SKIN CANCER IN NEW YORK STATE

2023

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 seven cancer diagnoses for New York State (NYS) residents and among the top eight diagnoses for male young adults and the top three diagnoses for female 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 all older age groups. Overall, males are at higher risk for developing melanoma than females. The incidence of melanoma is much higher in non-Hispanic White individuals than in non-Hispanic Black or Hispanic individuals. 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 was largely unchanged between 2004-2020, with 82 to 84 percent of cases diagnosed at an early stage. Five-year relative survival for melanoma of the skin, for all races and males and females combined, is 97.7% for cases diagnosed at a local stage. Melanoma of the skin ranks thirteenth for males and sixteenth for females 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 females.

Effective in 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 account for about two of ten, and melanomas, the most serious of the three, account for only about 1% all skin cancers.[1] 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), Kaposi sarcomas, skin adnexal tumors, and various other types of sarcomas, together accounting for less than 1% of all skin cancers.[3]

Skin cancer incidence has been increasing in the United States (US).[2] 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.[7]

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 White individuals is much higher than among Black, Asian, and Hispanic individuals.[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 population of Australia.[8,9]

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,[10] 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[11,12]:

- 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.[13,14,15]

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 in 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.[16]

The US Healthy People 2030 Objective focuses on prevention, with a goal of decreasing the percentage of high school students reporting a sunburn in the past 12 months from 57.2% in 2017 to 52.2% by 2030. State-specific data are not currently available for this objective. NYS law allows the use of sunscreen by children in schools and summer camps once a written permission from a parent or guardian is on file.[17,18,19]

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*.[2,20] 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.[20] 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 22 SEER-funded cancer registries in the US covering approximately 48 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 (https://seer.cancer.gov/about/factsheets/SEER_Overview.pdf).[21] The NYS Cancer Registry (NYSCR) officially became a SEER Registry in 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 incidence. [22]

The COVID-19 pandemic disrupted health services, leading to delays and reductions in cancer screening, diagnosis, and reporting to some central cancer registries. This may have contributed to the decline in new cancer cases for many sites including skin cancer in 2020. We therefore exclude 2020 data from trend analysis and recommend caution when interpreting 2020 data.[23]

Melanoma in New York State

From 2016 through 2020, there were approximately 2,430 cases of melanoma skin cancer diagnosed among males and 1,786 cases of melanoma skin cancer diagnosed among females each year in NYS, accounting for 4.2% of cancers among males and 3.1% of cancers among females. For young adults ages 20 to 34 years, melanoma ranks among the top eight cancers for males and among the top three cancers for females, but the incidence rate for this age category is lower than for every older age group. Over all ages, melanoma is the seventh most common type of cancer among both males and females.

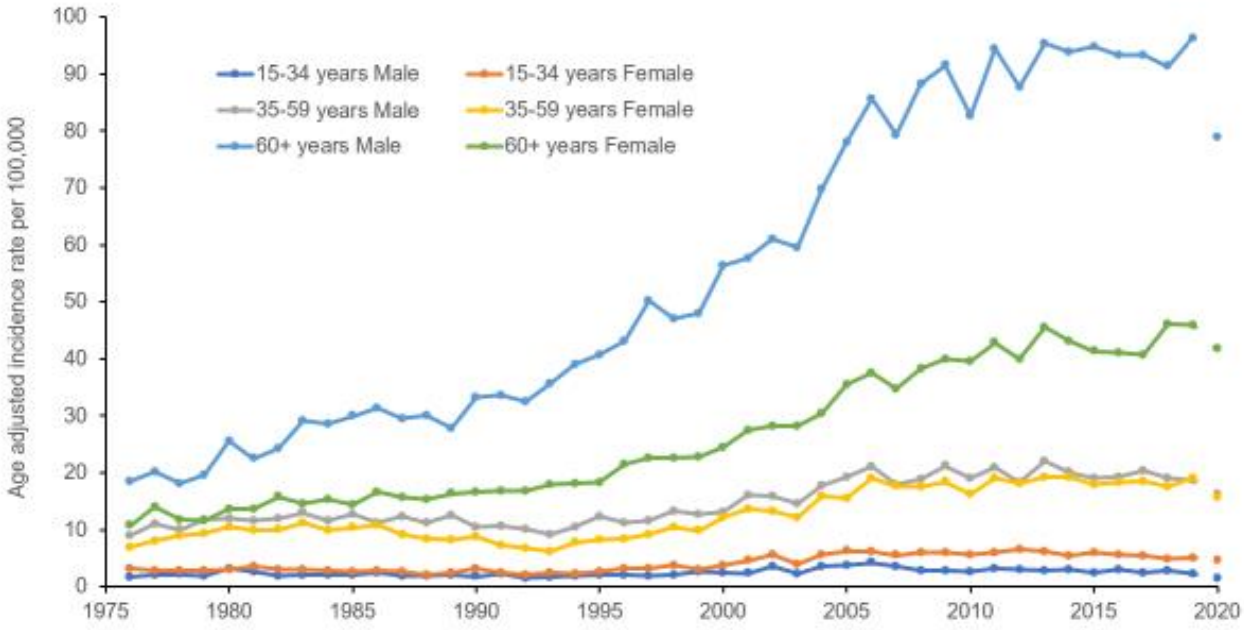
Rates of melanoma incidence by sex and age

Males are at higher risk for developing melanoma than females. Compared to females, males may be more likely to work in outdoor occupations such as farming and construction. The age-adjusted 2016-2020 incidence rate among males is about 23 cases per 100,000 males per year. Among females, the 2016-2020 age-adjusted rate is about 14 cases per 100,000 females 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 sex. 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 females may be related to an increase in tanning behaviors

earlier in life. 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 increased until 2013 then decreased slightly before peaking in 2019 for males and 2018 for females.

Figure 1. Trends in melanoma incidence rates by age group and sex
New York State, 1976-2020[a]



Rates are per 100,000 persons, age-adjusted to the 2000 U.S. standard population.
[a]Use caution when interpreting 2020 data. The COVID-19 pandemic disrupted health services, leading to delays and reductions in cancer screening, diagnosis, and reporting to some central cancer registries. This may have contributed to the decline in new cancer cases for many sites in 2020.

Rates of melanoma incidence by race and ethnicity

Fair skin is an established risk factor for melanoma. Melanoma incidence among non-Hispanic White males is 35.8 times higher than among non-Hispanic Black males and 8.7 times higher than among Hispanic males. For females, the melanoma incidence rate among non-Hispanic White individuals is 22.2 times higher than among non-Hispanic Black individuals and 9.7 times higher than among Hispanic individuals (Table 1).

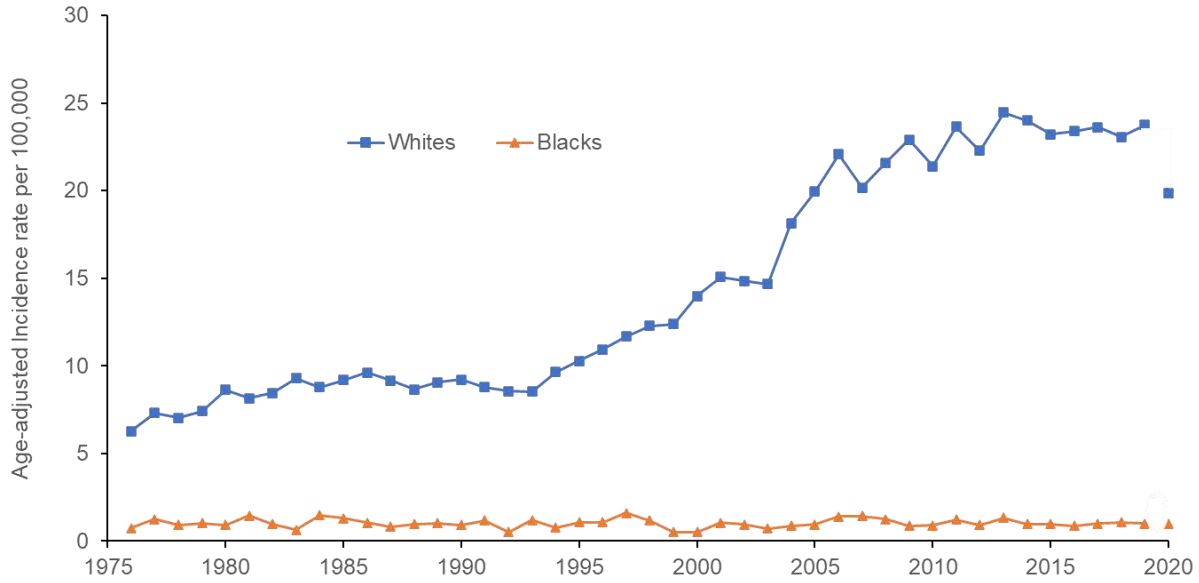
Table 1. Age-adjusted melanoma incidence rates by race, ethnicity, and sex
New York State, 2016-2020

	Non-Hispanic White	Non-Hispanic Black	Hispanic
Male	32.2	0.9	3.7
Female	22.2	1.0	2.3

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

Among White individuals, the incidence of melanoma has been increasing since 1976, the first year for which data are available for NYS, with the exception of a drop in 2020, which was likely related to decreases in screening and diagnosis during the COVID-19 pandemic (Figure 2). The incidence among Black individuals has remained low. Part of the overall increase in recent years may be due to more complete reporting of melanoma to the NYS Cancer Registry, but studies have shown that melanoma incidence is increasing in other areas of the US as well, including other regions covered by the SEER program.[22] 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 in 2018.

Figure 2. Age-adjusted melanoma incidence rates by year and race, males and females combined
New York State, 1976-2020[a]



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

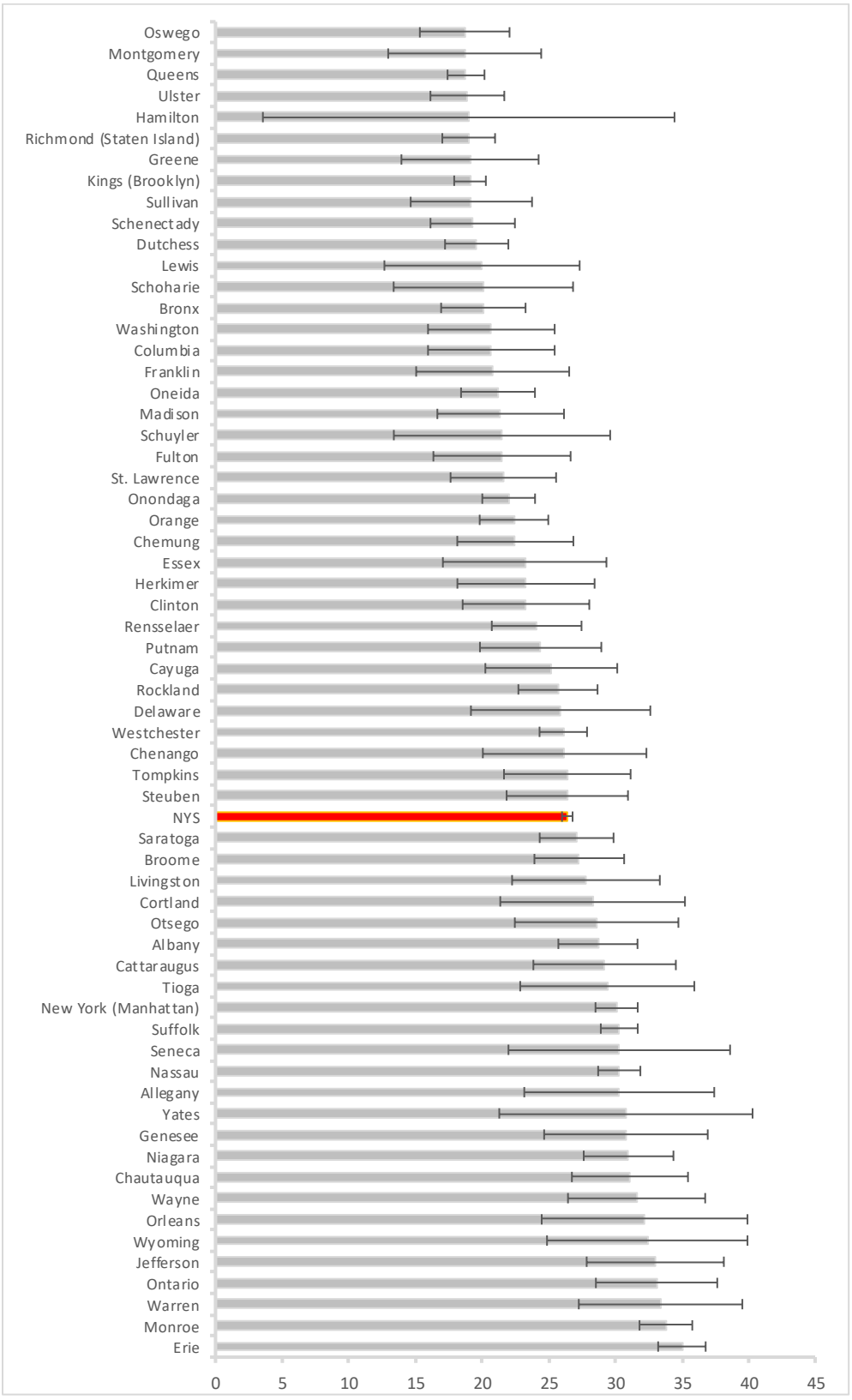
[a]Use caution when interpreting 2020 data. The COVID-19 pandemic disrupted health services, leading to delays and reductions in cancer screening, diagnosis, and reporting to some central cancer registries. This may have contributed to the decline in new cancer cases for many sites in 2020.

Rates of melanoma incidence by county

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

Melanoma rates among non-Hispanic White individuals, by county, for 2016 to 2020 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 95% confidence intervals by county, non-Hispanic White individuals, males and females combined, New York State, 2016-2020



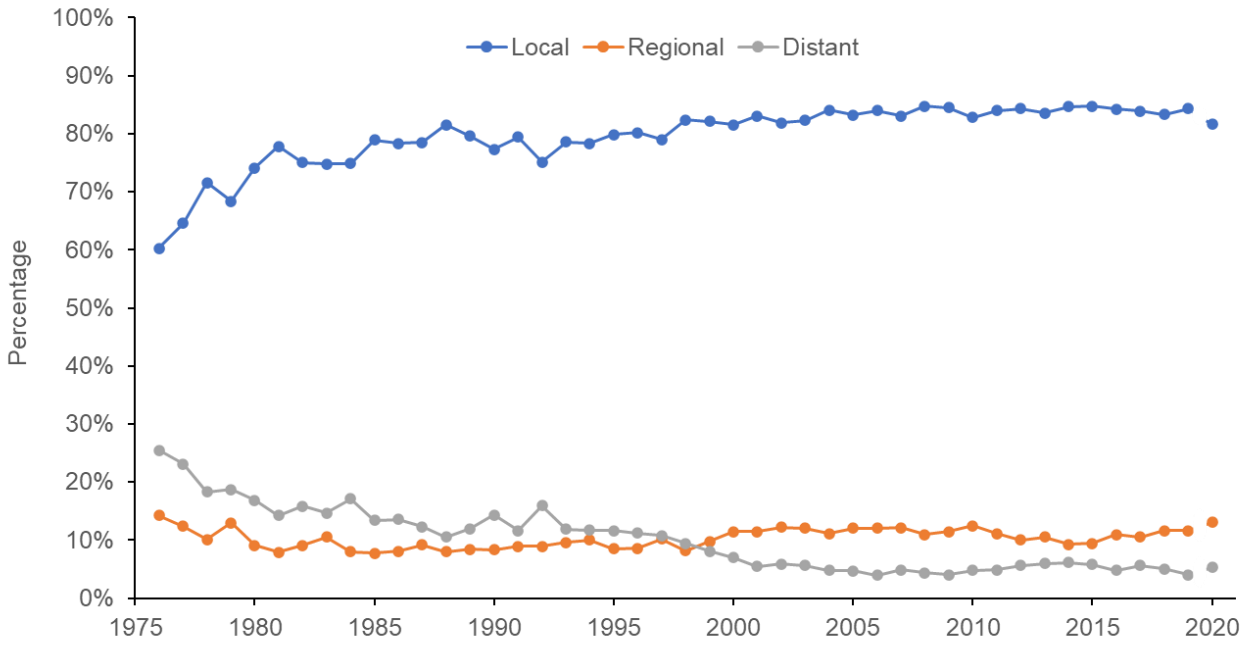
Rates are per 100,000 persons, age-adjusted to the 2000 U.S. standard population.

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 2019, 84.4 percent of melanomas reported to the NYSCR were diagnosed before they had spread beyond the skin, and 4 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 20 years, there has been no substantial change in the percent of melanomas diagnosed at "local", "regional" or "distant" stage.

Figure 4. Percentage distribution of stage at diagnosis for melanoma of the skin by year, males and females combined
New York State, 1976-2020[a]



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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.[24] Relative survival is an estimate of the percentage of patients who would be expected to survive a certain amount of time after their cancer diagnosis, given their age, race, and sex. It excludes the risk of dying from other causes.[25] 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. The five-year relative survival for the most recent timeframe (2013-2019) has improved compared to the survival statistics for 2010-2016 in the previous report, especially for regional (increased from 69.6% to 74.6%) and distant (increased from 31.2% to 39.5%) stage cancers. The increase in skin cancer survival is reflective of advances in cancer treatment over the past decade, including immunotherapy.[26]

Table 2. Five-year relative survival by stage at diagnosis for melanoma of the skin, all races, males and females combined
New York State, 2013-2019[27]

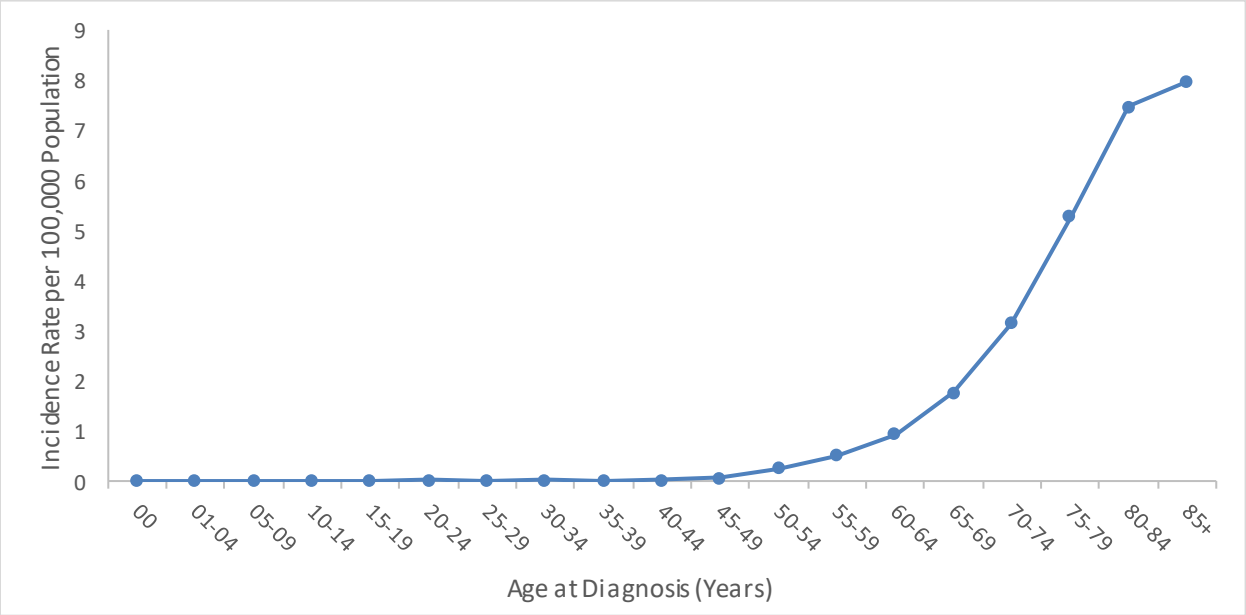
Localized	Regional	Distant
97.7%	74.6%	39.5%

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.[28] 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.[29]

In NYS approximately 160 individuals were diagnosed with MCC in 2019, an increasing annual trend from approximately 100 cases in 2007. Incidence is greatest among the non-Hispanic 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, 2016-2020



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.[30]

Table 3 shows the number of patients receiving inpatient care with a skin cancer as the principal diagnosis by year. During 2016 to 2020, on average 133 NYS residents were hospitalized each year because of melanoma of the skin, and 324 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, 2016-2020

Year	Melanoma	Other Skin Cancers
2016	151	338
2017	143	341
2018	138	349
2019	123	308
2020	110	282

The estimated number of unique outpatient encounters for skin cancer from 2016 through 2020 where skin cancer was the primary reason for care is shown in Table 4. The average number of outpatient surgeries for melanoma was 5,064 per year and for nonmelanoma skin cancer was 14,931 per year.

Table 4. Number of patients treated as outpatients with skin cancer as the principal diagnosis, males and females combined, New York State 2016-2020

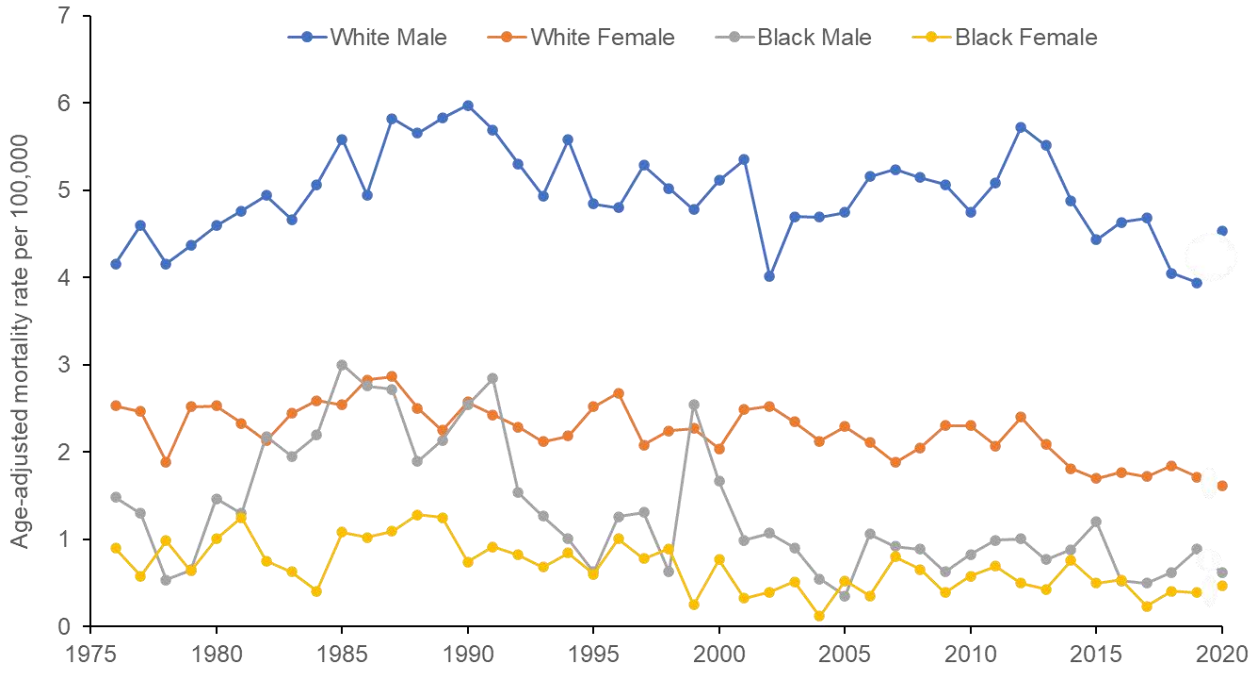
Year	Melanoma	Other Skin Cancers
2016	4,661	14,211
2017	4,916	15,183
2018	5,163	15,640
2019	5,419	15,788
2020	5,159	13,834

Mortality

Statewide mortality information comes from the death certificates that are completed for every NYS resident who dies in the US.[31] The underlying cause of death is provided by the certifying physician.

Death from skin cancer is rare. About 588 New Yorkers - 380 males and 208 females - die from skin cancer each year. It is the 13th most common cause of cancer death among males and the 16th most common among females in NYS. White males have the highest rate of skin cancer mortality compared to White females, Black males, or Black females (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 females. 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 have been close to or under 1 per 100,000 population since 2001. The decline in skin cancer mortality is reflective of advances in cancer treatment over the past decade, including immunotherapy.[26]

Figure 6. Age-adjusted skin cancer mortality rates by year, race, and sex
New York State, 1976-2020[a]



Rates are per 100,000 persons, age-adjusted to the 2000 U.S. standard population.
[a]Use caution when interpreting 2020 data. The COVID-19 pandemic disrupted health services, leading to delays and reductions in cancer screening, diagnosis, and reporting to some central cancer registries. This may have contributed to the decline in new cancer cases for many sites in 2020.

In 2016-2020, 64% of deaths from skin cancer for males and 69% of deaths from skin cancer for females were attributed to melanoma. Some of the rare types of skin cancer are much more aggressive than basal and squamous cell skin cancers, and some nonmelanoma skin cancer deaths are due to these rare, but often fatal, types of skin cancer.

The melanoma mortality rate for NYS has been below 2.4 deaths per 100,000 population since 2013. NYS ranked among the five states with the lowest melanoma mortality rates for 2020.[32]

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Appendix A. Melanoma of the Skin Incidence by County, New York State, 2016-2020

County	*Male and female*				*Male*				*Female*			
	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	4216	17.7	17.5	18	2430	22.6	22.2	23	1786	14.3	14	14.6
New York City	911.4	9.6	9.3	9.9	506.2	12.4	11.9	12.9	405.2	7.7	7.4	8.1
New York State excl. New York City	3302.4	23.3	22.9	23.6	1922.4	29	28.4	29.6	1380	19.2	18.7	19.7
Bronx	58.4	4	3.6	4.5	32.2	5.5	4.7	6.5	26.2	3.1	2.6	3.7
Kings (Brooklyn)	230.2	8.4	7.9	8.9	122.2	10.4	9.6	11.3	108	7	6.4	7.6
New York (Manhattan)	340.2	17.2	16.3	18	195.2	22.5	21.1	24	145	13.3	12.4	14.4
Queens	198.4	7.2	6.8	7.7	111	9.3	8.5	10.1	87.4	5.9	5.3	6.5
Richmond (Staten Island)	84.2	14.4	13	15.9	45.6	17.5	15.2	20	38.6	12.1	10.4	14.1
Albany	87	23.4	21.2	25.9	50	30	26.3	34.1	37	19.1	16.3	22.3
Allegany	16.6	30	23.5	37.7	~	~	~	~	~	~	~	~
Broome	63.2	25.4	22.5	28.6	37	31.4	26.9	36.6	26.2	20.8	17.1	25.1
Cattaraugus	28.8	29.2	24.4	34.8	17	35.9	28.4	45	~	~	~	~
Cayuga	23.4	24	19.7	29.1	~	~	~	~	~	~	~	~
Chautauqua	48.4	29.7	25.8	34	27.8	34.4	28.7	41.1	20.6	26.7	21.3	33
Chemung	23.2	21.1	17.3	25.6	~	~	~	~	~	~	~	~
Chenango	17	26.1	20.6	32.9	~	~	~	~	~	~	~	~
Clinton	21.2	21.7	17.6	26.5	~	~	~	~	~	~	~	~
Columbia	17.8	19	15	23.9	~	~	~	~	~	~	~	~
Cortland	~	~	~	~	~	~	~	~	~	~	~	~
Delaware	~	~	~	~	~	~	~	~	~	~	~	~
Dutchess	64.8	16.6	14.8	18.6	41.8	22.4	19.4	25.7	23	11.9	9.7	14.5
Erie	354.4	30	28.6	31.5	200.8	36.7	34.4	39.1	153.6	25.6	23.7	27.6
Essex	~	~	~	~	~	~	~	~	~	~	~	~
Franklin	~	~	~	~	~	~	~	~	~	~	~	~
Fulton	~	~	~	~	~	~	~	~	~	~	~	~
Genesee	23.2	29.8	24.4	36.3	~	~	~	~	~	~	~	~
Greene	~	~	~	~	~	~	~	~	~	~	~	~
Hamilton	~	~	~	~	~	~	~	~	~	~	~	~
Herkimer	19.6	24.1	19.2	29.8	~	~	~	~	~	~	~	~
Jefferson	35	30.9	26.4	36	21.8	40.7	33.2	49.3	~	~	~	~
Lewis	~	~	~	~	~	~	~	~	~	~	~	~
Livingston	22	26.7	21.7	32.6	~	~	~	~	~	~	~	~
Madison	20.2	22.7	18.3	28	~	~	~	~	~	~	~	~
Monroe	245.8	27.3	25.8	29	134.2	32.6	30.1	35.2	111.6	24	22	26.2
Montgomery	~	~	~	~	~	~	~	~	~	~	~	~
Nassau	389.6	21.9	20.9	22.9	234.2	28.9	27.2	30.7	155.4	16.8	15.6	18.1
Niagara	77	28.3	25.4	31.5	40.8	30.6	26.4	35.4	36.2	27.4	23.2	32.1
Oneida	58.2	19.7	17.4	22.2	34	24.1	20.5	28.1	24.2	17.3	14.1	20.9
Onondaga	109	19.6	17.9	21.4	60.6	23.6	20.9	26.5	48.4	16.9	14.7	19.3

Ontario	47.4	31.7	27.5	36.3	28.8	40.1	33.6	47.6	18.6	26.2	20.7	32.7
Orange	74.8	17.6	15.8	19.5	43.2	22.1	19.1	25.4	31.6	14.4	12.2	16.9
Orleans	16.2	29.6	23.2	37.4	~	~	~	~	~	~	~	~
Oswego	26.6	19	15.7	22.7	~	~	~	~	~	~	~	~
Otsego	22	27.6	22.3	34	~	~	~	~	~	~	~	~
Putnam	28.2	21.6	18	25.7	~	~	~	~	~	~	~	~
Rensselaer	44.6	22.2	19.2	25.4	25.2	28.3	23.4	33.9	19.4	18	14.5	22.3
Rockland	70.8	19.1	17.1	21.2	43.2	26.2	22.7	30	27.6	13.7	11.5	16.4
St. Lawrence	28.2	21.2	17.7	25.3	16.4	24.9	19.6	31.2	~	~	~	~
Saratoga	76.8	25.7	23.1	28.5	43	30.4	26.3	34.9	33.8	22.3	18.9	26.1
Schenectady	32.8	16.6	14	19.4	18.2	19.6	15.7	24.3	~	~	~	~
Schoharie	~	~	~	~	~	~	~	~	~	~	~	~
Schuyler	~	~	~	~	~	~	~	~	~	~	~	~
Seneca	~	~	~	~	~	~	~	~	~	~	~	~
Steuben	31.6	26	21.9	30.7	18.2	29.9	23.8	37.1	~	~	~	~
Suffolk	474.4	24.9	23.9	25.9	283.2	32.4	30.7	34.2	191.2	19.3	18.1	20.7
Sullivan	16.6	16.4	12.9	20.6	~	~	~	~	~	~	~	~
Tioga	19.2	29.7	23.7	36.9	~	~	~	~	~	~	~	~
Tompkins	26.4	24.7	20.5	29.5	~	~	~	~	~	~	~	~
Ulster	42.4	17	14.7	19.6	23.6	21.1	17.3	25.5	18.8	14.1	11.2	17.5
Warren	28	32.9	27.2	39.4	17.4	41	32.4	51.3	~	~	~	~
Washington	17.8	20.4	16.2	25.5	~	~	~	~	~	~	~	~
Wayne	34	30.1	25.5	35.3	19	33.1	26.4	41	~	~	~	~
Westchester	222.2	17.7	16.6	18.8	127.2	23	21.2	24.9	95	13.8	12.6	15.2
Wyoming	16.6	31.1	24.5	39	~	~	~	~	~	~	~	~
Yates	~	~	~	~	~	~	~	~	~	~	~	~

Rates are per 100,000 persons, age-adjusted to the 2000 US population, with 95% confidence intervals. Incidence data are provisional, November 2022
~ Case counts less than 16 and rates based on counts less than 16 are suppressed to protect confidentiality and prevent misinterpretation of estimates with lower stability.

Appendix B. Melanoma of the Skin Incidence by New York City Borough and Neighborhood, 2016-2020

Borough/Health District	*Male and female*				*Male*				*Female*			
	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	4216	17.7	17.5	18	2430	22.6	22.2	23	1786	14.3	14	14.6
New York City	911.4	9.6	9.3	9.9	506.2	12.4	11.9	12.9	405.2	7.7	7.4	8.1
Bronx	58.4	4	3.6	4.5	32.2	5.5	4.7	6.5	26.2	3.1	2.6	3.7
Riverdale, Fieldston & Kingsbridge	~	~	~	~	~	~	~	~	~	~	~	~
Wakefield, Williamsbridge & Woodlawn	~	~	~	~	~	~	~	~	~	~	~	~
Co-op City, Pelham Bay & Schuylerville	~	~	~	~	~	~	~	~	~	~	~	~
Pelham Parkway, Morris Park & Laconia	~	~	~	~	~	~	~	~	~	~	~	~
Belmont, Crotona Park East & East Tremont	~	~	~	~	~	~	~	~	~	~	~	~
Bedford Park, Fordham North & Norwood	~	~	~	~	~	~	~	~	~	~	~	~
Morris Heights, Fordham South & Mount Hope	~	~	~	~	~	~	~	~	~	~	~	~
Concourse, Highbridge & Mount Eden	~	~	~	~	~	~	~	~	~	~	~	~
Castle Hill, Clason Point & Parkchester	~	~	~	~	~	~	~	~	~	~	~	~
Hunts Point, Longwood & Melrose	~	~	~	~	~	~	~	~	~	~	~	~
Kings (Brooklyn)	230.2	8.4	7.9	8.9	122.2	10.4	9.6	11.3	108	7	6.4	7.6
Greenpoint & Williamsburg	~	~	~	~	~	~	~	~	~	~	~	~
Bushwick	~	~	~	~	~	~	~	~	~	~	~	~
Bedford-Stuyvesant	~	~	~	~	~	~	~	~	~	~	~	~
Brooklyn Heights & Fort Greene	19	15.6	12.5	19.2	~	~	~	~	~	~	~	~
Park Slope, Carroll Gardens & Red Hook	21	21.1	17.1	25.7	~	~	~	~	~	~	~	~
Crown Heights North & Prospect Heights	~	~	~	~	~	~	~	~	~	~	~	~
Brownsville & Ocean Hill	~	~	~	~	~	~	~	~	~	~	~	~
East New York & Starrett City	~	~	~	~	~	~	~	~	~	~	~	~
Canarsie & Flatlands	17.2	7.3	5.8	9.1	~	~	~	~	~	~	~	~
East Flatbush, Farragut & Rugby	~	~	~	~	~	~	~	~	~	~	~	~
Crown Heights So., Prospect Lefferts & Wingate	~	~	~	~	~	~	~	~	~	~	~	~
Sunset Park & Windsor Terrace	~	~	~	~	~	~	~	~	~	~	~	~
Bay Ridge & Dyker Heights	19	12.5	10	15.4	~	~	~	~	~	~	~	~
Borough Park, Kensington & Ocean Parkway	16.2	10.5	8.2	13.1	~	~	~	~	~	~	~	~
Flatbush & Midwood	~	~	~	~	~	~	~	~	~	~	~	~
Sheepshead Bay, Gerritsen Beach & Homecrest	28.8	13.8	11.6	16.4	16.8	17.4	13.8	21.7	~	~	~	~
Bensonhurst & Bath Beach	22.2	9.2	7.5	11.1	~	~	~	~	~	~	~	~
Brighton Beach & Coney Island	27.6	14	11.6	16.9	~	~	~	~	~	~	~	~
New York (Manhattan)	340.2	17.2	16.3	18	195.2	22.5	21.1	24	145	13.3	12.4	14.4
Washington Heights, Inwood & Marble Hill	~	~	~	~	~	~	~	~	~	~	~	~
Hamilton Heights, Manhattanville & West Harlem	~	~	~	~	~	~	~	~	~	~	~	~
Central Harlem	~	~	~	~	~	~	~	~	~	~	~	~
East Harlem	~	~	~	~	~	~	~	~	~	~	~	~
Upper East Side	95.8	30.2	27.4	33.2	55.6	39.5	34.9	44.7	40.2	23.3	20	27.1
Upper West Side & West Side	68.4	23.6	21.1	26.4	39.4	30.6	26.4	35.4	29	18.3	15.3	21.8
Chelsea, Clinton & Midtown Business District	35	20.2	17.2	23.6	21.2	24.8	20.1	30.3	~	~	~	~
Murray Hill, Gramercy & Stuyvesant Town	52.8	25.2	22.1	28.7	28.6	31.5	26.4	37.5	24.2	20.6	16.8	25.1
Chinatown & Lower East Side	~	~	~	~	~	~	~	~	~	~	~	~

Battery Park City, Greenwich Village & Soho	41.6	26.1	22.6	30.1	23.6	31.5	26	38	18	21.1	16.8	26.3
Queens	198.4	7.2	6.8	7.7	111	9.3	8.5	10.1	87.4	5.9	5.3	6.5
Astoria & Long Island City	~	~	~	~	~	~	~	~	~	~	~	~
Jackson Heights & North Corona	~	~	~	~	~	~	~	~	~	~	~	~
Flushing, Murray Hill & Whitestone	24.4	6.6	5.4	7.9	~	~	~	~	~	~	~	~
Bayside, Douglaston & Little Neck	20.8	11	9	13.5	~	~	~	~	~	~	~	~
Queens Village, Cambria Heights & Rosedale	~	~	~	~	~	~	~	~	~	~	~	~
Briarwood, Fresh Meadows & Hillcrest	~	~	~	~	~	~	~	~	~	~	~	~
Elmhurst & South Corona	~	~	~	~	~	~	~	~	~	~	~	~
Forest Hills & Rego Park	21.2	11.8	9.6	14.4	~	~	~	~	~	~	~	~
Sunnyside & Woodside	~	~	~	~	~	~	~	~	~	~	~	~
Ridgewood, Glendale & Middle Village	21.6	10.7	8.7	12.9	~	~	~	~	~	~	~	~
Richmond Hill & Woodhaven	~	~	~	~	~	~	~	~	~	~	~	~
Jamaica, Hollis & St. Albans	~	~	~	~	~	~	~	~	~	~	~	~
Howard Beach & Ozone Park	~	~	~	~	~	~	~	~	~	~	~	~
Far Rockaway, Breezy Point & Broad Channel	20.6	14.6	11.9	17.9	~	~	~	~	~	~	~	~
Richmond (Staten Island)	84.2	14.4	13	15.9	45.6	17.5	15.2	20	38.6	12.1	10.4	14.1
Tottenville, Great Kills & Annadale	36.4	17.8	15.2	20.7	20.4	21.3	17.2	26.1	16	15.1	11.9	19
New Springville & South Beach	26.8	14.1	11.7	16.8	~	~	~	~	~	~	~	~
Port Richmond, Stapleton & Mariner Harbor	20.6	10.8	8.8	13.2	~	~	~	~	~	~	~	~

Rates are per 100,000 persons, age-adjusted to the 2000 US population, with 95% confidence intervals. Incidence data are provisional, November 2022.
~ Case counts less than 16 and rates based on counts less than 16 are suppressed to protect confidentiality and prevent misinterpretation of estimates with lower stability.