**The OB/GYN Hospitalist Experience During Coronavirus Disease 2019 (COVID-19)**

Coronavirus disease 2019 (COVID-19) was first identified in Wuhan, China in December 2019 and rapidly developed into a worldwide pandemic.[1] Several excellent summaries have been published detailing the clinical characteristics of COVID-19 infection in pregnancy and summarizing the development of safety protocols for inpatient obstetric units.[1,2,3] Strategies employed on Labor and Delivery units have included the following: screening for COVID-19 symptoms in pregnant women and/or staff, testing for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) for symptomatic women or universal testing for all admissions, masking of patients, and using personal protective equipment (PPE) for staff.[1,2,3]

OB/GYN hospitalists are at the frontline of inpatient obstetric services in many hospitals, and as such, are in a unique position to comment on the experience of delivering care to pregnant women as the COVID-19 pandemic continues to evolve. The Society of OB/GYN Hospitalists (SOGH) Research Committee surveyed member OB/GYN hospitalists at the beginning of the pandemic and again in August 2020 regarding the use of strategies and protocols to decrease COVID-19 transmission risk and conserve PPE. Additionally, we collected descriptive and qualitative information on the thoughts and concerns of OB/GYN hospitalists about their experiences during this time.

## Methods

In the spring of 2020, the SOGH Research Committee developed a 16-question survey in SurveyMonkey. In addition to demographic information, participants were asked about their hospital's protocols for masking of patients, masking of staff, PPE reuse practices, universal testing of patients, and their perception about the adequacy of PPE supplies at their institution. For each of these questions, we asked participants to describe policy in March through April 1" and also "currently" (i.e. April 15-30), in order to capture changes in practice during this rapidly evolving time. Finally, we asked participants to describe anything else of importance to their work experience during the pandemic in an open-ended format. An email containing a link to the survey was sent to all SOGH members on April 15, 2020. A reminder email was sent on April 23, 2020, and the responses were collected through April 30.

Six months later, a follow up 9-question survey was developed. This survey again collected data on demographics, patient and provider masking, SARS-CoV-2 testing on L&D, and PPE supplies. We also collected additional information on rationing and reuse of PPE, and respondents' perceptions of personal risk related to COVID. Finally, we again asked participants to report anything else of importance to them personally or professionally as frontline workers during the pandemic. The follow up survey was sent to the SOGH membership on August 6, 2020, followed by several reminder emails. Responses were collected through September 11, 2020.

This survey study was deemed exempt from IRB approval via the University of California, Irvine (UCI).

## Results

### Demographics

The initial survey in spring 2020 was sent to 1,065 SOGH members, from which we received 153 responses, for a response rate of 14.6%. The follow up survey in August 2020 was sent to 1,182 members, from which we received 156 responses, for a response rate of 13.2%.

The OB/GYN hospitalists responding to the surveys represented a diverse sample from across the US. Most respondents to the initial survey were from the South (40.4%), followed by the West (25.2%), Midwest (19.9%), and Northeast (12.6%) regions. Follow up respondents similarly were from the South (38.5%), West (25.0%), Midwest (20.5%), and Northeast (16.0%). The geographic location of respondents also closely approximates respondents to the SOGH salary survey, most recently conducted in 2018. Most respondents (73.8% initially and 75.0% on follow up) worked at hospitals with moderate delivery volume (1,000 to 4,999 deliveries/year). The majority of respondents (61.4%) worked in urban locations on the initial survey; however, on the follow up survey, a smaller number (49.4%) reported working in an urban area, followed by 42.9% of respondents who reported working in a suburban location. The practice setting of respondents shifted slightly from the initial to follow up surveys. Initially, respondents reported working at non-teaching (60.5%) more often than teaching institutions. On follow up, respondents were more evenly split between teaching (52.6%) and non-teaching (47.4%) institutions.

**Patient and Provider Masking**

Responses to the initial survey reflected the rapid changes in hospitals' COVID response protocols in the spring of 2020. As of April 1, 65.1% of respondents reported their institution was requiring only patients with symptoms to wear a mask. By April 15-30, 77.3% reported their hospital required all patients to wear masks, and by August 2020, virtually all respondents (98%) reported that all patients were required to wear a mask while in the hospital.

Table 1: Patient Masking

| | April 1, 2020 | April 15-30, 2020 | August 2020 |
|---|---|---|---|
| All patients required to mask | 30.8% | 77.3% | 98.0% |
| Only patients with symptoms required to mask | 65.1% | 20.6% | 1.3% |
| Other response | 4.1% | 2.1% | 0.7% |

Requirements for provider masking also changed rapidly early in the pandemic as reported by respondents. As of April 1, only 45.5% of respondents reported their institution required all providers to wear a mask; and in fact, 34.9% of respondents reported their institution asked providers not to wear masks outside of high-risk situations requiring specific PPE. In contrast, by late April almost all respondents (95.2%), and by August all respondents reported their institution required masking of all providers.

Table 2: Provider Masking

| | April 1, 2020 | April 15-30, 2020 | August 2020 |
|---|---|---|---|
| All providers required to mask at all times | 45.5% | 95.2% | 100% |

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|---|---|---|---|
| Providers required to mask only for specific indications | 17.1% | 0.7% | 0 |
| Providers asked NOT to wear a mask | 34.9% | 1.4% | 0 |
| Other response | 2.1% | 2.7% | 0 |

**Testing**

Rapid change was also seen in the uptake of universal testing for SARS-CoV-2. As of April 1, only 3.4% of respondents reported their institution was universally testing all Labor and Delivery admissions for SARS-CoV-2 infection. The number of respondents reporting universal testing increased to 32.9% by late April and to 72.2% by August.

Table 3: Universal Testing for SARS-CoV-2 on L&D Units

| | April 1, 2020 | April 15-30, 2020 | August 2020 |
|---|---|---|---|
| Yes | 3.4% | 32.9% | 72.2% |
| No | 96.6% | 67.1% | 27.8% |

In the follow up August survey, respondents were additionally asked about the turnaround time for SARS-CoV-2 testing and if patients were retested with longer length of stay. The length of time for test results varied considerably between respondents, ranging from < 1 to > 4 hours. Most respondents reported that patients in their unit were not retested; however, 5.3% indicated that patients were automatically retested after 3 days, and 11.3% reported that patients were retested after 3 days and/or with readmission.

Table 4: SARS-CoV-2 testing turnaround time

| Time | N | % |
|---|---|---|
| < 1 hour | 29 | 19.2% |
| 1-2 hours | 41 | 27.2% |
| 2-4 hours | 33 | 21.9% |
| > 4 hours | 48 | 31.8% |

**PPE Supplies**

Though OB/GYN hospitalists' perceptions of PPE supply at their institution varied, both at the beginning of the pandemic and in August, there was a trend toward a perceived increase in adequacy of PPE supplies. On April 1 only 41.1% of respondents perceived the PPE supply to be adequate or better at their institution and 15% reported completely inadequate PPE supplies. By August, however, PPE supplies were reported as adequate or surplus by most (64.2%) respondents.

Table 4: Perception of PPE Supplies

| Response | April 1, 2020 | April 15-30, 2020 | August 2020 |
|---|---|---|---|
| Completely inadequate | 15.1% | 7.5% | 4.0% |
| Somewhat inadequate | 43.8% | 43.2% | 31.8% |
| Adequate | 39.0% | 48.6% | 62.2% |
| Surplus | 2.1% | 0.7% | 2.0% |

In both surveys, we asked OB/GYN hospitalists about rationing and reuse of PPE. In our initial survey, almost all respondents (91.7%) reported their institutions were requiring reuse or rationing of PPE. For our follow up survey, we collected additional detail about the type of reuse or rationing. In August, most participants reported rationing of N95s (86.1%) and goggles/face shields (61.6%). Most respondents reported reusing surgical masks, for either an entire shift (55%) or more than one shift (21.9%), rather than discarding after single use (23.2%).

**Use of N95 Respirators**

Many of the survey comments at the beginning of the pandemic referenced concern about aerosolization during the second stage of labor, as well as inadequate supply or improper reuse of N95 respirators. In our follow up August survey we explored these concerns. Almost all respondents (99.3%) reported support for use of an N95 or higher respirator during the second stage of labor for COVID patients. Slightly fewer (84.1%) reported the same for patients of unknown COVID-19 status. We also asked respondents specifically about their institution's adherence to CDC and National Institute for Occupational Safety and Health (NIOSH) guidelines[4] for appropriate reuse of N95 respirators beyond their intended one-time usage. The CDC/NIOSH defines extended use as "the practice of wearing the same N95 respirator for repeated close contact encounters with several patients, without removing the respirator between patient encounters" and limited reuse as "the practice of using the same N95 respirator for multiple encounters with patients but removing it ('doffing') after each encounter". Reported adherence to CDC/NIOSH best practices for extended use and limited reuse of N95 respirators is shown in Table 5 below. Of all respondents, less than 5% reported no reuse of N95s. Most respondents reported adherence to discarding an N95 contaminated by body fluids (73.6%) and performing hand hygiene before and after N95 use (72.2%). Adherence was relatively low to many of the other CDC/NIOSH best practice guidelines for N95 extended use and limited reuse. Finally, reprocessing of N95s at their institutions was reported in our follow up August survey by 58.3% of respondents.

Table 5: Reported Adherence to CDC/NIOSH Guidelines on N95 Extended Use and Limited Reuse

| Practice | N | % |
|---|---|---|
| Discard N95 after aerosolizing procedure | 33 | 21.9% |
| Discard N95 if contaminated with body fluids | 111 | 73.6% |
| Discard N95 if worn into a "contact precautions" room | 26 | 17.2% |
| Use a cleanable face shield (*not a surgical mask) over | 77 | 51.0% |

| | | |
|---|---|---|
| N95 to decrease contamination | | |
| Perform hand hygiene before and after touching the respirator | 109 | 72.2% |
| Discard the N95 if inadvertent contact is made inside it | 32 | 21.2% |
| Use gloves and perform a seal check when donning N95 | 53 | 35.1% |
| Reuse limited to a certain number (usually 5) | 59 | 39.1% |
| Label containers to store the N95, or the respirator itself | 85 | 56.3% |
| N/A – no reuse of N95s | 7 | 4.6% |

**Perception of Risk**

In our August survey, respondents were asked the question, "What is your current perception of your risk of contracting COVID-19 at work?" with possible answer choices as low, medium, or high. As shown in the following table, most participants rated their perceived risk as low (49.7%) or medium (41.2%).

| Risk Perception | N | % |
|---|---|---|
| Low | 75 | 49.7% |
| Medium | 63 | 41.2% |
| High | 13 | 8.6% |

Of those respondents who explained the reason for their perceived personal risk, there was a clear pattern noted. The respondents endorsing low perceived personal risk commented on low volume of COVID patients or low COVID incidence in their regions, adequate PPE supplies, and a culture of safety at their institutions. For example, one respondent stated,

> "We are not in an area that is currently very high risk, and precautions are enforced very seriously".

Another who endorsed low perceived risk reported,

> "Our PPE supply is adequate and our prevalence is relatively low. We are universally testing".

In contrast, respondents who endorsed high perceived risk commented on the following issues: high rates of COVID in their geographic location or hospital unit as well as their own personal risk factors, such as age or health conditions. Systems issues reported by those who endorsed high perceived risk included lack of adequate PPE supplies and a lack of enforcement of safety protocols. One stated,

> "I do not feel that we have adequate PPE to allow adequate safety precautions".

Across the respondents reporting medium perceived risk, the most frequent comments related to lax enforcement of safety protocols, particularly surrounding masking. For example, one wrote,

> "people don't wear their masks properly, or take them off, increasing our risk".

Another remarked,

> "inadequate enforcing of mask wearing by patients and support person."

**Care Delivery During COVID-19**

In both the spring and fall surveys, we asked a final open-ended question, allowing respondents to comment on anything of importance to them related to the pandemic in either their professional or personal experiences. Several major themes emerged in both the initial and follow up surveys, which are summarized here.

**PPE is a concern for many OB/GYN hospitalists.**

The majority of concerns expressed in the initial survey surrounded a lack of available or accessible PPE supplies. There were frustrations voiced about wearing the same mask over and over, the lack of transparency about the actual supply of PPE, the appropriate type of PPE for the 2nd stage of labor, and the rationale of use seemingly based on supply rather than safety concerns.

Though a greater percentage of hospitalists reported adequate PPE by August 2020, PPE remained a concern for many. Numerous respondents in August commented on a lack of routine PPE such as booties and surgical caps, as well as supplies such as disinfectant and COVID testing reagents. OB/GYN hospitalists expressed frustration with the lack of specific PPE, for example,

> "We have been reusing the same N95 since issue in March".

Hospitalists also expressed frustration with non-compliance to masking of patients and family members. The availability of PPE, as well as adherence to infection prevention guidelines, seems to play a role in OB/GYN hospitalists' personal perception of risk of COVID-19.

**Many OB/GYN hospitalists reported challenges in their personal lives related to the pandemic.**

Several respondents commented on anxieties and frustrations in their personal and family lives. Of those who reported low perceived personal risk of infection at work, many still commented on worry of infecting others. For example, one commented,

> "Although I do not think my risk is very high, it still worries me that I could inadvertently infect my family".

This sentiment that was repeated by several individuals. Respondents also remarked on the negative impact of the loss of social interaction. For example,

> "I am weary of minimizing interaction with grandchildren".

Another stated simply,

> "Isolation."

Others reported challenges related to childcare and parenting.

**For some OB/GYN hospitalists, the pandemic has led to more challenging work interactions**.

From our follow up survey in August in particular, several respondents remarked upon difficulties in the working environment. As one person commented,

> "There is a huge variation in provider concern regarding risk, from being completely over it and unconcerned, to being unwilling to care for patients until their COVID test is back, and this causes even more friction in an already emotionally difficult time".

Others commented on the need to manage the anxiety of co-workers and animosity from colleagues about new policies contributing negatively to the work culture. In addition to strained personal interactions, some remarked on increased burden of the work itself. For example,

> "It is exhausting to don/doff between patient encounters, … has been a significant impact to workflow."

Another wrote

> "There is also an increased amount of administrative work (planning meetings, dissemination of information, schedule adjustments…)".

**Effective leadership and a culture of safety appear to have a positive impact on OB/GYN hospitalists' experiences during the pandemic.**

Many respondents in both our initial and follow up surveys emphasized the importance of leadership, even if they did not mention holding an administrative role themselves. One wrote,

> "Our hospital has a COVID team (includes Admin, Peds, NICU, OB, ICU, MFM and Anesthesia) which is meeting almost daily to review policies, protocols and procedures. They have been very receptive to testing and proper PPE use."

Another individual stated,

> "I am proud of the leadership providing education, training, and daily updates".

Leadership, or lack thereof, on a national level has also been an important factor for some OB/GYN hospitalists. Several individuals lamented the lack of available PPE as a failure of national leadership, for example,

> "PPE is essential... there could have been adequate supply should the federal government [have] stepped in…".

Others highlighted the importance of statements and guidelines from national organizations in driving safety protocols at the local level. One wrote,

> "SOGH and SMFM recommendations were highly influential in shaping PPE and testing policies, thank you!"

## Discussion

This survey by the SOGH Research Committee demonstrates the rapid changes in COVID-19 protocols on labor and delivery units nationally during the beginning of the United States COVID-19 experience and the perceptions of OB/GYN hospitalists impacted in their daily work. Although the response rate was low, we believe the information collected is of value to individual OB/GYN hospitalists and institutions alike, particularly as the pandemic continues.

Although it is encouraging to see that the perceived adequacy of PPE supplies increased from the beginning of the pandemic to August 2020, 35.8% of respondents still reported concerns about PPE supply at their institution on the follow up survey, responding that the supply was either "somewhat inadequate" or "completely inadequate". It is clear from our survey results that individual OB/GYN hospitalists perceive their personal risks of COVID-19 differently. Based on the comments received, it seems that perceived personal risk is associated with perceived adequacy of PPE. The underlying direction of this association, however, remains unclear. It might be that greater availability of PPE leads directly to feelings of safety and a lower perception of risk. It could, however, also be that an individual with perceived low risk of infection perceives a lower need for PPE, and thus, perceives a lesser supply as adequate.

Reflecting upon what worked well at their institutions during the pandemic, many OB/GYN respondents reported that inclusive and transparent leadership, effective communication, and efficient information sharing were helpful. These strategies could be used by hospitals to facilitate increased trust in the system, lessen concerns, and help obstetricians face inevitable uncertainties from a place of greater security and confidence. The perceptions and experiences of providers are important because they have downstream impacts on patient care and satisfaction, and provider engagement and retention. The importance of these factors should not be underestimated by hospital systems.

As the COVID-19 pandemic continues, it is vital that local and national organizations be proactive in taking steps to support the health and well-being of both pregnant women and obstetricians. Expanding the supply of available PPE is a crucial first step in achieving this goal. We note that almost all our respondents in August reported rationing of PPE, and further reported poor adherence to CDC/NIOSH best practices on extended use and limited reuse of N95 respirators. Both at individual institutions and on a national level, the goal must be a return to routine practices for use of PPE that specifically includes disposal after a single use for PPE intended for single use. When routine infection prevention strategies are not feasible because of inadequate supply, at a minimum, healthcare institutions should adhere to CDC/NIOSH best practices to conserve PPE supplies.

Finally, it should be noted that the OB/GYN hospitalist team fills a unique role in the frontline of delivering care for pregnant women. OB/GYN hospitalists should be prioritized as frontline workers. In addition, healthcare systems can rely on the OB/GYN hospitalist team as a valuable resource when developing safety protocols, guidelines, and provider education. Proactive, multidisciplinary collaboration with the OB/GYN hospitalist team supports and promotes a culture of safety and quality within inpatient obstetric units, which is essential as the COVID-19 pandemic continues to evolve.

**References**

[1] Rasmussen SA, Smulian JC, Lednicky JA, Wen TS, Jamieson DJ. Coronavirus disease 2019 (COVID-19) and pregnancy: what obstetricians need to know. Am J Obstet Gynecol 2020;222(5):415-426.

[2] Jamieson DJ, Steinberg JP, Martinello RA, Perl, TM, Rasmussen SA. Obstetricians on the Coronavirus disease 2019 (COVID-19) front lines and the confusing world of personal protective equipment. Obstet Gynecol 2020;135(6):1257-1263.

[3] Dashraath P, Wong JLJ, Lim MXK, Lim LM, Li S, Biswas A, Choolani M, Mattar C, Sui LL. Coronavirus disease 2019 (COVID-19) pandemic and pregnancy. Am J Obstet Gynecol 2020;222(6):521-528.

[4]National Institute for Occupational Safety and Health (NIOSH). Recommended guidance for extended use and limited reuse of N95 filtering facepiece respirators in healthcare settings. Retrieved on 1/23/2021 from https://www.cdc.gov/niosh/topics/hcwcontrols/recommendedguidanceextuse.html.