

HPV-Related Cancer Incidence and HPV Vaccination Rates in New York State

2017-2021



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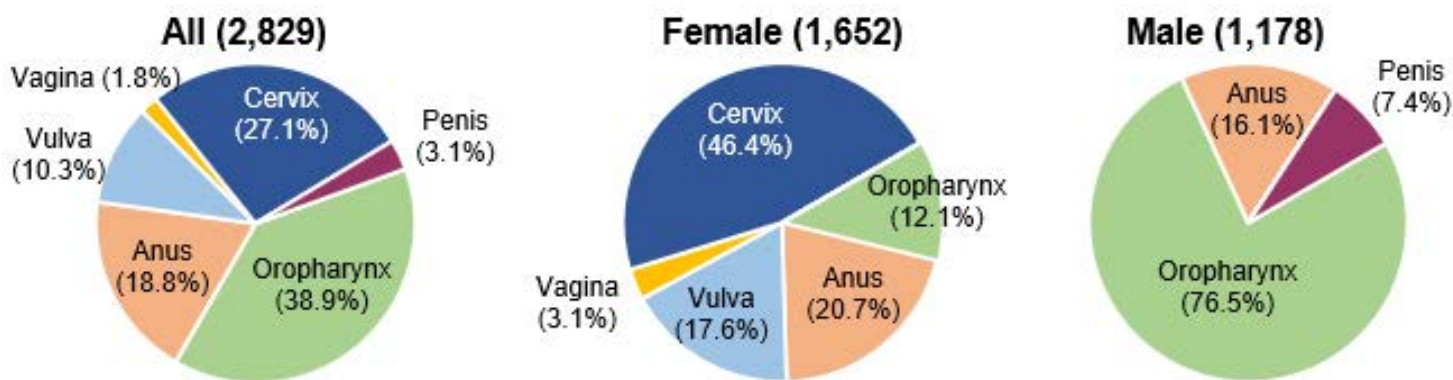
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Cancers associated with human papillomavirus (HPV)

- Human papillomavirus is the most common sexually transmitted infection in the United States.¹
- HPV infection is thought to cause almost all cervical cancers, over 90% of anal cancers, 70% of oropharyngeal cancers, 75% of vaginal cancers, 69% of vulvar cancers, and 63% of penile cancers.²
- Two high-risk HPV types, types 16 and 18, account for most HPV-related cancers.²
- This report provides the general public with an overview of the incidence of HPV-related cancers diagnosed in 2017-2021 in New York State, including the incidence patterns by demographics and geography as well as the trends of incidence from 2007 through 2021. In addition, this report presents the latest HPV vaccination coverage among adolescents in New York State.
- Because cancer registries do not routinely collect risk factor information, in this report HPV-related cancers are defined by cancer site and type per histology code.³

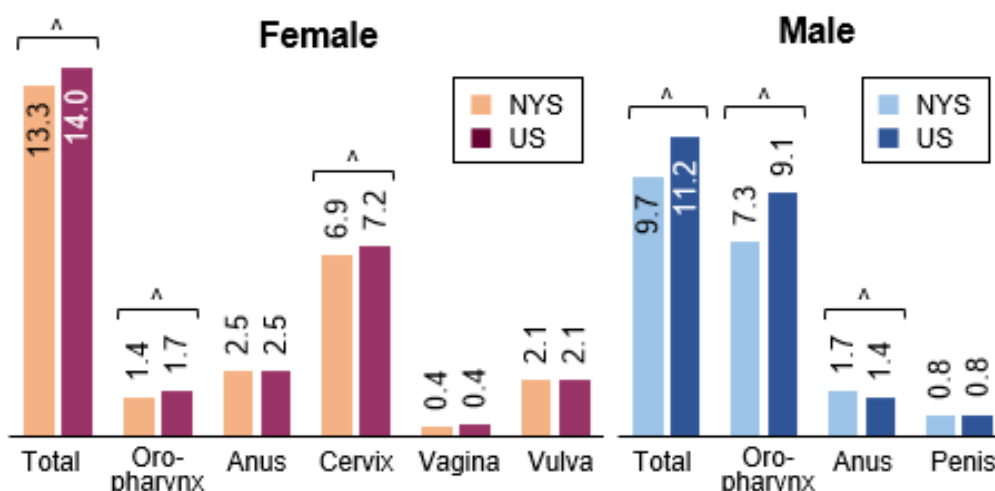
More females were diagnosed with HPV-related cancers than males*

- An average of 2,829 New York State residents were diagnosed with an HPV-related cancer each year between 2017 and 2021, with 58% of cases being females and 42% being males.
- Cervical cancer was the most common HPV-related cancer among females, and oropharyngeal cancer was the most common among males.



Incidence rates[†] (per 100,000) of HPV-related cancers in New York State* were generally lower than or similar to the national averages[‡]

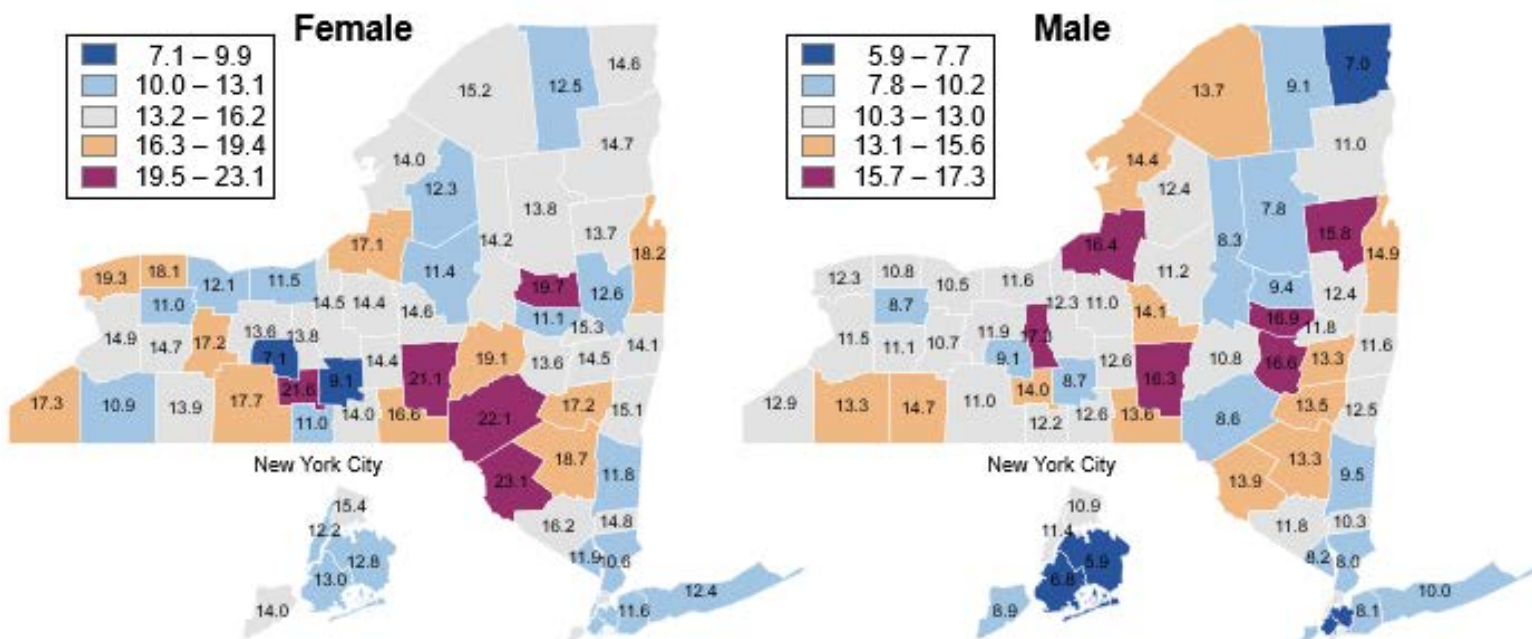
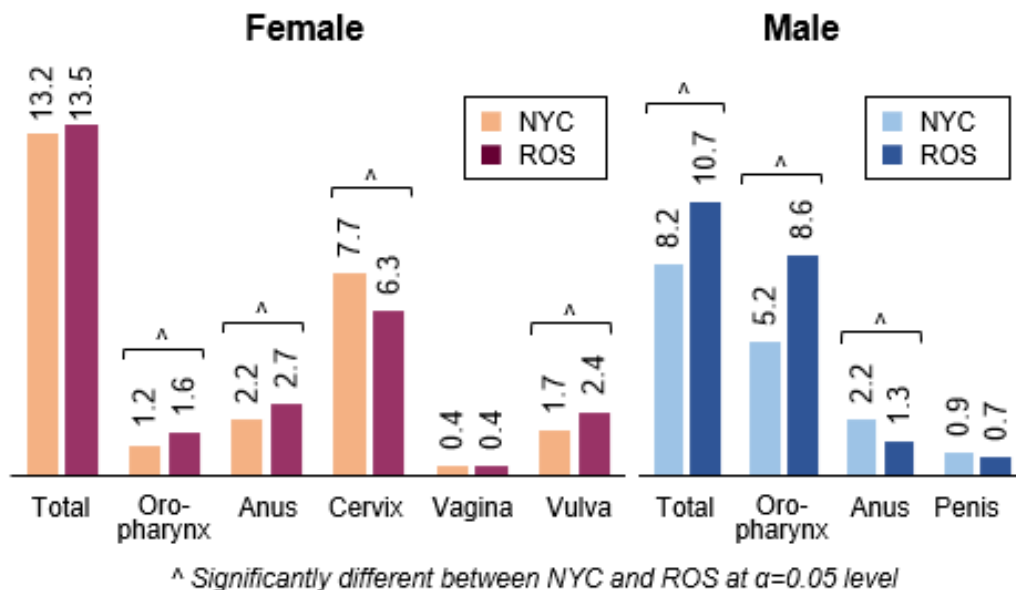
- Among both females and males, incidence rates of all HPV-related cancers in New York State (NYS) in 2017-2021 were lower than, or similar to, those for the United States (US), except the anal cancer rate among males was higher in New York State than the national average.



[†] Significantly different between NYS and US at $\alpha=0.05$ level

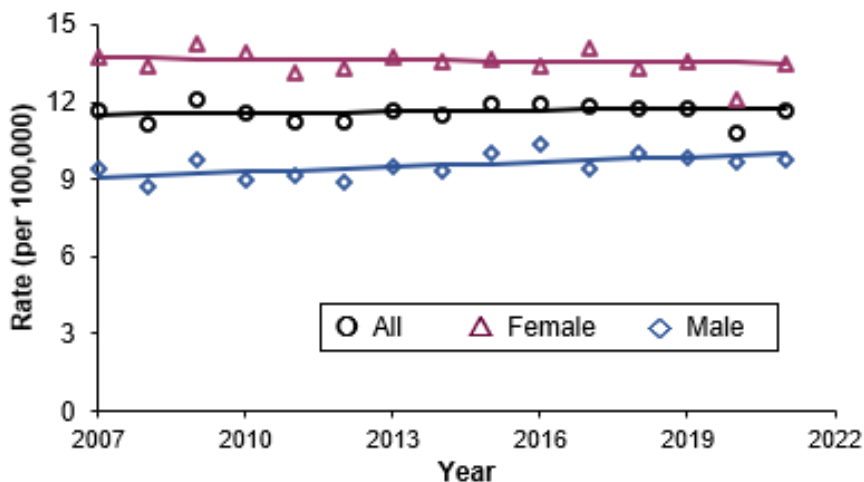
Incidence rates[†] (per 100,000) of HPV-related cancers varied by sex and geography* in New York State in 2017-2021

- For all HPV-related cancers combined, the incidence rate in New York City (NYC) was similar to the rest of the state (ROS) among females, but significantly lower among males.
- Incidence rates of HPV-related cancers varied by county, ranging from 7.1 to 23.1 among females and from 5.9 to 17.3 among males. Mean and standard deviation are used to classify counties into five groups.[§]



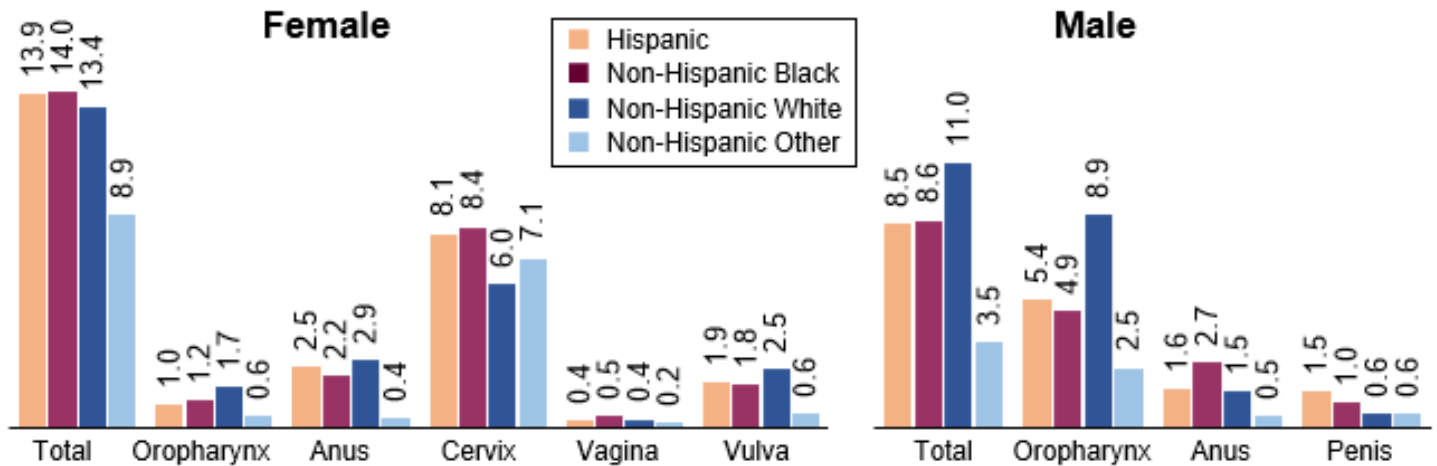
Incidence rates[†] (per 100,000) of HPV-related cancers in New York State* were stable from 2007-2021[¶]

- For either females or males, the incidence rate has been stable, averaging 13.5 and 9.5 per 100,000 persons, respectively.
- For both sexes combined, the overall incidence rate remained stable over time.
- Females had higher incidence of HPV-related cancers compared to males.



Incidence rates† (per 100,000) of HPV-related cancers* varied by race and ethnicity in New York State in 2017-2021

- Non-Hispanic White females showed significantly higher incidence of oropharyngeal cancer (1.7) and vulvar cancer (2.5), and significantly lower incidence of cervical cancer (6.0) than any other groups.
- Non-Hispanic White males showed the highest incidence of oropharyngeal cancer and, as a result, had the highest incidence of all HPV-related cancers combined. Non-Hispanic Black males had the highest incidence of anal cancer, while Hispanic males had the highest incidence of penile cancer.
- For both sexes, non-Hispanic Other# individuals had significantly lower incidence rates of all HPV-related cancers combined, oropharyngeal cancer, anal cancer, and vulvar cancer than any other groups.



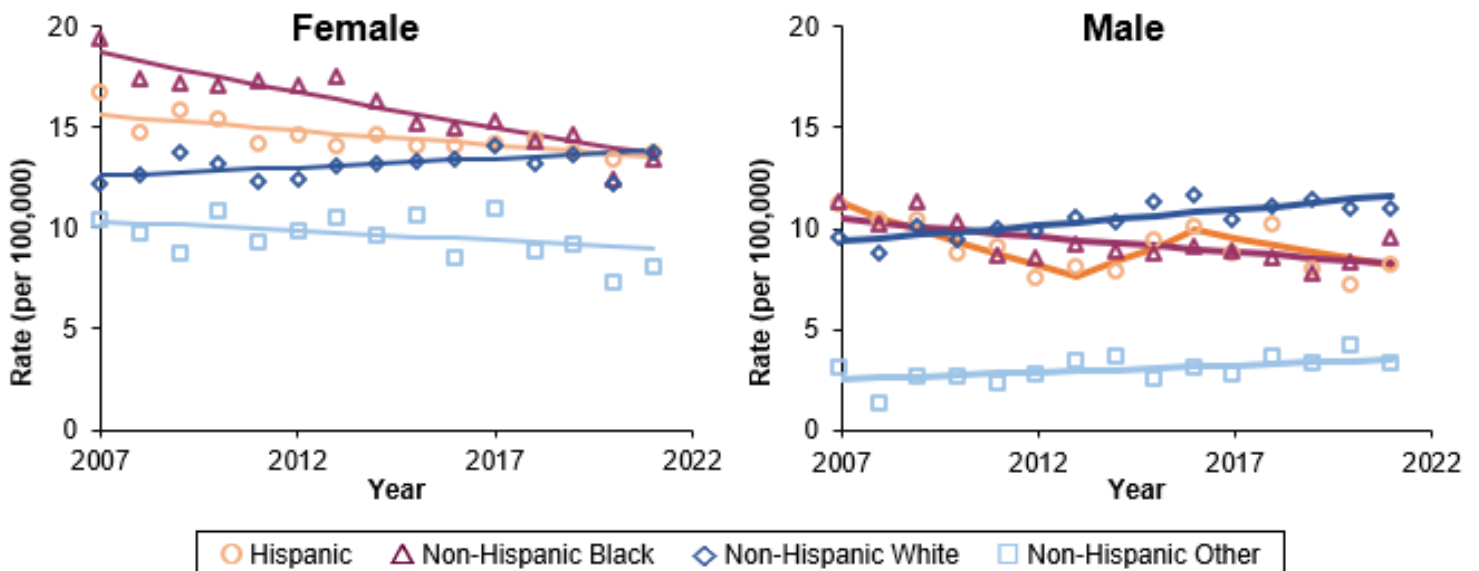
Incidence rates† (per 100,000) of HPV-related cancers* decreased among non-Hispanic Black individuals and Hispanic individuals, but increased among non-Hispanic White individuals in 2007-2021††

- For all HPV-related cancers combined, incidence rates among both non-Hispanic White females and males rose significantly from 2007 through 2021 by 0.7% and 1.5% per year, respectively.
- Incidence among non-Hispanic Black individuals and Hispanic individuals decreased significantly.
- Overall changes in incidence among non-Hispanic Other individuals# were not statistically significant.

Average Annual Percent Change

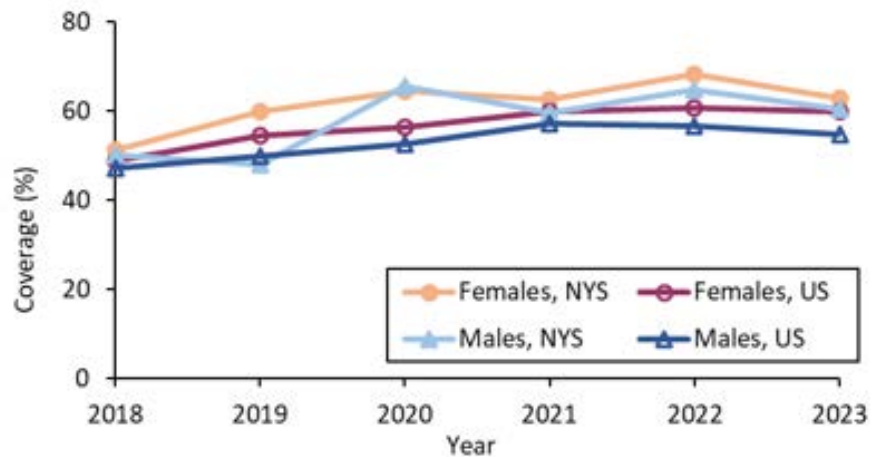
Race and Ethnicity	Female	Male
○ Hispanic	-1.0 [^]	-2.3 [^]
△ Non-Hispanic Black	-2.2 [^]	-1.7 [^]
◇ Non-Hispanic White	0.7 [^]	1.5 [^]
□ Non-Hispanic Other	-1.0	2.3

[^] Significantly different from zero at $\alpha=0.05$ level



Up-to-date HPV vaccination coverage among adolescents** has been increasing and was higher in New York State than in the United States

- In New York State, percentages of female and male adolescents (ages 13-15) who were up to date with HPV vaccination increased from 51.3% and 50.3% in 2018 to 63.0% and 60.5% in 2023, respectively.
- HPV vaccination uptake was higher among 13-year-old females than males in the State and nationally.
- HPV vaccination coverage in New York State tended to be higher than the national average for both sexes.



HPV vaccination promotion

New York State Department of Health works closely with the [NYS Cancer Consortium's HPV Coalition](#) as well as with local health departments to increase HPV vaccination rates and reduce the burden of HPV-related cancers and diseases.

Endnotes

- * New York State Cancer Registry. Data provisional, November 2023. health.ny.gov/statistics/cancer/registry
- † Rates are per 100,000 persons, age-adjusted to the 2000 U.S. standard population.
- ‡ Data are from population-based registries that participate in the National Program of Cancer Registries (NPCR) and/or the Surveillance, Epidemiology, and End Results (SEER) program and meet high-quality data criteria. These registries cover approximately 99% of the U.S. population. Accessed on July 30th, 2024. gis.cdc.gov/Cancer/USCS/#/RiskFactors
- § Counties are classified above and below the mean at intervals of 1 standard deviation (SD). Navy: min ≤ rate < mean – 1.5 SD; Blue: mean – 1.5 SD ≤ rate < mean – 0.5 SD; Gray: mean – 0.5 SD ≤ rate < mean + 0.5 SD; Peach: mean + 0.5 SD ≤ rate < mean + 1.5 SD; Purple: mean + 1.5 SD ≤ rate ≤ max.
- ¶ Trend analysis was conducted using Joinpoint Regression Program, Version 5.2.0.0. April, 2024; Statistical Research and Applications Branch, National Cancer Institute. surveillance.cancer.gov/joinpoint Incidence rate in year 2020, the first year of the COVID-19 pandemic, is displayed but excluded from trend analyses, because the COVID-19 pandemic disrupted health services and caused serious delays and reductions in cancer screenings and diagnoses in 2020. Accessed on August 8th, 2024. seer.cancer.gov/data/covid-impact.html
- # “Non-Hispanic Other” refers to non-Hispanic Asian, Pacific Islander, and American Indian/Alaskan Native.
- ** National Immunization Survey-Teen (NIS-Teen). Up-to-date with HPV vaccination is defined as receiving 2 doses separated by 5 months [minus 4 days] for immunocompetent adolescents initiating the HPV vaccine series before their 15th birthday, and receiving 3 doses for all others. Accessed on February 12th, 2025. data.cdc.gov/Teen-Vaccinations/Vaccination-Coverage-among-Adolescents-13-17-Years/ee48-w5t6/data_preview

References

1. Centers for Disease Control and Prevention (CDC). 2023. Basic Information about HPV and Cancer. Accessed 8/28/2024. cdc.gov/cancer/hpv/basic-information.html
2. National Cancer Institute (NCI). 2023. HPV and Cancer. Accessed 8/28/2024. cancer.gov/about-cancer/causes-prevention/risk/infectious-agents/hpv-and-cancer
3. Centers for Disease Control and Prevention (CDC). 2024. Definitions of Risk Factor-Associated Cancers. Accessed 7/30/2024. cdc.gov/united-states-cancer-statistics/public-use/definitions-risk-factor-associated-cancers.html