

SKIN CANCER IN NEW YORK STATE

2020

**New York State Department of Health
New York State Cancer Registry**

Executive Summary

Skin cancer is the most common among all cancer types. Melanoma accounts for approximately 1% of all skin cancers but is the cause of most skin cancer deaths.¹ Melanoma is among the top nine cancer diagnoses for New York State (NYS) residents and among the top four diagnoses for young adults aged 20 to 34 years. However, the incidence rate of melanoma skin cancer is lower for young adults aged 20 to 34 years than for every older age group. Men are at higher risk for developing melanoma than women. The incidence of melanoma is much higher in non-Hispanic Whites than in non-Hispanic Blacks or Hispanics. Over the last 30 years, the melanoma incidence rate has been increasing among those age 50 years and older. The distribution of stage at diagnosis remains unchanged over the past ten years, with 84 percent of cases being diagnosed at an early stage. Five-year relative survival for melanoma of the skin, for all races and males and females combined, is 97.6% for cases diagnosed at a local stage. Melanoma skin cancer ranks nineteenth as a cause of cancer death in NYS. Skin cancer mortality among White males has followed a decreasing trend since 1990 but remains more than twice the rate observed among White women.

Effective August 16, 2018, NYS Public Health Law prohibits persons under 18 years of age from using ultraviolet (UV) radiation devices. Increasing awareness of the dangers of excess sun exposure, enlisting primary care providers in early detection, and promoting policies that advance the national goal of preventing skin cancer as outlined in *The Surgeon General's Call to Action to Prevent Skin Cancer* are actions being used to reduce the burden of skin cancer for New Yorkers.²

About skin cancer

Basal and squamous cell carcinomas are the most common types of skin cancer. Basal cell carcinomas account for about eight of ten skin cancers, squamous cell carcinomas, for about two of ten, and melanomas, the most serious of the three, for less than two percent of all skin cancers.³ Melanomas of the skin are considered the most dangerous because they are more likely to spread to other parts of the body and cause death. Other types of skin cancer that are less common include cutaneous lymphomas, Merkel cell carcinomas (MCC), and skin adnexal tumors.³

Skin cancer incidence has been increasing in the United States (US). Some reasons for this are increased screening and diagnosis, increased exposure to UV light, and the increasing number of older individuals in the population.⁴

Risk factors for skin cancer

Basal and squamous cell carcinomas and melanomas have many risk factors in common. The strongest risk factor for skin cancer is exposure to UV light from the sun or from artificial light in tanning booths.⁵ Older people are more likely to develop skin cancer because of the cumulative effect of lifetime sun exposure.⁶ Most of a person's lifetime skin damage occurs before the age of 18 years. Even when a child's sunburn or tan fades, the damage to cells caused by that burn or tan does not, and the effects cannot be reversed. The damage keeps adding up with each sunburn or tan and may one day result in skin cancer. It is, therefore, important that both children and adults protect their skin.

The risk of skin cancer varies significantly by how susceptible a person is to sunburn. People with skin that burns and freckles easily, those with red or blonde hair and those with blue or green eyes have an increased risk of developing skin cancer.⁴

The skin cancer rate among non-Hispanic Whites is much higher than among Blacks, Asians, and Hispanics.¹ Further, risk is higher in areas of the world with high UV radiation from the sun. People in these areas might also be at higher risk because they spend more time in the sun as part of their jobs or for recreation. Worldwide, the highest rates of skin cancer are observed among the fair-skinned population of Australia.⁷

Other risk factors for skin cancer include older age, being male, and a personal or family history of skin cancer. The presence of certain medical conditions or use of medications that make the skin more sensitive to sunlight are also risk factors, as are medical conditions or medications that suppress the immune system.⁴

While 70-80% of melanoma skin cancers arise on normal skin, a risk factor specific for melanoma is the presence of numerous or atypical moles. Referred to medically as dysplastic nevi, moles that look different from a common mole or those that have an abnormal shape or color are more likely to turn into cancer.⁴

Prevention of skin cancer

Skin cancer is often preventable. It is important for people to avoid unnecessary unprotected exposure to the sun and artificial sources of UV light, such as tanning booths or sun lamps. When in the sun, people need to protect themselves by following some simple measures^{8,9}:

- Wearing wide-brimmed hats and long-sleeved shirts and long pants whenever possible;
- Wearing UV-blocking sunglasses to protect the eyes;
- Applying a “broad-spectrum” sunscreen (protects against UVA and UVB rays) with a sun protection factor (SPF) rating of 15 or higher. When outdoors for a lengthy period, a sun protection factor of 30 or higher is needed. One ounce (2 tablespoons) of sunscreen is considered the amount needed to completely cover the exposed areas of the body;
- Avoiding direct sun at midday, between 10:00 AM and 4:00 PM, when the sun's rays are strongest; and
- Using sunscreen and covering skin even on cloudy days, because clouds do not block most UV rays.

It is important to have regular check-ups by health care professionals and to have health care professionals evaluate suspicious moles or skin changes. Moles should be evaluated if they are

uneven in shape or color, are larger than the size of a pencil eraser, or change in shape, color, or size.

Legislation and Program Initiatives

Manufacture and use of UV radiation devices, such as sunlamps, tanning booths or tanning beds, are regulated by the U.S. Food and Drug Administration (FDA), the U.S. Federal Trade Commission (FTC), and Article 35-A of the NYS Public Health Law, respectively.^{10,11,12}

Operators of tanning facilities are required to post warning signs identifying the maximum exposure time for each device. In addition, operators are to ensure that patrons use adequate protective eyewear, and to provide protective eyewear to those who do not possess their own. NYS regulations in 72-1.11 of Title 10 also require operators of tanning facilities to maintain a record of user visits, including date, duration of exposure and documentation of device used.

Effective August 16, 2018, NYS Public Health Law prohibits persons under 18 years of age from using UV radiation devices. Persons 18 years of age or older must provide a driver's license or other photo identification, issued by a government entity or educational institution, before using UV radiation devices.¹³

In 2012, the State Education Department (SED) changed its guidance regarding the use of sunscreen in schools. And in 2013, legislation was enacted regarding the use of sunscreen by children in schools and summer camps. Previously, a note from a doctor authorizing use of sunscreen was required, but schools are no longer required to obtain an order from a medical provider to allow a student to carry and use sunscreen in school.¹⁴ Now only written permission from a parent or guardian is required to be on file.^{15,16}

The New York State Department of Health (NYSDOH) has a long history of conducting prevention and awareness-raising activities to promote the adoption of behaviors that reduce exposure to UV radiation and help reduce the risk of skin cancer. These efforts to raise awareness about the dangers of UV exposure at early ages and build skills to prevent exposure are consistent with evidence-based skin cancer prevention interventions recommended by the Community Preventive Services Task Force and *The Surgeon General's Call to Action to*

Prevent Skin Cancer.^{2,17} Prevention and promotion activities seek to 1) reduce UV exposure; 2) increase knowledge and improve attitudes about UV protection among children and adults; and 3) change policies and create UV-safe environments.¹⁸ The NYSDOH partners with the American Cancer Society and other organizations that are members of the NYS Cancer Consortium to promote information, resources and interventions to reduce risk for skin cancer. Information on tanning and sun safety, as well as resources for parents, educators, and individuals considering tanning, can be accessed at:

<https://www.health.ny.gov/environmental/tanning/index.htm>

Community Cancer Prevention in Action is a NYSDOH program supporting local cancer prevention and risk reduction interventions using a policy, systems and environmental change approach. This program works to increase the adoption of sun safety policies and practices in community settings such as schools, daycares, outdoor worksites and outdoor recreational areas. More information can be found at

https://www.health.ny.gov/diseases/cancer/prevention_in_action/.

Statistics for New York

Sources of skin cancer data

Population-based cancer registries are the main source of cancer incidence data for the US. In NYS, the central cancer registry is maintained by the NYSDOH and receives additional funding from the National Program of Cancer Registries of the Centers for Disease Control and Prevention and the Surveillance, Epidemiology, and End Results (SEER) Program of the National Cancer Institute (NCI). The SEER Program is a program of the NCI for cancer surveillance and research activities. There are currently 21 SEER-funded cancer registries in the US covering approximately 34.6 percent of the US population. These registries have demonstrated the ability to maintain a high-quality population-based cancer reporting system that represent significant population subgroups.¹⁸ The NYS Cancer Registry (NYSCR) officially became a SEER Registry on May 1, 2018.

Basal and squamous cell carcinomas are not reportable to central cancer registries. A primary reason for this is that these skin cancers are generally not life-threatening. Many skin cancers are diagnosed and treated in physicians' offices. Basal and squamous cell carcinomas are

also very common. In many places, there are more non-melanoma skin cancers diagnosed each year than all other cancer types combined.

Historically, melanoma reporting has been incomplete. Many early-stage melanomas are treated successfully in physicians' offices, and not all physicians routinely report these cases. The NYSCR is working to improve reporting of melanoma by requiring independent pathology laboratories to report cancer diagnoses and by contacting physicians, particularly dermatologists, to request case reports. Recent increases in reported melanoma incidence rates are due in part to more complete reporting, but some studies have also noted a real increase in the disease.¹⁹

Melanoma in New York State

From 2013 through 2017, there were approximately 2,420 cases of melanoma skin cancer diagnosed among men and 1,762 cases of melanoma skin cancer diagnosed among women each year in NYS, accounting for approximately four percent of cancers among men and three percent of cancers among women. For young adults ages 20 to 34 years, melanoma ranks among the top four cancers, but the incidence rate for this age category is lower than for every older age group. Over all ages, melanoma is the ninth most common type of cancer among both men and women.

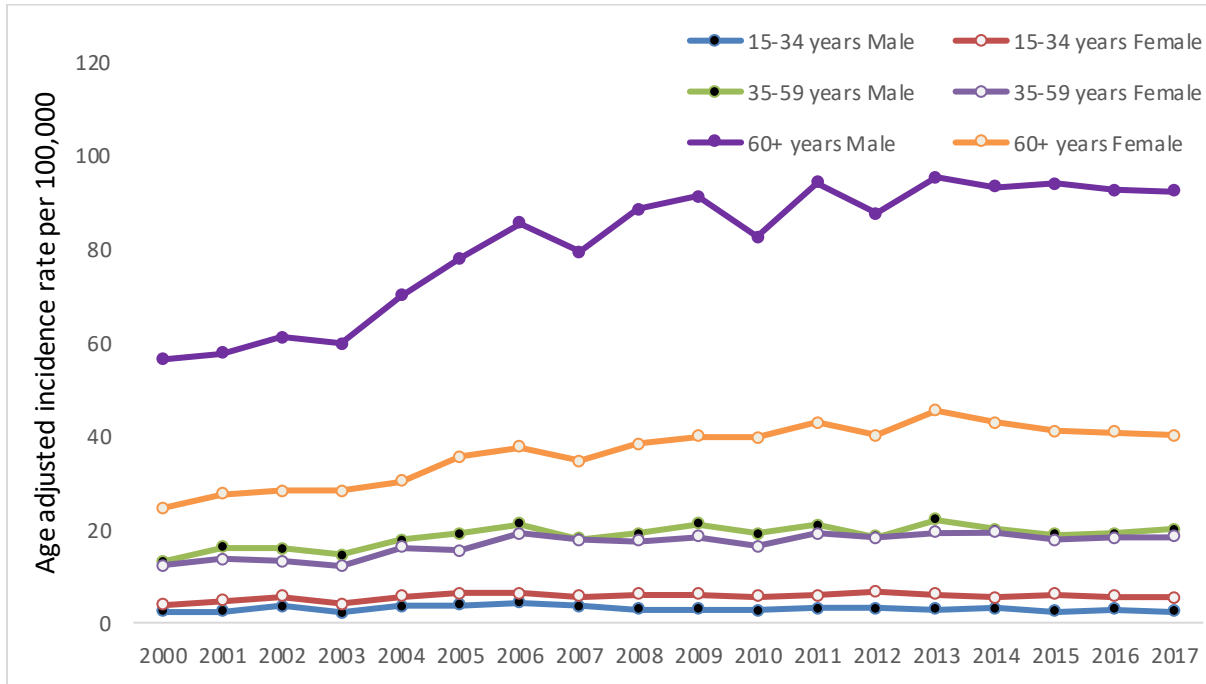
Rates of melanoma incidence by gender and age

Men are at higher risk for developing melanoma than women. Compared to women, men are more likely to work in outdoor occupations such as farming and construction. The age-adjusted 2013-2017 incidence rate among males is 24 cases per 100,000 men per year. Among females, the 2013-2017 age-adjusted rate is about 15 cases per 100,000 women per year.

Like most forms of cancer, melanoma risk increases with age. Observing trends by age group can help to inform public health messaging around the risks of UV exposure and the importance of sun safety policies and education across the lifespan. Figure 1 shows trends in melanoma incidence by age and gender. Among persons aged 15-34 years, incidence rates are higher for females compared to males. However, the highest rates are among older New Yorkers. Increased incidence among older women may be related to an increase in tanning behaviors in younger years. Rates among males over age sixty have increased most rapidly since 2003 and

have far exceeded the rates for females of that age group. Incidence for older males and females peaked in 2013 and has been decreasing since.

Figure 1. Trends in melanoma incidence rates by age group and gender
New York State, 2000-2017



Rates are per 100,000 persons, age-adjusted to the 2000 U.S. standard population.

Rates of melanoma incidence by race and ethnicity

Fair skin is an established risk factor for melanoma. Melanoma incidence among non-Hispanic White men is 33 times higher than among non-Hispanic Black men and nine times higher than among Hispanic men. For women, the melanoma rate among non-Hispanic Whites is 22 times higher than among non-Hispanic Blacks and eight times higher than among Hispanics (Table 1).

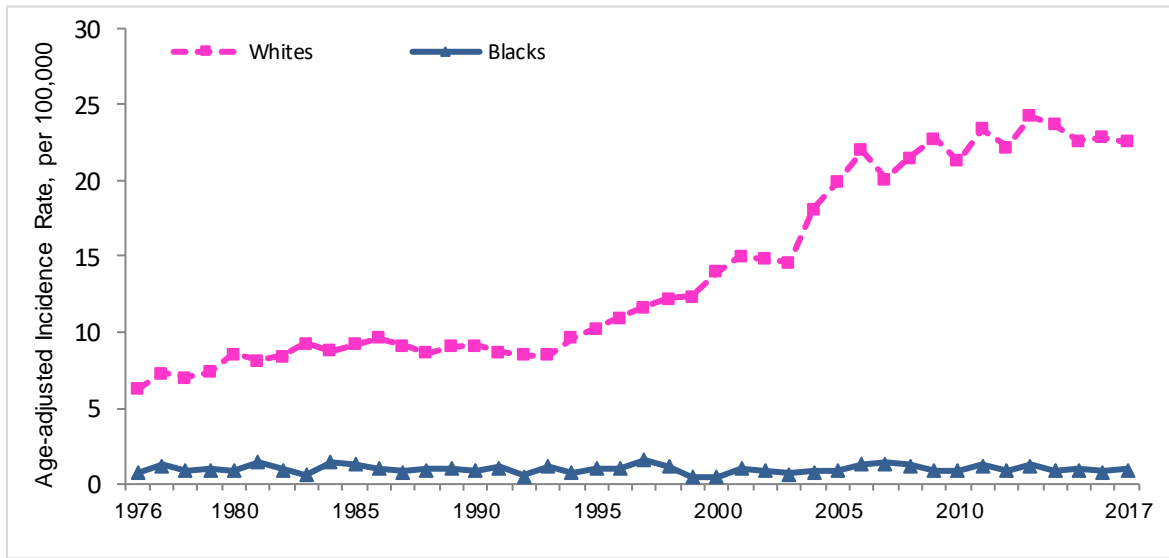
Table 1. Age-adjusted melanoma incidence rates by race, ethnicity and gender
New York State, 2013-2017

	Non-Hispanic White	Non-Hispanic Black	Hispanic
Male	33.0	1.0	3.8
Female	22.1	1.0	2.6

Rates are per 100,000 persons, age-adjusted to the 2000 U.S. standard population.

Among Whites, the incidence of melanoma has been increasing since 1976, the first year for which data are available for NYS (Figure 2). The incidence among Blacks has remained low. Most of the increase in recent years may be due to more complete reporting of melanoma to the NYS Cancer Registry, but studies have shown that melanomas are increasing in other areas of the US as well, including the regions covered by the SEER program.¹⁹ Those regions, as participants in the SEER program, were more likely than NYS to have had complete case ascertainment prior to NYS becoming a SEER Registry.

Figure 2. Age-adjusted melanoma incidence rates by year and race, males and females combined
New York State, 1976-2017



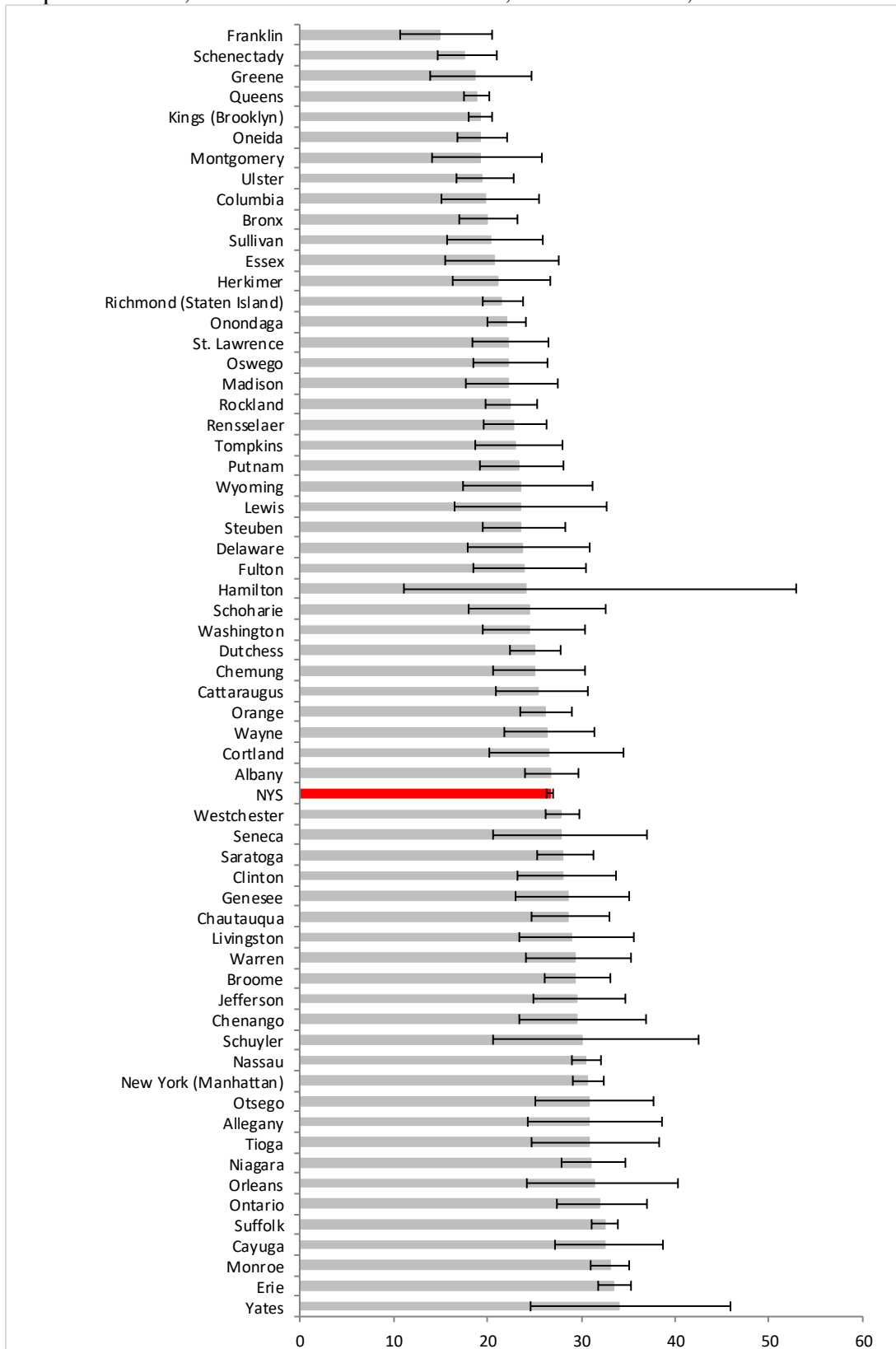
Rates are per 100,000 persons, age-adjusted to the 2000 U.S. standard population.

Melanoma rates vary across NYS. Because melanoma is less common among Blacks and Hispanics, melanoma rates tend to be higher in areas of the state for which a greater proportion of the population is non-Hispanic White.

Rates of melanoma incidence by county

The melanoma rates among non-Hispanic Whites, by county, for 2013 to 2017 are shown in Figure 3. In counties with smaller populations, a difference of a few cases per year can make a large difference in the rate of the disease, making interpretation of the county rankings difficult. Melanoma incidence and mortality for every county in NYS and for neighborhoods in New York City are provided in the Appendix.

Figure 3. Age-adjusted melanoma incidence rates with confidence intervals by county, non-Hispanic Whites, males and females combined, New York State, 2013-2017



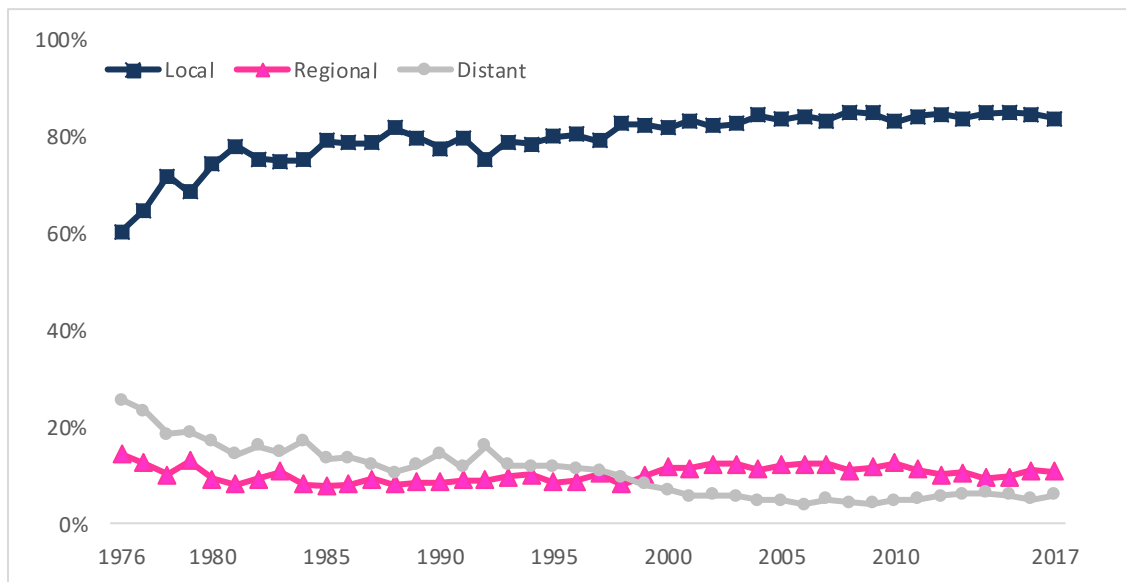
Rates are per 100,000 persons, age-adjusted to the 2000 U.S. standard population.

Stage at Diagnosis for Melanoma Skin Cancer

Melanoma skin cancer can be treated successfully when diagnosed at an early stage. Knowing the stage of melanoma assists doctors in choosing the best methods of treatment and predicting recovery.

In 2017, 84 percent of melanomas reported to the NYSCR were diagnosed before they had spread beyond the skin, and six percent were diagnosed after they had spread to distant organs. Figure 4 depicts the stage at diagnosis, classified as *local*, *regional*, and *distant*. Melanomas that are “local” are confined to the skin. “Regional” melanomas have spread to subcutaneous tissue or to lymph nodes in the region of the tumor, and “distant” melanomas are those that have spread to underlying muscle or bone or to tissues and lymph nodes in other areas of the body. In the last ten years, there has been no statistically significant change in the percent of melanomas diagnosed at “local”, “regional” or “distant” stages.

Figure 4. Percentage distribution of stage at diagnosis for melanoma of the skin by year, males and females combined, 1976-2017



Melanoma Survival

Survival rates provide an estimate of the percent of patients with the same type and stage of cancer who will be alive a certain amount of time (usually five years) after they were diagnosed.²⁰ Relative survival compares the survival of patients diagnosed with cancer with the survival of people in the general population who are the same age, race, and sex but who have not been diagnosed with cancer.²¹ As shown in Table 2, cancer stage at diagnosis has a strong influence on length of survival. These survival rates are based on the stage at the time of initial diagnosis. Survival rates are only an estimate based on the experience of the population as a whole; they cannot tell exactly how long an individual patient will live but can provide a better understanding of how likely it is that treatment will be successful. Patient age, overall health, how well the cancer responds to treatment, and other factors can affect prognosis. The earlier melanoma of the skin is diagnosed, the better chance a person has of surviving at least five years after being diagnosed.

Table 2. Five-year relative survival by stage at diagnosis for melanoma of the skin, all races, males and females combined, 2010-2016²²

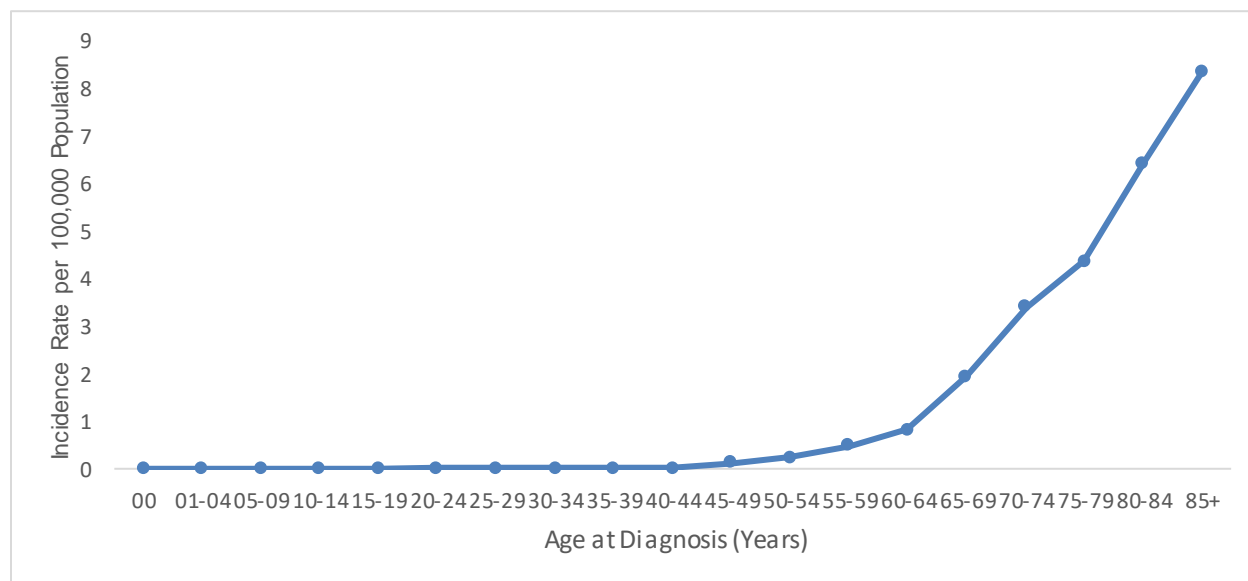
Localized	Regional	Distant
97.6%	69.6%	31.2%

Merkel Cell Carcinoma

Merkel Cell Carcinoma (MCC) is a rare type of skin cancer, known to grow rapidly, that originates mostly on sun-exposed parts of the body. It is the second most common cause of skin cancer death following melanoma.²³ The shape and color of MCC often resembles an innocent pink pearly nodule and can be mistaken for an insect bite or a basal cell carcinoma. The speed with which these tumors grow attracts the attention of patients and their doctors.²⁴

In 2017 approximately 173 individuals in NYS were diagnosed with MCC, an increasing annual trend from approximately 100 cases in 2007. Incidence is greatest among the White population, and among males. Few cases are observed among patients younger than 50 years of age (Figure 5).

Figure 5. Merkel cell carcinoma incidence by age
New York State, 2013-2017



Frequency of inpatient and outpatient care for skin cancer patients in New York State

The NYSDOH’s Statewide Planning and Research Cooperative System (SPARCS) provides information about melanoma and nonmelanoma skin cancer in NYS. SPARCS has information about inpatient hospital stays, outpatient (ambulatory) surgery, and emergency department visits. These data include patient demographics and minimal diagnostic and treatment information and can be used to count how many people required extensive surgery or hospitalization for skin cancer. Because of the way SPARCS disease information is reported, skin cancer is grouped as melanoma or nonmelanoma skin cancer. The hospital and outpatient surgery data do not include minor surgeries performed in physicians’ offices and so do not capture the totality of the impact of skin cancers. However, the SPARCS hospitalization and outpatient ambulatory surgery data are indicators of the burden of skin cancer on NYS’s health care system.²⁵

Table 3 shows the number of patients receiving inpatient care with a skin cancer as the principal diagnosis by year. During 2013 to 2017, on average 179 NYS residents were hospitalized each year because of melanoma of the skin, and 377 were hospitalized because of other skin cancers. The trends showing decreasing hospitalizations over time may reflect the general shift towards treating more patients in outpatient settings.

Table 3. Number of patients treated as inpatients with skin cancer as the principal diagnosis, males and females combined, New York State, 2013-2017

Year	Melanoma	Other Skin Cancers
2013	215	419
2014	200	418
2015	185	371
2016	151	338
2017	142	341

The estimated number of unique outpatient encounters for skin cancer from 2013 through 2017 where skin cancer was the primary reason for care is shown in Table 4. The average number of outpatient surgeries for melanoma was 4,488 per year and for nonmelanoma skin cancer 12,663 per year. Starting October 2015, ICD10 codes replaced ICD9 codes. The increase in outpatient claims observed for other skin cancers in 2016 and 2017 is consistent with increased overall reporting of outpatient claims in the SPARCS data.

Table 4. Number of patients treated as outpatients with skin cancer as the principal diagnosis, males and females combined, New York State 2013-2017

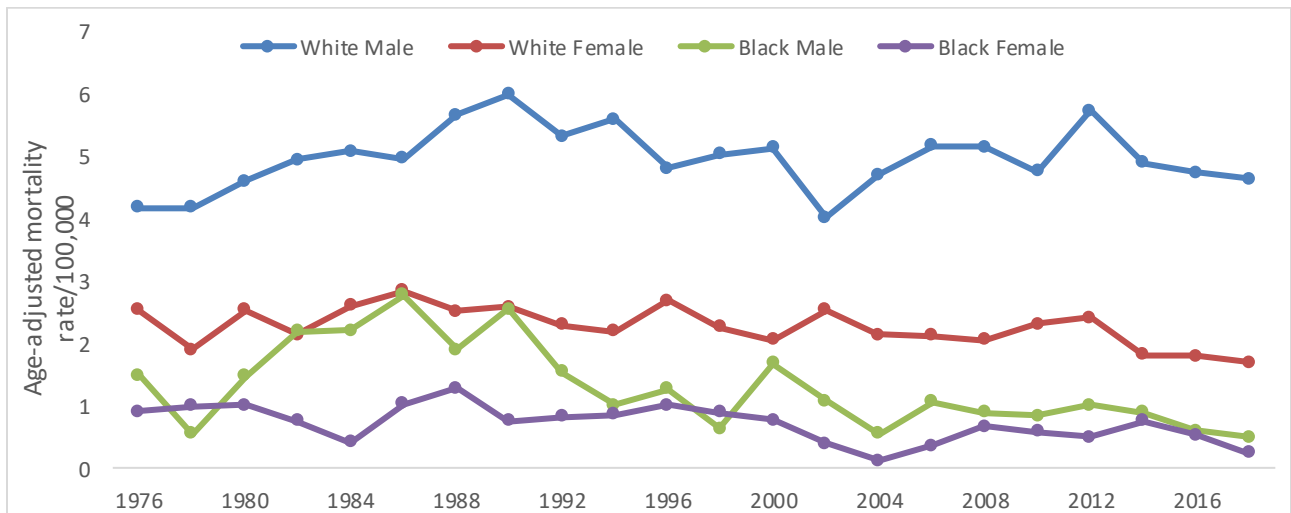
Year	Melanoma	Other Skin Cancers
2013	4,301	11,518
2014	4,416	11,207
2015	4,243	11,444
2016	4,661	14,211
2017	4,809	14,920

Mortality

Statewide mortality information comes from the death certificates that are completed for every NYS resident who dies in the US.²⁶ The underlying cause of death is provided by the certifying physician.

Death from skin cancer is rare. About 615 New Yorkers - 405 men and 210 women - die from skin cancer each year. It is the seventeenth most common cause of cancer death among men and the nineteenth among women in NYS. White males have the highest rate of skin cancer mortality compared to White females, Black males or Black females (see Figure 6). Skin cancer mortality among White males has followed a decreasing trend since 1990 but remains more than twice the rate observed among White women. The skin cancer mortality rate for White females has gradually decreased over time since 1976. Mortality rates due to skin cancer for Black males and Black females remain under 1 per 100,000 population. The decline in skin cancer mortality is reflective of advances in cancer treatment over the past decade, including immunotherapy.²⁷

Figure 6. Age-adjusted skin cancer mortality rates by year, race, and gender
New York State, 1976-2017



Rates are per 100,000 persons, age-adjusted to the 2000 U.S. standard population.

Seventy percent of deaths from skin cancer - 275 men and 155 women - are attributed to melanoma. Some of the rare types of skin cancer are much more aggressive than basal and squamous cell skin

cancers, and some of the nonmelanoma deaths are due to these rare, but often fatal, types of skin cancer.

The US Healthy People 2020 Objective for melanoma skin cancer is to reduce the melanoma cancer death rate to 2.4 deaths per 100,000 population.²⁸ The 2017 melanoma mortality rate for the US was 2.1 per 100,000 population, and for NYS was 1.6 per 100,000, both of which are below the US Healthy People 2020 Objective.²⁹ The melanoma mortality rate for NYS has been below 2.4 deaths per 100,00 population since 2013. NYS ranked among the five states with the lowest melanoma mortality rates for 2017.³⁰

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Appendix A. Melanoma of the Skin Incidence by County, New York State, 2013-2017

County	<i>Males and Females</i>				<i>Males</i>				<i>Females</i>			
	Avg Ann Cases	Rate per 100,000	95% CI: Lower	95% CI: Upper	Avg Ann Cases	Rate per 100,000	95% CI: Lower	95% CI: Upper	Avg Ann Cases	Rate per 100,000	95% CI: Lower	95% CI: Upper
New York State	4182.0	18.3	18.0	18.5	2420.4	23.7	23.2	24.1	1761.6	14.5	14.2	14.9
New York City	931.8	10.2	9.9	10.5	514.0	13.3	12.8	13.8	417.8	8.1	7.8	8.5
New York State Excl New York	3249.4	23.8	23.4	24.2	1906.0	30.1	29.5	30.7	1343.4	19.3	18.8	19.8
Bronx	61.0	4.4	4.0	5.0	31.2	5.8	4.9	6.8	29.8	3.7	3.1	4.3
Kings (Brooklyn)	231.0	8.6	8.1	9.2	120.0	10.7	9.8	11.6	111.0	7.4	6.7	8.0
New York (Manhattan)	338.0	17.7	16.8	18.6	196.0	23.8	22.4	25.4	142.0	13.3	12.3	14.4
Queens	209.6	8.0	7.5	8.5	112.4	10.1	9.3	11.0	97.2	6.7	6.1	7.3
Richmond (Staten Island)	92.2	16.6	15.1	18.3	54.4	22.1	19.5	25.0	37.8	12.8	11.0	14.9
Albany	79.8	22.7	20.5	25.1	46.6	29.6	25.8	33.8	33.2	18.2	15.4	21.3
Allegany	17.4	30.5	24.1	38.1	11.6	40.3	30.2	52.8	5.8	22.4	14.6	33.1
Broome	66.2	27.2	24.2	30.5	39.6	34.3	29.5	39.6	26.6	22.0	18.1	26.4
Cattaraugus	25.0	25.0	20.6	30.1	17.0	36.4	28.8	45.4	8.0	16.8	11.7	23.4
Cayuga	29.2	30.4	25.5	36.1	15.2	31.1	24.3	39.3	14.0	31.8	24.4	40.8
Chautauqua	44.8	27.1	23.5	31.2	26.0	32.4	26.9	38.8	18.8	23.2	18.3	28.9
Chemung	24.8	23.2	19.1	27.9	14.6	27.9	21.7	35.3	10.2	20.4	14.8	27.4
Chenango	18.0	28.9	22.9	36.0	10.2	33.5	24.6	44.7	7.8	25.8	17.9	36.2
Clinton	25.8	26.8	22.3	32.1	13.8	28.6	22.1	36.5	12.0	26.0	19.5	34.0
Columbia	15.6	18.6	14.4	23.7	9.6	23.7	17.0	32.3	6.0	14.3	9.2	21.3
Cortland	12.6	25.6	19.4	33.1	6.0	24.3	16.1	35.2	6.6	27.0	18.1	38.6
Delaware	14.2	22.6	17.1	29.4	7.2	22.2	15.0	32.0	7.0	22.9	15.0	33.6
Dutchess	76.8	20.9	18.8	23.2	46.2	27.2	23.7	31.1	30.6	16.1	13.6	19.0
Erie	324.0	28.6	27.2	30.1	193.0	37.1	34.7	39.6	131.0	22.6	20.8	24.5
Essex	11.8	20.0	15.0	26.3	7.2	25.6	17.7	36.3	4.6	16.7	10.2	26.4
Franklin	8.8	13.8	10.0	18.8	4.4	14.0	8.7	21.6	4.4	14.9	9.1	23.1
Fulton	14.8	23.3	18.1	29.6	9.2	28.6	20.8	38.6	5.6	20.6	13.4	30.2
Genesee	21.2	27.6	22.4	33.8	13.8	37.3	28.8	47.8	7.4	19.8	13.6	28.1
Greene	12.2	17.5	13.2	23.0	8.2	24.2	17.1	33.5	4.0	12.2	7.1	20.0
Hamilton	2.2	23.4	10.8	51.2	1.4	26.7	10.5	74.6	0.8	20.6	4.3	73.3
Herkimer	16.4	21.7	17.0	27.3	9.2	25.2	18.2	34.1	7.2	20.0	13.6	28.5
Jefferson	32.2	28.6	24.2	33.4	18.6	35.9	28.7	44.1	13.6	22.9	17.6	29.2
Lewis	7.8	23.1	16.2	32.1	3.8	23.6	14.0	37.5	4.0	23.5	13.9	37.4
Livingston	21.2	27.8	22.5	34.1	14.2	38.8	30.0	49.5	7.0	18.8	12.7	27.0
Madison	20.0	22.8	18.4	28.0	9.4	22.2	16.1	30.0	10.6	24.0	17.7	32.0
Monroe	235.6	27.2	25.6	28.8	127.8	32.1	29.6	34.7	107.8	24.3	22.2	26.5
Montgomery	10.8	17.7	13.1	23.5	6.2	21.5	14.2	31.2	4.6	14.6	9.0	22.6

Rates are per 100,000 persons, age-adjusted to the 2000 US population, with 95% confidence intervals. Incidence data are provisional, November 2019. Rates based on fewer than 4 cases per year are unstable and should be used with caution.

Appendix A. Melanoma of the Skin Incidence by County, New York State, 2013-2017 (continued)

County	<i>Males and Females</i>				<i>Males</i>				<i>Females</i>			
	Avg Ann Cases	Rate per 100,000	95% CI: Lower	95% CI: Upper	Avg Ann Cases	Rate per 100,000	95% CI: Lower	95% CI: Upper	Avg Ann Cases	Rate per 100,000	95% CI: Lower	95% CI: Upper
Nassau	390.4	22.6	21.6	23.7	228.4	29.5	27.7	31.3	162.0	17.8	16.5	19.1
Niagara	79.6	29.9	26.8	33.1	43.8	34.1	29.6	39.2	35.8	27.4	23.3	32.1
Oneida	50.0	17.7	15.5	20.2	26.6	19.7	16.4	23.5	23.4	16.8	13.8	20.4
Onondaga	107.0	19.6	17.9	21.4	59.4	24.1	21.4	27.1	47.6	16.7	14.5	19.1
Ontario	42.2	30.8	26.6	35.6	25.2	36.9	30.5	44.3	17.0	26.6	20.9	33.4
Orange	84.8	20.8	18.8	22.9	50.8	27.5	24.1	31.2	34.0	15.9	13.5	18.5
Orleans	14.6	29.9	23.2	38.1	8.0	34.1	24.1	47.2	6.6	26.7	18.0	38.2
Oswego	29.2	22.1	18.5	26.2	15.2	23.4	18.3	29.7	14.0	21.5	16.5	27.4
Otsego	23.6	30.1	24.5	36.6	16.8	44.7	35.3	56.1	6.8	18.6	12.3	27.1
Putnam	26.8	21.4	17.8	25.6	14.6	24.5	18.9	31.2	12.2	20.0	15.0	26.1
Rensselaer	41.0	21.3	18.4	24.6	24.2	27.1	22.3	32.6	16.8	17.0	13.4	21.3
Rockland	62.2	16.9	15.1	19.0	39.0	23.4	20.1	27.0	23.2	12.0	9.8	14.5
St. Lawrence	27.2	21.1	17.6	25.2	16.2	25.8	20.3	32.3	11.0	18.3	13.6	24.2
Saratoga	77.0	27.3	24.6	30.3	48.0	36.9	32.3	42.1	29.0	19.6	16.4	23.3
Schenectady	29.2	15.5	13.0	18.3	14.2	16.3	12.6	20.7	15.0	15.2	11.8	19.4
Schoharie	10.6	23.5	17.4	31.5	6.8	31.7	21.5	45.5	3.8	17.0	9.9	27.9
Schuyler	7.4	30.2	20.9	42.5	5.0	41.6	26.4	63.2	2.4	20.4	10.0	37.6
Seneca	11.6	27.4	20.5	35.9	6.6	31.4	21.3	44.7	5.0	25.0	15.6	38.1
Steuben	27.0	23.0	19.1	27.5	15.2	26.1	20.3	32.9	11.8	21.2	15.9	27.8
Suffolk	490.0	27.1	26.0	28.2	303.0	36.8	35.0	38.8	187.0	19.9	18.6	21.3
Sullivan	17.6	18.4	14.6	23.0	10.8	22.1	16.4	29.3	6.8	15.5	10.4	22.2
Tioga	19.2	30.3	24.3	37.5	12.8	41.8	31.9	54.0	6.4	20.4	13.5	29.6
Tompkins	22.8	21.5	17.6	26.0	13.0	27.2	20.8	35.1	9.8	17.0	12.4	22.9
Ulster	39.8	17.2	14.8	20.0	20.2	18.3	14.8	22.4	19.6	17.2	13.8	21.3
Warren	25.8	29.2	24.1	35.1	15.6	36.3	28.4	45.9	10.2	24.1	17.6	32.4
Washington	18.8	23.8	19.0	29.4	9.8	27.2	19.9	36.2	9.0	22.7	16.2	31.2
Wayne	27.0	24.9	20.7	29.7	13.8	25.9	20.0	33.1	13.2	24.7	18.8	31.8
Westchester	236.2	19.7	18.5	20.8	139.0	26.3	24.3	28.4	97.2	14.8	13.4	16.2
Wyoming	10.8	21.3	15.8	28.1	7.4	27.4	19.0	38.6	3.4	17.6	10.0	28.7

Rates are per 100,000 persons, age-adjusted to the 2000 US population, with 95% confidence intervals. Incidence data are provisional, November 2019. Rates based on fewer than 4 cases per year are unstable and should be used with caution.

Appendix B. Melanoma of the Skin Incidence by New York City Borough and Neighborhood, 2013-2017

Borough/Health District	<i>Males and Females</i>				<i>Males</i>				<i>Females</i>			
	Avg Ann Cases	Rate per 100,000	95% CI: Lower	95% CI: Upper	Avg Ann Cases	Rate per 100,000	95% CI: Lower	95% CI: Upper	Avg Ann Cases	Rate per 100,000	95% CI: Lower	95% CI: Upper
New York State	4182.0	18.3	18.0	18.5	2420.4	23.7	23.2	24.1	1761.6	14.5	14.2	14.9
New York City	931.8	10.2	9.9	10.5	514.0	13.3	12.8	13.8	417.8	8.1	7.8	8.5
Bronx	61.0	4.4	4.0	5.0	31.2	5.8	4.9	6.8	29.8	3.7	3.1	4.3
Riverdale, Fieldston & Kingsbridge	17.4	11.8	9.3	14.8	9.2	15.0	10.8	20.2	8.2	10.0	7.0	13.9
Wakefield, Williamsbridge & Woodlawn	5.4	3.9	2.6	5.7	2.4	4.8	2.5	8.3	3.0	3.5	1.9	5.8
Co-op City, Pelham Bay & Schuylerville	14.8	8.8	6.8	11.2	8.6	12.8	9.2	17.4	6.2	6.1	4.0	9.0
Pelham Parkway, Morris Park & Laconia	7.4	5.0	3.5	7.0	3.0	4.7	2.6	7.9	4.4	5.3	3.3	8.2
Belmont, Crotona Park East & East	1.2	1.1	0.4	2.4	1.2	3.2	1.1	6.8	0.0	0.0	0.0	0.9
Bedford Park, Fordham North & Norwood	5.2	4.8	3.1	7.1	3.2	6.9	3.8	11.5	2.0	3.2	1.5	6.0
Morris Heights, Fordham South & Mount	1.2	0.9	0.3	2.0	0.4	0.6	0.1	2.7	0.8	1.2	0.3	3.1
Concourse, Highbridge & Mount Eden	1.8	1.7	0.7	3.2	0.6	0.8	0.2	2.6	1.2	2.0	0.7	4.3
Castle Hill, Clason Point & Parkchester	4.4	2.4	1.5	3.7	2.2	3.1	1.5	5.7	2.2	2.0	1.0	3.7
Hunts Point, Longwood & Melrose	2.2	1.8	0.9	3.2	0.4	0.6	0.1	2.4	1.8	2.6	1.2	4.9
Kings (Brooklyn)	231.0	8.6	8.1	9.2	120.0	10.7	9.8	11.6	111.0	7.4	6.7	8.0
Greenpoint & Williamsburg	13.8	9.5	7.3	12.2	7.0	10.8	7.3	15.5	6.8	8.8	5.9	12.6
Bushwick	3.2	2.4	1.3	4.0	1.6	2.3	0.9	5.1	1.6	2.4	1.0	4.9
Bedford-Stuyvesant	2.2	2.0	1.0	3.6	0.8	2.2	0.5	5.4	1.4	2.0	0.8	4.2
Brooklyn Heights & Fort Greene	17.6	14.5	11.5	18.0	10.4	20.7	15.3	27.4	7.2	10.0	6.9	14.1
Park Slope, Carroll Gardens & Red Hook	17.4	16.3	12.9	20.3	9.0	19.9	14.2	27.2	8.4	14.0	9.9	19.3
Crown Heights North & Prospect Heights	5.6	3.9	2.6	5.8	3.4	5.2	3.0	8.6	2.2	2.8	1.4	5.2
Brownsville & Ocean Hill	1.6	1.5	0.6	3.0	0.8	1.7	0.5	4.5	0.8	1.2	0.3	3.2
East New York & Starrett City	4.6	3.3	2.1	5.0	2.2	4.0	1.9	7.2	2.4	2.9	1.5	5.0
Canarsie & Flatlands	17.8	7.9	6.3	9.7	7.8	8.8	6.2	12.2	10.0	7.5	5.5	10.0
East Flatbush, Farragut & Rugby	2.0	1.1	0.5	2.2	0.6	0.6	0.1	2.2	1.4	1.5	0.6	3.2
Crown Heights So., Prospect Lefferts &	2.6	2.1	1.1	3.7	1.4	3.0	1.2	6.3	1.2	1.6	0.6	3.6
Sunset Park & Windsor Terrace	7.0	5.5	3.8	7.7	3.8	7.1	4.1	11.2	3.2	4.6	2.6	7.6
Bay Ridge & Dyker Heights	20.0	13.5	10.9	16.5	10.4	15.6	11.6	20.6	9.6	12.3	9.0	16.5
Borough Park, Kensington & Ocean	13.4	9.0	6.9	11.6	7.2	9.9	6.8	13.8	6.2	8.7	5.8	12.6
Flatbush & Midwood	16.2	9.3	7.4	11.6	8.6	11.2	8.0	15.3	7.6	7.8	5.5	10.8
Sheepshead Bay, Gerritsen Beach &	35.4	17.5	14.9	20.4	20.2	22.1	17.9	27.0	15.2	14.1	11.0	17.9
Bensonhurst & Bath Beach	23.0	9.9	8.1	12.0	11.0	10.6	7.9	13.8	12.0	9.4	7.1	12.3
Brighton Beach & Coney Island	27.4	15.0	12.4	18.0	13.6	17.6	13.5	22.7	13.8	13.3	10.1	17.3
New York (Manhattan)	338.0	17.7	16.8	18.6	196.0	23.8	22.4	25.4	142.0	13.3	12.3	14.4
Washington Heights, Inwood & Marble Hill	12.2	5.5	4.2	7.1	6.6	7.3	5.0	10.4	5.6	4.4	2.9	6.5

Rates are per 100,000 persons, age-adjusted to the 2000 US population, with 95% confidence intervals.

Incidence data are provisional, November 2019.

Rates based on fewer than 4 cases per year are unstable and should be used with caution.

Appendix B. Melanoma of the Skin Incidence by New York City Borough and Neighborhood, 2013-2017 (continued)

Borough/Health District	<i>Males and Females</i>				<i>Males</i>				<i>Females</i>			
	Avg Ann Cases	Rate per 100,000	95% CI: Lower	95% CI: Upper	Avg Ann Cases	Rate per 100,000	95% CI: Lower	95% CI: Upper	Avg Ann Cases	Rate per 100,000	95% CI: Lower	95% CI: Upper
Hamilton Heights, Manhattanville & West	8.2	6.1	4.3	8.3	4.6	8.4	5.3	12.7	3.6	4.7	2.7	7.6
Central Harlem	4.2	3.5	2.1	5.4	2.0	3.7	1.8	7.0	2.2	3.3	1.6	6.0
East Harlem	5.2	3.9	2.6	5.8	3.2	6.1	3.4	9.9	2.0	2.6	1.2	4.8
Upper East Side	95.2	31.2	28.4	34.3	56.2	42.4	37.5	47.9	39.0	23.0	19.7	26.7
Upper West Side & West Side	64.8	23.9	21.3	26.7	37.4	31.5	27.1	36.5	27.4	18.0	15.0	21.6
Chelsea, Clinton & Midtown Business	32.6	19.4	16.4	22.8	19.6	24.3	19.6	30.0	13.0	15.1	11.5	19.7
Murray Hill, Gramercy & Stuyvesant Town	56.8	28.7	25.2	32.5	31.8	37.4	31.7	44.1	25.0	22.3	18.2	27.2
Chinatown & Lower East Side	16.8	8.3	6.6	10.3	9.6	10.3	7.6	13.8	7.2	6.6	4.5	9.3
Battery Park City, Greenwich Village & Soho	41.8	26.9	23.3	31.0	24.8	33.5	27.7	40.2	17.0	20.5	16.2	25.7
Queens	209.6	8.0	7.5	8.5	112.4	10.1	9.3	11.0	97.2	6.7	6.1	7.3
Astoria & Long Island City	16.6	8.2	6.5	10.3	7.4	8.2	5.7	11.4	9.2	8.0	5.8	10.9
Jackson Heights & North Corona	10.6	6.2	4.6	8.1	6.0	8.3	5.5	11.9	4.6	5.0	3.1	7.5
Flushing, Murray Hill & Whitestone	29.8	8.4	7.1	9.9	16.0	10.4	8.2	13.0	13.8	7.0	5.4	9.0
Bayside, Douglaston & Little Neck	22.0	12.9	10.5	15.7	12.2	15.8	12.0	20.5	9.8	11.1	8.1	15.1
Queens Village, Cambria Heights &	12.2	5.0	3.8	6.5	5.8	5.7	3.8	8.2	6.4	4.7	3.2	6.8
Briarwood, Fresh Meadows & Hillcrest	14.0	7.1	5.5	9.1	9.2	11.0	8.0	14.8	4.8	4.3	2.7	6.6
Elmhurst & South Corona	5.6	4.3	2.8	6.2	2.8	4.9	2.6	8.3	2.8	3.7	2.0	6.3
Forest Hills & Rego Park	19.2	11.1	8.9	13.7	11.6	15.9	12.0	20.7	7.6	7.6	5.3	10.9
Sunnyside & Woodside	14.4	10.8	8.4	13.6	8.2	14.8	10.5	20.3	6.2	8.0	5.4	11.5
Ridgewood, Glendale & Middle Village	22.6	11.5	9.5	13.9	10.6	12.8	9.5	16.8	12.0	11.4	8.6	14.7
Richmond Hill & Woodhaven	8.2	6.1	4.3	8.3	3.8	6.2	3.7	9.8	4.4	6.1	3.8	9.4
Jamaica, Hollis & St. Albans	2.2	0.9	0.5	1.7	1.2	1.1	0.4	2.4	1.0	0.8	0.3	2.0
Howard Beach & Ozone Park	8.6	6.2	4.5	8.4	5.0	8.4	5.4	12.5	3.6	4.4	2.6	7.1
Far Rockaway, Breezy Point & Broad	23.6	17.2	14.2	20.7	12.6	21.0	16.1	27.1	11.0	14.8	11.1	19.4
Richmond (Staten Island)	92.2	16.6	15.1	18.3	54.4	22.1	19.5	25.0	37.8	12.8	11.0	14.9
Tottenville, Great Kills & Annadale	40.2	20.6	17.8	23.8	22.0	24.6	20.0	29.9	18.2	18.0	14.4	22.2
New Springville & South Beach	27.8	16.2	13.5	19.2	16.4	21.3	16.9	26.7	11.4	12.8	9.5	16.9
Port Richmond, Stapleton & Mariner's	24.2	13.1	10.8	15.7	16.0	20.0	15.7	25.1	8.2	8.0	5.7	10.9

Rates are per 100,000 persons, age-adjusted to the 2000 US population, with 95% confidence intervals.

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