COVID-19 Survival for the Ob/Gyn Hospitalist as of 3/29/20 with updates as of 4/5/20 and 4/20/20

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Things are changing every day, keep checking your resources!

Here in NOLA we are on the backside of Wave 1 and have altered some protocols to reflect this.

**Team approach**

Reducing provider cross-over: consolidate providers and separate teams for OB ED/COVID triage vs L+D vs postpartum and emergent gyn with back up all around. No provider “specialing” patients, scheduled cesareans done by L+D team. As of April 25 we will merge L+D and the OB ED teams, will maintain the postpartum/emergent Gyn team for now until we are able to open our offices for more than urgent visits. And our ORs for elective procedures.

Daily updates: 5 pm Webex for all providers, administrative leaders, very helpful for consistency, support. Have now spaced to 2/week.

Telehealth: clinic staff much reduced due to childcare issues, illness. Majority of visits converted to telehealth; patients given blood pressure cuffs. OB ED providers alert to need for upcoming labs (ie diabetic screen, RhoGAM, GBS screen). Antenatal testing guidelines more stringent. My system anticipates that we will continued reliance on telemedicine.

ICU coverage: requested of clinic providers/surgeons to serve as a “resident” in ICUs due to volume.

Generalized blood shortage, transfuse all patients conservatively.

**PPE**

Be wary, there is a reluctance for admin to acknowledge PPE shortage.

Masks: ear-loop masks worn by all employees and patients in the hospital. Homemade masks are not allowed.

N-95: always in short supply, distributed 1/provider (for the duration!) and covered with surgical mask to keep clean. Worn for all interactions with persons under investigation (PUI) or COVID-19 positive patients. Designated “single use” but we are reusing unless soiled. They need to be stored in a paper bag (not plastic I do not know why). It is very uncomfortable to wear for any length of time, cannot imagine how people manage Ebola PPE. CDC statement strongly discourages extensive re-use but we have no apparent choice, statement here: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/checklist-n95-strategy.html> Also beware of fakes, true N-95s are stamped with “N-95” and have 2 elastic straps.

Eye protection: “welder’s mask” face shield ran out immediately, replaced with surgical mask with visor worn over N-95 in needed. Eye glasses not sufficient. Tip for comfort in warm room: turn surgeon’s masks upside down and roll up the mask part for your forehead (sort of sweatband), allow the visor to come down over eyes, nose.

Gowns: very short supply, substituted surgeon’s gowns. Remove gown prior to leaving room, hang on door so that it can be used again for same patient. Do not use same gown for different patients.

Gloves: standard gloves, foam with hand sanitizer prior to removing gown if it will be saved for use so you minimize your chance of getting contaminated when you put it back on. If you have to check a patient, sterile glove goes on over PPE glove.

Because our testing turn-around was >7 days we burned through much PPE protecting ourselves from PUI. I suggest pushing for aggressive testing of in-patients to preserve PPE. We are now rapid testing (30 to 45 min turn around including walking to the lab) ALL patients prior to admission to L+D and finding a 20% rate of asymptomatic positives despite aggressive social distancing among the vast majority (!). Elective inductions and C/S that are COVID positive are being deferred unless medical indication to preserve PPE. This week we have continued to rapid test all admissions and have 0 positives!! We are still carefully managing those patients who previously tested positive with full PPE, segregated OB ED, L+D and postpartum rooms as it is still unclear when a patients is no longer infectious.

 Handwashing: constant.

Don and especially doff PPE in specific order to prevent self-contamination as specified here: https://www.cdc.gov/niosh/npptl/pdfs/PPE-Sequence-508.pdf

Bleach wipes: brought from home for wiping down call room, phones, computers, bathrooms, door handles, visors

**Primary symptoms**

Flu-like: cough, SOB, congestion, fatigue, muscle aches, sweats, nausea, vomiting, diarrhea, anorexia, lost sense of taste and smell.

Abdominal pain: sometimes primary complaint, first positive patient was gyn r/o ovarian torsion, rapidly deteriorated after dx lap.

Fever: initially low grade (ie <100.4) and responds to Tylenol, so we are accepting as criteria “fever at home”. Most become progressively more febrile.

CT/CXR shows shadowing and ground glass appearance. Our radiologists call any abnormalities positive if patient is symptomatic. Note: NOT appropriate for screening even if COVID tests are limited.

Lab abnormalities: low WBC, low platelets, elevated LFTs (ie pre-eclampsia), elevated CRP. Elevated procalcitonin predicts severe respiratory disease. Viral myocarditis may elevate troponins.

Indication for admission: respiratory distress with pulse ox <90% (<92% if >20 weeks). They can look TERRIBLE with fever, body aches, coughing, vomiting but if their pulse ox sats are ok and negative CXR we send them home with Tylenol and chicken soup. Nurse or NP calls everyday to ensure no respiratory distress.

I found this NEJM correspondence helpful re how patients presented in NYC, above still relevant: https://www.nejm.org/doi/pdf/10.1056/NEJMc2010419?articleTools=true

ACOG/SMFM algorithm for outpatient triage <https://www.acog.org/->/media/project/acog/acogorg/files/pdfs/clinical-guidance/practice-advisory/covid-19-algorithm.pdf?la=en&hash=2D9E7F62C97F8231561616FFDCA3B1A6

**COVID Testing**

This has been a consistently difficult problem. Initially very limited with 12+ day turn around, and we ran out of swabs. Then only tested patients who were so sick they required admission (ie respiratory distress). Then could test as outpatient but required fever with symptoms and negative flu swab for all testing. Currently using clinical judgement, fever or significant viral symptoms to encourage true quarantine among positive population. 24-36 turnaround when done in-house, which started this week. Update: We are now rapid testing (30 to 45 min turn around including walking to the lab) ALL patients prior to admission to L+D and finding a 20% rate of asymptomatic positives despite aggressive social distancing among the vast majority (!). Elective inductions and C/S that are COVID positive are being deferred unless medical indication to preserve PPE. Update: no asymptomatic positives this week! Found this NEJM correspondence helpful, we were also seeing mostly asymptomatic positives. Cautionary note, one patient described tested NEGATIVE on admission but developed symptoms and tested positive 3 days later: https://www.nejm.org/doi/pdf/10.1056/NEJMc2009316?listPDF=true

Plastic swab with synthetic tip inserted deep into both nares (feels like they have breathed in pool water), oral swabs not required to save supplies, place immediately into viral transport media. Do NOT use wooden handles or cotton tips. AAP has issued guidelines for testing for newborn that are frequent and repetitive and will probably change, but they suggest swabbing the throat and nares of infants. Statement here: <https://downloads.aap.org/AAP/PDF/COVID%2019%20Initial%20Newborn%20Guidance.pdf>

Update: the rapid test does NOT require such invasive testing, just insertion 1 inch into both nares with the same plastic swab. HOWEVER, there is a suggestion that the false negative rate will be higher with lower viral load, and therefore the swab should be delivered to the lab “dry” (we insert it back into the package label on both the swab and package, double bagged and hand delivered immediately to the lab), and NOT in “viral media”. I still cannot find info on the rate of false negative, false positive or sensitivities, stay tuned!

Test follow up: we maintain an EPIC list of PUI and positive patients, list checked daily for test results and are patients called every 2-3 days to check on symptoms. Continue quarantine urged. If they report respiratory distress they are asked to come in.

Reporting: state specific, our lab automatically reports.

**Clinical course**

7-10 days of “flu” (or mild symptoms, asymptomatic), then either improvement or sudden deterioration to ARDS, pneumonia, DIC, myocarditis, acute kidney, liver disease, septic shock thought due to “cytokine storm”.

Reassuring but limited data re lack of vertical transmission (1 possible case?). AAP guidelines (see above) strongly urge separating baby from mother and expressed breast milk, we are informing parents of the guidelines and but they mostly choose to room together.

Reasonable to postpone delivery until end of quarantine. We amended the definition of quarantine from 14 days to the CDC “health care worker” definition of 3 days no fever (no antipyretics) or 7 days from onset of symptoms if symptoms are abating, everyone must wear masks (not N95s).

**Treatment**

No empiric treatment as outpatient. Patients in ICU receiving hydroxychloroquine and remdesivir empirically. Helpful JAMA article included mechanism of actions: https://jamanetwork.com/journals/jama/fullarticle/2764727

Treat for shock prn but otherwise conservative IV fluids.

Replace electrolytes as arrhythmia seems to be a cause of death, even after extubation.

Admitted patients treated with broad-spectrum antibiotics until clinical picture is established.

No late term steroids, discuss steroids if patient preterm labor 24-34 weeks with MFM as steroids may worsen clinical picture and delay viral clearance.

Continuous fetal monitoring only if maternal status would tolerate delivery, use as a “maternal vital sign”. We perform NST BID for patients who are on a vent but change to continuous EFM for those with kidney damage requiring continuous dialysis.

Low pressure, low volume vent settings. Our patients have benefitted from paralysis if they are over-breathing the vent.

No bipap, patients are electively intubated if they require >5L O2 to allow adequate PPE prior to aerosolization with intubation and extubation. I have recently seen suggestions that patients may benefit from bi-pap and that vent shortage can be mitigated but I did not go deep as we are blessed with adequate vents here!

Consider VTE prophylaxis.

If intubated, left decubitus position. Interesting suggestion that we should encourage patients who are struggling but not yet needing intubation to position themselves leaning forwards, as when you catch your breath by resting your hands on your knees…

Timing and mode of delivery should not be determined by maternal COVID status.

**Patient flow**: geographic separation of any patient who might be infected, minimize providers, minimize learners. This is no longer as straight forward as our rapid testing for all admits has greatly increased the number of positive patients. We are trying to cluster positives in one hallway, trying to limit number of providers involved.

COVID-19 Clinic: >20 weeks to 6 weeks postpartum non-labor complaints (ie viral symptoms, abdominal pain, N/D). Need to have ability to perform NST, bedside US, EKG and portable CXR. O2 by mask available. Precipitous delivery pack. Also space for COVID positive moms and babies who need postpartum follow-up during their quarantine period. Pediatricians have now created their own COVID Clinic.

OB ED: > 20 weeks labor, pre-eclampsia, decreased fetal movement. We had a remarkable drop off in non-urgent visits. 3 weeks in volume is returning to normal, especially as telehealth is limiting in-person visits.

Antepartum: PUI and positive patients had rooms in the far end of the hall as we did not have negative pressure rooms. Single room with dedicated bathroom, door closed

ICU: ours are full, but if we have to intubate we would plan to use one of the converted OR rooms and to be prepared to section if mother needed for adequate ventilation. Have a plan in place for both bedside cesarean in the event of a maternal code and an OR ready for a “hurry up” in the event of deteriorating status of mom or baby with required meds, baby resuscitation equipment and PPE for all. Make sure those resuscitating baby understand the possible location for these events, as baby will likely be paralyzed along with mother. Anticipate procedure maybe done with full anti-coagulation, ensure adequate blood products and that blood bank is aware of exact location.

Delivery: PUI and COVID positive patients should always have an over-ear mask on, providers should wear N-95s and eye shields, gowns and gloves. Nitrous use is suspended due to aerosolization. Delayed cord-clamping currently at mother’s discretion, no evidence of vertical transmission to date. We don’t allow COVID patients to labor in tub. Consider keeping other providers outside the room unless necessary, ie neonatal resuscitation personnel.

Neonatal resuscitation: consider resuscitation in an open incubator so that baby can be transported quickly, filter on O2 source? Consider nasal swab testing for baby at 24 hours of life. AAP also suggesting swabs at 48 hours and on day of discharge.

Postpartum: we are not able to give separate rooms for baby and mom, they are together with a portable room divider between, PPE for the baby’s caregiver and mom handwashes and wears a mask to pump. Single room with dedicated bathroom, door closed, can place 2 COVID patients together if necessary. Safely expedite postpartum stays.

Breastfeeding: mothers are encouraged to give baby their milk, if mother insists on putting baby to breast should hand wash and be sure mask is secure. AAP discouraging direct contact by the mother with baby, and suggests that if mother puts baby to breast she should practice “breast and hand hygiene” with no definition as to “breast hygiene”. This is not included in guidance form CDC, WHO, La Leche, etc. We suggest simple warm washcloth and specifically discourage use of alcohol-based sanitizers on breast and nipple. Lactation is now telehealth even in the hospital, but can more easily continue after discharge which is valuable.

Office visits: patients wait in the car until the exam room is available.

Drive-thru testing for COVID for employees/patients very helpful but restricted to those with fever >100.4. Update: employees now eligible for rapid testing for symptoms even if no fever.

**Visitors**

No visitors allowed. Patient is alone for OB ED and Antenatal testing visits, partner waits in car and can videochat.

1 support person allowed only when patient admitted to L+D and after temperature screen. That person cannot leave, should bring all the snacks and supplies they need for their entire stay. NICU allows only 1 parent/24 hours. ICU allows family 10 minutes post-mortem. It’s brutal and this is the #1 stressor for patients. Encouraging video chats for grandparents, siblings, etc. We have a supply of ipads for discharge instructions and now for videochats.

**OR**

All elective surgery postponed including office-based procedures that could become OR cases ie Leep. See above re possible resumption of elective surgery, now with rapid testing for all patients.

COVID positive gyn patients recovered in OR to prevent contaminating recovery area

 COVID positive patients post spinal recovered in their postpartum rooms

 Robot ORs turned into ICU overflow

**Discharge instructions**

Inform close contacts, reassure re low incidence of vertical transmission.

 Quarantine as recommended by state.

Timelines for quarantine vary: 2 negative tests 24 hours apart (we cannot get even sick people tested so this is moot), 3 days with no fever (off antipyretics), 7 days from symptom onset, 14 days from contact with COVID positive person.

**Security**

 Hospital entrances limited to 2, one for employees and one for patients.

 All who enter hospital screened with temperature check and given over-ear mask.

 2 people per elevator, stairs strongly encouraged.

 Secure all PPE **early on.**

Bags of all departing patients and staff are checked to be sure PPE does not leave the premises.

**Ob/Gyn Hospitalist support**

 Humane schedule that allows adequate rest.

Clear back up plan so that no one “works sick”, conservative plan for return to work, plan for isolating sick provider from their family prn

Pregnant providers working as usual, Stanford suggests pregnant providers >37 weeks not assigned COVID patients to ensure provider’s delivery not complicated by COVID

Include COVID tips in daily hand-off

Wipe down call room between providers/remove sheets and blankets. Bleach wipes are at a premium, hospital now using a spray with paper towels or face clothes, must re,main on surface for 5 min. Also to not use on US probes!!

We now have copper-infused linens and “casual” masks that are nifty! Company is Cupron (I have no financial interests to disclose ☺)

Single serving snacks and drinks ONLY

Hospital organized daily food trucks to stop by, much appreciated!

Outdoor exercise is a lifesaver!

**Resources**

 CDC.gov for everything COVID!

CDC Coronavirus Self-Checker to reassure patients with mild symptoms that they do not need to be seen: https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/testing.html

SMFM: <https://education.smfm.org/products/covid-19-in-pregnancy-preparing-your->obstetrical-units

SMFM: https://www.smfm.org/covid19

CMQCC: https://www.cmqcc.org/news/webinar-recording-preparing-your-maternal-and-neonatal-units-respond-covid-19

Also looking forward to this upcoming CMQCC seminar: Supporting your Perinatal Units During COVID-19: Mental Health Considerations for Patients and Healthcare Workers on April 29, 2020

ACOG: <https://www.acog.org/clinical/clinical-guidance/practice-advisory/articles/2020/03/novel-coronavirus-2019>

ACOG: https://www.acog.org/en/Topics/COVID-19

AAP: <https://downloads.aap.org/AAP/PDF/COVID%2019%20Initial%20Newborn%20Guidance.pdf>

JAMA: <https://jamanetwork.com/collections/46099/coronavirus-covid19>

NEJM: <https://www.nejm.org/coronavirus>

Lancet: <https://www.thelancet.com/coronavirus>