

COVID 19 & Pregnancy Outcomes

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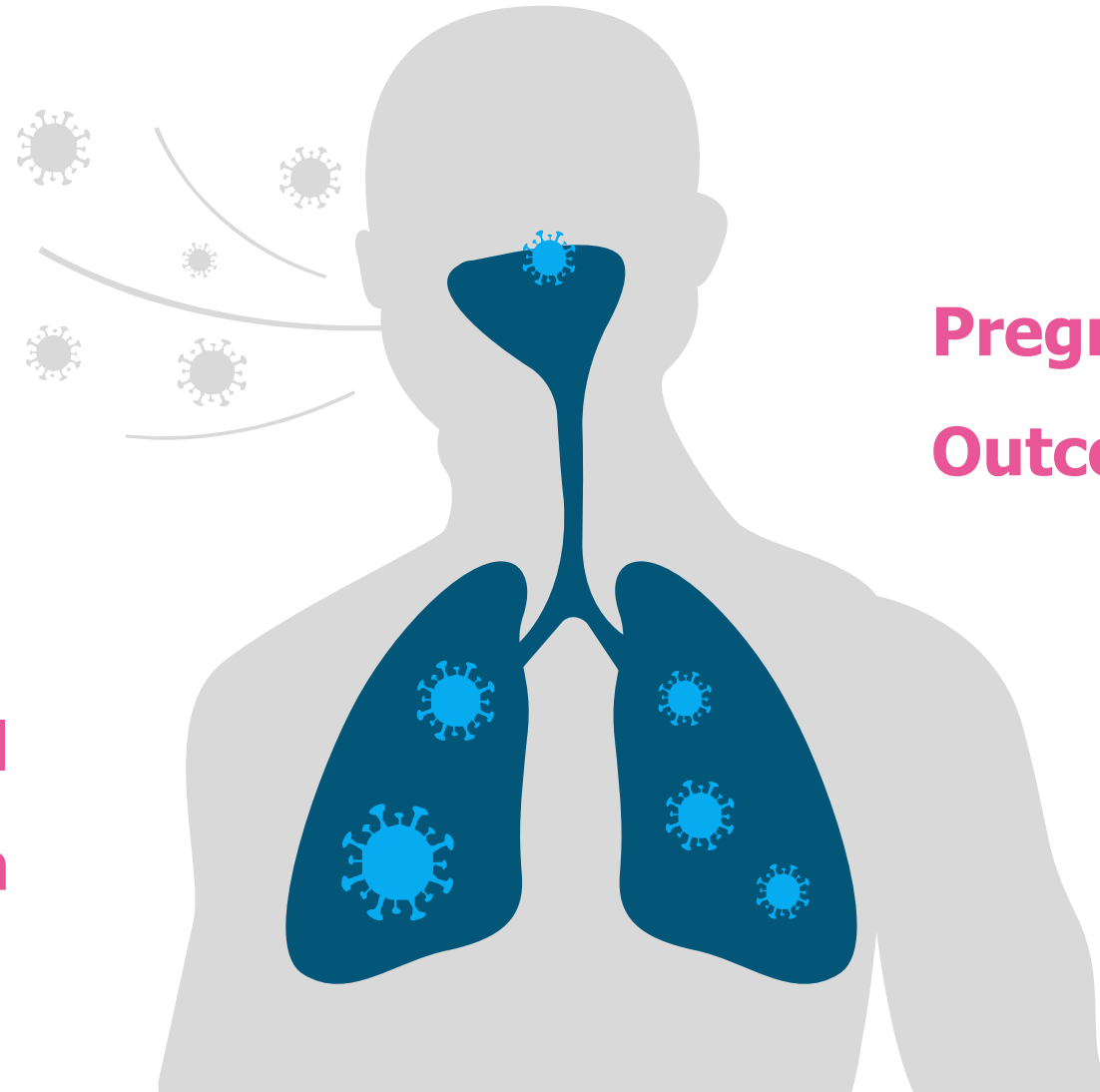
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October 17th, 2020

Limited evidence regarding COVID-19 infection in pregnancy

Disease severity



**Pregnancy
Outcomes**

**Risk of Vertical
Transmission**

COVID-19 infection in pregnancy

- **Majority of pregnant patients who tested positive are asymptomatic. ¹**
- **However, a study from the CDC found pregnant women are more likely to be hospitalized with an increased risk of ICU admission with mechanical ventilation.²**

1. Sutton D, Fuchs K, D'Alton M, Goffman D. Universal screening for SARS-CoV2 in Women Admitted for Delivery. N Engl J Med. 2020

2. Delahoy MJ, Whitaker M, O'Halloran A, et al. Characteristics and Maternal and Birth Outcomes of Hospitalized Pregnant Women with Laboratory-Confirmed COVID-19, MMWR Morb Mortal Wkly Rep. 2020

COVID-19 and pregnancy

- **Risk of vertical transmission not clearly demonstrated.** ^{3,4}
- **An increase in preterm birth and cesarean delivery have been shown in some studies but likely secondary to severe maternal illness.** ^{5,6}

3. Chen H, Guo JMS, Chen W, et al. Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records. *Lancet* 2020

4. Li Y, Zhao R, Zheng S, et al. Lack of Vertical Transmission of Severe Acute Respiratory Syndrome Coronavirus 2, China. *Emerg Infect Dis* 2020.

5 Prabhu M, Cagino K, Matthews KC, et al. Pregnancy and postpartum outcomes in a universally tested population for SARS-CoV-2 in New York City: a prospective cohort study. *BJOG* 2020

6. Ahlberg M, Neovius M, Saltvedt S, et al. Association of SARS-CoV-2 Test Status and Pregnancy Outcomes, *JAMA Netw Open* 2020.

Objective

To determine the association between COVID-19 infection & pregnancy outcomes at our institution.

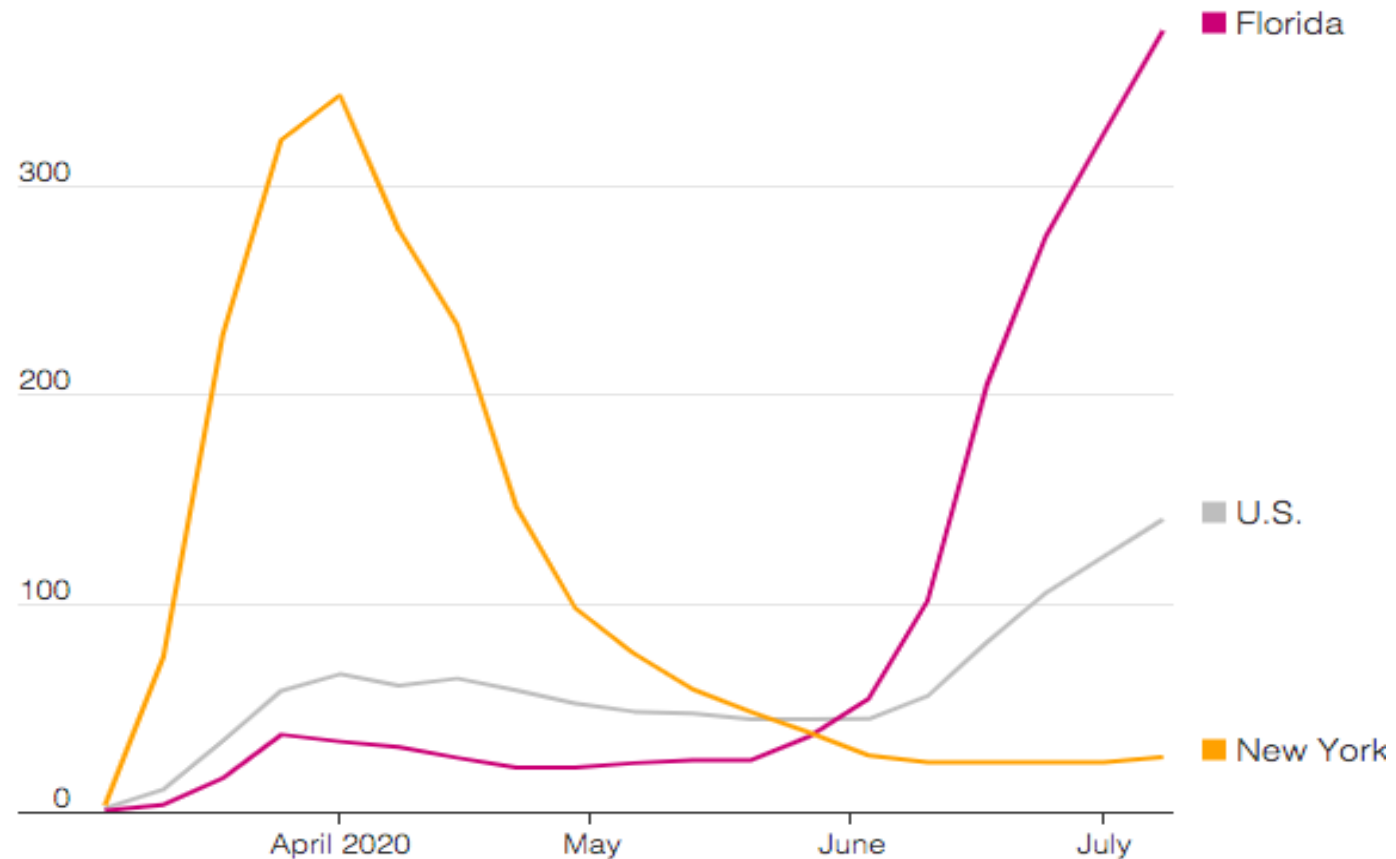


Methods

- **IRB exempt, retrospective chart review**
- **All obstetrical patients admitted for delivery**
- **March 30th- April 30th**
- **Universal SARS-CoV-2 testing**

New weekly confirmed Covid-19 cases

400 per 100,000



Sources: COVID Tracking Project (cases); Census Bureau (population)

Pregnancy Outcomes

Gestation
al age of
Delivery

1

Mode of
Delivery

2

Intrauterine
Infection/or
Inflammation

3

Preterm
Labor

4

Pre-Eclampsia

5

PPROM


6

Abruption

7

Fetal
Demise

8



Results

Baseline Demographics

Characteristics	COVID negative n=141	COVID positive n=34	p-value
Age (years)	32.0 ± 7.6	29.6 ± 7.1	.05
BMI (kg/m ²)	32.2 ± 6.5	31.7 ± 5.5	.34
Nulliparous n (%)	52 (36.9)	14 (41.1)	.64
Smoking	4 (3)	0	.99
COVID positive partner	10 (7.1)	17 (50)	<.001

Baseline Demographics – continued

Characteristics	COVID negative n=141	COVID positive n=34	P-value
Medication use			
None	113 (80.1)	30 (88.2)	
Steroids	0	0	
Aspirin	1 (0.7)	1 (2.9)	.21
Heparin/Lovenox	2 (1.4)	0	
Other	25 (17.7)	3 (8.8)	
Medical comorbidities*			
None	116 (82.3)	32 (94.1)	
Pregestational DM	2 (1.4)	1 (2.9)	.32
Chronic hypertension	5 (3.5)	0	
Respiratory disease	6 (4.3)	2 (5.9)	
Autoimmune disease	7 (4.9)	0	
Other	7 (4.9)	0	

Baseline Demographics - Race & Ethnicity

Race/Ethnicity	COVID neg N=141	COVID Pos N = 34	P value
White	48 (34)	4 (11.8)	0.001
Hispanic	40 (28.4)	22 (64.7)	
Black	20 (14.2)	3 (8.9)	
Asian	2 (1.4)	0	
Other	31 (21.9)	5 (15)	

Delivery Outcomes

Outcomes	COVID neg N=141	COVID Pos N = 34	P value
Gestational Age at Delivery	38.7 ± 2.5	38.4 ± 1.5	0.24
Vaginal Delivery	87 (61.7)	21 (61.8)	0.99
Preterm Labor	4 (2.8)	0	1.0
PPROM	7 (4.9)	1 (2.9)	0.61
Placenta Abruption	0	0	1.0
Fetal Demise	2 (1.4)	0	1.0
Pre-Eclampsia	9 (6.4)	3 (8.8)	0.62
Intrauterine Infection/Inflammation	2 (1.4)	3 (8.8)	0.01
Placental Pathology	5 (3.5)	4 (11.8)	0.07

Characteristics of COVID-19 positive cases

Characteristics	COVID positive N=34
Symptomatic	8 (23.5)
Disease Severity	
• Mild	33 (97.1)
• Moderate	1 (2.9)
• Severe	0
Neonate COVID +	0
Neonatal Weight (grams)	3230 \pm 501
NICU admission	0

Intrauterine Infection/ Inflammation



Maternal Fever

Major Criteria



Maternal Tachycardia



**Foul Smelling
Amniotic Fluid**



**Maternal
Leukocytosis**



Fetal Tachycardia



Uterine Tenderness

Risk Factors

**Prolonged
Rupture**

1

GBS Colonization

3

**Multiple Vaginal
Exams**

2

**Meconium
Stained Amniotic
Fluid**

4

Characteristics of COVID + patients with III

Patient	Symptoms on admission	GBS status	Length of ROM (hours)	Meconium stained fluid	Mode of Delivery	Clinical Criteria	Confirmed on Placental Pathology	Neonatal sepsis
1	Yes, cough	Pos	10	NO	NSVD	Fever	Yes	No
2	No	Neg	15	NO	NSVD	Fever	Yes	No
3	Yes, fever	Neg	11	NO	NSVD	Fever	Yes	No

COVID-19 & Intrauterine Infection Inflammation



**Ascending
Infection**



**Hematogenous
Route**

Strengths

Universal Testing

Location

Diverse Demographic

Limitations

Placental Pathology

Sample Size



Conclusions

COVID-19 and Pregnancy

- **Majority of COVID positive patients infected in the third trimester demonstrate mild disease**
- **Increased Risk of Intrauterine Infection/Inflammation**
- **Vertical transmission not demonstrated and neonatal outcomes not affected**

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THANK YOU

QUESTIONS?

6 feet



KEEP YOUR DISTANCE

