

COVID-19 TRIAGE ALGORITHM: PREGNANT PATIENTS

September 2022—Version 11.0



If patient tested positive for COVID-19 within the last 90 days, please do not re-test, unless clinical symptoms of re-infection are present.

- *COVID-19 Person Under Investigation (PUI) Criteria – person has one or more of the following symptoms:**
- Fever>100, chills or rigors
 - Cough
 - Shortness of breath or difficulty breathing
 - Fatigue
 - Muscle or body aches
 - Headache
 - New loss of taste or smell
 - Sore throat
 - Congestion or runny nose
 - Nausea or vomiting
 - Diarrhea
 - Exacerbation of chronic medical condition
 - Acute thromboembolic events

Pregnant woman > 20 weeks gestation presents for evaluation
Mask patient per masking guideline
Mask team members per universal masking and eye protection guideline

Is primary concern obstetric?
 YES → Evaluation in Labor and Delivery
 NO → Evaluation in ED/ECC

Is patient a *COVID PUI?
 YES → Follow FULL BARRIER LEVEL 1 PRECAUTIONS
 NO → Testing and treatment as usual

- Follow FULL BARRIER LEVEL 1 PRECAUTIONS**
 Team members in:
 -N95 or PAPR
 -Eye protection (face shield or goggles)
 -Gown and gloves

Is patient going to be admitted?
 YES → -Obtain single nasopharyngeal swab
 -Order OB COVID PANEL SCREENING VS PUI and indicate "screening"
 -Usual obstetric management
 -Follow OB PPE table
 NO → Testing and treatment as usual

- ED / ECC**
 - OB/GYN phone or in-person consultation for any PUI with gestational age ≥20 weeks
 - Consider pregnancy risk factors for admission***
 - L&D nursing staff to perform non-stress test for any gestational age ≥23 weeks
 -Obtain single nasopharyngeal swab
 -Order COVID19 panel and indicate "PUI"

- L&D**
 -Patient to wear procedural mask, including during labor and at time of delivery if clinically able
 -Obtain single nasopharyngeal swab.
 -Order OB COVID PANEL SCREENING VS PUI and indicate "PUI"
 -Follow OB PPE table

Which evaluation path?
 ED/ECC → [ED/ECC path]
 L&D → [L&D path]

- ***Pregnancy Risk Factors to consider admission for a PUI**
 - Uncontrolled hypertension (gestational or chronic)
 - Inadequately controlled diabetes (gestational or chronic)
 - Chronic renal or cardiopulmonary disease
 - Immunosuppressed state (intrinsic or due to medication)

Goal O2 saturation in pregnancy ≥ 95%

Complete pregnancy clinical assessment**
 Is there evidence of moderate or severe disease?
 YES → Admit to hospital medicine or ICU with OB/GYN consulting
 NO → OB/GYN consultant to arrange appropriate outpatient follow-up or Hospitalist to admit based on clinical judgment and assessment of disease and risk factors

Is patient going to be admitted for an OB indication?
 YES → Complete pregnancy clinical assessment**
 NO → Does patient need ongoing medical assessment?
 YES → Transfer to ED/ECC
 NO → - Keep patient in procedural mask until home
 -Limit contacts in hospital
 -D/C to home
 -Advise self-quarantine

Is patient at MGH?
 YES → Arrange for transfer and admission to NMHH
 Call North Memorial One-Call Line 1-800-230-2413
 NO → Escalate care as needed with input from appropriate consultants (i.e. MFM, hospital medicine, infectious disease, intensivist, neonatologist)

Complete pregnancy clinical assessment**
 Is there evidence of moderate or severe disease?
 YES → If obstetrically stable and at MGH, consider transfer to NMHH
 NO → OB care with increased COVID surveillance
 -Follow OB PPE table
 -For any evidence of moderate to severe disease, escalate to medical or ICU care as needed with input from appropriate consultants

- **Pregnancy Clinical Assessment**
 Any ONE of the following in a COVID PUI indicates at least moderate disease
 - Requiring any supplemental O2 to maintain saturation ≥95% at rest or with ambulation
 - RR ≥30 breaths/minute
 - Chest XR with pneumonia or infiltrates involving >50% of lungs
 - Abnormal ABG (for gestational age)****
 - Temperature ≥39.0 despite antipyretics



INTERPRETING BLOOD GASES IN PREGNANCY

Quick and to the point:

- pH increase to 7.40 - 7.47
- PaCO₂ decreases to 30 mmHg
- PaO₂ increases to 105 mmHg
- HCO₃ decreases to 20 mmol/L

Why?

- Minute ventilation increases during pregnancy, presumably due to increased circulating levels of progesterone.
- The increase in minute ventilation lowers carbon dioxide while simultaneously increasing oxygen.
- So normal blood gases during pregnancy have a higher PaO₂ (100 to 106 mmHg) and a lower PaCO₂ (28 to 30 mmHg), typically accompanied by a slightly alkalotic pH.
- It's a respiratory alkalosis with secondary compensation through renal loss of bicarbonate—so pH usually between 7.40 - 7.45.

Impact of Respiratory Events

- During an acute respiratory event, any associated changes in blood gases are superimposed on the “normal” respiratory alkalosis of pregnancy.
- So, a PaCO₂ > 35 mmHg or a PaO₂ < 70 mmHg represents *more severe compromise during pregnancy than in the non-pregnant state*.

Normal Blood Gases During Pregnancy

(from Up to Date, Normal Reference Ranges from Lab Values in Pregnancy)

	Non-Pregnant	First Trimester (up to 14 wks)	Second Trimester (up to 28 wks)	Third Trimester (past 28 wks)	References
pH	7.38 to 7.42 (arterial)	7.36 to 7.52 (venous)	7.40 to 7.52 (venous)	7.41 to 7.53 (venous) 7.39 to 7.45 (arterial)	1, 2
PO ₂ (mmHg)	90 to 100	93 to 100	90 to 98	92 to 107	2, 3
PCO ₂ (mmHg)	38 to 42	Not reported	Not reported	25 to 33	2
Bicarbonate (HCO ₃)(mEq/L)	22 to 26	Not reported	Not reported	16 to 22	2

(1)Handwerker SM, et al: Serum ionized magnesium and other electrolytes in the antenatal period of human pregnancy. J Am Coll Nutr 15:36, 1996.

(2)Fadel HE, Northrop G, Misenhimer HR, et al: Acid-base determinations in amniotic fluid and blood of normal late pregnancy. Obstet Gynecol 53:99, 1979.

(3)Spiropoulos K, Prodromaki E, Tsapanos V: Effect of body position on PaO₂ and PaCO₂ during pregnancy. Gynecol Obstet Invest 58:22, 2004.



References:

1. Ending Isolation and Precautions for People with COVID-19 (Interim Guidance) [Ending Isolation and Precautions for People with COVID-19: Interim Guidance \(cdc.gov\) 9/10/21](https://www.cdc.gov/media/releases/2021/s0910-covid-19-isolation.html)
2. Up to Date, Normal Reference Ranges from Lab Values in Pregnancy
3. https://northmemorial.com/wp-content/uploads/2022/08/Duration_of_Precautions_for_COVID_Patients_08_11_22-v8.pdf

OB COVID-19 WORKGROUP FOR THE OB/GYN CLINICAL PRACTICE COUNCIL

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Revision History

This document is active and further recommendations are forthcoming. It will be updated as additions develop.

Revision	Description of Changes	Approvals	Date
10.0	Changed title from “Diagnostic” to “Triage” algorithm	OB COVID-19 Workgroup	10-20-2020
11.0	Reformatted; Removed page 3—see “Duration of Precautions for COVID + Patients” document on NMH internet site.	OB/Gyn Clinical Practice Council	09-02-2022