

STATISTICAL NEWS

PA Department of Health ♦ Bureau of Health Statistics and Research ♦ Vol. 30 No. 1 ♦ January 2007

2005 Weight Data for Pennsylvania Adults

Only 50% of Overweight Adults Were Trying to Lose Weight in 2005

In 2005, 64 percent of Pennsylvania adults were considered to be over or under weight. According to the Pennsylvania Behavioral Risk Factor Surveillance System (BRFSS) survey, only 36 percent of adults were not over or under weight in 2005 while two percent were underweight; 37 percent were overweight; and, 25 percent were obese (see Chart 1 on page 4).

Body Mass Index (BMI) is a common method used for determining whether an individual is under or over weight. The BRFSS estimates BMI based on self-reported height and weight. Adults with BMIs less than 18.5 are considered to be underweight while adults with BMIs between 18.5 and 24.9 are considered to be of healthy weight. Adults with BMIs between 25.0 and 29.9 are considered overweight, and adults with BMIs of 30.0 or higher are considered obese. In the following narrative, overweight numbers do not include those adults classified as obese.

The ultimate goal is for all Pennsylvania adults to be in a “healthy weight” category. However, the 2005 BRFSS

One factor that appears to have a huge impact in motivating overweight and obese adults...is having their doctor recommend weight loss.

showed that 50 percent ($\pm 3\%$) of overweight adults and 24 percent ($\pm 3\%$) of obese adults were not trying to lose weight. Although not the optimal situation, 74 percent ($\pm 3\%$) of overweight adults and 70 percent ($\pm 5\%$) of obese adults who were not trying to lose weight were at least trying to maintain or control their current weight. Of all obese adults, seven percent ($\pm 2\%$) were not trying to lose or control weight, and 13 percent ($\pm 2\%$) of overweight adults reported the same.

Among overweight and obese adults trying to control their weight, it was more likely they were eating healthier as opposed to using physical activity. Among overweight adults, 80 percent ($\pm 2\%$) were trying to

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PA 2006 Synar Survey Results and History

Fewer PA Cigarette Retailers are Selling Cigarettes to Minors

Results from a recent survey show that five to nine percent of Pennsylvania’s cigarette retailers sold cigarettes to minors. This estimate or violation rate is based on data collected from the 2006 Annual Synar survey conducted during the months of July and August.

The Synar survey is federally-mandated and involves students between the ages of 15 and 17 attempting to purchase cigarettes at randomly selected cigarette retailers. If a retailer sells to the minor, it is considered a violation. The survey violation rate is used to estimate the actual violation rate for the entire state. Since this is a federally-mandated survey, the federal government sets annual target rates that each state must meet. The target rates are used as a measure of ensuring that each state is making progress toward the goal of lowering their violation rates. If the targets are not met, penalties are imposed upon the state. The target rates, estimated violation rates, and survey errors (95% confidence intervals) for the annual Synar surveys are displayed in Table 1 on page 5.

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Since 2002, the annual violation rates have been significantly lower than the national targets.

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DEPARTMENT OF HEALTH

Edward G. Rendell, Governor

Tools of the Trade:

Sample Estimates Compared Using Confidence Intervals

In public health, much of the knowledge that we rely upon is obtained from scientific samples because it is the only feasible way to obtain the information. Results from samples of human populations are always estimates. The estimates vary by the error or bias associated with the sample survey process. Sample bias may occur as the result of a large array of things, such as poorly designed questions, sample coverage, or the recall, honesty and understanding of the respondent. Most biases can't be quantified, but we endeavor through careful sample design and care in crafting and testing survey questions to minimize these biases. The aim is to keep non-sampling error (biases) small, expecting some of them to cancel out one another. Hopefully the overall effect of the biases, which we can never be sure we have eliminated, will be smaller than the statistical sample error which we can accurately quantify.

All estimates obtained from probabilistic (scientific) samples have some error attributable to the sampling process. This sampling error is accurately quantifiable and is usually represented as the confidence interval (CI) or confidence bounds. Any level of confidence could be determined but the 95% level is almost universally used. So if a sample of Pennsylvania residents indicates that 54% (95% CI 51%-57%) believe that the sky is falling, then we can be confident that, if we conducted 100 different samples using the same sample design at least 95 of them would result in estimates

Sample bias may occur as the result of a large array of things, such as poorly designed questions, sample coverage, or the recall, honesty and understanding of the respondent.

between 51% and 57% of Pennsylvanians believing the sky is falling.

To accurately compare two sample estimates to determine if they are actually different, after accounting for the sample error, a statistical test (significance test) is required. A significance test will yield the probability (P-value) that the two sample estimates being compared are actually no different from one another. In order to calculate the P-value, one must have the actual data collected in the sample. Additionally, nearly all of the samples we encounter use a complex sample design in order to make the sample more efficient or affordable. If the sample has a complex design you will also need knowledge of the design, the weighting, and specialized software to account for the sample design when you calculate the variances.

A common level of significance is $P < .05$, or a chance of less than 1 in 20, of the compared values actually being the same when the statistic says they are different. Although, you should keep in mind that if you are observing a large number of relationships with P-values near

.05 then approximately 1 out of 20 of those significantly different estimates will not really be different (false positive). You may want to rely on a higher level of statistical significance, such as $P < .01$ or 1 in 100. Unless a particular hypothesis is being tested, it is not common to have sample data reported with significance tests calculated. However, competent analysis of sample data will provide some quantification of the sample error in the sample. This is most often reported as a confidence interval (CI).

Even though you can't determine the actual level of statistical significance for the difference between two sample estimates by comparing the CIs, they can give you a good idea of how important the difference might be. There are two conditions that can be employed to help evaluate how different two estimates really are.

1) If either point estimate is contained within the 95% confidence interval for either of the estimates being compared, the difference IS NOT statistically significant at the $< .05$ level.

2) If the confidence bounds do not overlap, then the difference between the estimates being

compared is most likely statistically significant. When the bounds do not overlap, the significance is almost certainly statistically significant at the $< .05$ level and it is very likely statistically significant at a $< .01$ level if the bounds for the two estimates are not very close together.

For example, let us compare the estimates of persons who think the sky is falling for different groups of Pennsylvanians.

Condition 1 (see Chart 1 on page 3)—Difference NOT statistically significant ($P > .05$): An estimate is contained within the bounds of the other estimate.

Condition 2 (see Chart 2 on page 3)—Difference probably statistically significant (at least $P < .05$): When the confidence intervals for the estimates do not overlap.

When the difference in the estimates fall between the two above conditions, a determination of the statistical importance of the difference would require the calculation of a statistical test (see Chart 3). You may want to think about these as "borderline different" or as differences you may want to consider as "unclear" since you would not be very confident in the differences.

If you have any questions about this article, please contact the Bureau of Health Statistics and Research at 717-783-2548. Additional *Tools of Trade* articles can be accessed on the Health Statistics web pages at www.health.state.pa.us/stats (select "Technical Assistance").

A significance test will yield the probability (P-value) that the two sample estimates being compared are actually no different from one another.

Chart 1 – Condition 1
Not Significantly Different Sample Estimates
One Sample Estimate Contained Within the Confidence Interval of the Other Estimate
(Hypothetical Example)

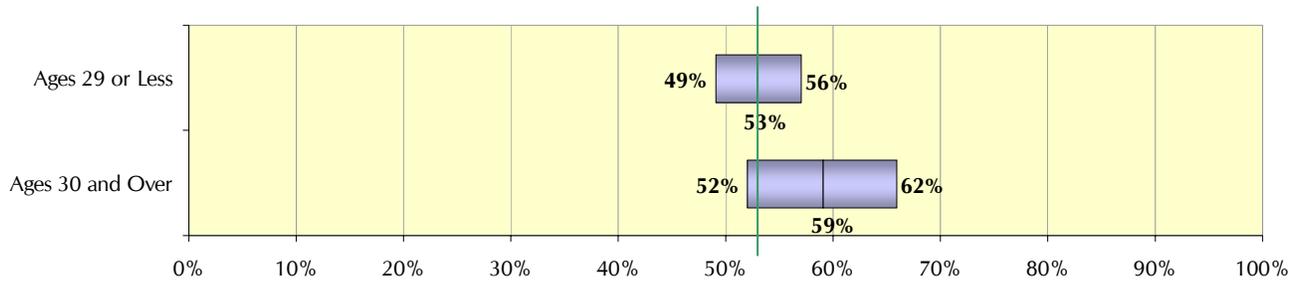


Chart 2 – Condition 2
Significantly Different Sample Estimates
Confidence Intervals for the Sample Estimates Do Not Overlap
(Hypothetical Example)

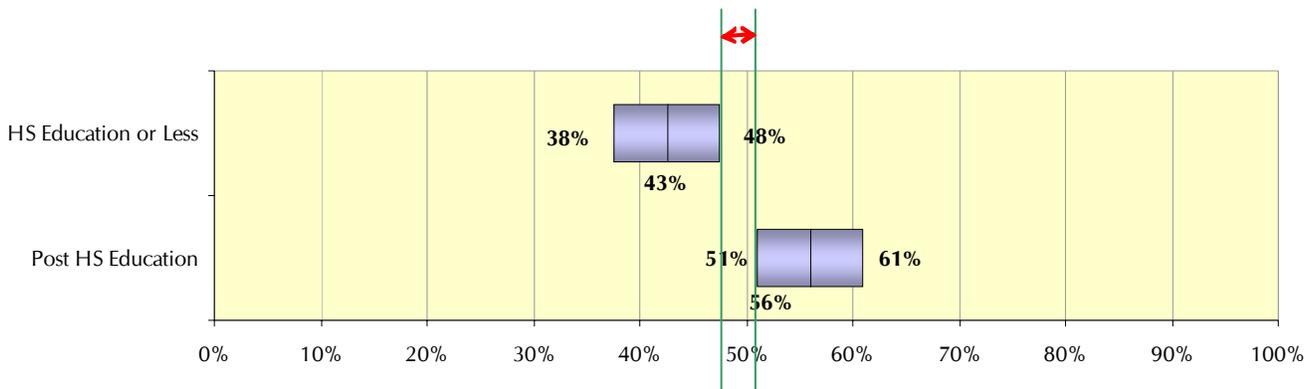
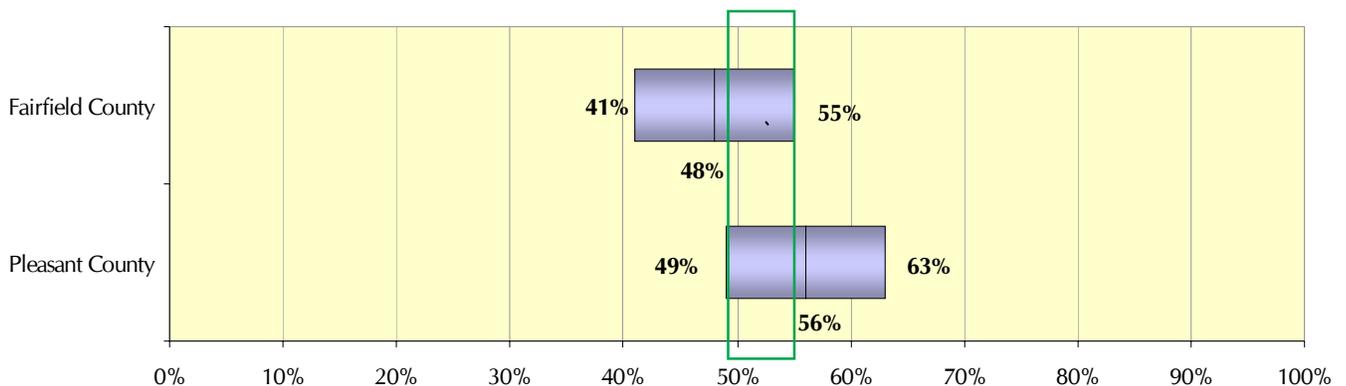


Chart 3
Significant Difference Unclear
Confidence Intervals Overlap But Sample Estimate Not Contained in Other Estimate's Confidence Interval
(Hypothetical Example)



2005 Weight Data for Pennsylvania Adults

lose or control weight by eating fewer calories and/or less fat while 71 percent ($\pm 3\%$) were doing so with physical activity or exercise. For obese adults, 87 percent ($\pm 2\%$) were trying to control weight by eating less calories and/or fat while only 63 percent ($\pm 3\%$) were using physical activity or exercise.

One factor that appears to have a huge impact in motivating overweight and obese adults to try to lose weight is having their doctor recommend weight loss. Of those overweight adults who had a doctor recommend weight loss in the past year, 88 percent ($\pm 5\%$) reported that they were trying to lose weight. Only 44 percent ($\pm 3\%$) of overweight adults who did *not* have a doctor recommend weight loss were trying to lose weight. Similarly, 91 percent ($\pm 3\%$) of obese adults who had a doctor recommend weight loss in the past year were trying to lose weight, compared to 67 percent ($\pm 3\%$) of obese adults *not* advised by a doctor to lose weight. It is apparent that these patients are taking their doctors' weight loss recommendations seriously.

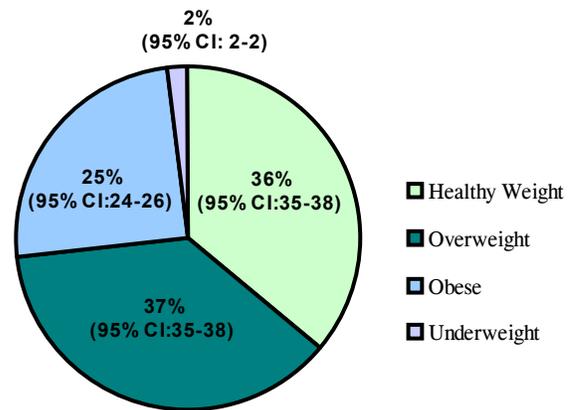
Chart 2 shows that the doctors' advice can have a great impact on patients' behavior. Therefore it is important for overweight and obese individuals to visit their doctors regularly. However, only 67 percent ($\pm 2\%$) of overweight adults and 72 percent ($\pm 3\%$) of obese adults had visited a doctor for a routine checkup within the past year. In addition to these individuals needing to visit their doctors regularly, the doctors need to tell their overweight or obese patients to lose weight. According to the 2005 BRFSS, only 15

...only 15% of overweight adults... reported that their doctor advised them to lose weight.

percent ($\pm 2\%$) of overweight adults who visited a doctor in the past year for a routine checkup reported that their doctor advised them to lose weight. Among obese adults, 41 percent ($\pm 3\%$) of those who visited a doctor in the past year reported the same.

Although the main focus of this article has been on overweight and obese adults, there are also some things to note about underweight adults. Sixty-one percent ($\pm 11\%$) of underweight adults reported visiting a doctor within the past year for a routine checkup and, of those adults, only 23 percent ($\pm 14\%$) were advised by their doctor to gain weight.

Chart 1
Percent Weight Distribution by BMI Category
2005 Pennsylvania BRFSS

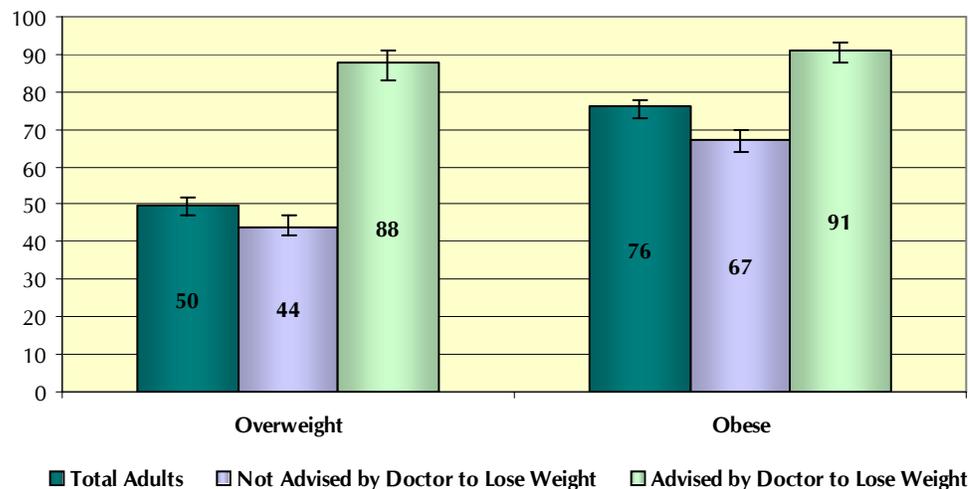


In order for Pennsylvania to reverse its issues with unhealthy weight, it is important for all adults, especially those with unhealthy weights, to visit their doctors regularly. In addition, doctors need to be sure they are advising their underweight, overweight and obese patients about the importance of having and maintaining a healthy

weight because, according to the statistics in this article, their patients are listening.

For questions about this article, please contact the Bureau of Health Statistics and Research at 717-783-2548 or via an email link from the Health Statistics web pages at www.health.state.pa.us/stats.

Chart 2
Percent of Overweight and Obese Adults Trying to Lose Weight
Total Adults, Adults Not Advised, and Adults Advised by a Doctor to Lose Weight
2005 Pennsylvania BRFSS



PA 2006 Synar Survey Results and History

In 2000, a penalty was imposed upon Pennsylvania because they didn't meet the target rate for the 1999 survey. This penalty included the requirement that Pennsylvania had to invest additional monies into activities aimed at reducing the violation rate. In response to this penalty, Pennsylvania increased enforcement efforts, launched public awareness campaigns, and conducted merchant education aimed at lowering the rate that outlets sell cigarettes to minors.

These prevention efforts appear to be working. The estimate for 2006 is significantly lower than the 1996 estimate. The declining rates since 1999 can be attributed to the increase in enforcement, public awareness, and education. The violation rate dropped significantly after the first few years of the campaign and eventually leveled off well below national targets.

The declining rates... can be attributed to the increase in enforcement, public awareness, and education.

Since 2002, the annual violation rates have been significantly lower than the national targets. Chart 1 graphically depicts the 95% confidence intervals for the annual violation rates since the Synar survey was first implemented in 1996.

Each state is required by law to annually conduct the Synar survey. Additional information on these requirements can be found on the Federal Register search page at www.gpoaccess.gov/fr/advanced.html (search for Vol. 61, No. 13, January 19, 1996). Also, please visit the Synar website at <http://prevention.samhsa.gov/tobacco/default.aspx>

Table 1
Annual National Targets, Violation Rate Estimates, and 95% Confidence Intervals
Pennsylvania Synar Survey, 1996-2006

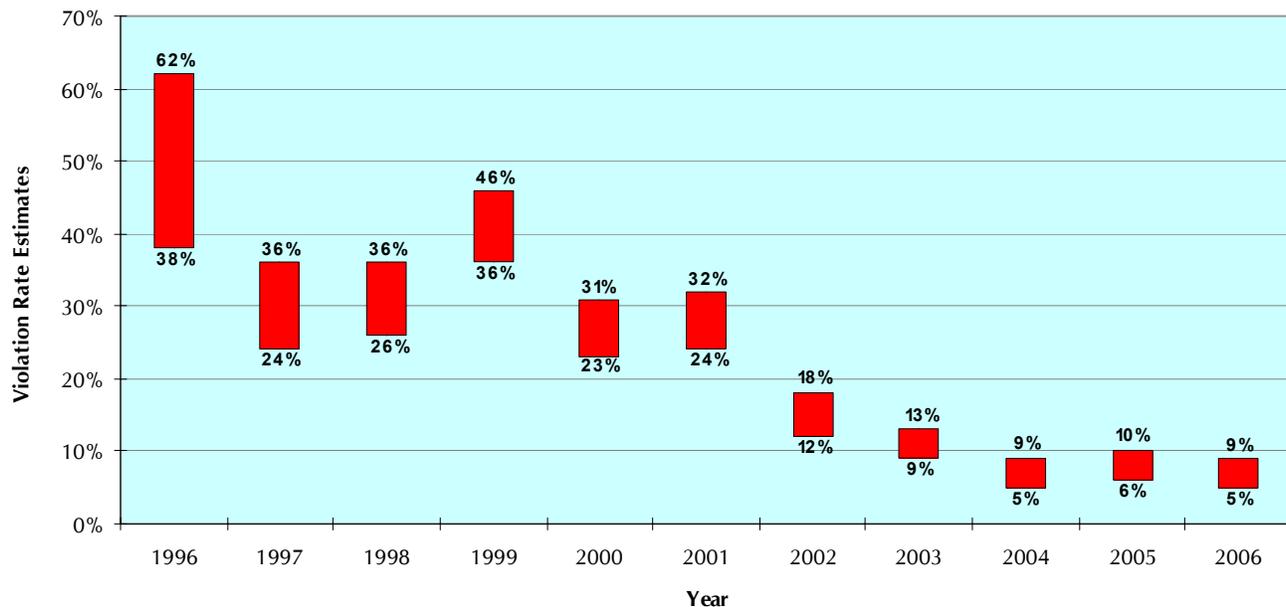
Year	Original Target Rate	Revised* Target Rate	Violation Rate Estimate	Survey Error
1996	Baseline	n/a	50%	± 12%
1997	42%	n/a	30%	± 6%
1998	31%	n/a	31%	± 5%
1999	25%	30%	41%	± 5%
2000	20%	29%	27%	± 4%
2001	20%	25%	28%	± 4%
2002	20%	20%	15%	± 3%
2003	20%	20%	11%	± 2%
2004	20%	20%	7%	± 2%
2005	20%	20%	8%	± 2%
2006	20%	20%	7%	± 2%

* Target rates revised on 3/8/00
Note: All rates and errors rounded to the nearest percent

for additional information on the Synar survey maintained by the U.S. Department of Health and Human Services.

For questions regarding this article or the Pennsylvania Synar survey, please contact the Bureau of Health Statistics and Research at 717-783-2548.

Chart 1
95% Confidence Intervals for Violation Rate Estimates
Pennsylvania Synar Survey, 1996-2006



2005 Pennsylvania Death Data Now Available

Top 20 Causes Show Cancer Up; Heart Disease and Stroke Down

The number of deaths among Pennsylvania residents rose almost 1.5 percent from 126,602 in 2004 to 128,447 in 2005. This marked the first time since 2000 that the annual number of resident deaths increased.

The table below ranks the top 20 causes of death for 2005 and 2004. The number of deaths for the following causes increased between 2004 and 2005:

- Cancer
- Chronic lower respiratory disease
- Accidents
- Alzheimer's Disease
- Nephritis
- Influenza & pneumonia
- Septicemia
- Suicide
- Parkinson's disease
- Essential hypertension/HRD
- Homicide
- Perinatal conditions
- Atherosclerosis.

The following causes of death decreased between 2004 and 2005:

- Heart disease
- Stroke
- Diabetes mellitus
- Chronic liver disease & cirrhosis
- In Situ/benign/uncertain neoplasms
- Congenital malformations
- HIV disease.

A large volume and variety of data tables with 2005 mortality statistics, including data for all counties and municipalities in Pennsylvania, have been added to the Bureau of Health Statistics and Research web pages. To access the 2005 data, go to www.health.state.pa.us/stats and click on "Vital Statistics" and then select "Birth and Death Statistics, 1990-2005".

The number of deaths for homicide and essential hypertension/HRD each increased about nine percent, from 2004 to 2005. In contrast, the number of deaths for HIV disease decreased by almost 22 percent. Also, the number of infant deaths for PA residents rose slightly from 1,026 in 2004 to 1,047 in 2005.

Each year when a new birth, death or cancer incidence annual data file is finalized and released, Bureau staff create and update thousands of pages of numerous cross tabulations that are used to respond to the many data requests we receive every year. These data tables are created in PDF file format (requires the free Adobe Reader software) and are added to the Health Sta-

The number of deaths for homicide and essential hypertension/HRD each increased 9%, from 2004 to 2005.

tistics web pages to provide data users with an abundant variety of health statistics.

Health data users can easily access the latest available single-year (2004 for cancer incidence and births and 2005 for deaths) and five-year summary (2000-2004 for cancer incidence and births and 2001-2005 for deaths) data tables. In most cases you will find exactly what you are looking for, since these tables

have helped us answer most of our requests for birth, death, and cancer statistics in the past.

Examples of mortality data currently available on the Health Statistics web pages include deaths by age, race, sex, and cause for all counties and municipalities. There are also statistics available on specific ICD codes, month of death, method of disposition, and autopsy status. In addition, there are separate data tables on infant deaths and suicides.

We also have some additional data tables available that are very large, making them inefficient for accessing online. Contact the Bureau at 717-783-2548 for more information about the availability of these files.

Top 20 Leading Causes of Death Pennsylvania Residents, 2005 and 2004

2005		2004		
Total Deaths	128,447	Rank	Total Deaths	126,602
Heart Disease	35,896	1	Heart Disease	36,063
Malignant Neoplasms	29,355	2	Malignant Neoplasms	29,218
Cerebrovascular Disease	7,581	3	Cerebrovascular Disease	7,731
Chronic Lower Respiratory Disease	6,111	4	Chronic Lower Respiratory Disease	5,952
Accidents	5,314	5	Accidents	5,091
Diabetes Mellitus	3,531	6	Diabetes Mellitus	3,562
Alzheimer's Disease	3,414	7	Alzheimer's Disease	3,258
Nephritis/Nephrotic Syn/Nephrosis	3,071	8	Nephritis/Nephrotic Syn/Nephrosis	3,051
Influenza/Pneumonia	3,039	9	Influenza/Pneumonia	2,915
Septicemia	2,528	10	Septicemia	2,476
Intentional Self-Harm (Suicide)	1,404	11	Intentional Self-Harm (Suicide)	1,397
Parkinson's Disease	1,061	12	Chronic Liver Disease & Cirrhosis	1,064
Essential Hypertension/HRD	1,048	13	Parkinson's Disease	1,014
Chronic Liver Disease & Cirrhosis	1,046	14	Essential Hypertension/HRD	963
Assault (Homicide)	741	15	In Situ/Benign/Uncertain Neoplasms	744
In Situ/Benign/Uncertain Neoplasms	736	16	Assault (Homicide)	679
Perinatal Conditions	591	17	Perinatal Conditions	563
Atherosclerosis	559	18	Atherosclerosis	552
Congenital Malformations	389	19	HIV Disease	458
HIV Disease	358	20	Congenital Malformations	414

Update: Healthy People 2010 Objectives

Focus Area 01: Access to Quality Health Services

01-09a - Reduce the hospitalization rate for pediatric asthma (persons under 18).

2010 Target: 17.3 discharges per 10,000

All Persons Under 18 and By Sex:

The hospitalization rate for pediatric asthma among Pennsylvania residents was 23.7 per 10,000 population under age 18 in 2004. There were 6,846 discharges with a primary diagnosis of asthma to residents under 18 that year among Pennsylvania hospitals.

The pediatric asthma hospitalization rate in 2004 was nearly 50 percent higher among males under 18 (28.3 per 10,000), compared to females under 18 (19.0). This difference in the rates by sex was consistent between 2000 and 2004.

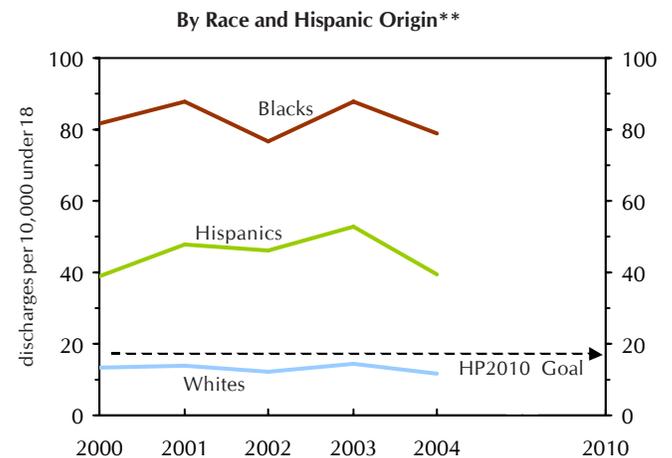
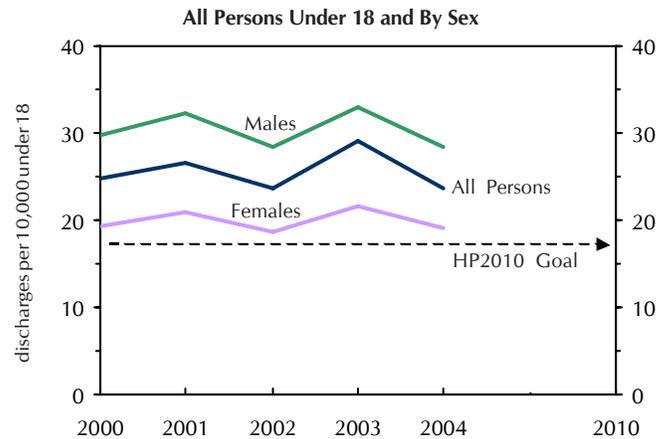
The Healthy People 2010 objective is a rate of 17.3 per 10,000. The rates for all persons under 18 and for males under 18 have been much higher than the 2010 goal and historical data show no trends. The rates for females under 18 are closer to the 2010 goal but, again, no trend is evident.

Race and Hispanic Origin:

The 2004 pediatric asthma hospitalization rates by race and Hispanic Origin show that the rate for Blacks (79.0 per 10,000) was almost seven times higher than the rate for Whites (11.7) and the Hispanic rate (39.2) was over three times higher than the White rate. Between 2000 and 2004, the rates for Hispanics and, especially for Blacks have remained much higher than the HP2010 goal while the rates for Whites have been consistently lower. The rates among the Hispanic population under 18 increased between 2000 and 2003, and then declined in 2004.

The rates for Whites have been below the Healthy People objective of 17.3 throughout the five-year period of 2000-2004. A substantial decline in the Hispanic rate is necessary in order to meet the HP2010 goal. The rate for Blacks show no evident trend, making it very unlikely that they will meet the national goal.

**Hospitalization Rates For Pediatric Asthma
Pennsylvania Residents Under Age 18, 2000-2004**



**Hispanics can be of any race

	2004	2003	2002	2001	2000
All Persons Under 18	23.7	29.1	23.7	26.7	24.7
Males Under 18	28.3	32.9	28.5	32.2	29.8
Females Under 18	19.0	21.6	18.6	20.9	19.4
Whites Under 18	11.7	14.3	12.3	14.1	13.3
Blacks Under 18	79.0	87.9	76.8	87.9	81.4
Hispanics** Under 18	39.2	52.6	46.1	47.7	38.7

*discharges per 10,000 under 18 **Hispanics 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. 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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