

Guidance for gynecologists utilizing telemedicine during COVID-19 pandemic based on expert consensus and rapid literature reviews

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Abstract

Background: COVID-19 has impacted delivery of outpatient gynecology and shifted care toward use of telemedicine.

Objective: To rapidly review literature and society guidelines and create expert consensus to provide guidance regarding management of outpatient gynecology scenarios via telemedicine.

Search strategy: Searches were conducted in Medline and Cochrane databases from inception through April 15, 2020.

Selection criteria: Literature searches were conducted for articles on telemedicine and abnormal uterine bleeding, chronic pelvic pain, endometriosis, vaginitis, and postoperative care. Searches were restricted to available English language publications.

Data collection and analysis: Expedited literature review methodology was followed and 10943 citations were single-screened. Full-text articles and relevant guidelines were reviewed and narrative summaries developed.

Main results: Fifty-one studies on the use of telemedicine in gynecology were found. Findings were reported for these studies and combined with society guidelines and expert consensus on four topics (abnormal uterine bleeding, chronic pelvic pain and endometriosis, vaginal discharge, and postoperative care).

Conclusions: Guidance for treating gynecological conditions via telemedicine based on expedited literature review, review of society recommendations, and expert consensus is presented. Due to minimal evidence surrounding telemedicine and gynecology, a final consensus document is presented here that can be efficiently used in a clinical setting.

KEYWORDS

COVID-19; Gynecology; Pandemic; Telehealth; Telemedicine

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Funding Information

Society of Gynecologic Surgeons (SGS)

1 | INTRODUCTION

On January 30, 2020, WHO declared a worldwide state of emergency due to the coronavirus SARS-CoV-2 (COVID-19) pandemic. Social distancing has become the primary behavioral modification to minimize viral transmission and control the pandemic.^{1,2} During the initial surges of infection, telehealth and telemedicine were used as a way of protecting patients and providers from exposure to COVID-19 while continuing care. Telehealth is a more global term that refers to any healthcare process that occurs remotely. Telemedicine is a term that describes technology used to connect a patient to provider to administer care through telephone or video interactions.³ As we enter a “new normal” phase of the pandemic, it is highly likely that telemedicine will continue to be important due to new waves of disease, patient anxiety, and healthcare system resources. A systematic review published in February 2020 examined the effectiveness of telehealth interventions for improving obstetric and gynecologic health outcomes.^{4,5} This work emphasized the importance of remote monitoring and virtual visits in settings where there are barriers to facility-based care, a situation that now feels prescient. Evidence-based guidance for telemedicine in gynecological conditions will be critical during this time. The Society of Gynecologic Surgeons (SGS) recently released guidelines on the use of telemedicine in female pelvic medicine and reconstructive surgery (FPMRS) to help steer FPMRS providers in their care of patients during COVID-19 and the present review hopes to offer similar guidance for gynecologists.⁶

The aim of the present study was to perform a systematic, rapid review of the literature and combine it with society guidelines and expert consensus to provide guidance regarding management of common outpatient gynecology scenarios via telemedicine. This guidance will assist the specialty in delivering the most effective

and safe healthcare during the COVID-19 pandemic and for future global crises.

2 | MATERIALS AND METHODS

2.1 | Eligibility criteria, information sources, search strategy

Members of the SGS Collaborative Research in Pelvic Surgery consortium (CoRPS), the SGS Systematic Review Group (SRG), and invited topic experts participated in this project. These members have expertise in clinical and surgical gynecology and research experience in gynecology, systematic review, and guideline development. No Institutional Review Board approval was required for this work.

Systematic review methods used by the SGS SRG were utilized and guidelines followed for expedited literature reviews published by the Agency for Healthcare Research and Quality Evidence-based Practice Center Program.⁷ These guidelines allow expedited literature reviews to be performed without the formal steps of generating evidence tables and formal assessment of risk bias and grading of evidence as outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement.⁸

Clinical topics of interest were determined which were amenable for literature review and had not been recently addressed by existing systematic reviews or guidelines. Four topics were selected for which eligibility criteria were developed by consensus: (1) abnormal uterine bleeding (AUB); (2) chronic pelvic pain (CPP) and endometriosis; (3) vaginal discharge and vaginal infections; and (4) postoperative care. Based on these criteria, separate literature searches were developed for articles about telemedicine (technology to connect a patient to a provider) and each clinical topic (see Appendix S1). Formal literature searches were run in PubMed, the Cochrane

Central Register of Controlled Trials, and the Cochrane Database of Systematic Reviews and were conducted from database inception through April 15, 2020. All searches were restricted to English language publications regarding human patients. Searches that yielded over 1500 citations had exclusion of case reports, and any articles that were not original exception of narrative reviews. For all topics, existing systematic reviews, primary studies, and pertinent narrative reviews were sought. Further details of clinical research questions, including specific eligibility criteria and literature flow, are reported in Appendix S1. Due to the rapid nature of the project, articles reviewed were limited to those that could be retrieved from group member libraries within 24 hours.

2.2 | Study selection, data extraction, assessment of risk of bias, synthesis of results

Each literature search was entered into Abstrackr software (<http://abstrackr.cebm.brown.edu/>) and single-screened. For larger topics, accepted abstracts were rescreened by topic leaders. Potentially relevant citations were entered into Google Sheets spreadsheets available to all researchers for tracking and basic data extraction. Immediately available full-text articles were retrieved and rescreened.

Findings were supplemented with key articles, online society guidelines specific to COVID-19 as of April 20, 2020 (Table 1), and expert consensus from the authors. Bullet-point summaries are listed below. Guidance statements based on existing evidence or other sources are indicated with reference citations. Guidance statements based on expert consensus only are marked by "(EC)." A draft manuscript was made available to the entire SGS membership for review and to the Society's Executive Committee for final approval. Feedback was incorporated into the final manuscript.

3 | RESULTS

3.1 | Abnormal uterine bleeding (AUB)

The combined searches yielded 2375 citations with partial removal of duplicate citations (partially deduplicated). These were screened singly by eight team members. Among these, 44 citations were initially accepted, which were rescreened by a single team member who selected 17 for further review. One article could not be retrieved and another was a duplicate publication. Fourteen articles were extracted for pertinent data to offer the following guidance. These included four randomized controlled trials (RCTs),⁹⁻¹² two existing systematic reviews,^{13,14} seven cross-sectional or survey studies,¹⁵⁻²¹ and one retrospective cohort study.²²

3.1.1 | Counseling on AUB in telemedicine

- The quality of information on online sites about bleeding disorders and AUB is limited.^{18,20} Women should be given professional guidance to websites that are useful and accurate (EC), such

as pamphlets from the American College of Obstetricians and Gynecologists (ACOG)²³ at acog.org/patient-resources/faqs or misforwomen.com.²⁴

- Social media platforms have been shown to increase awareness of undiagnosed bleeding disorders.¹⁷ Women could be directed to social media groups or platforms that might increase their awareness (EC).
- Telephone or video chat counseling of patients has been demonstrated to increase patient satisfaction, lower anxiety score, and not alter treatment complication or outcomes.¹² Telephone or video counseling with patients is encouraged to help manage their care (EC).

3.1.2 | Assessment of AUB via telemedicine

- Acute heavy bleeding is more likely to occur in women with ovulatory dysfunction¹⁴; therefore, women with anovulatory bleeding are optimal candidates for telemedicine management as first-line management is hormonal treatment (EC).
- Bleeding timing and quantity can be collected through text message or mobile applications (such as Glow™, Clue™, GP™ apps, Period tracker Free Menstrual calendar™, and Pink Pad Period Tracker & Fertility Tracker Pro™) rather than paper forms, facilitating evaluation by telemedicine.^{10,11,21}
- Standard physical exam or testing components for assessment of AUB¹⁴ can be accomplished by home urine pregnancy test, guiding patients to take their own pulse and blood pressure, capillary refill time with a stopwatch, home pad weight or photos of pad saturation, or sending photos or video assessment to look for conjunctival pallor¹⁹ as an indicator of anemia (EC).
- If lab services are not the safest option during the pandemic, a reliable alternative is smartphone-based evaluation of conjunctival pallor.¹⁹
- There is no literature available regarding the accuracy of screening for anemia with symptoms, but screening assessment of the patient is recommended with questions regarding common symptoms of anemia (shortness of breath, dizziness, chest pain, headache, lightheadedness, etc.) (EC).

3.1.3 | Medical management

- Most physicians advocate for at least two medical treatments before considering hysterectomy.¹⁵ Medical treatment should be given priority, particularly during this pandemic (EC).
- The progestin-only regimen of oral medroxyprogesterone acetate 20 mg three times per day for 1 week, then 20 mg daily for 3 weeks is effective in acute bleeding (based on one RCT),¹⁴ while other regimens (megestrol acetate 40–80 mg twice a day for 2 days, for up to 7 days until cessation of bleeding, then 40–80 mg per day

TABLE 1 Online society guidance on gynecological care during the COVID-19 pandemic

Organization	Topic	Document/Website ^a
ACOG	Gynecology	COVID-19 FAQs, Gynecology ¹⁰⁰ www.acog.org/clinical-information/physician-faqs/covid19-faqs-for-ob-gyns-gynecology
	Telehealth	COVID-19 FAQs, Telehealth ¹⁰¹ www.acog.org/clinical-information/physician-faqs/covid-19-faqs-for-ob-gyns-telehealth
SGO	Gynecologic oncology	Gynecologic Oncology Considerations during the COVID-19 Pandemic ¹⁰² www.sgo.org/clinical-practice/management/covid-19-resources-for-health-care-practitioners/gyn-onc-considerations-during-covid-19/
ASCCP	Cervical screening	ASCCP Interim Guidance for Timing of Diagnostic and Treatment Procedures for Patients with Abnormal Cervical Screening Tests ¹⁰³ www.asccp.org/covid-19
ASBrS and ACR	Breast screening exams	ASBrS and ACR Joint Statement on Breast Screening Exams During the COVID-19 Pandemic ¹⁰⁴ www.breastsurgeons.org/news/?id=45
ACR, COVID-19 Pandemic Breast Cancer Consortium	Breast cancer	Recommendations for Prioritization, Treatment and Triage of Breast Cancer Patients During the COVID-19 Pandemic: Executive Summary ¹⁰⁵ www.facs.org/-/media/files/quality-programs/napbc/asbrs_napbc_coc_nccn_acr_bc_covid_consortium_recommendations.ashx
SBI	Breast imaging	Statement on Breast Imaging during the COVID-19 Pandemic ¹⁰⁶ www.sbi-online.org/Portals/0/Position%20Statements/2020/society-of-breast-imaging-statement-on-breast-imaging-during-COVID19-pandemic.pdf
Gastroenterology Professional Society	Endoscopic procedures	Guidance on endoscopic procedures during the covid-19 pandemic ¹⁰⁷ webfiles.gi.org/links/media/Joint_GI_Society_Guidance_on_Endoscopic_Procedure_During_COVID19_FINAL_impending_3312020.pdf
RCOG, FSRH, BASCP, and The Royal College of Midwives	Abortion care	Coronavirus (COVID-19) infection and abortion care ¹⁰⁸ www.rcog.org.uk/globalassets/documents/guidelines/2020-04-09-coronavirus-covid-19-infection-and-abortion-care.pdf
ABOG, AGOS, ASRM, SASGOG, SFP, and SMFM	Abortion access	Joint statement on abortion access during COVID-19. March 18, 2020 ¹⁰⁹ www.acog.org/clinical-information/physician-faqs/-/link.aspx?id=43CF073F75B0407882567D8C250A2A76&_z=z
Reproductive Health Access Project	Contraception	Contraception in the time of COVID-19 ¹¹⁰ www.reproductiveaccess.org/resource/contraception-covid/
	Reproductive healthcare resources	COVID-19 Reproductive Health Care Resources ¹¹⁰ www.reproductiveaccess.org/covid19/
	Medication abortion, remote	No Touch Medication Abortion Workflow ¹¹¹ www.reproductiveaccess.org/resource/no-touch-medab-workflow/
Beyond the Pill	Contraception	Contraception During COVID-19: Best Practices and Resources ¹¹² beyondthepill.ucsf.edu/contraceptive-care-during-covid-19
FPNTC	Family planning	What Family Planning Providers Can Do to Meet Client Needs During COVID-19 ¹¹³ www.fpntc.org/resources/what-family-planning-providers-can-do-meet-client-needs-during-covid-19

Abbreviations: ABOG, American Board of Obstetrics and Gynecology; ACOG, American College of Obstetricians and Gynecologists; ACR, American College of Radiology; AGOS, American Gynecological & Obstetrical Society; ASBrS, American Society of Breast Surgeons; ASCCP, American Society for Colposcopy and Cervical Pathology; ASRM, American Society for Reproductive Medicine; BASCP, British Society of Abortion Care Providers; FPNTC, Family Planning National Training Center; FSRH, Faculty of Sexual & Reproductive Healthcare; RCOG, Royal College of Obstetricians and Gynaecologists; SASGOG, Society for Academic Specialists in General Obstetrics and Gynecology; SBI, Society of Breast Imaging; SFP, Society of Family Planning; SGO, Society for Gynecologic Oncology; SMFM, Society for Maternal-Fetal Medicine.

^aAll accessed on April 20, 2020.

for 3–6 weeks; norethindrone acetate 5 mg three times a day for 2 days, for up to 7 days until cessation of bleeding, then 5–10 mg daily for 3–6 weeks (possibly higher doses for obese patients) are backed by expert opinion.¹⁴

- Data from RCTs support the efficacy of combined hormonal contraceptive (CHC) regimens including:
 - 35 µg ethinyl estradiol and 1 mg norethindrone, three times daily for 1 week followed by daily for 3 weeks,¹⁴
 - Estradiol valerate (E2V)/dienogest (DNG) for AUB (E2V 3 mg on days 1–2, E2V 2 mg/DNG 2 mg on days 3–7, E2V 2 mg/DNG 3 mg on days 8–24, E2V 1 mg on days 25–26, and placebo on days 27–28).⁹
- Daily use of CHC beyond 3 weeks for AUB can be considered (EC).
- High-quality trials have demonstrated efficacy of tranexamic acid for the treatment of menorrhagia in otherwise normal uteri, but no trials have evaluated its use for acute, non-obstetric uterine bleeding.¹⁴ Antifibrinolytics should be used with great caution in patients positive for or under investigation for COVID-19 due to concerns of coagulopathy documented with COVID-19 (EC).^{25–27}
- No data guide the role of GnRH agonists in the management of AUB.¹⁴ During the current pandemic, oral GnRH agonists with add-back therapy could be considered for patients awaiting surgery, specifically in patients with known fibroids (EC).

3.1.4 | Procedural diagnosis of or treatments for AUB

- Endometrial sampling is not necessary for all women with acute AUB but should be considered in women aged 45 years and over, who have risk factors for hyperplasia, or women who have failed conservative management.¹⁴ Even among patients with these risk factors, urgent sampling is not needed in hemodynamically stable patients and could be postponed during the pandemic (EC).
- Less invasive and safer office-based or outpatient procedures for AUB, including magnetic resonance-guided focused ultrasound and uterine artery embolization, are equally efficacious from the patients' perspective to hysterectomy and may be offered to women who require urgent interventions to address acute bleeding during this pandemic (EC).
- Hysterectomy for stable patients with AUB is not currently advocated due to restrictions on elective surgery during the COVID-19 pandemic (EC).²⁸

3.1.5 | Chronic pelvic pain (CPP) and endometriosis

Two separate searches were conducted for pelvic pain and endometriosis, but the combined bodies of literature were assessed together for the unified topic. For CPP, the combined searches yielded 2198 citations. Abstracts were screened until the Abstrackr program predicted that no remaining unscreened abstracts would be relevant (when all remaining prediction values were below 0.40). Thus, first-round screening

stopped after 1790 citations had been screened. In total, 45 citations were screened in, which were rescreened by a single team member who selected 24 for further review. For endometriosis, combined searches for endometriosis yielded 2520 citations. These were screened singly in full by eight team members. From these, 18 citations were screened in.

Among the 42 citations accepted across both searches, seven were not available and 11 were duplicate publications. Eight articles were rejected, primarily for not being relevant to the topics. In total, 16 articles were extracted to offer the following guidance. These included four RCTs,^{29–32} four comparative studies,^{33–36} two existing systematic reviews,^{37,38} one prospective cohort study,³⁹ two narrative studies,^{40,41} one qualitative study,⁴² one feasibility study,⁴³ and one paper providing information resources.⁴⁴

3.1.6 | Counseling on CPP in telemedicine

- Online pages for endometriosis, interstitial cystitis/bladder pain syndrome (IC/BPS), and dysmenorrhea are frequently incomplete, inaccurate, and poorly written with inadequate information to guide women on when to seek urgent care.^{37,38,40,41}
- During the pandemic, online resources can be considered if patients can be directed to credible sources of quality information that are accurate and easy to read (Table 2).^{37,44}

3.1.7 | Evaluation of CPP via telemedicine

- Physical exams via telemedicine are limited; additional virtual tools such as Internet-based questionnaires and apps have demonstrated usefulness.⁴³
- An Internet-based survey has shown that vulvodynia can be predicted with excellent reliability without a physical exam.³⁵
- Objective assessment of the patient's condition can be performed virtually using health-related quality of life (HRQOL) questionnaires such as the Short Form-36 Health Status Questionnaire (SF-36)^{53–55} or those specific to endometriosis, such as the Endometriosis Health Profile-30, Short Form Endometriosis Health Profile Questionnaire (EHP-5), EuroQOL (EQ-5D), and Endometriosis Impact Questionnaire (EIQ).^{56–58}
- Pelvic imaging for evaluation of CPP may be delayed during the pandemic (EC).

3.1.8 | Management of CPP

- Telemedicine is well-accepted among patients for treatment of CPP and has been shown to improve pain acceptance and overall function.³⁹
- Mobile health apps and online resources can be used as adjuncts to treatment of CPP.^{29,32–34,59}
- During the COVID-19 pandemic, pelvic physical therapy clinics can offer telemedicine sessions for pelvic wellness (EC).
- CPP: In the absence of the ability to perform a pelvic exam, in-person pelvic floor therapy, or surgery, providers could consider outpatient

management strategies such as short-term vaginal diazepam, transcutaneous electrical nerve stimulation (TENS) units, at home pelvic physical therapy, cognitive behavioral therapy, yoga, topical anesthetics, vaginal estrogen, tricyclic antidepressants, and anticonvulsants.^{60–62} Short-term vaginal diazepam might be helpful before physical therapy and intercourse, but a RCT did not find self-administered vaginal diazepam beneficial after 4 weeks.⁶³ Due to the potential for abuse and likely poor long-term effectiveness, diazepam should be used with caution (EC).

- Endometriosis: Online support groups may be useful. They have demonstrated positive therapeutic outcomes such as emotional support, reduced isolation, improved coping, reassurance, knowledge, and empowerment.⁴²
- Vaginismus: Internet-based guided self-help strategies (involving psychoeducation, relaxation exercises, sensate focus, graduated dilators, and written feedback from an eCoach) have shown promising effects and high treatment satisfaction.³⁰
- IC/BPS: Most first- and second-line treatments can be conducted via telemedicine including: patient education; self-care counseling and behavioral modification (including diet changes); stress management techniques; and multimodal pain management using amitriptyline, cimetidine, hydroxyzine, or pentosan polysulfate.⁶⁴ Caution should be used when prescribing pentosan polysulfate as long-term use has recently been associated with macular disease.^{65,66} Self-administered bladder instillations could be recommended for flares (EC).
- Dysmenorrhea and premenstrual syndrome: Most conservative treatment guidelines can be conducted via telemedicine, including lifestyle modifications (e.g. exercise and stress reduction), non-steroidal anti-inflammatory drugs, hormonal suppression, or a combination of treatments.^{67,68} Self-acupressure can be recommended for patients with primary dysmenorrhea.³¹
- Endometriosis-related pain: Most conservative treatments can be recommended via telemedicine including hormonal therapy (e.g. combined hormonal contraceptives, progestins, anti-progestins, oral GnRH agonists up to 12 months with add-back therapy, and GnRH antagonists), analgesic medications, and neuroleptics.^{36,69–71}
- Symptomatic endometriomas: Though these are best treated surgically, medical therapy may still have some benefit and may lead to a temporary reduction in size of the cysts.⁷⁰

- There is no literature guiding the initiation or use of narcotics for CPP or other pelvic pain disorders via telemedicine, but we recommend against initiation of narcotics for CPP without guidance from a pain specialist (EC) due to the fact that narcotics are generally considered a controversial last resort therapy for this disorder.⁷²

3.2 | Vaginal discharge and vaginal infections

The combined searches yielded 1209 citations. These were screened singly in full by five team members. Among these, 62 citations were screened in, which were rescreened by two team members who selected 15 for further review, all of which were successfully retrieved. Four articles were rejected for being populations not of interest. In total, 11 articles were extracted for pertinent data. These included one prospective cohort study,⁷³ two comparative studies,^{74,75} one retrospective cohort study,⁷⁶ five cross-sectional studies,^{77–81} one qualitative study,⁸² and one literature review.⁸³ We further extrapolated treatment strategies from expert reviews on standard clinical evaluation and treatment that could be used in telemedicine.^{84–86}

3.2.1 | Vaginal discharge and vulvar irritation

- Although telephone diagnosis of vulvovaginal complaints is poor,^{74,76,83} bacterial vaginosis, candidiasis, and trichomonas are the most common causes of vulvovaginal symptoms; thus, it is reasonable to start with empiric treatment if these are suspected (EC).
- Overall, the treatment for these three infections is benign and can often be treated with a single dose of medication (EC).
- If there is inadequate response to treatment, then it could be appropriate to schedule an in-person visit, depending on the severity of symptoms (EC).
- If vulvar irritation is present, there should be a strong suspicion of a secondary infection such as candidiasis or other inflammatory processes.⁸⁴
- For patients with hypoestrogenism, vaginal estrogen could be started empirically for vulvovaginal irritation/itching (EC).

TABLE 2 Online patient-focused resources for CPP.

CPP condition	Online resources
Endometriosis	Endometriosis.org http://endometriosis.org ⁴⁵ EFA http://www.endofound.org ⁴⁶ NIH https://www.nichd.nih.gov/health/topics/endometriosis ⁴⁷ EA http://www.endometriosisassn.org ⁴⁸ UK NICE patient decision aid for hormonal treatment for endometriosis: https://www.nice.org.uk/guidance/ng73/resources/patient-decision-aid-hormone-treatment-for-endometriosis-symptoms-what-are-my-options-pdf-459557319749
IC/BPS	www.ic-network.com ⁵⁰ www.ichelp.org ⁵¹ www.painful-bladder.org ⁵²

Abbreviations: CPP, chronic pelvic pain; EA, Endometriosis Association; EFA, Endometriosis Foundation of America; IC/BPS, interstitial cystitis/bladder pain syndrome; NICE, National Institute for Health and Care Excellence; NIH, National Institutes of Health.

3.2.2 | Sexually transmitted infections (STI)

- If there is concern for STIs based on sexual history or symptoms, consider empiric therapy for chlamydia, gonorrhea, and possible coinfection with *Trichomonas vaginalis* (EC).
- Self-obtained vaginal swabs are easy, convenient, confidential, and accurate; therefore, women experiencing signs and symptoms of STI could be directed to websites that offer mail-based home-testing for STIs,^{73,75,77-80,82} such as www.iwantthekit.org⁸⁷ or <https://www.everlywell.com>.⁸⁸
- ACOG supports the use of expedited partner therapy as a method of preventing reinfection of gonorrhea and chlamydial. Partners receiving expedited therapy should be encouraged to seek additional medical evaluation as soon as possible to discuss screening for other STIs, including HIV.⁸⁶

3.2.3 | Herpes simplex virus (HSV)

- HSV is the most common cause of genital ulcers.⁸³ Primary HSV is often accompanied by fever, malaise, and myalgias⁸³ similar to patients with COVID-19.⁸⁹ Such patients should be questioned about other COVID-19 symptoms (EC).
- No literature guides empiric treatment of HSV without an in-person exam, but it is considered reasonable to empirically treat symptoms reported by patients with a history of genital HSV that are consistent with a secondary outbreak (EC).

3.3 | Postoperative care

The combined searches yielded 2641 citations. These were screened singly in full by eight team members. Among these, 37 citations were screened in. Three additional articles were added from the other searches being conducted. Among these 40 articles, seven articles were duplicate publications, one was not in English, and a further nine were not immediately available. Thirteen articles were rejected primarily for being methodology papers or about the wrong population. In total, the search revealed 10 relevant papers that included three RCTs,⁹⁰⁻⁹² one prospective cohort,⁹³ four prospective single arm studies,⁹⁴⁻⁹⁷ one cost analysis,⁹⁸ and one existing systematic review.^{90,94,99}

3.3.1 | Postoperative visits and calls

- In lieu of the ability to perform a physical examination, telemedicine may provide a safe and cost-effective option for providers to be able to assess pain, need for analgesia, return to normal function (urinary, gastrointestinal, activities of daily living), and identify complications needing an in-person visit (EC).

- Based on limited evidence, telemedicine may lead to similar or improved patient-related outcomes compared to in-person postoperative care.⁹⁹ Telemedicine could be utilized to supplement usual postoperative care and limit the number of visits during the pandemic.
- Internet-based programs to assist in postoperative recovery after hysterectomy and laparoscopic adnexal surgery are cost-effective and may shorten recovery time.^{93,98}
- Surgical pathology results can be reviewed over the telephone/video (EC).
- Providers may consider extending pelvic rest in patients who are not able to be seen in person for evaluation of vaginal cuff and/or vaginal/vulvar incision (EC).

3.3.2 | Complications

- Limited evidence suggests that postoperative virtual visits are not associated with increased or delayed postoperative complications.^{90,91,93,94,96-98}
- After appropriate provider training, telephone assessment for wound infection after open abdominal gynecologic surgery can be effective in diagnosing wound complications.⁹⁴ Providers could consider video or photographs for wound examination as appropriate (EC).
- For patients who do not respond to empiric treatment for suspected acute cystitis postoperatively, refer to COVID-19 FPMRS expedited review.⁶
- Postoperative questionnaires for telemedicine have been developed and shown to be effective at screening for complications (see Appendix S2).^{96,97}

3.3.3 | Patient/provider satisfaction

- Patients found an automated interactive voice response system helpful and acceptable in monitoring for postoperative complications.⁹⁶

4 | DISCUSSION

Despite a shift towards telemedicine initiated by COVID-19, there is little information available to guide gynecologists. Despite the dearth of literature regarding administration of gynecologic care via telemedicine, there is an urgent need to provide guidance based on available evidence and, when necessary, expert opinion. The present literature review has been combined with society guidelines and expert opinion to provide the reader with a consensus document to help navigate the new world of telemedicine in gynecology.

While an in-person visit and physical exam cannot be fully replaced, telemedicine can provide a safer option for patients during the COVID-19 pandemic or for those who are quarantined and have

no access to care. When possible, patients should be seen in person for confirmatory physical exams. In the meantime, decisions about modifying care will require consideration of many factors including clinical judgment, local status of the pandemic, local resources and state mandates, patient co-morbidities, and acuity of symptoms.

The strengths of the present review include the use of standardized expedited evidence review methods as well as the author team's experience conducting systematic reviews and developing clinical practice guidelines and their varied and advanced expertise in gynecologic practice. The main limitations to the present review are its rapid nature, the small number of high-quality studies, the sparse evidence regarding many of the pertinent clinical questions arising in these unprecedented times, and the fact that the expedited review methods may have missed some important studies. Further, the expedited review did not formally assess the quality of evidence and risk of bias as is routine in a more formal systematic review. The reviews were focused on telemedicine, which largely did not consider special circumstances related to care during pandemics. For practical reasons, the reviewed evidence base was restricted to English-language publications that were readily available. The preponderance of recommendations is based on expert consensus and/or on one or two studies only.

Literature and expert-based guidance has been provided for gynecologists as they navigate the use of telemedicine. However, the COVID-19 pandemic is evolving rapidly and, as more data become available, it is impossible to forecast how this will impact the management of common gynecologic conditions in the months to come. It is clear that telemedicine can play a key role in infection prevention and continuity of care in the administration of quality gynecologic care during the pandemic.

AUTHOR CONTRIBUTIONS

CLG, EMB, AAD, RS, CKW, PCJ, SOA, JHK, MDT, ASG, JGK, DTGH, DS, SEP, and KVM were responsible for protocol, project development, data collection or management, data analysis, manuscript writing/editing; GA was responsible for project development, data collection or management, data analysis, manuscript writing/editing.

ACKNOWLEDGMENTS

This work was conducted by the Society of Gynecologic Surgeons Collaborative Research in Pelvic Surgery Consortium (SGS CoRPS) and Systematic Review Group (SRG). Funding provided by the Society of Gynecologic Surgeons (SGS) supports assistance by methods experts in systematic reviews and other logistics.

CONFLICTS OF INTEREST

CLG: Expert testimony for Johnson and Johnson; KVM: Consultant for RBI medical, Travel reimbursements from SGS (voting board member as Research Chair), Book editing/authorship royalties from Elsevier; PCJ: Consultant for Johnson & Johnson; DS: Consultant for AristaMD;

EMB: Consultant for Society for Gynecologic Surgeons and American Association of Gynecologic Laparoscopists; MDT: Speaker for Cooper Surgical, Consultant for Heracure Medical; SEP: Consultant for Fetallife, LLC, travel reimbursements from NBME; JHK: Consultant: Empress Medical. JGK, AAD, RS, SOA, and CKW have no conflicts of interest.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Appendix S1. Literature review methods.

Appendix S2. Postoperative telemedicine questionnaires.