DREXEL UNIVERSITY
Urban Health Collaborative
Dornsife School of Public Health

Department of Public Health
CITY OF PHILADELPHIA

THE STATE OF CANCER IN PHILADELPHIA

SEPTEMBER 2020

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EXECUTIVE SUMMARY

GOAL

The goal of this report is to identify and characterize disparities in cancer incidence and mortality, uses of cancer screening, and select cancer risk factors in Philadelphia between 2000-2018. The ultimate purpose is to use this information to motivate and support programs and policies aimed at reducing cancer risks and disparities.

METHODS

The report focuses on all cancers as well as on select cancer sites. The cancer sites selected for more detailed analysis were chosen based on their contribution to Philadelphia's cancer mortality and because there are existing screening or preventive measures for them. These types of cancer include cervical cancer, colorectal cancer (CRC), female breast cancer, prostate cancer, lung and bronchus cancer (henceforth referred to as lung), and liver cancer. For analyses of cancer incidence, the report relies on data from the Pennsylvania Department of Health Cancer Registry 2000-2016. For mortality, the report uses the Vital Statistics Registry supplied by the Bureau of Health Statistics & Registries, Pennsylvania Department of Health 2000-2016. For screening use and risk factors the report uses nine surveys conducted between 2000 and 2018 by the Southeastern Pennsylvania Household Health Survey developed by the Public Health Management Corporation (PHMC).

KEY FINDINGS

- Incidence and mortality for several types of common cancers are higher in Philadelphia than in Pennsylvania.
- In Philadelphia, cancer mortality is higher for African Americans than for other racial/ethnic groups and is also higher in neighborhoods with lower levels of education compared to neighborhoods with higher levels of education.
- Yet Philadelphia residents, including African Americans, have high rates of screening for most common cancers.
- Although incidence and mortality rates for many cancers have been decreasing over the past few years, liver cancer incidence and mortality have increased in men and women and breast cancer incidence and lung cancer incidence have increased in black women.
- Cancer risk factors are strongly patterned by a person's education with lower education having higher levels of risk factors than more educated persons.
- In the period analyzed, progress on cancer risk factors was mixed. Smoking rates went down, as did rates of sugary drink consumption, and rates of physical activity went up. But obesity, diabetes and binge drinking rates also rose, and fruit and vegetable consumption remains at very low rates.

RECOMMENDATIONS

Healthcare providers, researchers, policy makers, and government agencies should implement effective programs and policies to:

- Further reduce the high rates of tobacco use among Philadelphians, particularly for populations with higher current use.
- Reverse the rising rate of obesity among adults, with particular focus on efforts that make healthy food and an active lifestyle readily available and affordable, while decreasing the saturation of unhealthy food in geographic areas.
- Further investigate and address the disparities highlighted throughout this report.
- Ensure universal access to and awareness of recommended cancer screenings and quality treatment.

People should:

- Avoid behaviors that increase cancer risk, particularly smoking and binge drinking.
- Eat healthier foods, particularly fresh fruits and vegetables, and avoid junk food.
- Increase physical activity levels, including walking regularly.
- Talk with your primary care doctor about recommended cancer screenings.

INTRODUCTION

Cancer remains a leading cause of death. Modifiable risk factors for cancer include cigarette smoking, excessive alcohol use, lack of physical activity, diets low in fruits and vegetables and whole grains, and obesity. For some cancers, early detection via screening can improve outcomes. Characterizing the burden of cancer (in terms of new cases diagnosed and deaths attributed to cancer) as well as the prevalence of cancer risk factors and the use of recommended cancer screening approaches can help develop and target public health policies and programs aimed at reducing cancer incidence and mortality. This information can also be useful for reducing differences in cancer by race and ethnicity or socioeconomic factors.

The goal of this report is to identify and characterize disparities in cancer incidence and mortality, uses of cancer screening, and cancer risks factors in Philadelphia between 2000-2018 The ultimate purpose is to use this information to motivate and support programs and policies aimed at reducing cancer risks and disparities in cancer risks.

The report focuses on all cancers as well as on select cancer sites. The cancer sites selected for more detailed analysis were chosen based on their contribution to Philadelphia's cancer burden and because there are existing screening or preventive measures for them. These types of cancer include cervical cancer, colorectal cancer (CRC), female breast cancer, prostate cancer, lung and bronchus cancer (henceforth referred to as lung), and liver cancer. For analyses of cancer incidence, the report relies on data from the Pennsylvania Department of Health Cancer Registry 2000-2016. For mortality, the report uses the Vital Statistics Registry supplied by the Bureau of Health Statistics & Registries, Pennsylvania Department of Health 2000-2016. For screening use and risk factors the report uses nine surveys conducted between 2000 and 2018 by the Southeastern Pennsylvania Household Health Survey developed by the Public Health Management Corporation (PHMC). Screening outcomes described include screening for colorectal cancer, breast cancer, and cervical cancer. Risk factors described include obesity, diabetes, current smoking status, physical activity, fruit and vegetable consumption, binge drinking, and sugar-sweetened beverage consumption.

For each set of outcomes (cancer incidence, cancer mortality, screening and related risks factors) we estimated age-adjusted rates and prevalence by sex using Bayesian statistical modeling (see Technical Appendix). The 95% credible intervals around the estimated age-adjusted rates and prevalences were used to illustrate precision of the estimates.

We compared levels for Philadelphia to Pennsylvania as a whole and described trends over time. We stratified analyses by race/ethnicity (non-Hispanic white (NHW), non-Hispanic black (NHB), Hispanic), socioeconomic position (as proxied by census tract education or self-reported education) and place of birth (as proxied by self-reported place of birth). The report describes key patterns and trends. Statistical tests derived from 95% credible intervals are used to identify annual percent changes over time that differ from no change as well as statistically significant differences in prevalences across groups.

The report is organized into three sections. **Section 1: Characterizing the Burden of Cancer in Philadelphia** describes cancer incidence and mortality for all cancers and by cancer site; **Section 2: Cancer Screening in Philadelphia** describes colorectal, breast and cervical cancer screening; and **Section 3: Cancer Risk Factors in Philadelphia** describes risk factor prevalence and trends.

In each section, we first contrast Philadelphia with Pennsylvania. We then describe rates and prevalences based on data for the most recent years available followed by an examination of trends over the past 10-15 years. We then review differences in recent years and in trends over time by race/ethnicity, socioeconomic position, and (in some cases) place of birth. Additional details on data and methods can be found in the technical appendix.

SECTION 1: CHARACTERIZING THE BURDEN OF CANCER IN PHILADELPHIA

CANCER INCIDENCE AND MORTALITY RATES IN PHILADELPHIA

Key Findings: Cancer incidence and mortality in 2016

Colorectal, lung, prostate, liver, and cervical cancer incidences were higher in Philadelphia than in Pennsylvania. Breast cancer incidence was lower in Philadelphia than in Pennsylvania.

Colorectal, lung, prostate, liver, breast and cervical cancer mortality rates were higher in Philadelphia than in Pennsylvania.

Philadelphia has a similar cancer incidence (478 cases of cancer per 100,000 persons in 2016, age-adjusted to the U.S. 2000 population) to the State of Pennsylvania (474 per 100,000 in 2016, age-adjusted to U.S. 2000 standard). However, Philadelphia has a higher cancer mortality rate (190 per 100,000) than Pennsylvania as a whole (164 per 100,000, all for 2016 age standardized to the U.S. 2000 population). Based on the latest data available, both Philadelphia and Pennsylvania do not meet the Healthy People 2020 cancer mortality goal of 161 deaths from cancer per 100,000 persons in the population.

In 2016, there were 7,972 cancer diagnoses and 3,127 cancer deaths in Philadelphia. The five most common types of incident cancer were lung and bronchus (henceforth referred to as lung) cancer, breast cancer, prostate cancer, colorectal cancer, and kidney and renal pelvis cancer (16%, 14%, 13%, 9%, and 4% of all cancer incident cases respectively). The five most common types of cancer deaths were lung cancer, colorectal cancer, female breast cancer, pancreatic cancer, and prostate cancer (26%, 10%, 7%, 7%, and 6% of all cancer deaths respectively).

This report focuses on six cancer sites with high burden and/or for which screening and preventive measures exist. These cancers include cervical cancer, colorectal cancer (CRC), female breast cancer, prostate cancer*, lung cancer, and liver cancer. These six cancer sites account for 56% of all new cancers diagnosed in 2016 (breast=1,107 (14%); prostate=1,053 (13%); cervical=97 (1%); lung=1,273 (16%); CRC=739 (9%); liver=231 (3%). They also account for 55% of cancer deaths in 2016: breast=224 (7%); prostate=186 (6%); cervical=26 (1%); lung=824 (26%); CRC=315 (10%); liver=153 (5%).

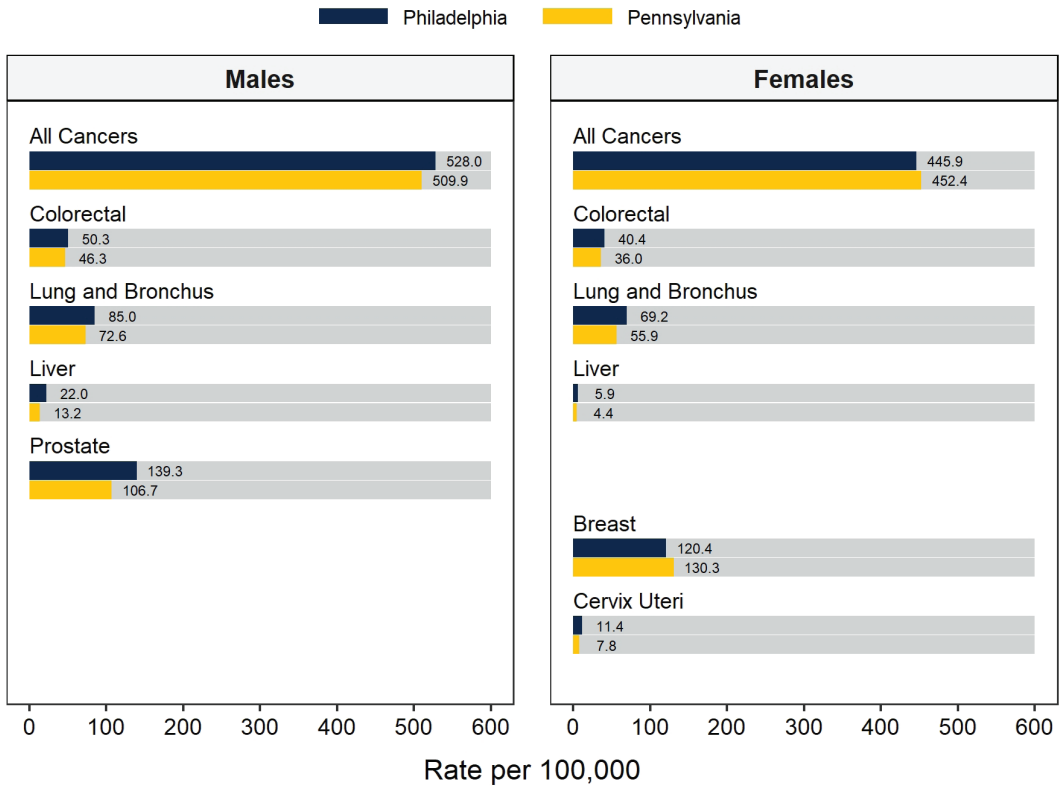
Age-adjusted colorectal, lung, prostate, liver, and cervical cancer incidence were higher in Philadelphia than in Pennsylvania. Breast cancer incidence was lower in Philadelphia than in Pennsylvania (Figure 1).

The most diagnosed cancer in men living in Philadelphia was prostate cancer (139 per 100,000), and the most diagnosed cancer in women in Philadelphia was breast cancer (120 per 100,000).

Age-adjusted mortality rates for colorectal, lung, prostate*, liver, breast and cervical cancer mortality rates were higher in Philadelphia than in Pennsylvania (Figure 2). The leading cause of cancer death was lung cancer for both men (62 per 100,000) and women (41 per 100,000) (Figure 2).

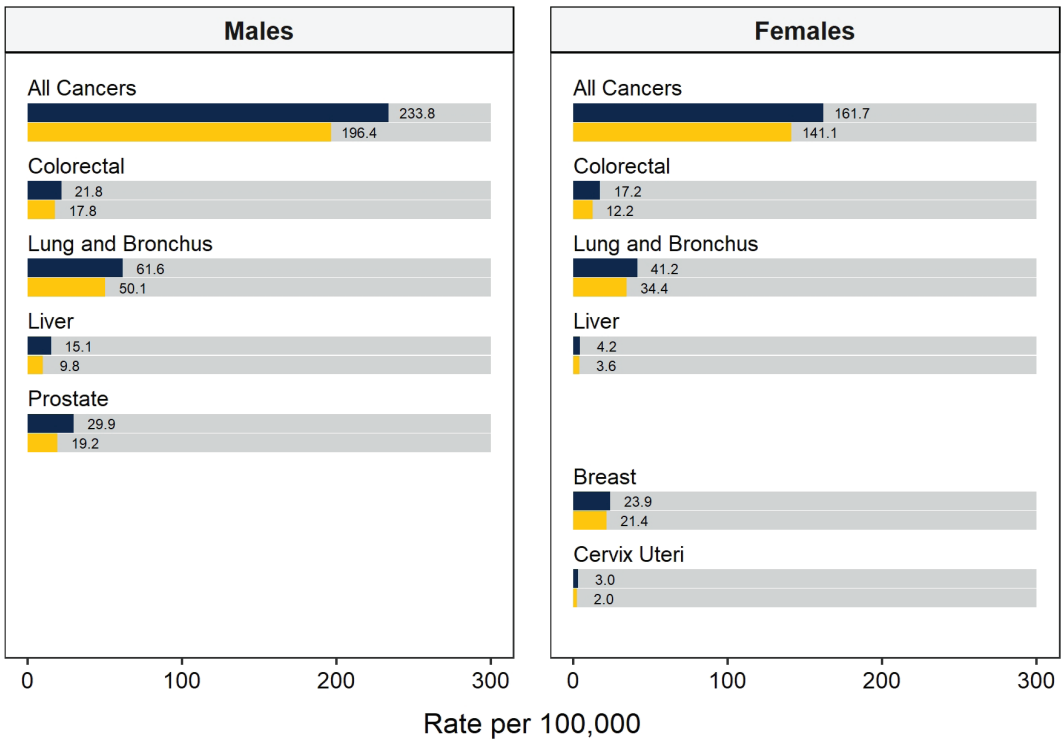
* Note that prostate cancer screening was not analyzed because of a lack of clear guidance regarding screening. During the study period (2000-present), recommendations from the American Cancer Society (ACS) and the US Preventive Services Task Force (USPSTF) differed regarding the advisability of prostate cancer screening. Currently, neither organization recommends routine screening. The lack of clear recommendations reflects concerns about the benefits and risks of screening, including the benefits and risks of interventions following a positive screening test.

Figure 1. Age-adjusted incidence rates for all cancers and select cancer sites for Philadelphia and Pennsylvania 2016



Data Sources: Pennsylvania Cancer Registry for Philadelphia and Pennsylvania Department of Health, Enterprise Data Dissemination Informatics Exchange (EDDIE) for Pennsylvania
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted using the direct method to the 2000 U.S. standard million population

Figure 2. Age-adjusted mortality rates for all cancers and select cancer sites for Philadelphia and Pennsylvania 2016

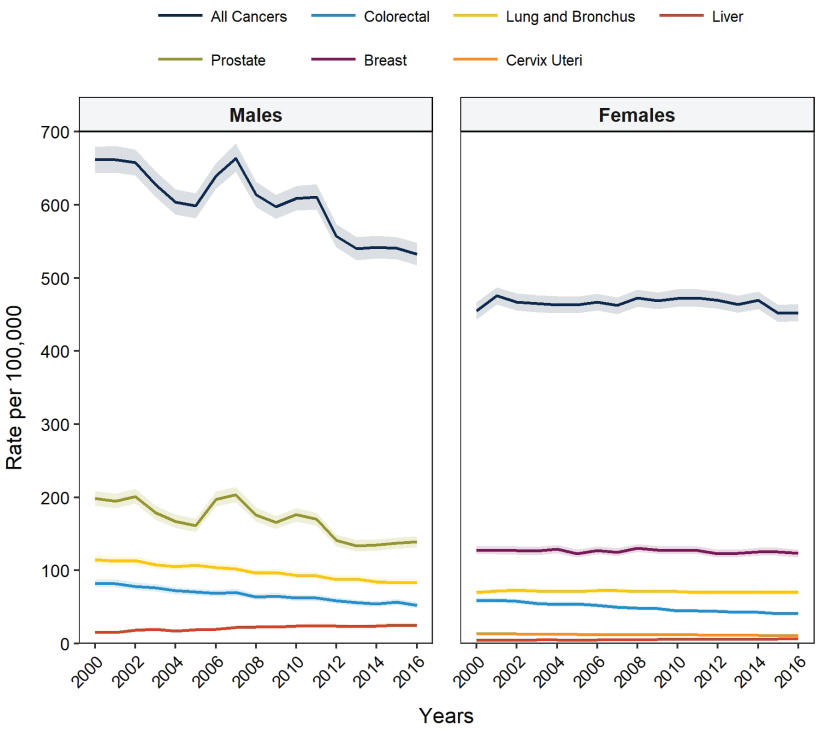


Data Sources: Pennsylvania Vital Statistics Registry for Philadelphia and Pennsylvania Department of Health, Enterprise Data Dissemination Informatics Exchange (EDDIE) for Pennsylvania
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted using the direct method to the 2000 U.S. standard million population

CANCER INCIDENCE AND MORTALITY TRENDS IN PHILADELPHIA BETWEEN 2000 AND 2016

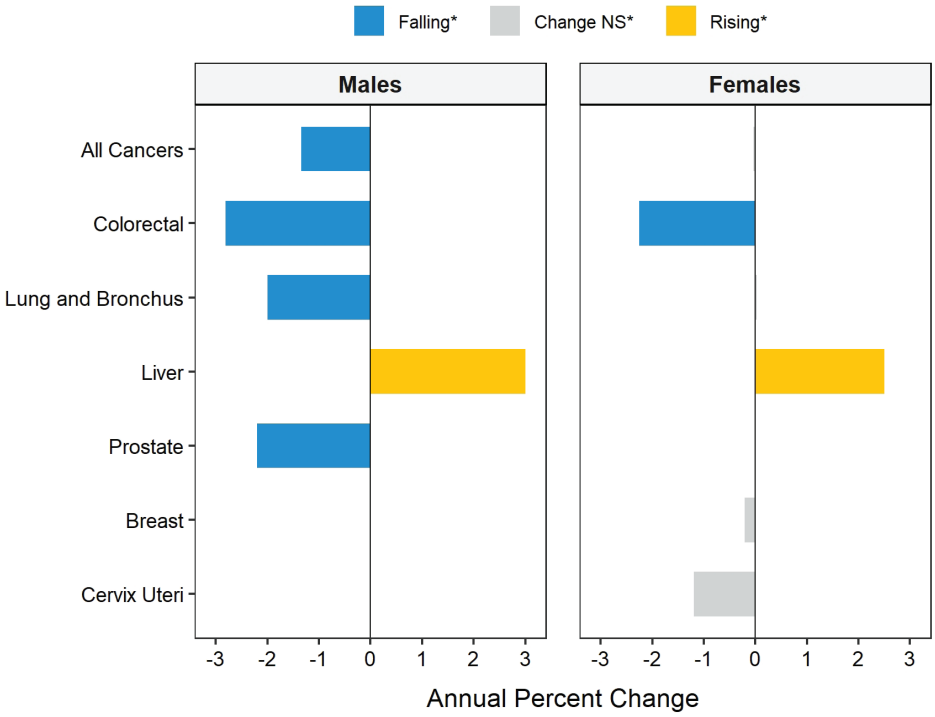
Between 2000 and 2016, incidence of all cancers decreased in men but remained approximately stable in women (Figure 3). Trends differed across the cancer sites investigated. In men, decreases were observed for CRC, lung, and prostate cancers but increases were observed for liver cancer (Figure 4). In women, incidence of CRC also decreased, but incidence of lung cancer, breast cancer, and cervical cancers were approximately stable, and liver cancer incidence increased (Figure 4).

Figure 3. Trends in age-adjusted incidence rates for all cancers and select cancer sites, Philadelphia 2000-2016



Data Source: Pennsylvania Cancer Registry
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted incidence rates standardized to the 2000 U.S. standard million population using a Bayesian model (see technical appendix).
Shaded portion represents 95% credible intervals

Figure 4. Average annual percent change in age-adjusted incidence rates for all cancers and select cancer sites, Philadelphia 2000-2016



Data Source: Pennsylvania Cancer Registry
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted incidence rates standardized to the 2000 U.S. standard million population using a Bayesian model (see technical appendix).
NS=Not statistically significant. Statistical significance determined from 95% credible interval of average change from Bayesian models

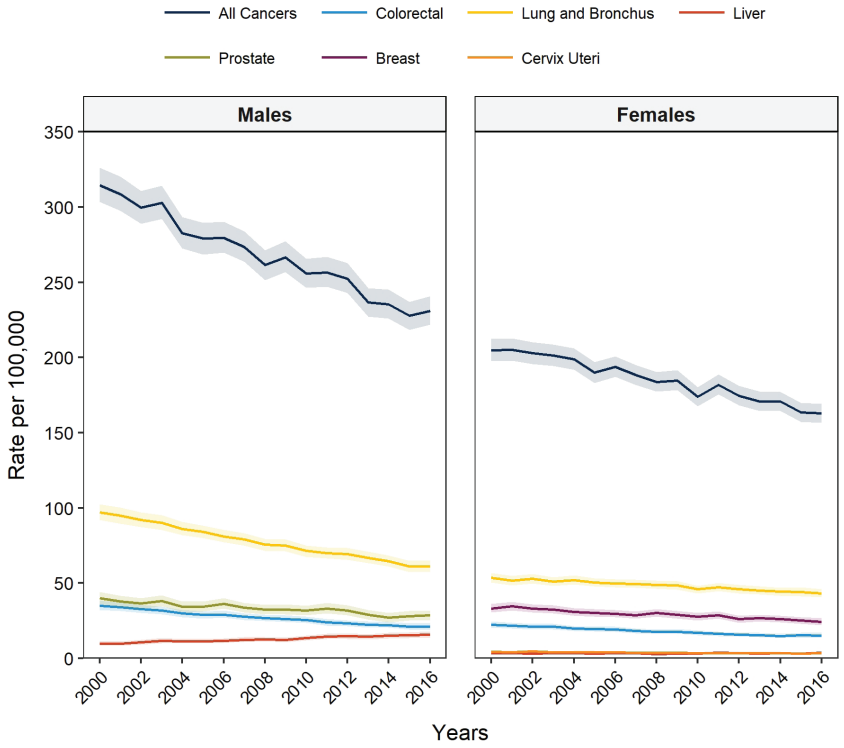
Key Findings: Trends in cancer mortality and incidence between 2000 and 2016

Liver cancer incidence increased in both men and women. CRC incidence decreased in both men and women. In men, lung, and prostate cancer incidence also decreased. In women, incidence of lung cancer, breast cancer, and cervical cancers were approximately stable. However, breast cancer incidence and lung cancer incidence increased in black women.

Mortality rates for CRC, lung cancer, and prostate cancer decreased. The decrease in lung cancer mortality was smaller in women than in men. Breast cancer mortality decreased but the decrease was smaller in black women. Cervical cancer mortality decreased in black women but remained about stable in other women. Liver cancer mortality increased in men but remained about stable in women.

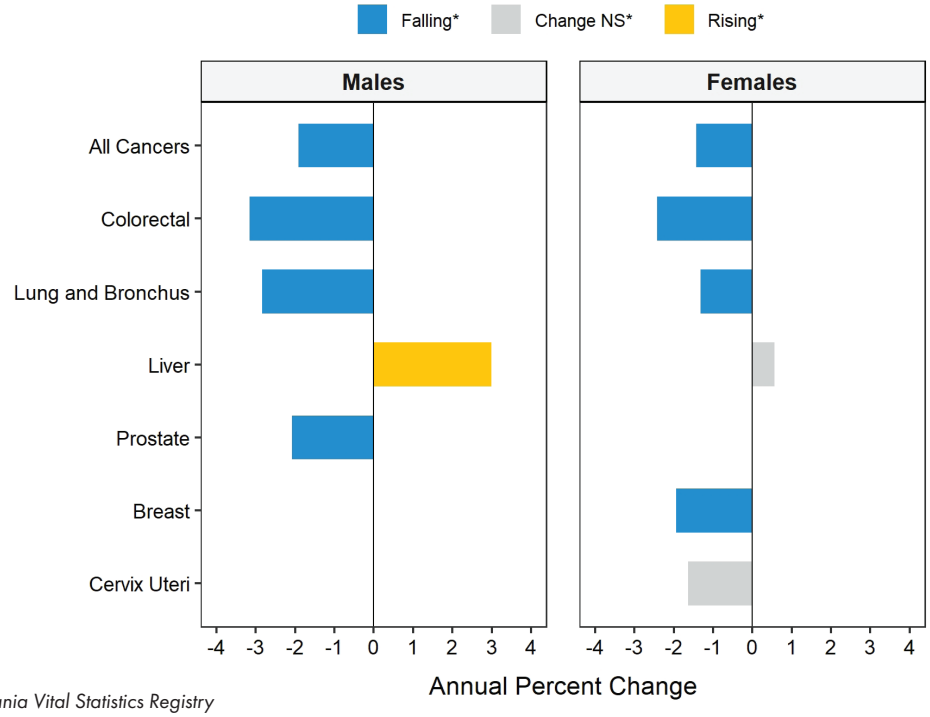
Between 2000 and 2016 mortality for all cancers decreased in both men and women (Figure 5). Some differences by cancer sites were observed. In men, mortality rates decreased for CRC, lung cancer, and prostate cancer, but increased for liver cancer. In women, mortality rates decreased for CRC, lung, and breast cancer but remained approximately stable for cervical cancer and liver cancer (Figure 6).

Figure 5. Trends in age-adjusted mortality rates for all cancers and select cancer sites, Philadelphia 2000-2016



Data Source: Pennsylvania Vital Statistics Registry
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted mortality rates standardized to the 2000 U.S. standard million population using a Bayesian model (see technical appendix).
Shaded portion represents 95% credible intervals

Figure 6. Average annual percent change in age-adjusted mortality rates for all cancers and select cancer sites, Philadelphia 2000-2016



Data Source: Pennsylvania Vital Statistics Registry
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted mortality rates standardized to the 2000 U.S. standard million population using a Bayesian model (see technical appendix).
NS=Not statistically significant. Statistical significance determined from 95% credible interval of average change from Bayesian models

CANCER INCIDENCE AND MORTALITY BY RACE/ETHNICITY

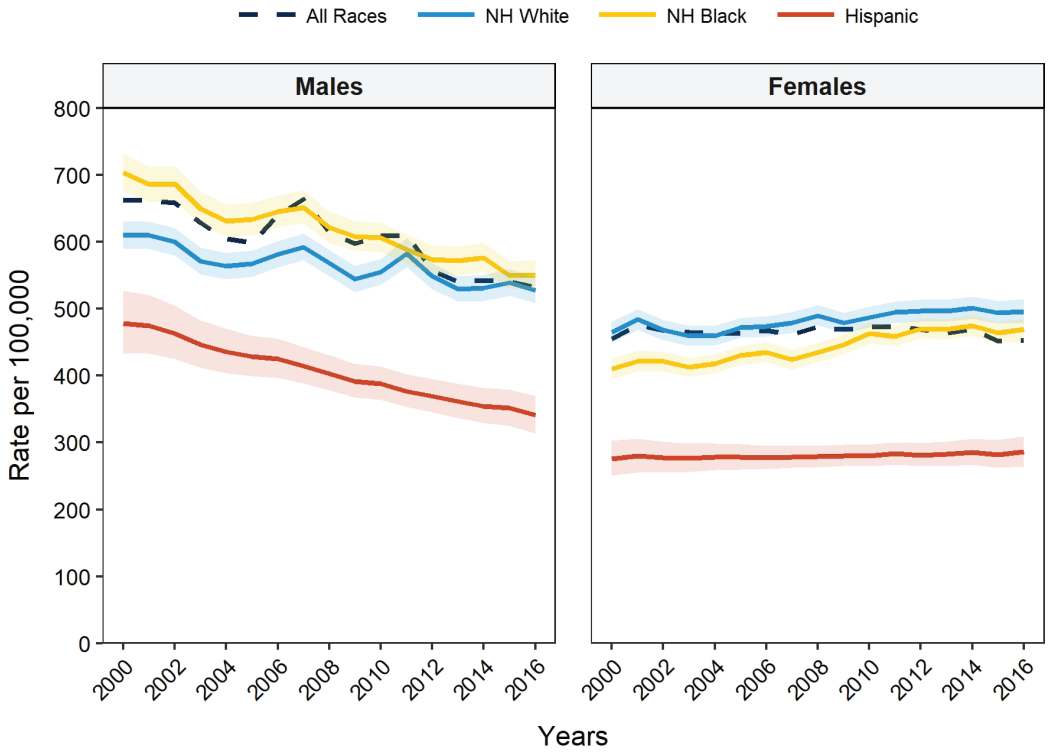
CANCER INCIDENCE BY RACE/ETHNICITY[†]

Incidence of all cancer

In men, all cancer incidence was highest in black men, followed by whites, and lowest in Hispanics (Figure 7). In women, all cancer incidence was highest in white women, followed by black women, and lowest in Hispanics (Figure 7).

In men, all cancer incidence decreased in all three race/ethnic groups between 2000 and 2016 (Figure 8). In women, all cancer incidence increased in black and white women but remained stable in Hispanic women (Figure 8).

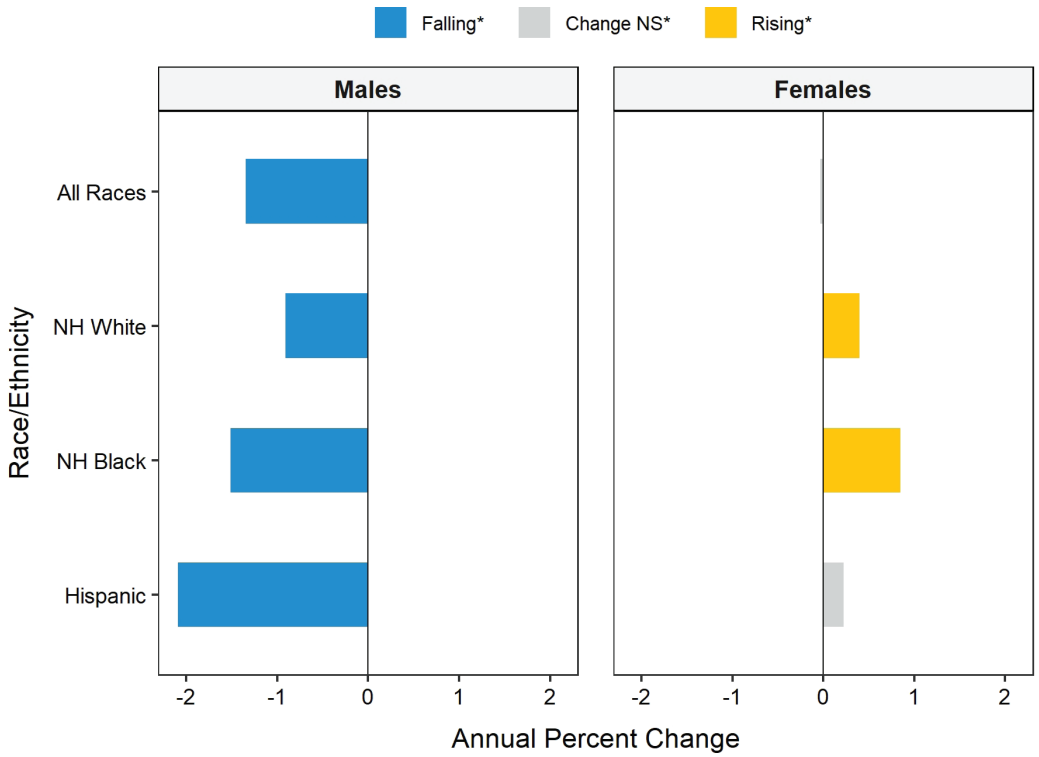
Figure 7. Trends in age-adjusted incidence rates for all cancers by sex and race/ethnicity, Philadelphia 2000-2016



Data Source: Pennsylvania Cancer Registry
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted incidence rates standardized to the 2000 U.S. standard million population using a Bayesian model (see technical appendix).
Shaded portion represents 95% credible intervals

[†]Note that in the case of cancer incidence stratified by race/ethnicity, the category labeled as "All Races" includes other race/ethnicities and missing race/ethnicities which in some cases can represent up to 27.4% for women and 21.4% for women of the incident cases in some years.

Figure 8. Average annual percent change in age-adjusted cancer incidence rates for all cancers by sex and race/ethnicity, Philadelphia 2000-2016



Data Source: Pennsylvania Cancer Registry
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted incidence rates standardized to the 2000 U.S. standard million population using a Bayesian model (see technical appendix).
NS=Not statistically significant. Statistical significance determined from 95% credible interval of average change from Bayesian models

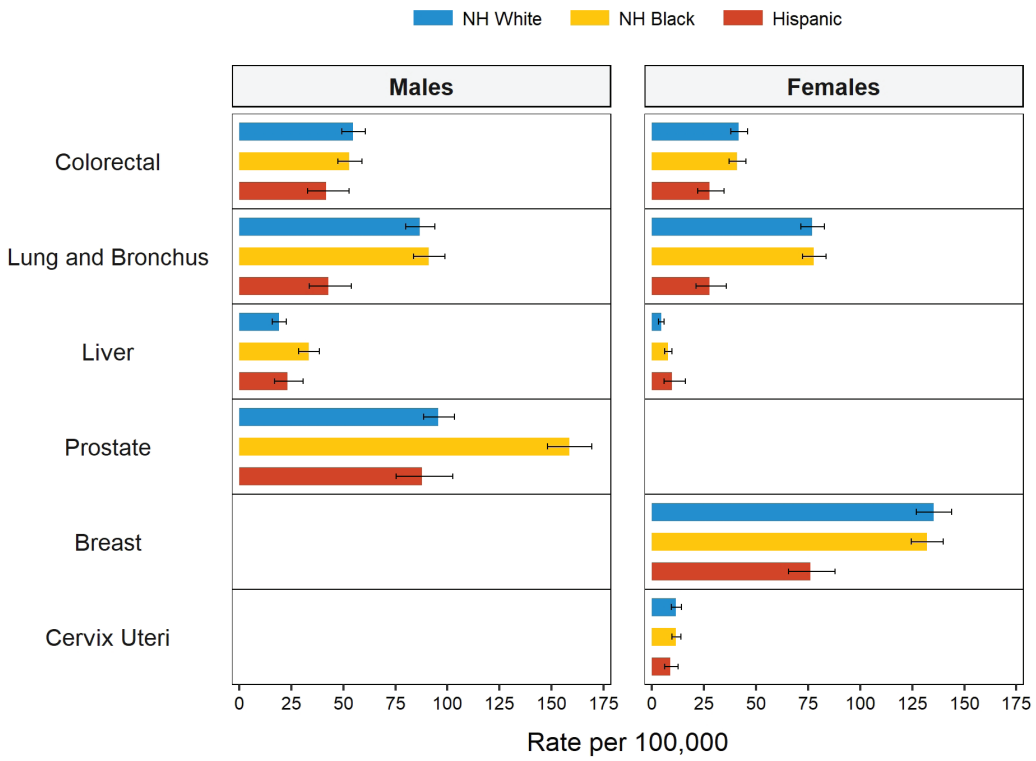
Incidence by cancer site

Incidence rates of lung cancer and CRC were similar in whites and blacks and lower in Hispanics for both men and women. Black men had higher incidence of prostate cancer and liver cancer than white or Hispanic men. Incidence of breast cancer was similar in white and black women and lower in Hispanic women (Figure 9).

In men, colorectal, lung and prostate cancer incidence decreased between 2000-2016 in all race/ethnic groups. Liver cancer incidence increased in black and white men but remained about stable in Hispanic men (Figure 10).

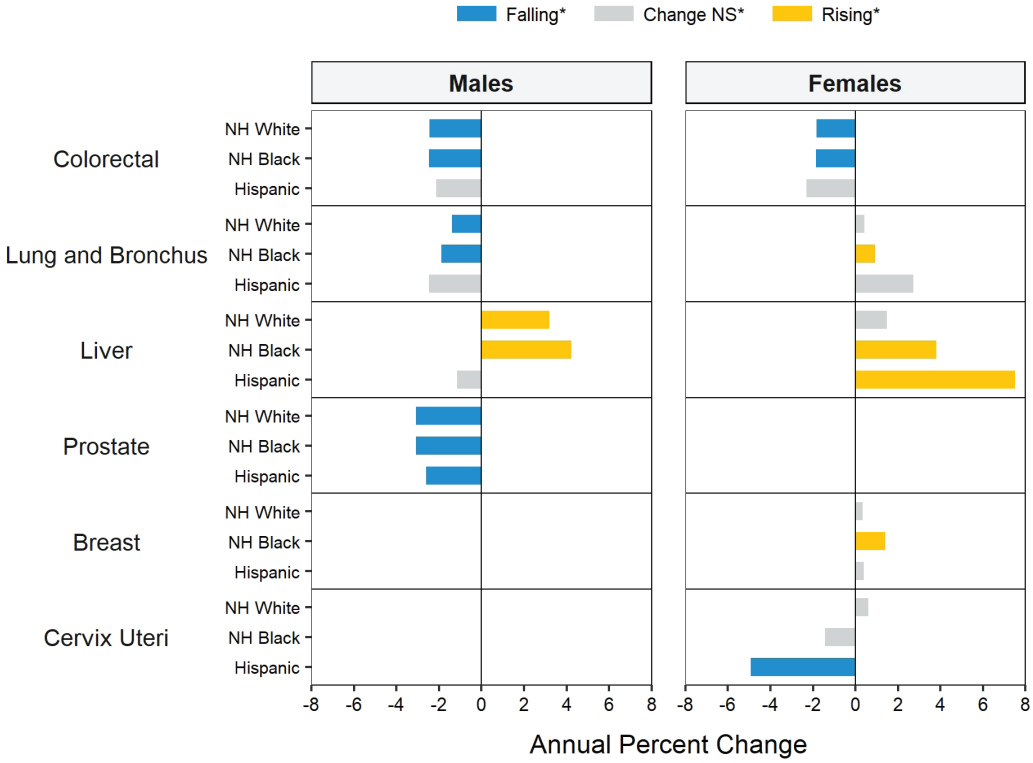
In women, colorectal cancer incidence decreased between 2000-2016 in all race/ethnic groups. Liver cancer incidence increased in black and Hispanic women but remained stable in white women. Breast cancer incidence increased in black women but remained about stable in other groups. Lung cancer incidence increased in black women and in Hispanic women (although the increase in Hispanic women was not statistically significant). Cervical cancer incidence decreased in Hispanic women (Figure 10).

Figure 9. Age-adjusted incidence rates of select cancer sites by sex and race/ethnicity, Philadelphia 2016



Data Source: Pennsylvania Cancer Registry
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted incidence rates standardized to the 2000 U.S. standard million population using a Bayesian model (see technical appendix).
Confidence bars represents 95% credible intervals

Figure 10. Average annual percent change in age-adjusted cancer incidence rates of select cancer sites by sex and race/ethnicity, Philadelphia 2000-2016



Data Source: Pennsylvania Cancer Registry
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted incidence rates standardized to the 2000 U.S. standard million population using a Bayesian model (see technical appendix).
NS=Not statistically significant. Statistical significance determined from 95% credible interval of average change from Bayesian models

Key Findings: Cancer incidence and mortality by race and ethnicity in 2016

Black men had higher incidence of prostate cancer and liver cancer than white or Hispanic men. Incidence rates of lung cancer, CRC and breast cancer were similar in whites and blacks and lower in Hispanics.

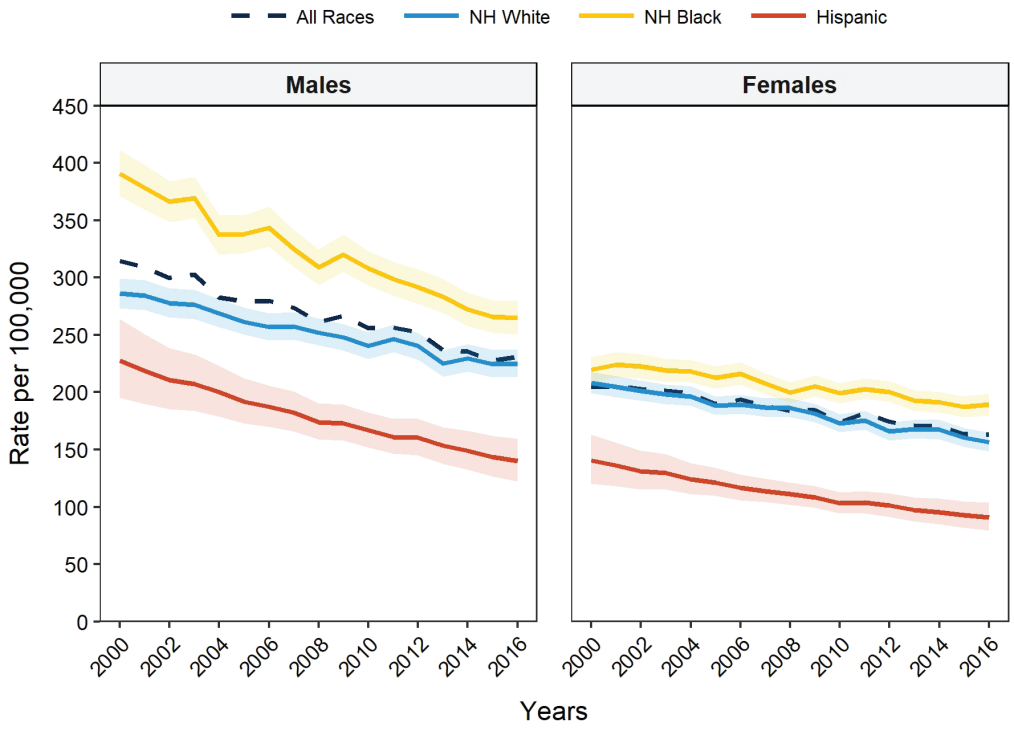
Mortality rates for lung cancer, CRC, liver cancer, prostate cancer and breast cancer were higher in black men and women than in other groups.

CANCER MORTALITY BY RACE/ETHNICITY‡

Mortality for all cancers

In both men and women, cancer mortality was highest among blacks, intermediate in whites and lowest in Hispanics (Figure 11). All cancer mortality decreased between 2000 and 2016 in all three race/ethnic groups and in both sexes (Figure 12).

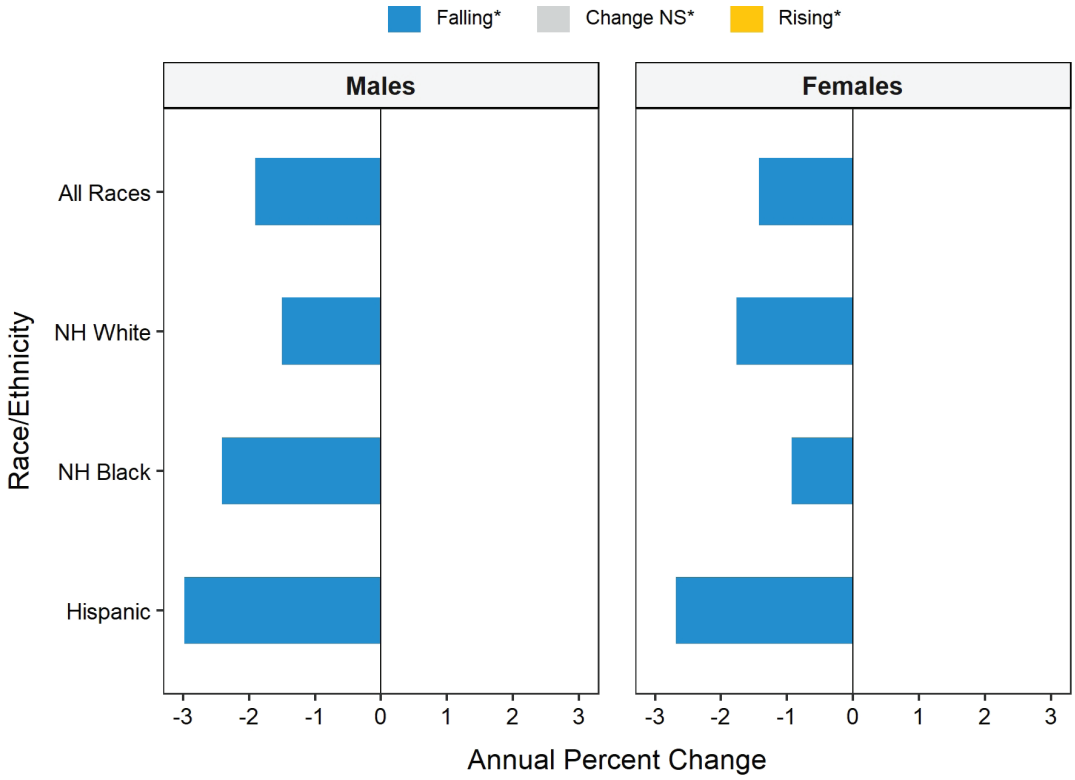
Figure 11. Trends in age-adjusted mortality rates for all cancers by sex and race/ethnicity, Philadelphia 2000-2016



Data Source: Pennsylvania Vital Statistics Registry
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted mortality rates standardized to the 2000 U.S. standard million population using a Bayesian model (see technical appendix).
Shaded portion represents 95% credible intervals

‡ Note that in the case of cancer mortality stratified by race/ethnicity, the category labeled as "All Races" includes other race/ethnicities and missing race/ethnicities which in some cases can represent up to 10.8% for men and 19.5% for women of the deaths in some years.

Figure 12. Average annual percent change in age-adjusted cancer mortality rates for all cancers by sex and race/ethnicity, Philadelphia 2000-2016



Data Source: Pennsylvania Vital Statistics Registry
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted mortality rates standardized to the 2000 U.S. standard million population using a Bayesian model (see technical appendix).
NS=Not statistically significant. Statistical significance determined from 95% credible interval of average change from Bayesian models

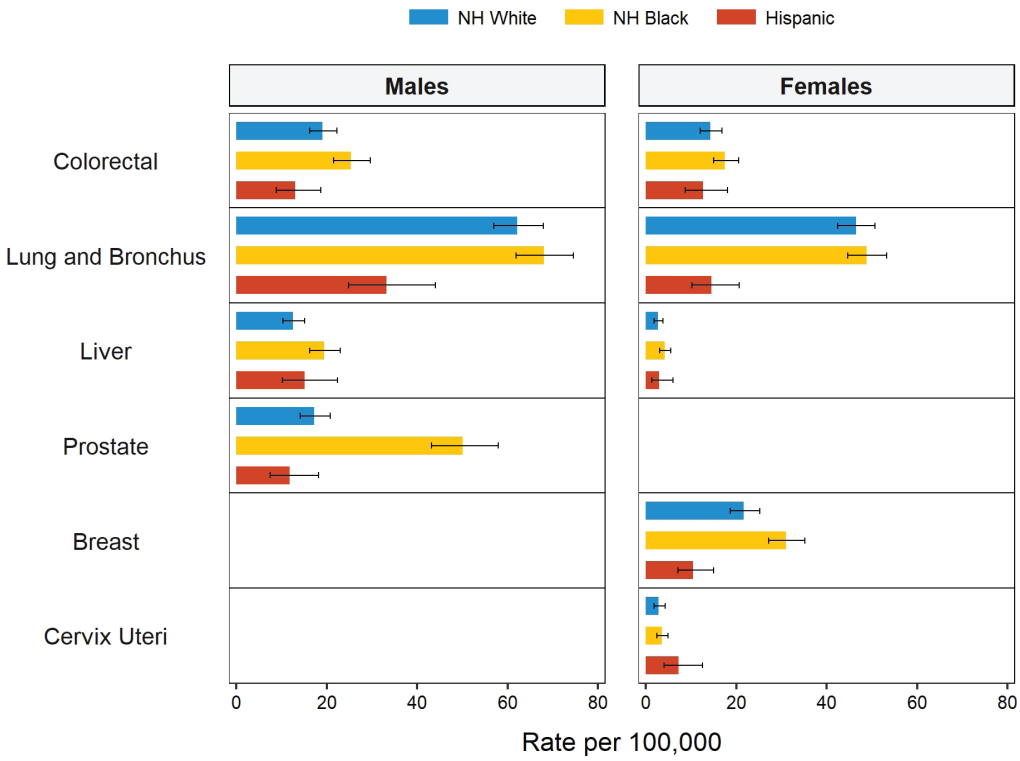
Mortality by cancer site

In both men and women lung cancer, CRC and liver cancer mortality were higher among blacks than in other groups. Prostate cancer mortality was higher in black men than in white or Hispanic men. Breast cancer mortality was higher in black women than in white or Hispanic women (Figure 13).

In men, colorectal, lung and prostate cancer mortality decreased in all race/ethnic groups between 2000 and 2016. Liver cancer mortality increased in blacks and whites but remained stable in Hispanics (Figure 14).

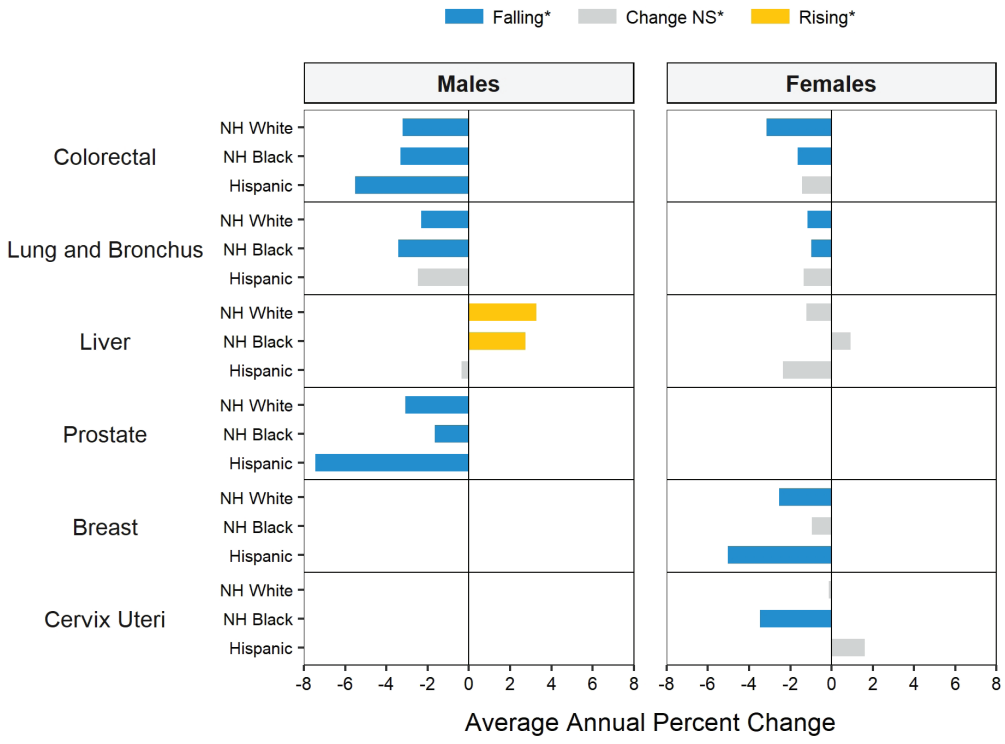
In women, colorectal and lung cancer mortality decreased in all race/ethnic groups between 2000 and 2016. However, the decrease in lung cancer mortality was smaller in women than in men. Breast cancer mortality decreased less in black women than in other women. Cervical cancer mortality decreased more in black women than in other women (Figure 14).

Figure 13. Age-adjusted mortality rates of select cancer sites by sex and race/ethnicity, Philadelphia 2016



Data Source: Pennsylvania Vital Statistics Registry
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted mortality rates standardized to the 2000 U.S. standard million population using a Bayesian model (see technical appendix).
Confidence bars represents 95% credible intervals

Figure 14. Average annual percent change in age-adjusted cancer mortality rates of select cancer sites by sex and race/ethnicity, Philadelphia 2000-2016



Data Source: Pennsylvania Vital Statistics Registry
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted mortality rates standardized to the 2000 U.S. standard million population using a Bayesian model (see technical appendix).
NS=Not statistically significant. Statistical significance determined from 95% credible interval of average change from Bayesian models

CANCER INCIDENCE AND MORTALITY BY SOCIOECONOMIC POSITION (SEP)

Key Findings: Cancer incidence and mortality by neighborhood education in 2016

Cancer incidence was higher in lower education neighborhoods than in higher education neighborhoods. This was true for all cancer sites investigated except breast cancer.

Cancer mortality was higher in lower education neighborhoods than in higher education neighborhoods for all cancer sites investigated.

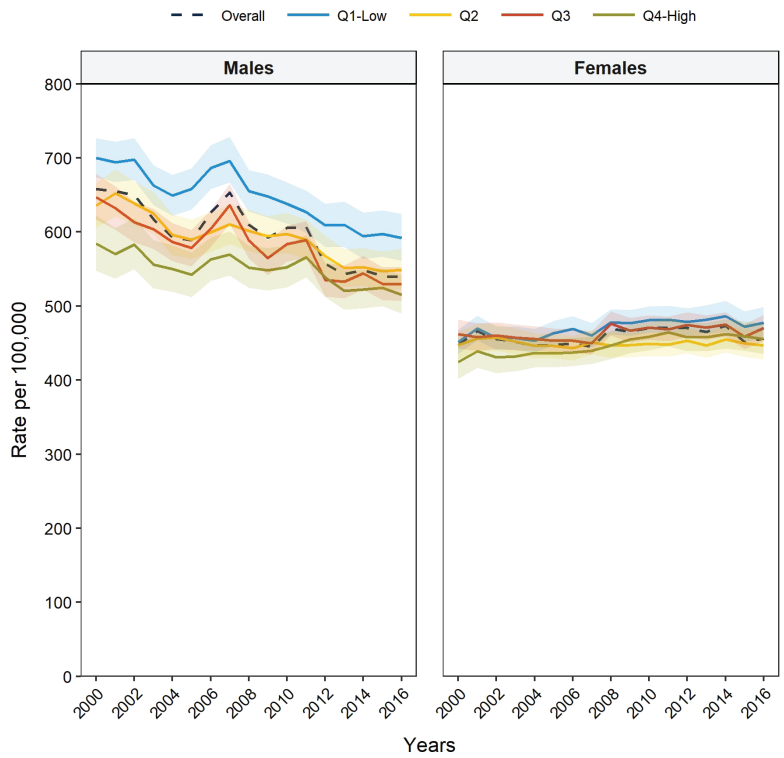
Due to the absence of reliable individual-level measures of socioeconomic position (SEP) on cancer registries and death certificates, we used census tract level (or neighborhood level) educational attainment (specifically percent of residents with a minimum of bachelor's degree) as a proxy for SEP. A low percentage of persons with a minimum of bachelor's degree indicates low SEP and a high percentage indicates high SEP.

CANCER INCIDENCE BY SEP

Incidence for all cancers

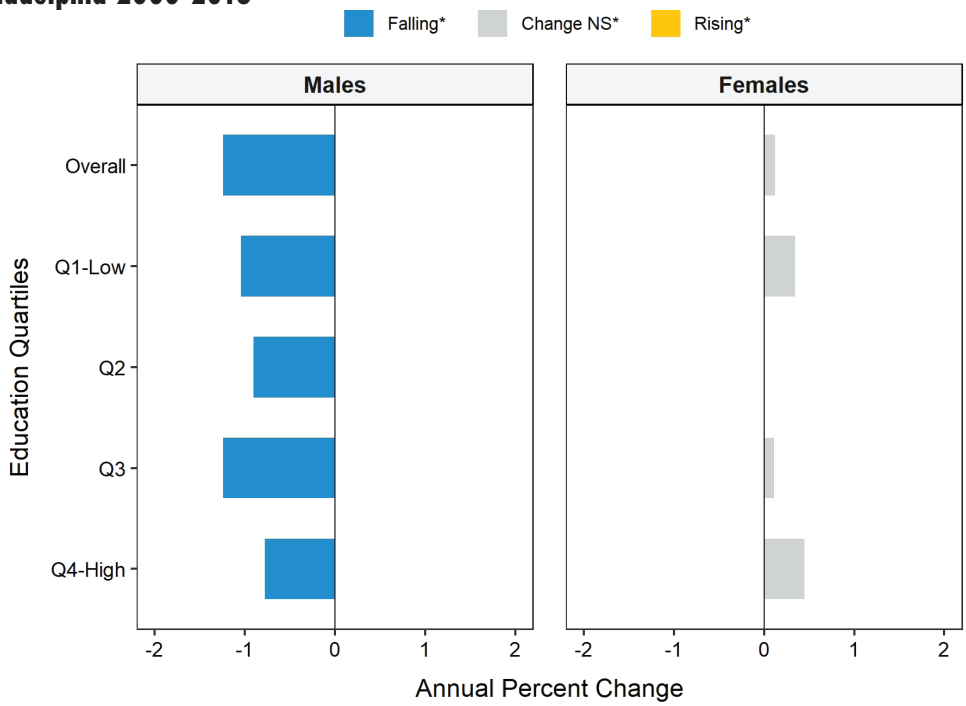
Among men, incidence of all cancers was higher in neighborhoods with less education. Among women, incidence of all cancers were similar across categories of neighborhood education (Figure 15). There were no differences in trends over time in cancer incidence between 2000 and 2016 in men or women across educational levels (a decline across all categories in men and little or no change across categories in women) (Figure 16).

Figure 15. Trends in age-adjusted incidence rates for all cancers by sex and census tract education, Philadelphia 2000-2016



Data Source: Pennsylvania Cancer Registry
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted incidence rates standardized to the 2000 U.S. standard million population using a Bayesian model (see technical appendix).
Shaded portion represents 95% credible intervals
Quartiles of percent with bachelor's degree education or higher: Q1=0 to <10%, Q2=10 to <17%, Q3=17 to <35%, Q4=35 to 100%

Figure 16. Average annual percent change in age-adjusted cancer incidence rates for all cancers by sex and census tract education, Philadelphia 2000-2016

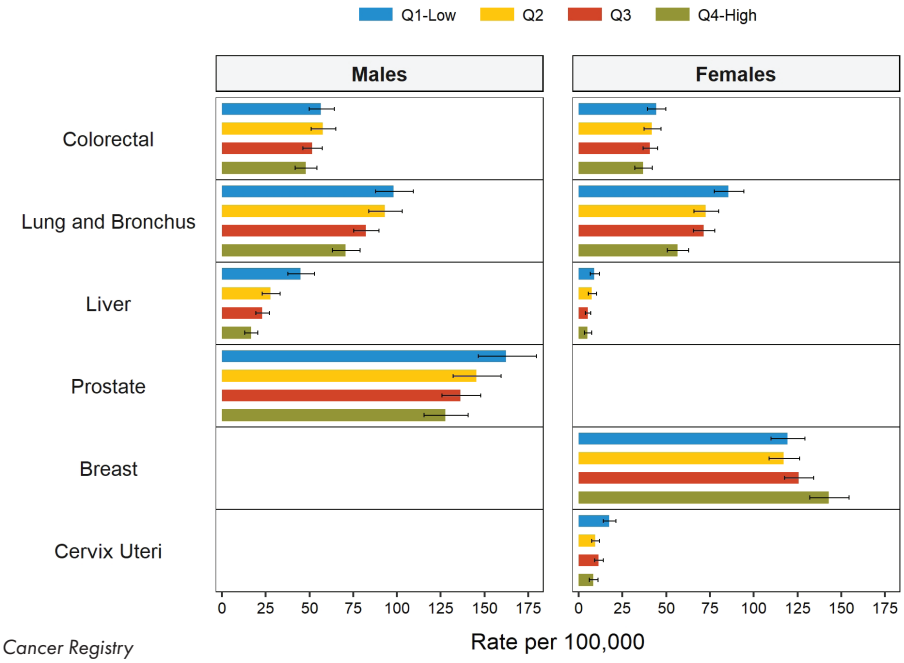


Data Source: Pennsylvania Cancer Registry
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted incidence rates standardized to the 2000 U.S. standard million population using a Bayesian model (see technical appendix).
NS=Not statistically significant. Statistical significance determined from 95% credible interval of average change from Bayesian models
Quartiles of percent with bachelor's degree education or higher: Q1=0 to <10%, Q2=10 to <17%, Q3=17 to <35%, Q4=35 to 100%

Incidence by cancer site

Incidence of CRC, lung cancer, and liver cancer (in both men and women) as well as cervical and prostate cancer were higher in neighborhoods with less education compared to those with more education. However, breast cancer incidence was higher in neighborhoods with more education than in neighborhoods with less education (Figure 17). Trends in cancer incidence between 2000 and 2016 were approximately parallel by neighborhood education (Appendix A; Section 1).

Figure 17. Age-adjusted incidence rates of select cancer sites by sex and census tract education, Philadelphia 2016



Data Source: Pennsylvania Cancer Registry
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted incidence rates standardized to the 2000 U.S. standard million population using a Bayesian model (see technical appendix).
Confidence bars represents 95% credible intervals
Quartiles of percent with bachelor's degree education or higher: Q1=0 to <10%, Q2=10 to <17%, Q3=17 to <35%, Q4=35 to 100%

CANCER MORTALITY BY SEP

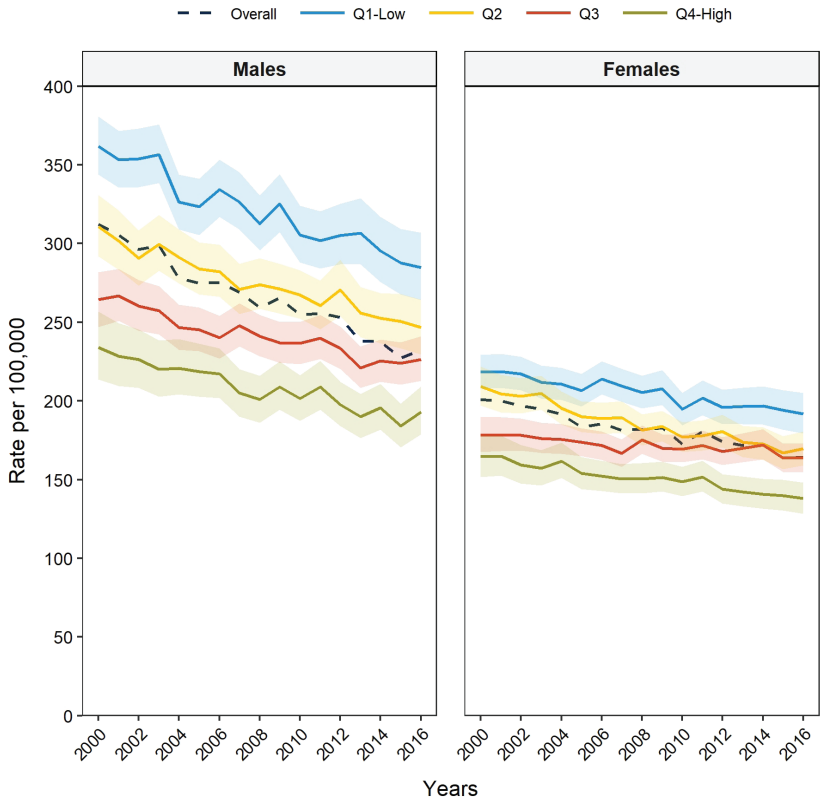
Mortality for all cancers

Cancer mortality was higher in lower education neighborhoods than in higher education neighborhoods in men and women (Figure 18). There were no notable differences in trends over time in cancer incidence between 2000 and 2016 in men or women across educational levels (a decline across all categories) (Figure 19).

Mortality by cancer site

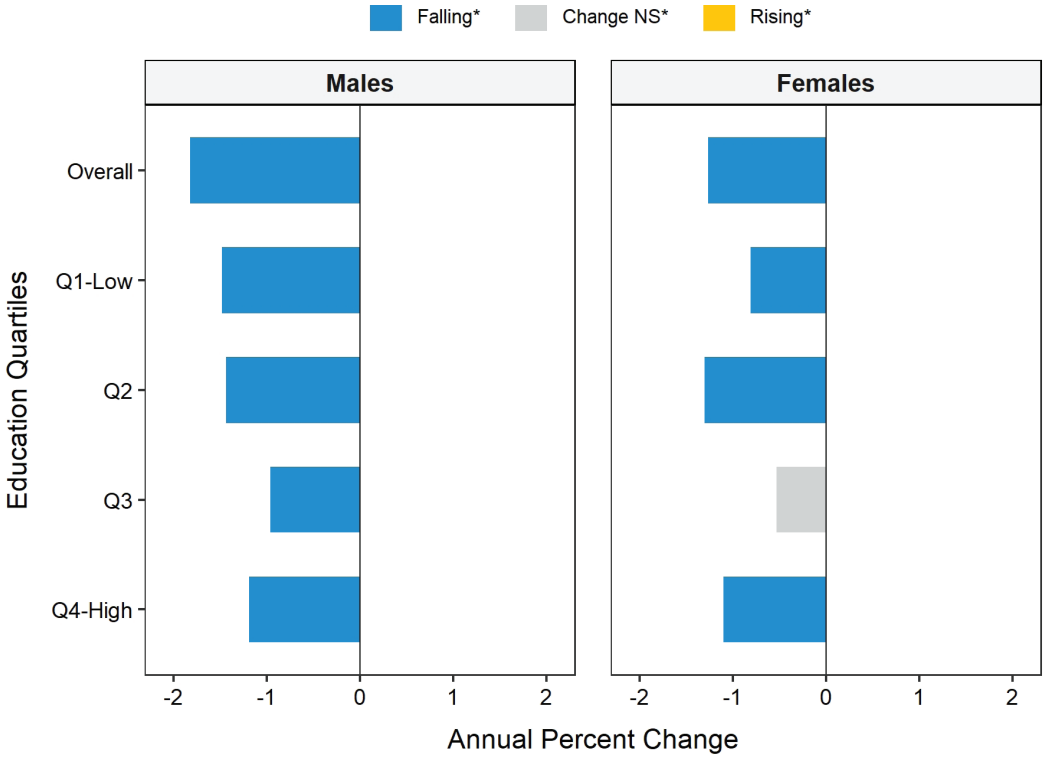
Cancer mortality was higher in lower education neighborhoods than in higher education neighborhoods all cancer sites investigated in men and women (Figure 20). Notably breast cancer mortality was higher in lower education neighborhoods than in higher education neighborhoods although the opposite pattern was observed for incidence. There were no notable differences in cancer mortality trends between 2000 and 2016 by neighborhood education (Appendix A; Section 1).

Figure 18. Trends in age-adjusted mortality rates for all cancers by sex and census tract education, Philadelphia 2000-2016



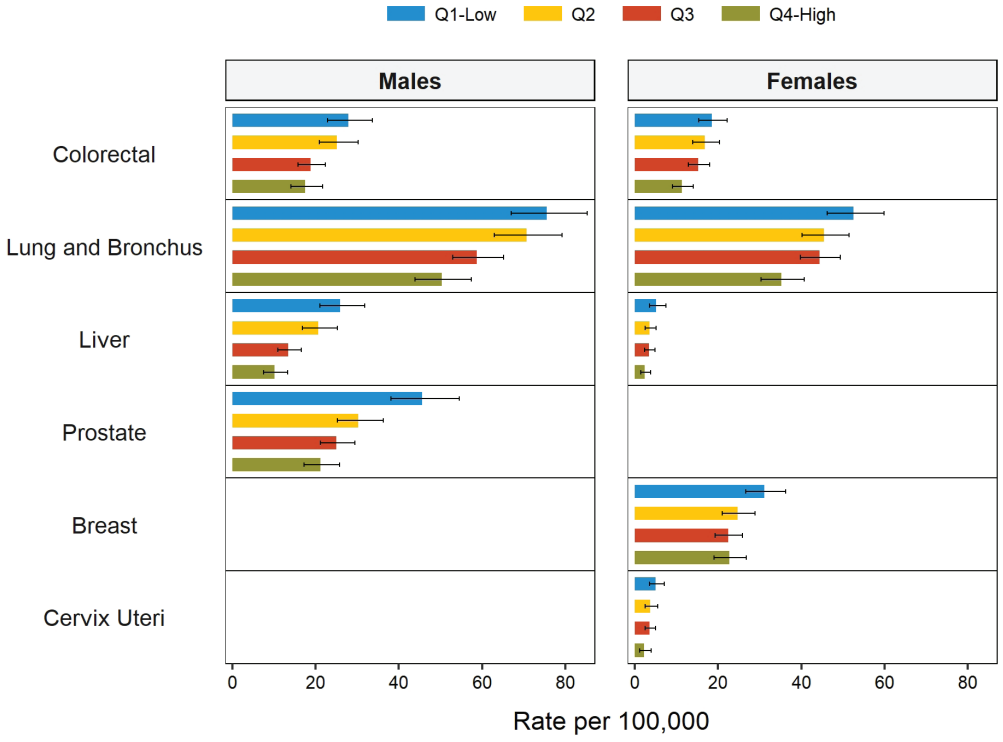
Data Source: Pennsylvania Vital Statistics Registry
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted mortality rates standardized to the 2000 U.S. standard million population using a Bayesian model (see technical appendix).
Shaded portion represents 95% credible intervals
Quartiles of percent with bachelor's degree education or higher: Q1=0 to <10%, Q2=10 to <17%, Q3=17 to <35%, Q4=35 to 100%

Figure 19. Average annual percent change in age-adjusted cancer mortality rates for all cancers by sex and census tract educational attainment, Philadelphia 2000-2016



Data Source: Pennsylvania Vital Statistics Registry
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted mortality rates standardized to the 2000 U.S. standard million population using a Bayesian model (see technical appendix).
NS=Not statistically significant. Statistical significance determined from 95% credible interval of average change from Bayesian models
Quartiles of percent with bachelor's degree education or higher: Q1=0 to <10%, Q2=10 to <17%, Q3=17 to <35%, Q4=35 to 100%

Figure 20. Age-adjusted mortality rates of select cancer sites by sex and census tract education, Philadelphia 2016



Data Source: Pennsylvania Vital Statistics Registry
Cancer primary site groupings follow the definitions of the National Cancer Institute's SEER program
Age-adjusted mortality rates standardized to the 2000 U.S. standard million population using a Bayesian model (see technical appendix).
Confidence bars represents 95% credible intervals
Quartiles of percent with bachelor's degree education or higher: Q1=0 to <10%, Q2=10 to <17%, Q3=17 to <35%, Q4=35 to 100%

SECTION 2: CANCER SCREENING IN PHILADELPHIA

Key Findings: Cancer screening

Colorectal cancer screening (percent of persons aged 50-74 who reported having had a colonoscopy or sigmoidoscopy within the past 10 years) increased between 2002 to 2018 but remained below 80% in 2018 (71% in men and 75% in women). Breast cancer screening (percentage of women 50-74 years of age who reported having had a mammogram within the past two years) remained relatively stable between 2000 and 2018 and was 84% in 2018. Cervical cancer screening (percent of women 18-64 years of age who reported having had a PAP smear within the past 5 years) declined slightly between 2002 and 2018 and was 90% in 2018.

Black women had higher colon cancer screening prevalence than white women (82% versus 70%). Black women also had higher breast cancer screening prevalences than white women (90% versus 79%). Men with higher education had higher colorectal cancer screening rates than those with lower education (76% versus 66% for college education or more versus less than high school education). Women with higher education had higher cervical cancer screening rates than those with lower education (94% versus 85% for college education or more versus less than high school education).

Screening for colorectal, breast, and cervical cancer can identify people with pre-cancerous conditions or early stage disease, for whom prompt intervention can avert the development of life-threatening cancers. The percent of people who are up to date with recommended screening in a community is an important measure of the effectiveness of cancer prevention efforts but monitoring adherence to screening recommendations among populations can be challenging.

Screening recommendations evolve over time as evidence regarding effectiveness develops and new tests are introduced. This results in updates regarding ages when periodic screening should be initiated or discontinued, the use of particular tests, or screening frequency. Moreover, recommendations might differ for those with varying levels of recognized cancer risk, based on prior screening results, family history, or other considerations. In addition, multiple organizations issue cancer screening recommendations. Although generally similar, recommendations from different organizations might vary depending on the timing of updates or differences in the interpretation of available evidence. Two of the most referenced guidelines are those issued by the American Cancer Society and the United States Preventive Services Task Force (USPSTF).[1,2]

Population health surveys that allow for estimates of screening prevalence in Philadelphia are administered by telephone. This includes the Southeastern Pennsylvania Household Health Survey (SEPAHHS) conducted by the Public Health Management Corporation every 2-3 years (the primary source for this report) and the nationwide Behavioral Risk Factor Surveillance System, conducted annually by state health departments with support from the federal Centers for Disease Control and Prevention.[3] Given the nature of telephone surveys and the nuances of screening guidelines, it is not possible for telephone surveys to collect information sufficiently detailed to monitor adherence to specific screening guidelines.

As a result, rather than reporting on adherence to specific screening guidelines, we use the following three measures, which could be determined across SEPAHHS survey periods and broadly correspond to recent screening recommendations for those not previously determined to be at high risk for developing cancer.

- Colorectal cancer: Among men or women 50-74 years of age, what proportion have had a colonoscopy or sigmoidoscopy within the past ten years?
- Breast cancer: Among women 50-74 years of age, what proportion have had a mammogram performed within the past 2 years?
- Cervical cancer: Among women 18-64 years of age, what proportion have had a Pap test performed within the past 5 years? Note: although screening is not recommended for women <21 years we report screening for women 18-64 because that is the data available.

We investigated these proportions (henceforth referred to as screening prevalences) for Philadelphia based on estimates derived from the SEPAHHS, conducted every two years from 2000-2012 and in 2015 and 2018. To compare screening levels for Philadelphia and the state of Pennsylvania in 2018, we used data from the nationwide Behavioral Risk Factor Surveillance System (BRFSS).[3]

COLORECTAL, BREAST, AND CERVICAL CANCER SCREENING IN PHILADELPHIA

Cancer screening data from Philadelphia can be compared to statewide data from the BRFSS although an important caveat is that the metrics are not fully comparable given differences in the BRFSS and SEPAHHS surveys (see table below).

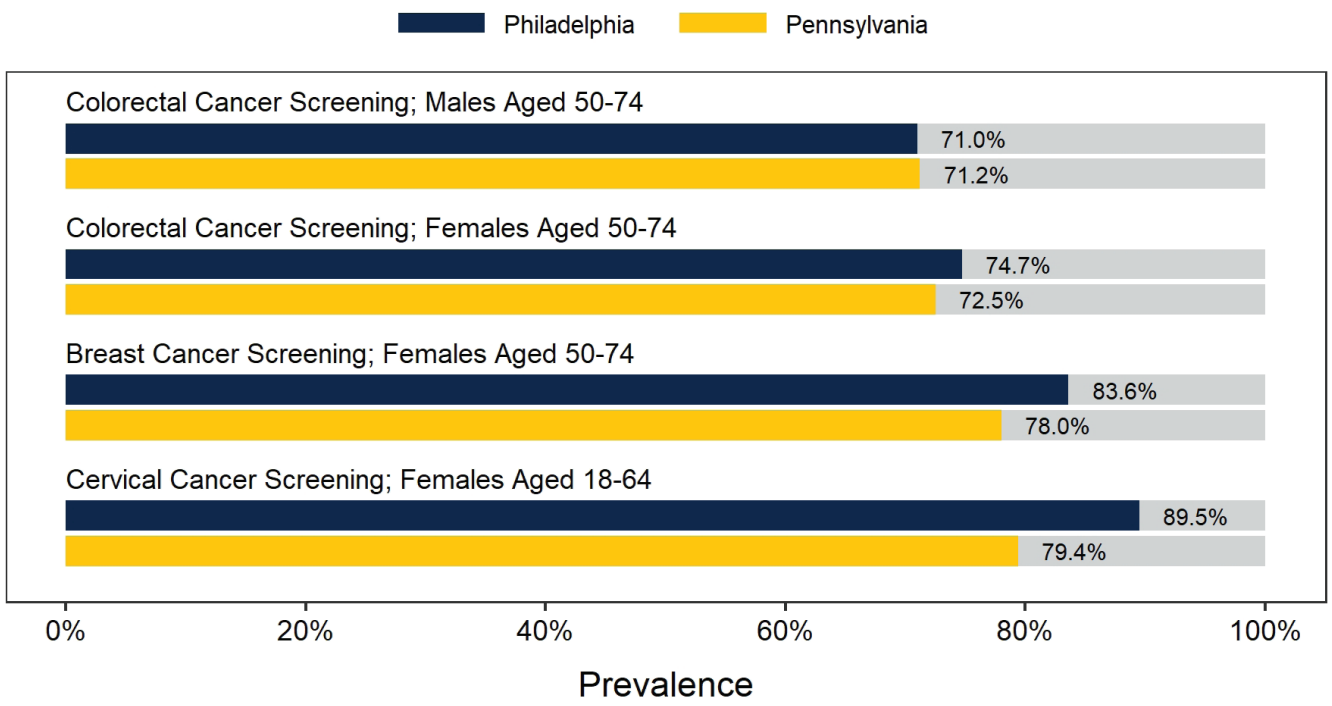
Pennsylvania and Philadelphia 2018 BRFSS and SEPAHHS Screening Measures

Screening Measure	Philadelphia (SEPAHHS)[4]	Pennsylvania (BRFSS)[3]
Colorectal Cancer Screening	Males and females 50-74 years of age who have had a colonoscopy or sigmoidoscopy within the past 10 years	Males and females 50-74 years of age with screening up to date per USPSTF guidelines: Colonoscopy in past 10 years, sigmoidoscopy in past 5 years, or fecal occult blood test in past 1 year
Breast Cancer Screening	Females 50-74 years of age who have had a mammogram within the past 2 years	Females 50-74 years of age who have had a mammogram within the past 2 years
Cervical Cancer Screening	Females 18-64 years of age who have had a Pap test within the past 5 years	Females 21-65 years of age who have had a Pap test within the past 3 years

For CRC screening, observed levels of colonoscopy or sigmoidoscopy with the past ten years among men (71%) and women (75%) aged 50-74 in Philadelphia are comparable to the statewide levels for men and women, (71% and 73%), respectively (Figure 21). The specifications of the statewide metric (which is up to date by US Preventive Services Task Force (USPSTF) screening recommendations) would likely result in higher observed screening levels statewide because the USPSTF measure includes use of fecal occult blood tests in addition to colonoscopy or sigmoidoscopy.
For breast cancer (the only cancer for which identical screening questions were used in both surveys), the proportions of women aged 50-74 years screened by mammography within two years are slightly higher in Philadelphia than in Pennsylvania as a whole (84% versus 78%) (Figure 21).

For cervical cancer, the statewide and Philadelphia metrics differ in that the Pennsylvania (BRFSS) measure considers screening among women aged 21-65 years within the past three years while the Philadelphia (SEPAHHS) measure considers screening among women 18-64 years within the past five years; inclusion of younger women, who tend to have lower screening rates, would likely lower observed screening levels in Philadelphia relative to the state, while use of a longer prior interval for screening in Philadelphia (past five versus three years) would have the opposite effect. Thus, whether higher observed levels of cervical cancer screening in Philadelphia (90%) versus Pennsylvania (79%) reflects differences in survey questions or screening is difficult to discern (Figure 21).

Figure 21. Age-adjusted prevalence of select cancer screenings for select sex and age groups for Philadelphia and Pennsylvania 2018



Data Sources: Southeastern PA Household Health Survey provided by PHMC for Philadelphia and Behavioral Risk Factor Surveillance System (BRFSS) for Pennsylvania Age-adjusted prevalence rates for Philadelphia standardized to 2000 Philadelphia population using a Bayesian model (see technical appendix). Estimates from BRFSS age standardized to 2013-2017 American Community Survey population.

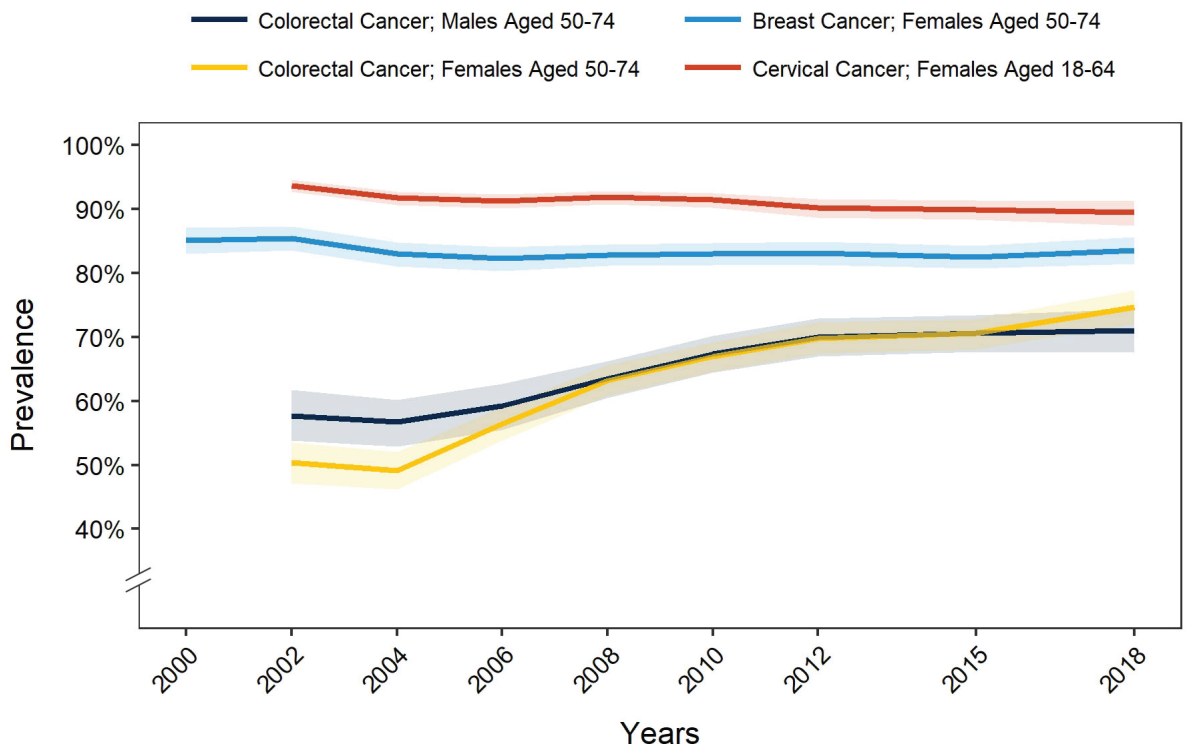
COLORECTAL, BREAST, AND CERVICAL CANCER TRENDS IN PHILADELPHIA BETWEEN 2000 AND 2018

Among both men and women, the prevalence of those screened for CRC increased after 2004, the year with the lowest screening prevalence among both men and women (58% and 49% respectively). By the 2018 survey, screening prevalence improved to 71% for men, a 13% increase, and to 75% for women, a 26% increase (Figures 22 and 23).

Among women in Philadelphia from 2000 to 2018, the prevalence of those screened for breast cancer were relatively stable, fluctuating between 82%-85%. For cervical cancer, the prevalence screened declined 4% from 94% in the 2002 survey to 90% in the 2018 survey (although small this decrease was statistically significant) (Figures 22 and 23).

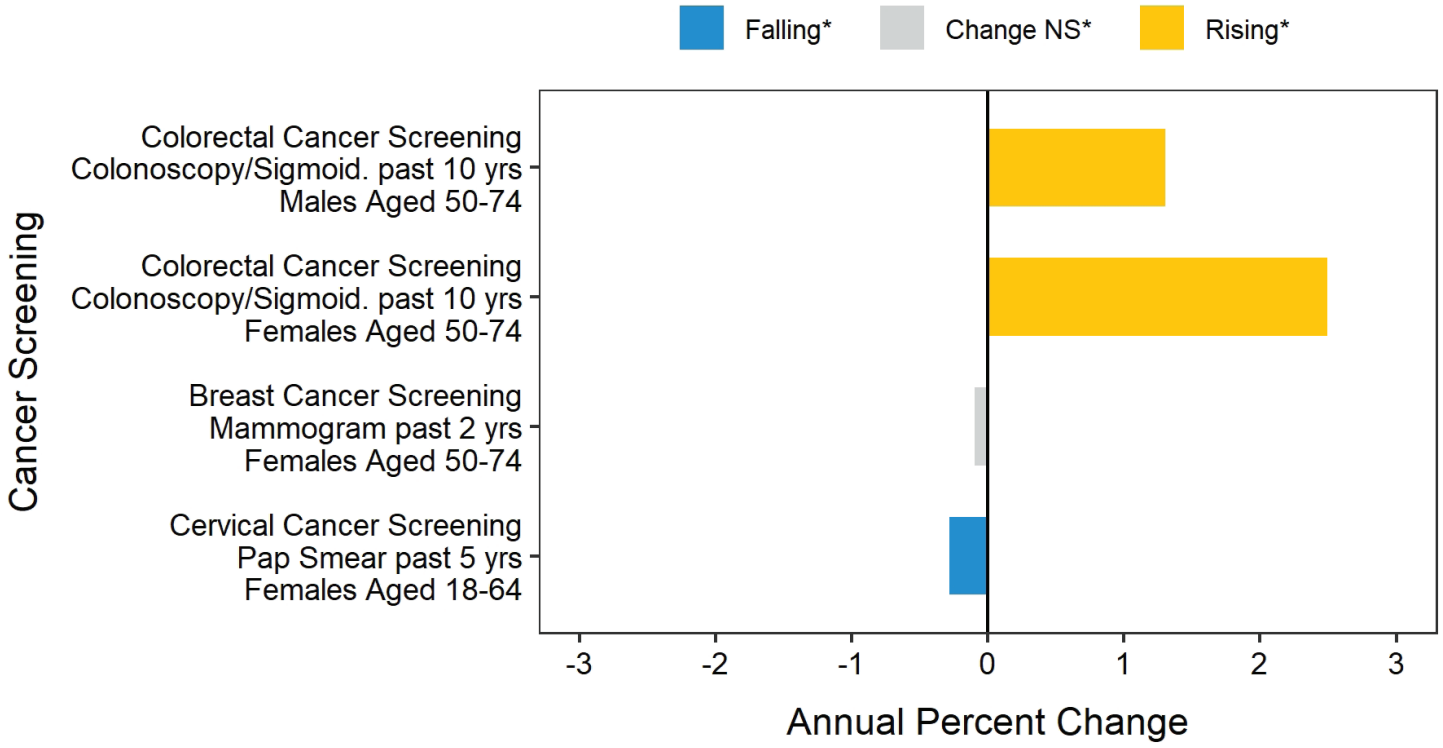
Overall from 2000-2018, these trends represented a small average annual percentage decline of less than 1% in cervical cancer screening, no change in breast cancer screening, and average annual increases in CRC screening of 1% and 3% among men and women, respectively (Figure 23).

Figure 22. Trends in age-adjusted prevalence of select cancer screenings for select sex and age groups, Philadelphia 2000-2018



Data Source: Southeastern PA Household Health Survey provided by PHMC
Colorectal and cervical cancer screening not available in 2000
Age-adjusted prevalence rates standardized to the Philadelphia population from U.S. Census using a Bayesian model (see technical appendix).
Shaded portion represents 95% credible intervals

Figure 23. Average annual percent change in select cancer screenings for select sex and age groups, Philadelphia 2000 - 2018

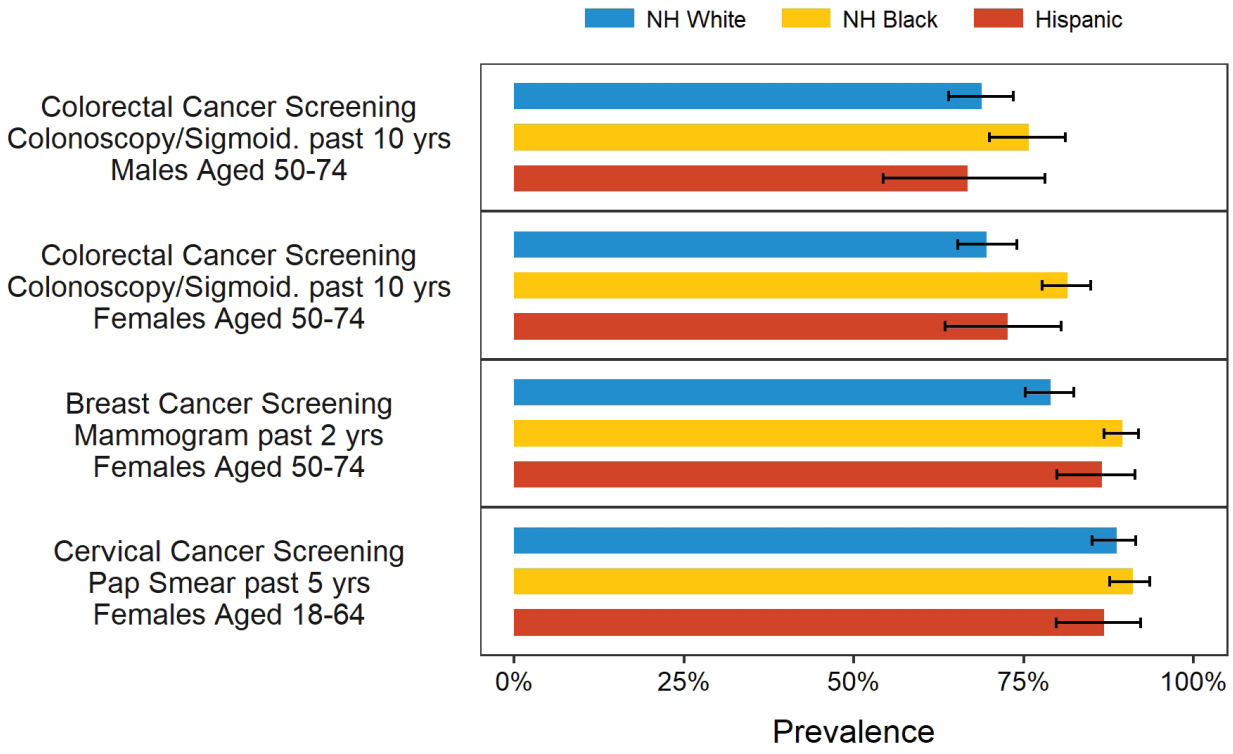


Data Source: Southeastern PA Household Health Survey provided by PHMC
Colorectal and cervical cancer screening not available in 2000
Age-adjusted prevalence rates standardized to the Philadelphia population from U.S. Census using a Bayesian model (see technical appendix).
NS=Not statistically significant. Statistical significance determined from 95% credible interval of average change from Bayesian models

CANCER SCREENING BY RACE/ETHNICITY

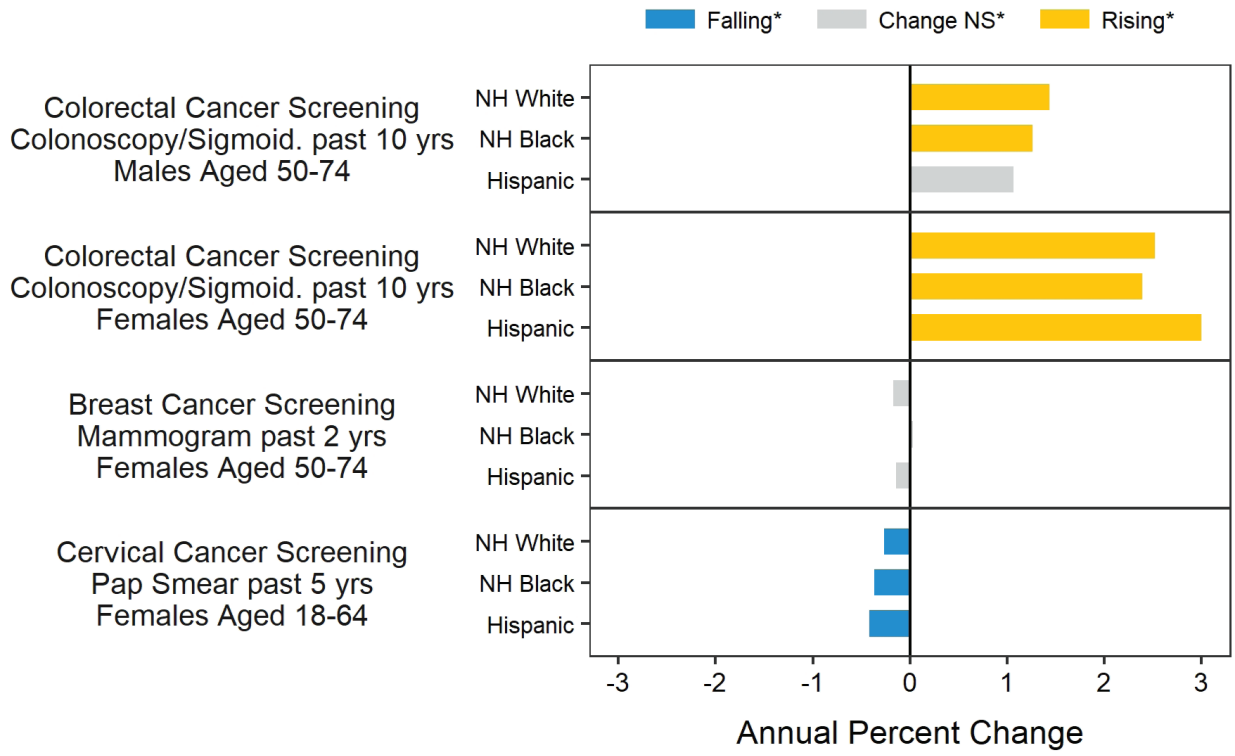
Figure 24 shows screening prevalence by race/ethnicity in 2018 in men and women. Black women had higher colon cancer screening prevalence than white women (82% versus 70%). Black women also had higher breast cancer screening prevalences than white women (90% versus 79%). Changes in screening prevalence between 2002 and 2018 were similar in all race/ethnic groups (Figure 25).

Figure 24. Age-adjusted prevalence of select cancer screenings for select sex and age groups and race/ethnicity, Philadelphia 2018



Data Source: Southeastern PA Household Health Survey provided by PHMC
Age-adjusted prevalence rates standardized to the Philadelphia population from U.S. Census using a Bayesian model (see technical appendix).
Confidence bars represents 95% credible intervals

Figure 25. Average annual percent change in age-adjusted prevalence of select cancer screenings for select sex and age groups and race/ethnicity, Philadelphia 2000 - 2018



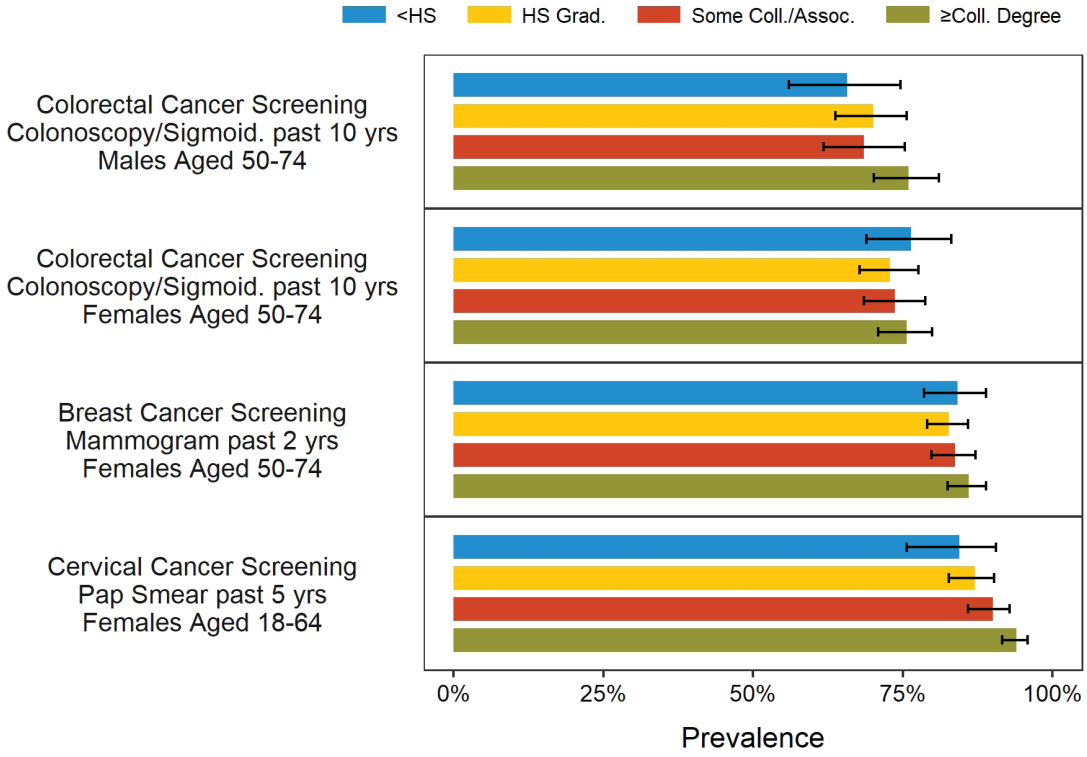
Data Source: Southeastern PA Household Health Survey provided by PHMC
Colorectal and cervical cancer screening not available in 2000
Age-adjusted prevalence rates standardized to the Philadelphia population from U.S. Census using a Bayesian model (see technical appendix).
NS=Not statistically significant. Statistical significance determined from 95% credible interval of average change from Bayesian models

CANCER SCREENING BY EDUCATION

Self-reported education level was used as a proxy for socioeconomic position (SEP). Men with higher education had higher colorectal cancer screening rates than those with lower education (76% in highest category versus 66% in lowest category) (Figure 26). Women with higher education had higher cervical cancer screening rates than those with lower education (94% for college education or more, 85% for less than high school education) (Figure 26). However, 95% credible intervals overlapped.

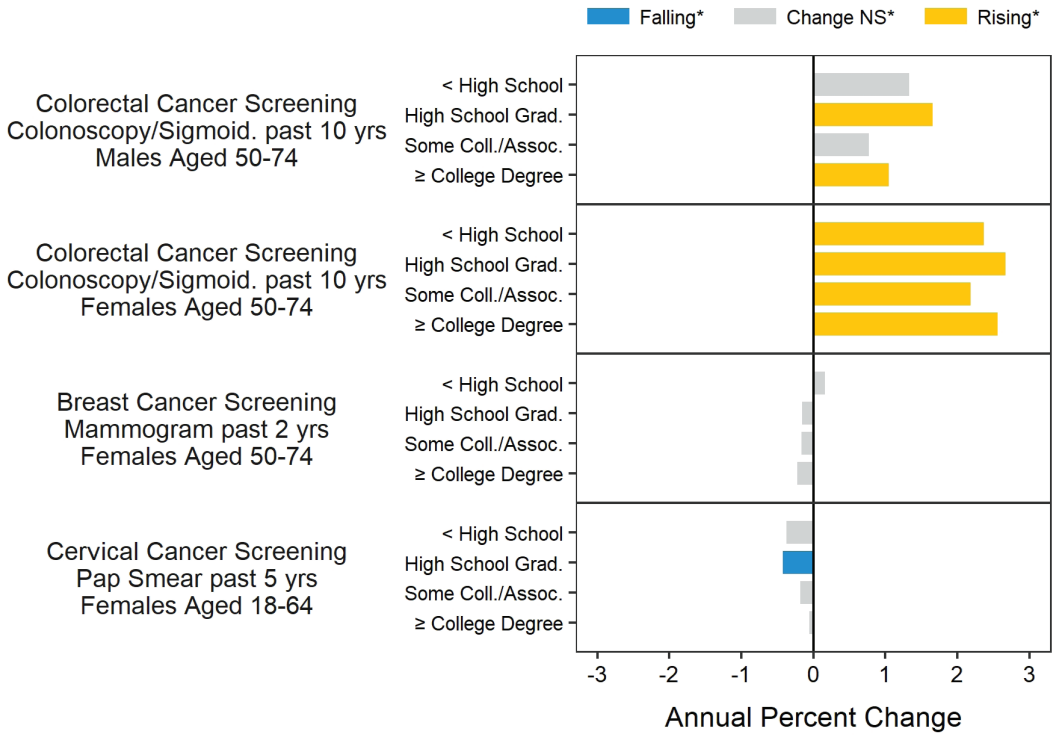
Changes over time in screening rates between 2000 and 2018 did not differ by education (Figure 27).

Figure 26. Age-adjusted prevalence of select cancer screenings for select sex and age groups and education, Philadelphia 2018



Data Source: Southeastern PA Household Health Survey provided by PHMC
Age-adjusted prevalence rates standardized to the Philadelphia population from U.S. Census using a Bayesian model (see technical appendix).
Confidence bars represents 95% credible intervals

Figure 27. Average annual percent change in age-adjusted prevalence of select cancer screenings for select sex and age groups and education, Philadelphia 2000 - 2018

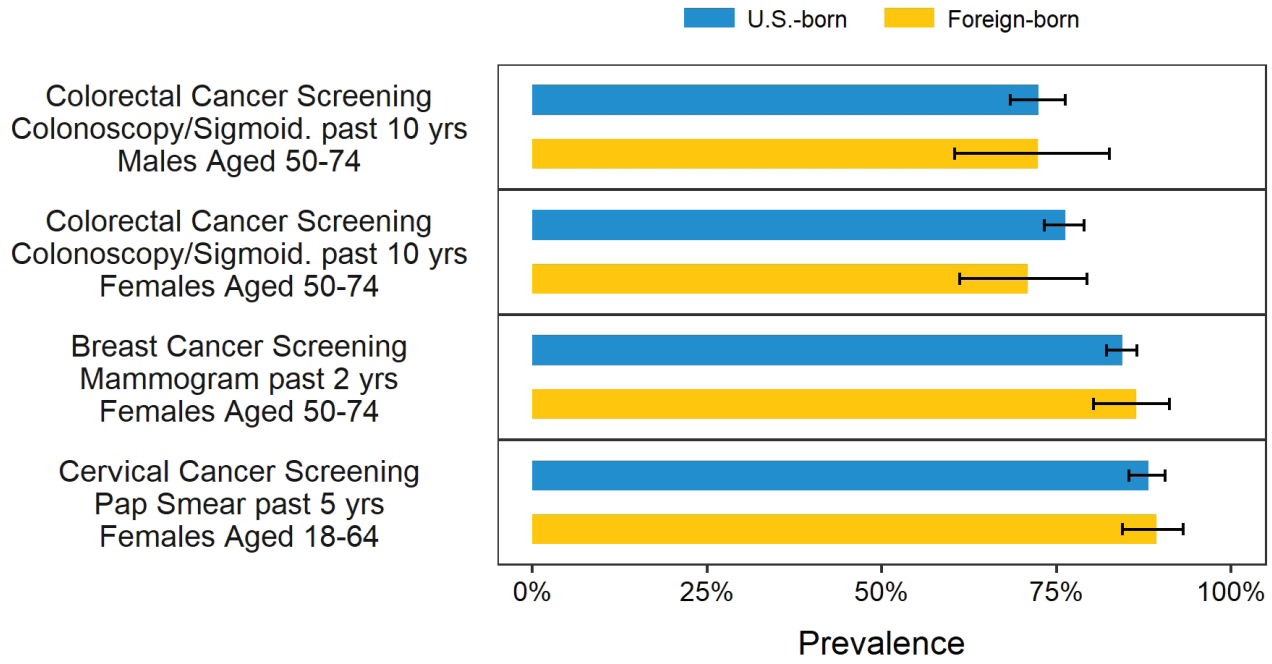


Data Source: Southeastern PA Household Health Survey provided by PHMC
Colorectal and cervical cancer screening not available in 2000
Age-adjusted prevalence rates standardized to the Philadelphia population from U.S. Census using a Bayesian model (see technical appendix).
NS=Not statistically significant. Statistical significance determined from 95% credible interval of average change from Bayesian models

CANCER SCREENING BY PLACE OF BIRTH (U.S. versus foreign-born)

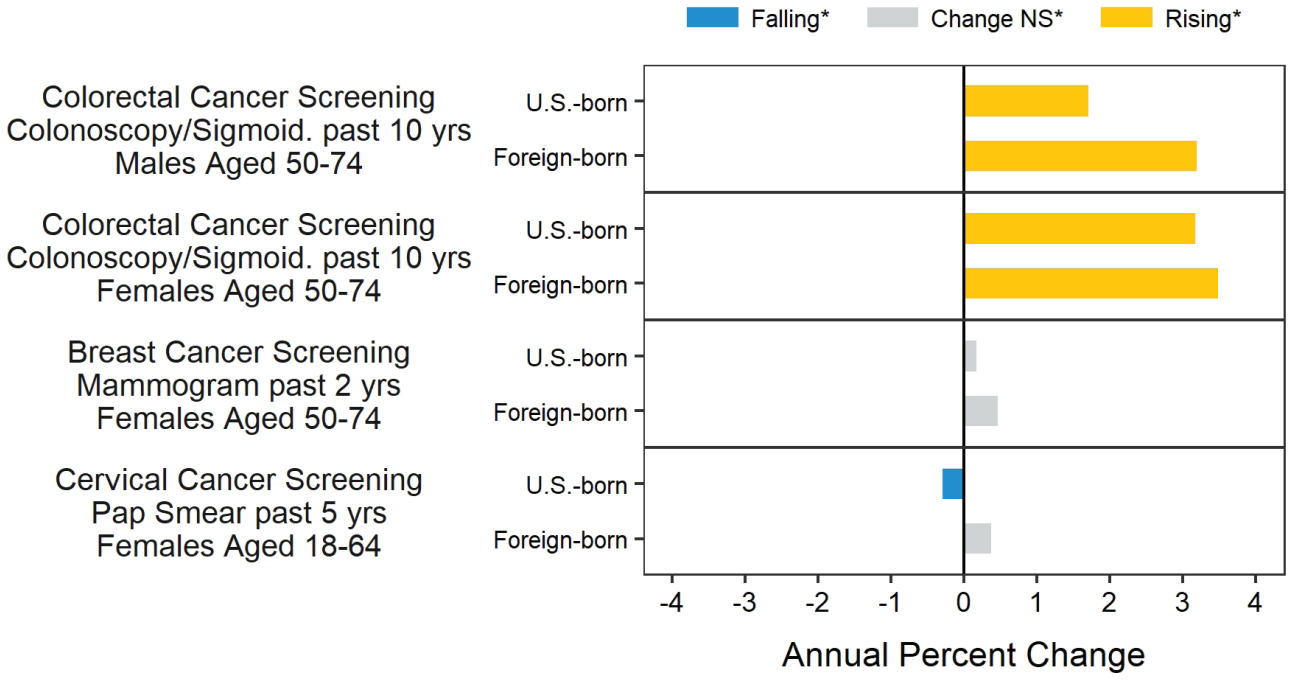
There were no significant differences in colorectal, breast or cervical cancer screening by place of birth in U.S.-born versus foreign-born (Figure 28). Trends over time in screening also did not differ by place of birth (Figure 29) except that cervical cancer screening appeared to decrease slightly in the U.S.-born whereas it was stable in the foreign-born.

Figure 28. Age-adjusted prevalence of select cancer screenings for select sex and age groups and place of birth, Philadelphia 2018



Data Source: Southeastern PA Household Health Survey provided by PHMC
Age-adjusted prevalence rates standardized to the Philadelphia population from U.S. Census using a Bayesian model (see technical appendix).
Confidence bars represents 95% credible intervals

Figure 29. Average annual percent change in age-adjusted prevalence of select cancer screenings for select sex and age groups and place of birth, Philadelphia 2000 - 2018



Data Source: Southeastern PA Household Health Survey provided by PHMC
Colorectal and cervical cancer screening not available in 2000
Age-adjusted prevalence rates standardized to the Philadelphia population from U.S. Census using a Bayesian model (see technical appendix).
NS=Not statistically significant. Statistical significance determined from 95% credible interval of average change from Bayesian models

SECTION 3: CANCER RISK FACTORS IN PHILADELPHIA

Key Findings: Cancer risk factors in 2018

In 2018[§] the prevalence of obesity in Philadelphia was 34% in women and 32% in men. Approximately 13% of men and 12% of women reported a diabetes diagnosis. The prevalence of current smokers was 21% in men and 19% in women. The prevalence of binge drinking was 37% in men and 32% in women. Nearly one third (32%) of Philadelphians (35% in men and 30% in women) reported consuming one or more sugar-sweetened beverages per day in the last month. Only 10% of residents met recommended guidelines for fruit and vegetable consumption (12% in women and 8% in men).

Obesity was higher for black women than white women. Black and Hispanic women had higher prevalence of diabetes than white women. Smoking prevalence was higher in Hispanic men than in white men. Among both men and women, blacks and Hispanics had a higher consumption of sugar-sweetened beverages than whites.

Persons with a college degree or more had lower prevalence of diabetes, smoking, sugar-sweetened beverage consumption, and obesity and higher prevalence of physical activity, and fruit and vegetable consumption. Higher education was also associated with more binge drinking.

U.S.-born residents had higher prevalence of obesity (in men and women), smoking (in women), physical activity (in women), and binge drinking (in men and women) than foreign-born residents.

A number of modifiable risk factors have been found to be associated with different cancer types. Healthy behaviors such as being physically active and a healthy diet consisting of whole grains, fruits, and vegetables can help protect against cancers such as colorectal and postmenopausal breast cancer. Physical activity and a healthy diet can also protect against being obese or developing diabetes. Being obese has been found to be associated with the risk of many types of cancers including liver, colorectum, postmenopausal breast, and advanced prostate cancers.[5] There is an association between diabetes (primarily type 2) and an increased risk of some cancers (liver, colorectal, and breast).[6] Evidence for links between consumption of sugar-sweetened beverages, such as sodas and juice, and cancer is not as strong as that for other risk factors. However, reducing sugar-sweetened beverage consumption protects against obesity and diabetes.[7] Alcohol consumption is associated with many types of cancers including liver, colorectal, and breast cancers. Cigarette smoking is strongly linked to lung cancer and is also associated with other types of cancer such as cervical, colorectal, and liver cancers.[8]

This report describes levels and trends in select cancer risk factors characterized as part of the Southeastern Pennsylvania Household Health survey[§] defined as follows:

- Obesity: body mass index of 30 kg/m2 or higher calculated from self-reported height and weight[9]
- Diabetes: self-reported diagnosis with diabetes by a doctor or health professional
- Current smoking: reported smoking cigarettes "every day" or "some days"
- Physical activity: self-reported participation in physical activities for exercise for at least 30 minutes, at least 3 times per week
- Fruit and vegetable consumption: self-reported eating five or more servings of fruits/vegetables per day (meeting United States Department of Agriculture recommendations[10]
- Binge drinking: self-report of drinking 5 or more alcohol drinks for men, 4 or more alcohol drinks for women on one occasion in the past 30 days
- Sugar-sweetened beverage consumption: Drinking one or more soda, fruit juice, or bottled tea per day during the last month. Diet drinks are not included.

[§]Note that estimates detailed here may differ slightly from other estimates derived from the Southeastern PA Household Health Survey because of the Bayesian modeling used, see technical appendix for further details.

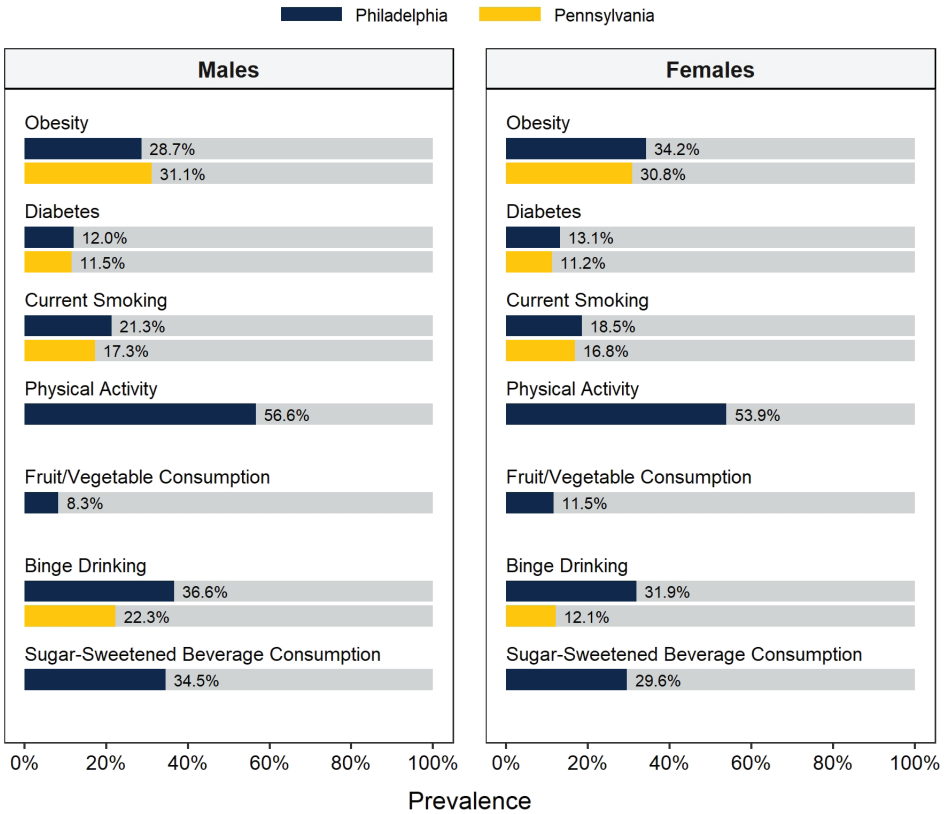
We investigated the prevalence of these risk factors in Philadelphia in 2018 and made comparisons to Pennsylvania overall when available (Figure 30).[3]

RISK FACTOR PREVALENCE IN PHILADELPHIA

In 2018[88] the prevalence of obesity in Philadelphia was 32% (34% for women and 29% for men). Approximately 13% reported a diabetes diagnosis (13% for women and 12% for men). The prevalence of current smokers was 20% (21% in men and 19% in women). Over half (55%) of person reported exercising at least 30 minutes, at least 3 times per week (57% in men and 54% in women). Only 10% of residents met recommended guidelines for fruit and vegetable consumption (12% in women and 8% in men). The prevalence of binge drinking was 37% in men and 32% in women. Nearly one third (32%) of Philadelphians reported consuming one or more sugar-sweetened beverages per day in the last month (35% in men and 30% in women).

When compared to estimates from Pennsylvania as a whole from the BRFSS for 2018[3] Philadelphia men have a lower prevalence of obesity, similar prevalence of diabetes, but higher prevalence of smoking and binge drinking. Philadelphia women have higher prevalence of obesity, diabetes, smoking, and binge drinking (Figure 30). We were unable to make comparisons for physical activity, fruit and vegetable consumption, and sugar-sweetened beverage consumption due to differences between Philadelphia and Pennsylvania in data available.

Figure 30. Age-adjusted prevalence of select cancer risk factors by sex for Philadelphia and Pennsylvania 2018



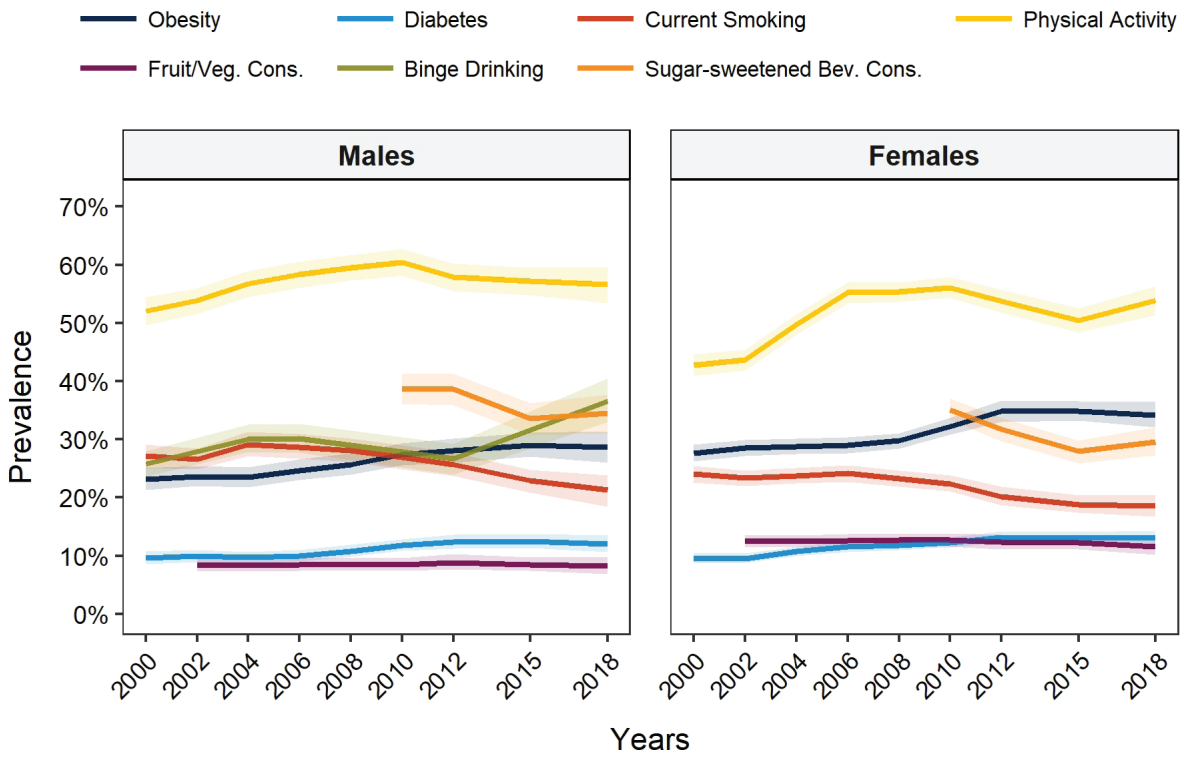
Data Sources: Southeastern PA Household Health Survey provided by PHMC for Philadelphia and Behavioral Risk Factor Surveillance System (BRFSS) for Pennsylvania. Age-adjusted prevalence rates for Philadelphia standardized to the 2000 Philadelphia population using a Bayesian model (see technical appendix). Estimates from BRFSS age standardized to 2013-2017 American Community Survey population.

[88] Note that estimates detailed here may differ slightly from other estimates derived from the Southeastern PA Household Health Survey because of the Bayesian modeling used, see technical appendix for further details.

RISK FACTOR TRENDS IN PHILADELPHIA BETWEEN 2000 AND 2018

Between 2000-2018, the prevalence of obesity and diabetes increased for both men and women (from 23% in 2000 to 29% in 2018 in men and from 28% in 2000 to 34% in 2018 in women). The prevalence of diabetes in 2000 was 10% for both men and women and increased to 12% for men and 13% for women in 2018. Binge drinking also increased for men (26% in 2000 versus 37% in 2018) (trend data are not available for women) (Figure 31).

Figure 31. Trends in age-adjusted prevalence of select risk factors, Philadelphia 2000 - 2018



Data Source: Southeastern PA Household Health Survey provided by PHMC
Fruit/vegetable consumption not available in 2000. Sugar-sweetened beverage consumption not available 2000-2008.
Age-adjusted prevalence rates standardized to the Philadelphia population from U.S. Census using a Bayesian model (see technical appendix).
Shaded portion represents 95% credible intervals

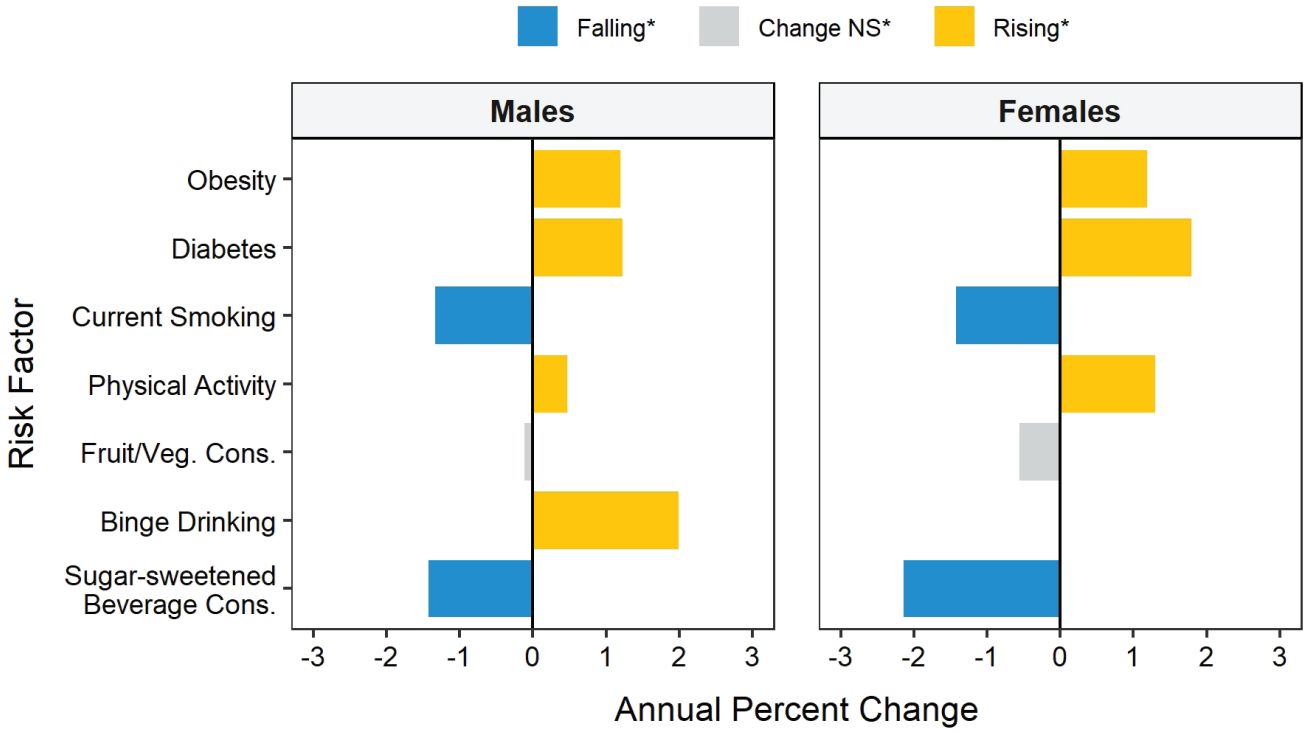
Key Findings: Trends in cancer risk factors over time

The prevalence of obesity, diabetes, and binge drinking in men (no data for women) have been increasing since 2000. However, smoking prevalence, sugar-sweetened beverage consumption has been decreasing and exercising 30 minutes, three times per week is increasing (both sexes).

Smoking declined more in white men than in other men. Smoking and consumption of sugar-sweetened beverages declined more in the more educated than in the less educated.

Some favorable trends were also observed: smoking and sugar-sweetened beverage consumption decreased, and exercise prevalence increased slightly. Smoking rates decreased from 27% (in 2000) to 21% (in 2018) in men and from 24% to 19% in women. Sugar-sweetened beverage consumption decreased from 39% (in 2010) to 35% (in 2018) in men and from 35% to 30% in women. Exercise prevalence increased from 52% to 57% in men and from 43% to 54% in women (Figure 32). There was no change in the prevalence of fruit and vegetable consumption.

Figure 32. Average annual percent change in age-adjusted prevalence of select risk factors, Philadelphia 2000 - 2018



Data Source: Southeastern PA Household Health Survey provided by PHMC
Fruit/vegetable consumption not available in 2000. Sugar-sweetened beverage consumption not available 2000-2008.
Age-adjusted prevalence rates standardized to the Philadelphia population from U.S. Census using a Bayesian model (see technical appendix).
NS=Not statistically significant. Statistical significance determined from 95% credible interval of average change from Bayesian models

RISK FACTORS BY RACE/ETHNICITY

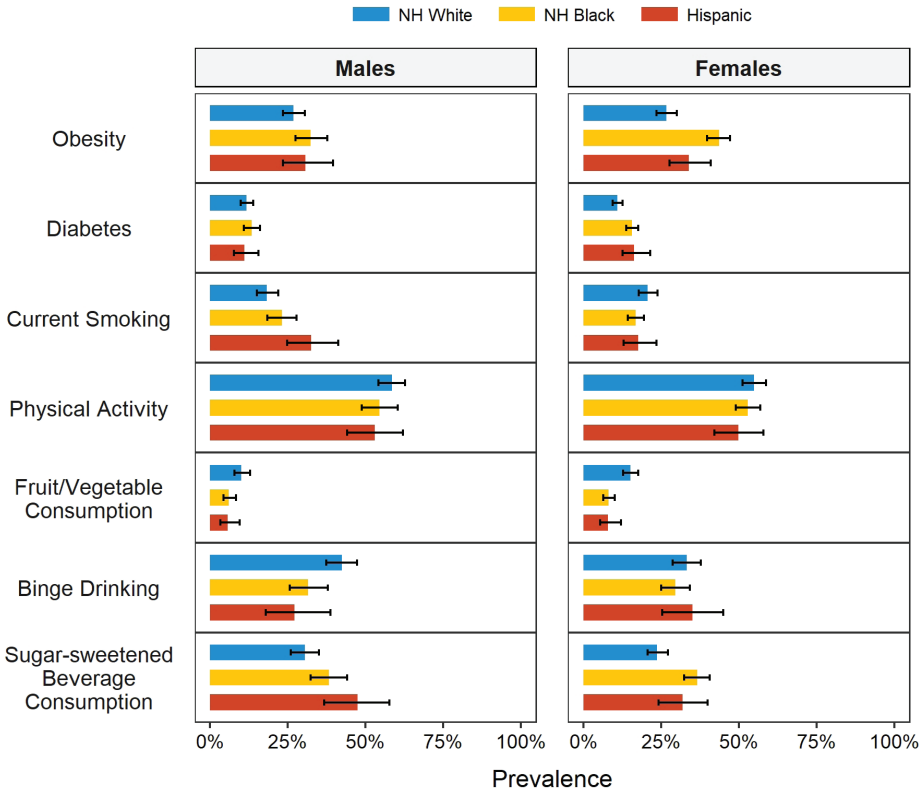
Prevalence

Some risk factors differed in prevalence by race and ethnicity (Figure 33). Black women had significantly higher prevalence of obesity than white women (44% in black women vs 27% in white women). Blacks and Hispanic women had higher diabetes prevalence than white women (16% in blacks and in Hispanics and 11% in whites). In men, smoking prevalence was higher in Hispanics (33%) than in whites (18%). Among both men and women, blacks and Hispanics tended to have a higher consumption of sugar-sweetened beverages than whites (prevalence in men 38%, 47% and 31% for blacks, Hispanics and whites and prevalence in women 37%, 32% and 24% for blacks, Hispanics and whites).

Trends

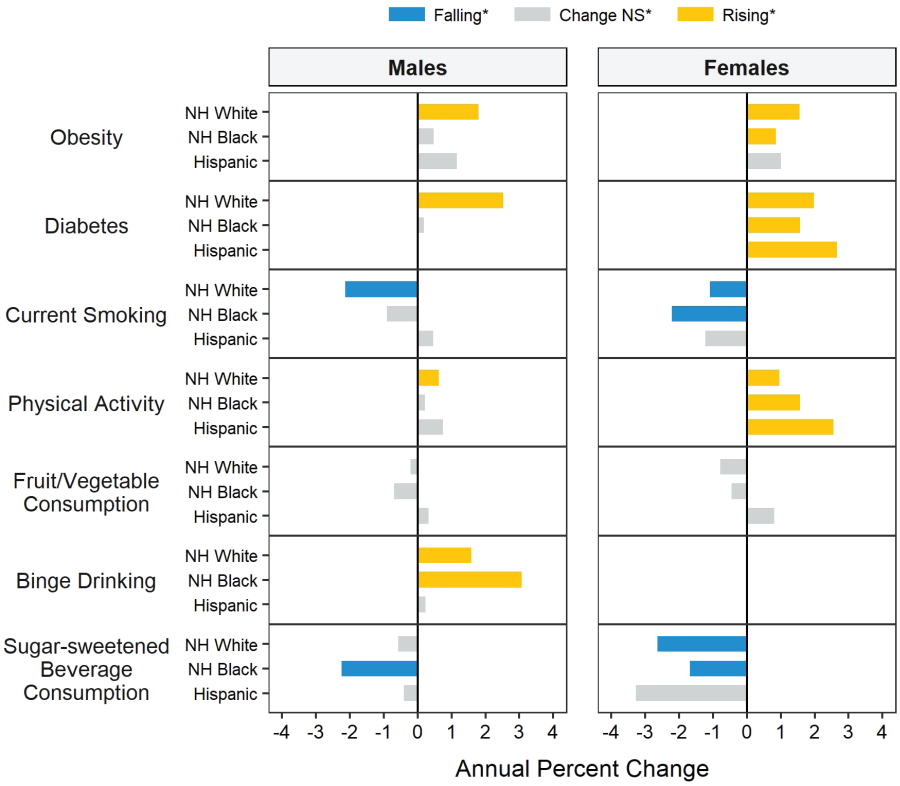
Figure 34 shows average annual percent change in risk factors by race and ethnicity between 2000 and 2018. Changes over time were usually in a similar direction for all race/ethnic groups. One exception was smoking which decreased in white men and black and white women.

Figure 33. Age-adjusted prevalence of select cancer risk factors by sex and race/ethnicity, Philadelphia 2018



Data Source: Southeastern PA Household Health Survey provided by PHMC
Age-adjusted prevalence rates standardized to the Philadelphia population from U.S. Census using a Bayesian model (see technical appendix).
Confidence bars represents 95% credible intervals

Figure 34. Average annual percent change in age-adjusted prevalence of select cancer risk factors by sex and race/ethnicity, Philadelphia 2000 - 2018



Data Source: Southeastern PA Household Health Survey provided by PHMC
Fruit/vegetable consumption not available in 2000. Sugar-sweetened beverage consumption not available 2000-2008.
Age-adjusted prevalence rates standardized to the Philadelphia population from U.S. Census using a Bayesian model (see technical appendix).
NS=Not statistically significant. Statistical significance determined from 95% credible interval of average change from Bayesian models

RISK FACTORS BY EDUCATION

Education (highest level of completed education) as self-reported by survey participants was used as a proxy for socioeconomic position (SEP).

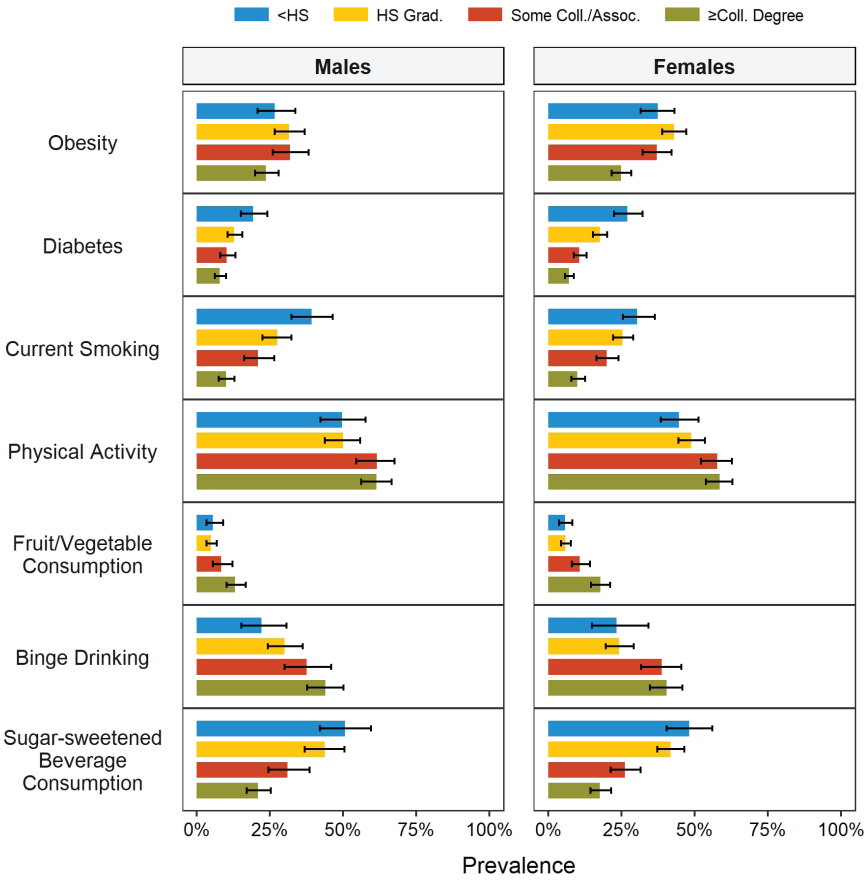
Prevalence

Persons with more education had lower prevalences of obesity (especially in women), diabetes, smoking, and sugar-sweetened beverage consumption than those with less education. Higher education was also associated with more physical activity and greater fruit and vegetable consumption. A different patterning by education was observed for binge drinking: higher education was associated with more binge drinking. Although 95% credible intervals for adjacent categories overlapped, the associations of education with the risk factors were generally graded: more education, generally better risk factors (except binge drinking) (Figure 35).

Trends

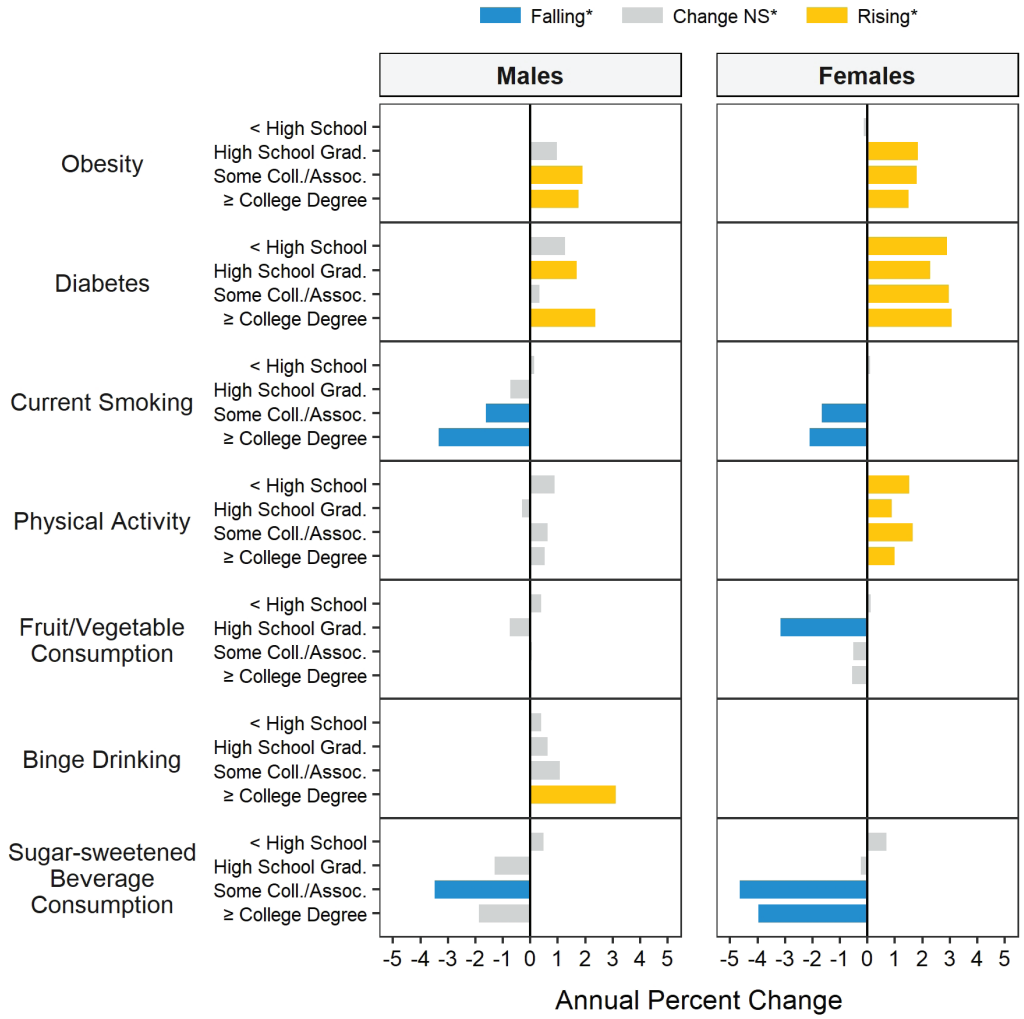
Figure 36 shows average annual percent change in risk factors by education. The overall trends over time in risk factors did not differ substantially for education except that smoking decreased between 2000 and 2018 for persons with some college or higher education but did not change significantly in those with a high school degree or less. Sugar-sweetened beverage consumption decreased in more educated compared to less educated persons.

Figure 35. Age-adjusted prevalence of select cancer risk factor by sex and education, Philadelphia 2018



Data Source: Southeastern PA Household Health Survey provided by PHMC
Age-adjusted prevalence rates standardized to the Philadelphia population from U.S. Census using a Bayesian model (see technical appendix).
Confidence bars represents 95% credible intervals

Figure 36. Average annual percent change in age-adjusted prevalence of select cancer risk factors by sex and education, Philadelphia 2000-2018



Data Source: Southeastern PA Household Health Survey provided by PHMC
Fruit/vegetable consumption not available in 2000. Sugar-sweetened beverage consumption not available 2000-2008.
Age-adjusted prevalence rates standardized to the Philadelphia population from U.S. Census using a Bayesian model (see technical appendix).
NS=Not statistically significant. Statistical significance determined from 95% credible interval of average change from Bayesian models

RISK FACTORS BY PLACE OF BIRTH (U.S. versus foreign-born)

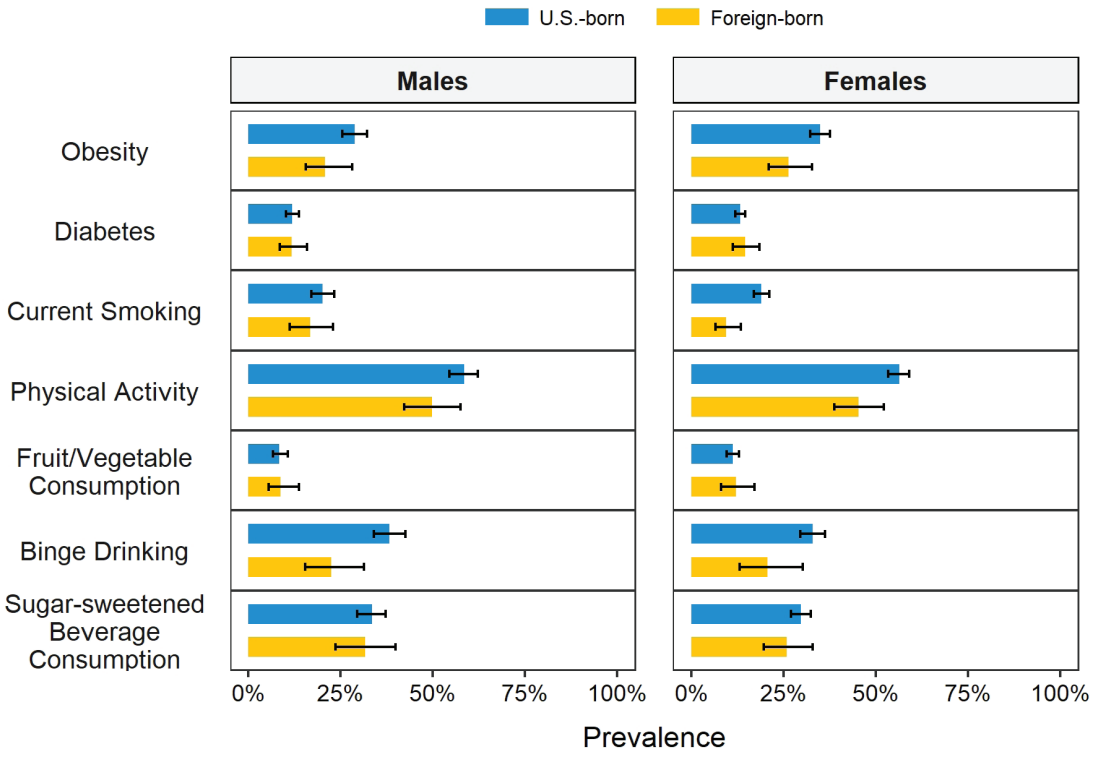
Prevalence

In 2018, for both men and women, the U.S.-born had a higher prevalence of obesity (men: 29%, women: 35%) than the foreign-born (men: 21%, women: 26%). Foreign-born women had lower smoking prevalence than U.S. born women (9% vs. 19%). Physical activity prevalence was higher for U.S.-born than foreign-born women (56% vs. 45%). Binge drinking in men and women was higher among the U.S.-born (men: 38%, women: 33%) than among the foreign-born (men: 22%, women: 21%). Figure 37).

Trends

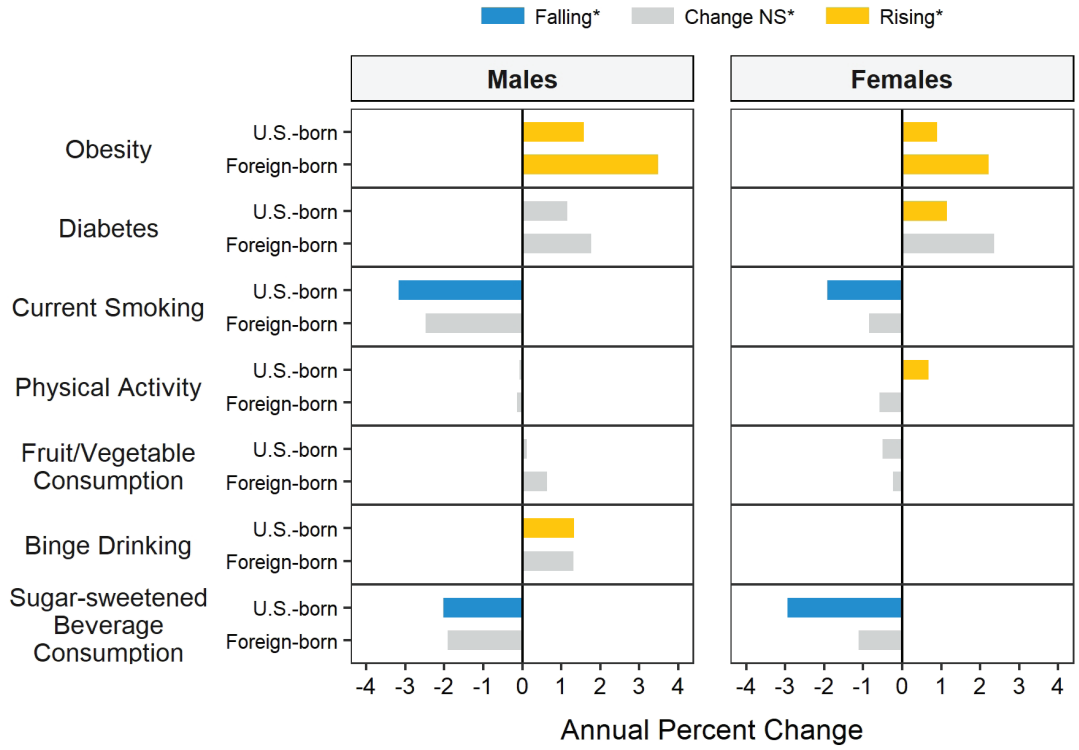
Figure 38 shows average annual percent change in risk factors by place of birth between 2004 and 2018. In general trends over time were similar in the U.S.-born and in the foreign-born.

Figure 37. Age-adjusted prevalence of select cancer risk factors by sex and place of birth, Philadelphia 2018



Data Source: Southeastern PA Household Health Survey provided by PHMC
Age-adjusted prevalence rates standardized to the Philadelphia population from U.S. Census using a Bayesian model (see technical appendix).
Confidence bars represents 95% credible intervals

Figure 38. Average annual percent change in age-adjusted prevalence of select cancer risk factors by sex and place of birth, Philadelphia 2000 - 2018



Data Source: Southeastern PA Household Health Survey provided by PHMC
Fruit/vegetable consumption not available in 2000. Sugar-sweetened beverage consumption not available 2000-2008.
Age-adjusted prevalence rates standardized to the Philadelphia population from U.S. Census using a Bayesian model (see technical appendix).
NS=Not statistically significant. Statistical significance determined from 95% credible interval of average change from Bayesian models

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Data Sources

Pennsylvania Department of Health Vital Statistics
Pennsylvania Department of Health Cancer Registry
Public Health Management Corporation (PHMC) Southeastern Pennsylvania Household Health Survey (SEPAHH) Community Health Database

The Pennsylvania Department of Health specifically disclaims responsibility for any analyses, interpretations, or conclusions.

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