

New Mexico Infant Mortality, 2009-2014

New Mexico's infant mortality rate has not significantly changed from 2005 to 2013, while the U.S. has had an overall statistically significant decline of 10% during this period.¹ As part of the nationwide collaborative effort to reduce infant mortality,² areas of potential intervention will be identified primarily using differences between the infant mortality rates of New Mexico and the United States.

Methods

Linked birth/infant death files for New Mexico residents born between 2009 and 2013 were used to compare to United States temporal and demographic trends from CDC Wonder.³ Three-year cause-specific infant mortality rates for New Mexico residents were used to provide greater stability in comparisons with 2014 U.S. deaths from the National Center for Health Statistics' linked birth/infant death and deaths final data reports.^{1,3,4,5} New Mexico specific logistic models were generated using the New Mexico linked birth/death file and the New Mexico epidemiology birth research files and controlled for factors associated with infant mortality based on the literature.^{3,5,7,8} Missing data were coded as a separate category per variable in the logistics model. Potentially preventable deaths were determined based on information from international reviews^{7,8} and mapped to the corresponding ICD-10 diagnoses.

Results

The infant mortality rate for New Mexico at 5.6 deaths per 1,000 live births was significantly less than the rate for the United States at 6.1 deaths per 1,000 live births between 2009 and 2014. However, there was significant variation among various racial and ethnic group infant mortality rates in New Mexico (Figure 1). Significantly fewer New Mexico non-Hispanic White infants [Odds Ratio (OR) 0.71 95% Confidence Interval (CI) 0.59-0.86] were at odds of dying than Hispanic infants (reference) even after adjusting for prematurity, low Apgar score, birth defects, maternal education,

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adequacy of prenatal care, birth order, and infant's gender.

Multiple births and higher birth order were associated with greater infant mortality rates in New Mexico and the United States. The infant mortality rate for multiple births in New Mexico was 20.3 deaths per 1,000 multiple births which was greater than that for singleton births (5.0 deaths per 1,000 singleton births) between 2009 and 2014. However, singleton and multiple births infant mortality rates did not significantly differ from those of the United States. The highest infant mortality rate in the United States was among women who had six or more children (9.9 deaths per 1,000 births), whereas the fourth live born child in New Mexico had the highest infant mortality rate at 6.8 deaths per 1,000 live births.

The infant mortality rate was significantly greater for single mothers (6.4 deaths per 1,000 live births) than for married mothers (5.0 deaths per 1,000 live births) in New Mexico between 2009 and 2013. However, the infant mortality rate for single mothers in New Mexico was significantly less than the single mother infant mortality rate for the United States (8.1 deaths per 1,000 live births). The New Mexico infant mortality rate for women 30-34 years of age was significantly greater than that of the United States (Figure 2). Similarly, the infant mortality rate for women with at least a four-year college degree was significantly greater in New Mexico at 4.9 deaths per 1,000 live births than in the United States (3.6 deaths per 1,000 live births).

The neonatal mortality (death of a baby less than 28 days after birth) rate increased in New Mexico from 3.0 deaths per 1,000 live births in 2009 to 3.7 deaths per 1,000 live births in 2014 (Armitage-Cochrane p-

value = 0.05). Whereas, the United States neonatal mortality rate was stable at 4.0 deaths per 1,000 live births during this same period. The postneonatal mortality rate (death of a baby between 28 and 365 days after birth) remained stable in New Mexico at 1.9 deaths per 1,000 births, whereas the United States postneonatal mortality rate declined from 2.2 deaths per 1,000 births in 2009 to 1.9 deaths per 1,000 births in 2014.

Prematurity is one of the leading causes of infant mortality in New Mexico. New Mexico had a significantly greater infant mortality rate among very premature infants (under 32 weeks) at 189 deaths per 100,000 live births than the United States (64.8 deaths per 100,000 live births). Preterm-related infant mortality³ increased in New Mexico from 190 deaths per 100,000 live births in 2009 to 238 deaths per 100,000 live births in 2014 (Armitage-Cochrane p-value = 0.07). Whereas, the United States' preterm-related infant mortality rate was stable at 215 deaths per 100,000 live births. In 2014, preterm-related deaths accounted for 42.4% of all infant deaths in New Mexico. New Mexico also had a significantly greater infant mortality rate for other low birthweight or preterm causes (ICD-10 P07.1 and P07.3) at 44.5 deaths per 100,000 live births than the United States (23.2 deaths per 100,000 live births).

New Mexico had an increase in the infant mortality rate from deaths originating in the perinatal period (ICD-10 P00.0-P96.9) from 210 deaths per 100,000 live births in 2009 to 273 deaths per 100,000 live births in 2014 (Armitage-Cochrane p-value = 0.18). Whereas the death rate in the perinatal period in the United States remained stable at 304 deaths per 100,000 live births during this same period. New Mexico had a significantly greater mortality rate for newborns affected by maternal hypertensive disorders (ICD-10 P00.0) at 6.4 deaths per 100,000 live births than the United States (1.7 deaths per 100,000 live births). New Mexico also had a significantly greater mortality rate for bacterial sepsis of newborns (ICD-10 P36) at 23.1 deaths per 100,000 live births compared to the United States (13.6 deaths per 100,000 live births).

The infant mortality rate from birth defects (ICD-10 Q00.0–Q99.9) in New Mexico between 2009 and 2014 was significantly greater at 136 deaths per 100,000 live births compared to that of the United States (126 deaths per 100,000 live births). New Mexico had sig-

nificantly higher infant mortality rates for other congenital malformations of the circulatory system (ICD-10 Q25-Q28; 10.2 deaths per 100,000 live births) and other congenital malformations and deformations (ICD-10 Q10-Q18 and Q86-Q89; 28.2 deaths per 100,000 live births) than the United States (3.9 deaths per 100,000 live births and 13.1 deaths per 100,000 live births, respectively).

The Sudden Unexpected Infant Death (SUID – ICD-10 R95, R99 and W75) rate in New Mexico (75.8 deaths per 100,000 live births) between 2009 and 2013 was significantly lower than that of the United States (89.4 deaths per 100,000 live births). However, Hispanics in NM had a significantly higher SUID rate of 79.2 deaths per 100,000 live births than Hispanics in the U.S. (51.2 deaths per 100,000 live births). Whereas New Mexico American Indians had a significantly lower SUID rate at 82.1 deaths per 100,000 live births than that of American Indians in the U.S. (216.7 deaths per 100,000 live births). There was no significant difference in the non-Hispanic White SUID rates for NM and the U.S.

About one in three infants who died (34.4%) in New Mexico between 2009 and 2013 had a potentially preventable death. Of these potentially preventable deaths, two in five (38.2%) occurred to women following their first pregnancy. Non-Hispanic Whites in New Mexico (OR 0.67, 95% CI 0.46-0.97) had significantly lower odds of dying from a potentially preventable death than New Mexico Hispanics (reference) even after adjusting for maternal education, adequacy of prenatal care, birth order, infant's gender, and the level of urbanicity of mother's resident county.

Discussion

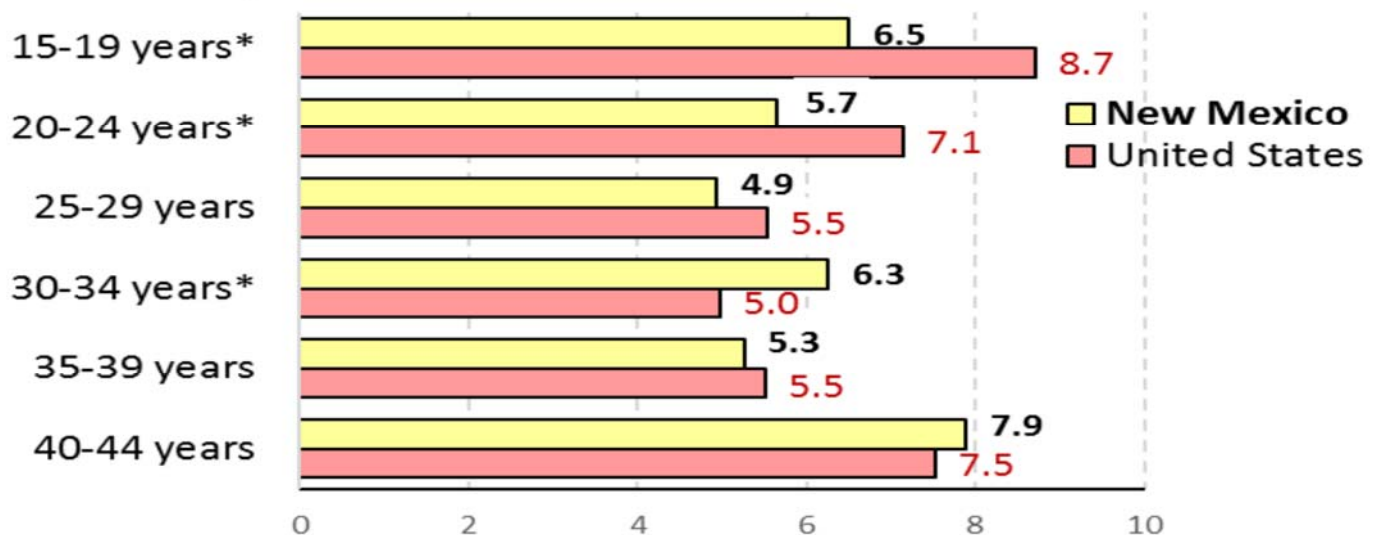
This study identified a number of opportunities for lowering the New Mexico infant mortality rate. Infant mortality disproportionately impacted births to Hispanics, older, and more educated mothers in New Mexico than nationally. Increases in the neonatal mortality rate in New Mexico may partially be explained by increases in causes of death from the perinatal period and prematurity related deaths. Because there were a number of potentially preventable deaths, New Mexico's infant mortality rate could be even lower than it is now.

The results of this study are heavily influenced by how the underlying cause of death is determined. Lastly, potentially preventable deaths may overestimate the number of deaths that can be averted through intervention because participation in these programs does not directly lead to the elimination of all infant deaths.

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Figure 2. Rate of Infant Mortality per 1000 live births by Mother's Age At Time of Child's Birth, 2009-2013



Data Source: CDC Wonder

Note: * is statistically different at 95% confidence level

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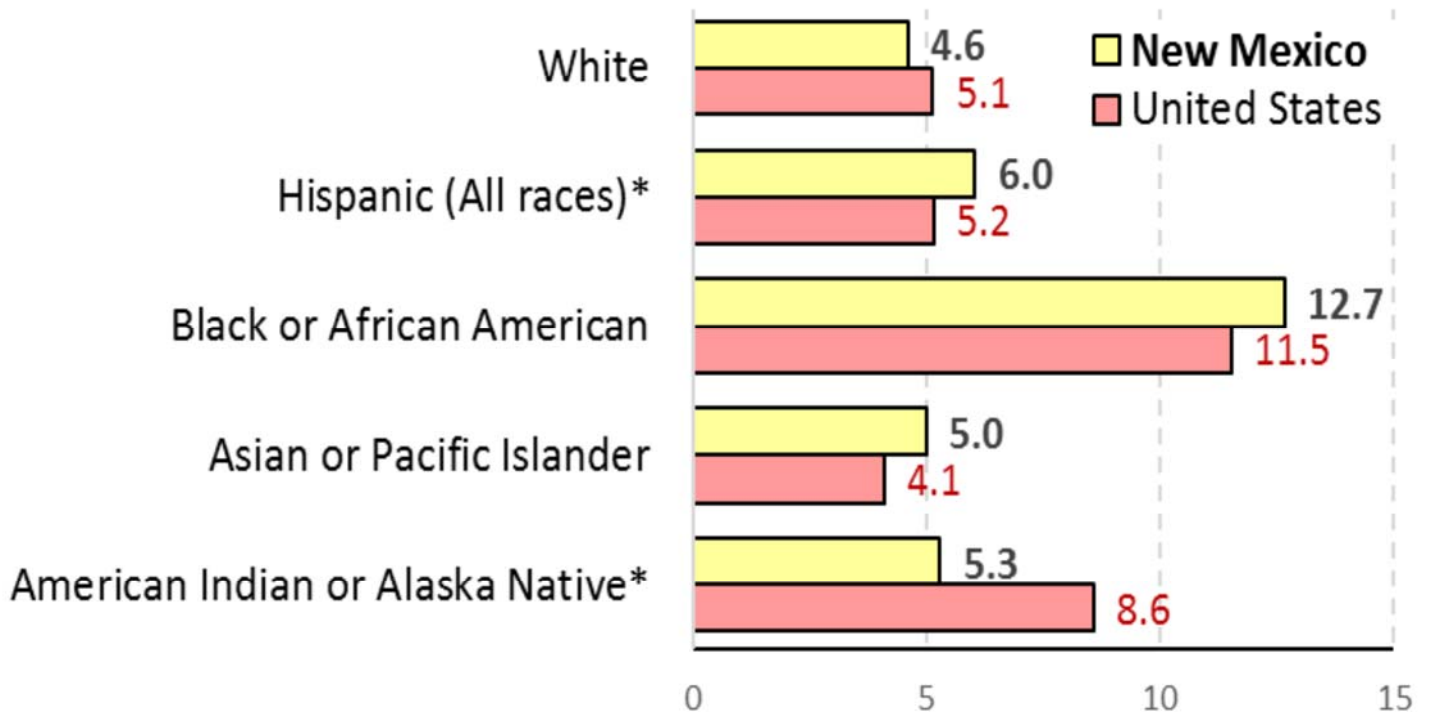
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Figure 1. Rate of Infant Mortality per 1000 live births by Race and Ethnicity, 2009-2014



Data Source: CDC Wonder and National Vital Statistics Death's Final Data

Note: * is statistically different at 95% confidence level