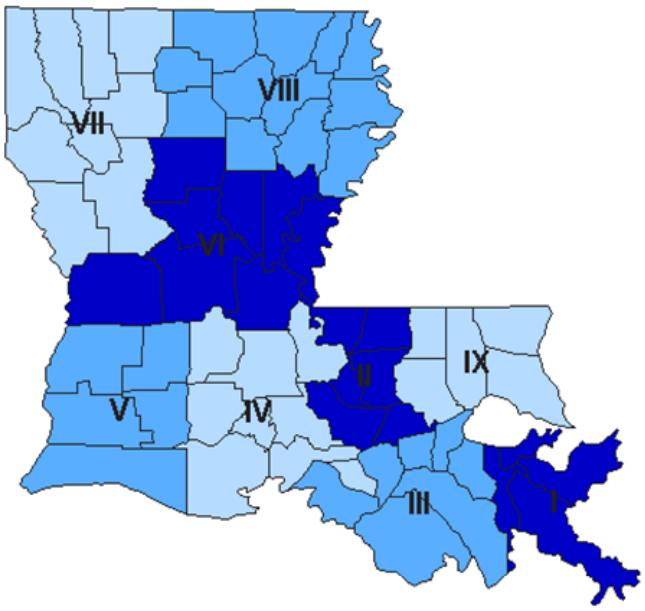
LOUISIANA
Maternal and Child Health Data Book



2001 - 2005

Louisiana Department of Health and Hospitals
Office of Public Health
Maternal and Child Health Program

LOUISIANA MATERNAL AND CHILD HEALTH PROGRAM
Epidemiology, Assessment, and Evaluation Unit

2001 – 2005 MATERNAL AND CHILD HEALTH DATA BOOK

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I. INTRODUCTION

Maternal and Child Health (MCH) issues are emerging on the local, state, and national stages as Louisiana continues to rank among states with the highest rates for indicators such as low birth weight, preterm birth, infant, child and adolescent mortality, and rates of infection from sexually transmitted diseases (STDs). Lowering the rates of these indicators lies in the state's ability to design and implement evidence-based programs and interventions that are culturally competent and supported by the community.

The 2001-2005 MCH data book, a continuation of the 1990-2000 MCH data book published on the Louisiana DHH, Office of Public Health, MCH website in February 2006, is a compilation of what are believed to be the most important and useful indicators related to the health status of Louisiana's mothers and children. Most of the indicators in this data book have been obtained by the descriptive analysis of Louisiana's state vital records data, including birth, death, fetal death and linked birth-death files. Data on infant sleep position, breastfeeding and substance exposure during pregnancy come from the Louisiana Pregnancy Risk Assessment Monitoring System (LaPRAMS), an ongoing, population-based risk factor surveillance system designed to describe selected maternal behaviors and experiences. Data sources for the remainder of the indicators including newborn screening, lead poisoning, children with special health care needs, birth defects, Medicaid paid for delivery, STDs during pregnancy, and perinatal HIV are listed in each respective section. National level MCH indicators are provided to allow for comparison and are obtained from the National Center for Health Statistics, unless otherwise noted. For a demographic description of Louisiana's population, please refer to the U.S. Census Bureau's website at http://www.census.gov/census2000/states/la.html.

Trend analyses with estimates of annual percentage changes are provided for indicators deemed relevant by the MCH group. Because of the far-reaching effects of the 2005 hurricanes, fetal death data is considered under reported; data are not shown in the fetal death and perinatal death sections for 2005. In addition, 2005 LaPRAMS data were not fully collected due to the hurricanes; therefore, LaPRAMS data are not available for 2005. Only state level data are presented in the text. For region and parish-level data, please refer to the "Reports" link on the MCH section website, available at http://www.dhh.louisiana.gov/offices/?ID=267.

Each section provides 1) the definition of each indicator and data sources, 2) if available, the target set by Healthy People 2010 (HP 2010) for that particular indicator and Louisiana's rank among the fifty states and the District of Colombia (D.C.) for that indicator, 3) trend data from 2001 to 2005 for the indicator at the state level by race, 4) the racial disparity between white and black women, 5) and tables and graphs for a visual representation of the data presented. References utilized to supplement information provided in the text are included in the last section of the data book. This format allows interested individuals reviewing the analyses to fully understand the origin and meaning of each indicator. Most indicators are presented in the form of performance measures as required by the Title V Block Grant application, which provides federal funding to Louisiana's MCH program.

Special projects include abstracts or key findings of studies, conducted by the Epidemiology, Assessment, and Evaluation Unit unit and its partners, which were either presented at national conferences or published in the Louisiana Morbidity Report or the Journal of the Louisiana State Medical Society.

It is our hope that this document will provide useful insight into Louisiana's MCH status and allow for easier access to basic MCH information. If further information or in-depth analysis is required, please contact the Epidemiology, Assessment, and Evaluation Unit, MCH Program, Louisiana Office of Public Health, phone (504) 568 - 3504.

II. DATA

A. TEEN BIRTH

A recent study estimated that the annual public cost of teenage childbearing in the United States is around 9.1 billion dollars. Teenage pregnancies are associated with adverse birth outcomes, including preterm birth, very low birth weight (VLBW), low birth weight (LBW), and neonatal mortality. [1] The majority of teen mother-infant dyads are insured by Medicaid. Furthermore, research suggests that younger teen mothers are more at-risk for adverse maternal and birth outcomes than older teen mothers. [2]

- Data sources:

1. DHH Louisiana State Center for Health Statistics, *2001 -2005 birth certificates*
2. Population Estimates Program, Population Division, U.S. Census Bureau, *County Population Estimates by Age, Sex, Race and Hispanic Origin: April 1, 2000 to July 1, 2006.*

A.1. Births to women aged 15-19 years

The teen birth rate among women aged 15-19 years refers to the number of live births to women aged less than or equal to 19 years, per 1,000 female population aged 15-19 years.

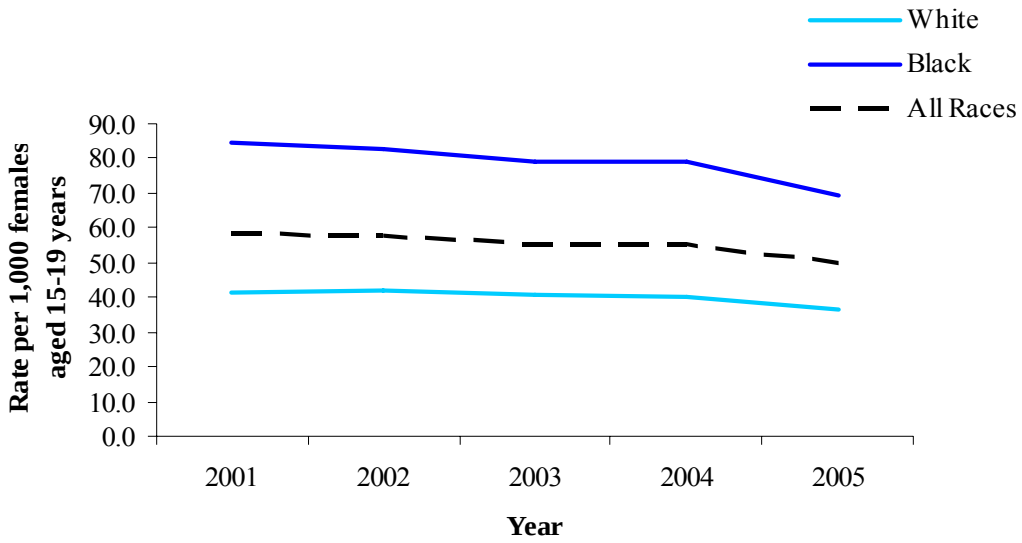
In 2005, Louisiana ranked 38th among the 50 states for teen birth rate among women aged 15-19 years. [3]

From 2001 to 2005 the rate decreased by 3.0% annually for white teens, and by 4.7% for black teens, accounting for a 3.8% annual decrease for all races. The ratio of black to white teen birth rates among females aged 15-19 years remained steady at around 2.0 for the years from 2001 to 2005 (Table 1, Figure 1).

Table 1: Birth rates among women aged 15-19 years by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*	*U.S.2005*
White	41.4	41.7	40.5	39.9	36.5	
Black	84.4	82.6	79.1	79.3	69.1	
All Races	58.1	57.9	55.6	55.6	49.6	40.5

Figure 1: Trend of birth rates among women aged 15-19 years by race, Louisiana 2001-05



A.2. Births to women aged 15-17 years

The teen birth rate among women aged 15-17 years refers to the number of live births to women aged less than or equal to 17 years, per 1,000 female population aged 15-17 years.

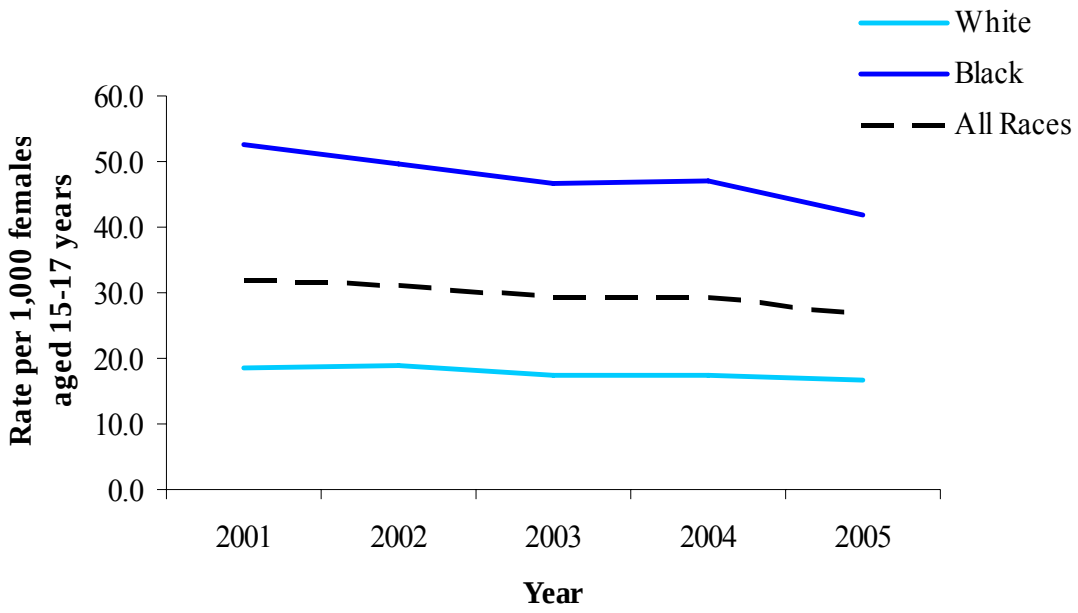
In 2005, Louisiana ranked 38th among the 50 states for teen birth rate among women aged 15-17 years. [3]

From 2001 to 2005, the rate decreased annually by 2.9% for white and 5.6% for black women, contributing to an annual decrease of 4.3% for all races. The ratio of black to white teen birth rates among females aged 15-17 years ranged between 2.5 and 2.8 during 2001 – 2005 (Table 2, Figure 2).

Table 2: Birth rates among women aged 15-17 years by race, Louisiana 2001-2004

Race	*2001*	*2002*	*2003*	*2004*	*2005*	*U.S. 2005*
White	18.7	18.9	17.5	17.3	16.6	
Black	52.6	49.8	46.8	46.9	41.7	
All Races	32.0	31.2	29.2	29.2	26.8	21.4

Figure 2: Trend of birth rates among women aged 15-17 years by race, Louisiana 2001-2005



A.3. Births to women aged 18-19 years

The teen birth rate among women aged 18-19 years refers to the number of live births to women aged 18-19 years, per 1,000 female population aged 18-19 years.

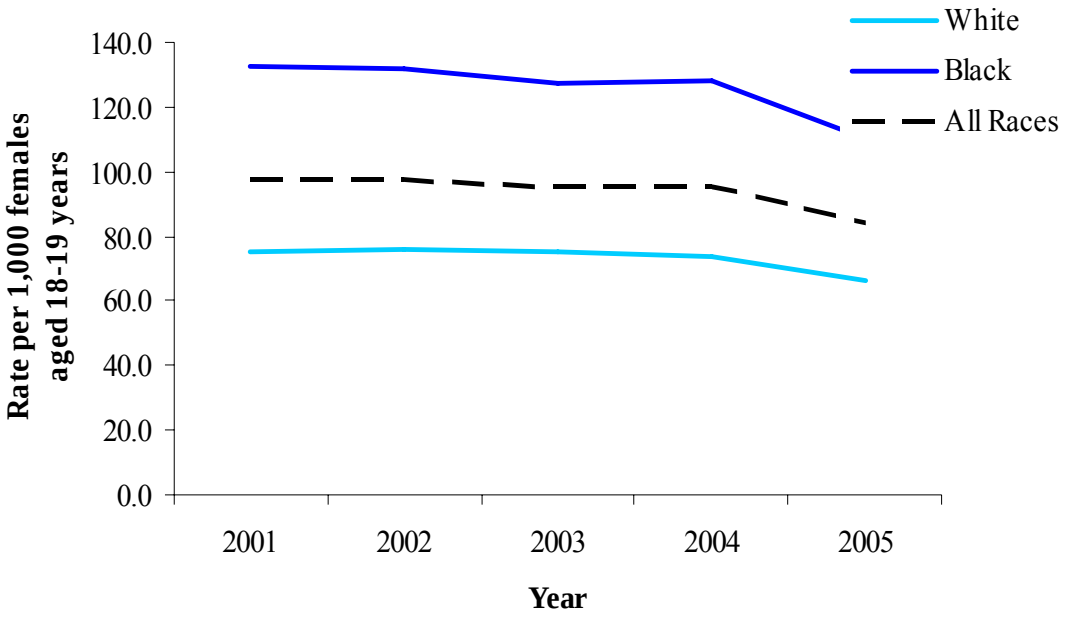
In 2005, Louisiana ranked 37th among the 50 states for teen birth rate among women aged 18-19 years. [3]

From 2001 to 2005 birth rates among mothers aged 18-19 years annually decreased by 3.5%, 3.1%, and 4.3% to all race, white, and black mothers, respectively. The ratio of black to white teen birth rates among females aged 18-19 years remained steady from 2001-2005 at around 1.7 (Table 3, Figure 3).

Table 3: Birth rates among women aged 18-19 years by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*	*U.S. 2005*
White	75.4	76.0	74.9	73.8	66.3	
Black	132.2	131.9	127.5	128.0	110.2	
All Races	97.3	97.9	95.1	95.2	83.9	69.9

Figure 3: Trend of birth rates among women aged 18-19 years by race, Louisiana 2001-2005



B. FETAL, INFANT, CHILD AND ADOLESCENT MORTALITY

B.1. Fetal Mortality

In Louisiana, the fetal mortality rate is defined as the number of fetal deaths with gestational aged (GA) ≥ 20 weeks or birth weight ≥ 350 grams during a given year, per 1,000 live births plus fetal deaths in the same year. This definition is different from the definition used in the HP 2010 objective, which measures the fetal mortality rate based on fetal deaths with GA ≥ 20 weeks.
- Data sources: DHH Louisiana State Center for Health Statistics, *2001-2004 fetal death and birth certificates.* Because of fetal death underreporting in 2005 as a result of the 2005 hurricanes, the 2005 fetal mortality rate is not reported in this data book.

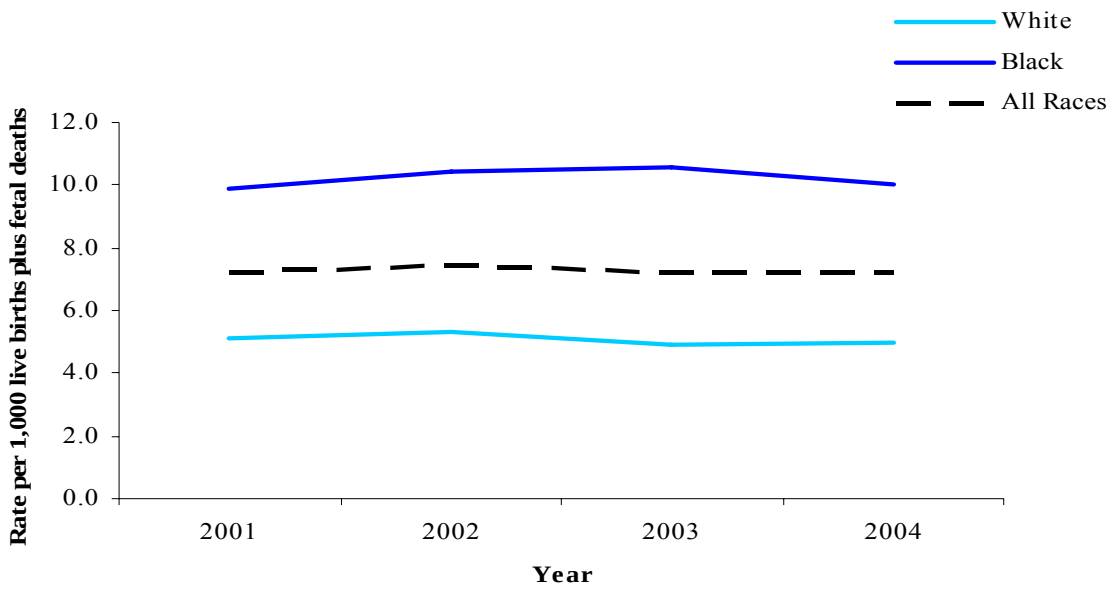
HP 2010 Target: (16-1a) **4.1** fetal mortality rate at 20 or more weeks of gestation per 1,000 live births plus fetal deaths.
In 2004, Louisiana ranked 40th out of 50 states and Washington DC, with the twelfth-highest fetal mortality rate, using the definition of the HP 2010 objective for fetal morality. [4]

White fetal mortality rates, using the Louisiana definition, slightly decreased by 0.5% per year from 2001 to 2004, while the rate slightly increased by 0.4% per year for blacks in the same time period. The annual percentage change was nil for all races. Black to white fetal mortality ratios ranged between 1.9 and 2.2 for the years 2001 – 2004 (Table 4, Figure 4).

Table 4: Fetal mortality rates by race, Louisiana 2001-2004

Race	*2001*	*2002*	*2003*	*2004*	*U.S 2004*
White	5.1	5.3	4.9	5.0	
Black	9.9	10.4	10.6	10.0	
All Races	7.2	7.4	7.2	7.2	6.2

Figure 4: Trend of fetal mortality rates for fetal deaths with GA ≥ 20 weeks or birth weight ≥ 350 grams by race, Louisiana 2001-2004



B.2. Perinatal Mortality

The Perinatal mortality rate is defined as the number of fetal deaths with GA ≥ 28 weeks plus deaths of infants under 7 days of age per 1,000 live births plus fetal deaths.

Data sources: DHH Louisiana State Center for Health Statistics, *2001-2004 fetal death, infant death, and birth certificates.* Because of fetal death underreporting in 2005 as a result of the 2005 hurricanes, the 2005 perinatal mortality rate is not reported in this data book.

HP 2010 Target: (16-1b): **4.5** fetal and infant deaths during the perinatal period per 1,000 live births and fetal deaths.

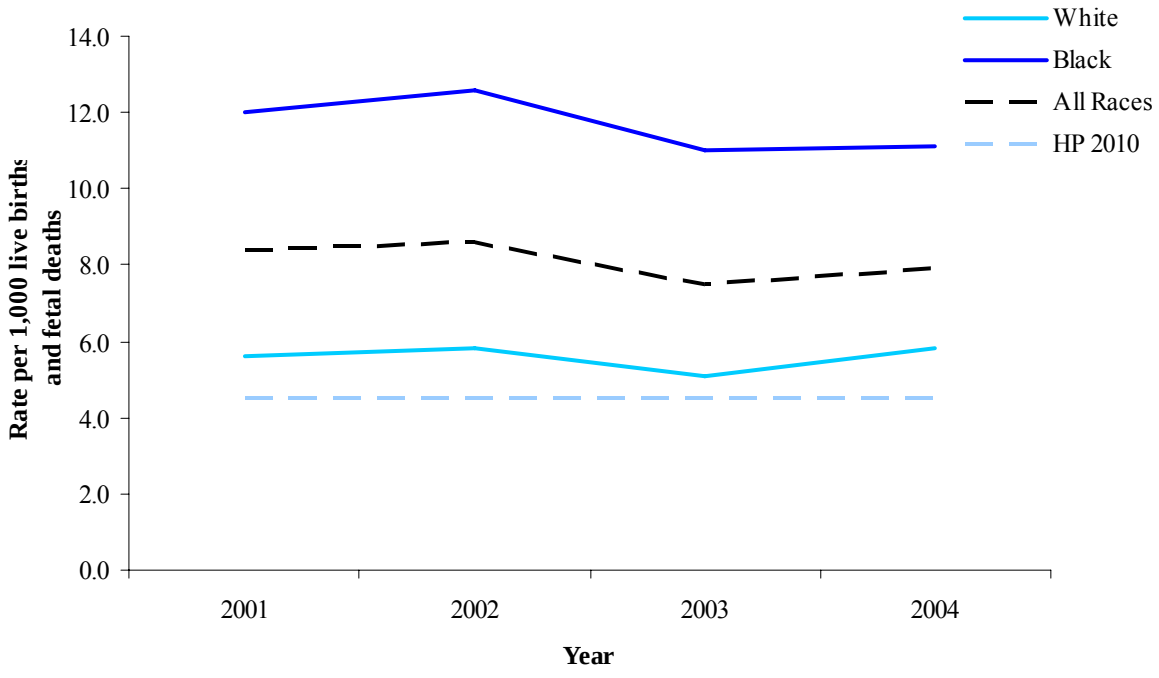
In 2004, Louisiana ranked 42nd out of 50 states and Washington DC with the tenth-highest perinatal mortality rate. [4]

From 2001 to 2004, the perinatal mortality rate increased by 1.7% annually for whites and decreased by 2.3% annually for blacks, contributing to a 1.7% annual decrease for all races. For the years 2001 - 2004, the black to white ratio of perinatal mortality rates ranged between 1.9 and 2.2 (Table 5, Figure 5).

Table 5: Perinatal mortality rates by race, Louisiana 2001-2004

Race	*2001*	*2002*	*2003*	*2004*	*U.S. 2004*
White	5.6	5.8	5.1	5.8	
Black	12.0	12.6	11.0	11.1	
All Races	8.4	8.6	7.5	7.9	6.69

Figure 5: Trend of perinatal mortality rates by race, Louisiana 2001-2004



B.3. Infant Mortality

The infant mortality rate (IMR) measures the rate of deaths of infants less than one year of age. This measure is frequently used for health status comparisons, because it is representative of social behaviors as well as medical risk factors. Louisiana State Center for Health Statistics *2001-2005 death and birth certificates* were data sources for infant mortality, including neonatal and post-neonatal mortality, and Sudden Infant Death Syndrome (SIDS).

IMR is defined as the number of deaths of children less than 1 year of age in a given year per 1,000 live births in the same year.

HP 2010 Target: (16-1c) **4.5** infant deaths per 1,000 live births.

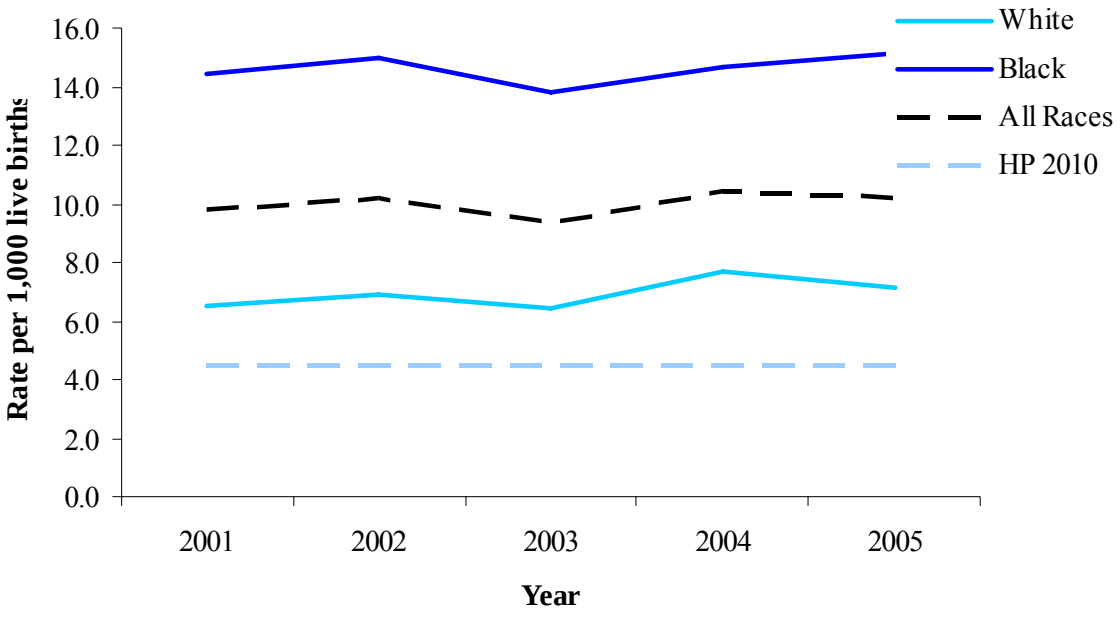
Louisiana ranked 49th out of 50 states and Washington DC with the third-highest infant mortality rate in the U.S. in 2005. [5]

From 2001 to 2005, the white infant mortality rate increased by 2.9%, while the black infant mortality rate increased by 1.4% annually, contributing to a 1.3% annual increase for all races. For years 2001-2005, the ratio of black to white infant mortality rates ranged between 1.9 and 2.2 (Table 6, Figure 6).

Table 6: Infant mortality rates by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*	*U.S.2005*
White	6.5	6.9	6.4	7.7	7.1	
Black	14.4	15.0	13.8	14.7	15.1	
All Races	9.8	10.2	9.3	10.4	10.2	6.87

Figure 6: Trend of infant mortality rates by race, Louisiana 2001-2005



Causes of infant deaths

The three leading causes of infant mortality from 2001 to 2005 were (1) conditions originating in the perinatal period (47.5%), (2) congenital malformations, deformations and chromosomal abnormalities (18.6%), and (3) Sudden Infant Death Syndrome (SIDS) (10.7%) (Table 7). Of conditions originating in the perinatal period, the three leading causes of death were (1) disorders related to the length of gestational age and fetal nutrition (39.7%), (2) conditions affected by maternal factors and complications of pregnancy, labor and delivery (18.6%), and (3) respiratory conditions originating in the perinatal period, including respiratory distress of the newborn (19.0%) (Table 8). Of congenital malformations, deformations and chromosomal abnormalities, congenital malformations of circulatory system (32.4%) were the most common causes of death (Table 9). The most common external cause of mortality was accidental strangulation and suffocation (50%) (Table 10).

Table 7: Causes of infant deaths, Louisiana 2001-2005

Causes of deaths	***Percent***
Conditions originating in the perinatal period	47.5
Congenital malformations, deformations, and chromosomal abnormalities	18.6
Sudden infant death syndrome	10.7
External causes of mortality	5.9
Disease of the respiratory system	2.7
Disease of the circulatory system	2.3
Infectious and parasitic diseases	2.3
Disease of the digestive system	1.8
Diseases of nervous system	1.2
Disease of the genitourinary system	1.0
Endocrine, nutritional and metabolic diseases	0.7
Neoplasm	0.3
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	0.2
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	4.6
All other diseases	0.2
Total	100.0

Table 8: Causes of infant deaths from conditions originating in the perinatal period, Louisiana 2001-2005

Conditions originating in the perinatal period	***Percent***
Disorders related to length of gestational age and fetal malnutrition	39.7
Conditions affected by maternal factors and by complications of pregnancy, labor and delivery	19.7
Respiratory conditions originating in the perinatal period	19.0
Infections specific to the perinatal period	5.8
Hemorrhage and hematological disorders of newborn	3.4
Intrauterine hypoxia and birth asphyxia	3.2
Necrotizing enterocolitis of newborn	3.0
Birth trauma	1.1
Hydrops fetalis not due to hemolytic disease	0.4
Syndrome of infant of a diabetes mother and neonatal diabetes mellitus	0.1
Other perinatal conditions	4.7
Total	100.0

Table 9: Causes of infant death relating to congenital malformations, deformations, and chromosomal abnormalities, Louisiana 2001-2005

Congenital malformations, deformations, and chromosomal abnormalities	*Percent*
Congenital malformations of circulatory system	32.4
Congenital malformations of respiratory system	9.9
Congenital malformations and deformations of musculoskeletal system, limbs and integument	7.6
Congenital malformations of genitourinary system	7.1
Congenital malformations of nervous system	
- Anencephaly and similar malformations	5.9
- Congenital hydrocephalus	1.3
- Other congenital malformations of nervous system	4.4
Chromosomal abnormalities	
- Edward syndrome	7.1
- Patau syndrome	4.9
- Down syndrome	1.9
- Other not elsewhere classified	2.4
Congenital malformations of digestive system	2.0
Other congenital malformations and deformations	13.3
Total	100.0

Table 10: External causes of infant deaths, Louisiana 2001-2005

External causes of deaths	*Percent*
Accidental suffocation and strangulation	
- Accidental suffocation and strangulation in bed	33.0
- Other accidental suffocation and strangulation	17.0
Assault (homicide)	
- Assault by hanging, strangulation and suffocation	2.1
- Assault by discharge of firearm	1.1
- Assault by other and unspecified means	8.5
Motor vehicle accidents	6.9
Neglect, abandonment and other maltreatment syndromes	6.9
Accidental inhalation and ingestion of food or other objects causing obstruction of respiratory tract	5.9
Accidents caused by exposure to smoke, fire and flames	3.2
Accidental poisoning and exposure to noxious substances	3.2
Accidental drowning and submersion	2.1
Complication of medical and surgical care	2.1
Falls	0.5
Other and unspecified accidents	3.2
Other external causes	4.3
Total	100.0

B.4. Neonatal Mortality

The Neonatal mortality rate measures the number of deaths of children up to 28 days of age per 1,000 live births.

HP 2010 Target: (16-1d) **2.9** neonatal deaths (within the first 28 days of life) per 1,000 live births.

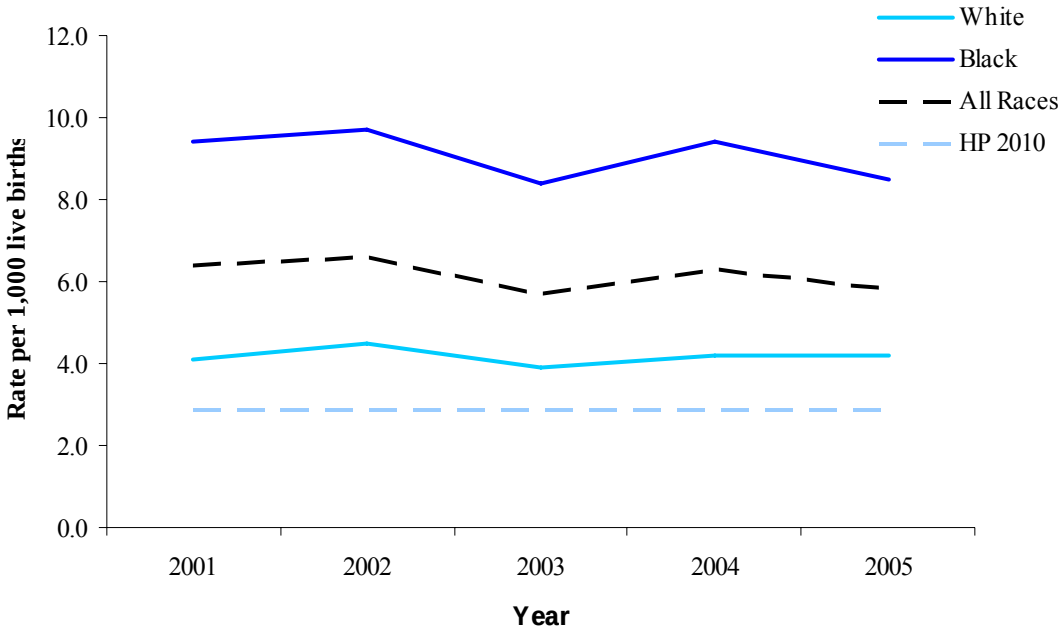
Louisiana ranked 46th out of 50 states and Washington DC with the sixth-highest neonatal mortality rate in the U.S. in 2005. [5]

From 2001 to 2005, the neonatal mortality rate showed a 1.0% annual increase for white and nearly a 2.0% annual decrease for black infants. The annual percentage change for all races was a 2.0% decrease. For the years 2001 to 2005, the ratio of black to white neonatal mortality rates decreased from 2.3 in 2001 to 2.0 in 2005 (Table 11, Figure 7).

Table 11: Neonatal mortality rates by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*	*U.S.2005*
White	4.1	4.5	3.9	4.2	4.2	
Black	9.4	9.7	8.4	9.4	8.5	
All Races	6.4	6.6	5.7	6.3	5.8	4.54

Figure 7: Trend of neonatal mortality rates by race, Louisiana 2001-2005



Causes of neonatal deaths

The two leading causes of neonatal mortality from 2001 to 2005 were (1) conditions originating in the perinatal period (70.9%) and (2) congenital malformations, deformations and chromosomal abnormalities (20.3%) (Table 12). Of conditions originating in the perinatal period, the three leading causes of death were (1) disorders related to the length of gestational age and fetal nutrition (41.5%), (2) conditions affected by maternal factors and complications of pregnancy, labor and delivery (20.5%), and (3) respiratory conditions originating in the perinatal period, including respiratory distress of the newborn (16.4%) (Table 13). Of congenital malformations, deformations and chromosomal abnormalities, the most common causes of death were congenital malformations of the heart (19.8%) (Table 14).

Table 12: Causes of neonatal deaths, Louisiana 2001-2005

Causes of deaths	Percent
Conditions originating in the perinatal period	70.9
Congenital malformations, deformations, and chromosomal abnormalities	20.3
Disease of the circulatory system	1.2
Sudden infant death syndrome	1.1
External causes of mortality	1.1
Disease of the genitourinary system	0.8
Disease of the digestive system	0.7
Infectious and parasitic diseases	0.5
Endocrine, nutritional and metabolic diseases	0.4
Disease of the respiratory system	0.3
Neoplasm	0.3
Diseases of nervous system	0.2
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	2.3
All other diseases	0.2
Total	100.0

Table 13: Causes of neonatal deaths from conditions originating in the perinatal period, Louisiana 2001-2005

Conditions originating in the perinatal period	Percent
Disorders related to length of gestational age and fetal malnutrition	41.5
Newborn affected by maternal factors and by complications of pregnancy, labor and delivery	20.5
Respiratory conditions originating in the perinatal period, including respiratory distress of newborn	16.4
Infections specific to the perinatal period	5.6
Hemorrhage and hematological disorders of newborn	3.6
Intrauterine hypoxia and birth asphyxia	3.2
Necrotizing enterocolitis of newborn	2.7
Birth trauma	1.1
Hydrops fetalis not due to hemolytic disease	0.4
Syndrome of infant of a diabetes mother and neonatal diabetes mellitus	0.1
Other perinatal conditions	4.7
Total	100.0

Table 14: Causes of neonatal deaths relating to congenital malformations, deformations, and chromosomal abnormalities, Louisiana 2001-2005

Congenital malformations, deformations, and chromosomal abnormalities	Percent
Congenital malformations of circulatory system	
- Congenital malformations of heart	19.8
- Other congenital malformations of circulatory system	5.3
Congenital malformations of respiratory system	11.3
Congenital malformations of genitourinary system	10.3
Congenital malformations of nervous system	
- Anencephaly and similar malformations	8.5
- Congenital hydrocephalus	1.0
- Other congenital malformations of nervous system	2.8
Chromosomal abnormalities not elsewhere classified	
- Edward syndrome	8.3
- Patau syndrome	6.0
- Down syndrome	1.8
- Other chromosomal abnormalities not elsewhere classified	2.5
Congenital malformations and deformations of musculoskeletal system, limbs and integument	7.5
Congenital malformations of digestive system	0.8
Other congenital malformations and deformations	14.5
Total	100.0

B.5. Post-neonatal Mortality

The Post-neonatal mortality rate is defined as the number of deaths of children that occur 28 to 365 days after birth per 1,000 live births.

HP 2010 Target: (16-1e) **1.5** post-neonatal deaths (between 28 days and 1 year) per 1,000 live births.

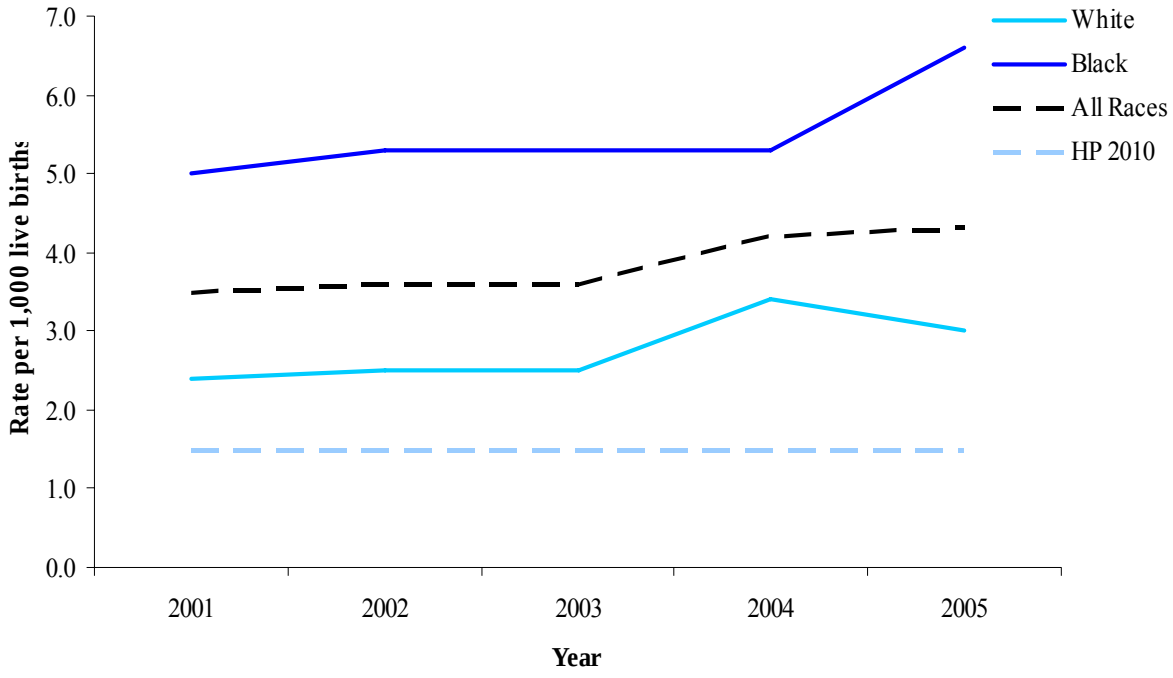
Louisiana ranked 50th out of 50 states and Washington DC with the second-highest post-neonatal mortality rate in the U.S. in 2005. [5]

From 2001 to 2005, the post-neonatal mortality rate increased by 7.1% annually for white and 7.6% annually for black infants. The annual percentage increase for all races was 5.5%. For each year from 2001 to 2003, the ratio of post-neonatal mortality remained steady at 2.1 black deaths for every white death. In 2004, the black to white ratio decreased to 1.6, but the ratio increased to 2.2 in 2005 (Table 15, Figure 8).

Table 15: Post-neonatal mortality by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*	*U.S.2005*
White	2.4	2.5	2.5	3.4	3.0	
Black	5.0	5.3	5.3	5.3	6.6	
All Races	3.5	3.6	3.6	4.2	4.3	2.33

Figure 8: Trend of post-neonatal mortality rates by race, Louisiana 2001-2005



Causes of post-neonatal deaths

From 2001 to 2005 the most common causes of post-neonatal deaths was Sudden Infant Death Syndrome (SIDS) (26.2%), followed by congenital malformations, deformations and chromosomal abnormalities (15.8%), and external causes of deaths (13.6%) (Table 16). Congenital malformations of the heart (42.8%) were the most common among deaths caused by congenital malformations, deformations and chromosomal abnormalities (Table 17). The most common external causes of mortality were accidental strangulation and suffocation (49.1%) (Table 18).

Table 16: Causes of post-neonatal deaths, Louisiana 2001-2005

Causes of deaths	Percent
Sudden infant death syndrome	26.2
Congenital malformations, deformations, and chromosomal abnormalities	15.8
External causes of mortality	13.6
Conditions originating in the perinatal period	9.7
Disease of the respiratory system	6.5
Infectious and parasitic diseases	5.2
Disease of the circulatory system	4.2
Disease of the digestive system	3.8
Diseases of nervous system	2.9
Disease of the genitourinary system	1.3
Endocrine, nutritional and metabolic diseases	1.1
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	0.6
Neoplasm	0.5
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	8.3
All other diseases	0.3
Total	100.0

Table 17: Causes of post-neonatal deaths relating to congenital malformations, deformations, and chromosomal abnormalities, Louisiana 2001-2005

Congenital malformations, deformations, and chromosomal abnormalities	Percent
Congenital malformations of circulatory system	
- Congenital malformations of heart	42.8
- Other congenital malformations of circulatory system	4.6
Congenital malformations of nervous system	
- Congenital hydrocephalus	2.1
- Anencephaly and similar malformations	0.5
- Other congenital malformations of nervous system	7.7
Congenital malformations and deformations of musculoskeletal system, limbs and integument	7.7
Congenital malformations of respiratory system	7.2
Congenital malformations of digestive system	4.6
Chromosomal abnormalities	
- Edward syndrome	4.6
- Patau syndrome	2.6
- Down syndrome	2.1
- Other chromosomal abnormalities not elsewhere classified	2.1
Congenital malformations of genitourinary system	0.5
Other congenital malformations and deformations	10.8
Total	100.0

Table 18: External causes of post-neonatal deaths, Louisiana 2001-2005

External causes of deaths	Percent
Accidental suffocation and strangulation	
- Accidental suffocation and strangulation in bed	31.1
- Other accidental suffocation and strangulation	18.0
Assault (homicide)	
- Assault by discharge of firearm	1.2
- Assault by hanging, strangulation and suffocation	0.6
- Assault by other and unspecified means	8.4
Motor vehicle accidents	7.8
Neglect, abandonment and other maltreatment syndromes	7.2
Accidental inhalation and ingestion of food or other objects causing obstruction of respiratory tract	6.6
Accidents caused by exposure to smoke, fire and flames	3.6
Accidental poisoning and exposure to noxious substances	3.0
Accidental drowning and submersion	2.4
Complication of medical and surgical care	1.8
Falls	0.6
Other and unspecified accidents	3.6
Other external causes	4.2
Total	100.0

B.6. Sudden Infant Death Syndrome (SIDS)

A death due to SIDS is defined as a sudden, unexplained death of an infant from an unknown cause. The mortality rate of deaths due to SIDS is defined as the number of infant deaths due to SIDS per 1,000 live births.

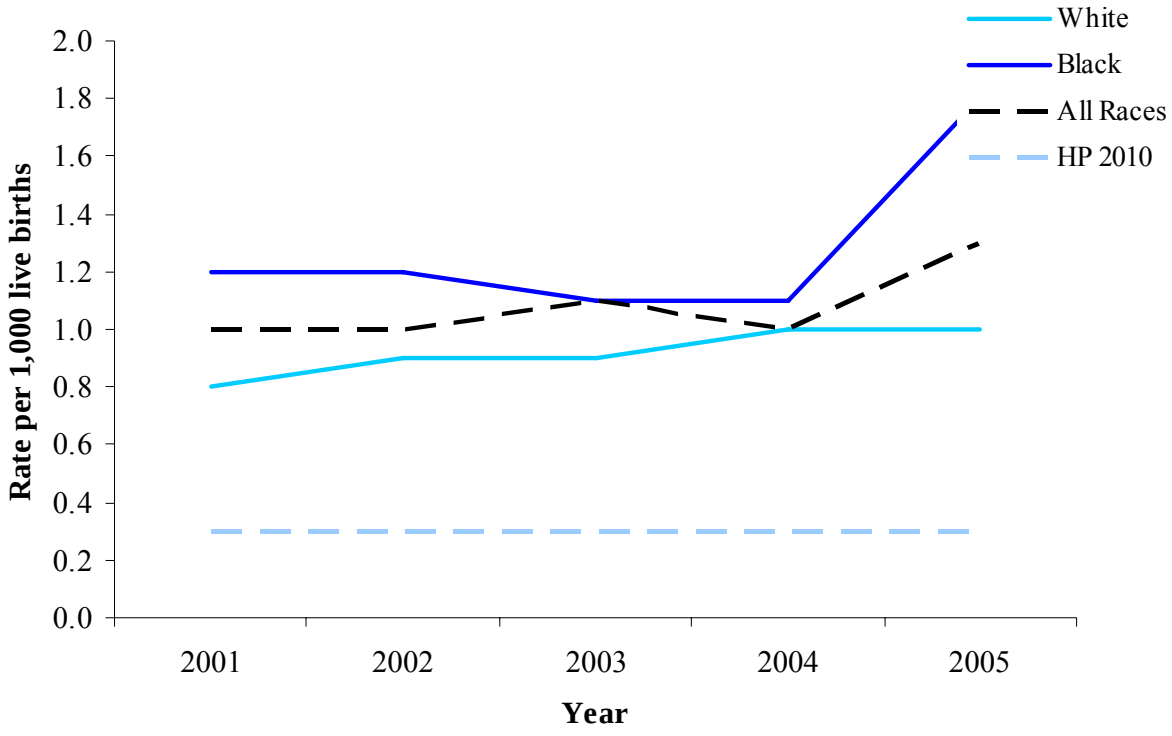
HP 2010 Target: (16-1h) **0.3** deaths from SIDS per 1,000 live births.

From 2001 to 2005, mortality rates of deaths due to SIDS increased by 7.7% annually for all races, 5.9% for white, and 13.8% for black infants. For the years from 2001 to 2005, the ratio of black to white mortality rates of deaths due to SIDS were 1.5, 1.3, 1.2, 1.1, and 1.8, respectively (Table 19, Figure 9).

Table 19: Rates of infant deaths due to SIDS by race, 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*
White	0.8	0.9	0.9	1.0	1.0
Black	1.2	1.2	1.1	1.1	1.8
All Races	1.0	1.0	1.1	1.0	1.3

Figure 9: Rates of infant deaths due to SIDS by race, Louisiana 2001-2005



B.7. Mortality of Children Aged 1 to 4 Years

The mortality rate of children aged 1-4 years is defined as the deaths of children aged 1-4 years per 100,000 population aged 1-4 years.

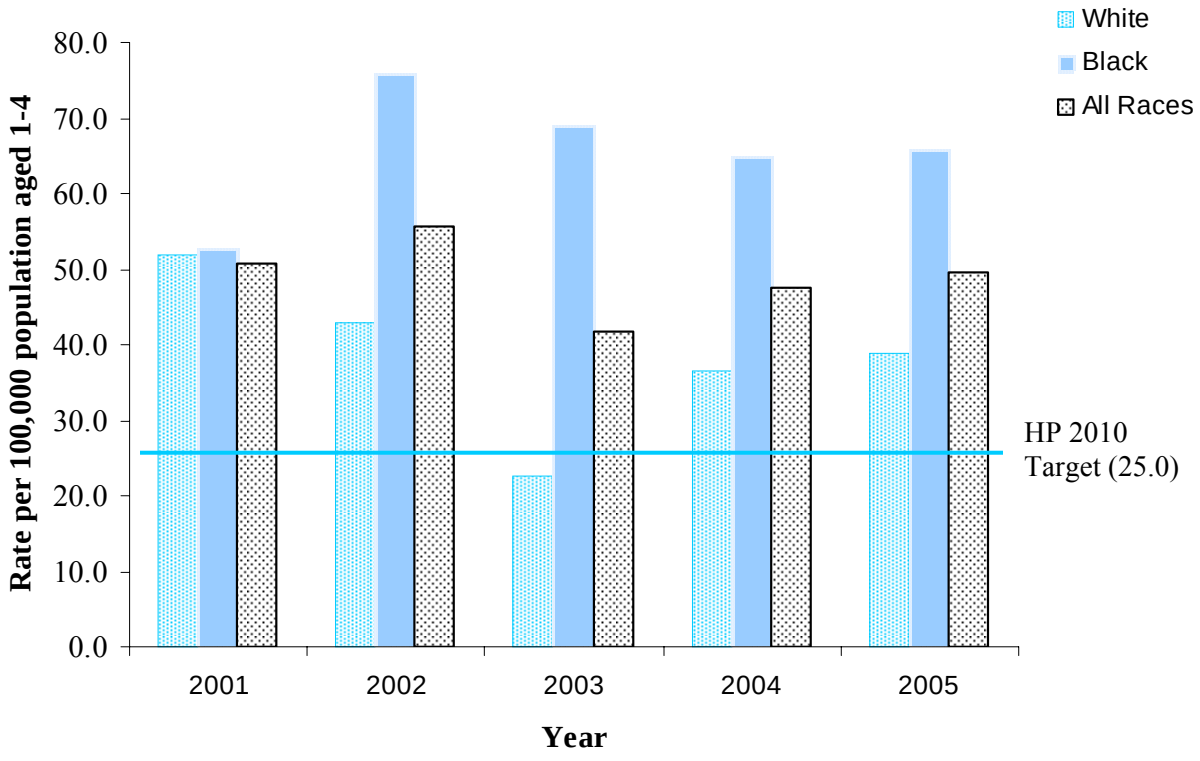
HP 2010 Target: (16-2a) **25.0** deaths of children aged 1 to 4 years per 100,000 population aged 1-4 years.

From 2001 to 2005, deaths to children aged 1-4 years increased by 1.1% annually for white and 7.6% annually for black children. The annual percentage increase for all races was 0.7%. The ratio of black to white deaths for each year from 2001 to 2005 markedly changed and ranged between 1.0 and 3.1 (Table 20, Figure 10).

Table 20: Mortality rates among children aged 1 - 4 years by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*
White	51.8	42.9	22.5	36.6	38.9
Black	52.7	75.9	68.9	64.8	65.9
All Races	50.8	55.7	41.6	47.5	49.6

Figure 10: Trend of mortality rates among children aged 1-4 years by race, Louisiana 2001-2005



Causes of deaths among children aged 1-4 years

The two leading causes of deaths among children aged 1-4 years from 2001 to 2005 were (1) external causes of deaths (49.3%) and (2) congenital malformations, deformations, and chromosomal abnormalities (10%) (Table 21). The most common external cause of mortality was motor vehicle accidents (29.3%), followed by accidents caused by exposure to smoke, fire and flames (19.6%), and accidental drowning and submersion (18.7%) (Table 22). Of congenital malformations, deformations and chromosomal abnormalities, congenital malformations of the heart were the most common (27%) (Table 23).

Table 21: Causes of deaths among children aged 1-4 years, Louisiana 2001-2005

Causes of deaths	Percent
External causes of mortality	49.3
Congenital malformations, deformations, and chromosomal abnormalities	10.0
Disease of the respiratory system	7.5
Neoplasm	7.3
Diseases of nervous system	7.1
Disease of the circulatory system	4.1
Infectious and parasitic diseases	32
Disease of the digestive system	1.9
Endocrine, nutritional and metabolic diseases	1.7
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	1.3
Conditions originating in the perinatal period	0.8
Disease of the genitourinary system	0.3
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	5.4
All other diseases	0.2
Total	100.0

Table 22: External causes of deaths among children aged 1-4 years, Louisiana 2001-2005

External causes of deaths	Percent
Motor vehicle accidents	29.3
Accidents caused by exposure to smoke, fire and flames	19.6
Accidental drowning and submersion	18.7
Assault (homicide)	
- Assault by discharge of firearm	2.3
- Assault by other and unspecified means	6.1
Neglect, abandonment and other maltreatment syndromes	4.2
Accidental inhalation and ingestion of food or other objects causing obstruction of respiratory tract	2.6
Accidental suffocation and strangulation	
- Accidental suffocation and strangulation in bed	0.3
- Other accidental suffocation and strangulation	1.9
Falls	1.9
Accidental discharge of firearms	1.9
Accidental poisoning and exposure to noxious substances	1.3
Complication of medical and surgical care	1.0
Other and unspecified transport accidents	2.3
Other and unspecified accidents	4.2
Other external causes	2.6
Total	100.0

Table 23: Causes of deaths relating to congenital malformations, deformations, and chromosomal abnormalities among children aged 1-4 yeas, Louisiana 2001-2005

Congenital malformations, deformations, and chromosomal abnormalities	Percent
Congenital malformations of heart	27.0
Congenital malformations of nervous system	
- Congenital hydrocephalus	12.7
- Other congenital malformations of nervous system	20.6
Chromosomal abnormalities	
- Edward syndrome	4.8
- Down syndrome	3.2
- Patau syndrome	3.2
- Other chromosomal abnormalities not elsewhere classified	4.8
Congenital malformations of digestive system	1.6
Congenital malformations and deformations of musculoskeletal system, limbs and integument	1.6
Other congenital malformations and deformations	20.6
Total	100.0

B.8. Mortality of Children Aged 5 to 9 Years

The mortality rate of children aged 5-9 years is measured as the number of deaths of children aged 5-9 years per 100,000 population aged 5-9 years.

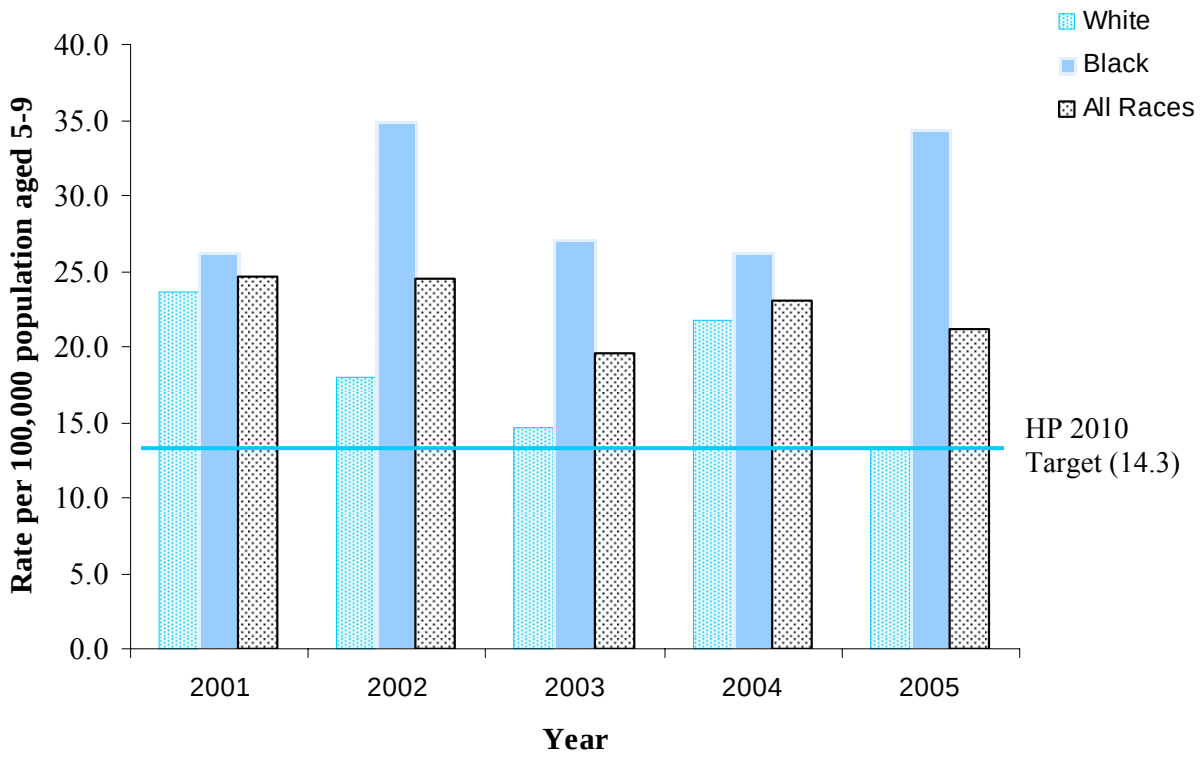
HP 2010 Target: (16-2b) **14.3** deaths of children aged 5 to 9 years per 100,000 population aged 5 to 9 years.

From 2001 to 2005, the mortality rate among children aged 5-9 years decreased by 8.3% annually for white but increased 9.5% annually for black children, resulting in a 2.8% annual decrease for all races. For each year from 2001 to 2005, the ratio of black to white child mortality rates were 1.1, 1.9, 1.8, 1.2 and 2.6, respectively (Table 24, Figure 11).

Table 24: Child aged 5-9 mortality rates by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*
White	23.6	17.9	14.7	21.7	13.3
Black	26.3	34.9	27.1	26.2	34.3
All Races	24.6	24.5	19.5	23.1	21.1

Figure 11: Trend of child aged 5-9 mortality rates by race, Louisiana 2001-2005



Causes of deaths among children aged 5-9 years

The leading causes of deaths among children aged 5-9 years from 2001 to 2005 were external causes of deaths (52.5%), followed by neoplasm (14.3%) (Table 25). Of external causes of deaths, the three most common causes were (1) motor vehicle accidents (47.6%), (2) accidents caused by exposure to smoke, fire and flames (17.7%), and (3) accidental drowning and submersion (11.8%) (Table 26).

Table 25: Causes of deaths among children aged 5-9 years, Louisiana 2001-2005

Causes of deaths	Percent
External causes of mortality	52.5
Neoplasm	14.3
Diseases of nervous system	7.3
Congenital malformations, deformations, and chromosomal abnormalities	6.5
Disease of the circulatory system	3.9
Disease of the respiratory system	3.9
Infectious and parasitic diseases	3.7
Endocrine, nutritional and metabolic diseases	3.1
Disease of the digestive system	2.0
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	0.6
Disease of the genitourinary system	0.3
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	1.7
All other diseases	0.3
Total	100.0

Table 26: External causes of deaths among children aged 5-9 years, Louisiana 2001-2005

External causes of mortality	Percent
Motor vehicle accidents	47.6
Accidents caused by exposure to smoke, fire and flames	17.7
Accidental drowning and submersion	11.8
Assault (homicide)	
- Assault by discharge of firearm	2.7
- Assault by hanging, strangulation and suffocation	1.6
- Assault by other and unspecified means	4.3
Accidental discharge of firearms	1.6
Accidental suffocation and strangulation	1.6
Accidental inhalation and ingestion of food or other objects causing obstruction of respiratory tract	0.5
Neglect, abandonment and other maltreatment syndromes	0.5
Complication of medical and surgical care	0.5
Other and unspecified transport accidents	4.3
Other and unspecified accidents	4.3
Other external causes	1.1
Total	100.0

B.9. Mortality of Adolescents Aged 10 to 14 Years

The mortality rate of adolescents aged 10 - 14 years is defined as the number of deaths of adolescents aged 10-14 years per 100,000 population aged 10 - 14 years.

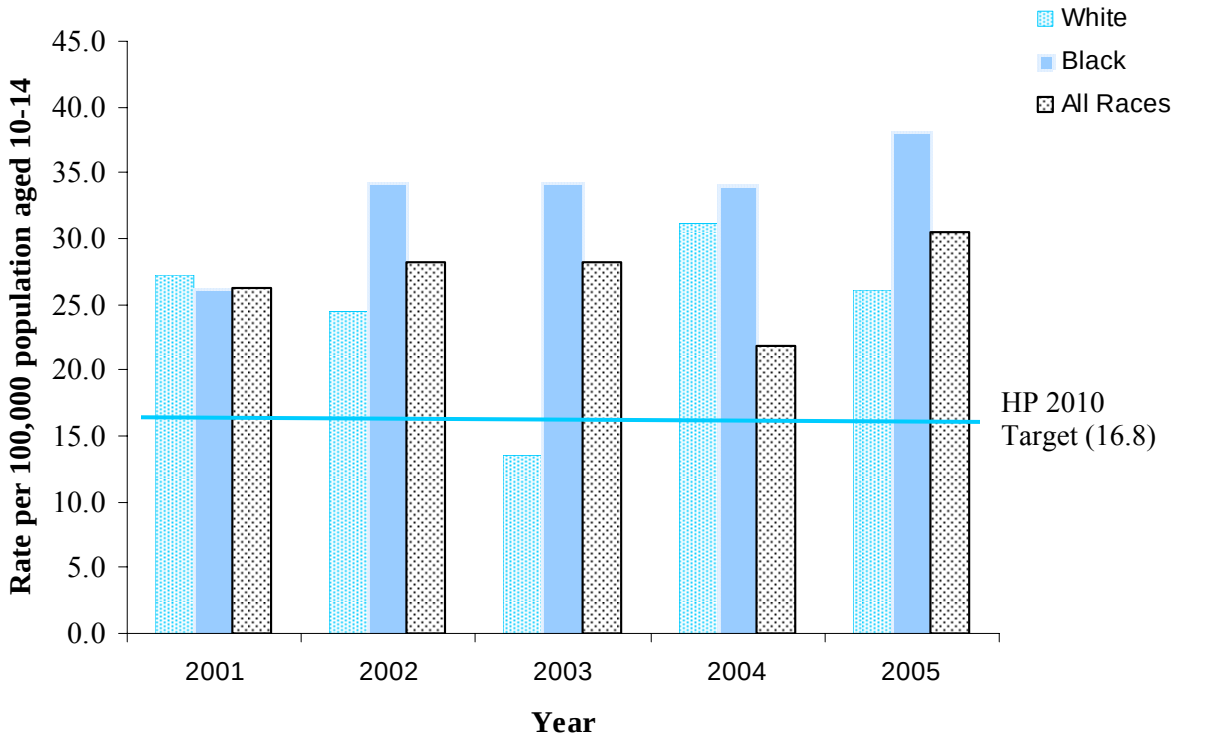
HP 2010 Target: (16-3a) **16.8** deaths of adolescents aged 10-14 years per 100,000 population aged 10-14 years.

Mortality rates among adolescents aged 10-14 years increased by 14.6% annually for white and 10.6% annually for black adolescents from 2001 to 2005, contributing to a 6.0% annual increase for all races. The black to white ratio during the years 2001-2005 was very unstable, reaching its lowest value in 2001 (1.0) and highest value in 2003 (2.5) (Table 27, Figure 12).

Table 27: Mortality rates among adolescents aged 10-14 years by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*
White	27.2	24.4	13.6	31.2	26.1
Black	26.2	34.3	34.3	34.0	38.2
All Races	26.3	28.2	28.2	21.9	30.5

Figure 12: Trend of mortality rates among adolescents aged 10-14 years by race, Louisiana 2001-2005



Causes of deaths among adolescents aged 10-14 years

From 2001 to 2005 the leading causes of deaths among adolescents aged 10-14 years were external causes of deaths (55.8%), followed by neoplasm (10%), and diseases of nervous system (8.7%) (Table 28). Motor vehicle accidents (40.5%), accidental drowning and submersion (10.1%), and accidents caused by exposure to smoke, fire and flames (9%) were the top three of external causes of deaths (9%) (Table 29).

Table 28: Causes of deaths among children aged 10-14 years, Louisiana 2001-2005

Causes of deaths	Percent
External causes of mortality	55.8
Neoplasm	10.0
Diseases of nervous system	8.7
Disease of the circulatory system	5.6
Congenital malformations, deformations, and chromosomal abnormalities	5.0
Infectious and parasitic diseases	4.1
Disease of the respiratory system	2.6
Disease of the digestive system	2.2
Endocrine, nutritional and metabolic diseases	2.0
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	1.7
Disease of the genitourinary system	0.2
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	1.7
All other diseases	0.4
Total	100.0

Table 29: External causes of deaths among children aged 10-14 years, Louisiana 2001-2005

External causes of mortality	Percent
Motor vehicle accidents	40.5
Accidental drowning and submersion	10.1
Accidents caused by exposure to smoke, fire and flames	9.0
Suicide	6.2
Assault (homicide)	
- Assault by discharge of firearm	5.8
- Assault by other and unspecified means	2.7
- Assault by hanging, strangulation and suffocation	0.8
Accidental suffocation and strangulation	2.3
Accidental poisoning and exposure to noxious substances	2.3
Complication of medical and surgical care	1.6
Accidental inhalation and ingestion of food or other objects causing obstruction of respiratory tract	0.8
Neglect, abandonment and other maltreatment syndromes	0.4
Other and unspecified transport accidents	5.5
Other and unspecified accidents	5.8
Other external causes	2.3
Total	100.0

B.10. Mortality of Adolescents Aged 15-19 Years

The mortality rate of adolescents aged 15-19 years is defined as the number of deaths of adolescents aged 15-19 years per 100,000 population aged 15-19 years.

Louisiana ranked 50th among 50 states for deaths of adolescents aged 15-19 years in 2005. The rank was the same for child deaths from 1 to 14 years old. [3]

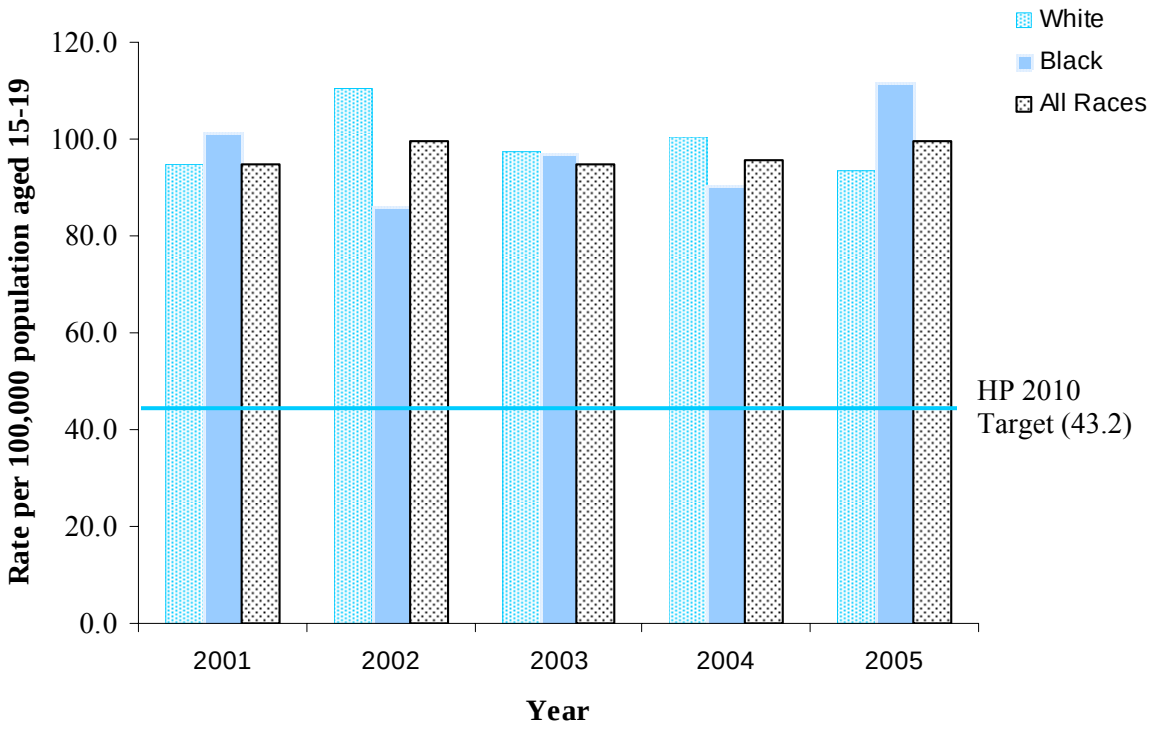
HP 2010 Target: (16-3b) **43.2** deaths of adolescents aged 15-19 years per 100,000 population aged 15-19 years.

The mortality rate for white adolescents aged 15-19 remained essentially unchanged from 2001 to 2005, while the rate increased by about 4% each year for black adolescents from 2001 to 2005. The annual percentage increase for all races was 1.3%. The black to white ratio slightly varied during 2001-2005 and ranged between 0.8 and 1.2 (Table 30, Figure 13).

Table 30: Mortality rates among adolescents aged 15-19 years by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*	*U.S.2005*
White	94.8	110.6	97.3	100.3	93.4	
Black	101.2	86.3	97.1	90.5	111.9	
All Races	94.9	99.7	95.0	95.7	99.5	65.0

Figure 13: Trend of mortality rates among adolescents aged 15-19 years by race, Louisiana 2001-2005



Causes of deaths among adolescents aged 15-19 years

The leading causes of deaths among adolescents aged 15-19 years from 2001 to 2005 were external causes of deaths (77.5%) (Table 31), of which the most common causes of deaths were motor vehicle accidents (43.3%), assault (homicide) (25%), suicide (12.6%) (Table 32).

Table 31: Causes of deaths among adolescents aged 15-19 years, Louisiana 2001-2005

Causes of deaths	Percent
External causes of mortality	77.5
Neoplasm	4.3
Disease of the circulatory system	4.1
Diseases of nervous system	2.9
Infectious and parasitic diseases	1.8
Disease of the respiratory system	1.7
Endocrine, nutritional and metabolic diseases	1.5
Congenital malformations, deformations, and chromosomal abnormalities	1.4
Disease of the digestive system	0.7
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	0.5
Disease of the genitourinary system	0.4
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	1.6
All other diseases	1.7
Total	100.0

Table 32: External causes of deaths among adolescents aged 15-19 years, Louisiana 2001-2005

External causes of deaths	Percent
Motor vehicle accidents	43.3
Assault (homicide)	
- Assault by discharge of firearm	21.4
- Assault by hanging, strangulation and suffocation	0.5
- Assault by other and unspecified means	3.1
Suicide	12.6
Accidental poisoning and exposure to noxious substances	7.1
Accidental drowning and submersion	2.5
Accidental discharge of firearms	1.8
Accidents caused by exposure to smoke, fire and flames	1.4
Falls	0.6
Accidental suffocation and strangulation	0.4
Accidental inhalation and ingestion of food or other objects causing obstruction of respiratory tract	0.3
Complication of medical and surgical care	0.2
Other and unspecified accidents	2.1
Other and unspecified transport accidents	1.8
Other external causes	1.0
Total	100.0

B.11. Mortality of Young Adults Aged 20 to 24 Years

The mortality rate of young adults aged 20-24 years is defined as number of deaths of young adults aged 20-24 year per 100,000 population aged 20-24 years.

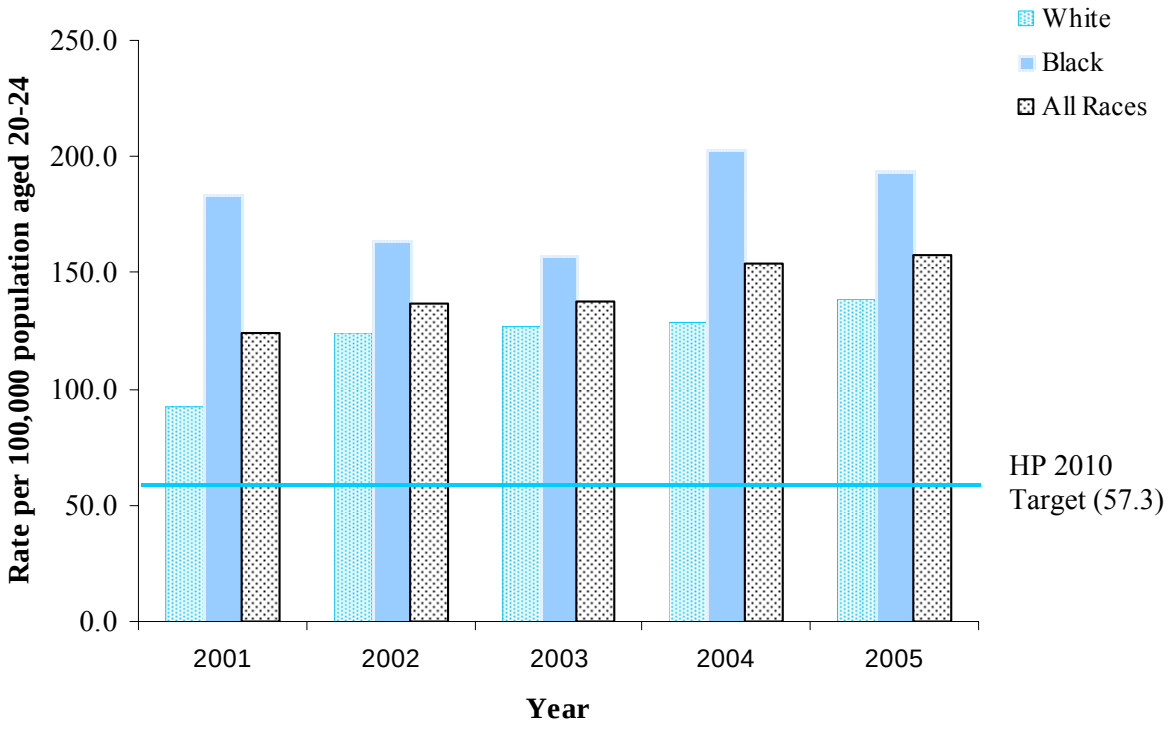
HP 2010 Target: (16-3c) **57.3** deaths of young adults aged 20-24 years per 100,000 population aged 20-14 years.

Mortality rates for young adults increased by 11.2% annually for white, 2.3% annually for black, and 6.2% for all races from 2001 to 2005. Every year from 2001-2005, the mortality rate was higher among black young adults, with disparity ratios ranging between 1.3 and 2.0 (Table 33, Figure 14).

Table 33: Mortality rates of young adults aged 20-24 years by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*
White	92.7	123.7	126.5	128.6	138.4
Black	184.1	163.9	157.5	202.5	193.4
All Races	124.2	137.2	137.9	154.4	157.2

Figure 14: Trend of mortality rates of young adults aged 20-24 years by race, Louisiana 2001-2005



Causes of deaths among young adults aged 20-24 years

The leading causes of deaths among young adults aged 20-24 years from 2001 to 2005 were external causes of deaths (77%) (Table 34), of which motor vehicle accidents (33.5%), homicide (32%), suicide (12.8%), and accidental poisoning and exposure to noxious substances (10.4%) were the most common (Table 35).

Table 34: Causes of deaths among young adults aged 20 to 24 years, Louisiana 2001-2005

Causes of deaths	Percent
External causes of mortality	77.0
Neoplasm	4.2
Disease of the circulatory system	3.9
Infectious and parasitic diseases	2.4
Diseases of nervous system	1.8
Disease of the respiratory system	1.8
Endocrine, nutritional and metabolic diseases	1.8
Disease of the digestive system	1.0
Congenital malformations, deformations, and chromosomal abnormalities	0.9
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	0.8
Disease of the genitourinary system	0.6
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	1.8
All other diseases	2.2
Total	100.0

Table 35: External causes of deaths among young adults aged 20 to 24 years, Louisiana 2001-2005

External causes of deaths	Percent
Motor vehicle accidents	33.5
Assault (homicide)	
- Assault discharge of firearm	28.5
- Assault by hanging, strangulation and suffocation	0.5
- Assault by other and unspecified means	3.0
Suicide	12.8
Accidental poisoning and exposure to noxious substances	10.4
Accidental drowning and submersion	2.0
Accidental discharge of firearms	1.3
Accidents caused by exposure to smoke, fire and flames	0.9
Falls	0.5
Accidental suffocation and strangulation	0.4
Accidental inhalation and ingestion of food or other objects causing obstruction of respiratory tract	0.3
Complication of medical and surgical care	0.1
Other and unspecified accidents	1.8
Other and unspecified transport accidents	1.1
Other external causes	3.1
Total	100.0

C. PREGNANCY ASSOCIATED MORTALITY AND MATERNAL COMPLICATIONS

C.1. Pregnancy associated mortality

"Pregnancy-associated death" was defined by the Centers for Disease Control and Prevention's Division of Reproductive Health (CDC) and the American College of Obstetricians and Gynecologists (ACOG) as the death of a woman while pregnant or within 1 year of termination of pregnancy, irrespective of cause of death. [6]

Data for this measure were obtained from Louisiana Pregnancy Mortality Surveillance System and through the linkage of death certificates with live birth and fetal death certificates.

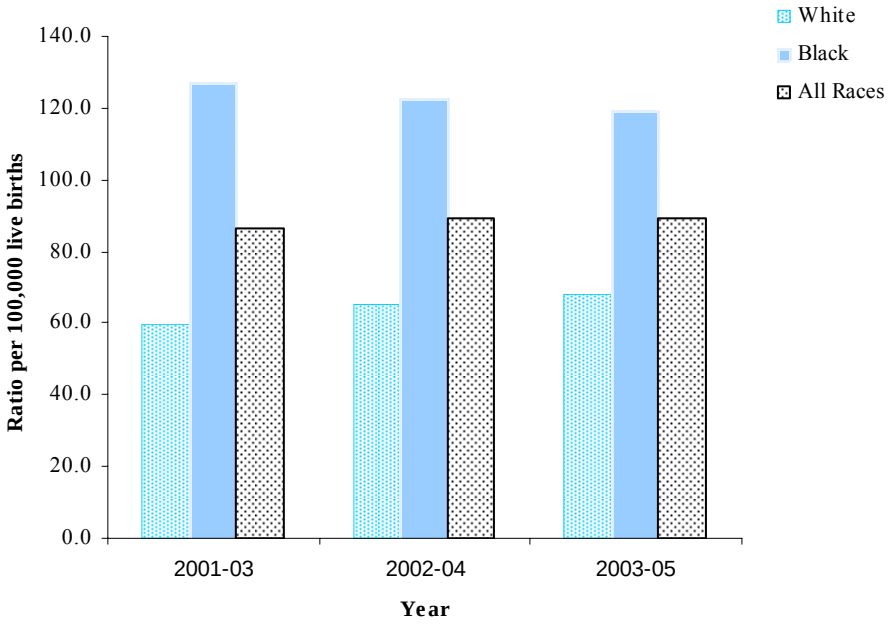
The pregnancy-associated mortality ratio is defined as the number of deaths while pregnant or within 1 year of termination of pregnancy, irrespective of the cause of death, per 100,000 live births.

The three-year average percentage change of the overall pregnancy-associated mortality ratio was 1.8% during the time period from 2001-2005. This change was 6.7% for white and -3.1% for black women in this time period. The black to white ratio of pregnancy associated death for years 2001-2005 decreased from 2.1 in 2001-2003 to 1.9 in 2002-2004 and 1.8 in 2003-2005 (Table 36, Figure 15).

Table 36: Pregnancy-Associated Mortality Ratio by race, Louisiana 2001-2005

Races	*2001-03*	*2002-04*	*2003-05*
White	59.8	65.1	68.0
Black	126.9	122.6	119.1
All races	86.3	89.0	89.4

Figure 15: Trend of pregnancy-associated mortality ratios by race, Louisiana 2001-2005



Causes of pregnancy-associated deaths

For 2001 to 2005, the most common cause of pregnancy-associated death for all races was motor vehicle accidents (16.6%), followed by homicide (16.3%) and accidental poisoning/exposure to noxious substances (7.1%). Among deaths due to obstetric causes occurring while pregnant or within 42 days after delivery, eclampsia and pre-eclampsia (3.2%), and obstetric embolism (2.1%) were the most common (Table 37, Figure 16). When stratified by race, the most common causes of death among white women were motor vehicle accidents (26.1%), followed by accidental poisoning/exposure to noxious substances (13.4%), and homicide (10.1%) (Table 38, Figure 17). The most common causes of pregnancy-associated death among black women were homicide (21.4%), followed by motor vehicle accidents (9.4%) (Table 39, Figure 18).

Table 37: Causes of pregnancy-associated deaths, all races, Louisiana 2001-2005

Causes of deaths	*Percent*
External causes of mortality (46.3%)	
- Motor vehicle accidents	16.6
- Homicide (all modes)	16.3
- Accident poisoning and exposure to noxious substances	7.1
- Other external causes	6.3
Maternal causes of death occurring < 42 days after delivery (17%)	
- Indirect obstetric causes*	3.5
- Eclampsia and pre-eclampsia	3.2
- Obstetrical embolism	2.1
- Other obstetric causes	8.2
Disease of the circulatory system	11.7
Neoplasm	5.3
Disease of the respiratory system	2.8
Endocrine, nutritional and metabolic diseases	2.8
Infectious and parasitic diseases	2.8
Other	11.3
Total	100.0

Figure 16: Causes of pregnancy-associated deaths, all races, Louisiana 2001-2005

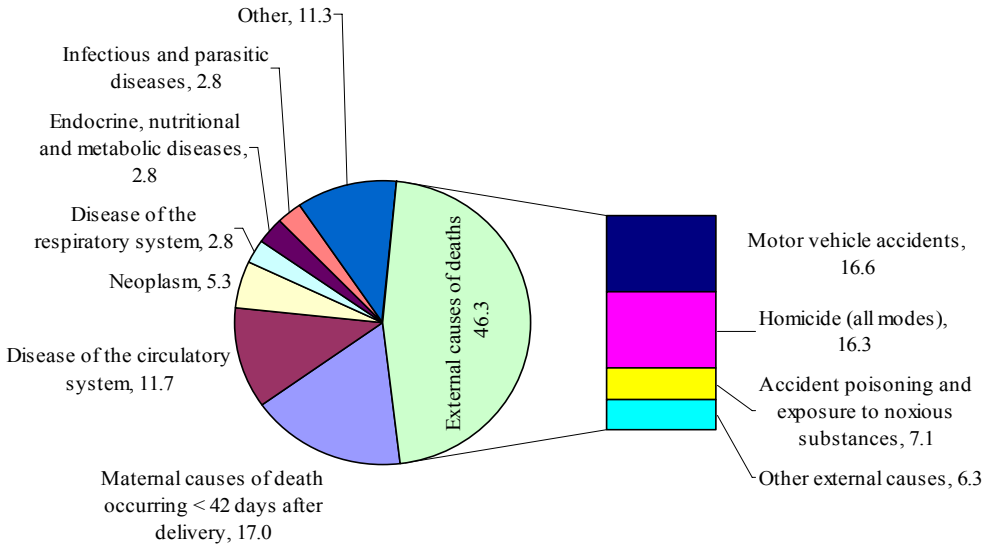


Table 38: Causes of pregnancy-associated deaths among white women, Louisiana 2001-2005

Causes of deaths	*Percent*
External causes of mortality (58.8%)	
- Motor vehicle accidents	26.1
- Accident poisoning and exposure to noxious substances	13.4
- Homicide (all modes)	10.1
- Other external causes	9.2
Maternal causes of death occurring < 42 days after delivery (12.6%)	
- Indirect obstetric causes	4.2
- Eclampsia and pre-eclampsia	2.5
- Other obstetric causes	5.9
Disease of the circulatory system	6.7
Neoplasm	5.0
Other	16.9
Total	100.0

Figure 17: Causes of pregnancy-associated deaths among white women, Louisiana 2001-2005

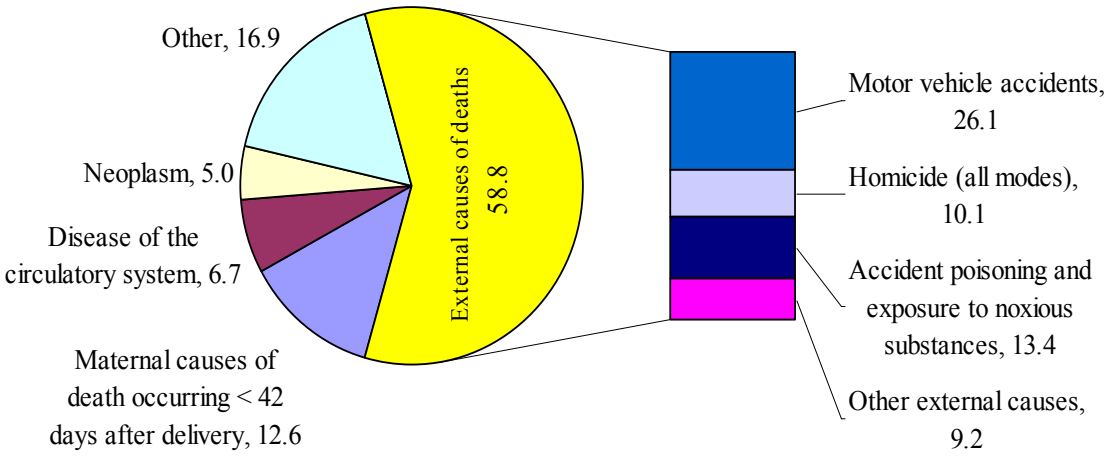
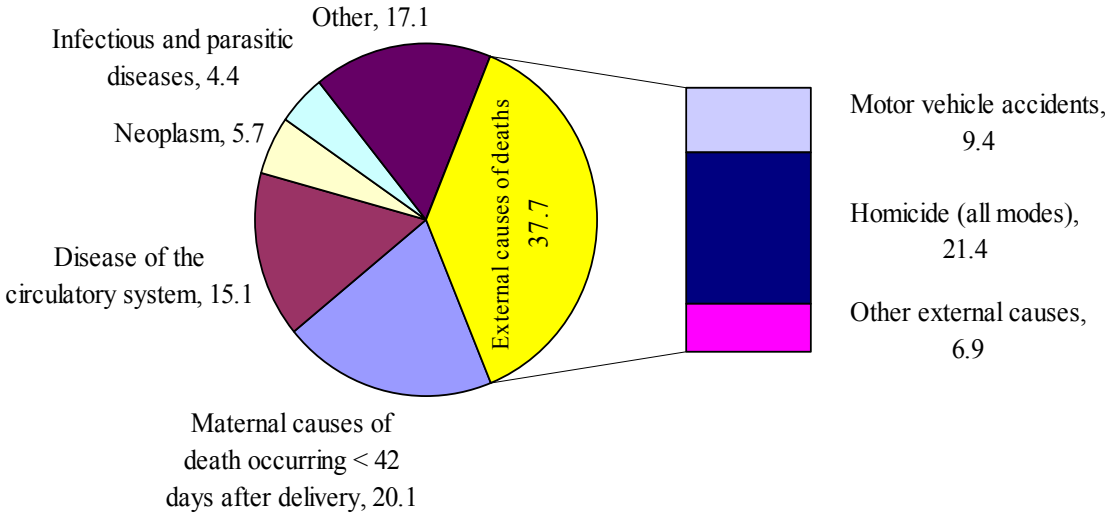


Table 39: Causes of pregnancy-associated deaths among black women, Louisiana 2001-2005

Causes of deaths	*Percent*
External causes of mortality (37.7%)	
- Homicide (all modes)	21.4
- Motor vehicle accidents	9.4
- Other external causes	6.9
Maternal causes of death occurring < 42 days after delivery (20.1%)	
- Indirect obstetric causes	3.1
- Eclampsia and pre-eclampsia	3.1
- Obstetrical embolism	3.1
- Hemorrhage of pregnancy and childbirth and placenta previa	3.1
- Other obstetric causes	7.7
Disease of the circulatory system	15.1
Neoplasm	5.7
Infectious and parasitic diseases	4.4
Other	17.1
Total	100.0

Figure 18: Causes of pregnancy-associated deaths among black women, Louisiana 2001-2005



[*]Direct obstetric deaths: those resulting from obstetric complications of the pregnant state (pregnancy, labor and puerperium), from interventions, omissions, incorrect treatment, or from a chain of events resulting from any of the above. Indirect obstetric deaths: those resulting from previous existing disease or diseases that developed during pregnancy and which was not due to direct obstetric causes, but which were aggravated by physiologic effects of pregnancy.

C.2. Maternal Complications during Labor and Delivery

The percent of maternal complications during labor and delivery is given as the number of live births to women who have any complications during labor or delivery per 100 live births.

Data sources: DHH Louisiana State Center for Health Statistics, *2001-2005 birth certificates.*

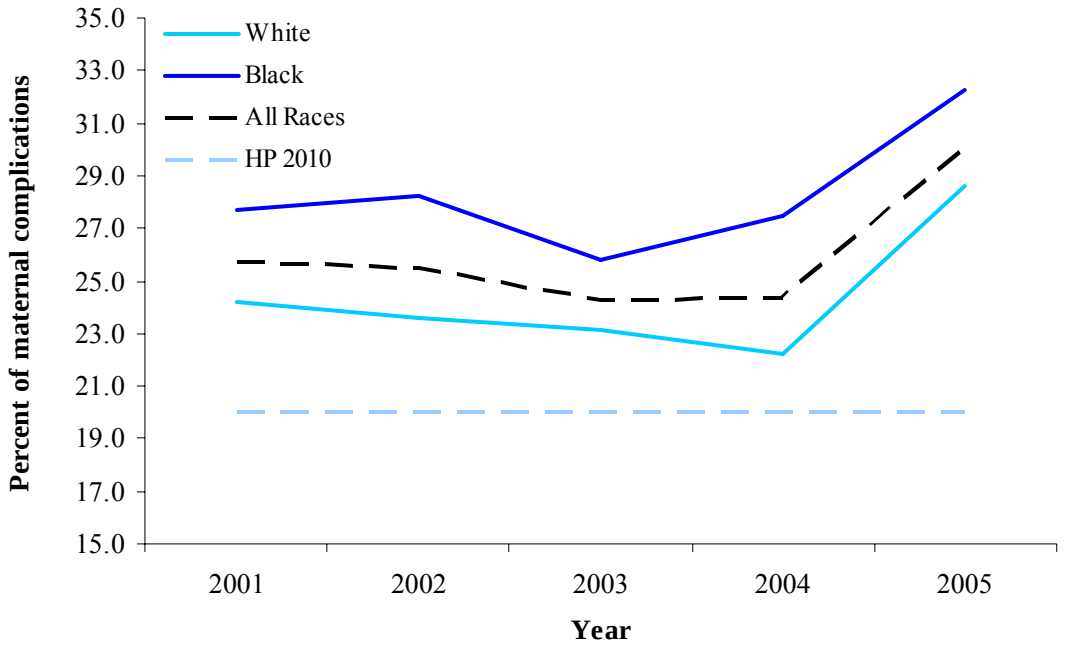
HP 2010 Target: (16-5a) **20** complications during hospitalized labor and delivery per 100 deliveries.

In Louisiana, the rate of maternal complications during labor and delivery increased from 2001 to 2005. The rate increased annually by 5.1% for white, 4.3% for black, and 4.5 for all women. Racial disparities remained fairly constant during this period, with black to white ratios ranging from 1.1 to 1.2 during the years 2001-2005 (Table 40, Figure 19).

Table 40: Percent of maternal complications during labor and delivery by race, Louisiana 01-05

Races	*2001*	*2002*	*2003*	*2004*	*2005*
White	24.2	23.6	23.1	22.2	28.6
Black	27.7	28.2	25.8	27.5	32.3
All races	25.7	25.5	24.2	24.4	30.0

Figure 19: Trend of maternal complications during labor and delivery by race, Louisiana 01-05



Distribution of maternal complications during labor and delivery:
For 2001 to 2005, the most common maternal complications during labor and delivery for all races were meconium moderate/heavy (3.2%), fetal distress (2.5%), and breech/malpresentation (2.4%). The ranking of the top three maternal complications during labor and delivery was similar for all races and black women; however, the most common maternal complication during labor and delivery for white women was breech/malpresentation, followed by meconium moderate/heavy and fetal distress (Table 41).

Table 41: Distribution (%) of maternal complications during labor and delivery, Louisiana 01-05

Delivery/labor complications	All races	White	Black
Meconium moderate/heavy	3.2	2.4	4.3
Fetal distress	2.5	2.3	2.8
Breech/malpresentation	2.4	2.7	2.0
Cephalopelvic disproportion	1.4	1.6	1.1
Premature Rupture of Membrane	1.1	0.8	1.4
Precipitous labor	1.0	0.5	1.6
Fever > 100^{o}F	0.8	0.7	1.0
Dysfunctional labor	0.8	0.8	0.8
Abruptio Placenta	0.4	0.3	0.5
Prolonged labor > 20 hours	0.2	0.2	0.2
Placenta Previa	0.2	0.2	0.2
Cord prolapse	0.2	0.2	0.2
Other excessive bleeding	0.2	0.2	0.2
Anesthetic complications	0.1	0.1	0.1
Seizures during labor	0.03	0.01	0.1

D. SEXUALLY TRANSMITTED DISEASES (STD) DURING PREGNANCY

Intrauterine or perinatal STDs can have severely debilitating effects on pregnant women, their partners, and their fetuses. [7] The Louisiana Public Health Sanitary Code requires that the following STDs are *reportable*: chancroid, chlamydia, gonorrhea, syphilis and lymphogranuloma venereum. Data sources used to assess STD during pregnancy included Louisiana STD control program *2000-2005 STD data linked with* Louisiana State Center for Health Statistics *2001-2005 birth certificates.*

D.1. All STDs during Pregnancy

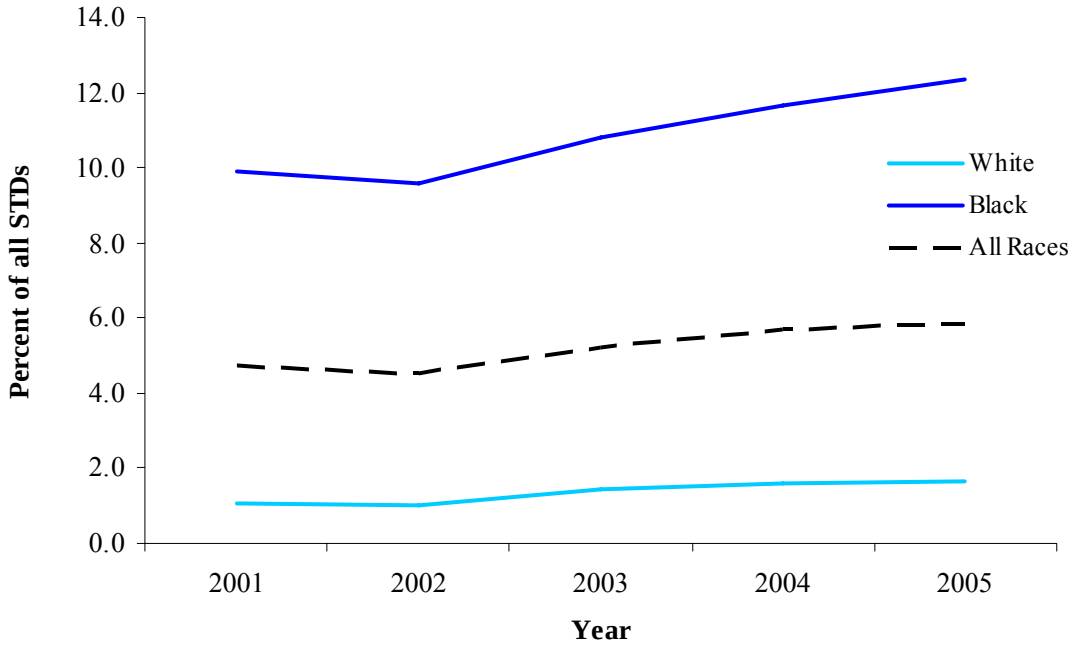
The rate of all STDs during pregnancy is measured as the number of live births to women who have any *reportable* STD during pregnancy per 100 live births.

STD rates during pregnancy increased for all races from 2001 to 2005; the annual percentage increase was about 6% for all races, 13% for white, and 6% for black women. Black women were disproportionately affected by STDs during pregnancy; the annual black to white ratio from 2001 to 2005 ranged between 7.2 and 9.5 (Table 42, Figure 20).

Table 42: Rates (%) of all STDs during pregnancy by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*
White	1.06	1.01	1.46	1.61	1.65
Black	9.91	9.57	10.81	11.65	12.35
All Races	4.74	4.53	5.22	5.72	5.88

Figure 20: Trend of all STDs during pregnancy by race, Louisiana 2001-2005



D.2. Chlamydia infection during pregnancy

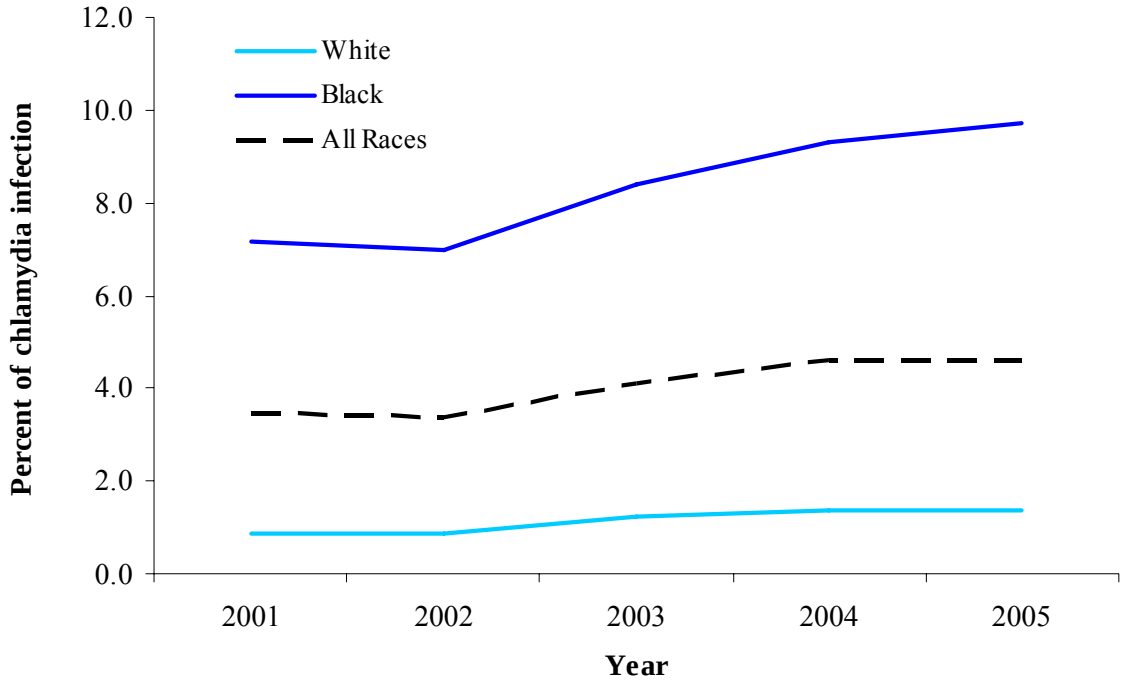
The rate of chlamydia infection during pregnancy is measured as the number of live births to women who are infected by chlamydia during pregnancy per 100 live births.

From 2001 to 2005, chlamydia infection rates during pregnancy rose steadily over the five year period. The annual percentage increase was 12.8% for white, 8.3% for black, and 7.7% for all race women. The black to white ratio for years 2001-2005 ranged between 6.8 and 8.1 (Table 43, Figure 21).

Table 43: Rates (%) of chlamydia infection during pregnancy by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*
White	0.88	0.87	1.21	1.37	1.37
Black	7.16	6.98	8.40	9.32	9.73
All Races	3.49	3.38	4.10	4.62	4.62

Figure 21: Trend of chlamydia infection during pregnancy by race, Louisiana 2001-2005



D.3. Gonorrhea infection during pregnancy

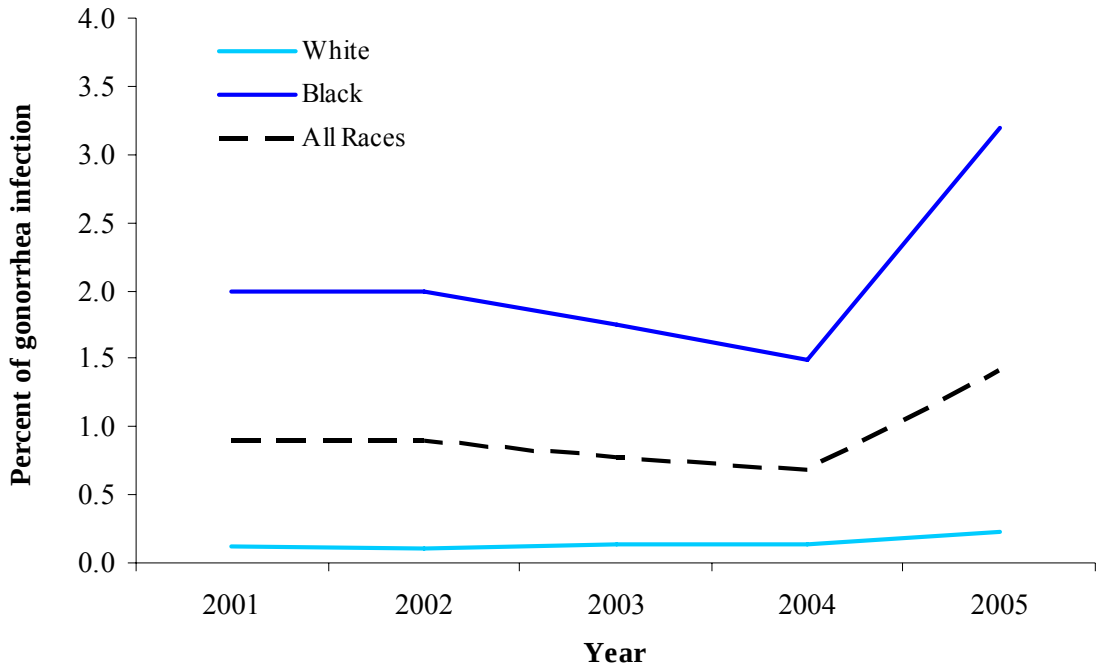
The rate of gonorrhea infection during pregnancy is measured as the number of live births to women who are infected by gonorrhea during pregnancy per 100 live births.

Gonorrhea infection during pregnancy increased at a staggering pace for both black and white women in Louisiana from 2001 to 2005. White and black women experienced a 21% and 22% annual increase, respectively, resulting in a 20% annual increase for all races. Again, black women were disproportionately affected. The black to white ratio for the years from 2001 to 2005 ranged between 10.6 and 20.0 (Table 44, Figure 22).

Table 44: Rates (%) of gonorrhea infection during pregnancy by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*
White	0.12	0.10	0.13	0.14	0.23
Black	1.99	2.00	1.75	1.49	3.19
All Races	0.89	0.89	0.78	0.69	1.41

Figure 22: Trend of gonorrhea infection during pregnancy by race, Louisiana 2001-2005



D.4. Syphilis infection during pregnancy

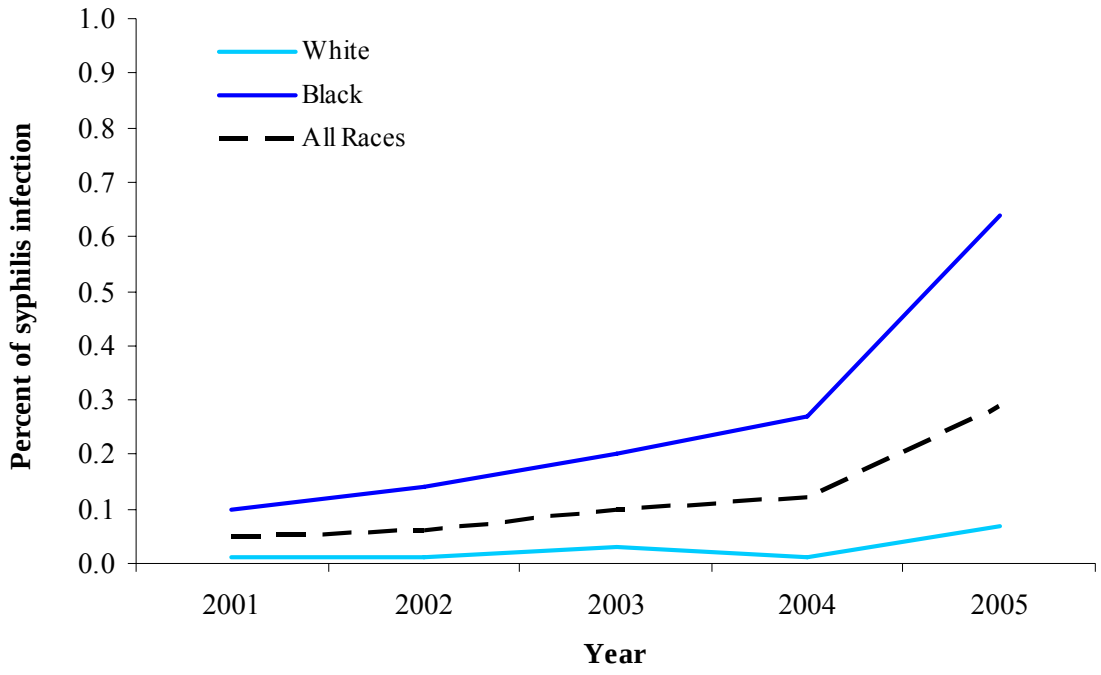
The rate of syphilis infection during pregnancy is measured as the number of live births to women who are infected by syphilis during pregnancy per 100 live births.

Syphilis infection during pregnancy was very rare among white mothers, ranging between 0.01 and 0.07 per 100 live births from 2001 to 2005. Though rare among black mothers as well, the rate ranged between 0.10 and 0.64 in the same time period, the racial disparity in syphilis infection among pregnant women between black and white women was highly remarkable; the black to white ratio of syphilis rates during pregnancy were between 6.7 and 27.0 during years 2001-2005 (Table 45, Figure 23).

Table 45: Rates (%) of syphilis infection during pregnancy by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*
White	0.01	0.01	0.03	0.01	0.07
Black	0.10	0.14	0.20	0.27	0.64
All Races	0.05	0.06	0.10	0.12	0.29

Figure 23: Trend of syphilis infection during pregnancy by race, Louisiana 2001-2005



E. PRENATAL CARE: According to the Maternal and Child Health Bureau of the Health Resources and Services Administration of the U.S. Government (HRSA), nearly one million women do not receive adequate prenatal care in the United States each year. Babies born to mothers who received no prenatal care are three times more likely to be born at low birth weight and five times more likely to die than those whose mothers received prenatal care. Although the exact mechanism dictating the relationship between prenatal care and birth outcomes is still debated in the literature, [8] prenatal care has been described as "unequivocally helpful and necessary" with regard to perinatal outcomes. [9] Access to adequate prenatal care is considered to be one of Louisiana's few healthcare strengths, though racial disparities are apparent.

Louisiana State Center for Health Statistics *2001-2005 birth certificates* were used to assess Louisiana prenatal care.

E.1. Early Entry into Prenatal Care

The percent of early entry into prenatal care is measured as the number of live births to women who enter prenatal care in the first trimester (first three months) of pregnancy per 100 live births.

HP 2010 Target: (16-6a) **90%** of live births follow early entry of prenatal care.

In 2005, Louisiana ranked 34th out of 37 states, Washington DC, and New York City, which implemented the 1989 revision of the U.S. certificates of live birth, with the sixth-highest percent of women receiving prenatal care in the first trimester. [10]

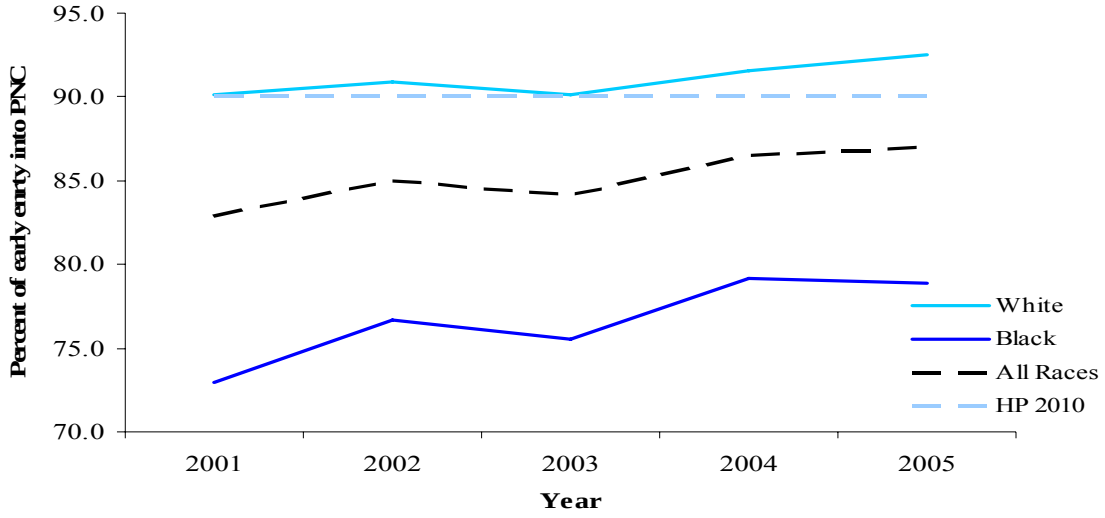
From 2001 to 2005, the annual percentage increase for early entry into prenatal care was 0.7% for white mothers and 2.0% for black mothers, which contributed to an overall increase of 1.2% for all races. The white to black disparity ratio for early entry into prenatal care remained steady at 1.2 each year (Table 46, Figure 24).

Table 46: Percentage of early entry into prenatal care by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*	*U.S. 2005*
White	90.1	90.9	90.1	91.6	92.5	
Black	73.0	76.7	75.5	79.2	78.9	
All Races	82.9	85.0	84.1	86.5	87.0	83.9*

**Bases on data from 37 states, Washington DC, and New York City, which implemented the 1989 revision of the U.S. certificates of live birth.*

Figure 24: Trend of early entry into prenatal care (PNC) by race, Louisiana 2001-2005



E.2. Early and Adequate Prenatal Care

Early and adequate prenatal care (PNC) is measured as the number of live births to women who have early and adequate PNC per 100 live births.

This data book used the Kotelchuck index to measure early and adequacy PNC. PNC was classified as follows:

- Adequate plus: PNC initiation begun in month 1,2,3, or 4 and 110% or more of the expected number of PNC visits were received
- Adequate: PNC initiation begun in month 1,2,3, or 4 and 80% to 109% of the expected number of PNC visits were received
- Intermediate: PNC initiation begun in month 1,2,3, or 4 and 50% to 79% of the expected number of PNC visits were received
- Inadequate: PNC initiation begun in month 5 or late or less than 50% of the expected number of PNC visits were received

Early and adequacy PNC was defined as adequate plus or adequate PNC.

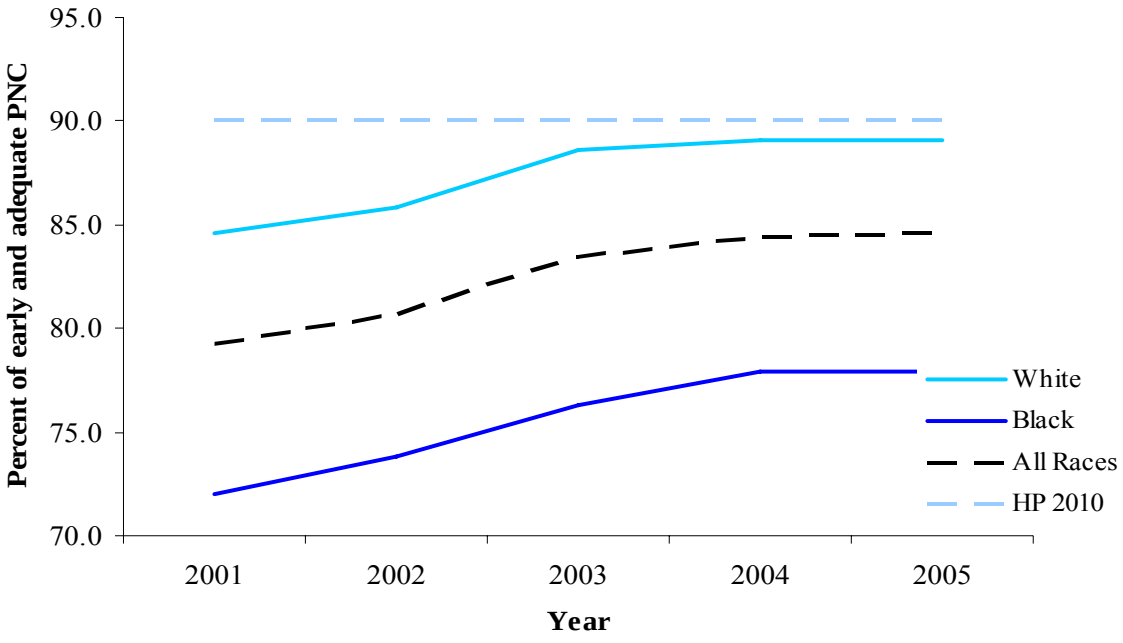
HP 2010 Target: (16-6b) **90%** of live births follow early and adequate prenatal care.

From 2001 to 2005, the annual percentage increase in receipt of early and adequate prenatal care was 1.3% for white women, 2.0% for black women, and 1.6% for all races. The white to black ratio of receipt of early and adequate prenatal care remained steady, ranging between 1.1 and 1.2 each year from 2001-2005 (Table 47, Figure 25).

Table 47: Early and adequate prenatal care by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*
White	84.6	85.8	88.6	89.1	89.1
Black	72.0	73.8	76.3	77.9	77.9
All Races	79.3	80.7	83.5	84.4	84.6

Figure 25: Trend of early and adequate prenatal care (PNC) by race, Louisiana 2001-2005



F. OBSTETRICAL CARE

Healthy People 2010 identified two major target areas for improvement in obstetrical care: increasing the percentage of high-risk infants who are born in level III hospitals or subspecialty perinatal centers, and reducing the number of cesarean deliveries to women who are identified as low risk. Research has shown that very low birth weight (VLBW) infants who are born in Level III hospitals or subspecialty perinatal centers have reduced morbidity and a greater chance at survival than those who are delivered in facilities that do not have the technological capacity to care for them. [11]

Cesarean delivery, while life-saving in emergency situations, is a risky medical procedure that contributes to significant maternal morbidity. Evidence suggests that vaginal delivery following cesarean section is safe for low-risk women and may be beneficial to their infants. [12]

Louisiana State Center for Health Statistics *2001-2005 birth certificates* were used as data sources for obstetrical care data analysis.

F.1. VLBW Infants born in Level III Hospitals or Subspecialty Perinatal Centers

Very Low Birth Weight (VLBW) infants born in level III hospitals (including obstetrical level III and level III regional units) or subspecialty perinatal centers are measured per 100 VLBW live births.

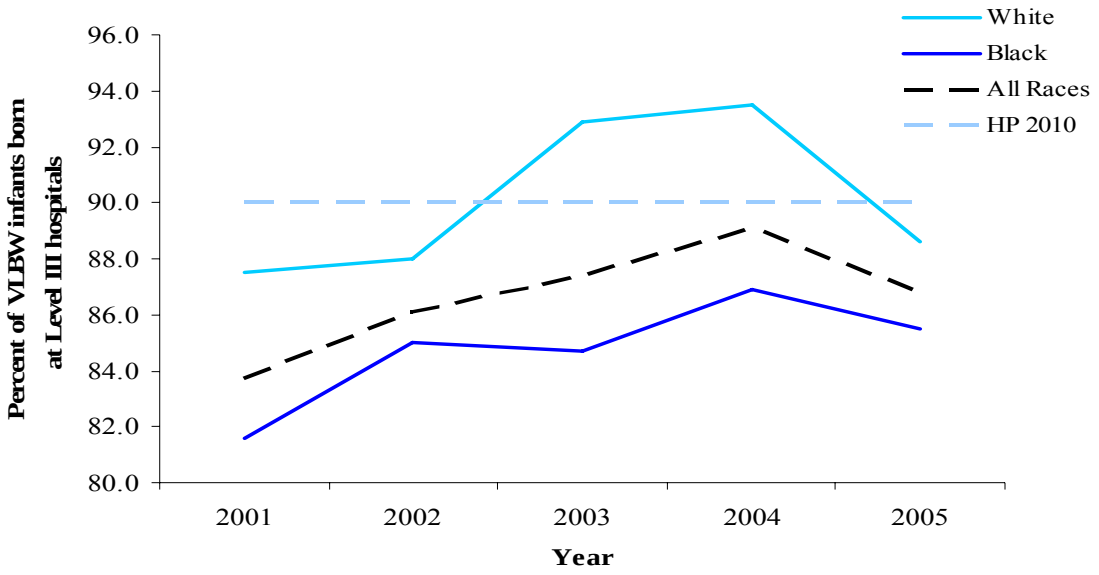
HP 2010 Target: **90%** of VLBW infants born at level III hospitals or subspecialty perinatal centers.

The rate of white VLBW infants born in level III facilities remained high and slightly increased by 0.4% annually from 2001 to 2005. The corresponding rate increased by about 1.2% annually for black and 0.9% for all races. The white to black ratios for 2001 to 2005 were very stable, ranging between 1.0 and 1.1 (Table 48, Figure 26).

Table 48: Rates (%) of VLBW infants born at Level III hospitals by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*
White	87.5	88.0	92.9	93.5	88.6
Black	81.6	85.0	84.7	86.9	85.5
All Races	83.7	86.1	87.4	89.1	86.8

Figure 26: Trend of VLBW rates (%) at Level III hospitals, by race, Louisiana 01-05



F.2. Primary Cesarean Delivery among Low-Risk Women

The rate of primary cesarean delivery among low-risk women is defined as the number of live births born by cesarean section per 100 live births to low-risk women who have not had previous cesarean deliveries. A low-risk pregnant woman is defined a woman whose pregnancy is full term (37- 42 weeks), singleton, and with vertex presentation.

HP 2010 Target: (16-9a) **15.5%** of all live births result from primary cesarean delivery among low-risk women.

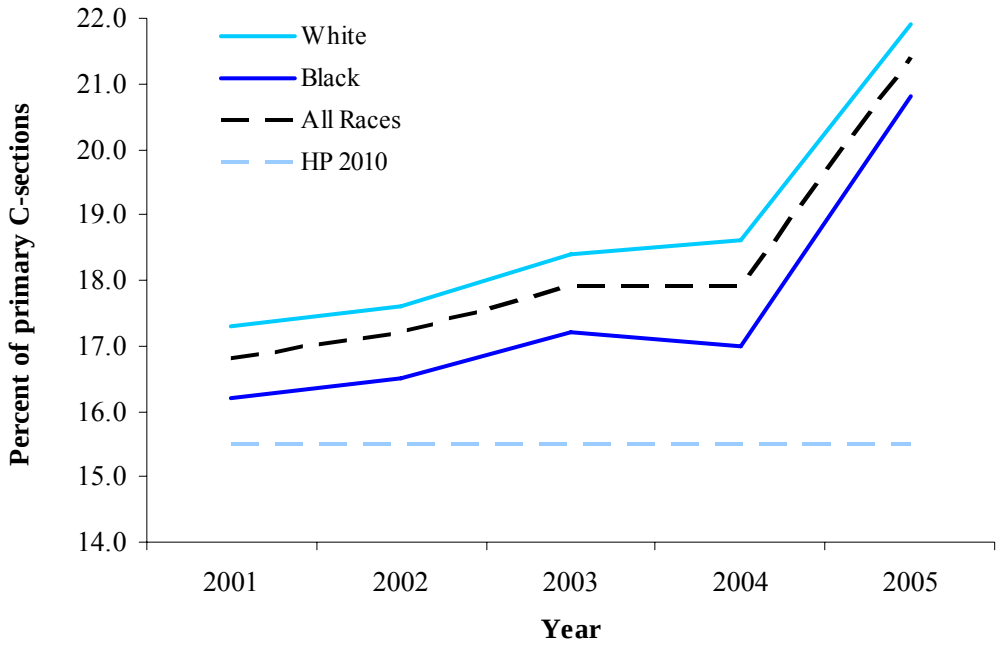
The rate of primary cesarean sections among low-risk women increased for both white and black mothers, with an annual percentage increase of 6.3% for white and 6.8% for black women; this contributed to an annual percentage increase of 6.5% for all races. White mothers received slightly more primary cesarean sections from 2001 to 2005, with a consistent annual disparity ratio of 1.1 (Table 49, Figure 27).

Table 49: Rates (%) of primary cesarean delivery among low risk women by race, Louisiana 01-05

Race	*2001*	*2002*	*2003*	*2004*	*2005*	*U.S.2003*
White	17.3	17.6	18.4	18.6	21.9	
Black	16.2	16.5	17.2	17.0	20.8	
All Races	16.8	17.2	17.9	17.9	21.4	23.6*

** This rate applied only to* first births *to low-risk women, therefore it was not comparable to our definition* [Ref. 13]

Figure 27: Trend of primary C-sections among low-risk mothers by race, Louisiana 2001-2005



F.3. Repeat Cesarean Delivery among Low-Risk Women

The rate of repeat cesarean delivery among low-risk women is defined as the number of live births born by cesarean section per 100 live births to low risk women who have had previous cesarean deliveries.

HP 2010 Target: (16-9b) **63%** of repeat cesarean delivery among low-risk women.

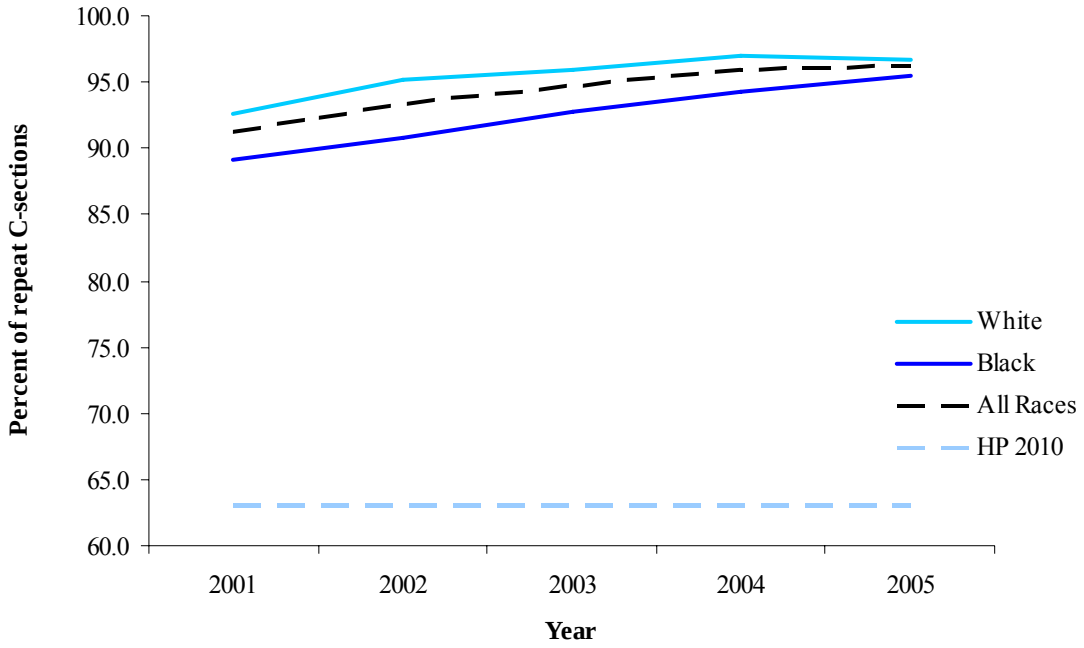
From 2001 to 2005, repeat cesarean deliveries increased more slowly than primary cesarean deliveries, with annual percentage increases of 1.0% and 1.7% for white and black mothers, respectively. The annual percentage increase was 1.3% for all races. The rate of repeat cesarean deliveries was only slightly higher among white than black women, indicated by an annual disparity ratio of repeat cesarean deliveries between 1.01 and 1.05 from 2001 to 2005 (Table 50, Figure 28).

Table 50: Rates (%) of repeat cesarean delivery among low-risk women by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*	*U.S.2003*
White	92.6	95.1	95.9	97.0	96.7	
Black	89.1	90.8	92.7	94.3	95.4	
All Races	91.2	93.3	94.7	95.9	96.2	88.7 *

**See reference [13] for data sources*

Figure 28: Trend of repeat cesarean delivery among low-risk women by race, Louisiana 2001-05



G. LOW BIRTHWEIGHT AND PREMATURITY

According to Healthy People 2010, [1] low birth weight (LBW, less than 2,500 grams) is the risk factor most closely associated with neonatal death; thus, improvements in infant birth weight can contribute substantially to reductions in the infant mortality rate. Of all infants born LBW, the smallest (those weighing less than 1,500 grams) are at highest risk of dying in their first year. Preterm birth is the leading cause of those neonatal deaths not associated with birth defects. Reduction in preterm delivery holds the greatest promise for overall reduction in infant illness, disability, and death.

DHH Louisiana State Center for Health Statistics *2001-2005 birth certificates* were used as data sources for data analysis of low birth weight and prematurity.

G.1. Very Low Birth Weight Births (VLBW)

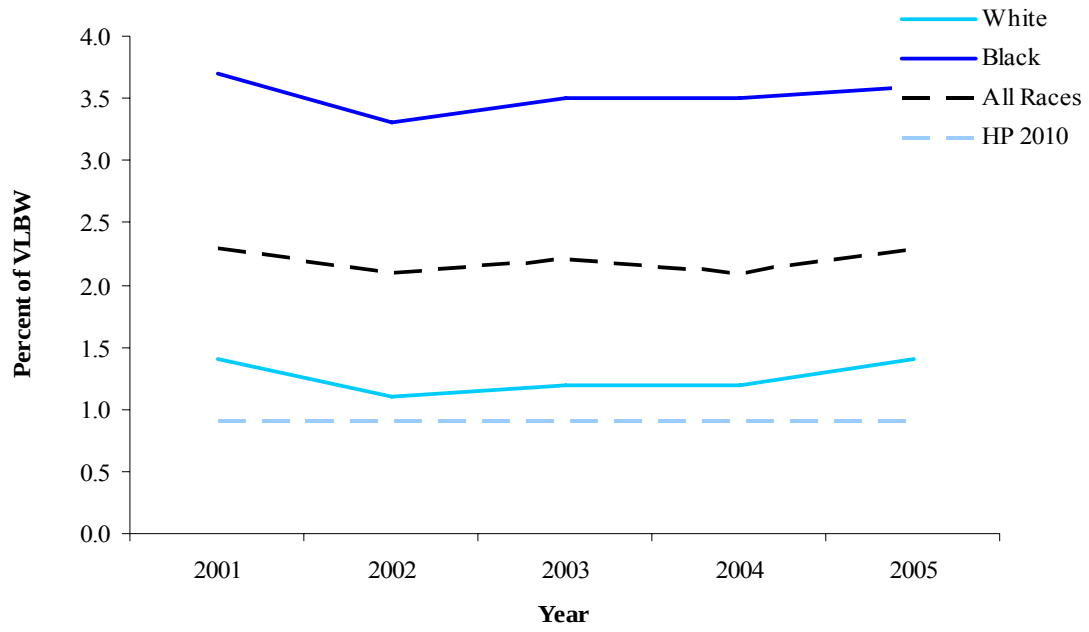
The rate of VLBW births is defined as the number of live births with birth weight less than 1,500 grams or 3 pounds 4 ounces per 100 live births.
HP 2010 Target: (16-10b) **0.9%** of all live births to be VLBW births.

In 2005, Louisiana had the third-highest rate of VLBW among the 50 states and Washington DC. [10] The rate of VLBW births showed a slight annual percentage increase of 1.1% for white mothers and a slight annual decrease of 0.5% for black mothers. The annual percentage increase was 0.3% for all races. The black to white ratio of VLBW births for years 2001 to 2005 ranged between 2.6 and 3.0 (Table 51, Figure 29).

Table 51: Rates (%) of VLBW births by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*	*U.S.2005*
White	1.4	1.1	1.2	1.2	1.4	
Black	3.7	3.3	3.5	3.5	3.6	
All Races	2.3	2.1	2.2	2.1	2.3	1.5

Figure 29: Trend of VLBW by race, Louisiana 2001-2005



G.2. Low Birth Weight Births (LBW)

Rate of LBW births is defined as the number of live births with birth weight less than 2,500 grams or 5 pounds 8 ounces per 100 live births.

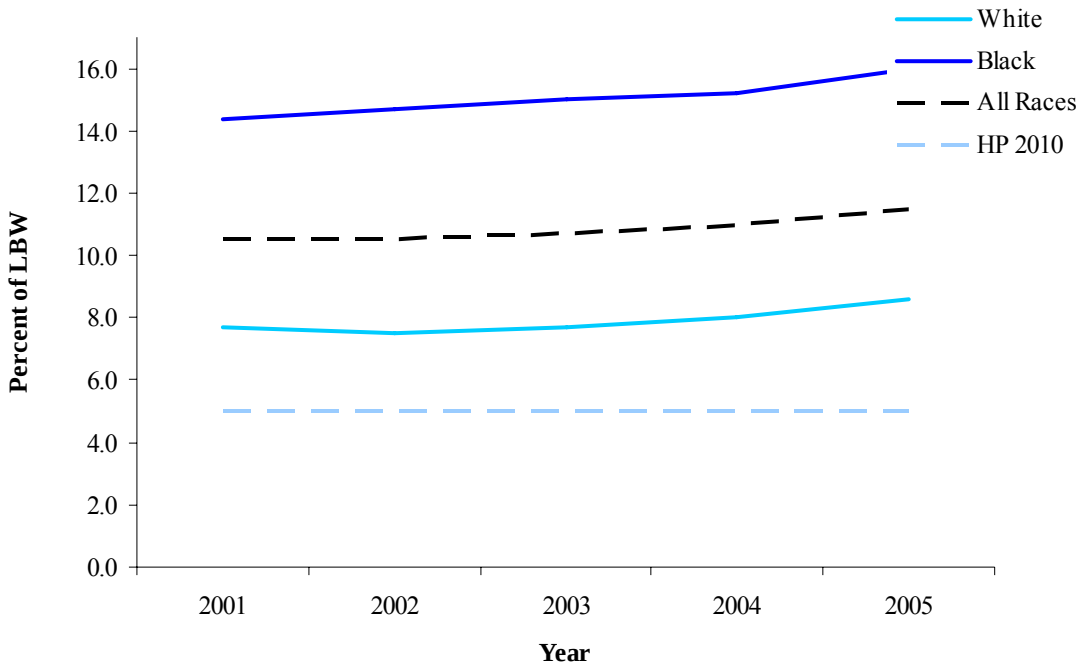
HP 2010 Target: (16-10a) **5%** of all live births to be LBW.

Louisiana ranked 50th out of 50 states and Washington DC by percent of infants with low birth weight in 2005. [10]
From 2001 to 2005, the rate of LBW increased with annual percentage changes of 2.9%, 2.7%, and 2.3% for white, black, and all-race women, respectively. In the same time period, nearly twice as many infants born to black women were LBW, compared to infants born to white women (Table 52, Figure 30).

Table 52: Rates (%) of LBW births by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*	*U.S.2005*
White	7.7	7.5	7.7	8.0	8.6	
Black	14.4	14.7	15.0	15.2	16.0	
All Races	10.5	10.5	10.7	11.0	11.5	8.2

Figure 30: Trend of LBW births by race, Louisiana 2001-2005



G.3. Preterm Births at Less Than 32 Weeks of Gestation

The rate of preterm births (PTB) < 32 weeks of gestation is defined as the number of live births with gestational age less than 32 weeks per 100 live births.

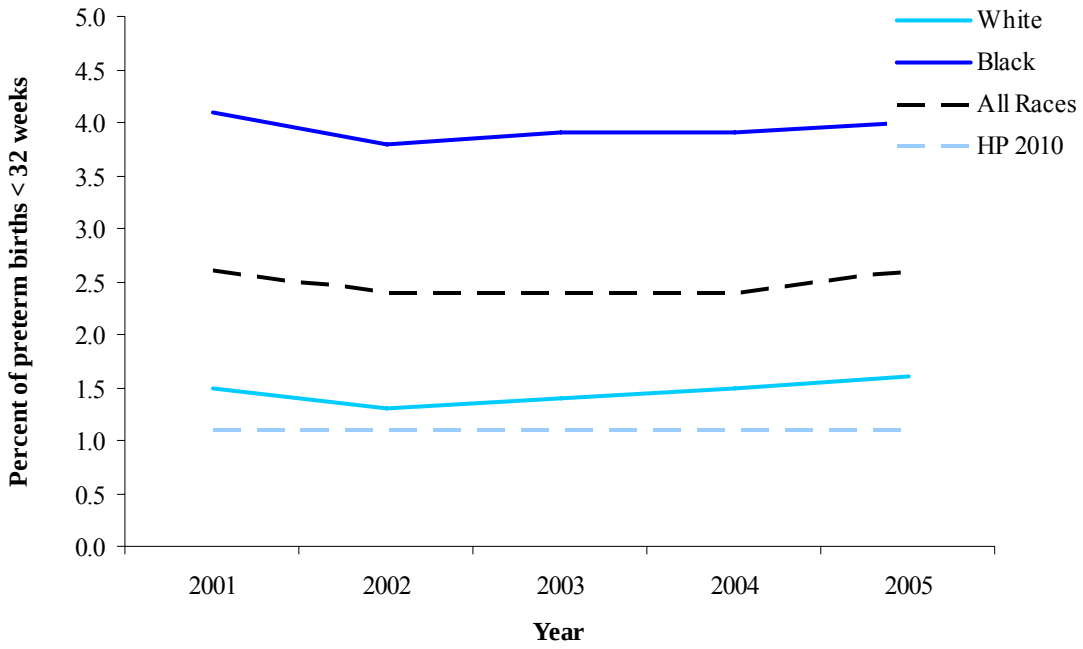
HP 2010 Target: (16-11c) **1.1%** of live births at less than 32 weeks gestation.

The rate of PTB < 32 weeks gestational age increased for white but decreased for black births from 2001 to 2005. The annual percentage change was 2% for white and 0.5% for black births. The rate for all races was steady and around 2.4% – 2.6% during the same time period. The annual black to white ratio of preterm births at < 32 weeks gestational age ranged between 2.5 and 2.9 for 2001-2005 (Table 53, Figure 31).

Table 53: Rates (%) of preterm births at less than 32 weeks of gestation by race, Louisiana 2001-05

Race	*2001*	*2002*	*2003*	*2004*	*2005*	*U.S.2005*
White	1.5	1.3	1.4	1.5	1.6	
Black	4.1	3.8	3.9	3.9	4.0	
All Races	2.6	2.4	2.4	2.4	2.6	2.0

Figure 31: Trend of preterm births at less than 32 weeks of gestation by race, Louisiana 2001-05



G.4. Preterm Births at 32-36 Weeks of Gestation

The rate of preterm births from 32-36 weeks of gestation is defined as the number of live births with gestational age between 32 and 36 weeks per 100 live births.

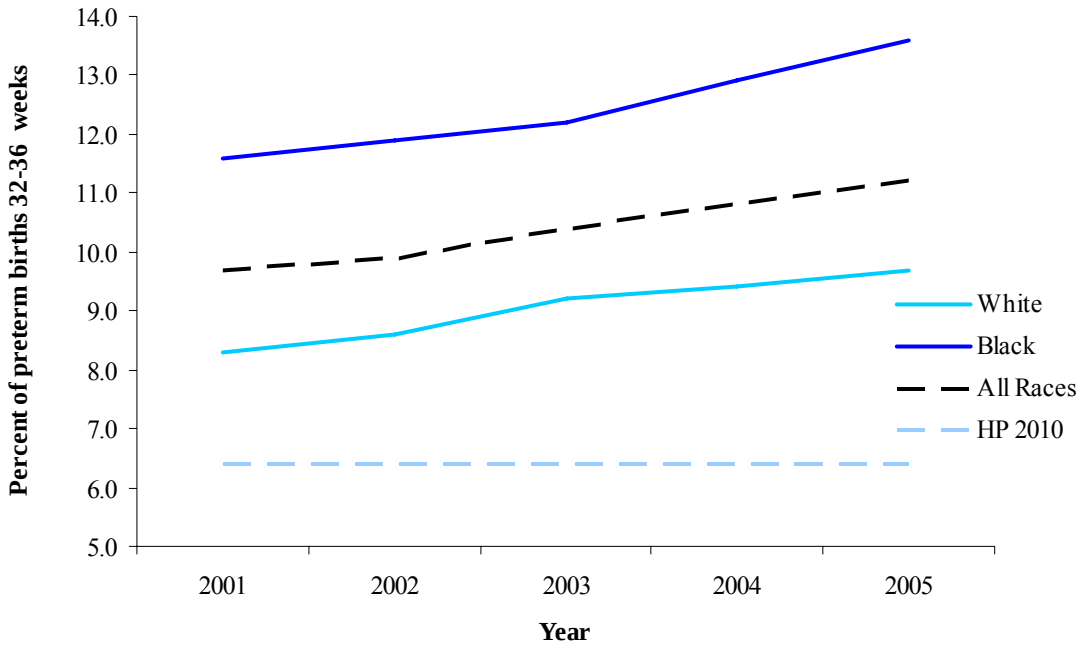
HP 2010 target (16-11b) **6.4%** of live births at 32-36 weeks gestational age.

From 2001 to 2005, the annual percentage increase of the preterm birth rate at 32-36 weeks of gestation was about 4.0% for both black and white mothers. The annual percentage increase for all races was 3.7%. The black to white ratio of preterm births at 32-36 weeks of gestation was almost unchanged and around 1.4 for years 2001-2005 (Table 54, Figure 32).

Table 54: Rates (%) of preterm births at 32-36 weeks gestation by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*	*U.S. 2005*
White	8.3	8.6	9.2	9.4	9.7	
Black	11.6	11.9	12.2	12.9	13.6	
All Races	9.7	9.9	10.4	10.8	11.2	10.7

Figure 32: Trend of preterm births at 32-36 weeks gestation by race, Louisiana 2001-2005



G.5 Total Preterm Births at Less Than 37 Weeks of Gestation

The rate of total preterm births at less than 37 weeks of gestation is defined as the number of live births with gestational age less than 37 weeks per 100 live births.

HP 2010 Target: (16-11a) **7.6%** of total preterm births < 37 weeks gestational age.

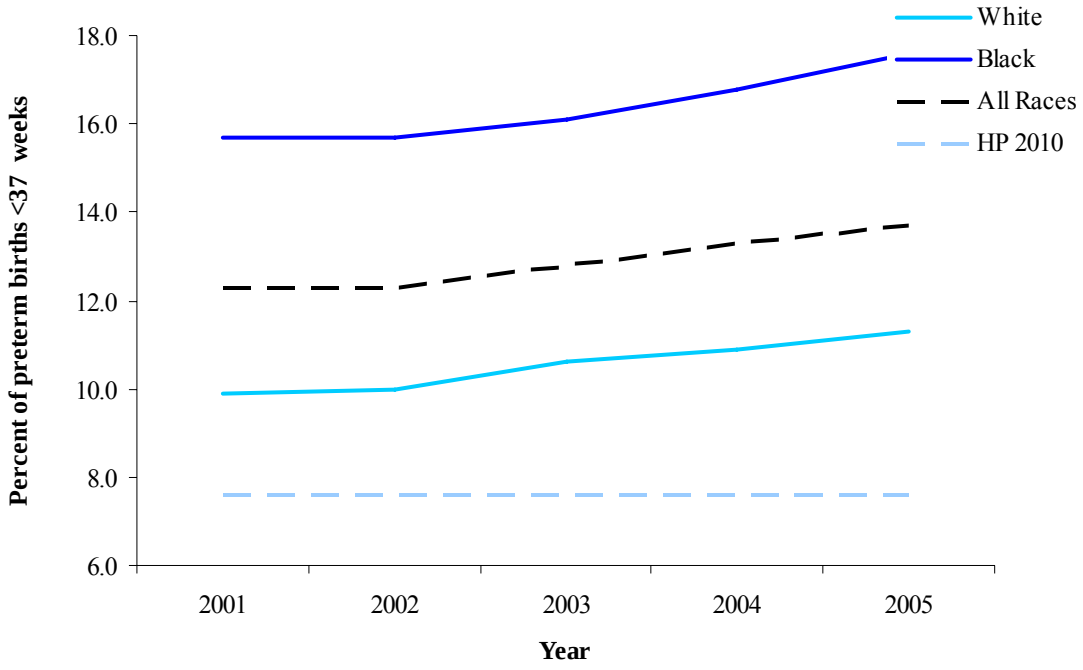
In 2005, Louisiana had the third highest rate of preterm births < 37 weeks gestational age among 50 states in the U.S. [10]

From 2001 to 2005, the rate of total preterm births increased with an annual percentage change of about 3.4% for white, 2.9% for black, and 3.7% for all-race mothers. More preterm births occurred to black mothers, with the black to white ratio around 1.5 to 1.6 for the years from 2001 to 2005 (Table 55, Figure 33).

Table 55: Rates (%) of total preterm births by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*	*U.S. 2005*
White	9.9	10	10.6	10.9	11.3	
Black	15.7	15.7	16.1	16.8	17.6	
All Races	12.3	12.3	12.8	13.3	13.7	12.7

Figure 33: Trend of total preterm birth by race, Louisiana 2001-2005



H. INFANT SLEEP POSITION

Sleep position has been identified as one of the leading risk factors for Sudden Infant Death Syndrome (SIDS), and public health campaigns such as "Back to Sleep" are thought to have contributed to dramatic decreases in SIDS-related infant mortality.

The rate of back sleep position is measured as the number of full-term infants put down to sleep on their backs per 100 live births.

Data sources: Maternal and Child Health program 2001-2004 *LaPRAMS.* Because of hurricane Katrina, La PRAMS data were not collected in 2005.

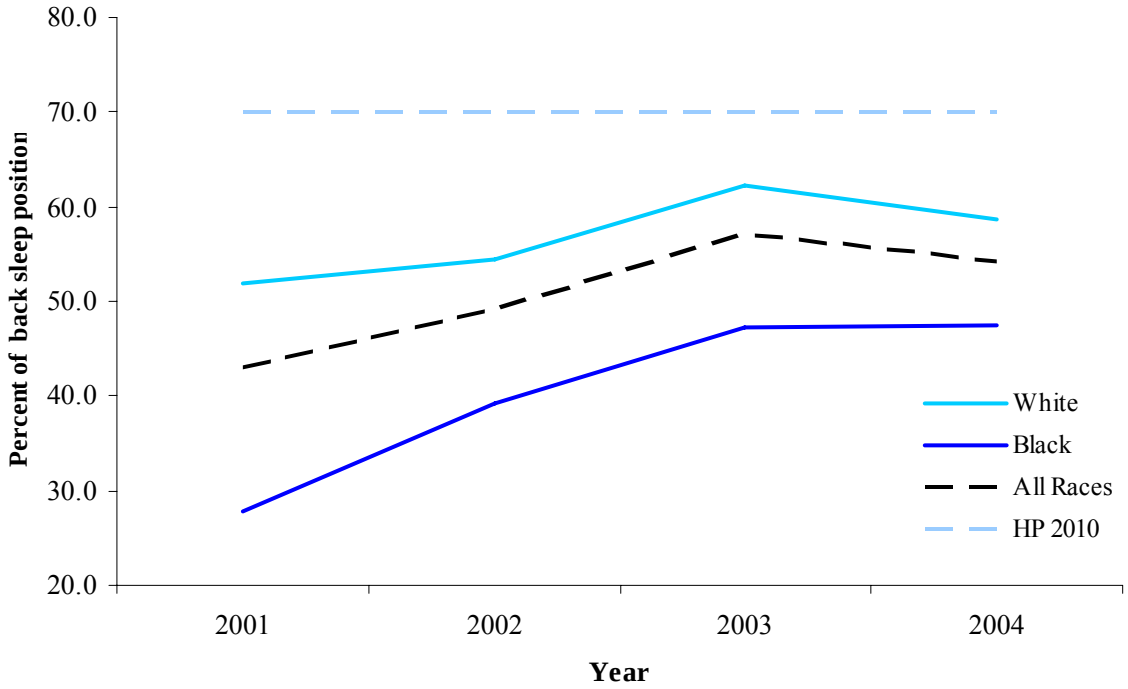
HP 2010 Target: (16-13) **70%** of healthy full-term infants are put down to sleep on their backs.

From 2001 to 2004, an annual percentage increase of 4.5% among white and 20.5% among black infants in the rate of infants put to sleep on their backs, contributing to an annual percentage increase of 8.5% among all races. The white to black ratio of infants put to sleep on their backs was 1.9, 1.4, 1.3 and 1.2, for 2001 through 2004, respectively (Table 56, Figure 34).

Table 56: Rates (%) of infants put down to sleep on their backs by race, Louisiana 2001-2004

Race	*2001*	*2002*	*2003*	*2004*
White	51.8	54.4	62.2	58.6
Black	27.9	39.3	47.2	47.4
All Races	43	49.1	57.2	54.3

Figure 34: Trend of back sleep position by race, Louisiana 2001-2004



I. BREASTFEEDING

The positive effects for both mother and baby related to breastfeeding cannot be overstated, which decrease new cases or severity of diarrhea, respiratory infections, and ear infections, among others, and reduce cost to the family. In addition, breastfeeding has been shown to improve maternal health, with demonstrated effects, including reduction in postpartum bleeding, earlier return to pre-pregnancy weight, reduced risk of premenopausal breast cancer, and reduced risk of osteoporosis, continuing long after the postpartum period. The American Academy of Pediatrics considers breastfeeding to be "the ideal method of feeding and nurturing infants." [14] Furthermore, there is evidence that the highest risk infants benefit significantly from the consumption of human milk. [15] Initiation of breastfeeding in the hospital is strongly associated with breastfeeding continuation and success. [16] The current AAP guidelines recommend exclusive breastfeeding for at least 6 months, continuing through to one year, with introduction of other solids at 6 months. [14]

Maternal and Child Health program 2001-2004 *La PRAMS* were used as data sources for breastfeeding data analysis.

I.1 Breastfeeding in Early Postpartum Period

The rate of breastfeeding in the early postpartum period is defined as the number of live births to women who report ever breastfeeding their infants per 100 live births.

HP2010 Target 16-19a. **75%** of women will breastfeed in the early postpartum period.

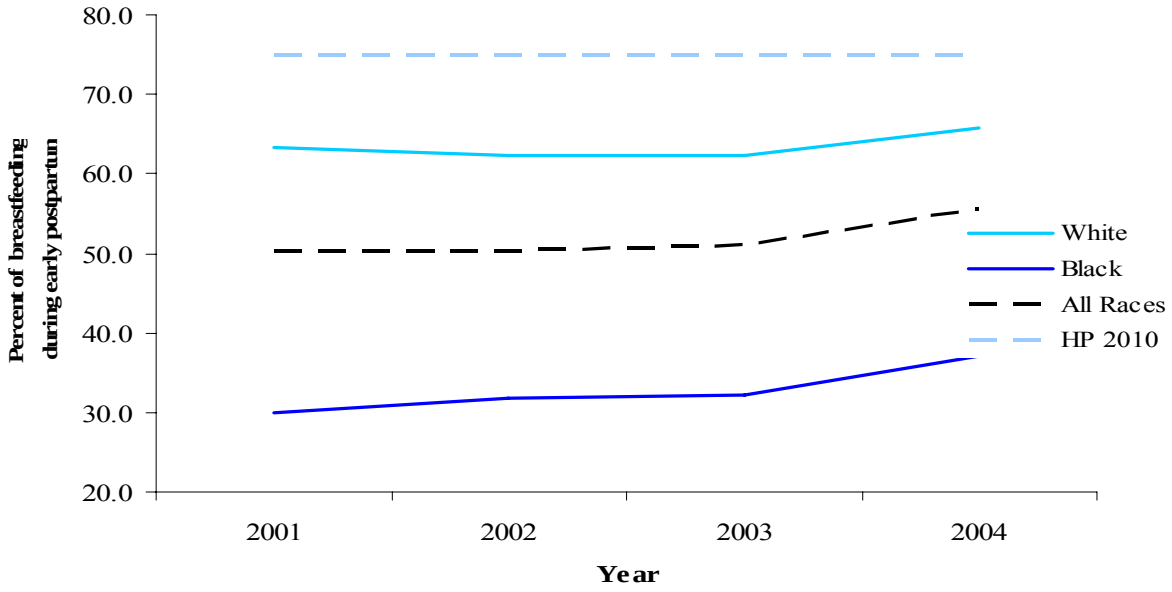
In 2005, Louisiana ranked 51st (last) among 50 states and Washington DC for the percentage of infants to women who had ever been breastfed. [17]

Based on LaPRAMS data from 2001 to 2004, the rate of live births to women who reported ever having breastfed their infant increased, with an annual percentage increase of 1.2% for white and 7.6% black women, contributing to an annual percentage increase of 3.3% all races. White mothers reported ever breastfeeding more often than black mothers, with white to black ratios between 1.8 and 2.1 for 2001-2004 (Table 57, Figure 35).

Table 57: Rates (%) of breastfeeding in the early postpartum period by race, Louisiana 2001-04

Race	*2001*	*2002*	*2003*	*2004*
White	63.4	62.3	62.4	65.7
Black	29.9	31.7	32.3	37.1
All Races	50.4	50.3	51.2	55.5

Figure 35: Trend of breastfeeding in the early postpartum period by race, Louisiana 2001-2004



I.2 Breastfeeding in Hospital

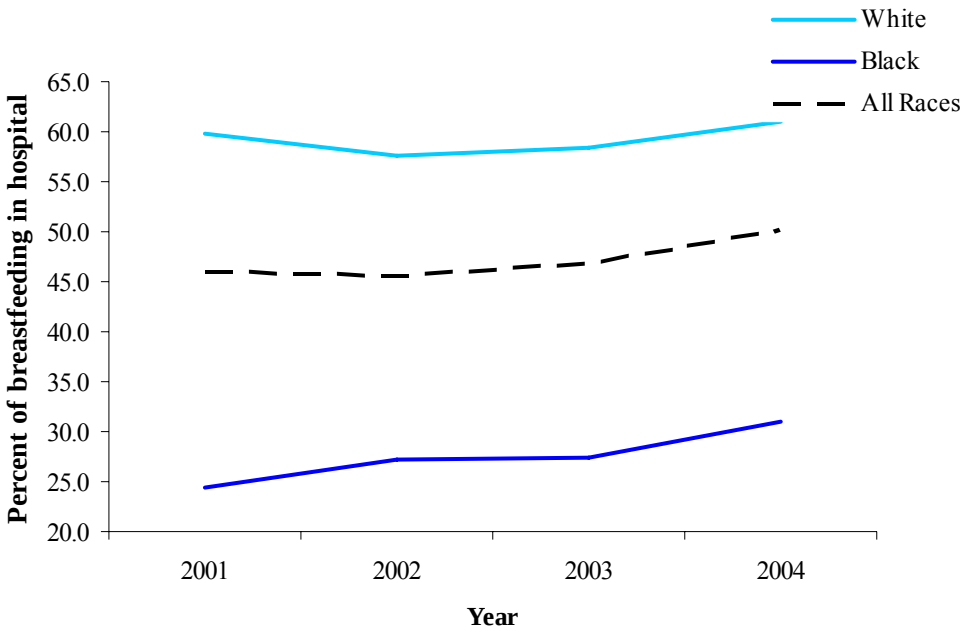
The rate of hospital breastfeeding is measured as the number of live births to women who report breastfeeding their infants in the hospital per 100 live births.

From 2001 to 2004, the rate of breastfeeding in the hospital increased marginally for white women, with an annual percentage increase of about 0.8%. The annual percentage increase was much higher for black women, 8.4%. The annual percentage increase for all races was 3.0%. White mothers reported breastfeeding in the hospital more often than black mothers, with the white to black ratio between 2.0 and 2.5 for the years 2001 – 2004 (Table 58, Figure 36).

Table 58: Rates (%) of breastfeeding in hospital by race, Louisiana 2001-2004

Race	*2001*	*2002*	*2003*	*2004*
White	59.8	57.6	58.5	61.1
Black	24.4	27.2	27.4	31.0
All Races	46.0	45.7	46.8	50.2

Figure 36: Trend of breastfeeding in hospital by race, Louisiana 2001-2004



I.3 Breastfeeding at Six Months

The rate of breastfeeding at six months is measured as the number of live births to women who report breastfeeding their infants at least 6 months per 100 live births.

HP2010 Target **16-19b.** 50% of women will breastfeed their infants for at least 6 months.

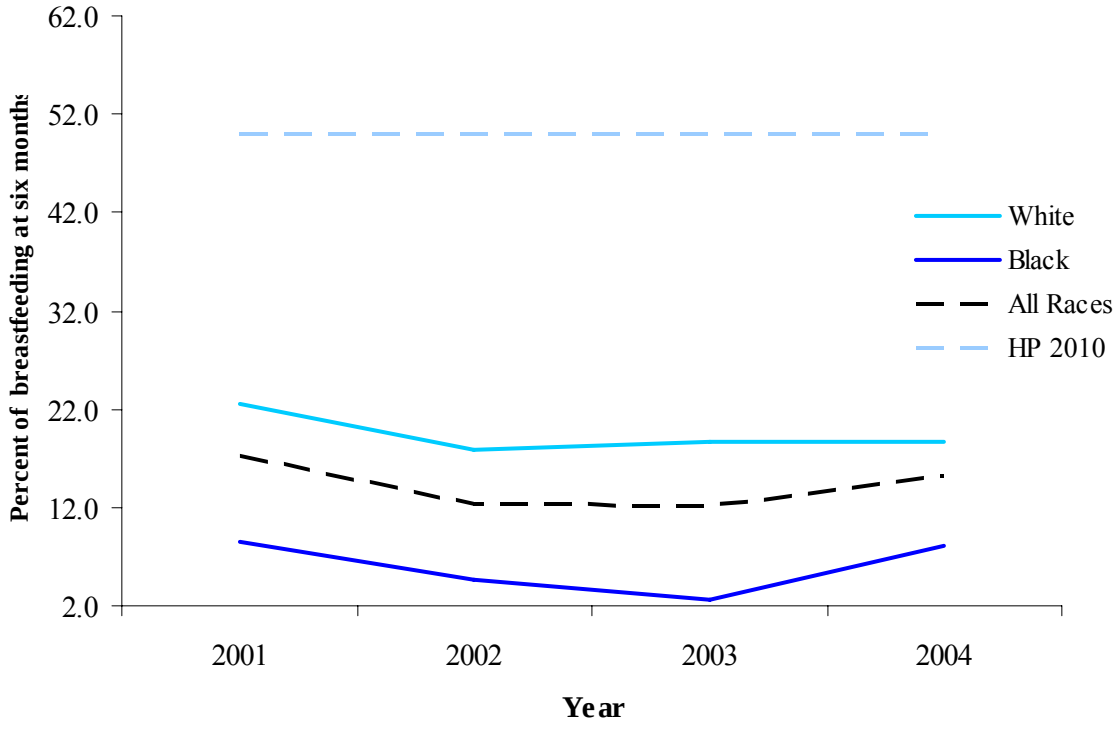
In 2005, Louisiana ranked 50th (second to last) among the 50 states and Washington DC with regard to the percent of infants who were breastfed at six months. [17]

The rate of breastfeeding at six months among white women was 22.6% in 2001 and decreased to 18.7% in 2004; the annual percentage increase was 5.4% from 2001 to 2004. Among black women, the rate was highly unstable as reported due to small sample size, and data were considered too unreliable to estimate the trend. In general, the average annual percentage decrease for all races was a 1.7%, and white mothers reported breastfeeding at six months more often than black mothers. The white to black ratio of breastfeeding at six months was 2.6, 3.8, 6.9 and 2.3, respectively, for each year from 2001 to 2004 (Table 59, Figure 37).

Table 59: Rates (%) of breastfeeding at 6 months by race, Louisiana 2001-2004

Race	*2001*	*2002*	*2003*	*2004*
White	22.6	17.8	18.7	18.7
Black	8.6	4.7	2.7	8.2
All Races	17.3	12.3	12.2	15.2

Figure 37: Trend of breastfeeding at 6 months by race in Louisiana from 2001 to 2004



J. SUBSTANCE EXPOSURE DURING PREGNANCY

The risks associated with substance use during pregnancy are well documented. Smoking during pregnancy is associated with preterm birth and low birth weight among negative birth outcomes. The American College of Obstetrics and Gynecology (ACOG) has issued a statement saying that there are no safe levels of alcohol intake during pregnancy; fetal alcohol syndrome (FAS) and fetal alcohol spectrum disorders (FASD) are considered to be the foremost preventable conditions involving neurobehavioral and developmental abnormalities. [18]

Louisiana obtains data for these indicators from LaPRAMS; questions are asked about intake during the last 3 months of pregnancy. 2001-2004 LaPRAMS data were used for analysis in this section.

J.1. Smoking during the Last 3 Months of Pregnancy

The rate of smoking during the last three months of pregnancy is measured as the number of live births to women who report smoking during the last three months of pregnancy per 100 live births.

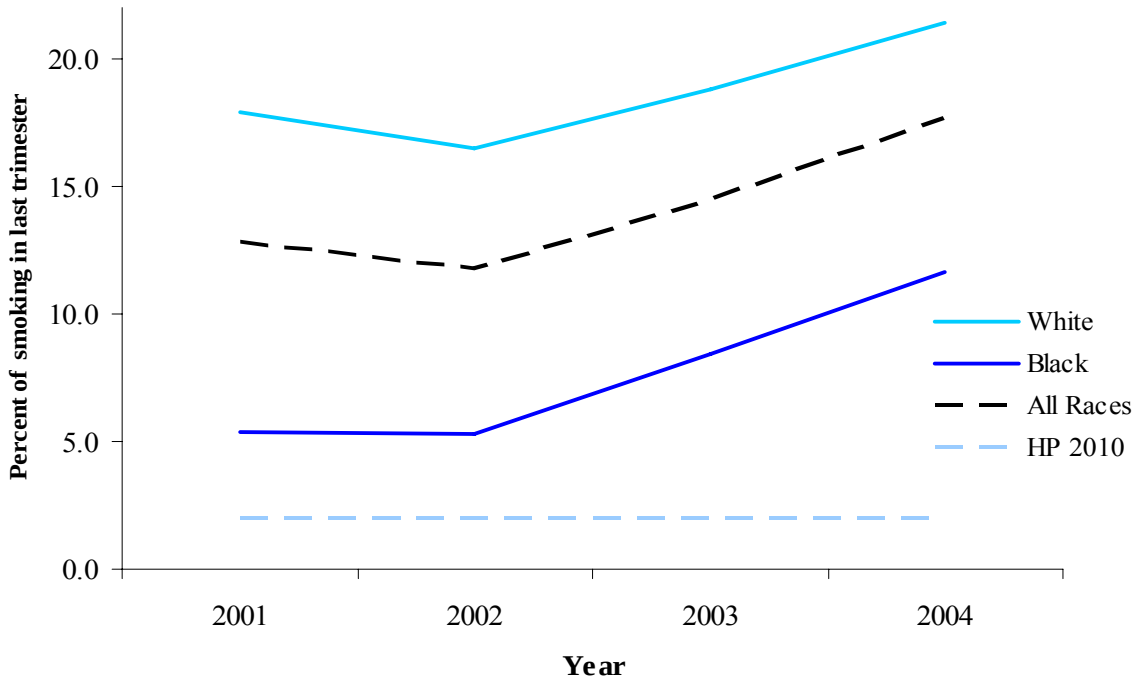
HP2010 target 16-17c. Percent of women who smoke during pregnancy decreases to 2%.
In year 2004 Louisiana ranks 15th in the nation for smoking rates during pregnancy. [19]

Smoking rates among women in their third trimester of pregnancy increased for all races, with an annual percentage change of 12.4% from 2001 to 2004. The annual percentage increase was 6.6% for white and 31.6% for black women. White women reported smoking during the third trimester more often than black women. The white to black ratio from 2001 to 2004 varied greatly and ranged between 1.8 and 3.3 (Table 60, Figure 38).

Table 60: Rates (%) of smoking during last 3 months of pregnancy by race, Louisiana, 2001-2004

Race	*2001*	*2002*	*2003*	*2004*
White	17.9	16.5	18.8	21.4
Black	5.4	5.3	8.4	11.6
All Races	12.8	11.8	14.5	17.7

Figure 38: Trend of smoking during last three months of pregnancy by race, Louisiana 2001-2005



J.2. Alcohol Use during Last 3 Months of Pregnancy

The rate of alcohol intake during the last three months of pregnancy is measured as the number of live births to women who report drinking any alcohol during the last three months of pregnancy per 100 live births.

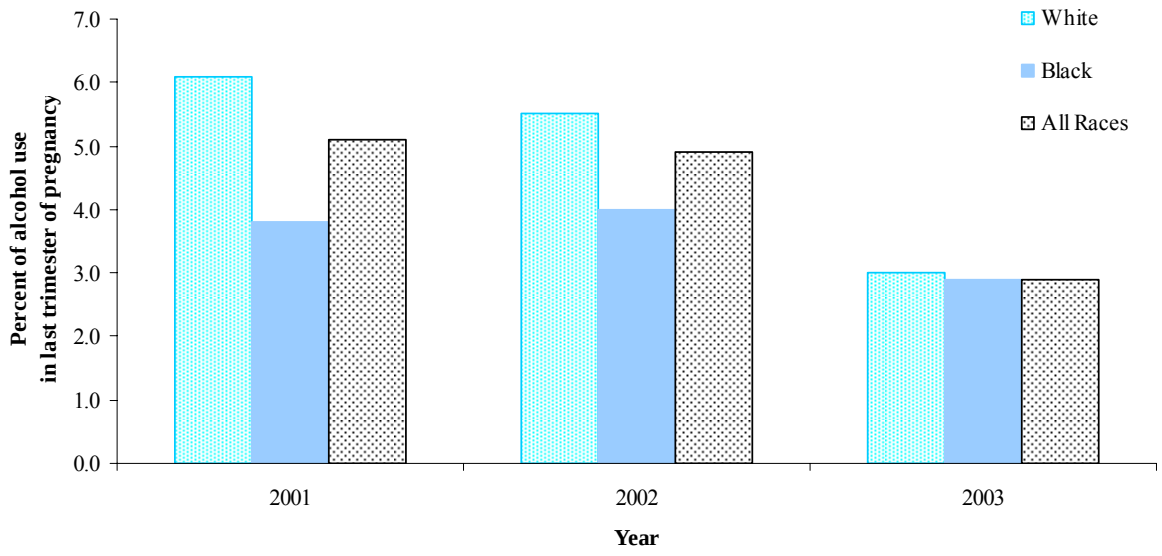
HP2010 target 16-17a. Percent of women who drink alcohol during pregnancy decreases to 4%.

The rate of alcohol use during the last three months of pregnancy decreased from 2001 to 2003, with an annual percentage change of 27.6% for white, 11.1% for black, and 22.4% for all races. Regarding alcohol use in the last trimester of pregnancy, because the 2004 survey question was considered incomparable to the other years, the trend analysis did not include 2004 data for this measure. White women reported use alcohol during the third trimester more often than black women; the white to black ratio from 2001 to 2003 was 1.6, 1.4, and 1.0, respectively (Table 61, Figure 39).

Table 61: Alcohol use rates (%) during last three months of pregnancy by race, Louisiana 2001-04

Race	*2001*	*2002*	*2003*	*2004*
White	6.1	5.5	3.0	9.1
Black	3.8	4.0	2.9	3.5
All Races	5.1	4.9	2.9	6.8

Figure 39: Trend of alcohol use during the last 3 months of pregnancy by race, Louisiana 2001-04



K. NEWBORN SCREENING

Newborn screening tests are blood tests carried out before all infants are discharged from the hospital after birth. The purpose of these tests is to detect infants with rare genetic disorders that can become catastrophic health problems if not treated early. Early detection and treatment of newborns with these disorders prevents many and in some disorders all of the serious clinical sequelae. In the early 1960's, states across the Nation began adopting newborn screening for phenylketonuria (PKU). The Louisiana Newborn Screening Program started with screening for PKU in 1964, and screening for other diseases was added in subsequent years.

In 2005, the American College of Medical Genetics (ACMG) addressed the problem of the lack of a national standard and recommended a core panel of 29 disorders. The majority of states have now adopted the ACMG recommended core panel. In Louisiana, currently 29 disorders on the newborn screening ACMG core panel are screened; of those, 28 disorders are screened through newborn screening program. Louisiana has a legislative mandate requiring universal newborn hearing screening. The Hearing, Speech and Vision Program in the Office of Public Health is the agency mandated to assure that screening and follow-up are completed. The 10 most common diseases listed on this panel are PKU, congenital hypothyroidism, biotinidase deficiency, galactosemia, sickle cell disease, argininosuccinic aciduria, citrullinemia, homcystinuria, maple syrup urine disease and medium chain acyl coA dehydrogenase deficiency. The symptoms associated with these diseases, when untreated, are mental retardation for PKU and congenital hypothyroidism, seizures and other neurological sequelae for biotinidase deficiency and galactosemia, and life-threatening infections in the first few years of life for sickle cell disease patients.

The Louisiana Newborn Screening Rule (LAC 48: 6303) requires all newborns be screened before hospital discharge regardless of their length of stay. Newborns remaining in the hospital for an extended period should have an initial screening no later than seven days after birth.

Linked newborn screening and birth records were used for data analysis in this report. Data were available for 2004 and 2005 only. Although the rate of newborn screening was lower in 2005 than in 2004, it was considered underreported in 2005 due to the effect of the 2005 hurricanes (Table 62).

Table 62: Percent of Newborn screening among births occurring in Louisiana by race, 2004-2005

Race	***2004***	***2005***
White	98.1	96.3
Black	98.1	95.4
All Races	98.1	95.9

L. LEAD POISONING

The Louisiana Childhood Lead Poisoning Prevention Program Rule (LAC 48:V.7001-7007) requires health providers to report a case of lead poisoning (that is, a case in which the venous blood-lead level is 15 micrograms per deciliter (µg/dl) or higher) within 48 hours to ensure that the child receives the necessary medical and environmental services. In addition, the rule requires laboratories to report all blood lead levels{ XE "Blood lead levels" }, regardless of whether or not they are elevated. The information received is used for case management and surveillance{ XE "Surveillance" }.
Lead poisoning{ XE "Lead poisoning" } is a preventable disease that affects 4.4% of children in the United States between 6 months and 6 years of age. [20] Screening is an important component of lead poisoning prevention and elimination, as it is only through screening that lead-poisoned children are identified. Once identified, the program can ensure that lead poisoned children receive the necessary services.

The rate of elevated blood lead levels in children is measured as the number of children aged 1-6 years who have blood lead levels ≥ 10 µg/dl, expressed per 100 children aged 1-6 years screened.

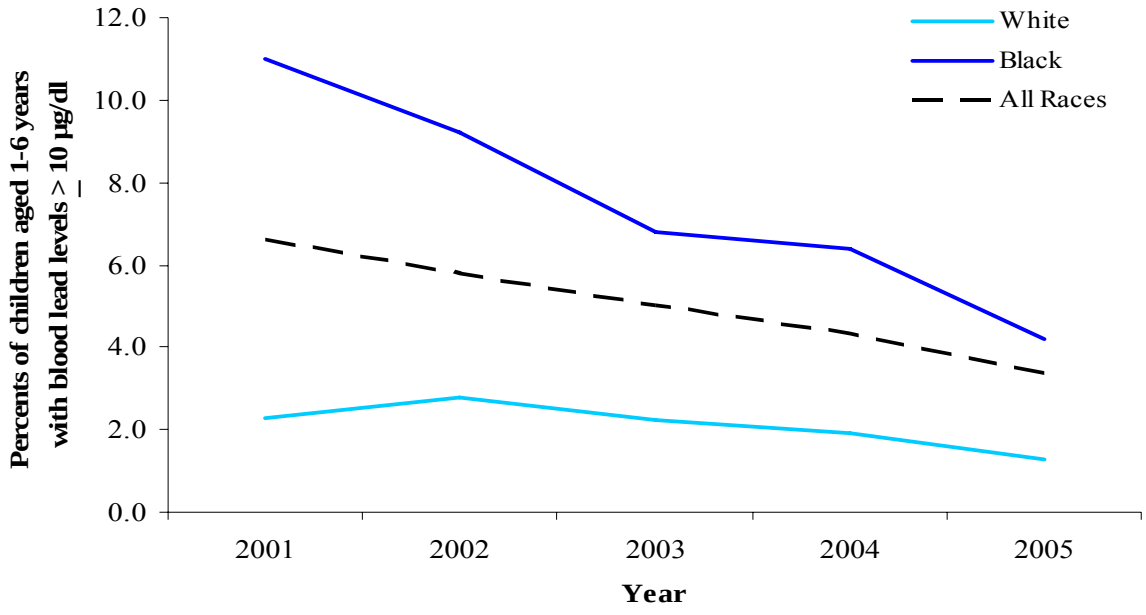
Healthy People 2010 Target: (8-11) **zero percent** of children aged 1-6 years to have blood lead levels ≥ 10 µg/dl.

From 2001 to 2005, the rate of elevated blood lead levels in children aged 1-6 years decreased for both white and black children in Louisiana. The annual percentage decrease was 11.6% for white, 20.8% for black, and 15.3% for all race children. The rate of elevated blood lead levels was higher in black than white children, although the black to white ratio decreased from 2001 to 2005; it was 4.8 in 2001 and 3.3 in 2005 (Table 63, Figure 40).

Table 63: Rates (%) of children aged 1-6 years with blood lead levels ≥ 10 µg/dl, Louisiana 2001-05

Race	*2001*	*2002*	*2003*	*2004*	*2005*
White	2.3	2.8	2.2	1.9	1.3
Black	11.0	9.2	6.8	6.4	4.2
All Races	6.6	5.8	5.0	4.3	3.4

Figure 40: Trend of children aged 1-6 years with elevated blood lead levels, Louisiana 2001-2005



M. LIVE BIRTH DELIVERIES PAID FOR BY MEDICAID

The rate of live birth deliveries paid for by Medicaid is defined as the number of live births whose deliveries were paid for by Medicaid per 100 live births.

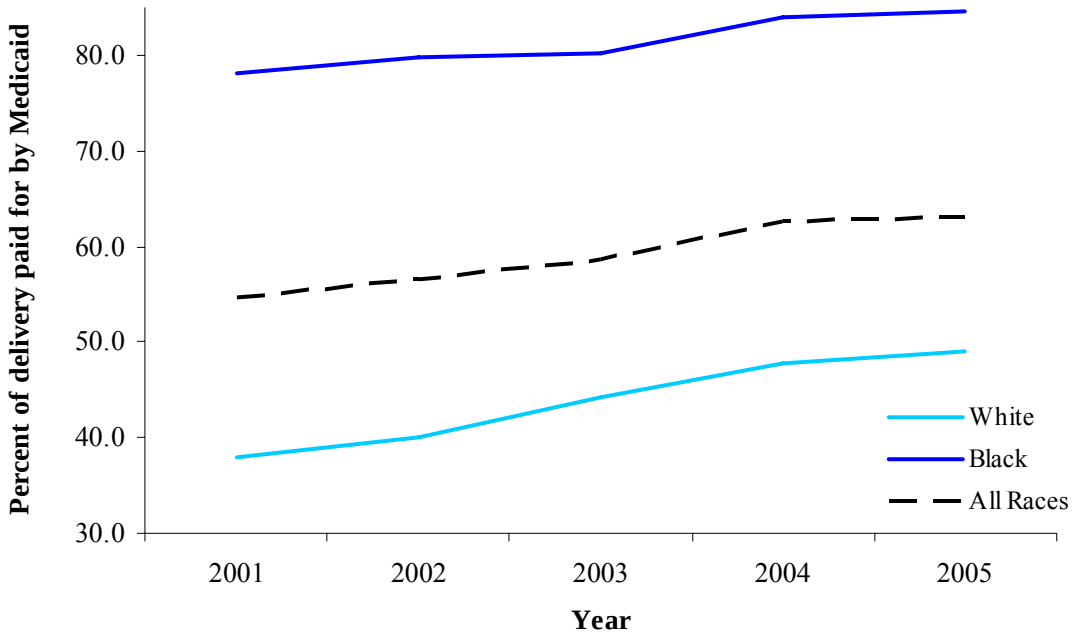
Data sources: DHH Bureau of Health Services Finance *2001-2005 Medicaid eligibility and claims data* linked with DHH Louisiana State Center for Health Statistics *2001-2005 birth certificates.*

The rate of live birth deliveries paid for by Medicaid increased for both black and white women from 2001 to 2005 in Louisiana. The rate was 38.0% in 2001 and 49.0% in 2005 among white women; 78.2% in 2001 and 84.5% in 2005 among black women. The annual percentage increase was 6.6% for white and 2.2% for black women. For all races the rate was 54.7% in 2001 and increased to 63.1% in 2005; the annual percentage increase was 3.6%. The rate of live birth deliveries paid for by Medicaid was much higher in black than white women, although the racial disparity decreased from 2001 to 2005. The black to white ratio for each year from 2001-2005 was 2.1, 2.0, 1.8, 1.8, and 1.7, respectively (Table 64, Figure 41).

Table 64: Rates (%) of live birth deliveries paid for by Medicaid by race, Louisiana 2001-2005

Race	*2001*	*2002*	*2003*	*2004*	*2005*
White	38.0	40.1	44.2	47.8	49.0
Black	78.2	79.8	80.2	84.0	84.5
All Races	54.7	56.6	58.7	62.6	63.1

Figure 41: Trend of live birth deliveries paid for by Medicaid by race, Louisiana 2001-2005



N.CHILDREN WITH SPECIAL HEALTH CARE NEEDS

Children with Special Health Care Needs (CSHCN) are defined by the federal Maternal and Child Health Bureau as those *who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that generally required by children.* According to the 2005-2006 National Survey of CSHCN (NS-CSHCN), **14.8%** of Louisiana children aged 0 to 17 years had special health needs. Six core outcomes defined by the Maternal and Child Health Bureau (http://www.cshcndata.org/Content/Default.aspx) are presented as follows:

N.1. Outcome # 1: Satisfaction with services

Families are the constant in their child's life and are pivotal in making any system work. Family members must have a meaningful, enduring, and leading role in the development of systems at all levels of policy, programs, and practice. Family voices must be heard, and families should be involved when decisions about their child's health care plan are made. Thus, the involvement of families is a key indicator of systems development (Table 65).

Table 65: Percent of CSHCN whose families are partners in decision making at all levels, and who are satisfied with the services they receive, 2001 and 2005-2006 NS-CSHCN surveys

Race	***2001***		***2005-2006***		***2005-2006 State Rank***
	Louisiana	**U.S**	**Louisiana**	**U.S**	
White	59.2	61.6	64.9	61.0	
Black	48.8	48.4	58.4	53.5	
All Races	**55.2**	**57.5**	**62.2**	**57.4**	**11th**

N.2. Outcome # 2: Medical Home

Once identified, CSHCN require a medical home: a source of ongoing, routine, primary health care provided by a knowledgeable pediatrician that is received within their community, and where providers and families work as partners. The medical home assists in the early identification of special health care needs; provides ongoing primary care; and coordinates with a broad range of other specialty, ancillary, and related services (Table 66).

Table 66: *Percent of CSHCN who receive coordinated, ongoing, comprehensive care within a medical home, 2001 and 2005-2006 NS-CSHCN surveys

Race	***2001***		***2005-2006***		***2005-2006 State Rank***
	Louisiana	**U.S**	**Louisiana**	**U.S**	
White	58.8	56.9	59.7	52.8	
Black	33.5	44.3	32.7	36.6	
All Races	**48.8**	**52.6**	**49.6**	**47.1**	**21st**

**Not comparable across survey years*

N.3. Outcome # 3: CSHCN Insurance coverage

Families must have a way to pay for services. Medicaid and the State Children's Health Insurance Program (S-CHIP) help address the health insurance needs for families living in poverty or are borderline impoverished. However, health insurance coverage is not enough to assess access to care. By definition, CSHCN utilize many sources of care, and it is financial burdens faced by families with CSHCN, such as out of pocket co-pays that pose significant barriers to access of care. Subsequently, adequacy of coverage serves as a better proxy to assess insurance coverage (Table 67).

Table 67: Percent of CSHCN whose families have adequate private and/or public insurance to pay for the services they need, 2001 and 2005-2006 NS-CSHCN surveys

Race	***2001***		***2005-2006***		***2005-2006 State Rank***
	Louisiana	**U.S**	**Louisiana**	**U.S**	
White	57.9	62.5	68.6	63.8	
Black	44.0	57.6	60.4	60.7	
All Races	**51.9**	**59.6**	**65.5**	**62.0**	**14th**

N.4. Outcome # 4: Special health care needs screening

Infants and children with high risk health conditions must be identified early in order to help assure that they and their families receive the care and assistance to prevent future morbidity and promote optimal development. Advances in brain research, the Human Genome Project, and increased effectiveness of early intervention have expanded our capacity to identify CSHCN and offer an opportunity for early intervention (Table 68).

Table 68: **Percent of CSHCN who are screened early and continuously for special health care needs, 2005-2006 NS-CSHCN surveys

Race	***Louisiana***	***U.S***	***2005-2006 State Rank***
White	58.5	67.2	
Black	48.1	56.5	
All Races	**54.3**	**63.8**	**49th**

*** Not assessed in 2001 survey*

N.5. Outcome # 5: Community based service systems

In order for services to be of value to CSHCN and their families, the system has to be organized in such a way that needs can be identified, the services are provided in accessible and appropriate contexts, and that there is a family-friendly mechanism to pay for them. Thus, effective organization of services is a key indicator of systems development (Table 69).

Table 69: *Percent of CSHCN whose services are organized in ways that families can use them easily, Louisiana 2001 and 2005-2006 NS-CSHCN surveys

Race	***2001***		***2005-2006***		***2005-2006 State Rank***
	Louisiana	**U.S**	**Louisiana**	**U.S**	
White	75.9	77.4	90.9	89.9	
Black	59.9	65.3	87.3	89.7	
All Races	**68.8**	**74.3**	**89.3**	**89.1**	**25th**

**Not comparable across survey years*

N.6. Outcome # 6: Youth transition

Advancements in medical technology have expanded the lifespan and improved the quality of life for CSHCN. Optimal health and independence for Youth with Special Health Care Needs involves proper transitioning from pediatric health care to adult systems of care, acquisition of comprehensive health insurance coverage, adult living arrangements, and enrollment in the job force. Therefore, appropriate adult health care options must be available within the community and provided in developmentally appropriate manners. Health care services must not only be family-centered, but they must also prepare the individual to take charge of his/her own health care (Table 70).

Table 70: *Percent of youth with special health care needs who receive the services necessary to make appropriate transitions to adult health care, work and independence, 2001 and 2005-2006 NS-CSHCN surveys

Race	***2001***		***2005-2006***		***2005-2006 State Rank***
	Louisiana	**U.S**	**Louisiana**	**U.S**	
White	--		52.5	46.5	
Black	--		21.6	28.7	
All Races	**4.5**	**5.8**	**40.9**	**41.2**	**31st**

**Not comparable across survey years. Data are not applicable for estimates by race in 2001 survey.*

O. PERINATAL HUMAN IMMUNODEFICIENCY VIRUS (HIV)

O.1. Perinatal Exposure to HIV

The rate of perinatal exposure to HIV is defined as the number of live births to mothers who are infected by HIV during pregnancy per 1,000 live births.

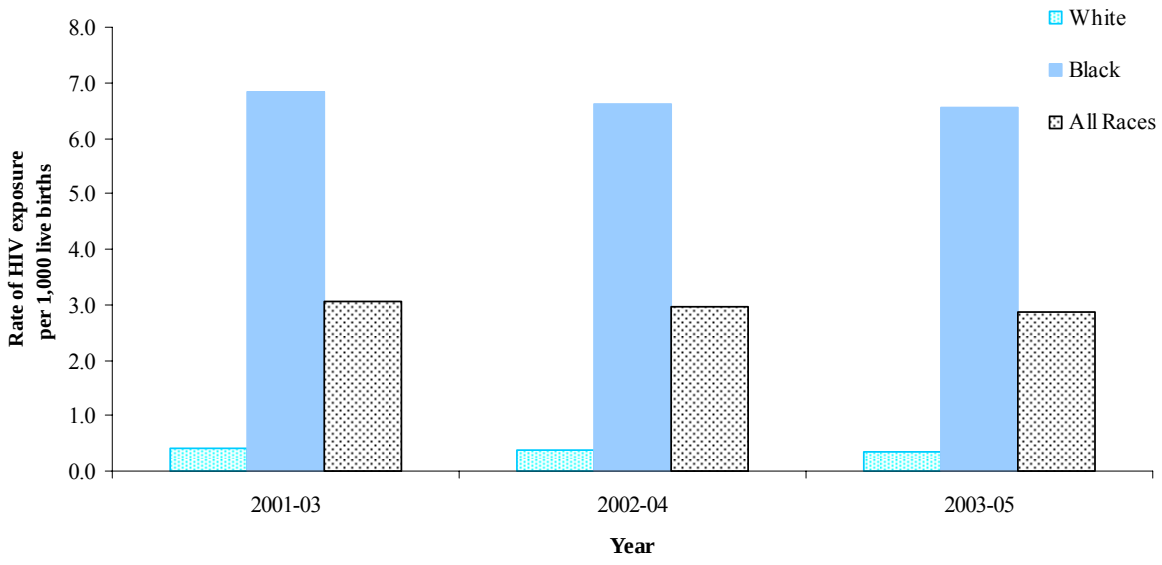
Data sources: Louisiana State Center for Health Statistics *2001-2005 birth certificates* linked with HIV/AIDS Program *2001-2005 HIV/AIDS data*.

The rate of perinatal exposure to HIV decreased for both white and black infants in Louisiana from 2001 to 2005. The three-year average percentage decrease was 5.3% for white, 2.3% for black, and 3.0% for all-race infants. The rate of perinatal exposure to HIV was much higher in black than in white infants. The black to white ratio was 17.1 in 2001-2003, 17.8 in 2002-2004, and 18.3 in 2003-2005 (Table 71, Figure 42).

Table 71: Rates of perinatal exposure to HIV per 1,000 live births by race, Louisiana 2001-2005

Race	***2001-03***		***2002-04***		***2003-05***	
	Number	Rate	Number	Rate	Number	Rate
White	44	0.40	41	0.37	39	0.36
Black	545	6.85	524	6.62	500	6.54
All Races	593	3.05	574	2.95	546	2.87

Figure 42: Trend of perinatal exposure to HIV by race, Louisiana 2001-2005



O.2. Mother-to-child transmission of HIV

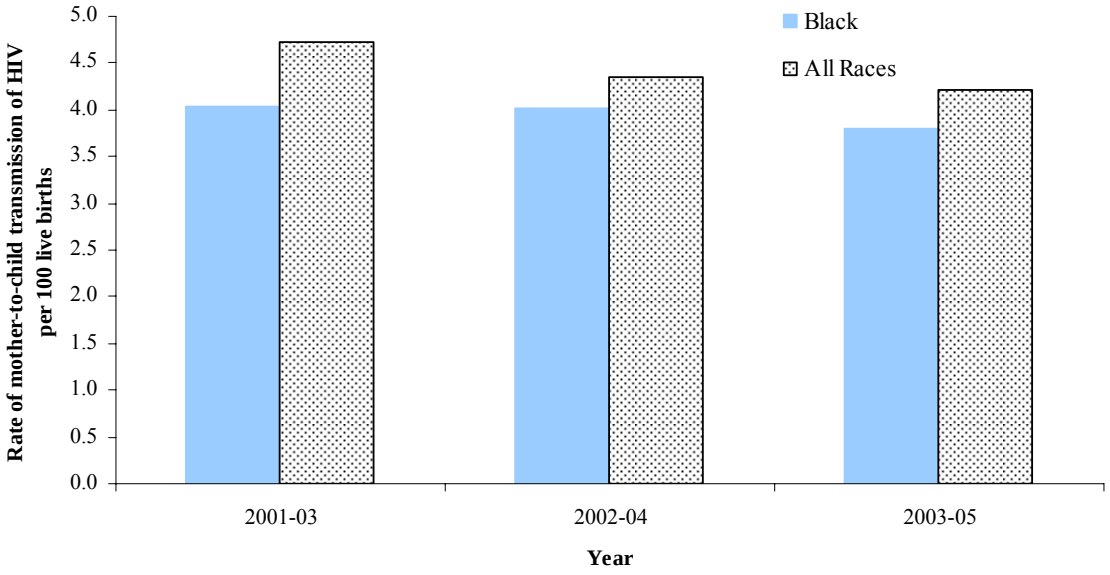
Rate of mother-to-child transmission of HIV is defined as number of babies who become infected by HIV per 100 live births to mothers who are infected by HIV during pregnancy.

Similar to the rate of perinatal exposure to HIV, the rate of mother-to-child transmission of HIV decreased in Louisiana from 2001 to 2005. The three-year average percentage decrease was 3.0% for black and 5.5% for all-race infants. Because of very small number of infants infected by HIV through mother-to-child transmission (between 0 and 2 cases per year), rate of mother-to-child transmission of HIV among white infants was not presented for trend analysis as well as racial disparity in this report (Table 72, Figure 43).

Table 72: Rates of mother-to-child transmission of HIV by race, Louisiana 201-2005

Race	***2001-03***		***2002-04***		***2003-05***	
	Number	Rate	Number	Rate	Number	Percent
White	-	-	-	-	-	-
Black	22	4.04	21	4.01	19	3.80
All Races	28	4.72	25	4.36	23	4.21

Figure 43: Trend of mother-to-child transmission of HIV by race, Louisiana 2001-2005



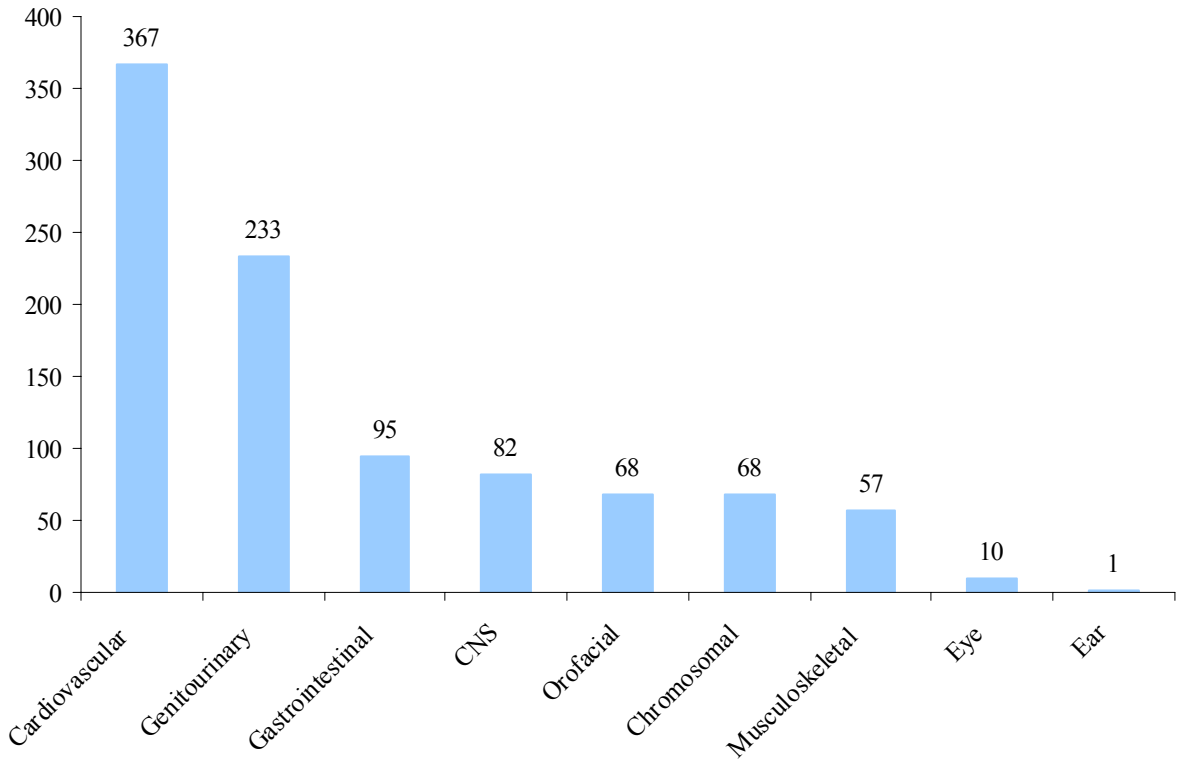
P. BIRTH DEFECTS:

The Louisiana Birth Defects Monitoring Network (LBDMN) is an active, population-based surveillance system that operates within the Department of Health and Hospitals (DHH), Office of Public Health (OPH). LBDMN tracks the occurrence of birth defects in children ages 0–2 years. LBDMN began active data collection in 2005 in four areas of the state: Region 1 (New Orleans metro), Region 2 (Baton Rouge metro), Region 5 (Lake Charles/southwest Louisiana), and Region 7 (Shreveport/northwest Louisiana). Due to circumstances resulting from Hurricanes Katrina and Rita (hospital closures, damaged/destroyed medical records), data of Region 1 resident births was incomplete for 2005.

LBDMN achieved a coverage rate of 42.5% of 2005 births by birthing hospital surveillance. Information was also collected from Children's Hospital (New Orleans) and from pediatric specialty clinics located at birthing hospitals (facilities serving children from all over the state).

Based on 2005 birth defects surveillance data, there were 845 case children; 62% male and 38% female; 64% white, 34% black, and 2% other races. Cardiovascular malformations were by far the most common category of birth defects, as 367 case children were affected by at least one cardiovascular malformation. The least common type of birth defect was malformations of the ear; only 1 case child had a congenital ear anomaly (Figure 44).

Figure 44: Number of birth defects cases by affected body system, 2005 LBDMN



Note: These numbers are not unduplicated counts; children with multiple birth defects may be counted in more than one category. CNS: Central nervous system

According to 2005 LBDMN data, the most common individual birth defect diagnosis was atrial septal defect, followed by ventricular septal defect, hypospadias/epispadias, patent ductus arteriosus, and obstructive genitourinary defect. Table 73 shows the ten most common birth defects and corresponding case counts.

Table 73: Ten most common birth defects, 2005 LBDMN

Rank	Diagnosis	# of Cases
1	Atrial septal defect	231
2	Ventricular septal defect	150
3	Hypospadias/epispadias	122
4	Patent ductus arteriosus	110
5	Obstructive genitourinary defect	97
6	Hypertrophic pyloric stenosis	53
7	Down syndrome	48
8	Cleft lip with and w/out cleft palate	47
9	Hydrocephalus	32
10	Microcephalus	31

Note: not an unduplicated count; children with multiple birth defects may be counted in more than one category.

Births to residents of Regions 2, 5 and 7 represented 32.4% of total Louisiana births for 2005 (19,990 live births). Due to the high level of coverage for those three regions (>90%), it was possible to combine the regional data and calculate rates. Table 74 shows the ten most common birth defects for Regions 2, 5 and 7, case counts, and corresponding rates (per 10,000 live births)

Table 74: Ten most common birth defects, regions 2, 5 and 7, 2005 LBDMN

Rank	Diagnosis	# of Cases	Rate
1	Atrial septal defect	128	64.0
2	Ventricular septal defect	88	44.0
3	Patent ductus arteriosus	68	34.0
4	Hypospadias/epispadias	61	30.5
5	Obstructive genitourinary defect	57	28.5
6	Hypertrophic pyloric stenosis	38	19.0
7	Down syndrome	25	12.5*
8	Cleft lip with or w/out cleft palate	25	12.5**
9	Hydrocephalus	23	11.5
10	Microcephalus	22	11.0
	All birth defects	470	235.1

National estimate: 13.6; National estimate:10.48*

Q. PERINATAL PERIODS OF RISK ANALYSIS

As part of an initiative to address Louisiana's high perinatal mortality rates, the Louisiana Office of Public Health, MCH Program, analyzed state-wide perinatal mortality rates using the perinatal periods of risk approach (PPOR). Analyses began in 2001, using 1997-1999 linked birth-infant death and fetal death data, and has continued in subsequent years by using data for 2000-2002 and 2003-2004. Year 2005 data were excluded from analyses because fetal death records were underreported and the birth-infant death match rate of the data linkage was low compared to other data years.

PPOR is a simple approach used to analyze perinatal mortality rates (including fetal and infant mortality rates), developed by Brian McCarthy MD, Centers for Disease Control and Prevention (CDC) and the World Health Organization to easily address the issue of perinatal mortality in developing countries. PPOR has been widely used in the U.S. by CityMatCH (www.citymatch.org). The PPOR approach focuses on the analysis of mortality rates for the fetal and infant periods as part of the whole perinatal mortality rate. The community component helps to mobilize communities by identifying gaps and targeting resources for intervention.

1. PPOR Methodology

PPOR was used to analyze 2000-2002 and 2003-2004 period linked data. The following steps were used:

(1) Exclude fetal deaths, live births, and infant deaths to non-Louisiana residents at birth. Exclude infants weighing less than 500 grams at birth. Exclude fetal deaths delivered prior to 24 weeks gestation or weighing less than 500 grams at delivery.

(2) Calculate the total perinatal mortality rate (per 1,000 live births and fetal deaths) for a given place, time period, and group. The numerator is the total number of fetal and infant deaths. The denominator is the number of live births plus fetal deaths.

(3) Divide the total perinatal mortality rate, based on birth weight and age at death, into four components, which in turn reflect possible causes of death and/or potential interventions (figures 1&2).

(4) Calculate the excess rate in each component by comparing each component rate to a reference group known to have a lower mortality experience than the study group. Louisiana uses white, non-Hispanic mothers who are more than 20 years of age and have at least 13 years of education as the comparison group. For each component, the excess rate is calculated by subtracting the mortality rate of the reference group from the mortality rate of the study group (figures 3, 4&5). The excess rate provides an indicator of the best window of opportunity for interventions by estimating how many deaths could be prevented if the study group has a similar mortality experience as the best case reference group. The largest excess usually indicates the greatest priority for intervention and future program planning.

2000-2002

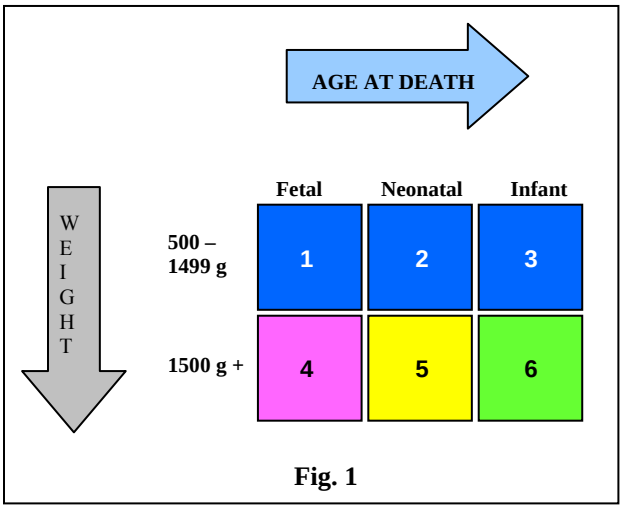


Fig. 1

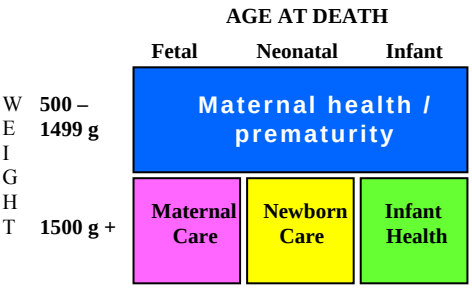


Fig. 2

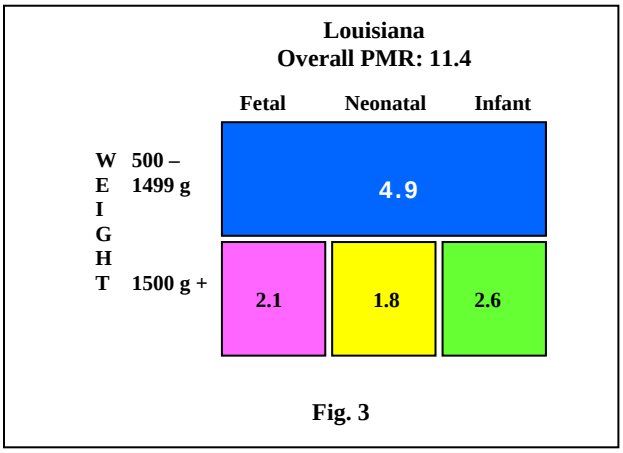


Fig. 3

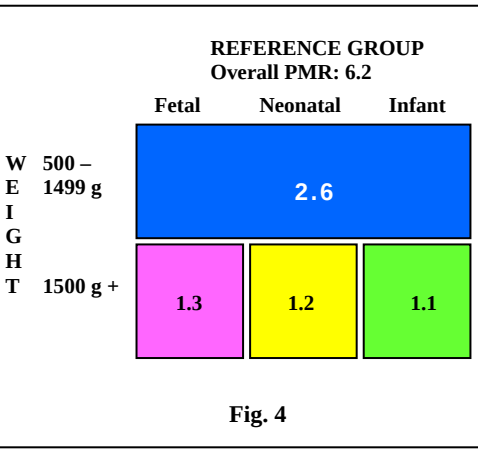


Fig. 4

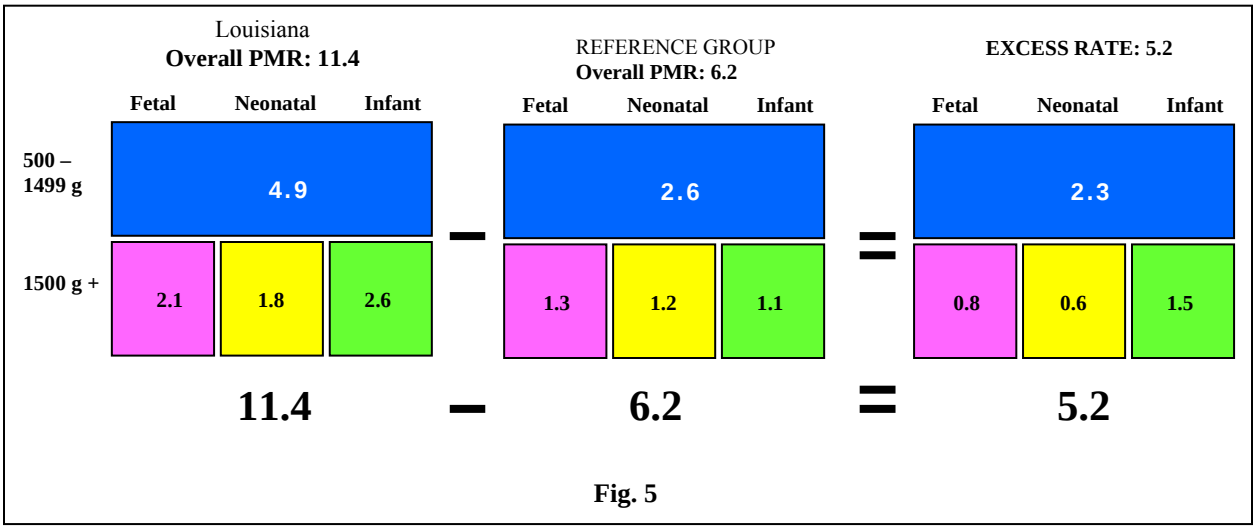


Fig. 5

2003-2004

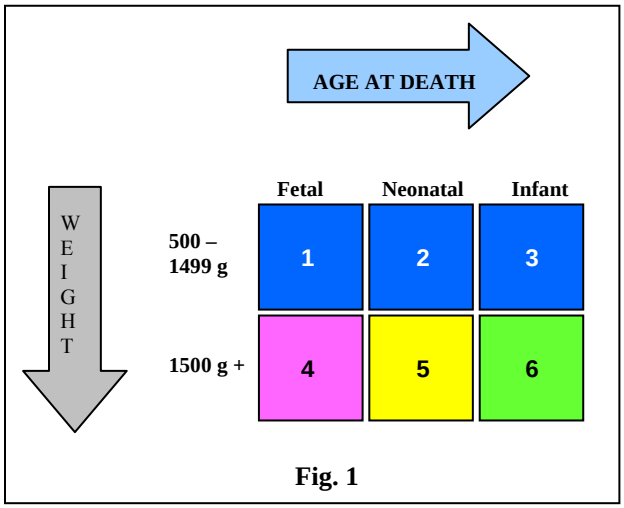


Fig. 1

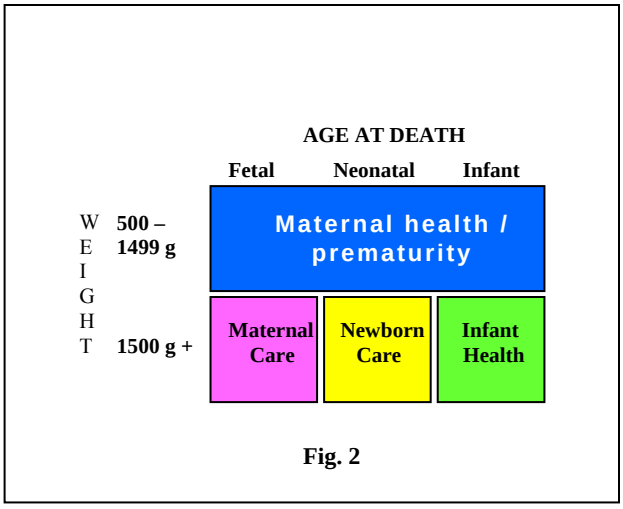


Fig. 2

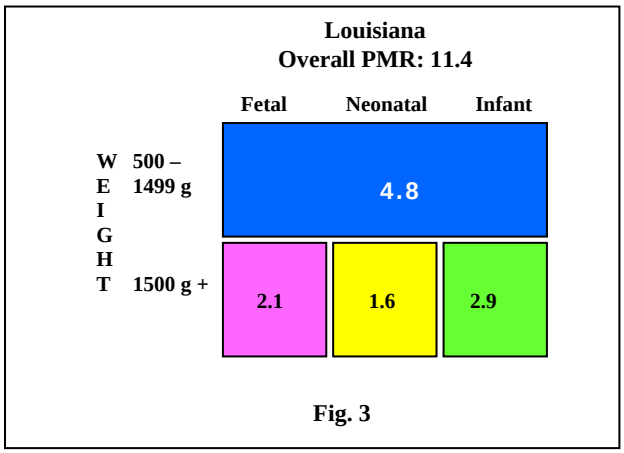


Fig. 3

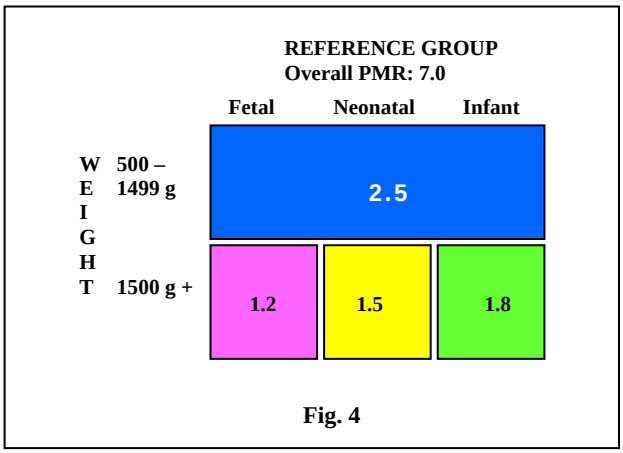


Fig. 4

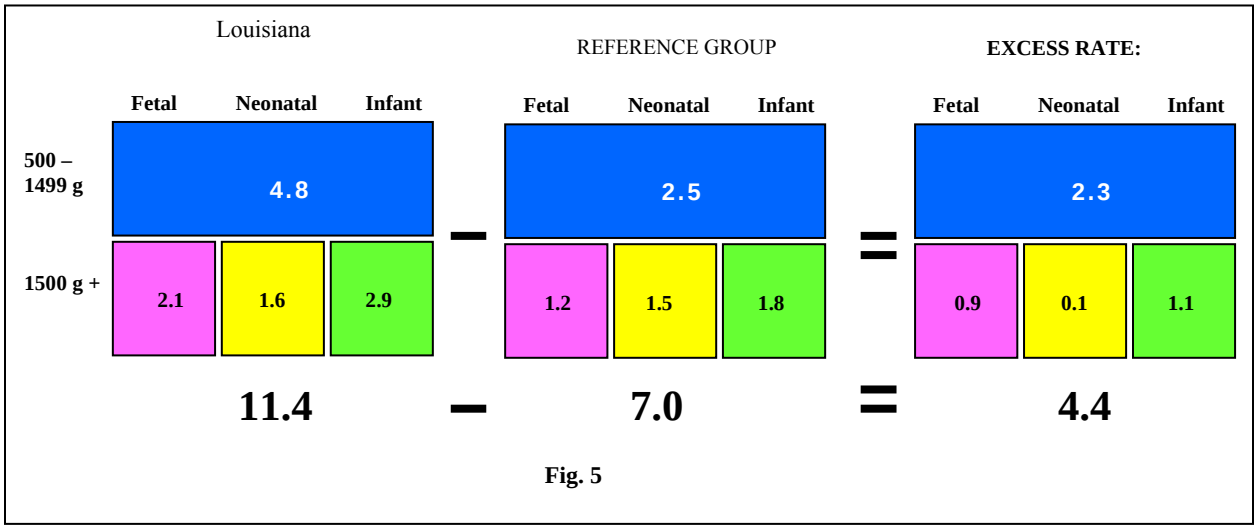


Fig. 5

PPOR Results

The state of Louisiana has an overall perinatal mortality rate of 11.4 deaths per 1,000 live births plus fetal deaths during the time periods of 2000-2002 and 2003-2004. The maternal health/prematurity cell (blue) has the highest mortality rate, followed by the infant health cell (green). Compared to the best-case reference group, excess mortality rates were highest for the maternal health/prematurity (blue) and the infant health (green) cell. Interventions to consider might include but are not limited to, prenatal care, preconceptional counseling, pregnancy spacing and SIDS reduction interventions. Tables 75 and 77 provide the perinatal mortality rates by component while tables 76 and 78 provide excess mortality.

Table 75: Feto-infant mortality rates per 1,000 live births and fetal deaths for all races by region, Louisiana PPOR, 2000-2002

Regions	Maternal Heath/ Prematurity		Maternal Care		New Born Care		Infant Health		Feto-Infant Mortality	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Louisiana	978	4.9	428	2.1	357	1.8	523	2.6	2286	11.4
Region 1	194	4.4	97	2.2	75	1.7	120	2.7	486	11.0
Region 2	134	5.0	57	2.1	49	1.8	59	2.2	299	11.1
Region 3	82	4.7	34	2.0	28	1.6	57	3.3	201	11.6
Region 4	108	4.3	50	2.0	41	1.6	66	2.6	265	10.5
Region 5	67	5.4	26	2.1	28	2.2	37	2.9	158	12.6
Region 6	68	4.9	30	2.2	32	2.3	31	2.2	161	11.6
Region 7	156	6.7	56	2.4	40	1.7	60	2.6	312	13.4
Region 8	107	6.8	41	2.6	26	1.7	51	3.2	225	14.3
Region 9	64	3.2	36	1.8	38	1.9	43	2.2	181	9.1
Louisiana Reference	135	2.6	67	1.3	64	1.2	59	1.1	325	6.2

Table 76: Excess feto-infant mortality rates per 1,000 live births and fetal deaths for all races by region, Louisiana PPOR 2000-2002

Region	Maternal Heath/ Prematurity	Maternal Care	Newborn Care	Infant Health	Excess total Feto-Infant Mortality
Louisiana	2.3	0.8	0.6	1.5	5.2
Region 1	1.8	0.9	0.5	1.6	4.8
Region 2	2.4	0.8	0.6	1.1	4.9
Region 3	2.1	0.7	0.4	2.2	5.4
Region 4	1.7	0.7	0.4	1.5	4.3
Region 5	2.8	0.8	1.0	1.8	6.4
Region 6	2.3	0.9	1.1	1.1	5.4
Region 7	4.1	1.1	0.5	1.5	7.2
Region 8	4.2	1.3	0.5	2.1	8.1
Region9	0.6	0.5	0.7	1.1	2.9

Table 77: Feto-infant mortality rates per 1,000 live births and fetal deaths for all races by region, Louisiana PPOR, 2003-2004

Regions	Maternal Heath/ Prematurity		Maternal Care		New Born Care		Infant Health		Feto-Infant Mortality	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Louisiana	622	4.8	275	2.1	211	1.6	381	2.9	1490	11.4
Region 1	139	4.8	48	1.7	50	1.7	97	3.3	334	11.5
Region 2	82	4.8	34	2.0	22	1.2	33	1.9	171	9.9
Region 3	45	4.0	30	2.7	20	1.8	29	2.6	124	11.1
Region 4	83	5.0	31	1.9	29	1.7	50	3.0	193	11.6
Region 5	33	4.0	20	2.4	16	2.0	25	3.1	94	11.5
Region 6	38	4.3	22	2.5	19	2.2	30	3.4	109	12.4
Region 7	93	6.2	32	2.1	17	1.2	38	2.5	180	12.0
Region 8	66	6.7	27	2.7	12	1.3	31	3.2	136	13.9
Region 9	44	3.3	32	2.3	26	1.9	49	3.6	151	11.1
Louisiana Reference	90	2.5	42	1.2	54	1.5	64	1.8	250	7.0

Table 78: Excess feto-infant mortality rates per 1,000 live births and fetal deaths for all races by region, Louisiana PPOR 2003-2004

Region	Maternal Heath/ Prematurity	Maternal Care	Newborn Care	Infant Health	Excess total Feto-Infant Mortality
Louisiana	2.3	0.9	0.1	1.1	4.4
Region1	2.3	0.5	0.2	1.5	4.5
Region2	2.3	0.8	0.0	0.1	2.9
Region3	1.5	1.5	0.3	0.8	4.1
Region4	2.5	0.7	0.2	1.2	4.6
Region5	1.5	1.2	0.5	1.3	4.5
Region6	1.8	1.3	0.7	1.6	5.4
Region7	3.7	0.9	0.0	0.7	5.0
Region8	4.2	1.5	0.0	1.4	6.9
Region9	0.8	1.1	0.4	1.8	4.1

III. SPECIAL PROJECTS:

1. Results from the Initial Year of Birth Defects Surveillance in Louisiana (2005)

Kay Webster, MPH; Tri Tran, MD, MPH; Susan Berry, MD, MPH

(Presented at the National Birth Defects Prevention Network 12th Annual Meeting, 2009)

Background: The Louisiana Birth Defects Monitoring Network (LBDMN) was established by legislative mandate in 2001. LBDMN is an active, limited population-based surveillance system that tracks the occurrence of birth defects and related conditions in children ages 0–2. Data collection was initiated in January 2005 in four regions of the state: Baton Rouge metropolitan (Region 2), Lake Charles/southwest LA (Region 5), New Orleans metropolitan (Region 1), and Shreveport/northwest LA (Region 7). The purpose of this project is to present results of analyses conducted on data from the first year of birth defects surveillance in Louisiana.

Methods: Data were obtained from the LBDMN registry, with additional information provided by linkage with birth certificate and infant death data from Louisiana Vital Records. Registry data included liveborn infants who met LBDMN case definition criteria. Because surveillance coverage for Region 1 was determined to be inadequate for 2005, analyses were limited to births among residents of Regions 2, 5 and 7 (n=19,990). Using SAS, analyses were conducted to (1) calculate frequencies of birth defects by body system; (2) estimate rates (per 10,000 live births) and 95% confidence intervals for the top ten birth defect diagnoses; (3) examine the association between having a birth defect and maternal characteristics and birth outcome, including maternal race, maternal age, preterm birth, low birth weight, and infant death.

Results: Surveillance coverage for 2005 was determined to be 42.5% of total births. Births in Regions 2, 5, and 7 represented 32.4% of total births. Cardiovascular malformations (CVM) were the most common type of birth defect (42.8%), followed by genitourinary (27.2%) and gastrointestinal malformations (12.3%). Atrial septal defect (ASD) was the most common birth defect (rate=64.03, CI: 52.94, 75.12). The rate of all birth defects in Regions 2, 5 and 7 was 235.12 (CI: 213.86, 256.37). Infants of white mothers were more likely to have a birth defect when compared to black mothers (OR=1.50, CI: 1.24, 1.82). Mothers of advanced maternal age (35+ years) were more likely to have an infant with a birth defect when compared to mothers age 20–34 (OR=1.48, CI: 1.12, 1.97). Infants with birth defects were six times more likely to be born very preterm (<32 weeks gestation) than infants without birth defects (OR=6.09, CI: 4.51, 8.22), and 2.5 times more likely to be born preterm (32–36 weeks gestation) (OR=2.69, CI: 2.15, 3.37). Similarly, infants with birth defects were more likely to be of very low birth weight (<1500 grams) (OR=5.99, CI: 4.36, 8.24) or of low birth weight (OR=3.12, CI: 2.49, 3.91). Infants with birth defects were nearly nine times more likely to die within their first year of life than infants without birth defects (OR=8.77, CI: 5.90, 13.04).

Conclusions: About 2.4% of children in the study had some type of birth defect; CVM were by far the most common, with 42.8% of case children having at least one CVM. Infants born to women over age 35 and infants born to white mothers were more likely to be born with birth defects. Infants with birth defects were at significantly increased risk of infant death, of being born prematurely, and of being born low birth weight. This research presents results of analyses conducted on data from the first-ever year of birth defects surveillance in Louisiana. While these findings cannot be used to draw conclusions about Louisiana as a whole, they do provide useful information on the burden of birth defects in three of the most populous regions of the state.

2. Perinatal HIV Exposure and Adverse Birth Outcomes

Jessica R. Jones, MPH, William T. Robinson, PhD, Tri Tran MD, MPH

(Presented at the 14th CDC/ MCHEPI Conference, 2008)

Background: Previous clinical research has produced conflicting results on the relationship between the HIV status of a mother, her use of antiretroviral therapies, and the occurrence of adverse birth outcomes such as preterm birth. Low birthweight and preterm birth are each associated with greater infant mortality, a major concern in Louisiana.

Study Question: How did perinatal HIV exposure affect low birthweight (< 2,500 grams at birth, LBW) and preterm birth (< 37 weeks of gestational age, PTB) in Louisiana between the years of 2001-2005?

Methods: Data from 2001-2005 Louisiana birth certificates, Medicaid data, and the HIV/AIDS reporting system were linked using probabilistic matching techniques. Logistic regression was used to predict the effect of perinatal HIV exposure on PTB after adjusting for; mother's age, race, delivery method, education level, labor complications, martial status, Medicaid paid delivery, medical risks, tobacco usage, newborn's sex, and plurality. Logistic regression was used to predict the effect of perinatal HIV on LBW after controlling for the previously stated variables and PTB.

Results: 926 of the 311, 252 live births included in this analysis were born to mothers who had been diagnosed with HIV. 25.54% of infants to born to HIV infected mothers experienced PTB as opposed to 12.65 % of infants born to non-infected mothers. Crude and adjusted odds ratios (OR) of PTB for HIV-exposed infants to non-exposed newborns were 2.37 (CI95%: 2.04- 2.75) and 1.64 (CI95%: 1.40-1.92), respectively. 24.95% of infants born to HIV infected mothers were LBW as opposed to 10.55% of those born to non-infected mothers. Infants born to HIV infected mothers were also more likely to be low birth weight with a crude and adjusted odds ratio of 2.82 (CI95%: 2.43- 3.28) and 1.49 (CI95%: 1.21- 1.83), respectively.

Conclusions: Infants in Louisiana who were perinatally exposed to HIV are significantly more likely to experience PTB and LBW than those unexposed.

Public Health Implications: While this study does not specifically address other factors, such as the mother's drug regimen, disease status or history of prenatal care, it does point towards additional cautions that may need to be considered for infected mothers.

3. Modifiable Factors Associated with Preterm Delivery: Opportunities for Intervention

Lyn Kieltyka,PhD; Tri Tran,MD, MPH; Frances Mather, PhD

(Presented at the 14th CDC/ MCHEPI Conference, 2008)

Background: Preterm birth (PTB) carries high healthcare costs and consistently ranks as the leading cause of infant mortality in Louisiana. PTB has increased over the past ten years, emphasizing the need to identify modifiable risk factors to guide interventions.

Study Question: What modifiable risk factors are associated with PTB in Louisiana?

Methods: Singleton births 24+ weeks gestation were selected from Louisiana 2000-2004 linked birth-PRAMS data. Gestation was categorized as 24-31 (Very PTB, VPTB), 32-36 (Moderate PTB, MPTB), and 37+ weeks. Associations of gestational age categories with smoking, alcohol, stressful events, partner violence, pre-pregnancy BMI, weight gain for gestational age, birth spacing, race, age, education, prenatal care (PC) entry, PC adequacy, insurance type, and maternal diabetes or hypertension were evaluated using multinomial logistic regression in SAS-callable SUDAAN.

Results: The percent of PTB from 2000-2004 was 10.3% (VPTB=1.7%; MPTB=8.6%). After controlling for maternal race and prior PTB, factors associated with VPTB included low weight gain (OR=2.0, 95%CI=1.6,2.7), hypertension (OR=1.5, 95%CI=1.2,1.9), birth spacing <12 months (OR=3.6, 95%CI=2.1,6.0), inadequate and adequate plus PC (OR=2.6, 95%CI=1.7,4.0, OR=5.4, 95%CI=3.7,7.8, respectively). Factors associated with MPTB included partner violence (OR=1.6, 95%CI=1.1,2.1), hypertension (OR=1.8, 95%CI=1.5,2.2), birth spacing <12 months (OR=2.7, 95%CI=1.4,5.0), inadequate and adequate plus PC (OR=4.5, 95%CI=3.1,6.6, OR=6.7, 95%CI=5.1,8.8, respectively).

Conclusions: Birth spacing, weight gain, partner violence, and PC adequacy were modifiable factors associated with PTB. These factors may help programs target prevention efforts among high-risk women.

Public Health Implications: Inter-conception care offers opportunities to prevent short birth intervals. Pilot programs to increase access to contraception post-delivery are being implemented in family planning clinics. Further investigation is required to understand mechanisms contributing to weight gain, including knowledge and nutritional opportunity. Education alone has not proven successful historically; new ideas are needed. Although adequate plus PC identifies women at highest risk for PTB, additional focus must be placed on access to care and enabling factors for women who receive inadequate PC. Domestic violence screening and treatment has begun in four of nine state-wide regions with complete coverage planned. As no single intervention is likely to be effective, collective interventions aimed at modifiable risk factors may help reduce PTB.

4. Multiple Sexually Transmitted Infections during Pregnancy in Louisiana 2005-2006

Ming-Kuang Hsueh, MPH; Tri Tran ,MD, MPH; Lisa Longfellow, MPH;

(Presented at the 14th CDC/ MCHEPI Conference, 2008)

Background: MSTIs/P of chlamydia, gonorrhea, and syphilis as well as high risk population of these infections have not been known in Louisiana.

Objective: Describe rates of MSTIs/P by demographic, social, and economic characteristics of patients and define population with high risk of MSTIs/P in Louisiana.

Methods: The 2005-2006 birth records, Medicaid and 2004-2006 sexually transmitted diseases (STDs) data were linked and analyzed. SAS 9.1 and Link Pro 3.0 were used. STDs were limited to only three diseases including chlamydia, gonorrhea, and syphilis. MSTIs/P were defined as a pregnant women had more than one STD. Multiple logistic regression was applied to define factors associated with MSTIs/P. Independent variables statistically tested in the regression model included mothers' race, age, education, smoking during pregnancy, and Medicaid-paid delivery.

Results: In Louisiana, the rate of STDs during pregnancy (STDs/P) was 5.2% with the rate of MSTIs/P of 16.4%. MSTIs/P was high in women who were black (18.0%), had less than 12 years of education (18.5%), and were younger than 20 years old (19.0%). Percentages of MSTIs/P were 19.0%, 61.6%, and 19.2% in women who had Chlamydia, Gonorrhea, and Syphilis respectively. Result of multiple logistic regression indicated that blacks were 2.4 times more likely to have MSTIs/P than whites (adjusted Odds Ratio (OR): 2.4, 95% confidence interval (CI): 1.9-3.0); and women who did not complete high school education were 1.5 times more likely to have MSTIs/P than those who had more than 12 years of education (OR : 1.5,CI: 1.2-1.8).

Conclusions: Rate of MSTIs/P was high in black, less educated, and younger women. Patients with gonorrhea infection had the highest rate of MSTIs/P. Black and less educated women were high risk population with MSTIs/P.

Public Health Implications: Interventions targeting more in high risk population may reduce MSTIs/P, which may improve maternal health during pregnancy and their birth outcomes.

5. Evaluation of maternal mortality in Louisiana using linked data and five measurements defined by WHO and CDC/ACOG

Emily Roberson, MPH; Tri Tran, MD, MPH

(Presented at the 14th CDC/MCHEPI conference, 2008

Background: Inconsistencies in maternal mortality measures have created confusion in evaluating data. There has also been an increased emphasis on data linkage as a way to compile a more accurate picture of maternal mortality.

Study Question: How does the use of enhanced linkage procedures improve maternal mortality data collection, and how do different definitions of maternal mortality change the results of data analysis?

Methods: Death certificates of Louisiana women who died from 2000 to 2005 were linked with live birth and fetal death certificates from 1999 to 2005 using SAS 9.1 and LinkPro 3.0. Five measurements of maternal mortality used by WHO and CDC/ACOG were estimated. One-sided Spearman rank test was used to analyze maternal mortality trends from 2000 to 2005.

Results: Of 345 women who died within one year of pregnancy, 187 were identified through linkage; 38 of which were missed by Louisiana's routine surveillance of maternal deaths occurring within 90 days of pregnancy. Total maternal mortality ratios ranged from 13.4 to 88.9 per 100,000 live births depending on the definition used. When stratified by race, all mortality ratios were higher for black women, with the highest degree of disparity found in CDC/ACOG-defined pregnancy-related death. Maternal death, CDC/ACOG-defined pregnancy-related death, and pregnancy-associated death statistically increased, whereas WHO-defined pregnancy-related death decreased between 2000 and 2005. When stratified by race, pregnancy-associated and WHO-defined pregnancy-related mortality ratios decreased among black women, while white women experienced an increase in pregnancy-associated death and no statistically significant trend for WHO pregnancy-related death. Black women were more likely to die from obstetric complications and homicide, and white women were more likely to die from overdose/poisoning and motor vehicle accidents.

Conclusions: The use of enhanced data linkage procedures significantly improved maternal mortality surveillance in Louisiana. Estimates, trends, and most common causes of maternal mortality were markedly different depending on which CDC/ACOG or WHO definition was used.

Public Health Implications: Linkage procedures should be universally adopted to improve maternal mortality data. Additionally, the use of different maternal mortality definitions during analysis provides a more detailed picture of potential target areas for future research and interventions.

6. Gift Card Reward Improves LaPRAMS Response Rates

Fusheng Zhao, MD,MPH; Kawyn Bazil, BS, Tri Tran, MD,MPH; Lyn Kieltyka, PhD, MPH, Joan Wightkin, DrPH

(Presented at the 2008 CDC/PRAMS conference)

Purpose: A $10 Wal-Mart gift card reward was implemented to improve LaPRAMS mail survey response rates following Hurricanes Katrina and Rita.

Background: LaPRAMS overall response rates dropped from 70.2% in 2004 to 48.3% in forth quarter 2005. Although response rates increased to 52% in 2006, they remained 18% lower than the CDC-PRAMS recommended minimum response rate of 70%. Because mail surveys accounted for most of the decline, subscriptions to address service databases and a $10 gift card reward were implemented in 2007.

Methods: LaPRAMS obtained Wal-Mart gift cards through a purchase order. Cards were offered to women who resided in one of 20 selected parishes and who completed and returned the mail survey. These 20 parishes accounted for 75% of the LaPRAMS sampled women and represented, on average, lower response rates than the state overall.

Outcomes: Weighted mail response rates for eligible parishes increased 6.2 percentage points (42.4% to 48.6%, p=0.0113), and overall response rates increased 4 percentage points (55.4% to 59.4%, p=0.048). During this same time, weighted mail response rates for ineligible parishes increased 2.6 percentage points (43% to 45.6%, p=0.064), however overall response rates dropped 0.8 percentage point (55.0% to 54.2%, p>0.357).

Follow-up activities: The implementation of a $10 Wal-Mart gift card in the 20 eligible parishes resulted in a significantly higher response rate compared to before implementation. Ongoing monitoring of mail response rates in reward eligible versus ineligible parishes will be required as part of continuing strategies to achieve the minimum desired LaPRAMS response rate of 70%.

7. The Quest for Linking Data Records: A Trial to Develop Standard Data Linkage Method, the Case of Louisiana Hospital Inpatient Discharge and Birth Files

Tri Tran, MD, MPH

(Presented at the 2008 CDC-Data and Assessment Initiative Conference)

Background:
Data linkage has become the linchpin in analyzing data to inform programs and policy. There is heightened need to use linked data in maternal and child health in the states to identify health gaps. There are limited methods available for linking datasets, which are not limited to manual, deterministic and probabilistic. The goal of this study is to identify a potential data linkage method in Louisiana for linking birth certificates with infants' hospital inpatient discharge data (LAHIDD).

Research Study question: What is the standard method to link birth certificates with infants' hospital inpatient discharge records from the date of live-birth delivery to the first time discharge?

Methods: The 2004 LAHIDD (48,225 records) was linked with 2004 birth records (64,646 records) that included only infants born in Louisiana. The linkage was performed in three steps using: (1) child's social security number (SSN), (2) mother's SSN, and (3) child's name, date of birth, race, and sex using SAS 9.1 and LinkPro 3.0. The probabilistic data linkage method was performed in step three.

Results: There were 88.7% of LAHIDD linked with births records. Among linked LAHIDD records, 0.4% of records were linked with births records by child' SSN, 18.4% by mothers SSN, and 81.2% by child's name, date of birth, race, and sex. A 'matching table' including distribution of matching rates by linkage step and four priority areas of linkage was created. Ninety-seven percent (97%) of linked LAHIDD records were covered in the first area and 99% in the first two areas.

Conclusions: Because child's SSN was unreported in LAHIDD, it was not useful in the hospital discharge - birth data linkage. However, mother's SSN played an important role in this linkage with contribution of 18.4% to the total of linked LAHIDD records. Adding mother's SSN to infant discharge records will certainly improve matching rate. 'Matching table' covered most of linked LAHIDD records in the first two priority areas and proved to be useful.

Public Health Implications: 'Matching table' may be useful as a standard instrument to guide the data linkage between LAHIDD and birth records in LA. Usage of this table may help save time for data linkage but still guarantee quality of data linkage and analysis using linked data. More data linkage may be needed to be certain the "Matching table" utility.

8. Maternal Mortality Review Louisiana, 2000-2004

Folorunso Akintan, MD MPH; Nicole Richmond, MPH;Tri Tran, MD MPH

(Presented at the 13th CDC/MCHEPI conference, 2007 and published at the Louisiana Morbidity Report, July-Aug 2007, Volume 18 Number 4)

Background: Louisiana remains one of the States with the highest maternal mortality rate (MMR). No significant change in trend has occurred in the past 9 years. It is therefore important to take a closer look at issues associated with Maternal Mortality (MM) in order to create strategic reductions.

Study Question: What are the risk factors associated with MM in Louisiana? Are there racial disparities associated with MM and its risk factors?

Methods: Linked maternal death/birth/fetal death data from 2000-2004 was used to estimate the frequencies and odds ratios (OR). Statistical significance –Alpha value was set at 0.05. Estimates were made with a 95% confidence interval (CI) and SAS 9.0 was used for all analyses. MM was defined as pregnancy associated deaths (PAD), which was further divided into pregnancy-related (PRD) and non pregnancy-related (NPRD) deaths.

Results: NPRD accounted for 85% (CI:81.2, 88.8) of PAD and more black women (59%, CI:53.8, 64.2) died of PAD than white. About 25% (CI:20.4, 29.6) of these deaths occurred during pregnancy, 25% (CI:20.4, 29.6) puerperal period and 27% (CI:22.3, 31.7) seven months to one year post delivery. The MMR for 2000-2004 was 87.8 (CI:78.5, 97.0) for all race, 126.2 (CI:108.9, 143.5) for blacks and 62.2 (CI:51.9, 72.5) whites. The leading PRD among blacks was eclampsia/pre-eclampsia and whites, indirect obstetric causes. The leading NPRD among whites were motor vehicle accidents and poisons from noxious substances/drugs. Among blacks it was diseases of the circulatory system and violent assault/homicide. Some disparities found with maternal risk factors prior to death include: Preterm birth vs. term (Black OR:2.51 CI:1.89, 3.32; White OR:1.57 CI:1.02, 2.43); Inadequate prenatal care vs. adequate (Black OR:1.82 CI:1.25, 2.65; White OR: 5.04 CI:3.13, 8.11); Maternal Smoking vs. non smoking (Black OR:2.02 CI:1.30, 3.14; White OR:3.58 CI:2.57, 4.99).

Conclusions: The leading cause of PAD was accidents (intentional or unintentional). Others include deaths due to pre-existing or pregnancy exacerbated diseases such as cardiovascular diseases. Causes of death and risk factors among whites were different from those among blacks.

Public Health Implications: There is an urgent need for race specific strategic interventions in order to reduce MM in Louisiana.

(*More detailed info of this study is found at the Louisiana Morbidity Report, July-Aug 2007, Volume 18 Number 4)*

9. Achieving Appropriate Weight Gain During Pregnancy Requires More Than Education.

Lyn Kieltkya, Ashley Chin, and Dionka Pierce

(Presented at the 13th CDC/MCHEPI conference, 2007 and published at the Louisiana Morbidity Report, Sep-Oct 2007, Volume 19 Number 5)

Background: Low birth weight (LBW) in Louisiana reached 11% in 2004. The reported association between weight gain during pregnancy (WG) and LBW resulted in a state-wide billboard campaign, but recent analyses of WG/pregnancy outcome have not been completed.

Study Questions: What is the relationship between WG and birth weight outcomes, and what factors are associated with inappropriate WG?

Methods: Louisiana Pregnancy Risk Assessment Monitoring System data collected from 2001-2004 was linked with birth records. Institute of Medicine recommendations were used to categorize WG into under, appropriate, and over-gaining. The relationship between WG and singleton birth outcomes (LBW, 500-2,500g, and macrosomia, 4,000+g) and risk factor associations with WG were investigated using chi-square tests and multinomial regression in SAS-callable SUDAAN.

Results: Only 33% (95%CI=32%, 35%) of Louisiana women achieved appropriate WG, with 23% (95%CI=22%,24%) under-gaining and 44% (95%CI=42%,45%) over-gaining. After controlling for race, age, pre-pregnancy BMI, 3rd trimester smoking, maternal hypertension, previous LBW birth, and gestational age, under-gaining was significantly associated with LBW (OR=1.9, 95%CI=1.4,2.6). Over-gaining was protective for LBW (OR=0.5, 95%CI=0.4,0.8) but a risk factor for macrosomia (OR=1.7, CI=1.3,2.3). After controlling for race, age, and education, modifiable risk factors for over-gaining included pre-pregnancy BMI (underweight OR=0.5 95%CI=0.4,0.6 versus overweight OR=2.3 95%CI=1.9,2.8 and obese OR=7.7 95%CI=6.2,9.5), hypertension (OR=1.8 95%CI=1.2,2.6) and smoking before (OR=0.6 95%CI=0.4,0.7) or during (OR=1.8 95%CI=1.3,2.4) pregnancy, whereas pre-pregnancy BMI was the only modifiable association for under-gaining (underweight OR=1.3 95%CI=1.1,1.6 and obese OR=1.7 95%CI=1.3,2.2 versus overweight OR=0.5 95%CI=0.4,0.7). Although 82% percent (95%CI=80%,84%) of women reported receiving WG counseling in 2004, provider counseling was not associated with WG.

Conclusions: Two-thirds of Louisiana women failed to gain the recommended amount of weight during pregnancy despite over 80% receiving WG counseling. WG is significantly associated with poor birth outcomes, and three modifiable risk factors for inappropriate weight gain, pre-pregnancy BMI, hypertension, and smoking, were identified.

Public Health Implications: Further investigation is required to understand why so few women gain appropriate weight during pregnancy. Interventions beyond media education and current provider education are required to address adequate WG in Louisiana. Pre-pregnancy BMI and smoking interventions may provide opportunity for improved outcomes.

(*More detailed info of this study is found at the Louisiana Morbidity Report, Sep-Oct 2007, Volume 19 Number 5)*

10. Determinants of Poor Child Outcomes: Mental Health among Louisiana Mothers

Candice Wilson BS, Jean Valliere, LCSW, Lyn Kieltyka PhD, MPH

(Presented at the 13th CDC/MCHEPI Conference, 2007)

Background: Perinatal depression (PD) impacts a mother's ability to care for her infant. Maternal perception of infant behavior (MP) also impacts the quality of care received and may negatively impact the quality of the mother-infant attachment relationship. Identifying risk factors for PD and negative MP may help target mothers and infants at risk for poor attachment relationship quality and poor child outcomes.

Study Question: What risk factors and markers are associated with MD and with negative MP?

Methods: A 26-item self-report questionnaire was completed by 912 mothers of newborns who receive WIC benefits. MD was assessed through a single item survey question. An infant mental health specialist recoded the question "Tell us about the baby's behavior" into negative versus positive or neutral responses. Associations between PD or MP and maternal age, education, marital status, number of times moved in past 12 months, pregnancy intention, maternal problems during pregnancy, and infant problems with sleeping, eating, or colic (IPSEC) were assessed using descriptive frequencies with chi square tests and multivariable logistic regression.

Results: PD and negative MP were reported by 13% and 6% of mothers, respectively. Pregnancy intention ($p<0.05$), moving ($p<0.05$), and IPSEC ($p<0.0001$) were significantly associated with both outcomes in bivariate analyses, whereas maternal education was only associated with negative MP ($p<0.05$). Logistic regression results indicated that moving more than once (OR=4.4,95%CI=2.3,8.2), IPSEC (OR=2.0,95%CI=1.3,3.1), and unintended pregnancy (OR=1.8,95%CI=1.2,2.7) were associated with PD. Factors associated with negative MP include moving more than once (OR=2.7,95%CI=1.1,6.7) and IPSEC (OR=5.2, 95% CI 2.8,9.6).

Conclusions: Mothers who moved more than once and who experienced infant sleeping, eating, or colic problems were more likely to report PD and negative MP. Pregnancy intention was associated with PD but not negative MP.

Public Health Implications: Negative MP and PD may lead to unhealthy maternal and poor child behavior. Louisiana mothers may be at higher risk due to the impact of recent hurricanes. Since effective treatment of these issues may prevent poor outcomes, healthcare professionals must pay special attention to mothers who have moved multiple times or have experienced behavioral problems with their infants.

11. Frequency distribution of preterm births among Medicaid paid deliveries in Louisiana, 2000-04

Folorunso Akintan, MD MPH

(Presented at the 13th CDC/MCHEPI Conference, 2007)

Background: Premature birth (PTB) and its complications is the number one cause of death of new born in the United States. Reasons given for early PTB include pre-existing morbidity, genetic and environmental factors and for late PTB, gestational age miscalculation with elective induced labor or cesarean section (iatrogenic). It is important to know if there is a difference in the distribution of PTB among women who use Medicaid compared to those who do not.

Study Question: What is the frequency distribution of PTB among Medicaid-paid deliveries (MPD) in Louisiana? Are there racial disparities among these distributions?

Methods: Birth data and Medicaid data were linked using mother's social security number, name, race and date of birth for the years 2000-2004. SAS 9.0 was used for the analysis and estimates were made with a 95% confidence interval (CI). PTB was divided into early (gestation >20weeks and <33 weeks), intermediate (33 weeks gestation) and late (gestation >33 and <37 weeks).

Results: Out of 398893 live births (LB), 55% (CI:54.8, 55.2) had MPD. Among blacks, MPD were 77.7% (CI:77.5, 77.9) of the total LB and among whites 39.3% (CI:39.1, 39.5). Out of 49959 PTB, 46% (CI:45.6, 46.4) were whites (MPD:41.5%, CI: 40.9, 42.1) and 52% (CI:51.6, 52.4) blacks (MPD:77.4%, CI:76.9, 77.9). When PTB is divided into subgroups, 19.3% (CI:18.4, 20.2) of whites had an early PTB, 7.1% (CI:5.5, 8.7) had intermediate PTB and 73.6% (CI:73.1, 74.1) had late PTB (MPD 41.4%, CI:40.7, 42.1). Among blacks, 29.4% (CI:28.5, 30.3) had an early PTB (MPD 74.8%, CI:73.8, 75.8), 7.7% (CI:6.1, 9.3) had an intermediate PTB and 62.9% (CI: 62.4, 63.4) had a late PTB.

Conclusions: There are more late PTB among whites and non-MPD comprises more than half of these. There are however more early PTB among blacks and MPD comprise more than two thirds of these.

Public Health Implications: Medicaid can be of great use in impacting the preconception health of black women and ultimately reducing early PTB. A better estimation of the gestational age and a reduction in iatrogenic misclassifications would greatly impact late PTB among white women in Louisiana.

12. Is Awareness of Folic Acid enough to affect routine multivitamin use?

Dionka C. Pierce, MPH; Tri Tran, MD, MPH

(Presented at 13th CDC/ MCHEPI Conference, 2007)

Background: The Institute of Medicine recommends that all women of childbearing age consume 400 micrograms of folic acid (FA) each day to prevent up to 70% of all neural tube defects. National studies have shown differences by race in folic acid knowledge, however, little is known on this topic in Louisiana.

Study Question: What is the effect of FA knowledge on multivitamin use before pregnancy? Does this effect differ by race?

Methods: Louisiana Pregnancy Risk Assessment Monitoring System data from 2000-2004 were used, resulting in a sample size of 9,712. The outcome was categorized into two groups: never taking a multivitamin and taking a multivitamin 1-7 days/week. Binary logistic regression was used to evaluate the relationship between FA knowledge and multivitamin use, adjusting for maternal race, age, education, Medicaid status, pre-pregnancy smoking and alcohol use, pregnancy intention and geographic area. SAS-callable SUDAAN was used for analyses and alpha was set at 0.05 for statistical significance.

Results: Sixty-three percent of Louisiana mothers reported never taking a multivitamin (white=58.5%, black=71.5%). However, 68.9% reported having FA knowledge: (white=77.5%, black=55.8%). Among women who reported having FA knowledge, 57.5% reported never taking a vitamin (white=52.7%, black=67.4%). Among women who reported not having FA knowledge, 77.2% reported never taking a multivitamin (white=78.2%, black=76.5%). Regression results indicated that white women who did not have FA knowledge were 2.8 times more likely to never take a multivitamin (adjusted OR have versus not have FA knowledge= 2.8, 95%CI: 1.8, 4.3). Among black women, there was no statistical association between FA knowledge and multivitamin use (adjusted OR = 1.4, 95%CI: 0.89, 2.3). Pregnancy intention, maternal age, and smoking before pregnancy were also associated with never taking a multivitamin.

Conclusions: The effect of FA knowledge on multivitamin use may differ among white and black mothers. Pregnancy intention, age, and smoking status before pregnancy may also play important roles in multivitamin use.

Public Health Implications: FA awareness intervention strategies to encourage multivitamin use in Louisiana should be reevaluated. Perhaps a risk-based approach targeting specific groups may result in behavior change.

13. Perinatal HIV Exposure: A High Risk of Preterm Birth in Louisiana

William T. Robinson, PhD; Tri Tran MD, MPH

(Presented at the 13th CDC/ MCHEPI Conference, 2007)

Background: Some clinical research has investigated the possible relationship between mothers' HIV infection and the use of antiretroviral therapies on adverse birth outcomes such as low birth weight and preterm delivery. However to date there has been little examination of these factors from an epidemiological perspective. The current study uses data from Louisiana's Vital Records and HIV/AIDS registries to compare preterm delivery rates in babies born to HIV-infected and non-infected mothers.

Study questions: How does perinatal HIV exposure affect preterm birth in Louisiana?

Methods: Data from the 2004 Louisiana birth registry were linked to women and infant records from the Louisiana HIV/AIDS reporting system. Logistic regression was used to predict preterm delivery (less than 37 weeks gestation) from perinatal HIV exposure after adjusting for; mothers' race/ethnicity, education, age, marital status, smoking, medical risks, Medicaid usage, and newborn's sex, prenatal care, and plurality.

Results: Of the 64,921 live births included in the analysis, 186 infants were born to mothers who had been diagnosed with HIV. 30.6% of infants to born to HIV infected mothers were preterm as opposed to 13.3% of infants born to non-infected mothers. Unadjusted and adjusted odds ratios (OR) of preterm birth of HIV-exposed newborns to non-exposed newborns were 3.0 (CI95%: 2.2-4.2) and 2.1 (CI95%: 1.5-3.0), respectively. Infants born to women who were African American, smokers, had no prenatal care, had medical risks, had labor/delivery complications, and infants who were multiples were more likely to be preterm.

Conclusions: Perinatal HIV exposure strongly contributed to high risk of preterm delivery in Louisiana. Race/ethnicity, smoking during pregnancy, plurality, and medical complications were also risks for preterm delivery.

Public Health Implications: Increasing knowledge about the high risk of preterm delivery to women who have been infected by HIV and to their doctors is crucial in improving perinatal care and quality of life of HIV exposed infants.

14. PRAMS - Mother's Self Report versus Medicaid, Louisiana 2002-2004…Do They Agree?

Folorunso Akintan, MD MPH; Dionka Pierce, MPH; Ashley Chin, PhD, MPH, MA

(Presented at the 13th CDC/ MCHEPI Conference, 2007)

Background: PRAMS is an ongoing, population-based surveillance system that obtains a wealth of information from new mothers. It is important to assess the degree to which maternal report of a Medicaid paid delivery (MPD) is true by comparing her report to that of Medicaid program (MP) records.

Study Question: Is there agreement beyond chance between PRAMS and Medicaid/Birth linked data? How sensitive is a mother's report compared to Medicaid program records?

Methods: Birth certificate records for the years 2002-2004 were linked to Medicaid and PRAMS data by birth identification number. The variable of interest from the Birth/Medicaid/PRAMS data was MPD. Weighted estimates of frequencies, percentages and the degree of agreement beyond chance between mother's statement from PRAMS and MP data were estimated using 2 X 2 Kappa statistics (K). A 95% confidence interval (CI) was calculated for all estimates. Sensitivity, specificity and negative/positive predictive values were calculated using MP records as standard. All analyses were carried out using SAS version 9.1.

Results: There were a total of 189,997 responders. White responders accounted for 59.6% (CI: 59.4, 59.8) of the total number of responders, blacks were 38.3% (CI: 38.1, 38.5) and other races 2.1% (CI: 2.0, 2.1). K for mothers reporting a MPD was 0.89 (CI: 0.885, 0.889) for all races. Whites had a K of 0.931 (CI: 0.929, 0.933), Blacks 0.732 (CI: 0.726, 0.738) and other races 0.849 (CI: 0.832, 0.865). Groups with higher agreement scores included: ages 20-29 years (K=0.883, CI: 0.880, 0.886); educational level greater than 12 years (K=0.900, CI: 0.897, 0.903); those with first trimester prenatal care (K =0.899, CI: 0.897, 0.901) and those who intended to get pregnant (K = 0.922, CI: 0.919, 0.925). Further tests indicated sensitivity of the mother's response as 96.2%, specificity 92.3% positive predictive value was 94.6% and negative predictive value was 94.5%.

Conclusions: Excellent agreement beyond chance (K >0.74) and sensitivity (>95%) was found with mother's report of MPD.

Public Health Implications: The high level of agreement and sensitivity between maternal report of MPD and MP records offer additional confirmation of the reliability of maternal report in PRAMS data.

15. PRAMS - Mother's Self Report versus WIC, Louisiana 2002-2004...Do They Agree?

Folorunso Akintan, MD MPH; Dionka Pierce, MPH; Ashley Chin, PhD, MPH, MA

(Presented at the 13th CDC/ MCHEPI Conference, 2007)

Background: PRAMS is an ongoing, population-based surveillance system that obtains new mothers self-reported behavioral information. It is important to assess to what degree a mother's report of being on women children and infant –nutrition program (WIC) during pregnancy is true by comparing her report to that of WIC program (WP) records.

Study Question: Is there agreement beyond chance between PRAMS and WIC/Birth linked data? How reliable is a mother's report compared to WP records?

Methods: Birth certificate records for the years 2002-2004 were linked to WIC and PRAMS data by birth identification number. The variable of interest from the Birth/WIC/PRAMS data was WIC enrolment during the most recent pregnancy. Weighted estimates of frequencies, percentages and the degree of agreement between mother's statement from PRAMS and WP data were estimated. Degree of agreement beyond chance was estimated using 2 X 2 Kappa statistics with a 95% confidence interval (CI). Reliability tests were performed using WP records as standard. All analyses were carried out using SAS version 9.1.

Results: There were a total of 189997 responders. White responders accounted for 59.6% of the total number of responders, blacks were 38.3% and other races, 2.1%. Mothers report of being on WIC during pregnancy for all races was K= 0.329 (CI: 0.326, 0.332), whites K: 0.431 (CI: 0.426, 0.436), blacks 0.174 (0.170, 0.178) and other races K: 0.457 (CI: 0.432, 0.483).
Groups with higher agreement scores included: ages 30 years and above (K=0.477, 95% CI: 0.469, 0.485); educational level greater than 12 years (K=0.490, 95% CI: 0.484, 0.497); those with first trimester PNC (K =0.382, 95% CI 0.378, 0.386) and those who intended to get pregnant (K = 0.407, 95% CI: 0.400, 0.413). Further reliability tests indicated sensitivity of the mother's response as 91.9%, specificity 55.9% positive predictive value was 49.5% and negative predictive value was 76.5%.

Conclusions: Poor to intermediate agreement beyond chance (poor =K <0.40 and intermediate = K 0.74 – 0.40) was found with mother's report of WIC enrolment during the most recent pregnancy. The only good reliability result was sensitivity.

Public Health Implications: Mother's report in PRAMS of WIC enrolment during the most recent pregnancy was good. However, those who reported not being on WIC were still being counted as being on WIC by the WP. In the WIC data base, enrolment lasts for five years and these mothers obviously stopped the use of WIC before their enrolment expired

16. Repeat Preterm Births: Identification of At-Risk Pregnancies May Allow Interventions for Prevention

Rodney Wise, MD; Lyn Kieltyka, PhD, MPH

(Presented at the 13th CDC/ MCHEPI Conference, 2007)

Background: Preterm births (PTB) greatly impact infant mortality and high perinatal costs. PTB is multifactorial, with genetic, individual, environmental and social contributions. It is recognized that women with a previous PTB are at increased risk for repeat preterm birth but prediction of preterm birth in the first pregnancy remains difficult. Improved identification and understanding of factors associated with PTB and repeat PTB allows implementation of interventions to improve outcomes.

Study Question: What factors are associated with the second birth event being preterm in Louisiana?

Methods: Vital records first-time, Louisiana resident, singleton, births occurring in 1999-2001 were linked with all subsequent births occurring up to four years later. Analyses were limited to women who had a second live birth; outcomes were all PTB (20-36 weeks) and very preterm births (VPTB, 20-31 weeks). Risk factors of interest included term vs. preterm status of second pregnancy, race, age, educational level, prenatal care entry, pregnancy spacing, pregnancy weight gain, smoking, maternal diabetes/hypertension, and Medicaid status. Chi-square and logistic regression using SASv9 were used to investigate risk factors associated with repeat preterm births.

Results: During the 1999-2001 years of study, some 79,690 births were included in the cohort. Of first births, 8461 (10.8%) were PTB and 1806 (2.3%) were VPTB. Of second births following initial PTB, 31.6% were PTB and 14.3% were VPTB. Initial birth being preterm (OR=3.7, 96%CI=3.4,4.0), black race (OR=1.5, 95%CI=1.4,1.6), <high school education (OR=1.4, 95%CI=1.2,1.5), weight gain <10 pounds (OR=1.3, 95%CI=1.2,1.5), maternal diabetes/hypertension (OR=2.4, 95%CI=2.1,2.7), and pregnancy spacing <12 months (OR=3.4, 95%CI=3.0,3.9) were associated with increased odds of PTB in the second birth. In the very PTB group increased risk was noted in: initial VPTB (OR 6.3, 95%CI=4.9,8.0), black race (OR=2.3, 95%CI=1.9,2.7) weight gain <10 pounds (OR=2.2, 95%CI=1.1,1.4), <high school education (OR=1.5, 95%CI=1.2,1.9), second trimester of prenatal care entry (OR=1.3, 95%CI=1.1,1.6), and maternal diabetes/hyptertension (OR=1.8, 95%CI=1.3,2.4) were associated with increased odds of VPTB in the second pregnancy.

Conclusions: Women with increased risk for PTB were more likely to have had prior PTB, black, <high school education, pregnancy weight gain <10 pounds, have diabetes/hypertension complicating the pregnancy, and have frequent conceptions. In the VPTB groups similar risks for such a very preterm birth event were noted.

Public Health Implications: Interventions addressing modifiable risk factors for PTB must be explored. A previous appropriate weight gain in pregnancy program did not meet expectations in Louisiana. Revamping and re-implementation of this program may prove helpful. Additionally, pre- and inter-conception health programs to address pre-existing maternal health and pregnancy spacing may influence PTB, improving outcomes, and lowering costs. Women with higher risk may be appropriate candidates for more intensive monitoring during subsequent pregnancies, and perhaps, candidates for medical interventions to prevent preterm delivery.

17. Who Were At-Risk To Not Undergo Newborn Screening in Louisiana?

Tri Tran MD, MPH, Ngoc Huynh MD, MPH, Charlie Myers, MSW

(Presented at the 13th CDC/ MCHEPI Conference, 2007)

Background: Louisiana Newborn Screening Program started with screening in 1964. In 2004 there were 10 of 29 diseases on the newborn screening panel as recommended by the American College of Medical Genetics. This program has not been evaluated in an epidemiological perspective in Louisiana.

Study questions: What are predisposed factors affecting infants who were not tested with newborn screening tests?

Methods: Louisiana 2004 linked infant death/birth/ Medicaid/newborn screening laboratory data was used for analyses, including only infants born in Louisiana. Multivariable logistic regression was used to determine factors associated with no newborn screening, including independent variables of maternal race, education, marital status, age, smoking during pregnancy, Medicaid-covered delivery, medical risks, labor/delivery complications, adequacy of prenatal care, newborn's sex, gestational age, birthweight, plurality, congenital anomalies, abnormal conditions, birthing hospital level and birth occurrence region. SAS 9.1 was used for analyses and alpha was set at 0.05 for statistical significance.

Results: In 2004, 65,573 live births occurred in Louisiana, with percentage of newborn screening tests of 98.1%. Of those births, there were 64,644 births to Louisiana mothers and 929 births to non Louisiana mothers. Percentage of newborn screening tests was low in infants to non Louisiana mothers (91.5%); infants with very low birthweight (80.3%), preterm (< 24 weeks of gestation: 33.5%; 24-27 weeks: 87.5%; and 28-31 weeks: 94.5%), and congenital anomaly (90.4%); infants who died in the first day of life (95.9%); and infants whose birth occurred in regions VII (96.5%), VIII (96.5%), and VI (97.2%). Multivariable logistic regression indicated that infants who were low birthweight, premature, and singleton, who had any congenital anomalies, who died in the first day of life, and whose birth occurring at level I-II hospitals or in regions I, VI, VII, VIII, and IX were less likely to be screened.

Conclusions: Newborn screening tests were inequitably carried out in subgroups of infants upon maternal and newborn characteristics as well as birthing facilities.

Public Health Implications: Well understanding risk of low newborn screening performance is helpful to improve Louisiana newborn screening program, which enhances capability to early detect genetic diseases and effectively prevents their serious sequelae.

18. Whose Very Low Birthweight Babies Were At Risk To Be Born in Lower Level Facilities in Louisiana?

Lyn Kieltyka, PhD, MPH, Ashley Chin, PhD, MPH, MA, Tri Tran, MD, MPH

(Published at the Louisiana Morbidity Report May-Jun 2007, Volume 18 Number 3)

Background: Very low birthweight (VLBW, 500-1500g) births significantly contribute to Louisiana's high infant mortality rate. VLBW births occurring in level III facilities having greater capability to care for these infants may improve survival. Identifying factors associated with VLBW births occurring in lower level facilities may help target educational and other intervention programs to increase the percent of VLBW births born in level III facilities.

Research Question: Among VLBW births in Louisiana, what factors are associated with delivery at lower level facilities?

Methods: 1998-2004 birth records were limited to births weighing 500-1,500g at birth. The association between facility level (level II or lower versus level III) and risk factors/markers was analyzed using multivariable logistic regression. Independent variables of interest included maternal race, age, education, medical risks, prenatal care adequacy (Kotelchuck index), geographic area, delivery paid by Medicaid, and newborn birthweight and complications.

Results: From 1998 to 2004, 9,205 (2.0%) births to Louisiana residents were VLBW. Factors associated with delivering a VLBW birth in a level II or lower facility included black (OR, black/white: 1.4, confidence interval 95% (CI): 1.2, 1.7), younger age (OR, <20/≥ 35 years old: 1.4, CI: 1.1, 2.0), less educated (OR, 12/>12 years: 1.3, CI: 1.1, 1.5; OR, <12/>12 years: 1.4, CI: 1.1, 1.6), living in a rural area (OR: 2.6, CI: 2.2, 3.2), presence of abnormal newborn conditions (OR: 5.7, CI: 4.9, 6.6), and being greater than 1000g at birth (OR: 1.3, CI: 1.1, 1.5). Having inadequate prenatal care and region of residence were also significantly associated with delivery in a level II or lower facility ($p < .0001$).

Conclusions: VLBW newborns to mothers with characteristics: black, less educated, younger, living in a rural area, and having inadequate prenatal care were more likely to be born in lower level facilities.

Public Health Implications: Exploring relationships with risk markers/factors helps the Louisiana Maternal Child Health Program design targeted efforts to improve the percent of VLBW births born in Level III facilities.

(*More detailed info of this study is found at the Louisiana Morbidity Report, My-Jun 2007, Volume 18 Number 3)*

19. Relationship between Medicaid Status and Infant Mortality - Louisiana, 2000-2004

Folorunso Akintan, MD, MPH; Tri Tran, MD, MPH

(Presented at the 13th CDC/MCHEPI conference, 2007 and published at the Louisiana Morbidity Report Sep-Oct 2007, Volume 18 Number 5)

Background: Medicaid is a state run program with federal funding that assists eligible individuals with limited incomes and resources to pay for health care costs. This serves as a safety net to reduce adverse outcomes among their infants. It is therefore important to determine the differences in infant death with Medicaid status.

Study Question: Is there a relationship between Medicaid-paid deliveries (MPD) and infant mortality (IM) in Louisiana?

Method: Birth/Medicaid/Infant death data, 2000-2004 were linked using mother's social security number, name, race, infant date of birth and birth/death identification numbers. Infant mortality rate (IMR) was defined as the number of deaths under one year of age per 1000 live births. Estimates were reported with a 95% Confidence Interval (CI). SAS 9.0 was used for all analysis and statistical significance was set at an Alpha of .05.

Results: There were a total of 3004 IM out of 400443 live births. MPD accounted for 64.5% (CI:62.8, 66.2); whites 31.4% (CI:29.3, 33.5); blacks 67.0% (CI:64.9, 69.1) and non-MPD 35.5% (CI:33.8, 37.2); whites 52.9% (CI:49.9, 55.9); blacks 44.9% (CI:41.9, 47.9). The IMR, 2000-2004 was 7.6 (CI:7.3, 7.9). Non-MPD had an IMR of 6.1 (CI:5.8, 6.5) for all races; whites 4.2 (CI:3.9, 4.6) and blacks 13.5 (CI:12.3, 14.7). IMR for MPD was 8.8 (CI:8.4, 9.2) for all races, whites 6.8 (CI:6.3, 7.3) and blacks 10.3 (CI:9.7, 10.8). Crude estimates of the odds of IM with MPD were: 1.50 (CI:1.39, 1.61) for all races; whites 1.68 (CI:1.50, 1.89) and blacks 0.78 (CI:0.70, 0.87). After adjusting for maternal education, smoking habit, marital status, medical risk factors, preterm delivery, attendant at birth, risk method of delivery, prenatal care, hospital level of delivery and region, the odds of IM with a MPD for all races was 0.87 (CI:0.80, 0.95); whites 1.22 (CI:1.06, 1.39) and blacks 0.70 (CI: 0.62, 0.78).

Conclusions: The MPD became protective after adjusting for risk factors of IM among all races. When stratified by race, blacks with MPD tend to do better than whites.

Public Health Implications: Whites with MPD are at a higher risk of IM and should be targeted with more appropriate program interventions.

(*More detailed info of this study is found at the Louisiana Morbidity Report Sep-Oct 2007, Volume 18 Number 5)*

20. Breastfeeding Trends in Louisiana: Are We Improving?

Dionka C. Pierce, MPH, Ashley C. Chin, PhD, MPH, MA, Tri Tran, MD, MPH

(Presented at the 12th CDC/MCHEPI conference, 2006 and published at the Louisiana Morbidity Report, Jan-Feb 2007, Volume 18 Number 1)

Background: Louisiana has the lowest prevalence of breastfeeding initiation among all PRAMS states. Nationally, breastfeeding initiation rates have increased steadily over the past six years. It is unclear whether breastfeeding rates are increasing in Louisiana.

Study question: Is the percentage of women initiating breastfeeding and continuing for six months increasing?

Methods: Data from the Louisiana Pregnancy Risk Assessment Monitoring System 1998-2003 (n = 11,318) were used to determine the percentage of white and black women initiating breastfeeding and continuing for six months. An actuarial life table was used to determine breastfeeding at six months. A one-sided test, Kendall's Tau b, was used to determine whether there was a statistically significant trend from 1998-2003. SAS-callable SUDDAN was used for analyses. Alpha was set at 0.05 for statistical significance. Results are presented overall and stratified by race.

Results: From 1998-2003, the percent of mothers initiating breastfeeding ranged from 42%-46% (54%-61% among whites and 23%-27% among blacks). Overall, there was no significant trend in breastfeeding initiation over the six-year period (p=0.13). However, when stratified by race, there was a significant increase among blacks (p=0.05). The percent of black and white women breastfeeding for six months ranged from 3.0%-17.0%. The range among white women was 6.0%-22.0%, and among black women was 0.4%-7.0%. There was no significant trend in breastfeeding at six months overall or stratified by race (p=0.43). Study limitations include minimal acceptable response rates and significant differences between respondents and non-respondents.

Conclusions: Overall, there was neither a significant improvement in the percent of women initiating breastfeeding, nor was there a significant improvement in the percent of women continuing to breastfeed for six months. There was a slight, significant increase in initiation among blacks over the study period.

Public health implications: If the current trend continues, Louisiana will fail to meet the Healthy People 2010 goals for breastfeeding in the early postpartum period and at six months. Given that the percent of women who choose to breastfeed remains low, Louisiana babies will continue to be denied the immunological and developmental benefits of breast milk.

(*More detailed info of this study is found at the Louisiana Morbidity Report, Jan-Feb 2007, Volume 18 Number 1)*

21. An Evaluation of the Louisiana Pregnancy Risk Assessment Monitoring System (La PRAMS)

Ashley Chin, PhD MPH MA; Dionka Pierce, MPH; Lyn Kieltyka, PhD MPH; Tri Tran, MD MPH

(Presented at 2006 CSTE conference and published at the Louisiana Morbidity Report, September-October 2006 Volume 17 Number 5)

Objectives & Methods: The objective of this evaluation was to determine whether La PRAMS is achieving the objectives set forth in the model surveillance protocol: collecting high quality, population based data regarding pregnancy and early infancy; conducting data analyses to better understand the relationship between maternal behaviors and experiences during pregnancy/early infancy and health outcomes; translating results from these analyses into useable information for public health program planning and evaluation; building state capacity for collecting, analyzing and translating data that addresses maternal and infant health issues. Additionally, this evaluation sought to determine the impact of Hurricanes Katrina and Rita on the surveillance system operations.

Results: The stakeholders prioritized the following key attributes for evaluation: timeliness, data quality, and stability of the system.

Timeliness: An evaluation of the timeliness of the system revealed that the system's actual timeline is somewhat longer than that outlined in the protocol. In a review of the most recent available batches (pre-Katrina and Rita), the actual number of days a batch was in the system was 83-84. The protocol number of days is 46-81. Batches remained open longer than 81 days in order to achieve adequate response rates. Figure 1 illustrates the protocol and actual timeline of the system prior to Hurricanes Katrina and Rita. Cleaned and weighted data are received from CDC approximately 8 months after submission of the state birth file. Data sets are made available to internal and external researchers upon receipt. The surveillance report is posted to the La PRAMS website approximately 4 months after receipt of the data set from CDC. The Louisiana Vital Records Registry, from which the sample is drawn, contributes to the timeliness of the data collection system in that lack of adequate staffing for record entry causes the size of the available sampling frame to vary from month to month. This results in inconsistent batch sizes and lack of efficiency in mail operations.

Data quality: In 2003, between 15-50% of the surveys are double entered as a quality assurance check for data entry errors. There were less than 1% errors for all batches submitted in 2003. Percent missing is calculated for each La PRAMS question. In 2002 (2003 data not available), the percent missing ranged from 0.2% - 11%, with the mean (and median) of 3.2% (mode=5%). The question with 11% missing data was "What was the total income for the people living in your household during the 12 months before your delivery?" .In March 2006 a trial batch was initiated to test the data collection operations and the Louisiana state postal system. The Louisiana Vital Records Registry provided a sample of 151 births from the fourth quarter of 2005 for the test batch. The batch was imported into PRAMTrac on March 6, and as of May 26 (81 days), the response rate was 48.3%. This response rate is lower than that prior to the hurricanes, and is lower than the minimal acceptable response rate of 70%. Data collection for a second trial batch will begin May 31, and response rates will be evaluated at 83 days.

Stability of the system: Prior to Hurricanes Katrina and Rita, the La PRAMS system was very stable. Operations had continued without fail since the initiation of the system in 1997. Data collection, analysis and reporting activities functioned well and information generated by the system was used to support the Title V Block grant application, inform program planners and evaluate the impact of program efforts. In August and September 2005, Hurricanes Katrina and Rita devastated the entire southern portion of the state. La PRAMS data collection operations, which are conducted from New Orleans, were shut down from August 26, 2005 to March 6, 2006. Analysis and dissemination activities resumed in November 2005. Two of the three primary La PRAMS staff members (data manager and assistant data manager) did not return to New Orleans after the storm. These two positions were merged into one new position, data operations technician, and recruitment is currently underway. The La PRAMS Project Coordinator has remained in the position, and is currently handling all system operations.

(*More detailed info of this study is found at the Louisiana Morbidity Report, September-October 2006 Volume 17 Number 5)*

22. Analysis of Fetal and Infant Mortality Rates - Using Perinatal Period of Risk Approach-Louisiana 2000-2002

Genet Burka, MD MPH; Fran Mather, PhD; Juan M. Acuña, MD;Tri Tran, MD MPH

(Published at the Louisiana Morbidity Report, Jan-Feb 2006, Volume 17 Number 1)

Background: The Perinatal Periods of Risk (PPOR) approach is a simple method to examine fetal and infant mortality. It is based on a strong conceptual prevention framework and can be a tool for local public health officials and community partners to understand perinatal deaths and prioritize prevention efforts. Risk factors for, (or potential preventive interventions of), perinatal mortality differ according to whether the time of death occurs before, during, or after delivery and whether the newborn is smaller or larger in birth weight. Based on the time of death and birth weight of the fetal and infant death, the PPOR approach divided the perinatal mortality into four groups of contributors to perinatal health: 1) Maternal Health & Prematurity 2) Maternal Care 3) Newborn Care 4) Infant Health. The distribution of fetal and infant deaths in each group is affected by different factors which may need specific interventions. This report describes the fetal and infant mortality rates (FIMR) of Louisiana for the years 2000-2002.

Methods: The analysis was done using the linked birth/infant death and fetal deaths and restricted to maternal residents of Louisiana at birth, (with birth weight being greater than 499 grams for all live births and fetal deaths and gestational age that was greater than twenty-three complete weeks for fetal deaths). The FIMRs were calculated for each of four groups by race. To estimate the excess mortality and determine which population group and risk categories are contributing most, a reference group (births to White mothers twenty years of age or older with more than twelve years of education) with better pregnancy outcomes in the population was selected.

Results: The result showed that the overall FIMR per 1000 live births and fetal deaths during this period was 11.3. The group specific rates are a direct reflection of their contribution to the overall FIMR (11.3). The higher mortality is concentrated in the maternal health/prematurity group which is related to Very Low Birth Weight (VLBW) births, followed by infant health. Compared to the 1997-99 PPOR report, the state's overall FIMR increased 2% (from 11.1 to 11.3). The FIMR also increased 7% for maternal health/prematurity and 4% for infant health group. The FIMR for the maternal care group declined by 8% from 2.4 to 2.2, which showed a reduction in late pregnancy loss, i.e. fetuses weighing more than 1500 grams. Since over 97% of Louisiana's births are classified as either Black or White, the race specific analysis was restricted to these two groups. The difference (excess FIMR) between the overall FIMR for all races (11.3) and the reference group (6.2) was 5.1 per 1000 live births & fetal deaths. Approximately 43% of the excess mortality rate fell into the maternal health/prematurity group. Excess mortality rate was also examined by race, for Blacks and Whites. The highest excess rate was experienced by infants of Black women (8.8 per 1000 live births and fetal deaths) and 52% of this excess rate fell into maternal health/prematurity group. Maternal health/prematurity deaths include all fetal deaths and infant death weighing between 500-1500 grams. It is strongly impacted by a large number of deaths (birth weight – specific mortality) or a large number of VLBW births (birth weight distribution).

Conclusions: Prevention efforts should be directed to the maternal health/maturity group and targeted to those problems known to make an impact on the prevalence of VLBW. In Blacks especially, more than three-fourths of the excess fetal-infant mortality rate was accounted to VLBW births. VLBW births are generally associated to behavioral, social, health and economic disparities of the mothers. Efforts should be made to incorporate appropriate medical and nonmedical interventions into prenatal care regimen to minimize adverse pregnancy outcomes.

(*More detailed info of this study is found at the Louisiana Morbidity Report, Jan-Feb 2006, Volume 17 Number 1)*

23. Maternal Mortality Review Louisiana, 1996-2004

Folorunso Akintan, MD MPH; Nicole Richmond, MPH; Tri Tran, MD MPH

(Presented at the 12th CDC/MCHEPI conference, 2006 and published at the Louisiana Morbidity Report, January-February 2007 Volume 18 Number 1)

Background: One goal of the Department of Health and Human Services is to reduce maternal mortality by half by the year 2010. Identifying the major causes, timing and trends of maternal death helps the Louisiana Maternal and Child Health Program create public health strategies to reduce these deaths in Louisiana. In this report maternal mortality is defined as pregnancy associated deaths, which is the death of a woman, from any cause, while pregnant or within one calendar year of live or still-birth, regardless of the duration and the site of pregnancy per 100,000 live births. There are two subgroups of pregnancy associated deaths: pregnancy-related (death from any cause related to or aggravated by pregnancy or its management) and non pregnancy-related (deaths due to a cause unrelated to pregnancy).

Methods: The study population for this report included pregnant women who had live births or fetal deaths and women who died during pregnancy. Mother's social security number, race, date of birth and name were used to link birth and fetal death records with maternal death certificates data from 1995 to 2004. One sided log-linear regression was used to analyze maternal mortality trend from 1996 to 2004. Major causes and timing of maternal deaths were determined using 2000 to 2004 linked maternal death/birth/fetal death records data. SAS 9.0 was used for the analysis and statistical significance. Alpha value was set at 0.05.

Results: There was no statistically significant change in trend of maternal mortality for all races in the period from 1996 to 2004 in Louisiana (p-value 0.147). Among pregnancy-associated deaths from 2000 to 2004, pregnancy-related deaths accounted for 15% of deaths while non-pregnancy related deaths accounted for 85% percent.

About 25% of these deaths occurred during pregnancy, another 25% within the first 42 days of delivery (puerperium), 9% occurred from 7 weeks to 3 months, 14% from 4 to 6 months and 27% from 7 months to 1 year after delivery.

The five leading causes of maternal death are motor vehicle accidents (17% of total deaths), assault (homicide) by discharge of firearms and other unspecified means (15%), accidental poisoning and exposure to noxious substance (7%), eclampsia or pre-eclampsia (4%) and indirect obstetric causes (3%). However, when the various causes of maternal deaths are grouped, the five leading groups are: External causes of death (includes death from all forms of accidents) (47%); Deaths due to pregnancy complications within the puerperal period (15%); Cardiovascular diseases (13%); Neoplasm (7 %); Respiratory diseases (4%).

Conclusions: The main cause of pregnancy associated deaths is accidents (intentional or unintentional). Other causes of death include deaths due to pre-existing or pregnancy exacerbated diseases such as cardiovascular diseases.

Public Health Implications: Innovative prevention programs are necessary to educate pregnant and postpartum women on safer ways of driving. Violence prevention programs should target pregnant and postpartum women as vulnerable populations. It is also important to emphasize overall health for women of reproductive age in Louisiana. This is likely to ultimately reduce maternal deaths from diseases exacerbated by pregnancy.

(*More detailed info of this study is found at the Louisiana Morbidity Report, January-February 2007 Volume 18 Number 1)*

24. Sexually Transmitted Disease during Pregnancy Louisiana, 1997–2004

Tri Tran MD MPH; Binh Le, MD MPH; Lisa Longfellow, MPH; Joan Wightkin, DrPH; Louis Trachtman, MD MPH

(Presented at the 2006 National STD Prevention Conference and published at the Louisiana Morbidity Report, July-August 2006, Volume 17 Number 4)

Objectives and Methods: To date, no study of sexually transmitted disease during pregnancy (STD/P) has been conducted in Louisiana. Therefore, the Office of Public Health (OPH) of Louisiana, STD Control program and the Maternal and Child Health (MCH) program performed this study to (1) define the prevalence and trends of STD/P in Louisiana residents who had live births from 1997 to 2004, using linear regression and (2) identify risk factors/markers for STD/P, using multivariable logistic regression. STDs include the following diseases with reporting requirements (Louisiana Public Health Sanitary Code): Chancroid, Chlamydia, Gonorrhea, Syphilis, Lymphogranuloma venereum.
The study used linked 1996-2004 STD/1997-2004 birth data and defined a woman to have STD/P, if the time between the date of STD diagnosis and the date of delivery was less than or equal to gestational age of her newborn. Percent of STD/P is defined as number of live births to pregnant women infected by any STD per one hundred live births.

Results: In Louisiana the percent of STD/P has increased steadily over the last eight years for both Whites and Blacks. Results from linear regression analyses showed that the annual increase in percent of STD/P from 1997 to 2004 was 0.1% in Whites, 0.6% in Blacks and 0.3% in all races.
Based upon linked 1999-2004 STD/ 2000-2004 birth record data, the percentage of STD/P was: 10% in Blacks, 1% in Whites and 2% in others; 2% in Hispanic women and 5% in non-Hispanic women; 10% in unmarried women and 1% in married women; 15% in women aged less than fifteen years and 2% in women aged older than twenty-nine years; 19% in women who had less than or equal to twelve years of education and 2% in women who had greater than twelve years of education.
The following risk factors/markers for STD/P were significant (those that were more likely to have a STD during pregnancy): Black race, younger, less educated, unmarried, smoking during pregnancy, living in urban areas and beginning prenatal care (PNC), later or having no prenatal care.

(*More detailed info of this study is found at the Louisiana Morbidity Report, Jul-Agu 2006, Volume 17 Number 4)*

25. Relationship between Prenatal HIV Prevention Counseling and Medicaid Status in Louisiana 1997-1999

Linda M. Polfus, MPH; Fran Mather, PhD; Juan M. Acuña, MD, MSc; Dionka Pierce, MPH

(Published at the Louisiana Morbidity Report, Jan-Feb 2005, Volume 16 Number 1)

Objectives and Methods: In Louisiana it is unclear whether Medicaid mothers (53% of births in Louisiana) receive the same HIV PC as non-Medicaid mothers. Are there any differences in HIV PC among Louisiana mothers according to Medicaid status? To address this question, recent data from LA Pregnancy Risk Assessment Monitoring System (LaPRAMS) was analyzed to evaluate potential risk markers of HIV PC and describe its relationship with Medicaid status.

Results: Sixty-six percent of Medicaid recipients (95% confidence interval [CI] 64-68) received HIV PC compared to 34% (CI, 32-36) of non- Medicaid mothers. Unadjusted analyses demonstrated a strong association of HIV PC with Medicaid status (OR 3.5: CI 3.1-4.0; $p<0.0001$). Other risk markers with significant unadjusted associations with HIV PC included receiving prenatal care from a public institution, being unmarried, income <$10,000, black race, maternal age (<19 years), entering prenatal care during the first trimester and maternal education (<12 years). Parity (1+) was not statistically significant in an unadjusted model. In an adjusted logistic model, Medicaid mothers in Louisiana were 40% more likely to receive HIV PC than non-Medicaid mothers.

Additional risk markers significantly associated with HIV PC besides being a Medicaid recipient were those receiving care at a public institution, unmarried mothers, those with income of less than $10,000, black mothers, those with maternal education of less than twelve years and those who began prenatal care in the first trimester.

(*More detailed info of this study is found at the Louisiana Morbidity Report, Jan-Feb 2005, Volume 16 Number 1)*

26. Infant Mortality Rates Suffer Rapid Increase, New Orleans, LA 2000-2002

Lyn Kieltyka, PhD MPH; Frances Mather, PhD; Juan Acuña, MD, MSc

(Published at the Louisiana Morbidity Report, Mar-Apr 2005, Volume 16 Number 2)

Objectives and Methods: Among large US cities, New Orleans had the sixteenth highest IMR from 1995 to 1998, despite considerable declines in IMR during the early and mid-1990s. For the period of 1992-2002, the number of live births to New Orleans residents declined from approximately 9,000 to 7,000 per year. The IMR declined steadily from 10.5 per 1,000 (CI 8.8-12.5) in 1992 to a low of 6.2 per 1,000 (CI 4.6-8.3) in 1998 but climbed to 9.7 per 1,000 (CI 7.5-12.2) in 2002. Although the reasons for the observed increase in mortality are unclear, Louisiana vital statistics data was used to investigate characteristics of women residing in New Orleans who gave birth from 2000 to 2002.

Results: Orleans Parish Black women accounted for about 80% of all live births and 90% of all very low birth weight (VLBW) births each year. VLBW is defined as a birth weight less than 1,500 grams (about 3.3 lbs). Although less than 5% of infants born from 2000 to 2002 were VLBW, 74 out of the 164 infant deaths (nearly 50%) were VLBW babies From 2000-2002, Black mothers tended to be younger than non-Black mothers (median 24 versus 31 years of age, $p<0.0001$) and over 20% of births to Black women were to adolescents age 15-19 years compared to less than 5% for non-Blacks ($p<0.0001$). Fewer black mothers reported being married (23% versus 80%, $p<0.0001$) and fewer Black mothers reported having completed high school (33% versus 73%, $p<0.0001$). Regardless of race, over 97% of women received some prenatal care (PNC) during their pregnancy and about 76% of Black women and 93% of non-Black women began PNC in their first trimester of pregnancy. About 80% of Black women and slightly more non-Black women received adequate PNC prior to delivery .We analyzed the overall fetal and infant mortality rate by splitting the rate into smaller components by allocating deaths according to distribution of birth weight and age at death. Five of the 11.6 per 1,000 fetal and infant deaths were attributable to babies weighing less than 1500 grams (VLBW) at delivery, regardless of age at death. Compared to a referent group of Louisiana women who gave birth in 1998, were White, over 19 years old and reported attending at least some college (this group is known to have experienced very low fetal and infant mortality), New Orleans women experienced 5.4 more deaths per 1,000; in other words, there was an excess of 5.4 deaths per 1,000 that could be potentially prevented through the use of effective intervention programs. (Excess deaths were compared to the referent group of Louisiana White women who gave birth in 1998 and were twenty or more years old and had more than twelve years of education.) Of these 5.4 excess deaths, about half (2.4 per 1,000) were VLBW babies.

(More detailed info of this study is found at the Louisiana Morbidity Report Mar-Apr 2005, Volume 16 Number 2)

27. A Trend Analysis of Gonorrhea and Chlamydia Infection during Pregnancy between 1997 and 2004 in Louisiana

Tri Tran, MD, MPH; Duc Ngo MD, MPH; Thao Nguyen, MD, MPH; Lisa Longfellow, MPH

(presented at 12th CDC/ MCHEPI Conference, 2006)

Background: The overall rate of sexually transmitted diseases (STDs) during pregnancy increased from 3.3% in 1997 to 6.0% in 2004 in Louisiana.

Study question: Did the proportion of pregnant women infected by gonorrhea or chlamydia increase in whites and blacks from 1997 to 2004 in Louisiana?

Methods: 1996-2004 STD data were linked with 1997-2004 live birth records data using backward, deterministic and probabilistic data linkage methods. A woman was defined to be infected by gonorrhea or chlamydia during pregnancy if the length between the date when a case of gonorrhea or chlamydia was diagnosed and the date of delivery was less than or equal to gestational age of her newborn. One-sided linear regression was used to analyze the trends of proportion of gonorrhea and chlamydia during pregnancy from 1997 to 2004. SAS 9.1 and Linkpro 3.0 were used for the data linkage procedures and data analyses.

Results: Percentages of pregnant women infected by chlamydia were .5, 4.3, and 2.1 in 1997 and increased to 1.4, 9.3, and 4.6 in 2004 for whites, blacks, and all races, respectively. The annual increase in percent was .12 (CI: .08-.16) in whites, .11 (CI: .10 - .12) in blacks, and .11 (CI: .10 - .12) in all races. Percentages of pregnant women infected by gonorrhea were .1, 1.4, and .6 in 1997 and .1, 1.5, and .7 in 2004 for whites, blacks, and all races, respectively. There was no statistically significant change in the percentage of pregnant women infected by gonorrhea from 1997 to 2004 for any race group.

Conclusions: The increase in the proportion of pregnant women infected by Chlamydia affected the overall increase of STDs during pregnancy from 1997 to 2004 in Louisiana.

Public health implications: An effective intervention program targeting reducing chlamydia infection in pregnant women will decrease overall STDs among pregnant women in Louisiana.

28. Is Smoking And Alcohol Consumption During Pregnancy Under Reported In Louisiana Birth Certificates?

Folorunso Akintan, MD, MPH student; Tri Tran, MD, MPH; Juan Acuna, MD, MSc

(Presented at the 11th CDC/ MCHEPI Conference, 2005)

Background: Smoking and alcohol consumption during pregnancy are well known risk factors for maternal and child health problems. Accurate estimates are therefore important to adequately plan interventions for those affected.

Study question: Are estimates of smoking and alcohol consumption during pregnancy in Pregnancy Risk Assessment Monitoring Systems (PRAMS) and birth certificate (BC) comparable?

Methods: Louisiana 2000 - 2002 birth certificate and PRAMS data were analyzed. PRAMS consist of those who smoked or consumed alcohol in the last three months of their pregnancy. BC consists of those who smoked or consumed alcohol at any period during pregnancy. Both data sources were recoded as a yes or no response. Percentages and confidence interval 95% (CI) of women who had yes response to each variable was calculated by race (whites and blacks) and by year. SAS callable SUDAAN was used for all analyses.

Results: Smoking during the last trimester in PRAMS was substantially higher than smoking in pregnancy in BC for both races and all three years. In the year 2000, 17.1% (CI: 14.7-19.6) of whites reported smoking during the last trimester of pregnancy and 12.8% (CI: 11.8-13.8) of whites, reported smoking during pregnancy (PRAMS / BC). 5.2% (CI: 3.3-7.2) of blacks / 5.0(CI: 3.9-6.1). In 2001, for whites, 17.9(CI: 15.3-20.5) / 13.6(CI: 12.7-14.6) and for blacks, 5.4(CI: 3.5-7.3) / 5.5(CI: 4.3-6.6). In 2002, for whites16.5 (CI: 13.8-19.1) / 13.5(CI: 12.6-14.5) and for blacks, 5.3(CI: 3.3-7.3) /5.4(CI: 4.2-6.6).
Alcohol consumption during the last trimester in PRAMS was in no wise comparable to alcohol consumption during pregnancy in BC. In 2000, for whites, 5.2(CI: 3.8-6.6) / 0.4(CI: 0.0-1.5) and for blacks, 4.2(CI: 2.5-5.9) / 0.7(CI: 0.0-1.8). In 2001, for whites, 6.1(CI: 4.5-7.7) / 0.3(CI: 0.0-1.3) and for blacks, 3.8(CI: 2.1-5.5) / 0.54(CI: 0.0-1.7). In 2002, for whites, 5.5(CI: 3.9-7.1) / 0.34(CI: 0.0-1.4) and for blacks, 4.0(CI: 2.3-5.7) / 0.35(0.0-1.5).

Conclusions: From this study, PRAMS is more reliable than BC when considering response rates to socially undesirable questions like smoking and alcohol consumption during pregnancy.

Public Health Implications: When planning interventions for mothers who smoke and consume alcohol during pregnancy in Louisiana, it is better to work with data from PRAMS.

29. Is There Agreement Between Birth and PRAMS Data?

Folorunso Akintan, MD, MPH student; Tri Tran, MD, MPH; Juan Acuna, MD, MSc.

(Presented at the 11th CDC/ MCHEPI Conference, 2005)

Background: Concerns have been raised about the reliability of some variables in birth certificates (BC). Examining agreement between Pregnancy Risk Assessment Monitoring Systems (PRAMS) and BC may be useful in evaluating differences between some variables in the two data sources.

Study Question: Is there agreement beyond chance between the PRAMS and BC data?

Methods: Louisiana 2000 - 2002 linked birth/PRAMS data was analyzed. The 2 x 2 Kappa statistics with confidence interval 95% (CI), for both unweighted and weighted data, was used to evaluate agreement between PRAMS and BC for the first trimester prenatal care (PNC), previous live births (PLB), hypertension and diabetes in pregnancy, and placenta complications. Each variable was recoded as yes and no. Percentage of yes response for each variable was calculated from weighted data only. SAS callable SUDAAN was used for all analysis

Results: Percentages of PLB from PRAMS/BC, weighted-data Kappa statistics were as follows: for whites, 56.9/57.7, 0.961 in 2000, 56.7/57.4, 0.951 in 2001, and 58.1/60.0, 0.9711 in 2002; for blacks, 59.7/60.9, 0.956 in 2000, 60.6/62.5, 0.919 in 2001, and 61.0/60.7, 0.955 in 2002; for all races: 58.0/58.8, 0.959 in 2000; 58.0/59.3, 0.937 in 2001, 59.3/59.7, 0.963 in 2002. Percentages of the first trimester PNC from PRAMS/BC and weighted-data Kappa statistics were as follows: for whites, 82.9/90.9, 0.387in 2000, 83.0/91.8, 0.437 in 2001, and 83.6/92.2, 0.363 in 2002; for blacks, 56.8/73.9,0.396 in 2000, 62.9/73.6, 0.404 in 2001, and 60.6/74.3, 0.494 in 2002; for all races, 72.0/83.8, 0.430 in 2000; 74.5/84.3, 0.445 in 2001, 74.2/84.9, 0.474 in 2002.
The Kappa statistics for all other variables were below 0.40. There were no statistical differences between Kappa statistics of weighted and unweighted data except for placenta complication for whites in 2001.

Conclusions: PRAMS and BC was only found to have excellent agreement beyond chance for PLB and fair agreement for the first trimester PNC. Agreement of all other variables included in this study was considered poor.

Public Health Implications: Care must be taken when interpreting data from these two sources.

30. Life Stress Factors Associated with Physical Abuse during Pregnancy in Louisiana

Caleb Wiedeman, MPH; Lyn Kieltyka, PhD MPH; Tri Tran, MD, MPH

(Presented at the 11th CDC/ MCHEPI Conference, 2005 and Jul-Aug 2008, Volume 19 Number 4)

Background: Physical abuse before or during pregnancy is associated with negative health outcomes, including low birth weight, intrauterine growth restriction, preterm delivery, inadequate and excessive maternal weight gain, and maternal depression. National data from states participating in PRAMS (Pregnancy Risk Assessment and Monitoring System) in 2002 indicated 3.7% of women reported physical abuse during pregnancy. In Louisiana, 5.4% of the women surveyed in 2002 reported physical abuse during pregnancy, indicating need to investigate associated risk factors and develop appropriate interventions.

Study Question: What stressful life events (SLEs) reported by PRAMS are associated with physical abuse during pregnancy in Louisiana?

Methods: Louisiana PRAMS data from 2000-2004 were used for analyses, resulting in a sample size of 9,712 women. Physical abuse was defined as an affirmative response to either abuse during pregnancy by current husband or partner or abuse during pregnancy by an ex-husband or partner. Multivariable logistic regression using backwards elimination (alpha=0.05) was used to examine relationships between physical abuse and SLEs, after controlling for other characteristics of interest.

Results: During the study period, the prevalence of physical abuse during pregnancy was 6.65% (95%CI=6.06, 7.29). SLEs associated with higher odds of physical abuse during pregnancy included increased arguing (OR=1.98, 95%CI=1.46, 2.68), being in a physical fight (OR=6.59, 95%CI=4.64, 9.36), having somebody close with a drinking or drug problem (OR=1.60, 95%CI=1.17, 2.19), and having somebody close die (OR=1.42, 95%CI=1.06, 1.91). Additionally, abuse in the 12 months before pregnancy, being unmarried, and not having paternal information on the birth certificate were associated with increased odds of abuse during pregnancy. Age, race, and education were considered but not retained in the final model.

Conclusions: SLEs related to physical abuse during pregnancy included increased arguing, being in a physical fight, having somebody close with a drinking or drug problem, and having somebody close die.

Public Health Implications: Early identification through screening is an imperative step to early intervention and prevention of negative consequences. All women should be screened for physical abuse during pregnancy; however special attention should be given to women with a known history of physical abuse and women reporting these particular SLEs.

(*More detailed info of this study is found at the Louisiana Morbidity Report, Jul-Aug 2008, Volume 19 Number 4)*

31. A Short Birth Interval Enhances a Risk of Low Birthweight Louisiana, 2000-2004

Tri Tran, MD, MPH; Lyn Kieltyka, PhD, MPH; Ashley Chin, PhD, MPH, MA

(Presented at the 12th CDC/ MCHEPI Conference, 2006 and published at the Louisiana Morbidity Report, Mar-Apr 2008, volume 19 number 20)

Objectives and methods: Although many studies have indicated an association between a short birth interval and adverse birth outcomes, the effect of birth interval on low birthweight has not been investigated in Louisiana. The objectives of this study are to define who are more likely to have a short birth interval (less than 12 months) and determine if there is relationship between birth interval and low birthweight (less than 2,500 grams) in Louisiana. The 2000-2002 birth records were linked with 2000-2004 linked Medicaid/birth records. Only singleton births with gestational age greater than thirty-one weeks were included in this study. Maternal social security number was used for the data linkage. Multivariable logistic regression was used to determine factors associated with a short birth interval and the effect of birth interval on low birthweight, accounting for: maternal race; education; marital status; age; smoking during pregnancy; Medicaid payment for delivery and adequacy of prenatal care; gestational age of the newborn. SAS 9.1 was used for analyses and alpha was set at 0.05 for statistical significance.

Results: Percents of births within the following intervals are: less than twelve months, 6.4%; twelve to seventeen months, 29.6%; eighteen to twenty-three months 34.9%; greater than twenty-three months 29.1%. Black, less educated, younger, preterm-birth and Medicaid-paid delivery women were statistically more likely to have a birth interval less than twelve months. A birth interval less than twelve months, black, less educated, prenatal smoking, pre-term birth and Medicaid paid delivery women were statistically associated with low birthweight.

Conclusions: Babies born to mothers with birth interval less than twelve months were fifty percent more likely to have low birthweight than those born to mothers with birth interval greater than or equal to twelve months. Black, less educated, younger and poor women are a high-risk population for birth intervals less than twelve months. Similar high-risk profiles were found for low-birth weight, including women who were black, less educated, smoked and Medicaid-paid. Family planning interventions targeting women at risk for short birth intervals can play an important role in reducing low birthweight in Louisiana.

(*More detailed info of this study is found at the Louisiana Morbidity Report Mar-Apr 2008, volume 19 number 20)*

32. Whose Infants Are More Likely To Be Delivered By Primary Cesarean? Louisiana, 2005

Tri Tran MD, MPH; Roshan Badakhsh MPH; Ming-Kuang Hsueh MPH; Lisa Longfellow MPH

(Presented at the 13th CDC/MCH EPI conference, 2007 and published at the Louisiana Morbidity Report, May-June 2008, Volume 19 Number 3)

Objectives, Data Sources, and Methods of Analysis:

Primary Cesarean (PC) rates in Louisiana have increased from 18.0% in 2000 to 25.4% in 2005. The PC rate for the United States in 2004 was 20.6%. Many epidemiological studies have indicated that risks such as cardiac arrest, hysterectomy, major puerperal infection, re-hospitalization after delivery and fetal distress are more prevalent in c-sections than vaginal deliveries. Determining factors associated with PC is helpful to define high-risk populations for PC. The 2005 birth records, 2005 Medicaid and 2004 to 2005 sexually transmitted disease (STD) data were linked. STD data included chlamydia, gonorrhea and syphilis. Medicaid data provided information of live-birth delivery paid for by Medicaid. Only live births to women without previous cesarean were included in analysis (N = 49,679). Multivariable logistic regression was used to determine: association of PC with mother's demographic and economic characteristics; prenatal health behaviors, medical risks, labor/delivery complications, prenatal care and STD during pregnancy; Medicaid paid-for delivery; newborn's gestational age, birth weight, plurality, sex and congenital anomalies. LinkPro 3.0 and SAS 9.1 were used for data analyses and linkage. Alpha was set at .05 for statistical significance.

Results: In 2005, the PC rate was 25.4% in Louisiana. This rate was very high in live births with multiple births (71.5%), congenital anomalies (34.8%), very low birth weight (< 1,500 grams) (53.1%), low birth weight (1,500-2,499 grams) (40.4%), high birth weight (4,000+ grams) (35.5%), preterm birth (< 37 weeks) (40.1%), labor/delivery complications (47.4%), intensive prenatal care (29.4%), age greater than thirty-five (30.0%), and first time live birth (37.1%).

Results of the multiple regression model showed that the PC was strongly statistically associated with multiple live births (adjusted odds ratio [OR]: 7.3, CI: 6.1, 8.7), labor/delivery complications (OR: 4.9, CI: 4.7, 5.1), and first time live birth (OR: 5.8, CI: 5.2, 6.4). Low or high birth weight, preterm delivery, older mothers, birth spacing greater than thirty-six months and intensive prenatal care were also statistically associated with PC (p values < .05). STD during pregnancy and Medicaid-paid delivery were not seen to be associated with PC statistically.

Conclusions: Live births with multiple births, labor/delivery complications, first-time live birth, longer birth spacing, older mothers, low or high birthweight, preterm birth and intensive prenatal care were more likely to be delivered by cesarean. This message may be useful for physicians when taking care of patients with high-risk of primary cesarean. Effective interventions executed by the Maternal and Child Health programs to decrease modifiable risk factors associated with PC will limit unnecessary primary cesarean and its complications.

(More detailed info of this study is found at the Louisiana Morbidity Report May-June 2008, Volume 19 Number 3)

33. Pregnancy Intention and Breastfeeding Initiation among Women in Louisiana

Ashley C. Chin, PhD, MPH, MA, Tri Tran, MD, MPH, Jeanette H. Magnus, MD, PhD

(Published at the Louisiana Morbidity Report, Mar-Apr 2007, Volume 18 Number 2)

Background: In 2004, only 53.9% of African-American women, 73.6% of White women and 70.3% of all women in the United States initiated breastfeeding, well below the goal of seventy-five percent set forth in the Surgeon General's Healthy People 2010. Breastfeeding confers myriad benefits to the child, the mother and society, thus it is vitally important that we determine what factors are associated with a woman's decision to breastfeed her infant. Women with unintended pregnancies tend to be at higher risk for negative health behaviors and birth outcomes. Determining whether pregnancy intention is associated with breastfeeding initiation is particularly important in Louisiana, where approximately half of all pregnancies resulting in a live birth are unintended and breastfeeding rates remain low. If breastfeeding is associated with pregnancy intention, customizing breastfeeding education for the woman with an unintended pregnancy may help to mitigate its negative effects. This research sought to determine whether pregnancy intention is associated with breastfeeding initiation among women in Louisiana.

Methods: The 2000-2002 Louisiana Pregnancy Risk Assessment Monitoring System (La PRAMS) data was used, with a sample size of 2,609. Logistic regression was used to determine whether pregnancy intention was associated with breastfeeding initiation among the total sample and stratified by race, adjusting for demographic, behavioral and clinical variables. Alpha was set at 0.05 for statistical significance and SAS-callable SUDAAN was used for analyses.

Results: From 2000-2002, fifty-three percent of pregnancies ending in a live birth were classified as unintended and fifty-three percent of new first time mothers initiated breastfeeding. In the unadjusted analysis, women with unintended pregnancies were fifty-eight percent less likely to breastfeed compared to women with intended pregnancies (OR 0.4, 95% CI 0.3, 0.5). After controlling for race, education, age, work/school status, income, smoking and delivery type, pregnancy intention was not significantly associated with breastfeeding initiation (OR 0.8, 95% CI 0.6, 1.1). After stratifying by race, Whites with less than twelve years of education and an unintended pregnancy were significantly less likely to initiate breastfeeding as similarly educated White women with intended pregnancies (OR 0.5, 95% CI 0.2,0.9).

Conclusions:
Overall, pregnancy intention was not significantly associated with breastfeeding initiation among women in Louisiana after adjusting for known covariates. Among Whites with less than twelve years of education, pregnancy intention was significantly associated with breastfeeding initiation.

Public Health Implications:
Although pregnancy intention was not found to be significantly associated with breastfeeding initiation, it is still a very important indicator of prenatal health behaviors, birth outcomes and subsequent well baby care. Efforts to increase breastfeeding should target all women, not only those with unintended pregnancies.

(More detailed info of this study is found at the Louisiana Morbidity Report Mar-Apr 2007, Volume 18 Number 2)

34. Neonatal Mortality to Teen Mothers Louisiana, 1997-2001

Tri Tran, MD MPH; Genet Burka, MD MPH; Frances Mather, PhD; Juan Acuna, MD MSc

(Published at the Louisiana Morbidity Report, Mar-Apr 2006, Volume 17 Number 2)

Objectives and methods:

This study analyzes neonatal mortality to Louisiana resident teen births where the mother is thirteen to nineteen years of age during the period 1997 – 2002. The source of data is a cohort birth infant death linked file, with information from the death certificate linked to information from the birth certificate for each neonate less than twenty-eight days of age who died in or out of Louisiana. The data excludes births less than 400 grams of birthweight and less than twenty weeks of gestational age. Only singleton and twin births to Black and White teens are included in the study. Cox regression was used to identify risk factors with adjustment for the confounding factors together in the multivariable regression model. As the birthweight distribution of White births (mean: 3228 g, standard deviation: 564 g) and Black births (mean: 3002 g, standard deviation: 617 g) are different, birthweight was standardized to a Z score for analysis.

Results: During the period 1997-2002, 18% of all live births were to teens thirteen to nineteen years of age, 26% among Black births and 18% among White births. Unadjusted neonatal mortality rate (NMR per 1,000 live births) was higher among White teen births (4.4 per 1,000 live births) compared to all White births (3.4 per 1,000 live births) and similar among Black teen births (6.0 per 1,000 live births) and all Black births (6.2 per 1,000 live births). A multivariable Cox regression model including the newborn's and mother's characteristics as risk factors shows that Black neonates were more likely to die than White infants, with adjusted hazard ratio (HR) of 1.5 (CI: 1.2, 2.8). Lower birthweight, newborn complication and lower maternal education are statistically significant for increased hazard of neonatal deaths.

Conclusions and public health implications: Attempts to reduce newborn complications among live births to teens should receive high priority. Assisting adolescent mothers to bear infants with birth weights and gestational age in the normal range is an appropriate goal to reduce neonatal mortality.

(More detailed info of this study is found at the Louisiana Morbidity Report, Mar-Apr 2006, Volume 17 Number 2)

35. Relationship between Sexually Transmitted Diseases during Pregnancy and Preterm Births in Louisiana

Tri Tran MD, MPH, Binh Le, MD, MPH, Lisa Longfellow, MPH, Joan Wightkin, DrPH.

(Presented at the 2006 STD Prevention conference)

Background: Both preterm births (PB) and sexually transmitted diseases during pregnancy (STD/P) increased from 1997 to 2004 in Louisiana. PB was 11.6% in 1997 and 13.3% in 2004. STD/P was 3.3% in 1997 and 6.0% in 2004

Objectives: To define relationship between STD/P and PB.

Methods: 1999-2004 STD/2000-2004 birth records linked data was analyzed. STD included only chlamydia, gonorrhea, and syphilis. Multivariable logistic regression in SAS 9.0 was used to define relationship between STD/P and PB, adjusting mothers' race, education, age, marital status, smoking, medical risks, geographic area and prenatal care entry.

Results: PB in mothers who were not infected by any STD/P was 12.5% and in those who were infected by chlamydia, gonorrhea, and syphilis it was 14.6 %, 17.7%, and 19.7% respectively. Unadjusted and adjusted odds ratios (OR) of PB for chlamydia were 1.2 (CI: 1.1-1.3) and 1.0 (CI: .9-1.0), for gonorrhea 1.5 (CI: 1.4-1.7) and 1.2 (CI: 1.1-1.3), and for syphilis 1.7 (CI: 1.2-2.3) and 1.3 (CI: 1.0-1.8). Women who were black, unmarried, aged $\geq$ 35 years old, smokers, less educated, had no or late prenatal care, and had medical risks were statistically significant to have increased PB.

Conclusions: Pregnant women with STD/P were more likely to have PB. The data had no sufficient evidence to support the statistical relationship between PB and chlamydia and syphilis. Chlamydia and syphilis might not affect PB due to early and appropriate treatment.

Implications for programs, policy, and/or research: Louisiana STD intervention program effectively might effort in reducing affect of chlamydia and syphilis on PB. Further studies of STD/P related to other maternal and child morbidities and mortalities should be conducted.

36. Factors Affecting Sexually Transmitted Diseases during Pregnancy in Louisiana

Tri Tran MD, MPH, Binh Le, MD, MPH, Lisa Longfellow, MPH, Joan Wightkin, DrPH.

(Presented at the 2006 STD Prevention conference)

Background: Defining factors affecting sexually transmitted diseases during pregnancy (STD/P) is really essential for STD intervention program in Louisiana.

Objectives: Identify risk factors/markers of STD/P in Louisiana.

Methods: 1999-2004 STD data were linked with 2000-2004 birth records data. A woman was defined to have STD/P if distance between her date of exam, which had a positive result of any STD, and date of birth of her newborn was less than or equal gestational age of her newborn. Binary multivariable logistic regression was applied to define risk factors/markers of STD/P using SAS 9.0. Maternal race, education, age, marital status, smoking, drinking, geographic areas, and prenatal care entry were independent variables. Alpha was set at .05 for statistical significance

Results: Blacks were 4.1 times more likely to have STD/P than whites (adjusted Odds Ratio (OR): 4.1, confidence interval 95% (CI): 3.9 – 4.3). Younger women had higher risk of STD/P (age < 15, OR: 4.9, CI: 3.9 – 6.1; age 15-19, OR: 6.0, CI: 5.1 – 6.9; age 20-24, OR: 4.6, CI: 4.0 – 5.4; age 25-29, OR: 2.6, CI: 2.2 – 3.0; and age 30-34, OR: 1.6, CI: 1.3 – 1.9). Higher educated women were less likely to have STD/P (less than 10 yrs of education, OR: 1.8, CI: 1.7 – 1.9; 10-12 yrs of education, OR: 1.6, CI: 1.5 – 1.7). Women who were unmarried (OR: 5.2, CI: 4.8 – 5.5), lived in urban (OR: 1.3, CI: 1.3 – 1.4), and smoked (OR: 1.2, CI: 1.1 – 1.2) were statistically significant to increase STD/P.

Conclusion: Pregnant women with any of following characteristics: black, younger, less educated, unmarried, smoking, living in urban, and began later or had no prenatal care were more likely to have STD/P.

Implications for programs, policy, and/or research: STD intervention program should more effectively target population with higher risk of STD/P.

37. Adequacy of Prenatal Care as a Determinant for Length of Hospital Stay among Moderately Low Birthweight Live Births

Tri Tran, MD, MPH, Dionka Pierce, MPH, Tanya Williams, MPH, Genet Burka, MD, MPH, Linda Polfus, MPH, Juan Acuna, MD, MSc.

(Presented at the 11th CDC/ MCHEPI Conference, 2005)

Background: The benefits of prenatal care (PNC) have long being debated. There is an even less clear perspective on the benefits of prenatal care on moderately low birthweight newborns (MLBW, 1500-2499 grams).

Objectives: To define effect of adequate PNC on length of hospital stay (LHS) and difference of this effect between MLBW and normal weight newborns (NW, 2500+ grams).

Methods: Data sources: Louisiana 2000-2002 linked birth/PRAMS (Pregnancy Risk Assessment and Monitoring System), excluding infant deaths < 6 days of age and < 1,500 grams at birth. Kotelchuck index was used to determine adequacy of prenatal care categorized into 3 groups: inadequate/intermediate, adequate, and plus adequate PNC. Cumulative logit model for ordinal response (LHS: < 3, 3 to 5, and > 5 days) was applied to define effects of adequacy of PNC on LHS, adjusting maternal race (white and black only) and age, delivery paid by Medicaid, smoking during the last trimester of pregnancy, and newborn complications. Statistical software SAS-callable SUDAAN 9.0 was used.

Results:

LHS by PNC adequacy among normal birthweight live births

Prenatal care adequacy	Length of hospital stay (percent, CI95%)		
	< 3 days	3-5 days	> 5 days
Inadequate/intermediate PNC	55.1, 51.4-58.8	39.2, 35.5-42.8	5.7, 3.9-7.5
Adequate PNC	61.0, 58.6-63.5	34.5, 32.1-36.8	4.5, 3.4-5.5
Adequate plus PNC	58.5, 56.0-61.0	35.5, 33.0-37.9	6.0, 4.8-7.3
Total	58.9, 57.3-60.5	35.8, 34.2-37.3	5.2, 4.5-6.0

LHS by PNC adequacy among MLBW live births

Prenatal care adequacy	Length of hospital stay (percent, CI 95%)		
	< 3 days	3-5 days	> 5 days
Inadequate/intermediate PNC	24.2, 12.8-35.5	27.5, 15.4-39.7	48.2, 34.5-62.0
Adequate PNC	43.8, 30.3-57.3	27.0, 14.7-57.3	29.3, 16.9-41.6
Adequate plus PNC	18.0, 12.4-23.6	30.1, 23.3-36.9	51.9, 44.6-59.2
Total	23.8, 18.9-28.7	29.1, 23.7-34.4	47.2, 41.3-53.0

Multiple cumulative logit model showed that, only among MLBW newborns there was a strong relationship between shorter LHS and prenatal care adequacy [OR (adequate vs. inadequate/intermediate): 3.5, CI: 1.4-8.6]. In addition, delivery not paid by Medicaid, whites, mothers of younger age, and newborn without complications were also statistically significant for shorter LHS

Conclusions: Adequate PNC was strongly associated with shorter lengths of hospital stay among moderately low birthweight babies; no association between adequate PNC and length of hospital stay among normal birthweight babies was identified.

Public Health Implications: Promoting prenatal care entry and participation may reduce health care costs by shortening hospital lengths of stay for moderately low birthweight babies

38. Trends in Birthweight Distribution and Birthweight- Specific Mortality among Whites and Blacks in Louisiana from 1991 to 2002

Genet Burka MD, MPH, Juan M. Acuña MD, MSc, Fran Mather, PhD, Tri Tran MD, MPH,

(Presented at the 10th CDC/ MCHEPI Conference, 2004)

Background: Louisiana (LA) continues to have an IMR of 10.2, rising during the last 3 years, after an 8-year decline. Black IMR is 50% higher than the overall rate, and twice the IMR of the white population. We studied the differences between birth weight –specific mortality (BWSM) and birth weight distribution (BWD) components of the IMR among blacks and whites.

Study Question: How do BWSM or BWD changes explain the changes in the IMR in LA?

Methods: We used the state's 1991-2002 linked birth/infant death files. The trends in BWD, BWSM, and excess IMR were analyzed using Kitagawa's method. One tailed Kendall's tau_b test was used to test for trends and a probability level of 0.05 or less were considered significant. For the analysis, the US population was used as a reference group.

Results: During 1991-2002, the proportion of infants born weighing less than 1,249 g increased for blacks. For whites, the proportion born weighing 1,500 – 3,499 g increased. The percentage of infants weighing over 3,500 g decreased for each group. The percentage of infants born weighing less than 1500 g (very low birth weight - VLBW) and less than 2500 g (low birth weight – LBW) increased 10% and 21% for whites and 13% and 5.7% for blacks respectively. For both whites and blacks, the BWSMR for infants weighing less than 500 g. increased, but it declined for all other birth weight categories. On average 80% of excess deaths among blacks were due to BWD contributed by LBW infants. During the study period the excess deaths due to BWSMR declined for both white and black infants.

Conclusions: Despite the success in improving the BWSM rate, the state's infant mortality remains high as a result of an increasing proportion of LBW infants among blacks.

Public Heath Implications: Population-based studies and interventions to address LBW should be the priority in Louisiana especially for the black population.

(A paper of this study has been accepted to publish at the *Journal of the Louisiana State Medical Society* for the year of *2009)*

39. Breastfeeding Profiles in Louisiana's Mothers, 2000-2001

Tri Tran, MD MPH; Dionka Pierce, MPH; Genet Burka, MD MPH; Kim Ceci, MPH Candidate; Frances Mather, PhD; Juan Acuña, MD MSc

(Presented at the 10th CDC/MCHEPI conference, 2004 and published at the Louisiana Morbidity Report, Jan-Feb 2006, Volume 17 Number 1)

Background: Among states participating in PRAMS (The Pregnancy Risk Assessment Monitoring System, a CDC sponsored surveillance system), Louisiana has a particularly low proportion of mothers who breastfeed. Black women reported the lowest breastfeeding participation among Louisiana PRAMS participants. Recent analysis done at the Maternal and Child Health (MCH) Epidemiology unit, at the Louisiana Office of Public Health (LOPH), has demonstrated a decreasing trend of breastfeeding prevalence among Louisiana mothers (annual percent change from 1998 to 2001: -8.7 for early postpartum period and –2.0 for breastfeeding at six months after delivery, respectively). If this trend continues, Louisiana will not reach the Healthy People 2010 breastfeeding objectives for early postpartum period (75%) and breastfeeding at six months after delivery (50%). In order to increase the proportion of mothers that breastfeed, it is important to define risk markers associated with not breastfeeding, short duration of breastfeeding and breastfeeding cessation.

Methods: Louisiana PRAMS data for 2000-2001 was analyzed to determine factors associated with the breastfeeding circumstances previously described and to adjust for confounding variables. Due to the scope of the report, statistical tests will not be reported. However, statistically significant findings are shown here, unless specifically noted.

Results: Breastfeeding prevalence in the first month was 46.6 % for White mothers and 22.6% for Black mothers. The prevalence remained 20.2% for White mothers and 7.5 % for Black mothers at the sixth month and 10.5% for White mothers and 2.9% for Black mothers at the ninth month.
Breastfeeding initiation was higher in White women than in Black women (Adjusted Odds Ratio (OR): 2.8, 95% Confidence Limit (CL): 2.2, 3.6). Once breastfeeding was started however, adjusted hazards of breastfeeding for White and Black women were not different statistically (P-value > 0.05). Both White and Black women were more likely to initiate breastfeeding if breastfeeding information was given by the hospital staff (White: OR = 9.4, CL: 6.4, 13.6; Black: OR = 3.5, CL: 2.0, 6.1). Older, married, the higher educated and White women as well as those with twin births and those above poverty level were more likely to try breastfeeding.

Conclusions: For women initiating breastfeeding, those who were current smokers, had a preterm delivery, were of a younger age and had a lower education level, were at a higher risk of breastfeeding cessation. Breastfeeding information given by the hospital staff is strongly encouraged to increase breastfeeding initiation. Black, young, less educated and unmarried women need additional support for their breastfeeding initiation.
Additional support is also needed to increase breastfeeding duration among women who smoke, are less educated, are younger in age and whose pregnancy resulted in a preterm birth.

(*More detailed info of this study is found at the Louisiana Morbidity Report, Jan-Feb 2006, Volume 17 Number 1)*

40. Association between Neonatal Hospital Level and Mortality among Very Low Birth Weight Neonates in Louisiana from 1995 to 2000

Tri Tran MD, MPH, Brandy Wallace MPH

(Presented at the 9th CDC/MCHEPI Conference, 2003)

Background: The implication of the neonatal hospital level on the risk of death of VLBW newborns has been an issue discussed in the state that has important implications for both public health and clinical practices. This study was done to assess hospital level on VLBW neonatal death risk and survival time for those newborns delivered in level I-II and level III hospitals.

Methods: Cohort linkage method was used to link 1995-1999 birth certificates with 1995-2000 infant death certificates. Less than 500 gram births were excluded. Kaplan – Meier survival curves, Log-Rank test, and Cox proportional Hazards models for time – independent variables were used. Alpha levels were set at 0.05.

Results: More than 50% of deaths occurred on the first day of life (51.2 % in level III, 95% Confidence Limit [CL]: 47.0, 55.3; 56.8% in level I-II, 95% CL: 48.8, 64.7). Neonatal mortality rate (NMR) was much higher in level I-II (181.8 per 1000 live births, 95% CL: 152.5, 211.1) than in level III hospitals (111.5 per 1000, 95% CL: 105.9, 125.1). Hazard rate was higher in level I-II than in level III hospitals (adjusted Hazard Ratio [HR]: 1.5, 95% CL: 1.2, 1.8), and higher in white than in black VLBW neonates (HR: 1.7, 95% CL: 1.5, 2.0). Hazard rate among level III VLBW neonates was associated with birth weight, gestational age, gender, race, and prenatal care. However, among level I-II VLBW neonates, gender and prenatal care were not associated. Short gestation and/or low birth weight, birth defects, respiratory distress syndrome of the newborn and pulmonary atelectasis were ranked as top causes of deaths in both hospital levels.

Conclusion: Mortality among VLBW infants in the neonatal period is higher in level I-II hospitals after adjusted by the included confounders. The risk factors of death and survival time were different but main causes of death were similar between two hospital levels.

Public Health Implications: Better prenatal assessment of the risk for preterm delivery; expedite referral to higher-level institutions; and more aggressive intervention on the first day after delivery may decrease the number of VLBW deaths in level I-II hospitals.

41. Healthy People 2000-2010: An evaluation of Louisiana's Maternal and Child Health Objectives

Tri Tran, MD, MPH; Brandy Wallace, MPH; Juan Acuña, MD, MSc

(Presented at the 8th CDC/MCHEPI Conference, 2002)

Background: Has Louisiana (LA) met many Healthy People 2000 (HP2000) Maternal and Child Health MCH objectives? If efforts continue as they are, will LA meet the 2010 objectives? The purposes of this study are to evaluate LA's obtainment of HP2000 MCH objectives, to predict obtainment of the 2010 objectives, and to access the impact on racial disparities.

Methods: Objective estimates and predictions were calculated using LA's birth, infant, and fetal death certificate data from 1990 to 2000. One-sided Kendall's Tau-b correlation and log-linear regression were used to evaluate trends and racial disparities, and to project 2010 estimates (alpha of 0.05). Racial disparity was measured as a ratio of rates and proportions.

Results: Only the white population met the 2000 objective for infant mortality rate (IMR), neonatal mortality rate (NMR), post-neonatal mortality rate (PMR), and early prenatal care (PNC); the black population did not meet any of these objectives except for PMR. An increase in the last decade was seen for low birth weight (LBW) (28.3% for whites, 95%Confidence limit [CL]: 22.4, 34.2; 5.8% for blacks, CL: 1.7, 9.9); very low birth weight (VLBW) (40.0% for whites, CL: 24.8, 55.2; 27.6% for blacks, CL: 17.5, 37.6), and preterm births (PB) (50.0% for whites, CL: 44.0, 56.0; 25.0% for blacks, CL: 20.4, 29.6). Fetal mortality rates did not change. Racial disparity for early and adequate PNC has declined ($p < 0.001$). Based on the current annual rates of change the white population will achieve these 2010 objectives for IMR, NMR, PMR, early PNC and adequate PNC.

Conclusions: The rates of LBW, VLBW and PB have increased in the last decade. By 2010, we predict that the white population may reach many of the healthy people 2010 objectives. In contrast, the black population will not reach most of the objectives. The racial disparities will not decline, except for PNC.

Public Health Implications: Without a significant change in effort or trend, all 2010 objectives for blacks in LA will not be met. Many of the MCH objectives will be met for whites and racial disparities will continue to persist.

V. GLOSSARY

Adequacy of Prenatal Care Utilization (APNCU) Index: An assessment of the adequacy of prenatal care measured by the APNCU Index (often referred to as the **Kotelchuck Index**), a composite measure based on gestational age of the newborn, the trimester prenatal care began, and the number of prenatal visits made.

African American/ "black" (2000): The 2000 Census category "Black or African American" describes a person having origins in any of the Black racial groups of Africa. It includes people who indicate their race as "Black, African Am., or Negro," or provide written entries such as African American, Afro American, Kenyan, Nigerian, or Haitian.

Apgar score: A summary measure of the condition of the infant based on heart rate, respiratory effort, muscle tone, reflex irritability, and color. Each factor is given a score of 0, 1, or 2; the sum of these five values is the Apgar score, ranging from 0 to 10.

Behavioral Risk Factor Surveillance System (BRFSS): The world's largest telephone survey tracking health risks in the United States. Information from the survey is used to improve the health of the American people. Coordinated by the Centers for Disease Control and Prevention (CDC) and conducted by State health departments.

Birth defect: An abnormality in structure, function or body metabolism that is present at birth, such as a cleft lip or palate, phenylketonuria, or sickle cell disease.

Birth rate: Measures the number of births that occur to 1,000 adults of reproductive age in any given year. Birth rates are based on information collected from birth certificates, combined with population estimates generated by the U.S. Bureau of the Census.

Birth weight: The weight of the fetus or infant at the time of delivery.

Body Mass Index (BMI): A measure of weight relative to height. A BMI of less than 25 is considered ideal or healthy; a BMI of 25-29 is considered overweight; and a BMI greater than 30 is considered to be indicative of obesity. BMI is calculated by dividing an individual's weight in kilograms by the individual's height in meters squared.

Breastfeeding: Exclusive use of human milk or use of human milk with a supplemental bottle of formula. "Exclusive breastfeeding" refers to the use of only human milk, supplemented by solid food when appropriate but not supplemented by formula.

CDC: Centers for Disease Control and Prevention, based in Atlanta, GA.

Community: Any set of persons within the society that differs from other sets due to demographic, economic or social characteristics such as age, sex, education level, race, religion, income level, lifestyle, beliefs, etc.

Congenital anomalies: Defects existing usually before birth regardless of causation.

Crude death rate: The number of deaths per 1,000 population, calculated by Number of Deaths divided by Population of the Area, multiplied by 1,000. See mortality.

Death rate: A death rate is a ratio between mortality and population; the number of deaths per specific number of people. Death rates are usually computed per 100,000 population. Rates allow meaningful comparisons between groups of unequal size.

Developmental disabilities: A broad spectrum of impairments characterized by developmental delay or limitation or both in personal activity, such as mental retardation, cerebral palsy, epilepsy, hearing and other communication disorders, and vision impairment. The more severe developmental disabilities require special interdisciplinary care.

Disparities: Differences (in health) among individuals and/or groups in a population.

Eclampsia/Preeclampsia: A condition that occurs in the second half of pregnancy, characterized by hypertension, edema, and proteinuria. When convulsions and coma are associated, it is called eclampsia.

Environmental factors: Qualities or contaminants of living and working surroundings that contribute to health and health care disparities such as poor air quality, crime, contaminated water, and exposure to toxic chemicals. Environmental factors in combination with individual, social and health system factors lead to health and healthcare disparities.

Ethnicity: The characteristic of a group of people that share a common and distinctive national, religious, linguistic, or cultural heritage. A quality or affiliation resulting from similar national, religious, linguistic, or cultural heritage.

Family: As defined by the U.S. Census Bureau, a family includes a householder and one or more other people living in the same household who are related to the householder by birth, marriage, or adoption. All people in a household who are related to the householder are regarded as members of his or her family. A household can contain only one family for purposes of census tabulations. Not all households contain families because a household may be a group of unrelated people or one person living alone.

Fertility Rate: The number of live births per 1,000 females 15-44 years of age. Calculated by number of live births divided by female population ages 15-44 multiplied by 1,000.

Genetic disorders: The group of health conditions that result primarily from alterations in a gene or combination of genes.

Health: A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

Health care organization: Any public or private institution involved in any aspect of delivering health care services.

Health maintenance organization (HMO): A type of managed care organization that provides comprehensive medical care for a predetermined annual fee per enrollee.

Healthy People 2010: Healthy People 2010 is a nationwide health promotion and disease prevention initiative that is committed to improving the health of all people in the United States during the first decade of the 21st century. Healthy People 2010 is designed to achieve two overarching goals: to increase quality and years of healthy life and to eliminate health disparities in the United States.

Household: As defined by the U.S. Census Bureau, a household includes all of the people who occupy a housing unit. A housing unit is a house, an apartment, a mobile home, a group of rooms, or a single room occupied (or if vacant, intended for occupancy) as separate living quarters. Separate living quarters are those in which the occupants live separately from any other people in the building and that have direct access from the outside of the building or through a common hall. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated people who share living quarters.

ICD-10 Code: The cause-identifying number classified in the 10th Revision of the international classification of Disease implemented by the National Center for Health Statistics (NCHS) for deaths in 1999.

Incidence: Incidence is an estimate of the number of new cases of disease that develop in a population in a specified time period, usually one year. Incidence is often used as an indicator of the need for preventive measures, or to evaluate the effectiveness of existing programs. Incidence measures how often new cases of a health problem occur in a population.

Infant death rate: The number of infant deaths per 1,000 live births, calculated as number of infant deaths divided by number of live births, multiplied by 1,000.

Infant death: The death of a live-born infant which occurs within the first year of life.

Interpreter: A person who not only translates from one language to another but assists in cross-cultural understanding between providers and patients.

Level III hospital: A facility for high-risk deliveries and neonates that can provide care to very small infants, including mechanical ventilation and neonatal surgery and special care for transferred patients and for which a full-time neonatologist serves as director.

Live birth: The complete expulsion or extraction of a product of human conception from its mother, irrespective the of the duration of pregnancy, that, after such expulsion or extraction, shows any evidence of life such as breathing, heartbeat, pulsation of the umbilical cord, or voluntary muscle movement, whether or not the umbilical cord has been cut or the placenta attached. Each infant from such a birth is considered live born.

Maternal death: Deaths attributable to delivery or the complications of pregnancy, childbirth or the immediate time period following childbirth.

Medical home: Medical care for infants and children that is accessible, continuous, comprehensive, family-centered, coordinated, and compassionate.

Medicaid: A state and federal program which funds and provides specific approved health care and related services for individuals meeting certain eligibility conditions.

Medicare: A federal health insurance program designed to provide health care for the elderly and the disabled.

Minority (2000): Includes all persons who are not Non-Hispanic White Alone (e.g., White Hispanics would be a minority population as would persons who classified themselves as both White and American Indian).

Morbidity: A term used to describe disease, sickness or illness, as a departure from normal physiological and psychological conditions. It is normally expressed as a morbidity rate. Morbidity rates give the closes frame of the quality of life and health status in a given population.

Mortality: A term used to describe death. It is normally expressed as a rate, expressing the proportion of a particular population who die of one or more diseases or of all causes during a specified unit of time, usually a year. It is also the probability of dying within a specified time period.

Occurrence data: Vital statistics compiled on the basis of where the vital event happened.

Patients/consumers: Individuals, including accompanying family members, guardians, or companions, seeking physical or mental health care services, or other health-related services.

Population: All people, male and female, child and adult, living in a given geographic area.

Prenatal care: Pregnancy-related health care services provided to a woman between conception and delivery. The American College of Obstetricians and Gynecologists recommends at least 13 prenatal visits in a normal 9-month pregnancy: one each month for the first 28 weeks of pregnancy, one every 2 weeks until 36 weeks, and then weekly until birth.

Prevalence: Prevalence is an estimate of how many people have a specific condition or disease at a given point in time. This number is useful in assessing the level of medical and social care needed for current cases.

Race (2000): The data on race were derived from answers to the question on race that was asked of all people. The concept of race, as used by the Census Bureau, reflects self-identification by people according to the race or races with which they most closely identify. These categories are socio-political constructs and should not be interpreted as being scientific or anthropological in nature. Furthermore, the race categories include both racial and national-origin groups.

The racial classifications used by the Census Bureau adhere to the October 30, 1997, Federal Register Notice entitled "Revision to the Standards for the Classification of Federal data on Race and Ethnicity" issued by the Office of Management and Budget (OMB). These guidelines reflect "the increasing diversity of our Nation's population, stemming from growing in interracial marriages and immigration."

The OMB standards govern the categories used to collect and present federal data on race and ethnicity. The OMB requires five minimum categories (White, Black or African American, American Indian or Alaska Native, Asian and Native Hawaiian or Other Pacific Islander) for race. A sixth category "Some other race," was added with OMB approval. In addition to the five race groups, the OMB also states that respondents should be offered the option of selecting one or more races.

If an individual did not provide a race response, the race or races of the householder or other household members were assigned using specific rules of precedence of household relationship. For example, if race was missing for a natural-born child, the spouse of the householder was assigned. If race was not reported for anyone in the household, the race or races of a householder in a previously processed household was assigned.

Comparability of 2000 Census race data with previous censuses: Census 2000 race data are not directly comparable with data from 1990 and previous censuses. See the Census 2000 Brief, "Overview of Race and Hispanic Origin" at www.census.gov/prod/2001pubs/c2kbr01-1.pdf.

Social factors: Influences on individual behavior attributable to the social values and/or behavior of the groups to which an individual belongs or aspires to belong.

Sudden Infant Death Syndrome (SIDS): Sudden, unexplained death of an infant from an unknown cause.

Surveillance: The ongoing study of a condition, characteristic or disease, generally to detect changes in trends or distribution to initiate, investigate or control measures.

Teenage pregnancy: A live birth, still birth or abortion occurring to a female under 20 years of age.

Trimester: A three-month period of time. First trimester care, for example, refers to care initiated in the first three months of pregnancy.

Vulnerable: Susceptible to injury or harm; those whose needs are not fully addressed by traditional service providers; people who feel they cannot comfortably or safely access and use the standard resources offered. They include, but are not limited to, those who are physically or mentally disabled, limited or non-English speaking, geographically or culturally isolated, medically or chemically dependent, homeless, frail/elderly and children.

Weeks gestation: The number of weeks between the last reported normal menses and the delivery of the fetus or infant.

White (2000): The 2000 census category "White" describes a person having origins in any of the original peoples of Europe, the Middle East, or North Africa. It includes people who indicate their race as "White" or report entries such as Irish, German, Italian, Lebanese, Near Easterner, Arab or Polish.

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