The ongoing novel coronavirus COVID-19 pandemic continues to affect both patients and medical providers. The duration of this pandemic remains unpredictable and it is most likely that the disease will be around until there is herd immunity, a cure, or a vaccine, with none of these three expected to be imminent. The COVID-19 pandemic remains an emerging and rapidly evolving situation. The goal of this document is to provide an update for surgical information, which can contribute to safety for reproductive surgeons, their staff, and their patients.

What’s new in this update

• Resumption of reproductive surgery should be based on approval from local and state authorities and a sustained regional reduction in new COVID-19 cases.
• Adequate testing using validated nucleic acid amplification assays with a low false negative rate is highly recommended prior to any surgical procedure requiring anesthesia.
• Adequate personal protective equipment must be available for staff and must be appropriate for the level of exposure to COVID-19, especially procedures that involve aerosol generation (AGP).
• Reproductive surgery should be listed as “urgent” as facilities start to prioritize cases for resumption of care.
• It is important to discuss with the surgical team, especially anesthesia, any potential risks for COVID exposure, especially potential airway manipulation that is considered AGP – intubation, laryngeal mask airway (LMA), or suctioning of the oropharynx – in order to minimize COVID-19 splatter or aerosolization and determining the appropriate PPE for staff.

Following are more detailed considerations, recommendations, and suggestions¹.

¹ These recommendations were developed of the Society of Reproductive Surgeons (SRS) as an educational resource and service to its members and other practicing clinicians. While this document reflects the views of members of the SRS Executive Committee, it is not intended to be the only approved standard of practice or to dictate an exclusive course of treatment. Physicians should always use their best judgment in determining a course of action and be guided by the needs of the individual patient, available resources, and institutional or clinical practice limitations. This guidance was reviewed and approved by the Executive Committee of the SRS. Executive members contributing to this document include Drs. Bala Bhagavath, Mindy Christianson, John Petrozza, Kathleen Hwang, Steven R. Lindheim, Preston J. Parry, and Samantha Pfeifer.
I. Considerations Prior to Resuming Surgery

1. Determining Disease Burden and Timing for Resuming Surgery
   - Resumption of surgery should be authorized by the appropriate municipal, county, and state health authorities.
   - There should be sustained reduction of rate of new COVID-19 cases in the relevant geographic area for at least 14 days (maximum incubation period). For places with relatively low baseline incidence, a stable plateau may also be appropriate.
   - Surgeries should only be started in facilities that are safely able to treat all patients requiring hospitalization without resorting to crisis standards of care. Facilities should also have adequate staffing and appropriate ICU/non-ICU beds and adequate PPE.
   - Guidelines should be set for re-entering the mitigation phase if local resurgence is encountered.

2. Testing for COVID-19
   - Accurate diagnostic testing, including validated nucleic acid amplification assays (NAAT) and anti-SARS-CoV-2 antibody detection would ideally lead to comprehensive case surveillance and ensure a reliable estimate of incidence and identify individuals who may be immune to re-infection.
   - All patients should have a screening test inquiring for any symptoms or history of exposure prior to clinic visit and surgery (Appendix A).
   - Diagnostic testing should be considered for all surgical patients after negative screening. This should, at a minimum, be in form of a rapid test for COVID-19 through real-time reverse transcription polymerase chain reaction (RT-PCR). While we recognize that false negatives can occur, in the face of no sign/symptoms and no one living with the patient having an active infection, one could consider surgery.
   - Testing availability should be adequate (may decrease as demand increases).
   - All medical staff must be screened daily (Appendix A), with consideration given to development of diagnostic screening testing policies.
   - Appropriate guidelines for post-op COVID-19 testing of symptomatic patients should be strongly considered.
   - Understanding regional/local sensitivity, specificity, false positive and negative rates of COVID-19 testing is exceedingly important.

3. Personal Protective Equipment (PPE)
   - Facilities should only consider surgical procedures when they have adequate PPE and medical surgical supplies appropriate to the type and number of procedures to be performed. A minimum of 30 days of supply is recommended before commencing with surgery.
   - All medical staff should be appropriately trained on the use of and fit-tested for appropriate PPE.
   - Policies for conservation requiring extended use or reuse of PPE should be created and managed per CDC guidelines.
   - The protective effects of N95 respirator against COVID-19 remains unknown since the virus-0.125 microns in size- is much smaller than the 0.3 microns cut off size for N95 respirators. The
use of N95 respirators along with face shields and protective eye wear should be continued by medical staff at highest risk. This typically includes personnel who are involved in the aerosol generating procedure (AGP) of airway intubation e.g. anesthesiologists, nurse anesthetists etc. AGP’s include tracheal intubation, use of laryngeal mask airway and suctioning of oropharynx.

4. Surgery Prioritization:
   ▪ All infertility patients, whether they need ART or surgical procedures, should be prioritized as urgent cases. Prioritization of surgical procedures should follow a collaborative process. These prioritization processes should adjust for local, regional, and national epidemiologic trends and should be sensitive to the institution’s resources, priorities and needs. Finally, transparency through the development of surgical priority list will reduce ethical dilemmas.

II. Considerations for the Safety of Surgical Patients

Ensuring safety and delivery of high-quality care across all five phases of care continuum is essential for all surgical patients.

Phase I: Pre-Operative Period
   ▪ Consider use of telemedicine for components of the preoperative patient evaluation.
   ▪ All office, clinics and other public areas should continue to practice appropriate social distancing.
   ▪ All patients should be screened for symptoms of COVID-19 prior to entry to the clinic/hospital. (Appendix A).
   ▪ Patients should wear, at a minimum, a cloth face covering that can be bought or made at home. If they do not have their own mask, they should be provided with a ASTM1 grade mask before or immediately upon entry into the facility.
   ▪ All medical facility staff (physicians, nurses, housekeeping, delivery, and others) should have a symptoms screen daily (Appendix A). Additionally, daily temperature checks are also recommended with repeated temperature check later in the day if between 99-100.0 degrees.
   ▪ Health care providers and staff should wear surgical face masks at all times.

Phase II: Immediate Pre-Operative Period
   ▪ Review of all pre-op check lists is recommended to see if they need to be revised
   ▪ Discuss with your anesthesiologist the safest, most effective way to anesthetize the patient yet reduce the risk for airway aerosol generation.

Phase III: Intraoperative Period
   ▪ Consider a guideline for personnel to be present (or not) during AGP (airway intubation in case of surgery) and also consider a waiting time (can be dependent on air circulation cycling time) before beginning the surgical case. For positive pressure rooms, it takes 18 minutes to fully clear a room. For negative pressure rooms, it takes approximately 28 minutes.
   ▪ Procedures involving the mucous membranes, including the respiratory tract, that have a higher risk of aerosol transmission should be done with great caution. Operating room staff should
utilize appropriate PPE such as N95 masks and face shields, especially in urgent cases, patients that have not been tested, and/or in areas with a high prevalence of disease.

▪ In areas with low prevalence of disease, adequate screening and COVID testing, normal PPE is adequate.

▪ There is no evidence to date that an open case is more protective than a laparoscopic case in COVID-19 negative and untested patients.

▪ Efforts to minimize surgical plume, e.g. smoke filtration systems, low pressure settings and avoidance of smoke generating energy devices, are still recommended despite lack of safety data for COVID-19.

Phase IV: Post-operative Period

▪ Adherence to standard care protocols is recommended.

Phase V: Post Discharge Period

▪ Outpatient surgery: Assure the patient has appropriate support and care at home

Inpatient surgery: Recommend the development of guidelines for separating COVID positive and negative in-patient units.

▪ Facilities should have a strict no visitor policy for all patients with exceptions for labor and delivery and end of life care patients.

References
10. CDC. Guidelines for Environmental Infection Control in Health-Care Facilities (2003) Airborne Contaminant Removal https://www.cdc.gov/infectioncontrol/guidelines/environmental/appendix/air.html#b1
Appendix A. Screening questions for COVID-19 for patients and health care staff

Screening for Symptoms

1. In the past 48 hours, have you had any of the following symptoms:
   a. Fever (defined as > 38°C or 100.5°F or subjective) (Yes/No)
   b. Cough (Yes/No)
   c. Shortness of breath (Yes/No)
   d. Sore throat (Yes/No)
   e. Diarrhea (Yes/No)
   f. Chills (Yes/No)
   g. Myalgia (Yes/No)
   h. Loss of smell (Yes/No)

Screening for Exposure

2. In the past 14 days, have you had close contact with anyone with known COVID-19 infection?
   a. Household contact (Yes/No)
   b. Being within approximately 6 feet of a COVID-19 patient for a prolonged period of time (more than 5 minutes) (Yes/No)
   c. Having direct contact with infectious secretions of a COVID-19 patient (e.g. being coughed on) (Yes/No)