



Canadian Fertility and Andrology Society
Société canadienne de fertilité et d'andrologie

Fertility Care During the COVID-19 Pandemic: Guiding Principles for COVID-19 Vaccination in the Fertility Patient

Canadian Fertility and Andrology Society – UPDATE: Wednesday, October 6, 2021

As of October 5th, 2021, the number of COVID-19 cases in Canada has reached 1,643,420 with 28,050 resulting deaths. 43,857,667 COVID-19 tests have been performed with a daily percent positive rate of 3.9 per cent in the last seven days. More than 56,000,000 approved vaccines have been administered across Canada with 75 per cent of Canadians having received at least one dose of the vaccine and almost 72 per cent of Canadians are fully vaccinated. Vaccination rates are steadily increasing, but those who are unvaccinated continue to be hit hard by COVID-19: over 86 per cent of new COVID-19 cases are occurring in unvaccinated people. Furthermore, as the virus mutates, there is a rise in variants and even those who are fully vaccinated are still susceptible to re-infection. At this time, it is important to encourage vaccination and to re-iterate safety measures. These measures will reduce morbidity and mortality from COVID-19, particularly amongst the pregnant patient population and those who are trying to conceive. This document provides an update on the recent data pertaining to COVID-19, COVID vaccination, and management of the pregnant population and fertility patients.

We now know that pregnant patients are those at highest risk of severe COVID infection, increased risk of Intensive Care Unit (ICU) admission, need for mechanical ventilation, and death. Despite this, in Canada, we are seeing a spike in unvaccinated pregnant patients in our COVID-19 ICU's. This may be due to vaccine hesitancy in this population. Recently, an unvaccinated pregnant woman in Alberta died from a COVID related infection following admission to the ICU. COVID-19 not only affects the pregnant patient, but also the child, with increased risks to both the mother and fetus. In the pregnant population, there is an elevated risk of preterm labour, emergency C-section, and inability to bond with a newborn due to COVID-19 illness and recovery.

Vaccine hesitancy continues to be an issue in the reproductive-aged population due to concerns over the vaccine's effect on reproductive potential and pregnancy. Pregnant people often experience vaccine hesitancy because they do not want to put any unnecessary medication or agents into their body while pregnant. However, studies continue to show accumulating evidence that the mRNA Covid-19 vaccination is safe in pregnancy and those planning to become pregnant. Health care workers remain on the frontlines to encourage our pregnant and infertility patients, egg donors and gestational surrogates, and partners of all pregnant and infertility patients to obtain vaccination with the purpose of protecting themselves and their pregnancies. Speaking to patients when they have questions about vaccination, or when the opportunity arises, providing them with evidence-based data and good counselling is instrumental in encouraging



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vaccination uptake. It is important to stress that the mRNA COVID vaccines are not composed of live viruses and that vaccine uptake can reduce the chances of both infection and severe illness, especially in the pregnant population. The CDC recently released new data showing that COVID-19 vaccinations are safe for pregnant individuals, and they strongly recommend that all people who are pregnant, breastfeeding, or thinking about getting pregnant get vaccinated against COVID-19. A recent *New England Journal of Medicine* correspondence analyzed data from the CDC v-safe COVID-19 vaccine pregnancy registry to determine the risk of spontaneous miscarriage from 6-20 weeks gestation in pregnant women who had received at least one dose of an mRNA COVID-19 vaccine either before conception or prior to 20 weeks gestational age. Data analysis revealed that the risk of spontaneous miscarriage after mRNA COVID-19 vaccination is no higher than the expected risk of miscarriage in the unvaccinated pregnant population. Despite continued evidence that mRNA COVID vaccines are safe for pregnant and fertility patients, and the increased risk of mortality for pregnant patients who contract COVID-19 (up to 70% risk of death), only 31 per cent of pregnant people in the US are vaccinated. The American College of Obstetrics and Gynecology (ACOG) considers pregnancy a higher-risk category for COVID-19 and is recommending that pregnant people, including pregnant health care workers, receive a booster dose of the COVID-19 vaccine at least six months following their initial COVID-19 vaccine series.

In the workplace, especially in patient-facing clinics, many employers are recommending that all staff be fully vaccinated to continue in-person care. The American Society for Reproductive Medicine COVID-19 Task Force supports clinics that mandate COVID-19 vaccination for all employees, including administrative staff and medical providers. Per the Government of Canada website, some provinces and territories have created a secure proof of vaccination document for non-essential services within their province or Canada. This proof may be used for activities such as going to restaurants and sporting events; individuals also may be able to use them for travel outside the country.

Some fertility patients have voiced concern that the COVID-19 vaccine may cause menstrual irregularities, infertility, or have impacts on a developing pregnancy and fetus. Temporary changes in menstrual cycles may occur; however, there is no evidence to support ongoing or permanent menstrual changes. No detrimental effects on follicular egg development or function, response to ovarian stimulation during IVF, or embryo growth and quality have been documented in fertility patients undergoing ART, prior to or post-vaccination. Additionally, no differences in ovarian reserve markers have been found in unvaccinated patients who have recovered from COVID-19 or in those who received the COVID vaccine. A recent paper published in *Fertility and Sterility* demonstrated that for individuals who were antibody positive from COVID-19 infection or vaccination, there was no difference in frozen embryo transfer outcome with serum HCG levels and implantation rates. This shows that neither vaccination nor COVID-19 infection prevents implantation or early pregnancy development. With regards to male



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fertility, data has shown that COVID-19 itself may be present in sperm and temporarily affect spermatogenesis during acute infection; however, no difference in sperm parameters, before and after two doses of the mRNA COVID vaccine, has been shown.

Continued monitoring of hospital admissions and COVID-19 rates has shown that pregnant individuals who contract COVID experience increased severity of the disease; greater risk of obstetrical complications, and higher chance of hospitalization, need for mechanical ventilation, and death. Moreover, vertical viral transmission does occur putting the fetus and newborn at risk. Although pregnant patients were excluded from the initial vaccine trials, a recent paper published by the *New England Journal of Medicine* in June 2021 reported on 35,000 pregnant patients, mostly in their third trimester, who received mRNA COVID vaccines, revealed no increased risk of obstetrical complications compared to pre-pandemic rates. Therefore, continued encouragement and education surrounding vaccination in pregnant patients and those trying to conceive should be provided by health care workers.

For individuals being vaccinated later in pregnancy, in their third trimester, higher levels of fetal cord blood COVID-19 antibodies have been detected compared to those vaccinated in early pregnancy; this shows that perinatal immunity passes to the fetus with no evidence of vaccine components crossing the placenta. This reveals that vaccination during pregnancy gives the fetus and newborn protection from COVID-19, resulting from passage of perinatal antibodies to the newborn. The same is true for lactating individuals: perinatal antibodies to COVID-19 are being detected in human milk, which suggests passive immunity to the newborn.

As for timing of the vaccine, we continue to support COVID-19 vaccination in the pregnant population, in any trimester of pregnancy, for those trying to conceive at any time during a fertility treatment cycle, or those who are in the postpartum period. Scheduling of the vaccine should be at least 14 days before or after any other vaccination.

At present, we strongly recommend COVID-19 vaccination for all people aged 12 or over, including people who are pregnant, trying to conceive, or lactating. The data supports that the benefits of receiving the COVID-19 vaccine far outweigh any potential risks of vaccination on pregnancy or reproductive outcome. All pregnant people at any gestational age, including the first trimester, are eligible for vaccination and should be vaccinated as soon as possible. The same interval between the first and second dose should be applied to both pregnant and non-pregnant patients. Local guidelines regarding social distancing, social indoor and outdoor gatherings; adherence to hand-washing hygiene and infection control, and individual provincial recommendations should continue to be followed.



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