

Provider Distance and Adverse Birth Outcomes in Teen Pregnancies in South Carolina

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Background

Previous research suggests that teen pregnancies are more likely to result in adverse birth outcomes (ABO). Prior research in South Carolina (SC) looked at spatial correlation between infant mortality and distance to hospital and found no significant association. However, no study has specifically looked at the effect of distance to an OB/GYN provider on ABO.

Objective

The purpose of this project is to discern the relationship between provider distance and adverse birth outcomes in teen pregnancies.

Methods

- OB/GYN provider license renewal information obtained from SC Revenue and Fiscal Affairs office
 - 724 providers with active license and zip code information
- Zip codes converted to zip code tabulated areas (ZCTA)
- Closest ZCTA to ZCTA with provider distance calculated
- Rates of ABO (pre-term birth, low birth weight, and both) calculated using information from SC Community Assessment Network.
- Linear and logistic regression used to test relationship between ABO rate or rurality and covariates
- Gestational diabetes, type of insurance, maternal weight, inadequate prenatal care, socio-economic status, race, and rurality used as covariates
- Hot spot analysis in ArcGIS used to identify clusters of high and low ABO rate
- Mean variables in high and low rate areas calculated; Kruskal-Wallis test used to compare means

The findings and conclusions in this report are those of the author and do not necessarily represent the official position of the South Carolina Public Employee Benefit Authority, the South Carolina Data Oversight Council, or the South Carolina Revenue and Fiscal Affairs Office. The author would like to acknowledge Dr. Jan Eberth and Dr. Whitney Zahnd for their assistance.

Results

- While living in a rural ZCTA was statistically significant related to provider distance (OR: 1.04 to 1.10), **provider distance was not related to the ABO rate in teen pregnancies (p=0.43).**
- Living in a rural ZCTA was the only significant difference between high and low ABO rate clusters.

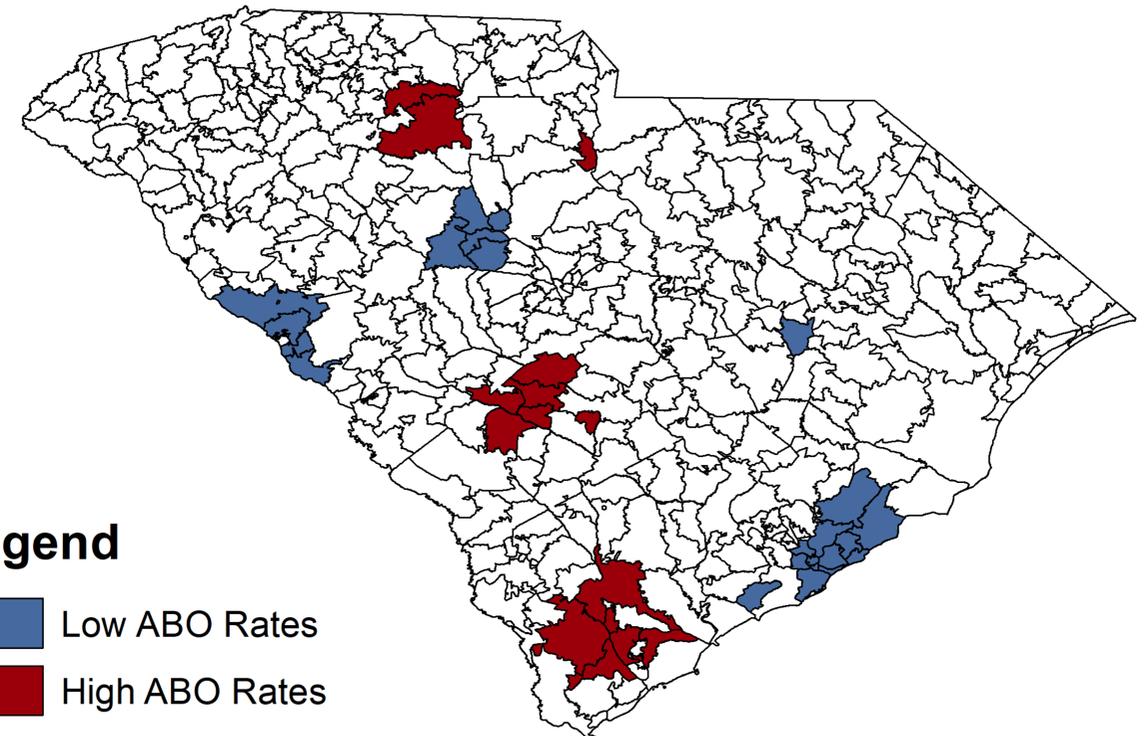


Figure 1. Clusters of High and Low ABO Rates

Implications

Even though provider distance is more likely to be longer in rural areas, distance is not associated with the ABO rate. However, the adjusted model with all confounding variables only explains two percent of the difference in ABO rates; there must be further explanatory factors at work. More research on confounding factors needs to be done, with de-identified patient information, to create a more robust analysis.



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