

Epidemiology

Chapter on Maternal, Infant, and Child Health

Erie County Community Health Needs Assessment, 2012

ERIE COUNTY DEPARTMENT OF HEALTH
Public Health Preparedness Division



Chapter on Maternal, Infant, and Child Health
Erie County Community Health Needs Assessment, 2012

October, 2012

Erie County Department of Health
606 West Second Street
Erie, PA 16507
Tel: 814-451-6700
Fax: 814-451-6767
Website: <http://www.ecdh.org>

Author: Jeff Quirk, Epidemiologist (jqirk@eriecountygov.org)

*“Our mission is to preserve, promote, and protect
the health, safety, and well-being of the people and the environment of Erie County.”*

TABLE OF CONTENTS

Introduction.....	4
Births to Teens.....	9
Low Birth Weight Infants.....	10
Prenatal Care.....	12
Marital Status of Mother.....	12
Cesarean Section Deliveries.....	13
Smoking During Pregnancy.....	13
Infant Mortality.....	14

Maternal, Infant, and Child Health

Introduction

There were 9,891 resident live births reported in Erie County during the period 2008 to 2010, for a corresponding crude birth rate of 11.8 births per 1,000 population (Table 1). A total of 9,544 (96.5%) of these births were single births, 318 (3.2%) were twin births, and 29 (0.3%) were grouped as triplets or more births. With respect to gender, males accounted for a slight majority (51.2%) of babies.

Overall, 7,896 (79.8%) of the 9,891 resident births were to White women, 1,261 (12.8%) births were to Black women, 651 (6.6%) births were to women classified as Other Race, and 83 (0.8%) births were to women categorized as Unknown Race. A total of 508 (5.1%) births were to women of Hispanic origin (of any race).

The crude birth rates for the White, Black, and Hispanic populations were 10.6, 20.9, and 17.8 births per 1,000, respectively. The accompanying rates for Pennsylvania were 9.9, 16.2, and 21.2 births per 1,000, respectively.

Table 1. Resident Live Births and Crude Birth Rates by Race and Hispanic Origin of Mother, 2008-2010

Erie County and Pennsylvania, 2008-2010				
<u>Race or Hispanic Origin</u>	<u>Erie County Births</u>	<u>Rate</u>	<u>Pennsylvania Births</u>	<u>Rate</u>
All Races	9,891 (100.0%)	11.8	436,776 (100.0%)	11.6
White	7,896 (79.8%)	10.6	313,935 (71.9%)	9.9
Black or African American	1,261 (12.7%)	20.9	66,060 (15.1%)	16.2
Other Race	651 (6.6%)	NA	46,016 (10.5%)	NA
Unknown Race	83 (0.8%)	NA	10,765 (2.5%)	NA
Hispanic (of any race)	508 (5.1%)	17.8	41,527 (9.5%)	21.2

Notes: Rates are per 1,000 population for each specified group, 2008-2010; NA = Not available

Erie County and Pennsylvania resident live births and age-specific birth rates for the period 2008-2010 are presented in Table 2. In both Erie County and Pennsylvania, the highest birth rate was observed for women in the 25-29 years age group (113.8 and 111.3 births per 1,000 females aged 25-29 years, respectively).

In Erie County, just over three-quarters (77.3%) of all resident births during 2008-2010 occurred to women aged 20-34 years. Births to teenage mothers (under the age of 20) accounted for 11.3% of all births, compared to 12.6% of births in 1998-2000, and 14.3% of births in 1990-1992.

Table 2. Resident Live Births by Age of Mother, 2008-2010

Erie County and Pennsylvania, 2008-2010				
<u>Age Group</u>	<u>Erie County</u>	<u>Rate</u>	<u>Pennsylvania</u>	<u>PA Rate</u>
All Ages	9,891 (100.0%)	58.0	436,776 (100.0%)	59.0
Under 15	7 (0.1%)	0.3	447 (0.1%)	0.4
15 - 19	1,114 (11.3%)	32.9	38,468 (8.8%)	28.1
15 - 17	347 (3.5%)	18.9	11,693 (2.7%)	15.0
18 - 19	767 (7.8%)	49.5	26,775 (6.1%)	45.6
20 - 24	2,677 (27.1%)	80.3	98,637 (22.6%)	75.1
25 - 29	2,892 (29.2%)	113.8	124,550 (28.5%)	111.3
30 - 34	2,078 (21.0%)	84.2	109,628 (25.1%)	99.2
35 - 39	918 (9.3%)	35.7	52,732 (12.1%)	44.5
40 - 44	187 (1.9%)	6.8	11,290 (2.6%)	8.6
45 and older	15 (0.2%)	0.5	776 (0.2%)	0.5
Unknown age	3 (0.03%)	NA	248 (0.06%)	NA

Notes: Rates are per 1,000 female population for each specified group, 2008-2010; NA = Not available;
The rate for the all ages category is per 1,000 females aged 15-44 years

The total number of live births and crude birth rates for Erie County's 38 municipalities during 2008-2010 are shown in Table 3. The number of births ranged from a low of 3 babies in Elgin Borough to a high of 4,940 babies in the City of Erie. Erie County's three most populous municipalities - the City of Erie, Millcreek Township, and Harborcreek Township - accounted for over two-thirds (68.1%) of all resident live births. Crude birth rates ranged from a low of 4.5 births per 1,000 population in both Edinboro Borough and Elgin Borough, to a high of 17.6 births per 1,000 in Union City Borough.

Table 3. Erie County Municipality Live Births and Crude Birth Rates, 2008-2010

Erie County Municipalities, 2008-2010		
<u>Municipality</u>	<u>Births</u>	<u>Rate</u>
Erie County	9,891 (100.0%)	11.8
Albion Borough	45 (0.5%)	9.9
Amity Township	28 (0.3%)	8.4
Concord Township	48 (0.5%)	11.9
Conneaut Township	70 (0.7%)	5.6
City of Corry	307 (3.1%)	15.9
Cranesville Borough	16 (0.2%)	8.9
Edinboro Borough	88 (0.9%)	4.5
Elgin Borough	3 (0.03%)	4.5
Elk Creek Township	47 (0.5%)	8.8
City of Erie	4,940 (49.9%)	16.0
Fairview Township	226 (2.3%)	7.3
Franklin Township	44 (0.4%)	8.8
Girard Borough	103 (1.0%)	11.5
Girard Township	121 (1.2%)	7.8
Greene Township	110 (1.1%)	7.8
Greenfield Township	58 (0.6%)	9.9
Harborcreek Township	360 (3.6%)	7.1
Lake City Borough	121 (1.2%)	13.7
Lawrence Park Township	144 (1.5%)	12.6
LeBoeuf Township	59 (0.6%)	11.8
McKean Borough	19 (0.2%)	16.8
McKean Township	115 (1.2%)	5.4
Millcreek Township	1,435 (14.5%)	9.1
Mill Village Borough	12 (0.1%)	10.1
North East Borough	168 (1.7%)	13.2
North East Township	195 (2.0%)	10.0
Platea Borough	12 (0.1%)	9.1
Springfield Township	82 (0.8%)	8.3
Summit Township	174 (1.8%)	9.1
Union Township	44 (0.4%)	9.0
Union City Borough	174 (1.8%)	17.6
Venango Township	55 (0.6%)	8.0
Washington Township	104 (1.1%)	7.7
Waterford Borough	69 (0.7%)	15.8
Waterford Township	131 (1.3%)	11.1
Wattsburg Borough	18 (0.2%)	16.4
Wayne Township	43 (0.4%)	8.3
Wesleyville Borough	103 (1.0%)	10.3

Note: Rates are per 1,000 population for each municipality, 2008-2010

The Erie County crude birth rate dropped from 14.9 births per 1,000 population in 1990-1992 to 11.8 births per 1,000 in 2008-2010, a decline of 20.8% (Table 4, Figure 1). For the White and Black populations, the birth rates decreased by 25.9% and 29.6%, respectively. For Pennsylvania, the crude birth rates declined by 17.1% for the total population, 24.6% for Whites, and 29.3% for Blacks from 1990-1992 to 2008-2010.

Table 4. Crude Birth and Fertility Rates by Race, 1990-1992 to 2008-2010

Erie County and Pennsylvania, 1990-1992, 2000-2002, & 2008-2010									
Race	1990-1992			2000-2002			2008-2010		
	Births	Birth Rate	Fertility Rate	Births	Birth Rate	Fertility Rate	Births	Birth Rate	Fertility Rate
Erie County									
All Races	12,440 (100.0%)	14.9	64.6	10,212 (100.0%)	12.2	57.3	9,891 (100.0%)	11.8	58.0
White	11,077 (89.0%)	14.3	61.8	8,923 (87.4%)	11.7	54.8	7,896 (79.8%)	10.6	54.8
Black or African American	1,274 (10.2%)	29.7	116.4	1,090 (10.7%)	21.1	96.6	1,261 (12.7%)	20.9	97.9
Pennsylvania									
All Races	502,781 (100.0%)	14.0	62.5	431,658 (100.0%)	11.7	56.6	436,776 (100.0%)	11.6	59.0
White	416,080 (82.8%)	13.0	58.9	352,471 (81.7%)	11.1	55.3	313,935 (71.9%)	9.9	52.1
Black or African American	76,565 (15.2%)	22.9	92.9	59,699 (13.8%)	16.0	69.3	66,060 (15.1%)	16.2	70.6

Notes: Birth rates are per 1,000 population for each specified group; Fertility rates are per 1,000 females aged 15-44 years for each specified group

The Erie County general fertility rate dropped from 64.6 births per 1,000 females aged 15-44 years in 1990-1992 to 58.0 births per 1,000 in 2008-2010, a decline of 10.2% (Table 4, Figure 2). For White and Black females, the fertility rates decreased by 11.3% and 15.9%, respectively. For Pennsylvania, the fertility rates declined by 5.6% overall, 11.5% for Whites, and 24.0% for Blacks from 1990-1992 to 2008-2010.

Figure 1. Erie County Crude Birth Rates by Race, 1990-1992 to 2008-2010

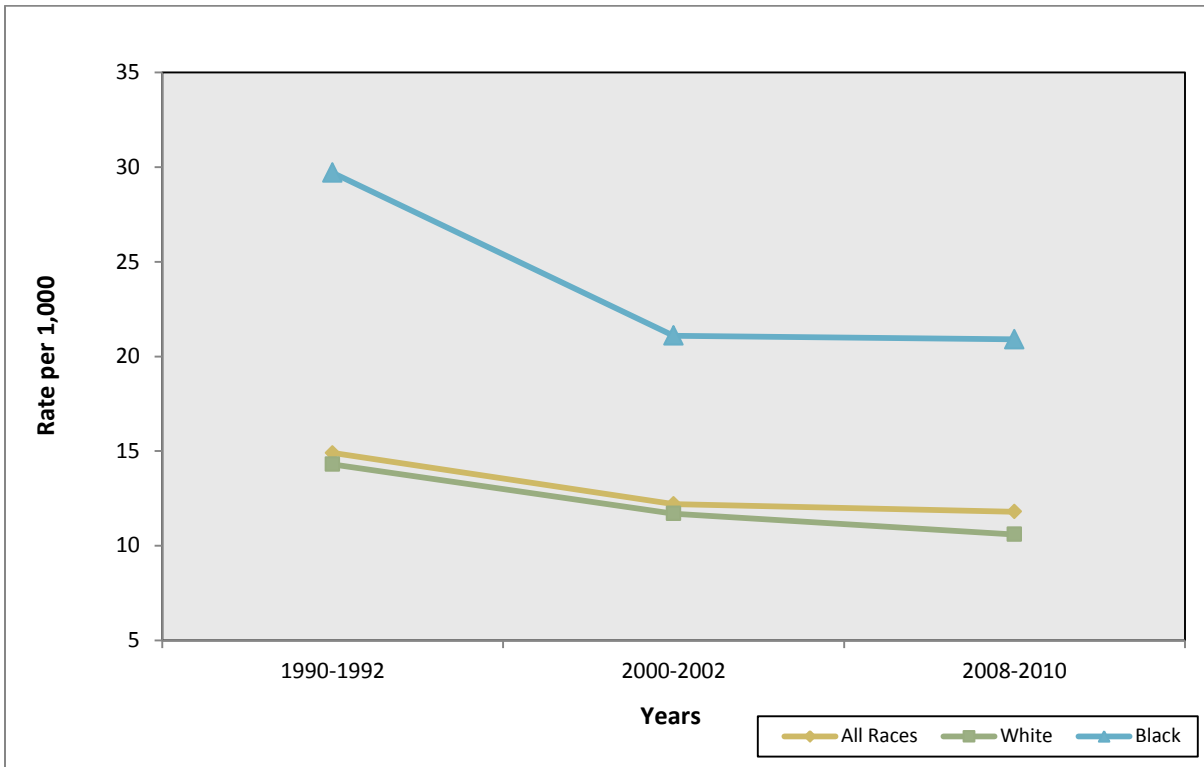
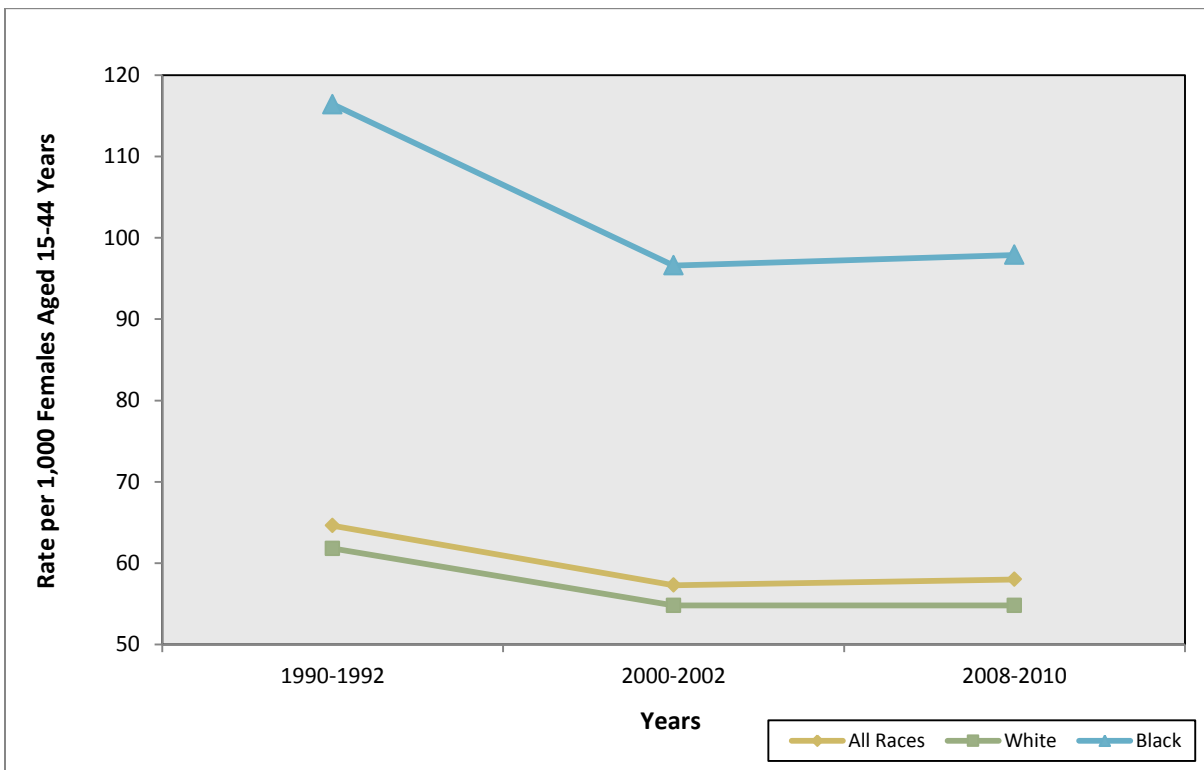


Figure 2. Erie County General Fertility Rates by Race, 1990-1992 to 2008-2010



Births to Teens

From 1990 to 2010, the Erie County birth rate for female residents 15 to 19 years of age fell by one-third (33.3%), from 49.6 to 33.1 births per 1,000 females aged 15-19 years (Table 5, Figure 3). Overall, the birth rates for females 15-17 and 18-19 years dropped by 41.0% and 24.5%, respectively.

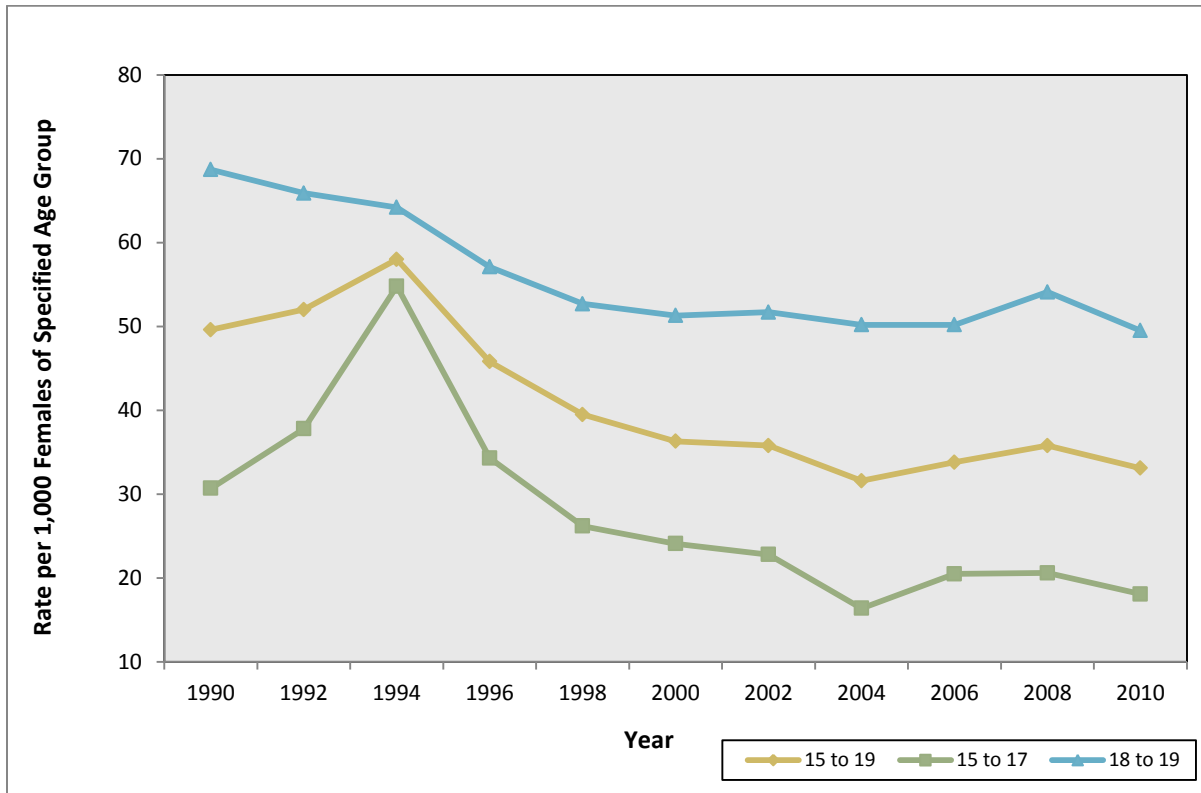
Historically, the fewest three-year total number of births to Erie County female residents 15-19, 15-17, and 18-19 years of age were recorded during the most recent period of 2008-2010. These totals were 1,114, 347, and 767 births, respectively.

Table 5. Teen Live Birth Rates, 1990-2010

Erie County and Pennsylvania, 1990-2010									
Year	Ages 15 to 19			Ages 15 to 17			Ages 18 to 19		
	Number	Birth Rate	PA Rate	Number	Birth Rate	PA Rate	Number	Birth Rate	PA Rate
1990	558	49.6	45.2	173	30.7	28.5	385	68.7	65.6
1992	589	52.0	41.5	213	37.8	27.4	376	65.9	60.0
1994	602	52.4	39.6	231	40.5	26.7	371	64.2	57.2
1996	527	45.8	37.4	196	34.3	24.6	331	57.1	54.8
1998	476	39.5	35.6	157	26.2	22.6	319	52.7	52.2
2000	400	36.3	33.9	146	24.1	19.5	254	51.3	54.0
2002	402	35.8	29.4	141	22.8	16.4	261	51.7	48.1
2004	364	31.6	28.2	104	16.4	15.7	260	50.2	46.1
2006	390	33.8	29.5	130	20.5	16.0	260	50.2	48.7
2008	407	35.8	29.9	129	20.6	16.3	278	54.1	48.1
2010	365	33.1	27.0	105	18.1	14.2	260	49.5	43.7

Note: Rates are per 1,000 females for each specified group

Figure 3. Erie County Teen Live Birth Rates, 1990-2010



Selected summary statistics for Erie County and Pennsylvania resident live births for the period 2008-2010 are included in Table 6. What follows are brief summaries for some of the major topics.

Low Birth Weight Infants

Overall, 8.9% of Erie County live births were classified as low birth weight (less than 2,500 grams or 5 pounds and 9 ounces). The percentage of low birth weight babies born to Black mothers (16.2%) was considerably higher than the percentages for White (7.6%) and Hispanic (9.8%) mothers. The percentage of low birth weight babies in Erie County gradually increased from 7.3% in 1998-2000 to 8.9% in 2008-2010. For Pennsylvania, the percentage rose from 7.8% in 1998-2000 to 8.3% in 2008-2010.

During 2008-2010, 1.8% of Erie County live births were classified as very low birth weight (less than 1,500 grams or 3 pounds and 5 ounces) and 6.8% were classified as high birth weight (greater than 4,000 grams or 8 pounds and 13 ounces). For Pennsylvania, the corresponding percentages were 1.6% and 8.6%, respectively.

Table 6. Selected Summary Statistics for Resident Live Births by Race and Hispanic Origin of Mother, 2008-2010

Erie County and Pennsylvania, 2008-2010												
Subject	All Races			White			Black			Hispanic (Of Any Race)		
	Count	Erie County	PA	Count	Erie County	PA	Count	Erie County	PA	Count	Erie County	PA
Percent Low Birth Weight ($< 2,500$ grams or 5 lbs. 9 ozs.)	880	8.9%	8.3%	599	7.6%	7.1%	204	16.2%	13.5%	50	9.8%	8.8%
Percent No Prenatal Care	98	1.0%	1.6%	47	0.6%	0.9%	44	3.5%	4.7%	5	NA	1.9%
Percent Prenatal Care in 1st Trimester	7,325	74.8%	70.9%	6,155	78.1%	76.2%	747	60.1%	54.6%	331	66.3%	55.6%
Percent < 18 Births	354	3.6%	2.8%	181	2.3%	1.6%	128	10.2%	6.7%	44	8.7%	6.5%
Percent Unmarried	4,867	49.5%	41.0%	3,446	43.9%	31.4%	1,032	82.6%	79.2%	355	70.2%	66.6%
Percent Cesarean Section	3,721	37.6%	31.3%	2,975	37.7%	31.6%	460	36.5%	30.8%	205	40.4%	29.8%
Percent Non-Smoking Mother During Pregnancy	7,162	72.7%	83.5%	5,700	72.4%	81.6%	885	70.7%	85.6%	385	76.1%	89.9%
Percent Breastfeeding	6,290	63.7%	68.5%	5,283	67.1%	70.1%	530	42.1%	57.2%	293	57.8%	68.6%
Percent Medicaid as Source of Payment	3,607	36.6%	32.3%	2,621	33.3%	25.3%	635	50.5%	56.9%	257	50.7%	53.3%
Percent Receiving WIC Food During Pregnancy	4,808	49.2%	39.7%	3,450	44.1%	30.6%	881	70.9%	66.5%	365	72.7%	72.3%
Infant (< 1 year of age) Mortality Rate (deaths per 1,000 live births)	91	9.2	7.3	56	7.1	6.4	32	25.4	15.1	2	NA	7.3
Neonatal (< 28 days old) Mortality Rate (deaths per 1,000 live births)	65	6.6	5.1	39	4.9	4.5	23	18.2	10.3	2	NA	5.2

Note: Unknowns excluded from calculations; NA = Not available

Prenatal Care

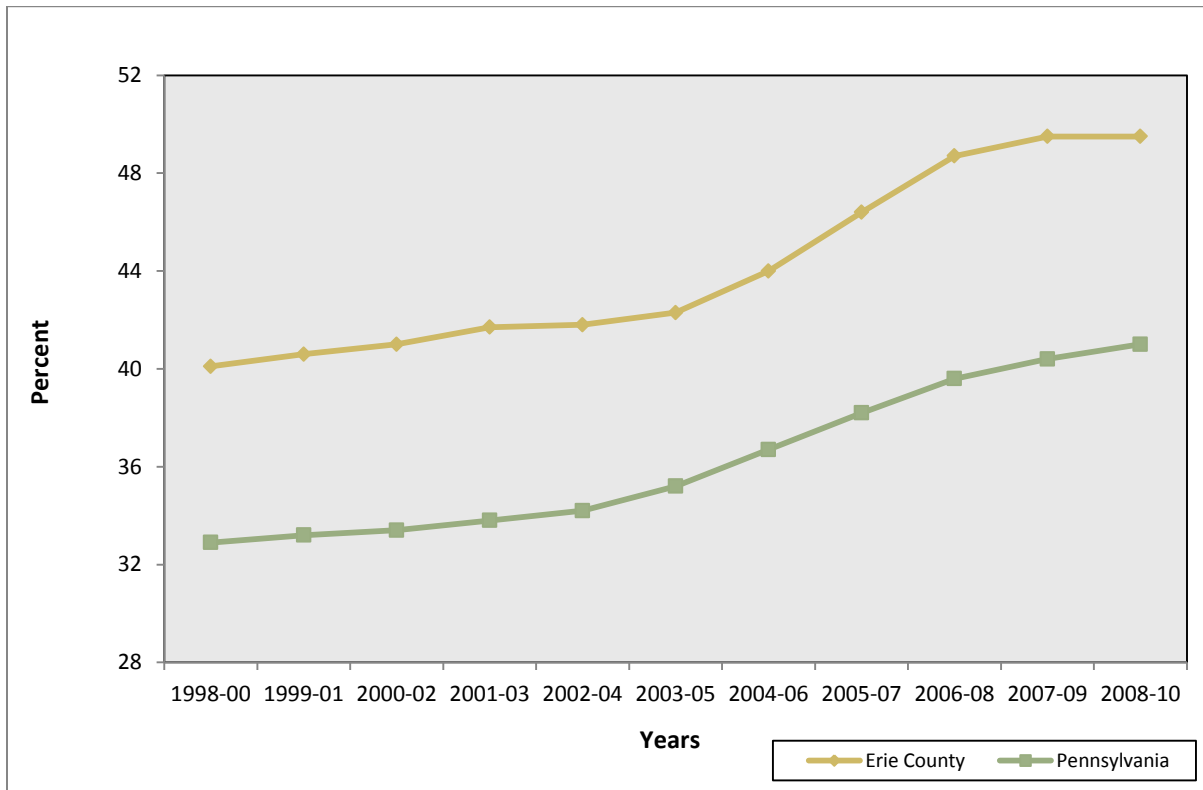
From 2008-2010, 74.8% of Erie County live births were to mothers who had received prenatal care during the first trimester of pregnancy and 1.0% were to mothers who had no prenatal care at all during their pregnancy.

The percentages of Erie County births to White, Black, and Hispanic mothers who had received prenatal care in the first trimester were 78.1%, 60.1%, and 66.3%, respectively. Although the percentage of births to White mothers who had no prenatal care was only 0.6%, the percentage among Black mothers was 3.5%.

Marital Status of Mother

From 2008-2010, nearly half (49.5%) of Erie County live births were to unmarried mothers. The percentages among White, Black, and Hispanic mothers were 43.9%, 82.6%, and 70.2%, respectively. The percentage of unmarried mothers in Erie County rose from 40.1% in 1998-2000 to 49.5% in 2008-2010 (Figure 4). For Pennsylvania, the percentage rose from 32.9% in 1998-2000 to 41.0% in 2008-2010.

Figure 4. Percent of Live Births to Unmarried Mothers, 1998-2000 to 2008-2010

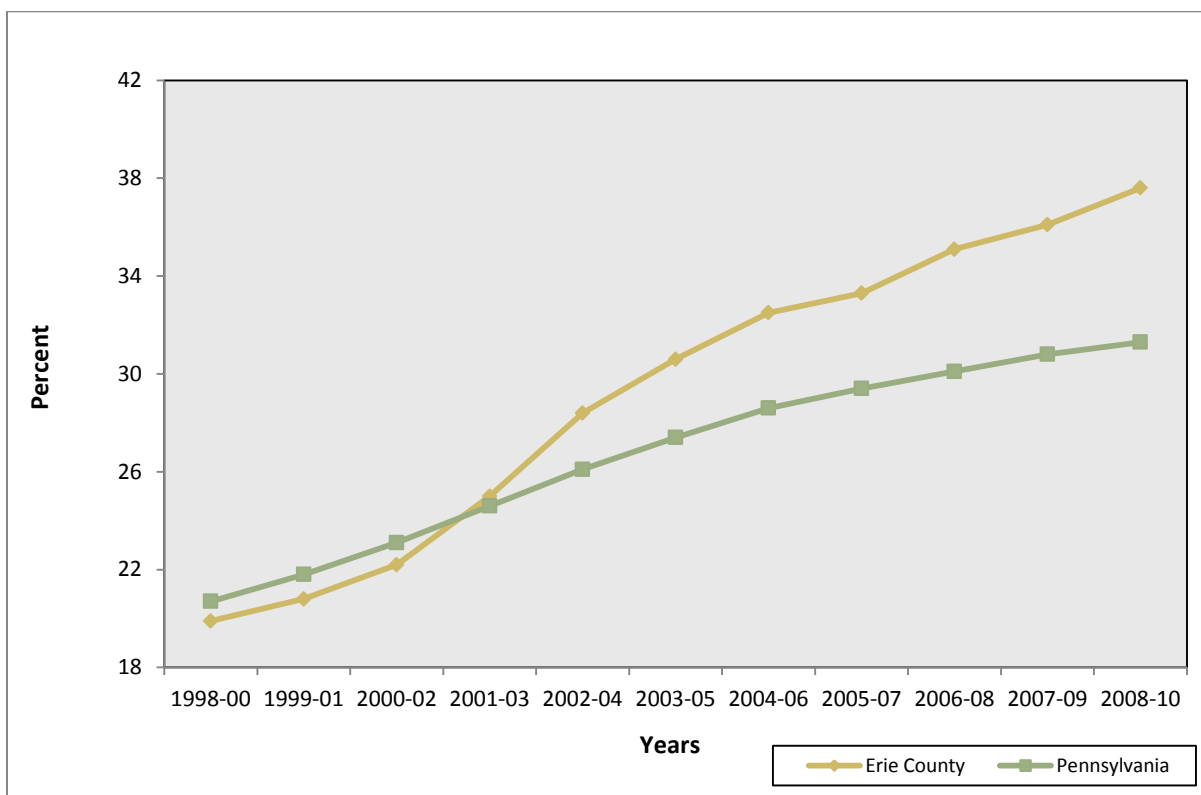


Cesarean Section Deliveries

From 2008-2010, over one-third (37.6%) of Erie County live births were cesarean section deliveries. The percentages of these deliveries among White, Black, and Hispanic mothers were 37.7%, 36.5%, and 40.4%, respectively.

The percentage of cesarean section deliveries in Erie County has nearly doubled from 19.9% in 1998-2000 to 37.6% in 2008-2010 (Figure 5). For Pennsylvania, the percentage rose from 20.7% in 1998-2000 to 31.3% in 2008-2010.

Figure 5. Percent of Live Births Delivered by Cesarean Section, 1998-2000 to 2008-2010



Smoking During Pregnancy

From 2008-2010, 72.7% of Erie County live births were to mothers who did not smoke during pregnancy. The percentages among White, Black, and Hispanic mothers were 72.4%, 70.7%, and 76.1%, respectively. The percentage of non-smoking mothers in Erie County has remained essentially unchanged since 1998-2000, when the percentage equaled 73.0%. For comparison, the percentage of non-smoking mothers in Pennsylvania was 82.8% in 1998-2000 and 83.5% in 2008-2010.

Infant Mortality

Infant mortality is defined as the death of an infant less than one year of age. From 2008-2010, there were a total of 91 resident infant deaths in Erie County, with a corresponding infant mortality rate of 9.2 deaths per 1,000 live births. Although Whites accounted for the majority (61.5%) of infant deaths, the mortality rate among Blacks (25.4 deaths per 1,000 live births) was over three times higher than the rate for Whites (7.1 deaths per 1,000 live births).

Overall, the infant mortality rate in Erie County increased from 7.7 deaths per 1,000 live births in 1998-2000 to 9.2 deaths per 1,000 live births in 2008-2010 (Figure 6). During the same period, the mortality rate in Pennsylvania increased slightly from 7.1 to 7.3 deaths per 1,000 live births.

A total of 65 (71.4%) of the 91 Erie County resident infant deaths during 2008-2010 occurred during the neonatal period (the first 27 days of life), with a corresponding neonatal mortality rate of 6.6 deaths per 1,000 live births. The mortality rates among Whites and Blacks were 4.9 and 18.2 deaths per 1,000 live births, respectively.

Figure 6. Infant Mortality Rates, 1998-2000 to 2008-2010

