

# STATISTICAL NEWS

PA Department of Health ♦ Bureau of Health Statistics and Research ♦ Vol. 28 No. 3 ♦ May 2005

## 2003 Revisions to the Certificate of Live Birth

*Changes to the Collection Instrument Ensure Meeting Current Data Needs*

Beginning with the reporting of 2003 live births, the Commonwealth of Pennsylvania implemented the latest revision of the U.S. Standard Certificate of Live Birth. Pennsylvania is one of the first states to carry out the revision thus far. Implementation in other states will be phased in over the next several years.

The Standard Certificate of Live Birth has been the principal means for collecting uniform birth information across the United States since 1900. Prior to 2003, the most recent revision in effect was put into practice in 1989. So to ensure that the standard certificates and reports met current data needs, a review and revision was undertaken.

Some categories on the birth dataset were added or changed from previous years. A few of the data items that have been revised on the Certificate of Live Birth include the following:

- **Weight of the Mother**  
Previously, only the weight gained by the mother during pregnancy was collected. Now, the mother's pre-pregnancy weight and weight at delivery are collected.

...Certificate of Live Birth has been the principal means for collecting uniform birth information across the U.S. since 1900.

- **Tobacco Use**

The revision now asks the average number of cigarettes smoked per day during the three months prior to pregnancy, as well as during each of the trimesters of pregnancy.

- **Risk Factors**

The dataset will include this information in greater detail by asking when diabetes was diagnosed (pre-pregnancy or gestational). Keeping up with advances in medical science, data on whether the pregnancy was assisted by reproductive technology will now be collected.

- **Method of Delivery**

New questions include the fetal presentation at birth, if a delivery with forceps or vacuum extraction was attempted but unsuccessful, and if a trial of labor was attempted.

*Go to Page 6 or click here...*

## Motor Vehicle Accident Deaths Decline in 2003

*PA Rate Lower Than U.S. Rate; Highest Rates for Young White Males*

The age-adjusted death rate for motor vehicle accidents among Pennsylvania residents decreased in 2003. This marked the first year since 2000 that the rate went down. In addition, Pennsylvania's rates are much lower than the United States. A review of these deaths by age, sex and race showed that young white males tended to have the highest numbers and rates for this cause of death.

In 2003, there were 1,598 motor vehicle accident deaths among Pennsylvania residents—3.2 percent lower than the 1,650 reported for 2002. The 2003 death rate for motor vehicle accidents of 12.6 per 100,000 (age-adjusted to the 2000 U.S. standard million population) was lower than the 2002 rate of 13.1.

One of the more common types of death by motor vehicle accident in 2003 for Pennsylvania residents was when an occupant of a car, pickup truck or van died in a collision with another motor vehicle (225 deaths). Another common type of motor vehicle accident death involved motorcyclists (148 deaths). There were 91 pedestrian deaths involving collision with a motor

(Motor vehicle accident) deaths... showed that young white males tended to have the highest numbers and rates for this cause of death.

### INSIDE THIS ISSUE

Calculating Rates with Geocoded Data ..... 2

Web Site Updates ..... 3

HP2010 Objectives: Stroke Death Rates ... 7

DEPARTMENT OF HEALTH

Edward G. Rendell, Governor  
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*Go to Page 4 or click here...*

# Calculating Rates With Geocoded Data

## Part 3 of a Five Part Geocoding Series Appearing in Statistical News

There are essentially four steps in calculating rates with geocoded data: geocoding, spatial joining, data aggregation, and calculating the rates. This article will discuss the importance of each step of the process and cover some important points concerning the proper calculation of rates. It will also cover a few pitfalls that may be encountered.

The first step is geocoding, which is the process of taking information about a location, possibly an address, and assigning latitude and longitude coordinates to it. Geocoding was previously covered in detail in the *January 2005 edition of Statistical News* in the article titled “What Is Geocoding And How Does It Work?”.

There are some important things to keep in mind about geocoding. The latitude and longitude is an estimated location that may have been established through interpolation of possible street numbers along a street segment from a reference file. These street segments begin and end at geographic boundaries such as county, municipality, and census tract borders. Thus, even though geocoding estimates locations, the estimated location will fall within the correct geography. This of course is assuming that the street and boundary files that are used are spatially congruent.

Once addresses are geocoded and points are created for these locations, the technique of spatial joining can be applied. Imagine four transparencies with different information on each transparency. The bottom transparency has a bunch of points on

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**Once addresses are geocoded... the technique of spatial joining can be applied.**

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it, which are the geocoded addresses. Three other transparencies are laid on top, which have polygons on them representing county, municipality, or census tract borders. If these four layers are aligned perfectly in geographic space, one could look down through the transparencies and identify the county, municipality, and census tract which enclose the geocoded address points. Any data that may be stored in the three boundary files’ attribute tables could be attached to the attribute table of the geocoded point.

For example, the Federal Information Processing Standards (FIPS) codes for county, municipality, or census tract could be assigned to the appropriate points. This is possibly a new piece of data that may have not been previously available, but can now be used to analyze the data at a new geographic level.

Data aggregation in this situation would involve summing the number of records by FIPS code for a given geographic level like county, municipality, or census tract.

The number of events by geography really doesn’t tell us much about how a geographic area’s health compares to the health of another area because there are differences in population size and demographics that must be considered. In order to best analyze a health issue, a rate is calculated that takes the number of occurrences of some health event in a certain geographic area divided by the population at risk in said area.

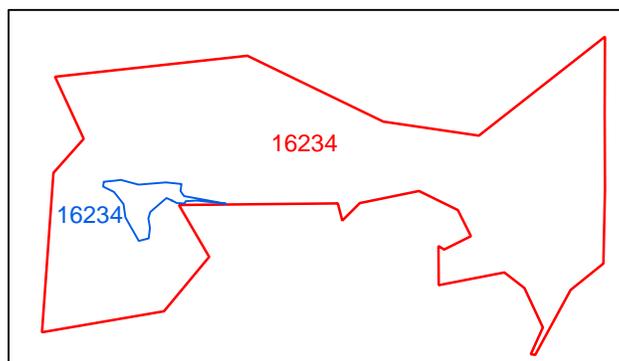
For example, the general fertility rate on our website is calculated by taking the number of live births divided by the female population between the ages of 15 and 44 then multiplying by 1,000. Females between the ages of 15 and 44 were chosen because they are considered to be of child-bearing age. The equation multiplies by 1,000 to standardize the rate per 1,000 people. Cancer rates are age-adjusted when they are calculated because cancer is more prevalent in the older popu-

lation. Prostate cancer rates are calculated using only the male population segment because it only affects males. These are a few examples that show how important it is to select the correct population denominator when calculating rates, so that, the data becomes meaningful and comparable.

There are some people that believe that rates can be calculated by aggregating data to a ZIP code level and then dividing it by the ZIP Code Tabulation Area (ZCTA) population data available on the census website. The problem with this notion is the fact that ZIP codes are not a “defined” geographic area. ZIP codes represent a group of postal delivery routes. Thus, any ZIP code boundary or polygon has been fabricated. Figure 1 (below) shows the ZIP code area-16234 (red) and the ZCTA area-16234 (blue). The red polygon is over eight miles across while the blue polygon is less than two miles across. The population captured by the boundaries of these two polygons would obviously be quite different and thus ZIP code data and ZCTA population data are not comparable and should not be used in the calculation of rates.

If you would like more information about rates or statistical techniques used by the Bureau of Health Statistics and Research, go to [www.health.state.pa.us/stats](http://www.health.state.pa.us/stats) and click on Technical Assistance. If you have any questions concerning the topics covered in this article or about geocoding or geospatial technologies, please contact the Bureau at 717-783-2548.

Figure 1



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# Web Site Updates:

## *2004 Minority Health Disparities, Community Health Assessment Resources, Hispanic Cancer Incidence Data, Mapping Enhancements within EpiQMS*

### **2004 Minority Health Disparities Report:**

A special report entitled *Minority Health Disparities* was recently added to the Health Statistics web pages of the Department of Health's web site. In this report, significance testing was used to identify health disparities among White, Black, Asian and Hispanic populations in Pennsylvania for selected health topics.

Data tables and charts are used to display statistics and highlight the disparities for population growth, mortality, adult behavioral risk factors, maternal and infant health, cancer incidence, sexually transmitted diseases, and hospitalization (for selected conditions). A short narrative appears for each section and includes highlights for major disparities.

To access this web report, go to [www.health.state.pa.us/stats](http://www.health.state.pa.us/stats) and click on the blue button for *Minority Health Disparities*.

### **Community Health Assessment Resources:**

The Health Statistics web site now includes an entire section devoted to *Community Health Assessment Resources*. The resources on this new web page can serve as a starting point for novice health planners, assist with specific assessment tasks, and/or provide data/assistance for more experienced health planners. These online resources are grouped into two separate areas – **Local Data** and **Technical Assistance**. The **Local Data** section includes a wide variety of local health statistics that can be accessed online such as hospital

discharges, adult behavioral risk factors, mortalities, injuries, census, sexually transmitted diseases, cancer incidence, medical assistance, school health, tuberculosis, crime, air/water quality, substance abuse, etc. The **Technical Assistance** section includes links to web pages that focus on statistical methods and other concepts for those interested in conducting community health assessments. To access these new resources, go to [www.health.state.pa.us/stats](http://www.health.state.pa.us/stats) and click on the button for *Community Health Assessment Resources*.

If you have any questions about the Bureau's web pages including the Community Health Assessment Resources, please contact us at 717-783-2548.

### **2002 Hispanic Cancer Incidence Data:**

Resident cancer incidence data among the Hispanic population are now available through the Bureau's Pennsylvania Cancer Registry (PCR). A data table for the number of 2002 invasive cancer cases by age, sex, race, and Hispanic origin for Pennsylvania residents has been added to the Bureau's web pages.

In 2002, there were 351 invasive cancer cases among Hispanic male residents of Pennsylvania, compared to 290 for Hispanic females. The top four cancer sites among Hispanic residents were prostate (88 invasive cases), colon and rectum (75), female breast (68), and bronchus and lung (66).

To access these data go to [www.health.state.pa.us/stats](http://www.health.state.pa.us/stats) and click on the **Cancer Incidence and Mortality** button.

### **Mapping Enhancements within EpiQMS:**

Enhancements have been made to the mapping modules within EpiQMS, the Bureau's interactive health statistics web tool. The enhancements provide users with a more comprehensive online tool for mapping county level health data.

EpiQMS (Epidemiologic Query and Mapping System) is a web tool that allows users to create customized data tables, charts, maps, and county assessments/profiles of birth, death, cancer incidence, population, and adult behavioral risk factor statistics online.

Within EpiQMS, the mapping modules for the birth, death, and cancer incidence datasets were updated to include additional choices under the Map Plot Options. The choices include an option for mapping the results of significance testing and for using one (the same) legend for various maps.

The Significant Difference option will graphically display the counties that are significantly higher, significantly lower, and not significantly different than the corresponding state rate/ratio at the 95 percent confidence level. The results of the significance testing are used for the legend and a bar chart appears to the left of the map showing the total number of counties within each significance category.

The One Legend option will display the same (equal size ranges) legend for all maps produced per age group selected (or per stage selected if % Staging Distribution or Age-Adjusted Staging Rate are selected with the

cancer incidence dataset). By using the same legend, the user will be able to compare the maps produced for the different time period and/or different gender selections. Therefore, the One Legend option should only be used if more than one map is to be generated.

The One Legend option works in conjunction with the Equal Size Ranges option. EpiQMS users can choose the number of ranges (limited to 3, 4, or 5) from the number dropdown list. The default is 4 and is recommended as the standard for use. A bar chart appears to the left of the map and shows the total number of counties within each range category.

An additional enhancement to the County Assessment modules is currently being worked on. This enhancement will include a link to a trend line for each statistic that is output through the assessment modules for the birth, death, and cancer incidence datasets. This trend line will be based on the three-year summary periods available through EpiQMS.

To access EpiQMS, go to the Bureau of Health Statistics and Research web pages at: [www.health.state.pa.us/stats](http://www.health.state.pa.us/stats) and click on the **EpiQMS** logo. Step-by-step instructions for each screen and detailed help sections were added to assist users with understanding the system.

Please contact the Bureau at 717-783-2548 for questions about EpiQMS. Staff are also available to provide EpiQMS presentations/demonstrations at your organizational or professional meetings.

# Motor Vehicle Accident Deaths Decline in 2003

vehicle and 44 deaths where an occupant of a motor vehicle was involved in a noncollision accident. Also, there were 37 deaths where a person was involved in an ATV accident.

The following will review statistics on motor vehicle accident deaths in Pennsylvania compared to the United States and will discuss statistics for the state by age, sex, race and county.

## Pennsylvania and United States Comparisons:

The age-adjusted death rate for motor vehicle accidents for the U.S. in 2002 (most current year available) was 15.7 per 100,000. This is over 24 percent higher than the latest rate (12.6 in 2003) for Pennsylvania.

The age-adjusted rates for motor vehicle accident deaths by race and sex also show higher rates for the U.S. (2002) as compared to the state (2003). The rates for whites were 16.0 (U.S.) and 13.2 (PA). For blacks, the rates were 15.0 (U.S.) and 10.2 (PA). Among males, the U.S. death rate was 22.1, compared to 18.1 for the state. The rates for females were 9.6 (U.S.), compared to 7.5 (PA).

## Race and Sex:

Pennsylvania's age-adjusted death rate for motor vehicle accidents among white residents during 2003 was more than 29 per-

cent higher than the rate for blacks (13.2 vs. 10.2). Chart 1, on the next page, displays the 2003 age-adjusted death rates by sex and race. There were 1,453 resident motor vehicle accident deaths for whites compared to 127 among black residents.

Sixty-eight percent of deaths due to motor vehicle accidents for Pennsylvania residents in 2003 occurred among males. In 2003, the age-adjusted rate for males was almost two and one half times greater than the rate for females – 18.1 compared to 7.5. Of the 1,598 motor vehicle accident deaths for the year 2003, 1,091 occurred among males and only 507 among females. A review of male deaths due to motor vehicle accidents by race shows that 994 or 91.1 percent were among whites (age-adjusted rate of 19.0 per 100,000) while 84 were among blacks (14.0).

## Age:

On page five, Chart 2 displays the average annual age-specific death rates due to motor vehicle accidents among Pennsylvania residents during the three-year period of 2001-2003. The highest rates for this time period were among younger (ages 15-24) and older residents (ages 75+). The age-specific rates began to decline around age 25 and then started to increase again at about age 60.

The age groups of 15-19 and 20-24 had by far the highest numbers of deaths, accounting for 13.1 percent and 13.3 percent of all motor vehicle accident deaths, respectively.

## County:

For the three-year period of 2001-2003, the county with the

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**The highest rates for this time period (2001-2003) were among younger... and older residents...**

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highest average annual age-adjusted rate for motor vehicle accident deaths was Bedford County (rate of 31.1 based on 45 deaths). The second highest rate occurred for Perry County (rate of 29.6 based on 39 deaths). Third highest was Greene County followed by Wayne and Susquehanna. The criteria for these counties was that they have at least 20 deaths since age-adjusted rates based on less than 20 events are considered statistically unreliable.

The county with the lowest age-adjusted death rate for motor vehicle accidents was Allegheny County (7.5 rate based on 298 deaths). The next lowest rate was for residents of Delaware County (7.6 rate based on 132 deaths). Northampton and Montgomery each had the third lowest rate, followed by Philadelphia. Once again the criteria for these counties was that they have at least 20 deaths.

In general, Pennsylvania rural counties tended to have the highest age-adjusted death rates for motor vehicle accidents when compared to urban counties. One possible reason for this is that paramedics usually have a longer distance to travel to get to accidents that occur in rural areas and there are fewer health care facilities in rural areas. In urban areas there are more ambulances, paramedics, and medical centers available.

## Seatbelt Usage:

Seatbelt use/nonuse could be a factor in the discrepancy by sex. Chart 3, on the next page, displays the estimated percentage for seatbelt usage among Pennsylvania adults. According to the 2002 *Behavioral Health Risks of Pennsylvania Adults*, 63 percent of male adults in Pennsylvania in 2002 always wore a seatbelt when riding in a car. Compared to males, adult females had a significantly higher percentage (74) of always using seatbelts.

A look at seatbelt use among adults for the different age groups showed that the percentage of seatbelt usage increased with age. In 2002, Pennsylvania adults, aged 18-29, had a significantly lower percentage (61 percent) of seatbelt use compared to adults 30 years of age and older. Among residents aged 30-44 years, 68 percent always wore seatbelts while riding in a car, compared to 70 percent for those aged 45-64 and 73 percent of those 65 years of age and older.

## Healthy People 2010 Goal:

The age-adjusted death rate for motor vehicle accidents for Pennsylvania residents decreased in 2003 but has generally been on the increase since 2000 (from 11.8 per 100,000 to 12.6). The Healthy People 2010 national goal is an age-adjusted rate of 9.2 per 100,000. Pennsylvania's 2003 rate of 12.6 will have to decrease by almost 27% in order to meet the national goal.

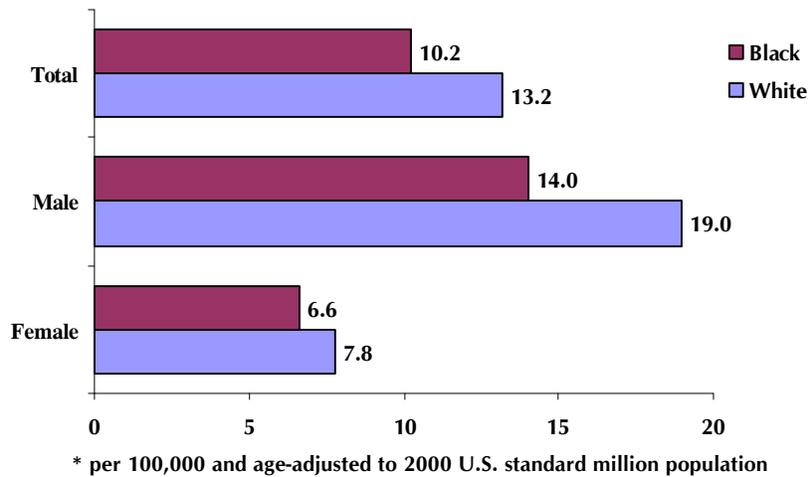
For questions regarding this article, please contact the Bureau at 717-783-2548. Additional statistics on motor vehicle accident deaths can be accessed on the Health Statistics web pages at [www.health.state.pa.us/stats](http://www.health.state.pa.us/stats).

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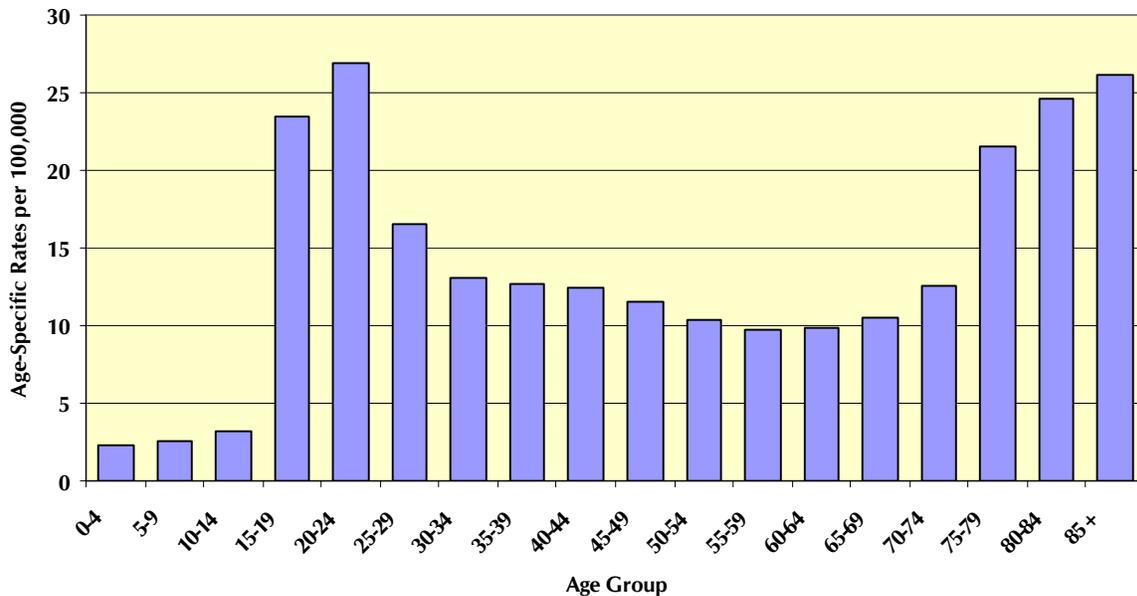
**...death rate for motor vehicle accidents among white residents... was more than 29 percent higher than the rate for blacks...**

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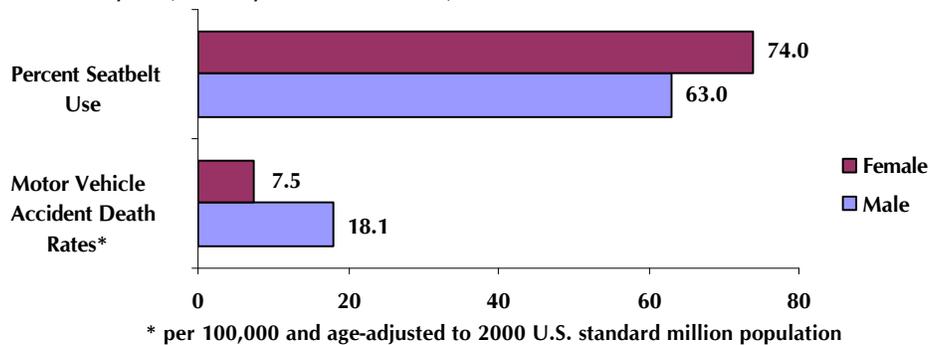
**Chart 1**  
**Death Rates\* for Motor Vehical Accidents by Sex and Race**  
**Pennsylvania Residents, 2003**



**Chart 2**  
**Age-Specific Death Rates due to Motor Vehicle Accidents**  
**Pennsylvania Residents, 2001-2003**



**Chart 3**  
**Percent Seatbelt Use by Adults and Motor Vehicle Accident Death Rates\* by Sex, Pennsylvania Residents, 2002 (Seatbelt Use) and 2003 (Deaths)**



# 2003 Revisions to the Certificate of Live Birth

• **Obstetric Procedures**

New choices have been added including the success or failure of an external cephalic version.

• **Abnormal Conditions of the Newborn**

The selections within this category have been revised to include NICU admission, significant birth injury, and antibiotics received by the newborn for suspected neonatal sepsis.

• **Congenital Anomalies of the Newborn**

The list of reported birth defects has been reduced to provide more accurate data on those types of anomalies that are usually diagnosed soon after birth.

Several new data items were included to increase data quality for statistical purposes and to meet current data needs. Some of these items were listed above, but additional questions such as if the mother received WIC food during the pregnancy, if the infant is being breastfed, and the number of previous cesarean deliveries the mother has had are new to the dataset.

The appearance of some data items were modified on the birth dataset as well, to help improve data quality during the collection process. For example, the education question now includes a list of choices for the mother and father, as opposed to

...some data items were modified on the birth dataset... to help improve the data quality during the collection process.

writing in the highest grade completed. Also, the new birth dataset captures multiple race identification of the mother and father. In addition, Pennsylvania modified the dataset in order to retain the single race category which includes an expanded check list for race groups.

While most data items in the dataset are comparable to past years, certain items have been changed or removed, which may cause discontinuity in some birth trend data. The table below provides a glance at some of the data items that were added or changed from the previous certificate revision.

These questions, along with others, were added or modified as a result of an extensive evaluation process initiated by the National Center for Health Statistics (NCHS). NCHS achieved this by assembling a panel of expert consultants to evaluate the 1989 Standard Certificate and recommend revisions. The panel included state vital registration and statistics executives as well as representatives of data provider and user organizations. The revisions submitted by the panel were approved and are currently in the process of being implemented throughout the United States. If you would like further explanation of the evaluation and recommendation process, please visit the NCHS website at [http://www.cdc.gov/nchs/vital\\_certs\\_rev.htm](http://www.cdc.gov/nchs/vital_certs_rev.htm).

The 2003 birth file has been delayed due to the implementation of the revised Certificate of Live Birth and to the process of converting the birth registration system from a mainframe to a PC-based networked environment. The birth file is currently being validated and final 2003 data will be available on the Health Statistics web pages soon ([www.health.state.pa.us/stats](http://www.health.state.pa.us/stats)).

For questions relating to this article, please contact the Bureau of Health Statistics and Research at 717-783-2548.

## Overview of Revisions to 2003 Certificate of Live Birth

**Infections During Pregnancy**

New Data Item

**Is Infant Being Breastfed**

New Data Item

**Principal Source of Payment**

New Data Item

**Mother's Height**

New Data Item

**Race**

Multiple Race - New Data Item

Single Race - Expanded List

**Mother's Pre-Pregnancy Weight**

New Data Item

**Mother's Weight at Delivery**

New Data Item

**Maternal Morbidity**

New Data Item

Maternal Transfusion

Ruptured Uterus

Unplanned Hysterectomy

**WIC Food Received**

New Data Item

**Education**

Specific Choices Listed

**Tobacco Use**

More Detail by Trimester

**Abnormal Conditions of the Newborn**

Revised

**Congenital Anomalies of the Newborn**

Revised

**Method of Delivery**

Revised

**Obstetric Procedures**

Revised

**Risk Factors**

Revised

# Update: Healthy People 2010 Objectives

## Focus Area 12: Heart Disease and Stroke

### 12-07 - Reduce stroke deaths.

**2010 Target:  
48 deaths per 100,000**

#### All Stroke Deaths and by Sex:

Death rates due to stroke for all Pennsylvania residents, as displayed in the first graph on the right, show that the figure generally has been on the decline between 1999 and 2003. There were 8,180 stroke (or cerebrovascular disease) deaths among Pennsylvania residents in 2003 for an age-adjusted rate of 53.7 per 100,000, compared to 8,442 and 56.5 in 2002. Among all resident stroke deaths, the 2003 annual age-adjusted rate is the lowest reported during the five-year period of 1999 through 2003.

The 2003 stroke death rates by sex were lower than previous years for both males and females. The 2003 rate for males was about 3.5 percent higher than the rate for females (54.3 versus 52.5, respectively).

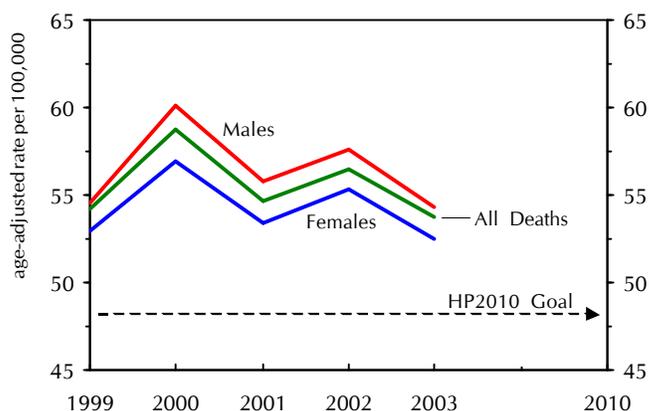
To reach the national 2010 goal of 48, Pennsylvania's stroke death rate will have to decline by 10.5 percent in the next seven years between 2004 and 2010.

#### By Race and Hispanic Origin:

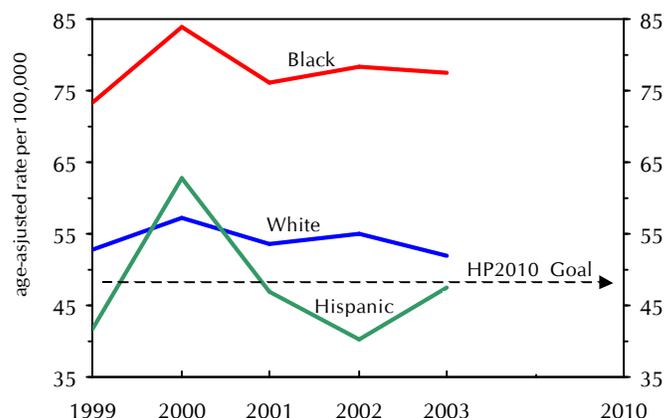
The second graph on the right depicts annual age-adjusted death rates due to stroke by race and Hispanic Origin for 1999-2003 and large differences can easily be seen. The death rates for black residents are 40 to 50 percent higher than the rates for whites. With the exception of 2000 data, the death rates for Hispanic residents are considerably lower than the rates for whites. However, the 2003 rate for Hispanics increased compared to 2002, while the rates for whites and blacks declined. No trends are evident for any race/ethnic group.

With the exception of 2000 data, only the death rates among Hispanic residents have been lower than the Healthy People 2010 goal of 48 per 100,000. In order to meet the national goal, the stroke death rate for whites must decline by nearly 8 percent between 2004 and 2010. Among black residents, the death rate must decline by 38 percent.

Stroke Age-Adjusted Death Rates, Total and By Sex Pennsylvania Residents, 1999-2003



By Race and Hispanic Origin, Pennsylvania, 1999-2003



Stroke Death Rates\*  
By Sex, Race, and Hispanic Origin  
Pennsylvania Residents, 1999-2003

	2003	2002	2001	2000	1999
All Deaths .....	53.7	56.5	54.7	58.7	54.2
Males .....	54.3	57.6	55.8	60.1	54.6
Females .....	52.5	55.3	53.4	56.9	53.0
White .....	52.0	54.9	53.5	57.2	52.8
Black .....	77.5	78.3	76.0	83.9	73.2
Hispanic** .....	47.6	40.2	47.0	62.7	41.8

\*per 100,000 2000 U.S. standard million population  
\*\*Hispanic can be of any race

#### HP2010 State and County Data on the Web

To access the Department of Health's web page of Healthy People 2010 statistics for the state and counties, go to [www.health.state.pa.us/stats](http://www.health.state.pa.us/stats). The latest available statistics as well as trend data are shown. You can view data for the state, all counties, a specific demographic element (age, sex, race, etc.) or just for a specific county. Complete data sets for the state and counties can be downloaded. There is also a link to the national HP2010 web site.

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*Statistical News* is published bimonthly by the Bureau of Health Statistics and Research, Pennsylvania Department of Health, 555 Walnut St., 6th Floor, Harrisburg, PA, 17101. Please write, telephone (717-783-2548) or FAX (717-772-3258) us if you have any questions regarding the contents of this newsletter. Visit the Health Statistics section of the Department's web site at [www.health.state.pa.us/stats](http://www.health.state.pa.us/stats) to access additional health statistics and reports.

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