REDI@CSU
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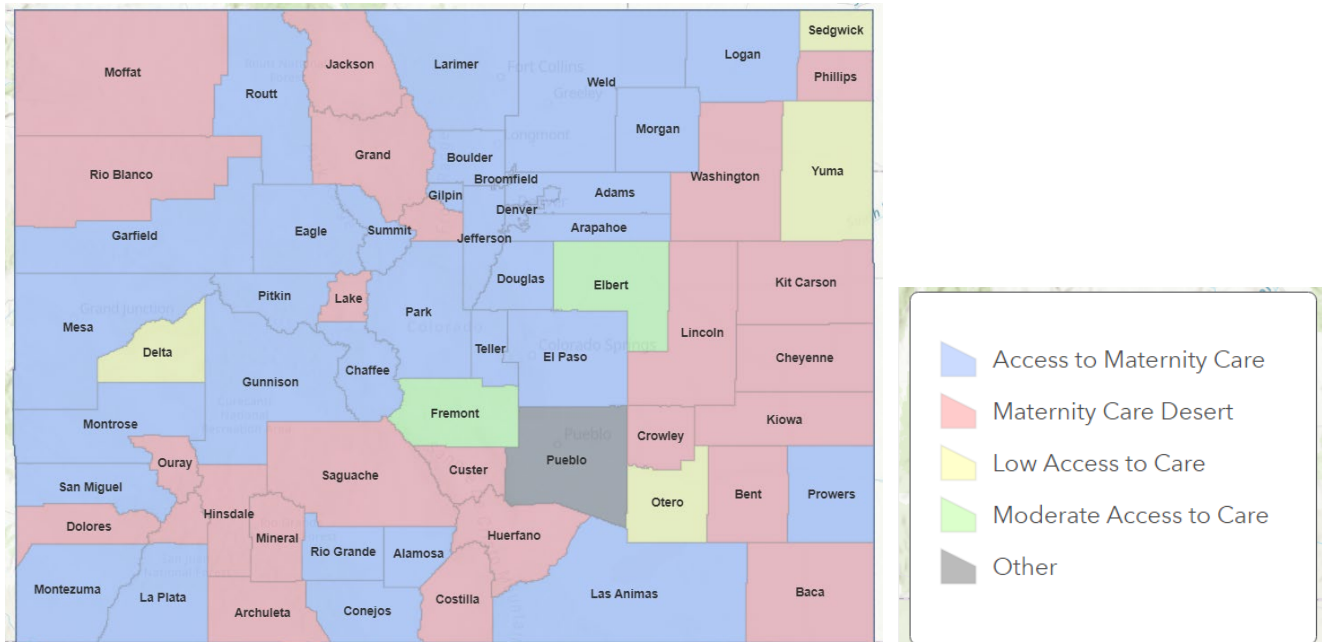## Maternal Health Care Deserts in Colorado
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https://redi.colostate.edu/

> ➢ In Colorado, around 40% of counties are maternal health care deserts, which are counties without a birth center, hospital offering obstetric care, or any obstetric care providers.
> ➢ Over half of the counties in Colorado have higher rates of live births receiving inadequate prenatal care, compared to the U.S. average.
> ➢ Colorado rural counties have higher rates of preterm births than urban counties.

According to the March of Dimes, the United States is one of the most dangerous developed nations for mothers to give birth (Howard). A contributing factor to this is the prevalence of maternal health care deserts. A maternal health care desert is defined as "any county in the United States without a hospital or birth center offering obstetric care and without any obstetric providers" (*Maternity*). In Colorado, 38.1% of counties are maternal health care deserts and overall, in the United States, 36% of all counties are maternal health care deserts (*Maternity*); (Howard). It is vitally important for women to have access to maternity care because without access there is "an increased chance of maternal and infant mortality and morbidity" (Markus). This report seeks to highlight maternal health care deserts in Colorado and the potential for correlation of negative birth outcomes through mapping.

Figure 1. Categorical Map: Maternal Health Care Deserts, Colorado, 2020

ArcGIS was used for the creation of the maps; data sources are referenced in the appendix. The counties that are red are maternal health care deserts, yellow counties have little access to care, green counties have more access to care and blue counties have full maternal health care. Access to maternal health care is crucial in the prevention,

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treatment, and identification of issues that may arise over the course of a pregnancy that could lead to negative health outcomes for the mother and the child.

**Figure 2. Percentage of Live Births Receiving Inadequate Prenatal Care, 2017-2020 Average**
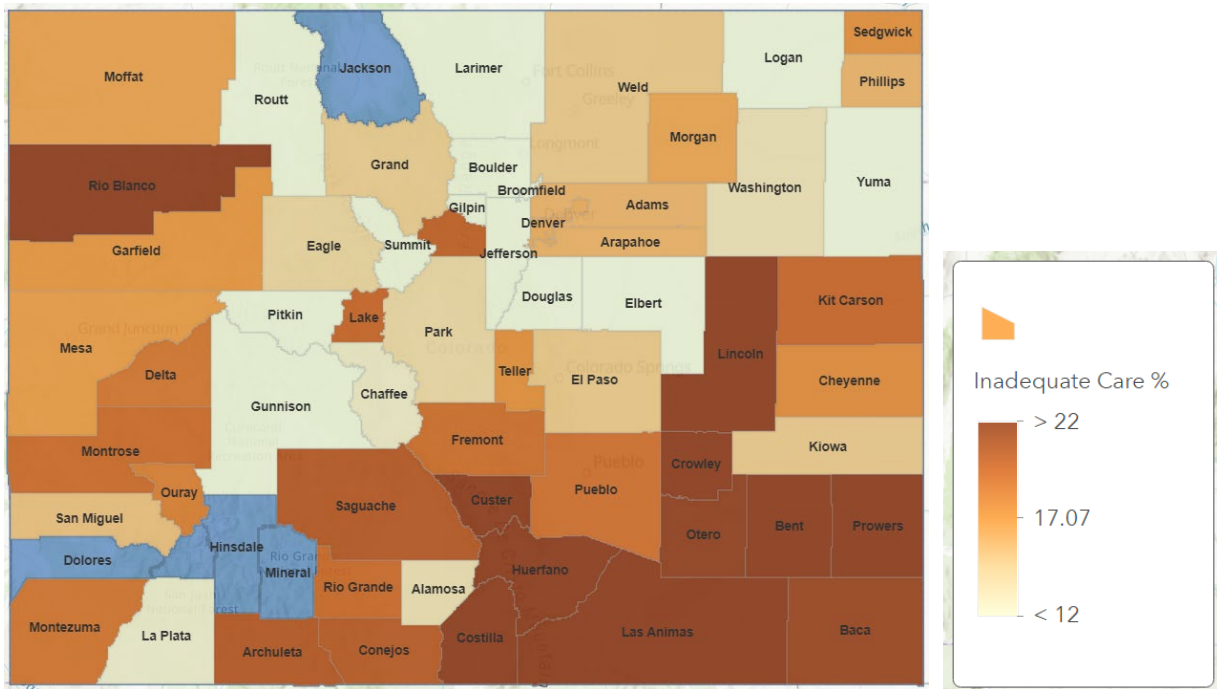
*Counties that are blue have suppressed information so data is not available. The map is based on the Colorado average of 17.07% of live births that have received inadequate care.

For this particular maternal care measure, inadequate care is defined as "women who received care beginning in the fifth month or later or less than 50% of the appropriate number of visits for the infant's gestational age" (*Premature*). When compared with Figure 1, this map illustrates that in many of the same counties that are maternal health care deserts, there are higher percentages of births that do not receive adequate care throughout the pregnancy. Other factors that contribute to rural counties having higher rates of inadequate maternal health care include "less formal education, lower health literacy, unplanned pregnancies, [and] poor transportation" and the ability to afford health care (*Improving*).

To provide a measure of comparison, Figure 3 below illustrates the Colorado counties that have higher percentage of live births that do not receive adequate care compared to the national average, which is 14.9% (*Premature*); these are the counties with red pigmentation. Counties that have a gray pigmentation, have a lower percentage of live births that receive inadequate care compared to the national average of 14.9% (*Premature*). This figure indicates that over half of the counties in Colorado have higher percentages of inadequate care than the U.S. average. In Colorado it is not only rural counties that have a high percentage of inadequate care, as some urban counties also have a greater percentage of inadequate care when compared to the U.S. average. Adequate care during a pregnancy is crucial because in delaying or receiving less total care leads to "higher rates of perinatal complications" (*Improving*).

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Figure 3. Colorado Counties Percentage of Live Births Receiving Inadequate Care Compared to the National Average, 2017-2020
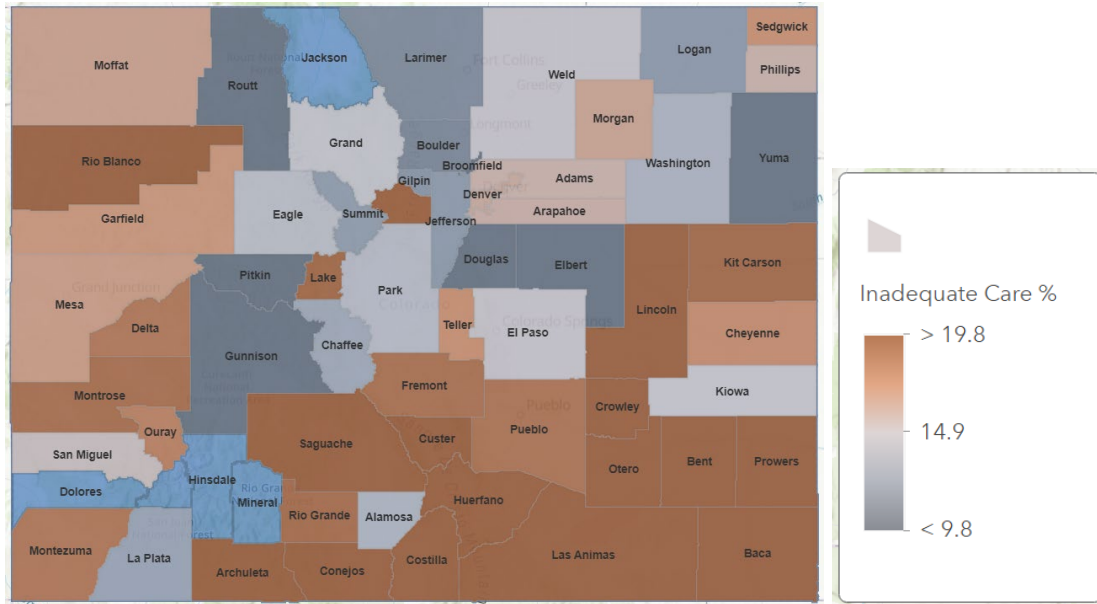
*Counties that are blue have suppressed data.

Prematurity is correlated with negative health outcomes, including greater risk of brain damage and greater risk of complications leading to death; in the U.S., premature births are related to over one-third of infant deaths and 10.5% of live births are premature (*Premature births*); (*A Profile*). Figure 4, when compared with Figure 1, helps to suggest a correlation between counties with limited access to maternal health care and higher rates of preterm babies.

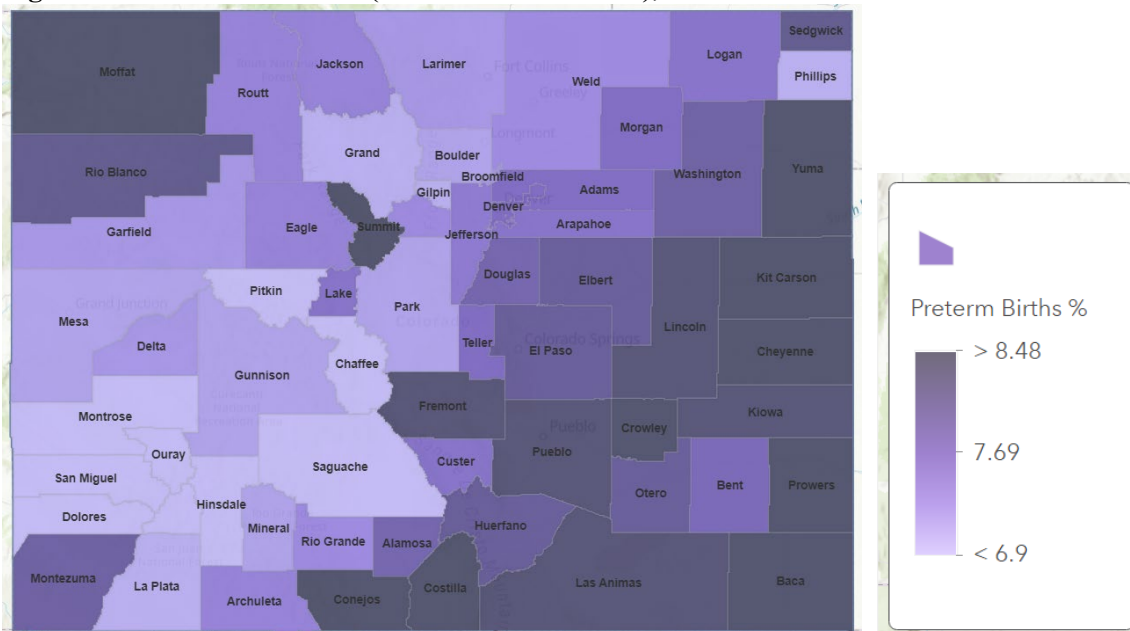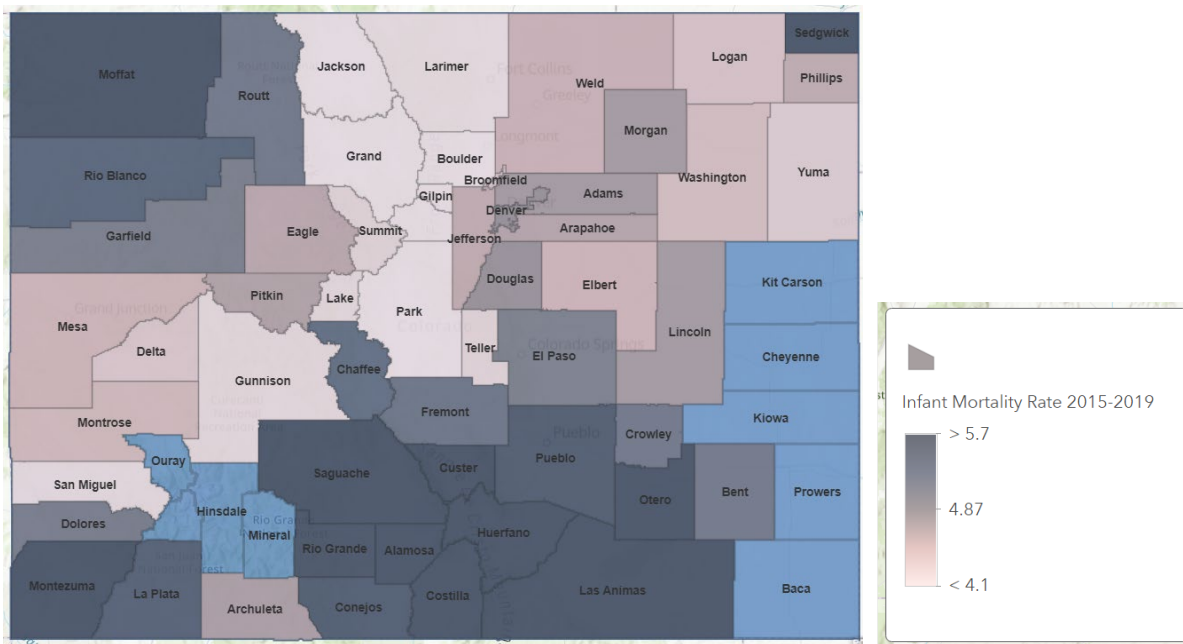**Figure 4. Percent of Preterm (<37 Weeks Gestation), 2020**

Figure 5. Infant Mortality Rate per 1,000 Live Births, 2015-2019

*Counties that are blue have suppressed data. Figures 4 and 5 are based around the respective averages of preterm births and infant mortality in Colorado, 7.69% and 4.87 per 1000 respectively.

In the U.S. the infant mortality rate is 5.6 deaths per 1000 live births (*Premature*). Figure 5 illustrates Colorado counties' infant mortality rate per 1,000 live births. When compared with Figure 1, Figure 5 shows counties with little or no access to maternal health care have higher rates of infant mortality, following trends seen in other figures. For example, Huerfano County in southern Colorado has a population of 6,920 people and is a maternal health care desert where 29.8% of live births receive inadequate care, 8.1% of births are premature and 6.49 out of 1,000 births results in the death of the child (*Colorado)*;(*Maternity*);(*Inadequate*);(*National)*. Comparing Huerfano County to San Miguel County that has a similar population of 8,074, but has full access to maternal care, the percentage of pregnancies receiving inadequate care, premature births and infant mortality are all lower at 15.3%, 6.4% and 4.15 per 1,000, respectively. (*Colorado)*;(*Maternity*);(*Inadequate*);(*National*).

Ultimately, it is vitally important for women to have access to obstetric care to maximize the chances of a healthy pregnancy and birth. The figures included in this report help to tell the story of maternal health care in Colorado, illustrating a potential correlation between access to maternity care and birth outcomes. There are many more factors that contribute to birth outcomes of a child, such as health of the mother, income level, access to insurance, health literacy, etc., that were not included in this report that are necessary to consider when holistically examining maternal health. In the end, this report strove to highlight the worrisome range of maternal health care deserts in Colorado and the potential correlation this lack of access to care has on percentage of births receiving inadequate care, percentage of preterm births, and infant mortality rates.

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Figure 4 & 5: Centers for Disease Control and Prevention. (n.d.). *National Environmental Public Health Tracking Network Data explorer*. Centers for Disease Control and Prevention. Retrieved October 31, 2022, from https://ephtracking.cdc.gov/DataExplorer/

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