



The well-being of children determines the health of future generations.

Improving the well-being of mothers, infants and children is an important public health goal in the United States. Too many of our community's children face serious health risks from the beginning of their lives. In Memphis and Shelby County, rates of infant mortality, prematurity, and low-birth-weight remain disproportionately high. The prevalence of teen parenthood, single-parent families, inadequate prenatal care and other risk factors continue to affect the health outcomes of our mothers and children.

According to a 2011 report by the Annie E. Casey Foundation, Tennessee has shown improvements over the past three years in children's educational, social, economic, and physical well-being. Shelby County, however, continues to perform poorly on most measures of child health.¹

Adversities faced by children in their first years can have effects that last a lifetime. Healthy birth outcomes and early identification and treatment of health problems among infants can improve outcomes and enable children to reach their full potential.² This section of the Data Book examines some of the most common risk factors that jeopardize our community's maternal and child health.

Healthy births are an important indicator of community well-being.

Birth outcomes are a key measure of a community's overall health. The most commonly studied outcomes include

- infant death
(death during the first year after birth)
- premature birth
(birth before 37 weeks' gestation)
- low-birth-weight
(less than 2500 grams, or 5 lbs., 8 oz.)

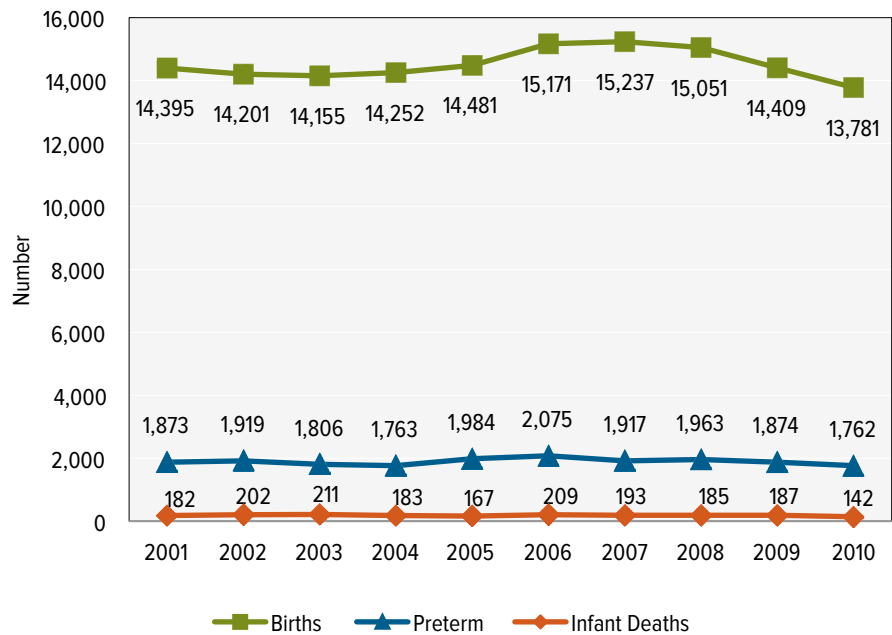
Infant death is typically reported as the *infant mortality rate*—the number of infant deaths per 1000 live births. This measure is widely used across the world as an overall measure of community health status. Prematurity and low-birth-weight are among the leading causes of infant mortality. Others include irreversible conditions such as congenital malformations, deformities, and chromosomal abnormalities.³

Preterm birth statistics are usually reported as a percentage of all live births. Babies born preterm are at increased risk for health complications such as jaundice, anemia and infection. Longer-term complications can include learning and behavioral problems, cerebral palsy, and vision and hearing loss.⁴

Low-birth-weight is also reported as a percentage of all live births. Low-birth-weight is often a result of premature birth, but it can also occur in full term babies affected by fetal growth restriction. Low-birth-weight babies are more likely to have respiratory complications, immature livers, anemia, and trouble maintaining a normal body temperature. Feeding problems may also occur, and the risk for infection is increased.⁵ In addition, low-birth-weight has been linked to childhood educational problems, even after accounting for other factors.⁶

FIGURE 1:
Number of
Total Live Births,
Preterm Births &
Infant Deaths,
Shelby County,
2001-2010

Source: Tennessee
Department of Health,
Office of Policy, Plan-
ning and Assessment,
Division of Health Sta-
tistics, Birth and Death
Record data 2001-2010



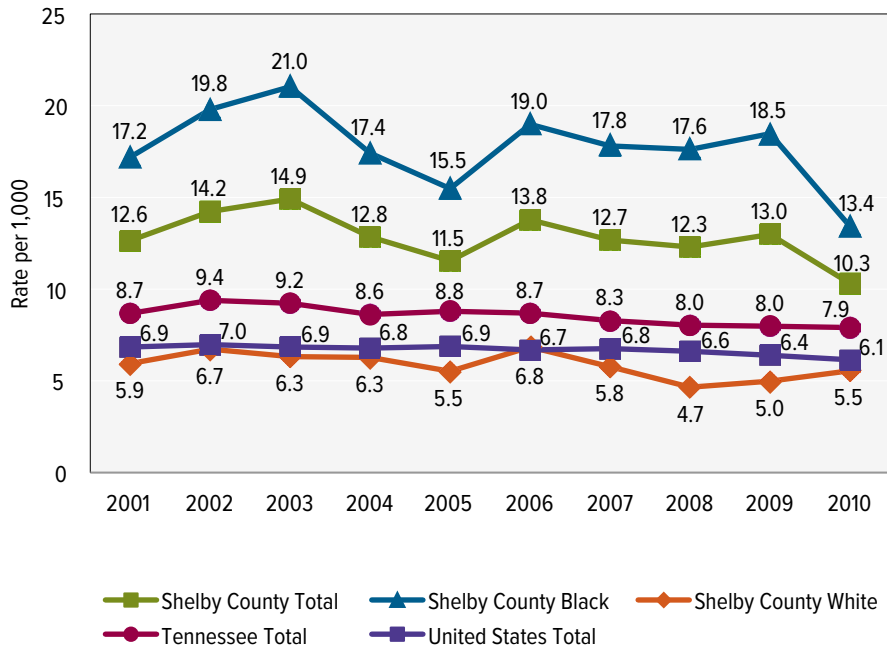


FIGURE 2:
Infant Mortality
Rate per 1,000 Live
Births by Race,
Shelby County,
Tennessee &
United States,
2001-2010

Source: TN Dept. of Health, Office of Policy, Planning & Assessment, Division of Health Statistics, Death Record Data 2001-10; National Center for Health Statistics, Vital Statistics Reports, Deaths: Final Data. 2008;59(10).

http://www.cdc.gov/nchs/data/nvsr/nvsr59/nvsr59_10.pdf; National Center for Health Statistics, Vital Statistics Reports, Deaths: Preliminary Data. 2010;60(4) http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60_04.pdf

FIGURE 1 shows Shelby County's number of births, infant deaths, and preterm births in 2010.

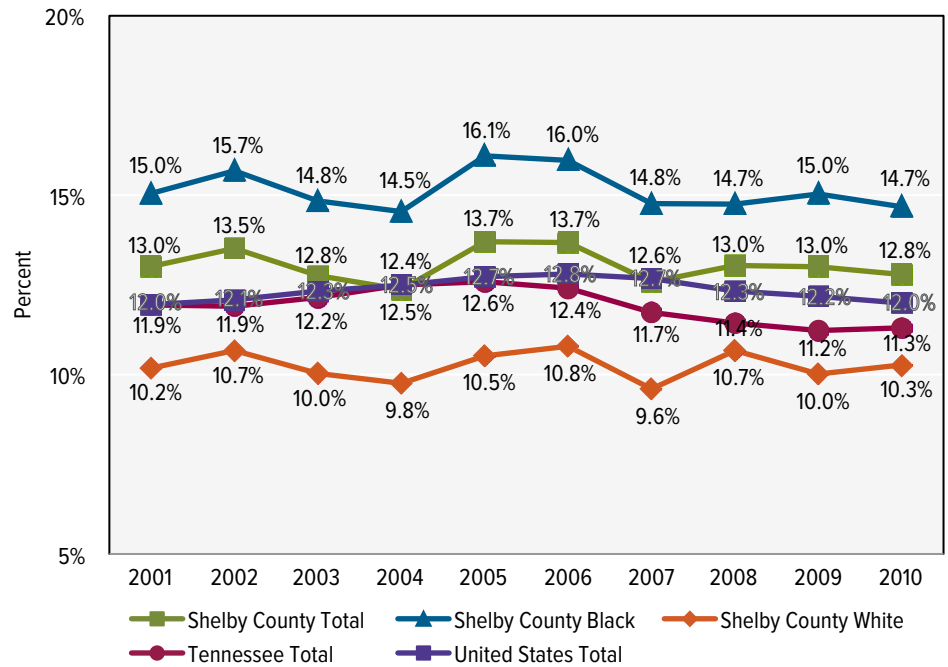
- 13,781 babies were born.
- 142 died during infancy.
- 1,762 were born prematurely.

The raw numbers tell only part of the story. For a better understanding, we need to examine the infant mortality rate and the percentage of preterm births:

- The Shelby County infant mortality rate declined between 2009 and 2010 (from 13 to 10.3 infant deaths per 1,000 live births) (FIGURE 2).
- Still, it remains more than 50 percent higher than the national rate of 6.1 (FIGURE 2).
- The percentage of preterm births in Shelby County (12.8 % in 2010) has remained relatively stable and is slightly higher than the national percentage (12% in 2010)(FIGURE 3).
- The 2010 percentage of low-birth-weight births in Shelby County (11.1%) remains above the state and national percentages (FIGURE 4).

FIGURE 3:
Percent of Preterm Babies by Race, Shelby County, Tennessee & United States, 2001-2010

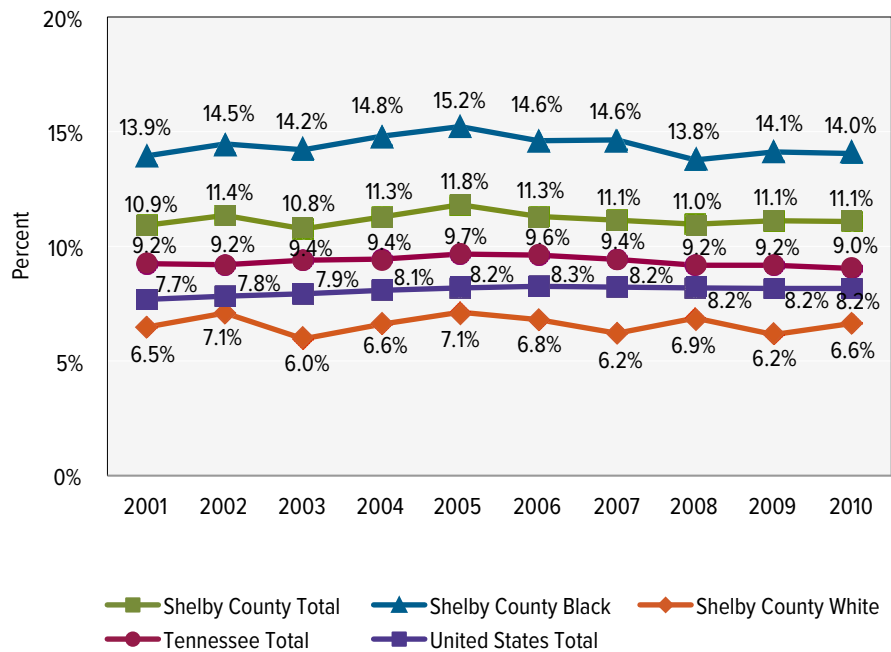
Source: TN Dept. of Health, Office of Policy, Planning & Assessment, Division of Health Statistics, Birth Record Data 2001-2010; National Center for Health Statistics, Vital Statistics Reports, Births: Final Data for 2009.



http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60_01.pdf; National Center for Health Statistics, Vital Statistics Reports, Births; Preliminary Data. 2010 http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60_02.pdf

FIGURE 4:
Percent of Low Birth-Weight Babies by Race, Shelby County, Tennessee & United States, 2001-2010

Source: TN Dept. of Health, Office of Policy, Planning & Assessment, Division of Health Statistics, Birth Record Data 2001-2010; National Center for Health Statistics, Vital Statistics Reports, Births: Final Data for 2009.



http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60_01.pdf; National Center for Health Statistics, Vital Statistics Reports, Births; Preliminary Data. 2010 http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60_02.pdf

Healthy births in our community fall short of the Healthy People 2020 Goals.

The Healthy People 2020 Objectives identify birth outcomes as leading health indicators for maternal, infant and child health in the United States.² Preterm births have risen by more than 20% in the United States from 1990 to 2006,⁷ while the infant mortality rate reported in 2011 remained higher than 46 other countries.⁸

- The percentage of preterm births in Shelby County in 2010 (12.8%) remained above the Healthy People 2020 target (11.4%).
- The 2010 percentage of low-birth-weight births in Shelby County (11.1%) remains above the Healthy People 2020 goal of 7.8%.
- Shelby County's infant mortality rate is twice the Healthy People 2020 Goal of 6.0 deaths per 1,000 live births.

Racial disparities in Shelby County birth outcomes remain large.

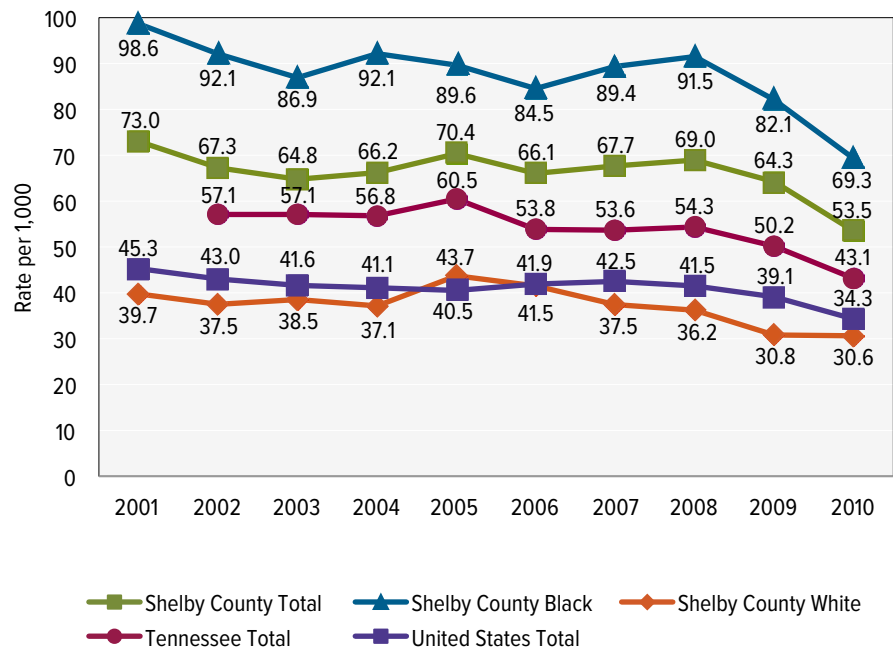
Locally, statewide, and nationally, figures show that birth outcomes vary by race. While racial disparities in infant mortality are related to several risk factors, such as preterm and low-birth-weight delivery, socioeconomic status and access to medical care, these differences only partially explain the observed disparities.

- In Shelby County, the infant mortality rate among infants born to black women decreased by about 25 percent (18.5 to 13.4 deaths per 1,000 live births) from 2009 to 2010. However, the rate remains more than double that of infants born to white women (FIGURE 2).
- In 2010, 14.7 percent of babies born to black women were born preterm, compared to 10.3 percent of babies born to white women. This racial gap has remained relatively unchanged over the past ten years, with black women consistently reporting a higher percentage of preterm births than white women (FIGURE 3).
- Black women consistently report the highest percentage of low-birth-weight births. In 2010 the black low-birth-weight percentage (14.0%) was approximately twice the white percentage of 6.6 percent (FIGURE 4).

The causes of racial disparities in preterm births remain uncertain, and traditional factors such as smoking and prenatal care do not fully explain them. Evidence suggests that residential segregation may be an important social determinant of racial preterm birth disparities present in US metropolitan areas. In addition, higher rates of urogenital infections identified among black women may account for part of the racial gap.⁹⁻¹²

FIGURE 5:
Birth Rate per
1,000 Females
Ages 15-19 Years
by Race,
Shelby County,
Tennessee &
United States,
2001-2010

Source: TN Dept. of Health, Office of Policy, Planning & Assessment, Division of Health Statistics, Birth Record Data 2001-2010; American Community Survey 1-Year Estimates, United States Decennial Census 2010, National Center for Health Statistics, Vital Statistics Reports, Births: Final Data for 2009



http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60_01.pdf; National Center for Health Statistics, Vital Statistics Reports, Births; Preliminary Data. 2010 http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60_02.pdf

Teenage birth rates have declined but remain high.

Teen pregnancy and childbearing can have substantial immediate and long-term effects on teen parents and their children. Pregnancy and birth are significant contributors to high school dropout rates among girls.¹³ In addition, children of teenage mothers are more likely to have lower achievement, to drop out of high school, to have more health problems, to be incarcerated during adolescence, to give birth as a teenager, and to face unemployment as adults.¹⁴

The *teen birth rate* is usually reported as the number of births per 1,000 women aged 15-19.

Shelby County's 2010 teen birth rate reached a record low since 2001 and represents a reduction of 22 percent since 2008 (FIGURE 5):

- 1,904 infants (14% of all births) were born to teenagers, for a teen birth rate of 53.5 per 1,000 teens.
- The decline in the black teen birth rate period

is even larger; since 2008, black birth rates have dropped 32 percent.

- Nevertheless, substantial racial disparities persist in teen birth rates: Black teens have a birth rate over twice the rate among white teens.

Nationally, the proportion of adolescents who report having ever had sex has declined substantially since the early 1990's; however, reasons for record-low teenage births in the United States remain unclear.^{15,16} A national school-based survey administered locally by Memphis City Schools shows a decline from 2005 to 2009 among Memphis students who report ever engaging in sexual intercourse (67.1% to 61.6%). The survey also reported an increase among females using birth control before last sexual intercourse (from 6.5% in 2005 to 11.5% in 2009). However, neither change was statistically significant.¹⁷

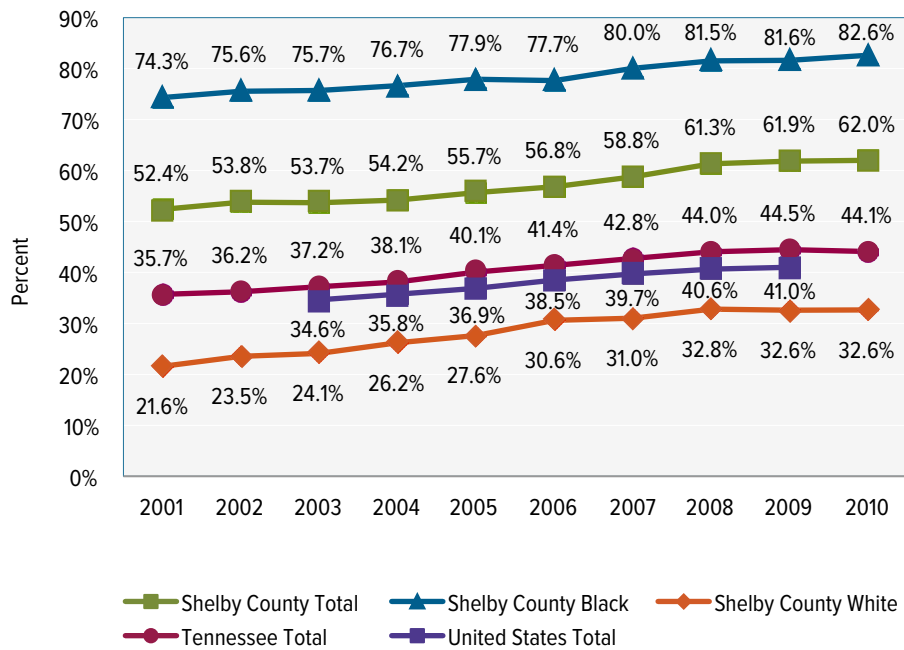


FIGURE 6:
Percent of Births
to Unmarried
Parents by Race,
Shelby County,
Tennessee &
United States,
2001-2010

Source: Tennessee Department of Health, Office of Policy, Planning and Assessment. Division of Health Statistics, Birth Record Data 2001-2010; CDC Wonder 2003 - 2009, <http://wonder.cdc.gov/natality.html>

Births to unmarried mothers are increasing.

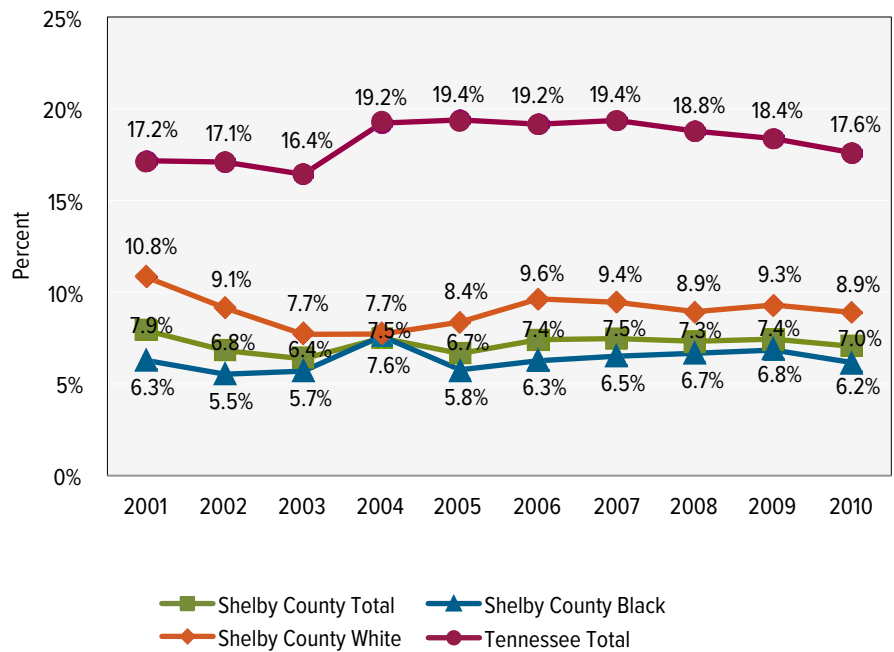
Research shows that children of unmarried mothers are at higher risk for adverse birth outcomes than children born to married women.^{18,19} In Tennessee, infants born to unmarried mothers have an infant mortality rate that is up to twice that of infants born to married mothers.³ In addition, children born to single-mothers tend to have fewer social and financial resources and more academic, emotional and behavioral problems.^{20,21}

In 2010, the percentage of unmarried births in Shelby County continued to rise (FIGURE 6):

- 62 percent of all Shelby County births were to unmarried mothers, up from 52.4 percent in 2001.
- A similar trend is observed across Tennessee, but with a slight decrease observed in the past year.
- In Shelby County, 82.6 percent of births among black women were to unmarried women, compared to 32.6 for white women.

FIGURE 7:
Percent of Mothers
Who Reported
Smoking During
Pregnancy
by Race,
Shelby County
& Tennessee,
2001-2010

Source: Tennessee
Department of Health,
Office of Policy, Plan-
ning and Assessment,
Division of Health
Statistics, Birth Record
Data 2001-2010



Smoking during pregnancy remains low in Shelby County.

Prenatal smoking is associated with health problems such as pregnancy complications, premature birth, low-birth-weight, stillbirth and sudden infant death syndrome (SIDS).²³ In Tennessee, the infant mortality rate among mothers who smoked during pregnancy is higher than that of non-smoking mothers (13.4 vs. 7.7 per 1,000 births).^{3,22}

Women who quit smoking before or during pregnancy can substantially reduce or eliminate risks to themselves and their infants. Although 93 percent of Shelby County mothers abstain from smoking during pregnancy, this figure still falls short of the Healthy People 2020 Goal of 98.6 percent.

2010 data show that prenatal smoking continues to be less common in Shelby County than across Tennessee (FIGURE 7):

- Statewide, the percentage of mothers who smoked during pregnancy (17.6%) was over twice the percentage for Shelby County (7.0%).
- The trend in prenatal smoking among Shelby County mothers has remained relatively stable around 7 percent in recent years.
- Smoking during pregnancy is consistently higher among white mothers than black mothers in Shelby County.

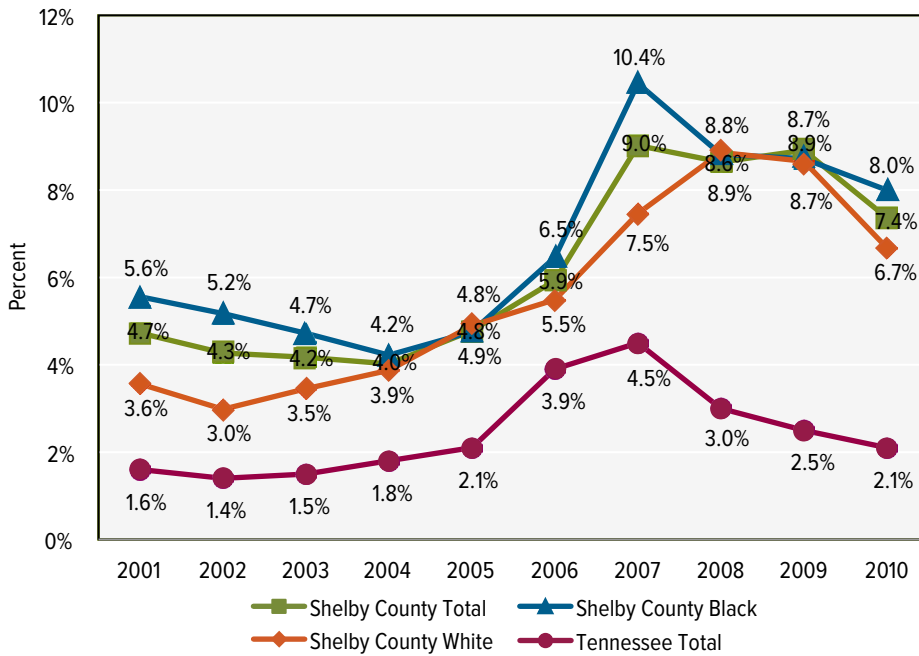


Figure 8:
Percent of Mothers
Who Report Having
Received No
Prenatal Care,
Shelby County &
Tennessee,
2001-2010

Source: Tennessee
Department of Health,
Office of Policy, Plan-
ning and Assessment,
Division of Health
Statistics, Birth Record
Data 2001-2010

The percentage of mothers receiving no prenatal care has decreased.

Timely prenatal care is important for the health of mothers and their babies, and may contribute to a reduction in infant mortality and low-birth-weight.²⁴ Prenatal care should begin in the first trimester, and for a full-term pregnancy should include 10 to 14 visits.²⁵

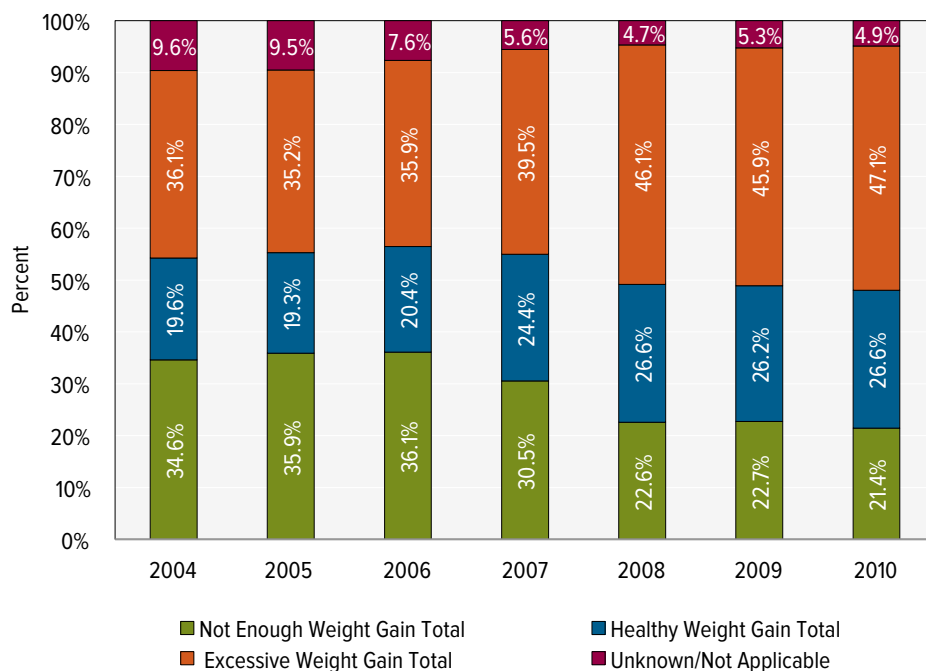
Unfortunately, there are often socio-demographic barriers to accessing prenatal care, including poverty, minority status, age less than 18 years, non-English speaking, being unmarried and having less than a high school education.²⁶

FIGURE 8 presents yearly percentages of Shelby County and Tennessee mothers who reported not receiving any prenatal care:

- In 2010, 7.4 percent of Shelby County mothers had no prenatal care.
- The percentage more than doubled during the period between 2004 and 2007 (4.0% to 9.0%).
- Current figures have decreased since their 2007 peak, but are still higher than the 2004 percentage.
- As in past years, the 2010 percentage of women not receiving prenatal care is higher in Shelby County than across the state (7.4% vs. 2.1%).

FIGURE 9:
Percent of
Mothers by
Pregnancy Weight
Gain Status,
Shelby County,
2001-2010

Source: Tennessee
Department of Health,
Office of Policy, Plan-
ning & Assessment.
Division of Health
Statistics, Birth Record
Data 2001-2010



Excessive weight gain during pregnancy is increasing in Shelby County.

Obesity among American women of childbearing age has more than doubled since the 1970's. Excessive weight gain during pregnancy is a health risk, especially for a mother who was already overweight.²⁷⁻²⁹

Excess weight gain has been linked to labor and delivery complications, preterm birth, and infant mortality.³⁰ It can also result in high infant birth-weight, which increases a child's risk of diabetes, cardiovascular disease, and later obesity.³¹

FIGURE 9 shows patterns of pregnancy weight gain among Shelby County mothers (based on Institute of Medicine recommendations²⁸):

- In 2010, 47.1 percent of pregnant mothers experienced excessive weight. This figure has followed an upward trend since 2004.
- 21.4 percent did not gain enough weight, consistent with the overall decline since 2004.
- 26.6 percent had healthy weight gain, continuing an upward trend since 2004.

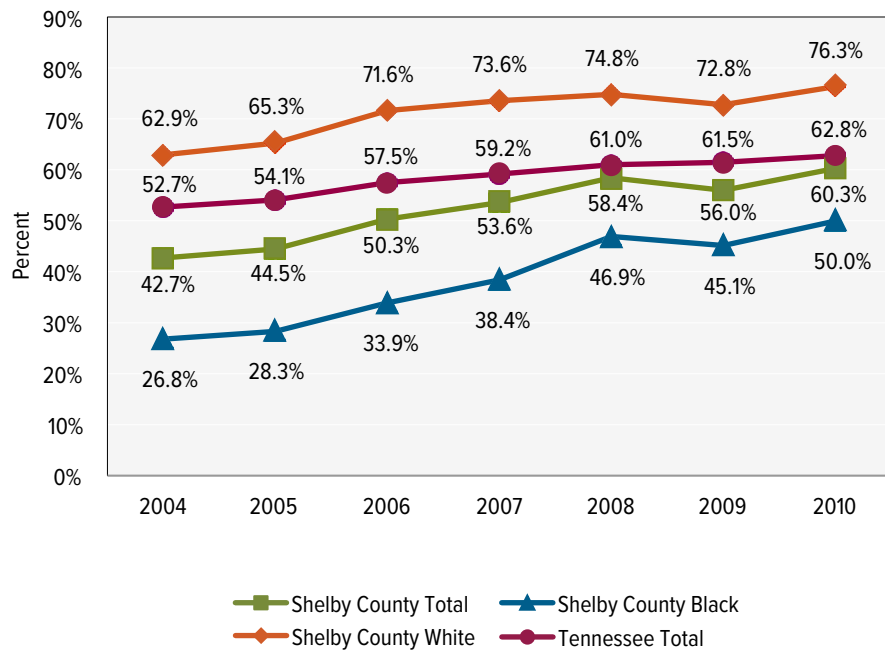


Figure 10: Percent of Mothers Who Initiate Breastfeeding, Shelby County & Tennessee, 2004-2010

Source: Tennessee Department of Health, Office of Policy, Planning & Assessment. Division of Health Statistics, Birth Record Data 2004-2010

Initiation of breastfeeding among mothers is increasing.

Breast milk is the most appropriate source of nutrition for infants, and it provides vital health benefits to both the infant and mother. The American Academy of Pediatrics (AAP) recommends exclusive breastfeeding during a baby’s first six months and continued breastfeeding for at least the first year.

Infants who are not breastfed are more likely to suffer poor health outcomes, including infections, asthma, diabetes, obesity, leukemia and sudden infant death syndrome. Benefits for mothers include reduced risk of breast cancer, ovarian cancer, diabetes and postpartum depression.³²⁻³⁴

National survey data shows that 75 percent of new mothers initiate breastfeeding, but only 43 percent are still breastfeeding 6 months later. At 12 months, only 22 percent are. Only 13 percent of new mothers follow the AAP recommendation that babies younger than 6 months

receive only breast milk. These figures are even lower for Tennessee.³⁵

Breastfeeding statistics for Shelby County are collected from birth certificate forms, which include information on whether new mothers have begun breastfeeding by the time they leave the hospital.³⁶ The available data indicates that breastfeeding is increasing among Shelby County mothers (FIGURE 10):

- In 2010, 60.3 percent of mothers were breastfeeding at the time of discharge, an increase of 41 percent since 2004.
- In 2010, 62.8 percent of Tennessee mothers had begun breastfeeding when they left the hospital.
- Although breastfeeding at discharge is higher among white mothers, it has increased by 87 percent since 2004 among black mothers.

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