Mississippi Perinatal Quality Collaborative
COVID-19 Maternal & Neonatal Update
3/17/2020 12pm

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• Please be advised that COVID-19 is a rapidly evolving situation and this guidance may become out-of-date as new information on COVID-19 in pregnant women becomes available from the Centers for Disease Control and Prevention (CDC).


• Corrections Encouraged!
Agenda

Covid-19 Obstetric Update

Covid-19 Neonatal Update

Important Resources
Resources/References

• Centers for Disease Control:


• ACOG Practice Advisory: Novel coronavirus, 3/13/20

• Society of Maternal Fetal Medicine

  COVID-19 | SMFM.org - The Society for Maternal-Fetal Medicine www.smfm.org > covid19

• Mississippi State Department of Health COVID
Brief Background

- Novel Coronavirus  SARS-CoV-2/ COVID-19 first noted in December 2019
- Between Dec. 31- Jan 3, 2020 44 cases reported to WHO

- Spread by droplets> surfaces (up to 24h)
- Incubation period: ~5 days (2-14 days)

Regional Cases as of 3/17 8am

Mississippi, US
Confirmed: 13
Deaths: 0
Recovered: 0
Active: 13

Louisiana, US
Confirmed: 136
Deaths: 3
Recovered: 0
Active: 133

Arkansas, US
Confirmed: 22
Deaths: 0
Recovered: 0
Active: 22

Tennessee, US
Confirmed: 52
Deaths: 0
Recovered: 0
Active: 52

Alabama, US
Confirmed: 29
Deaths: 0
Recovered: 0
Active: 29

Mississippi COVID-19 Case Map
Location for all cases where details are known.

www.msdh.gov accessed 3/17 8am
Review of Clinical Findings for COVID-19

- Common Illness onset- fever, cough, myalgia, fatigue shortness of breath,
- Less common: Sore throat, headache, cough with sputum, congestion, rhinorrhea, hemoptysis
- Diarrhea, nausea prior to fever & lower respiratory symptoms

- Clinical deterioration of concern; but predominantly mild-moderate illness (allows for broader spread)

- Hospitalized patients: Avg age 49-56 yrs, 32-51% underlying illness, 54-73% men
- Lab abnormalities: Lymphopenia, leukopenia and thrombocytopenia
- Imaging: Ground glass opacities, CXR, CT

Complications:
- Pneumonia- most common
- ARDS 20-30% of hospitalized patients with pneumonia, median of 8 days from symptom onset to severe disease

What We Know So Far About COVID & Pregnancy

- Two case series (Che et al./ Lancet 2020; Zhu et al, Transl Pediatr 2020)
- 18 pregnancies; 19 infants (1 set of twins)
- Presentation similar to non-pregnant patients: fever, cough, shortness of breath

- Median age 30 years
- 2nd –3rd Trimester

- Almost all delivered by cesarean section for various reasons

- Amniotic fluid, cord blood, placenta, breastmilk- none with viral RNA

- No deaths, 2 ICU admissions- one delivered healthy infant, one stillborn

- No data on early pregnancy


Is Pregnancy a Risk Factor for COVID Infection or Disease Severity?

• Little is known about Covid-19 in pregnancy
  • Information from limited case reports

• Pregnant women with higher risk of morbidity and death from other respiratory illnesses like flu & SARS.

• Physiologic susceptibility due to respiratory/immunologic changes in pregnancy
  • Increased O2 consumption
  • Reduced lung capacity
  • Shift away from cell-mediated immunity

• Pregnant Women Should Be Considered an AT-RISK Population
Is there evidence of vertical transmission of COVID-19?

- Chen et al. found no evidence of COVID-19 in the amniotic fluid or cord blood of 6 infants of infected women.
- The lack of vertical transmission is consistent with what is seen with other common respiratory viral illnesses in pregnancy, such as influenza.
- Perinatal infection shortly after delivery is possible (infants not immune to maternal infection).

S. Dotters-Katz, ; B. Hughes, Coronavirus (COVID-19) and Pregnancy: What Maternal-Fetal Medicine Subspecialists Need to Know, The Society for Maternal-Fetal Medicine (SMFM); 3/13/2020
Does COVID-19 cause miscarriage or congenital anomalies?

• There are mixed data regarding the risk of congenital malformations in the setting of maternal fever in general.
• Currently, there are inadequate data on COVID-19 and the risk of miscarriage or congenital anomalies.
• Data from the SARS epidemic are reassuring, suggesting no increased risk of fetal loss or congenital anomalies associated with infection early in pregnancy.

Is there an Increased Risk of Preterm Birth with COVID?

- Preterm delivery has been reported among infants born to women positive for COVID-19 during pregnancy.
- Some cases were iatrogenic and not due to spontaneous preterm labor. It is not clear that these outcomes were related to maternal infection.
- Risk may be related to disease severity as seen with other coronavirus infections (SARS, MERS)

Do women with COVID-19 need additional antenatal surveillance?

- During acute illness, fetal management should be similar to that provided to any critically ill pregnant woman.
- Continuous fetal monitoring in the setting of severe illness should be considered only when delivery would not compromise maternal health or as another noninvasive measure of maternal status.
- Detailed midtrimester anatomy ultrasound examination may be considered following first-trimester maternal infection.
- It is reasonable to consider sonographic assessment of fetal growth in the third trimester.

Testing

- Patients should be advised to call before coming to the clinic or hospital if presenting with symptoms.
- She should alert staff that she has arrived and met prior to entry with a mask while staff don appropriate personal protective equipment.
- Patients/visitors screened at early point of entry (front door/check in).
- Escorted directly to an isolation room to await evaluation.

- Clinicians use judgement on who should be tested.
- Signs and symptoms compatible with COVID-19.
- Local epidemiology/clinical course of illness.
- Strongly encouraged to test for flu in any PUI.
- History of travel within 14 days.
- History of sick contact.
- High risk symptoms.
MSDH Guidance on Testing

Coronavirus COVID-19 Guidance and Information for Healthcare Professionals

Updates


March 11, 2020: New Guidance: Prior approval from MSDH for submission of samples to the Mississippi Public Health Laboratory is no longer required.

March 10, 2020: New CDC Infection Control Guidance: This updated guidance from the CDC provides updated PPE recommendations for the care of patients with known or suspected COVID-19. (Detailed information available on the CDC site.)
CT Scans for Testing

- Currently, in some cases where PCR availability is limited, computerized tomography (CT) imaging may be useful as an adjunct to diagnosis, as there are potentially pathognomonic findings for COVID-19, including ground-glass opacities.

- If CT imaging is considered to evaluate a pregnant patient with suspected or confirmed COVID-19 infection, the usual guidance regarding the risks and benefits of diagnostic radiation in pregnancy is warranted.

- In general, the risk of a chest CT scan with abdominal shielding results in radiation exposure to the fetus below that associated with teratogenic risk in pregnancy. However, as PCR becomes more readily available, it remains the preferred testing method.

Triage of pregnant women with confirmed or suspected Covid-19

- Mild illness may not initially require hospitalization
- Progression may occur in 2nd week of illness
- All patients monitored carefully

**Decision to Admit to Hospital**
- Case by case basis to decide for inpatient and outpatient
- Clinical presentation
- Ability to monitor at home
- Risk of transmission in home environment
- Ability to maintain home isolation

Outpatient Assessment and Management for Pregnant Women With Suspected or Confirmed Novel Coronavirus (COVID-19)

Assess Patient's Symptoms
Symptoms typically include fever ≥38°C (100.4°F) or one or more of the following:
- Cough
- Difficulty breathing or shortness of breath
- Gastrointestinal symptoms

No

Routine Prenatal Care

Yes

Conduct Illness Severity Assessment

- Does she have difficulty breathing or shortness of breath?
- Does she have difficulty completing a sentence without gasping for air or needing to stop to catch breath frequently when walking across the room?
- Does patient cough more than 1 teaspoon of blood?
- Does she have new pain or pressure in the chest other than pain with coughing?
- Is she unable to keep liquids down?
- Does she show signs of dehydration such as dizziness when standing?
- Is she less responsive than normal or does she become confused when talking to her?

Any Positive Answers

Elevated Risk
Recommend she immediately seek care in an emergency department or equivalent unit that treats pregnant women. When possible, send patient to a setting where she can be isolated.
Notifying the facility that you are referring a PUI is recommended to minimize the chance of spreading infection to other patients and/or healthcare workers at the facility
Adhere to local infection control practices including personal protective equipment

No Positive Answers
Assess Clinical and Social Risks

- Comorbidities (Hypertension, diabetes, asthma, HIV, chronic heart disease, chronic liver disease, chronic lung disease, chronic kidney disease, blood dyscrasia, and people on immunosuppressive medications)
- Obstetric issues (e.g., preterm labor)
- Inability to care for self or arrange follow-up if necessary

Moderate Risk

See patient as soon as possible in an ambulatory setting with resources to determine severity of illness. When possible, send patient to a setting where she can be isolated. Clinical assessment for respiratory compromise includes physical examination and tests such as pulse oximetry, chest X-ray, or ABG as clinically indicated. Pregnant women (with abdominal shielding) should not be excluded from chest CT if clinically recommended.

Any Positive Answers

Low Risk

- Refer patient for symptomatic care at home including hydration and rest
- Monitor for development of any symptoms above and re-start algorithm if new symptoms present
- Routine obstetric precautions

No Positive Answers

If no respiratory compromise or complications and able to follow-up with care

Admit patient for further evaluation and treatment. Review hospital or health system guidance on isolation, negative pressure and other infection control measures to minimize patient and provider exposure.

If yes to respiratory compromise or complications

Abbreviations: ABG, arterial blood gases; CDC, Centers for Disease Control and Prevention; HIV, human immunodeficiency virus.

Healthcare providers should immediately notify their local or state health department in the event of a PUI for COVID-19 and should contact and consult with their local and/or state health department for recommendations on testing PUls for COVID-19.

Outpatient Assessment and Management for Pregnant Women With Suspected or Confirmed Novel Coronavirus (COVID-19)
Treatment

- Prompt implementation of infection control measures
- Supportive management of complications- respiratory failure/ARDS
- Early utilization of supplemental oxygen
- Corticosteroids/High dose steroids should be avoided due to potential for prolonging viral replication as seen with MERS. Consult ID/MFM if being considered for fetal lung maturity

- No dedicated therapy. NIH trial underway for Remdesivir
- Pregnancy/Breastfeeding are excluded in the NIH clinical trial
- Compassion care treatment of investigational drug available Gilead co
Intrapartum Considerations

• In two Chinese case series, including a total of 18 pregnant women infected with COVID-19 and 19 babies (one set of twins), there were 8 reported cases of fetal compromise.

• Given this relatively high rate of fetal compromise, continuous electronic fetal monitoring in labor is currently recommended for all women with COVID-19 by the RCOG (UK)

Royal College of Obstetricians & Gynaecologists: Coronavirus (COVID-19) Infection in Pregnancy; Information for healthcare professionals, Version 2. Published Friday, 3/13/20
When Should a Mother with COVID Deliver?

- Timing of delivery, in most cases, should not be dictated by maternal COVID-19 infection.
- For women infected early in pregnancy who recover, no alteration to the usual timing of delivery is necessary.
- For women infected in the third trimester who recover, it is reasonable to attempt to postpone delivery (if no other medical indications arise) either until a negative testing result is obtained or quarantine status is lifted in an attempt to avoid transmission to the neonate.
- In general, COVID-19 infection itself is not an indication for delivery.

S. Dotters-Katz, ; B. Hughes, Coronavirus (COVID-19) and Pregnancy: What Maternal-Fetal Medicine Subspecialists Need to Know, The Society for Maternal-Fetal Medicine (SMFM); 3/13/2020
Delivery Route

- The reported series have included primarily cesarean deliveries, but the mode of delivery should be dictated by usual obstetric practice.
- Among youngest individuals to have documented infection with COVID-19 was a 36-hour-old neonate born by cesarean delivery, suggesting neonatal rather than vertical transmission
- Recent report in London of neonate testing positive on day of life 0

S. Dotters-Katz, B. Hughes, Coronavirus (COVID-19) and Pregnancy: What Maternal-Fetal Medicine Subspecialists Need to Know, The Society for Maternal-Fetal Medicine (SMFM); 3/13/2020
Reducing Risk of Transmission from Mother to Infant

- The risks and benefits of temporary separation of the mother from her baby should be discussed with the mother by the healthcare team.
- Separate isolation of infant during investigation, Infant also PUI
- Limiting visitors to infant
- Appropriate PPE- gown, glove, facemask, eye protection during infant care
- Decision to discontinue separation done as team – lab testing, disease severity, resolution of fever off medication, 2 pairs negative swabs 24 hours apart

- If mother chooses to co-locate: reduce exposure
- Engineering controls: Newborn 6 feet away from mother, sheet to separate
- Mother should put on facemask, hand hygiene
- Breastfeeding with facemask, washed hands before and after
- All parts washed, disinfected after use

What Do We Know About COVID-19 in Infants?

- Limited information
- Case series 10 infants:
  - Of the newborns born to these mothers, 8 were male and 2 were female;
  - 4 were full-term infants and 6 were born premature;
  - 2 were small-for-gestational-age (SGA) infants and 1 was a large-for-gestational-age (LGA) infant; there were 8 singletons and 2 twins.
  - Of the neonates, 6 had a Pediatric Critical Illness Score (PCIS) score of less than 90. Clinically, the first symptom in the neonates was shortness of breath (n=6), but other initial symptoms such as fever (n=2), thrombocytopenia accompanied by abnormal liver function (n=2), rapid heart rate (n=1), vomiting (n=1), and pneumothorax (n=1) were observed.
  - Up to now, 5 neonates have been cured and discharged, 1 has died, and 4 neonates remain in hospital in a stable condition.
  - Pharyngeal swab specimens were collected from 9 of the 10 neonates 1 to 9 days after birth for nucleic acid amplification tests for 2019-nCoV, all of which showed negative results.

Can Women with COVID Breastfeed?

- Chen et al. found no evidence of COVID-19 in the breast milk of 9 infected women (8).
- Breastfeeding is encouraged and is a potentially important source of antibody protection for the infant.
- The CDC recommends that during temporary separation, women who intend to breastfeed should be encouraged to express their breast milk to establish and maintain milk supply.
- If possible, a dedicated breast pump should be provided. Before expressing breast milk, women should practice appropriate hand hygiene.
- After pumping, all parts of the pump that come into contact with breast milk should be thoroughly washed, and the entire pump should be appropriately disinfected per the manufacturer’s instructions.
- Expressed breast milk should be fed to the newborn by a healthy caregiver.
- For women and infants who are not separated, the CDC recommends that if a woman and newborn do room-in and the woman wishes to feed at the breast, she should put on a facemask and practice hand hygiene before each feeding.

Hospital Discharge

• Discharge for postpartum women should follow recommendations described in the Interim Considerations for Disposition of Hospitalized Patients with COVID-19.

• For infants with pending testing results or who test negative for the virus that causes COVID-19 upon hospital discharge, caretakers should take steps to reduce the risk of transmission to the infant, including following the Interim Guidance for Preventing Spread of Coronavirus Disease 2019 (COVID-19) in Homes and Residential Communities.
Fundamental Messaging

• Frequent hand washing- 20 seconds at a minimum
• Social distancing: crowds <10 people, 6 feet distance, avoid unnecessary outings
• Ok to go outside, fresh-air, walks
• Wiping common surfaces, door-knobs, high-touch
CDC Resources

- Evaluating and Reporting Persons Under Investigation (PUI) for COVID-19
- Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed COVID-19 in Healthcare Settings
- Clinical Guidance for Management of Patients with Confirmed COVID-19
- Implementing Home Care of People Not Requiring Hospitalization for COVID-19
- Disposition of Non-Hospitalized (In-Home) Isolation for Patients with COVID-19
- Information on COVID-19 and Children and Pregnant Women
- Considerations for Infection Prevention and Control of COVID-19 in Inpatient Obstetric Healthcare Settings
- Breastfeeding for a Mother Confirmed or Under Investigation For COVID-19
Coronavirus (COVID-19)

SMFM is closely monitoring the outbreak of a respiratory illness caused by a novel coronavirus (COVID-19) that was first detected in Wuhan City, Hubei Province, China, and continues to expand to almost 90 locations internationally, including the United States.

More cases of COVID-19 are likely to be identified in the coming days and it is likely that sustained person-to-person spread will continue to occur throughout communities in the United States. It’s likely that at some point, widespread transmission of COVID-19 in the United States will occur.

SMFM Resources

- **NEW March 16, 2020:** SMFM joins ACOG, ASRM and others national organizations to provide recommendations for obstetrician-gynecologists regarding the American College of Surgeons’ [statement on elective surgery](https://www.facs.org/surgeons-in-covid) and the U.S. Surgeon General’s recommendation that hospitals suspend elective surgeries during the COVID-19 pandemic.

- **NEW March 16, 2020:** SMFM established on [online community dedicated to COVID-19](https://www.smfm.org/coid-dedicated-community). Engage with other MFMs, share clinical cases and resources from your institution, and see what others are doing (members only).

- **NEW March 16, 2020:** SMFM is offering components of our online Critical Care Course at no cost. Clinicians can ramp up capacity for COVID-19 with our new bundle (non-CME) that covers: [Pulmonary Hypertension](https://www.smfm.org/Pulmonary-Hypertension), [Pulmonary Embolism](https://www.smfm.org/Pulmonary-Embolism), [Hemodynamic Monitoring and Mechanical Ventilation](https://www.smfm.org/Hemodynamic-Monitoring-Mechanical-Ventilation), [Sepsis](https://www.smfm.org/Sepsis), and [ARDS/Respiratory Failure](https://www.smfm.org/ARDS-Respiratory-Failure).

- **March 14, 2020:** SMFM calls on payers to work with OB care providers to enable social spacing and minimize the risk of exposure to COVID19 for high-risk women.

- **March 13, 2020:** SMFM Coding Tip: Interim ICD-10-CM Coding Guidance: Recommended Coding for COVID-19 and Pregnancy

- **March 13, 2020:** ACOG and SMFM Algorithm: Outpatient Assessment and Management for Pregnant Women With Suspected or Confirmed Novel Coronavirus (COVID-19)
Weekly Update

• MSPQC will provide a weekly update call on Tuesdays at 12pm
• Submit questions in advance: info@mspqc.org
• Share your experiences
Thank You

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