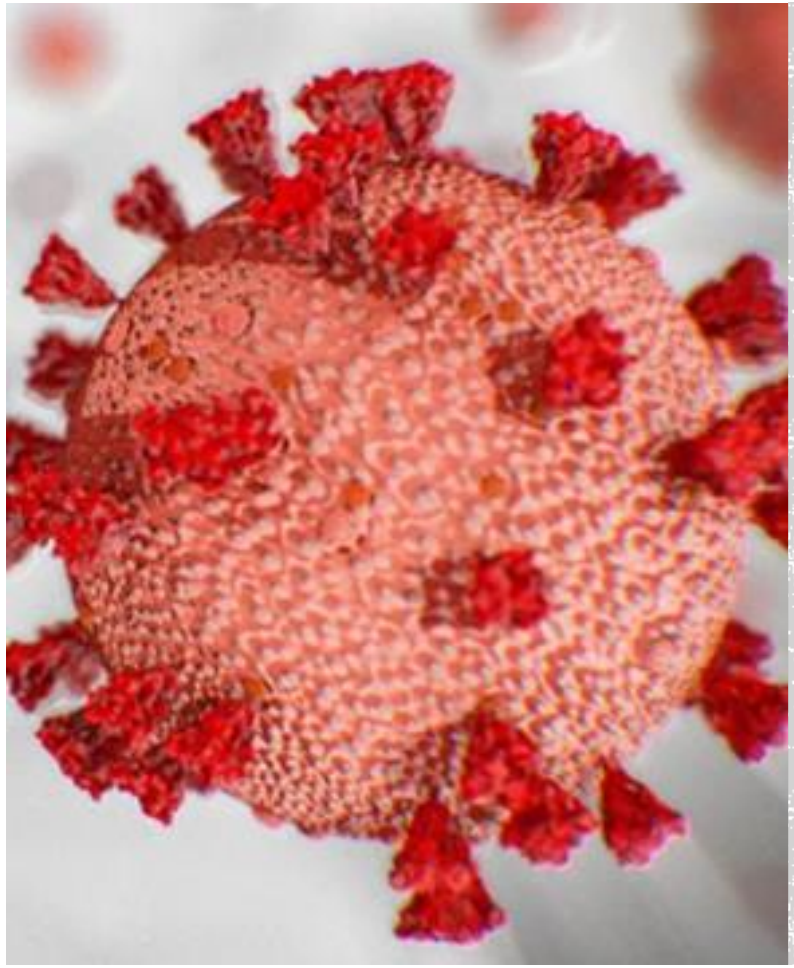


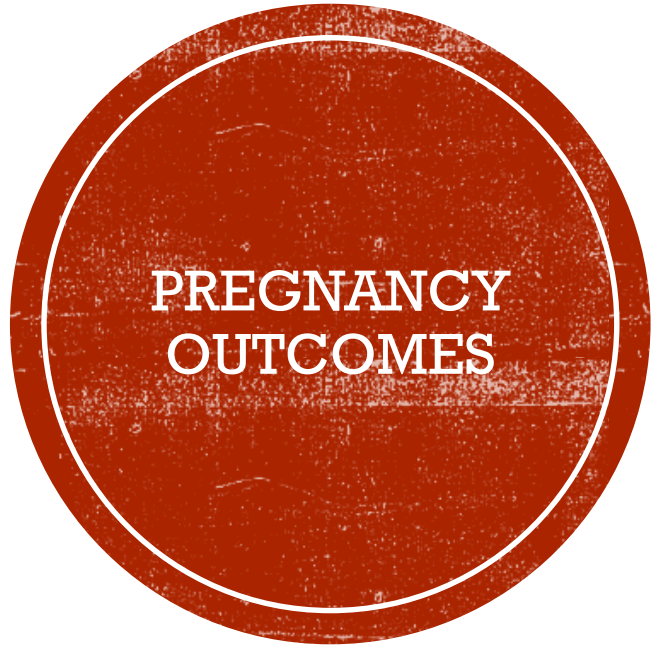
COVID-19: PREGNANCY SPECIFIC MANAGEMENT AND MATERNAL HEALTH OUTCOMES

Anwar Nassar, MD

Professor of Obstetrics and Gynecology

Chairman – FIGO Safe Motherhood and Newborn Health Committee

COVID-19 MATERNAL HEALTH OUTCOMES



Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records

- 9 pregnant women with COVID-19 pneumonia
- All patients had a cesarean section in their third trimester and fetal distress was monitored in two cases
- None of the patients developed severe COVID-19 pneumonia
- 9 livebirths were recorded. No neonatal asphyxia was observed
- The first evidence that clinical features of COVID-19 in full-term pregnant women were similar to those of non-pregnant adult patients with COVID-19 and outcomes were good following intensive active management of the disease

Chen H, *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 Feb 12

CORONAVIRUS SPECTRUM INFECTIONS AND PREGNANCY OUTCOMES: META ANALYSIS

Table 4. Pooled proportions of the different pregnancy outcomes in the overall population of pregnancies infected with Coronavirus infection.

Outcome	Studies (n)	Pregnancies (n/N)	I^2 (%)	Pooled proportions (95% CI)
PTB <37 weeks	16	14/56	25.5	24.30 (12.5-38.6)
PTB <34 weeks	16	11/56	1.9	21.79 (12.5-32.9)
PE	6	2/19	0	16.21 (4.2-34.1)
PPROM	8	6/34	0	20.72 (9.5-34.9)
FGR	10	2/29	0	11.66 (3.2-24.4)
Miscarriage	2	8/21	0	39.08 (20.2-59.8)
Cesarean delivery	17	50/58	4	83.91 (73.8-91.9)

For combination of SARS, MERS, and COVID-19

Di Mascio D, *et al.* Outcome of Coronavirus spectrum infections (SARS, MERS, COVID 1 -19) during pregnancy: a systematic review and meta-analysis. Am J Obstet Gynecol MFM. 2020 Mar 25:100107

CORONAVIRUS SPECTRUM INFECTIONS AND PREGNANCY OUTCOMES: META ANALYSIS

	Sars-CoV-2			
Outcome	**Studies**	**Pregnancies (n/N)**	**Pooled % (95% CI)**	**I^2 (%)**
PTB <37 weeks	6	14/32	41.11 (25.6-57.6)	0
PTB <34 weeks	6	4/32	15.03 (3.9-31.7)	22.6
Pre-eclampsia	3	1/12	13.55 (1.2-36.0)	0
PPROM	5	5/31	18.78 (0.8-33.5)	0
FGR	3	0/12	0 (0-21.4)	0
Miscarriage	-	-	-	-
Cesarean delivery	6	38/41	91.04 (81.0-97.6)	0

Di Mascio D, *et al.* Outcome of Coronavirus spectrum infections (SARS, MERS, COVID 1 -19) during pregnancy: a systematic review and meta-analysis. Am J Obstet Gynecol MFM. 2020 Mar 25:100107

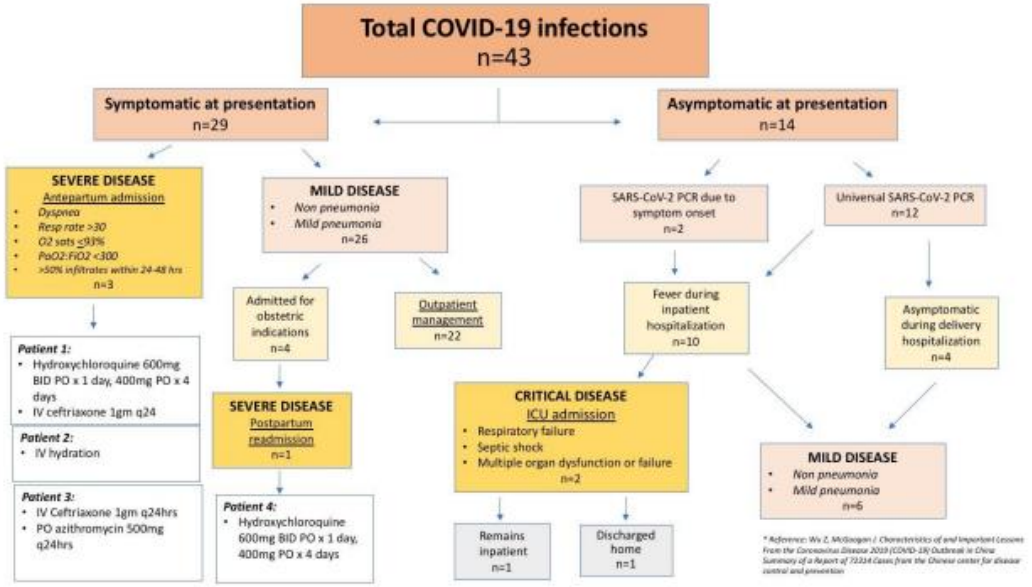
MATERNAL AND PERINATAL OUTCOMES WITH COVID-19: A SYSTEMATIC REVIEW OF 108 PREGNANCIES

- 18 articles reporting data from 108 pregnancies between Dec 8, 2019 and Apr 1, 2020 were included
- 3 maternal ICU admissions but no maternal deaths
- 91% were delivered by CS
- 1 neonatal death and 1 IUFD
- Conclusions: Although the majority of mothers were discharged without any major complications, severe maternal morbidity as a result of COVID-19 and perinatal deaths were reported

Zaigham M and Andersson O. Maternal and Perinatal Outcomes with COVID-19: a systematic review of 108 pregnancies. Acta Obstet Gynecol Scand 2020 Apr 7

COVID-19 AND PREGNANCY

- Case series of 43 COVID pos. pregnant patients
  - 85% mild disease
  - 10% moderate disease
  - 5% severe disease
- **30%** of patients who were COVID pos. were **asymptomatic** initially



Breslin N, *et al.* COVID-19 infection among asymptomatic and symptomatic pregnant women: Two weeks of confirmed presentations to an affiliated pair of New York City hospitals. Am J Obstet Gynecol MFM. 2020 Apr 9: 100118.

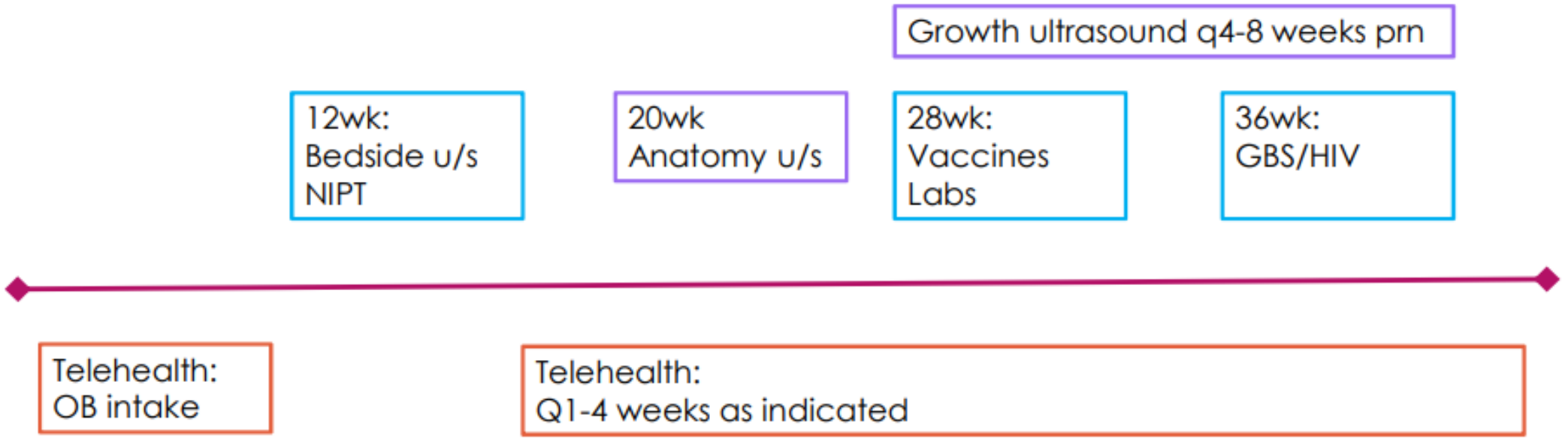
COVID-19 AND PREGNANCY

- 18 patients delivered
  - ~45% delivered by CS for obstetric indications
  - 10 women (55%) had uncomplicated VD
  - 0 cases of neonatal transmission
    - Tested negative for COVID by viral PCR testing
    - No antibody testing performed

Breslin N, *et al.* COVID-19 infection among asymptomatic and symptomatic pregnant women: Two weeks of confirmed presentations to an affiliated pair of New York City hospitals. Am J Obstet Gynecol MFM. 2020 Apr 9: 100118.

OUTPATIENT CARE

CHANGES TO ROUTINE PRENATAL CARE

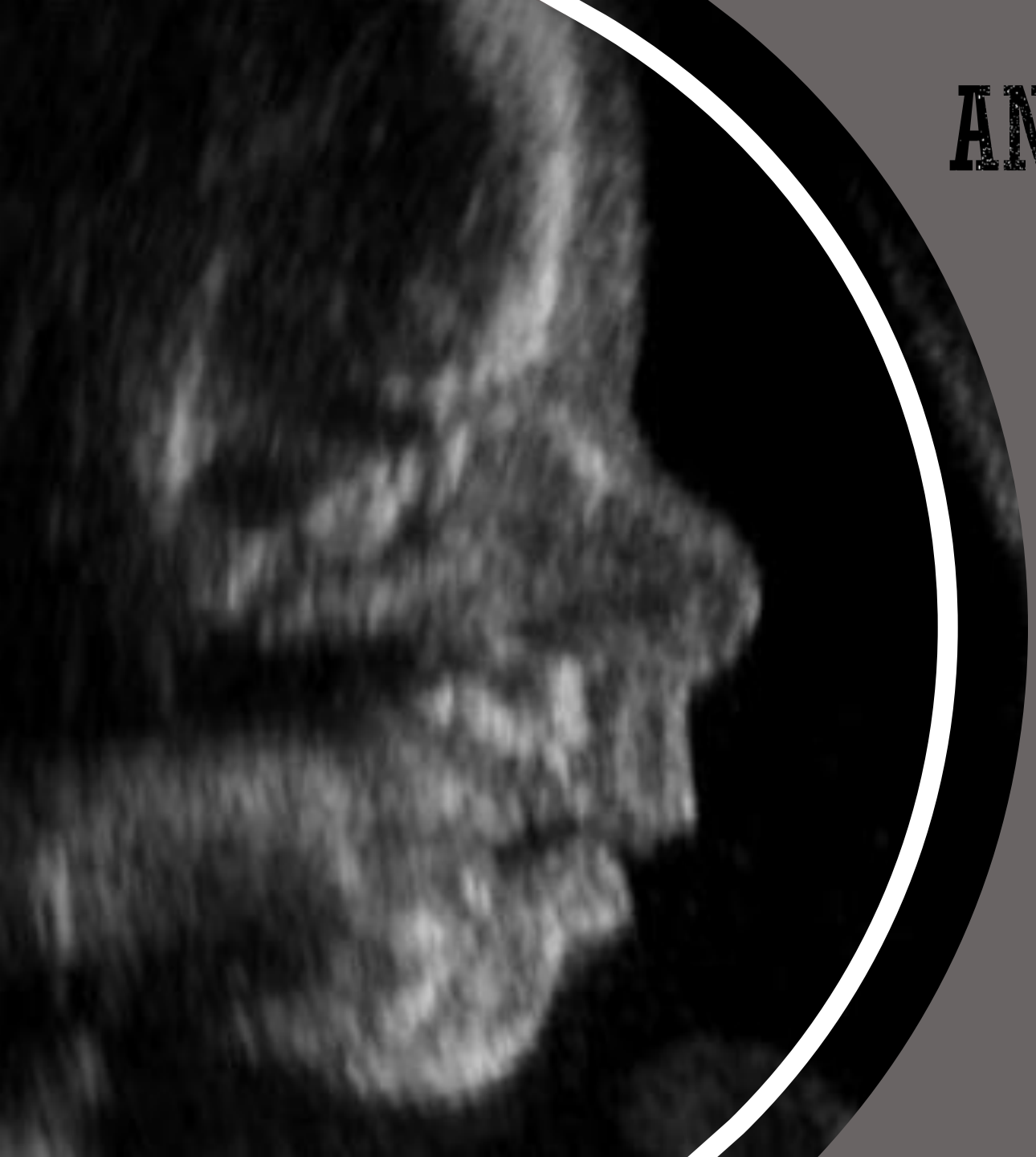


SPACING OUT APPOINTMENTS

- Focus on Telehealth visit and use of home blood pressure monitoring to limit need for in person visits
- Formal ultrasounds reduced to limit patient/HCW exposures

PHONE TRIAGING

- Triaging for respiratory symptoms and exposure
- If any answer is positive, postpone the appointment, offer home quarantine and performing testing for COVID-10



ANTENATAL SURVEILLANCE

First trimester ultrasound

- Formal ultrasound for concerns for nonviability, high risk for anomaly, or multiple gestation

Anatomy ultrasound

- Will continue anatomy ultrasound and universal cervical length screening
- Follow up views at time of planned growth if possible

CL screening

- Serial repeat screening reserved for highest risk patients

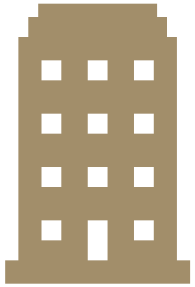
ANTENATAL SURVEILLANCE

Growth ultrasounds

No growth ultrasound prior to 28 weeks with rare exceptions

Serial growth Q 6-8 weeks for lower risk patients

One time growth for lower risk patients



NSTs

Twice weekly NSTs limited to IUGR with abnormal dopplers

BPP in place of NST if ultrasound is already planned

Kick counts instead of NST for lower risk patients (i.e. AMA, BMI>40, no other comorbidities)

Counsel patients on risks/benefits of in person office surveillance

OUTPATIENT CARE

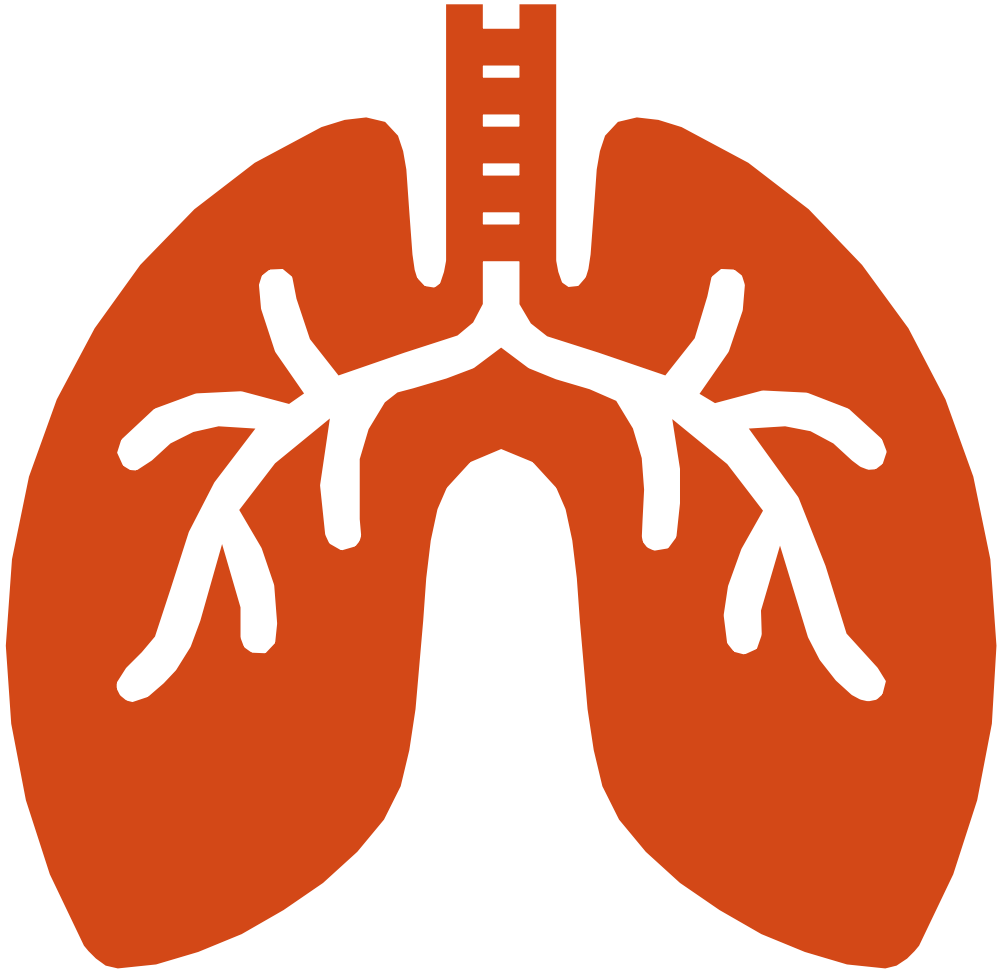
OUTPATIENT MANAGEMENT OF COVID POS PATIENT

GENERAL MANAGEMENT

Medications

- Recommend use of expectorants for respiratory symptoms, acetaminophen as an antipyretic
- For patients with a history of asthma ensure they currently have an Salbutamol inhaler as well their controller medications, which should be continued
- Currently we do **NOT** recommend outpatient use of hydroxychloroquine

Daily call to check in on symptoms



WHEN TO COME IN

- **Symptoms warranting follow up**
  - Inability to tolerate oral intake
  - New or progressive shortness of breath
  - Difficulty breathing
  - Chest pain or palpitations
  - Decreased fetal movement (>24 weeks)

LABOR AND DELIVERY

GENERAL CHANGES IN PRACTICE MANAGEMENT FOR ALL PATIENTS

NEED FOR GENERAL PRACTICE MODIFICATION

- In setting of a pandemic, without universal testing, certain changes need to be implemented in order to:
  - Accommodate increased volume of patients seeking care
  - Provide adequate staff protection against acquiring disease
  - Provide adequate patient protection from acquiring disease
  - Limit disease related morbidity

Problem: Many patients may be asymptomatic carriers of COVID-19 and still shed virus

Solution:	
Only one support person allowed	Patient and support person should wear masks at all times on L&D

VISITOR POLICY

PPE GUIDELINES

COVID-19 infection is highly contagious, and this must be taken into consideration when planning intrapartum care

- All medical staff caring for potential or confirmed COVID-19 patients should use appropriate personal protective equipment (PPE)
- All medical staff should be trained in and adhere to proper donning and doffing of PPE

PPE GUIDELINES

- Respirator or Facemask
  - Put on a respirator or facemask (if a respirator is not available) before entry into the patient room or care area
- Eye Protection
  - Goggles or a disposable face shield that covers the front and sides of the face
  - Personal eyeglasses and contact lenses are NOT considered adequate eye protection
- Non-sterile Gloves
- Disposable fluid-resistant Gown

PPE GUIDELINES – VAGINAL BIRTH

- Surgical Mask or Respirator
  - Put on a fluid-resistant surgical mask or respirator
- Eye Protection
  - Goggles or a disposable face shield that covers the front and sides of the face
- Gloves
- Disposable fluid-resistant Gown

PPE GUIDELINES – VAGINAL BIRTH

- **Patients**
  - A person with suspected or confirmed COVID-19 would normally be instructed to wear a facemask
  - But, active pushing while wearing a surgical mask may be difficult
  - And forceful exhalation may significantly reduce the effectiveness of a mask in preventing the spread of the virus by respiratory droplets

PPE GUIDELINES – CESAREAN DELIVERY

- **Cesarean Delivery**
  - The level of PPE should be determined based on the risk of requiring general anesthesia
  - If CS with GA is planned from the outset, all staff in theatre should wear full PPE, including a filtering face piece mask (N95 respirator) or PAPR
  - For a non-urgent CS where regional anesthesia is planned, all staff not needed should stay outside theatre until the block is effective. Then they should don PPE with a fluid-resistant surgical mask (FRSM) and eye protection

PPE GUIDELINES

Remember the goal is **RISK REDUCTION**		
No amount of PPE is 100% protective	Use your judgment	Feel empowered to protect yourself

Be conscious of resource utilization
Preserve N95 by covering with a surgical mask

LABOR AND DELIVERY

MANAGEMENT OF THE COVID POS PATIENT IN LABOR

TIMING OF DELIVERY

Timing of delivery, in most cases, should not be dictated by maternal COVID-19 infection

Indications for early delivery depend upon: the mother's clinical status, GA, and fetal well- being

For suspected or confirmed COVID-19 cases early in pregnancy who recover, no alteration to the usual timing of delivery is indicated

For suspected or confirmed COVID-19 cases in 3rd trimester who recover, attempt to postpone delivery to avoid transmission to the neonate

DELIVERY MODE

Status	Take into consideration maternal medical status in addition to routine obstetric indications
Stress	Stress of CS vs Stress/time of induction/laboring
Consider	Consider assisted second stage
Do NOT	Currently do not universally recommend CS for COVID pos patients

LABOR MANAGEMENT

Multidisciplinary care with MFM, ID/pulmonary as indicated

Limit total fluids to 75 mL/hour

No documented vertical transmission, but data limited

Use fetal scalp electrode as clinically indicated

OBSTETRIC MEDICATIONS

Indomethacin

Use nifedipine as an alternative if available, otherwise use as indicated

Betamethasone

Balance risks on maternal disease process, potential for neonatal benefit, and likelihood of delivery within 7 days

Do not use for 34-36 weeks

Magnesium Sulfate

Use as clinically indicated, consider continuous pulse ox, maintain high concern for pulmonary edema especially if patient already preeclamptic

Adjust dosing for renal dysfunction as needed

NSAIDs

WHO and FDA currently not recommending restriction of NSAIDs

Do NOT need to substitute narcotics to avoid NSAID use

Low-dose aspirin should continue to be offered to pregnant women as medically indicated

ANESTHESIA CONSIDERATIONS

1

Encourage early epidural to reduce need for general anesthesia in setting of CS

2

COVID pos diagnosis is not a contraindication to regional anesthesia

3

Nitrous oxide should not be used because it might cause aerosolization of respiratory secretions

CESAREAN DELIVERY

- Negative Pressure Operating Theatre
- Everyone should wear enhanced respiratory precautions
- Limit use of bovie cautery due to potential for aerosolization
- Only anesthesia needs PAPR for intubation; Patient needs to remain in OR for 30 minutes after extubation

INPATIENT MANAGEMENT

- **Supportive care**
  - Maintain O2 sat >95%
  - Conservative fluid administration
- **Diagnostics**
  - Chest imaging, especially CT scan versus CXR
  - Consider maternal echocardiography, especially if critically ill
  - CBC, LFTs, Platelets, Cr
  - D-dimer, CRP, fibrinogen do not change pregnancy specific management
- **Treatment**
  - Mucinex, albuterol inhaler PRN
  - Consider HCQ or antiviral Rx
  - Consider Rx for community acquired pneumonia

POST PARTUM MANAGEMENT

Problem: Being in the hospital with daily contact with healthcare workers increases risk of patients/HCW transmission

Solution: Expedited discharge whenever possible (PPD#1 for VD, POD#2 for CS)
- Need to discuss with pediatrician when baby able to be discharged

SAFETY IS A TEAM EFFORT!

- **READ** updated guidelines and protocols
- **PRACTICE** for different scenarios so you know what tools you need, where they are, and how to get them
- **EXECUTE** your continued amazing clinical care every day!

FIGO International Federation of Gynecology and Obstetrics

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Home > COVID19 Data Collection - your help needed

COVID19 Data Collection - your help needed

FIGO strongly supports the collection of data on COVID19 in pregnancy and the postnatal period. This includes the use of the WHO Clinical Data Platform, as well as International and National Databases, which are vital to our understanding of this virus and how we can collectively tackle its devastating effects.

KNOWLEDGE IS POWER!

- Enroll ANY pregnant or recently pregnant patient with known or suspected COVID-19
- To provide a repository for data on COVID19 in pregnancy

WHO global COVID 19 anonymised Clinical Data Platform:

- Funding to support this data collection is available from the Regional WHO Office
- Reports details of suspected or confirmed COVID 19 cases admitted to hospital/facility
- Collects details of individual cases to permit increased knowledge of the natural history of the disease.
- Do health care facilities use a registry?
- Is NOT a research database, therefore no follow up.

COVI-PREG (Europe)

- Anyone can enter data on an open-access database
- Intended as a data-sharing tool so that everyone can enter and abstract data from a tool.

PAN-COVID (Imperial College London and Medical Research Council, London)

International Data Base with retrospective submission data by centres and clinicians.

- Suspected or confirmed COVID-19 at any stage in the pregnancy
- Data to include early pregnancy through to the postnatal period
- Principal research objectives are to study in-depth:

  - miscarriage
  - fetal growth restriction
  - stillbirth
  - preterm delivery
  - transmission of the virus from mother to baby

PRIORITY Study

PRIORITY (**P**regnancy Co**R**onav**I**rus **O**utcomes **R**eg**I**s**T**r**Y**) is a nationwide study of pregnant or recently pregnant women who are either under investigation for Coronavirus infection (COVID-19) or have been confirmed to have COVID-19. This study is being done to help patients and doctors better understand how COVID-19 impacts pregnant women and their newborns.

KNOWLEDGE IS POWER!

- Enroll ANY pregnant or recently pregnant patient with known or suspected COVID-19
- To provide a repository for data on COVID19 in pregnancy

ACKNOWLEDGEMENTS

- Many individuals and organizations have continued to provide regular updates in care guidelines and practice management in this setting
  - SMFM has recorded lectures relating to COVID/pregnancy management, critical care management, and billing in setting of COVID/Telehealth (https://www.smfm.org/covid19)
  - ACOG has practice guidance, treatment/assessment algorithms (https://www.acog.org/en/Topics/COVID-19)
  - CDC has general resources for PPE guidelines, healthcare setting and healthcare worker precautions (https://www.cdc.gov/coronavirus/2019-ncov/hcp/infectioncontrol.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Finfectioncontrol%2Findex.html)
  - FIGO has published a statement and many resources https://www.figo.org/covid-19-resources-english