Joint Society Statement on Minimally Invasive Gynecologic Surgery During the COVID-19 Pandemic

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The surgical care of gynecologic patients during the COVID-19 pandemic presents numerous challenges regarding not only patient and community safety, but that of the physicians and operating room personnel. Guidance around minimally invasive gynecologic surgery is a rapidly evolving topic, and the information presented below is subject to change as new data becomes available.

Urgency of Surgical Treatment:

The AAGL, along with many other surgical and women's health professional societies, supports suspension of non-essential surgical care during the immediate phases of the COVID-19 pandemic. Please refer to AAGL's Joint statement on elective surgeries dated March 16, 2020 (1).

Additionally, depending on the degree of urgency, COVID-19 positive patients may be best-served by delaying surgical procedures until their infection is resolved. However, in

some instances, gynecologic surgical care may be deemed essential and unable to be delayed. We have outlined important safety information to consider when performing gynecologic surgery during this time.

Universal Evaluation:

The COVID-19 status of every patient should be evaluated by pre-operative screening on the day of surgery including history, physical exam and patient questionnaire regarding flu-related symptoms (see Appendix 1) and exposures. When possible, COVID-19 testing should be undertaken for symptomatic and at-risk patients prior to surgery. As testing becomes more rapid and readily available, universal testing for COVID-19 may be recommended.

Considerations should be made based on the prevalence of disease on a local level regarding the interpretations of test results due to the risk of false negative results early in the course of disease; patients with unknown COVID-19 status may be considered "positive until proven otherwise" in terms of mobilizing appropriate protective gear for health care workers. Providers in some areas of the world affected early in the global pandemic have advocated for additional imaging evaluation (Computed Tomography (CT) of the Chest) prior to any surgical procedure due to suggestion of superior predictive ability in early disease (2).

Personal Protective Equipment (PPE) for Operating Room Personnel:

The COVID-19 virions are 50-200 nm in size, while N-95 masks are rated to filter, with 95% efficiency, particles that are greater than 300 nm in size(3, 4). There is evidence to suggest that conventional surgical masks may provide a similar level of protection as the N95 mask in general-use conditions(5), and providers should employ the equipment deemed appropriate by their respective institutions.

It is recommended that anyone working in the operating room utilize full PPE, which includes shoe covers, impermeable gowns, surgical or N-95 masks, protective head covering, gloves and eye protection. In addition, movement of personnel in and out of the operating room should be strictly limited, with efforts made to limit staff breaks mid-case when possible. Trainee participation should be limited and include only personnel essential to the safe performance of the operation in order to avoid exposure and preserve

PPE resources.

Surgical Approach:
Potential concerns exist regarding aerosolization of viral particles by electrosurgical and ultrasonic device use at the time of surgery, which could then theoretically be transmitted to the operating room environment. Additionally, with laparoscopy or robot-assisted laparoscopy, sudden release of trocar valves, non-air-tight exchange of instruments or specimen extraction via abdominal or vaginal incisions may potentially expose the health care team to aerosolized viral particles. While it is important to acknowledge these concerns, at present, they remain theoretical in relation to risk of transmission of COVID-19 to operating room personnel. There is no available evidence from the COVID-19 pandemic, or from prior global influenza epidemics, to suggest definitively that respiratory viruses are transmitted through an abdominal route from patients to health care providers in the operating room.

Laparoscopic and Robot-assisted Approach to Gynecologic Surgery:
The following are recommendations for best practice when laparoscopy or robot-assisted laparoscopy is performed (Level 3 Evidence based on expert opinion):

- Employ electrosurgical and ultrasonic devices in a manner that minimizes production of plume, with low power setting and avoidance of long desiccation times
- When available, make use of a closed smoke evacuation/filtration system with Ultra Low Particulate Air Filtration (ULPA) capability
- In addition, a laparoscopic suction may be used to remove surgical plume and desufflate the abdominal cavity; do not vent pneumoperitoneum into the room
- Use low intra-abdominal pressure (10-12mmHg) if feasible
- Avoid rapid desufflation or loss of pneumoperitoneum, particularly at times of instrument exchange or specimen extraction
- Tissue extraction should be performed with minimal CO2 escape (desufflate with closed smoke evacuation/filtration system or laparoscopic suction prior to minilaparotomy, making extraction incision, vaginal colpotomy, etc.)
- Minimize blood/fluid droplet spray or spread

- Minimize leakage of CO2 from trocars (check seals in reusable trocars or use disposable trocars)

Vaginal and Laparotomic Approach to Gynecologic Surgery:
Similar concerns exist in relation to aerosolization of viral particles with use of hand-held electrosurgical devices and plume release directly into the operating room environment in an uncontrolled fashion; these concerns are also unproven in relation to COVID-19 disease transmission. Collaboration with Anesthesiology colleagues and discussion of performing vaginal and open procedures under regional anesthesia is appropriate to avoid the aerosol generating events of intubation and extubation.

Considerations regarding choice of surgical route include patient comorbidities (such as but not limited to: obesity, diabetes, cardiovascular disease) which could result in higher morbidity from laparotomic procedures. Additionally, prolonged hospitalization for recovery after laparotomy could expose patients to higher risk of nosocomial infection including COVID-19, and could place a higher burden on the health-care system.
The following are recommendations for best practice when a vaginal or laparotomic procedure is performed (Level 3 Evidence based on expert opinion):

- Perform dissection and vascular control using non-electrosurgical techniques where possible
- Employ electrosurgical and ultrasonic devices in a manner that minimizes production of plume, with low power setting and avoidance of long desiccation times
- Smoke evacuators should be used alongside ULPA filters where possible
- Utilize a suction device to remove any surgical plume as it is produced
- Minimize blood/fluid droplet spray or spread

Hysteroscopic and Other Procedures:
The risk of COVID-19 transmission at time of hysteroscopy with bipolar electrosurgical devices and normal saline as the infusion medium is unknown, but theoretically low. Standard droplet precautions are recommended for PPE. The risks related to laser vaporization and conization procedures are also undelineated, and the above

recommendations about minimization and evacuation of surgical plume apply.

Summary and Recommendations:

Surgery for gynecologic patients during the COVID-19 pandemic should be approached on a case-by-case basis, taking into account patient-level factors and local resources. Minimally invasive and vaginal approaches to surgery are associated with lower morbidity for the patient in many cases, as well as shorter hospitalization. The data on risk of surgical plume exposure and transmission of COVID-19 are limited. There are strategies for all surgical approaches that can help mitigate the risk of exposing operating room personnel.

Appendix: Symptoms associated with COVID-19 according to WHO and CDC:

Common symptoms: Fever, Dry cough, Fatigue, Shortness of breath

Other associated symptoms: Muscle aches, Sore throat, Diarrhea, Nausea/vomiting, Runny nose

https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html

https://www.who.int/health-topics/coronavirus#tab=tab_3

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