Elective Procedures in Obstetrics and Gynecology During the COVID-19 Pandemic

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The COVID-19 pandemic has stressed healthcare systems in the United States and globally. Limited hospital resources, increasing patient surge, and growing demands on healthcare providers have led to the United States Surgeon General and the Centers for Medicare & Medicaid Services calling for suspension of all nonessential adult elective surgery and medical procedures. As of March 27, 2020, 30 states had issued similar declarations related to elective procedures in the setting of the continuing COVID-19 pandemic. Two major questions have emerged as these events have unfolded: (1) What is the definition of an "elective" procedure? and (2) Are there specialty-specific considerations for obstetric and gynecologic procedures? This article provides insights into each of these questions and provides a working framework for obstetrician/gynecologists to advocate for their patients and coordinate with their hospital systems to develop "elective" procedure guidelines that incorporate considerations for women's and maternal health. (J Reprod Med 2021;66:59–66)

While the decision to delay a procedure should be individualized to each patient…, this guidance should serve as a reference for OB/GYNs when developing local and institutional planning regarding the delay of obstetric and gynecologic procedures.

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Since the initially reported outbreak of a novel coronavirus SARS-CoV-2 causing COVID-19 was reported in December 2019, there has been rapid spread across the globe.[1-3] By January 30, 2020, COVID-19 infections reached epidemic levels, leading the World Health Organization (WHO) to declare a Public Health Emergency of International Concern—the 6th time in the organization's history.[3] In early March, both the WHO and the Centers for Disease Control and Prevention (CDC) declared COVID-19 a global pandemic.[4] Rapid spread in the United States (U.S.) has now led to COVID-19 cases in all 50 states, and the federal

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government has declared a national state of emergency through the federal Stafford Disaster Relief and Emergency Assistance Act.[5]

As part of local, state, and federal emergency actions related to COVID-19, substantial public health and healthcare system preparedness has been enacted.[6,7] In anticipation of the hospital surge of COVID-19 cases in the U.S., the American College of Surgeons (ACS) issued "COVID-19 Recommendations for Management of Elective Surgical Procedures" on March 13, 2020.[8] In their guidance, they stress that hospitals, health systems, and surgeons should establish plans to minimize, postpone, or cancel electively scheduled procedures. On March 14, 2020, the U.S. Surgeon General Jerome Adams also encouraged all hospitals and healthcare systems to consider stopping elective procedures. This was followed by additional guidance from the Centers for Medicare & Medicaid Services (CMS) on March 18, 2020, to limit "non-essential adult elective surgery and medical and surgical procedures, including all dental procedures."[9] This guidance also left decision-making responsibility for determining the elective designation and delay of procedures to providers, hospitals, and healthcare systems.

Some preliminary guidance on procedures in obstetrics and gynecology was provided in the American College of Obstetricians and Gynecologists (ACOG) "Joint Statement on Elective Surgeries," issued on March 16, 2020.[10] In this ACOG statement, coauthored by the American Association of Gynecologic Laparoscopists, the American Society for Reproductive Medicine, the American Urogynecologic Society (AUGS), the Society of Family Planning, the Society of Gynecologic Surgeons (SGS), the Society for Maternal-Fetal Medicine, and the Society of Gynecologic Oncology (SGO), the following recommendations were made:

> Obstetric and gynecologic procedures for which a delay will negatively affect patient health and safety should not be delayed. This includes gynecologic procedures and procedures related to pregnancy for which delay would harm patient health. Obstetrician-gynecologists and other health care practitioners should be aware of the unintended impact that policies responding to COVID-19 may have, including limiting access to time-sensitive obstetric and gynecological procedures.[10]

Considering the current emerging threat of the COVID-19 pandemic to the U.S. healthcare system, it is clear that delay of elective cases is necessary.[11] According to the Agency for Healthcare Research and Quality, cesarean delivery, hysterectomy, and oophorectomy are among the 15 most common surgeries performed in U.S. hospitals.[12] It is important to help define *elective surgery* in obstetrics and gynecology with a consistent, evidence-based approach to provide guidance for practicing obstetrician/gynecologists (OB/GYNs).

Terminology

While there have been calls to delay elective surgeries, there is little consensus nor strong evidence base to define elective surgeries nor approaches for stratification of procedure by acuity or timing. CMS guidelines provide a rough construct of acuity of surgical procedures using a tier system of 1–4 (Table I).[9] On March 24, 2020, the ASC released the "COVID-19 Elective Case Triage Guidelines for Surgical Care" to provide some guidance for surgical procedures across disciplines and provided categorization of procedures into 3 categories according to urgency and timing: (1) emergent surgeries (no delay), (2) surgeries that could be delayed for weeks, and (3) surgeries that could be delayed several months.[13] While this guidance includes some discussion of gynecologic procedures, limited considerations were given to obstetric procedures. The Texas Medical Board (TMB) provided an additional pragmatic construct which may be of more generalized use focused on procedure urgency with their "Guidance on the Scheduling of Non-Urgent Elective Surgeries and Procedures during Texas Disaster Declaration for COVID-19 Pandemic," issued on March 21, 2020 (Table II).[14]

The delineation of procedure urgency into categories of "elective," "urgent/elective urgent," and "emergent" is a robust framework to consider obstetric and gynecologic procedures (Table II).[14] "Elective" procedures are those that are able to be delayed for some defined length of time with no potential short- or long-term impact on patient health.[14] "Urgent/elective urgent" procedures are those that should proceed as scheduled based on risk for disease progression or patient status, but may require temporary delay based on resource availability.[14] "Emergent" procedures are those that should proceed because of life-threatening conditions to the patient and cannot be delayed for any

Table I *CMS Adult Elective Surgery and Procedures Recommendations (April 7, 2020)*

Tiers	Action	Definition	Locations	Examples
Tier 1a	Postpone surgery/ procedure	**Low acuity surgery/healthy patient–** Outpatient surgery Not life-threatening illness	HOPD ASC Hospital with low/no COVID-19 census	-Carpal tunnel release -EGD -Colonoscopy -Cataracts
Tier 1b	Postpone surgery/ procedure	**Low acuity surgery/ unhealthy patient**	HOPD ASC Hospital with low/no COVID-19 census	-Endoscopies
Tier 2a	Consider postponing surgery/procedure	**Intermediate acuity surgery/ healthy patient–** Not life threatening but potential for future morbidity and mortality. Requires in-hospital stay	HOPD ASC Hospital with low/no COVID-19 census	-Low-risk cancer -Non-urgent spine and Ortho: including hip, knee replacement, and elective spine surgery -Stable ureteral colic -Elective angioplasty
Tier 2b	Postpone surgery/ procedure if possible	**Intermediate acuity surgery/ unhealthy patient**	HOPD ASC Hospital with low/no COVID-19 census	
Tier 3a	Do not postpone	**High acuity surgery/ healthy patient**	Hospital	-Most cancers -Neurosurgery -Highly symptomatic patients
Tier 3b	Do not postpone	**High acuity surgery/ unhealthy patient**	Hospital	-Transplants -Trauma -Cardiac w/ symptoms -Limb-threatening vascular surgery

ASC = ambulatory surgery center, CMS = Centers for Medicare and Medicaid Services, EGD = esophagogastroduodenoscopy, HOPD = hospital outpatient department.
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period of time.[14] In the unique setting of pregnancy, the fetal status may also need to be considered in the categorization of procedures.

As of March 27, 2020, 30 states have issued statements related to delay or prohibition of elective procedures in the setting of the COVID-19 pandemic.[15] Guidance from these statements for what is considered "elective" or "non-emergent" vary substantially between states. Nineteen states (AK, AZ, IL, IN, KY, MA, ME, MN, MD, MI, MS,

Table II *Defining Elective, Urgent, Elective Urgent, and Emergent Procedures*

Procedure Type	Definition
Elective, Non-Urgent	Procedure where there is no anticipated short-term nor long-term negative impact because of delaying a procedure or surgery.
Urgent or Elective Urgent	Procedure is scheduled where there is a risk of patient deterioration or disease progression likely to occur if the procedure is not undertaken or is significantly delayed. The resulting decline in their health could make them more vulnerable to COVID-19 and other issues.
"Emergent"	Procedure for life-threatening condition if not undertaken or that cannot be safely delayed for any significant period of time.

Source: Texas Medical Board (TMB) Frequently Asked Questions (FAQs) Regarding Non-Urgent, Elective Surgeries and Procedures During Texas Disaster Declaration for COVID-19 Pandemic. March 25, 2020.

NY, OH, OK, OR, SC, PA, VA, and WA) have general statements related to delay or suspension of all elective, non-urgent, or non-emergent procedures.[15] Only 1 state (UT) uses guidance that refers to the acuity-based CMS guidance discussed above (Table I).[9,15] Other states (AL, CO, FL, IA, KY, LA, NC, NJ, NM, TN, and TX) provide more prescriptive definitions for elective/non-urgent procedures.[15] Two states (NJ and NM) require all facilities to have established institutional-specific policies for elective surgery during the COVID-19 pandemic.[15]

Gynecologic Considerations for Elective Procedures

Gynecologic procedures vary from routine, non-emergent surgeries to life-saving emergent surgeries. Most gynecologic procedures are performed under non-emergent situations and can probably be delayed by the OB/GYN. This is especially true when temporizing alternative therapies exist. For example, a patient planning surgical sterilization has several reliable contraceptive alternatives that can be employed for several months while surgery is delayed, or a patient with uterine prolapse planning to undergo surgical treatment may be able to be managed with pessary until a later time. Such procedures would fall into the Tier 1a or 1b category as defined by CMS (Table I) or the "elective, non-urgent" category by the Texas Medical Board (TMB) (Table II).[9,14]

The other end of the spectrum are the emergent gynecologic procedures that will clearly result in a compromise to the patient if delayed. Such procedures would be defined as Tier 3a or 3b by CMS (Table I) or as "emergent" by TMB (Table II).[9,14] Examples may include surgery for intraabdominal or genital tract hemorrhage, ovarian torsion, ruptured ectopic pregnancy, or tubo-ovarian abscess.

The most challenging decisions for the gynecologic surgeon occur when patients fall in between truly elective and truly emergent, i.e., the cases that fall into CMS Tiers 2a and 2b (Table I) or TMB "urgent" or "elective urgent" cases (Table II).[9,14] Factors such as medical comorbidities, current symptoms, and medical complications resulting from the gynecologic condition must be considered when deciding to delay a patient's planned procedure and when determining the length of such delay. Women with suspected malignancies may be delayed for short periods of time but cannot reasonably be delayed for several months without harm to the patient. Women with refractory uterine bleeding and significant anemia, for example, may not be able to reasonably be delayed for several months but are likely not harmed by a short delay of several weeks. Patients with cervical dysplasia can be delayed, but the appropriate length of delay varies based on the severity of dysplasia or suspected malignancy. The American Society for Colposcopy and Cervical Pathology (ASCCP) provided guidance about appropriate delays for procedures during the COVID-19 pandemic.[16] They recommend no more than 3 months of delay for high-grade dysplasia, and no more than 2 weeks for suspected invasive disease.[14] Delaying termination of pregnancy also results in harm to women who then ultimately may receive a termination at a more advanced gestational age with greater procedural risk or, in some cases, surpass legal gestational age limits for termination procedures. These considerations make decisions more difficult, and OB/GYNs may face institutional, regional, or even legal barriers when advocating for the best approach to an individual patient's planned procedure. In fact, several states have issued legislation prohibiting elective terminations during the COVID-19 pandemic despite the recommendations from ACOG, American Board of Obstetrics and Gynecology, American Association of Gynecologic Laparoscopists, American Gynecological and Obstetrical Society, American Society for Reproductive Medicine, Society for Academic Specialists in General Obstetrics and Gynecology, Society of Family Planning, and Society for Maternal-Fetal Medicine advising against the delay of elective terminations of pregnancy during the COVID-19 pandemic.[15,17-19] To assist the practicing OB/GYN with decisions about procedural delay, we have provided examples in Table III of common gynecologic procedures that are likely to be considered as Tier 2a or Tier 2b under CMS guidelines or as "urgent" or "elective urgent" under TMB guidelines.[9,14]

Obstetric Considerations for Elective Procedures

Obstetric procedures also range from elective to emergent. In contrast to gynecologic procedures, most obstetric procedures are time-sensitive due to the natural progression of pregnancy. Pregnancy is a dynamic and constantly changing process, and, therefore, obstetric procedures cannot be delayed for prolonged periods of time. However, short-term delays in some procedures may

Table III *Gynecologic Considerations for Elective Procedures*

Elective, non-urgent procedures
- Excisional or ablative treatment for low-grade cervical dysplasia (Tier 1a)
- Infertility procedures (Tier 1a)
- Sterilization procedures (Tier 1a)
- Diagnostic laparoscopy (Tier 1a)
- Hysteroscopy for benign conditions (Tier 1a/1b)
- Ovarian cystectomy for benign, asymptomatic masses (Tier 1a/1b)
- Myomectomy (Tier 1a/1b)
- Vulvar surgery for benign conditions (Tier 1a/1b)
- Pelvic organ prolapse reconstructive surgery (Tier 1b)
- Anti-incontinence surgery (Tier 1b)
- Hysterectomy for benign indications (Tier 1b)

Urgent or elective urgent procedures
- Elective termination of pregnancy (Tier 2a)
- Medically indicated termination of pregnancy (Tier 2b)
- Hysteroscopy/dilation and curettage for refractory bleeding or anemia (Tier 2b)
- Hysterectomy for significant pain/symptoms (Tier 2b)
- Hysterectomy for refractory bleeding or anemia (Tier 2b)
- Conization/excisional procedures for severe cervical dysplasia or suspected malignancy (Tier 2a/2b)
- Vulvar or vaginal surgery for severe dysplasia or suspected malignancy (Tier 2b)
- Hysteroscopy/dilation and curettage for suspected or known malignancy (Tier 2b)
- Laparoscopy for suspected or known malignancy (Tier 2b)
- Oophorectomy +/– salpingectomy for suspected or known malignancy (Tier 2b)
- Hysterectomy for suspected or known malignancy (Tier 2b)

Emergent procedures
- Laparoscopy or laparotomy for suspected adnexal torsion (Tier 3a)
- Surgery for acute abdomen with suspected gynecologic origin (Tier 3a)
- Hysteroscopy or hysterectomy for gynecologic hemorrhage (Tier 3b)
- Wound debridement/exploration (Tier 3b)
- Dilation and curettage for spontaneous miscarriage with hemorrhage (Tier 3b)
- Dilation and curettage/dilation and evacuation for septic abortion (Tier 3b)
- Ectopic pregnancy with hemorrhage (Tier 3b)
- Surgery for pelvic or lower genital tract abscess (Tier 3b)

Other procedures may arise that are not covered by the above list and can be addressed with consultation with the surgeon, anesthesia team, and operating room team and evaluated in the context of the hospital's capacity and available resources.

be reasonable to consider provided the delay does not result in increased harm to the patient or fetus. The most common surgery performed in the U.S. is cesarean delivery, with 1,208,176 such procedures performed in 2018.[20] However, the indications for cesarean deliveries vary from scheduled, elective repeat cesarean deliveries to emergent cesarean deliveries for maternal hemorrhage or fetal concerns during labor. Women undergoing a cesarean delivery in labor or with acute indications are clearly emergent and should be considered CMS Tier 3a or 3b (Table I) or TMB "emergent" (Table II).[9,14] While scheduled cesarean deliveries may be delayed for a few days or even a week, the ongoing pregnancy and threat of labor ultimately limits the ability for the OB/GYN to delay cesarean deliveries for very long. Most scheduled cesarean deliveries will fall into Tier 2a or 2b by CMS guidelines (Table I) or "urgent" or "elective urgent" under TMB guidance (Table II).[9,14] However, timing is more critical for women planning to undergo scheduled cesarean deliveries for abnormal placentation, placenta accreta spectrum, or with prior myomectomy or classical cesarean delivery, so each case should be considered individually. In those settings, delay of a "Tier 2," "urgent," or "elective urgent" procedure, even by only 2–3 days, may not be reasonable.[9,14]

Some procedures, such as postpartum bilateral tubal ligation following vaginal delivery, may be reasonably delayed and are truly elective. However, it is important to encourage alternative, effective, long-acting contraception (LARC) options available to the patient. Transportation or geographic challenges may make follow-up for LARC placement or other contraception difficult for some patients in the postpartum period; implementation of immediate postpartum LARC programs, where feasible, can help negate this impact. In some cases, insurance may limit contraceptive options, or they may be time-limited in the postpartum period, and delays in sterilization procedures may ultimately hinder the health of our patients. Attempts should be made to perform these procedures as soon as it is reasonable to resume elective cases, and the impact of this delay must be carefully considered. Elective inductions of labor may also be considered for delay, although the length of such delay is clearly limited by the natural progression of pregnancy. In some settings under a public health emergency, such as COVID-19, it may be beneficial to the patient and the healthcare system to consider a delay in inductions of labor. However, the patient will ultimately enter labor at some point, so there may not be a significant benefit to the system to delay an induction, and this should be carefully con-

sidered based on the local health threat and resources before delaying or limiting such procedures. For example, it may be more appropriate to care for an induction early in a public health threat rather than later, when resources are more limited.

Most other obstetric procedures are indicated and cannot be reasonably delayed for very long due to the dynamic natural of pregnancy. For example, amniocentesis may be delayed by 2–3 weeks but ultimately cannot be delayed significantly, as it is time sensitive. External cephalic versions are medically indicated procedures and cannot be substantially delayed as this results in lower success rates and higher likelihood of cesarean delivery with advancing gestational age, causing direct harm to the patient. However, a delay by a few days is not harmful, so external cephalic versions generally can be considered as "elective urgent" or Tier 2a in most cases.[9,14] Likewise, ultrasound-indicated or history-indicated cerclages may be delayed for very brief periods of time, while examination-indicated cerclages should be considered emergent in most cases and should not be delayed.

To assist the practicing OB/GYN with decisions about procedural delay, we have provided examples in Table IV of common obstetric procedures that are likely to be considered as Tier 2a or Tier 2b under CMS guidelines or as "urgent" or "elective urgent" under TMB guidelines.[9,14]

Table IV *Obstetric Considerations for Elective Procedures*

Elective, non-urgent procedures
- Postpartum tubal ligation (Tier 1a)
- Elective induction of labor (Tier 1a)
- Predelivery inpatient consultation (consider telephone consultation) (Tier 1b)

Urgent or elective urgent procedures
- Repeat cesarean delivery +/- bilateral tubal ligation (Tier 2a)
- External cephalic version (Tier 2a)
- History indicated cerclage placement (Tier 2a)
- Intravenous iron transfusion/intravenous immunoglobulin infusion (Tier 2a)
- Amniocentesis/chorionic villus sampling (Tier 2a)
- Ultrasound-indicated cerclage placement (Tier 2b)
- Medically indicated termination of pregnancy (Tier 2b)
- Medically indicated induction of labor (Tier 2b)
- Cesarean delivery for placenta previa (Tier 2b)
- Cesarean hysterectomy for stable accreta/percreta (Tier 2b)

Emergent procedures
- Vaginal delivery/operative vaginal delivery for patient in labor (Tier 3a)
- Cesarean delivery +/– bilateral tubal ligation for patient in labor (Tier 3a)
- Examination-indicated cerclage (Tier 3a)
- Dilation and curettage for retained placenta or hemorrhage (Tier 3a)
- Wound debridement/exploration (Tier 3b)
- Medically indicated fetal transfusion/therapeutic intervention (Tier 3b)
- Cesarean hysterectomy for hemorrhage (Tier 3b)

Other procedures may arise that are not covered by the above list and can be addressed with consultation with the surgeon, anesthesia team, and operating room team and evaluated in the context of the hospital's capacity and available resources.

Other Considerations

Patient Surge

As the COVID-19 pandemic is rapidly evolving, provisions for adaptation are needed as patient surges stress hospital systems, resources, and providers. Established guidelines for delay of elective procedures may need to expand to urgent/urgent elective procedures as the patient surge develops. Difficult triaging dilemmas are likely to occur. For the reasons discussed above, OB/GYNs should be involved in these hospital-level decisions. While many of the procedures may fall under general elective procedure guidance for the facility, the formation of a formal obstetrics and gynecology procedure review team or committee involving OB/GYNs, operating room staff, and nursing personnel is vital to the appropriate review and triage of pending cases. When available, the addition of maternal-fetal medicine specialists, gynecologic oncologists, and obstetric anesthesia specialists may provide additional support and guidance for the review team.

Effective Period

Any guidelines for suspension of elective procedures, however defined, should be marked with some notation of time limits, milestones (e.g., termination of disaster declarations), or specified end dates, with potential contingencies for extension. Providing clarity is important for rescheduling and patient notification.

Provider/Patient Communication

During periods of time when elective procedures are on hold, it is important that the surgeon, provider, or designee maintain contact and transparency with the patient to increase their awareness of the ongoing situation and how it may impact

their planned procedure. When possible, advance notification is optimal to allow the patient to prepare for any anticipated changes. They should also be aware of hospital protocols for screening for COVID-19 symptoms and how that may impact their procedure should they screen positive. Patients should be educated to report any COVID-19 symptoms in order to avoid inadvertent transmission to healthcare providers, their medical care team, and other patients. Importantly, patients should be advised that their procedure may be canceled on short notice pending the evolving situation with COVID-19.

Conclusion

Public health emergencies, such as the COVID-19 pandemic, impose limits on the healthcare system. Limited supplies, available beds, and available providers force us to make healthcare system decisions that benefit our patients and communities as a whole. We must balance that benefit with any potential harm to individual patients. The OB/GYN plays an essential and impactful role, as cesarean section, hysterectomy, and oophorectomy are among the top 15 procedures performed in the U.S.[12] The OB/GYN should be an integral part of a healthcare system's decisions regarding elective procedures and should provide insights to allow for reasonable decisions about procedures in obstetrics and gynecology that can be delayed or should not be delayed. While many of the gynecologic procedures may fall under general elective procedure guidance for the facility, triage of obstetric and gynecologic "urgent/elective urgent" procedures may benefit from the formation of a formal obstetrics and gynecology procedure review team or committee.

We have incorporated guidance, definitions, and descriptions from CMS, TMB, and ACS. Additionally, we have incorporated recommendations and guidance from several other women's healthcare organizations in developing this commentary. While the decision to delay a procedure should be individualized to each patient to a certain degree, this guidance should serve as a reference for OB/GYNs when developing local and institutional planning regarding the delay of obstetric and gynecologic procedures. The above guidance is based on the currently available information about COVID-19 and institutional, state, and national recommendations. These recommendations will be refined and updated as more information becomes available and as response needs change. These recommendations can also provide a framework for similar decisions related to elective procedures during future disaster declarations or public health emergencies.

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