

THE HEALTH OF LINN COUNTY, IOWA

A COUNTY-WIDE ASSESSMENT OF HEALTH STATUS AND HEALTH RISKS

Project Team

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Chapter 6 Maternal and Child Health

Introduction

The health and well-being of mothers, infants and children determines the health of the upcoming generation and can help predict the public health challenges of the future. Chapter 6 describes pregnancy health and outcomes, including: prenatal care, infant mortality, low birth weight, preterm births, and teen birth rates. Prenatal care can affect birth outcomes and the health of the mother and infant. Deaths during pregnancy and the first year of an infant's life can reflect the health of the general population, because factors affecting the health of the population can also affect infant mortality rates. For example, maternal health and nutrition prior to and during pregnancy can cause health conditions leading to infant deaths. Teen birth rates are an important factor of maternal and child health because the age of the mother is often a risk factor for birth outcomes. Additionally, children of teen mothers are more likely to have health problems and teen pregnancy and childbearing has social and economic costs to teen parents and their children, even when adjusting for factors that increased the risk of pregnancy.³⁴

³⁴ Centers for Disease Control and Prevention . About Teen Pregnancy. Centers for Disease Control and Prevention. [Online] November 21, 2012. [Cited: February 20, 2014.] <http://www.cdc.gov/TeenPregnancy/AboutTeenPreg.htm>.

Pregnancy Health

Prenatal Care

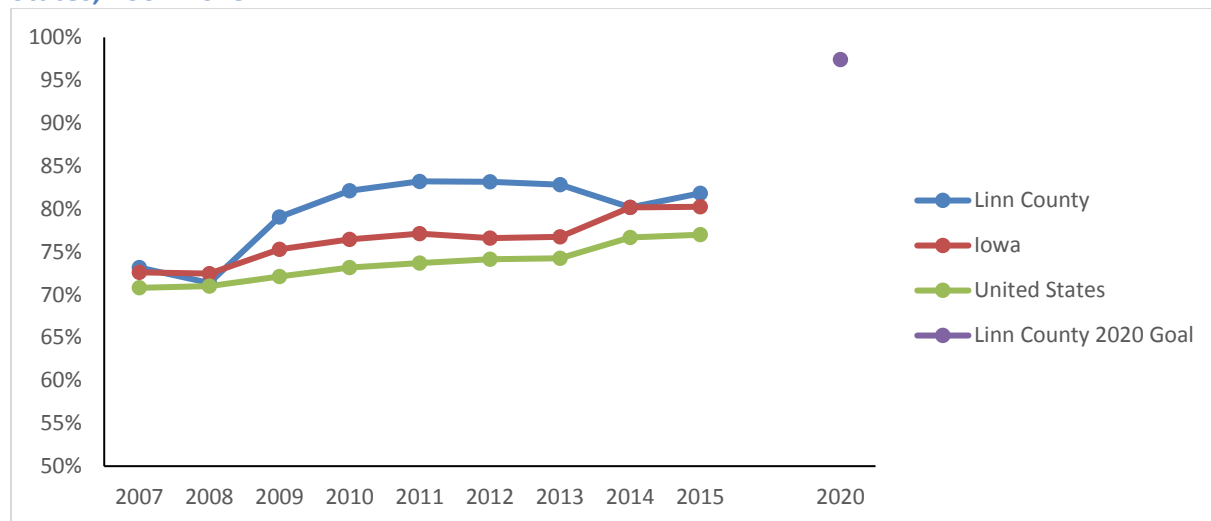
Linn County 2020 Goal

Increase the proportion of pregnant women who receive prenatal care beginning in first trimester to 97.4%, a 10% increase from 88.5% in 2010.

Trends

In 2015, 81.8% of Linn County mothers received prenatal care beginning in the first trimester. The percentage among Linn County mothers is higher than Iowa (80.2%) and the 2015 United States ratio (77.0%, Figure 6.1); however, the current percentage falls below the Linn County 2020 goal of 97.4%.

Figure 6.1 Prenatal care in the first trimester of pregnancy, Linn County, Iowa and United States, 2007-2015

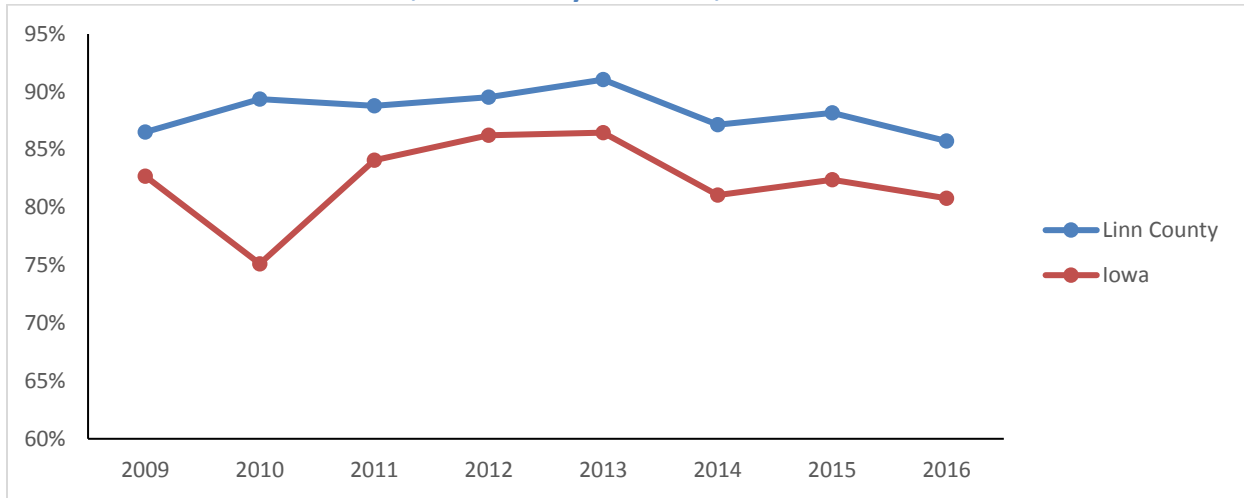


Source: CDC WONDER, Iowa Department of Public Health, Bureau of Family Health and Health Statistics, Vital Records 2009-2013

The Adequacy of Prenatal Care Utilization index (APNCU) classifies prenatal care into one of four categories (inadequate, intermediate, adequate and adequate plus) by combining information about the timing of prenatal care, the number of visits, and the infant’s gestational age.³⁵ In 2016, 85.7% of Linn County mother’s received adequate or adequate plus prenatal care (Figure 6.2) a greater percentage than the state (80.8%).

³⁵ March of Dimes. Quick Facts: Prenatal Care. [Cited June 26, 2014]. <https://www.marchofdimes.com/peristats/ViewTopic.aspx?reg=99&top=5&lev=0&slev=1>

Figure 6.2 Percent of births with an “Adequate” or “Adequate plus” score on the Adequacy of Prenatal Care Utilization index, Linn County and Iowa, 2009-2016



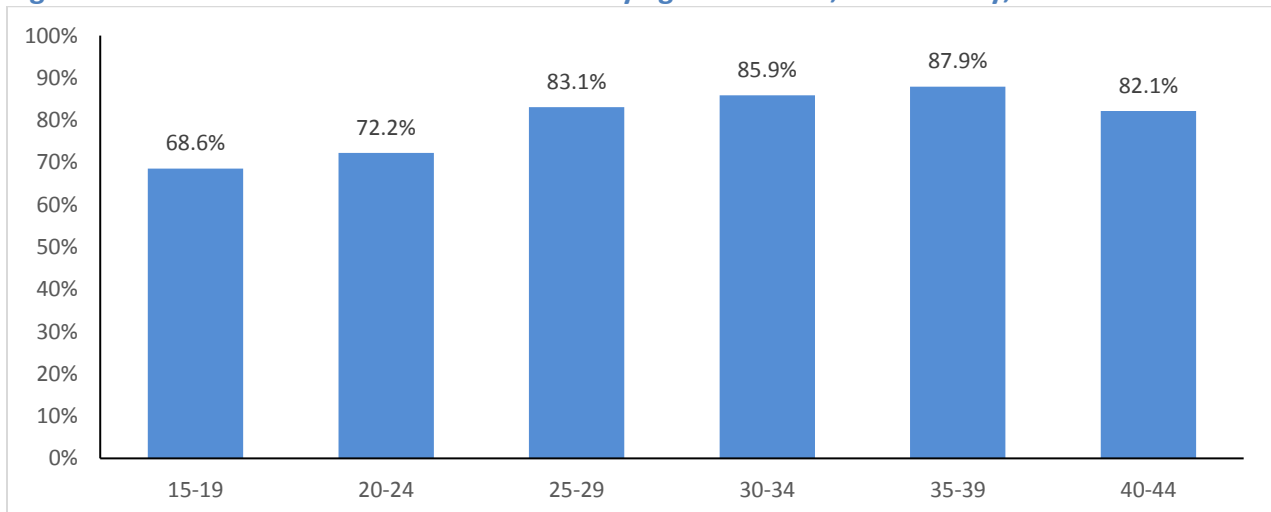
Source: Iowa Department of Public Health, Bureaus of Family Health and Health Statistics, Vital Records 2009-2016

Disparities

Age

Young mothers are least likely to receive prenatal care in the first trimester. Among teens 15 to 19 years old, 68.6% received prenatal care, whereas 72.2% of mothers 20 to 24 years old received prenatal care in the first trimester. Mothers older than 25 years of age had higher prenatal care utilization than mothers 24 years of age or younger (Figure 6.3).

Figure 6.3 Prenatal care in the first trimester by age of mother, Linn County, 2013-2015

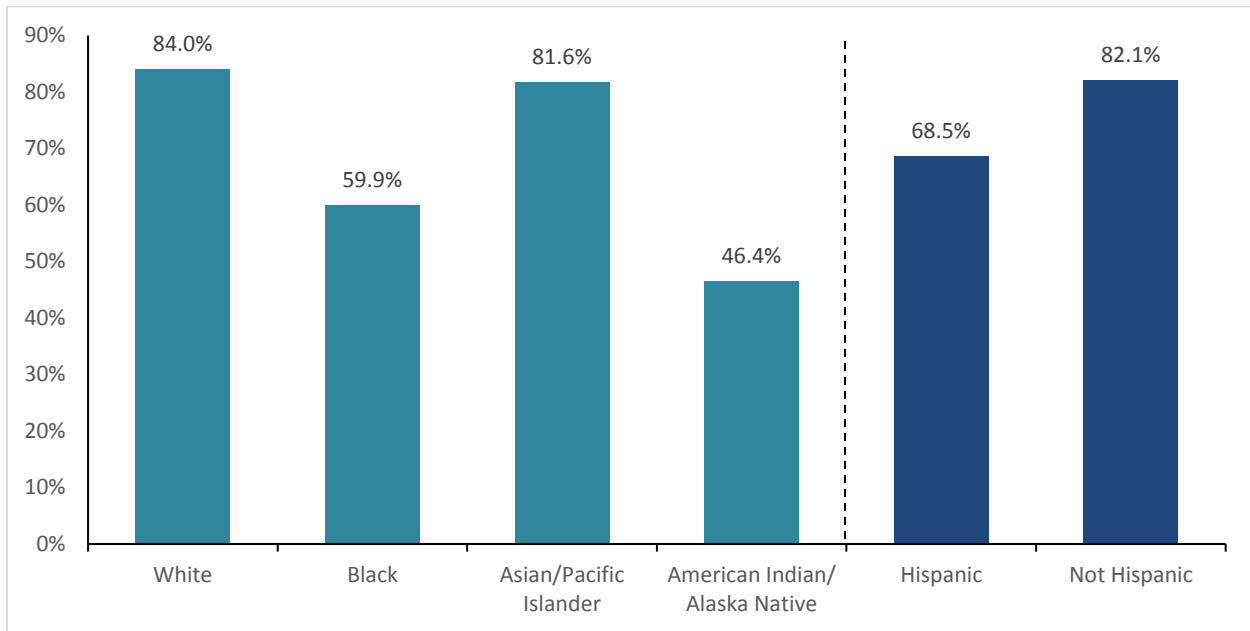


Source: CDC WONDER

Race and Ethnicity

From 2013-2015, a greater percentage of non-Hispanics received prenatal care in the first semester than Hispanics, and Asian or Pacific Islanders and whites had a greater proportion of prenatal care than American Indians or blacks (Figure 6.4).

Figure 6.4 Prenatal care in the first trimester by race and ethnicity of mother, Linn County, 2013-2015



Source: CDC WONDER

Risk Factors

Factors that may put a mother at higher risk for not receiving prenatal care include: lower educational attainment, younger age, Hispanic ethnicity and American Indian or black race.² Lack of access to health care is a factor that is a barrier to receiving early prenatal care. Mothers that delayed prenatal care reported the following reasons: lack of insurance or money to pay for visits, unavailable or inconvenient appointment times, not knowing one is pregnant, not having a Medicaid card, insurance coverage barriers, busy schedule, transportation barriers, not wanting others to know, not being able to take off time from work or school, and the need for childcare for other children.³⁶

³⁶ U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. Child Health USA 2013. Rockville, Maryland : U.S. Department of Health and Human Services, 2013.

Infant Mortality and Morbidity

Infant Mortality

Mortality of the fetus and infant during and after pregnancy can be described in many ways. To aid in the understanding of the terms used in this section, Table 6.1 defines rates used to describe various fetal and infant mortality outcomes.

Table 6.1 Fetal and infant mortality rates and definitions

Mortality Rate	Definition
Fetal Mortality Rate	Fetal deaths \geq 20 weeks gestation
Perinatal Mortality Rate	Fetal mortality + neonatal mortality
Neonatal Mortality Rate	Infant deaths <28 days of age
Post-neonatal Mortality Rate	Infant deaths \geq 28 days and < 1 year old
Infant Mortality Rate	Infant deaths <1 year old

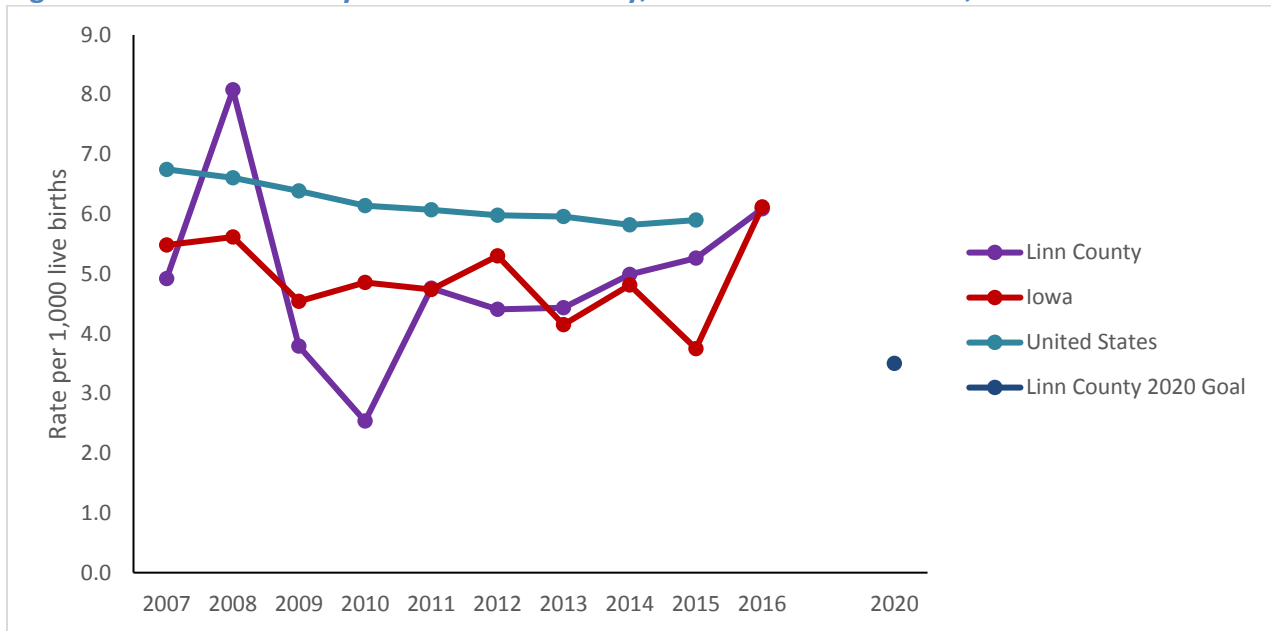
Linn County 2020 Goal

Reduce the rate of all infant deaths to 3.5 per 1,000, a reduction of 10% of the three year average of 3.9 per 1,000 from 2010 to 2012.

Trends

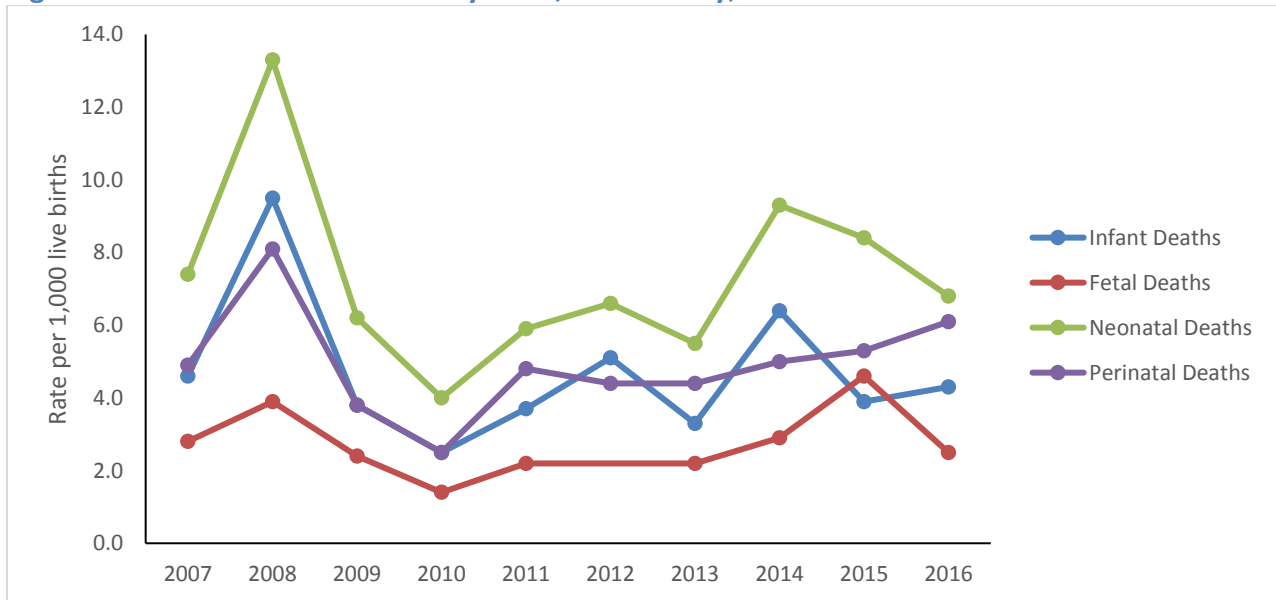
In 2016, the rate of infant mortality in Linn County was 6.1 deaths per 1,000 births a slight increase from the previous year with 5.3 deaths per 1,000 live births (Figure 6.5). Overtime, the infant mortality rate in Linn County has been varied; however, the rate is currently similar to that of Iowa and the United States. Figure 6.5 shows the distribution of fetal and infant deaths in Linn County from 2007 to 2016. Neonatal deaths have the highest rate among all types of fetal and infant deaths with a rate of 6.8 deaths per 1,000 live births in 2016. Conversely, fetal deaths are consistently less than that of the other types of deaths of this age group with a rate of 2.5 deaths per 1,000 live births in 2016. Fetal and infant deaths by classification have varied overtime; however, the most notable change during this time is a slight increase among perinatal and a decrease in neonatal mortality.

Figure 6.5 Infant mortality rates for Linn County, Iowa and United States, 2007-2016



Source: CDC WONDER, Vital Records, Bureau of Health Statistics, Iowa Department of Public Health

Figure 6.6 Infant and fetal mortality rates, Linn County, 2007-2016



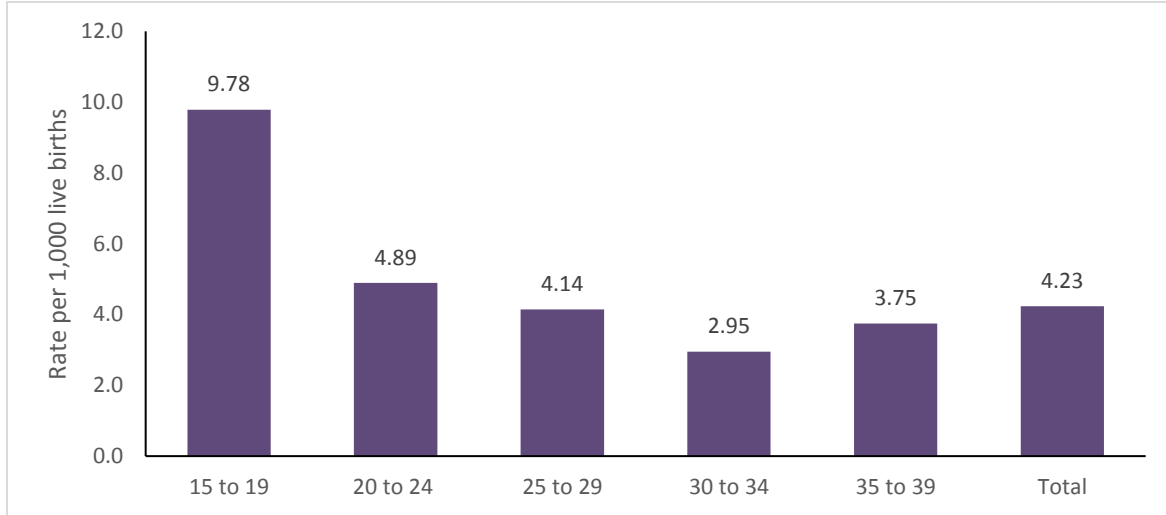
Source: Iowa Department of Public Health, Vital Statistics Reports

Disparities

Age

In Iowa, infant mortality rates are higher among teen mothers (15 to 19 years of age). Compared to the 20 to 24 year old age group, infants born to teen mothers were twice as likely to die (Figure 6.7). However, there was not much variation across the older age groups.

Figure 6.7 Infant mortality rate by age of mother, Iowa, 2015

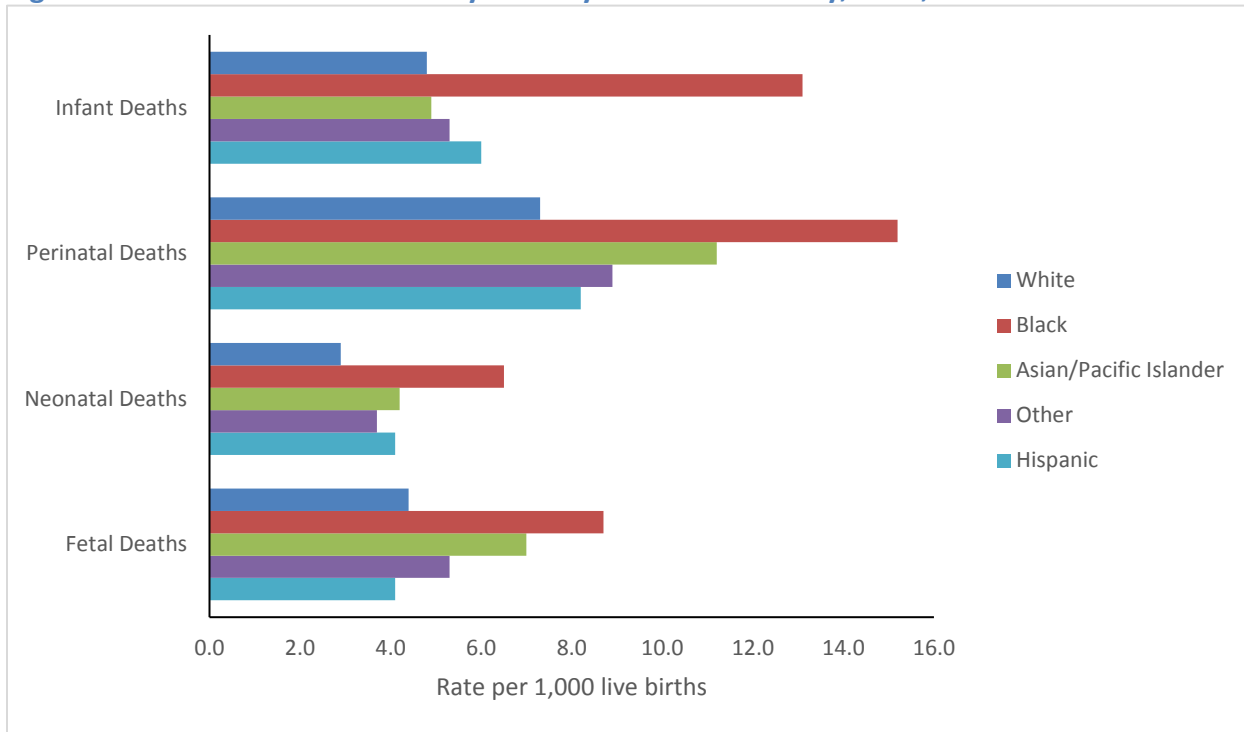


Source: CDC WONDER

Race and Ethnicity

In Iowa, infant mortality and perinatal mortality is significantly higher among Black/African-American mothers as compared to mothers of any other race (Figure 6.8). Infant mortality is three times higher among black mothers compared to white mothers, at 13.1 deaths per 1,000 births compared to 4.8 deaths per 1,000 live births. Likewise, perinatal mortality is two times higher among black mothers compared to white mothers, at 15.2 compared to 7.3 deaths per 1,000 live births. Close behind is perinatal mortality among Asian, other race, and Hispanic mothers with a rate of 11.2, 8.9, and 8.2 deaths per 1,000 live births, respectively.

Figure 6.8 Infant and fetal mortality rates by race and ethnicity, Iowa, 2016



Source: Iowa Department of Public Health, Vital Statistics 2016 Report

Risk Factors

The top five causes of infant mortality are responsible for over half of all infant deaths. The top five causes of infant death are: serious birth defects of the infant, being born premature or with low birth weight, being victims of Sudden Infant Death Syndrome (SIDS), being affected by maternal complications of pregnancy and being a victim of injury.³⁷ Based on the data, those most at risk of infant mortality are infants born to young mothers and African American mothers.

³⁷ Centers for Disease Control and Prevention . Infant Mortality . Centers for Disease Control and Prevention . [Online] August 2, 2013. [Cited: February 20, 2014.] <http://www.cdc.gov/reproductivehealth/maternalinfanthealth/infantmortality.htm#note1>.

Low Birth Weight

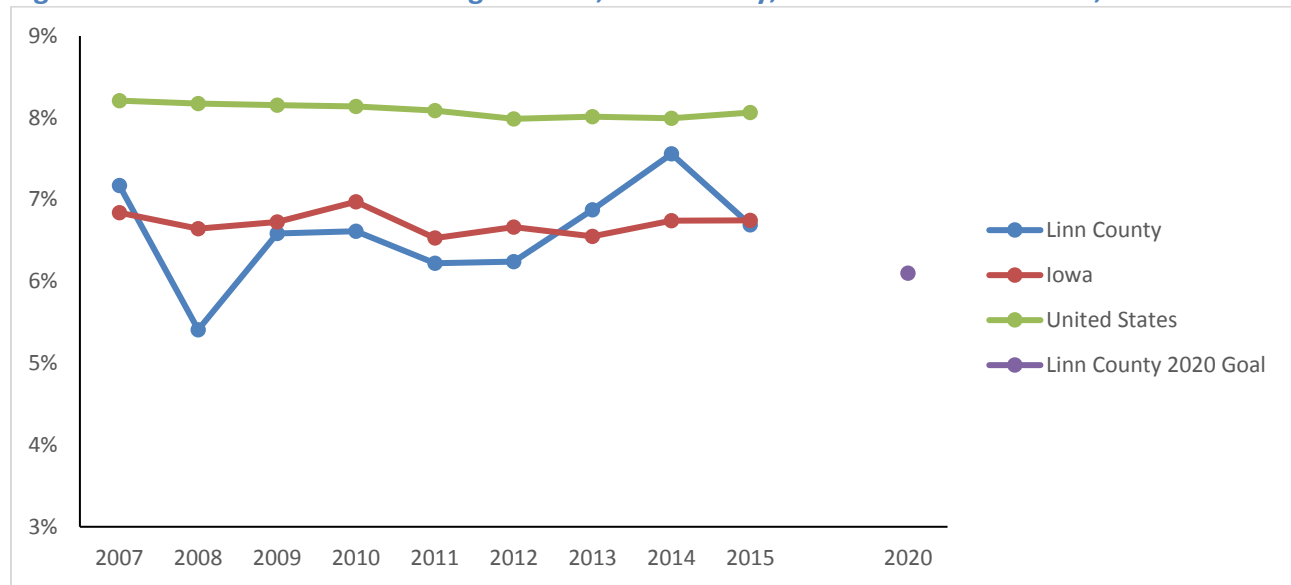
Linn County 2020 Goal

Reduce low birth weight to 6.1%, a reduction of 5% of the three year average of 6.4% from 2010 to 2012.

Trends

In 2015, 6.7% of Linn County births were born with a low birth weight (Figure 6.9). The low birth rate in Linn County was the same as Iowa (6.7%) but was less than that of the United States (8.1%).

Figure 6.9 Percent of low birth weight births, Linn County, Iowa and United States, 2007-2015



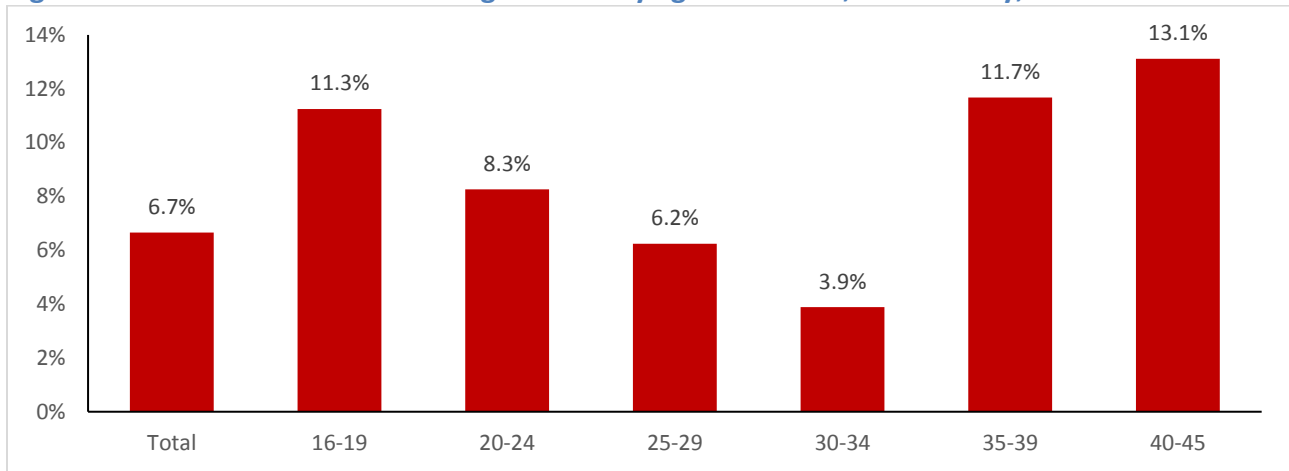
Source: CDC WONDER, Iowa Department of Public Health, Vital Statistics Reports

Disparities

Age

In Linn County, older mothers have a slightly higher percentage of low birth weight births than older mothers. In 2015, 11.3% of births to mothers aged 16 to 19 years old were low birth weight, while the percentage of low birth weights among women 40 to 45 years of age accounted for 13.1% of all births within the age category (Figure 6.10).

Figure 6.10 Percent of low birth weight births by age of mother, Linn County, 2015

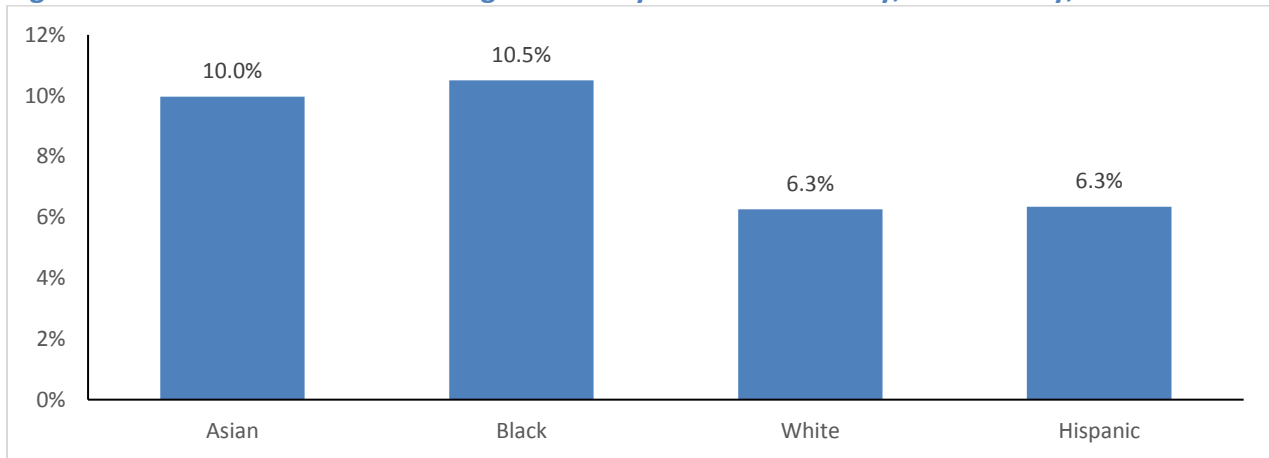


Source: CDC WONDER

Race and Ethnicity

Non-Hispanic, black and Asian or Pacific Islander women have a higher percentage of low birth weight births than Hispanic or white mothers (Figure 6.11).

Figure 6.11 Percent of low birth weight births by race and ethnicity, Linn County, 2011-2015



Source: CDC WONDER

Risk Factors

Risk factors for low birth weight births include low educational attainment and low income of the mother, and infants born to young or black mothers. Infants born preterm, to mothers with complications during pregnancy, to mothers who do not gain enough weight during pregnancy and to mothers who use tobacco, alcohol or illicit drugs are also more likely to be low birth weight.³⁸

³⁸ March of Dimes. Low birthweight. March of Dimes. [Online] 2014. [Cited: February 20, 2014.] <http://www.marchofdimes.com/baby/low-birthweight.aspx#>.

Preterm Births

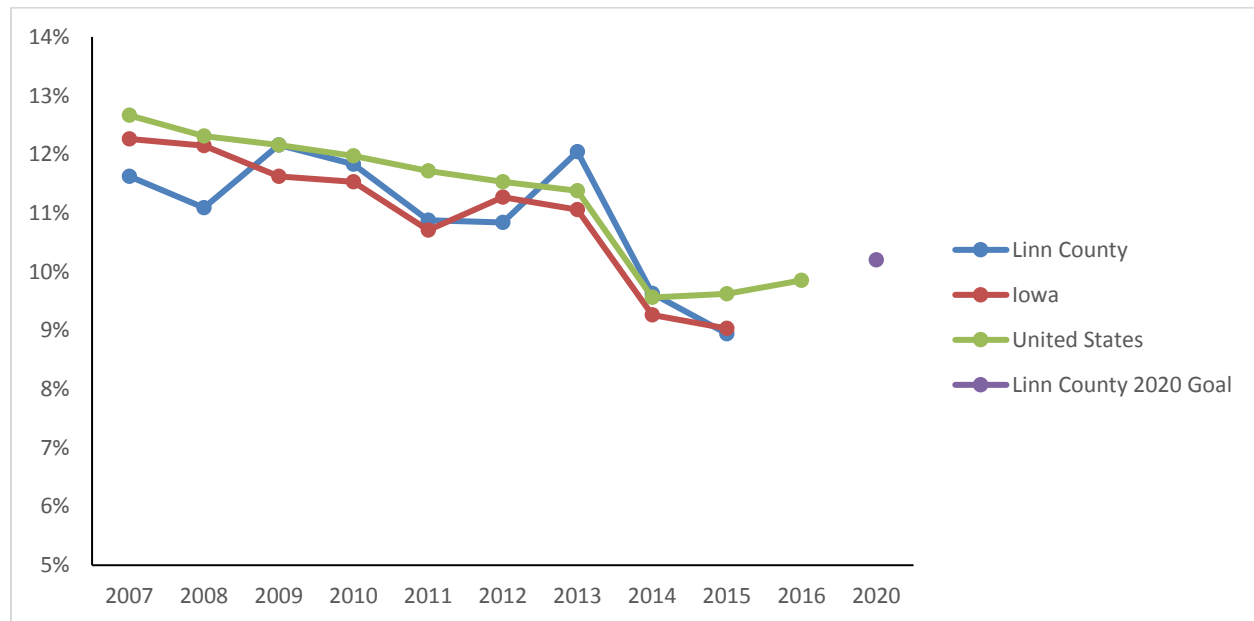
Linn County 2020 Goal

Reduce preterm births to 10.2%, a reduction of 10% of the three year average of 11.3% from 2009 to 2011.

Trends

In 2015, 8.9% of births in Linn County were preterm. This is the lowest percentage of preterm births over the 10-year observation period, with the high of 12.2% in 2009. The percentage of preterm births in Iowa (9.0%) and the United States (9.6%) during 2015 was similar to that in Linn County (Figure 6.12).

Figure 6.12 Percent of births that are preterm, Linn County, Iowa, and United States, 2007-2015



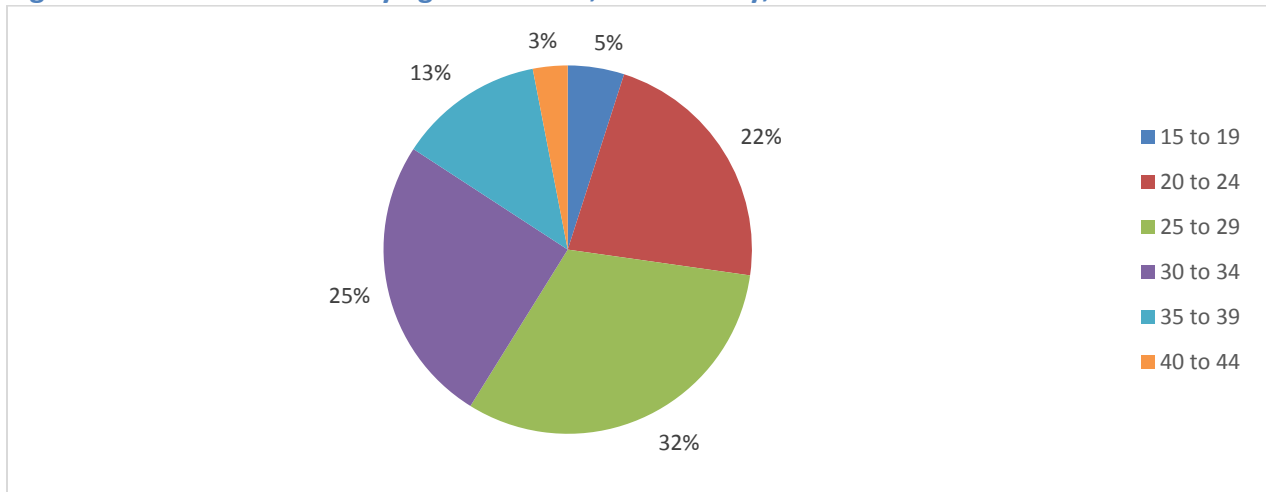
Source: CDC WONDER

Disparities

Age

The greatest percentage of preterm births in Linn County was among mothers who were 25 to 29 years of age, followed by those who were 30 to 34 years (25%), and 20 to 24 years (22%; Figure 6.13). Interestingly, mothers aged 15 to 19 years and those 40 to 44 years accounted for the lowest proportion of all preterm births.

Figure 6.13 Preterm births by age of mother, Linn County, 2014-2015

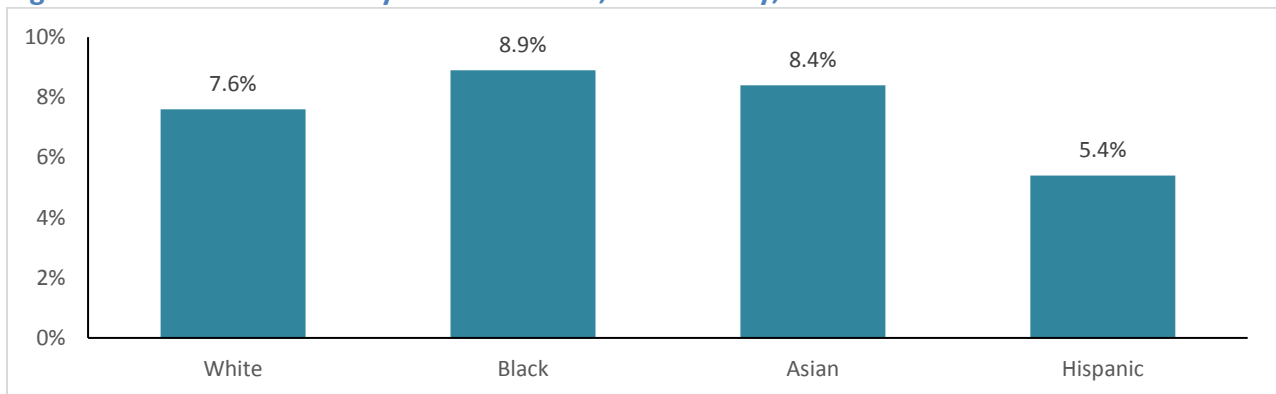


Source: CDC WONDER

Race and Ethnicity

In Linn County, non-Hispanic, black and Asian or Pacific Islander women had more preterm births than Hispanic and white women (Figure 6.14).

Figure 6.14 Preterm births by race of mother, Linn County, 2011-2015



Source: CDC WONDER

Risk Factors

Risk factors for preterm birth include low income of the mother, infants born to mothers of low or high maternal age or black mothers. Infants born to mothers with complications during pregnancy, with prior preterm births, who are carrying more than one baby, who experience stress, who received late prenatal care and who use tobacco, alcohol or illicit drugs are also more likely to be preterm.³⁹

³⁹ Centers for Disease Control and Prevention. Preterm Births. Centers for Disease Control and Prevention. [Online] December 9, 2013. [Cited: February 20, 2014.] <http://www.cdc.gov/reproductivehealth/MaternalInfantHealth/PretermBirth.htm>.

Teen Births

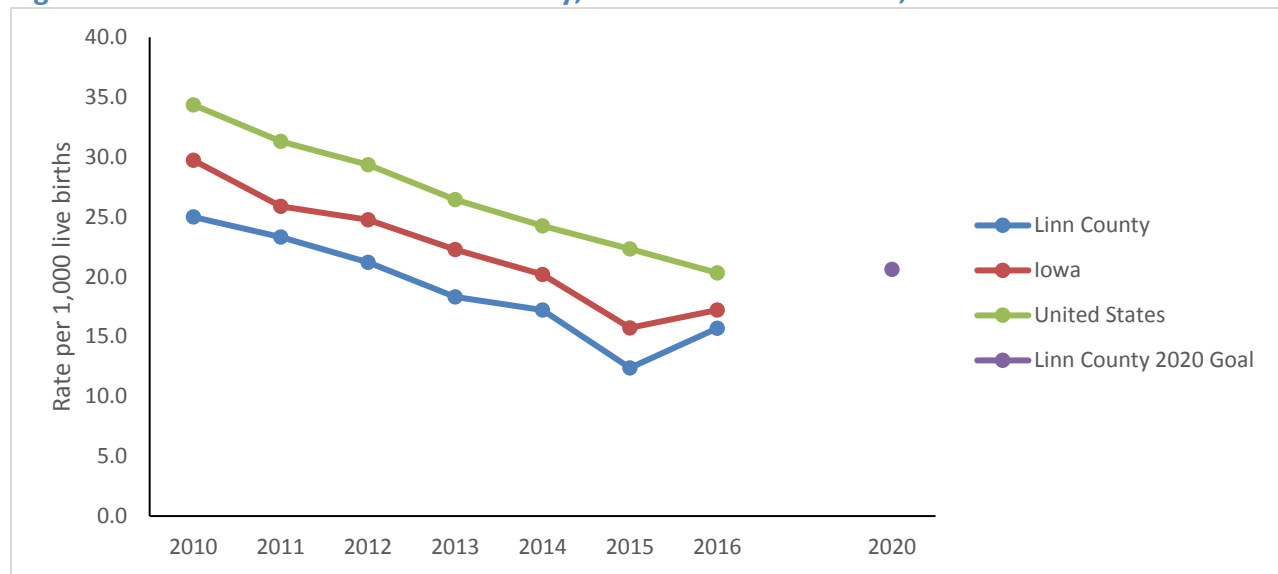
Linn County 2020 Goal

Reduce pregnancies among adolescent females aged 15 to 19 years to 20.6 per 1,000, a reduction of 10% of the three year average of 22.9 per 1,000 from 2010 to 2012.

Trends

In 2016, the teen birth rate in Linn County was 15.7 births per 1,000 females between 15 and 19 years old, an increase from the previous year at 12.4 births per 1,000 females between 15 and 19 years old (Figure 6.15). From 2010 to 2015, the teen birth rate in Linn County decreased by 43.5%, a statistically significant decline. During this period, the teen birth rate declined in Iowa and the United States by 34.9% and 34.8%, respectively. However, the teen birth rate increased in both Linn County and Iowa during 2016, but remains lower than the 2014 rate indicating a continued decrease in the overall teen birth rate.

Figure 6.15 Teen birth rate for Linn County, Iowa and United States, 2010-2016



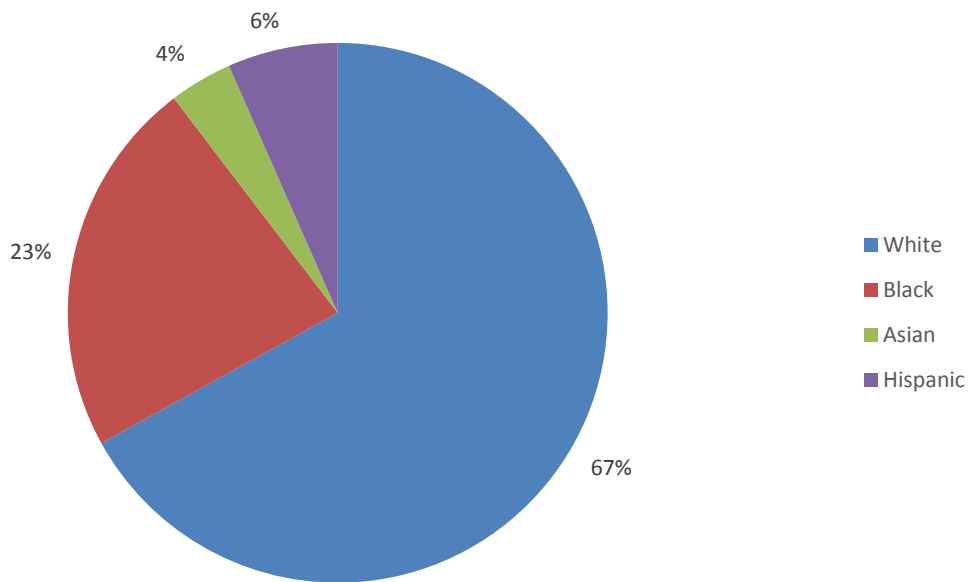
Source: CDC WONDER

Disparities

Race and Ethnicity

In Linn County, 67% of teen births were among white mothers, 23% were among black mothers, 4% were among Asian mothers, and 6% were among Hispanic mothers (Figure 6.16). In 2015, 86.2% of the female population aged 15-19 years old were white, and 8% were black, indicating that teen births is proportionally higher among blacks (41.0 births per 1,000 females 15 to 19 years) compared to whites (11.4 births per 1,000 females 15 to 19 years).

Figure 6.16 Teen births by race of mother, Linn County, 2015



Source: Vital Records, Bureau of Health Statistics, Iowa Department of Public Health

Risk Factors

Risk factors for teenage births include being black, Hispanic, or American Indian/Alaska Native youth, and socioeconomically disadvantaged youth of any race or ethnicity (1).

Summary

Compared to mothers in Iowa and those in the United States overall, a greater proportion of mothers in Linn County are receiving prenatal care. However, younger mothers are less likely compared to the other age groups to receive prenatal care within the first trimester of pregnancy. Non-Hispanic, white and Asian or Pacific Islander mothers are more likely to receive prenatal care in the first trimester than Hispanic, black or American Indian mothers in Linn County. Infant mortality rate in Linn County has increased overtime mirroring that of Iowa and the United States. Infant mortality is highest among mothers 15 to 19 years of age as well as among black mothers. Similarly, a greater proportion of mothers 16-19 years, 35-39 years, and 40-45 years result in low birth weight. Additionally, low birth weights are more likely to occur among births to black and Asian or Pacific Islander mothers. The percentage of pre-term births in Linn County decreased between 2007 and 2015; the proportion is similar to that of Iowa and the United States. A greater proportion of non-Hispanic, black and Asian or Pacific Islander mothers had preterm births compared to non-Hispanic white and Hispanic mothers. Pre-term births were more likely to occur among mothers between 20 and 34 years of age compared to the other age groups. Between 2010 and 2016 the teen birth rate in Linn County, Iowa, and the United States have significantly decreased. Within Linn County, a majority of teen births is among white mothers; however, the births are proportionally higher among blacks.