



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

CFAS COVID UPDATE JANUARY 2022

Executive Summary

Due to the shift in COVID-19 age demographics to reproductive aged people, and the dramatic increase in disease prevalence secondary to the rise of the Omicron variant, the CFAS strongly recommends that:

1. All people attempting to conceive, or during pregnancy, obtain or complete their COVID-19 vaccination series;
2. All fertility staff and patients mask at all times;
3. All fertility staff and patients are screened for symptoms of COVID-19;
4. Staff diagnosed with COVID-19 must isolate for at least 5 days and may only return to normal duties on day 6 provided symptoms are gone.

Background

As of January 20, 2022, the number of COVID-19 cases in Canada has reached over 2.8M with an associated 32,008 deaths. The daily positive test rate has risen from 4.1% to 22.2% due to the prevalence of the new Omicron variant. A total of 71.7M vaccination doses have been administered to date, with 77.7% of Canadians having 2 doses, and 26.7% having three doses of approved vaccine products. The rise in cases and positive tests has been driven by the Sars-CoV-2 Omicron Variant, which accounts for 72.1% of all current COVID-19 cases. The prevalence of the Delta variant is now at 28.0%. Adults aged 20-60 now represent the highest demographic distribution; reproductive aged adults now represent 51.4% of the cases. The majority of hospitalizations (79.5%) and deaths (75.6%) occur in those who are unvaccinated (Canada, P. H. A., 2022). The Omicron variant has also contributed to ongoing stress on our health care system with limitations due to reduction of the pool of health care workers and intensive care unit hospital beds due to rising rates. Although it appears that Canada has reached its peak for the Omicron variant, and the curve appears to be slowing, COVID-19 still poses a significant threat to patients, staff, and the Canadian health care system as a whole.



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Vaccination Considerations

Vaccine hesitancy continues to pose a threat to the health of reproductive-aged people, particularly as the disease prevalence has escalated. Studies continue to support that vaccination may cause mild menstrual dysregulation, but do not negatively impact fertility (Morris, R. S., 2021), pregnancy, miscarriage or stillbirth rates, or other adverse outcomes. All advisory and regulatory bodies recommend that COVID-19 vaccinations are safe for people attempting to conceive, have conceived, or are parturient. Additionally, booster vaccinations in pregnancy are also safe and highly effective to prevent severe disease outcomes. Vaccination during pregnancy also permits the development of COVID-19 antibodies, which may provide a protective effect to babies against COVID-19. Pregnant people are at an increased risk of severe illness in all COVID-19 variants. With the shifting demographic into the reproductive aged cohort, risk reduction through vaccination is highly recommended.

Transmission Considerations

The emergence of the SarsCoV-2 Omicron variant has rapidly changed the demographics of transmission. The Omicron variant is highly contagious, which is driving transmission rates and hospitalization to record highs throughout Canada. Risk reduction strategies may include but are not limited to the following:

1. **FACE MASKS.** The use of N95 respirators has become increasingly recommended due to the high volatility and aerosol dispersal of the Omicron variant. At the very minimum, Health Care workers should be using Level III surgical masks or N95 masks. Patients should be using hospital grade (not cloth) masks for clinical interactions.
2. **SCREENING and PREVENTION MEASURES.** Directed symptom-based screening should be performed on all staff and patients entering health care facilities, including fertility clinics. Those with symptoms attending at elective appointments should be denied entry and recommended to be tested for COVID-19. Clinics should continue to adhere to COVID-19 mitigation strategies, including masking, physical distancing, hand hygiene, cleaning/disinfection, and respiratory etiquette. These proven mitigation strategies are effective.
3. **ISOLATION.** When possible, patients should not congregate in waiting areas, but should be placed into private rooms and appointment timings distributed to enable this practice.
4. **FERTILITY AND PREGNANCY CARE: Reproductive health care, pregnancy care, and infertility treatment continue to remain essential medical care. As long as public health care guidelines, vaccination policies, and screening procedures are maintained and followed in fertility clinics, fertility care and treatment cycles may**



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continue to proceed, and fertility clinics may remain open for ongoing cycles and treatment.

Vaccination In Pregnant and Breastfeeding Patients

Data continues to be presented that confirms the benefits of COVID vaccination in pregnant people. We now know with even more certainty, that pregnancy increases the risk of severe illness from COVID-19 and increases the risk for preterm delivery, low birth weight, C-section and stillbirth. The National Advisory Committee on Immunization (NACI) recommends administration of the complete series of an mRNA COVID-19 vaccine if pregnant or breastfeeding. The COVID-19 vaccine can prevent serious illness, hospitalization and complications. Data shows that mRNA COVID-19 vaccines are safe for people who are pregnant or breastfeeding. Receiving the vaccine in the second and third trimester of pregnancy or when breastfeeding can provide passive immunity for the newborn against COVID-19 (Canada, P. H. A., 2021).

A recent study published in *Nature* (Stock, S. J. et. al.) looked at 4950 confirmed cases of COVID in Scotland (pre-Omicron). >77.4% of cases occurred in unvaccinated pregnant people, 19.5% were associated with hospital admission and 2.7% required ICU care. In the vaccinated pregnant population, only 11.1% contracted COVID with a 5.1% hospitalization rate and <1% ICU admission rate. 11 stillbirths and 8 neonatal deaths occurred in unvaccinated pregnant COVID patients. No stillbirths or death were reported in the vaccinated pregnant population. Increased severe pregnancy outcomes were more common in the unvaccinated group. In another retrospective cohort study published in *Obstetrics and Gynecology* in January 2022 (Morgan, J. A. et. al.), a total of 10,092 pregnant patients both vaccinated and unvaccinated were studied and compared for pregnant outcomes after contracting COVID-19 (in an area with predominance of the Delta variant). Vaccinated patients had lower odds of moderate and severe/critical disease with COVID-19. Vaccinated patients rarely required adjunctive medical therapy, supplemental oxygen or ICU management. In the unvaccinated population, there was one maternal death due to COVID-19 and 6 stillbirths. This study showed a clear association

between COVID-19 vaccination and lower odds of severe or critical COVID-19 illness in pregnant patients. Breakthrough infection after vaccination was shown to be less severe, and did not lead to the same adverse medical maternal outcomes as in the unvaccinated pregnant



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population (Morgan J. A. et. al., 2022). Vaccination in pregnant people continues to be considered safe and is recommended and reduces harm to both the mother and baby. We continue to support vaccination of pregnant people at any time during pregnancy or while breastfeeding.

It is recommended that all pregnant individuals in the authorized age group, including gestational surrogates, be vaccinated as soon as possible, at any stage in pregnancy, as COVID-19 infection during pregnancy can be severe (increased risk for hospitalization, ICU admission, mechanical ventilation and death compared to non-pregnant individuals) and the benefits of vaccination outweigh the risks. Severe infection with COVID-19 carries risks to maternal, fetal and neonatal health. COVID-19 vaccination may be offered at any gestational age, including the first trimester. While pregnant individuals were not included in Phase III trials for COVID-19 vaccines, real-world safety data for hundreds of thousands of pregnant individuals that have received COVID-19 vaccines are now available and have not revealed any maternal or neonatal safety signals. There is no evidence that COVID-19 vaccines have any effect on fertility or the chances of becoming pregnant. As stated by the Ministry of Health, “emerging evidence suggests that COVID-19 mRNA vaccination during pregnancy is also immunogenic and results in comparable antibody titres to those generated in non-pregnant women. Evidence also shows a significant and potentially protective antibody titre in the neonatal bloodstream one week after the second dose” (Ministry of Health, 2021).

COVID-19 vaccines are also safe for breastfeeding individuals and recent data shows that mRNA from vaccines does not transfer into breast milk. Anti-COVID-19 antibodies produced by the breastfeeding person have been shown to transfer through the breast milk and provide passive immune protection to the infant. The vaccines are safe for the breastfeeding person and should be offered to those eligible for vaccination.

The Society of Obstetrics and Gynecology (SOGC) continues to support and recommend COVID vaccination during pregnancy in any trimester and while breastfeeding and that all pregnant patients should be prioritized to receive COVID vaccination series including the booster shot (Poliquin, V. et. al., 2020).



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Vaccination and Fertility

One of the reasons for vaccine hesitancy in the reproductive-aged population has been concern about the impact on fertility and menstrual cyclicality. Many people report changes in their menstrual cycle and particularly in the infertility population, these changes can invoke stress regarding effect on a fertility treatment cycle and the ability to conceive. A study published in *Obstetrics and Gynecology* in January 2022 showed that COVID vaccination was linked to a non-significant change in menstrual cycle length both after the first and second vaccine dose and that vaccination had no effect on the number of days of bleeding. Any changes in menstrual cyclicality appear to be short-lived and end quickly, likely as soon as the next cycle after vaccination, and do not show any long-term consequences on reproductive health or fertility (Edelman, A. et. al. 2022). In addition, the COVID vaccine has been shown to have no impact on IVF cycle outcome. One of the largest studies to date just published in the *Green Journal*, reviewed IVF cycle outcomes in patients who received the COVID-19 vaccine (n=222) versus those who did not (n=983). Vaccination was not associated with a difference in mature eggs retrieved, fertilization rate, blastocyst development, implantation, or pregnancy rate (Aharon, D. A. et. al., 2022). As such, we continue to support vaccination at any time for people who are trying to conceive or undergoing fertility treatment cycles. Egg donors along with fertility patients should be encouraged to complete their full-vaccination series prior to or while initiating fertility treatment.

Boosters In Pregnant Patients and Those Trying To Conceive

There is clear evidence that the third booster increased immunity to the Omicron variant of COVID-19 by increasing neutralizing antibody levels. Boosters (6 months after a completed mRNA vaccine series) not only protect the individual and those around them, but also are one of the best ways to prevent viral mutation and the evolution of new and potentially more contagious variants.

The Federal Drug Agency (FDA), Center for Disease Control (CDC), American Society for Reproductive Medicine (ASRM), CFAS and SOGC continues to prioritize pregnant people as a priority group for booster shots as their risk of severe COVID-19 disease and significant morbidity and mortality is increased from infection. We continue to support getting the COVID-19 booster shot at any time during pregnancy or during an infertility treatment cycle.



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Surgery In Infertility Patients

Due to the rise in COVID-19 cases and the toll on the healthcare system, many elective surgical cases have been limited or postponed indefinitely. Delays in surgical intervention can affect access to fertility treatment and ultimately effect successful outcome. As stated by ASRM, “procedures being done in reproductive-aged women for infertility, pain or bleeding should not be considered elective and are essential and in accordance with the recommendations provided by a joint statement of the major gynecologic societies” (ASRM, 2021).

Novel COVID Treatments

Pfizer’s COVID19 antiviral pill, Paxlovid has recently been approved by Health Canada for use in adults 18 or over with COVID-19. Preliminary data from clinical trials by Pfizer suggest it may reduce the rate of hospitalization and death for those with COVID. Paxlovid is an oral antiviral treatment that may reduce symptoms and the duration of illness, particularly with the Omicron variant. It is a combination of nirmatrelvir and ritonavir, both used for HIV treatment. It is taken for 5 days and can be taken at home which is different from the other therapies which require hospitalization including, Remdesivir and monoclonal antibody treatment. However, this is not a replacement for vaccination. Current recommendations are to offer Paxlovid treatment to high-risk adults with a documented positive COVID test (whether vaccinated or not) with mild or moderate COVID symptoms taken no more than 5 days after symptoms appear. Other medications must be considered to avoid interactions. Further data will be needed to assess Paxlovid’s use in pregnant people and those trying to conceive (Tasker, J. P., 2022).

As a society, and in accordance to published guidelines, the CFAS continues to unanimously support vaccination and COVID-19 screening and prevention measures for the infertility population, our fertility clinics and staff, and all pregnant people, those who are breastfeeding and trying to conceive to reduce the spread of COVID-19.



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Reference

- Aharon, D. A. et. al. (2022) *In Vitro Fertilization and Early Pregnancy Outcomes After Coronavirus Disease 2019 (COVID-19) Vaccination*. Cdn-links.lww.com. Retrieved on January 27, 2022 from https://cdn-links.lww.com/permalink/aog/c/aog_139_4_2022_01_25_aharon_21-2392_sdc3.pdf
- ASRM (2021) UPDATE No. 19 – *Awareness of Complexity in Uncertain Times*. ASRM.org. Retrieved on January 27, 2022 from <https://www.asrm.org/news-and-publications/news-and-research/press-releases-and-bulletins/update-no.-19--awareness-of-complexity-in-uncertain-times-covid-19/>
- Canada, P. H. A. of. (2022). *Covid-19 Daily Epidemiology update*. Canada.ca. Retrieved January 26, 2022, from <https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html>
- Canada, P. H. A. of. (2021). *Government of Canada*. Canada.ca. Retrieved January 26, 2022, from <https://www.canada.ca/en/public-health/services/immunization-vaccines/vaccination-pregnancy-covid-19.html>
- Edelman, A. et. al. (2022) *Association Between Menstrual Cycle Length and Coronavirus Disease 2019 (COVID-19) Vaccination*. Journals.lww.com. Retrieved on January 27, 2022 from https://journals.lww.com/greenjournal/fulltext/9900/association_between_menstrual_cycle_length_and.357.aspx
- Ministry of Health (2021) *COVID-19 Vaccination Recommendations for Special Populations*. Health.gov.on.ca. Retrieved on January 27, 2022 from https://www.health.gov.on.ca/en/pro/programs/publichealth/coronavirus/docs/vaccine/COVID-19_vaccination_rec_special_populations.pdf
- Morgan, J. A. et. al. (2022) *Maternal Outcomes Following COVID-19 Infection in Vaccinated and Unvaccinated Pregnant Patients*. Reliasmedia.com. Retrieved January 26, 2022, from <https://www.reliasmedia.com/articles/148857-maternal-outcomes-following-covid-19-infection-in-vaccinated-and-unvaccinated-pregnant-patients>
- Morris, R. S. (2021). *SARS-COV-2 spike protein seropositivity from vaccination or infection does not cause sterility*. F&S reports. Retrieved January 26, 2022, from <https://pubmed.ncbi.nlm.nih.gov/34095871/>
- Poliquin, V. et. al. (2020) *SOGC Statement on COVID-19 Vaccination in Pregnancy*. SOGC.org. Retrieved on January 27, 2022 from https://sogc.org/common/Uploaded%20files/Latest%20News/SOGC_Statement_COVID-19_Vaccination_in_Pregnancy.pdf
- Stock, S. J. et. al. (2022). *SARS-CoV-2 infection and COVID-19 vaccination rates in pregnant women in Scotland*. Nature.com. Retrieved January 27, 2022, from <https://www.nature.com/articles/s41591-021-01666-2>



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Tasker, J. P. (2022) Health Canada approves Pfizer's COVID-19 antiviral treatment. CBC.ca.
Retrieved on January 27, 2022 from <https://www.cbc.ca/news/politics/health-canada-pfizer-therapeutic-1.6317505>