Snapshot of Cancer in New York

I.   Introduction – The Burden of Cancer

The burden of cancer in New York is considerable. Each year, over 118,000 New Yorkers learn they have cancer, and nearly 34,000 succumb to the disease, making it the second leading cause of death in the state. In 2019, the overall cancer incidence rate of 485 cases per 100,000 persons in New York was the fifth highest among 49 states and the District of Columbia (Nevada's data are not included in this ranking), significantly above the national average of 439/100,000[2].

In 2019 . . .

118,803 New Yorkers were diagnosed with cancer[2]

33,651 New Yorkers died of cancer[2]

1,124,300 (estimated) living New Yorkers had ever been diagnosed with cancer[1]

Cancer affects not only the people with the disease, but their families, caregivers and entire communities. People with cancer must contend with the effects of the disease and its treatment on their health, well-being, family and social relationships and economic productivity. Accessing and affording quality health care can also be a struggle for many families. Issues related to cancer and cancer control account for significant allocations of the resources of many community, public health and health care organizations.

The burden of cancer is not distributed evenly. Risks of developing or dying from various cancers often differ for people of different racial or ethnic origins or socioeconomic backgrounds. Much of these disparities are related to differences in lifestyles and behaviors and in the environments in which people live, work, and play. Such factors as economic resources, insurance status, language, and geographic location may affect access to preventive and diagnostic services and medical treatment.

II.   Demographics of New York

New York is notable for both its size and its diversity. With a population approaching 19.9 million[3], New York is the fourth most populous state in the nation, after California, Texas and Florida. These 19.9 million persons are spread out over a land area of 47,126 square miles, the largest in the northeast.

Extremes of population density

over 69,000 persons per square mile in Manhattan (New York County)

2.8 persons per square mile in Hamilton County (Adirondack Park)[4]

People in New York, however, are not spread out evenly. Although much of New York's population is concentrated in the metropolitan area comprising New York City and its suburbs, there are sizeable rural regions upstate where distance can be a barrier to accessing health services.

New York is home to persons of various races and ethnicities in significant numbers. In 2019, 55.1 percent of the population were estimated to be non-Hispanic white, 19.3 percent Hispanic (of any race), 14.2 percent non-Hispanic black, and 8.6 percent non-Hispanic Asian[5]. In addition, between years 2016 and 2020, 22.4 percent of the population was

foreign born[3], and 30.3 percent of New Yorkers age five years and older spoke a language other than English at home[3]. Cultural factors associated with race, ethnicity and national origin can have an important impact on cancer risk factors, attitudes towards disease, and interactions with health care providers.

Access to medical care is an important determinant of cancer-related morbidity and mortality. In 2019, approximately 8 percent of New Yorkers 19 to 64 years of age were without health insurance, and 22 percent reported Medicaid as their primary source of health care coverage[6]. In September 2021, there were 3.9 million New Yorkers ages 21-64 enrolled in Medicaid[7], or about 34 percent of the population in this age range.

Other population characteristics affect the burden of cancer in New York and measures taken to address it.

- 12.7 percent of New Yorkers (approximately 2.5 million) have incomes below the poverty level[3],
- 62.5 percent of New Yorkers age 25 and over (approximately 8.6 million) do not have bachelor's degrees[3],
- 12.8 percent of New Yorkers age 25 and over (approximately 1.8 million) do not have high school diplomas[3], and
- 12.7 percent of New York adults (approximately 1.9 million) report frequent mental distress[8].

All of these features of New York's population affect cancer prevention and control efforts. Public health and community organizations, health care providers, policy makers, advocates and health systems will need to ensure that cancer services across the continuum of care are available and accessible for all populations. Particular efforts to promote health equity among the most vulnerable populations are needed.

III.   Cancer in New York

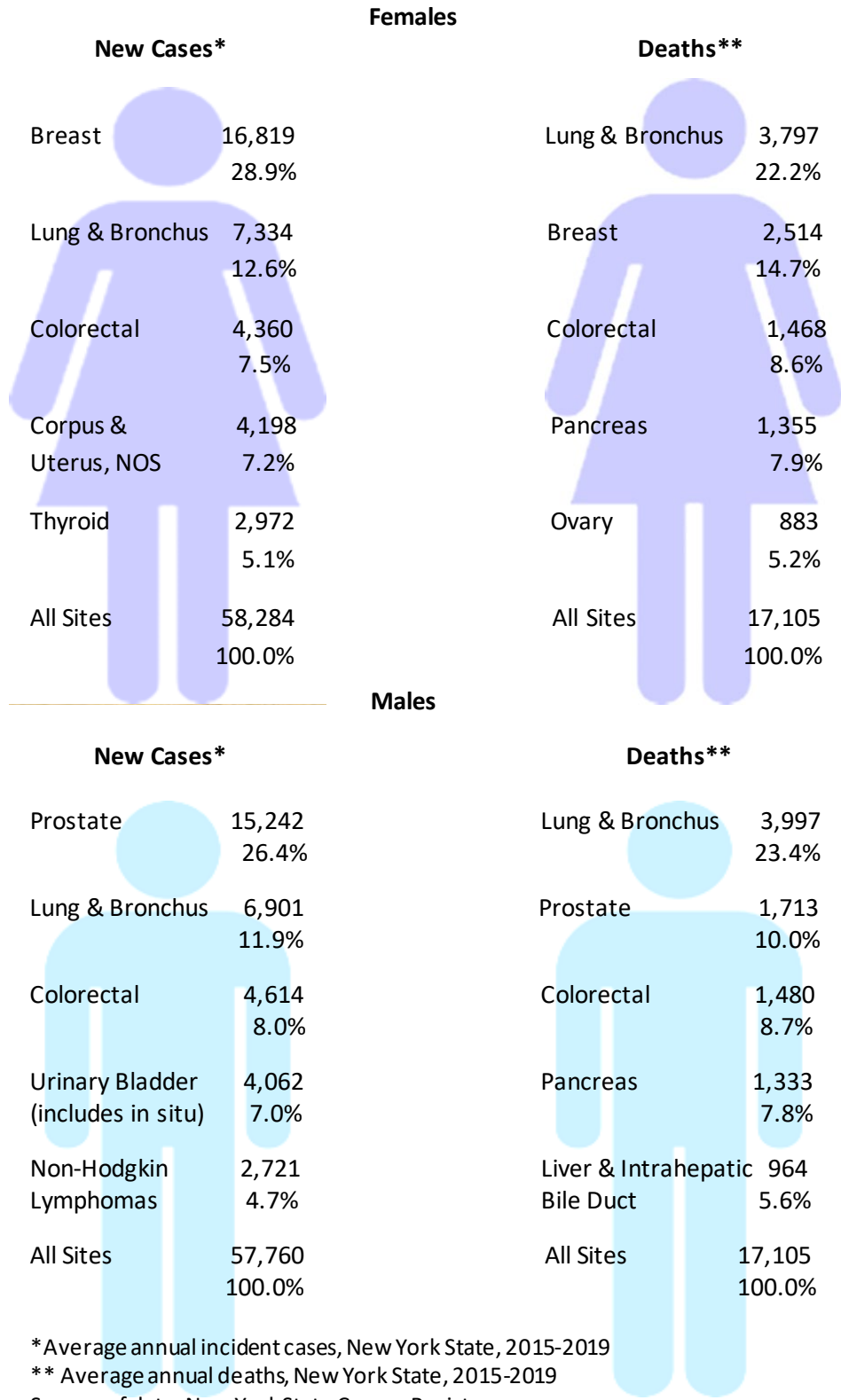### Leading types of cancer in males and females

Cancer is not a single disease, but a collection of over 100 different diseases, each with its own set of causes, occurrence pattern, natural history, effective treatments, and outlook for survival. Although cancer occurs in both males and females, the types of cancer males and females are most likely to develop, and are most likely to die from, are different. The five most frequently diagnosed types of cancer and the five leading causes of cancer deaths are illustrated in Figure 1 for males and females.
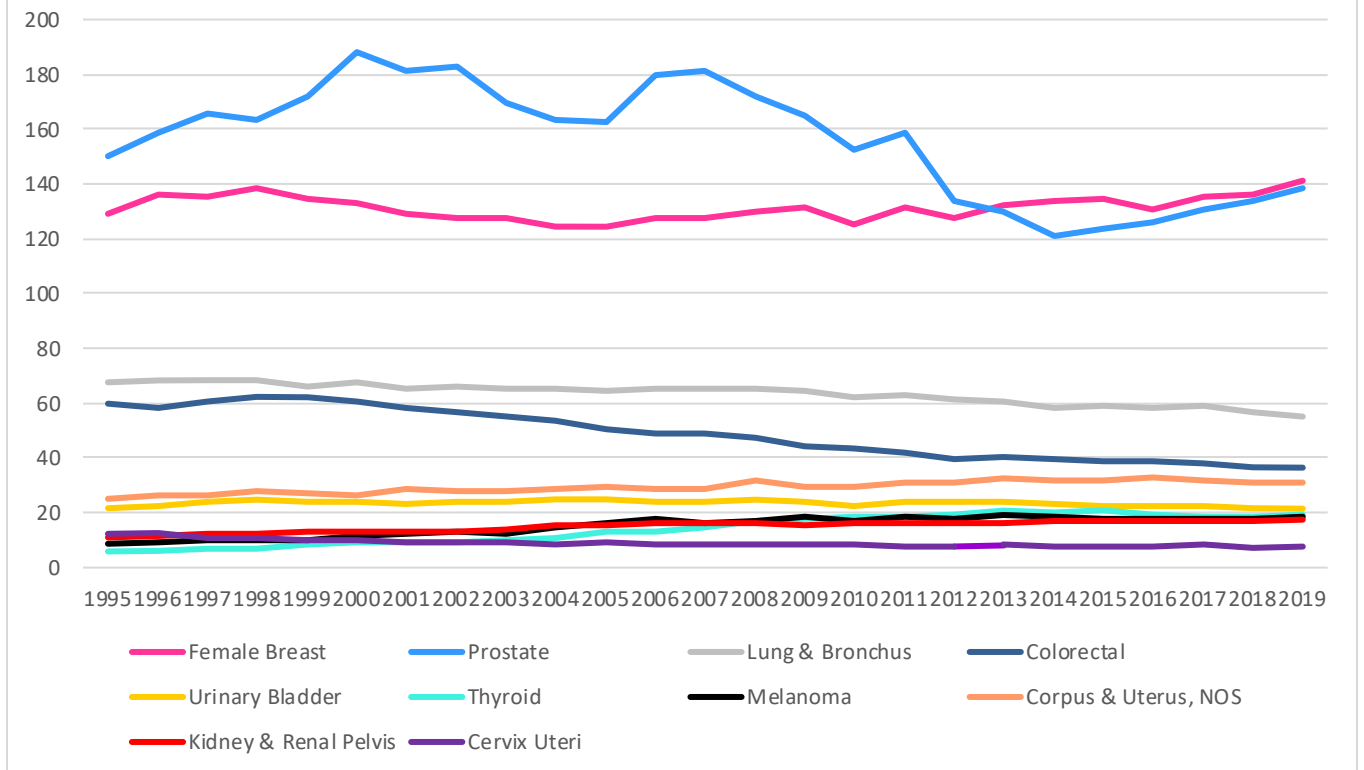
Trends over time

The number of people in New York diagnosed with cancer each year has been increasing steadily. In part, this is due to increases in New York's elderly population, persons who are more likely to develop cancer. To account for differences in the size and age distribution of populations, statisticians calculate age-adjusted cancer rates. Age-adjusted cancer incidence and mortality rates are measures of the risk of developing or dying from cancer that can be compared across populations, regardless of their age distributions.

Cancer rates change over time. Cancer incidence rates can change due to changes in the prevalence of cancer risk factors and the underlying occurrence of the disease, but also because of changes in cancer screening and clinical practices. Cancer mortality rates are affected by the occurrence of the disease in the first place, and also by the effectiveness of screening and treatment. Figure 2 tracks the most frequently diagnosed cancers and Figure 3 tracks the most frequent causes of cancer death in males and females combined (except where noted) in New York State between 1995 and 2019. Cervical cancer is included as well due to its interest for cancer screening.

Figure 1. Most frequently diagnosed cancer types and causes of cancer death in males and females, New York State, 2015-2019
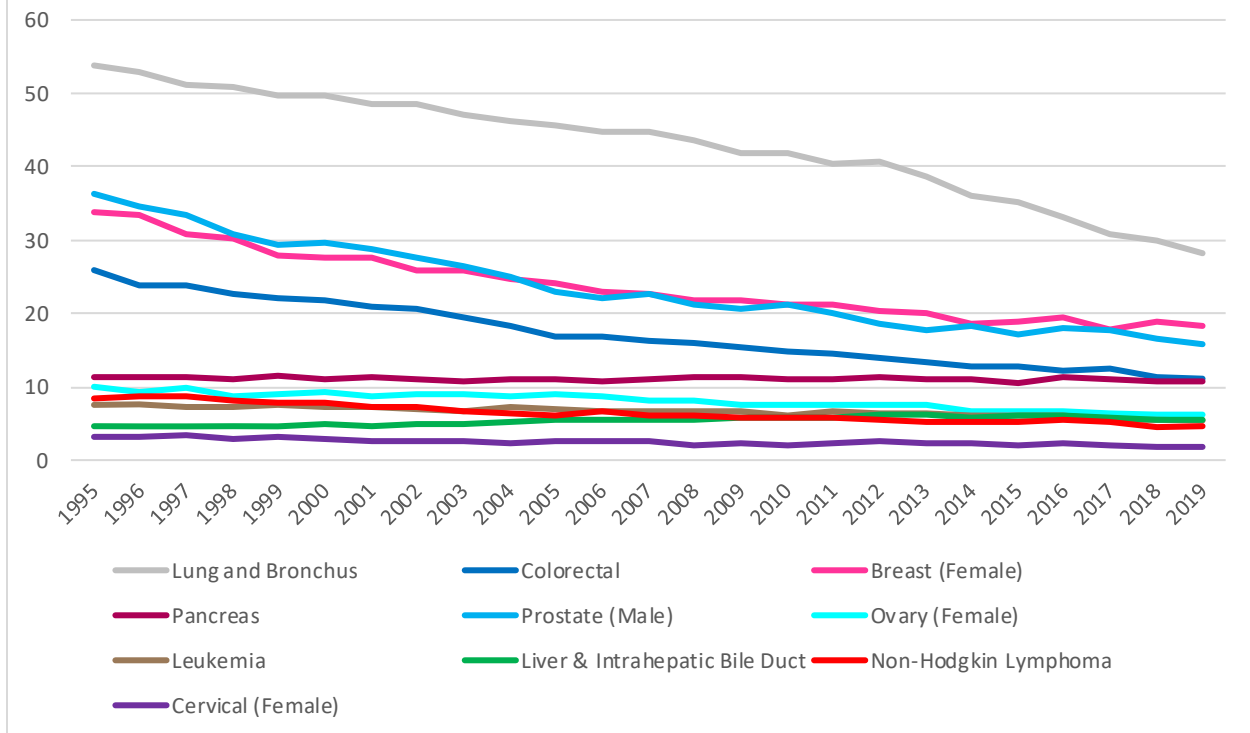
Females

New Cases*

Breast	16,819	28.9%
Lung & Bronchus	7,334	12.6%
Colorectal	4,360	7.5%
Corpus & Uterus, NOS	4,198	7.2%
Thyroid	2,972	5.1%
All Sites	58,284	100.0%

Deaths**

Lung & Bronchus	3,797	22.2%
Breast	2,514	14.7%
Colorectal	1,468	8.6%
Pancreas	1,355	7.9%
Ovary	883	5.2%
All Sites	17,105	100.0%

Males

New Cases*

Prostate	15,242	26.4%
Lung & Bronchus	6,901	11.9%
Colorectal	4,614	8.0%
Urinary Bladder (includes in situ)	4,062	7.0%
Non-Hodgkin Lymphomas	2,721	4.7%
All Sites	57,760	100.0%

Deaths**

Lung & Bronchus	3,997	23.4%
Prostate	1,713	10.0%
Colorectal	1,480	8.7%
Pancreas	1,333	7.8%
Liver & Intrahepatic Bile Duct	964	5.6%
All Sites	17,105	100.0%

*Average annual incident cases, New York State, 2015-2019
** Average annual deaths, New York State, 2015-2019
Source of data: New York State Cancer Registry

Figure 2. Cancer incidence by selected site for males and females, New York State, 1995-2019

Legend: Female Breast, Prostate, Lung & Bronchus, Colorectal, Urinary Bladder, Thyroid, Melanoma, Corpus & Uterus, NOS, Kidney & Renal Pelvis, Cervix Uteri

* Age-adjusted to the 2000 U.S. standard million population
Source of data: New York State Cancer Registry

- Prostate cancer incidence rates declined between 2008 and 2014, but the decline has since leveled off. Female breast cancer became the most frequently diagnosed cancer in New York State in 2013.

- For males and females combined, the rate of melanoma has been increasing. The rate of kidney cancer increased until 2007, but now the rate has stabilized, while thyroid cancer incidence increased dramatically through 2013, but has now begun to decline. In females, the rate of cancer of the uterus is increasing.

- The overall incidence of lung cancer has been decreasing since 1992, although incidence rates in males have been decreasing since 1990 while rates in females only began to decrease in 2008.

- Colorectal cancer has been decreasing since 1999, cervical cancer has been decreasing since 1996, and urinary bladder cancer rates have been trending downward since 2005.

Figure 3. Cancer mortality by selected site for males and females, New York State, 1995-2019

Legend:
- Lung and Bronchus
- Colorectal
- Breast (Female)
- Pancreas
- Prostate (Male)
- Ovary (Female)
- Leukemia
- Liver & Intrahepatic Bile Duct
- Non-Hodgkin Lymphoma
- Cervical (Female)

*Age-adjusted to the 2000 U.S. standard million population
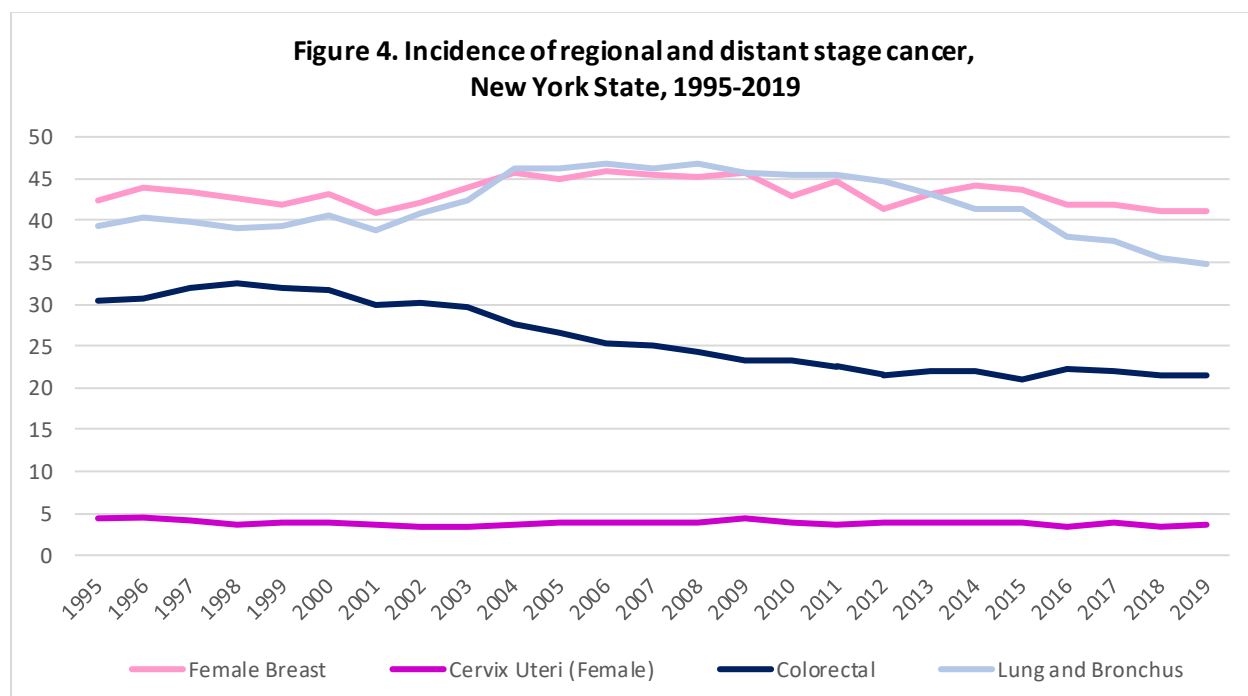
Source of data: New York State Cancer Registry

- Death rates for the leading causes of cancer death, including lung, prostate, female breast, and colorectal cancers, have been steadily decreasing. Death rates for non-Hodgkin lymphoma, leukemia, and, in females, ovarian and cervical cancers have also been declining.
- Pancreatic cancer mortality rates have declined slightly over the last 25 years.
- Liver cancer mortality rates increased through 2013 but have declined significantly since.

Stage of cancer at the time of diagnosis

Stage of disease refers to how far a cancer has spread at the time it is diagnosed. Generally, the earlier a cancer is diagnosed, the greater the chances for survival. Cancers diagnosed at a local stage of disease are confined to the organ where they started growing, while regional stage disease has spread to nearby organs or lymph nodes. Cancers diagnosed at a distant stage, where cancerous cells or tumors have spread to other parts of the body, confer the least favorable outlook.

Cancer screening is intended to detect cancers at their earliest stages, when treatment is most effective. Screening increases the proportion and rate of early stage cancers, but ultimately reduces cancer deaths. Some screening tests, such as colonoscopy for colorectal cancer and Pap smears for cervical cancer, can also detect pre-cancerous lesions, which are removed before they become cancer. This reduces the incidence of cancers at all stages and also reduces cancer deaths. In either case, increased utilization of cancer screening would be expected to reduce the incidence of cancers diagnosed at later

stages. Figure 4 illustrates changes with time in the incidence of regional- and distant-stage disease for three cancers for which screening tests have been widely used (female breast cancer, cervical cancer and colorectal cancer) and for lung cancer. Screening of high-risk individuals for lung cancer by means of helical low-dose computed tomography was first recommended in 2011, and the procedure has been covered by New York's Medicaid program since 2015.

Figure 4. Incidence of regional and distant stage cancer, New York State, 1995-2019

*Age-adjusted to the 2000 U.S. standard million population
Source of data: New York State Cancer Registry

- The diagnosis rate of regional and distant stage colorectal cancer declined between 1999 and 2012 but has not changed significantly since.
- Regional and distant stage female breast cancer rates declined between 2005 and 2019.
- Regional and distant stage diagnosis rates for cervical cancer declined through 2002, and between 2007 and 2019.
- The diagnosis rate of regional and distant stage lung cancer increased between 1993 and 2002, and began to significantly decline in 2012.

More data on cancer in New York may be found at the web site of the New York State Cancer Registry at http://www.health.ny.gov/statistics/cancer/registry/ .

IV.   Cancer-Related Health Disparities in New York

The National Cancer Institute defines cancer-related health disparities as "differences in the incidence, prevalence, mortality and burden of cancer and related adverse health conditions that exist among specific population groups. These groups may be characterized by gender, age, race, ethnicity,

education, income, social class, disability, geographic location, or sexual orientation."[9] Information on cancer outcomes in different groups can be used to focus cancer control efforts on those in greatest need, and to help understand and address the causes of these disparities. Figures 5 and 6 illustrate differences in cancer incidence and mortality for all types of cancer combined and for selected cancer types in New Yorkers of different races and ethnicities.
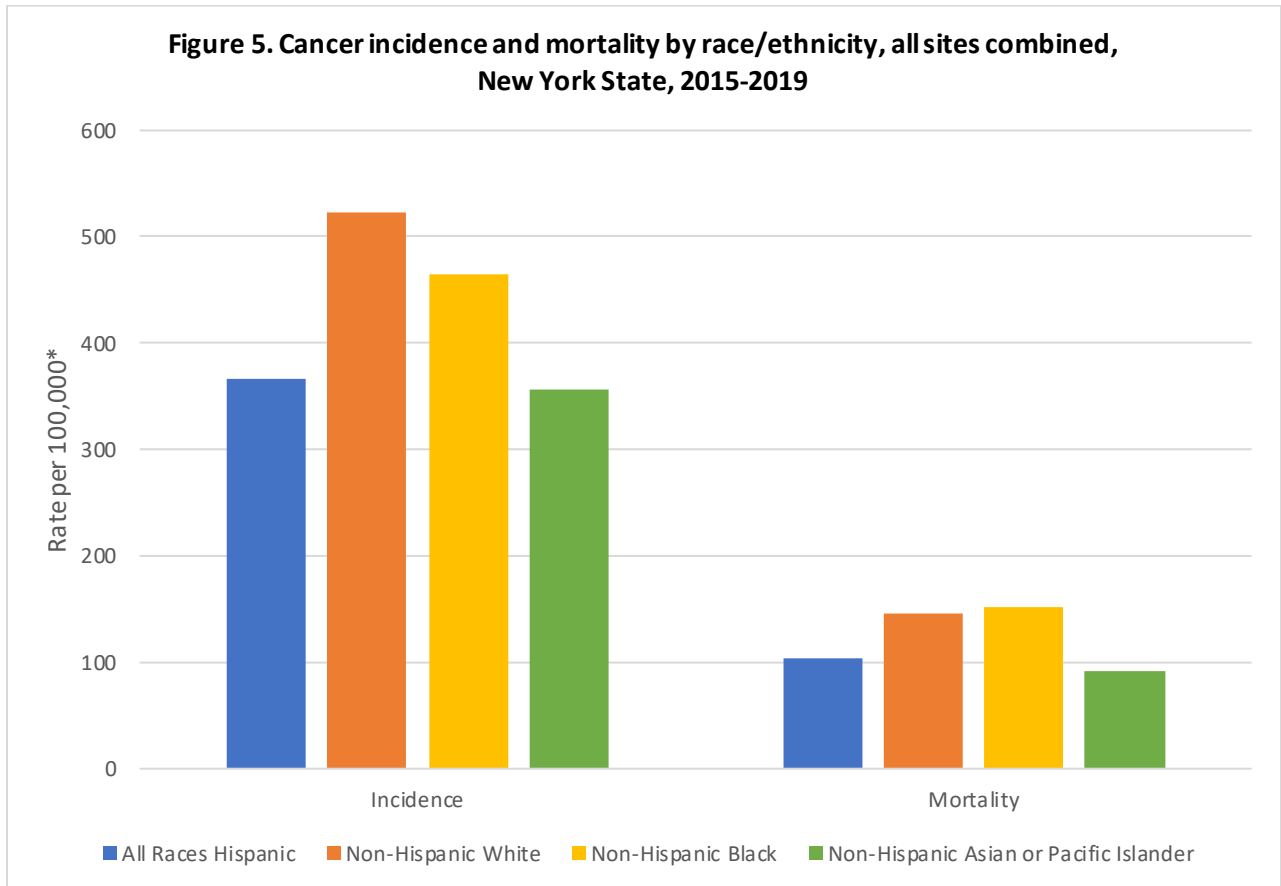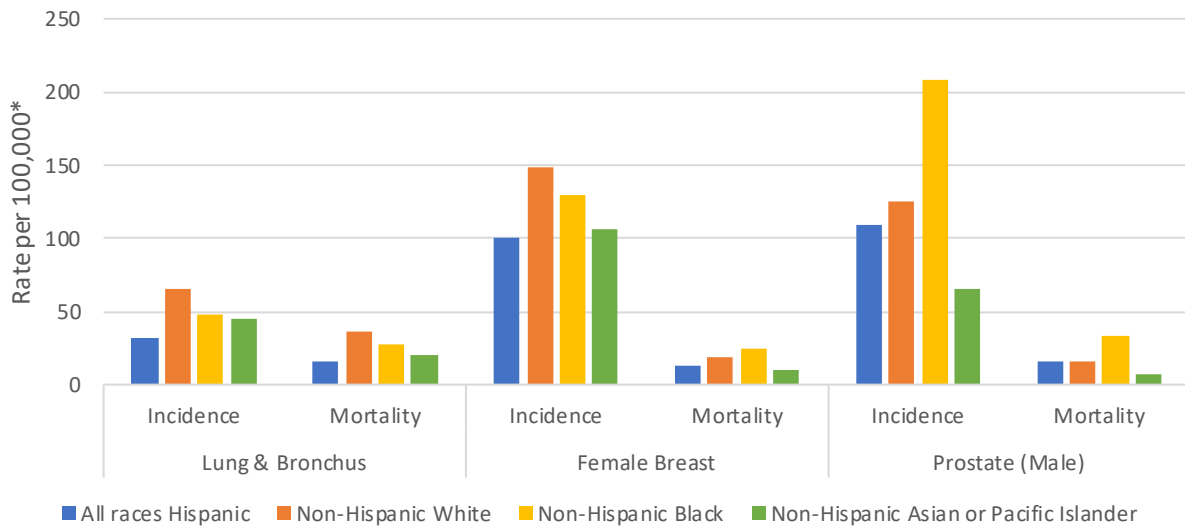

Figure 5. Cancer incidence and mortality by race/ethnicity, all sites combined, New York State, 2015-2019

*Average annual, age-adjusted to the 2000 U.S. standard million population
Source of data: New York State Cancer Registry

- Non-Hispanic whites have the highest rate of newly diagnosed cancers in New York State.
- Non-Hispanic blacks have the highest rate of death from cancer in New York State.
- Cancer incidence and mortality are lower in persons of Hispanic origin, and in non-Hispanic Asians and Pacific Islanders.
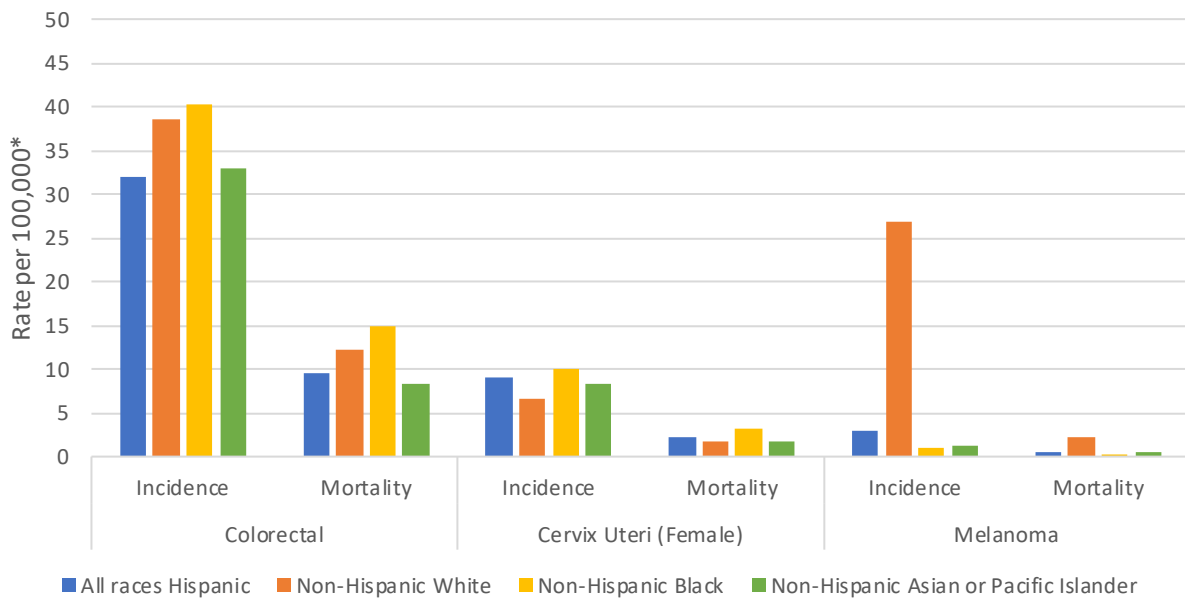
Figure 6. Cancer incidence and mortality by race/ethnicity, New York State, 2015-2019
a. Lung & Bronchus, Female Breast, Prostate (Male)

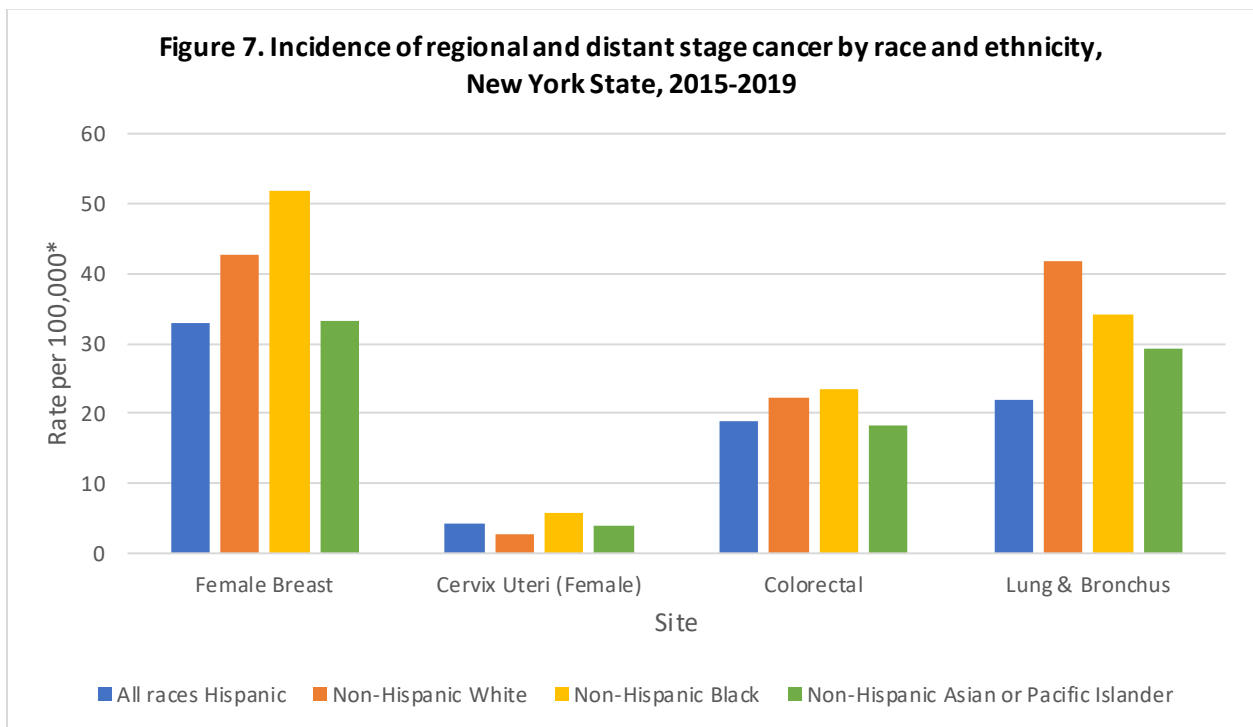**b. Colorectal, Cervix Uteri (Female), Melanoma**

*Average annual, age-adjusted to the 2000 U.S. standard million population
Source of Data: New York Cancer Registry

- Different cancers have different patterns of incidence and mortality by racial/ethnic group.
- Non-Hispanic black males have by far the highest rates of prostate cancer incidence and mortality of any racial/ethnic group.
- The incidence of breast cancer is highest among non-Hispanic white women, while mortality is highest among non-Hispanic black women.

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- Lung cancer incidence and mortality rates are highest among non-Hispanic whites.
- While non-Hispanic blacks experience the highest rates of death from colorectal cancer, incidence of this cancer is only slightly greater than in non-Hispanic whites.
- Cervical cancer incidence is higher among non-Hispanic black and Hispanic women, and cervical cancer mortality is highest among non-Hispanic black women.
- Rates of incidence and mortality from melanoma of the skin are very low among Hispanics, non-Hispanic blacks, and non-Hispanic Asians and Pacific Islanders.

Disparities also exist in the incidence of regional and distant stage disease. While some disparities may reflect the underlying occurrence of the disease, identification of groups with disproportionate incidence of regional and distant stage disease may help to inform strategies for cancer screening. Figure 7 illustrates racial and ethnic differences in the incidence of regional and distant stage disease for four cancers for which screening is currently recommended.

Figure 7. Incidence of regional and distant stage cancer by race and ethnicity, New York State, 2015-2019

*Average annual, age-adjusted to the 2000 U.S. standard million population
Source of data: New York State Cancer Registry

- The non-Hispanic black population experiences higher incidence rates of regional and distant stage disease for female breast cancer, cervical cancer, and colorectal cancer.
- The non-Hispanic white population experiences a higher incidence rate of regional and distant stage disease for lung cancer, while the Hispanic population has the lowest incidence rate.

- The non-Hispanic white population has the lowest incidence rate of regional and distant stage disease for cervical cancer.
- The non-Hispanic Asian or Pacific Islander and Hispanic populations have the lowest incidence rates for regional and distant stage female breast and colorectal cancers.
- Disparities in the incidence of regional and distant stage cancer generally parallel disparities in cancer mortality.

More data on cancer in different race/ethnic groups in New York may be found at the NYSCR web site at http://www.health.ny.gov/statistics/cancer/registry/.

The information presented above demonstrates both the magnitude and the multifaceted nature of cancer in New York. Together with an understanding of the sociodemographic and geographic context within which the cancer burden exists, this information can be used to inform and improve efforts at cancer control.

References:
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