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A Look at Pennsylvania Death Rates Over the Past Decade

Overall Death Rates are Declining, but Certain Causes are on the Rise

Pennsylvania resident death rates have decreased over the past decade. This is certainly good news for the commonwealth. However, not all of the news is positive, as certain causes of death have seen an increased rate during the same time period. This article will look at the most recent 10 years (2002-2011) of data and will focus on which selected leading causes of death are on the rise and which are on the decline.

The age-adjusted death rate (per 100,000 population and based upon the 2000 U.S. standard million population) for Pennsylvania residents decreased from 885.4 in 2002 to 769.1 in 2011 (see Table 1). This represents a decline of 13.1 percent. Many different causes of death also saw a decrease during the past decade. Human immunodeficiency virus (HIV) disease dropped by a remarkable 60 percent, going from an age-adjusted death rate of 4.0 in 2002 to 1.6 in 2011. Some key reasons for this decline include the progression of HIV-related treatment and the advancement of HIV education and awareness. The rates have declined fairly steadily over the past decade, with the largest decrease occurring in 2005 (a 24 percent decrease that year).

Atherosclerosis has also seen a large decrease over the past 10 years. The age-adjusted death rate has dropped over 57 percent from 4.0 in 2002 to 1.7 in 2011. Atherosclerosis occurs when the artery wall thickens due to the build-up of calcium and fatty materials (cholesterol and triglyceride). This reduces the amount of blood that can travel through the artery. One possible explanation for the decline in this cause of death is the increased awareness of how certain foods (especially those containing animal fats) can lead to clogged arteries. An interesting note is that the decrease in atherosclerosis deaths has been very prominent in males. The male age-adjusted death rate dropped from 4.3 to 1.7 between 2002 and 2011.

Heart disease and stroke (cerebrovascular disease) are both in the cardiovascular disease family and have each seen a significant decrease in the number of deaths over the past decade. The age-adjusted death rate for stroke has declined by almost 31 percent from 56.5 in 2002 to 39.1 in 2011 for Pennsylvania residents. Heart disease has declined by over 28 percent (257.9 vs. 184.1) during the same time period. Some possible reasons for the decline in these types of deaths include improved treatment for heart attack and stroke, expanding use of cholesterol-lowering drugs, and increased awareness of the harmful effects of tobacco use and more stringent laws limiting the use of tobacco. An encouraging statistic is that over the past decade, the age-adjusted death rate for heart disease has decreased every single year for Pennsylvania residents. Stroke deaths have also declined steadily in the last 10 years (see Chart 1, page 3) with the largest decrease occurring between 2007 (rate of 46.9) and 2008 (rate of 41.8).

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Table 1
Age-Adjusted Death Rates* for Selected Causes
Pennsylvania Residents, 2002 vs. 2011

Cause of Death	2002	2011	% Change 2002 to 2011
Total Deaths	**885.4**	**769.1**	**-13.1**
Accidents	35.1	43.2	23.1
Intentional Self-harm (Suicide)	10.6	12.9	21.7
Essential Hypertension and HRD**	5.7	6.5	14.0
Parkinson's Disease	6.8	7.5	10.3
Assault (Homicide)	5.3	5.6	5.7
Anemias	1.8	1.9	5.6
Alzheimer's Disease	18.9	19.0	0.5
Chronic Lower Respiratory Diseases	39.5	39.6	0.3
Chronic Liver Disease and Cirrhosis	8.1	7.7	-4.9
Disorders of Biliary Tract and Pancreas	1.7	1.6	-5.9
In Situ, Benign and Uncertain Neoplasms	5.2	4.7	-9.6
Malignant Neoplasms (Cancer)	200.4	176.4	-12.0
Nephritis, Nephrotic Syndrome and Nephrosis	19.6	16.8	-14.3
Influenza and Pneumonia	18.7	15.7	-16.0
Diabetes Mellitus	24.8	20.8	-16.1
Septicemia	17.2	13.8	-19.8
Heart Disease	257.9	184.1	-28.6
Cerebrovascular Diseases (Stroke)	56.5	39.1	-30.8
Atherosclerosis	4.0	1.7	-57.5
HIV Disease	4.0	1.6	-60.0

*per 100,000 and age-adjusted to the 2000 U.S. standard million population
**hypertensive renal disease

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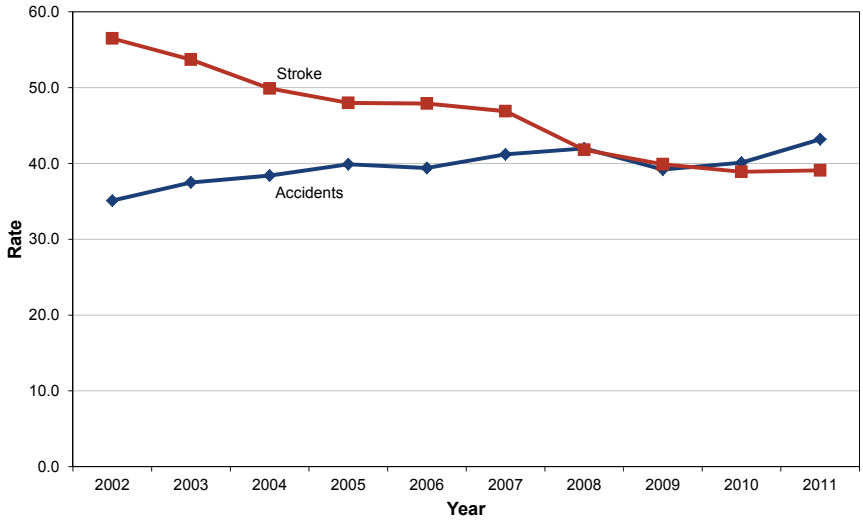
A Look at Pennsylvania Death Rates Over the Past Decade

Some cause of death rates have seen noteworthy increases over the last 10 years. One such cause is accidental deaths, or unintentional injuries that result in death. This cause includes but is not limited to motor vehicle accidents, accidental discharge of firearms, falls and accidental drug overdoses. The age-adjusted rate for accidental deaths has risen from 35.1 in 2002 to 43.2 in 2011, representing an increase of over 23 percent. Probably the most alarming increase amongst the different types of accidental deaths is the rise in accidental drug poisonings (overdoses). As seen on Chart 2, the age-adjusted death rate has more than doubled among Pennsylvania residents (7.5 in 2002 to 15.4 in 2011). Another subcategory of accidental deaths that has seen a significant increase is deaths due to falls. These deaths have risen from a rate of 5.1 in 2002 to 8.4 in 2011. To help reverse these trends, a greater concern for safety is needed, as well as greater awareness of the risks associated with the activities that can lead to accidental deaths.

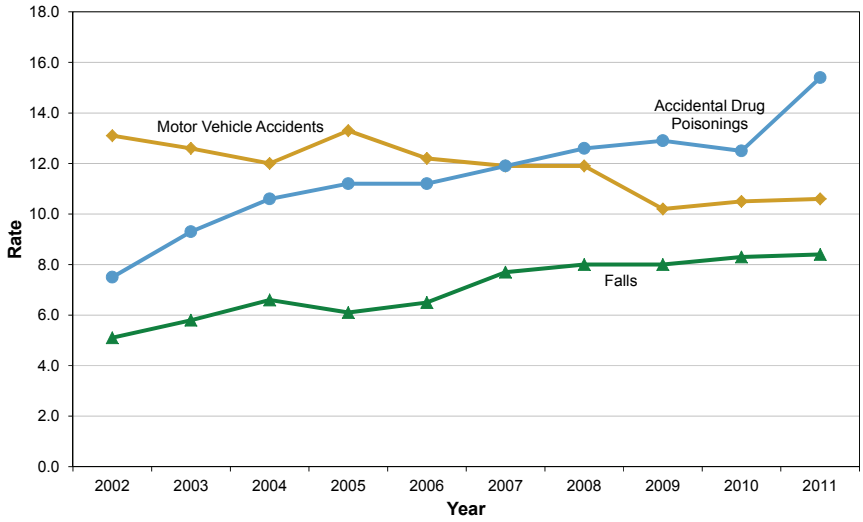
Suicide (intentional self-harm) has also increased considerably over the past decade. In 2002, the age-adjusted rate for suicides was 10.6 for Pennsylvania residents. That rate has now reached 12.9 (2011 data), marking almost a 22 percent increase. According to an article in the New York Times, a possible explanation for the recent rise in suicides could be the economic downturn at the end of the last decade. Historically, suicide rates have been higher during times of economic setbacks. Another explanation in the rise of suicides could be the widespread availability of prescription painkillers, which can be deadly when taken in large doses. It is important to note that the increase in suicides has been especially predominant for whites, where the rate has gone from 11.1 in 2002 to 14.2 in 2011.

Chart 1
Death Rates* for Accidents and Stroke
Pennsylvania Residents, 2002-2011



*per 100,000 and age-adjusted to the 2000 U.S. standard million population

Chart 2
Death Rates* for Accident Sub-Categories
Pennsylvania Residents, 2002-2011



*per 100,000 and age-adjusted to the 2000 U.S. standard million population

Another cause of death that has seen a significant increase for Pennsylvania residents since 2002 is essential hypertension (high blood pressure)/hypertensive renal disease. The age-adjusted death rate has risen

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from 5.7 to 6.5 (from 2002 to 2011). Hypertension is dangerous because it makes the heart work harder to pump blood to the body. Hypertensive renal disease is kidney damage due to high blood pressure. There are some factors which are believed to play a role in high blood pressure and thus could provide insight as to the recent increase in this cause of death. These factors include, but are not limited to, obesity, high salt intake and stress.

Deaths due to Parkinson's disease have also been on the rise over the last 10 years (the age-adjusted death rate has increased from 6.8 in 2002 to 7.5 in 2011 for Pennsylvania residents). Parkinson's disease is a progressive disorder of the central nervous system. It affects the movement of the body in many ways with the most recognized symptom being a shaking of the hands. Parkinson's disease is more prevalent in men than in women, and the risk for the disease increases with age. Unfortunately, there are no proven causes for Parkinson's disease, so it is difficult to establish why these deaths have been increasing in recent years.

It is certainly encouraging to see that the overall death rate has been declining for Pennsylvania over the past decade. Nonetheless, rates for certain causes of death have been on the rise, meaning that there is still much room for improvement. For additional mortality-related data, please contact the Bureau of Health Statistics and Research at 717-783-2548 or visit the Health Statistics and Research webpages on the Pennsylvania Department of Health website. Death data among Pennsylvania residents are also available on EpiQMS, the Department's interactive data dissemination tool.

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A Review of Births to Foreign-Born Mothers and Foreign Migration in Pennsylvania

Diversification of Population Increasing in Pennsylvania

Populations transform over time either through migration or natural change. Pennsylvania's population has grown by 3.2 percent during the 10-year period of 2003 through 2012, an increase of 398,081 people, or 39,808 per year. There were 1,312,537 resident births and 1,133,217 resident deaths during 2003-2011, a natural population change of 179,320 people, at an average of 19,924 per year. That leaves nearly 20,000 people to be accounted for by net migration each year. While migration can occur either internationally or state-to-state, this article will concentrate on international migration only. In this article, we will review changes in population by race and Hispanic ethnicity in Pennsylvania, births to foreign-born mothers now residing in the state, and migration changes from international countries into Pennsylvania.

Who is migrating to Pennsylvania? The question can be answered by studying the demographic change of the population estimates provided by the Pennsylvania State Data Center, the birth and death records available from the Pennsylvania Department of Health, and migration data from the U. S. Census Bureau.

Pennsylvania's population has become more diverse since 2003. The total white population has decreased by 22,254 (0.2 percent) from 10,678,202 in 2003 to 10,655,948 in 2012. The black population increased by 171,046 (13.3 percent) from 1,285,931 in 2003 to 1,456,977 in

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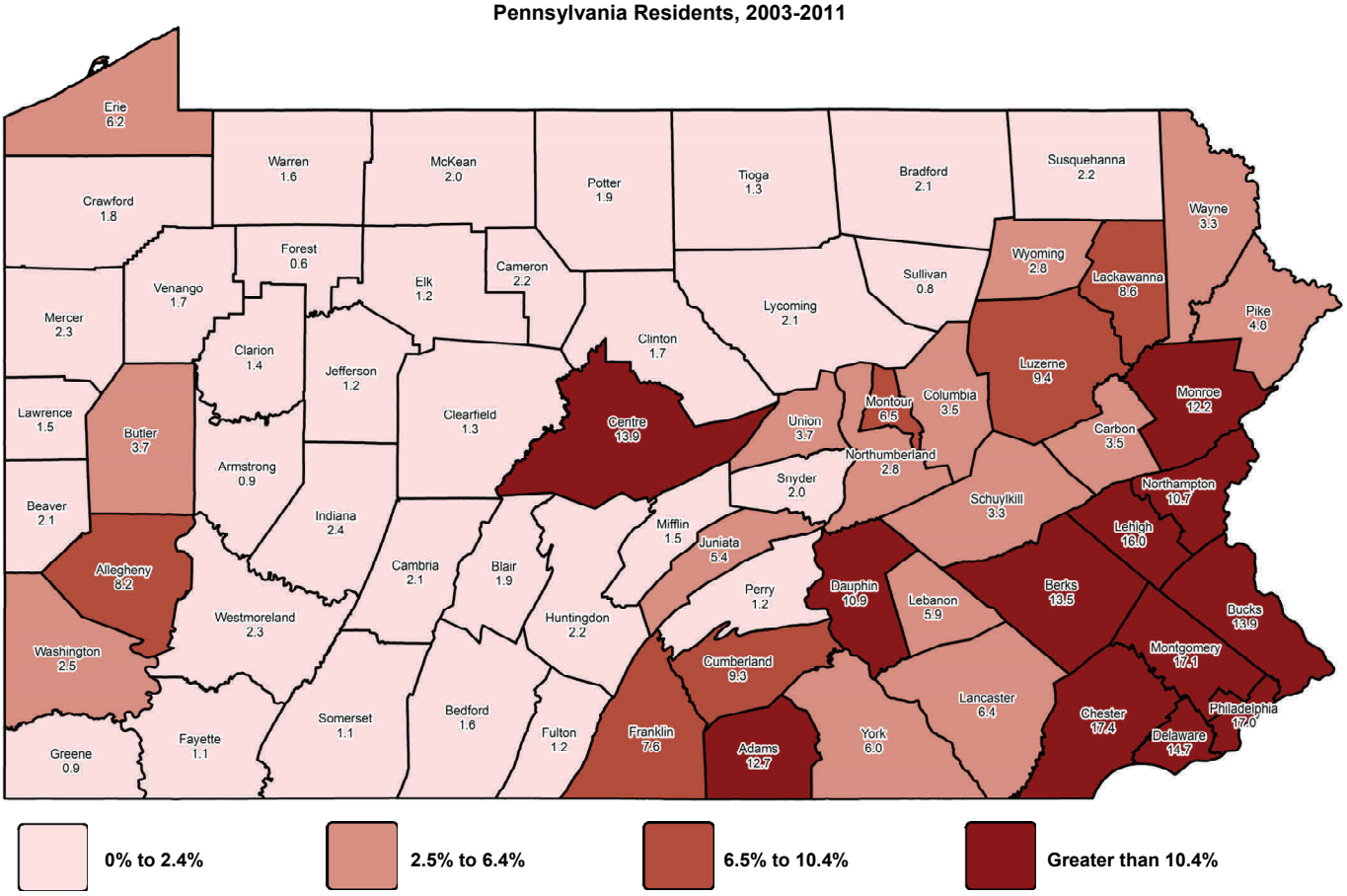
Map 1
Percent of Births to Foreign-Born Mothers, by County
Pennsylvania Residents, 2003-2011



Source: Pennsylvania Certificates of Live Birth

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A Review of Births to Foreign-Born Mothers and Foreign Migration in Pennsylvania

2012. The Asian and Pacific Islander population had a substantial increase of 115,511 (41.8 percent) from 276,129 in 2003 to 391,640 in 2012. Residents of Hispanic ethnicity (can be of any race) had the largest population growth of 357,698 (84.5 percent) from 423,504 in 2003 to 781,202 in 2012.

During the 2003-2011 period, there were 1,312,537 births among Pennsylvania residents. Of those, there were 133,016 births to mothers who were born in 213 different countries other than the United States (roughly 14,700 births per year). The top five countries of origin for foreign-born Pennsylvania mothers were Mexico with 19,151 births, India with 12,761 births, the Dominican Republic with 7,362 births, China with 6,832 births, and Vietnam with 5,649 births. Of the births to foreign-born parents during this time, 12,827 occurred to parents that were both born in the same country.

Further analysis of the birth records shows us where foreign-born mothers are residing and where to expect population growth of different nationalities to occur. The southeast corner of Pennsylvania had proportionally more births to foreign-born mothers than the rest of the state from 2003 to 2011 (see Map 1, page 5). In fact, nine counties in eastern Pennsylvania had more than 10.4

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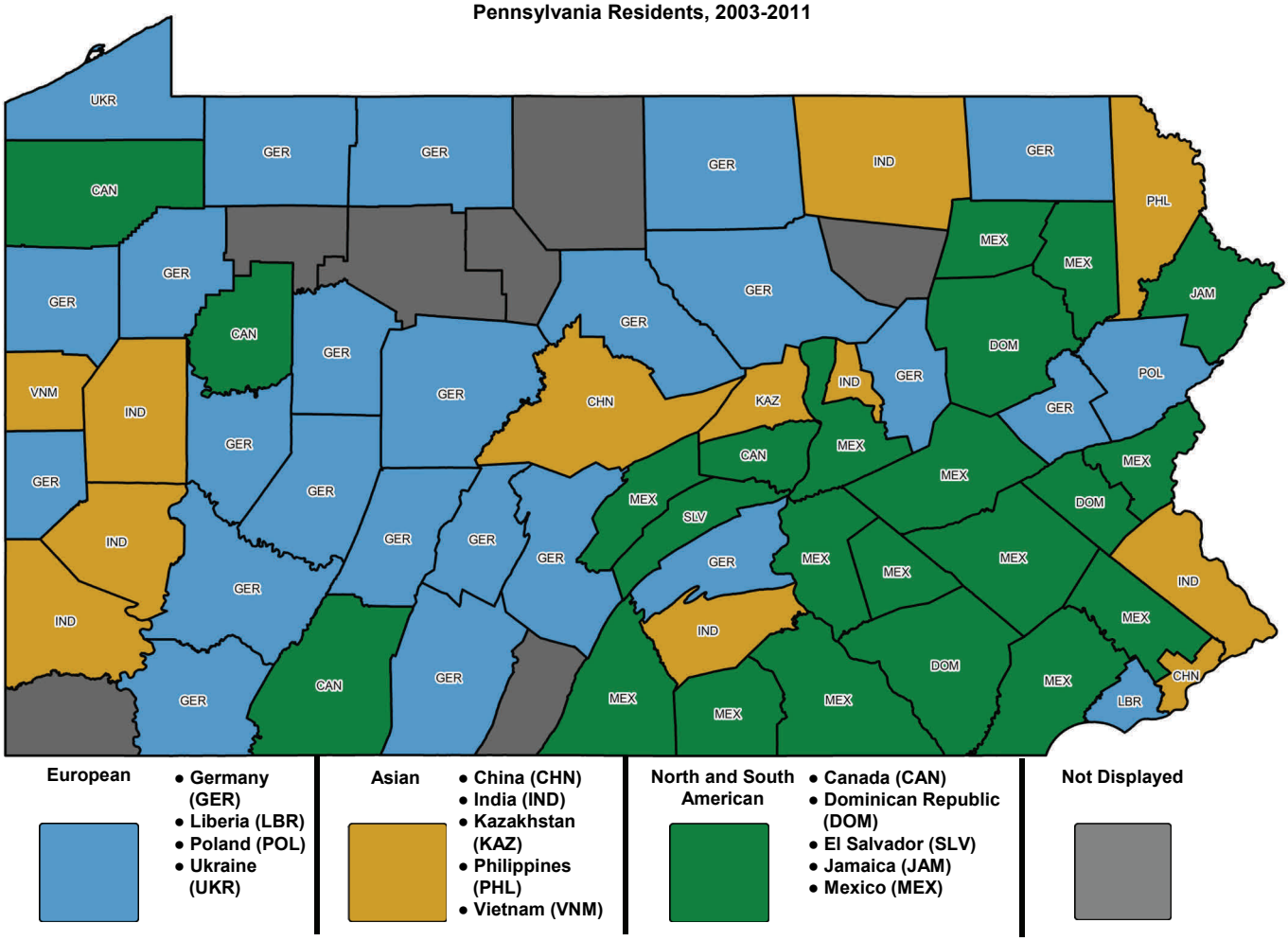
Map 2
Most Frequent Nationality of Births to Foreign-Born Mothers, by County
Pennsylvania Residents, 2003-2011



Source: Pennsylvania Certificates of Live Birth

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percent of their births to foreign-born mothers. Centre, Adams and Dauphin counties also had a high rate of foreign-born mothers giving birth. Most people immigrating to Pennsylvania are settling down in urban regions, primarily near Philadelphia and the surrounding suburbs. This will impact the future diversity of these populations. Non-white and multi-race populations could be expected to grow in these regions because of the higher rates of migrant mothers settling down and giving birth there.

Mapping the top country of origin for mothers giving birth from 2003 to 2011 in Pennsylvania shows a distinct pattern (see Map 2, page 6). Mothers who emigrated from Europe primarily reside in rural Pennsylvania, specifically the west, north and central regions, but not the southeast. Mothers who emigrated from Asia are sparsely spread around the state, but tend to be more densely populated in urban areas of Pennsylvania such as Allegheny and Philadelphia counties. Mothers originating from South American countries primarily reside in eastern Pennsylvania areas such as the Lehigh Valley, the Wilkes-Barre Scranton corridor and the York/Lancaster area.

According to the Census's 2012 American Community Survey (ACS) five-year table B05008, nearly two of every five immigrants residing in Pennsylvania are from Asia. In 2012, there were 279,728 people who emigrated from Asia residing in Pennsylvania. Other people of foreign origin residing in the state of Pennsylvania are: Europeans, making up

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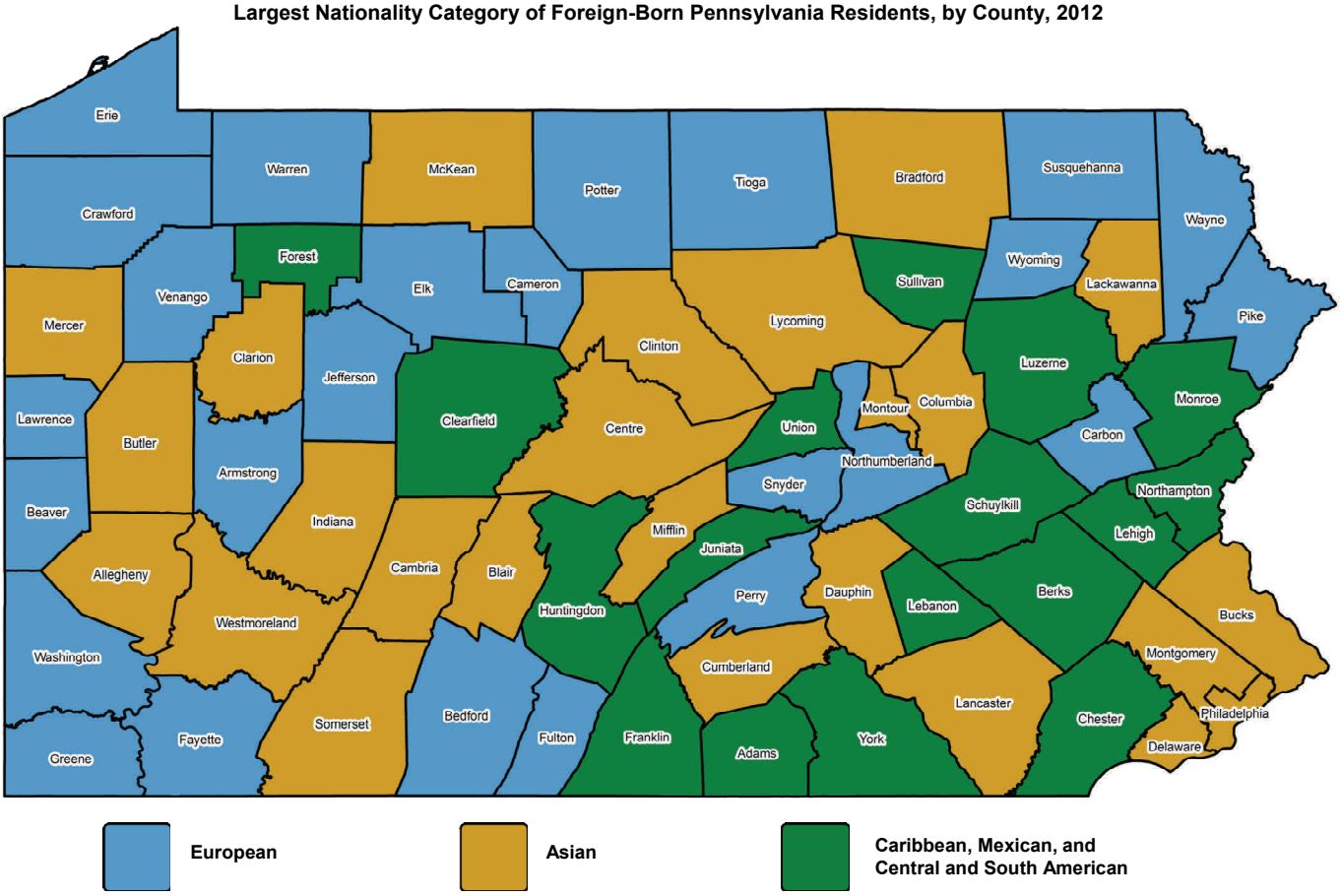
Map 3

Largest Nationality Category of Foreign-Born Pennsylvania Residents, by County, 2012



Source: United States Census Bureau, 2012 ACS Table B05008 (5 Year Survey)

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nearly 24 percent of the immigrants; countries south of the United States (Caribbean, Mexico and Central and South America) with over 11 percent of the immigrants; and other areas around the world (including Canada) with nearly 10 percent of the immigrants. Plotting the migration data from the census shows that Europeans are the most prevalent immigrants in the northern and western regions of the state. Asians are spread throughout the entire state, and people from south of the United States are prevalent in the southeastern and south-central parts of Pennsylvania (see Map 3, page 7). This is very similar to the birth patterns shown in Map 2.

You would expect that the counties with higher immigrant populations shown in Map 3 would match up to the counties with higher births to immigrant mothers shown in Map 2. For the most part they do match up, but you may also notice that there are fewer Asian counties and more Caribbean, Mexican and Central and South American counties in Map 2. The discrepancy can be answered, at least partially, by the rate at which these demographic groups give birth. According to the 2012 ACS five-year tables B01001D and B01001I, the median age group for female Asians living in Pennsylvania is 30-34 years of age, and the median age group for female Hispanics living in Pennsylvania is 25-29 years of age. Also worth noting is that only 26 percent of the Asian population is under 20 years of age, while 40 percent of the Hispanic population is under 20 years of age. There are many factors such as age, religion, economics and societal health that contribute to the fertility rates of specific populations. One of the most easily identifiable contributors to fertility rates is age. The older Asian and younger Hispanic populations help explain the differences seen in Maps 2 and 3. Older populations tend to have fewer children, while younger populations are in their prime childbearing years. This is also reinforced by the fertility rates between 2003 and 2011 for Asians and Hispanics, 69.7 and 94.8 respectively.

If you have any questions about this article, please contact the Bureau of Health Statistics and Research at 717-783-2548. Additional population, birth and death statistics for Pennsylvania can be obtained from the Birth, Death, and Other Vital Statistics Web page and are available on EpiQMS, our online interactive data dissemination tool.

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Cancer in Rural and Urban Pennsylvania

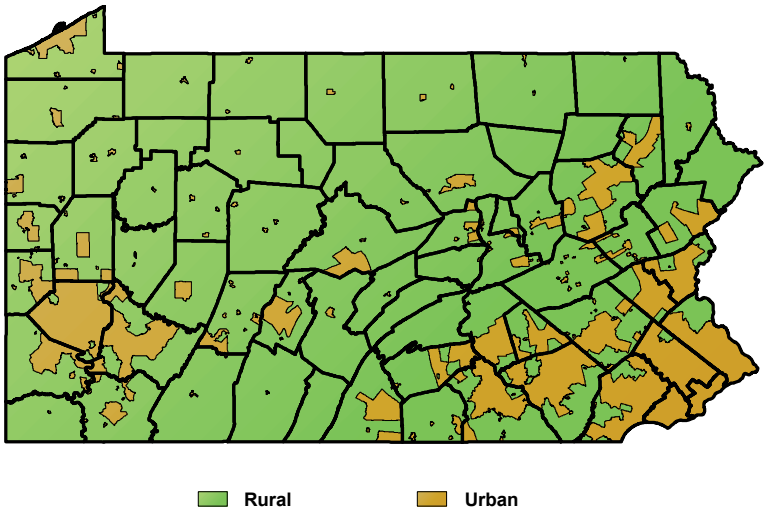
Urban Areas Fare Worse than Rural

A comparison of cancer in rural and urban municipalities of Pennsylvania for the year 2010 indicates that urban residents are at a greater risk for developing and dying of cancer and being diagnosed at a more advanced stage. This was determined by designating municipalities as either rural or urban according to the current definition from the Center for Rural Pennsylvania, which states:

"A municipality is rural when the population density within the municipality is less than the statewide average density of 284 persons per square mile, or the total population is less than 2,500, unless more than 50 percent of the population lives in an urbanized area as defined by the U.S. Census Bureau. All other municipalities are considered urban."

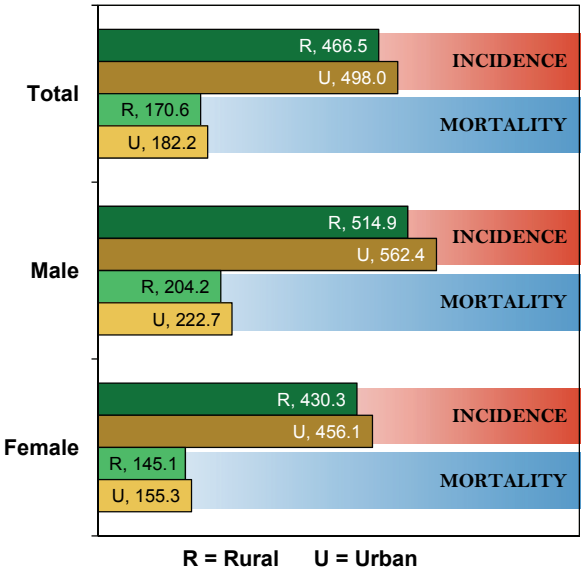
After classifying Pennsylvania's municipalities as either rural or urban (depicted in Map 1), rural areas were found to be home to 21.8 percent of the state's residents in 2010. This rural population accounted for 22.2 percent of invasive cancer diagnoses (including in situ urinary bladder cancers) and 21.6 percent of cancer deaths that year. The crude cancer incidence rate, which is simply the number of diagnoses per 100,000 residents, was 606.3 among rural residents and 594.0 among urban residents. The crude cancer mortality rate, which is the number of deaths per 100,000 residents, was 224.6 among rural residents and 227.4 among urban residents.

Map 1
Rural and Urban Municipalities of Pennsylvania



Source: Center for Rural Pennsylvania

Chart 1
Age-Adjusted Cancer Incidence and Mortality Rates by Sex Among Rural and Urban Pennsylvania Residents, 2010



Notes: Age-adjusted rates are per 100,000 and computed by the direct method using the 2000 U.S. standard million population. Incidence rates are based on invasive (and in situ urinary bladder) cancers.

These statistics, while similar, do not allow fair comparisons of cancer risk in these areas. A person's risk of being diagnosed with or dying of cancer increases with age, and rural Pennsylvania has a higher proportion of the elderly. A better measure for comparison is found by age-adjusting the cancer rates, which determine what the rates would be if the proportions of residents in each age group were the same for both rural and urban municipalities. Chart 1 highlights the overall comparison

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Cancer in Rural and Urban Pennsylvania

of age-adjusted cancer rates by sex, and Table 1 lists the rates by primary site. The incidence and mortality rates shown in both figures reveal striking differences.

In 2010, Pennsylvania had an age-adjusted cancer incidence rate of 490.2 per 100,000. In contrast, rural residents had a rate of 466.5, while the rate for urban residents of 498.0 was significantly higher by a difference of 6.8 percent. Six primary sites had significantly different incidence rates for rural and urban residents, all higher among urban residents. Notably, urban residents had significantly higher rates for the three most common cancer diagnoses: prostate, female breast, and lung and bronchus cancers.

Urban Pennsylvanians also had worse prospects for how advanced the cancers were upon diagnosis (note: stage distributions were not age-adjusted). A cancer's stage at its time of diagnosis is a good indicator of the disease's prognosis, with an early stage often meaning more can be done before the disease spreads. A statistically significantly higher proportion of urban residents were diagnosed with late stage cancers (42.1 percent compared to 41.1 percent for rural residents). Across individual cancer sites, the stage distributions revealed few differences. Melanoma stood out as more likely to be diagnosed at an unknown stage in urban residents (9.9 percent) than rural residents (5.7 percent). Typically, cancer of an unknown stage is most likely to be of a late stage, with only the extent of its spread throughout the body unknown. Prostate cancer in urban males was more likely to be diagnosed at an unknown stage (12.3 percent versus 8.4 percent in rural residents), but lung and bronchus cancer in rural males was less likely to be diagnosed at an early stage than in their urban setting counterparts (13.5 percent versus 16.0 percent, respectively).

For cancer mortality, Pennsylvania had an age-adjusted rate of 179.4 per 100,000 in 2010. And again, the rate in urban municipalities was significantly higher than in rural municipalities (182.2 versus 170.6). The mortality rate for liver and intrahepatic bile duct cancer among urban residents was significantly higher than among rural residents; in fact, the urban rate was 47.5 percent greater. Lung and bronchus cancer, which accounted for more deaths than any other primary site, had a 10.4 percent higher mortality rate among urban residents, significantly higher than the rate among rural residents.

Table 1
Age-Adjusted Invasive Incidence* and Mortality Rates Among Rural and Urban Residents of Pennsylvania, 2010

	Age-Adjusted Incidence Rates			Age-Adjusted Mortality Rates		
Primary Site	**Urban**	**Rural**	**Difference**	**Urban**	**Rural**	**Difference**
Oral Cavity and Pharynx	**11.6**	9.7	19.6%	2.2	2.3	-4.3%
Esophagus	5.1	4.7	8.5%	4.6	5.2	-11.5%
Stomach	7.4	6.3	17.5%	3.4	2.9	17.2%
Colon and Rectum	43.4	44.7	-2.9%	16.8	17.5	-4.0%
Liver/Intrahepatic Bile Duct	**7.5**	5.0	50.0%	**5.9**	4.0	47.5%
Pancreas	**14.0**	10.8	29.6%	11.9	10.4	14.4%
Larynx	3.9	3.5	11.4%	1.1	0.8	37.5%
Lung and Bronchus	**68.1**	59.0	15.4%	**49.7**	45.0	10.4%
Melanoma of the Skin	20.8	19.4	7.2%	2.9	3.3	-12.1%
Female Breast	**126.9**	118.2	7.4%	23.6	21.1	11.8%
Cervix Uteri	7.3	6.3	15.9%	2.0	1.6	25.0%
Corpus and Uterus	32.7	29.6	10.5%	5.5	4.5	22.2%
Ovary	13.0	12.7	2.4%	8.2	7.9	3.8%
Prostate	**137.9**	118.3	16.6%	21.6	19.6	10.2%
Testis	7.0	8.1	-13.6%	0.4	0.3	33.3%
Urinary Bladder*	24.8	24.9	-0.4%	4.9	4.6	6.5%
Kidney/Renal Pelvis	16.2	16.3	-0.6%	3.8	4.3	-11.6%
Brain/Other Nervous System	6.9	7.9	-12.7%	4.1	4.6	-10.9%
Thyroid	20.0	21.5	-7.0%	0.5	0.6	-16.7%
Non-Hodgkin Lymphoma	20.6	21.1	-2.4%	6.5	7.0	-7.1%
Hodgkin Lymphoma	3.3	2.5	32.0%	0.4	0.4	0.0%
Myeloma	5.9	7.0	-15.7%	3.5	3.6	-2.8%
Leukemia	13.6	14.0	-2.9%	7.3	6.7	9.0%
All Cancer Sites*	**498.0**	466.5	6.8%	**182.2**	170.6	6.8%

Notes: Age-adjusted rates are per 100,000 and computed by the direct method using the 2000 U.S. standard million population. Rates in **red** are statistically significantly higher for the respective area (rural or urban) than for the other, determined by t-test (p-value = 0.01).

* Incidence rates include *in situ* urinary bladder cancers.

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Cancer in Rural and Urban Pennsylvania

When looking at mortality rates by sex, significant differences identified between rural and urban residents were worse for urban. Urban males had significantly higher mortality rates than rural males for pancreatic cancer (14.1 versus 11.4) and liver and intrahepatic bile duct cancer, the urban rate of which was a staggering 58.9 percent higher than the rural rate (8.9 versus 5.6). Urban females had higher mortality rates than rural females for cancers of the lung and bronchus (39.3 versus 33.6) and the larynx. The rate of larynx cancer mortalities did not rise above 1 per 100,000 among either rural or urban females; significance can be hard to determine when the number of events is small. However, the urban rate (0.5) was five times the rural rate (0.1), making the difference here so great as to allow it.

Throughout this analysis, all but one difference revealed that, after taking ages into account, urban residents fare worse from cancer than rural residents in 2010. The only significantly negative aspect of the age-adjusted cancer profile for rural residents was a lower chance of having lung and bronchus cancer diagnosed at an early stage; however, no significant difference between rural and urban residents was found in the chances of late-staged or unknown-staged lung and bronchus cancer diagnoses. While one or more aspects of urban municipalities assuredly increased cancer risk, it must be remembered that city environments only partly explain the actual cause of the differences. While the harsher air pollution in cities certainly classifies as an environmental factor[1], the same cannot be said for the higher rate of poverty found in urban municipalities. Still, both of these factors are associated with an increased risk of cancer.

This analysis illustrates that a correlation exists between urban municipalities and cancer risk. Further research and analysis is needed to help discern and remedy the problems at fault.

Information on Pennsylvania's rural communities can be found on the Center for Rural Pennsylvania's website, www.rural.palegislature.us. Additional cancer data and definitions of statistical terms used in this article can be found on the Bureau of Health Statistics and Research website, www.health.state.pa.us/stats. For any questions relating to this article, please contact the bureau through our website or by calling 717-783-2548.

[1] International Agency for Research on Cancer. (2013). *Air Pollution and Cancer.*

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Smoking During Pregnancy Among Pennsylvania Mothers

Younger White Mothers More Likely to Smoke During Pregnancy

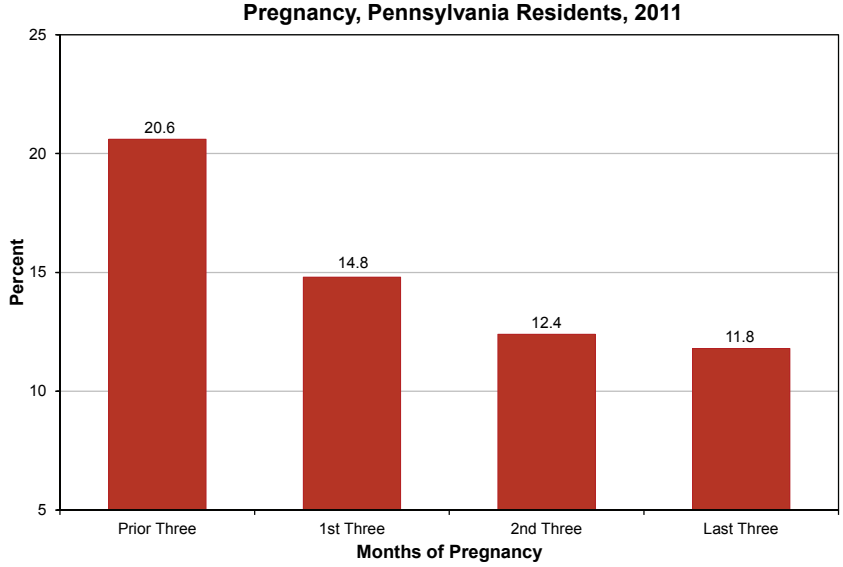
Women who smoked during pregnancy were more likely to be younger, have low birth weight babies (under 2,500 grams) and have preterm babies (less than 37 weeks gestation) than women who did not smoke during their pregnancy, according to data collected by the Pennsylvania Department of Health on certificates of live births. In addition, white mothers were more likely to smoke during pregnancy than black mothers and Hispanic mothers. Asian/Pacific Islander mothers were the least likely to smoke during pregnancy.

According to the Centers for Disease Control and Prevention (CDC), smoking during pregnancy is associated with a modest increase in risk for preterm delivery. Also, infants born to women who smoke during pregnancy have a lower average birth weight and are more likely to be small in size for their gestational age than infants born to women who did not smoke during pregnancy. The longer the mother smokes during pregnancy, the greater the effect on the infant's birth weight. Birth weight and length of pregnancy are prime indicators of infant health. Low birth weight and preterm birth are considered major contributors to higher infant mortality, according to the CDC.

A review of smoking during pregnancy among Pennsylvania residents, including analysis of the relationship between smoking and low birth weight babies and preterm babies, follows.

The percent of live births to mothers who smoked in the three months prior to pregnancy, the first three months of pregnancy, the second three months of pregnancy, and the last three months of pregnancy for 2011 is shown on Chart 1. In 2011, the percent of live births to mothers who smoked declined with each three-month period of the pregnancy, with a high of 20.6 percent of births to mothers who smoked prior to pregnancy to a low of 11.8 percent of births to mothers who smoked in the last three months of pregnancy.

Chart 1
Percent of Live Births to Mothers Who Smoked Before and During Pregnancy, Pennsylvania Residents, 2011



Over 17 percent of live births to white mothers in 2011 were to women who smoked during pregnancy (i.e., during any of three trimesters). This was the highest percent among the four race/ethnic groups reviewed. Among black mothers, 13.7 percent of the births involved mothers who smoked during pregnancy. Births to Asian/Pacific Islander mothers who smoked during pregnancy showed the lowest percent (1.8 percent). Just over 9 percent of the live births to Hispanics involved mothers who smoked during pregnancy.

When looking at the percent of live births to mothers who smoked by age and race (see Chart 2, page 13), it becomes evident that differences between the races by age exist. The percent of live births to white mothers who smoked during pregnancy was much higher for the younger age groups while, among blacks, the percent was higher for the older mothers. For example, 35.9 percent of live births to whites aged 18-19 were to mothers who smoked during pregnancy, compared to black mothers aged 18-19 with 10.4 percent of live births to mothers who smoked during pregnancy. Hispanic mothers aged 18-19 show 10.2 percent of live births to mothers who smoked during pregnancy. However, among the mothers aged 40 and over, only 8.1 percent of the births among whites were to mothers who smoked during pregnancy, and 3.9 percent of Hispanic mothers smoked during

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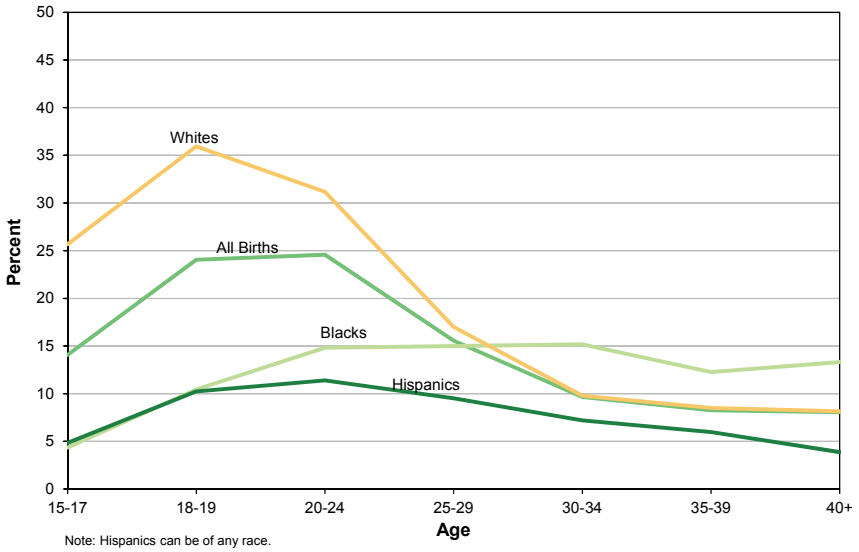
pregnancy. Over 13 percent of live births to black mothers aged 40 and above were to mothers who smoked during pregnancy.

The percent of low birth weight babies (under 2,500 grams or 5 pounds and 9 ounces) among Pennsylvania residents was considerably higher among smoking mothers (12.7 percent) than non-smoking mothers (7.3 percent) in 2011. Also, the percent of preterm births (less than 37 weeks gestation) was higher among smoking mothers (11.9 percent) than non-smoking mothers (9.0).

The percent of low birth weight babies for the four race/ethnic groups reviewed was again considerably higher among smokers, as shown on Chart 3. Among whites, 6.0 percent of live births to non-smoking mothers were low birth weight, compared to 11.9 percent for mothers who smoked during pregnancy. The same pattern was seen among Asian/Pacific Islander mothers and Hispanic mothers: 7.8 and 8.2 percent of live births to non-smoking mothers were low birth weight, compared to 16.3 and 13.2 percent for mothers who smoked during pregnancy, respectively. Over 17 percent of live births to black mothers who smoked during pregnancy were low birth weight, while only 12.4 percent of live births among black mothers who did not smoke during pregnancy were reported as such.

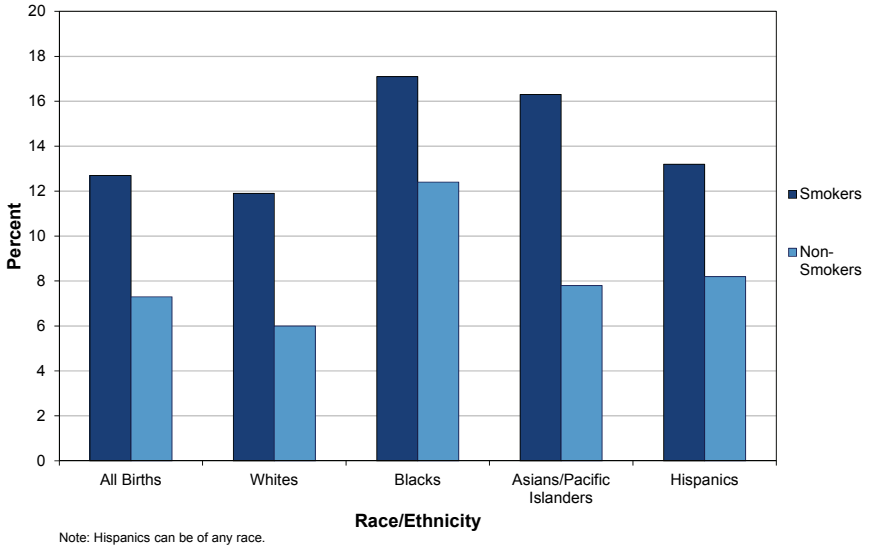
A review of the percent of preterm live births for the four race/ethnic groups finds that the same pattern can be seen as the percent of low birth weight babies (see Chart 4, page 14). Preterm live births to white mothers who did not smoke during pregnancy was 8.2 percent, compared to 11.1 percent of preterm births to white mothers who did smoke during pregnancy. Asian/Pacific Islander mothers who did not smoke during pregnancy show 7.9 percent of births were preterm and 16.3 percent of live births were preterm to mothers who did smoke during pregnancy. The percent of preterm births to Hispanic mothers who did not smoke during pregnancy was 9.7 percent, compared to 12.7 per-

Chart 2
Percent of Live Births to Mothers Who Smoked During Pregnancy by Age, Race and Hispanic Origin of Mother, Pennsylvania Residents, 2011



Note: Hispanics can be of any race.

Chart 3
Percent Low Birth Weight Live Births by Smoking Status, Race and Hispanic Origin of Mother, Pennsylvania Residents, 2011



Note: Hispanics can be of any race.

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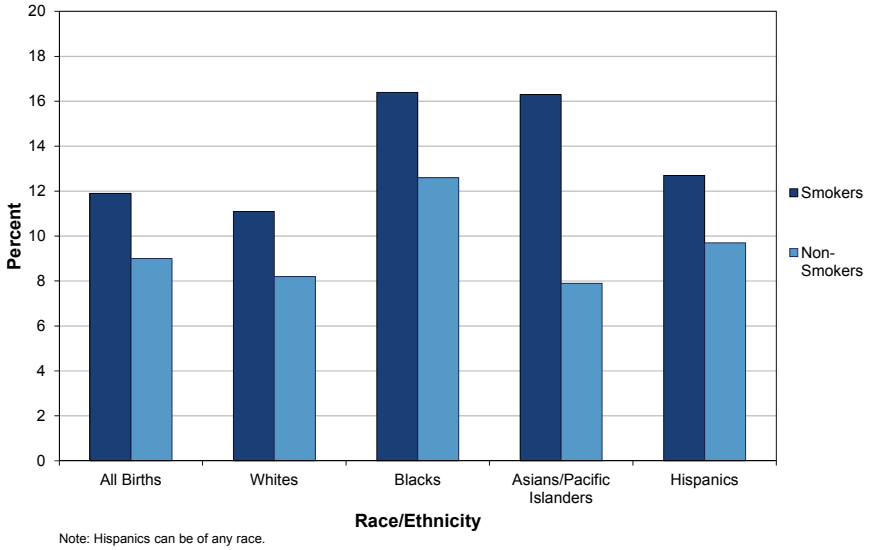
cent for Hispanic mothers who smoked during pregnancy. For births to black mothers who did not smoke during pregnancy, there was 12.6 percent preterm compared to 16.4 percent preterm live births for black mothers who smoked during pregnancy.

A review of other statistics for mothers who smoked during pregnancy shows that 25.8 percent of live births to mothers with a high school education or less were to mothers who smoked during pregnancy. In comparison, just 8.4 percent of live births to mothers with some college education or a college degree were to mothers who smoked during pregnancy. Almost 28 percent of live births to unmarried mothers were to mothers who smoked during pregnancy, compared to 6.5 percent of live births to married mothers who smoked during pregnancy.

In addition, mothers living in rural counties were more likely to smoke during pregnancy than mothers living in urban counties. The five counties with the highest percent of births to mothers who smoked during pregnancy were Cameron (34.0 percent), Greene (32.7 percent), McKean and Fayette (31.8 percent each), and Venango (31.1 percent). Chester County (6.7 percent) and Montgomery County (7.2 percent) were the only two that had less than 10 percent of live births to mothers who smoked during pregnancy. The following three counties had less than 11 percent of births to mothers who smoked during pregnancy: Delaware with 10.5 percent, Philadelphia with 10.6 percent, and Lancaster with 10.9 percent of births to mothers who smoked during pregnancy.

Chart 4
Percent Preterm Live Births by Smoking Status, Race and Hispanic Origin of Mother, Pennsylvania Residents, 2011



Note: Hispanics can be of any race.

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 can be obtained from the Birth, Death, and Other Vital Statistics Web page and are also available on EpiQMS, our online interactive data dissemination tool.

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