STATISTICAL NEWS

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An Analysis of Questions Included in the 2013 BRFSS Survey

Oral Health is important to overall general health. There is evidence that shows that periodontitis, or gum disease, can increase the risk of other serious chronic health diseases, such as heart disease, stroke, diabetes, and respiratory illness. Losing teeth to tooth decay or gum disease can also contribute to poor dietary habits. As a result, it is important to increase awareness of the dangers resulting from poor oral health.

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Early Detection is the Key for Successful Disease Management

Estimated diabetes prevalence varied significantly by age, education, income, and race/ethnicity among Pennsylvania adults in 2013. The Pennsylvania Department of Health (DOH) collected diabetes data in the 2013 Behavioral Risk Factor Surveillance System (BRFSS) survey. Questions asked were related to pre-diabetes, diabetes management, and diabetes-related doctor visits. Highlighted in this article are some of the findings from the 2013 survey data.

Detection

An estimated 58 percent (95% Confidence Interval: 57-60) of Pennsylvania adults age 18 and older who are not known to be diabetic have been tested for high blood sugar or diabetes in the past three years. This is important because early detection of pre-diabetes or borderline diabetes can help delay or prevent the onset of diabetes. Similarly, early detection of diabetes is important so that an individual can begin to effectively manage the disease. An estimated 7 percent (CI: 6-7) of Pennsylvania adults age 18 and older have ever been told they have pre-diabetes or borderline diabetes (out of non-diabetics and those who only discovered they had diabetes when they were pregnant). Without making any lifestyle changes, those with pre-diabetes or borderline diabetes had an increased risk of developing diabetes.

Displayed in Chart 1 are breakouts of the estimated percentages of Pennsylvania adults age 18 and older who have been tested for high blood sugar or diabetes in the past three years by selected demographics. As can be seen, a significantly higher percentage of females were tested compared to males (61 percent compared to 55 percent), which may be due to women usually being tested for diabetes during pregnancy.

Chart 1
Estimated Percentages of Being Tested for High Blood Sugar or Diabetes in Past Three Years by Various Demographics
Non-Diabetic Pennsylvania Residents Ages 18 and Older, 2013 BRFSS

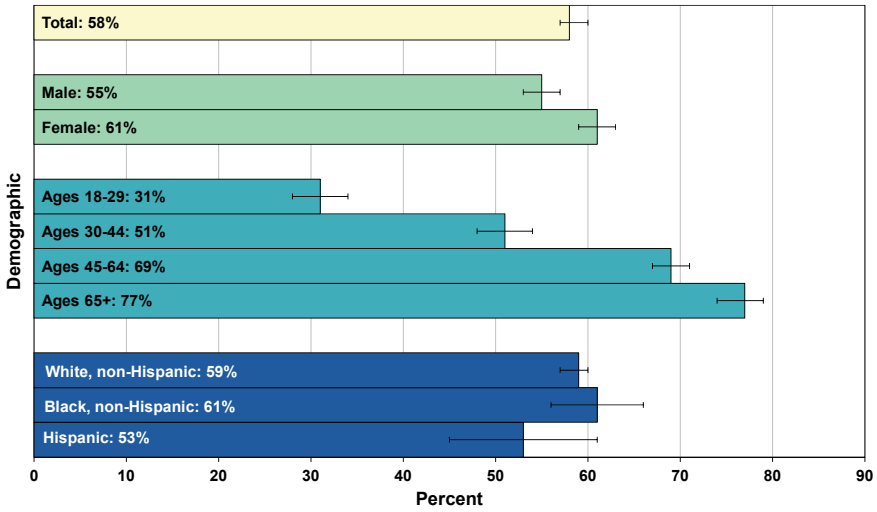
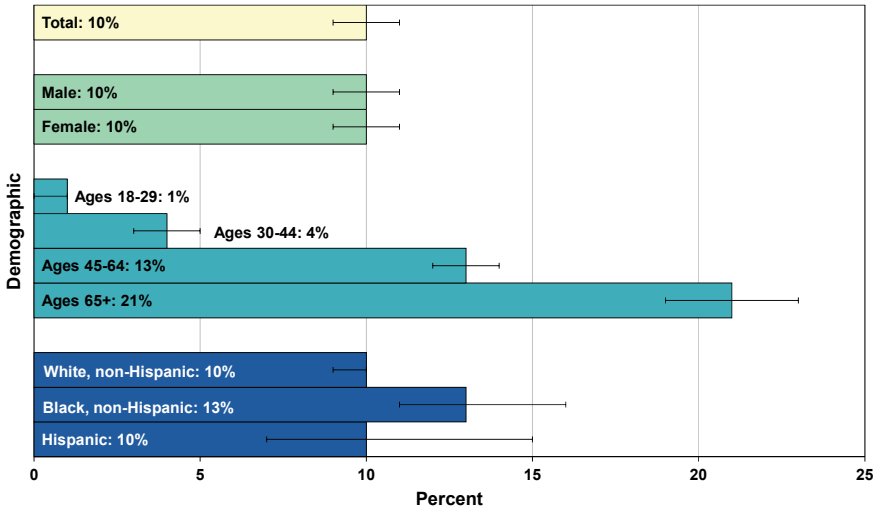


Chart 2
Estimated Percentages of Being Told by a Doctor They Have Diabetes by Various Demographics
Pennsylvania Residents Age 18 and Older, 2013 BRFSS



As with many chronic diseases, the percentages by age and race/ethnicity displayed differences as well. Rates for being tested for diabetes were higher for those 45 years of age and older, when compared to

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younger Pennsylvanians (ages 18-44 years). There were differences in the percentages by race/ethnicity but they were not significantly different from each other, since their 95% confidence intervals overlap. Significant testing is done to conclude if the observed difference actually reflects the characteristics of the population rather than just sampling error.

Prevalence

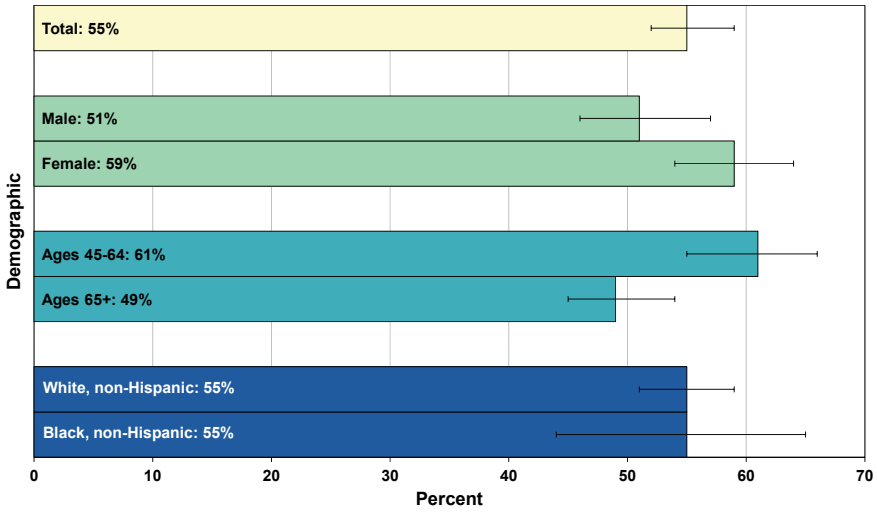
In general, an estimated 10 percent of Pennsylvania adults age 18 and older had ever been told they had diabetes. Chart 2 (see Page 2) depicts the prevalence rates of diabetes and the 95% confidence intervals for some common demographic breakouts. Diabetes prevalence varied significantly based on age, education, income, and race/ethnicity, although there were no significant differences found between sexes. It is also important to note that diabetes can go undetected for quite some time. Therefore, the percentage of Pennsylvania adults with diabetes was likely higher than 10 percent (CI: 9-11) in 2013. According to the Centers for Disease Control and Prevention's (CDC) 2014 National Diabetes Statistics Report, undiagnosed diabetes accounts for 8.1 million out of 29.1 million people in the United States who are believed to have diabetes (http://www.cdc.gov/diabetes/pubs/statsreport14.htm).

Self-Management

The 2013 BRFSS survey also provided insight into diabetes self-management. An estimated 63 percent (CI: 59-66) of Pennsylvania adults with diabetes checked their blood glucose daily. Approximately 35 percent (CI: 31-38) of Pennsylvania adults with diabetes took insulin to help manage their diabetes. It was also estimated that 63 percent (CI: 59 -66) of Pennsylvania adults with diabetes checked their feet daily for any sores or irritations.

In order to control the disease, it is vital that diabetics develop a plan with their doctor that includes routine visits. In 2013, an estimated 41 percent (CI: 37-45) had seen their doctor four or more times during the year. It is also extremely important for diabetics to have a strong understanding of how to manage their diabetes in order to avoid any health complications that could potentially develop. The 2013 BRFSS survey estimated that 55 percent (CI: 52-59) of Pennsylvania adults with diabetes had taken a course on how to manage their diabetes. Chart 3 illustrates the prevalence rates of those who have taken a management course by various demographic breakouts, including sex, age, and race/ethnicity.

Chart 3
Estimated Percentages for Those Who Have Taken a Course on How to Manage Diabetes Themselves
Diabetic Pennsylvania Residents Age 18 and Older, 2013 BRFSS



Complications

An estimated 71 percent (CI: 67-74) of Pennsylvania adults diagnosed with diabetes had a dilated eye exam in the past year. Additionally, an estimated 20 percent (CI: 17-24) of Pennsylvania adults with diabetes had a doctor tell them that their diabetes had affected their eyes. Furthermore, the CDC's "2014 National Diabetes Statistics Report" states that: "about 60% of non-traumatic lower-limb amputations among people age 20 years or older occur in people with diagnosed diabetes." The 2013 PA BRFSS survey estimated 80 percent had their feet checked by a doctor in the past year.

State-Added Questions

Each year, the BRFSS survey evolves in order to provide a greater understanding of behavioral risk factors. New diabetes questions were added to the Pennsylvania survey in 2013. Pennsylvanians were asked the

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type of diabetes they had and the duration of their diabetes self-management education course or class. It was found that an estimated 9 percent (CI: 7-11) of Pennsylvania adults with diabetes have type 1 diabetes and an estimated 90 percent (CI: 87-92) of Pennsylvania adults with diabetes have type II diabetes. An estimated 58 percent (CI: 52-63) of those who took a diabetes course or class in self-management attended a course that lasted less than four hours.

All of the Pennsylvania percentages and prevalence rates detailed in this article, as well as additional information, can be found on our interactive data dissemination Web tool, called the Epidemiologic Query and Mapping System (EpiQMS). To access this information, go to www.statistics.health.pa.gov and click on "EpiQMS" under "Health Statistics." Select the BRFSS dataset and the geography of interest. This will provide further demographic breakouts, as well as regional estimates for three-year summary breakouts. Finally, the American Diabetes Association website (www.diabetes.org) also contains detailed information related to diabetes and has a page dedicated to Statistics About Diabetes.

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Reported Pregnancies Continue to Decline in Pennsylvania

Teen Pregnancy Rate Declines for Fourth Consecutive Year

There were 175,438 pregnancies reported among female residents of Pennsylvania in 2012, with a reported pregnancy rate of 72.3 per 1,000 females ages 15-44. The reported pregnancy rate among female residents decreased by 3.7 percent from 1995 (72.8) to 2002 (70.1). However, from 2002 to 2008, the reported pregnancy rate increased by 8.4 percent from 70.1 to 76.0. The reported pregnancy rate is now on a decline again. From 2008 to 2012, the reported pregnancy rate decreased by 4.9 percent, from 76.0 to 72.3. During that five-year period, the rate decreased in every year. However, the 2012 reported pregnancy rate (72.3) is still 3.1 percent higher than the 2002 reported pregnancy rate of 70.1, the lowest rate in recent years.

Chart 1 depicts the annual rate of reported pregnancies for all Pennsylvania residents and the annual rate of reported pregnancies for teens (ages 15-19) from 1997 through 2012. The teen pregnancy rate declined by 21.4 percent from 1997 (51.8) to 2005 (40.7), then rose for three consecutive years to a rate of 44.3 in 2008. Since 2008, the teen pregnancy rate has declined every year, to a low of 33.7 for 2012. This is a decrease of 23.9 percent from the 2008 teen pregnancy rate (44.3) and a decrease of 17.2 percent from the 2005 teen pregnancy rate (40.7). The 2012 teen pregnancy rate is the lowest in the time period of 1997 through 2012.

Table 1 compares the reported pregnancy rates by woman's age for 2011 and 2012. All rates for 2012 for the age groups listed decreased, with the exception of women in the 30 and older age group, which showed an increase. The largest rate decrease was seen for women aged under 15 (12.5 percent), followed by women in the 15 to 17 age group with a decrease of 9.8 percent. The rate decreased for women in the 18 to 19 age group by 5.2 percent and by 2.7 percent in the 20 to 29 age group, while the rate for women aged 30 and older increased by 2.2 percent.

Over 80 percent (140,873) of all reported pregnancies resulted in a live birth in 2012, with 18.9 percent (33,166) resulting in an induced abortion, and 0.8 percent (1,399) resulting in a fetal death (non-induced termination of 16 weeks or more gestation). Women in the 20 to 29 age group accounted for 52.5 percent of all reported pregnancies in 2012; those under 20 years of age

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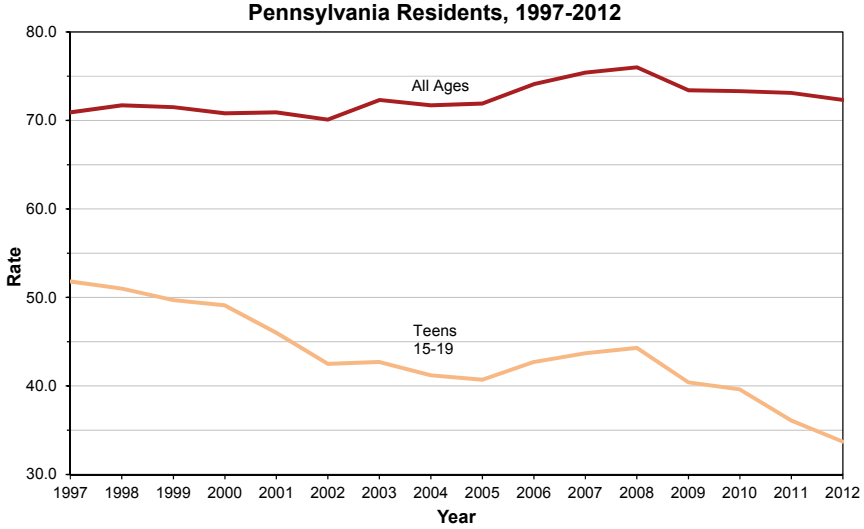
Chart 1
Reported Pregnancy Rates*, All Ages and Teens 15-19
Pennsylvania Residents, 1997-2012



*Teen rate per 1,000 female population ages 15-19; rate for All Ages is per 1,000 females ages 15-44 years.
Note: Unknown age included in All Ages.

Table 1
Reported Pregnancies and Rates* by Woman's Age and Year, Pennsylvania Residents, 2012 and 2011

Age of Woman	2012		2011		Rate % Difference
	Number	Rate	Number	Rate	
All Ages	175,438	72.3	177,831	73.1	-1.1
Under 15	267	0.7	305	0.8	-12.5
15-17	4,139	17.4	4,684	19.3	-9.8
18-19	10,160	54.5	10,966	57.5	-5.2
20-29	92,138	109.8	93,741	112.8	-2.7
30 & Older	68,631	42.4	68,058	41.5	2.2

*Rate Calculations: per 1,000 female population for each year by age group; all ages - per 1,000 females ages 15-44 years; under 15 - per 1,000 females ages 10-14 years; and 30 & older - per 1,000 females ages 30-49 years.
Note: Unknown ages are included in the total number for all ages.

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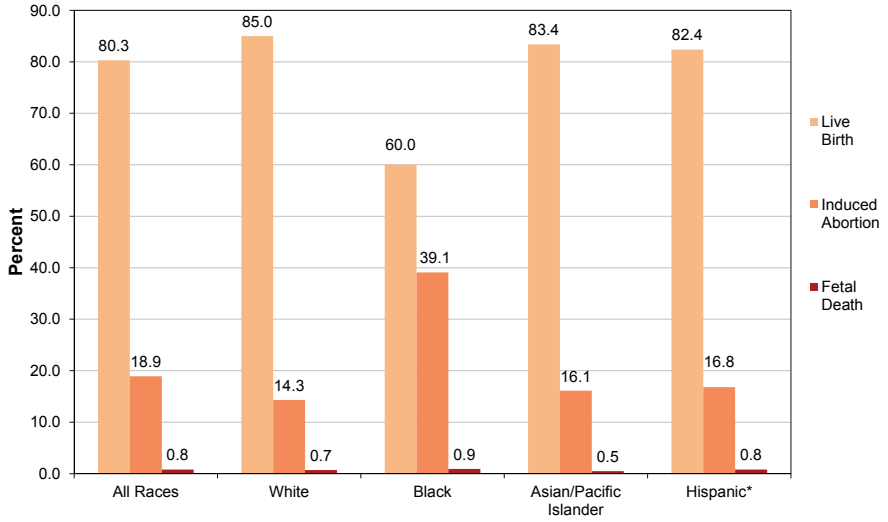
Reported Pregnancies Continue to Decline in Pennsylvania

accounted for 8.3 percent; and women 30 years of age and older accounted for 39.1 percent. Among women under 20 years of age, 69.1 percent of all reported pregnancies in 2012 resulted in a live birth, compared to 77.5 percent for women in the 20 to 29 age group and 86.4 percent for those women 30 years of age and older.

Almost 69 percent (117,366) of all reported pregnancies in 2012 were among white women. Black women accounted for 20.9 percent (35,704) of the reported pregnancies, and Asian/Pacific Islander women accounted for 4.2 percent (7,206) of all reported pregnancies. Reported pregnancies among women of Hispanic origin accounted for 9.7 percent (16,894). Please note that persons of Hispanic origin can be of any race. Among black and Hispanic females, 14.5 percent and 14.6 percent of the reported pregnancies in 2012, respectively, were to females under 20 years of age. Only 6.1 percent of all reported pregnancies to white women and 2.4 percent of all reported pregnancies to Asian/Pacific Islanders were to females under 20 years of age.

Chart 2 shows the percentage of 2012 reported pregnancies by outcome, race, and Hispanic origin for Pennsylvania residents. Among white women, 85.0 percent of reported pregnancies resulted in a live birth and 14.3 percent in an induced abortion. Over 83 percent of the reported pregnancies among Asian/Pacific Islander women resulted in a live birth and 16.1 percent in an induced abortion. Only 60.0 percent of the reported pregnancies among black women resulted in a live birth, with 39.1 percent resulting in an induced abortion. The percentages of live births and induced abortions for Hispanic women were similar to those for white women and Asian/Pacific Islander women at 82.4 percent and 16.8 percent, respectively.

Chart 2
Reported Pregnancies, Percent Outcome by Race and Hispanic Origin*, Pennsylvania Residents, 2012



*Those of Hispanic Origin can be of any race.

Three components were used to calculate the reported pregnancies — live births, non-induced fetal deaths, and induced abortions. Please note the following qualifications of the reported pregnancy statistics as released by the Pennsylvania Department of Health. Fetal deaths exclude non-induced terminations of less than 16 weeks of gestation. Induced abortions exclude those performed on a Pennsylvania resident in an out-of-state facility.

For additional statistics on the age-specific pregnancy rate and the percent live birth outcome for reported resident teen pregnancies visit our website at www.statistics.health.pa.gov and click on the EpiQMS logo. If you have any questions about the data presented here, please contact the Division of Health Informatics, or send us a message using our Contact Us link.

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Hysterectomies and Cervical Cancer Rates

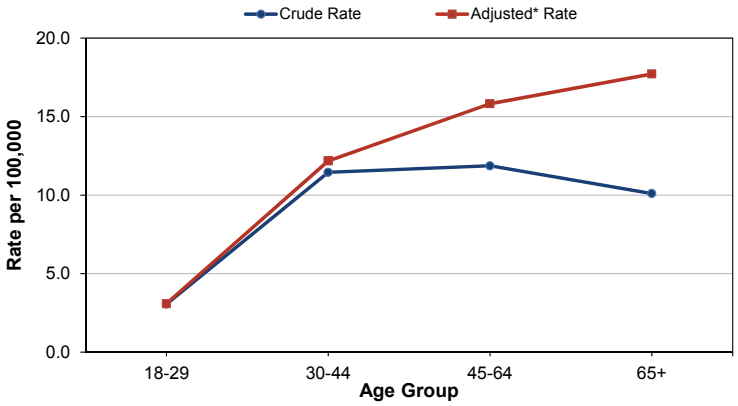
Adjusting for Hysterectomy Prevalence

In the world of public health, statistics can play a big role in major decisions. Since each group promoting public health, whether it is a small nonprofit or the state department of health, has limited resources, it uses statistics derived from data to determine how best to achieve their particular goals with what they have available. However, numbers can be misleading. All statistics come with assumptions behind them and the definitions that they use. One must look at what a statistic really says before using it to justify decisions.

This article will examine the rate of invasive (excluding *in situ*) cervical cancer incidence among different age groups. The denominator of a rate is just as important as the numerator. For a cancer incidence rate, the denominator ideally is the population at risk of developing the cancer. Not all people are considered to be "at risk" for every cancer. For example, statisticians exclude males from the denominator of cervical cancer rates since they are not part of the population that is at-risk. However, they often do not exclude a group of women incapable of developing cervical cancer: those who had their cervices removed via a hysterectomy.

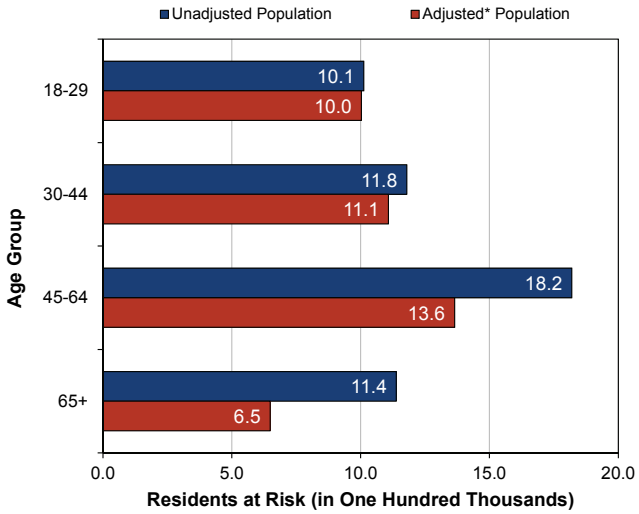
Using the Pennsylvania Behavioral Risk Factor Surveillance System survey to estimate hysterectomy prevalence and the National Hospital Discharge Survey (NHDS) data to estimate how many of those hysterectomies removed the cervix, one can approximate the sizes of the populations truly at risk. Those women who had their cervix removed in the same year as a cervical cancer diagnosis counted towards the population at risk. The NHDS was conducted from 1965-2010. Statistics in this article are shown for 2004-2010.

Chart 1
Invasive Cervical Cancer Rates in Pennsylvania, by Population at Risk and Age Group, 2010



* Rates are among female Pennsylvanians who had not had a total hysterectomy or had one as part of the first course of cervical cancer treatment in 2010.

Chart 2
Unadjusted and Adjusted At-Risk Female Populations in Pennsylvania, by Age Group, 2010



* Female Pennsylvanians who had not had a total hysterectomy or had one as part of the first course of cervical cancer treatment in 2010.

Chart 1 shows a comparison of the traditional rates to those using hysterectomy-adjusted populations for Pennsylvania. Unlike traditional rates, the adjusted rates reveal that a woman's risk of getting cervical cancer consistently increases with age. Moreover, the older the age group,

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Hysterectomies and Cervical Cancer Rates

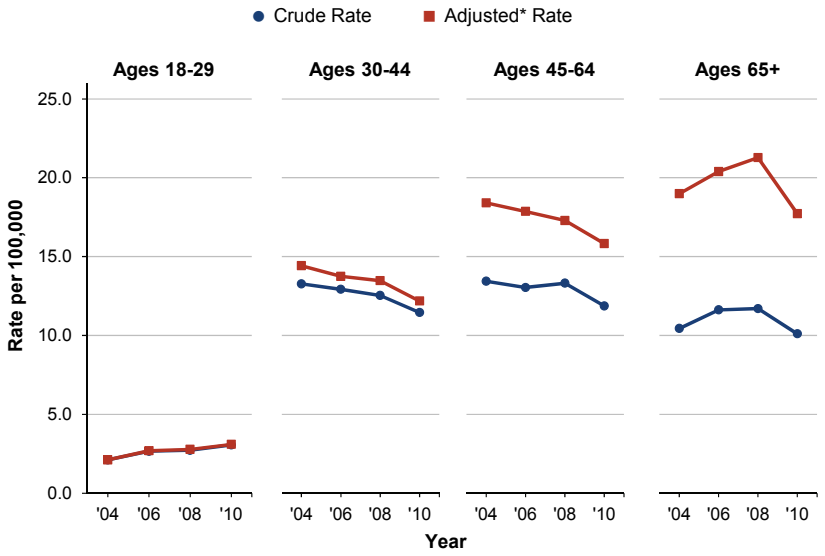
the farther apart the two rates are. Among women ages 65 and older the adjusted rate is 75.4 percent higher than the original unadjusted rate.

The widening gap is unsurprising, since the chance that a woman has had a hysterectomy typically increases with age. Chart 2 (page 7) compares the estimated populations of all females and those who have not had a cervical hysterectomy for each age group. The unadjusted and adjusted populations of females aged 18 to 29 are nearly identical, but the adjustment removes more than a third of the 65 and older population.

In the United States, many public health experts see cervical cancer as unusual, since the traditional rates imply that it occurs most often among middle-aged women. This apparent trend has affected the programs and recommendations of public health groups. These groups should consider the elevated risk among older women observed in the adjusted rates.

The adjustments did not greatly affect the trends of age-specific rates over time, as illustrated in Chart 3. As seen with the 2010 rates, the rate among women aged 18 to 29 differed very little in any year (2004, 2006, and 2008). The adjusted rate in each age group kept a consistent difference from the traditional rates, with similar trends in both unadjusted and adjusted rates.

Chart 3
Invasive Cervical Cancer Incidence Rates, by Age Group, Year, and Population at Risk, 2004-2010



* Rates are among female Pennsylvanians who had not had a total hysterectomy or had one as part of the first course of cervical cancer treatment in the same year as the cancer diagnosis.

The choice of which statistic, traditional or adjusted, to use depends on how it will be used. The traditional cervical cancer rate among all women in an age group works for comparing the actual prevalence of the cancer in different communities. The adjusted rate among women who have not had hysterectomies better serves as an assessment of a woman's risk of developing cervical cancer as she gets older.

For additional cancer-related data, please visit the Health Statistics webpages on the Pennsylvania Department of Health website. Cancer data among Pennsylvania residents are also available on EpiQMS, the department's interactive data dissemination tool. If you have any questions about the data presented in this article, please contact the Division of Health Informatics by sending us a message using our Contact Us link.

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Oral Health and Dental Insurance Coverage

An Analysis of Questions Included in the 2013 BRFSS Survey

Oral Health is important to overall general health. There is evidence that shows that periodontitis, or gum disease, can increase the risk of other serious chronic health diseases, such as heart disease, stroke, diabetes, and respiratory illness. Losing teeth to tooth decay or gum disease can also contribute to poor dietary habits. As a result, it is important to increase awareness of the dangers resulting from poor oral health. It is imperative to educate the public on the importance of oral health and the need to visit a dental health professional on a periodic basis. A chief barrier to this is the affordability of dental health care and the availability of dental insurance so that one can receive proper care. To continue addressing this issue, the Pennsylvania Department of Health included two questions related to dental insurance in the 2013 Behavioral Risk Factor Surveillance System (BRFSS) survey.

The Centers for Disease Control and Prevention (CDC) sponsored BRFSS survey is a telephone survey conducted by state health departments with technical and methodological assistance provided by the CDC. The BRFSS survey consists of telephone interviews using randomly generated telephone numbers. The questions asked relate to the leading causes of chronic diseases and other health-related behaviors.

The first question dealing with dental insurance ("Have you been covered for the entire past 12 month period by any of the following types of dental insurance?") collected information on the different types of insurance coverage available to Pennsylvania residents. Results from this question are displayed in Chart 1. It is estimated that 5 percent (95% confidence interval [CI]: 5-6) of white, non-Hispanic adults indicated their dental insurance coverage was provided by Medicaid or Medical Assistance, which is significantly lower than black, non-Hispanic (18 percent, CI: 15-22) and Hispanic (16 percent, CI: 11-23) adults.

It is estimated that at least 25 percent of Pennsylvania residents in each demographic, including 62 percent (CI: 60-64) of adults age 65 and older, indicated they had no dental insurance in the previous 12 months prior to being surveyed. Of Pennsylvania adults overall, 35 percent (CI: 34-36) indicated they were not covered by dental insurance during the entire past 12 months. This estimate represents a large segment of Pennsylvania's population that potentially does not seek oral health care in a typical 12 month period. This segment of the Pennsylvania population is more vulnerable to, and therefore has a greater risk of developing, oral health disorders that may contribute to future chronic health issues.

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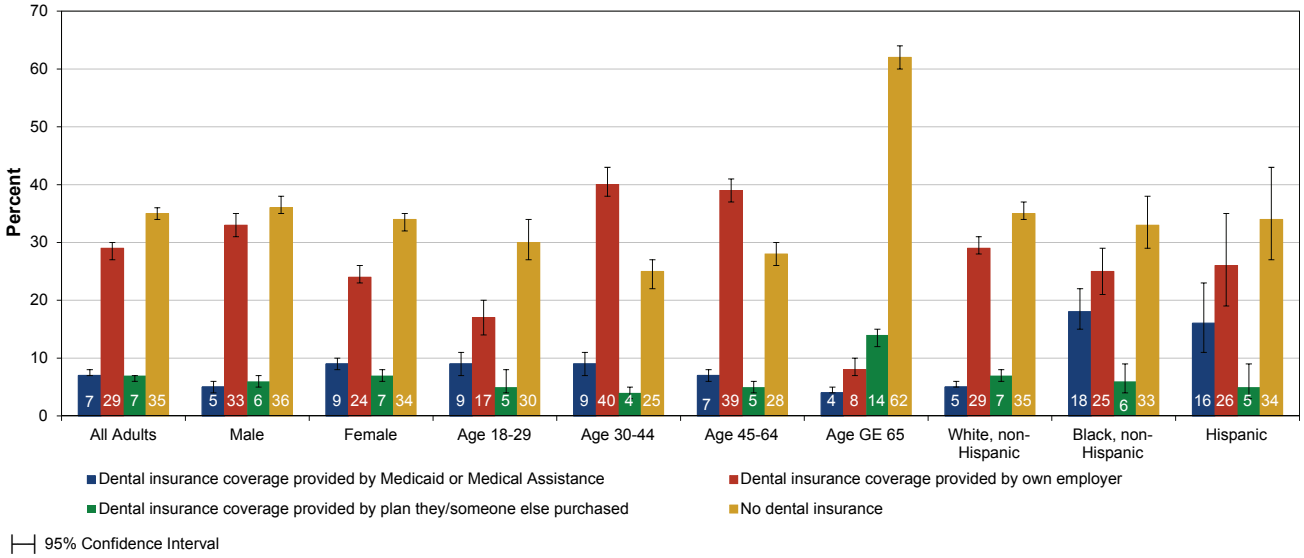
Chart 1
BRFSS Question: Have you been covered for the entire past 12 month period by any of the following types of dental insurance?
Pennsylvania Residents, 2013 Survey



Source: 2013 Pennsylvania BRFSS Survey

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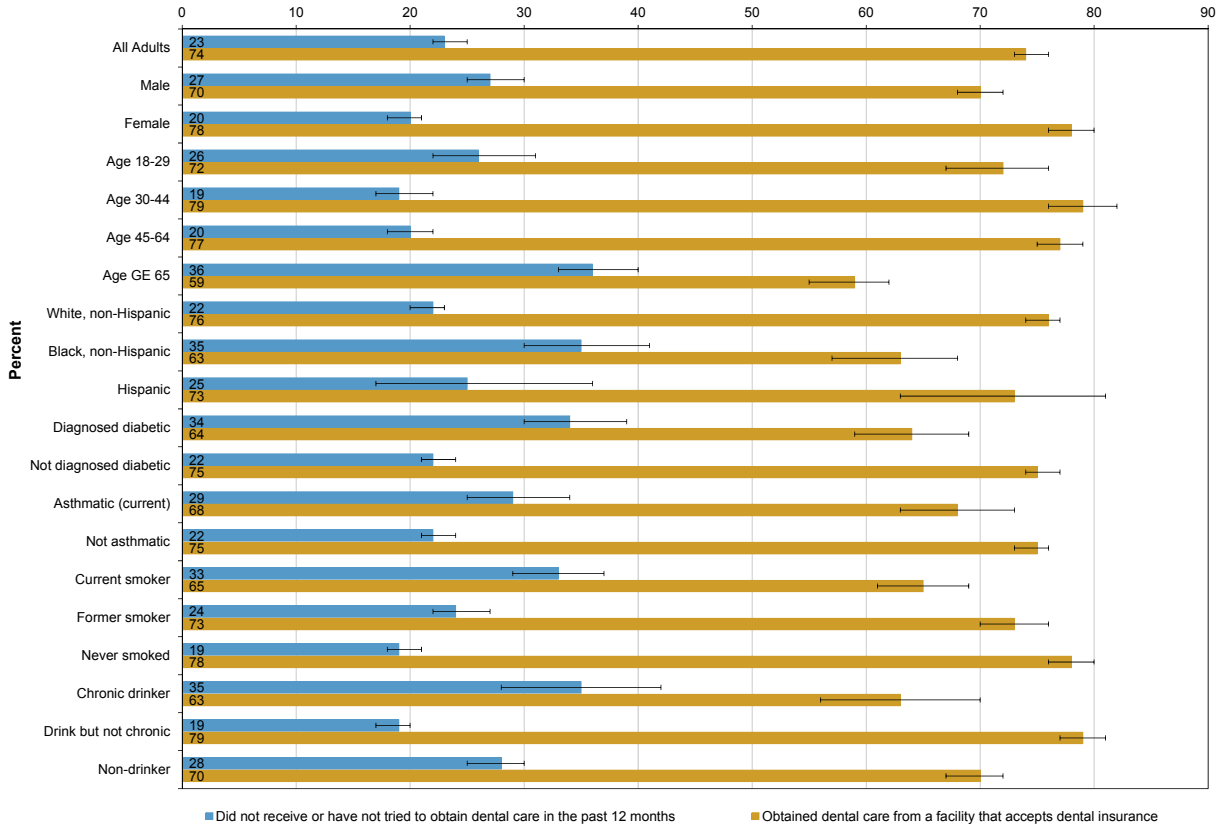
Oral Health and Dental Insurance Coverage

Results from the second dental insurance question ("In the past 12 months have you obtained dental care from a facility that accepts your dental insurance?") indicate that a prevalence estimate of 23 percent (CI: 22-25) of Pennsylvania adults with dental insurance either did not receive or had not tried to obtain dental health care in the previous 12 months prior to the interview (see Chart 2). Compared to white, non-Hispanic adults, a significantly larger estimate (35 percent, CI: 30-41) of black, non-Hispanic Pennsylvania residents indicated they did not receive or had not tried to obtain dental health care in the previous 12 months. This is a segment of the population that should be targeted to increase the potential of obtaining proper oral health care and increase the awareness of potential chronic disease issues that could result.

Chart 2 also displays dental care information analyzed by chronic diseases, such as diabetes and asthma, and risky behaviors, such as smoking and drinking. Diabetics had a significantly higher prevalence (34 percent, CI: 30-39) of those who did not receive or have not tried to obtain dental care in the past 12 months compared to the prevalence estimate (23 percent, CI: 22-25) of Pa. adults who did not receive or try to obtain dental care in the past 12 months. Both diabetics and asthmatics had significantly higher prevalence estimates than non-diabetics and non-asthmatics, respectively. Pennsylvania adults engaging in risky behaviors, such as smoking and drinking, are more likely to not receive or try to obtain dental care. The prevalence estimates for current smokers (33 percent, CI: 29-37) and chronic drinkers (35 percent, CI: 28-42) are both significantly higher than the prevalence estimate (23 percent, CI: 22-25) for adults in Pa. overall.

Chart 2:
BRFSS Question: In the past 12 months have you obtained dental care from a facility that accepts your dental insurance?
Pennsylvania Residents, 2013 Survey



Source: 2013 Pennsylvania BRFSS Survey

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Oral Health and Dental Insurance Coverage

It is important that Pennsylvania residents have access to dental insurance and dental health professionals. Awareness of the potential of poor oral health habits and the motivation to obtain dental care are needed to educate Pennsylvania adults on the dangers that exist when the importance of proper oral health care is not recognized.

Reports are created from the results of the annual BRFSS surveys and can be found on the Health Statistics webpages on the Pennsylvania Department of Health website. The data are also posted on the department's interactive web tool, the Epidemiologic Query and Mapping System (EpiQMS). If you have any questions about BRFSS data or the statistics presented in this article, please contact the Division of Health Informatics by submitting a question or data request through our Division's Contact Us page.

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