# FOGSI

# POSITION STATEMENT

## COVID VACCINATION FOR PREGNANT & BREASTFEEDING WOMEN

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# COVID-19 Pandemic in India and Worldwide – current status

COVID-19 was declared as a global public health emergency by the World Health Organization on 30 January 2020. Incidentally, the first case of COVID-19 was diagnosed and declared in India on the same day. Later, on 11 March 2020, WHO declared it as a pandemic. Globally, 145 million cases have occurred and resulted in over 3 million deaths. In India, 16 million individuals have been infected and this has resulted in 189000 deaths as of 25th April 2021. ( 1 ) In India, the pandemic, especially in its second wave, is putting enormous burden on the health infrastructure.

There is no precise data for COVID-19 infections in pregnancy and puerperium at a global or national level. FOGSI has initiated the National Registry on COVID -19 Infection in Pregnancy for this purpose. ( 2 ) Other countries have their national surveillance systems such as the UKOSS. Pregnant women are not at increased risk of getting infected as compared to the general population. Just as for the general population, COVID-19 has an asymptomatic or mild course for most pregnant women. However, compared to non-pregnant women and pregnant women who are not infected with COVID-19, pregnant women who are infected with COVID are more likely to need hospitalization, critical care and mortality. (3)

In addition to the general preventive measures (use of mask, hand washing, social distancing, general hygiene and care), the COVID vaccine is thought to be the definitive tool to slow down or halt the pandemic.

# COVID vaccine development and types

The global scientific community is in a race to develop vaccines against the coronavirus. There are literally hundreds of candidate vaccines which are being evaluated in the world. The principle of vaccination is that humoral (antibody production) and/or cellular immunity is generated to counter future infection. The technology used to develop COVID vaccines is presented in a snapshot in the table.(4)

| Technology or type of vaccine | Examples | Mechanism | Advantages | Challenges |
|---|---|---|---|---|
| Whole virus vaccine – killed | Covaxin (Bharat Biotech), Sinovac (Sinopharma, China) | The COVID-19 virus is passed through cell lines & replicated. The genetic material is inactivated. This inacti vated or killed virus is injected into the host to induce immunity. Other vaccine examples – Hepatitis A | Well established technology. Can be mass produced. Manufacturing process is relatively simple. | Needs booster. |
| Whole virus vaccine – live attenuated | A50-18 NOT MARKETED | A mutant strain of COVID-19 virus which has lost its virulence is isolated. It is passed through cell lines and replicated. The live attenuated virus is injected into the host. Other vaccine examples – measles, yellow fever | Well established technology. Potentially more robust immune response than killed virus. May not need a booster dose. | Not suitable for immunocomp romised individuals as the virus has the potential to cause disease. The virus may be transmitted to the fetus if a pregnant woman is immunized. The implications of such transmission are not known. |

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|---|---|---|---|---|
| Protein subunit vaccine | Novavax | A subunit of the COVID-19 virus particle which has the potential to generate immunity is isolated. An example is the spike protein of the COVID-19 virus. It is manufactured in large quantities in the laboratory. This protein is injected and induces antibodies which can destroy pathogenic viral particles. Other examples - Hepatitis B | No risk of disease transmission as only a protein is used. No virus (killed, attenuated or vector) is used. | Identifying the particular protein is a long process. Mainly induces B cell immunity and overall immune response may be lower. It may be further modulated by other immune mechanisms. Booster shots are necessary. |
| Viral vector vaccine | Covishield (Astra Zeneca, Oxford, UK) Sputnik V (Gamaleya, Russia) Jansen (Johnson and Johnson) CanSino Biologics (Chinese military) | A harmless adenovirus is used to deliver the genetic material from the COVID-19 virus to the host and induce immunity. Other examples: Ebola vaccine. | | Complex to manufacture. Mass production may take time. Previous exposure to the vector may blunt the immune response. Requires booster. Adenovirus transmission to the fetus in a pregnant woman can occur. This poses a purely theoretical risk as pathogenicity is negligible. |

| | | | | |
|---|---|---|---|---|
| Nucleic acid vaccine | Pfizer BioNTech Moderna | The COVID-19 virus mRNA is isolated and replicated. It is injected into the host. This induces immunity by generation of antibodies. | Cannot trigger disease process. Maximum data in pregnancy is related to these vaccines. | Completely new approach to vaccine development. No other vaccines of this type have been used in humans routinely. Requires ultracold chain for transport, which may be a challenge in the developing world. |

For pregnant women, live attenuated vaccines are contraindicated. It should be noted that none of the COVID vaccines available in the market globally are live attenuated. Other vaccines which may have some theoretical considerations regarding transmission are the viral vector vaccines. We emphasize that these considerations are theoretical. One can conclude that based on the mechanism of the available COVID vaccines; there is no obvious basis for excluding pregnant or lactating women from vaccination.

In terms of storage, most of the vaccines can be stored and transported at 2 to 8 degrees Celsius. This is the standard cold chain that is used. However, mRNA vaccines (Pfizer BioNTech, Moderna) are to be stored at minus (-)70 degrees Celsius. This requires special storage and transport freezers and poses another logistic challenge.

All vaccines at present recommend 2 doses. They are to be administered intramuscular preferably on deltoid muscle. Vaccinated person is to be observed for 30 minutes for any immediate adverse effects. The interval between two doses is generally 4 to 8 weeks. The only exception is the Janssen vaccine from Johnson and Johnson which is meant to be a single dose.

## Currently available COVID vaccines in India

**At present, two vaccines are being used in India. They are:**

- COVISHIELD – being produced by Serum Institute of India (SII) in collaboration with Astra-Zeneca. This is an adenovirus based viral vector vaccine.

- COVAXIN – being produced by Bharat Biotech Ltd. This is an indigenous vaccine and is an inactivated (killed) whole virus vaccine.

The vaccines are approved for emergency use for individuals over 18 years of age by the Central Drugs Standard Control Organization (CDSCO) of India. At present, the individual is not given the choice of vaccine and it is subject to availability at a particular centre.

The vaccination process in India is centrally controlled. Vaccine administration began on 16 January 2021. The registration process and data collection began about a month before that in various geographies. Presently, the registration process is through the COWIN app which allows registration, allots appointments by date and site and provides a vaccination certificate.
The vaccination process was started as “trial mode” in the country. The vaccination drive in India is the largest in the world and has been undertaken in a phased manner. This is based on the risk-benefit ratio of eligibility and vaccine availability. From 1st May 2021, every Indian who is above 18 years of age will be allowed to be vaccinated.

As of date, India has administered 140 million vaccine doses and 22 million individuals have been fully vaccinated. ( 5 ) This is a huge achievement in terms of numbers. Only the USA and China have vaccinated more numbers than India. However, in terms of percentage of the population covered, we have a long way to go as this represents 1.5% of Indians who are fully vaccinated and more than 10% who have received one dose.

Sputnik V has also been approved in India but is not yet available. It is expected to become available in India in the near future. The Novavax and Pfizer BioNTech vaccines are also expected to get approval in India shortly.

**The rationales of vaccine in COVID-19 are outlined below:(6)**

- To reduce the risk of infection as it is a public health problem
- To reduce the risk of severe acute morbidity and mortality from the infection
- To prevent long term effects of infection
- To prevent transmission to other individuals

Besides these direct medical benefits, immunization will ease the enormous burden that healthcare infrastructure is facing. It will allow healthcare to be utilized for non-COVID-19 medical issues as routine. There are also other non-medical benefits of vaccination including the safe resumption of economic activity, social events and life in general as we knew it before COVID-19 arrived.

Studies have shown that various vaccines have a 70 to 90% protection rate. There is nothing to separate the various vaccines in terms of efficacy at present. Individuals should take the COVID vaccine that is available to them at the earliest opportunity.

Countries where a large proportion of individuals have been immunized, have seen a huge reduction in COVID-19 caseloads and mortality.(1) Israel, which has vaccinated 55% of its population, has seen enormous benefits. In the last week, there have been less than 100 daily cases and 2 deaths per day from COVID-19 in Israel. Studies on healthcare workers have also shown protection from moderate or severe disease, hospitalization and death. These are the populations which face the maximum risk and viral load. Vaccination is effective in these high risk situations as well.(7) These data sets are from countries where the mRNA vaccine has been used.

In the UK, the mRNA vaccine and Covishield are being administered. Two large population based surveys have found that vaccination reduced the risk of infection by 65 to 70% after one or two doses are administered. Additionally, no differences were found in the protection offered by either vaccine.(8)

In India, the ICMR has released a press statement on vaccine efficacy a few days ago. The risk of infection after one or two doses of Covaxin or Covishield is 0.02% to 0.04%. This represents an approximately 80% protection rate from infection.(9)

The first study conducted on vaccination in pregnant and lactating women was published last month from USA. The study showed that COVID vaccination generates a robust immune response in pregnant and lactating women which is equivalent to the general population. Additionally, protective antibodies were also isolated in umbilical cord blood and breast milk, implying protection to the fetus and newborn.(10) This data pertains to 131 women who were vaccinated with the mRNA vaccine. At present, there is no data on immunization of pregnant and lactating women with Covishield or Covaxin.

Almost all vaccines have some unwanted effects. They are usually minor, temporary and non-lethal. These effects are looked upon as evidence that an immune response is being generated to the vaccine, which is ultimately the goal.

Commonly seen minor side-effects may be immediate in the form of pain, sweating, and nausea. In the first seven days, the vaccine may cause fever, fatigue, myalgia, arthralgia, lymphadenopathy, local pain, swelling, redness, rash and diarrhea. These effects are seen in significant proportion of the population who receive the vaccine. (11) FOGSI has conducted a survey amongst its members to assess the incidence of side effects. ( 1 2 ) 25 to 47% of the 2083 vaccinated members reported some effects such as fever, malaise or local pain. These effects are not serious and do not require any specific medical attention except symptomatic relief.

- Anaphylactic and severe allergic reactions
- Thromboembolic phenomena resulting in cardiopulmonary or cerebrovascular events
- Severe gastrointestinal disturbances
- Facial palsy
- Local infections – cellulitis
- Hospitalization

It is important to emphasize that these are very rare events. In western countries, the events have been reported at a rate of 5 to 10 per million vaccinations. ( 1 1 ) In India, till March 2021, 100 million doses had been administered and 617 serious adverse events had been reported. ( 1 3 )

In pregnancy, there could be concerns regarding transmission of infection to the fetus if a woman is vaccinated in pregnancy with a live attenuated vaccine. There are no live attenuated vaccines in the market in India or globally. Therefore, there is no mechanism of such an event.

The other concerns are regarding the occurrence of adverse pregnancy outcomes such as miscarriage, low birth weight, preterm births, stillbirths and congenital anomalies. The data from the American V-Safe registry is reassuring in this regard. There is no increase in maternal side effects with vaccine administration in pregnancy as compared to non-pregnant women. Women who have delivered after receiving the vaccine in pregnancy do not show any increased risk of the above-mentioned events. ( 1 4 ) This data pertains to the use of the mRNA vaccine in over 35000 pregnant women. At present, there is no data on immunization of pregnant and lactating women with Covishield or Covaxin.

All COVID vaccines have a risk of thromboembolic phenomena. This is of consideration in pregnancy and puerperium because these states are also thrombogenic. It remains unknown whether the risk of thromboembolism increases due to vaccination in pregnancy or in the puerperium. Based on reported risks from the general population, this additional risk is likely to be rare. As such, there are no such reports that have emerged.

## International Recommendations on COVID Vaccine in Pregnancy

International professional bodies have taken a uniformly positive stand on the COVID vaccine in pregnancy and lactation. These statements are based on the ratio of potential benefits and risks of the vaccine versus the disease in a given geographic area. At present, it is believed that the risk of getting COVID-19 in pregnancy and its resulting morbidity is much more than the theoretical risks from the vaccine.

Though some countries have a risk based approach to immunization, FIGO believes that such an approach might actually be of disadvantage to the pregnant woman. (15) The RCOG taking the advisory from the Joint Committee on Vaccination and Immunization (JCVI) has stated that pregnant women should be offered the vaccine with the same criteria as the general population. (16) The ACOG states that pregnancy testing should not be mandated before vaccine administration and neither should it be deferred for women who are in the preconceptional period. (17)

These bodies have emphasized the lack of data of vaccine use in pregnancy. They empower women to make an informed choice in this matter. They do not distinguish between the types of vaccine in pregnancy but advise that the vaccination be completed with the same type of vaccine taken first.

International bodies such as the FIGO, ACOG, RCOG and SOGC mention the need for follow up of women who are vaccinated during pregnancy and lactation and to publish and disseminate such information.

## Current Recommendations on COVID Vaccine in maternity care in India

Recommendations on the COVID vaccine in maternity care are important. The guidance on this matter will affect about 50 million lives in India every year (based on 25 million births annually and an equal number in the preconception and post delivery periods.

At present, the recommendations from the Ministry of Health and Family Welfare, Government of India state that pregnancy and lactation are contraindications to vaccinations. (18) This is based on the sound principle that there is no data available to ensure safety in pregnancy. Both the manufacturers in India also state the same in their product literature. This is also relevant from the point of view that vaccination in India was started on a “trial mode”.

With new data from across the world, this may be due for a revision to broaden the vaccine drive and include pregnant and lactating women based on the emerging global data. *At the present time, it is emphasized that individual practitioners cannot advise vaccination to pregnant and lactating women in India until there is a change in recommendations from the MOHFW, GOI.*

FOGSI acknowledges that there is limited data available on the use of COVID vaccines in pregnancy, especially of the vaccines that are available in India. Data from basic science and animal studies have not shown any teratogenic or adverse fetal or neonatal effects of the vaccine.(17,19,20)

As matters stand in our country, every individual needs protection from the surging COVID-19 infections. We are in the midst of the second wave. There is a need to prevent further waves and the vaccine is the best and long term solution to this. **This protection should extend to pregnant and lactating women. The very real benefits of vaccinating pregnant and lactating women seem to far outweigh any theoretical and remote risks of vaccination.** Lactating women should also be considered as COVID vaccine candidates as there are no known adverse effects on the neonate who is breastfeeding. In fact, there is a passage of protective antibodies to the child, which may be a beneficial effect. The method of administering and monitoring the vaccine and the schedule of vaccination should be the same for pregnant and lactating women as for the general population.

**The statement is based with an assessment of the following factors:**

- Density of population and current infection rates in the country
- A substantial increase in the incidence and severity of COVID-19 infection in pregnant women in recent times(2)
- Risk of infection in pregnancy complicating routine pregnancy care and delivery
- Risk of serious morbidity with infection in pregnancy (even though most pregnant women will have a mild course)
- Demonstrated efficacy of the vaccines available in India and efficient roll out in the country
- Experience of decades of vaccine administration in pregnancy with vaccines for other diseases

**Women should be counseled and empowered to make their own decision supported by caregivers. There should not be any discrimination between women who accept or refuse the vaccine as and when it is possible to administer it in our country to pregnant and lactating women.**

**It is recommended that obstetricians and gynaecologists and women's health care providers should be allowed to administer the COVID vaccines in pregnant & breastfeeding women with preparations to manage adverse events.**

In terms of precautions and care, pregnant and lactating women should be cared for in the same manner as the general population after vaccination. In case they have adverse effects, they should contact the health care provider for guidance. It should be noted that as for the general population, pregnant or lactating women who receive the vaccine can be infected even after taking two doses of the vaccine. They should follow the standard preventive safety measures like wearing a mask, hand wash and social distancing.

## Common clinical situations and solutions

**Vaccine administration and day of period**

There is no physiological, endocrine or immunological basis for such a consideration. Women should receive the vaccine on any day of the menstrual cycle, even during menstruation.(17)

**Vaccine administration in the preconception period or for women undergoing fertility treatment including assisted reproduction**

Women should take the vaccine at any point of time before a pregnancy is confirmed as and when they have an opportunity to do so. There is no basis for deferring pregnancy or treatments for taking the vaccine. There is no evidence that vaccine administration affects fertility or miscarriage rates. ( 3 , 1 6 , 1 7 )

**Pregnancy testing before administering the vaccine**

This is not necessary and creates a hurdle to vaccine acceptance. It is not recommended to test for pregnancy before vaccination.(17)

**Vaccine administered inadvertently to a pregnant woman in early pregnancy**

The vaccine does not have any known teratogenic effects as per available evidences. Women who are vaccinated in this manner should not be advised to terminate the pregnancy. They should be counseled that the risk of congenital anomalies does not rise above the baseline risk. However, at the present time, it would be prudent to defer vaccination in the first trimester as there is no substantial available data to establish absence of teratogenicity.(16,17)

**Vaccines for a pregnant woman already infected in the past**

A pregnant woman faces greater risks in pregnancy if she is infected with COVID-19 as compared to a pregnant woman who is not infected or a non-pregnant woman who is infected. Therefore, vaccination is advisable even if there has been a past infection. As for the general population, vaccination should be deferred for 12 weeks from the infection or 4 to 8 weeks from recovery.

**Vaccine for a pregnant woman with co-morbidities (pre-existing or developed in pregnancy)**

These co-morbidities do not represent contraindications to the COVID vaccine and in fact, these women will be served maximally from the protective effect. Women with such conditions should consult with their obstetrician or care provider and seek their advice on this.

**Vaccine for a breastfeeding woman**

There is no evidence of harm from any harm if a vaccine is administered to a breastfeeding woman. In fact, there is possible benefit from the passage of antibodies to the neonate. Breastfeeding women should be vaccinated as per the usual method and schedule of the general population.

**Contraindications to vaccination**

As for the general population, pregnant and lactating women should avoid vaccination in the following conditions:

- Anaphylactic or allergic reaction to a previous dose of COVID-19 vaccine
- Immediate or delayed-onset anaphylaxis or allergic reaction to vaccines or injectable therapies, pharmaceutical products, food-items etc.
- Temporarily in the following conditions:
  - Diagnosed COVID-19 infection – defer for 12 weeks from infection or 4 to 8 weeks from recovery
  - Active symptoms of COVID-19 infection.
  - COVID-19 infection treated with anti-COVID-19 monoclonal antibodies or convalescent plasma
  - Acutely unwell and hospitalized (with or without intensive care) patients due to any illness.

# Bibliography


1. World Health Organization (WHO). WHO Coronavirus (COVID-19) Dashboard. [Online] [Cited: 25 April 2021.] https://covid19.who.int/.

2. Federation of Obstetric and Gynaecological Societies of India (FOGSI). FOGSI Covid Registry. [Online] [Cited: 25 April 2021.] https://www.fogsi.org/fogsi-national-registry-on-covid-19-infection-in-pregnancy/.

3. Royal College of Obstetricians and Gynaecologists (RCOG) and The Royal College of Midwives. Coronavirus (COVID-19) in Pregnancy Version 13. London : RCOG, 2021 19 February.

4. GAVI The Vaccine Alliance. There are four types of COVID-19 vaccines: here's how they work. [Online] [Cited: 25 April 2021.] https://www.gavi.org/vaccineswork/there-are-four-types-covid-19-vaccines-heres-how-they-work.

5. Government of India (GOI). #IndiaFightsCorona COVID-19. [Online] [Cited: 25 April 2021.] https://www.mygov.in/covid-19/.

6. Center for Disease Control (CDC). Benefits of Getting a COVID-19 Vaccine. [Online] [Cited: 25 April 2021.] https://www.cdc.gov/coronavirus/2019-ncov/vaccines/vaccine-benefits.html.

7. COVID-19 vaccine coverage in health-care workers in England and effectiveness of BNT162b2 mRNA vaccine against infection (SIREN): a prospective, multicentre, cohort study. Hall VJ, Foulkes S, Saei A et al. 23 April 2021, The Lancet.

8. Covid-19: Infections fell by 65% after first dose of AstraZeneca or Pfizer vaccine, data show. G, Iacobucci. 23 April 2021, BMJ, Vol. 373, p. n1068.

9. Very few post-vaccine infections, says ICMR. The Hindu. 21 April, 2021.

10. COVID-19 vaccine response in pregnant and lactating women: a cohort study. Gray KJ, Bordt EA, Atyeo C et al. 21 March 2021, AJOG. https://doi.org/10.1016/j.ajog.2021.03.023.

11. COVID vaccines and safety: what the research says. A, Remmel. 16 February 2021, Nature, Vol. 590, pp. 538-540.

12. Federation of Obstetric and Gynaecological Societies of India (FOGSI). FOGSI Survey on COVID-19 Vaccine. 2021.

13. 617 Serious Adverse Events After Vaccination Reported In India Until March 29. The Wire. 09 April 2021.

14. Preliminary Findings of mRNA Covid-19 Vaccine Safety in Pregnant Persons. Shimabukuro TT, Kim SY, Myers TR et al for the CDC v-safe COVID-19 Pregnancy Registry Team,. 21 April 2021, NEJM, Vol. DOI: 10.1056/NEJMoa2104983.

15. International Federation of Gynecology and Obstetrics (FIGO). COVID-19 Vaccination for Pregnant and Breastfeeding Women. [Online] 2021. [Cited: 25 April 2021.] https://www.figo.org/covid-19-vaccination-pregnant-and-breastfeeding-women.

16. Royal College of Obstetricians and Gynaecologists (RCOG). COVID-19 vaccines, pregnancy and breastfeeding. [Online] 16 April 2021. [Cited: 25 April 2021.] https://www.rcog.org.uk/en/guidelines-research-services/coronavirus-covid-19-pregnancy-and-womens-health/covid-19-vaccines-and-pregnancy/covid-19-vaccines-pregnancy-and-breastfeeding/.

17. American College of Obstetrics and Gynecology (ACOG). Vaccinating Pregnant and Lactating Patients Against COVID-19. [Online] December 2020. [Cited: 25 April 2021.] https://www.acog.org/clinical/clinical-guidance/practice-advisory/articles/2020/12/vaccinating-pregnant-and-lactating-patients-against-covid-19#:~:text=ACOG%20recommends%20COVID%2D19%20vaccines,otherwise%20meet%20criteria%20for%20vaccination..

18. Ministry of Health and Family Welfare (MOHFW), Government of India . Vaccine FAQs. [Online] 2021. [Cited: 25 April 2021.] https://www.mohfw.gov.in/covid_vaccination/vaccination/faqs.html.

19. Serum Institute of India (SII). Product Insert for ChAdOx1 nCoV- 19 Corona Virus Vaccine (Recombinant). [Online] 2021. [Cited: 25 April 2021.] https://www.seruminstitute.com/pdf/covishield_ChAdOx1_nCoV19_corona_virus_vaccine_insert.pdf

20. Bharat Biotech. Factsheet for Vaccine Recepients and Caregivers Restricte Use in Emergency Situation of COVID 19 COVAXIN SARS CoV 2 Vaccine by Bharat Biotech. [Online] 2021. [Cited: 25 April 2021.] https://www.bharatbiotech.com/images/covaxin/covaxin-fact-sheet.pdf.