

# The Impact of the COVID-19 Pandemic on Prenatal Care Utilization & Delivery

Data from the Tennessee Pregnancy Risk Assessment Monitoring System (2019-2020)

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## Background

Prenatal care (PNC) is important for the health of the pregnant individual and the developing baby. Prenatal care is best measured using the Kotelchuck Index. The Index classifies adequacy using four categories: inadequate, intermediate, adequate, and adequate plus. Inadequate care is defined as pregnancy-related care beginning in the fifth month or later or having less than 50% of the appropriate number of visits for the infant's gestational age.<sup>1,2</sup> Due to the COVID-19 pandemic, prenatal care (PNC) access and delivery have been affected due to widespread restrictions on in-person care and prenatal care disruptions.<sup>3</sup>

In 2020, **70%** of live births in Tennessee were to women receiving adequate/adequate plus care.<sup>4</sup>



One Healthy People 2030 goal is to increase the proportion of women who receive adequate prenatal care to **80.5%**.<sup>1</sup>

## Research Objective

Adequate PNC is essential for the health of the pregnant individual and the developing baby. This analysis seeks to:

1. Understand how the COVID-19 pandemic has affected the adequacy of prenatal care by comparing Kotelchuck Index scores in 2019 and 2020.
2. Describe the delivery of PNC in 2020, and whether barriers differed across years for those with late or no PNC.

## Methods

- Data for this study was collected from the Tennessee Pregnancy Risk Assessment Monitoring System (PRAMS) 2019-2020 Core Questions and the PRAMS 2020 COVID-19 Supplement.
- PRAMS is a bi-modal survey of women with a recent live birth.
- The data were analyzed using SAS 9.4 weighted survey procedures.
- PNC utilization was assessed by using an indicator variable for the Kotelchuck Index.

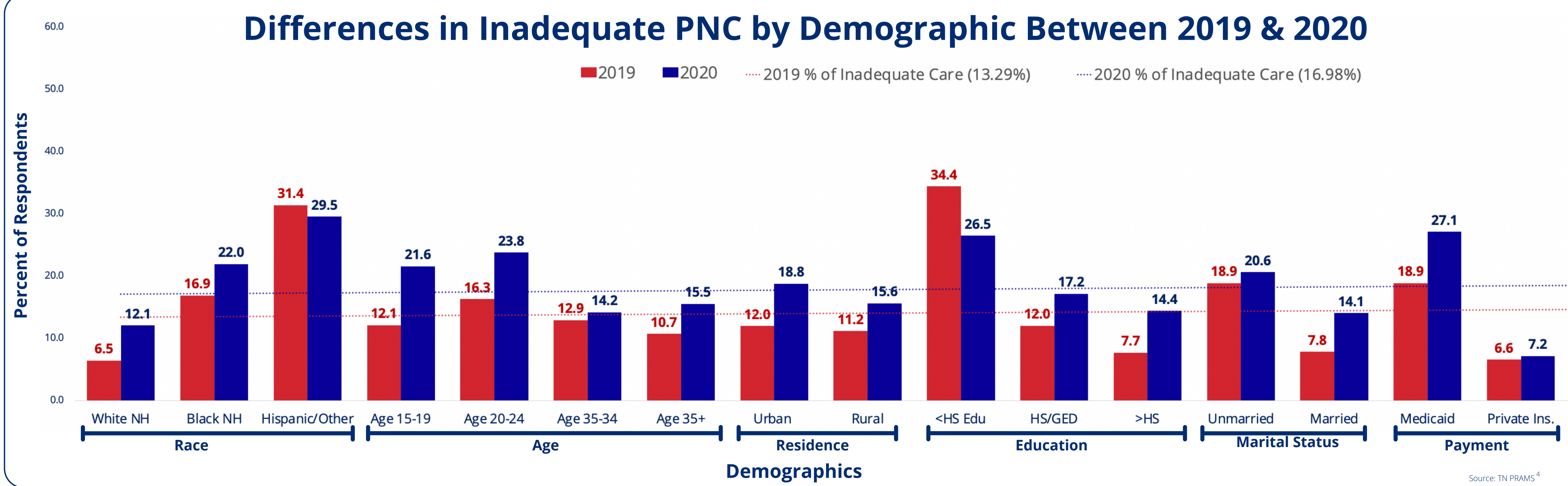
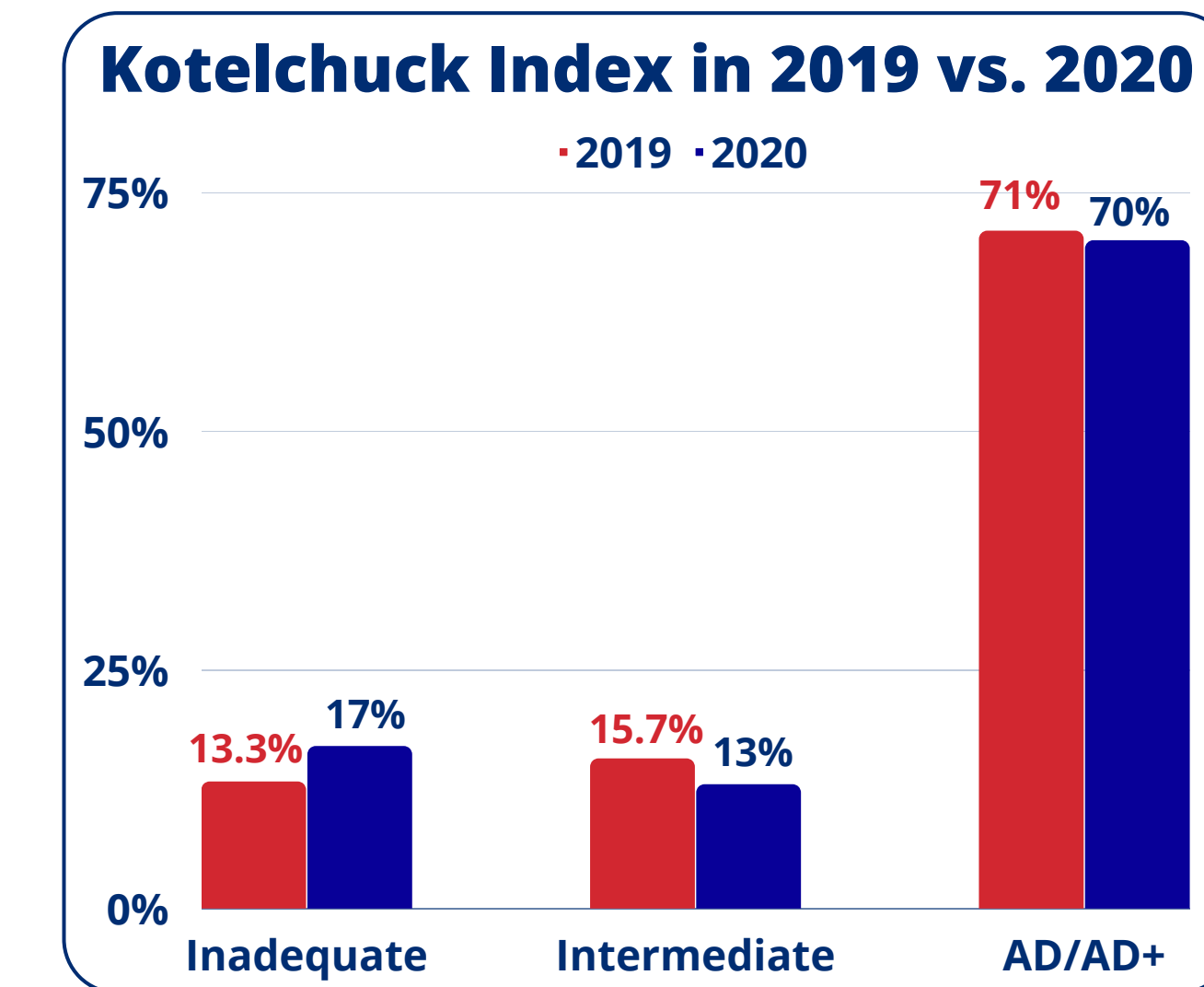
**References**  
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 2. Kotelchuck M. (1994). An evaluation of the Kessner Adequacy of Prenatal Care Index and a proposed Adequacy of Prenatal Care Utilization Index. American journal of public health, 84(9), 1414-1420. https://doi.org/10.2105/ajph.84.9.1414  
 3. Groulx, T., Bagshawe, M., Giesbrecht, G., Tomfah-Madsen, L., Hetherington, E., & Lebel, C. A. (2021). Prenatal Care Disruptions and Associations With Maternal Mental Health During the COVID-19 Pandemic. Frontiers in global women's health, 2, 648428. https://doi.org/10.3389/fgwh.2021.648428  
 4. TN PRAMS, Pregnancy Risk Assessment Monitoring System. Tennessee Department of Health, 2019-2020.  
 5. TN PRAMS, Pregnancy Risk Assessment Monitoring System. Tennessee Department of Health, 2019.

## Results

### 1. How has the COVID-19 pandemic affected PNC adequacy?

**28%** Overall increase in inadequate prenatal care from 2019 to 2020

While the change was not statistically significant (p=.33), the proportion of women receiving inadequate care increased by 28% from 13.3% to 17% between 2019 and 2020. There was also no statistically significant change in intermediate or adequate/adequate plus care. However, when comparing the Kotelchuck Index scores by demographic factors, there are key differences between 2019 and 2020.



### % Change in Inadequate Prenatal Care

The largest percent increases in inadequate PNC from 2019 to 2020 were:

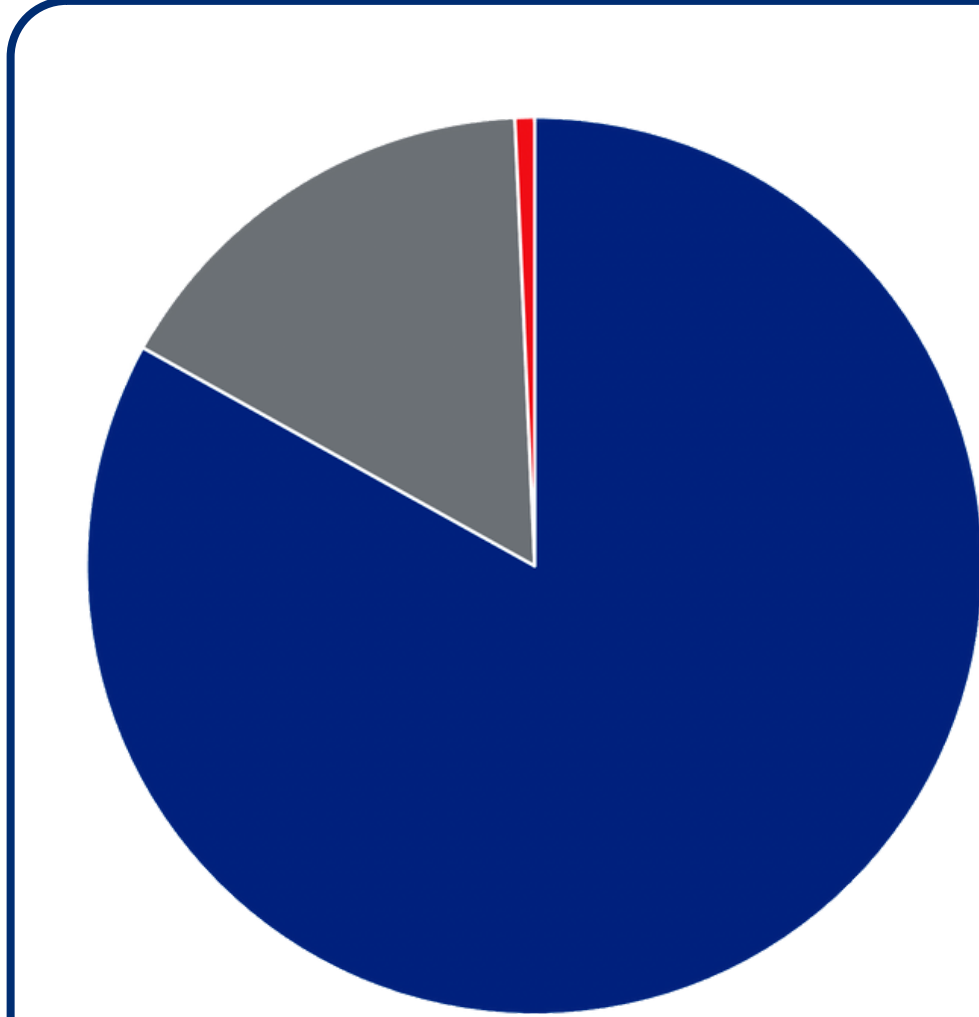
- **80%** increase in married women
- **87%** increase in White NH women
- **87%** increase in women with greater than a high school degree

**These groups traditionally have high PNC utilization.**

Color Scale:  Lowest 10th Percentile ➔  Top 90th Percentile

Demographics	% Change	Demographics	% Change
White NH	<b>87%</b>	<HS Edu	<b>-23%</b>
Black NH	<b>30%</b>	HS/GED	<b>43%</b>
Hispanic/Other	<b>-6%</b>	>HS Edu	<b>87%</b>
Age 15-19	<b>78%</b>	Married	<b>80%</b>
Age 20-24	<b>46%</b>	Unmarried	<b>9%</b>
Age 35-34	<b>10%</b>	Medicaid	<b>44%</b>
Age 35+	<b>45%</b>	Private Ins.	<b>9%</b>
Urban	<b>57%</b>	Rural	<b>40%</b>

### 2. What was the delivery of PNC in 2020, and did those barriers differ across years?



#### Delivery of Prenatal Care in 2020

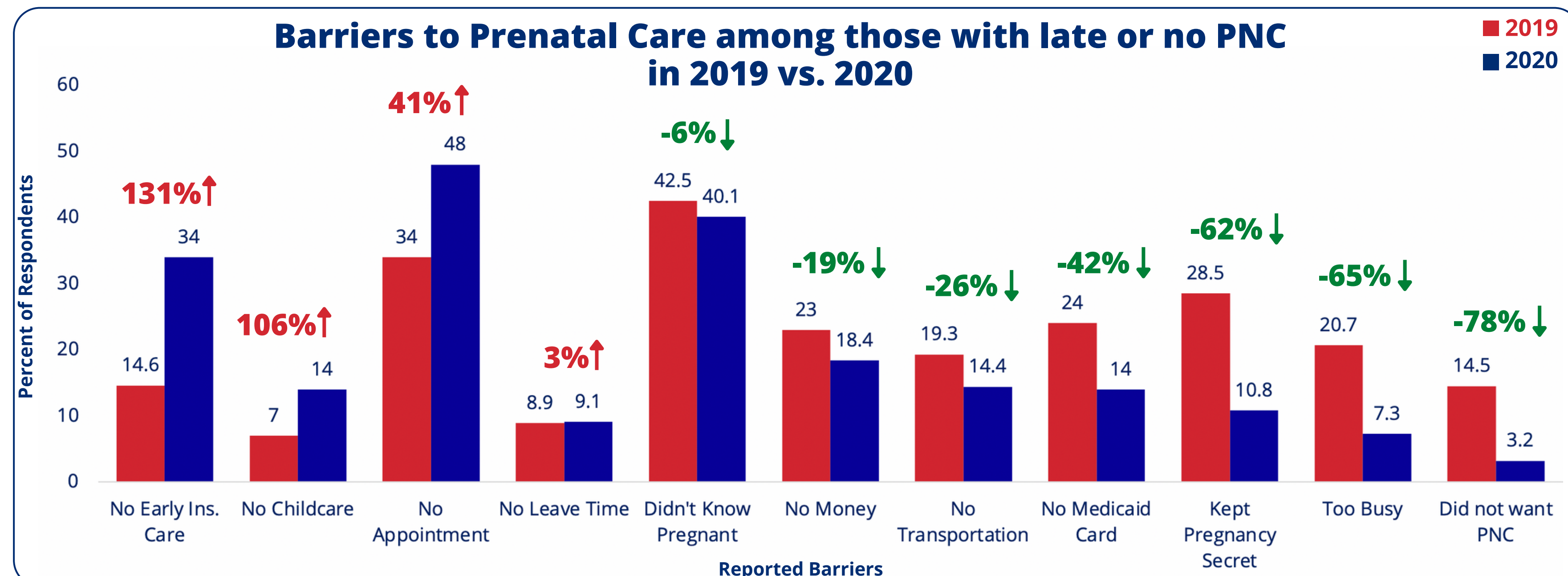
- In-Person Appointments only (82%)
- Both In-Person and Virtual (16%)
- Virtual Only (0.7%)

#### Appointment Cancellations and Delays in 2020

- 24%** Reported that their appointment was canceled or delayed during COVID-19
- 12%** Provider's office closed
- 8.4%** Needed to isolate for COVID-19 exposure or infection
- 6.4%** Could not find care for children or other family

**Top Reasons for no Virtual Appointments:**

- 86%** Preferred seeing provider in person
- 31%** Lack of available appointments from provider
- 6%** Lack of internet service/unreliable internet



## Conclusion

- Overall changes in PNC utilization were not statistically significant in 2019 vs 2020. There were potentially clinically significant changes in subpopulations (e.g. those who typically have high PNC use).
- Most women utilized (and preferred) in-person PNC appointments during COVID-19. Barriers among those who received late or no PNC did differ between 2019 and 2020.
- This analysis highlights the importance of ensuring that all groups maintain access to care amidst the COVID-19 pandemic. Further research is needed to explore the impact of changes to delivery on PNC access.