

# STATISTICAL NEWS

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## Breast Cancer Staging Statistics Reviewed

*Figures By County and Race for Later Stages Show Differences*

**F**orty out of the sixty-seven (or almost 60 percent of the) counties in Pennsylvania had a higher percentage of later (regional and distant) stage diagnoses of female breast cancer than the state during the five-year period of 1993-1997. A county outline map appears on page 6 depicting these results. In addition, a higher percentage of black women were diagnosed at the later stages of breast cancer compared to white women during that period.

The stage of female breast cancer at the time of diagnosis is one of the most important factors in selecting treatment options and in predicting survival. The earlier the cancer is diagnosed, the better is the chance for successful treatment.

Stage of disease refers to the classification system which groups cases into broad categories according to how far the disease has spread from the site of origin at the time of diagnosis. The four basic categories used for staging female breast cancers are in situ, local, regional, and distant. The five-year relative survival rate for localized breast cancer is

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96 percent. However, it decreases to 77 percent for regional stages and to 21 percent for distant metastases.

Breast cancer is the most common cancer diagnosed among women, excluding non-melanoma skin cancers. It is the second leading cause of cancer deaths in women, exceeded only by lung cancer. The Bureau of Health Statistics estimated that in the year 2000 approximately 11,970 female residents were diagnosed with breast cancer and 2,180 died from the disease.

During the five-year period of 1993-1997, 29.5 percent of all female breast cancer cases among residents were diagnosed at later stages of the

*Continued on Page 6...*

## 1999 Natality Statistics Now Available

*Total Number and Teen Births Down; Low Birth Weight, Early Prenatal Care, and Cesareans Up*

**T**he total number of resident live births for the state declined in 1999. A review of recently released final birth statistics for 1999 also showed a higher percentage of babies born at low birth weights and an increase in the rate of cesarean deliveries. However, a higher percentage of mothers received early prenatal care (within the first trimester) in 1999 compared to 1998. In addition, the percentage of births to teenage mothers (under age 18) continued its decline with 1999 figures.

### **Total Number of Births:**

There were 144,828 live births recorded in 1999 among residents, 778 less than in 1998 (145,606). This resumes the downward trend seen during the years of 1991 through 1997. The 1998 figure was the only increase reported since 1990.

### **Low and Very Low Birth Weight:**

The percentage of low birth weight babies increased in 1999 to 7.9 from the 7.6 recorded in 1998 and 1997 (see

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**Increases in the percentages of births to mothers who had prenatal care in the first trimester were recorded among whites, blacks, and Hispanics in 1999.**

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Chart 1 on page 5). Among black mothers, the percentage of low birth weight infants in-

*Continued on Page 4...*

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# Beware of Changes in Age-Adjusted Rates

## *Use of New Standard Population Will Affect Comparability of Rates*

**H**ave you ever used any health statistics, especially an age-adjusted mortality rate? Do you need to track data for the Healthy People 2010 public health objectives? Do you conduct community health needs assessments? If you have answered “yes” to any of these questions, it is **very** important that you read this article about a significant change in how age-adjusted mortality rates are now being calculated which directly impacts on how you interpret and use these important health statistics.

Age-adjustment is a technique that is used to eliminate the effect of the age distribution of the population on mortality rates. For over fifty years, vital statistics offices at the national and state levels have used the 1940 population of the United States as the standard population in the calculation of age-adjusted rates. The standard population acts as the weights that are used in age-adjusting death rates.

The use of the same standard population in the calculation of age-adjusted rates is essentially what allows them to become a valuable tool for comparison/assessment purposes. However, **it is important that you compare only age-adjusted rates that are calculated with the same standard population.**

Starting with release of 1999 mortality data and in the case of Healthy People 2010 objectives, a different standard population is being used in the calculation of age-adjusted mortality **rates**. The reasons

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**...age-adjusted (death) rates based on the 1940 standard population cannot be used and compared with the newer rates that use the year 2000 population as the standard.**

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for this change are defined below **but the most important issue here is that age-adjusted rates based on the 1940 standard population cannot be used and compared with the newer rates that use the year 2000 population as the standard.** This will become evident to you once we demonstrate below just how different age-adjusted rates based on the two standard populations actually are.

Because the 1940 population is such an old data set, there was criticism about its continued use. Some statisticians argued that the resulting rates did not reflect the average risk of death associated with an aging population.

In addition to the problem with using an “old” standard population, different population standards were being used by different national agencies. The National Center for Health Statistics used 1940; the National Cancer Institute used 1970; and, some other program offices at the Centers for Disease Control and Prevention used 1980 population.

Because of these problems, the U. S. Department of Health and Human Services formally adopted a single new population standard for age-adjusting rates, starting with 1999 events. The new standard was the year 2000 population, as projected by the U.S. Census Bureau in 1998. Vital statistics offices in all states will also begin use of the new standard with 1999 events. In anticipation of this change, all of the age-adjusted mortality rates that appear in Healthy People 2010 objectives were based on the new 2000 standard population.

The population of the United States, and especially Pennsylvania, has aged since 1940. Therefore, the age-adjusted mortality rates, calculated by using the 2000 population standard, will be higher and, for most causes of death, will look much more like crude death rates which reflect the actual age distribution of the population.

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**...all of the age-adjusted mortality rates that appear in Healthy People 2010 objectives were based on the new 2000 standard population.**

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For example, the total (all causes) 1998 age-adjusted mortality rate for Pennsylvania based on the 2000 population standard is 857.9, compared to 468.3 when using the 1940 standard. The crude death rate for 1998 is 1052.5 per 100,000 population.

Differences in the range between the 1940 and the 2000 adjusted rates will vary by cause of death. This is directly related to the age distribution of the decedents. For heart disease, the age-adjusted rate based on the 2000 standard will be about double the rate based on the 1940 standard. For deaths due to unintentional injuries, the rate based on the 2000 standard will probably be only about 20 percent higher. This is due to the fact that unintended injury deaths are more common among younger age groups. For HIV infection, the rates (based on 2000 and 1940 standards) were relatively close but by the 1990s started to diverge, with the rate based on the 2000 standard rising faster. This difference reflects the changing age distribution of the population dying from AIDS.

Racial disparities among age-adjusted rates using the new standard will also be affected. For example, black-white disparity can be measured by the ratio of the black to the white age-adjusted mortality rate. With the 1940 standard, the ratio was about 1.6. This indicates that black age-adjusted mortality was, on the average, about 60 percent higher than white age-adjusted mortality. Using the 2000 standard, the disparity falls from 1.6 to 1.4. This again is due to the fact that the 2000 standard gives more weight to the older population where race differentials in mortality are smaller than at younger ages.

*Continued on back page...*

# 1998 Cancer Incidence Data Now Available

## *Cancer Cases Decline in 1998; But Breast and Colon Cancers Increase*

Provisional 1998 cancer incidence data are now available from the Bureau of Health Statistics. The provisional number of cancer cases diagnosed in 1998 and reported to the Pennsylvania Cancer Registry was 69,981. Compared to the previous year, this 1998 figure is a decrease of 631 cancer cases. Statewide reporting of cancer incidence began in 1985. Since 1985, the annual number of cancer cases decreased from the previous year only three times (in 1987, 1994 and 1998). In 1998, the number of cancer cases decreased by 742 for male resi-

dents of the Commonwealth and increased by 110 cases for female residents as compared to 1997 figures. For cancers diagnosed since 1996, in situ (non-invasive) cervix uteri cancers are no longer collected or reported by the Pennsylvania Cancer Registry.

The five highest primary cancer sites for 1998 were the same and in the same order as in 1997. Female breast cancers had the highest numbers of cases (11,732) reported in 1998. This is the highest annual number of female breast cancer cases recorded since statewide reporting began in

1985. Compared to 1997 figures, female breast cancers increased by 322 cases (or 2.8 percent). The second and third highest primary cancer sites for 1998 were the trachea, bronchus, lung and pleura with 9,811 cases and prostate cancers with 9,307 cases. Cancer of the colon (7,192) and urinary bladder (3,416) claimed the fourth and fifth highest positions, respectively. Combined, these five highest sites represent over 59 percent of all cancer cases reported.

The five cancer sites with the highest number of cases and percent of total cases among males during 1998 were prostate (27.1 percent of all male cases), trachea, bronchus, lung and pleura (16.6 percent), colon (10.1 percent), urinary bladder (7.3 percent), and rectum, anus and rectosigmoid (4.5 percent). Among males, these were the same top five cancer sites and in the same order for the previous four years of 1994 through 1997.

The percentage of male cases for the combined five highest cancer sites was nearly 66 percent, roughly the same as reported in the previous four years. Among these five highest cancer sites for males, the number of cases for colon and rectum, anus and rectosigmoid increased for males in 1998 compared to 1997. The table to the left shows the number of cases and the percent change for the top five cancers for males during 1998 and 1997.

Among female residents of the Commonwealth, the top five cancer sites in 1998 were

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**Among all the major primary sites, female breast cancer had the highest number of cases reported in 1998.**

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breast (33.0 percent of all female cases), trachea, bronchus, lung and pleura (11.5 percent), colon (10.4 percent), corpus uteri (6.1 percent), and rectum, anus and rectosigmoid (3.7 percent). Rectum, anus and rectosigmoid replaced non-Hodgkin's lymphoma as the fifth highest cancer site for females in 1998.

Combined, the five highest sites for females represent nearly 65 percent of all female cancers. Among these five primary cancer sites, cancers of the breast, colon and rectum, anus and rectosigmoid had an increase in the number of female cases reported in 1998 as compared to 1997. The table to the left shows the number of cases and the percent change for the top five cancers for females during 1998 and 1997.

The publication, *Pennsylvania Cancer Incidence and Mortality 1994-1998*, is expected to be available for distribution in spring 2001. An electronic version of this report will also be available on the Pennsylvania Department of Health web site at [www.health.state.pa.us/stats](http://www.health.state.pa.us/stats). If you would like to request provisional 1998 cancer incidence statistics, please contact the Bureau of Health Statistics at (717) 783-2548.

**Number of Cancer Cases and Percent Change for Major Primary Sites by Sex Pennsylvania Residents, 1997 and 1998**

MALE PRIMARY SITES	NUMBER of CASES		PERCENT CHANGE
	1998	1997	
Prostate	9,307	9,889	-5.9
Trachea, Bronchus, Lung, and Pleura	5,710	5,869	-2.7
Colon	3,482	3,233	7.7
Urinary Bladder	2,517	2,600	-3.2
Rectum, Anus, and Rectosigmoid	1,534	1,484	3.4
All Male Cancer Sites	34,404	35,146	-2.1

FEMALE PRIMARY SITES	NUMBER of CASES		PERCENT CHANGE
	1998	1997	
Breast	11,732	11,410	2.8
Trachea, Bronchus, Lung, and Pleura	4,100	4,158	-1.4
Colon	3,710	3,620	2.5
Corpus Uteri	2,178	2,205	-1.2
Rectum, Anus, and Rectosigmoid	1,331	1,286	3.5
All Female Cancer Sites	35,576	35,466	0.3

## 1999 Natality Statistics

creased from 13.6 in 1998 to 14.4 in 1999. Low birth weight among births to white mothers also increased, from 6.6 percent in 1998 to 6.8 percent in 1999. However, among births to Hispanic mothers, the percentage of low birth weight infants declined from 9.4 in 1998 to 9.2 in 1999.

The national year 2010 public health objectives have set a target of 5.0 percent low birth weight infants for all births. Low birth weight is defined here as less than 2500 grams or 5 pounds and 9 ounces.

Babies born weighing less than 1500 grams (or less than 3 pounds and 4 ounces) accounted for 1.6 percent of all resident live births in 1999, the same as in 1998. There were 2,305 of these very low birth weight infants born to Pennsylvania residents in 1999. The percentage of very low birth weight infants remained at 1.3 among white mothers; rose from 3.3 to 3.5 among black mothers; and, declined from 2.0 to 1.6 among Hispanic mothers. The national year 2010 public health objective for very low birth weight is 0.9 percent.

The risk factor of low birth weight is directly related to the neonatal (under 28 days of age) death rate. Therefore, any decline in low birth weight would also affect the infant (under one year of age) death rate. It has also been shown that recent increases in multiple births (usually resulting in pre-term delivery) have been a major contributor to the increase seen in low birth weights.

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**The percentage of low birth weight babies increased in 1999 to 7.9...**

**The national year 2010 public health objectives have set a target of 5.0 percent.**

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### **Prenatal Care:**

In 85.2 percent of the births in 1999 (for whom mother's trimester of entry into prenatal care was known), the mother had obtained prenatal care in the first trimester of pregnancy. This is an increase from the 84.7 percent recorded in 1998 and continues a general upward trend in this figure throughout the 1990s. In 1990, the percentage was 79.6.

Increases in the percentages of births to mothers who had prenatal care in the first trimester were recorded among whites, blacks, and Hispanics in 1999 (see Chart 2 on opposite page). Among births to white mothers, 87.6 percent reported that the mother had prenatal care in the first trimester, compared to 87.2 percent in 1998. Among blacks, the percentage went from 70.6 in 1998 to 71.6 in 1999. Among Hispanics, the percentage increased to 73.9, from 72.2 in 1998.

These percentages have been on the increase during the 1990s, especially among blacks and Hispanics. In 1990, only 53.2 percent of the births to black mothers were to those who had had prenatal care in the first trimester and only 64.7 percent among the births to

Hispanics. Among whites in 1990, the percentage was 79.6.

The national year 2010 public health objective is to increase the percentage of births to mothers who obtained prenatal care in the first trimester to 90.0.

### **Cesarean Deliveries:**

Among the live births in 1999 to Pennsylvania residents, 20.5 percent were cesarean deliveries. This is the second consecutive year of an increase in this percentage. In 1998, the percentage of cesarean deliveries was 19.2 (see Chart 3 on opposite page).

Between 1988 and 1997, the percent of cesarean deliveries had been on the decline, from 23.3 percent in 1987 to 19.0 in 1997. In 1980, 15.6 percent of births were cesarean deliveries and, back in 1970, only 5.6 percent.

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**(The 1999 figure)... is the second consecutive year of an increase in... (the percentage of cesarean deliveries).**

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### **Teen Births:**

There were 5,278 resident live births to mothers aged 17 and younger in 1999. This represents 3.6 percent of all the resident live births that year and is the fourth consecutive year that this figure has declined. In 1998, 3.8 percent of all births were to teen mothers (age 17 and younger). This percentage did not change much between 1990 and 1995 (ranging from 3.9 to 4.3 percent) and showed no trend then.

Teens births declined for both racial groups (black and white) and among Hispanics

in the state during 1999 (see Chart 4 on opposite page). However, the percentage of teen births among blacks and Hispanics remained more than three times that for whites.

According to 1999 statistics, 2.7 percent of births among white mothers were to teenagers under 18, down from 2.9 percent in 1998. Among blacks, the percentage declined only very slightly, from 9.5 in 1998 to 9.4 in 1999. Teen births accounted for 9.6 percent of the births to Hispanic mothers in 1999, compared to 10.7 in 1998 – a rather substantial decline.

Some 1999 birth statistics are now available on the Health Statistics web pages of the Department's web site at [www.health.state.pa.us/stats](http://www.health.state.pa.us/stats) (select Vital Statistics). There you will find 1999 resident live births by county and municipality (city, borough and township) by month.

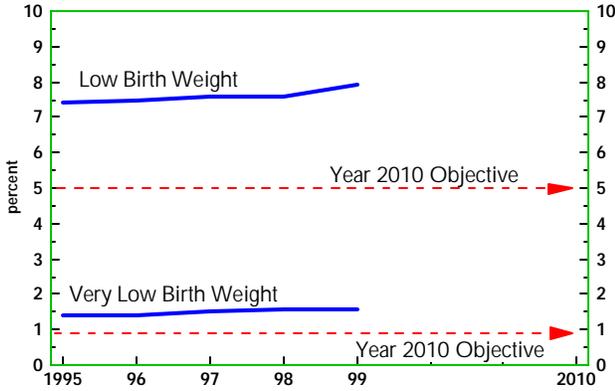
If you need additional statistics, we have many more tabulations available in electronic format that can be emailed to you upon request. If you would like any of these statistics or have questions about the data presented here, please contact the Bureau of Health Statistics at 717-783-2548.

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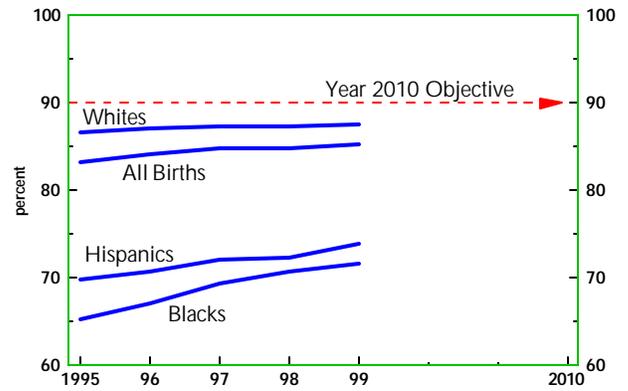
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**Chart 1**  
**Percent Low and Very Low Birth Weight**  
**Pennsylvania Resident Live Births, 1995-1999**



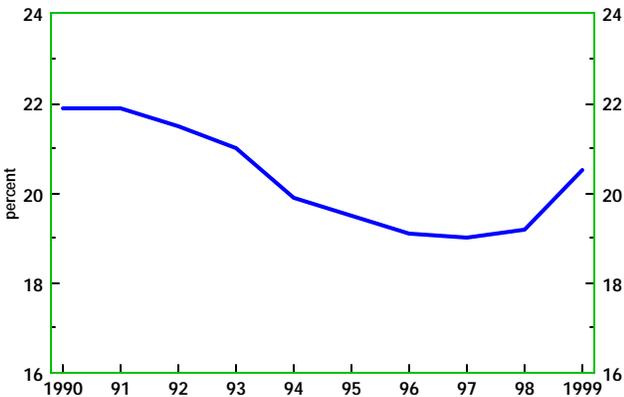
	Low Birth Weight	Very Low Birth Weight
1999	7.9	1.6
1998	7.6	1.6
1997	7.6	1.5
1996	7.5	1.4
1995	7.4	1.4

**Chart 2**  
**Percent Births Mother Had Prenatal Care**  
**in First Trimester by Race and Hispanic Origin**  
**Pennsylvania Live Births, 1995-1999**



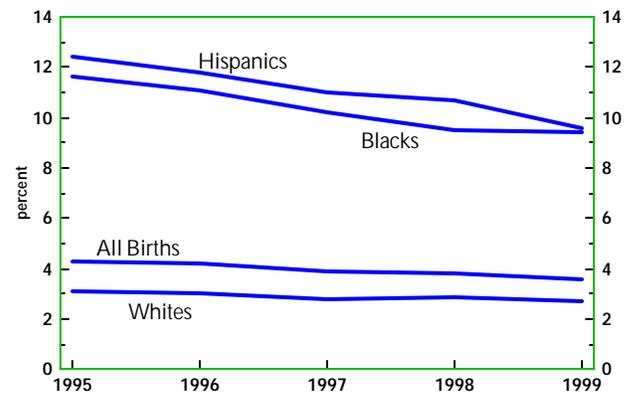
	All Births	Whites	Blacks	Hispanics
1999	85.2	87.6	71.6	73.9
1998	84.7	87.2	70.6	72.2
1997	84.7	87.4	69.3	72.1
1996	84.2	87.1	67.1	70.6
1995	83.3	86.6	65.3	69.8

**Chart 3**  
**Percent Cesarean Deliveries**  
**Pennsylvania Resident Live Births, 1990-1999**



1999	20.5
1998	19.2
1997	19.0
1996	19.1
1995	19.5
1994	19.9
1993	21.0
1992	21.5
1991	21.9
1990	21.9

**Chart 4**  
**Percent Births to Teens (Under Age 18)**  
**by Race and Hispanic Origin**  
**Pennsylvania Resident Live Births, 1995-1999**



	All Births	Whites	Blacks	Hispanics
1999	3.6	2.7	9.4	9.6
1998	3.8	2.9	9.5	10.7
1997	3.9	2.8	10.2	11.0
1996	4.2	3.0	11.1	11.8
1995	4.3	3.1	11.6	12.4

# Breast Cancer Staging Statistics Reviewed

disease (24.2 percent for regional stage and 5.4 percent for the distant stage). As previously mentioned, 40 counties had higher percentages of later stage diagnoses than the state (see map below).

Cameron County, followed by Forest County, was ranked the highest for percentage of regional and distant stages. However, these two counties, along with Sullivan and Fulton, had less than 50 total breast cancer cases reported during the five-year period of 1993-1997. The lower the number of events used in the calculation of a rate or ratio, the less reliable is the resultant statistic. Lower numbers also tend to fluctuate more widely on a periodic basis.

Elk, Wayne, and Jefferson Counties had the third, fourth, and fifth highest percentages of later stage diagnoses, respectively. Centre County had the lowest percentage of regional and distant diagnoses during 1993-1997, followed by Huntingdon, Tioga, Mifflin, and Montour Counties, respectively.

Fifteen counties (Allegheny, Berks, Bucks, Chester, Delaware, Erie, Lackawanna, Lancaster, Lehigh, Luzerne, Montgomery, Northampton, Philadelphia, Westmoreland, and York) had over a thousand female breast cancer cases diagnosed during the five-year period of 1993-1997.

Among residents of the state, 29.1 percent of the female breast cancer cases among whites were diagnosed in the regional or distant stage of the disease throughout the

**The Pennsylvania Department of Health's Healthy Woman Project offers free or discounted breast cancer screenings for residents meeting certain eligibility standards.**

period of 1993-1997. Among black females, the percentage was somewhat higher – 34.3. A breakdown of the percentages for later stages showed that whites also had somewhat lower figures in both categories (23.8 vs. 28.1 for regional stage and 5.3 vs. 6.3 for distant stage).

Racial differences by stage were reviewed for six counties (Allegheny, Chester,

Dauphin, Delaware, Montgomery, and Philadelphia) where the vast majority of minority populations reside in Pennsylvania.

The largest differences in staging percentages (for regional and distant diagnoses) by race were seen in Chester (27.2 for whites and 40.0 for blacks) and Delaware (28.2 for whites and 40.0 for blacks) Counties. The percentage difference between the two races for distant stage diagnoses only was particularly noticeable in Chester County (3.8 for whites vs. 10.0 for blacks).

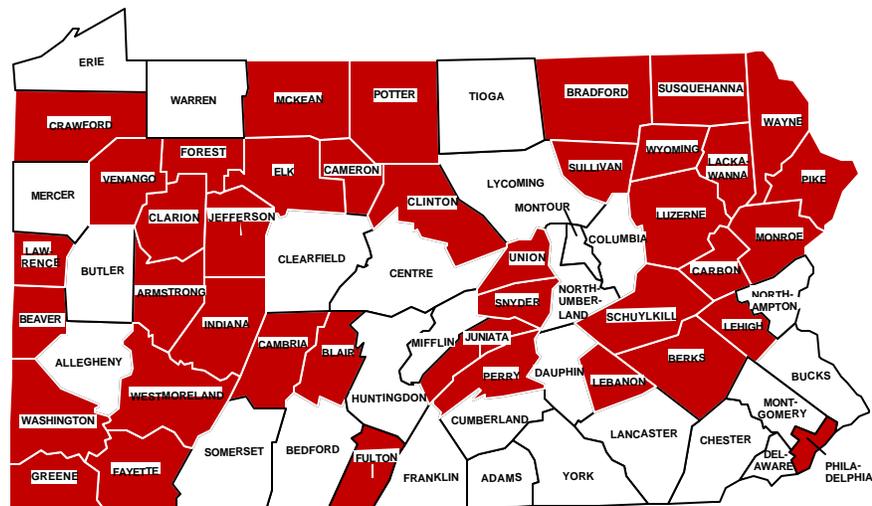
The other four counties displayed somewhat less differences in the (later stage) percentages by race. However, the percentages were consistently higher among blacks in all these counties.

**Free/Discounted Breast Cancer Screening:**

The Pennsylvania Department of Health's Healthy Woman Project offers free or discounted breast cancer screenings for Pennsylvania residents meeting certain eligibility standards. The program began cancer screening efforts in late 1994. For information, including sites in Pennsylvania offering free or discounted screenings, please contact Cancer Information Services at 1-800-4-CANCER.

If you have any questions about the statistics presented here, please contact the Bureau at 717-783-2548. Visit the Health Statistics web pages of the Department's web site at [www.health.state.pa.us/stats/](http://www.health.state.pa.us/stats/) for additional cancer incidence and mortality statistics.

**Percent of Regional and Distant Stage Diagnoses by County Lower/Higher Than State Female Breast Cancer Cases, Pennsylvania Residents, 1993-97**



Pennsylvania Regional and Distant Stage Diagnoses = 29.5%

White box: < 29.5%      Red box: > 29.5%

NOTE: Cameron, Forest, Fulton and Sullivan Counties reported less than 50 total breast cancer cases during 1993-1997.

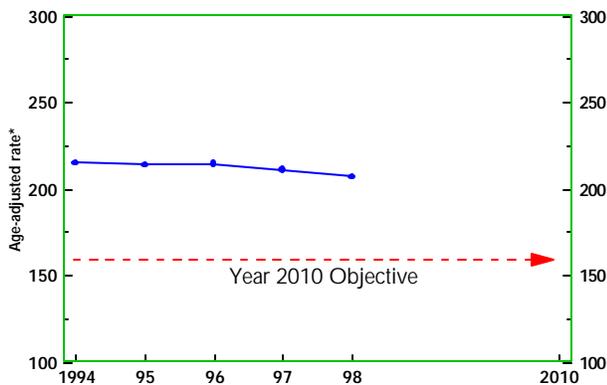
# Update: Healthy People 2010 Objectives

## Focus Area 3: Cancer

### 3.1 Reduce the overall cancer death rate.

2010 Target: 158.7

Age-Adjusted Death Rate\* for Cancer  
Pennsylvania Residents, 1994-1998



1998	206.9
1997	211.1
1996	214.1
1995	213.8
1994	215.2

\*per 100,000 projected 2000 U.S standard million population

The age-adjusted death rate for cancer among Pennsylvania residents has been on the decline during the five-year period of 1994-1998. The national Healthy People 2010 objective was set based on a reduction of 21 percent in the baseline national rate of 201.4 in 1998. Since Pennsylvania's 1998 age-adjusted death rate

for cancer is slightly higher than the national 1998 rate, the state rate will have to decline by more than 23 percent in order to meet the national objective of 158.7. Even though the state rate has been declining, the 1998 Pennsylvania rate of 206.9 is only 3.9 percent lower than it was five years earlier in 1994 (215.2).

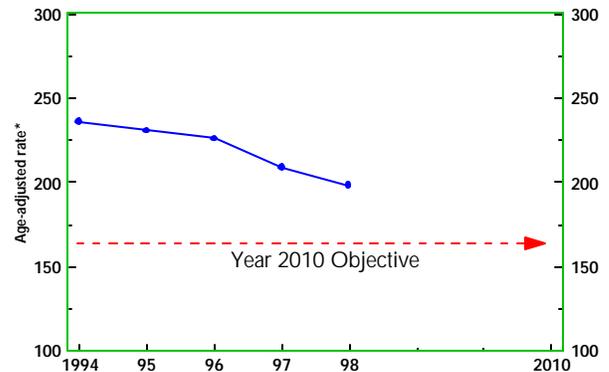
## Focus Area 12:

### Heart Disease and Stroke

#### 12.1 Reduce coronary heart disease deaths.

2010 Target: 166.0

Age-Adjusted Death Rate\* for Coronary Heart Disease  
Pennsylvania Residents, 1994-1998



1998	198.2
1997	208.9
1996	225.7
1995	230.8
1994	235.9

\*per 100,000 projected 2000 U.S standard million population

Pennsylvania's age-adjusted death rate for coronary heart disease has been consistently on the decline throughout the five-year period of 1994-1998. The national Healthy People 2010 objective was set based on a reduction of 20 percent in the baseline national rate of 208. Since Pennsylvania's age-

adjusted death rate for this disease is somewhat lower than the 1998 national rate, the state rate will only have to decline by 16 percent in order to reach the national goal of 166.0. The state's rate declined by 16 percent alone in the five years between 1994 and 1998.

**IMPORTANT NOTE:** Please be aware that the age-adjusted rates that appear on this page were calculated based on the projected 2000 U. S. standard million population. Therefore, they are not comparable to other age-adjusted rates that were calculated using a different standard population (e.g., those that appeared in the Healthy People 2000 objectives). Please see page 2 for more information on this new standard population being used to calculate age-adjusted rates.

Continued from Page 2...

## Age-Adjusted Rates...

We hope this article has served to alert you and to provide you some important information for the next time you use or come across an age-adjusted mortality rate. The Health Statistics web pages of the Department's web site also provide information on exactly how age-adjusted mortality rates are calculated and appropriately used (select Technical Assistance at [www.health.state.pa.us/stats/](http://www.health.state.pa.us/stats/)).

**The important lesson to learn here is that whenever working with age-adjusted mortality rates always find**

**out and/or label what standard population was used.** With the recent changeover to a different standard, it is important to be more careful now in order to avoid incorrect use of these health statistics.

Please contact the Bureau of Health Statistics at 717-783-2548 if you have any questions about the information presented here on the important change in how age-adjusted mortality rates are to be calculated and used.

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