

# Trends in Infant Mortality: Analyzing Health Indicators and Rural Disparities in Kansas from 2005-2019

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## Background

- Infant mortality is a crucial community health indicator, reflecting both infant and maternal well-being.<sup>1</sup>
- As of 2020, the infant mortality rate (IMR) in the U.S. was 5.4 deaths per 1,000 live births. In Kansas, the IMR was reported to be 6.7 deaths per 1,000 live births.<sup>2</sup>
- Pre-term birth, occurs in 5-18% of pregnancies, is a leading cause of infant mortality and is linked to low birth weight.<sup>3</sup>
- Birthweight is strongly correlated with infant mortality, with those with a low birth weight having a 20 times higher risk of death.<sup>3,4</sup>
- Breastfeeding is shown to help lower infant mortality while improving infant and maternal health, serving as a primary source of prevention for many maternal and infant conditions.<sup>5</sup>
- While infant mortality has declined in the U.S., disparities exist across geographical areas with the highest IMRs observed in rural areas.<sup>6</sup>

## Objective

Trend analyses of infant birth weight, gestational age, and breastfeeding prior to hospital discharge & categorized by rurality in Kansas

## Methods

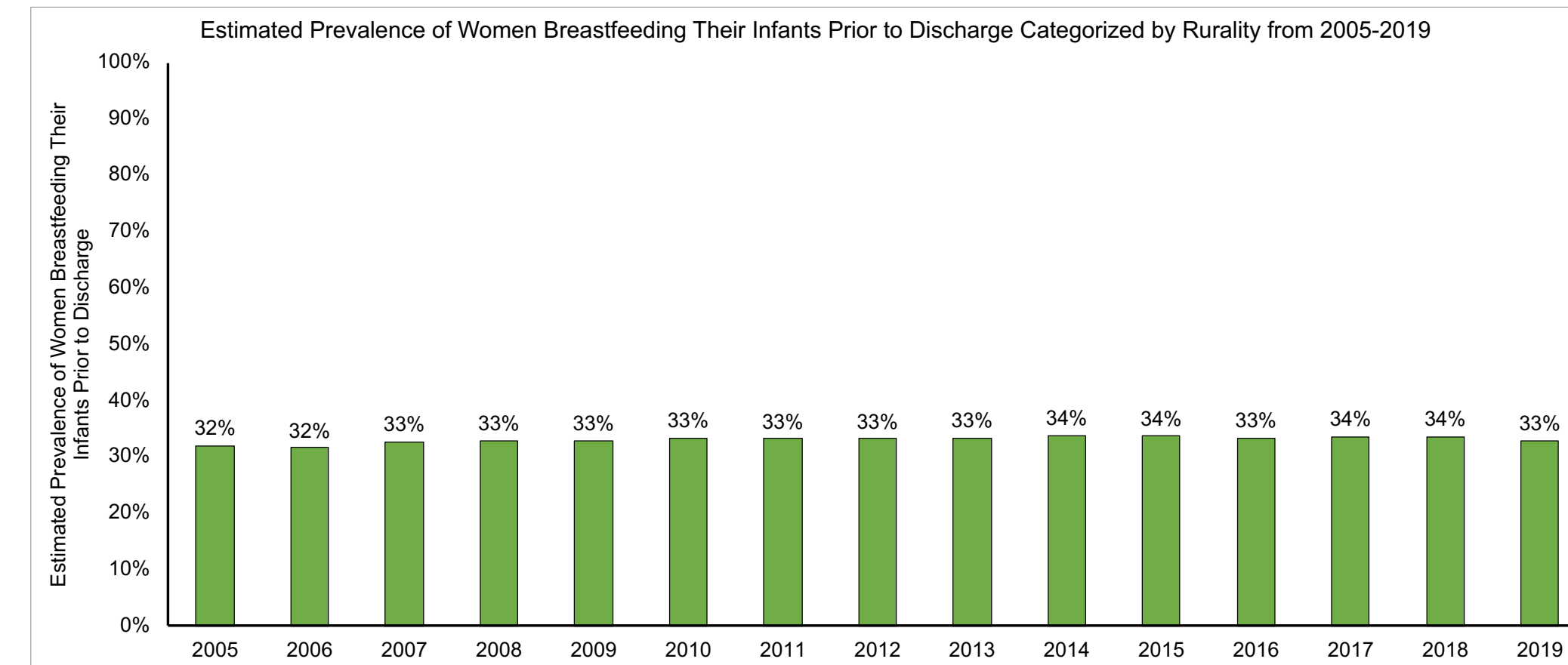
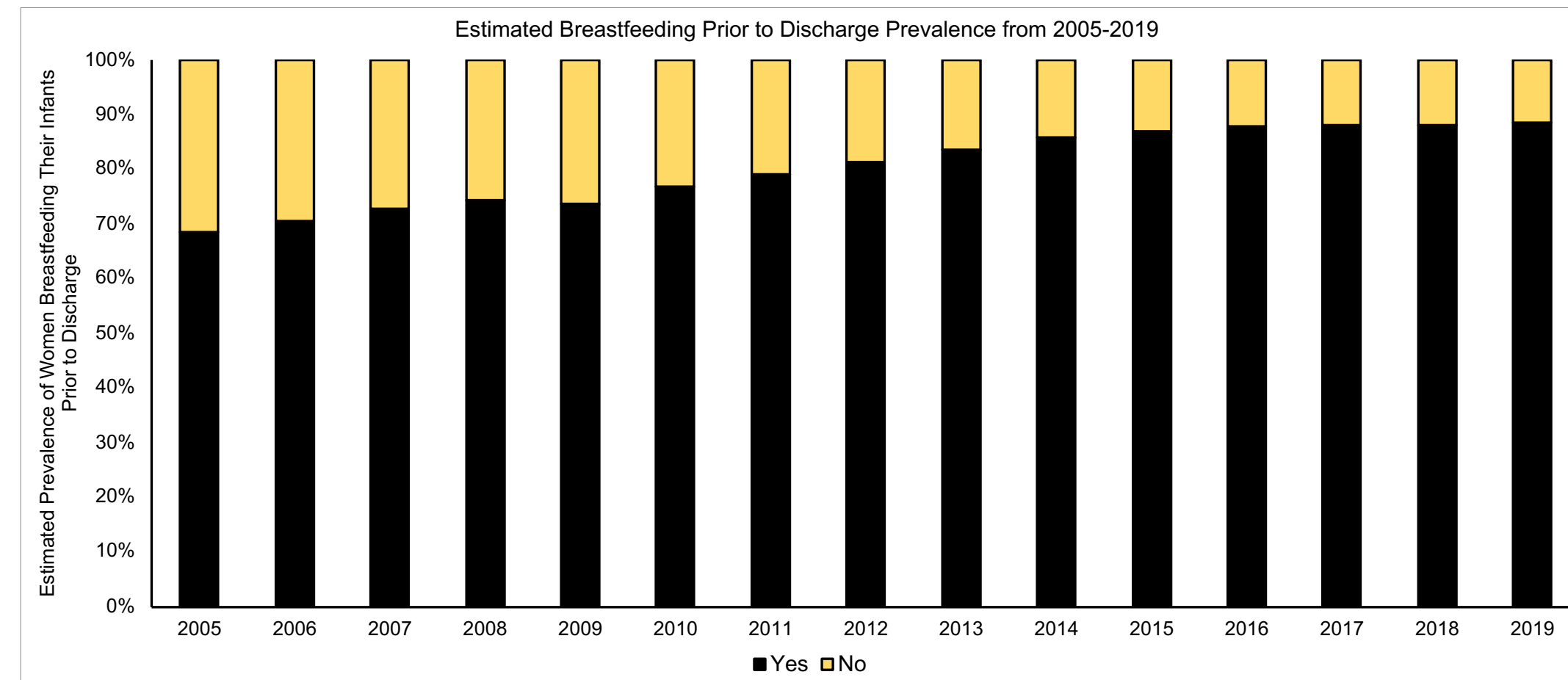
- Trend analysis using data from Kansas Department of Health and Education (KDHE) on all mothers that gave live birth in the state of Kansas from 2005 to 2019 (N=589,605).
- Gestational Age Classification: Pre-term (<37 weeks), Term (37-41 weeks) and Post-term (> 42 weeks)
- Birth Weight Classification: Low BW (<2,500 g), Normal BW (2,500-4,000 g) and High BW (>4,000 g)
- Rurality is defined by modifying current KDHE peer group definitions based on persons per square mile:
  - Urban is a combination of urban (≥150) and Semi-urban (40.0-149.9) groups
  - Rural is combination of densely settled rural (20.0-39.9), rural (6.0-19.9) and frontier (<6.0)

## Results

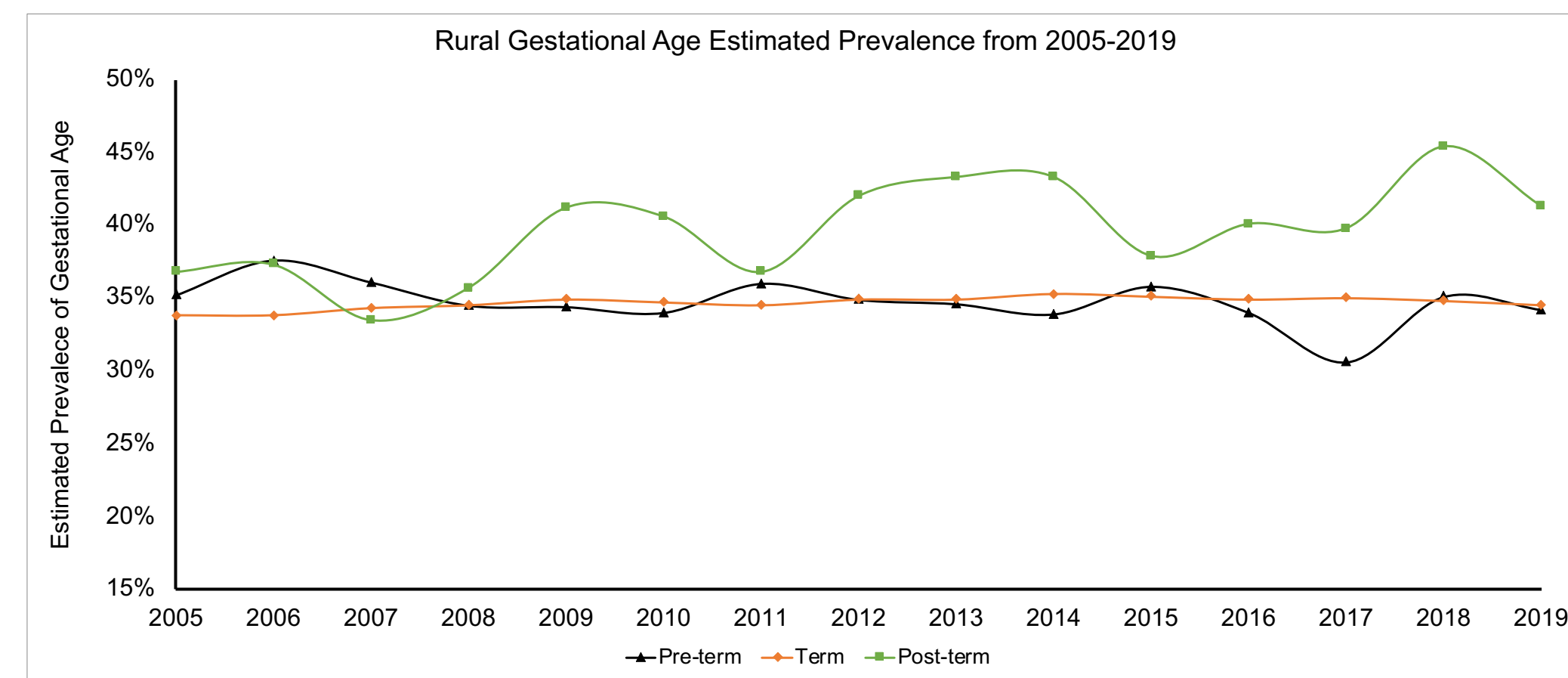
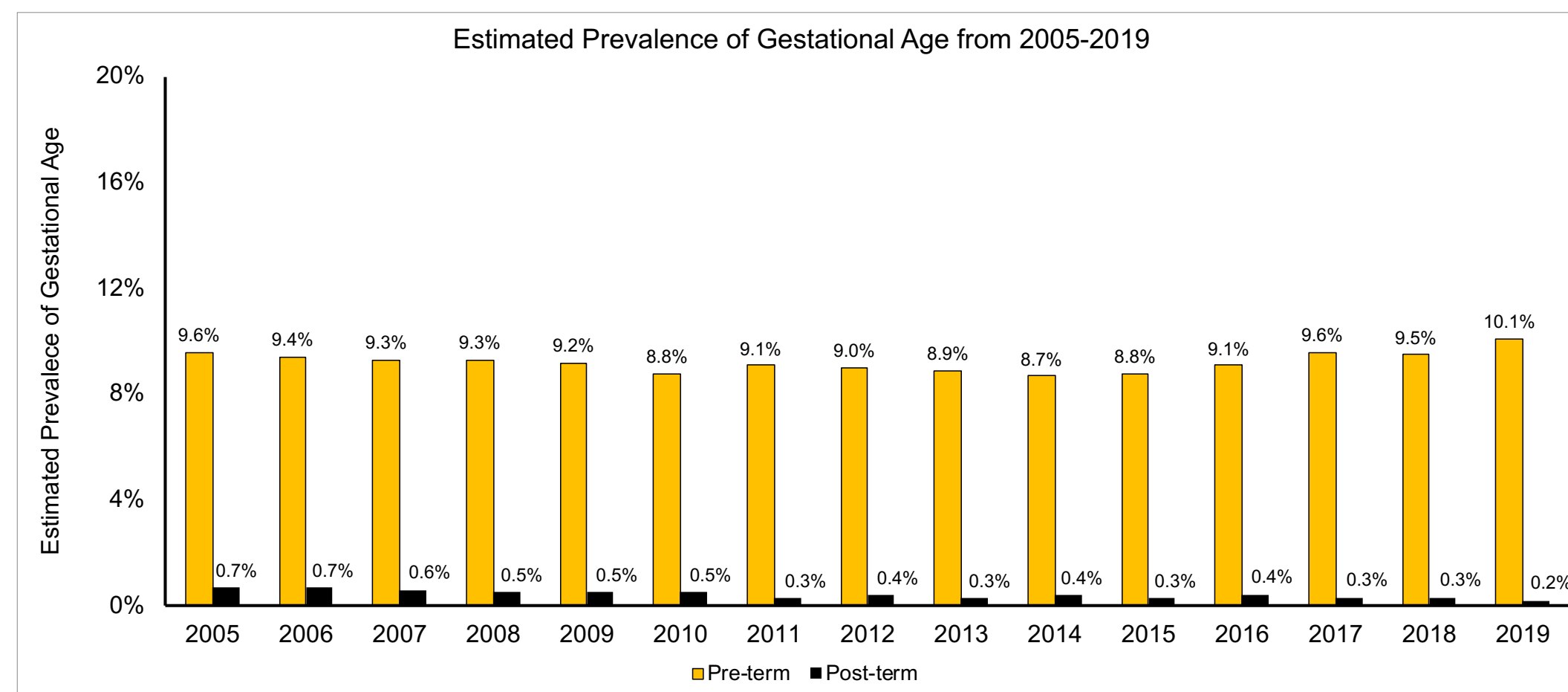
### KDHE Sample Set Profile from 2005-2019

Variable	Average Prevalence
<b>Age</b>	
Below 20	8%
20-24	25%
25-29	31%
30-34	24%
35-59	10%
40 & above	2%
<b>Race</b>	
White	82%
Black	8%
Other	10%
<b>Insurance</b>	
Private	53%
Medicaid	30%
Hispanic Origin	16%
Some college and college graduate	51%
<b>Rurality</b>	
Urban	65%
Rural	35%
<b>Breastfed Prior to Discharge</b>	
Yes	81%
No	20%
<b>Gestational Age</b>	
Pre-term	9%
Term	90%
Post-term	0.4%
<b>Birth Weight</b>	
Low	7%
Normal	84%
High	8%

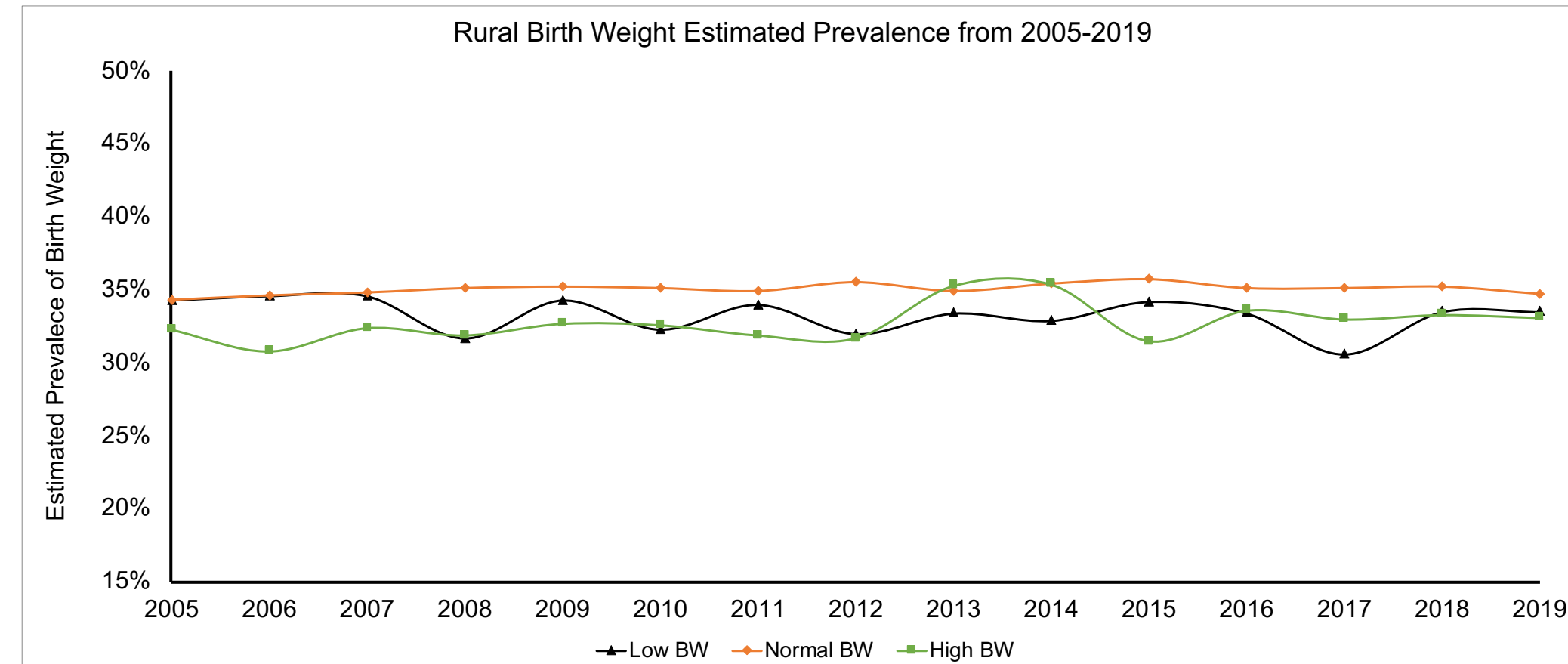
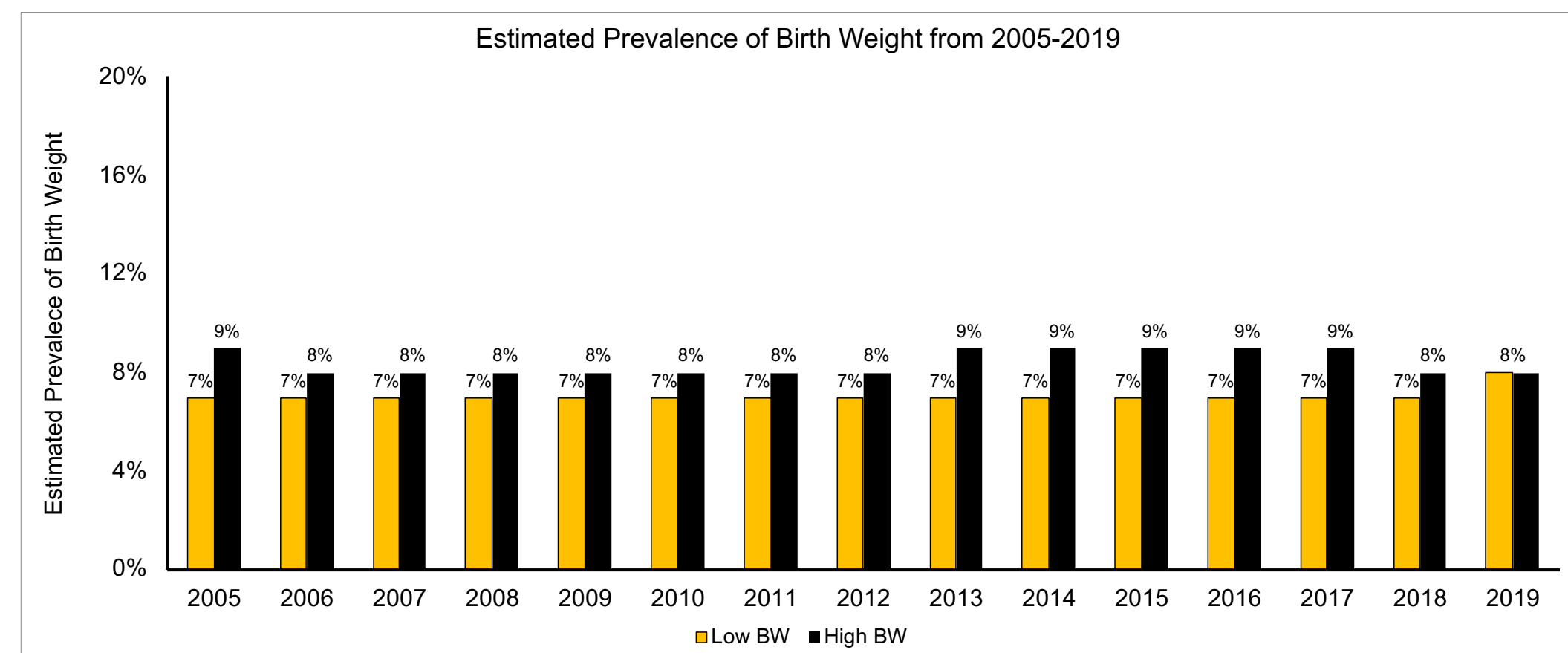
### Breastfeeding Prior to Discharge Trends



### Gestational Age Trends



### Birth Weight Trends



## Discussion

- Strengths: Data from 14 years analyzed to demonstrate trends and analysis; large number of total birth records.
- Limitations: No other factors considered such as demographics and other health determinants (ex. maternal obesity)
- Positive breastfeeding trends yet a stagnant low prevalence among rural women for over 14 years
- Overall stagnant rate of pre-term gestational ages, with a higher prevalence of post-term gestational age among rural women
- No significant rural-urban disparities in birth weight

## Conclusion

- Rural areas continue to face challenges in promoting breastfeeding among women, highlighting the need for targeted interventions and support.
- The prevalence of pre-term pregnancies emphasizes the need for vigilant pregnancy monitoring and management.
- Healthcare providers in rural areas should prioritize breastfeeding support, monitor pregnancies closely, and focus on improving prenatal care and maternal nutrition to enhance maternal and infant outcomes.
- Understanding and addressing factors related infant mortality, especially in rural areas, can contribute to lower infant mortality rates.

## References & Acknowledgements

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