Comparison of obstetric management via telehealth prior to and during the COVID-19 pandemic: An exploration of maternal and birth outcomes in Mississippi

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INTRODUCTION

In Mississippi, there are few maternal-fetal medicine subspecialists, which results in limited access. The University of Mississippi Medical Center (UMMC) is the state's only Regional Perinatal Health Care Center (ACOG Maternal Level of Care IV).

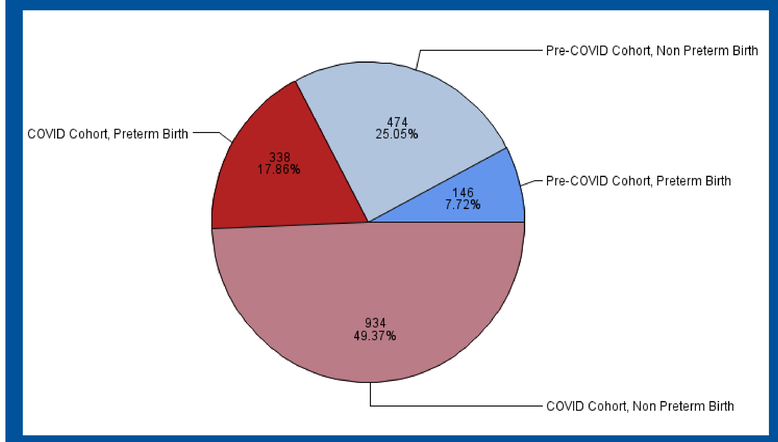
The COVID-19 pandemic created a unique need to balance the critical need to monitor physiological aspects of prenatal care with risk of exposure to the virus and the limited capacity within healthcare facilities overburdened with COVID-19 patient volumes. The COVID-19 pandemic resulted in major shifts in service delivery for patient care and related health programs not involving COVID-19 illness.

The Mississippi State Department of Health Perinatal High Risk Management/Infant Services System (PHRM/ISS) is a case management program intended to assure healthy pregnancy outcomes for women. Between April 1, 2019 and March 31, 2020 only 9.0% of all case management services for pregnant and postpartum women enrolled in PHRM/ISS were completed through telehealth. Whereas between April 1, 2020 and March 31, 2021, 23.6% of case management services for pregnant and postpartum women were completed via telehealth.

Given the upshift in use of telehealth for PHRM/ISS case management services during the COVID-19 pandemic, it is of interest to explore the use of in-person and telehealth for the supervision of pregnant women during the same time period.

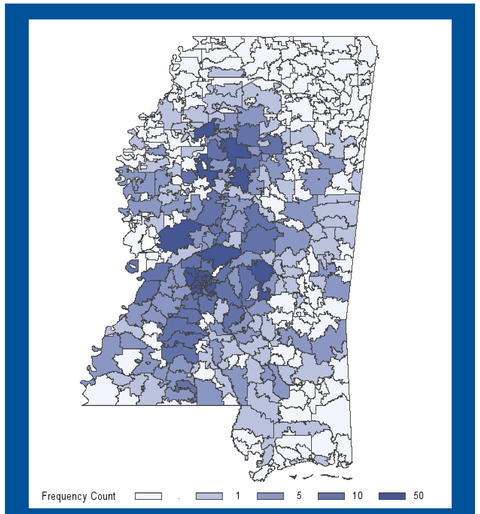
AIMS

1) Describe prenatal care practices during the height of the COVID-19 pandemic, compared to the immediate pre-pandemic time period
2) Explore maternal and birth outcomes during these time periods.



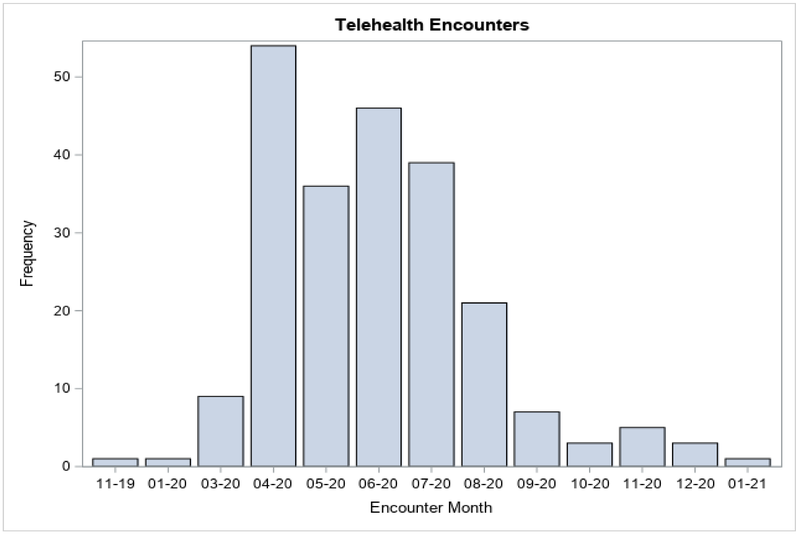
Pie Chart of included patients and term status of delivered infants.
620 births were included in the pre-pandemic cohort and 1272 were included in the pandemic cohort.

METHODS & RESULTS



Distribution of patients included across Mississippi.

	All Patients (N = 1894)	Pre-Pandemic Cohort		Pandemic Cohort		P-value
		Preterm Birth (n = 146)	Term Birth (n = 474)	Preterm Birth (n = 338)	Term Birth (n = 934)	
Mother Outcomes						
Mother hospital length of stay, Mean (SD)	3.44 (4.27)	5.25 (7.69)	2.84 (1.45)	5.30 (7.98)	2.78 (1.16)	0.864
Pre-eclampsia or eclampsia (O14, O15), no. (%)	301 (15.89)	52 (35.62)	45 (9.49)	111 (32.84)	93 (9.96)	0.827
Delivery method, no. (%)						0.532
Vaginal§	1071 (56.61)	58 (39.73)	299 (63.08)	138 (40.95)	574 (61.52)	
C-section	821 (43.39)	88 (60.27)	175 (36.92)	199 (59.05)	359 (38.48)	
Infant Outcomes						
Infant gestational age, Mean (SD), week	36.82 (3.57)	32.80 (4.39)	38.29 (1.03)	32.29 (4.66)	38.35 (1.06)	0.566
Infant gender, no. (%)						0.207
Male	966 (51.03)	73 (50.00)	230 (48.63)	176 (52.07)	486 (52.03)	
Female	927 (48.97)	73 (50.00)	243 (51.37)	162 (47.93)	448 (47.97)	
Infant hospital length of stay, Mean (SD)	7.76 (19.27)	21.53 (33.20)	3.76 (7.79)	19.87 (32.59)	3.29 (7.58)	0.293
Birth Weight						
Infant admitting birth weight, Mean (SD), g	2910 (690)	2213 (731)	3132 (474)	2146 (756)	3147 (461)	0.812
Low birth weight (less than 2500 g), no. (%)	451 (23.81)	96 (65.75)	43 (9.07)	237 (70.12)	74 (7.92)	0.330
Very Low birth weight (<1500 g), no. (%)	143 (7.55)	31 (21.23)	-	96 (28.40)	-	0.080
Infant in NICU Care, Yes, no. (%)	490 (25.87)	98 (67.12)	66 (13.92)	196 (57.99)	130 (13.92)	0.701
Infant Delivery Status, no. (%)						0.034
Alive	1804 (95.25)	600 (96.77)		1203 (94.58)		
Demise	90 (4.75)	20 (3.23)		69 (5.42)		



Odds of telehealth visit in the COVID-19 Cohort was 8.19 (95% CI 3.98, 16.86) time the odds of telehealth use in the pre-COVID-19 Cohort. Number of telehealth visits increased around 8X that of pre-pandemic cohort (p<0.001). Pandemic exposure had highly significant association with use of telehealth.

CONCLUSION

A strong majority of prenatal care visits were completed in person during both time periods. Although there were significantly more telehealth visits for prenatal care completed during the COVID-19 pandemic, these accounted for less than 1% of all visits. Although statistically significant, this result cannot be interpreted as a clinically meaningful result. Given the propensity for the women in this sample to be high-risk, the low reliance on telehealth for prenatal care is being interpreted as a positive finding. It indicates that maternal care needs, necessitating in-person examination, were prioritized over the desire to limit in-person contact.

The number of in-person prenatal care visits was not different between the pre- and post-COVID-19 pandemic. The lack of difference in the mean number of prenatal care visits between the women in the pre-pandemic and pandemic cohorts further indicates that maternal/fetal health was prioritized during the COVID-19 pandemic.

A negative finding was the incidence of neonate or infant death increased within the pandemic cohort, compared to the pre-COVID-19 cohort, rising from 3.23% to 5.42% within the sample. When accounting for infant gestational age and VLBW, being in the pandemic cohort was no longer significant. While the relationship between risk of death, VLBW, and gestational age is well understood, we cannot, eliminate the possibility of COVID-19 contributing to this finding.

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