
STATISTICAL NEWS

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Critical to Those with Diabetes

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Diabetes Self-Management Education

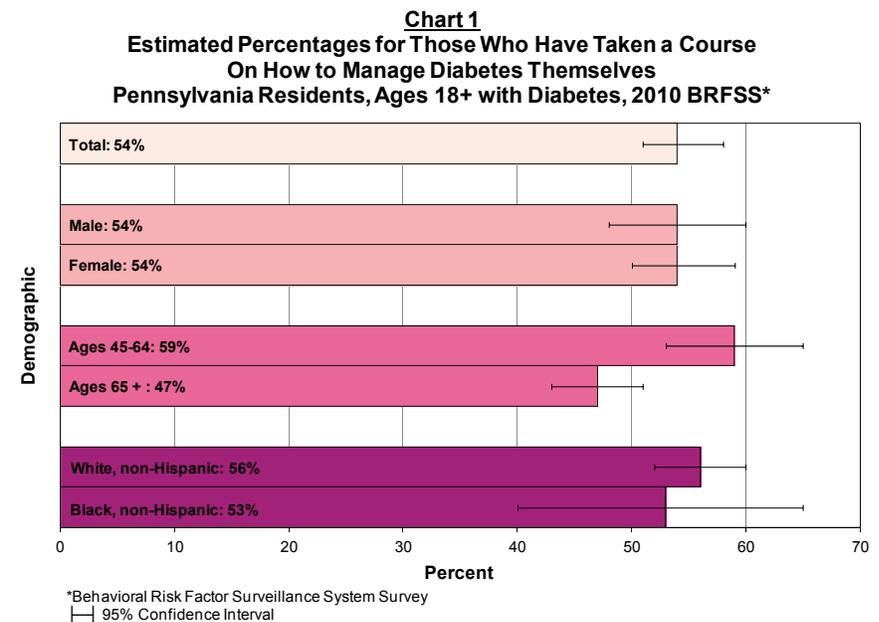
Critical to Those with Diabetes

Having a strong understanding of how to self-manage diabetes is extremely important to avoid developing complications such as blindness, need for lower extremity amputations, high blood pressure, heart disease and stroke. In 2010, diabetes was the seventh leading cause of death in Pennsylvania. When controlled, patients with diabetes can reduce many of the complications and costs associated with the disease. Pennsylvania collected diabetes data in the 2010 Behavioral Risk Factor Surveillance System (BRFSS) survey. Module questions were posed to Pennsylvania adults age 18 and older with diabetes about their diabetes management.

What is Diabetes?

Diabetes is a chronic disease that affects the way the body uses food for energy. It is caused by an inability of the pancreas to make enough insulin or use it properly. It is a disease that is lifelong, complicated and costly. According to the [Centers for Disease Control and Prevention's \(CDC\) 2011 National Diabetes Fact Sheet](#), diabetes affected 25.8 million people in the United States in 2010, which is 8.3 percent of the overall national population. Pennsylvania's 2010 prevalence rate estimate is slightly higher than the national rate. According to the PA BRFSS survey, between 991,000 and 1,090,000 adults, ages 18+ in Pennsylvania (10-11 percent of the target population), were estimated to have been diagnosed with diabetes in 2010.

It is important to note that diabetes often goes undetected for a period of time. The [CDC estimates](#) that undiagnosed diabetes accounts for 7.0



million out of 25.8 million people in the United States who are believed to have diabetes.

What is Diabetes Self-Management Education?

Diabetes Self Management Education (DSME) is designed to help those with or at risk for diabetes to learn how to properly control diabetes and its related conditions. Standards for this education have been put in place by both the American Association of Diabetes Educators (AADE) and the American Diabetes Association (ADA) – the accrediting bodies for DSME. Skills to effectively self-manage and understand diabetes are provided as a part of DSME. This includes, but is not limited to, recommendations on nutrition, physical activity, medication and blood glucose monitoring. These programs are typically group classes instructed by certified diabetes educators and dietitians. The prevention, detection and treatment of potential

complications are also stressed, as in the self-management preventative care practices discussed below.

The 2010 Pennsylvania BRFSS survey estimated that 54 percent (95% Confidence Interval [CI]: 51-58) of Pennsylvania adults with diabetes had taken a course on how to manage their diabetes. Chart 1 illustrates the prevalence rates of those who have taken a management course by various demographic breakouts. Please note that this question does not specifically ask if the course was an accredited DSME program.

A significantly higher percentage of adults age 45-64 had taken a course on how to manage their diabetes compared to those ages 65+. There was no significant difference observed between gender and race. Prevalence rates for age groups 18-29 and 30-44 and the Hispanic ethnicity group were not calculated due to small sample sizes.

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Diabetes Self-Management Education

Blood Glucose Monitoring

Monitoring blood glucose levels is an effective way of evaluating one's diabetes management. An electronic blood glucose device uses a small drop of blood to report the blood glucose levels. An estimated 64 percent (CI: 60-67) of Pennsylvania adults with diabetes check their blood glucose level at least once daily.

According to the [CDC](#), a hemoglobin A1C test provides a summary of how well the blood glucose levels have been managed for the past three months. The frequency of this exam varies from person to person depending on how well they manage and control their diabetes.

An estimated 88 percent (CI: 86-90) of Pennsylvania adults with diabetes checked their hemoglobin A1C at least one time in the past year (see Table 1). Of these, another 28 percent (CI: 25-31) had their hemoglobin A1C checked four or more times in the past year. The 2010 BRFSS survey also reveals that an estimated 8 percent (CI: 6-10) did not have an A1C test in the past year. More concerning is that an estimated 4 percent (CI: 3-6) of Pennsylvania adults with diabetes had never heard of an A1C test.

Eye Exams

Preventative care practices are important for the eyes. According to the CDC's National Diabetes Fact-sheet, 2011, "diabetes is the leading cause of new cases of blindness among adults aged 20-74." Having a dilated eye exam is a critical piece of diabetes self-management. An estimated 20 percent (CI: 17-23) of Pennsylvania adults with diabetes

Table 1
Hemoglobin A1C Tests
Pennsylvania Residents,
Ages 18+ with Diabetes, 2010 BRFSS*

BRFSS* Measure	Percent (CI)
Did not have an A1C test in the past year	8 (6-10)
Had an A1C test 1+ times in the past year	88 (86-90)
Had an A1C test 2+ times in the past year	74 (71-77)
Had an A1C test 3+ times in the past year	48 (44-52)
Had an A1C test 4+ times in the past year	28 (25-31)
Never heard of an A1C test	4 (3-6)

*Behavioral Risk Factor Surveillance System
CI = 95% Confidence Interval

Table 2
Dilated Eye Exams
Pennsylvania Residents,
Ages 18+ with Diabetes, 2010 BRFSS*

BRFSS* Measure	Percent (CI)
Never had a dilated eye exam	3 (2-5)
Had last dilated eye exam within the past year	70 (67-74)
Had last dilated eye exam within last 1-2 years	13 (11-16)
Had last dilated eye exam over 2 years ago	13 (11-16)

*Behavioral Risk Factor Surveillance System
CI = 95% Confidence Interval

were ever told by a doctor that diabetes had affected their eyes or that they had (diabetic) retinopathy. The [CDC recommends](#) having a dilated eye exam each year. Table 2 displays the estimates for Pennsylvania adults with diabetes having a dilated eye exam by various timeframes.

Not all Pennsylvania adults with diabetes reported having their eye exam within the past year; only an

estimated 70 percent (CI: 67-74) had an eye exam in the past year in which the pupils were dilated (see Table 2).

Foot Exams

For a person with diabetes, foot exams are also an important part in preventative care practices. Poor blood circulation can cause nerve

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Diabetes Self-Management Education

damage and infections that result in amputations. Diabetics should check their feet daily for any scratches, cracks, cuts or blisters. An estimated 61 percent (CI: 57-65) of Pennsylvania adults with diabetes check their feet for sores or irritations at least once daily. The [CDC claims](#) that “over half of diabetes-related amputations can be prevented with regular exams and patient education.” They recommend having your feet checked by a health provider at least four times per year.

An estimated 74 percent (CI: 71-78) of Pennsylvania adults with diabetes had their feet checked by a health professional one or more times in the past year (see Table 3).

DSME vs. no DSME

It is interesting to compare Pennsylvania adults with diabetes who have attended a DSME class or course versus those who have not. Table 4 displays the diabetes management factors by diabetes self-management education status.

Those who had a course or class in diabetes self-management education had significantly higher percentages of having checked their blood glucose or sugar at least once daily, having had an eye exam with dilation of the pupils in the past year, and having had their feet checked by a health professional one or more times in the past year.

Conclusions

Increased diabetes self-management could reduce the complications of the disease and lead to a better quality of life. An excellent diabetes public health resource on diabetes self-management education is the CDC’s

Table 3
Feet Checked for Sores or Irritations
Pennsylvania Residents,
Ages 18+ with Diabetes, 2010 BRFSS*

BRFSS* Measure	Percent (CI)
Did not have feet checked in the past year	26 (22-29)
Had feet checked 1+ times in the past year	74 (71-78)
Had feet checked 2+ times in the past year	58 (54-62)
Had feet checked 3+ times in the past year	42 (38-45)
Had feet checked 4+ times in the past year	29 (26-33)

*Behavioral Risk Factor Surveillance System
 CI = 95% Confidence Interval

Table 4
Diabetes Management Factors by Diabetes Self-Management
Education (DSME) Status, Pennsylvania Residents,
Ages 18+ with Diabetes, 2010 BRFSS*

Diabetes Management Factor	% With DSME (CI)	% Without DSME (CI)
Check their blood glucose or sugar at least once daily	70 (66-74)	56 (51-61)
Had a health professional check their hemoglobin A1C 4+ times in the past year	31 (27-36)	23 (19-28)
Were ever told by a doctor that diabetes has affected their eyes or that they had retinopathy	23 (19-27)	15 (12-20)
Had an eye exam in the past year in which the pupils were dilated	75 (71-80)	64 (59-69)
Check their feet for sores or irritations at least once daily	62 (57-67)	60 (55-65)
Had their feet checked by a health professional 1+ times in the past year	82 (77-86)	66 (60-71)

*Behavioral Risk Factor Surveillance System
 CI = 95% Confidence Interval

[Take Charge of Your Diabetes](#). This report has even more information on how to effectively manage diabetes.

Pennsylvania percentages and prevalence rates in this article can be found on our interactive web tool, [EpiQMS](#). This will provide further demographic breakouts, as well as regional estimates for the three-year datasets. The [American Diabetes](#)

[Association website](#) contains even more detailed information related to diabetes. If you have any additional questions about this article, diabetes statistics or BRFSS survey data, please contact the Bureau of Health Statistics and Research at 717-783-2548.

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Polycythemia Vera (PV) Case Ascertainment Study

Pennsylvania Cancer Registry Data Continuously Improving

Polycythemia Vera (PV) is a disease in which there are too many red blood cells in the bone marrow and blood, causing the blood to thicken. The extra blood cells may collect in the spleen and cause it to become enlarged. This condition may also cause bleeding problems or clots to form in blood vessels. When citizens of Luzerne, Carbon and Schuylkill Counties became concerned about the number of people diagnosed with PV in their area and contacted the Pennsylvania Department of Health for assistance, the first resource the Department turned to was the Pennsylvania Cancer Registry (PCR). The PCR is the state-wide cancer data system, established to collect complete, accurate and timely data on all patients diagnosed with cancer in Pennsylvania.

At the time of the initial PV cluster investigation, the primary PCR data source was acute care hospitals. As the investigation progressed, researchers became aware of patients with a diagnosis of PV who were not in the PCR database. Because PV patients are frequently diagnosed and treated in the doctor's office, not all cases were included in the PCR database. If the patient received treatment in a hospital's outpatient setting, they were reported to the PCR; however, if all diagnosis and treatment was in the physician's office, there was no mechanism, at the time, for the case to be reported. Additionally, some of the PV patients were not included in the PCR database because the diagnosis of PV has only been considered a reportable condition since 2001. Therefore, any diagnoses of PV made prior to 2001 would not have been reported

to the PCR. To resolve the problem of unreported cases, PCR staff worked with researchers assigned to this investigation to conduct a PV Case Ascertainment Study designed to identify and report previously unreported cases and to establish routine reporting from hematology and oncology practices across the state.

In the first phase of the PV Case Ascertainment Study, PCR staff identified all hematology/oncology practices in Luzerne, Carbon and Schuylkill Counties. Each practice was contacted to provide billing reports to identify persons with a diagnosis of PV from 2001 to the present. PCR staff compared cases from the billing reports with cases already in the PCR database. Specific documents for any case on the billing report but not in the PCR database were requested to be sent to the PCR for review to determine if the case was reportable. This included an intentional effort to identify JAK2 results, as the majority of individuals diagnosed with PV show a mutation in the JAK2 gene. If reportable, the case was added to the PCR database; if not, the reason the case was not reportable (e.g., diagnosed prior to 2001) was recorded on the list of cases. The result of this effort in the three-county study area identified 15 unreported PV cases diagnosed between 2001 and 2009.

In the second phase of the PV Case Ascertainment Study, PCR staff identified hematology/oncology practices in Bedford, Blair, Cambria and Somerset Counties, the geographic area established as the control area for the PV cluster investigation. The same process of requesting billing reports, matching against the

PCR database and following up on unmatched cases was used to identify and add previously unreported cases in these counties. The result of this effort in the four-county control area identified 33 unreported PV cases.

The PCR is now in the final stage of this case ascertainment effort. During this stage, hematology/oncology practices from the remaining 60 counties are being identified and contacted so that unreported cases from the entire state can be included in the PCR database. In the future, when PV rates for any county are compared to the rest of the state, the same level of intense casefinding will have been applied consistently to all counties. To date this case ascertainment study has identified a total of 108 unreported PV cases from 17 counties; these have been added to the PCR database. Hematology/oncology practices in 50 counties will be contacted over the next six months to complete the study by May 2013.

As the practices are contacted to identify unreported cases from 2001 to the present, PCR staff is also establishing routine procedures for these practices so that reporting of all reportable diagnoses to the PCR continues on a monthly basis. The financial incentives provided through the addition of cancer reporting to the Centers for Medicare and Medicaid Services (CMS) Meaningful Use (MU) Stage 2 provisions will assist physician practices in meeting reporting requirements. Under the MU Program, CMS is authorized to make payments to eligible healthcare providers that demonstrate specific (meaningful) uses of electronic

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Polycythemia Vera (PV) Case Ascertainment Study

health information (EHR) technology. Effective in January 2014, eligible providers may qualify for incentive payments by demonstrating public health reporting of cancer data to state cancer registries via EHR technology.

While this PV cancer cluster investigation identified a weakness in PCR data collection practices, the PCR used this as an opportunity to

improve completeness and establish reporting from hematology/oncology physician practices across the state. The PCR staff worked closely with researchers responsible for investigating the potential PV cluster by providing additional cases when residents of the study and control areas were identified. Although extremely labor-intensive, this effort was an excellent collaboration for the PCR

staff and the research community to use data to identify and, hopefully, resolve concerns for people in Luzerne, Carbon and Schuylkill Counties. For additional information on the PV cluster investigation, please visit the Department's [Environmental Health](#) website.

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Preterm Live Births in Pennsylvania

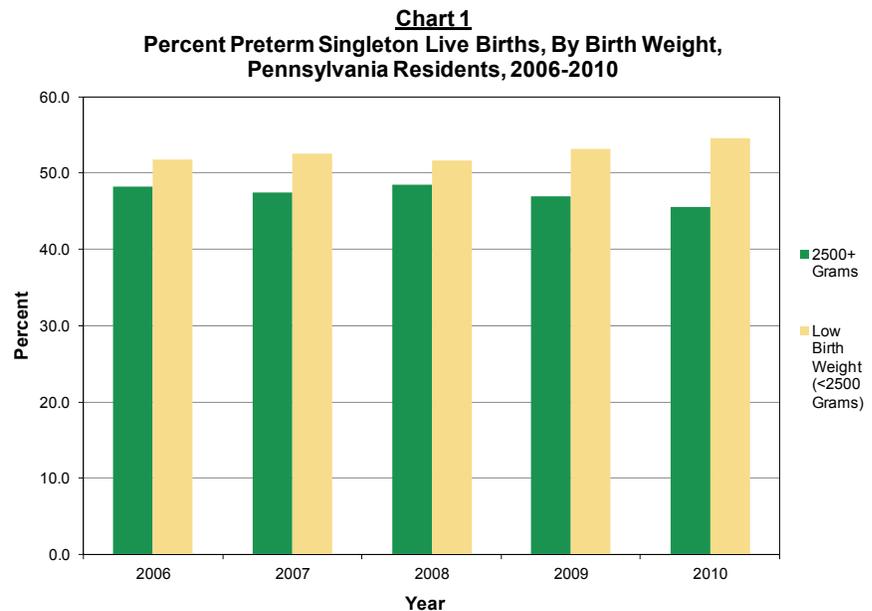
A Review of Singleton Births by Selected Risk Factors

What is a preterm birth? A preterm birth is a birth that occurs at least three weeks before a baby's due date (or less than 37 weeks of gestation). More than half a million babies in the United States (one in every eight) are born premature every year. Preterm birth is the most frequent cause of infant death and the leading cause of long-term neurological disabilities in children, costing the U.S. health care system more than an estimated \$26 billion each year, according to the Centers for Disease Control and Prevention (CDC).

In the final weeks of pregnancy, many organ systems, including the brain, lung and liver, fully develop. Babies born even slightly preterm are at greater risk for adverse health outcomes than full-term babies. Cerebral palsy, developmental delay, vision and hearing impairment are just a few adverse outcomes that can occur. The earlier the birth occurs, the higher the risk of serious disability or even death.

There are numerous, complex causes of preterm births that remain poorly understood. Sometimes a preterm birth occurs spontaneously; at other times healthcare providers choose to deliver babies early to protect the health of both the mother and baby. According to the CDC's webpage on [preterm birth](#), having had a previous baby preterm and having multiple babies (e.g., twins, triplets, quadruplets, etc.) are both associated with higher health risks for both mothers and babies. These risks can include preterm birth.

The percent of preterm births in Pennsylvania increased from 1996 to 2004, reaching a high of 10.5 percent



in 2004. During the same time period, the percent of multiple births increased from 2.9 percent of all births in 1996 to 3.6 percent of all births in 2004. Multiple births is a known risk factor for preterm births, which may partially explain the fact that the percentages for preterm and multiple births both increased from 1996 to 2004. From 2004 to 2010 there was a decrease in preterm births, from 10.5 percent to 9.9 percent; however, the percent of multiple births increased just slightly, from 3.6 percent in 2004 to 3.7 percent in 2010.

There were 13,941 preterm live births among Pennsylvania residents in 2010, which accounted for 9.9 percent of all births. Singleton births (10,875) accounted for 78.0 percent of all the preterm live births in 2010. Of the 10,875 preterm singleton births, 1,832 were very preterm singleton births (less than 32 weeks gestation), accounting for 1.3 percent of all singleton births in 2010.

Preterm Birth Risk Factors

It is not uncommon for mothers who give birth to multiple babies to deliver preterm. Around 60 percent of all multiple births in Pennsylvania for each year from 2004 to 2010 were delivered preterm. Therefore, singleton births were chosen as the focus of analysis for this article. Some known medical risk factors for preterm births, besides multiple births, may include: uterine or cervical abnormalities, urinary tract infections, vaginal infections, sexually transmitted infections, diabetes, high blood pressure or being underweight or obese. In addition, there are some lifestyle and environmental risk factors associated with preterm births, including: late or no prenatal care, smoking, alcohol consumption, using illegal drugs, domestic violence, stress and long working hours. However, a preterm birth can happen even if a woman does not have any of the known risk factors.

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Preterm Live Births in Pennsylvania

The following analysis will focus on singleton births and selected risk factors obtained from the certificate of live birth and are considered of high quality, including: birth weight, smoking status, race/ethnicity, mother's educational attainment, the age of the mother at birth and the method of delivery.

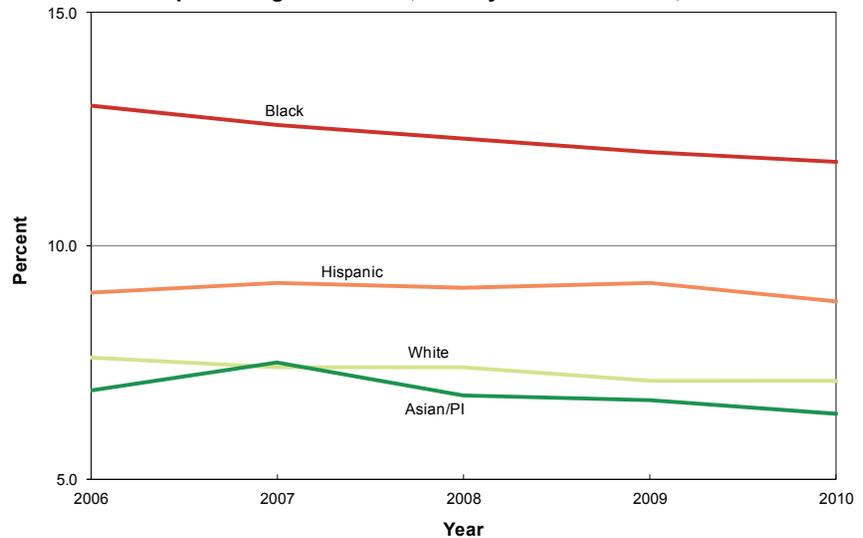
Birth Weight

Low birth weight (under 2500 grams or under 5 pounds, 9 ounces) is associated with preterm births. Over 50 percent of all singleton preterm births in Pennsylvania had low birth weights in 2010. Chart 1 (previous page) shows that, from 2006 to 2010, the percent of singleton preterm births that were low birth weight increased from 51.8 percent to 54.5 percent. Very low birth weight (under 1500 grams) accounted for 27.4 percent of all the low birth weight singleton preterm births in 2010.

Smoking Status

Another risk factor for preterm births is smoking, which is also associated with low birth weight. In the year 2010, 64.3 percent of all singleton preterm births to mothers who smoked during their pregnancy had low birth weights. In comparison, 51.5 percent of all singleton preterm births to mothers who did not smoke during pregnancy had low birth weights. For all singleton births in 2010, mothers who smoked during pregnancy were 42 percent more likely to deliver preterm than mothers who did not smoke during pregnancy (10.5 percent and 7.4 percent, respectively).

Chart 2
Percent Preterm Singleton Live Births, By Race and Hispanic Origin of Mother, Pennsylvania Residents, 2006-2010



Race/Ethnicity

The percentage of preterm singleton births for white residents and black residents have declined, while the percentage for Asian/Pacific Islanders fluctuated between 2006 and 2010 (see Chart 2). The percentage of preterm singleton births for mothers of Hispanic origin remained fairly steady during that same time period. (Please note that Hispanics can be of any race.) The percentage of preterm singleton births for white residents declined from 7.6 percent in 2006 to 7.1 percent in 2010, while preterm singleton births for black residents declined from 13.0 percent in 2006 to 11.8 percent in 2010. The highest percentage of preterm singleton births to mothers of any race/ethnicity in 2010 was for black residents (11.8 percent). Asian/Pacific Islanders had the lowest percentage (6.4 percent) of preterm singleton births in 2010 among the four race/ethnicity groups. The rate for Hispanic mothers was 8.8 percent.

Education of Mother

Mothers ages 20 years and older with at least some college education had the lowest percentage of preterm singleton births for 2010 (6.9 percent). The percentage of births to mothers ages 20 years and older with a high school education was the highest in 2010 (9.3 percent). The percentage of preterm births of mothers age 20 years and older with less than a high school education was 9.1 percent in 2010. Mothers with less than a high school education and mothers with some college education have fluctuated throughout the five-year period of 2006-2010 (see Chart 3, next page). During that time, the percentage for mothers with a high school education remained steady. However, mothers with at least some college education consistently have a lower percent of preterm births than mothers with less than a high school education or those who have graduated from high school.

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Preterm Live Births in Pennsylvania

Age of Mother

Chart 4 shows that mothers under 15 years of age had the greatest risk of having a preterm singleton birth in 2010, with 11.7 percent of all singleton births in this age group being preterm, dropping from 17.9 percent in 2006. Mothers ages 30-34 had the lowest percentage (6.9 percent); mothers ages 25-29 followed with 7.6 percent. Overall, mothers between the ages of 25 and 34 were least likely to have a preterm birth. Research suggests that very young and older mothers have the greatest likelihood of having a preterm birth, and Chart 4 shows that the age group in Pennsylvania with the largest risk of preterm birth is females under the age of 15.

Method of Delivery

The percentage of preterm singleton births delivered vaginally has decreased by 3.4 percent, from 62.1 percent in 2006 to 60.0 percent in 2010. In contrast, the percent of cesarean deliveries among preterm singleton births has increased by 5.5 percent, from 37.9 percent to 40.0 percent. The [March of Dimes web page on c-sections](#) states that “C-sections may contribute to the growing number of babies who are born ‘late preterm,’ between 34 and 36 weeks gestation. While babies born at this time are usually considered healthy, they are more likely to have medical problems than babies born a few weeks later at full term.”

For questions regarding the data presented in this article, please contact the Bureau of Health Statistics and Research at 717-783-2548. Additional Pennsylvania [birth statistics](#)

Chart 3
Percent Preterm Singleton Live Births
By Education of Mother, Pennsylvania Residents, 2006-2010

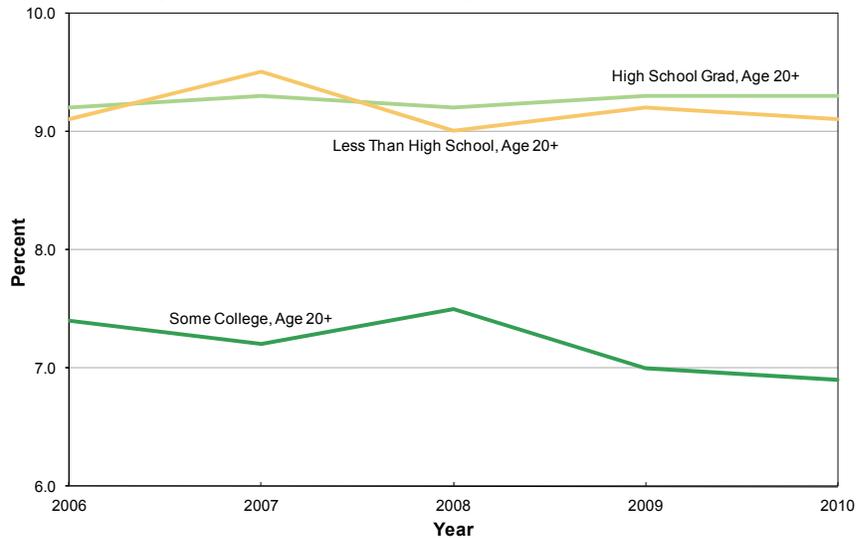
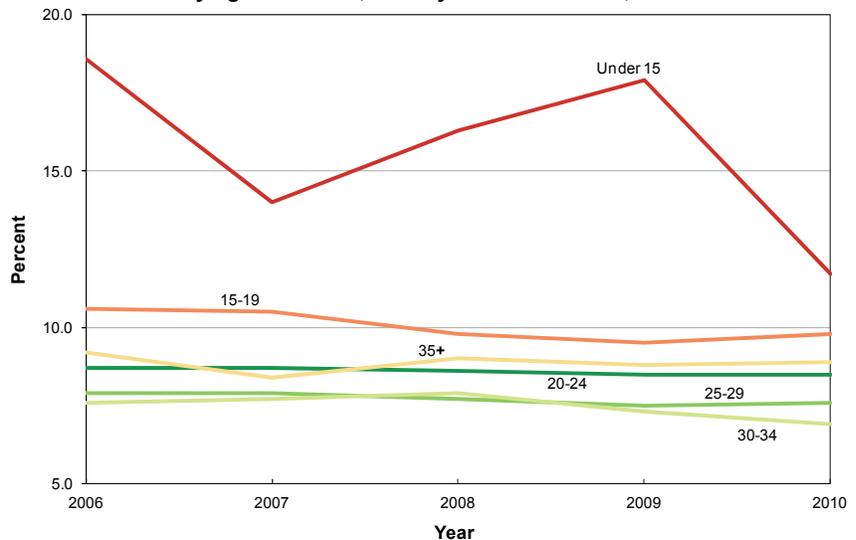


Chart 4
Percent Preterm Singleton Live Births
By Age of Mother, Pennsylvania Residents, 2006-2010



can be obtained from the [Health Statistics and Research Web pages](#) and through our web-based data dissemination tool [EpiQMS](#).

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