The likelihood of pandemics has increased over the past century as a result of international travel, urbanization, and exploitation of the environment. Implicated pathogens include severe acute respiratory syndrome coronavirus (SARS-CoV) (2002), influenza H1N1 (2009), Ebolavirus (2014), and severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (2019). In addition to strains on the health care system from care of affected individuals, community-mitigation efforts such as social distancing and “shelter-in-place” policies also affect medical operations. Because obstetric health care is among the most frequently used service in the United States, with more than 18 million visits annually, it is a logical target for pandemic-adjusted modifications.

In 2017, the American College of Obstetricians and Gynecologists (ACOG) published a Committee Opinion on hospital disaster preparedness to provide guidance regarding care during infectious disease surges. However, without specific recommendations, guidance during pandemics often depends on expert opinion.

This evidence-based review proposes pandemic-adjusted modifications in obstetric care, with discussion of risks and benefits. Because data remain limited to inform these suggestions, we acknowledge the potential for liability in deviating from standards of care, especially if failing to provide alternative access to health care. We use available data to recommend best practices for balancing community-mitigation efforts with appropriate care of obstetric patients.

**Telehealth in Obstetrics**

When community-mitigation efforts are in place, elements of obstetric care can be transitioned to remote monitoring. Telehealth refers to any health care delivery enhanced by telecommunication, including smartphone apps, text messaging, wearable devices, and audio–visual communication. In a systematic review, telehealth interventions improved outcomes related to breastfeeding, access to family planning services, and decreased office visits without compromising maternal and fetal outcomes.

Implementing telehealth requires evaluation of equipment readiness, compliance with Health Insurance Portability and Accountability Act regulations, technological on-boarding, and credentialing. Guidance regarding billing for telehealth services is available from ACOG and the Society for Maternal-Fetal Medicine (SMFM).

**Early Pregnancy**

The American Academy of Pediatrics and the ACOG Guidelines for Perinatal Care recommend that the
initial prenatal visit take place in the first trimester, with gestational age and follow-up frequency based on risk factors. It is recommended that individuals at increased risk for pregnancy complications be seen “as early as possible.”

During pandemics, the in-person prenatal care schedule may be abbreviated to minimize excursions for pregnant patients and demands on the clinical workforce. Strategies must be in place to counteract the potential sequelae of delaying the first prenatal visit, including missed opportunities for ultrasound screening, management of maternal comorbidities, and family planning discussions.

**First Prenatal Visit and Ultrasound Examination**

Obstetric societies recommend that imaging occur before 14 weeks of gestation and include evaluation of viability, location, dating, number of fetuses, nuchal translucency, and pelvic anatomy. Pandemic-adjusted modifications include a telephone intake appointment at less than 11 weeks of gestation and an initial in-person visit and ultrasound examination at 11–13 6/7 weeks of gestation. This guidance, although in compliance with ACOG recommendations, differs from typical care, where first visits are often at 6–7 weeks of gestation.

Potential sequelae of later prenatal visits include incorrect dating, delayed management of Rh-D–negative status, and delayed diagnoses of miscarriage, multifetal gestation, and ectopic, cesarean scar, or molar pregnancy. To mitigate risk, the contents of the proposed initial telehealth visit should be adapted and standardized from the ACOG Guidelines for Perinatal Care (Box 1). Risk factors for complications should be assessed to determine whether the patient should be seen earlier than the pandemic-adjusted schedule (Appendix 1, available online at http://links.lww.com/AOG/B937).

**Genetic Counseling**

The American College of Obstetricians and Gynecologists notes that the increasing complexity of genetic testing must be accompanied by a firm comprehension of tests, as well as pretest and posttest counseling. Given the volume of information that must be shared with patients, telegenesis consultation with a counselor should be considered. During community-mitigation efforts, screening bloodwork such as carrier screening or cell-free fetal DNA testing may be delayed until the in-person visit or performed using outpatient laboratories. The SMFM also states that, in patients who have had a negative cell-free DNA test result, ultrasound examination solely for the purpose of nuchal translucency measurement is not recommended.

**Early Pregnancy Loss**

Miscarriage occurs in 10–20% of clinically recognized pregnancies, with 80% occurring before 12 weeks of gestation. The risk of miscarriage approaches 50% in women aged older than 40 years. Because the diagnosis is ultrasound-based, an in-person visit earlier than the pandemic-adjusted schedule may be required in at-risk or symptomatic individuals. Risk factors for early pregnancy loss, including advanced maternal age, prior miscarriage, and vaginal bleeding, should be assessed at the first telehealth visit. Patients with recurrent pregnancy losses are at risk of depression, and in-person reassurance regarding viability is warranted.

Management of early pregnancy loss may also be modified during pandemics. No-touch protocols for management of early pregnancy loss should be considered, including expectant management or medical management with mifepristone and misoprostol. If preferred, surgical completion using dilation and curettage is an essential service that should be offered even during surges. Outpatient manual vacuum aspiration is a safe and acceptable alternative. Discussion and written instructions must be provided for patients on when to seek care to avoid complications.

**Ectopic Pregnancy**

Ectopic pregnancy accounts for approximately 2% of pregnancies and contributes to 2.7% of maternal deaths in the United States, making it the leading cause of deaths from obstetric hemorrhage. The risk of recurrence is approximately 10% in patients with one prior ectopic pregnancy and rises to more than 25% with two or more. Additional risk factors include damage to the fallopian tubes, ascending pelvic infection, and pelvic or fallopian tube surgery.

The evaluation of a pregnancy of unknown location requires transvaginal ultrasound imaging. In individuals at risk by history or symptoms, an early visit and ultrasound examination to determine pregnancy location is warranted. Suspicion for an ectopic pregnancy should prompt in-person evaluation for peritoneal signs, hemodynamic instability, serial human chorionic gonadotropin (hCG) measurement, and possible medical or surgical intervention.

Management of ectopic pregnancy should follow routine protocols. Expectant management can be considered in appropriate candidates with hCG levels less than 200 international units/L, because 88% of these pregnancies would be expected to resolve spontaneously. Expectant management may obviate the need...
Box 1. Recommended Elements for the Initial Obstetric Telehealth Visit(s)

The following information should be obtained from the patient during the initial telehealth visit:

- Last menstrual period and determination of accuracy of report
- Past medical history, surgical history, obstetric history, gynecologic history, medication history, family history, genetic history, allergies, psychiatric history, and social history; in particular, we recommend evaluation for risk factors that would predispose to conditions requiring early imaging
- Vital signs, if possible:
  - Self-report of height and weight, with calculation of body mass index (BMI, calculated as weight in kilograms divided by height in meters squared)
  - Self-report of blood pressure and heart rate, if a blood pressure cuff or wearable heart rate monitor is available.
- Assess desire for pregnancy
- Assess desire for genetic screening or diagnostic testing
- Social assessment:
  - Food and shelter security
  - Access to technology necessary for telehealth visits
  - Risk of intimate partner violence
  - Home structure, including ability to have safe space for future visits

The following general information should be discussed with each pregnant patient during the visit or shared through documents:

- Routine discussions
  - Logistics
    - Scope of care that is provided
    - Role of the members of the health care team
    - Physician or midwife schedule
    - Labor and delivery coverage
    - How to contact the health care team
  - Pregnancy care
    - Expected course of the pregnancy
    - Signs and symptoms to be reported to the health care team
    - Practices to promote routine health maintenance (eg, safety restraints)
    - Recommendations based on obstetric history
    - Review of genetic screening and testing options, including appropriate planning for diagnostic testing if desired
    - Risk counseling, including substance use and substance use disorders
    - Psychosocial topics in pregnancy and the postpartum period
    - Referrals to appropriate subspecialists based on risk factors, such as poor obstetric history or desire for genetic testing
- Elements potentially affected by pandemic and surge planning
  - Logistics
    - Anticipated schedule of visits, including adjusted timelines

Box 1. Recommended Elements for the Initial Obstetric Telehealth Visit(s) (continued)

- Adjusted coverage schedules for cohorting of health care professionals
- Cost to the patient of prenatal care and delivery, including telehealth coverage by insurance; patients should be encouraged to discuss this with their insurer and specific plan
- Office policies for social distancing and infectious disease screening
- Current and shifting nature of hospital policies during the pandemic
- Pregnancy care:
  - Laboratory studies and their indications, including adjusted timelines
  - Self-monitoring of pandemic-related symptoms
  - Self-monitoring of urinary symptoms
  - Practices to promote community mitigation of pandemic
  - Available data on the pandemic’s potential implications in pregnancy
  - Psychosocial topics related to pandemic
  - Recommendations for vaccines (such as influenza vaccination during a pandemic respiratory illness)

The following discussions should be tailored to the characteristics and needs for each patient or shared through documents:

- Nutrition
- Exercise
- Nausea or vomiting
- Vitamins
- Mineral toxicity
- Teratogens
- Safety and intimate partner violence
- Dental care, with recommendation to delay if possible
- Precautions to take for essential workers who are working during a pandemic
- Air or remote travel during pandemic


for administration of an immunosuppressive medication or general anesthesia for surgery during a pandemic, with concern for viral aerosolization. Candidates for expectant management must be asymptomatic, have objective evidence of resolution (plateau or decrease in hCG levels), and be willing to accept the potential risks after counseling.26 Strains on blood bank resources and emergency services during a pandemic must also factor into the threshold for surgical intervention.29

**Rh-D–Negative Status**

Experts recommend administration of RhD-immune globulin (Ig) within 72 hours of suspected
miscarriage or fetomaternal hemorrhage. In-person visits may be necessary to determine Rh-D phenotype or to administer RhD-Ig to patients who are Rh-D–negative. Table 1 addresses potential cautions regarding RhD-Ig availability during pandemics.

**Table 1. Suggested Modifications in Common Medications Used in Obstetrics During Pandemics**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Background</th>
<th>Pandemic-Adjusted Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>RhD-Ig&lt;sup&gt;129–131&lt;/sup&gt;</td>
<td>A shortage may arise during times of pandemic and lockdown, when the supply chain from blood donations is limited. Although RhD-Ig is on WHO’s model list of essential medicines, it is unknown how much Rh-D-Ig is available regionally, nationally, or globally at any time.</td>
<td>Regular communication with institutional or regional blood banks to ensure adequate supply of RhD-Ig. In the case of a significant shortage, the practice of routine RhD-Ig administration during early pregnancy should be reassessed to reserve Rh-D-Ig for deliveries of Rh-D–positive offspring at higher gestational ages. During pandemics with pulmonary effects, steroids should generally be reserved for 24–34 wk of gestation, and only when delivery within the next 7 d is anticipated.</td>
</tr>
<tr>
<td>Antenatal corticosteroids&lt;sup&gt;132&lt;/sup&gt;</td>
<td>Caution has been raised regarding the use of antenatal corticosteroids in patients with viral acute respiratory distress syndrome owing to concern about increased risk of respiratory shedding.</td>
<td>In patients with respiratory compromise, decision to use antenatal corticosteroids needs to be made on a case-by-case basis. Dosing of magnesium sulfate should be adjusted as needed for signs of renal insufficiency. During viral pandemics, consider cessation of nitrous oxide use in the labor and delivery unit.</td>
</tr>
<tr>
<td>Magnesium sulfate for seizure prophylaxis or fetal neuroprotection&lt;sup&gt;41,133,134&lt;/sup&gt;</td>
<td>Some systemic viral infections can be associated with renal insufficiency. During viral pandemics, use of nitrous oxide may increase aerosolization of infectious agents and further requires stringent sterilization procedures.</td>
<td></td>
</tr>
<tr>
<td>Nitrous oxide&lt;sup&gt;135&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labetalol for hypertension&lt;sup&gt;136&lt;/sup&gt;</td>
<td>Labetalol is commonly used for hypertension in pregnancy and postpartum but should be avoided as 1st-line treatment in patients with asthma owing to beta-blockade.</td>
<td>Given the associated airway disease of some viral pandemics, caution should be taken with choice of antihypertensive agents. Systemic viral inflammatory states have been associated with potential for both prothrombotic and coagulopathic states. Although TXA should be used in patients at risk for postpartum hemorrhage to decrease blood product needs during times of surge, caution should be taken in patients who have active infection with some viral pathogens. Emerging data suggest that COVID-19 is associated with an increased hypercoagulable state, including elevations in procoagulant factors and increased thrombosis risks. Effect of TXA on patients with COVID-19 infection is not yet known.</td>
</tr>
<tr>
<td>TXA&lt;sup&gt;137–139&lt;/sup&gt;</td>
<td>Contraindications for TXA are a known thromboembolic event during pregnancy, history of coagulopathy, active intravascular clotting, or known hypersensitivity to TXA.</td>
<td></td>
</tr>
</tbody>
</table>

RhD-Ig, Rh-D immune globulin; WHO, World Health Organization; TXA, tranexamic acid; COVID-19, coronavirus disease 2019.
Multifetal Gestations
Twin pregnancies should be assessed for viability, dating, and choriocity between 11 and 13 6/7 weeks of gestation. Ultrasonographic accuracy in determining choriocity at less than 14 weeks of gestation has been reported at 99%, but this falls to only 77% sensitivity after 14 weeks of gestation. Pandemic-adjusted recommendations comply with these standard schedules.

Maternal Comorbidities
The Guidelines for Perinatal Care note that consultations with obstetricians or maternal–fetal medicine subspecialists should be considered for comorbid risk factors, including asthma, cardiac disease, diabetes, drug or alcohol use, epilepsy, family history of genetic disorders, hemoglobinopathy, hypertension, thrombembolic disorder, psychiatric illness, pulmonary disease, renal disease, and poor obstetric history. An initial telehealth visit can establish presence or absence of these risk factors and inform the timing of the first in-person visit, frequency of follow-up visits, or need for subspecialist consultation. Medication history should also be clearly elicited to ensure appropriate adjustments or cessation as early as possible. Furthermore, preconception telehealth consultation should be considered in reproductive-aged patients with comorbidities to develop contraception and post-conception plans.

Desire for Pregnancy
Family planning is an essential component of reproductive health care. Both ACOG and SMFM affirm that safe abortion should be categorized as an essential procedure and should not be delayed due to pandemic-related modifications. Telemedicine can be used safely for early pregnancy termination in settings where there is no access to safe services. When resources are further restricted during pandemics, including equipment or procedure room availability, a network of referrals should be established to ensure access.

ANTEPARTUM CARE
The goal of this section is to review pandemic-adjusted schedules regarding antepartum surveillance and management of obstetric complications.

Preparation for Normal Childbirth and Parenting Transitions
With decreased in-person visits, the normal preparation and guidance provided during routine care could be lost. Online and virtual education options, including childbirth preparation, the parenting transition, and breastfeeding, are available and can fill this gap. Text services providing daily updates based on gestational age are also available. Health care teams should work to develop access to these health-literacy resources.

Preeclampsia
The U.S. Preventive Services Task Force found no increase in adverse outcomes related to preeclampsia among patients with a decreased number of prenatal visits. During surges, home blood pressure (BP) monitoring with proper education may achieve early detection and is well accepted by patients. Blood pressure self-assessment can be performed weekly among low-risk patients and daily or as needed for symptoms among patients at risk. Urine protein assessment may be deferred because results will often not change management.

Precalibrated sphygmanometers should be used. Experts recommend upper-arm cuffs, although wrist cuffs may be considered if upper-arm measurements are not feasible and technique is appropriate (ie, the monitor is directly over the radial artery and the wrist is in neutral position at the level of the heart). An abnormal BP or symptom should trigger an in-person visit to confirm cuff accuracy and, as appropriate, laboratory evaluation and fetal assessment. Written and verbal education about symptoms of preeclampsia is necessary.

For patients with diagnosis of gestational hypertension or preeclampsia without severe features, ACOG suggests monitoring with serial growth ultrasound examinations, weekly antepartum surveillance, close BP monitoring, and weekly laboratory tests. Outpatient surveillance has been demonstrated to be safe for such patients. The patient’s ability to achieve rapid access to health care facilities should be assured. Additionally, patients must be availed of ready communication with their management team.

The frequency of outpatient antepartum surveillance may be adjusted based on risk assessment. In patients whose diagnosis of preeclampsia is made before 34 weeks of gestation, an increased risk of stillbirth may be seen, for which antenatal testing can be alternated with an additional weekly intervening telemedicine visit to review BP logs, symptoms, and fetal movement. The utility of weekly bloodwork for preeclampsia has also been called into question, potentially allowing for diminished bloodwork surveillance.

In patients with severe features, the usual goal of delivery at 34 weeks of gestation requires shared decision making and appropriate patient
Some experts call for earlier delivery in this population. However, if expectant management is deemed appropriate and safe, home monitoring and virtual visits have shown similar outcomes to in-person visits.

**Fetal Growth Restriction**

In low-risk, nonobese patients with singleton pregnancies who have normal weight gain, fundal height surveillance can be performed safely at 6–8-week intervals. Patients with known risk factors for fetal growth restriction and stillbirth or with anatomical confounders (eg, morbid obesity, uterine leiomyomas, or multifetal gestation) should receive regular ultrasonographic assessments of estimated fetal weight, although the optimal frequency has not been determined. When using a pandemic-adjusted schedule, ultrasound screening every 4–8 weeks in women with at-risk pregnancies may be appropriate, with decisions based on level of risk rather than a reflexive “one size fits all” approach.

There remains a lack of consensus on the frequency of ultrasound examinations, umbilical artery Doppler velocimetry, or antenatal testing after diagnosis of fetal growth restriction. Consideration should be made to evaluate the growth of fetuses with fetal growth restriction every 3–4 weeks, because assessments at 2-week intervals have a false-positive rate greater than 10%. Umbilical artery Doppler intervals of 1–3 weeks are recommended by some, with increase to twice or thrice weekly if abnormalities are appreciated.

Society for Maternal-Fetal Medicine guidelines released in May 2020 recommend the following for delivery timing: 1) 30–32 weeks of gestation for fetal growth restriction with reversed end diastolic flow on umbilical artery Doppler, 2) 33–34 weeks of gestation for fetal growth restriction with absent end diastolic flow, 3) 37 weeks of gestation for fetal growth restriction with decreased, but not absent or reversed, diastolic flow, and 4) 37 weeks of gestation for severe fetal growth restriction with estimated fetal weight less than the third percentile. The ranges of recommended timing afford some flexibility in the timing of delivery during periods of surge. Fetal growth restriction is not an automatic indication for cesarean delivery, and mode of delivery should remain per routine indications, even during a pandemic.

**Prelabor Rupture of Membranes and Preterm Labor**

Multiple systemic viral infections, such as those seen during pandemics, may increase the risk of preterm labor. In general, among patients who present with preterm contractions, fewer than 10% deliver within 7 days of presentation. The negative predictive value of fetal fibronectin may be leveraged to evaluate candidacy for outpatient management.

Preterm prelabor rupture of membranes is traditionally managed in the hospital. Delivery within the first week of hospitalization occurs in 50% of patients. Appropriate candidates can be evaluated for outpatient management. One meta-analysis demonstrated no worsening of outcome with outpatient management but was underpowered to detect differences. Before attempting an outpatient management protocol, patients must be carefully counseled regarding potential risks and informed that this is a management algorithm that is offered only during extenuating circumstances.

Telehealth options may include temperature, fetal kick count, and maternal heart rate logging every 6–8 hours, with daily in-person or virtual evaluations for contractions, abdominal pain, bleeding, or abnormal discharge. Again, access to a direct communication line, appropriate calling guidelines, and close and consistent transit to the hospital would be required, highlighting the importance of careful patient selection.

A meta-analysis of multiple studies has demonstrated that expectant management to 36 6/7 weeks of gestation, rather than 34 weeks, may, in the well-selected patient, improve obstetric outcomes. This strategy, in combination with close monitoring, may reduce the duration of both maternal and neonatal hospitalization.

**Diabetes Mellitus in Pregnancy**

Diabetes self-management education lends itself well to a telemedicine approach, using virtual visits and glucose or food-log communications with the health care team. For centers offering group prenatal care for gestational diabetes mellitus, in-person care is not recommended during pandemics because this violates social distancing policies.

Patients should be reassured that gestational diabetes mellitus that is well-controlled without medications neither incurs risk nor requires additional surveillance. In patients with optimal glycemic control with medication, delayed initiation of surveillance (eg, at 34–36 weeks of gestation) can be considered.

**INTRAPARTUM CARE**

During surges, three particular resources bear scrutiny: bed management, anesthesia, and blood products. We may consider these in the context of labor, as well as in anticipated cases of complex delivery.
Labor

Normalizing the processes of labor and birth is both difficult and necessary during pandemics. Patients are fearful that they will be lost among or affected by those sicker than they, with additional concerns about visitation policies or temporary separation from newborns. The American College of Obstetricians and Gynecologists advises that hospitals and accredited birth centers are the safest settings for birth and discou...s in Appendix 2, available online at http://links.lww.com/AOG/B937.

Ethics of Triage during Pandemics

Ethical concerns during pandemics revolve around resource scarcity, including beds, ventilators, personal protective equipment, and testing abilities. All currently available guidelines concur that, even during a pandemic, patients with and without infection should be treated equitably according to the same criteria. Ethics guidelines invoke respect for the patient’s will, fair distribution, and maximization of benefits based on chance of survival. For the coronavirus disease 2019 (COVID-19) pandemic, ACOG published interim guidance on ethical concerns, stating that, whenever possible, institutions should create protocols for resource allocation that promote uniform application of standards and minimize the burden of ad hoc decisions.

POSTPARTUM CARE

Postpartum considerations include both inpatient postdelivery considerations and ongoing postdischarge care. The American College of Obstetricians and Gynecologists recommends that all patients should ideally have contact with the health care team within the first 3 weeks postpartum and a comprehensive postpartum visit at no later than 12 weeks. Telehealth visits should be encouraged. Recommendations for the modified comprehensive postpartum visit can be found in Appendix 2, available online at http://links.lww.com/AOG/B937.

Postpartum Hemorrhage and Wound Monitoring

Postpartum hemorrhage remains a primary reason that in-hospital birth reduces the risk of maternal mortality. However, blood bank resources may be strained by surges, highlighting the need for management considerations beyond transfusion. First crucial measures include early identification of patients at risk for hemorrhage and implementation of risk-mitigation strategies. Continuous reassessment of hemorrhage risk affords preparatory options such as increased intravenous access, in-room uterotonic, active management of the third stage of labor, anesthesiology team awareness, and rapid progression between management strategies. Use of tranexamic acid (in patients without prothrombotic risks), balloon compression, vascular embolization, and cell salvage may reduce blood requirements. In refractory hemorrhage, team mobilization for early progression to hysterectomy is vital to maternal safety and resource conservation.

Postdischarge, bleeding and wound assessments can be performed using audio–visual telemedicine modalities. For patients with cesarean

Complex Delivery

Teleconference consultations with the anesthesia and subspecialty teams during pregnancy may permit early multidisciplinary planning for deliveries anticipated to be complicated by maternal or obstetric comorbidity. Complex surgical delivery includes cesarean deliveries for patients with previous abdominal surgery or transplant, significant leiomyomas, or placenta accreta spectrum disorders. For these cases, management may include planned delivery at the earlier end of recommended gestational age to avoid emergent deliveries. Predelivery viral testing is recommended to guide the use of personal protective equipment. If infection status is unknown, consideration may be given to preemptive general anesthesia or full donning of personal protective equipment for the safety of the entire operative team.

Induction

Although medically indicated induction of labor must be available as indicated, consideration should be given to minimization of elective induction of labor in a surge situation. Outpatient cervical ripening protocols can be considered in the appropriately selected patient.

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delivery, many offices perform a 1-week postpartum assessment of wound healing. It has been shown for general surgery patients that telemedicine saves time and is acceptable and effective in identifying patients requiring further care.\textsuperscript{72} Evaluation of the surgical wound by patient or partner may be sufficient, with the option of image upload using patient portals or app-based wound-monitoring systems.\textsuperscript{73–76}

Postpartum Care, Early Discharge, and Use of Enhanced Recovery After Surgery Protocols

Immediate postpartum care should, as before the pandemic, focus on the healthy transition of the patient and newborn to postnatal life. In the absence of comorbidities or active infection concerns, rooming-in of the newborn may be helpful to decrease hospital-acquired infections and improve breastfeeding. For patients with active infections, shared decision making is recommended to discuss the risks and benefits of rooming-in based on the regional epidemiology of the pandemic, associated infectious risks to the mother–newborn pair, potential benefits, and patient desires.\textsuperscript{77–80}

Safe early discharge has the potential to remove the dyad from infectious exposure and to free hospital resources during surges. Early discharge (36–48 hours after delivery) is associated with higher maternal satisfaction and increased hospital bed capacities. Discharge at less than 24–30 hours is associated with increased neonatal readmission.\textsuperscript{81,82} Therefore, targeted discharge at 30–48 hours may be ideal once necessary work-up is completed (eg, newborn screening) and appropriate follow-up is in place. Scheduled home-based care allows for safe early discharge, enhances patients’ experiences and support, improves time to pediatric follow-up, and supports breastfeeding.\textsuperscript{83–85}

Enhanced recovery after surgery bundles include the use of multimodal analgesia to reduce opioid exposure, avoidance of prolonged fasting, encouragement of early mobility, and education of patients regarding goals and expectations of surgery. These protocols provide for shorter lengths of stay, return to normal physiology, and mitigation of surgery-related stressors, thereby improving outcomes, satisfaction, and postpartum recovery. They have been shown to reduce opioid use and improve time to ambulation without worsening surgical outcomes.\textsuperscript{86,87} In obstetrics, the decreased length of stay for both obstetric and gynecologic services reduces patient and neonatal exposures and preserves hospital resources.\textsuperscript{88} Critical to protocol success is a system-based approach among surgical, nursing, and anesthesia services.\textsuperscript{86}

Contraception Access and Long-Acting Reversible Contraception

Removing obstacles to timely postpartum contraception is key to preventing rapid recurrent pregnancy and improving subsequent pregnancy outcomes.\textsuperscript{89–91} Postpartum contraception must therefore be part of comprehensive planning after delivery, especially when patients may be completing further care by telehealth.

During pandemics, health systems may curtail offering postpartum tubal ligation owing to personal protective equipment and operating room resource shortage, labeling these elective surgery.\textsuperscript{92,93} These restrictions compound existing barriers to immediate postpartum tubal ligation.\textsuperscript{94} Patients who do not receive desired postpartum sterilization have high rates (46%) of recurrent pregnancy in the first year after delivery and experience significant barriers to completing desired surgery after discharge.\textsuperscript{95,96}

Long-acting reversible contraception is an alternative associated with patient satisfaction, fewer unintended pregnancies, and improved pregnancy spacing.\textsuperscript{96} Uptake of long-acting reversible contraception is increased when prenatal education and immediate postpartum placement are available.\textsuperscript{97} Regardless of the type of contraception chosen, physicians and midwives should work to remove barriers to access as much as possible, especially because follow-up is limited. Injectable medroxyprogesterone acetate can be provided before discharge or by “drive up” or “curb-side” administration after telehealth consultation. Oral or other contraceptive prescriptions, including barrier methods, can be filled with delivery discharge medications with instructions to start in 4–6 weeks.

Postpartum Depression and Postpartum Mood Disorders

Postpartum depression and mood disorders are arguably the most underdiagnosed pathology in the postpartum period, with a prevalence of 13–16%.\textsuperscript{98,99} Undertreatment increases the likelihood of persistent disease,\textsuperscript{100} which can be exacerbated by conflict, stress, anxiety, and poor social networks associated with pandemics. Patients with postpartum mood disorders struggle with medical care compliance and...

In pandemic-adjusted schedules, provision of depression screening and referrals by telehealth is critical. Experts note that perinatal mood disorders are likely to increase in the setting of pandemics. Obstetricians should partner with pediatricians to expand screening, because parental mood checks can be incorporated into well-child checks. Assuring access to tele–mental health services is key when in-person consultations are limited, although data on effectiveness in postpartum depression are limited. The medical effectiveness and cost effectiveness for other types of depression suggests potential application to this population. Text-based perinatal mood screening also has been shown to have good patient compliance and satisfaction in small studies.

**Preeclampsia and Hypertensive Disorders of Pregnancy Postpartum Management**

When patients with hypertensive disorders are discharged, provision of written resources, counseling regarding concerning signs and symptoms, and provision of equipment such as sphygmomanometers should be arranged. The American College of Obstetricians and Gynecologists recommends BP assessment 3–10 days postdischarge; telemedicine review of BP logs may suffice. Early studies using this technology have shown excellent patient compliance (80–95%) with home-based monitoring and medication adjustments, as well as patient satisfaction (higher than 80%).

**HEALTH CARE INEQUITIES**

Health care inequities across racial, ethnic, and other minority communities are well documented, including in maternal morbidity and mortality. Systemic injustices faced by marginalized communities are coupled with concern that pandemics may worsen disparities for African American individuals; lesbian, gay, bisexual, transgender, queer+ (LGBTQ+) individuals; and women, particularly single parents. Minorities are more likely to face significant socioeconomic barriers, including lower income job employment within the service industry (such as food service, grocery stores, and transportation) with higher rates of direct public contact, risk for infection, and job insecurity during pandemics or economic downturns. Social determinants of health and socioeconomic barriers, as well as the widely documented systemic racial, cultural, ethnic, and gender biases in medicine all contribute to disparate outcomes.

The proposed telemedicine alternatives rely on patients’ ability to complete self-assessment at home and to have access to technologies to communicate with their health care teams. Those in minority groups are less likely to be insured and therefore will not have a medical “home” with access to telehealth technologies. More than 20% of Hispanic patients and 25% of African American patients report delaying care owing to lack of physician access.

Telemedicine and home-based care rely not only on technology but also on in-home privacy and safety. The same disparities that result in living structures that reduce the ability to socially distance also may result in inadequate privacy to complete home-based care. Assurances of privacy and the ability to communicate safely and openly are key components of quality telemedicine-based care and should be in place before transitioning care.

Experts note that intimate partner violence (IPV) increases during pandemics and emergencies. Patients experiencing IPV or childhood abuse no longer have the respite of work or school and may have no or reduced ability to leave these situations. Many shelters are closed or underresourced. Family courts are closed, have reduced schedules, or are using electronic communication—all of which may be difficult to access when in an abusive home situation. Therefore, during office-based screening, IPV safety must be assured, and patients at risk or known to be experiencing IPV may benefit from in-person visits for adequate screening and timely referrals.

LGBTQ+ individuals are also at risk during alteration of medical schedules. LGBTQ+ young adults are more likely to be homeless or to be unable to return from school or other housing to live with family. For those who are not “out” at home, telehealth visits may not provide the safety and privacy needed to discuss medical issues or to receive necessary care. Their living situation may also increase the potential for abuse, and screening is of particular importance for this vulnerable group. Transgender patients are at additional risk for poor access, interruptions in hormonal therapy, financial instability, and medical bias. These vulnerabilities may increase risk of unintended pregnancy or reduce interactions with the medical system for routine care.

Patients with disabilities also face significant barriers to care, because they are likely to be older, have less education, have lower household incomes,
identify as nonwhite, and live in poverty. These patients often face the systemic biases and barriers related to race and socioeconomic status, as well as those related to their disabilities. Patients with disabilities have become increasingly concerned that they will be excluded from health care rationing plans due to a belief that their lives hold less value. Increased access to telehealth may increase access for some patients with disabilities, but that is not universally true because some disabilities may make communication or use of these technologies a barrier to care. Therefore, when adjusting schedules and decreasing in-office visitation, care must be taken to avoid inadvertently creating further barriers.

Review of social determinants of health, the home structure, barriers to care, and assessment of safety in the home must be part of routine care for all patients, but especially for members of historically disadvantaged communities during a pandemic. In addition to the typical social work and WIC referrals, many regions have created websites cataloging available resources for citizens with food, housing, or psychiatric needs during emergent states, as well as the “211” access number across the country to put patients in contact with local resources. Because these economic and social issues are likely to worsen during pandemics, it is critical that teams become aware of resources in their area and help direct patients to appropriate services.

Before implementing telemedicine and altered schedules of care, health care teams must ensure that they are providing equal access and equity in testing and care for all patients, understanding how barriers to compliance such as technology access and inflexible work arrangements may disproportionately affect patients.

CONCLUSION
Pandemic-adjusted scheduling of obstetric care may be necessary during community-mitigation efforts and can apply to all segments of pregnancy care. Appendix 3, available online at http://links.lww.com/AOG/B937, summarizes the pandemic-adjusted suggestions proposed in this review. Candidate selection, risk stratification, and use of alternative surveillance modalities are critical to ensuring patient safety when applying modified algorithms. Thorough patient education, evaluation of potential inequities and resource limitations, and open lines of communication are integral to ensuring the success of remote patient care during this paradigm shift.

Although the intention is that these suggested modifications should be applied only during times of urgent need and should revert to routine protocols when restrictions are lifted, it is likely that some of these changes may persist for extended periods during pandemics. It is also likely that improved telemedicine access and reimbursement are likely to be persistent—as a result of both patient and system pressures—and may be welcome additions to improving access models for some communities and patient groups. The exact risks and benefits of these adjusted visitation and care schedules for pregnant patients, their newborns, and health systems are unknown and should be an area for active research. As further data emerge, health systems will need to continuously readdress and readjust these modifications to optimize safety and quality outcomes for all pregnant patients.

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