Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

COVID-19 transmissibility during labor and vaginal delivery

OBJECTIVE: The COVID-19 pandemic raised uncertainty about the appropriate personal protective equipment (PPE) required for healthcare personnel (HCP) in the labor and delivery unit (L&D).[1,2] Given the mechanism of SARS-CoV-2 transmission, providers involved in procedures that produce respiratory aerosols (eg, intubations) are instructed to wear N95 respirators.[3,4] The Centers for Disease Control and Prevention and the American College for Obstetricians and Gynecologists speculate that labor and vaginal delivery, which often involve heavy breathing and expulsive effort, may produce aerosols, however, limited data are available to inform PPE recommendations.[5] This study aimed to assess the prevalence of SARS-CoV-2 RNA in L&D during routine obstetrical care to better characterize the exposure risk.

STUDY DESIGN: We performed a cross-sectional examination of SARS-CoV-2 RNA presence during routine care of SARS-CoV-2 positive patients in L&D. All admitted patients were screened for COVID-19 per hospital protocol; positive patients admitted for labor met the inclusion criteria. We collected the following samples during both the first and second stage of labor: (1) near air sample <6 feet from patient's face, (2) far air sample >6 feet from patient's face, and (3) PPE surface swab from the outermost facemask or face shield of the primary nurse. Two specimens were collected during the second stage only, namely (4) provider air sample from the delivering provider's lapel and (5) agar plate placed on the delivery table. The presence of SARS-CoV-2 RNA was determined using reverse transcriptase–polymerase chain reactions. The presence or absence of a face mask on the patient was recorded.

RESULTS: Samples from the air, PPE, and agar plates were collected during 5 vaginal deliveries of COVID-19 positive patients (Table). Throughout collection, 1 patient wore a face mask continuously, 3 wore their face masks inconsistently, and 1 did not wear a face mask. Each patient had a missing specimen owing to logistical or clinical limitations. One specimen tested positive for SARS-CoV-2 RNA, which was the agar plate from the vaginal delivery of the patient not wearing a face mask. All other samples yielded negative tests.

CONCLUSION: SARS-CoV-2 RNA was not detected in any air or PPE specimens collected during delivery of COVID-19 positive patients in the L&D regardless of patient masking. However, the detection of RNA on a delivery table of an unmasked patient indicates that viral spread occurs in a radius >6 ft from the patient during routine obstetrical care, which poses a risk of exposure to SARS-CoV-2 for HCP and supports the use of N95 respirators while providing patient care in the L&D. This study is limited by the small sample size and, because it was performed early in the pandemic, limited information on the positive test results such as cycle threshold or viral strain. Additional information from patients, including symptoms, presence of face mask, and viral strain data, is needed to more precisely inform PPE guidelines during the ongoing COVID-19 pandemic. ■

Cite this article as: Hawks RJM, Ades V, Roman AS, et al. COVID-19 transmissibility during labor and vaginal delivery. Am J Obstet Gynecol MFM 2023;5:100770.

TABLE 1
Presence of SARS-CoV-2 RNA in specimens collected from COVID-19 positive patients in the labor and delivery unit

Patient mask status		Near[a]		Far[b]		PPE[c]			
		Labor	Delivery	Labor	Delivery	Labor	Delivery	Provider[d]	Agar plate[e]
1	Consistently present	–	x	–	x	–	x	x	x
2	Intermittently absent	–	x	–	x	–	–	–	–
3	Intermittently absent	–	–	–	x	–	–	–	–
4	Consistently absent	–	–	–	–	x	–	x	+
5	Intermittently absent	–	x	–	x	–	x	x	–

All results were obtained using reverse transcriptase–polymerase chain reactions (RT-PCR).

(–), negative RT-PCR result for SARS-CoV-2 RNA; (+), positive RT-PCR results for SARS-CoV-2 RNA; (X), specimen not collected.

[a] Near air sample <6 ft from patient face; [b] Far air sample >6 ft for patient face; [c] PPE swab of outermost face PPE (mask or shield) of primary registered nurse; [d] Delivery provider air sample; [e] Agar plate placed on delivery table at onset of second stage of labor throughout delivery.

Mahn Hawks. SARS-CoV-2 exposure during labor and delivery. Am J Obstet Gynecol MFM 2022.

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The authors report no conflict of interest.
The findings of the this study were presented as a poster at the 42nd annual pregnancy meeting of the Society for Maternal-Fetal Medicine, held virtually, February 1–5, 2022.

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 https://doi.org/10.1016/j.ajogmf.2022.100770