

# STATISTICAL NEWS

PA Department of Health ♦ Bureau of Health Statistics and Research ♦ Vol. 30 No. 4 ♦ July 2007

## Data Driven Decision Making For Public Health

*Using Data to Help Understand Problems & Make Better Decisions*

Many people cringe when they hear the word “data.” Maybe it dredges up horrific memories of chemistry and physics classes back in high school. Or possibly, thoughts come to mind of complex mathematical calculations that are just too hard to understand. But data doesn’t have to be feared; just think of it as information that helps people understand problems and make better, more informed decisions. That, essentially, is what data driven decision making and data driven management are all about.

The following discusses a recent analysis of data for public health program improvement and evaluation. A program administrator contacted the Bureau of Health Statistics and Research to discuss how “to gauge the success and to evaluate the efficacy of programs,” as stated in their strategic plan. The plan also states that data should guide their education, prevention, and screening efforts. The program administrator wanted to compare relevant disease prevalence data from the Behavioral Risk Factor Surveillance System (BRFSS) and the locations of the current program initiatives across the state. They wanted to use

**(This article) discusses a recent analysis of data for public health program improvement and evaluation.**

data to determine if the program initiatives were being launched in the areas that have the largest problem and where programs might have the greatest impact.

The maps that follow were created to determine if these program initiatives were being launched in areas where they can have the greatest impact on the targeted population.

**Map 1** (page 4) depicts the percent of Pennsylvania’s population, 50 years of age and older, by BRFSS region for 2003 and 2005, that reported having been diagnosed with the disease. Data on program initiatives that were completed between July 2005 and June 2006 were then overlaid to compare to the BRFSS prevalence data. Sixteen counties were in BRFSS regions with the highest percentage prevalence (shaded in the dark orange); how-

***Goto Page 4 or click here...***

## Review of Environmental Tobacco Smoke (ETS)

*Surveys Show Students are Much Less Protected by Workplace Rules*

A comparison of data from two surveys (one of adults and one of youth) in Pennsylvania showed that exposure to secondhand smoke for the two age groups was similar in vehicles and in homes but much higher for youth in their workplaces.

Secondhand smoke is similar to smoke inhaled by smoking cigarettes in that it is made up of many chemicals including known carcinogens. Nationally, secondhand smoke, also known as Environmental Tobacco Smoke (ETS), kills “more than 3,000 adult nonsmokers due to lung cancer, approximately 46,000 from coronary heart disease, and an estimated 430 newborns from sudden infant death syndrome”.<sup>1</sup> The Surgeon General describes exposure to secondhand smoke as an alarming public health hazard and states that smoke-free policies are the most economic and effective approach to providing protection from secondhand smoke. Pennsylvanians, and especially children, indeed continue to be exposed at surprisingly high rates.

### **ETS Exposure in Vehicles**

Approximately seven out of ten middle school students said that smoking is not permitted in the

vehicle that they ride in most of the time. Among high school students, about sixty percent ride or drive in cars where smoking is prohibited. These results come from the Pennsylvania Youth Tobacco Survey (PA YTS), which

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**DEPARTMENT OF HEALTH**

*Edward G. Rendell, Governor*

# 2005 Top Ten Baby Names and Birth 'Fast Facts'

*Michael and Emily Still #1 Names; Complete Name Lists on Website*

The most popular first name given to female babies born in 2005 was Emily, for the twelfth year in a row. Emily has been listed in the top ten since 1991. Madison moved into second place (from third), and Emma dropped from second to third place. Olivia and Abigail remained in fourth and fifth place, respectively. Ava moved up from thirteenth place in 2004 to sixth place in 2005. Hannah dropped from sixth to seventh place. Isabella remained in eighth place. Grace dropped from seventh place to ninth place. Finishing in tenth place in 2005 was Sarah, which dropped from ninth place in 2004, replacing Alexis which dropped down to twelfth.

There were 13,784 different first names given to baby girls in 2005. The following were a few of the more unique and interesting ones – Pandora, Nautica, Cayenne, Fancy, Sparkle, Envy, Beyond, Canyon, Avonlea, Ocean, Seven, and Jubilee.

**Complete lists (in order by frequency) by sex can be accessed as PDF files on the Health Statistics web page. Go to [www.health.state.pa.us/stats](http://www.health.state.pa.us/stats) and select 'Vital Statistics'.**

For the twenty-ninth year in a row, Michael was the most popular first name given to baby boys in 2005. Jacob remained in second place. Matthew, Ryan, and Nicholas were in third, fourth, and fifth place, respectively. Joseph moved up from eighth place to sixth. Joshua dropped from sixth place into seventh, and Ethan moved up from ninth place to eighth place. Tyler dropped down from seventh place in 2004 to ninth in 2005. Andrew remained in tenth place for the second year. Compared

## Top Ten Most Popular Baby Names By Sex Pennsylvania Live Births, 2005

Males	Females
Michael	Emily
Jacob	Madison
Matthew	Emma
Ryan	Olivia
Nicholas	Abigail
Joseph	Ava
Joshua	Hannah
Ethan	Isabella
Tyler	Grace
Andrew	Sarah

to 2004, there were no new male baby names in the top ten in 2005.

A total of 9,960 different first names were given to baby boys in 2005. The following were some of the more unusual – Smooth, Parsley, Maze, Love, Gospel, Promise, Nash, Malachi, Declan, Briar, Xander, and Zeus.

The top ten 2005 baby names by sex are shown in the table above. Complete lists (in order by frequency) by sex can be accessed as PDF files (requires the free software Adobe Acrobat Reader) on the Health Statistics web page. Go to [www.health.state.pa.us/stats](http://www.health.state.pa.us/stats) and select 'Vital Statistics'.

### 2005 RESIDENT BIRTH 'FASTFACTS'

There were a total of 145,033 resident live births in Pennsylvania in 2005. Of those births, 74,860 or 51.6 percent were males and 70,171 were females. The county with the most resident live births was Philadelphia (22,053) and the county with the least resident live births was Forest (35). Of the 145,033

births, the birthweight with the most births was a tie between 7 lbs. 3 oz. and 7 lbs. 9 oz., each with 1,707 births.

The month during which most births occurred was August (12,915 births) and the month which the fewest births occurred was February (10,905 births). However, the day most births occurred on was July 1 (533 births) and the day the fewest births occurred on was December 25 (203 births). The age of mothers having the most births was age 29, with 8,254 births. A table containing the 'Fast Facts' for 2005 resident live births is shown on the left.

If you have any questions about this article, please contact the Bureau of Health Statistics and Research at 717-783-2548. Additional birth statistics for Pennsylvania, as well as data at the county and municipality levels, can be obtained from the Health Statistics web pages at [www.health.state.pa.us/stats](http://www.health.state.pa.us/stats) and select 'Vital Statistics'. Birth statistics are also available on EpiQMS, our on-line, interactive data dissemination tool.

### Fast Facts for Resident Live Births Pennsylvania, 2005

2005 Total Resident Live Births:	145,033
Day Most Births Occurred On:	July 1 (533 births)
Day Fewest Births Occurred On:	December 25 (203 births)
Month Most Births Occurred:	August (12,915 births)
Month Fewest Births Occurred:	February (10,905 births)
Age of Mom with Most Live Births:	29 (8,254 births)
County with Most Live Births:	Philadelphia (22,053 births)
County with Fewest Live Births:	Forest (35 births)
Birthweight with the Most Births:	7 lbs. 3 oz. (1,707 births) 7 lbs. 9 oz. (1,707 births)

# PA Healthcare Workforce Groups Reviewed

## *Pennsylvania's Healthcare Workforce Becoming More Diverse and Younger But Still Below United States Racial/Ethnic Averages*

**A**mong all workforce groups in direct patient care recently surveyed by the Pennsylvania Department of Health, dental hygienists have the youngest average age (40.8) when compared to dentists, physicians, RNs, and LPNs. Dentists, with an average age of 50.3, and physicians, with an average age of 48.7, are among the oldest members of the healthcare workforce surveyed by the Department. Compared to data collected from the same workforce groups two years earlier, the average age decreased for LPNs, physicians and dentists, which can be an indicator that younger professionals are choosing these fields as their careers.

Chart 1 shows that dentists had the highest percentage (53.2) of members aged 50 years and older. Physicians had the next highest percentage (44.2) of members 50 and older, followed by LPNs (41.8), RNs (39.5), and dental hygienists (19.2).

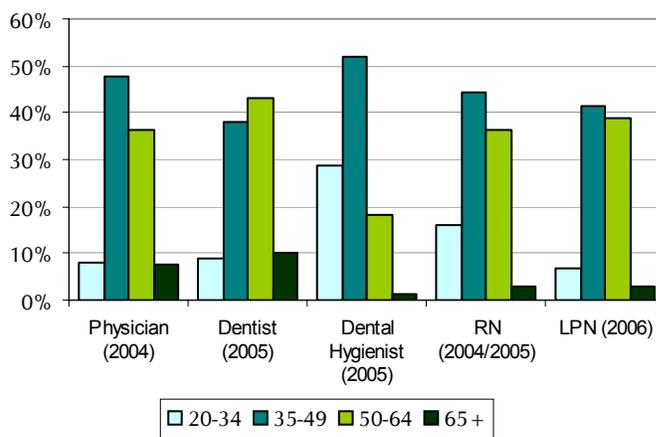
Data shown are collected from surveys that these workforce groups are required to complete every two years when renewing their professional licenses. Results obtained from these surveys by race (see Chart 2) indicated that each of the workforce groups showed an increase in the percentage of African-American and Asian workers compared to the percentages for those groups collected in the previous two years. When compared to the data profile for the United States healthcare workforce provided by The New York Center for Health Workforce Studies in 2006, most of the percentages of

Pennsylvania African-American and Asian healthcare workers fall below the corresponding percentages among healthcare workers in the U.S. The only exception is the 1.8% of Asian RNs working in health care in Pennsylvania compared to the 0.4% of Asian RNs working in the U.S. The percentage of African-American LPNs working in health care in Pennsylvania (7%) is significantly lower than the number of African-American LPNs working in the U.S. (21%).

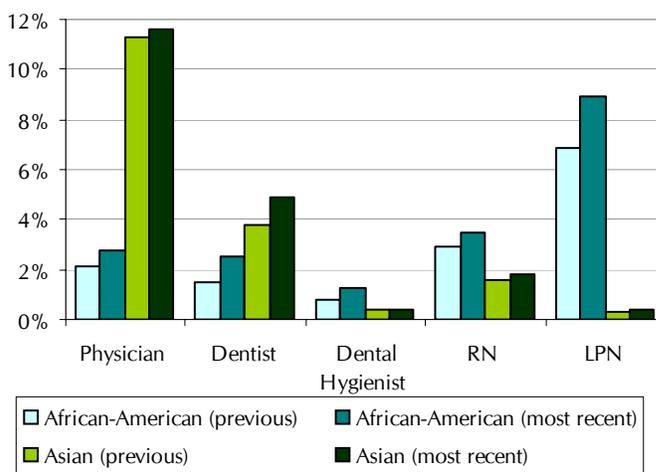
In 2005, dental hygienists had the highest percentage of White workers (97.3). Eighty-one percent of physicians indicated they were White and a large percentage (11.6%) indicated they were Asian, which was more than twice as large as any other Asian healthcare workforce group in Pennsylvania.

The survey also asked if respondents were of Hispanic origin. The workforce group with the highest percentage of Hispanic members was physicians (2.6) and the group with the lowest percentage (0.9) was a tie between RNs and dental hygienists. Again, when compared to the profile released by The New York Center for Health Workforce Studies, the percent of Hispanic healthcare workers in direct patient care in Pennsylvania falls well below the percent of Hispanic healthcare workers in the U.S. The number of respondents who indicated they were of Hispanic origin increased from the previous surveys for nearly all workforce groups in Pennsylvania. The only exception was for physicians which had a decrease of 0.1% in 2004.

**Chart 1**  
Percentages of Pennsylvania Healthcare Workforce Groups by Age Groups Select (most current) Annual Surveys, 2004-2006



**Chart 2**  
Percentages of Pennsylvania Healthcare Workforce Groups by Selected Race Groups Previous Annual Surveys Compared to Most Recent



Previous = 2002 for physician, 2003 for dentist, hygienist, and RNs, and 2004 for LPNs  
Most recent = 2004 for physician, 2005 for dentist, hygienist, and RNs, and 2006 for LPNs

The majority of dental hygienists (99.2%), LPNs (96.2%), and RNs (93.8%) indicated that they were female. The majority of dentists (83.4%) and physicians (74.8%) indicated that they were male. When comparing the latest surveys to their respective

ones conducted two years earlier, it was noted that more males were working in the RN, LPN, and dental hygienist fields and more females were becoming physicians and dentists. Contact the Bureau at 717-783-2548 For questions about this article.

# Data Driven Decision Making For Public Health

ever, only four of those counties (Crawford, Mercer, Montgomery and Philadelphia) had program initiatives in 2005 and 2006. Why aren't there more programs in the counties with the highest percentages of disease prevalence? Maybe the programs were initiated in the wrong areas or maybe percentages in this case don't tell the whole story of where the actual problems exist.

**(Rates) don't always indicate where the largest numbers of people, afflicted with some disease or health problem, are located.**

The previous map used rates or percentages in an attempt to identify areas with the greatest problem. Rates are great for comparison purposes between geographies, but they don't always indicate where the largest numbers of people, afflicted with some disease or health problem, are located.

Let's look at a fictitious life and death situation that might clarify the dilemma of using rates or counts. Imagine that you are a helicopter pilot flying over a flooded area. There are people stranded on rooftops, which could be compared to the populations that you'd like to target with public health programs. The helicopter represents the programs. Just like the public health programs, the helicopter can have

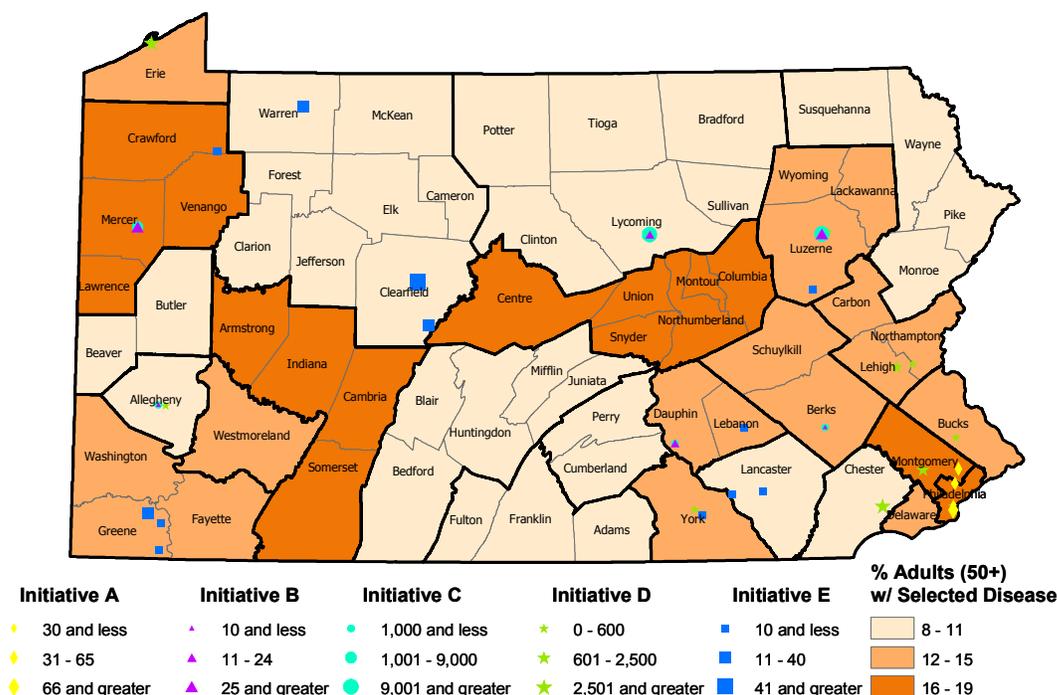
**Disease prevalence tends to follow population density patterns, i.e., more populated areas tend to have a higher count of any disease simply due to likelihood and random chance.**

a direct impact on the problem and save lives. Let's say that the fuel in the helicopter is funding. You are flying near two rooftops. One rooftop has 10 people stranded there and you know that the total population of that building is 50. Twenty percent

of the population is stranded. The other building has 12 people on the roof. The total population of that building is 100. Twelve percent of the second building's population is stranded. You have just enough fuel (funding) to make one stop and you have room for 14 more people in the helicopter. You have to make a hard decision. What do you do? You could save a larger percentage of people from the first building, but you could save two more "real lives" from the second building. In this case, the way to have the greatest impact on real lives with limited funding is to target the area with the larger number of people who are stranded rather than the largest percentage of a population.

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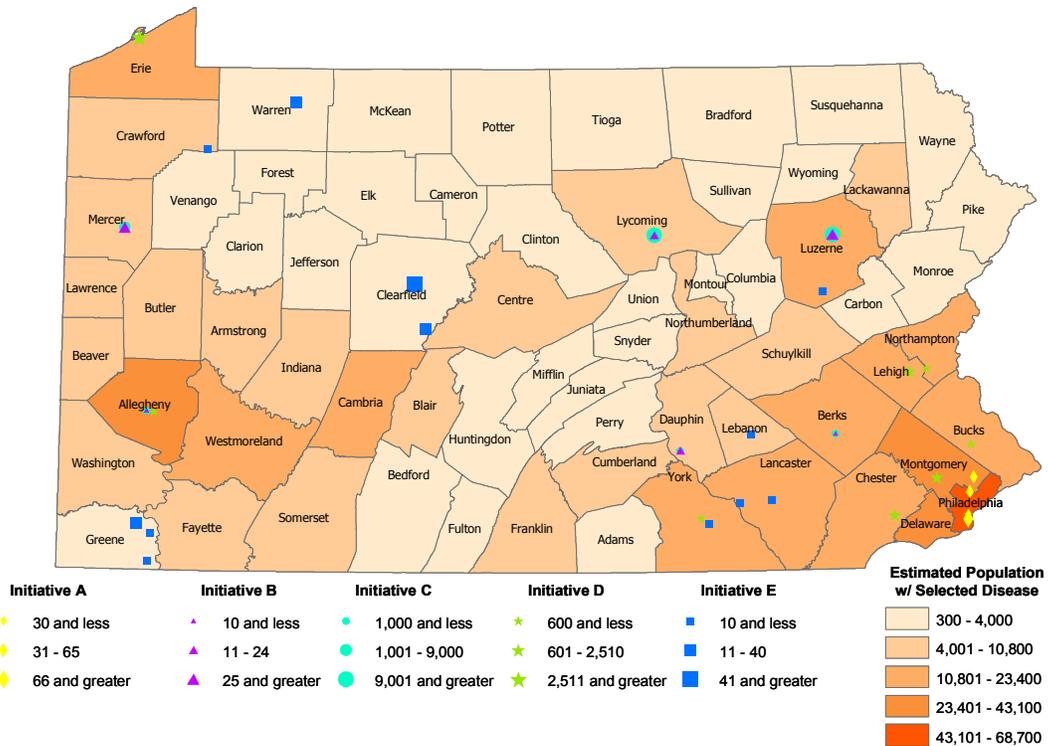
**Map 1**  
**Percent of Population by BRFSS Region\* With Selected Disease Prevalence**  
**Age 50 and Older, Pennsylvania, 2003 and 2005**  
**AND Number of Persons Completing Outreach Programs for Selected Disease 2005-2006**



\* Source: 2003 and 2005 Behavioral Risk Factor Surveillance System (BRFSS) Data, Bureau of Health Statistics and Research

# Data Driven Decision Making...

**Map 2**  
**Estimated Number\* of Pennsylvania Adults, Age 50 and Older With Selected Disease, 2003 and 2005**  
**AND Number of Persons Completing Outreach Programs for Selected Disease 2005-2006**



\* Synthetic estimate of population with Selected Disease was calculated by applying the estimated percentage of adults, age 50 and older, with selected disease (2003 and 2005 Behavioral Risk Factor Surveillance System) to 2005 population estimates (Pennsylvania State Data Center).

The following map and calculations were generated with that thought in mind.

Map 2 (above) provides a synthetically estimated number of the population, by county, who reported as having been diagnosed with the disease targeted by the program initiatives. In addition, data on program initiatives that were completed between July 2005 and June 2006 are presented. Disease prevalence tends to follow population density patterns, i.e., more populated areas tend to have a higher count of any disease simply due to likelihood and random chance. It is interesting to note that 15 counties fall in the top three ranges of the estimated population with the disease. These 15 counties

**The three maps shown in this article are being used by the program administrator to make decisions about where to target programs and also to confirm, in the case of the Asian initiative, that they are effectively targeting the correct areas.**

contain 22 programs out of the 39 programs launched in 2005 and 2006, which means that 22 percent of the counties contain

56 percent of the programs.

As you scan Map 2, you can see very few programs in counties shaded a pale yellow or very light orange (counties with the lowest estimated population counts with the disease). The exception is Clearfield, Greene and Warren which have six programs between them, but only 1.5 percent of the state's 50 and older population. Compare this to Delaware, Montgomery and Philadelphia Counties, which also have six programs between them, but 21 percent of the state's 50 and older population. The program manager has said that after reviewing Map 2, they have decided to target more programs in the southeastern part of the state. Issues that may affect

targeting programs in areas such as the southeastern part of the state are limited funding, possible criticism from small counties concerning rural disparity, and finding suitable locations to set up a program.

Asian females have a heightened risk for this targeted disease. Map 3 (page 8) contains all of the census tracts in Pennsylvania with 100 or more Asian females, 40 years of age and older. In addition, the only programs for Asians that were launched in Pennsylvania between July 2005 and June 2006 are presented in this map, of which there are five. Three of the programs fall inside the boundaries of census tracts

*Continued on Page 8*

# Review of Environmental Tobacco Smoke (ETS)

was conducted with students throughout the state during the fall and winter of the current school year (see Chart 1).

When adults in Pennsylvania were asked a similar question in a phone survey, the Behavior Risk Factor Surveillance System (PA BRFSS), to describe the rules about smoking inside their car, approximately 63 (±2) percent of adults prohibited smoking in their vehicles in 2004, and by 2006, that number had increased to 68 (±2) percent (see Chart 2).

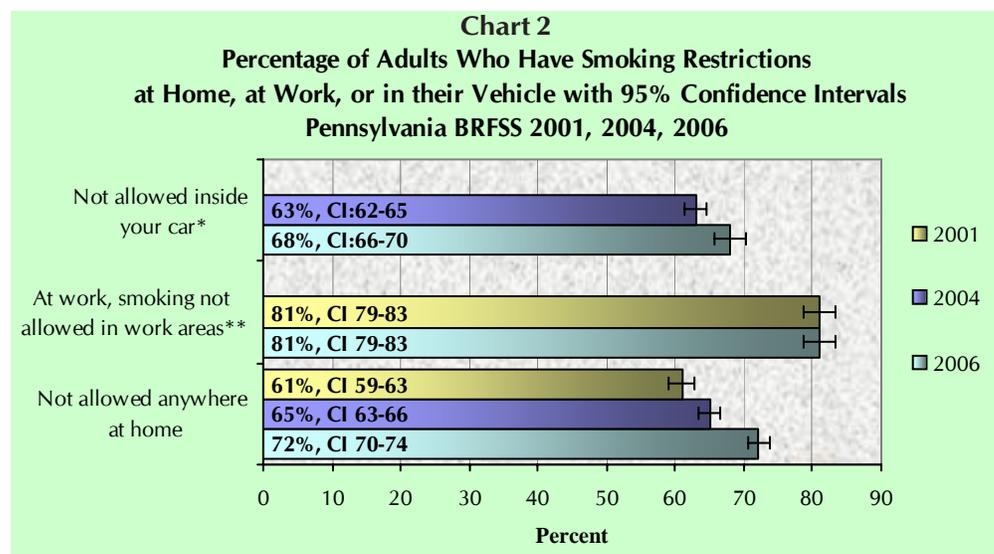
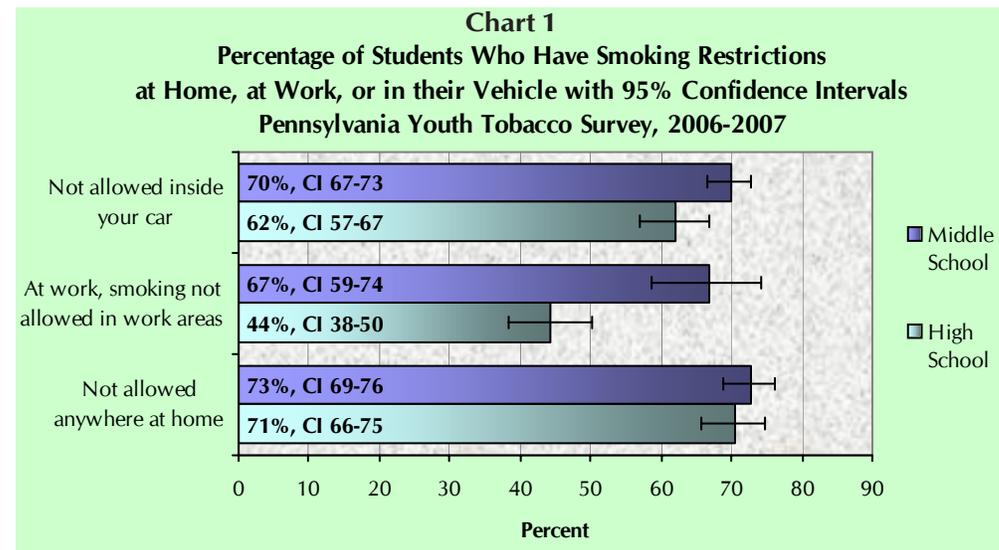
## ETS Exposure in the Homes

The percentages of students and adults who say that there are rules against smoking in their homes are about the same. All three groups surveyed (middle school students, high school students and adults over the age of 18) indicated that, for approximately seventy percent of Pennsylvanians, there are rules prohibiting smoking in the home.

The percentage of adults living in homes with rules against smoking has grown over the past five years. A question describing the rules about smoking in the homes has been on the Pennsylvania BRFSS in three recent years, 2001, 2004 and in 2006. In each subsequent year, a larger percentage of adults said that smoking is not permitted anywhere inside their home, starting with 61 percent (±2) in 2001, growing to 65 percent (±2) in 2004, and last year (2006) reaching 72 percent (±2).

## ETS Exposure in Workplaces

Unlike the consistency about the rules for smoking in the home, there is a large disparity between youth and adults with regard to



\* Question about smoking rules in the car was only asked in 2004 and 2006

\*\* Question about smoking rules at work was only asked in 2001 and 2006

workplace smoking rules. Only about ten percent of Pennsylvanian middle school students and about forty percent of high school students hold jobs. Among these working students, less than half of the high school students and about two thirds of the middle school students work in places where smoking is prohibited, while 80 percent of adults, aged 18 and over, work in places that

do not permit smoking. Students in Pennsylvania are far less protected from workplace smoke and its associated risks when compared to adults.

For questions regarding 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](http://www.health.state.pa.us/stats).

1. *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General – Executive Summary*. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006.

# Update: Healthy People 2010 Objectives

## Focus Area 15: Injury and Violence Prevention

### 15-13 - Reduce unintentional injury deaths..... 2010 Target: 17.5

#### All Deaths and by Sex and Race/Hispanic Origin:

The age-adjusted death rate for unintentional injuries among all Pennsylvania residents increased between 2001 and 2005, from 34.1 to 39.9 per 100,000. Rates for males were more than twice those for females (e.g., 56.3 vs. 25.2 in 2005). The rates for males have been on the increase between 2001 and 2005, from 49.4 to 56.3. Death rates among female residents have also increased throughout the 2001-2005 period (from 20.6 to 25.2).

Since 2002, the age-adjusted death rates for Whites and Blacks were similar and both have been on the increase. Among the race/ethnic groups displayed, only the annual age-adjusted death rates for Hispanics showed a decline between 2002 and 2005.

The rates for all deaths, males, Whites, Blacks, and Hispanics are well above the national objective of 17.5 and all, except for Hispanics, are steadily increasing. Although the rates

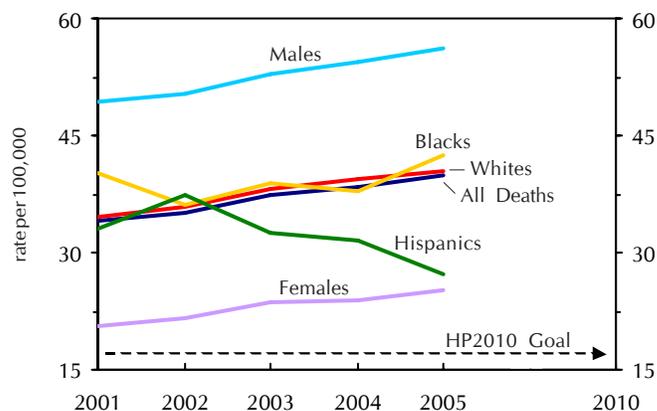
among female residents are closest to the national goal, they too have been on the increase during this five-year time period.

#### Males by Race and Hispanic Origin:

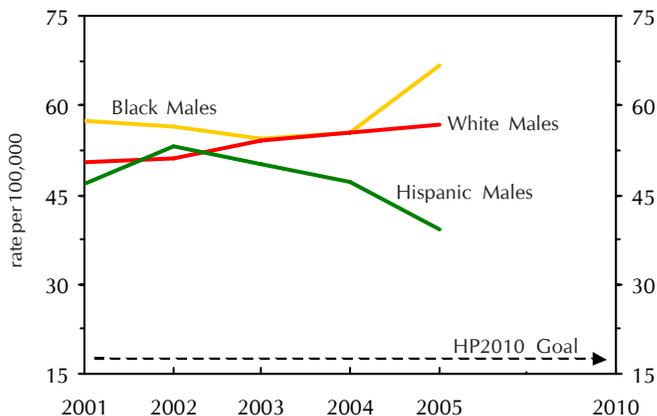
The bottom graph on the right depicts the age-adjusted unintentional injury death rates for Black, Hispanic, and White males. The 2005 rate for Black males was the highest at 66.6. The rate for White males was 14.6 percent lower than the rate for Black males while the rate for Hispanic males was over 41 percent lower. The rate for Hispanic males declined between 2002 and 2005 while the rate for White males has been on the increase throughout the 2001-2005 period. Among Black males the rates have been higher in recent years.

All of the age-adjusted death rates for males are far above the national Healthy People 2010 goal of 17.5 and only the annual rates for Hispanic males show a decline.

Unintentional Injury Age-Adjusted Death Rates\*  
All Deaths and by Sex, Race, and Hispanic Origin\*\*  
Pennsylvania Residents, 2001-2005



Males by Race and Hispanic Origin\*\*  
Pennsylvania Residents, 2001-2005



\* per 100,000 age-adjusted to the 2000 U.S. standard million population  
\*\* Hispanic can be of any race

Unintentional Injury Age-Adjusted Death Rates\*  
By Sex, Race, and Hispanic Origin\*\*  
Pennsylvania Residents, 2001-2005

	2001	2002	2003	2004	2005
All Deaths .....	34.1	35.1	37.5	38.4	39.9
Males .....	49.4	50.3	53.0	54.4	56.3
Females .....	20.6	21.6	23.6	24.0	25.2
Whites .....	34.6	35.8	38.1	39.3	40.5
Blacks .....	40.2	36.2	38.8	38.0	42.5
Hispanics** .....	33.1	37.4	32.5	31.5	27.2
White Males .....	50.5	51.1	54.1	55.6	56.9
Black Males .....	57.3	56.4	54.5	55.6	66.6
Hispanic** Males .....	46.7	53.2	50.3	47.2	39.1

\*per 100,000 age-adjusted to the 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.

## Data Driven Decision Making...

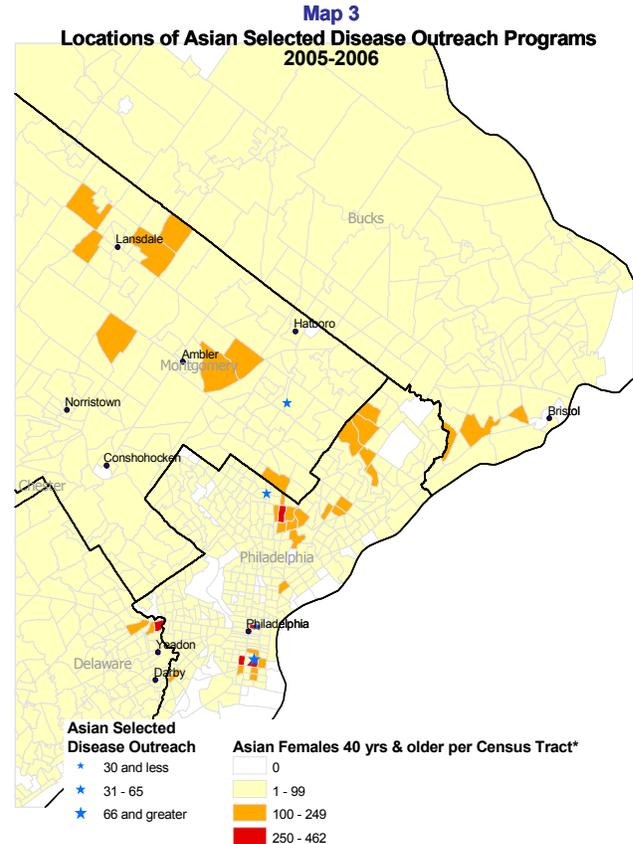
with the largest concentration of this specific demographic. The other two programs are positioned in locations that are central to other census tracts with Asian population concentrations. Map 3 shows that the program administrator has done a great job in placing these programs in locations where they can have the greatest impact on the state's Asian female population and their heightened problem.

The three maps shown in this article are being used by the program administrator to make decisions about where to target programs and also to confirm, in the case of the Asian initiative, that they are effectively targeting the correct areas. They made a commitment in their strategic plan to use data and have now seen the real value of data driven decision making.

A data driven management initiative was started in 2004 in the Department of Health. Now

three years later, Dr. Calvin Johnson, the Secretary of Health, has committed to establishing a Program Evaluation Unit in the Bureau of Health Statistics and Research. This new unit will assist in identifying data that can be used to evaluate programs and guide decision making. The hope is that this effort, using data analysis and evaluation, will allow programs to spend funding more wisely by targeting the areas and populations that have the largest health problems, measuring performance by evaluating outcomes from program initiatives, and most importantly, improving the overall health of the Commonwealth and saving lives.

For questions regarding this article or the Department's Data Driven Management initiative, please contact the Bureau of Health Statistics and Research at 717-783-2548.



\*Based on 2000 US Census data. The only Pennsylvania Census Tracts with 100 or more Asian Females 40 years of age or greater are those shown on this map.

*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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