COVID-19 What Maternity and Neonatal Care Providers Are Learning

April 17, 2020 12 – 1 pm EST

Ohio Perinatal Quality Collaborative



Today's presenters:



William Schnettler, MD

Tri-Health

Maternal Fetal Medicine



Anju Suhag, MD
Tri-Health
Maternal Fetal Medicine



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Cincinnati Children's
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Jennifer Brady, MD Cincinnati Children's Hospital Medical Center



OSU Wexner
Medical Center



Welcome

Goals:

- Share practicalities of implementing strategies now
- Discuss what people are doing in situations where it is unclear and guidance doesn't exist
- ALL TEACH ~ ALL LEARN
- Over 236 registrants with several submitted questions. The focus of today's webinar is:
 - Case study of a critically ill COVID-19+ pregnant patient and her infant
 - The benefit of a debrief and simulation in COVID-19 settings
- Plans:
 - The slide deck and recording of this webinar will be posted on the OPQC website
 - We will provide shared resource links on the website and update regularly
- The case scenarios are from individual institution responses, not OPQC recommendation



Options for Participating in COVID-19 Neonatal Registries

Updated on April 17, 2020

AAP Section on Neonatal Perinatal Medicine (SONPM) Registry

- National Registry for Surveillance and Epidemiology of Perinatal COVID-19 Infection
- Data for maternal/infant dyads for which the mother has <u>confirmed</u> COVID-19 disease
- 44 hospitals registered and submitting data + 38 in process + 20 interested

102 hospitals (3 in Ohio)

• See link at end of slide deck to sign up! Mark Hudak (SONPM President) is happy to talk to anyone by phone or email about this opportunity if you have questions (mark.hudak@jax.ufl.edu)



Options for Participating in COVID-19 Neonatal Registries

Updated on April 17, 2020



>90 NICUs participating

- VON and the AAP Section on Neonatal Perinatal Medicine (SONPM) created a tool to help newborn care teams understand the impact of COVID-19 in their own units and more broadly in the neonatal community. The goal is to inform local and national decision-making for program evaluation and quality improvement.
- The VON SONPM COVID-19 Impact Audit is open to all hospitals caring for infants (regardless of VON membership).
- The audit will be conducted on a single day of your choice and you may choose to repeat the audit each month (one response per hospital per month).
- Aggregate reporting will be publicly available on the VON website in early May, potential for state report if enough sites participate
- See link at end of slide deck to sign up!

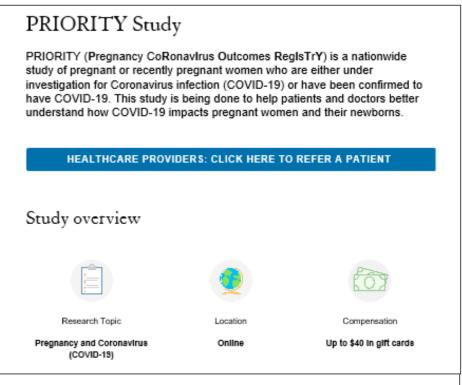


Participating in COVID-19 Obstetrical Registry

Updated on April 17, 2020

https://priority.ucsf.edu/





TOTAL ENROLLED: 300 (Updated 4/16/2020)

What is the purpose of this study?

The goal of the study is to better understand how pregnant women are effected by COVID-19 including what their symptoms are, how long they last, and how COVID-19 may impact their pregnancy and/or delivery.

Data Update April 16, 2020 WHO/CDC/ODH: COVID-19 Outbreak

WHO

https://www.who.int/emergencies/diseases/novel-coronavirus-2019

Updated: 16 April 2020

Coronavirus (COVID-19) outbreak

- **2,134,465** Confirmed cases
- 142,148 Confirmed deaths
- **213** Countries, areas or territories with cases

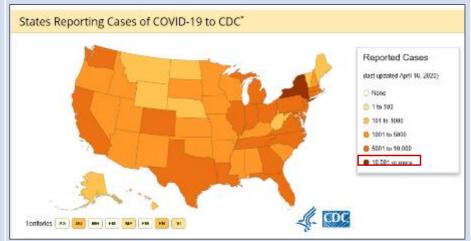
CDC

https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html

Total cases: 632,548Total deaths: 27,012

Jurisdictions reporting cases: 55

(50 states, District of Columbia, Puerto Rico, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands)

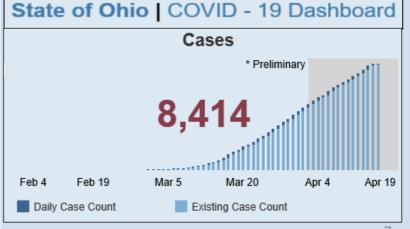


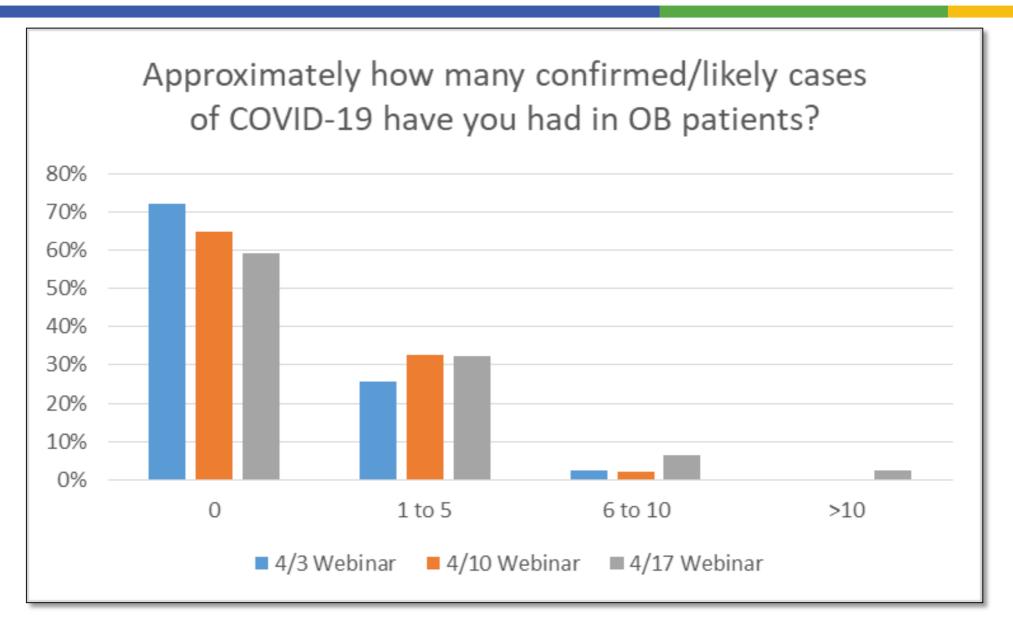
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ODH

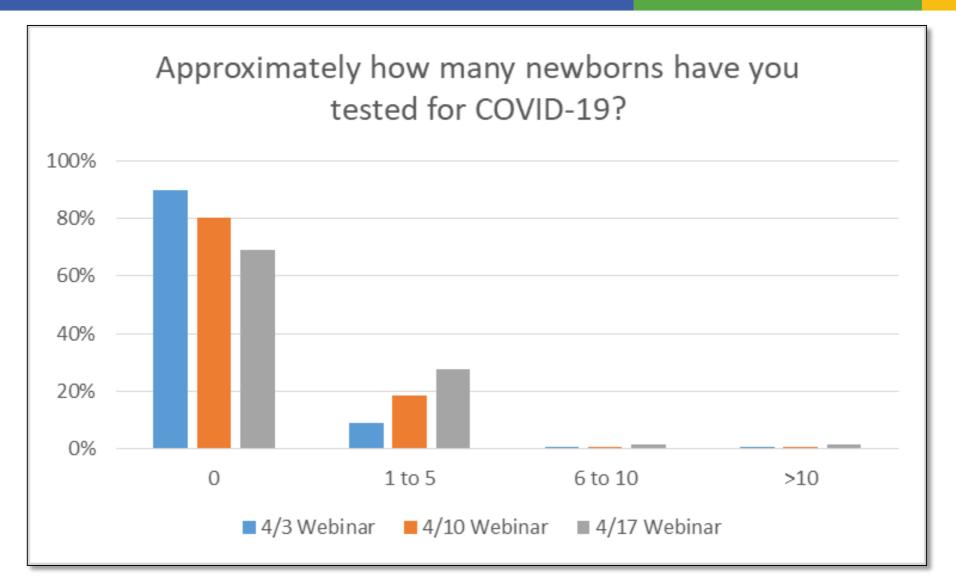
https://coronavirus.ohio.gov/wps/port al/gov/covid-19/

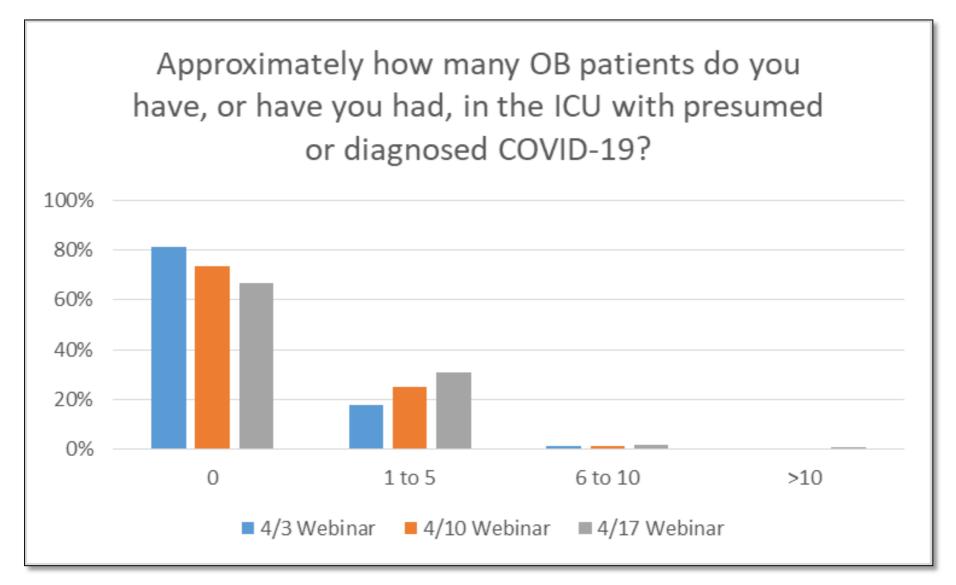
- **8,414** Confirmed Cases in Ohio
- 707 ICU admissions
- **2331** Hospitalizations in Ohio
- **389** Deaths











COVID-19 Critical Care OB Case

Updated on April 17, 2020



American Journal of Obstetrics & Gynecology MFM



Available online 14 April 2020, 100120 In Press, Journal Pre-proof (*)

COVID-19 Pregnancy Research

Severe ARDS in COVID-19-infected pregnancy: obstetric and intensive care considerations

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https://doi.org/10.1016/j.ajogmf.2020.100120

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https://doi.org/10.1016/j.ajogmf.2020.100120

Abstract

Since the emergence of a novel coronavirus (SARS-CoV-2) in Wuhan, China, at the end of December 2019, its infection – COVID-19 – has been associated with severe morbidity and mortality and has left world governments, healthcare systems and providers caring for vulnerable populations, such as pregnant women, wrestling with the optimal management strategy. Unique physiologic and ethical considerations negate a one-size-fits-all approach to the care of critically ill pregnant women with COVID-19, and few resources exist to guide the multi-disciplinary team through decisions regarding optimal maternal-fetal surveillance, intensive care procedures, and delivery timing. We present a case of rapid clinical decompensation and development of severe Acute Respiratory Distress Syndrome (ARDS) in a woman at 31 weeks' gestation to highlight these unique considerations and present an algorithmic approach to the disease's diagnosis and management.

Keywords

COVID-19; SARS-CoV-2; pregnancy; ARDS; coronavirus; pneumonia; acute respiratory distress syndrome





39 yo G6P2031 at 30 6/7 weeks w/underlying myotonic dystrophy & BAV

- 4 days of worsening SOB, cough \rightarrow SpO₂ 93-94% on 4 L O₂ NC, HR 90s, RR 30s, MAP 75 mmHg
- CXray, CTPA, lung US, labs consistent with COVID-19 but RT-PCR pending
- Cxray, CTPA, lung US, labs consistent with COVID 13 batti. I compensation Rapid decompensation to SpO₂ 78%, minimal improvement w/non-rebreather > intubation / mechanical ventilation Updated on April 17, 2020

READINESS	RECOGNITION	RESPONSE	REPORTING
 Pre-Hospital Awareness Testing Transport Therapies 	 Presentation Signs Symptoms Physiologic considerations 	 Bed Placement Nurse: patient Capabilities Isolation 	InternalDebriefIris reportingQA
 Hospital Staffing Bed space Equipment PPE Preparedness / simulation 	 Work-up Labs Imaging Ancillary teams Point people / champions 	 Multi-disciplinary Communication Huddles Assign "Captain" Delivery preparedness & decision tree 	 External Regional HD State ODH National - CDC, SMFM registry
	 Logistics Timely triage Timely dispo Communication Minimizing exposure 	 Treatment Medications Ventilation/Oxy Positioning Surveillance Family / support Care for self 	





		Critical Care Goals				
MAP > 65 mmHg		 First assess if fluid responsive with passive leg raise or bolus LR 500 mL to see if MAP raises > 65 mmHg Start norepinephrine @ 5 mcg/min (up-titrate to 10 mcg/min) for MAP < 65 mmHg Ensure CEFM if GA > 24 weeks 				
SpOz	> 94%	 Increase PEEP to 10-24 cm H₂0 Consider VC+ modality Consider prone positioning Ensure finger is warm or place monitor on forehead 				
PaO ₂	> 80 mmHg	Increase PEEP to 10-24 cm H ₂ O Increase I:E ratio Consider prone positioning				
PaCo ₂	< 40 mmHg	 Increase ventilatory / respiratory rate to 20-25 bpm Consider higher tidal volume than 6 ml/kg ideal body weight Ensure no "auto-PEEP" – keep plateau pressure < 35 cmH₂0 				
рН	7.3-7.5	 First assess if acidemic or alkalemic Then assess which is more out-of-range (PO₂ or PCO₂) If metabolic acidosis, assess anion gap & ensure appropriate ventilatory compensation (Bicarb x 1.5)+8 = PCO₂ 				
Bicarb	16-22 mmHg	Consider addition of IV bicarb if low AND pH is < 7.1				
Anion Gap	6-15	 Correct for hypoalbuminemia (add 2.5 to gap for every 1 g/dl albumin below level of 2.5 g/dl) 				
PiP	< 35 mmHg	Check peak inspiratory pressure on vent & ensure < 40 cmH₂0 Consider VC+ modality				
UOP	> 20 ml/kg/hr	Place Foley catheter and ensure strict Is/Os + daily weights				
Skin	No break-down	Evaluate skin front & back daily (esp under fetal monitors)				
VTE	Prophylaxis	 Consider institution of Heparin 7,500 U BID in 2nd trimester & 10,000 U BID in 3nd trimester if delivery is not imminent 				
Peptic Ulcer	Prophylaxis	Consider H2 blockade				
CEFM	Category 1-2	Delivery for category 3 if GA > 28 weeks Worsening category 2 may signal worsening maternal status				
Sedation	Lowest achievable	Goal is to achieve RASS of 0 (alert & calm) while on mechanical ventilation May need to increase sedation with propofol, fentanyl, & midazolam May need paralytic (cisatracurium) esp when proning				

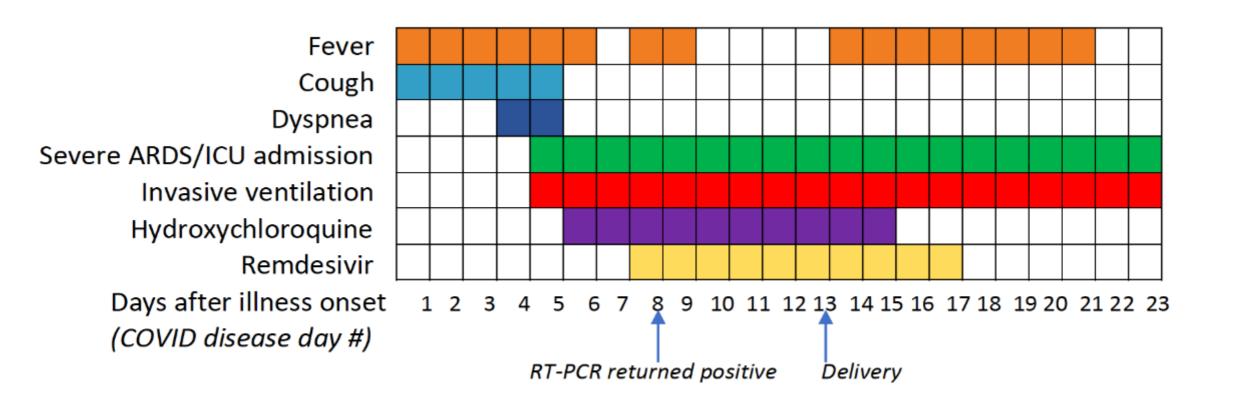


		Delivery Considerations			
GA < 24 weeks	Non-Critically ill	If previable PTL – can deliver in COVID unit or LDR			
GA < 24 weeks	Critically ill	Avoid delivery in an UNSTABLE mother If previable PTL – deliver in ICU, main OR if D&C required			
GA 24-34 weeks	Severe but Non-Critically ill	Attempt to delay delivery and stabilize/ treat mother Betamethasone if imminent delivery within a week MgSO4 for fetal neuroprotection if GA < 32 weeks (if benefits outweigh risk of pulmonary edema) Consider delivery for NRFHTs (category 3 or persistent category 2 fetal tracing) if stable mother Imminent need for SVD – move to LDR Imminent need for C/section – move to L&D OR			
GA 24-34 weeks	Critically ill	Avoid delivery in UNSTABLE mother Attempt to delay delivery & stabilize / treat mother Case by case determination of delivery for maternal or fetal benefit if stable mother Betamethasone ONLY if HIGH risk for imminent delivery within a week MgSO4 for fetal neuroprotection if GA < 32 weeks (if benefits outweigh risk of pulmonary edema) Imminent need for SVD – deliver in ICU Imminent need for C/section – move to Main OR Perimortem c/section – proceed in ICU			
GA ≥ 34 weeks	Severe but Non-Critically ill	Attempt to delay delivery and stabilize / treat mother Case by case determination of delivery for maternal or fetal benefit if stable mother Consider delivery for NRFHTs if stable mother Avoid late preterm betamethasone Imminent need for SVD – move to LDR Imminent need for C/section – move to L&D OR			
GA ≥ 34 weeks	Critically ill	Avoid delivery in UNSTABLE mother Case by case determination of delivery for maternal or fetal benefit if stable mother Avoid late preterm betamethasone Imminent need for SVD – deliver in ICU Imminent need for C/section – move to Main OR Perimortem c/section – proceed in ICU			

TriHealth



COVID-19 Critical Care OB Case







NICU Resuscitation, Transfer and Care of Premature Infant Born to COVID+ Mother Updated on April 17, 2020

Transition: OB to NICU

- Multidisciplinary pre-brief huddle: OB, Anesthesia, RT, RN, NICU, OR
- NICU specific pre-brief huddle: APRN (1), NICU Fellow (1), RN (3), RT (1)
- Role assignment
- Planned process

NICU Approach:

- 2-tiered structure adapted from University of Washington algorithm
- Limit number of people exposed to Mother
 - 1 NICU member in delivery versus OB RN to bring infant to resuscitation room (anteroom between maternal OR and infant resuscitation OR)
- Limit number of people immediately exposed to infant
 - Resuscitation room in adjoining OR with Provider and RT (full PPE)
 - Remainder of NICU staff outside Resuscitation Room if needed (limits PPE and exposures)







NICU Resuscitation, Transfer and Care of Premature Infant Born to COVID+ Mother Updated on April 17, 2020

Transfer to NICU from Resuscitation OR:

- Infant placed in isolette covered in plastic for transport (limit aerosolization with double-wall isolette and plastic)
- Admitting RN (full PPE) only one to have direct touch on infant during transport
- Use patient elevators and bring through back door of NICU (limit transport throughout NICU)
- RT and NICU RN only in room for admission

Care in NICU:

- Admit into reverse airflow room
- Contact and Droplet precautions until 2 negative tests 24 hours apart
- Bathe infant immediately
- Use baby monitors for communication of needs to outside of room
- 1:1 nursing care







NICU Visitation and Communication

Updated on April 17, 2020

• Father not permitted to visit for 14 days from last contact with Mom:

- Father symptomatic prior to Mom
- Tested on Day 14
- Allowed to visit after 14 days with test results pending resulted negative

Communication with Dad:

- Updates by both physician/NNP and nursing team providers
- Video communication with phone
- With consent, pictures of infant sent to Dad electronically

Communication with Mom:

- Limited due to Mom's condition
- Pictures of infant printed/laminated and placed in Mom's ICU room





Current COVID Visitation Policy for the NICU

Updated on April 17, 2020

- General NICU visitation during COVID restricted to 2 bracelet holders
- No visitor with confirmed or suspected COVID-19, or close contact to confirmed/suspected, shall be permitted to enter the NICU
- Asymptomatic partner may visit 14 days after last exposure to positive Mother
- Mother with COVID-19 and symptomatic household partner can not visit until:
 - Resolution of fever without antipyretics for 72 hours <u>AND</u>
 - Improvement (but not full resolution) in respiratory symptoms AND THEN
 - Two consecutively negative COVID-19 nasopharyngeal tests collected ≥24 hours apart

Based on CCHMC Perinatal Institute Care Guidelines







Communication Goals for when NICU Visitation is not Possible due to COVID-19 Updated on April 17, 2020

- Nursing updates to parents every 3-6 hours
- Video connection between parents and infant every 6 hours
- Provider daily update to parents via phone or video chat
- Daily photo of infant provided to parents, either print or digital

Based on CCHMC Perinatal Institute Care Guidelines





The need for debriefing after an event like this...





https://www.ahrq.gov/teamstepps/longtermcare/module3/igltcleadership.html

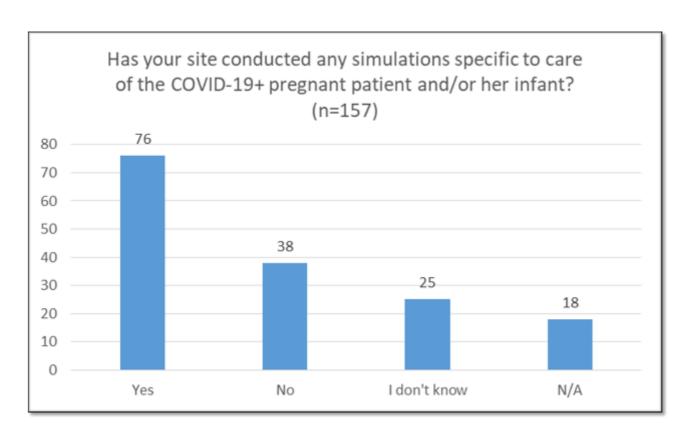






Registration question results:

Has your site conducted any simulations *specific to care* of the COVID-19+ pregnant patient and/or her infant?



Please type into the chat box an unexpected learning from a recent simulation or debrief



Heather Lortz, BSN, RNC-OB, C-EFM April 17, 2020







Updated on April 17, 2020

Why Simulation in Obstetrics?

Guidelines for Perinatal Care: 8th Edition

- "The principle that standardization of care can improve patient outcomes applies to emergencies as well as to routine care."
- "Simulation should include the following components: standardized procedures, effective communication among team members, and nonhierarchical teamwork...."
- "Drills and simulations may use a sophisticated simulated environment, but also can use the everyday workspace for a mock event."

Quality Patient Care in Labor and Delivery: A Call to Action (JOGNN, 2012)

- Structured systems may help to optimize communication about and response to rapid changes in patient status.
 - Drills and simulations
 - Debriefing and case reviews







Updated on April 17, 2020

Simulation of Suspected COVID-19 Cesarean

Stakeholders

- Nursing and Physician/Resident Leadership
- Anesthesia
- NICU Team Leadership
- Postpartum/ Well-baby Nursery

Scenario

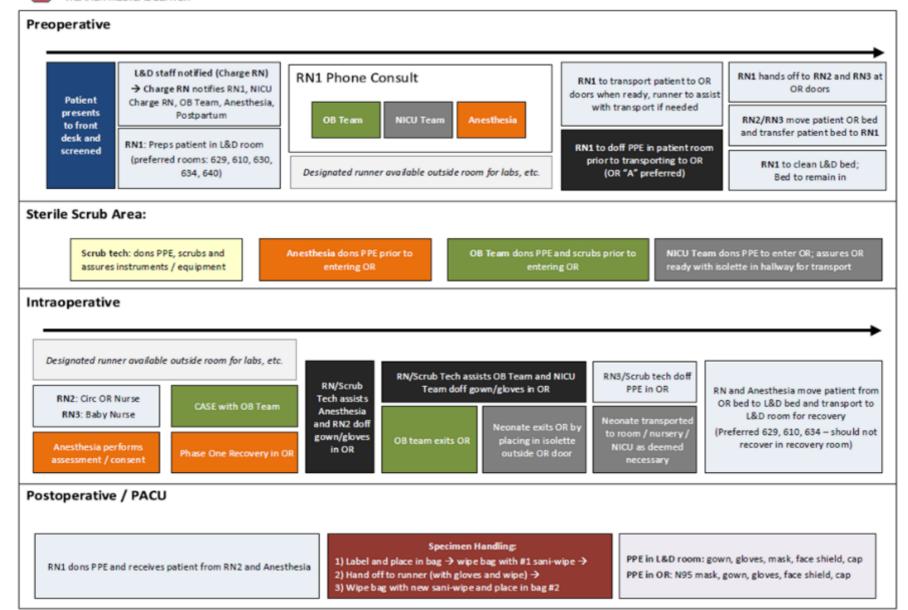
- Patient presents for a scheduled repeat cesarean delivery
- Upon registration screening the patient reports symptoms concerning for COVID-19
- Activate the model for COVID C-S







COVID-19: Cesarean Section Algorithm





Updated on April 17, 2020

Debrief & Lessons Learned

Barriers

Disagreement/Opinions
Staffing/Time Concerns
Resident Rotation

Lessons Learned

Practice routine cases, not STAT scenarios

No waste of PPE

No sterile equipment opened Review information frequently in huddles

- Celebrate Success!!
 - Information is Power
 - Laughter is good medicine
 - Excellent team building







https://doi.org/10.1055/s-0040-1709683

Updated on April 17, 2020



Operating Room Guide for Confirmed or Suspected COVID-19 Pregnant Patients Requiring Cesarean Delivery

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- ² Department of Anesthesiology, The Ohio State University College of Medicine, Columbus, Ohio
- ³ Department of Labor and Delivery, The Ohio State University College of Medicine, Columbus, Ohio

Am J Perinatol

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Abstract

Keywords

- coronavirus
- cesarean delivery
- COVID-19
- team-based care
- protocol

We sought to provide a clinical practice protocol for our labor and delivery (L&D) unit, to care for confirmed or suspected COVID-19 patients requiring cesarean delivery. A multidisciplinary team approach guidance was designed to simplify and streamline the flow and care of patient with confirmed or suspected COVID-19 requiring cesarean delivery. A protocol was designed to improve staff readiness, minimize risks, and streamline care processes. This is a suggested protocol which may not be applicable to all health care settings but can be adapted to local resources and limitations of individual L&D units. Guidance and information are changing rapidly; therefore, we recommend continuing to update the protocol as needed.

Key Points

- Cesarean delivery for confirmed or suspected novel coronavirus disease 2019 (COVID-19) patients
- · Team-based approach for streamline care
- Labor and delivery protocols for COVID-19 positive patients

Heather Lortz, BSN, RNC-OB, C-EFM Perinatal Safety Nurse OSU Wexner Medical Center







References

- American Academy of Pediatrics, & American College of Obstetricians and Gynecologists. (2017). Guidelines for perinatal care (8th ed.). Elk Grove Village, IL: American Academy of Pediatrics.
- Gonzalez-Brown, V. M., Reno, J., Lortz, H., et. al. (2020). Operating room guide for confirmed or suspected covid-19 pregnant patients requiring cesarean delivery. American Journal of Perinatology. https://doi.org/10.1055/s-0040-1709683
- Lawrence, H. C., Copel, J. A., O'Keefe, D. F., et. al. (2012). Quality patient care in labor and delivery: A call to action. *American Journal of Obstetrics and Gynecology*, 207 (3), 147-148. https://doi.org/10.1016/j.ajog.2012.07.018





Future Discussion/Webinars

COVID-19 -What Maternity and Neonatal Care Providers Are Learning

Friday, April 24th 12N-1pm

Goal: Investigate the impact of racial disparities for the pregnant patient during the COVID-19 pandemic and supportive measures for caregivers

	April 2020								
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday			
			1	2	3	4			
5	6	7	8	9	10	11			
12	13	14	15	16	17	18			
19	20	21	22	23	24	25			
26	27	28	29	30		Si Si a Sinaka Space			

Contact information for today's presenters

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- Susan Ford: <u>susan.ford@UHhospitals.org</u>
- info@opqc.net

Registry info...

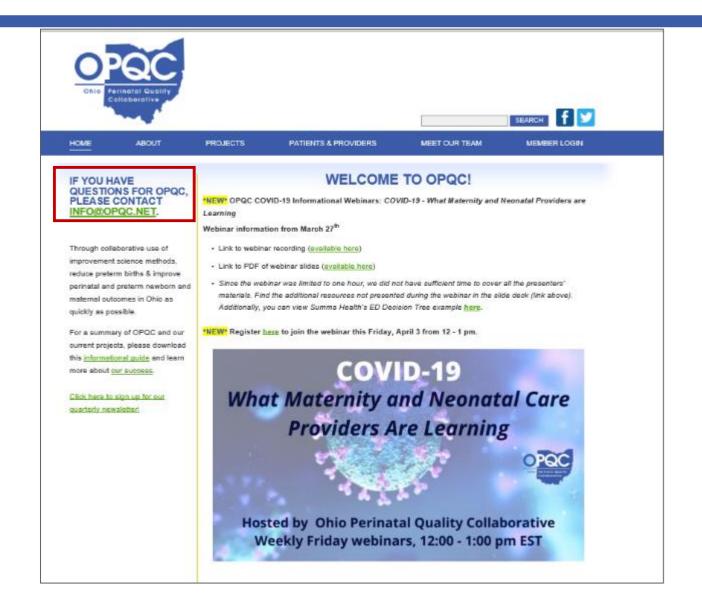
- Vermont Oxford Network (VON) Audit
 - https://public.vtoxford.org/covid-19/

- AAP Section on Neonatal Perinatal Medicine (SONPM) Registry
 - https://services.aap.org/en/community/aap-sections/sonpm/

- PRIORITY (Pregnancy Coronavirus Outcomes Registry)
 - https://priority.ucsf.edu/

Updated Resources on OPQC Website

Updated on April 17, 2020



The OPQC website has a list of information and resources that will be updated regularly:

https://opqc.net/

Contact us: info@opqc.net





Take care out there

It takes a village...































