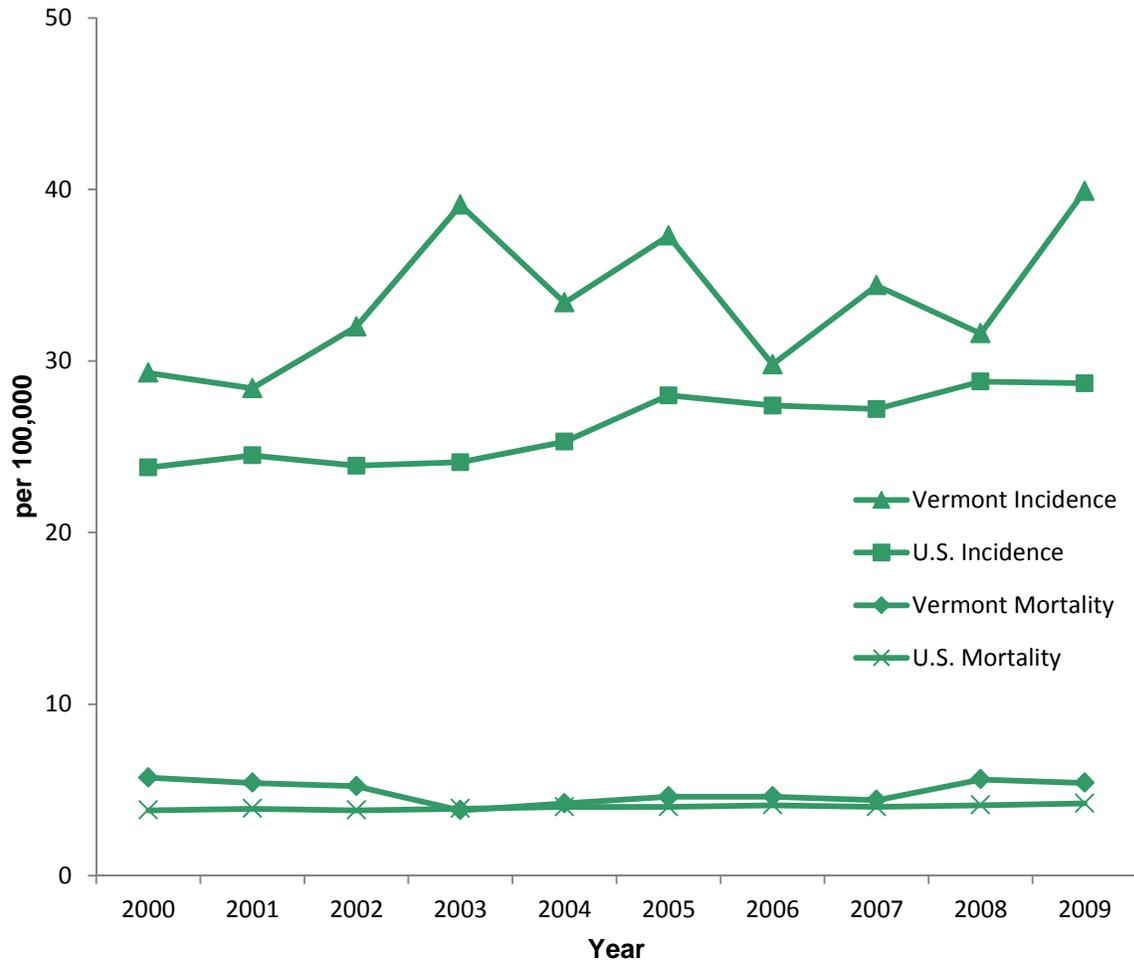
Table 2. The most common cancer deaths in males and females – Vermont, average number of deaths per year, 2005-2009.

Male Cancer Site	Deaths (per year)	Percent (per year)	Female Cancer Site	Deaths (per year)	Percent (per year)
Lung	192	30%	Lung	176	29%
Prostate	59	9%	Breast	82	13%
Colon and Rectum	56	9%	Colon and Rectum	59	10%
Pancreas	41	6%	Pancreas	39	6%
Bladder	32	5%	Ovary	27	4%
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Melanoma	15	2%	Melanoma	8	1%
All Sites	641	100%	All Sites	613	100%

- ❖ An average of 641 males and 613 females die each year from cancer in Vermont. Of those, an average of 15 men and eight women die from melanoma cancer.
- ❖ Melanoma accounts for roughly two percent of all cancer deaths among Vermont men and one percent of deaths among Vermont women.

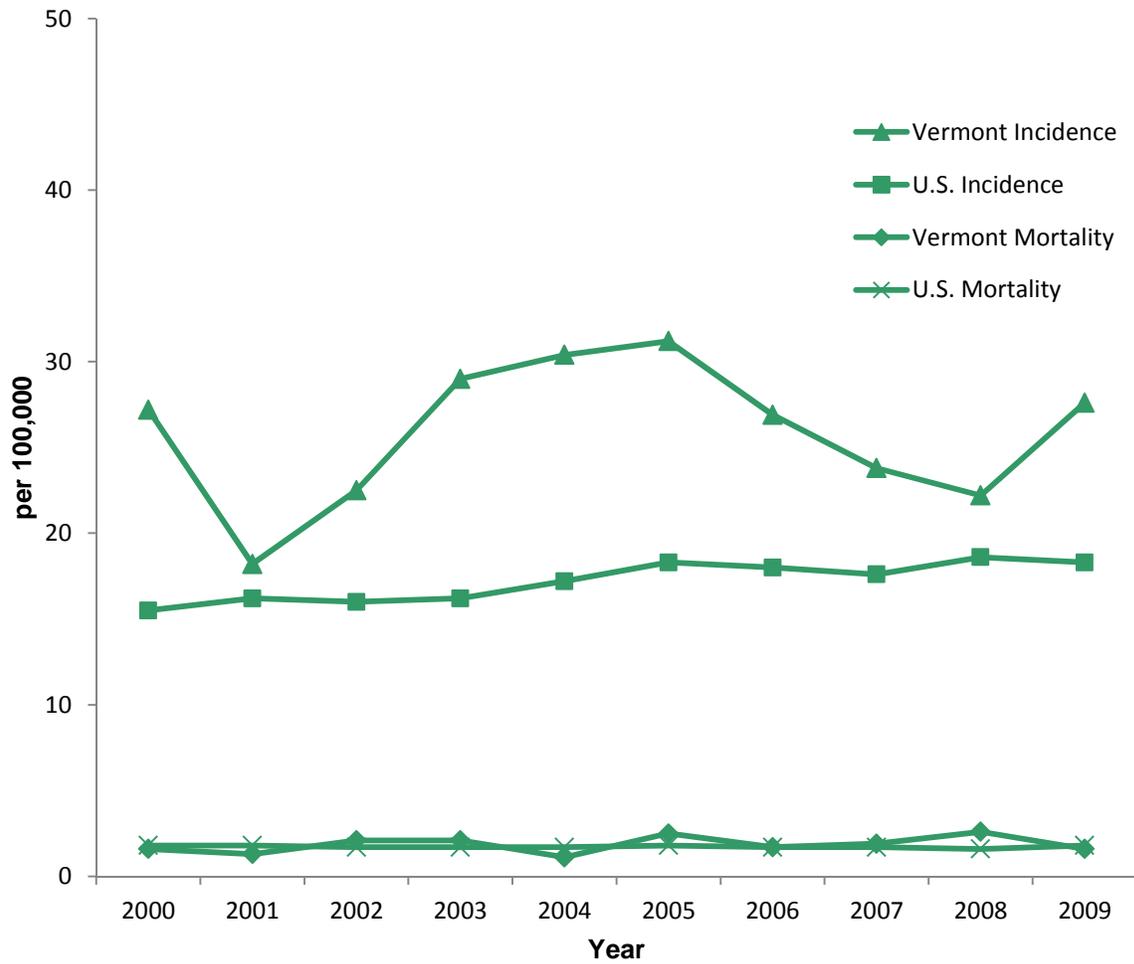
Trends

Figure 1. Incidence and mortality rates of male melanoma— Vermont and United States, 2000-2009.



❖ From 2000 to 2009, the increases in the incidence and mortality of male melanoma were statistically significant for the U.S.; the Vermont trends were not statistically significant.

Figure 2. Incidence and mortality rates of female melanoma – Vermont and United States, 2000-2009.



- ❖ From 2000 to 2009, the increases in the incidence of female melanoma were statistically significant for the U.S.; the Vermont trend was not statistically significant.
- ❖ From 2002-2009 the mortality of female melanoma was not statistically significant for Vermont or the U.S.

U.S. Comparisons

Table 3. Incidence and mortality rates of melanoma – Vermont and United States, per 100,000, yearly averages, 2005-2009.

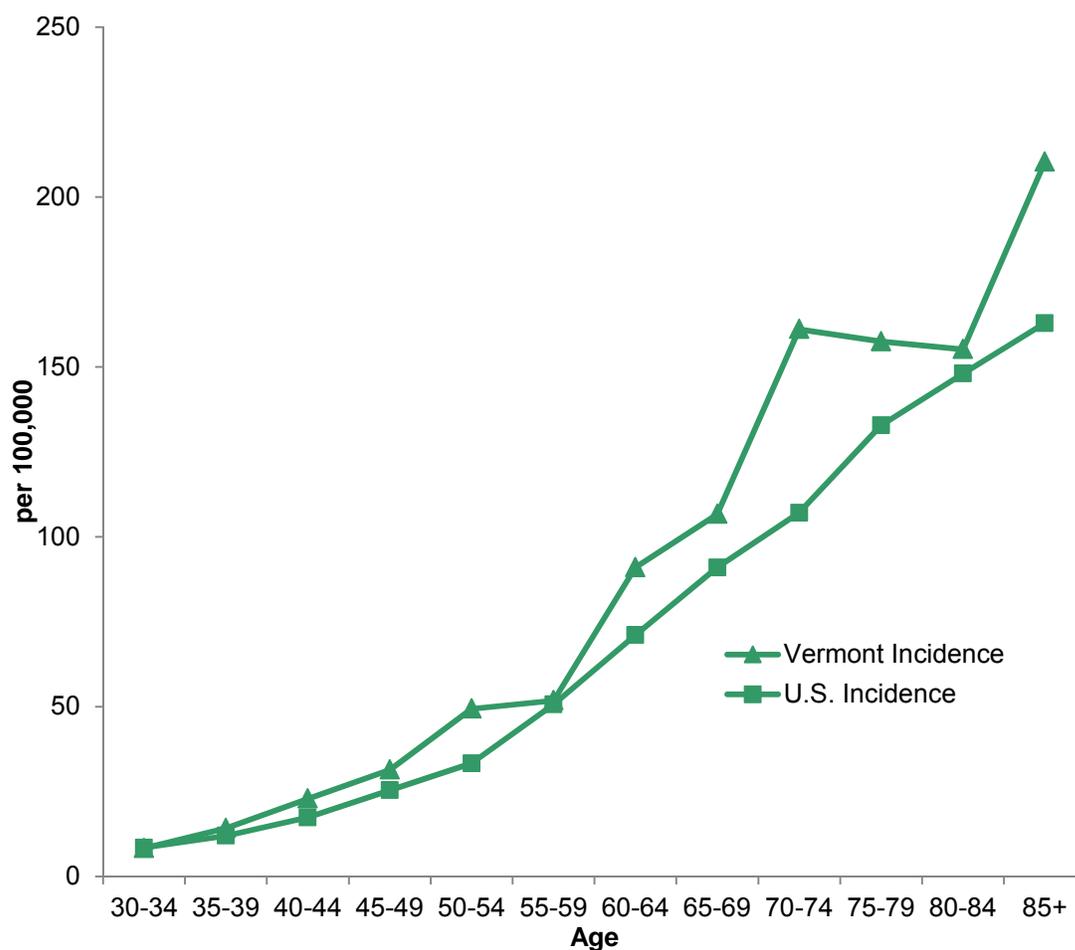
	Incidence	Mortality
Vermont Males	34.7	5.0
U.S. Males	28.0	4.1
Vermont Females	26.4	2.1
U.S. Females	18.2	1.7

- ❖ The melanoma incidence rate among Vermont males and females are higher than the U.S.
- ❖ The melanoma mortality rates among Vermont males and females are not different from the U.S.

Age

The incidence of many cancers increases with age. The incidence rates of melanoma, as with many cancers, increase with age and are highest among those 80 and older. Melanoma affects individuals of all age groups and is one of the most common cancers in adults aged 20 to 49. Men have a higher rate of melanoma than women overall, although this varies by age. Before age 40, the risk is higher for women, and after age 40 the risk is higher for men.

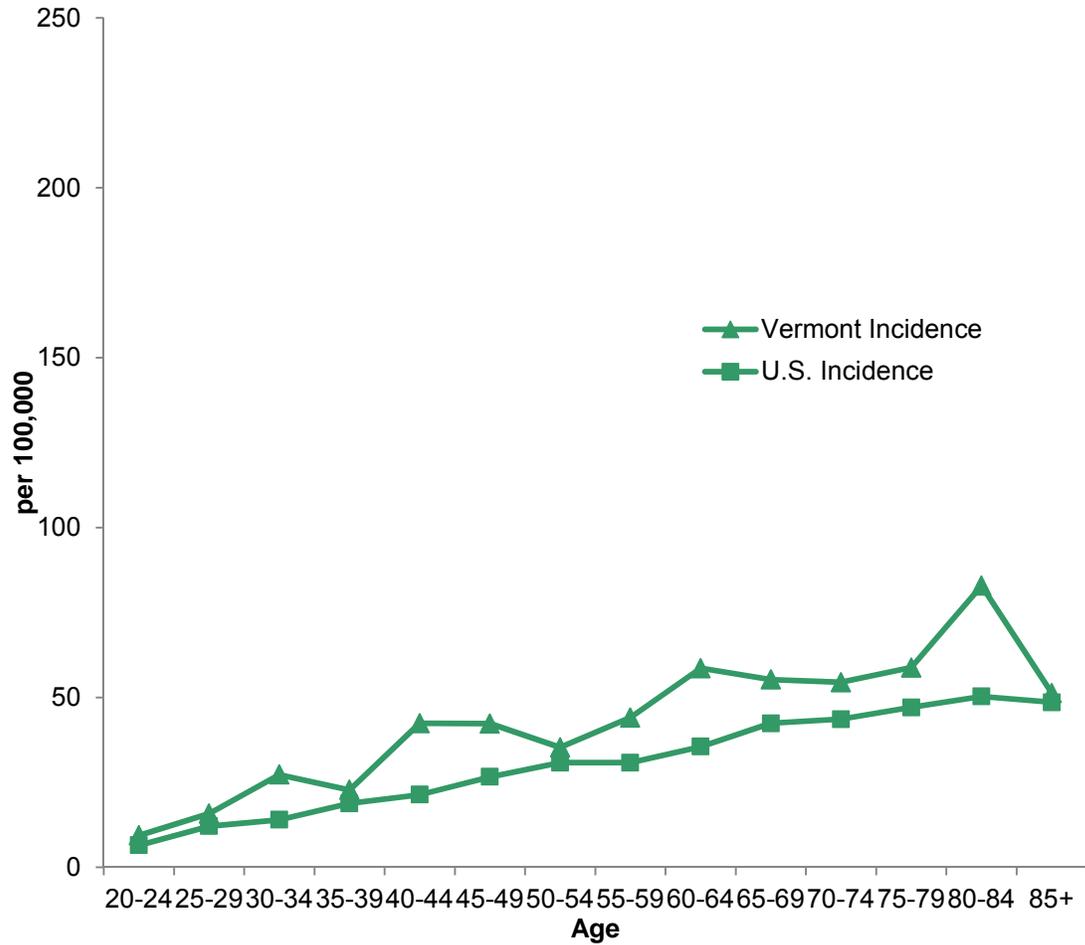
Figure 3. Incidence rates of male melanoma, by age – Vermont and United States, 2005-2009.



Age Group	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
Vermont Rate	8.3	14.2	22.9	31.4	49.4	51.8	91.0	106.7	161.1	157.5	155.2	210.4
U.S. Rate	8.5	12.0	17.4	25.4	33.3	50.7	71.1	91.0	107.1	132.8	148.1	162.9

- ❖ Vermont males age 85 and older have the highest age-specific incidence of melanoma, at a rate of 210.4 per 100,000.
- ❖ Between 2005 and 2009 Vermont males age 50-54 and 70-74 had a higher rate of melanoma compared to the U.S.

Figure 4. Incidence rates of female melanoma, by age – Vermont and United States, 2005-2009.



Age Group	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
Vermont Rate	9.4	15.8	27.3	22.8	42.4	42.3	35.3	44.1	58.6	55.3	54.5	58.8	82.9	51.3
U.S. Rate	6.5	12.1	14.0	18.8	21.4	26.6	30.8	30.8	35.5	42.4	43.6	47.1	50.3	48.6

- ❖ Vermont women age 80-84 have the highest age-specific incidence of melanoma, at a rate of 82.9 per 100,000.
- ❖ Between 2005 and 2009 Vermont women age 30-34, 40-49, 55-64, and 80-84 had a higher rate of melanoma compared to the U.S.

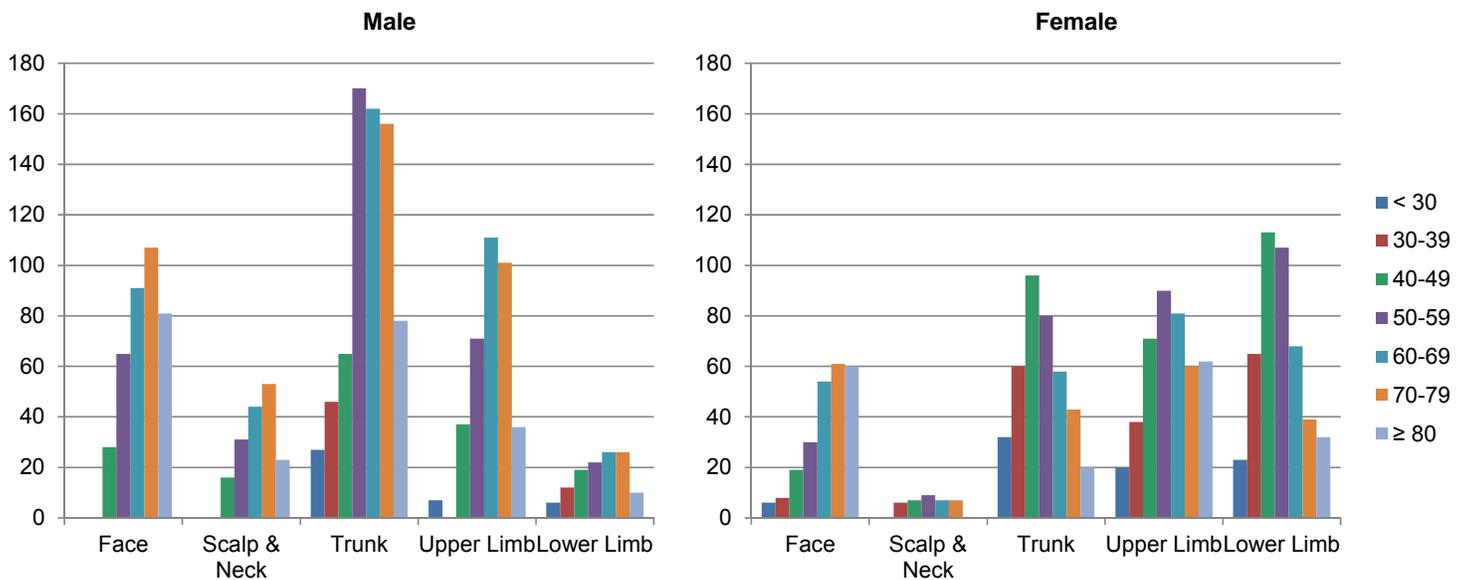
Research

The CDC/CSTE Applied Epidemiology Fellowship Program and the Vermont Department of Health Divisions of Environmental Health and Health Surveillance collaborated on a study to determine what types of trends exist by age, sex, and geography among Vermont residents diagnosed with melanoma from 2001 to 2010¹.

The study resulted from the observation of persistently elevated melanoma levels in Vermont. Descriptive statistics identified differences between Vermont counties and sub-counties:

- Women had a younger mean age at diagnosis than men. Men were more likely than women to have tumors on their face (1.5 times), trunk (2.0 times), and scalp or neck (4.2 times). Women were more likely than men to have tumors on the upper or lower limbs (1.4 or 5.5 times, respectively).
- Bennington County had the highest incidence rate of all counties and was significantly higher (1.4 times) than the statewide rate. Incidence in Lamoille County was also significantly higher (1.3 times) than the statewide rate.
- Differences within counties were also found. At the town-level, increasing per-capita income was significantly associated with an increased incidence of melanoma. However, this trend is not consistent throughout the state and appears to be stronger in the northern and southern portions of the state.

Figure 5. Frequency by age and tumor location – male and female, Vermont 2001-2010.



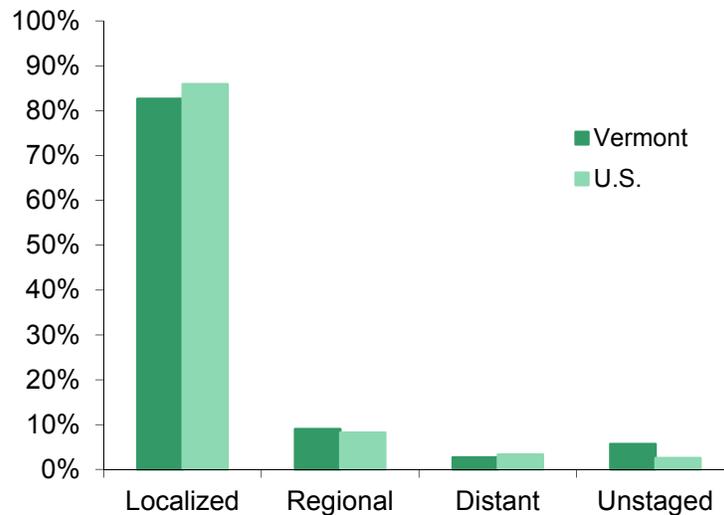
VDH, as part of the Centers for Disease Control and Prevention (CDC) National Environmental Public Health Tracking (EPHT) Program, has developed a tracking system that integrates data about environmental hazards and exposures with data about chronic diseases. The purpose of the tracking system is to understand the possible associations between the environment and adverse health effects. Vermont's tracking system is available at: <http://healthvermont.gov/tracking/> and includes county level statistics for 17 cancer sites, including melanoma.

¹ Nathaniel Schafrick, *Spatial Analysis and Descriptive Statistics of Melanoma Rates in Vermont Years of Diagnosis: 2001-2010*, <http://cste.confex.com/cste/2013/webprogram/Paper2045.html>.

Stage at Diagnosis

Stage describes the extent to which the cancerous cells have spread from the original site to another part of the body; it helps determine prognosis and treatment options. Invasive melanoma can be grouped into the following stage categories: localized, regional, distant, and unstaged. Information about non-invasive (in situ) melanoma is collected but is not shown here. The earlier a cancer is diagnosed, the better a person's prognosis is likely to be. Cancers occurring in parts of the body that can be easily seen or felt (e.g. skin or breast) are easier to detect at a localized stage compared to cancers of internal organs, which require imaging procedures and/or laboratory tests to detect.

Figure 6. Invasive melanoma by stage at diagnosis – male and female, Vermont and the United States, 2005-2009.



- ❖ Among Vermonters, approximately 83 percent of invasive melanoma is diagnosed at the localized stage, nine percent are diagnosed at a regional stage, and three percent are diagnosed at a distant stage. In the U.S., 86 percent of melanoma is diagnosed at the early stage, eight percent are diagnosed at a regional stage, and three percent are diagnosed at a distant stage.
- ❖ Fewer Vermonters are diagnosed at a localized stage, and more are unstaged (six percent) compared to the U.S. (three percent).

Risk Factors

A risk factor is a condition, an activity, or an exposure that increases a person's chance of developing cancer. Cancer develops gradually as a result of a complex mix of factors related to lifestyle choices, environment, and genetics. Each type of cancer is caused by a different set of factors, some well established, some uncertain, and some unknown. Some factors, like a person's age or race, can't be changed. Others can be linked to cancer-causing factors in the environment. Still others are related to personal behaviors, such as smoking, drinking, and diet. Many individuals with known risk factors never develop melanoma, and many who do develop cancer have none of the known risk factors. Some factors influence risk more than others, and a person's risk for melanoma can change over time, due to factors such as aging or lifestyle. The exact causes of melanoma are unknown, but some of the factors associated with an increased risk of developing melanoma are:

- ❖ **UV Radiation:** Solar radiation is the primary source of exposure to ultraviolet (UV) radiation, which is divided into three ranges: UVA, UVB, and UVC and is the main risk factor for melanoma.
- ❖ **Artificial Sources of UV Radiation:** Sunlamps and tanning booths can cause skin damage and melanoma. The use of tanning devices starting before the age of 30 increases the risk for developing melanoma by 75 percent. Additionally, studies have indicated that UV tanning devices may also increase the risk of developing ocular (eye) melanoma.
- ❖ **Severe Sunburns:** Having had at least one severe, blistering sunburn increases the risk of melanoma. Although severe burns are likely to have taken place during childhood, sunburns in adulthood also increase risk for melanoma.
- ❖ **Age:** The occurrence of melanoma in childhood is rare but possible. Like many cancer rates, the incidence of melanoma increases with age, but melanoma is not uncommon even among those younger than 30. In fact, it is one of the more common cancers in adolescents and young adults.
- ❖ **Fair Skin, Freckling, and Light Hair:** People who have fair skin that burns or freckles easily (red or blond hair and blue or green eyes) are at greater risk for melanoma than individuals with dark skin. In the U.S., rates are more than 10 times higher in whites than in African Americans.
- ❖ **Gender:** Men have a higher rate of melanoma than women overall, although this varies by age. Before age 40, the risk is higher for women and after age 40 the risk is higher for men.
- ❖ **Unusual Moles:** Having an atypical mole (dysplastic nevus) increases a person's risk for melanoma. Most people have moles, and almost all moles are harmless. Dysplastic moles have an appearance that is different from common moles. They are generally larger than ordinary moles and have irregular and indistinct borders. Their color is frequently not uniform and the texture is usually flat but may be raised above the skin surface. It is important to watch for changes in a mole – such as its size, shape, color, or texture – that suggest a melanoma may be developing. While most dysplastic moles will not develop into cancer it is important to identify for your medical provider any areas of concern. Having many ordinary moles (greater than 50) can increase a person's risk for melanoma.
- ❖ **Family or Personal History:** Melanoma can run in families. The risk is greater for individuals who have one or more close relatives (mother, father, brother, sister, or child) with melanoma. Approximately 10

percent of individuals with melanoma have a closely related family member with melanoma perhaps due to shared lifestyles or shared genetic susceptibility. There are some rare inherited disorders that make the skin more sensitive to sun increasing the risk for melanoma. Being treated for a previous melanoma puts a person at a greater risk of developing a second melanoma.

- ❖ **Certain Medical Conditions or Medicines:** Some medications (certain antibiotics, hormones, or antidepressants) can cause skin to be more sensitive to the sun increasing the risk for melanoma. Also, medical conditions or medicines that suppress the immune system (such as organ transplant patients) have an increased risk of melanoma.

Screening and Prevention

Screening

Due to lack of evidence demonstrating effectiveness, the U.S. Preventive Services Task Force (USPSTF) does not support routine screening for skin cancer by total skin examination. Generally, it is recommended that people with risk factors talk with their physician about skin cancer, the symptoms to watch for, and a schedule for checkups. Self-examination of your skin once a month is the best way to detect the early signs of basal cell carcinoma, squamous cell carcinoma, and melanoma, which are the three main types of skin cancer. Look for a new growth or any skin change. ABCDE (Asymmetry, Border, Color, Diameter, Evolving) represents an acronym that is a guide for the detection of early skin cancers.

Asymmetry: the mole is not round.

Border: the mole's border is not well-defined.

Color: the mole is dark or varied in color.

Diameter: the mole is greater than 1/4 inch (6 mm) in size (around the size of a pencil eraser).

Evolving: the mole changes over time (size, shape, surface or shades of color).

Other symptoms may include a sore that remains unhealed, spread of pigment beyond the border to surrounding skin, redness or swelling or itchiness, tenderness, or pain, change in the surface of the mole. If any of the above conditions are present, a visit to your physician is recommended.

Prevention

Reducing exposure to ultraviolet (UV) radiation, such as from the sun and tanning booths, can decrease an individual's risk of developing skin cancer. The use of sunscreen is only a part of a sun-safety strategy, which includes a number of protective behaviors against UV exposure. Health experts recommend that individuals take a number of steps to help prevent and reduce the risk of melanoma caused by UV radiation. These include:

Limit exposure to the sun, particularly midday between 10 a.m. and 2 p.m. whenever possible.

If you must be outside, wear clothing that protects skin from exposure including long sleeves, long pants, and a hat with a wide brim. Protect your eyes by wearing sunglasses that have UV-absorbing lenses. The label should specify that the lenses block at least 99 percent of UVA and UVB radiation. Sunglasses can protect both the eyes and the skin around the eyes. UV radiation can penetrate light clothing, windshields, windows, and water. Fall hikers and winter skiers should be equally careful of exposure to UV radiation, which can be reflected by sand, water, snow, and ice.

Avoid the sun when taking medications which make your skin more sensitive to light (photosensitive drugs), including but not limited to some antibiotics, anti-inflammatories (NSAIDs), sleeping pills, antidepressants, antihistamines, and diuretics.

Never use tanning booths or sunlamps where exposure can be much greater than natural UV radiation. Over-exposure can cause eye and skin injury and allergic reactions. Repeated exposure may cause premature aging of skin and skin cancer.

Apply **sunscreens** with **broad spectrum** SPF values that are 15 or higher regularly and as directed by labeling including reapplication every two hours or more often if swimming or sweating.

Sunscreen is just one aspect of protection against UV exposure. Most people likely do not apply enough sunscreen (1 oz. each application) or reapply sunscreen as recommended (every 2 hours or more frequently depending upon the activity). In the past many sunscreens with a high SPF (sun protection factor) were formulated to protect only against UVB, the primary cause of sunburn, enabling users to be out longer, but offered little protection against UVA which contributes to skin cancer risk. The FDA approved new rules for sunscreen labeling that took effect in 2012, the first update in 30 years. Sunscreens that can pass a broad spectrum test can now be labeled as “Broad Spectrum SPF” indicating that the product provides protection against both UVA and UVB exposure.

The new FDA regulations, effective June 2012, include requirements that:

- The claim “broad spectrum” will appear only on sunscreens tested for a minimum standard of UVA protection.
- All sunscreens will carry their SPF rating. On broad-spectrum sunscreens, higher SPF numbers mean more protection against UVB as well as more protection against UVA.
- Only Broad Spectrum sunscreens with an SPF designation of 15 or higher can claim to reduce the risk of skin cancer and early skin aging *if used as directed with other sun protection measures*.
- Non-Broad Spectrum sunscreens (only UVB protection) and Broad Spectrum sunscreens with an SPF value between 2 and 14 can only claim to help prevent sunburn.
- Manufacturers can no longer label sunscreens as “waterproof” or “sweatproof.” Sunscreens that claim to be “water resistant” must show how long they last after a person has been swimming or sweating: 40 minutes or 80 minutes. Sunscreens that are not water resistant will have to say so in the “fact box” on the side or back of the package.
- Manufacturers cannot claim that the sunscreens provide protection for more than 2 hours without reapplication and cannot claim instant protection.
- Similar to other over-the-counter drugs, sunscreens will now have a fact box listing warnings and other important information.

Youth Tanning and Tanning Facility Law

Melanoma can occur at any age, including adolescence. Both exposure to artificial and natural UV radiation and sunburns during childhood increase the risk of developing melanoma.

Overall, nine percent of Vermont high school students reported using a tanning booth or sun lamp in the past year. Female high school students reported greater use of a tanning booth or sun lamp (15 percent) compared to (four percent) high school males (YRBS, 2011).

Use of tanning salons remains a prevalent practice among teenage females. There is no federal legislation restricting indoor tanning for minors; however, many states have passed legislation regarding access for minors. Vermont's law, passed in May 2012, completely bans indoor tanning for minors under 18 years of age.

Vermont law prohibits the use of tanning devices such as sunlamps, tanning booths and beds by persons under 18 years of age. The law is intended to protect youth from exposure to ultraviolet (UV) rays, which can cause skin cancer, as well as to inform the public about the dangers of tanning.

The legislation includes three parts:

- **Prohibition:** All persons under the age of 18 are prohibited from using tanning devices.
- **Signs:** All tanning facilities must post in a conspicuous place the notice developed by the Department of Health to inform consumers about the age-restrictions for using tanning devices, the health risks associated with tanning and the penalty and enforcement provisions under the law.
- **Enforcement:** Tanning facilities violating this law are subject to civil penalties.

Additional information is available at: <http://healthvermont.gov/prevent/cancer/sunsafety/tanning.aspx>.

Sun Exposure

Melanoma is largely preventable when sun protective practices and behaviors are consistently used. As part of the Vermont State Cancer Plan 2015, Vermont has set goals to reduce exposure to UV radiation from the sun as well as tanning booths and sun lamps.

Reduce the percentage of adults reporting sunburns in the past 12 months:

VT Status: 45 percent (BRFSS, 2004)
State Cancer Plan 2015 Goal: 40 percent

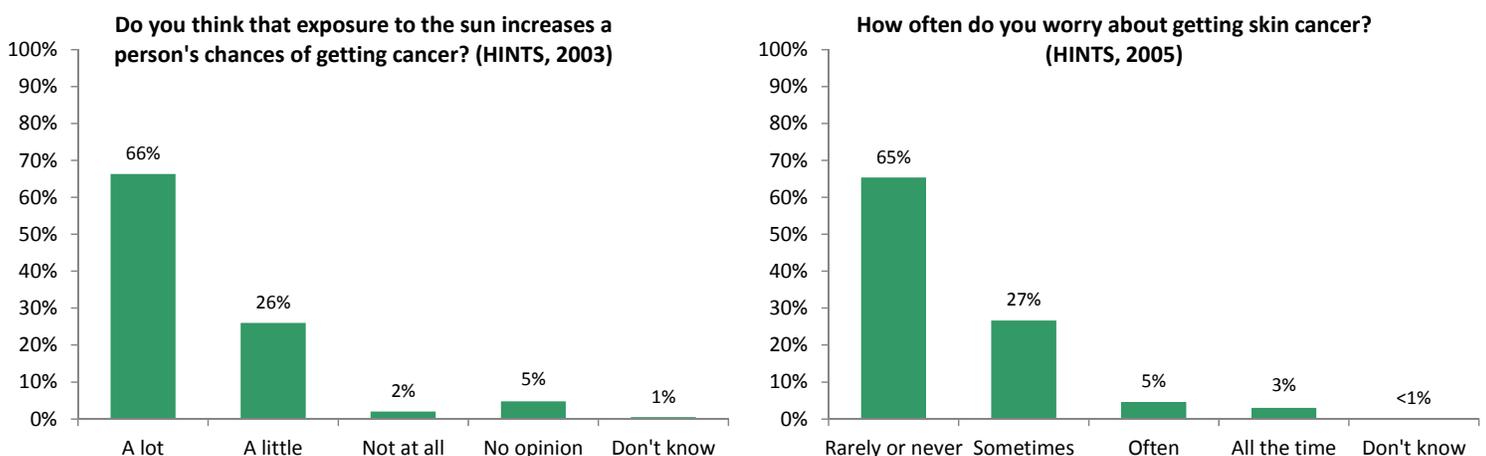
Approximately 16 percent of Vermonters reported having at least one sunburn in the past year, 14 percent reported having two sunburns in the past year, and 15 percent of Vermonters reported having three or more sunburns in the past year. Women were more likely to report that they did not have a sunburn in the past year compared to men. Men were more likely to report having had 2 or more sunburns in the past year compared to women.

Certain populations report higher numbers of sunburns in the past 12 months:

- **Income at or above 250 percent of the Federal Poverty Level (FPL):** 50 percent of Vermonters with an income at or above 250 percent of the FPL are more likely to report having had one or more sunburns, compared to 43 percent below 250 percent of the FPL.
- **Education:** 48 percent of Vermonters with a college degree or greater report having had one or more sunburns, compared to 31 percent of those with a high school education or less.
- **Having a personal doctor:** 52 percent of Vermonters without a personal doctor report having had one or more sunburns, compared to 44 percent of those with a personal doctor.
- **Health Insurance:** 51 percent of Vermonters without health insurance report having had one or more sunburns, compared to 44 percent of those with health insurance.

The Health Information National Trends Survey (HINTS) is a national survey that attempts to identify how people find, use, and understand information about cancer. From the survey it is clear that the general population recognizes that exposure to UV radiation increases the risk for developing skin cancer but does not worry about developing skin cancer.

Figure 7. Health Information National Trends Survey (HINTS) questions about understanding of skin cancer risk and prevention, United States, 2003 and 2005.



Survival and Treatment

Survival rate refers to the percentage of people who are alive for a given period of time after diagnosis and is an indication of disease prognosis. The prognosis and treatment of melanoma is largely determined by stage of the disease, which considers the size of the tumor, involvement of nearby organs, lymph node status, and whether metastatic disease is present. The five-year survival rate refers to the percentage of individuals who live at least five years after being diagnosed; many live much longer than five years. Nationally, 98 percent of men and women whose melanoma is diagnosed at a localized stage survive their cancer for at least five years, compared to 16 percent of those diagnosed with distant stage melanoma cancer.

Treatment and prognosis depend upon the histological type of cancer, the stage, and one's overall health. Possible treatments or combinations of treatments include **surgery**, **chemotherapy** (a method that uses drugs to destroy cancer cells), **immunotherapy** (stimulate the immune system to reject and destroy tumors), **targeted therapy** (drugs that block the growth of cancer cells), **radiation therapy** (ionizing radiation to kill cancer cells), and **palliative care**. Patients may also want to consider taking part in a **clinical trial**.

Surgery to remove the melanoma is the primary treatment of all stages. This may include removing the tumor using simple excision, taking out the melanoma and some of the normal tissue around it referred to as margins. An excisional biopsy may include wider margins and a layer of tissue beneath the skin. An early stage or very thin melanoma may be removed entirely during the biopsy and require no further treatment. If melanoma has spread beyond the skin surgery to biopsy or remove the lymph nodes in the region near the melanoma may be needed and additional treatments may be recommended.

Chemotherapy may be offered to some patients following surgery, even if the doctor removes all of the visible melanoma, to kill any remaining cancer cells. Chemotherapy given after surgery, to increase the chances of a cure, is called adjuvant therapy. The way the chemotherapy is given depends on the type and stage of the cancer being treated.

Biologic therapy is a treatment that uses the patient's immune system to fight cancer. Substances made by the body or made in a laboratory are used to boost, direct, or restore the body's natural defenses against cancer. This type of cancer treatment is also called "biotherapy" or "immunotherapy."

Targeted therapy uses medications designed to target specific vulnerabilities in cancer cells. Research has identified some of the gene changes that make melanoma cells different from normal cells and have started to develop drugs that attack these changes.

Radiation therapy is a cancer treatment that uses high-energy x-rays or other types of radiation to kill cancer cells or keep them from growing. The way the radiation therapy is given depends on the type and stage of the cancer being treated and may be used to relieve symptoms of melanoma that has reoccurred or has spread to another organ.

Clinical trials are generally designed to compare potentially better therapy with therapy that is currently accepted as standard and can be an important option for many individuals when considering treatment of this disease. Much of the progress made in identifying curative therapies for cancers has been achieved through clinical trials. Information about ongoing clinical trials is available from: <http://www.cancer.gov/clinicaltrials>.

Palliative care may be offered when treatments no longer offer a cure and a decision is made to choose supportive care instead. Palliative care is any form of medical care or treatment that concentrates on reducing the severity of disease symptoms, rather than halting or delaying progression of the disease itself or providing a cure. The goal is to prevent and relieve suffering and to improve quality of life for people facing serious, complex illness.

Intervention, Policy, and Recommendations

The **Vermont State Cancer Plan²**, published by the Vermont Department of Health and **Vermonters Taking Action Against Cancer (VTAAC)³**, provides a strategic roadmap for reducing the burden of cancer in Vermont by 2015. The plan identifies state-wide priorities in the following areas: prevention, early detection, treatment access and quality, quality of life, and end-of-life care.

The burden of cancer for all Vermonters can be reduced, and the 2015 Vermont State Cancer Plan provides specific goals to move our state forward. Goals related to melanoma are:

Prevent future cancers by reducing exposure to known risk factors:

- Reduce Vermonters' exposure to ultra-violet radiation from the sun and sun lamps.

Increase access to optimal cancer treatment and care:

- Increase informed decision making for Vermont cancer patients and oncologists.
- Reduce pain, discomfort, and distress among Vermont cancer patients and survivors.
- Increase integration of complementary and alternative medicine (CAM) and oncology.
- Reduce financial and practical barriers to optimal cancer care among Vermonters.

Improve the quality of life for people living with, through and beyond cancer, as well as **improve end-of-life** care for cancer patients:

- Promote optimal health among cancer survivors in Vermont.
- Increase the use of hospice care for Vermont cancer survivors.
- Improve planning for end of life care for cancer survivors and other Vermonters.

Skin cancer prevention is a priority of the Vermont Comprehensive Cancer Control (CCC) Program. A task force will be created and chaired by the CCC Program Coordinator. The surveillance findings will be an important starting point for the task force because staff time and funds are limited.

CCC plans to set up systems to implement some of the evidence based practices, such as the Environmental Protection Agency's SunWise program. The surveillance study will be used to target regions, such as Bennington and Lamoille Counties, to pilot interventions. The data will also be used to design interventions for specific populations, such as using different sun protection strategies for men and women, and possibly using different messages for people of varying ages and incomes.

Vermonters Taking Action Against Cancer (VTAAC) is a statewide coalition of more than 240 people – cancer survivors, advocates, public health and health care professionals, and others – all dedicated to reducing the impact of cancer for all Vermonters. The Vermont Department of Health and VTAAC are working together to raise awareness, prevent cancer where possible, and improve the prospect of survival for those who are diagnosed with cancer.

For more information about VTAAC visit <http://vtaac.org>. For more information on the State Cancer Plan or current activities and progress, visit: <http://healthvermont.gov/cancer>.

² Vermont State Cancer Plan, 2015: <http://healthvermont.gov/prevent/cancer/documents/2015VermontStateCancerPlan-1-21-11.pdf>.

³ Vermonters Taking Action Against Cancer: <http://vtaac.org/>.

Data Sources

Vermont Cancer Registry: The Vermont Cancer Registry is a central bank of information on all cancer cases diagnosed among Vermont residents as well as out of state residents who are diagnosed or treated in Vermont. The registry enables the state to collect information on new cases (incidence) of cancer since January 1, 1994. The information maintained by the registry allows the Health Department to study cancer trends and improve cancer education and prevention efforts. Vermont Department of Health Cancer Registry, 2000-2009. The Vermont Cancer Registry can be contacted at 802-865-7749 (http://healthvermont.gov/research/cancer_registry/registry.aspx).

Vermont Vital Statistics: In Vermont, all deaths are registered using an Electronic Death Registration System which is maintained by the Vermont Department of Health (VDH), Vital Statistics. Death certificates are available from towns with appropriate jurisdiction or the VDH Vital Records Office. Vermont Department of Health Vital Statistics, 2000-2009. Vital Statistics Bulletins are posted at: <http://healthvermont.gov/research/index.aspx#vital>.

Behavioral Risk Factor Surveillance System: Since 1990, Vermont and 49 other states and three territories track risk behaviors using a telephone survey of adults called the Behavioral Risk Factor Survey. Suggested citation: Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2004. <http://healthvermont.gov/research/brfss/brfss.aspx>.

Youth Risk Behavior Survey (YRBS): Every two years since 1993, the Department of Health Division of Alcohol and Drug Abuse Programs and the Department of Education Student Health and Learning Team sponsor the Vermont Youth Risk Behavior Survey (YRBS). The YRBS measures the prevalence of behaviors that contribute to the leading causes of death, disease, and injury among youth. Youth Risk Behavior Survey, Vermont Department of Health, 2011. <http://healthvermont.gov/research/yrbs.aspx>.

Surveillance, Epidemiology, and End Results: The National Cancer Institute funds a network of Surveillance, Epidemiology and End Results (SEER) registries. The SEER Program currently collects and publishes cancer incidence and survival data from 14

population-based cancer registries and three supplemental registries covering approximately 26 percent of the U.S. population. These rates are used to estimate the U.S. cancer incidence rates. U.S. incidence is based on the SEER 9 Registries rates. Suggested Citation: Ries LAG, Eisner MP, Kosary CL, Hankey BF, Miller BA, Clegg L, Mariotto A, Feuer EJ, Edwards BK (eds). SEER Cancer Statistics Review, 1975-2009, National Cancer Institute. Bethesda, MD, 2012 (http://www.seer.cancer.gov/csr/1975_2009).

U.S. Vital Statistics: The U.S. Public Use Database Vital Statistical System maintains the U.S. mortality rates. Rates represented in this report are for the U.S. population. Suggested Citation: Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) SEER*Stat Database: Mortality - All COD, Public-Use With State, Total U.S. (1969-2009), National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2012. Underlying mortality data provided by NCHS (www.cdc.gov/nchs).

Health Information National Trends Survey (HINTS): The survey collects nationally representative data about the American public's use of cancer-related information. The HINTS data collection program was created to monitor changes in the rapidly evolving field of health communication. HINTS was developed by the Health Communication and Informatics Research Branch (HCIRB) of the Division of Cancer Control and Population Sciences (DCCPS) as an outcome of the National Cancer Institute's Extraordinary Opportunity in Cancer Communications. HINTS Questions: CK-13d (2003) and MM-03 (2005). <http://hints.cancer.gov/>.

Technical Notes and Definitions

Age Adjustment: All rates in this document are age-adjusted to the 2000 U.S. standard population. This allows the comparison of rates among populations having different age distributions by standardizing the age-specific rates in each population to one standard population.

Incidence: Incidence refers to the number or rate of newly diagnosed cases of cancer. The incidence rate is calculated as the number of new cancer cases diagnosed in the state during one year divided by the number of residents in the state during the same year. The incidence data presented in this report were coded using the International Classification of Disease for Oncology (ICD-O) coding system. Melanoma cases were defined as invasive neoplasms with ICD-O-3 site code C44.0-C44.9 and histology 8720-8790 (or equivalent for older data).

Mortality: Mortality refers to the number or rate of deaths from cancer. The mortality data presented here were coded using the International Classification of Diseases Tenth Edition (ICD-10).

Race and Ethnicity: U.S. incidence and mortality rates for all races are used for comparison. Racial minority groups were estimated to make up 4.7 percent of the total Vermont population, compared with the total U.S. non-white population of 28 percent in 2010. Nationwide, white non-Hispanics have a higher risk compared to people of other races for female breast, melanoma, and bladder cancer incidence. White non-Hispanics have a lower risk compared to other races for prostate, colorectal, and cervical cancer. Nationally, health disparities by race can be observed by race. The much smaller populations of Vermont residents of other races may have very different risks of these cancers.

Suggested Citation

Vermont Department of Health, Melanoma in Vermont, 2013.

Acknowledgements

This publication was supported by Grant/Cooperative Agreement Number 5U58DP003911 from the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention.

Federal Poverty Level (FPL): The set minimum amount of income that a family needs for food, clothing, transportation, shelter and other necessities. In the United States, this level is determined by the Department of Health and Human Services. FPL varies according to family size. The number is adjusted for inflation and reported annually in the form of poverty guidelines. Public assistance programs, such as Medicaid in the U.S., define eligibility income limits as some percentage of FPL.

Statistical Significance: A statistically significant difference indicates evidence of a State rate difference from the U.S. rate and indicates that the difference did not occur due to chance.

Small Numbers: Rates are not presented in this report if they are based on fewer than 6 cases.