

Preterm birth and low birth weight in Southern Nevada, 2010-2013

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Abstract

Objective

This report presents recent trends relating to preterm birth and low birth weight in Southern Nevada for available data years from 2010 through 2013.

Data and methods

Data from the live birth registry (preliminary from 2011 onwards) were used to develop rate estimates. Spatial clustering of Clark County census tracts by fetal/maternal and socio-environmental characteristics was based on merged live birth and fetal death records as well as American Community Survey 5-year estimates.

Main results

Preterm birth and low birth weight rates were lower in 2013 than in 2010. Nevertheless, racial disparities in prematurity and low birth weight persisted, with rates considerably higher among NHBs and Asians than among other groups.

Abbreviations

NHB: non-Hispanic black
 NHW: non-Hispanic white
 LBW: low birth weight
 VLBW: very low birth weight

Preterm birth (less than 37 completed weeks of gestation) is a leading cause of neonatal and infant mortality, and a prognostic of low birth weight. Prematurity or low birth weight puts infants at increased risk of morbidity ranging from pulmonary, ophthalmologic and gastrointestinal complications, to neurocognitive deficiencies and other long-term health sequelae.^{1,2} Compared with their term counterparts, preterm birth also incurs higher costs.³ As such, preterm birth and low birth weight are in the forefront of perinatal health status monitoring.

The preterm birth rate has been declining in Clark County since 2007, and continuing the downward trend, the rate decreased 7% from 11.2% in 2010 to 10.4% in 2013 (Figure 1). Most of the decline was among late preterm (34-36 weeks) births, which comprised 7.7% (down from 8.4%) of all births (or 73.7% of all preterm births) in 2013. The proportion of all births delivered at 37-38 weeks, or early term, also declined from 28.4% to 26.5% during 2010-13. Concurrent with the decline in preterm and early term births, births at 39-41 weeks rose 5.3% from 59.6% in 2010 to 62.8% in 2013. The decline in births delivered at 34-38 weeks may be associated with the national initiative to reduce elective (nonmedically indicated) deliveries prior to 39 weeks.^{4,5}

As well, preterm birth trends are influenced by the those in multiple births (3.1% in 2013 versus 3.2% in 2010), as multiples tend to be born earlier and smaller than singleton fetuses, although evidence suggests that even preterm rates in multigestation pregnancies have fallen in recent years—the preterm rate among twin births was 61.9% in 2013 versus 67.5% in 2010.

As in previous years, preterm births increased in frequency with maternal age, with around 13% of women aged 35 and over delivering preterm in 2013, compared with around 9% of those aged 20-24. However, the pattern reversed in younger age groups; preterm delivery was more common in those under 20 years of age (10% in 2013) than in those aged 20-24.

Definitions

Preterm birth rate = $\frac{\text{Number of live births } < 37 \text{ weeks of gestation}}{\text{Number of live births}} \times 100$

Low birth weight rate = $\frac{\text{Number of live births } < 2,500 \text{ g}}{\text{Number of live births}} \times 100$

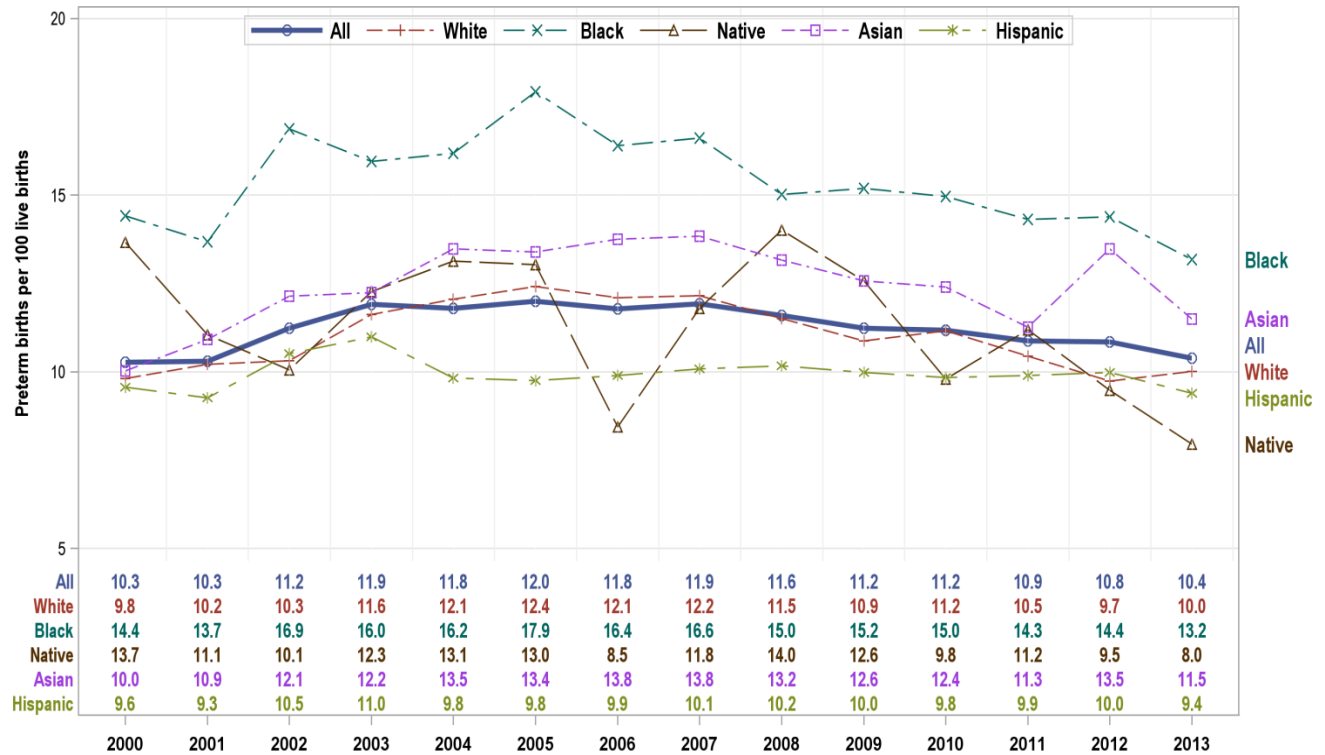
Very low birth weight rate = $\frac{\text{Number of live births } < 1,500 \text{ g}}{\text{Number of live births}} \times 100$

Cohort-based* infant mortality rate = $\frac{\text{Number of linked deaths among infants } (< 365 \text{ days of age})}{\text{Number of live births}} \times 1,000$

Period-based infant mortality rate = $\frac{\text{Number of unlinked deaths among infants } (< 365 \text{ days of age})}{\text{Number of live births in that period}} \times 1,000$

*The cohort-based method for enumerating infant mortality counts all infant deaths occurring in the same year as birth or the following year, whereas the period-based method counts deaths within a calendar year of infants born in the same or previous year. Therefore the two counting schemes use different numerator files. Cohort-based infant mortality rates were cited in this report.

Figure 1. Preterm birth rate by maternal race/ethnicity, Clark County-NV, 2000-13



Source: Birth certificate files (preliminary for 2011 onwards); restricted to mothers residing in Clark County.
 Note: Excludes live births with unknown gestational age. Gestational age derived from obstetric estimates.

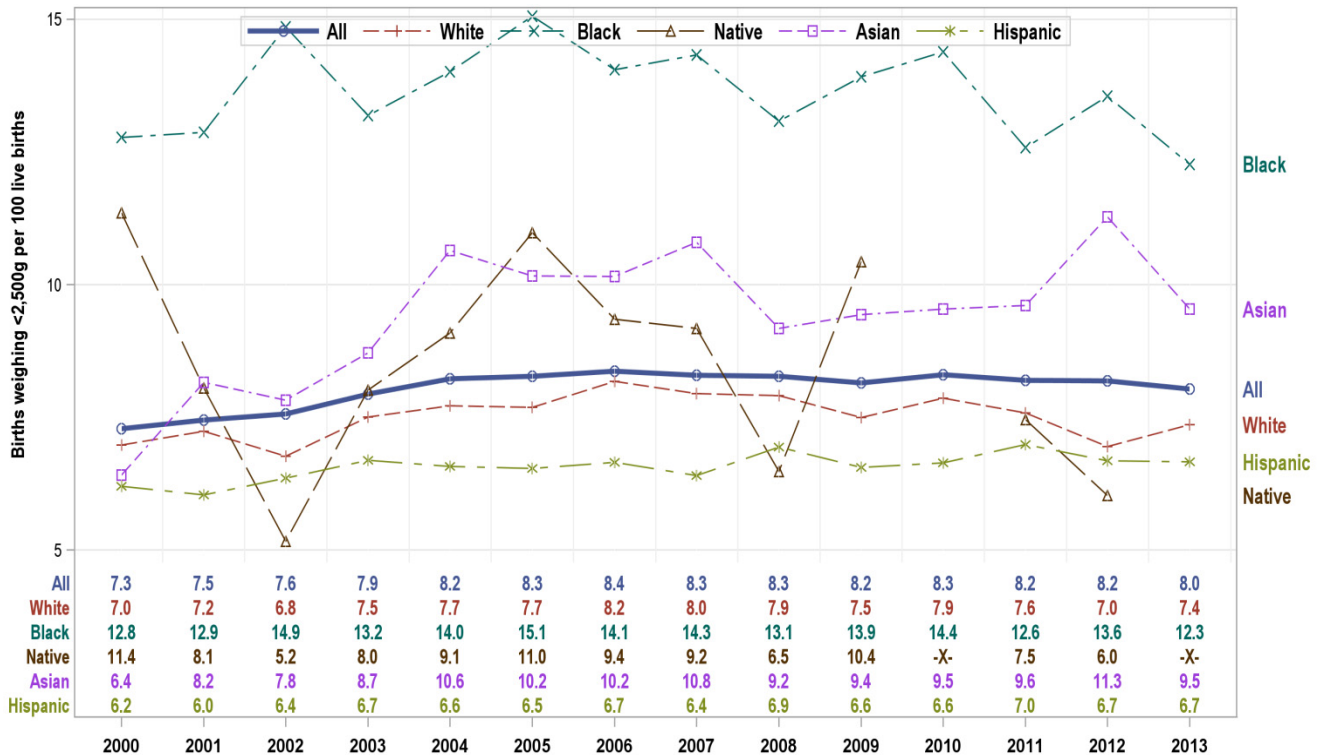
Preterm birth rates are variable (highest in non-Hispanic blacks [NHB] and Asians) and have been falling across races, dropping from 15% to 13.2% in NHBs in 2010-13, from 12.4% to 11.5% in Asians, from 11.2% to 10% in non-Hispanic whites (NHW), and from 9.8% to 9.4% in Hispanics (Figure 1).

Like preterm birth rate, the proportion of live births that are low birth weight (LBW) (<2,500g or 5 lb 8 oz) infants declined slightly in 2010-13, from 8.3% to 8%, and that of very low birth weight (VLBW) infants (<1,500g or 3 lb 5 oz) from 1.3% to 1.1%. LBW babies are at increased risks of mortality/morbidity during infancy and long-term adverse consequences;^{6,7} In 2012, around 15% of infants born at 500-1,499g died within the first year of life, compared to 0.2% of those born at 1,500g or more and an overall infant mortality rate of 0.5%.

LBW is clearly related to prematurity, as more than half of preterm infants weighed less than 2,500g, compared with less than 3% of those born at 37 weeks of gestation or more. With rates of 8.7% and 9.5% in 2013 respectively, LBW births were more common among the youngest (under 20) and oldest (35 and over) mothers than among those aged 20-34. As well, LBW was more likely among women reporting no prenatal care at all than those starting care in the first or second trimester (11.7% compared with 7.8% in 2013).

Disparities by race/ethnicity in the proportion of LBW births persisted in 2013 as in previous years, with rates considerably higher among NHBs (12.3%) and Asians (9.5%) than among NHWs (7.4%) and Hispanics (6.7%). Trends in LBW also varied by race/ethnicity; from 2010 to 2013, LBW rates were down about

Figure 2. Low birth weight rate by maternal race/ethnicity, Clark County-NV, 2000-13



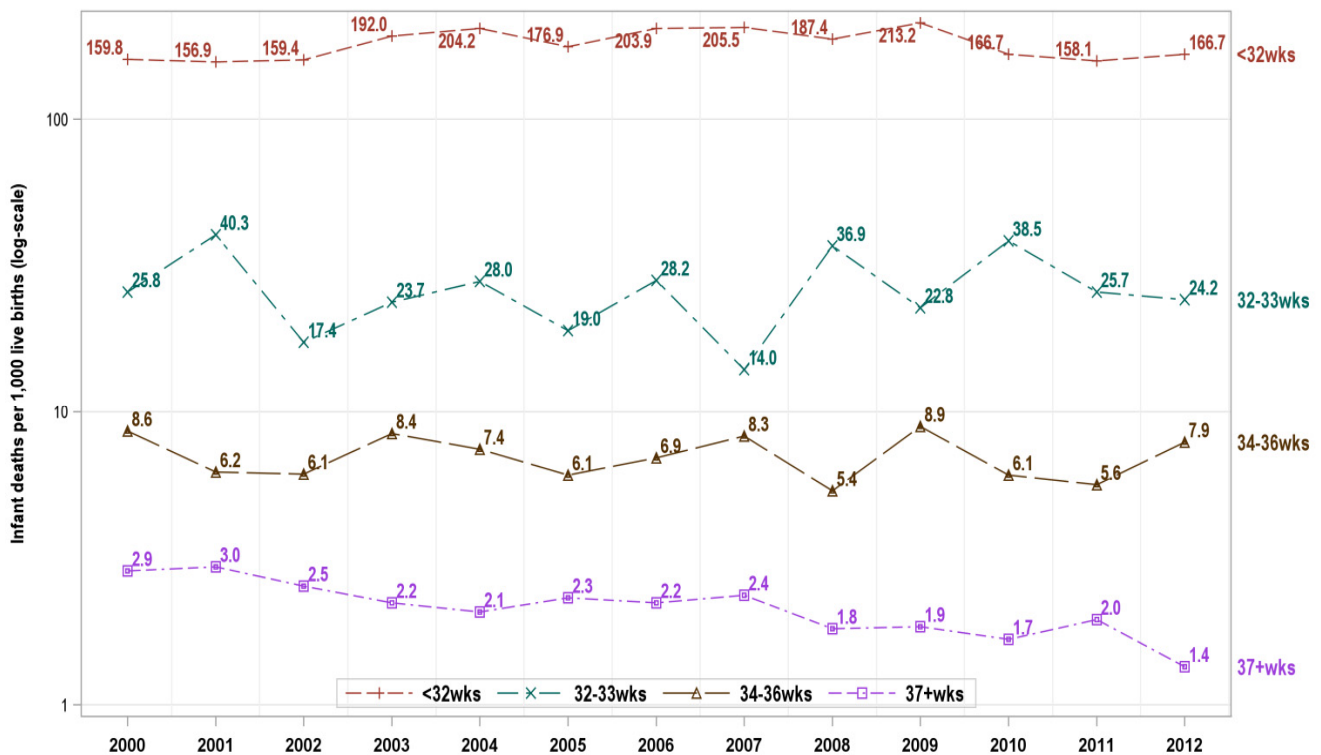
Source: Birth certificate files (preliminary for 2011 onwards); restricted to mothers residing in Clark County.
 Note: Excludes live births with unknown birth weight. Data suppression applied if number of events<5 (denoted by -X-).

15% among NHBs (from 14.4%), 6% among NHWs (from 7.9%), and were essentially unchanged for Asians and Hispanics (Figure 2). Meanwhile the VLBW rate declined to 2.2%, 1.1%, and 0.8% among NHBs (from 2.6%), Asians (from 1.5%), and Hispanics (from 1.1%) respectively, and showed little change among NHWs (at 1.1%).

Notwithstanding the small decline in the percentage of low-weight and preterm newborns in recent years, the birth weight distribution has shifted downward since the early 2000s (e.g. median birth weight declined about 2% between 2000 and 2013 from 3,345g to 3,289g), largely due to births weighing less than 3,500g accounting for an increasing share of all live births. Explanations for this trend include increases in obstetric interventions earlier in pregnancy and changing maternal characteristics. Given the high risk profile of low-weight or preterm infants, particularly those delivered at less than 32 weeks of gestation, which comprised less

than 2% of live births but over one-half of all infant deaths, the lack of improvements in their survival chances poses an immense perinatal challenge from a public health perspective (Figure 3). A variety of behavioral, biological and social factors can increase a woman’s risk of having a low-weight or premature birth. Examples of these factors are younger or older maternal age, smoking, alcohol and drug use, infection, multiple gestation, previous preterm delivery, poverty, low weight gain during pregnancy, and race.⁸⁻¹⁰ Accordingly, birth outcome inequities often reflect the social and economic disparities that impact the wellbeing of the woman both prior to and during pregnancy. To visualize the relationship between perinatal health and its socio-environmental as well as behavioral determinants, extreme prematurity/VLBW was assessed at the census tract level (Appendix A). Spatial variations in VLBW risks were illustrated to help prioritize high-risk communities (in Groups 1 and 2) and preventive actions.

Figure 3. Birth cohort-based infant mortality (IM) among live births (LB) by gestation, Clark County-NV, 2000-12



Source: Birth certificate files (preliminary for 2011 onwards) and death certificate files (preliminary for 2012 onwards); restricted to mothers residing in Clark County.
 Note: Based on birth-infant death linked files for the select time period. Linked infant death may not occur in the same year as birth.

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Appendix A.

Geographic grouping of Clark County census tracts by select fetal/maternal and socio-demographic characteristics

Southern Nevada Health District

