



# To treat or not to treat: perceptions of the initial American Society for Reproductive Medicine COVID-19 recommendations among women's health providers

Ashley Wiltshire<sup>1</sup> · Tia Jackson-Bey<sup>2</sup> · Zachary Walker<sup>3</sup> · Jasmine L. Chiang<sup>1</sup> · Paul A. MacLennan<sup>4</sup> · Deidre Gunn<sup>1</sup> · William W. Hurd<sup>1</sup>

Received: 30 November 2020 / Accepted: 4 January 2021 / Published online: 14 January 2021  
© The Author(s), under exclusive licence to Springer Science+Business Media, LLC part of Springer Nature 2021

## Abstract

**Purpose** The objective of this study was to evaluate the perception of the initial ASRM COVID-19 recommendations for infertility treatment held by women's health providers within varying subspecialties, as well as their attitudes toward pregnancy and fertility during this time.

**Methods** An electronic survey was sent to all women's healthcare providers, including physicians, mid-level providers and nurses, in all subspecialties of obstetrics and gynaecology (Ob/Gyn) at a large tertiary care university-affiliated hospital.

**Results** Of the 278 eligible providers, the survey response rate was 45% ( $n = 127$ ). Participants represented 8 Ob/Gyn subspecialties and all professional levels. Participants age 18–30 years were significantly more likely to feel that women should have access to infertility treatment despite the burden level of COVID-19 in respective community/states ( $p = 0.0058$ ). Participants within the subspecialties of general Ob/Gyn, maternal foetal medicine and gynecologic oncology were significantly more likely to disagree that all women should refrain from planned conception during the COVID-19 pandemic, in comparison to those in urogynecology and reproductive endocrinology and infertility ( $p = 0.0003$ ).

**Conclusions** Considering the immediate and unknown long-term impact of the COVID-19 pandemic on fertility care delivery, a better understanding of perceptions regarding infertility management during this time is important. Our study shows overall support for the initial ASRM recommendations, representing a wide spectrum of women's health providers.

**Keywords** Infertility · COVID · Pandemic · Opinion · Women · In vitro fertilization · Assisted reproductive technology · Corona virus

## Introduction

Corona virus disease 2019 (COVID-19) has permeated throughout the world unlike anything most people have experienced in a lifetime. Originating in Wuhan, China, the exponential spread of the virus has had a domino effect as it has ravaged through large populations, including China, Italy, Spain and the USA [1, 2]. On March 11, 2020, the World Health Organization declared the COVID-19 outbreak a pandemic, as it has been found in almost every country around the world. At the time of this manuscript submission, there were over thirty-seven million COVID-19 cases worldwide, with the USA currently at the forefront of the pandemic with over 8.5 million cases and over 200,000 deaths due to COVID-19 [2].

As health institutions around the world grappled with the initial public health response to COVID-19, clinicians

---

✉ Ashley Wiltshire  
Ashleyfimrc@gmail.com

<sup>1</sup> Department of Obstetrics and Gynecology, Division of Reproductive Endocrinology and Infertility, University of Alabama at Birmingham, Birmingham, AL, USA

<sup>2</sup> Department of Obstetrics and Gynecology, Division of Reproductive Endocrinology and Infertility, University of Illinois at Chicago, Chicago, IL, USA

<sup>3</sup> Department of Obstetrics and Gynecology, University of Alabama at Birmingham, Birmingham, AL, USA

<sup>4</sup> Department of Surgery and Transplantation, University of Alabama at Birmingham, Birmingham, AL, USA

progressively learned more about the disease and changed clinical practice based on emerging data to treat those affected and prevent infection [1, 3, 4]. One of the initial accommodations made was to limit non-urgent medical care in an effort to decrease potential exposure and preserve resources, such as personal protective equipment, for prioritized COVID-19 patients and the healthcare workers directly involved in their care. In March 2020, the European Society of Human Reproduction and Embryology (ESHRE) released recommendations advising that all fertility patients, regardless of COVID-19 symptoms or diagnosis, should avoid pregnancy and those currently in treatment should defer embryo transfer [3]. Similar recommendations were made by the American Society for Reproductive Medicine (ASRM) published in “Patient Management and Clinical Recommendations During the Coronavirus (COVID-19) Pandemic”, a statement for clinical management of infertility care, based on the growing and anticipated burden of COVID-19 at that time. The ASRM recommended the following [4]:

1. Suspend initiation of new treatment cycles, including ovulation induction, intrauterine inseminations (IUIs), in vitro fertilization (IVF) including retrievals and frozen embryo transfers as well as non-urgent gamete cryopreservation.
2. Strongly consider cancellation of all embryo transfers whether fresh or frozen.
3. Continue to care for patients who are currently “in-cycle” or who require urgent stimulation and cryopreservation.
4. Suspend elective surgeries and non-urgent diagnostic procedures.
5. Minimize in-person interactions and increase utilization of telehealth.

The receptivity of these initial recommendations varied across the media, patients and women’s health providers [5, 6]. In a controversial response to ASRM recommendations, an infertility provider created an electronic petition entitled “Fight for Women’s Rights to Fertility Treatment and Evaluation” which expressed a disagreement with the ASRM recommendations and made the following points [6]:

- 1) Fertility treatment is both necessary and time sensitive, especially for women age > 40 years.
- 2) Respect for patient autonomy.
- 3) Patient right to treatment and evaluation.
- 4) Vulnerability and oppression of women throughout history.
- 5) Different states are experiencing different rates of COVID-19 infection over different timelines; thus, clinic shutdowns could be strategically timed.

On April 7, 2020, the petition had 13,799 signatures [6].

Even early in the COVID-19 pandemic, perspectives, opinions and questions regarding the optimal healthcare response sparked debate. Designation of infertility treatment as “elective” or “non-urgent” was once again called into question. What should determine when and who should have their treatment suspended during a global pandemic? Should patients’ autonomy and provider plan be sufficient to continue treatment with the goal of a planned pregnancy despite COVID-19? Furthermore, what are the opinions of women’s health providers on these most sensitive matters? The answers to these questions likely vary based on perspective.

For the patient population seeking the utilization of assisted reproductive technology (ART), the goal of a safe pregnancy and delivery and/or fertility preservation not only requires a reproductive endocrinology and infertility (REI) specialist but also often requires a team effort. This team generally includes a variation of healthcare providers within general obstetrics and gynaecology (Ob/Gyn), maternal foetal medicine, gynecologic oncology or minimally invasive gynecologic surgery. However, the perspectives and opinions of how infertility care should be practiced during the COVID-19 pandemic that is also reflective of the inherent multispecialty involvement are unknown. Therefore, the objective of this study was to describe the perception of the initial ASRM COVID-19 associated recommendations for infertility care held by a wide spectrum of women’s health providers, as well as their attitudes toward pregnancy and fertility during this time.

## Methods

An 18-item survey was created to assess healthcare provider opinion of the initial ASRM COVID-19 recommendations. Requested information included personal demographics, such as age, gender, profession and subspecialty. Opinions on infertility treatment within the setting of COVID-19 and the initial ASRM recommendations were collected via multiple choice and Likert scale questions. The survey was self-administered and required approximately 10 min to complete. IRB approval was obtained from the University of Alabama at Birmingham (IRB-300005171).

The survey was sent electronically to all of the women’s health providers within the obstetrics and gynaecology (Ob/Gyn) department at a large tertiary care university-affiliated hospital in Birmingham, Alabama, from May 22 to June 10, 2020. Potential participants included physicians, mid-level providers and nurses, in all subspecialties of obstetrics and gynaecology. The survey was prefaced with a cover letter, which discussed the voluntary nature of the study, as well as the objective, with a link to the ASRM recommendations document for participant review.

All data was collected anonymously and stored in a REDCap database. To increase robustness, Likert scale

responses were reclassified into three mutually exclusive responses, i.e. disagree, neutral and agree. The analysis examined statistical differences across demographic, professional and subspecialty groups. The Freeman-Halton test for RxC tables was used and accounted for small (<5) expected cell sizes. All analyses were performed using SAS software, version 9.4 (SAS Institute Inc., Cary, NC, USA). Data reported in this study reflects statistical significance when  $p < 0.05$ .

## Results

Of the 278 eligible providers, the survey response rate was 45% ( $n = 127$ ). Participants represented 8 Ob/Gyn subspecialties and all professional levels (Table 1, Fig. 1). The majority of respondents were female (81.9%) and  $\leq 40$  years of age (68.5%).

Twenty-three percent of the total participants reported that they normally provide some level infertility care within their practice. When these participants were asked how their practice changed in regard to infertility care with the onset of COVID-19, the most common answer was “completed treatment for patients in cycle, but cancelled new cycles” (34%). The most common timing for clinical practice changes occurred for 67% of these participants at some point during March 16–31, 2020. Important factors reported in the decision to make practice changes included safety concerns (90%), patient-physician shared decision-making (82%), availability of medical resources (81%) as well as institutional (94%), national (ASRM, 67%; other, 46%) and international (51%) recommendations and guidelines.

Of the total participants, 46% viewed infertility treatment as elective, specifically defined as “not a medical necessity”. Sixty-five percent were unaware of the ASRM COVID-19 recommendations prior to entering this study. With regard to both patients and providers, 63% of participants viewed the

ASRM recommendations as fair, and 67% viewed them as reasonable. Forty-three percent agreed that the ASRM recommendations should be enforced for all patients despite patient opinion. Fifty-six percent agreed that all providers should abide by ASRM recommendations despite the level of COVID-19 infection burden in their respective state/community. Eighty-one percent agreed that some degree of infertility treatment should be allowed at the time the recommendations were made. The least supported treatment type was in vitro fertilization (32%). The most supported treatment type was ovulation induction with oral agents (72%). Regardless of infertility diagnosis, 70% of participants did not feel that women should refrain from planned conception during the pandemic.

There was a near significant difference ( $p = 0.0596$ ) by gender as to whether the ASRM COVID-19 recommendations were fair with respect to both patients and providers. As previously stated, the majority of participants (63.2%) agreed; however, among men, 85.7% agreed, and among women, 58.7% agreed with that statement. Additionally, the majority of survey participants (51.2%) disagreed that women should have access to infertility treatment despite the burden level of COVID-19 in their community/state, but this varied significantly by participant age ( $p = 0.0058$ , Fig. 2). Among those age 18–30, 48.5% agreed that women should have access, whereas 35.2% of the 31–40 age group were neutral. Among participants age 41–50, 11.8% agreed, and among participants age > 51, 21.7% agreed. The majority of survey participants disagreed (68.3%) that all women should refrain from planned conception during the COVID-19 pandemic, but this varied significantly by subspecialty ( $p = 0.0003$ , Fig. 3). Subspecialties with high proportions that disagreed included general obstetrics and gynaecology (73.7%), maternal foetal medicine (88.9%) and gynecologic oncology (60%), whereas a high proportion of neutral responses were from urogynecology (66.7%) and reproductive endocrinology and infertility (42.9%).

**Table 1** Subspecialty categories of participants

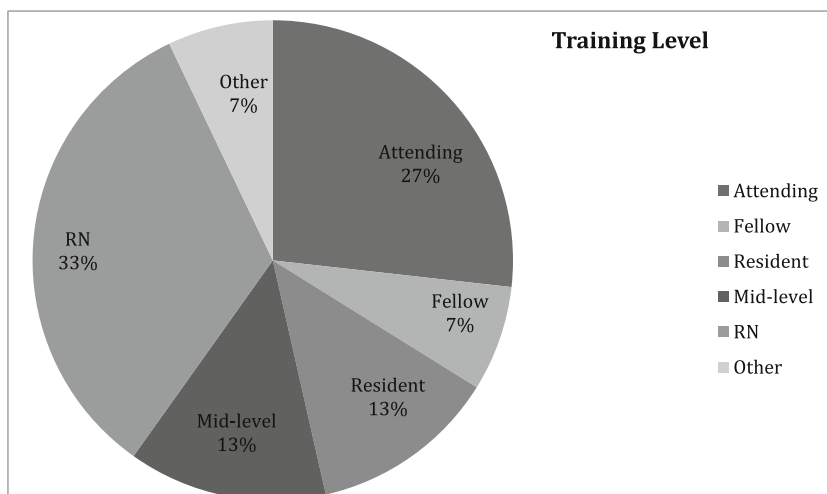
Subspecialty	Frequency $n$ (%)
General Ob/Gyn	57 (44.9)
MFM	27 (21.3)
Urogyn	6 (4.7)
Gyn Onc	11 (8.7)
MIGS	1 (0.8)
REI	7 (5.5)
Resident	5 (3.9)
Other	13 (10.2)

*Ob/Gyn* obstetrics and gynaecology *MFM* maternal foetal medicine, *Urogyn* urogynecology, *Gyn Onc* gynecologic oncology, *MIGS* minimally invasive gynecologic surgery, *REI* reproductive endocrinology and infertility

## Discussion

Our study shows a generalized agreement with the restrictions initially recommended by ASRM on infertility care during the COVID-19 pandemic. The majority of women’s health providers in our setting felt that the initial recommendations were both fair and reasonable. Most agreed that the ASRM recommendations should be upheld despite patient opinion and despite the COVID-19 infection burden in respective states/communities. This speaks to the appreciated value of a collective standardized practice during an unprecedented health crisis. As the COVID-19 pandemic continues to evolve, recommendations and opinions will continue to evolve as well.

**Fig. 1** Professional training level of participants (*n* = 127)



**Strengths**

The main strength of our study is the diversity of our participants. The described perspectives and opinions are reflective of multiple Ob/Gyn subspecialties, training levels and medical professions. As stated in the introduction, the complete medical care of a patient requiring ART inherently requires representatives of subspecialties other than REIs. Currently, there are studies in the literature describing patient experiences and opinions on the changes happening in infertility care [5, 7]. However, there is a dearth of literature representing the provider perspective, especially the collective perspective of women’s health providers as a whole.

**Limitations**

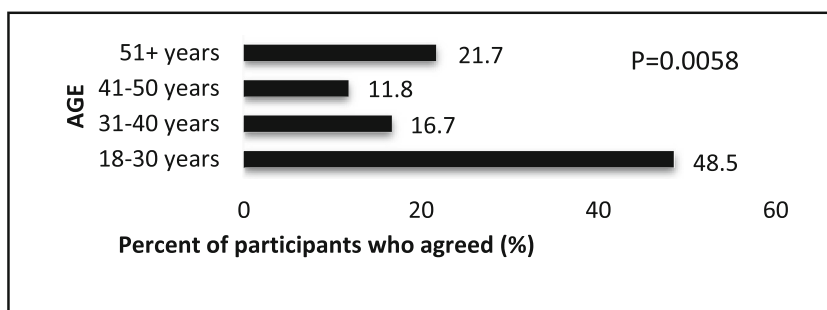
Limitations of our study include lack of validation for our survey instrument. There are no previously validated surveys for this topic, and in effort to collect prompt real-time data during start of the pandemic, we were not able to validate it prior to survey administration. Another limitation was generalizability, as our participants represent a single yet large academic centre in the southern USA with all major Ob/Gyn subspecialties and training programs. The opinions and perspectives reflected in our outcomes may not be consistent with those in other locations of the USA, especially with the varied severity

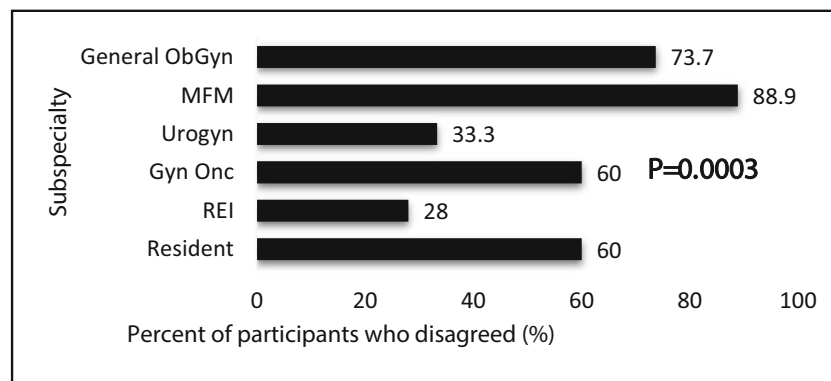
of COVID-19 infection rates across the country at the start of the pandemic (2). Though this is unfortunate, the underlying implication of our results is that additional and larger studies must be conducted in the future in order to fully understand how women’s health providers feel infertility care should be moulded in response to the fluctuating status of COVID-19 around the world, and the USA. A worthwhile future investigation would be to survey women’s health providers across the country in order to increase generalizability and thus improve our understanding of the matter.

**Impact on pregnant women**

Thus far, the experience of the COVID-19 pandemic has left us more knowledgeable about the disease, but there are still many implications of the infection that are to be further understood. Due to the physiological changes associated with pregnancy involving the cardiovascular, pulmonary and immune systems, pregnant women are inherently a vulnerable population during a pandemic [8]. According to the Centers for Disease Control and Prevention (CDC), pregnant women with COVID-19 have a higher likelihood of intensive care unit (ICU) admission, mechanical ventilation, extracorporeal membrane oxygenation (ECMO) and death when compared to non-pregnant women [9]. Their report also indicates an

**Fig. 2** All women should have access to infertility treatment despite COVID-19 infection burden of their state/community. Participants who agreed with the above statement by age compared by Freeman-Halton test





**Fig. 3** Women should refrain from conception during the pandemic. Participants who disagreed with the above statement by subspecialty compared by Freeman-Halton test. *Ob/Gyn* obstetrics and gynaecology,

*MFM* maternal foetal medicine, *Urogyn* urogynecology; *Gyn Onc* gynecologic oncology, *MIGS* minimally invasive gynecologic surgery, *REI* reproductive endocrinology and infertility

association between COVID-19 infection during pregnancy with preterm delivery and pregnancy loss [10].

As of November 13 2020, the CDC has tallied a total of 38,071 cases of COVID-19 and 51 deaths related to COVID-19 in pregnant women since January 22, 2020, in the USA. The majority of these cases are occurring in women ages 25–29, with a disproportionate rate in those of Hispanic/Latino and non-Hispanic black racial groups. Though the data is not fully available for each case, 20.8% (7917) of the aforementioned cases reported includes information of whether or not ICU admission was required. Of those 7917 cases, approximately 3% required ICU admission and 1% required mechanical ventilation [9]. Similarly, since March 29, 2020, the CDC has been tracking neonatal outcomes in the US (across 16 jurisdictions). Among reported cases with available data, there has been 2315 neonates born to mothers with COVID-19 of which 11% have required neonatal ICU admission and 12.7% of 3912 have been born prematurely [10].

A systematic review by Pettiroso et al. characterizes 60 published international studies describing COVID-19-related obstetric outcomes in a total of 1287 international cases [11]. Contrarily, their analysis revealed no difference in the rate of severe or critical COVID-19 cases between pregnant and non-pregnant women. Out of the 1287 cases, they found a total of 8 maternal deaths, 6 neonatal deaths, 7 stillbirths and 5 miscarriages. Limitations of their analysis includes the heterogeneity of study types included, some studies being of a small series, the majority of cases reflecting infection during late gestation and differences in reporting of outcomes [11]. As data accumulates, our ability to understand the process of vertical transmission, risk of congenital syndromes and perinatal outcomes particularly in those with infections occurring in the first trimester will be clinically important achievements to further shape and improve obstetric and pre-conception care.

### Impact on women with infertility

Despite the morbidity and socioeconomic impact of the COVID-19 pandemic, infertility remains a significant life stressor for many women [7]. A study by Vaughan et al., assessing the psychological impact of the pandemic on infertility patients, showed that the stress of infertility can be comparable to the stress of the pandemic itself [7]. Furthermore, a study by Turocy et al., assessing the emotional impact of the initial COVID-19 ASRM guidelines on patients in New York City, found the emotional impact of cancelling fertility cycles to be either extremely upsetting (“equivalent to the loss of a child”) or very upsetting for the majority of patients [5]. These findings drastically contrast with the opinions reported by the providers in our study. Though the public opinion includes those who find the disruption of infertility care as devastating, the abrupt response of the reproductive health community has been reflective of the unprecedented nature of COVID-19 and the uncertain impact it has on pregnancy outcomes. After monitoring the progression of the COVID-19 pandemic, ASRM published their 3rd update to the Patient Management and Clinical Recommendations During the COVID-19 Pandemic document in April 2020, which allowed for gradual and judicious resumption of reproductive care. Stipulations included development of policies focused on risk reduction through physical distancing, personal protective equipment, increased sanitization and patient education of the known and unknown aspects of COVID-19—all of which remain recommendations to this day [12].

Undoubtedly, the decision to treat or not treat infertility is multifactorial. From the patient perspective, the term infertility may not only reflect the desire to build or grow their family, but it can also represent months or years of personal trauma and tragedy, including but not limited to treatment failure, recurrent pregnancy loss or cancer diagnosis. From the provider

perspective, consideration has to be placed on the plausible health risk to the patient, potential foetus as well as the entire healthcare team (including the non-medical staff). With equal respect to the guidance provided by the governing bodies within the field of infertility and the emotional burden held by many women suffering from infertility, it is imperative that women's health providers work as a team to serve and advocate for women's health, reproductive rights and overall safety.

## Conclusion

Our study shows overall support for the initial ASRM recommendations from women's health providers within our institution. This is the first study to assess perceptions of infertility care during the COVID-19 pandemic across a full spectrum of women's health providers. Further research is warranted to improve generalizability during this unprecedented time. Considering the unknown long-term impact of the COVID-19 pandemic on infertility care delivery, an understanding of perceptions regarding infertility management is important. In doing so, we must consider the full spectrum of women's health providers, as well as our patients, as we practice shared yet guided clinical decision-making.

## Compliance with ethical standards

**Conflict of interest** The authors declare that they have no conflict of interest.

## References

1. La Marca A, Niederberger C, Pellicer A, Nelson SM. COVID-19: lessons from the Italian reproductive medical experience. *Fertil Steril*. 2020 May;113(5):920–2. <https://doi.org/10.1016/j.fertnstert.2020.03.021>.
2. World Health Organization. COVID-19 weekly epidemiological update. Geneva, Switzerland: World Health Organization; 2020. <https://www.who.int/publications/m/item/weekly-epidemiological-update%2D%2D-27-october-2020>. Accessed 3 Nov 2020.
3. ESHRE. Coronavirus Covid-19: ESHRE statement on pregnancy and conception. *Pregnancy and conception*. 19 March 2020. <https://www.eshre.eu/Press-Room/ESHRE-News/>. Accessed 3 Nov 2020.
4. American Society for Reproductive Medicine (ASRM) patient management and clinical recommendations during the coronavirus (COVID-19) pandemic. Update #1 (March 30, 2020 through April 13, 2020). <https://www.asrm.org/globalassets/asrm/asrm-content/news-and-publications/covid-19/covidtaskforceupdate1.pdf>. Accessed 3 Nov 2020.
5. Turocy J, Robles A, Hercz D, D'Alton M, Forman E, Williams Z. The emotional impact of the ASRM guidelines on fertility patients during the COVID-19 pandemic. *Fertility and Sterility Dialog*. <https://doi.org/10.1101/2020.03.29.20046631>. <https://www.fertstertdialog.com/posts/65837-the-emotional-impact-of-the-asrm-guidelines-on-fertility-patients-during-the-covid-19-pandemic>. Accessed 3 Nov 2020.
6. Reed B. Fight for women's rights to fertility treatment and evaluation. [https://www.change.org/p/american-society-of-reproductive-medicine-fight-for-women-s-rights-to-fertility-treatment-and-evaluation?recruited\\_by\\_id=ef345310-63f2-11e9-a744-6fc1702493e5](https://www.change.org/p/american-society-of-reproductive-medicine-fight-for-women-s-rights-to-fertility-treatment-and-evaluation?recruited_by_id=ef345310-63f2-11e9-a744-6fc1702493e5). Accessed 27 Nov 2020.
7. Vaughan DA, Shah JS, Penzias AS, Domar AD, Toth TL. Infertility remains a top stressor despite the COVID-19 pandemic. *Reprod BioMed Online*. 2020;41(3):425–7. <https://doi.org/10.1016/j.rbmo.2020.05.015>.
8. Dashraath P, Wong JLJ, Lim MXK, Lim LM, Li S, Biswas A, et al. Coronavirus disease 2019 (COVID-19) pandemic and pregnancy. *Am J Obstet Gynecol*. 2020;222(6):521–31. <https://doi.org/10.1016/j.ajog.2020.03.021>.
9. Zambrano LD, Ellington S, Strid P, et al. Update: characteristics of symptomatic women of reproductive age with laboratory-confirmed SARS-CoV-2 infection by pregnancy status — United States, January 22–October 3, 2020. *MMWR Morb Mortal Wkly Rep*. 2020;69:1641–7. <https://doi.org/10.15585/mmwr.mm6944e3>.
10. Woodworth KR, Olsen EO, Neelam V, et al. Birth and infant outcomes following laboratory-confirmed SARS-CoV-2 infection in pregnancy — SET-NET, 16 Jurisdictions, March 29–October 14, 2020. *MMWR Morb Mortal Wkly Rep*. 2020;69:1635–40. <https://doi.org/10.15585/mmwr.mm6944e2externalicon>.
11. Pettiroso E, Giles M, Cole S, Rees M. COVID-19 and pregnancy: a review of clinical characteristics, obstetric outcomes and vertical transmission. *Aust N Z J Obstet Gynaecol*. 2020;60(5):640–59. <https://doi.org/10.1111/ajo.13204>.
12. American Society for Reproductive Medicine (ASRM) patient management and clinical recommendations during the coronavirus (COVID-19) pandemic. Update #3 (April 24, 2020 through May 11, 2020). <https://www.asrm.org/globalassets/asrm/asrm-content/news-and-publications/covid-19/covidtaskforceupdate3.pdf>. Accessed 3 Nov 2020.

**Publisher's note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.