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Expert Review

MFM Guidance for COVID-19

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The World Health Organization (WHO) has declared COVID-19 a global pandemic. Healthcare providers should prepare internal guidelines covering all aspect of the organization in order to have their unit ready as soon as possible. This document addresses the current COVID-19 pandemic for maternal-fetal medicine (MFM) practitioners. The goals the guidelines put forth here are two fold- first to reduce patient risk through healthcare exposure, understanding that asymptomatic health systems/healthcare providers may become the most common vector for transmission, and second to reduce the public health burden of COVID-19 transmission throughout the general population. Box 1 outlines general guidance to prevent spread of COVID-19 and protect our obstetric patients. Section 1 outlines suggested modifications of outpatient obstetrical (prenatal) visits. Section 2 details suggested scheduling of obstetrical ultrasound. Section 3 reviews suggested modification of nonstress tests (NST) and biophysical profiles (BPP). Section 4 reviews suggested visitor policy for obstetric outpatient office. Section 5 discusses the role of trainees and medical education in the setting of a pandemic. These are suggestions, which can be adapted to local needs and capabilities. Guidance is changing rapidly, so please continue to watch for updates.

Box 1. General guidance for outpatient obstetric practice management in setting of COVID19

General Obstetric/MFM COVID-19 recommendations

- Prevention of spread should be #1 priority
- Social distancing of at least 6 feet; if not feasible, extended dividers, or other precautions
- Any elective or not-urgent visits should be postponed
- Each patient should be called to decide on need for next in-person visit and/or test
- Any visit that can be done by telehealth should be done that way
- No support person to accompany patient to outpatient visits unless they are an integral part of patient care

Testing specific recommendations:

- Pregnancy alone in the setting of new-flu like symptoms with negative influenza is sufficient to warrant COVID-19 testing; test especially if additional risk factors (e.g. older, immunocompromised, advanced HIV, homeless, hemodialysis etc.).
- Symptomatic patients are best triaged via telehealth in order to assess their need for inpatient support or supplemental testing; they in general should be presumed infected, and self-isolate for 14 days. In-person evaluation is not indicated if symptoms are mild.
- Utilize drive-through testing or stand-alone testing rather than in office testing where exposure can spread
- Symptomatic patients who nonetheless arrive to hospital or office should be managed as if they are COVID-19 positive; so immediately properly isolated in designated areas, with appropriate (e.g. N-95) mask on
- Designated separate areas should be created in each unit for suspected COVID-19 patients: Increase sanitization; Hand sanitizer available at front desk, throughout waiting area; Wipe down patient rooms after each patient; Wipe down waiting area chairs frequently

Practice-specific considerations and recommendations:

- Meetings should all be virtual/audio/video
- Keep some providers at home, as feasible with clinical duties. Especially those at highest risk, e.g. >60 years old, and/or co-morbidities.
- Practitioners should be **leaders** in their unit. COVID-19 leaders should be designated for each area (e.g. L&D, outpatient; ultrasound). Use this and other guidance (SMFM; ISUOG; ACOG; WHO; CDC; etc) and adapt to your specific situation. No guideline can cover every scenario. Use this guidance and clinical judgement to avoid any contact as much as feasible.

MFM = Maternal Fetal Medicine, L&D=labor and delivery, SMFM = Society of Maternal Fetal Medicine, ISUOG = International Society of Ultrasound in Obstetrics and Gynecology, ACOG = American College of Obstetrics and Gynecology, WHO = World Health Organization, CDC = Center of Disease Control

Section 1: Outpatient obstetrical (prenatal) visits

All new obstetrical intakes should be completed by telehealth / remotely unless the patient describes an urgent problem in which case she will be appointed as an urgent in-person visit. The standard timing for IN PERSON encounters in routine, uncomplicated pregnancies are described in Table 1. The hope is that necessary laboratory work and/or ultrasounds can be done at the same visit. Consideration may also be given to having laboratory work performed at lower volume satellite office sites where ability to accomplish social distancing is more easily attained, as feasible. Interim telehealth visits can be scheduled at provider discretion, e.g. at 16, 24, 34 weeks. Reschedule all OB visits using this paradigm. To minimize other in-patient visits, all patients should be instructed to obtain BP cuffs if feasible. Some health plans may cover the cost of blood pressure cuffs in the setting of the coronavirus pandemic. Consider all other visits by telehealth if feasible. Postpartum evaluation of cesarean wound healing or mastitis concerns may be optimized through use of photo upload options available in many electronic medical record patient portal programs.

Table 1*: Summary of suggested antenatal visit timing in setting of COVID-19 pandemic. Additional visits including follow up of diabetes control, hypertension, mood disorder etc may be done remotely with telehealth. NT: nuchal translucency, GBS: group B strep*

Gestational Age	In-person OB Visit	Ultrasound	Comments
<11 weeks*			Telephone OB intake
11-13 weeks**	X	X (Dating/NT)	Initial OB labs
20 weeks	X	X (Anatomy)	
28 weeks	X		Labs/vaccines
32 weeks	X	X (if indicated)	
36 weeks	X	X (if indicated)	GBS/HIV screen
37 weeks-Delivery	X		Weekly

Postpartum	Telehealth

* Earlier scan may be indicated if at risk for ectopic;

**If viability previously established consider skipping 11-13 week scan and offering cfDNA.

Section 2: Scheduling of Obstetric Ultrasound

Box 2 summarizes our suggested modifications to ultrasound timing. Table 2 outlines recommendations for specific antenatal indications. We recognize that these recommendations are specific to our practice environment. MFMs nationally and internationally should feel empowered to adjust as needed based on limitations in capacity and/or higher incidence of COVID, which may require further restrictions for both patient safety and public health. In addition to modifying ultrasound timing, the routine practice of face to face counseling for ultrasounds should be adjusted. Aside from major anomalies or new diagnosis (ie fetal growth restriction), in most cases ultrasound findings can be reviewed either over the phone/Telehealth, or in the setting of a normal routine ultrasound, by the OB provider at the next visit. Indeed, due to resource limitations many sites do only have remote communications for ultrasound finding, and this technology should be adapted widely to limit unnecessary patient contact, which protects both the patient from getting an infection and the provider from being a vector.

Box 2*: General principles for routine ultrasounds to maximize perinatal diagnosis and minimize exposure risk*

Dating Ultrasound:

- Combine dating/NT to one ultrasound based on LMP
- If ultrasound earlier in the first trimester (e.g., less than 10 weeks) is indicated due to threatened abortion, pregnancy of unknown anatomic location, may consider foregoing NT ultrasound and offering cell free DNA screening for those desiring early aneuploidy screening
- For patients with unknown LMP or EGA>14 weeks may schedule as next available

Anatomy Ultrasound (20-22 weeks)*

- Consider follow up views in 4-8 weeks rather than 1-2 weeks**
- Consider stopping serial cervical length after anatomy u/s if transvaginal cervical length≥35mm, prior preterm birth at >34 weeks
- BMI>40: schedule at 22 weeks to reduce risk of suboptimal views/need for follow up

Growth Ultrasounds

- All single third trimester growth at 32 weeks
- Follow up previa/low lying placenta at 34-36 weeks

NT: nuchal translucency, LMP: last menstrual period, EGA: estimated gestational age, BMI: body mass index.

**Or earlier if desired based on state-specific termination laws;*

***Consider forgoing follow-up ultrasound for one or two suboptimal views (e.g., l/s spine not seen well due to fetal position but posterior fossa normal)*

Table 2: *Outline of common indications for growth ultrasound and suggested frequency/timing in setting of COVID19 pandemic. Practice locations should adjust as needed based on site capacity and risk of COVID exposure.*

Indication	Gestational Age			Frequency			Comments
	24w	32w	36w	Once	q4w	q6w	
Pregestational diabetes mellitus						X	
Chronic HTN on medications						X	Once if no meds
Current preeclampsia/gestational HTN					X		
History of severe pre-eclampsia						X	
History of IUGR or SGA						X	
Current IUGR					X		
Sickle cell disease						X	
CKD						X	
Multiples - Mono/Di*					X		
Multiples -Mono/Mono					X		
Multiples -Di/Di					X		
GDMA2						X	
Lupus, no renal dysfunction						X	
Prior unexplained IUFD						X	
Organ Transplant						X	
Maternal Cardiac Disease						X	
Uncontrolled Thyroid Disease				X			
Current tobacco or substance use				X			
AMA (≥ 35 years old)				X			
Gestational diabetes A1				X			
Chronic HTN off medications				X			
Abnormal placentation				X			At 34-36 weeks
Uterine fibroids >5cm				X			

HTN: hypertension; IUGR: intrauterine growth restriction; SGA: small for gestational age; TTTS: twin-twin transfusion syndrome; CKD: chronic kidney disease; Mono-Di: monochorionic diamniotic; Mono/Mono: monochorionic diamniotic; Di/Di: dichorionic diamniotic; AMA: advanced maternal age; GDMA2: gestational diabetes-A2; IUFD: intrauterine fetal demise.

** consider every 2 week twin-twin transfusion screening*

Section 3: Scheduling of Non Stress Tests / Biophysical profiles

Table 3 illustrates how antenatal surveillance with NST/BPP may be modified in setting of COVID19 pandemic and the actual increased risk patients may face in coming into office for 30+ minutes of testing. In general, we suggest the following principles:

- Twice weekly NSTs only for intrauterine growth restriction (IUGR) with abnormal umbilical artery Doppler
- Limit NSTs initiated <32 weeks
- If concurrent ultrasound, perform a BPP rather than an additional NST visit
- In lower risk patients, such as advanced maternal age 35-39 or BMI>40 with no other comorbidities, consider kick counts instead of NST.

For patients with gestational hypertension/preeclampsia, plan weekly visit in office with daily blood pressure checks at home. Weekly visit will include antenatal testing, blood pressure check and labwork drawn in the office to minimize need for additional visits. These changes should be relayed to patients with a discussion of the altered risk/benefit balance of coming to the office for testing in the setting of a global pandemic.

120 ***Table 3:*** *Summary of common indications for non-stress tests and how we have modified frequency*
121 *of testing in setting of additional risks related to COVID-19 exposure and transmission. Red text in*
122 *COVID 19 column indicates changes to recommendations in setting of COVID, no change in*
123 *practice suggested if this column empty*

INDICATION FOR NST	Gestational Age to begin 1x/wk	Gestational age to begin 2x/wk	COMMENTS	COVID 19
AMA	36			Fetal kick counts instead of NST
CHOLESTASIS	DIAGNOSIS			
DECREASED FETAL MOVEMENT	DIAGNOSIS			One time only
PREGESTATIONAL DIABETES	32	36		Weekly only
GDMA2	32	36		Weekly only
CHRONIC HTN	32			36 weeks if no medications
GESTATIONAL HTN		DIAGNOSIS		Weekly with home BP monitoring
PRE-ECLAMPSIA		DIAGNOSIS		Weekly with home BP monitoring
CKD	32			
IUGR		DIAGNOSIS		Weekly with Doppler. Sub BPP when possible
ELEVATED DOPPLERS		DIAGNOSIS		
SLE	32			
FETAL ARRHYTHMIA	DIAGNOSIS			
MONO/DI TWINS	32			
DI/DI TWINS			Only if additional indication	
OBESITY/BMI<40	32			Fetal kick counts instead of NST
OLIGOHYDRAMNIOS	DIAGNOSIS			
POLYHYDRAMNIOS	DIAGNOSIS			Diagnosis or at 32 weeks if <32wk diagnosis. Only for AFI>30
PRIOR IUFD	32		1wk prior to IUFD	
SICKLE CELL DISEASE	32			Kick counts if well controlled

SINGLE UMBILICAL ARTERY	32	Fetal kick counts if normal growth, normal microarray

AMA: advanced maternal age; GDMA2: gestational diabetes-A2; HTN: hypertension; IUGR: intrauterine growth restriction; CKD: chronic kidney diseases; BP: blood pressure; NST: non stress test; SLE: systemic lupus erythematosus; DI/DI: dichorionic diamniotic; Mono-di: monochorionic diamniotic; IUFD: intrauterine fetal demise.

Section 4: Visitor policy for obstetric outpatient office

Box 3 outlines general guidelines for visitors. In the setting of a pandemic, consider visitors as something that does not benefit patient care but may harm other patients/providers. Exceptions may be made when the visitor is critical for patient care, for example, for young patients coming with a parent, or someone with developmental delay who relies on a support person to aid in medical decision making.

Box 3: *Suggested visitor policy for outpatient offices*

General Outpatient Office Visitor Policy:

- There should be NO additional family/friend/partner in any outpatient appointment
- Patients asked NOT to bring children
- Visitor with symptoms at front desk check in WILL NOT be allowed in patient care areas and will be asked to return home.
- Patients may be asked to reschedule non-urgent care if they or their visitor are symptomatic

Section 5: Involvement of trainees

In setting of a COVID-19 and the significant risk of not only trainees' health, but additional healthcare providers serving as a vector and using limited protective equipment, we suggest all non-essential clinical personnel remain at home. This means any nursing, medical, sonography students should not be in the office, any other observerships should be suspended. Additionally, in an academic setting where an attending physician is supervising residents or fellows, multiple providers providing face to face counseling should be limited.

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