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Application of the Principles of Biomedical Ethics to the Labor and Delivery Unit During the COVID-19 Pandemic

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Abstract

After its identification as a human pathogen in 2019, the novel coronavirus, SARS-CoV-2, has spread rapidly around the world. Health care workers worldwide have had the task of preparing and responding to the pandemic with little evolving data or guidelines. Regarding the protocols for our labor and delivery unit, we focused on applying the four pillars of biomedical ethics—beneficence, nonmaleficence, autonomy, and justice—while considering the women, their fetuses, their significant others and support persons, health care professionals and auxiliary staff, and society as a whole. We also considered the downstream effect of our decisions in labor and delivery on other disciplines of medicine, including pediatrics, anesthesiology, and critical care. This article focuses on how these prima facie principles helped guide our recommendations in this unprecedented time.

Keywords: ethics, COVID-19, labor and delivery

Introduction

Since its emergence as a human pathogen in 2019, the novel coronavirus, SARS-CoV-2, has spread rapidly around the world. As of September 8, 2020, Johns Hopkins University had tabulated 27,401,024 cases of COVID-19, the illness caused by SARS-CoV-2, in 188 countries, regions, or sovereignties.[1] Of these cases, 6,613,314 were in the United States. The virus had caused 893,871 deaths worldwide, including 189,366 deaths in the United States.[1]

In response to the rapid spread of the virus, the World Health Organization characterized COVID-19 as a pandemic on March 11, 2020,[2] and the President of the United States declared a national emergency on March 13, 2020.[3]

The pandemic has disrupted life in myriad ways. In the United States, state governors responded with executive orders closing schools, daycares, and businesses; restricting travel; prohibiting mass gatherings; imposing quarantines; and requiring other changes that have significantly impacted individuals and organizations, both public and private.[4] Other nations have enacted similar measures to address public health needs.

Health care workers worldwide have had the task of preparing and responding to the pandemic with a paucity of data, which is also evolving. For example, initial reports out of China showed that children exposed to COVID-19 did well,[5] whereas more recent data call that into question.[6] International and national medical guidelines have begun to appear, but they are often broad in scope and continue to require modifications.[7,8]

In the hospital setting, each unit faces its own particular challenges. In the labor and delivery unit, patients arrive unscheduled, and physicians and staff care for both mother and fetus simultaneously. Maternal COVID-19 test status may affect care plans for infants and logistical approaches to caring for the mother, but procedures cannot always be safely delayed until results return. Furthermore, testing has not been broadly accessible for many institutions, and even when available, turnaround time impedes the usefulness of testing to inform patient care plans. Approximately 30% of women in the United States will need a cesarean delivery,[9] often unplanned, and it is not possible to predict in advance who may require general anesthesia with intubation, which is an aerosol-generating procedure that could spread COVID-19.[10]

With broad guidance from national and international organizations, the authors were tasked with developing specific protocols for women who presented to the labor and delivery unit at West Virginia University Hospitals during the pandemic (Figs. 1 and 2).

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Obstetrics and Gynecology Department Plan for Labor and Delivery Unit

Identify Care Team Members
Bedside RN (1:1):
L&D Attending:
Resident:
Anesthesia:

Prior to Admission
□ All women are encouraged to self-quarantine and take temperature twice daily from 37 weeks gestation on (or 14 days prior to scheduled case if planned for less than 39 weeks).
□ Charge RN will call all scheduled cases two days prior to planned admission and screen for symptoms (fever, respiratory issues, sick contacts) in patient and support person.
- If the patient screens positive, charge RN will discuss with attending on call and determine if patient should be tested as an outpatient or rescheduled.
- If the support person screens positive, RN informs patient that no symptomatic visitors are permitted per hospital policy but she is welcome to bring a different, healthy, non-exposed support person.

Discuss Plan of Care with Patient on Arrival
□ The patient (and support person) will wear face mask at all times. The support person cannot leave room at any time.
□ Place patient in Labor and Delivery room HEPA with Filter On
- Charge RN should call central command as needed to ensure at least 2 empty rooms have HEPA filters at all times.

□ Place appropriate precaution sign on door (as of 4/5/2020 enhanced droplet precautions for first stage of labor and postpartum, and airborne precautions for the second and third stages of labor).
□ Place appropriate PPE cart outside door
□ If person is under investigation (PUI) submit nasopharyngeal swab for COVID testing if not done as an outpatient.
□ Discuss CDC recommendations regarding separation of mother and infant after birth and decide on the newborn's likely disposition after birth.
- See also WVU Children's Hospital Newborn Nursery Guideline for Infants or PUI or COVID-19 positive mothers.

□ Formal pediatric or NICU consult for post-delivery plan.
- Any transfer of newborn should be in Isolette.

□ After the patient delivers, and if the couple agrees to the recommendation of separation of mother and baby, the person that has been the support person for the mother can **NOT** be in the baby's room.

Team to Discuss Plan of Care on Patient Arrival and at Start of Each Shift
□ Review isolation protocol and use of PPE; see http://connect.wvumedicine.org/coronavirus/ for the most up to date information.
- As of 4/5/2020 non-aerosolizing procedures (first stage of labor and post-partum) require enhanced droplet precautions with gowns, gloves, surgical mask, and eye protection unless going to the OR. Aerosolizing procedures (2nd and 3rd stages of labor or cesarean) require CAPR (or N95+eye protection), gowns, and gloves.

□ Discuss plan of care.

FIG. 1. Obstetrics and gynecology department plan for labor and delivery unit.

□ Discuss plans to minimize room entry/exit and exposure of multiple staff
- Pharmacy – consult Pharmacy to adjust medication regimens to consolidate number of medication administrations.
- Dietary – modify diet order to "Disposables-Paper/Plastics".
- Labs – assigned nurse will draw labs. A second person should wait outside of the door with a biohazard bag to receive specimens directly from assigned nurse after obtained. These specimens are to be hand delivered to the laboratory.
- Care Management – Care Managers will complete the assessment process via phone and all paperwork that needs to be signed will be coordinated for bedside nurse.
- Phone Number – post patient's room phone number on the outside of the patient's door so that a call can be made to the patient or visitor prior to entering for routine care to ensure nothing else is needed to minimize entrances/exits.

□ Review newborn's likely disposition and update appropriate staff from pediatrics or NICU.

Labor

□ Limit caregivers.
□ All providers to wear appropriate PPE.
□ No delayed cord clamping or skin-to-skin.
□ Placenta: isolated PUI/COVID+ is not an indication to send; if sent, include PUI/COVID+ on requisition.
- Consider not sending placenta for soft indications such as HTN, DM, etc.
- Wipe outside of biohazard bag with purple sani-wipes or gray sani-cloths prior to moving placenta from room.

Anesthesia Concerns – See Anesthesia Department Plan for Labor and Delivery Unit

□ Donning and doffing PPE takes time. Avoid crash situations by anticipating needs.
COVID19 kits with all equipment including drugs for labor analgesia and cesarean delivery.
- Early epidural analgesia may reduce the need for general anesthesia for emergent cesarean delivery.
- A COVID19 diagnosis itself is NOT considered a contraindication for neuraxial anesthesia.
- Avoid emergent cesarean deliveries as much a possible – proactive communication with obstetrical and nursing teams. For respiratory distress intubate early using appropriate PPE.
- Assign the most experienced anesthesia provider whenever possible for procedures (neuraxial, intubation).
- Consider minimizing use of trainees in direct care of COVID19 patients. Minimize the number of personnel in the room.

□ Antiemetics should be administered to prevent vomiting in patients undergoing cesarean delivery. However, due to potential risks of steroids in the setting of COVID infection, consider avoiding the use of dexamethasone for PONV prophylaxis in PUI/COVID+ patients.
□ Proceed to labor and delivery OR 2 in case of cesarean delivery.
□ Patient to wear a mask and a clean sheet is used to cover her for transport.
□ Support person will remain in the labor room and is not permitted in the OR.
□ Appropriate isolation signage is posted to OR door (airborne precautions).
□ Carefully strip the bed of linens in the OR after transfer to OR table and move bed to hallway.
□ Tech immediately wipes down all bed surfaces with purple sani-wipes or gray sani-cloths while wearing gown, gloves, mask, and eye protection.
□ OR equipment handled per usual routine; trash must be double-bagged.
□ Any personal equipment used on mother or newborn (stethoscope, etc.) cleaned with purple sani-wipes or gray sani-cloths.
□ No delayed cord clamping or skin-to-skin; placenta management as above.

FIG. 1. (*Continued*).

In developing our protocols, we focused on applying the four pillars of biomedical ethics—beneficence, nonmaleficence, autonomy, and justice[11]—while considering the women, their fetuses, their significant others and support persons, our health care professionals and auxiliary staff, and society as a whole. We also considered the downstream effect of our decisions in labor and delivery on other disciplines of medicine, including pediatrics, anesthesiology, and critical care. This article focuses on how these prima facie principles helped guide our recommendations in this unprecedented time.

Beneficence versus nonmaleficence

Discussions of biomedical ethics often focus almost exclusively on patients, but as COVID-19 is contagious through asymptomatic transmission,[12] we expanded our focus to include health care workers, the health care system, and society as a whole. Many of our hardest decisions while developing protocols for women in labor during this pandemic have been made in an effort to meet the needs of our patients while trying to mitigate the risks to our staff.

Anesthesia Department Plan for Labor and Delivery Unit

Applicable Areas: Labor and Delivery Unit (L&D)

PURPOSE: L&D has a unique patient population. About 50% of L&D patients arrive unscheduled. Procedures cannot always be delayed until COVID test results return. Maternal test status may affect care plans for infants. Approximately 50% of L&D patients will have a surgical procedure; it is not possible to predict in advance who may require general anesthesia with intubation (an aerosol-generating procedure). It is known, however, that the rate is low.

- **An E1 patient (less than 1 hour) from whom you are unable to obtain history will be treated as high-risk unknown.**
  - **If E1 STAT cesarean section, place surgical facemask and bring directly to designated OB COVID OR (MICC 2). All staff will wear CAPR (or N95 + eye protection) + gown, gloves due to acuity of this scenario and the need for immediate incision without the ability to step away during intubation. Preferentially obtain neuraxial anesthesia if possible. If general anesthesia is required, employ anesthetic strategies to minimize droplet burden (drape, RSI, video laryngoscopy).**
  - **If E1 procedure is <u>not</u> STAT, cesarean section, and neuraxial anesthesia is not an option, ideally intubate in Airborne Infection Isolation Room (negative pressure room) if in ED/ICU/8SE or COVID-designated L&D room with portable HEPA filter if in L&D. If too unstable or if neuraxial anesthesia can preferentially be used, follow aforementioned E1 STAT cesarean section guidelines.**
- **For any E2, E3, or E4 (within 24 hours) urgent/emergent surgeries/procedures, categorize patient as asymptomatic versus known/suspected COVID-19. Follow applicable algorithm.**
  - A sent-pending COVID test does not necessarily = suspected COVID.

Asymptomatic	Known/suspected COVID-19
No fever + no cough + no shortness of breath (+/or No infiltrates on imaging) Admitted for non-respiratory indication AND no known potential exposure	Fever +/or cough +/or shortness of breath each without an obvious alternative etiology (+/or Infiltrates on imaging without an obvious alternative etiology) OR concern for potential exposure (i.e., jail) OR known + COVID-19 test

  - Patient should be placed in COVID-designated L&D room with portable HEPA filtration if risk-stratified to known/suspected COVID-19. Follow Known/Suspected COVID-19/High-Risk Unknown Flowchart.
  - Any E2 (less than 2 hours) or E3 (less than 6 hours) urgent/emergent surgeries/procedures should not be delayed to obtain COVID testing results.
  - Those E4 (within 24 hours) patients risk-stratified to known/suspected COVID-19 should get COVID testing. Testing results should be available within 24 hours. If negative, follow Asymptomatic Flowchart and patient can be moved to regular L&D room. If positive, continue to follow Known/Suspected COVID-19/High-Risk Unknown Flowchart.
    - If for some reason test does not return within the 24-hour window or patient requires intervention sooner than anticipated, continue using Known/Suspected COVID-19/High-Risk Unknown Flowchart and proceed

FIG. 2. Anesthesia department plan for labor and delivery unit.

with surgery/procedure/delivery. However, it may be reasonable to have a discussion between the obstetrician and attending anesthesiologist to potentially postpone until the testing returns if patient/fetal outcome would otherwise be unaffected.

- All outpatients/support persons should ideally be informed to practice self-quarantine starting at 37 weeks OR 14 days prior to scheduled delivery (induction or cesarean section) or procedure if less than 39 weeks. Moreover, outpatients/support persons should be advised to take temperature twice per day and seek medical care during this time period if potential COVID exposure or fever/cough/shortness of breath develops.
    - Scheduled patient/one support person will be pre-screened via phone screening using aforementioned risk-stratifying criteria three days prior. If support person screens positive, support person will not be allowed to accompany patient on admission and will be directed to seek medical care. If patient is risk-stratified to known/suspected COVID-19, Drs. Boyle and Dotson should be contacted to determine current testing capabilities. This will then allow obstetrician to obtain guidance from incident command regarding:
        - Whether patient should come to hospital for potential admission and COVID testing until outpatient testing turnaround time is reduced.
        - Whether patient should instead obtain outpatient testing at the nearest WVU testing location.
        - Determining urgency of proceeding on scheduled date versus postponing to obtain test results first.

Patient Selection: ASYMPTOMATIC

RATIONALE: Manipulation of the airway if general anesthesia is required is considered a significant risk of aerosolizing secretions. There is concern of exposure to the asymptomatic carrier. The following process will be utilized to minimize exposure to secretions and optimize use of PPE.

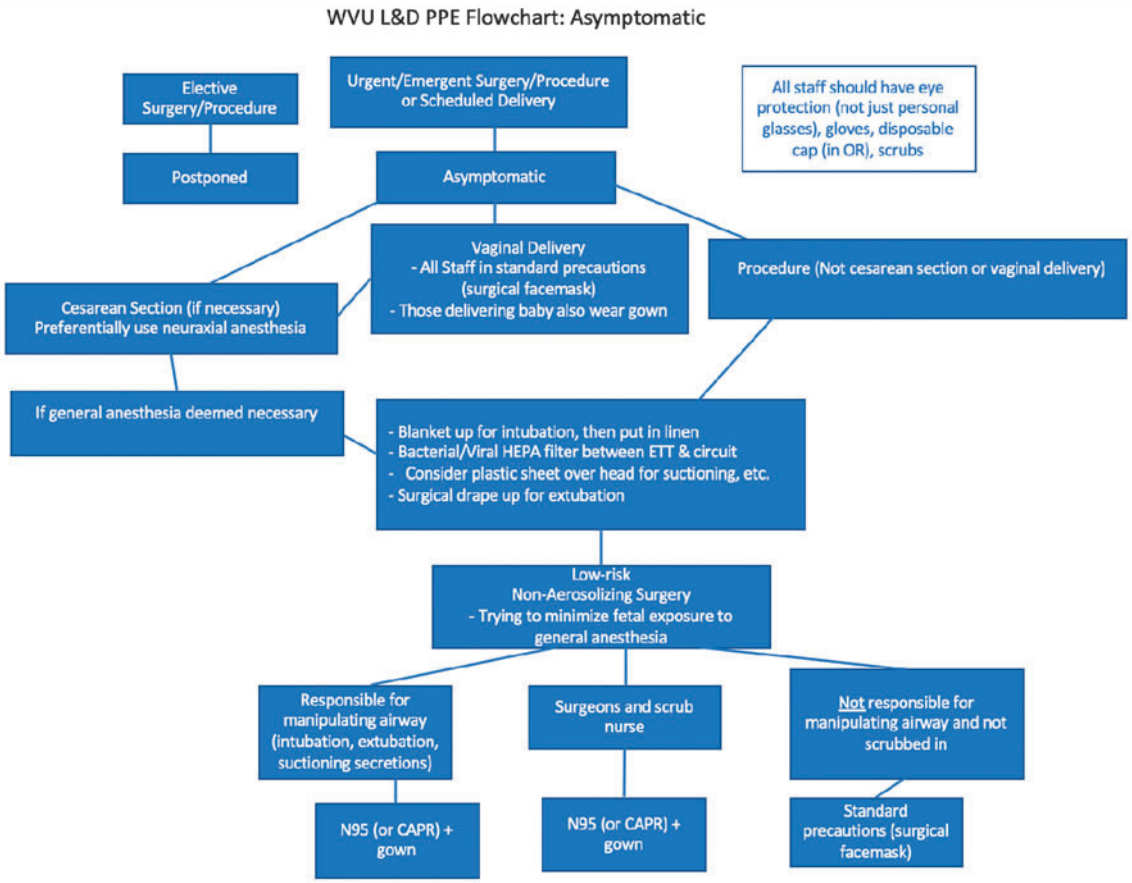
INFECTIOUS CONTROL RATIONALE: The virus is large and can be excreted into the air but is too heavy to be carried by air. Therefore, a barrier to secretions is needed. Negative airflow is not needed or indicated.

PROCESS:

1. Staff involved with patients in labor, neuraxial anesthesia positioning, and vaginal deliveries will adhere to standard precautions (surgical facemask + eye protection + gloves). Staff delivering the baby will also wear a gown.
2. If cesarean section becomes necessary, patient will be transported from L&D room to OR. Those who may potentially manipulate the airway (anesthesiologist, anesthesiology resident, etc.), surgeons, and the scrub nurse will wear N95 + eye protection (or CAPR) + gown, gloves. Given that obstetrical surgery/procedures are low-risk non-aerosolizing surgeries, all other staff will adhere to standard precautions.
3. Neuraxial anesthesia will preferentially be used.
4. If conversion to general anesthesia is necessary, a barrier will be placed across the neck to develop a barrier between the airway manager(s) and the rest of the team.

FIG. 2. (*Continued*).

5. OR staff other than the surgeons and scrub nurse should ideally step away from the drape at least six feet.
6. When ready to extubate, the airway manager will do so behind the surgical drape.
7. All OR staff should ideally step away from the barrier at least six feet.
8. Once the simple facemask is placed, the drape can be removed, and the patient can be transported to the recovery area (after general anesthesia) or L&D room (after neuraxial anesthesia).
9. Infants born in this category will be cared for per standard protocol.



Patient Selection: KNOWN/SUSPECTED COVID-19 OR E1 HIGH-RISK UNKNOWN PATIENTS**

RATIONALE: The OB COVID OR is a standard room without the capacity to use portable HEPA filtration or negative pressure. However, due to its logistical advantages, the fact that these surgeries/procedures are low-risk non-aerosolizing, and there is rarely a need for general anesthesia in this patient population, the OB COVID OR will ideally be used.

PROCESS:

FIG. 2. (*Continued*).

To curb the spread of the virus and protect frontline workers, West Virginia University Hospitals restricted visitors in the inpatient setting and eliminated them in the outpatient setting. Our concern was that limiting support for laboring women could be psychologically damaging and that it could push women toward out-of-hospital births, without being fully informed that the neonatal morbidity is twice that of in-hospital births.[13–15] Therefore, we advocated women have a support person for labor and delivery, as well as postpartum recovery, but we limited that to one individual. The hospital administrators accepted this and additionally made exceptions for visitors for end-of-life care, those

1. The support person must be asymptomatic, must wear a facemask at all times, and must not leave the COVID-designated L&D room for this cohort.
2. Staff involved with vaginal deliveries will adhere to enhanced droplet precautions (surgical facemask + eye protection + gown, gloves) for the first stage of labor. The patient will wear a surgical facemask at all times and be placed in a COVID-designated L&D room that has a portable HEPA filter. The neuraxial anesthesia positioner will additionally wear a CAPR (or N95) for the procedure. Those in close contact with the patient during the second stage of labor will additionally wear a CAPR (or N95).
3. For scheduled cesarean sections, the OB COVID OR will preferentially be used. Those who may potentially manipulate the airway (anesthesiologist, anesthesiology resident, etc.), surgeons, the scrub nurse, and the nurse involved in neuraxial anesthesia positioning will wear CAPR (or N95 + eye protection) + gown, gloves. Given that obstetrical surgery/procedures are low-risk non-aerosolizing surgeries, all other staff will adhere to enhanced droplet precautions (surgical facemask + eye protection + gown, gloves).
4. If cesarean section becomes STAT, patient will be transported with surgical facemask to OB COVID OR. All staff will wear CAPR (or N95 + eye protection) + gown, gloves due to acuity of this scenario.
5. Neuraxial anesthesia will preferentially be used. A simple facemask will be placed under the surgical facemask.
6. If conversion to general anesthesia is necessary, a barrier will be placed across the neck to develop a barrier between the airway manager(s) and the rest of the team.
7. For the scheduled cesarean section, OR staff other than the surgeons and scrub nurse should ideally exit the room for intubation.
8. Anesthetic strategies to minimize droplet burden (drape, RSI, video laryngoscopy) will be employed.
9. For the scheduled cesarean section, OR staff other than the surgeons and scrub nurse will reenter the room once the airway is secured.
10. For patients who were not intubated, patient will be transported back to her COVID designated L&D room for recovery with simple facemask and surgical facemask over top.
    a. The circulating RN in the OR becomes the OB recovery room RN. This RN should doff contaminated PPE and don clean PPE (CAPR [or N95 + eye protection] + gown, gloves in the event airway has to be manipulated by RN) at the end of the case for recovery period. Then this nurse will meet the OR team at OR room for transport. This RN will serve as interactor with the environment (having not interacted with patient or potentially contaminated equipment in the clean PPE).
    b. OB recovery room RN will stay at bedside until all standard recovery parameters are met.
    c. An experienced member of the anesthesia team will remain immediately available for approximately 30 minutes on OB floor during the recovery phase.
    d. OB recovery room RN then transitions to become the L&D RN once standard recovery parameters are met, at which point enhanced droplet precautions can be used (surgical facemask + eye protection + gown, gloves).

FIG. 2. (*Continued*).

with limited capacity, and pediatric patients. The question of a doula being allowed as a second support person was discussed, but we believed this could (1) result in a two-tiered system where women with more resources would have more support than women with fewer resources and (2) create a loophole for women to bring in additional family members or friends. Therefore, we ultimately did not make an exception for doulas.

In an effort to protect staff, we have stressed frequent communication through team huddles, minimizing the use of

11. For patients who required intubation, patient will ideally be transported to an Airborne Infection Isolation Room for extubation (COVID Floor/SDU [8SE] or MICU depending on care needed). The recovery room will be bypassed.
    a. For those going to ICU, preferentially transport using ICU ventilator with HEPA filter if available; if not, use AMBU bag with HEPA filter (to switch from anesthesia ventilator, clamp ETT [paralyzed or with expiration], disconnect anesthesia ventilator from HEPA filter, and connect HEPA filter to Ambu bag).
    b. For those going to COVID floor/SDU (8SE) rather than ICU, the circulating RN in the OR will become the OB recovery room RN. This RN should doff contaminated PPE and don clean PPE (CAPR [or N95 + eye protection] + gown, gloves, in anticipation of the recovery phase when airway may have to be manipulated by RN). Then this RN will meet the OR team at OR room for transport. This nurse will serve as interactor with the environment (having not interacted with patient or potentially contaminated equipment in the clean PPE).
    c. This OB recovery room RN will partner with 8SE RN for care of the patient.
    d. OB recovery room RN will stay at bedside until all standard recovery parameters are met (will need dedicated WOW computer for documentation).
    e. An experienced member of the anesthesia team will remain on 8SE for at least 30 minutes after extubation in case the patient needs airway management.
12. Normal-term infants born in this category will be transported via Isolette to a MICC room with portable HEPA filter or other designated room. If a higher level of care is necessary, the infant will be transported to Area I in the NICU.

FIG. 2. (*Continued*).

trainees in direct care of known or suspected COVID-19 patients, and limiting the number of personnel in a patient's room. We do not allow symptomatic or potentially exposed support persons, and we screen all patients with scheduled procedures, such as cesarean delivery or induction of labor 3 days before their admission date and again upon entry to the hospital. A woman who is suspected or known to have COVID-19 is instructed to wear a mask at all times. Support people are required to wear a mask any time they are outside a patient's room.

We recommend quarantine for all women and their support person from 37 weeks gestation on, or 14 days before a scheduled delivery if the delivery is planned for <39 weeks gestation. Recognizing that this has the potential to affect a family's income and to shorten parental leave after birth, which could impact bonding with the baby, quarantine is not mandated. Such a mandate would be unenforceable in any case.

In the operating rooms situated in the labor and delivery unit at our hospital, we are unable to use portable high-efficiency particulate air (HEPA) filtration or negative pressure. In developing our COVID-19 protocols, we weighed this against the fact that surgeries and procedures in the labor and delivery unit are generally considered to be low risk for viral transmission and nonaerosolizing, given the preference for neuraxial anesthesia and infrequent need for general anesthesia in this patient population. We decided not to transfer women with known or suspected COVID-19 outside the unit if a cesarean section is indicated, which also offers logistical advantages, such as access to commonly used equipment and medications, as well as a sense of familiarity with and proximity to the primary team.

In each of these examples we attempted to strike a balance between what would be most beneficial to a woman and her family, and what would present the lowest risk of infection to hospital personnel. We recognize that there is the potential for harm with each decision we made, but we carefully considered the principles of beneficence and nonmaleficence in arriving at these decisions.

Autonomy

At the most basic level, autonomy can be defined as the ability of a person to make his or her own decisions. In developing our protocols, we focused on providing information to women to allow them to make informed decisions, which we then respected. Examples of how we respect women's autonomy in our protocols include (1) education to allow women to make informed decisions about an epidural and (2) discussions about the Centers for Disease Control and Prevention (CDC) recommendation to separate a woman who is positive for COVID-19 from her newborn(s).[16] These examples, and our decisions, are examined as follows.

As part of our protocols, we encourage, but do not compel, an early epidural in laboring women, especially those with known or suspected COVID-19, to avoid the risks inherent in urgent or emergent general anesthesia.

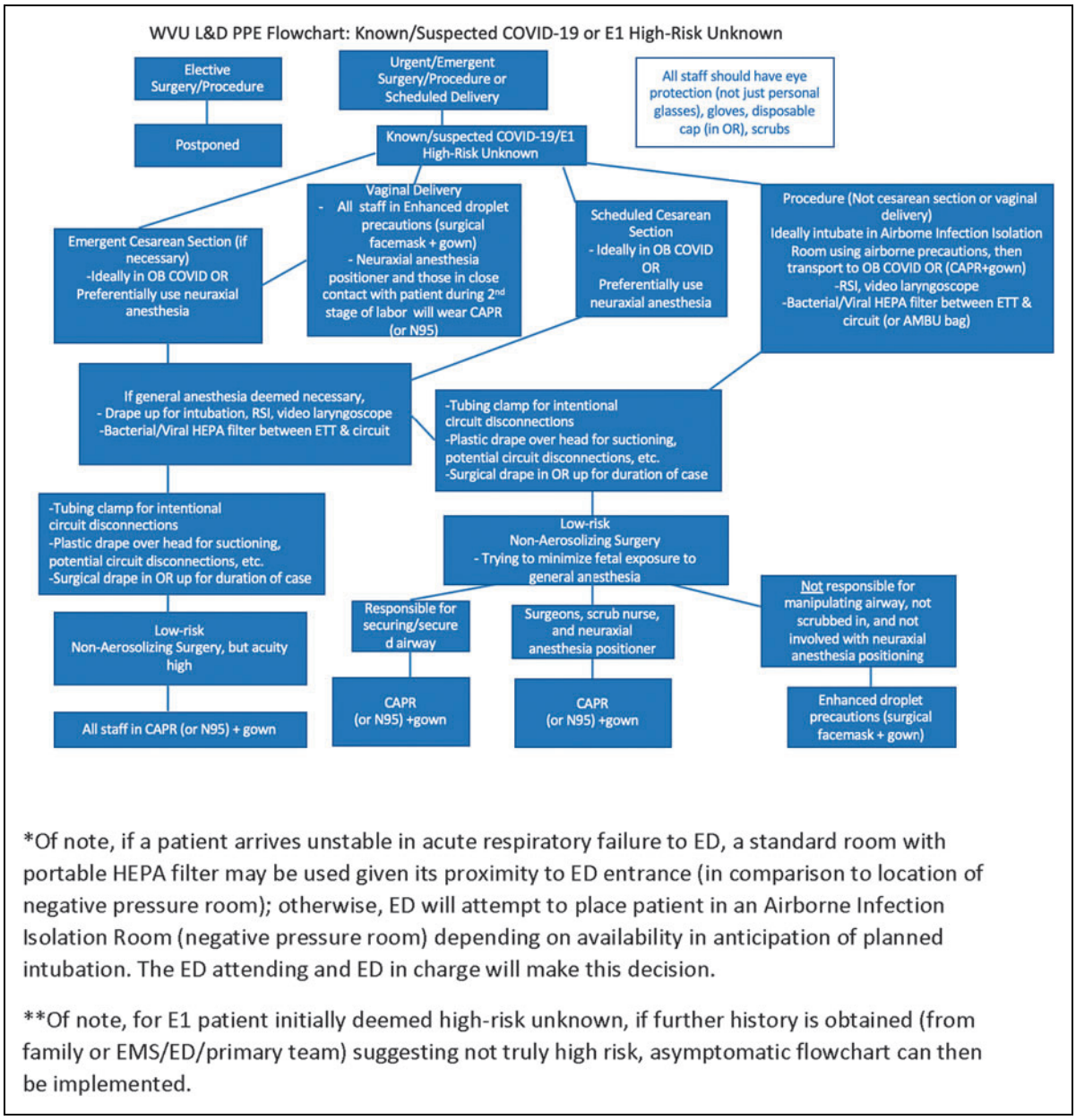


FIG. 2. (*Continued*).

This is discussed with women upon admission and again at their request. With general anesthesia, in addition to the risks of aspiration and fetal exposure to anesthetic, intubation may potentially spread droplet burden through aerosolization and cross-contamination. To avoid emergent cesarean deliveries as much as possible, we encourage proactive communication among the obstetric anesthesiologists, obstetricians, and obstetric nurses. The most experienced anesthesiologist, whenever possible, performs neuraxial anesthesia, and if necessary intubation, so as to limit the possibility of complications.

The CDC's original recommendation was to separate women who are COVID-19 positive from their neonates. As of May 20, 2020 they revised that recommendation to ''strongly consider.''[16] When devising our protocols, we felt that the original recommendation was made with limited data and did not seem to consider the fact that women and their babies would likely be returning to the same home after delivery.[16] We felt that infant separation should be an individual decision, as opposed to the standard of care. Therefore, our protocols do not recommend or mandate separation. Instead, they call for discussion with a woman and her support person upon arrival to labor and delivery, during which we provide the rationale for the CDC recommendation and offer a formal pediatric or neonatology consult for postdelivery planning. Only after a woman has been given the appropriate information is a neonatal disposition made; this is ultimately based on the mother's wishes. We varied from the CDC's original recommendation in an effort to support women's autonomy.

Justice

The components of justice include equity and equality. This comes into play when considering resource allocation to our unit versus the remainder of the hospital. On a national and local level, allocation of resources during the COVID-19 pandemic has been challenging. HEPA filters and negative-pressure rooms are a limited commodity. There are also national shortages of personal protective equipment for frontline staff.

In our hospital, anesthesiologists were among the first to get personal N95 respirator masks, given their frequent potential exposure to the virus during intubation. Outside the labor and delivery unit, the anesthetic plan requires anyone not involved with intubation to step out of the room or stand >6 feet (>1.8 meters) away from the patient distal to a drape that is placed a few inches caudad to the patient's head. This is not feasible or realistic during an emergency delivery requiring general anesthesia because of the time-sensitive nature of such an event in trying to minimize maternal and fetal complications and fetal exposure to anesthetic.

We were able to effectively advocate for our staff and secure personal protective equipment so that all staff can don a powered air-purifying respirator (or N95 mask plus eye protection). It was debated if the second stage of labor (pushing) also has a risk of viral spread but securing the appropriate personal protective equipment for staff to use during a cesarean delivery also facilitated its availability for vaginal delivery.

Another issue of justice is whom to test for COVID-19. Given the low prevalence of this disease in West Virginia at this time—248 deaths and 8581 recoveries of September 8, 2020[17]—we have deferred universal screening for the time-being. We have taken a heightened approach to standard precautions with all patients. If patients have fever, cough, or shortness of breath of unknown etiology or have had potential exposure to people who are positive for COVID-19, for example, imprisoned patients or immediate family members with the disease, these patients are tested. We understand that other hospitals may make different decisions and that our own policy may change as the situation evolves.

Conclusions

When the authors were called to assist in West Virginia University Hospitals' COVID-19 response, we quickly perceived that our development of protocols during the pandemic required specific attention to biomedical ethics. Recognizing that our response had to meet the needs of the women we serve while also protecting our staff, we employed the pillars of beneficence, nonmaleficence, autonomy, and justice to help guide our development of protocols for labor and delivery. This approach helped us frame important questions and balance competing needs. Feedback from stakeholders has been generally favorable as most recognize that these are historic and evolving times.

Since we were creating protocols for a specific hospital unit, certain issues are out of the scope of this article, such as allocation of resources on an international level and the ethics of out-of-hospital birth in the United States. In addition, our protocols may not be generalizable to other institutions with different patient populations, different prevalence of the novel coronavirus, and unique supply-chain issues, such as personal protective equipment availability and preservation techniques, as well as testing capabilities.

As the COVID-19 pandemic evolves, so will our knowledge and guidelines. However, with this and future challenges, a bioethical framework can be used as a guide in developing protocols that are equitable, while further research will guide evidenced-based best practices for health care during a global pandemic.

Author Disclosure Statement

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