



# COVID-19 in pregnant women across the United States

A 10-week study of the first  
200 COVID-19-positive patients

Experience of a national  
OB hospitalist group

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As the COVID-19 pandemic rages across the world and scientists race to find treatments, there is still a lack of consistent data on COVID-19 in pregnancy. Researchers continue to analyze whether pregnant women who contract COVID-19 face more severe outcomes and whether they are more susceptible to the infection.

In the hospital, the presence of SARS-CoV-2 infections creates unique challenges related to managing pregnant patients and their infants on labor and delivery units. Healthcare professionals must implement testing and utilization strategies for personal protective equipment (PPE) on the labor and delivery units to ensure safety amidst this novel coronavirus. In addition, standardization of care delivery in the form of team-based protocols is necessary for improving outcomes.

OB hospitalists are OB-GYN clinicians who specialize in acute and emergency care of hospitalized obstetrical, and in some cases, gynecologic patients. OB hospitalists are in the hospital 24/7 to manage all triage and OB emergency room patients. They receive and care for all unassigned patients and manage emergencies that occur while a patient's primary OB provider is not on site. Additionally, OB hospitalists support primary obstetricians who are unable to be in the hospital to care for their hospitalized patients. OB hospitalists are uniquely positioned to aid in the management of pregnant patients from initial presentation.

Ob Hospitalist Group (OBHG), the nation's largest and only dedicated OB hospitalist provider, conducted a study analysis in June 2020 to examine the experience of OB hospitalists with COVID-19-positive patients. OBHG was interested in whether patients were presenting with obstetrical or COVID-19 complaints, the volume of asymptomatic positives in the labor and delivery patient population and the geographic distribution of COVID-19 patient encounters.

## Study overview

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This study was a prospective collection of patients who had a confirmed positive test for SARS-CoV-2 at or after presentation and received care from OBHG hospitalists. These cases were further grouped by the presence or absence of COVID-19- related symptoms and reason for presentation with obstetrical symptoms or not. Additional demographics collected were gestational age at presentation and the state where the care occurred, which were then compiled by region.

## Study details

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Hospital labor and delivery units continue to face challenges in managing pregnant patients and their infants during the global SARS-COV-2 pandemic. As OB hospitalists typically are the first line of care for pregnant patients upon hospital entry, via either the OB emergency room or triage, they stand on the front line of care during the COVID-19 pandemic. In addition, as hospitalists are already in the hospital, they are poised to assist other clinicians during pandemic surge planning.

The CDC, ACOG and CMQCC have discussed guidance on surge planning and strategies to preserve PPE and maintain safety for healthcare workers. Standardization of care delivery in the form of team-based protocol implementation and adoption has been shown to lead to improved outcomes on labor and delivery units. OB hospitalists act as champions for implementation and adoption of standardization of care policies. These include universal testing strategies and management algorithms for confirmed COVID-19-positive patients and symptomatic patients whose tests are pending (PUIs). Clarifying and documenting the impact of the novel coronavirus SARS-CoV-2 on pregnancy and labor and delivery outcomes is an important course of research. OBHG's analysis examined the experience with COVID-19-positive OBHG patients across the country during the first 10 weeks of the pandemic.

# Methodology

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## What does this study add to what is already known?

This study supports previously documented evidence of high percentage of asymptomatic COVID-19 positive pregnant patients as well as regional disparities in prevalence.

The OBHG research team looked at billing and clinician reported data on every COVID-19-positive patient seen by OBHG clinicians from March 16, 2020 through May 19, 2020. The data included every instance where an individual patient was billed with a COVID-19 ICD-10 code during the time period noted above and was cross referenced with cases from a clinician reporting mechanism through a reporting hotline. Patient identifying information was redacted at the point of collection. Data was collected as raw data on the number of individual patients seen who, at some point at or after entry to the hospital, had a positive test for COVID-19. These data of positive patients were then compiled as percentages of the total number of patients seen at those sites reporting cases during the time frame of data collection. OBHG collected other information including gestational age at presentation, presence or absence of COVID-19-related symptoms and reason for presentation in terms of the presence or absence of obstetrical symptoms. Obstetrical symptoms were defined as those typical for pregnancy-related triage including bleeding, concern for ruptured membranes, contractions or other pelvic or abdominal pain. COVID-19 symptoms included those previously documented such as cough, shortness of breath, fever, nausea and/or vomiting, diarrhea, loss of sense of smell, headache, fatigue, myalgia and sore throat.

# Results

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## *Geographic*

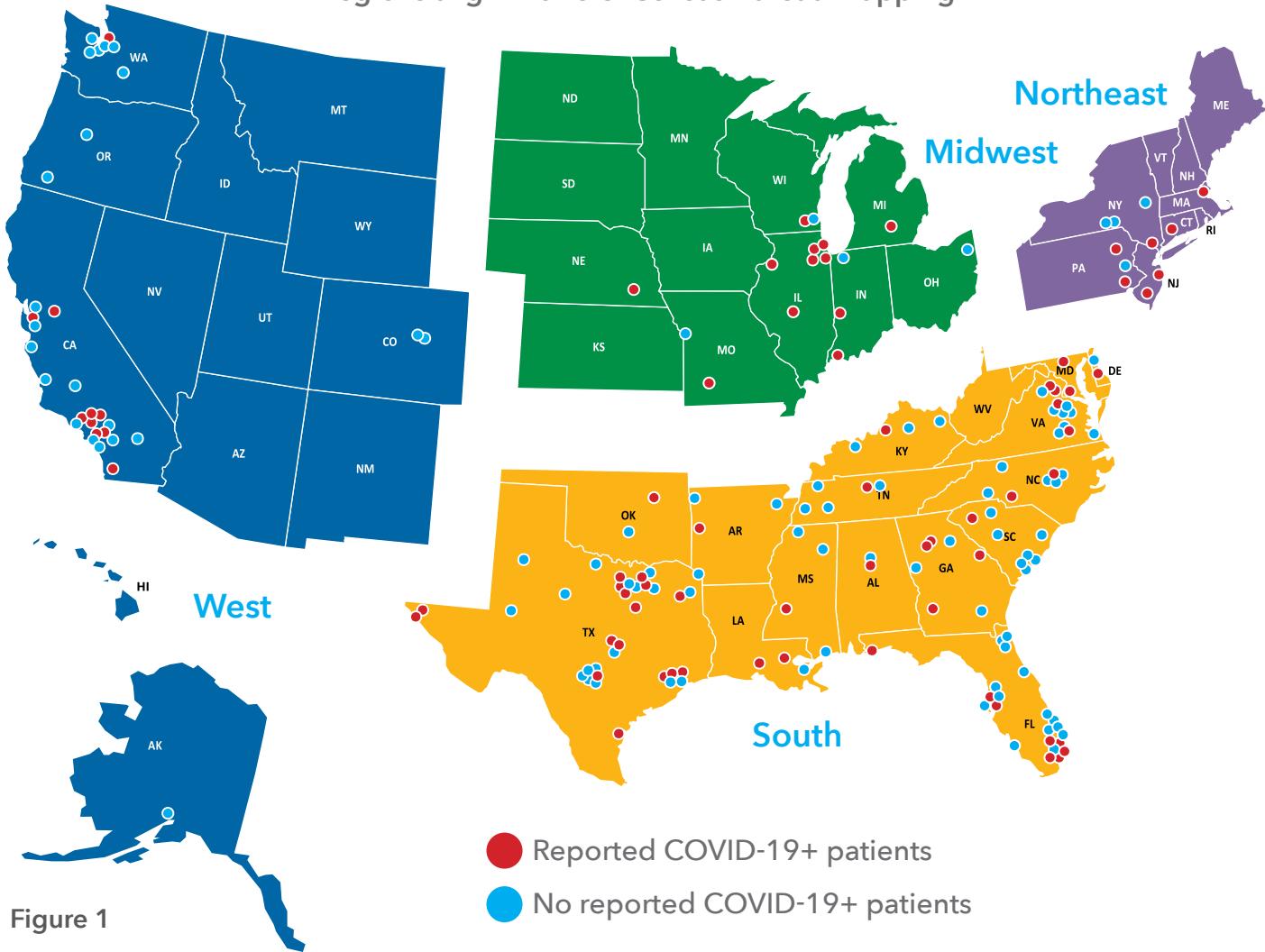
The data encompasses reporting from 168 hospital programs across 32 states in all four regions of the U.S. Each of the 168 programs were active during the entirety of the 10-week collection time period. Regions were divided along previously documented U.S. Census Bureau mapping. During the 10 weeks of data collection, there were 204 confirmed positive patients seen in 76 programs across 28 states. Six patients were excluded from the results as additional presenting information for them was not available, leaving 198 cases with required characteristics for calculations. While 32 states were represented by programs,

only 28 states had OB hospitalist programs that reported COVID-positive patients. Alaska (one program), Oregon (two programs), Colorado (two programs) and Ohio (one program) had active hospitalist programs but no reported cases within the 10-week collection time. In the Northeast region, COVID-19-positive cases came from seven programs in five states. The Southern region had cases in 48 programs in 15 states. The Midwest had 11 programs in six states with positive cases and Western states had cases in 10 programs in two states.

# OB hospitalist COVID-19+ patient interactions

## March 16 - May 19, 2020

## Regions align with U.S. Census Bureau mapping



**Figure 1**

Cases in the first week were exclusive to the South and Northeast (between March 16 and 27) with no cases on the west coast seen until week two.

In total over the course of the timeline, there were 14 cases seen in the West, 114 in the South, 46 in the Northeast and 30 in the Midwest. When considered as an overall percentage of total patients seen at the same sites during this 10-week time frame, that equated to 0.6% in the West, 0.8% in the South, 2.9% in the Northeast, and 1.1% in the Midwest (Figure 2). The peak case presentation was in week nine with a total of 38 confirmed positive patients seen that week. By the end of the timeline, case numbers had stabilized or decreased in rate in all regions with the Northeast still hovering above 7% of patients presenting having a positive test (Figure 2).

### Percentage of all cases with COVID-19+

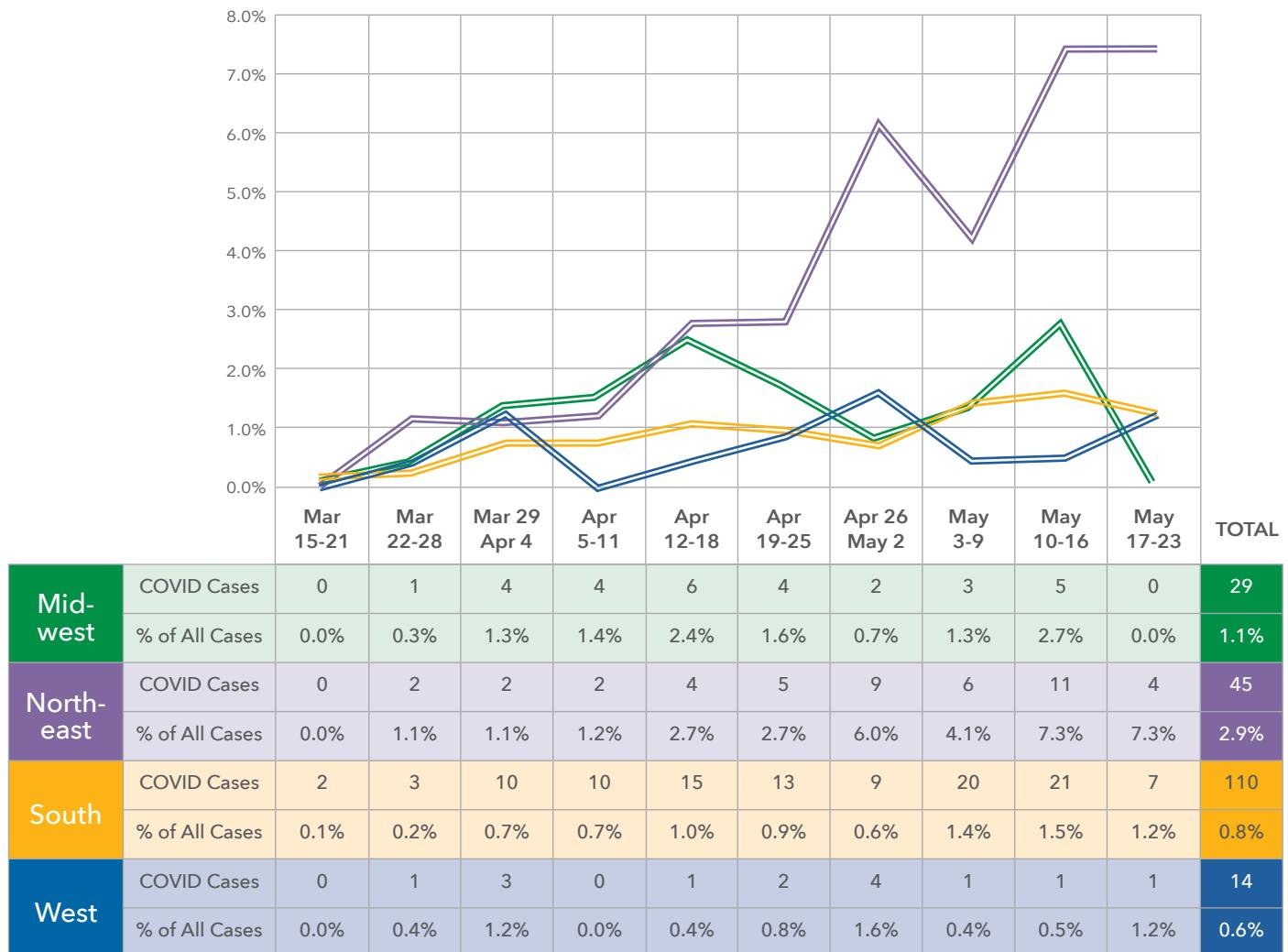


Figure 2

## Patient symptoms

Of the 198 COVID-19-positive patients presenting during this time with patient characteristics available, 68 presented with symptoms consistent with COVID-19 (34.3%) while 115 (58.1%) were asymptomatic. Of those patients asymptomatic for COVID-19-related symptoms, 104 (90.4%) presented for obstetrical reasons. Of those asymptomatic patients that presented for obstetrical reasons, 40 (38.4%) were preterm, with seven (6.7%) presenting in the first or second trimester (5-27 weeks). In the group of COVID-19-asymptomatic patients, 53 (51%) were term gestation. In the 68 patients who presented with symptoms of COVID-19, 51 of them (75%) presented with a non-obstetrical complaint.

## Patient demographics

Total Patients Demographics						
BY GESTATION:	All Presentation Complaints		OB Complaints		Non-OB Complaints	
Total Patients	198	100.0%	121	61.1%	77	38.9%
Preterm (5-27 weeks)	29	14.6%	7	5.8%	22	28.6%
Preterm (28-36 weeks)	65	32.8%	41	33.9%	24	31.2%
Term (>= 37 weeks)	68	34.3%	61	50.4%	7	9.1%

- Those without gestational age confirmation and postpartum patients are excluded from gestational age subcategories

Asymptomatic COVID-19+ Patients Demographics						
BY GESTATION:	All Presentation Complaints		OB Complaints		Non-OB Complaints	
Asymptomatic Patients	115	58.1%	104	90.4%	11	9.6%
Preterm (5-27 weeks)	7	6.1%	7	6.7%	0	0.0%
Preterm (28-36 weeks)	34	29.6%	33	31.7%	1	9.1%
Term (>= 37 weeks)	54	47.0%	53	51.0%	1	9.1%

- Those without gestational age confirmation and postpartum patients are excluded from gestational age subcategories

## Symptomatic COVID-19+ Patients Demographics

BY GESTATION:	All Presentation Complaints		OB Complaints		Non-OB Complaints	
Symptomatic Patients	68	34.3%	17	25.0%	51	75%
Preterm (5-27 weeks)	21	30.9%	0	0.0%	21	41.2%
Preterm (28-36 weeks)	30	44.1%	8	47.1%	22	43.1%
Term (>= 37 weeks)	11	16.2%	8	47.1%	3	5.9%

- Those without gestational age confirmation and postpartum patients are excluded from gestational age subcategories

## Study takeaways

### *Principal Findings*

Others have suggested a high prevalence of asymptomatic positives in the labor and delivery patient population (1) with risk factors unique to the pregnant population (2). Interestingly, 58% of the cases in the OBHG study were in patients asymptomatic for COVID-19-related symptoms at presentation. Most of the COVID-19 asymptomatic patients presented for obstetrical reasons, so would not have otherwise been suspected for infection initially.

### *Results in the context of what is known*

The number of positive cases was highest in the South and the Northeast, and cases in those regions were seen earlier in the timeline than the West. This is despite the fact that the first deaths in the U.S. related to COVID-19 occurred in the western state of Washington. Because there were also more programs in the South and Northeast, the OBHG team looked at the positive cases as a percentage of overall patients seen in those hospitals/regions. Of note, case numbers in the Northeast were highest as a percentage of total patients seen and continued to stay elevated by week 10 when cases in the other regions were lower. By the end of the 10-week timeline, case numbers were trending downward in the South and Midwest and hovering just above 1% in the Western states. This timeline corresponds with trending maps of cases in all hospitalized patients during this same time frame. (3)

## Clinical Implications

OBHG's analysis suggests the ongoing need to implement universal testing strategies and appropriately allocate PPE and management protocols on labor and delivery units until further information regarding site specific prevalence of asymptomatic patients can be elucidated.

### *Clinical Implications*

More than half of cases presenting (58.1%) were asymptomatic for COVID-19 and of those, 90.4% presented with obstetrical complaints. These patients would not have otherwise been suspected for COVID-19 and represent an opportunity to highlight a need for universal testing of all patients on labor and delivery units to preserve PPE and protect healthcare workers on the frontline of this important care moving forward.

OBHG's data suggests the ongoing need to implement universal testing strategies and appropriately allocate PPE and management protocols in labor and delivery units until further information regarding site specific prevalence of asymptomatic patients can be elucidated.

### *Research Implications*

Additional studies need to be done to determine further details regarding hospital course and outcomes in obstetrical patients with COVID-19.

## Strengths and Limitations

OBHG's analysis represent the experience of OB hospitalist programs with COVID-19-positive patients encompassing every region of the U.S. during the first 10 weeks of the pandemic. While most states are represented, there are 18 states where programs are not in place. We do feel however, that our program footprint across the U.S. map is representative of the demographic makeup in each of the regions. Additionally, our data is limited by the nature of extraction from billing data and cases reported to a hotline for cross reference. We did not have the ability to access patient records to follow hospital course or other clinical characteristics and therefore, outcomes information is not available. Additionally, there were six cases for whom our other demographic data was not available, so they were excluded from the final case count. There were also nonpregnant patients (four who presented with gynecologic issues and two postpartum patients) which were too small in number to analyze separately but contributed to the total count. These patients were not included in calculations of pregnant patients and further decreased the number of patients in those categories.

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Of the obstetrics patients who tested positive for SARS-CoV-2 at some time at or after presentation to the hospital, **58%** were asymptomatic for COVID-19 related symptoms. Of the group asymptomatic for COVID-19 symptoms, **90.4%** presented with obstetrical complaints.

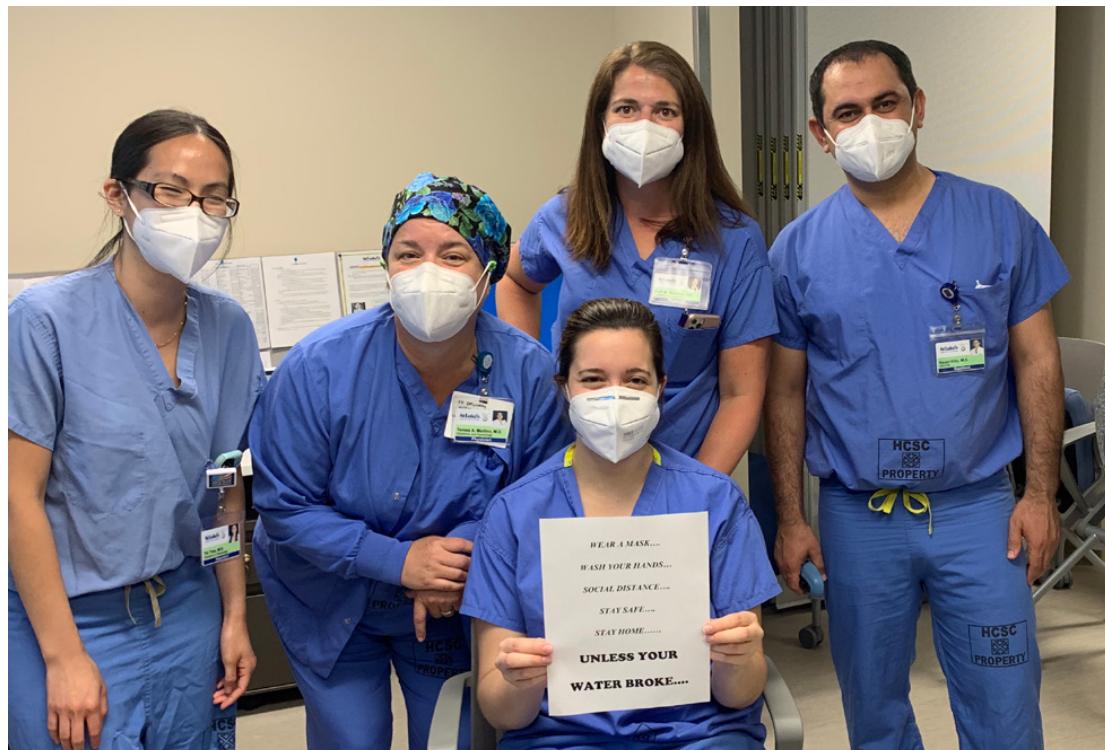
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# Conclusion

Overall, the OBHG's data suggests a high percentage of patients who ultimately test positive for the virus present to OB units across the country for obstetrical reasons, without clear COVID-19-related symptoms. As universal testing for all patients admitted to labor and delivery units becomes more widely available across the United States, researchers will be able to further ascertain the true rate of asymptomatic COVID-19-positive patients in labor and delivery units and will be able to better plan appropriate interventions and PPE distribution.

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# About OBHG

As the nation's largest and only dedicated OB hospitalist provider, Ob Hospitalist Group has led the industry in developing and managing obstetric hospitalist programs since 2006. We deliver 24/7 real-time triage, provide coverage for unassigned patients, handle obstetrical emergencies and offer collaborative non-competitive support for private-practice physicians. Our mission is to improve care and access for pregnant women and improve work-life balance for OB/GYNs. OBHG hospital partners see better patient outcomes, reduced malpractice liability and better overall customer experience.





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