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.

Offering onsite COVID-19 vaccination to high-risk obstetrical patients: initial findings

OBJECTIVE: The COVID-19 pandemic has had a disproportionate effect on pregnant women, with higher rates of viral infection and disease severity.[1] The development of highly effective vaccines has significantly reduced SARS-CoV-2 transmission and clinical disease.[2] However, vaccine uptake has been low in the pregnant population.[3] The Centers for Disease Control and Prevention guidance suggests that limited vaccine access, not vaccine hesitancy, has driven the lower uptake rates in at-risk populations.[4] We describe our experience with vaccination uptake rates among high-risk obstetrical patients before and after onsite BNT162b2 messenger RNA vaccination availability in outpatient clinics as part of a pilot program to improve vaccine access among pregnant patients.

STUDY DESIGN: This was a quality improvement project at a single academic medical center. Onsite vaccination was available once a week at 2 high-risk obstetrical clinics staffed by obstetrical residents, maternal-fetal medicine (MFM) fellows, and MFM attendings were selected for our vaccine pilot program. Onsite vaccinations were immediately available for use in the clinic starting May 11, 2021. Data were collected over a 4-week period (April 27, 2021, to May 20, 2021), which included 4 clinic days before onsite vaccine availability (April 27, 2021 to May 10, 2021) and 4 days with onsite vaccine availability (May 11, 2021, to May 20, 2021). Patients were considered exposed to onsite vaccination if they had any clinic visits during the latter 2 weeks of the study period. All patients were counseled by providers at each visit using our institution's standardized COVID-19 vaccination discussion tool designed for pregnant and breastfeeding patients.[5] Counseling was documented in each patient's chart per the American College of Obstetricians and Gynecologists. Before and throughout the study period, pregnancy was listed as a qualifying condition for priority vaccination in Missouri and Illinois. At this time, vaccinations were readily available in the local area surrounding our clinical space. Data on vaccine administration were collected via the Missouri and Illinois state databases over a period of 1 month after the pilot program was closed, allowing for the collection of data on patients who pursued vaccination offsite for scheduling or personal reasons. This project was deemed exempt by the Office for Human Research Protections.

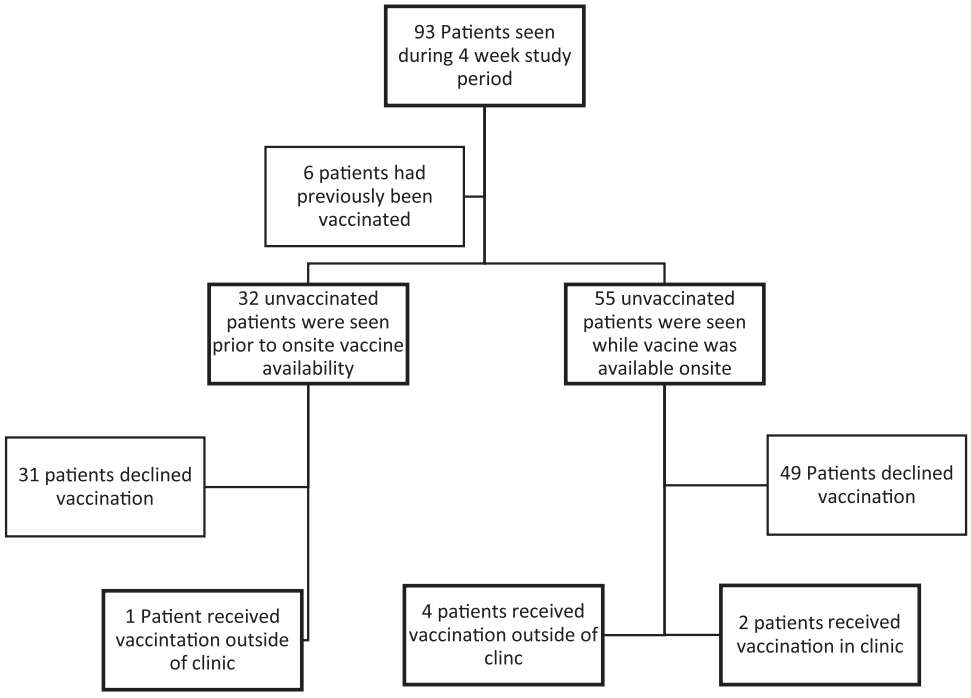
RESULTS: We reviewed data from 124 clinic visits, where a total of 93 individual patients were seen in the 4-week period; 6 had previously been vaccinated at external sites and the remaining 87 were eligible (Figure). The majority of our patient population was non-Hispanic Black women with public or no insurance (Table). Of the 32 eligible patients seen and counseled before onsite vaccination availability, 1 (3%) proceeded to receive the vaccination offsite. Of the 55 eligible patients seen and counseled after onsite vaccination availability, 2 (3%) proceeded with onsite vaccination and an additional 4 (7%) proceeded with vaccination offsite. Onsite vaccination availability did not significantly increase the vaccination rates (3% vs 11%; P=.22). Of the 55 eligible patients counseled during onsite vaccination availability, 25 were seen and counseled exclusively during the onsite vaccination pilot period and none of these patients accepted onsite vaccination or pursued vaccination offsite.

CONCLUSION: Because only 3% of eligible, high-risk obstetrical patients proceeded with onsite vaccination, our experience suggests that vaccine hesitancy, not availability, is a critical driver of the low vaccination rates in this population. Although a larger sample size may have demonstrated statistical difference, the overall low vaccination uptake rate forced the closure of our pilot program over concerns for wasted vaccination doses. In a population at high risk for progression to severe COVID-19, only 14% of our study population was vaccinated, whereas Missouri reported a 41% vaccination rate during this time.[6] These findings suggest that increased access alone may not improve vaccination rates in obstetrical patients even after counseling by expert clinicians. These findings are limited by the pre/post nature of the comparison, exposing the sample to bias as vaccination recommendations and population sentiment was rapidly evolving during this time period. However, the consistency of counseling and patient population provided by a single clinical setting limited other sources of bias during the study period. Vaccine hesitancy is multifactorial and complex and urgently requires more evaluation in this high-risk population. Vaccine hesitancy in pregnancy is well documented, but early reports suggest that the COVID-19 vaccination uptake rate is markedly lower than that of other vaccines during pregnancy. Our finding that none of the women who were seen exclusively during the onsite vaccination period accepted vaccination may suggest that repeat clinic visits and the associated establishment of rapport and trust is a vital part of vaccine decision making. Earlier intervention, before patient views on novel therapeutics such as vaccinations can be formulated and fixed, may aid in uptake. Further qualitative work and inclusion of pregnant women in vaccine trials is an initial step.

EDITOR'S CHOICE

Cite this article as: Hirshberg JS, Huysman BC, Oakes MC, et al. Offering onsite COVID-19 vaccination to high-risk obstetrical patients: initial findings. Am J Obstet Gynecol MFM 2021;3:100478.

FIGURE
Flowchart of patient visits and vaccination uptake



Hirshberg. COVID-19 onsite vaccination. Am J Obstet Gynecol MFM 2021.

TABLE
Patient demographics and vaccination status before and after onsite vaccination

Characteristic	Patients seen before onsite vaccination availability (n=33), n (%)	Patients seen with onsite vaccination availability (n=60), n (%)	*P* value
Mean maternal age, y (IQR)	28.6 (25–32)	29.4 (26–33)	.50
Ethnicity			.87
Hispanic or Latina	2 (6.1)	3 (5)	
Non-Hispanic or non-Latina	32 (94.1)	56 (95)	
Race			.33
Black or African American	21 (63.6)	44 (73.3)	
White	12 (36.4)	16 (26.7)	
Public insurance	34 (100)	59 (100)	––
Pregnancy status			.09
Pregnant	27 (84.4)	56 (94.9)	
Postpartum	5 (15.6)	3 (5.1)	
Media gestational age at counseling, wk (IQR)	25.0 (17–32)	24.7 (17–31)	.94
Mean number of clinic visits (IQR)	1 (1–1)	1.5 (1–2)	<.001
Previous COVID-19 infection	4 (12.1)	7 (11.86)	.97
Vaccinated before study	1 (3)	5 (8.3)	.32
Vaccine uptake among eligible patients			
	n=32	n=55	
Vaccinated	1 (3)	6 (11)	.22*
Offsite	1 (100)	4 (67)	
Onsite	0	2 (33)	
Declined	31 (97)	49 (89)	

IQR, interquartile range.

Hirshberg. COVID-19 onsite vaccination. Am J Obstet Gynecol MFM 2021.

Jonathan S. Hirshberg, MD
Bridget C. Huysman, MD, MPH
Megan C. Oakes, MD
Ebony B. Cater, MD, MPH
Anthony O. Odibo, MD, MSCE
Nandini Raghuraman, MD, MSCI
Jeannie C. Kelly, MD, MS
Department of Obstetrics and Gynecology
Washington University School of Medicine in St. Louis
660 S. Euclid Ave
St. Louis MO 63110
Jhirshberg@wustl.edu

The authors report no conflict of interest.

REFERENCES

1. Zambrano LD, Ellington S, Strid P, et al. Update: characteristics of symptomatic women of reproductive age with laboratory-confirmed SARS-CoV-2 infection by pregnancy status—United States, January 22-October 3, 2020. MMWR Morb Mortal Wkly Rep 2020;69:1641–7.

2. Dagan N, Barda N, Kepten E, et al. BNT162b2 mRNA COVID-19 vaccine in a nationwide mass vaccination setting. N Engl J Med 2021;384:1412–23.

3. Razzaghi H, Meghani M, Pingali C, et al. COVID-19 vaccination coverage among pregnant women during pregnancy—eight integrated health care organizations, United States, December 14, 2020–May 8, 2021. MMWR Morb Mortal Wkly Rep 2021;70:895–9.

4. National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention, US Department of Health and Human Services. Expanding COVID-19 vaccine distribution to primary care providers to address disparities in immunization: guide for jurisdictions. 2021. Available at: https://www.cdc.gov/vaccines/covid-19/downloads/Guide-for-Jurisdictions-on-PCP-COVID-19-Vaccination.pdf. Accessed August 23, 2021.

5. Division of Maternal-Fetal Medicine and Ultrasound and Division of Fertility and Reproductive Medicine, Department of Obstetrics and Gynecology, Washington University School of Medicine. Pregnancy, breastfeeding, and the COVID-19 vaccine. 2021. Available at: https://www.bjc.org/Portals/0/PDF/Pregnancy-Breastfeeding-Vaccine.pdf. Accessed August 23, 2021.

6. GitHub. Our world in data. 2021. Available at: https://github.com/owid/covid-19-data/blob/master/public/data/vaccinations/us_state_vaccinations.csv. Accessed August 23, 2021.

 https://doi.org/10.1016/j.ajogmf.2021.100478