# Abstracts

**Management of Stillbirth**

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Stillbirth is one of the most common adverse pregnancy outcomes, occurring in 1 in 160 deliveries in the United States. In developed countries, the most prevalent risk factors associated with stillbirth are non-Hispanic black race, nulliparity, advanced maternal age, obesity, preexisting diabetes, chronic hypertension, smoking, alcohol use, having a pregnancy using assisted reproductive technology, multiple gestation, male fetal sex, unmarried status, and past obstetric history. Although some of these factors may be modifiable (such as smoking), many are not. The study of specific causes of stillbirth has been hampered by the lack of uniform protocols to evaluate and classify stillbirths and by decreasing autopsy rates. In any specific case, it may be difficult to assign a definite cause to a stillbirth. A significant proportion of stillbirths remains unexplained even after a thorough evaluation. Evaluation of a stillbirth should include fetal autopsy; gross and histologic examination of the placenta, umbilical cord, and membranes; and genetic evaluation. The method and timing of delivery after a stillbirth depend on the gestational age at which the death occurred, maternal obstetric history (eg, previous hysterotomy), and maternal preference. Health care providers should weigh the risks and benefits of each strategy in a given clinical scenario and consider available institutional expertise. Patient support should include emotional support and clear communication of test results. Referral to a bereavement counselor, peer support group, or mental health professional may be advisable for management of grief and depression.



**Coronavirus Disease 2019 (COVID-19) Vaccines and Pregnancy What Obstetricians Need to Know**

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Coronavirus disease 2019 (COVID-19) vaccines have begun to be distributed across the United States and to be offered initially to priority groups including health care personnel and persons living in long-term care facilities. Guidance regarding whether pregnant persons should receive a COVID-19 vaccine is needed. Because pregnant persons were excluded from the initial phase 3 clinical trials of COVID-19 vaccines, limited data are available on their efficacy and safety during pregnancy. After developmental and reproductive toxicology studies are completed, some companies are expected to conduct clinical trials in pregnant persons. Until then, pregnant persons and their obstetricians will need to use available data to weigh the benefits and risks of COVID-19 vaccines. Issues to be considered when counseling pregnant persons include data from animal studies and inadvertently exposed pregnancies during vaccine clinical trials when available, potential risks to pregnancy of vaccine reactogenicity, timing of vaccination during pregnancy, evidence for safety of other vaccines during pregnancy, risk of COVID-19 complications due to pregnancy and the pregnant person's underlying conditions, and risk of exposure to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and potential for risk mitigation. The Centers for Disease Control and Prevention, the American College of Obstetricians and Gynecologists, and the Society for Maternal-Fetal Medicine have each issued guidance supportive of offering COVID-19 vaccine to pregnant persons. As additional information from clinical trials and from data collected on vaccinated pregnant persons becomes available, it will be critical for obstetricians to keep up to date with this information.Less than a year after identification of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that causes coronavirus disease 2019 (COVID-19), safe and effective vaccines are beginning to be distributed across the United States, with the hope of bringing

the COVID-19 pandemic to an end. Here we summarize what is currently known about COVID-19 vaccines and their use during pregnancy.

**Association between Menstrual Cycle Length and Coronavirus Disease 2019 (COVID-19) Vaccination A U.S. Cohort**

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**Objective:** To assess whether coronavirus disease 2019 (COVID-19) vaccination is associated with changes in cycle or menses length in those receiving vaccination as compared with an unvaccinated cohort.

**Methods:** We analyzed prospectively tracked menstrual cycle data using the application "Natural Cycles." We included U.S. residents aged 18–45 years with normal cycle lengths (24–38 days) for three consecutive cycles before the first vaccine dose followed by vaccine-dose cycles (cycles 4–6) or, if unvaccinated, six cycles over a similar time period. We calculated the mean within-individual change in cycle and menses length (three prevaccine cycles vs first- and second-dose cycles in the vaccinated cohort, and the first three cycles vs cycles four and five in the unvaccinated cohort). We used mixed-effects models to estimate the adjusted difference in change in cycle and menses length between the vaccinated and unvaccinated cohorts.

**Results:** We included 3,959 individuals (vaccinated 2,403; unvaccinated 1,556). Most of the vaccinated cohort received the Pfizer-BioNTech vaccine (55%) (Moderna 35%, Johnson & Johnson/Janssen 7%). Overall, COVID-19 vaccine was associated with a less than 1-day change in cycle length for both vaccine-dose cycles compared with prevaccine cycles (first dose 0.71 day-increase, 98.75% CI 0.47–0.94; second dose 0.91, 98.75% CI 0.63–1.19); unvaccinated individuals saw no significant change compared with three baseline cycles (cycle four 0.07, 98.75% CI "0.22 to 0.35; cycle five 0.12, 98.75% CI "0.15 to 0.39). In adjusted models, the difference in change in cycle length between the vaccinated and unvaccinated cohorts was less than 1 day for both doses (difference in change: first dose 0.64 days, 98.75% CI 0.27–1.01; second dose 0.79 days, 98.75% CI 0.40–1.18). Change in menses length was not associated with vaccination.

**Conclusion:** Coronavirus disease 2019 (COVID-19) vaccination is associated with a small change in cycle length but not menses length.

**Increase rate of ruptured tubal ectopic pregnancy during the COVID-19 pandemic.**

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**Objective:** During the 2020 COVID-19 pandemic there was a decrease in emergency room arrivals. There is limited evidence about the effect of this change in behavior on women's health. We aimed to evaluate the impact of the COVID-19 pandemic on the diagnosis, treatment and complications of women presenting with a tubal Ectopic Pregnancy (EP).

**Study design:** This is a single centre retrospective cohort study. We compared the clinical presentation, treatment modalities and complications of all women presenting in our institution with a tubal EP during the COVID-19 pandemic between 15 March and 15 June 2020, with women who were treated in our institution with the same diagnosis in the corresponding period for the years 2018–2019.

**Results:** The study group included 19 cases of EP (N =19) that were treated between the 15 March 2020 and 15 June 2020. The control group included 30 cases of EP (N=30) that were admitted to in the corresponding period during 2018 and 2019. Maternal age, parity, gravity and mode of conception (natural vs. assisted) were similar between the two groups. There was no difference in the mean gestational age (GA) according to the last menstrual period. In the study group more women presented with sonographic evaluation of high fluid volume in the abdomen than in the control group (53 % vs 17 %, P value 0.01). This finding is correlated with a more advanced disease status. In the study group there was a highly statistically significant 3-fold increase in rupture among cases ($P$<0.005) and a 4-fold larger volume of blood in the entrance to the

abdomen ($P$<0.002). We found that there were no cases of ruptured EP in the group of women who were pregnant after assisted reproduction.

**Conclusion:**
We found a higher rate of ruptured ectopic pregnancies in our institution during the COVID-19 pandemic. Health care providers should be alerted to this collateral damage in the non-infected population during the COVID-19 pandemic.

**Keywords:** COVID 19, Ectopic pregnancy, Pandemic, Lockdown, Methotrexate

**Prenatal telemedicine during COVID-19: patterns of use and barriers to access**

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**Objective:** To evaluate patient experience with a prenatal telemedicine visit and identify barriers to accessing telemedicine among rural pregnant people in northern New England during the beginning of the COVID-19 pandemic.

**Materials and Methods:** We conducted a postvisit electronic survey of pregnant people who successfully participated in a prenatal telemedicine visit at a rural academic medical center in Northern New England. Nineteen questions were included in 5 domains: (1) engagement with prenatal care; (2) barriers to telemedicine and in person healthcare; (3) experience of prenatal care; (4) remote pregnancy surveillance tools; and (5) sources of COVID-19 information.

**Results:** Responses were obtained from 164 pregnant people. Forty percent of participants had participated in an audio-only telemedicine visit, and 60% in a video telemedicine visit. The visit was easy or somewhat easy for 79% of respondents and somewhat difficult or difficult for 6.8%. The most common barrier to accessing telemedicine was poor internet or phone connectivity, followed by childcare responsibilities, lack of equipment, and lack of privacy. Participants also engaged in additional remote prenatal care including phone calls with registered nurses (7.6%), communication with the obstetrics team through a secure health messaging portal (21.1%), and home health monitoring (76.3%).

**Discussion and Conclusions:** In this survey, evaluating the experience of pregnant people participating in a prenatal telemedicine visit during the COVID-19 pandemic, respondents had a positive experience with telemedicine overall, but also identified significant barriers to participation including issues with connectivity and lack of equipment for the visit. Most participants used telemedicine in combination with other tools for remote self-care.