

STATISTICAL NEWS

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Data Changes Will Enrich Future Analysis

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Annual Number of Deaths Have Declined Since 2000

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Cervical Cancer Incidence, Stage, and Death in Pennsylvania

Recent Cervical Cancer Trends and Staging Distribution Reviewed

Each January we observe National Cervical Cancer Awareness Month. In both Pennsylvania and the United States, cervical cancer is one of the less commonly occurring types of cancer. But at the same time, with proper screening and early diagnosis, it is nearly 100 percent preventable.

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Revised Pennsylvania Death Certificate Now in Use

Data Changes Will Enrich Future Analysis

The U.S. standard birth, death, and fetal death certificates were revised by the National Center for Health Statistics (NCHS) effective with 2003 data events. The Pennsylvania birth certificate was updated to meet the new U.S. standard in 2003 and the fetal death certificate was updated in 2006. However, the last full revision of the Pennsylvania death certificate was back in 1989. Several of the revised U.S. standard data items were added to the death certificate in 2006, but the new certificate was not fully implemented at that time due to data entry limitations. The Pennsylvania death certificate is now fully revised to meet the NCHS standards for all deaths occurring on or after January 1, 2012.

One new data item was added and two previous data items were dropped from the Pennsylvania death certificate when it was revised in 2006. Informant's relationship to the decedent was added to the revised death certificate (see Figure 1), while the decedents mailing address and the instructions on the back of the certificate were removed.

One of the most significant changes to the new 2012 death certificate was the switch from letter size paper to legal size. This change occurred principally due to many items changing from free-entry text boxes for decedent's race and Hispanic origin to check boxes. Data providers will now be able to select both multiple races as well as the decedent's single race self designation and Hispanic origin using check boxes. Decedent's education is also changing from two free-entry text boxes to choosing one of eight check

Figure 1
Revised Certificate of Death Sections

COMMONWEALTH OF PENNSYLVANIA • DEPARTMENT OF HEALTH • VITAL RECORDS

CERTIFICATE OF DEATH State File Number: _____

Type/Print In Permanent Black Ink

6. Date of Birth (Mo/Day/Year) (Spell Month)		7a. Birthplace (City and State or Foreign Country)	
		7b. Birthplace (County)	
8a. Residence (State or Foreign Country)	8b. Residence (Street and Number - Include Apt No.)	8c. Did Decedent Live in a Township? <input type="checkbox"/> Yes, decedent lived in _____ twp.	
8d. Residence (County)	8e. Residence (Zip Code)	<input type="checkbox"/> No, decedent lived within limits of _____ city/boro.	
10. Marital Status at Time of Death <input type="checkbox"/> Divorced <input type="checkbox"/> Never Married <input type="checkbox"/> Unknown		<input type="checkbox"/> Married	<input type="checkbox"/> Widowed
		14b. Relationship to Decedent	
15a. Place of Death (Check only one)			
If Death Occurred in a Hospital: <input type="checkbox"/> Inpatient <input type="checkbox"/> Emergency Room/Outpatient <input type="checkbox"/> Dead on Arrival		If Death Occurred Somewhere Other Than a Hospital: <input type="checkbox"/> Nursing Home/Long-Term Care Facility <input type="checkbox"/> Hospice Facility <input type="checkbox"/> Decedent's Home <input type="checkbox"/> Other (Specify) _____	
18. Decedent's Education - Check the box that best describes the highest degree or level of school completed at the time of death. <input type="checkbox"/> 8th grade or less <input type="checkbox"/> No diploma, 9th - 12th grade <input type="checkbox"/> High school graduate or GED completed <input type="checkbox"/> Some college credit, but no degree <input type="checkbox"/> Associate degree (e.g. AA, AS) <input type="checkbox"/> Bachelor's degree (e.g. BA, AB, BS) <input type="checkbox"/> Master's degree (e.g. MA, MS, MEng, MEd, MSW, MBA) <input type="checkbox"/> Doctorate (e.g. PhD, EdD) or Professional degree (e.g. MD, DDS, DVM, LLB, JD)		19. Decedent of Hispanic Origin - Check the box that best describes whether the decedent is Spanish/Hispanic/Latino. Check the "No" box if decedent is not Spanish/Hispanic/Latino. <input type="checkbox"/> No, not Spanish/Hispanic/Latino <input type="checkbox"/> Yes, Mexican, Mexican American, Chicano <input type="checkbox"/> Yes, Puerto Rican <input type="checkbox"/> Yes, Cuban <input type="checkbox"/> Yes, other Spanish/Hispanic/Latino (Specify) _____	
20. Decedent's Race - Check ONE OR MORE races to indicate what the decedent considered himself or herself to be. <input type="checkbox"/> White <input type="checkbox"/> Black or African American <input type="checkbox"/> American Indian or Alaska Native <input type="checkbox"/> Asian Indian <input type="checkbox"/> Chinese <input type="checkbox"/> Filipino <input type="checkbox"/> Japanese <input type="checkbox"/> Other (Specify) _____ <input type="checkbox"/> Korean <input type="checkbox"/> Vietnamese <input type="checkbox"/> Other Asian <input type="checkbox"/> Native Hawaiian <input type="checkbox"/> Guamanian or Chamorro <input type="checkbox"/> Samoan <input type="checkbox"/> Other Pacific Islander			
39a. Certifier (Check only one): <input type="checkbox"/> Certifying physician - To the best of my knowledge, death occurred due to the cause(s) and manner stated <input type="checkbox"/> Pronouncing & Certifying physician - To the best of my knowledge, death occurred at the time, date, and place, and due to the cause(s) and manner stated <input type="checkbox"/> Medical Examiner/Coroner - On the basis of examination, and/or investigation, in my opinion, death occurred at the time, date, and place, and due to the cause(s) and manner stated			
Signature of certifier: _____		Title of certifier: _____ License Number: _____	

boxes. The goal is to collect more accurate and uniform data by using check boxes rather than free-entry text boxes.

The decedent's residence was revised to include the entire residence including the street number, street name, and ZIP code, so that more accurate data analysis can be completed. These additional residence fields will enable staff to begin geocoding death certificates, which will help with population estimates and other population data-related planning uses. Previously, only the state, county, and city or township were collected. Staff were not able to use geographic information system software to geocode the death certificates and plot decedents' residences.

Some additional minor changes include: adding county to decedent's birth place field; additional place of death checkboxes to include, hospice

facility, long term care facility, and changing residence to reflect decedent's home; changing the marital status question from free-entry to check boxes and adding the choice of unknown; removing definitions from the certifier check-boxes; removing the lines and increasing the size of Part II of the cause of death to give more room for the certifier to write; changing the wording of maiden name to name prior to first marriage for both surviving spouse's name and decedent's mother's name; and changing the wording of funeral service licensee to match the Vital Statistics Law of 1953.

If you have any questions concerning the content included in this article, please contact the Bureau of Health Statistics and Research at 717-783-2548 and ask for the Vital Events Registry.

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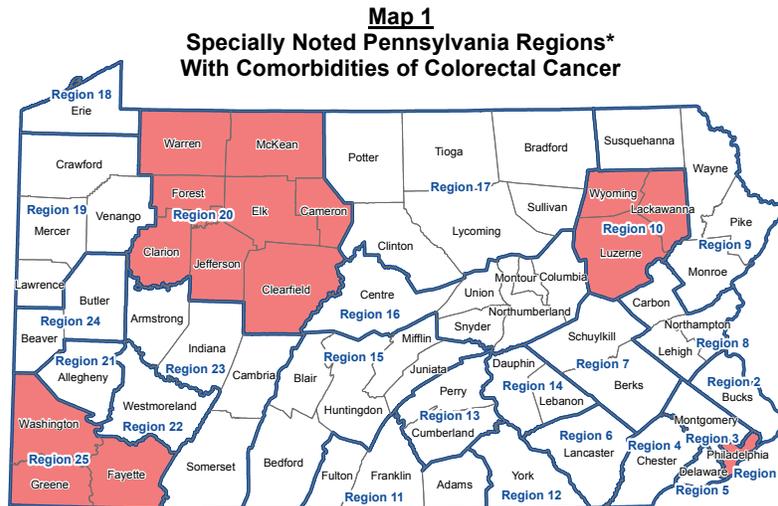
Trends and Comorbidities of Colorectal Cancer

Links Observed With Heart Disease, Obesity, Diabetes, and Smoking

Colorectal cancer is one of the most commonly occurring cancers in both males and females in Pennsylvania and the United States. Recent research has shown that there appear to be links between colorectal cancer and several otherwise unrelated health risk factors, such as: heart disease, obesity, diabetes, and smoking.

In the following sections, please note that any time cancer incidence, late stage percent, and death rate are used, the terms specifically reference colorectal cancer. Recent colorectal cancer data was examined at the regional level in Pennsylvania, so that, a coincidental comparison could be made between colorectal cancer and the four previously mentioned comorbid factors (heart disease, obesity, diabetes, and smoking). The regions highlighted in red in Map 1 consists of areas which had at least two statistically significantly higher rates out of cancer incidence, late stage cases, or cancer death and at least one statistically significantly higher percent of one of the comorbidities discussed.

The rates for both cancer incidence and cancer death for Region 1 (Philadelphia County) were significantly higher than the state rate for the last 10 years (2000-2009). Region 5 (Delaware County) had significantly higher cancer incidence rates for eight of the last nine years, significantly higher late stage percents 18 of the last 20 years, and significantly higher cancer death rates for the last five consecutive years. Region 10 (Lackawanna, Luzerne, and Wyoming Counties) had significantly higher incidence rates than the state for 19 of the last



* Red shaded regions indicate areas with at least two statistically significantly higher (95% level) rates of colorectal cancer incidence, late stage, or death AND at least one statistically significantly higher percent for a comorbidity (obesity, diabetes, current smoker, or heart attack, heart disease, and stroke).

20 years. Significantly higher late stage percents were found for Region 11 (Adams, Franklin, and Fulton Counties) for the last six consecutive years. Region 20 (Cameron, Clarion, Clearfield, Elk, Forest, Jefferson, McKean, and Warren Counties) had significantly higher rates for incidence seven of the last eight years, and significantly higher late stage percents for eight of the last 10 years. Region 25 (Fayette, Greene, and Washington Counties) had significantly higher incidence rates for eight of the last 10 years compared to the state.

It is also interesting to note that over the last 20 years, Region 10 had the highest cancer incidence rate in the state for any region 10 times; Region 5 had the highest cancer late stage percent of any region in seven of the last 20 years.

Table 1, next page, is limited to the seven Pennsylvania regions that had at least two significantly higher rates of colorectal cancer compared to the corresponding state rate for the 3-year period of 2007-2009. During

that time, Regions 5, 11, 19 (Crawford, Lawrence, Mercer, and Venango Counties), 20, and 25 all had significantly higher values for incidence rates, late stage percents, and death rates than for the state. Also, Region 1 and 10 had significantly higher rates for both incidence and death than the state. Region 25 in the southwestern corner of Pennsylvania appears to be a nexus for the coincidental comorbidities that have been discussed in this article.

Table 2, next page, is limited to the Pennsylvania regions with a statistically significantly higher percent of the comorbidities discussed in this article (obesity, diabetes, current smoker, or heart attack, heart disease, and stroke). In the 2007-2009 timeframe, Region 25 was shown to have statistically significantly higher colorectal cancer incidence, late stage, and death, as well as, statistically significantly higher rates of obesity, diabetes, and heart disease, heart attack, and stroke. Region 25 was the only region in the state to

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Trends and Comorbidities of Colorectal Cancer

Table 1
Pennsylvania Regions With at Least Two Statistically Significant Higher Colorectal Cancer-related Rates or Percents
Pennsylvania Residents, 2007-2009

Region	Counties	Incidence Rate*	Late Stage Percent^	Death Rate*
1	Philadelphia	53.87	46.17	21.42
5	Delaware	53.07	54.17	20.56
10	Lackawanna, Luzerne, Wyoming	51.91	46.08	19.12
11	Adams, Franklin, Fulton	50.33	51.50	19.34
19	Crawford, Lawrence, Mercer, Venango	51.61	51.29	18.57
20	Cameron, Clarion, Clearfield, Elk, Forest, Jefferson, McKean, Warren	55.34	50.36	20.45
25	Fayette, Greene, Washington	54.16	50.98	20.24
	Pennsylvania	49.64	47.47	17.97

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

^ Percents are a rate per 100.

Source: Pennsylvania Cancer Registry and Pennsylvania Death Certificates.

Note: Red text notes statistically significantly higher rates or percents; blue notes statistically significantly lower percents at the 95% level.

have statistically significantly higher rates for each of these three BRFSS-related health risk factors. For those who currently smoke, three regions were significantly higher, which were Regions 1, 10, and 20. All of these had higher rates for both colorectal cancer incidence and death. See Map 1, previous page, for highlighting of these four regions (Regions 1, 10, 20, and 25).

The following studies were the inspiration for this article. Brief overviews and links to the studies are provided for those who wish to learn more about colorectal cancer and its comorbidities.

A [study conducted by the University of Hong Kong](#) showed that heart disease and colorectal cancer share common risk factors¹. The study's findings, which appear in the Journal of the American Medical Association, report that colorectal cancer may be more common among people with heart disease. Doctors in the study found colorectal cancer in about four percent of heart disease patients, but only one percent in those without heart disease. They also found suspicious polyps to be more common in heart disease patients.

According to the [National Cancer Institute](#), obesity is associated with increased risk of colorectal cancer². The distribution of body fat appears to be an important factor, with abdominal obesity showing the strongest association with colorectal cancer. The results of [two studies in the Journal of Clinical Oncology](#) showed that people who have been diagnosed with colorectal cancer have a poorer prognosis if they are obese^{3, 4}. One of the studies found that for people who were considered obese, the risk of dying from colorectal cancer was 35 percent higher.

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Table 2
Pennsylvania Regions With at Least One Statistically Significant Higher Behavioral Risk Factor Surveillance System (BRFSS) Percents for Colorectal Cancer Comorbidities
Pennsylvania Residents, 2007-2009

Region	Counties	Heart Attack, Heart Disease, Stroke	Obese	Diabetes	Current Smoker
1	Philadelphia	14	30	11	25
10	Lackawanna, Luzerne, Wyoming	13	27	8	24
20	Cameron, Clarion, Clearfield, Elk, Forest, Jefferson, McKean, Warren	13	30	9	29
25	Fayette, Greene, Washington	15	33	12	24
	Pennsylvania	12	28	8	21

Source: Pennsylvania Behavioral Risk Factor Surveillance System.

Note: Red text notes statistically significantly higher percents at the 95% confidence level.

Continued...

Trends and Comorbidities of Colorectal Cancer

Many observational studies have shown that people who have a lower weight gain during adulthood, and who are physically active on a regular basis, have a lower risk of developing colorectal cancer.

The combined [results of 14 international studies](#) found that people with diabetes were 38 percent more likely to be diagnosed with colorectal cancer than those who were diabetes-free⁵. These findings were reported in *The American Journal of Gastroenterology*. According to a [study conducted by epidemiologists](#) from the American Cancer Society (ACS), diabetes increased the risk of dying from colorectal cancer by about 30 percent, and overall deaths among early stage colorectal cancer patients was increased by about 50 percent when they had diabetes before their colorectal cancer diagnosis. Five years after a colorectal cancer diagnosis, about 3 out of 10 patients with diabetes had died, compared to only 2 out of 10 without diabetes⁶. While diabetics are not yet advised to get earlier screenings for colorectal cancer, it is known that many of the things which reduce the risk of get-

ting diabetes also reduce the risk of getting colorectal cancer.

Smoking causes many types of illnesses, including some that may not be immediately associated with cigarettes, such as colorectal cancer. Smokers not only have a higher risk of developing colorectal cancer, they also have a higher risk of dying from it, according to [researchers from the Indiana University School of Medicine](#)⁷. As of now, there is no guideline for when smokers should be screened for colorectal cancer if they have no other apparent risk factors. As more research is completed on the link between smoking and colorectal cancer, smoking may be recognized as a risk factor that should prompt earlier screening.

People who get screened regularly for colorectal cancer have a lower risk factor of developing the disease. The ACS recommends that everyone should begin screenings at age 50. Tests include a colonoscopy given every 10 years, or a sigmoidoscopy or virtual colonoscopy every five years. Other tests available include yearly blood stool tests. You should discuss with your doctor what

schedule works best for you. While it has not definitively been proven that heart disease, obesity, diabetes, and smoking cause colorectal cancer, the link between them as risk factors is growing stronger. Five strategies for fighting these risk factors, which may also help prevent colorectal cancer, include: exercise regularly, eat a heart-healthy diet, maintain a healthy weight, don't smoke or use tobacco products, and get your regular health screenings. As we recognize March as National Colorectal Cancer Awareness Month, consider spreading the word to your friends and loved ones. And if you are due for a screening yourself, remember, the life you save may be your own.

If you have any questions about this article, please contact the Bureau of Health Statistics and Research at 717-783-2548. Additional cancer statistics for Pennsylvania can be obtained from the [Cancer Statistics](#) web page. Pennsylvania cancer and BRFSS statistics are available on [EpiQMS](#), our online, interactive data dissemination tool.

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¹Chan, Annie On On, Man Hong Jim, Kwok Fai Lam, et al. Prevalence of Colorectal Neoplasm Among Patients with Newly Diagnosed Coronary Artery Disease. *Journal of the American Medical Association*. 2007; 298(12); 1412-1419.

² *Obesity and Cancer Risk*. National Cancer Institute at the National Institutes of Health. 3 January 2012. Web. 29 February 2012.

³ Campbell, Peter, Christina Newton, Ahmed Dehal, et al. Impact of Body Mass Index on Survival After Colorectal Cancer Diagnosis: The Cancer Prevention Study-II Nutrition Cohort. *Journal of Clinical Oncology*. 2012; 30(1); 42-52.

⁴ Field, Kathryn, Matthew Croxford, Ian Hastie, et al. Impact of Body Mass Index on Colorectal Cancer Treatment and Outcomes: Need for Prospective and Comprehensive Data. *Journal of Clinical Oncology*. 2009; 27(9); 1524-1526.

⁵ Yuhara, Hiroki, Craig Steinmaus, Stephanie Cohen, et al. Is Diabetes Mellitus an Independent Risk Factor for Colon Cancer and Rectal Cancer?. *The American Journal of Gastroenterology*. 2011; 106(11); 1911-1921.

⁶ Dehal, Ahmed, Christina Newton, Eric Jacobs, et al. Impact of Diabetes Mellitus and Insulin Use on Survival After Colorectal Cancer Diagnosis: The Cancer Prevention Study-II Nutrition Cohort. *Journal of Clinical Oncology*. 2012; 30(1); 53-59.

⁷ *Smoking Increases Colon Cancer Risk*. Everyday Health. 20 May 2009. Web. 29 February 2012.

Annual Number of Deaths Have Declined Since 2000

Largest Declines Recorded for Heart Disease and Stroke

The annual number of Pennsylvania resident deaths has declined by over five percent from 2000 to 2010. This decline occurred despite an increase in the 65 and older population for Pennsylvania during this same timeframe. A few specific causes of death have experienced the largest number and percent decreases and have thus been the major contributors to the overall decline (see Table 1). They include: heart disease (-9,172, -22.7 percent), stroke (-2,256, -25.4 percent), influenza/pneumonia (-758, -24.9 percent), and diabetes (-597, -15.8 percent).

While an overall drop was observed from 2000 to 2010, two major causes of death experienced substantial increases (Alzheimer's disease: 40.8 percent; accidents: 24.6 percent). However, decreases generally outnumbered increases and the total number of annual deaths increased just twice for Pennsylvania residents over this decade (in 2005 and 2008).

With the overall number of deaths dropping for Pennsylvania residents in 2010, certain demographics saw some more noticeable changes compared to 2000. The number of deaths to Pennsylvania residents aged 65-69 fell by almost 4 percent from 2000 to 2010. This is significant because the population for Pennsylvania residents aged 65-69 actually increased by over 15 percent during the same timeframe (see Table 2). Heart disease, stroke, and diabetes deaths for residents, between the ages of 65 and 69, decreased by over 20 percent from 2000 to 2010. The 80-84 and 85 and older age groups experienced some large decreases for certain major

Table 1
Selected Causes of Death
Pennsylvania Residents, 2000 vs. 2010

	2010	2000	Difference 2000 to 2010	% Change 2000 to 2010
Total Deaths	123,473	130,092	-6,619	-5.1
Heart Disease	31,274	40,446	-9,172	-22.7
Malignant Neoplasms (Cancer)	28,809	29,989	-1,180	-3.9
Cerebrovascular Diseases (Stroke)	6,629	8,885	-2,256	-25.4
Chronic Lower Respiratory Diseases	6,164	6,045	119	2.0
Accidents	5,607	4,500	1,107	24.6
Alzheimer's Disease	3,566	2,533	1,033	40.8
Diabetes Mellitus	3,184	3,781	-597	-15.8
Nephritis, Nephrotic Syndrome and Nephrosis	3,028	2,675	353	13.2
Influenza and Pneumonia	2,289	3,047	-758	-24.9
Septicemia	2,212	2,573	-361	-14.0
Intentional Self-harm (Suicide)	1,547	1,348	199	14.8
Chronic Liver Disease and Cirrhosis	1,180	1,079	101	9.4
Parkinson's Disease	1,178	930	248	26.7
Essential Hypertension and HRD	970	833	137	16.4
In Situ, Benign and Uncertain Neoplasms	833	772	61	7.9
Assault (Homicide)	682	649	33	5.1
Congenital Malformations	373	414	-41	-9.9
Atherosclerosis	305	644	-339	-52.6
HIV Disease	264	498	-234	-47.0
Anemias	252	284	-32	-11.3

Table 2
2000 to 2010 Percent Change by Major Causes of Death
by Age Group (Ages 65+) and Percent Population Change
for Pennsylvania Residents

Cause of Death	Age Groups					Total 65+
	65-69	70-74	75-79	80-84	85+	
All Causes	-3.9	-28.1	-31.5	-12.0	13.5	-7.9
Heart Disease	-21.2	-44.1	-48.2	-31.9	-6.7	-24.9
Stroke	-23.2	-43.7	-47.1	-31.1	-13.3	-26.5
Cancer	-0.5	-24.0	-23.9	-4.5	22.4	-7.3
Accidents	23.5	1.7	-4.7	22.9	63.0	29.4
Alzheimer's	17.2	14.7	-6.5	18.6	62.0	41.2
Diabetes Mellitus	-24.9	-34.0	-40.9	-14.4	10.1	-18.6
Influenza/Pneumonia	-2.9	-21.0	-38.9	-36.0	-23.0	-27.0
Pennsylvania Population Change	15.1	-12.7	-14.2	7.5	28.7	2.1

causes of death as well, all while the overall population for those age groups increased (changes of 7.5 and 28.7, respectively). For the 80-84 age group, heart disease, stroke, and influenza/pneumonia deaths decreased by more than 30 percent. For the 85 and older age group, those same

three causes of death experienced decreases as well. One interesting note is that accidents and Alzheimer's disease deaths both observed increases in four out of the five age groups that make up the 65+ category. Only the 75-79 age group

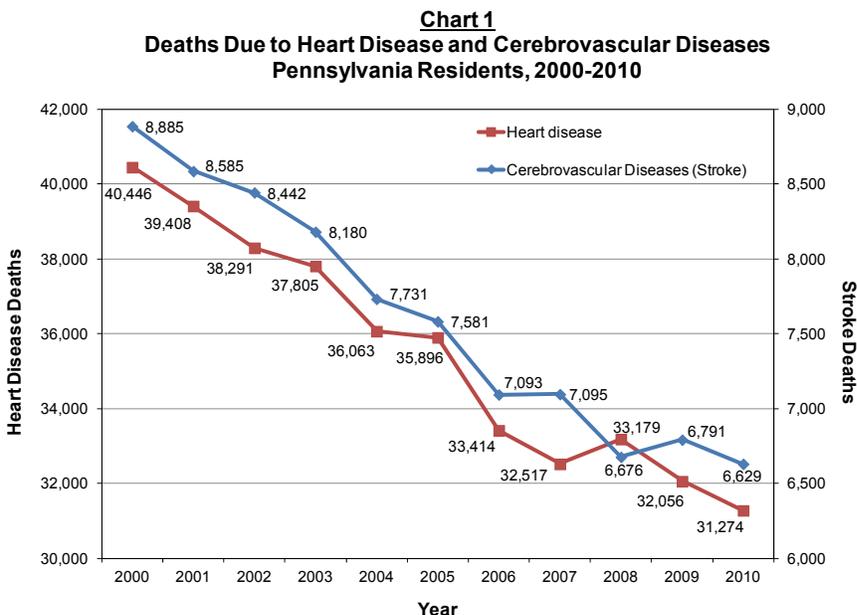
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Annual Number of Deaths Have Declined Since 2000

saw decreases. Some counties saw larger fluctuations in the number of deaths than others. Deaths for residents of fifteen counties experienced a 10 percent change or more from 2000 to 2010. Ten of the fifteen saw decreases (Allegheny, Armstrong, Clinton, Lackawanna, Luzerne, McKean, Mercer, Montour, Philadelphia, and Schuylkill), while the remaining five counties (Adams, Jefferson, Northampton, Perry, and Pike) experienced an increase. Of the five counties mentioned above that had an increase, all but Jefferson County saw an increase in the 65 and older population of at least 10 percent. Out of the ten counties that experienced a decrease in the number of deaths from 2000 to 2010, nine of them saw a corresponding drop in their 65 and older population. Interestingly enough, Montour County observed an increase in their 65 and older population while also experiencing a decrease in the total number of deaths.

Certain causes of death have had more noticeable trends, either up or down, over the past few years. Deaths due to heart disease have been on the decline since 2000, as well as deaths due to stroke (see Table 1). In fact, for Pennsylvania residents, stroke deaths have declined over 25 percent from 2000 to 2010 and heart disease deaths have declined by over 22 percent. Chart 1 provides a visual representation of how the trends of two of the top causes of death (heart disease and stroke) have decreased. The decline in deaths due to heart disease and



stroke is meaningful, since they have each been leading causes of death for Pennsylvania in recent years, combined making up over 30 percent of the total deaths in 2010.

HIV disease deaths have also declined from 2000 to 2010 (see Table 1). The number of resident deaths due to HIV disease has dropped by 47 percent from 2000 to 2010. HIV disease deaths experienced a steep decrease from 2004 to 2005 and then stabilized for a few years, before another steep decrease from 2007 to 2010.

The age-adjusted death rates also experienced fluctuations in 2010 compared to 2000. For example, the overall age-adjusted death rate for all causes of death in 2000 was 886.6 per 100,000 standard million population, compared to 758.8 per 100,000 standard million population in 2010. Other causes of death observed a

decrease in their age-adjusted rate when comparing 2000 to 2010, including heart disease (270.0 in 2000 and 185.3 in 2010), stroke (58.7 and 38.9), diabetes (25.7 and 19.6), and HIV (4.1 and 1.9). Alzheimer's age-adjusted death rate experienced a similar increase with its rate as it did with the number of deaths, with 16.4 per 100,000 standard million population in 2000, compared to 19.9 in 2010. Accidents also fell into this category with an increase in the age-adjusted rate, 34.5 in 2000 compared to 40.1 in 2010.

Much of these data can be found within our online, interactive web tool, [EpiQMS](#). For questions about the data included in this article, please contact the Bureau of Health Statistics and Research at 717-783-2548 or [Send Us a Message](#).

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Cervical Cancer Incidence, Stage, and Death in Pennsylvania

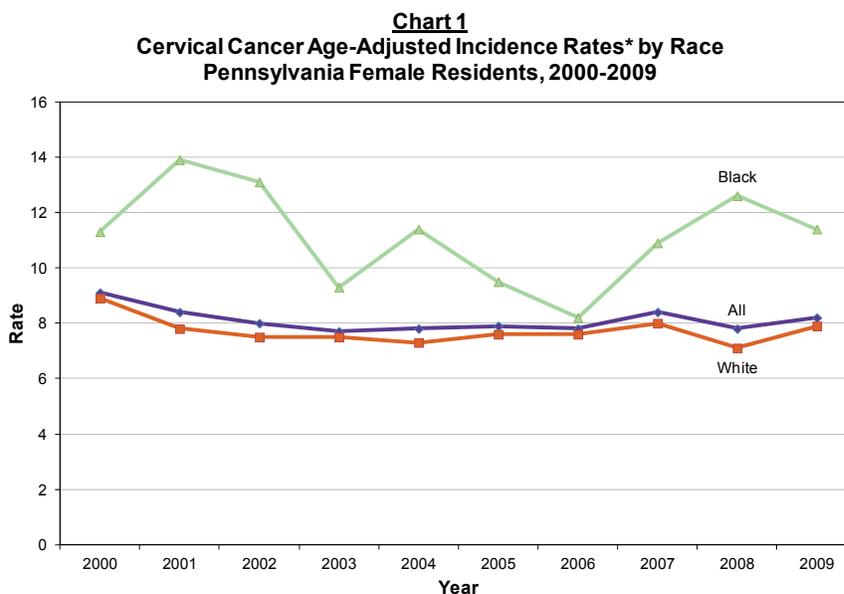
Recent Cervical Cancer Trends and Staging Distribution Reviewed

Each January, we observe National Cervical Cancer Awareness Month. In both Pennsylvania and the United States, cervical cancer is one of the less commonly occurring types of cancer. With proper screening and early diagnosis, it is nearly 100 percent preventable. The following statistics were assembled to show the trends of cervical cancer in Pennsylvania over recent years.

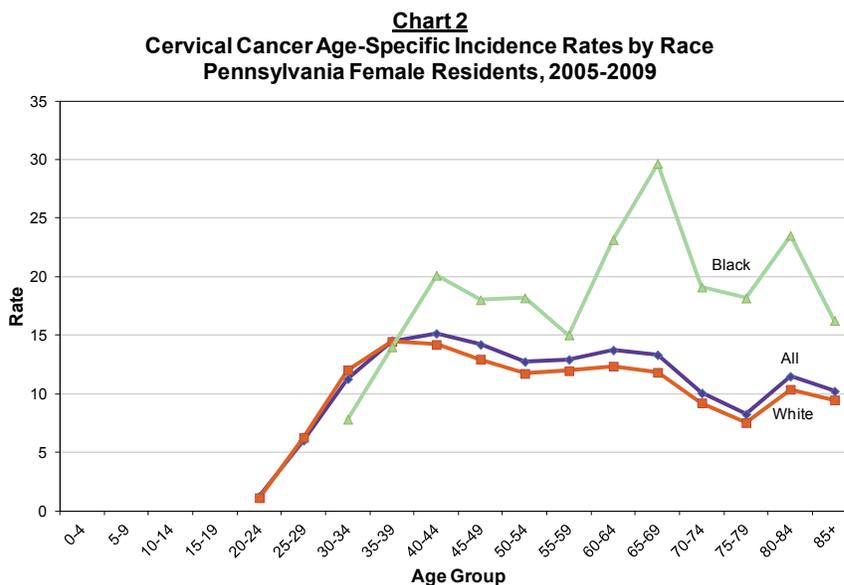
Cervical Cancer Incidence Rates

The age-adjusted incidence rate for cervical cancer among all Pennsylvania females has remained fairly consistent over the last 10 years (see Chart 1). The highest rate among all females during this time was 9.1 per 100,000 in 2000, and the lowest was 7.7 per 100,000 in 2003. Rates for white females have been very consistent with the overall rate for all females during this 10-year time period. The highest rate for white female residents was 8.9 per 100,000 in 2000, and the lowest was 7.1 per 100,000 in 2008. The rate for black females has been higher than the rate for all females each year from 2000 to 2009. However, due to the smaller number of events for black females, the rates have fluctuated during this time and no long-term trend could be determined. The highest rate for black females was 13.9 per 100,000 in 2001, and the lowest was 8.2 per 100,000 in 2006.

The average annual age-specific cervical cancer incidence rates for all Pennsylvania females for 2005-2009 show a major increase for women in their 20s and 30s, followed by a slow decline over the remaining age groups (see Chart 2). The highest rate was 15.2 per 100,000 which



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



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

occurred in women ages 40-44. The age-specific rates for white females are fairly consistent with those for all females, but generally remain below those rates. The highest rate, 14.5 per 100,000, occurred in white females in the age group 35-39. The rates for black females were generally higher than the rates for all females, and

actually showed increases later in life. Rates for black female residents showed the expected increase in their 30s, but then spiked again in their 60s and 80s. The highest rate shown was 29.7 per 100,000 for black females in the 65-69 age grouping. More than 90 percent of the cases for

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Cervical Cancer Incidence, Stage, and Death in Pennsylvania

all race groups were diagnosed among women 30 years of age or older.

Cervical Cancer Stage of Diagnosis

The largest percent of cervical cancer cases were diagnosed in the local stage of the disease for all races, whites, and blacks (see Chart 3). For the diagnoses of 2007-2009 cervical cancer cases, local stage cancer occurred in 44.4 percent of all females, 45.1 percent of white females, and 42.8 percent of black females. Please note that due to the ambiguity in terminology used by pathologists to identify pre-invasive cervical neoplasia, the Pennsylvania Cancer Registry does not code any cervical cancers as in situ stage, which is why in situ stage is not shown in Chart 3.

It should be noted that any malignant cases diagnosed represent missed opportunities for screening, early detection, and treatment. While local stage is the most common stage for cervical cancer, late stage (regional and distant combined) cervical cancer accounts for about 50 percent of all cervical cancer.

Of those cervical cancers diagnosed in late stage, 36.3 percent were diagnosed in regional stage and 13.7 percent were in distant stage. For white females, regional stage accounted for 35.8 percent of the cervical cancers diagnoses and distant stage diagnoses were 14.1 percent. For black females, regional accounted for 38.4 percent and distant stage was 12.7 percent. Overall, the distribution of staging was very similar between all, white, and black females.

Cervical Cancer Death Rates

The age-adjusted death rate for cervi-

Chart 3
Cervical Cancer Stage of Disease at Diagnosis, Percent by Race
Pennsylvania Female Residents, 2007-2009

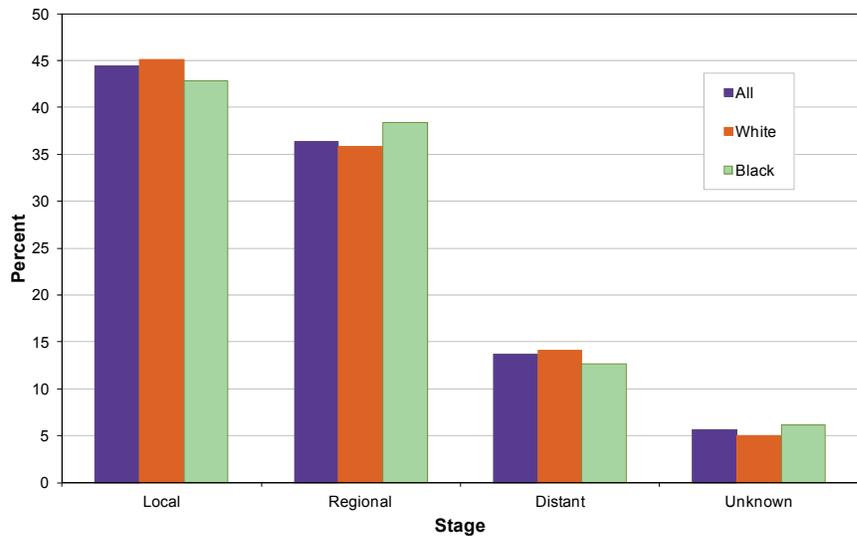
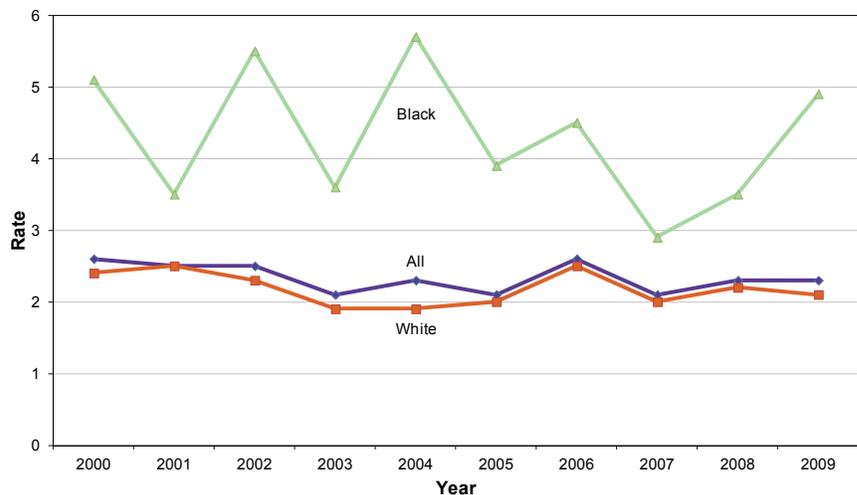


Chart 4
Cervical Cancer Age-Adjusted Death Rates by Race
Pennsylvania Female Residents, 2000-2009



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

cal cancer among all Pennsylvania females has been fairly consistent between the years 2000-2009 (see Chart 4). The most recently reported rate was 2.3 per 100,000 in 2009. The highest rate for all females was 2.6 per 100,000 in both 2000 and 2006. The lowest rate was 2.1 per 100,000 in 2003, 2005, and 2007.

Similar to incidence rates, the death rates for white females closely follow the rates for all females, and are never higher during this time period. The highest rate for white females was 2.5 per 100,000 in 2001 and 2006. The lowest rate was 1.9 per 100,000 in 2003 and 2004. The death

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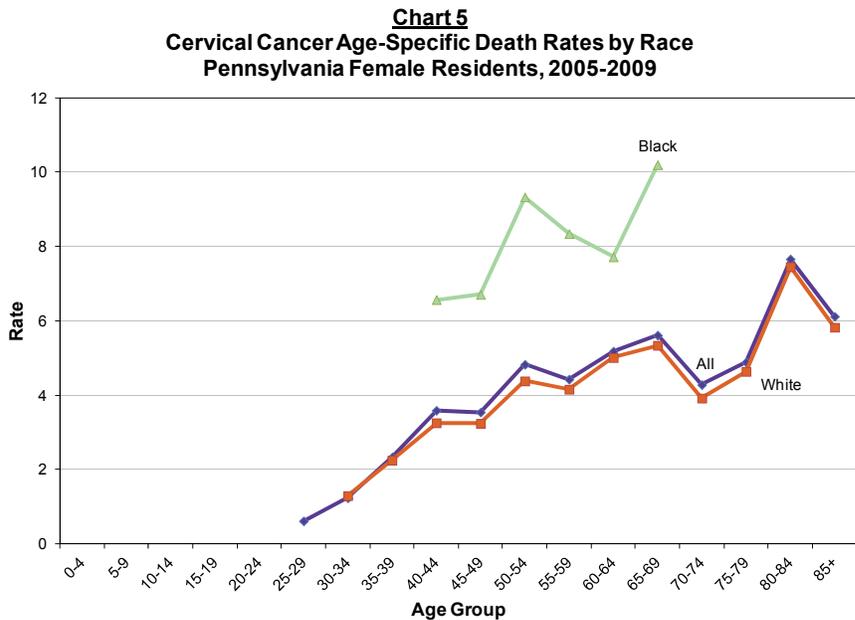
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Cervical Cancer Incidence, Stage, and Death in Pennsylvania

rate for black females has been higher than all females for each year 2000-2009. The highest death rate for black female residents was 5.7 per 100,000 in 2004, and the lowest was 2.9 per 100,000 in 2007.

The average annual age-specific death rates for all Pennsylvania females for 2005-2009 show a consistent increase as age increases (see Chart 5). This is expected, as death rates for a majority of all causes of death tend to increase with age. It is interesting to note that with cervical cancer during this time, the rate increases steadily for women from their 20s through 60s, before a drop in the rate during their 70s, and then increases again. The rates for white females closely match that of all females, and were never higher than those rates. The rates for black females increase in a similar way to all females, but the rates for black women are always higher. While the average annual number of deaths due to cervical cancer continues to be low, we should remember that all cervical cancer deaths should be considered preventable.

While cervical cancer remains a commonly occurring form of cancer, it is nearly 100 percent preventable. With adequate screenings, the likelihood of developing cervical cancer is



extremely small. According to the American Cancer Society, all women should begin screenings about three years after they first have vaginal intercourse, but no later than 21 years old. Screening should be completed yearly with the regular Pap test or every other year with the liquid-based Pap test. Beginning at age 30, women with three normal Pap results in a row may get screened every two to three years. Women 70 years of age or older who have three or more normal tests in a row and no abnormal tests in 10 years time may choose to stop screenings altogether.

Some women may need a different screening schedule for cervical cancer, so check with your doctor on what works best for you.

If you have any questions about this article, please contact the Bureau of Health Statistics and Research at 717-783-2548. Additional cancer statistics for Pennsylvania can be obtained from the [Cancer Statistics](#) web page. Pennsylvania cancer statistics are also available on [EpiQMS](#), our online, interactive data dissemination tool.

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