

STATISTICAL NEWS

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Osteoporosis Prevalence Among Pennsylvania Women Women Ages 65 and Older at Greatest Risk

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Breast Cancer Incidence and Mortality in Pennsylvania October is National Breast Cancer Awareness Month

In recognition of October being National Breast Cancer Awareness Month, the following statistics were assembled to show the burden of female breast cancer in Pennsylvania. Breast cancer represents the leading cancer type for females, and accounted for approximately 27 percent of all invasive female cancer cases diagnosed among Pennsylvania residents in 2007.

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Evaluating Lymph Nodes Following Colon Cancer Surgery *Is Pennsylvania Meeting the 12 Lymph Node Standard?*

Colon cancer is one of the most common types of invasive cancer diagnosed and is also one of the leading causes of cancer death in both Pennsylvania and the United States. These cancers originate in the colon, often from polyps which frequently grow into tumors. Late stage colon cancer is defined by the spread of the disease to either the colon's regional lymph nodes or to distant tissue and organs, such as the liver.

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Healthy People 2010: Maternal, Infant, and Child Health *Obj 16-10a - Decrease percent of infants born at low birth weight* *HP2010 Target: 5.0 %*

Between 2004 and 2008, the percent of low birth weight infants born to Pennsylvania residents increased slightly from 8.2 in 2004 to a high of 8.5 in 2006 and dipped down (8.3) in 2008. Until 2002, the percentage of low birth weight infants had not been above 8.0 since the late 1960s.

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Osteoporosis Prevalence Among Pennsylvania Women

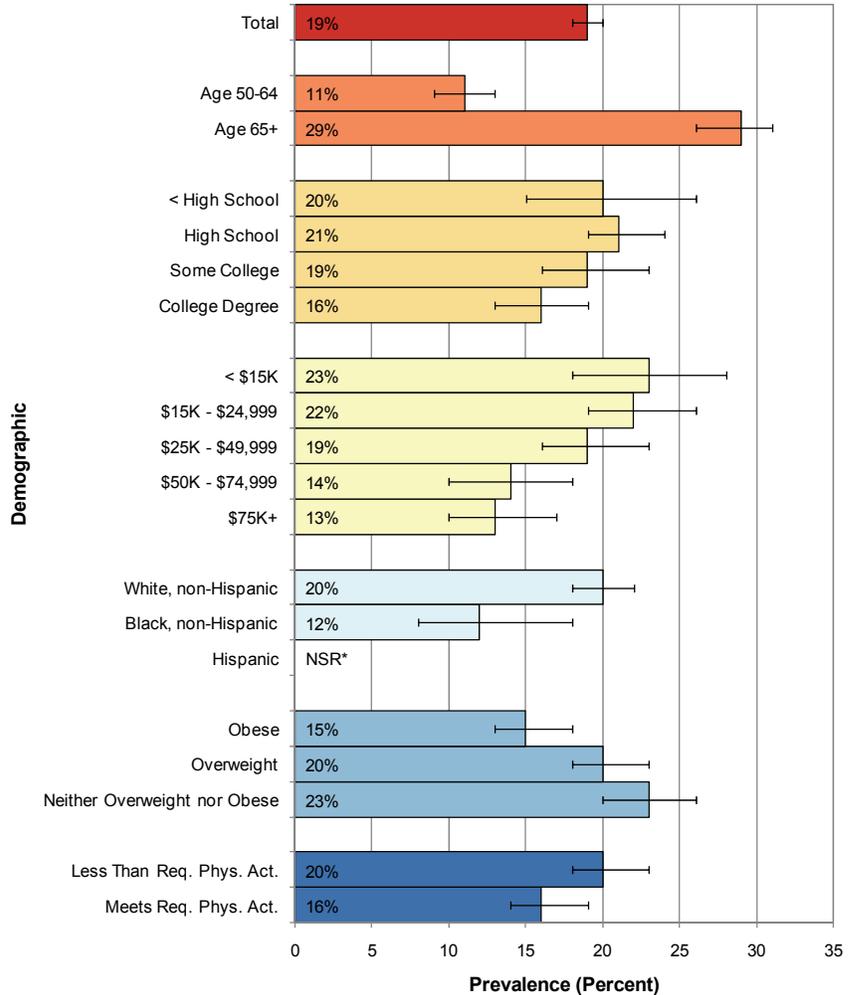
Women Ages 65 and Older at Greatest Risk

The [National Osteoporosis Foundation](#) estimates that 10 million Americans have osteoporosis, a condition involving low bone mass and structural deterioration of bone tissue. Osteoporosis increases the risk of suffering a fracture, such as a hip or vertebral fracture, from a fall. Osteoporosis may be prevented or slowed through a combination of lifestyle changes and medication. This article will discuss osteoporosis as it affects Pennsylvania adult women and the steps women may take to prevent the disease.

Prevalence

According to the National Osteoporosis Foundation, 80 percent of those affected by osteoporosis are women; women over age 65 have the greatest risk for osteoporosis. As reported by the 2009 Pennsylvania Behavioral Risk Factor Surveillance System (BRFSS) survey, an estimated 19 percent (95% Confidence Interval (CI): 18-21) of Pennsylvania women ages 50 and older were ever told they had osteoporosis (see Chart 1, to the right). Women ages 65 and over had a significantly higher prevalence of osteoporosis at 29 percent (CI: 26-31) compared to women ages 50-64 (11 percent, CI: 9-13). An estimated 20 percent (CI: 18-22) of non-Hispanic Whites and an estimated 12 percent (CI: 8-18) of non-Hispanic Blacks were ever told they had osteoporosis. Osteoporosis prevalence also varied by annual income level. Pennsylvania women whose annual income was less than \$15,000 had significantly higher estimated osteoporosis prevalence (23 percent, CI: 18-28) than those with annual incomes of \$75,000 or more (13 percent, CI: 10-17).

Chart 1
Ever Told They Have Osteoporosis, Women Ages 50 and Older



*NSR = Not Statistically reliable due to small numbers.
 — 95% Confidence Interval.
 Source: 2009 Pennsylvania BRFSS Survey.

Risk Factors

In addition to being White, female, and elderly, the Centers for Disease Control and Prevention (CDC) lists other potential risk factors of osteoporosis. Having a small body size, consuming a low calcium diet, and being physically inactive can all contribute to osteoporosis. Fortunately, an individual can alter their diet and physical activity habits to help pre-

vent osteoporosis. Body Mass Index (BMI) from the 2009 BRFSS survey supports the risk of osteoporosis due to smaller body size. There was a significant difference in osteoporosis prevalence between women who were neither overweight nor obese (23 percent, CI: 20-26) and women who were obese (15 percent, CI: 13-18). Osteoporosis prevalence for

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Osteoporosis Prevalence Among Pennsylvania Women

overweight women was 20 percent (CI: 18-23). These three BMI categories may suggest a trend of osteoporosis increasing as body mass index decreases. However, it should be noted that although a higher BMI may provide limited protection against osteoporosis, there are even greater health risks associated with obesity, including: heart disease, stroke, diabetes, high blood pressure, and cancer to name a few.

Prevention

The results of the 2009 BRFSS survey show 54 percent (CI: 52-56) of adult women in Pennsylvania have ever been told by a health professional how to prevent osteoporosis. One way in which women can help prevent osteoporosis is to include calcium in the diet, because this mineral is needed by the body to build healthy bones. The CDC recommends that women 50 years of age and older should have 1200mg of calcium per day. Only an estimated 18 percent (CI: 16-20) of Pennsylvania women ages 18 and older reported eating foods high in calcium three or more times per day. Table 1 displays some good sources of calcium as listed from the CDC's website.

In 2009, an estimated 45 percent (CI: 43-47) of Pennsylvania women ages 18 and older reported they cur-

Table 1
Good Sources of Calcium

Category	Examples
Dairy Products	Low fat or nonfat milk, cheese, and yogurt
Dark Green Leafy Vegetables	Bok choy and broccoli
Calcium Fortified Foods	Orange juice, cereal, bread, soy beverages, and tofu products
Nuts	Almonds

Source: Centers for Disease Control and Prevention

<http://www.cdc.gov/nutrition/everyone/basics/vitamins/calcium.html>

rently took calcium supplements or antacids containing calcium for bone health.

Physical activity helps keep bones strong which makes it an integral part of osteoporosis prevention. Based on the 2008 BRFSS survey, an estimated 9 percent (CI: 8-11) of Pennsylvania women ages 18 and older completed physical activities specifically designed to strengthen muscles daily. The prevalence of osteoporosis seemed to vary on whether or not one got the recommended amount of physical activity. Women who did not meet recommended physical activity requirements did not have a statistically significantly higher prevalence (20 percent, CI: 18-23) than those who did meet recommended physical activity requirements (16 percent, CI: 14-19).

Detection and Treatment

A bone density test can be performed to determine if osteoporosis is pre-

sent. In 2008, the BRFSS survey showed that an estimated 75 percent (CI: 72-79) of Pennsylvania women ages 65 and older have ever had a bone density test. If osteoporosis is detected, the measures previously mentioned for prevention can also be used for treatment. Improving calcium intake and engaging in low-intensity exercises can help improve bone density. Medicine may also help. In 2008, an estimated 56 percent (CI: 50-62) of Pennsylvania women age 18 and older with osteoporosis took prescription medicine to help control the disease.

Please contact the Bureau of Health Statistics and Research by calling 717-783-2548 with questions about this article or BRFSS data. You can review the BRFSS data contained in this article by using our interactive web tool, EpiQMS, at www.health.state.pa.us/stats.

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Breast Cancer Incidence and Mortality in Pennsylvania

October is National Breast Cancer Awareness Month

In recognition of October being National Breast Cancer Awareness Month, the following statistics were assembled to show the burden of female breast cancer in Pennsylvania. Breast cancer represents the leading cancer type for females, and accounted for approximately 27 percent of all invasive female cancer cases diagnosed among Pennsylvania residents in 2007. Numerous studies have shown that interventions aimed at early detection can significantly reduce death rates due to breast cancer.

Breast Cancer Incidence

The age-adjusted incidence rate for female breast cancer among all Pennsylvania females has fluctuated each year between 2003 and 2007, moving from 121.7 in 2003 to 123.5 per 100,000 in 2007 (see Chart 1). The incidence rates for White females were very similar to those among all females during this time. The age-adjusted rate for White females had little change from 2003 to 2007 from 122.1 to 122.6 per 100,000. From 2003 to 2005, the rate for Black females was lower than all females, but was higher in 2006 and 2007. Overall, the incidence rate among Black female residents showed the most prominent increase from 118.1 per 100,000 in 2003 to 128.9 in 2007. The rates for Hispanic females have been consistently lower than the rates for all females, but have been fluctuating greatly. While the rate had only moved from 67.0 per 100,000 in 2003 to 66.5 in 2007, it had dropped to a low of 51.5 in 2004 and a high of 71.1 in 2005.

Chart 1
Female Breast Cancer Incidence Rates*, Pennsylvania Residents, All Incidences and by Race and Hispanic Origin**

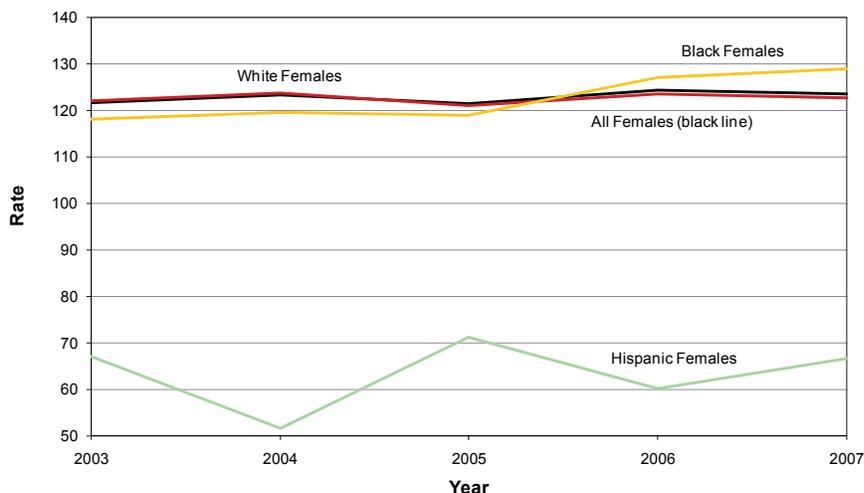
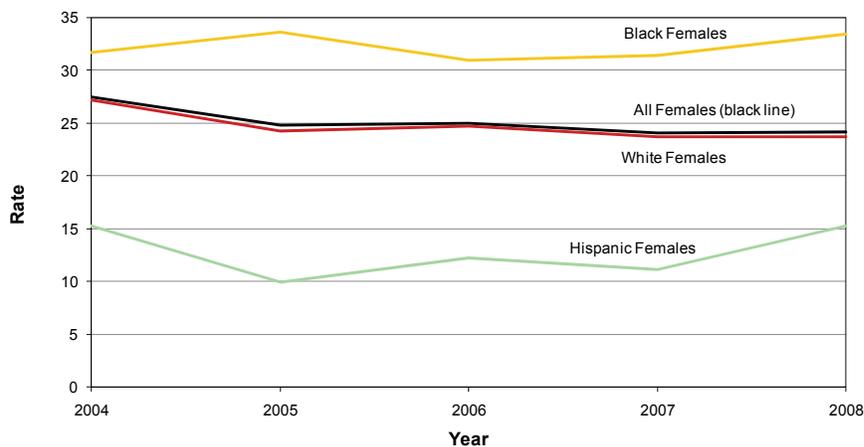


Chart 2
Female Breast Cancer Death Rates*, Pennsylvania Residents, All Deaths and by Race and Hispanic Origin**



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

Breast Cancer Mortality

The age-adjusted death rate for female breast cancer among all Pennsylvania females has decreased between the years 2004 and 2008 from 27.5 to 24.2 per 100,000 (see Chart

2). Rates for White females have remained very consistent with the rate for all females during this time. The age-adjusted rate for White females declined from 27.2 to 23.7 per

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Breast Cancer Incidence and Mortality in Pennsylvania

100,000, from 2004 to 2008. From 2004 to 2008, the rates for Black females were consistently higher than the rates for all females, increasing slightly over this time-frame. For Black females, the breast cancer death rate increased from 31.7 per 100,000 in 2004 to 33.4 in 2008. The rates for Hispanic females have been consistently lower than the rates for all females. In both 2004 and 2008, the death rate for Hispanic females was 15.3 per 100,000, but was lower in every year between, dropping as low as 9.9 in 2005.

Pennsylvania Program Works to Fight Breast and Cervical Cancer in PA

Among cancers that affect females in Pennsylvania, breast and cervical cancer account for over 28 percent of all cancer cases and 26 percent of all

cancer deaths. [Pennsylvania's HealthyWoman Program \(HWP\)](#) provides free breast and cervical cancer screening, diagnostic, and treatment referral services thanks to funding from the Centers for Disease Control and Prevention (CDC) and the state. Women must be ages 40-64, uninsured or underinsured, and have household incomes that are 250 percent or less of the federal poverty level. HWP clients who have a positive diagnosis for cancer or a pre-cancerous condition are eligible for medical coverage under the state's Breast and Cervical Cancer Prevention and Treatment Program. Since 1994, the program has screened over 83,000 women for breast and cervical cancer. Thanks to these screenings, over 2,500 breast cancers and 128 cervical cancers have been detected. According to the National

Cancer Institute, 1 in 8 women will be diagnosed with cancer of the breast during their lifetime. With programs like HealthyWoman, and yearly reminders like National Breast Cancer Awareness Month, we can hope that the number of breast cancer cases and deaths will decrease in both Pennsylvania and the United States.

If you have any questions about this article, please contact the Bureau of Health Statistics and Research at 717-783-2548. Additional cancer statistics for Pennsylvania can be obtained from the Health Statistics web pages at www.health.state.pa.us/stats and select 'Cancer Statistics'. Pennsylvania cancer statistics are also available on EpiQMS, our online, interactive data dissemination tool.

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Evaluating Lymph Nodes Following Colon Cancer Surgery

Is Pennsylvania Meeting the 12 Lymph Node Standard?

Colon cancer is one of the most common types of invasive cancer diagnosed and is also one of the leading causes of cancer death in both Pennsylvania and the United States. These cancers originate in the colon, often from polyps which frequently grow into tumors. Late stage colon cancer is defined by the spread of the disease to either the colon's regional lymph nodes or to distant tissue and organs, such as the liver. Fortunately, colon cancers are one of the few types of cancer that can be screened and detected at early stages of the disease. In fact, some screening procedures can prevent colon cancer by removing polyps before they have a chance to develop into cancer. In addition, surgery can often cure colon cancer when it is discovered in the early stages of the disease.

Although the chances for survival of colon cancer are good for the early stages, the risk of death increases dramatically once the cancer reaches late stage, especially, when distant organs become cancerous. According to the National Cancer Institute's Surveillance, Epidemiology and End Results (SEER) program, the five-year survival rate for colon cancer is 91.3 percent for the localized stage, 70.3 percent for the regional stage, and 11.4 percent for the distant stage. Clearly, these survival rates highlight the importance of staging colon cancers accurately. As you can see by the large drop in the survival rate from 70.3 to 11.4, it is extremely important to catch the cancer at the regional stage before it spreads to distant organs or tissue. Based on the American Joint Committee on Cancer (AJCC) stag-

ing system, colon cancer reaches stage III (or regional staging) once the cancer has spread to one or more regional lymph nodes. In 2006, an expert panel from the AJCC and the National Cancer Institute (NCI) made a formal statement recommending that at least 12 lymph nodes be tested to properly stage colon cancer, which should lead to the appropriate treatment based on the stage of the disease. The analysis presented here looks at whether treatment providers in Pennsylvania are complying with the 12 lymph node standard during colectomy surgery and whether the overall rate of compliance has improved over time.

For this analysis, cancer incidence data were obtained for the diagnosis years 2004 to 2007 from the Pennsylvania Cancer Registry (PCR) and were current as of September 2010. Colon cancers were defined according to International Classification of Diseases for Oncology, Third Edition (ICD-O-3) for primary site of C18.0-C18.9 and excluded histology codes M9590 to M9989. This primary site intentionally excludes cancers of the rectum, since lymph node recovery is complicated by other factors. The AJCC system was used for the staging of cancer cases. Specifically, the groupings include stage 0 (in situ), stage I and II (local), stage III (regional), and stage IV (distant). The stages 0, I, and II are further categorized as early stage, and stages III and IV are considered late stage. Lymph node analyses were limited to colectomy surgeries, and specifically, excluded local excision and polypectomy surgeries.

The Pennsylvania statistics show that over 6,000 new cases of colon cancer are discovered each year among Pennsylvania residents. In 2007, there were 6,295 total cases of colon cancer compared to 6,592 cases in 2006, 6,644 cases in 2005, and 6,690 cases in 2004. As seen in Chart 1 (next page), more than half of these colon cancer cases (54.7 percent) were diagnosed during the early stages (0, I, and II), 35.1 percent were diagnosed during the late stages (III and IV), and 10.2 percent were categorized as another stage or unknown. Again, compliance with the testing standard of 12 lymph nodes is required for accurate staging, especially for distinguishing between the early stages and the regional stages in which lymph nodes have become cancerous.

Data for the four year period, 2004-2007, indicated that 77.7 percent of all colon cancers are treated through colectomy surgery and therefore should be subject to having at least 12 lymph nodes examined. However, some of these colectomies were excluded before analysis because there were cases where the number of lymph nodes examined were unknown. Frequency counts and percentages were calculated for each year to measure Pennsylvania's compliance with the 12 lymph nodes testing standard among colon cancer cases that had colectomy surgery. As seen in Table 1 (next page), the number of cases that complied with the 12 lymph node standard increased from 2,659 in 2004 to 3,288 in 2007. Using the number of colectomy surgeries as the denominator, the overall compliance for lymph node testing

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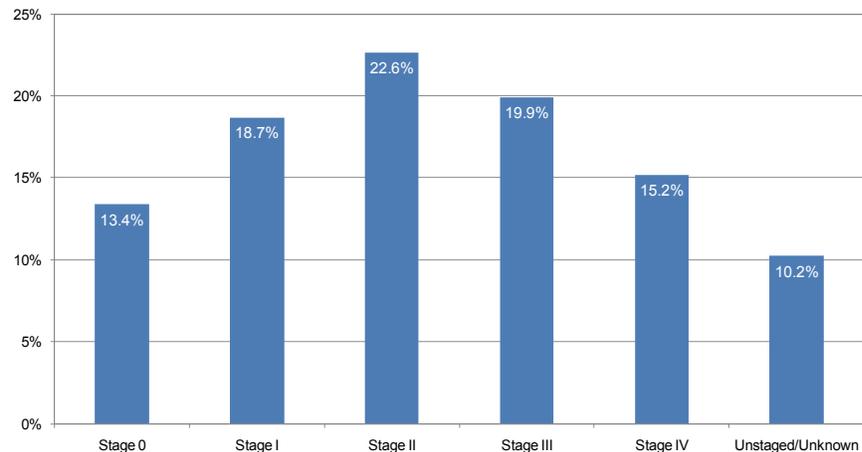
Evaluating Lymph Nodes Following Colon Cancer Surgery

among colectomy surgeries increased steadily from 51.4 percent in 2004 to 69.0 percent in 2007. Further analysis revealed that each subsequent year experienced a significant increase in the percentage of compliance at the 95 percent confidence level. Table 1 also shows that the number and percent of colon cancers that did not comply with the 12 lymph node standard decreased from 2004 to 2007.

Once a lymph node is examined and the test results are found positive, the cancer is classified at the regional stage or possibly late stage depending on metastasis. In other words, the accuracy of staging depends on the accuracy of the lymph node testing results. In Table 2, the percentage of colon cancers that had 12 or more lymph nodes tested was compared for each staging category and by diagnosis year to see if the stage of disease was associated with the lymph node standard. Each staging category showed an obvious improvement in the compliance of the 12 lymph node standard when comparing past years to 2007. For example, stage II cancers increased from 56.5 percent compliance in 2004 to 75.3 percent in 2007. However, it was also observed for each year, 2004 through 2007, that the earliest stages (0 and I) had significantly lower percentages compared to all stages, and stage II and III had significantly higher percentages compared to all stages. Overall, stage III cancers had the highest compliance rates followed by stage II. The most distant stage IV cancers were the only group that was not found to be significantly different from all

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Chart 1
Percent of Colon Cancers by Stage*
Pennsylvania Residents, 2004-2007



* American Joint Committee on Cancer (AJCC) derived staging from the Pennsylvania Cancer Registry.
Note: Colon cancers were defined by ICD-O-3 coding (C18.0-C18.9) and exclude histologies (M9590-M9989).

Table 1
Number and Percent of Colon Cancer Cases with Colectomy Surgery
and the 12 Lymph Node Standard by Diagnosis Year, Pennsylvania Residents

	2004	2005	2006	2007
Cases < 12 Lymph Nodes Examined	2,517	2,230	1,993	1,479
Cases ≥ 12 Lymph Nodes Examined	2,659	2,775	3,074	3,288
Total Cases with Colectomy Surgery	5,176	5,005	5,067	4,767
Percentage of Cases < 12 Lymph Nodes Examined	48.6%	44.6%	39.3%	31.0%
Percentage of Cases ≥ 12 Lymph Nodes Examined	51.4%	55.4%	60.7%	69.0%

Notes: Unknowns for lymph nodes examined were excluded for cancers with colectomy surgery.
Colon cancers were defined by ICD-O-3 coding (C18.0-C18.9) and exclude histologies (M9590-M9989).

Table 2
Percent of Colon Cancers with Colectomies that had 12 or More Lymph
Nodes Examined by AJCC Staging and Diagnosis Year, Pennsylvania Residents

	Stage 0	Stage I	Stage II	Stage III	Stage IV	Other/Unknown	Total
2004	32.2%	42.4%	56.5%	60.5%	52.5%	37.4%	51.4%
2005	37.1%	45.5%	59.5%	64.5%	57.8%	47.0%	55.4%
2006	36.4%	51.8%	67.3%	71.4%	59.1%	41.8%	60.7%
2007	48.1%	63.7%	75.3%	76.7%	66.6%	52.7%	69.0%

Notes: Unknowns for lymph nodes examined were excluded for cancers with colectomy surgery.
Colon cancers were defined by ICD-O-3 coding (C18.0-C18.9) and exclude histologies (M9590-M9989).

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Evaluating Lymph Nodes Following Colon Cancer Surgery

stages. One glowing concern from this analysis is that a large percentage of the earliest stage cancers might have been inaccurately staged, due to a lack of sufficient lymph node testing used to detect the spread of cancer to at least one regional lymph node.

While these findings show a dramatic increase in the overall compliance of the 12 lymph node standard among colon cancers, it appears that the earliest stages (0 and I) have

room for improvement. Still the findings are positive and show that the national recognition of the 12 lymph node standard in 2006 appear to have made a real difference in Pennsylvania. Improved compliance of the 12 lymph node standard is believed to improve the accuracy of staging, which should lead to improved survival rates. Ultimately, the staging will help determine the best course of treatment, giving the patient the best chance to be cured of colon can-

cer. Therefore, it is critical for Pennsylvania's medical practitioners to make every effort to examine at least 12 lymph nodes for all colon cancer patients who have undergone colectomy surgery.

For questions regarding the content presented in this article, please contact the Bureau of Health Statistics and Research at 717-783-2548 or [send us an email](#).

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Update: Healthy People 2010 Objectives

Focus Area 16: Maternal, Infant, and Child Health

Objective 16-10a - Decrease percent of infants born at low birth weight...HP2010 Target: 5.0%

All Births and by Race and Hispanic Origin of Mother

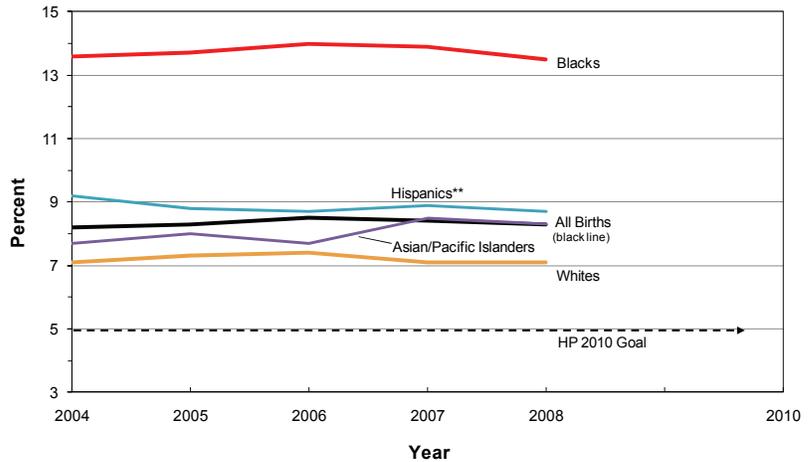
Between 2004 and 2008, the percent of low birth weight infants born to Pennsylvania residents increased slightly from 8.2 in 2004 to a high of 8.5 in 2006, and then dipped down again to 8.3 in 2008. Until 2002, the percentage of low birth weight infants had not been above 8.0 since the late 1960s. In addition to recent medical advances that help smaller babies survive, the higher percentages in recent years may also be related to more women having multiple births – over 26 percent more between 1997 and 2008 (4,243 vs. 5,376). The low birth weight percentages for Blacks, Asians and Hispanics decreased in 2008 compared to 2007, while percentages for White mothers saw no change. The highest annual percentages during the five-year period of 2004-2008, by far, consistently occurred for births to Black mothers. In 2008, the second highest percentage of low birth weight infants was to Hispanic mothers (8.7), followed by Asians/Pacific Islanders (8.3) and Whites (7.1).

Age of Mother

Between 2004 and 2008, the percentage of low birth weight infants stayed relatively the same among mothers under 30, while mothers age 30 and older experienced an increase in 2008. Births to the youngest (under 20) mothers consistently had the highest percentages of low birth weight babies during 2004-2008 and had been increasing. However, in 2007, the percentage decreased and decreased slightly again in 2008.

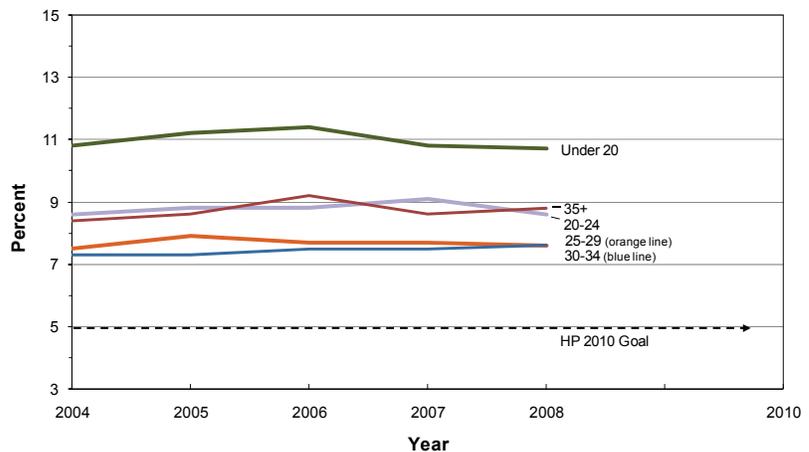
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Chart 1
Percent Low Birth Weight* by Race and Hispanic Origin** of Mother, Pennsylvania Resident Live Births, 2004-2008



*Less than 2500 grams.
**Hispanics can be of any race.

Chart 2
Percent Low Birth Weight* by Age of Mother
Pennsylvania Resident Live Births, 2004-2008



*Less than 2500 grams.

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Update: Healthy People 2010 Objectives

Focus Area 16: Maternal, Infant, and Child Health

Among all of the age groups and race/ethnic groups, it seems the national Healthy People 2010 goal of 5.0 percent is very unlikely to be reached in Pennsylvania.

HP2010 State and County Data on the Web

To access the Department of Health's web page of Healthy People 2010 statistics for the state and counties, go to www.health.state.pa.us/stats. The latest available statistics as well as trend data are shown. You can view data for the state or all counties. Complete data sets for the state and counties can be downloaded. There is also a link to the national HP2010 web site.

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Table 1
Percent Low Birth Weight* by Race/Ethnicity
and Age of Mother, Pennsylvania Resident Live Births, 2004-2008

Low Birth Weight*	2004	2005	2006	2007	2008
Race/Ethnicity					
All Infants	8.2	8.3	8.5	8.4	8.3
White Mother	7.1	7.3	7.4	7.1	7.1
Black Mother	13.6	13.7	14.0	13.9	13.5
Asian/Pacific Islander Mother	7.7	8.0	7.7	8.5	8.3
Hispanic Mother**	9.2	8.8	8.7	8.9	8.7
Age					
Under 20	10.8	11.2	11.4	10.8	10.7
Mother 20-24	8.6	8.8	8.8	9.1	8.6
Mother 25-29	7.5	7.9	7.7	7.7	7.6
Mother 30-34	7.3	7.3	7.5	7.5	7.6
Mother 35+	8.4	8.6	9.2	8.6	8.8

*Less than 2500 grams.

**Hispanics can be of any race.