COVID-19 Vaccination in pregnancy

Information Guide for Healthcare Professionals

WESTERN CAPE DEPARTMENT OF HEALTH

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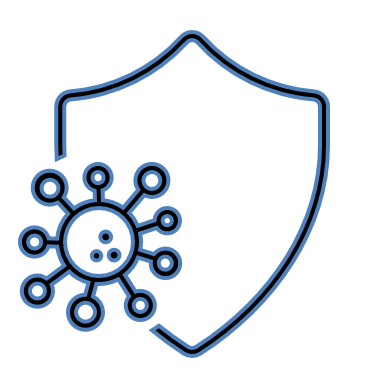
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# **Genesis**

With ‘Vaccine Hesitancy’ being rife in the global population during this COVID-19 pandemic, the message of weighing the risks and benefits of any intervention (pharmacological or otherwise) has never been more important. It has been reiterated that scientific evidence is a dynamic phenomenon and practice based on the “best available evidence” requires us to use lateral thinking and make the best possible decision with the data available whilst being cognisant of the gaps in our knowledge that can only be filled with real-time study and practice.

One of the most topical examples of the importance of weighing the risk-benefit ratio is considering the provision of COVID-19 vaccinations to the pregnant cohort – an innately vulnerable section of the population. A delicate balance of risk and benefit needs to be considered and this speaks to how we can, as a medical body, start to think about this conundrum and provide a recommendation on the way forward based on the best, current, available evidence whilst respecting the bioethical principles that govern us – autonomy, distributive justice, beneficence and non-maleficence.

This document serves as a guide for Healthcare Workers in navigating the topic of “COVID-19 Vaccination in Pregnancy” by providing the updated evidence and highlighting the areas that require more longitudinal study. It serves as a tool to assist in the counselling of pregnant women so that they may make an informed decision as to whether or not they opt for vaccination during pregnancy. Healthcare workers should assist pregnant women in assessing and personalizing the risk-benefit ratio to their individual circumstances.

# **Background**

Whilst the majority of Severe Acute Respiratory Syndrome (SARS-CoV-2) viral infections in pregnancy are asymptomatic and the absolute risk for negative outcomes such as ICU admission, mechanical ventilation and death is low, observational data suggests that pregnant women are at risk for severe COVID-19 illness, particularly in their third trimester.(1-3) South African data from 2020 demonstrated an increase in maternal deaths by 30% since the onset of the pandemic due to both the direct and indirect effects of COVID-19.(4) This is in keeping with the findings from a systematic review, published in the Lancet which cited a global increase in maternal mortality of 37%. The increase was seen in low and middle income countries.(5)

This increased risk for severe illness in pregnancy is theorized to be due, in part, to the immunosuppressive and cardiorespiratory changes of pregnancy, such as:

* Heightened maternal metabolism
* Gestational Anaemia
* Fetal oxygen consumption

The above mechanisms could lead to a physiological dyspnoea which can be difficult to distinguish from COVID-19 infection and, therefore, result in delayed diagnosis.(6)

As pregnant women are at higher risk of severe illness from COVID-19 compared to non-pregnant women, this cohort would benefit from getting the vaccine. While still limited, growing bodies of evidence from preliminary data from clinical trials support the safety and efficacy profile, of the available COVID-19 vaccinations in South Africa, in pregnant women.

Women should be given all the information and allowed to make an informed decision as to whether or not they desire vaccination and the timing thereof. The increased risks of severe infection with SARS-CoV-2 and the increasing body of evidence proving efficacy and safety of the COVID-19 vaccines in pregnancy needs to be explained to the patient and understood. The benefits of vaccination both for the mother and her unborn child need to be explained to mothers and that this information is based on promising preliminary data from clinical trials as well as previous clinical trials and animal studies which were conducted. Therefore, on the balance of risk, vaccination in pregnancy is supported.

# **Available Vaccines in South Africa**

**As of July 2021, there are four COVID-19 vaccines approved for use in South Africa:**

**Table 1: Approved COVID-19 Vaccines for use in South Africa**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Vaccine Brand Name | Age Eligibility | Dose Number | Fully Vaccinated | Efficacy | | |
| Johnson &  Johnson’s Janssen | **≥18years old** | **Single dose** | **Two weeks after receiving the vaccine** | **Pre-existing Variants**  66% effective against clinical COVID-19 from 28days after administration and 85% effective against severe infection | **Beta (GH/501Y.V2)**  57% effective against moderate-severe COVID-19 and 85% effective against severe infection | **Delta (G/478K.V1)**  Awaiting further data |
| Pfizer-BioNTech | **≥16years old** | **Two doses given 42days apart (6weeks)** | **Two weeks after receiving the second dose of the vaccine** | Pre-existing Variants  95% effective against clinical COVID-19 and 90% effective against severe infection | Beta (GH/501Y.V2)  Awaiting further data | Delta (G/478K.V1)  96% effective against severe infection/ hospitalization(7) |
| Sinovac (not part of general rollout at this stage) | **≥18years old** | **Two doses given 2-4weeks apart** | **Two weeks after receiving the second dose of the vaccine** | P1 Variant (Brazil)  51% effective against symptomatic infection and 100% effective against hospitalization(8) | Beta (GH/501Y.V2)  Awaiting further data | Delta (G/478K.V1)  Awaiting further data |
| AstraZeneca vaccination has been approved for use in South Africa by SAHPRA (the South African Health Products Regulatory Authority). However, the Government of South Africa has opted not to make use of the vaccine currently due to its reduced efficacy against the dominant virus variant in the country. The decision may be revised in the future as more data becomes available. | | | | | | |

Reference: (9, 10) <https://sacoronavirus.co.za/vaccine-updates/>

# **COVID-19 and Pregnancy Outcomes**

COVID-19 illness in pregnancy has been linked to an increased incidence of:(1, 2, 6, 11)

* Pre-eclampsia (high blood pressure in pregnancy)
* Preterm delivery (mostly iatrogenic for compromise of the maternal or fetal condition) resulting in early birth and prematurity
* Stillbirth
* Thromboembolic disease
* Caesarean Section

The ‘INTERCOVID multinational cohort study’ published in JAMA looked at the association between COVID-19 and pregnancy outcomes across 18countries between March and October 2020. Amongst their findings, the risk of maternal mortality was found to be 22 times higher in those with COVID-19 infection compared to those without it – these findings were concentrated from institutions for less developed regions. (12)

Some data on the topic suggest that the approximate risk of vertical transmission is 2-3%.(11, 13) However, this remains a contentious issue owing to the lack of uniformity in definition and testing strategies.(14) There is also a paucity of data surrounding whether timing of infection affects the risk of transmission.(13)

# **Data on Safety and Efficacy on COVID-19 Vaccines in Pregnancy**

As of 12th July 2021, 133 466 individuals in the United States have indicated that they received the COVID-19 vaccine whilst pregnant.

Whilst there is currently a paucity of data surrounding the safety and efficacy of COVID-19 vaccinations in pregnancy whilst we await the outcomes of ongoing and planned clinical trials, preliminary data as well the results from animal studies are promising. Historical evidence from the use of other non-live vaccines in pregnancy such as the Tetanus Vaccine and the Influenza Vaccine also provides another layer of indirect promising data as the COVID-19 vaccines are also non-live vaccines and are therefore unlikely to pose a risk to the fetus.(15)

Animal studies performed by BioNTech, Moderna and Janssen revealed no safety signals surrounding fertility, fetal, embryonal or postnatal development. Previous clinical trials, including a pregnant cohort, performed by Johnson & Johnson for the Ebola vaccine, which was also viral-vector in nature, revealed no adverse pregnancy or infant outcomes.(16)

Two papers published in the American Journal of Obstetrics and Gynecology and the New England Journal of Medicine by Gray et al and Shimabukuro et al, respectively, provide insight into preliminary data from ongoing clinical trials of the COVID-19 vaccine in pregnant women. Both revealed promising results.

The study by Gray et al. published in March 2021, was a cohort study looking the COVID-19 vaccine response in pregnant and lactating women. While the study population was small with only 131 recipients, the results showed that administration of the vaccine resulted in robust humoral immunity and that the vaccine-induced immune response was statistically significantly greater than that of the response to natural infection. The study went further to describe evidence of immune transfer to neonates both placentally and via breastmilk.(17)

The paper by Shimabukuro et al., published in April 2021, looked at the ‘Preliminary Findings of mRNA COVID-19 vaccine safety in pregnant persons’ based on the V-safe pregnancy registry in the United States of America. The study population included pregnant women who received the vaccine in the peri-conception period and in the first, second or third trimesters of pregnancy. The published findings revealed no obvious safety signals amongst those who received the mRNA COVID-19 vaccines. Of the 827 women who had completed their pregnancies, 712 (86,1%) had live births and 115 (13,9%) resulted in pregnancy losses, of which 104 were spontaneous miscarriages (12.6% of total completed pregnancies which is in keeping with published baseline population rates). 92.3% of these miscarriages occurred prior to 13weeks gestation. No neonatal deaths were reported but adverse neonatal outcomes included preterm birth and small size for gestational age. These outcomes were similar to incidences published in pre-COVID-19 studies. Most of the women who had completed pregnancy at the time of writing, received their vaccine in the 3rd trimester and more longitudinal follow up is required, especially, for those women who had been vaccinated earlier in their pregnancy course.(18)

In November 2021, the Lancet published a paper comparing the number of pregnant women needing to be vaccinated to avoid harm to the number of pregnant women needing to be vaccinated to cause one case of severe side effects. It was determined, based on an infection rate of 2-10% and a symptomatic rate of 27% of those infections, that the number needed to vaccinate (NNV) to prevent one case of COVID-19 ranges from 11 – 206 individuals, based on the stipulated range.(19) The NNV to prevent one case severe COVID-19 infection ranges from 412 – 2058 and to avoid pregnant complications such a preterm delivery (combination of iatrogenic and spontaneous cases), the NNV is as low as 176 - 882.(19) In comparison, the NNV for one pregnant woman, vaccinated with an mRNA vaccine to experience myocarditis is over 37 000 and the NNV for one pregnant woman, vaccinated with a viral vector vaccine, to experience Vaccine-induced Thrombotic Thrombocytopenia (VITT/TTS) is over 48 000.(19) Therefore, based on this data, on the balance of risk, the risk-benefit supports the vaccination of pregnant women.

## **Possible Maternal Side Effects**

Pregnant women have not reported any significant difference in side effects compared to non-pregnant individuals. However, systemic features (e.g. fever) appear to have occurred more commonly in non-pregnant individuals whilst nausea and vomiting appeared more common in pregnant women following the second dose of mRNA vaccines.(20)

### **Graphical user interface, application Description automatically generatedCommon Side Effects**

Source: <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/expect/after.html>

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### **Rare Side Effects**

#### **Anaphylaxis**

Allergic (‘hypersensitivity’) reactions can occur after any kind of vaccine. These reactions can range from being mild (e.g. rash) to severe (anaphylaxis).(21)They are very uncommonly severe. In the United States, the rate of occurrence of anaphylaxis after COVID-19 vaccine is approximately 2 to 5 people per million.(22)

**Vaccine-Induced Thrombotic Thrombocytopenia/Thrombotic Thrombocytopenia Syndrome**

This is a rare syndrome that has been reported following administration of the Johnson & Johnson Janssen and the Oxford AstraZeneca vaccines.(20) This is an unpredictable, abnormal vaccine reaction which presents similarly to the Heparin-induced thrombocytopenia and thrombosis which is seen with heparin therapy. It presents between 10-14days after administration of the vaccine and is more prevalent in those younger than 50years of age.(21, 22) Symptoms range from strokes to bleeding depending on the effected vasculature. It is not believed to be associated with any of the common venous thromboembolism risk factors. As such, there is no evidence that those who pregnant or in the postpartum period are at increased risk for this rare complication compared to non-pregnant women.(20) and CDC Based on available data, mRNA COVID-19 vaccines are not associated with an increased risk of this side effect.(22)

#### **Guillain-Barré Syndrome**

This is a rare disorder which sees the body’s immune system targeting and damaging nerve cells resulting in muscle weakness and paralysis. Most people who suffer from it make a full recovery but some can suffer permanent nerve damage. (CDC) Of the 12.8 million J&J COVID-19 vaccine doses administered in the United States, there are currently 100 preliminary cases of GBS under investigation to determine if it is linked to the J&J vaccine. Onset is reported to be 2weeks after receiving the vaccine and appears to mostly affect men above the age of 50years.(22)

#### **Myocarditis and Pericarditis after COVID-19 Vaccination**

There are currently investigations underway to determine the association between COVID-19 vaccines and over 1000 reported cases of myocarditis or pericarditis amongst individuals aged 30years and younger. This is a very rare phenomenon as more than 177 million people in the United Stated have received a COVID-19 vaccine as of 12 July 2021 and the CDC and FDA have confirmed 633 reports of this complication. Most cases appear to be of affected male adolescents and young adults and seems to be associated the mRNA COVID-19 vaccines. Most patients who received care for this condition responded well to the treatments.(22, 23)

#### **Death after COVID-19 Vaccination**

As of 12 July 2021, more than 334 million doses of COVID-19 vaccines have been administered. Since the start of the rollout in December 14, 2020 there have been 6079 reports of death which amounts to 0,0018% of people who received a COVID-19 vaccine. This remains to be an incredibly rare, possible complication of the vaccine. Whilst some of these deaths have a plausible causal relationship to the vaccine, for others the causal link remains unclear as healthcare workers are required to report any death after a COVID-19 vaccine to the ‘Vaccine Adverse Event Reporting System’ (VAERS) in the United States. (22)

## **Possible effects on the fetus and Antibody transfer**

### **Possible Effects on the Fetus**

There are currently no proven risks to the fetus with non-live vaccines (inactivated, replication-deficient, comprising only of structural components of the pathogen). Therefore, it is highly unlikely that these vaccines would be harmful if given during pregnancy.(24) However, it must be noted that there is limited data on the safety profiles of some of these vaccines when given in pregnancy and this needs to be considered when considering the risks and benefits on an individual patient basis. (24)

The paper published by Shimabukuro et al, explored pregnancy loss and neonatal outcomes associated with reception of the mRNA vaccines. The data determined that the observed outcomes were similar to those seen in published incidences pre-COVID-19. No neonatal deaths were observed. The most common adverse outcomes observed were:(18)

* Preterm birth 9.4% (pre-COVID-19 incidence 8 – 15%)
* Small for gestational age 3.2% (pre-COVID-19 incidence 3.5%)
* Congenital abnormalities 2.2% (pre-COVID-19 incidence 3%)
  + All pregnancies with major congenital abnormalities were only exposed to the COVID-19 vaccine in the 3rd trimester of pregnancy, not in the preconception period or the 1st trimester.

### **Antibody Transfer**

There has been evidence of SARS-CoV-2 antibodies in neonatal cord blood and breast milk following COVID-19 infection during pregnancy. (20) A cohort study conducted in the Netherlands, looking at 2312 lactating women, reported that SARS-CoV-2 specific IgA antibodies remain present in breastmilk for at least 10months after a PCR-confirmed infection. 23.1% of women in this cohort had SARS-CoV-2 specific IgA antibodies. This data is promising as it suggests that passive immunity may be conferred to breastfed infants to protect them against COVID-19 infection. (25)

The paper published by Gray et al. documented immune transfer to neonates transplacentally and via breastmilk following administration of the COVID-19 mRNA vaccines. Interestingly, the study noted robust IgG levels which was transferred across the placenta to the fetus.(17) However, there was a lack of IgA augmentation observed with vaccine administration and this is postulated to be due to the intramuscular administration of vaccines which trigger systemic antibodies but not necessarily mucosal antibodies It is also currently unclear whether IgA or IgG antibodies in breastmilk are more critical for neonatal protection.(17) It is postulated that vaccination earlier in pregnancy is likely to increase placental transfer of the IgG antibodies but further study into the optimal timing for vaccine administration needs to occur. (17)

# **Eligibility Criteria and Timing of Vaccination**

On the 30th August 2021, The National Department of Health (NDoH) released a directive speaking to the ‘Vaccination of Pregnant and Breastfeeding Women’. The recommendations were as follows:

* COVID-19 Vaccines (including the Pfizer and J&J Vaccines) should be offered to all eligible breastfeeding women as well as pregnant women, during any stage of pregnancy.
* Non-pregnant women contemplating pregnancy are encouraged to receive their vaccination once they are eligible to do so

There is no specific evidence to guide timing of vaccination in pregnancy. Therefore, the stances adopted both by the National Department of Health and the Western Cape Department of Health are based on the opinions of experts. There is no evidence to suggest decreased efficacy of the vaccine if given early or late in the gestation period nor is there evidence to suggest harm to the fetus when given the vaccine. However, due to the absence of robust clinical data, some women who opt for the COVID-19 vaccine may decide to defer reception, thereof, until after completion of their 1st trimester. This period of pregnancy is when the fetus is most vulnerable to teratogens and while there is no evidence to suggest harm, women may err on the side of caution.(20)

Women of childbearing age who are contemplating pregnancy do not need to delay their pregnancy as a result of getting the COVID-19 vaccine and a pregnancy test prior to receiving the vaccine is also not needed.(20) There is no evidence that the COVID-19 vaccines affect fertility.(24) The British Fertility Society and Association of Reproductive and Clinical Scientists support this assessment and advise that women planning a pregnancy and/or those on fertility treatments can get the COVID-19 vaccine should they want to, without needing to delay any treatments.(24)

# **Informed consent, counselling and bioethics**

As with any intervention – pharmacological or otherwise – it is important to remember that there is no action without reaction and no benefit without risk.

Due the novelty of the COVID-19 vaccinations, long-term consequences, the full side-effect profile and unknown risks cannot reasonably have been determined prior to use. Therefore, every decision needs to have the benefits weighed against the risks – both for the individual and the population at large. The core principles of bioethics needs to be considered and respected, namely:

* Autonomy – an individual’s right to self-determination
* Distributive Justice – equitable distribution of resources
* Beneficence – the obligation to act to the benefit of the patient
* Non-maleficence – the obligation to cause no harm to the patient

It is recommended that healthcare workers discuss the benefits and risks of getting the COVID-19 vaccine with all pregnant patients. However, this step need not be mandatory as it should not form a barrier to vaccine access. If a woman is undecided, the role of the healthcare worker is to enable her to make an informed decision based on provision of the best available evidence and shared decision-making processes.(20)

Counselling needs to be individualised to each woman’s unique circumstances and may include the following discussion points:(20)

|  |  |
| --- | --- |
| **The available options** | * + Receiving the vaccination against COVID-19 in the immediate future   + Deferring the vaccination until later in the pregnancy or after pregnancy or when more information about the safety profile of the vaccine becomes available   + Declining the vaccine (women who decline vaccination need to be properly counselled about the risks. Reasons behind declining vaccination need to be explored so that any potential misinformation can be addressed) |
| **The risks of COVID-19 infection in pregnancy to both mother and fetus** | * + Most women who get the COVID-19 infection in pregnancy will be asymptomatic.   + However, pregnant women are more at risk for severe illness than non-pregnant women, especially in the 3rd trimester:     1. Increased risk of ICU admission, mechanical ventilation and death   + Increased incidence of adverse pregnancy outcomes:     1. Pre-eclampsia     2. Stillbirth        - While the overall risk is low, it is doubled with SARS-CoV-2 infection(20)     3. Preterm delivery        - If symptomatic with COVID-19, the risk is 2-3 times higher(20)   + The risk of severe illness is increased with medical comorbidities such as:(20)     1. Hypertension     2. Diabetes     3. High BMI (>30kg/m2) |
| **The benefit of the vaccine to the mother** | * + Reduced risk of severe illness   + Reduced risk of adverse pregnancy outcomes   + There is NO EVIDENCE that the COVID-19 vaccines cause infertility and there is no need to perform a pregnancy test prior to nor delay pregnancy as a result of having taken the vaccine   + Preliminary evidence from clinical trials show promising evidence surrounding the safety and efficacy profile of COVID-19 vaccination in pregnancy |
| **The benefit of the vaccine to the fetus** | * + Passive immunity due to antibody transfer via the placenta and breastmilk |
| **The risks of the vaccine to the mother** | * + Mild, common side effects, not dissimilar from the non-pregnant cohort   + Severe side effects and rare complications associated with the vaccines similar to incidence in general population – pregnancy does not confer additional risk to suffering these complications |
| **The risks of the vaccine to the fetus** | * + As the COVID-19 vaccinations are non-live, it is unlikely that they could cause harm to the fetus. Preliminary evidence from clinical trials also provides promising data surrounding the safety profile of the vaccine. However, risk of fetal harm cannot be ruled out at this stage as we await more robust evidence from large studies and longitudinal follow-up are published. |

# **Current and Planned Research**

Multiple clinical trials are currently underway to assess the safety and efficacy of COVID-19 vaccinations in pregnancy. Data from these studies would serve to increase our knowledge on optimal timing of vaccination, updated and more concrete safety analyses, knowledge about immunity to the mother and the fetus and the vaccine’s ability to protect against acquisition of COVID-19 or the progression to severe illness.

|  |  |  |  |
| --- | --- | --- | --- |
| **Study to Evaluate the Safety, Tolerability, and Immunogenicity of SARS CoV-2 RNA Vaccine Candidate (BNT162b2) Against COVID-19 in Healthy Pregnant Women 18 Years of Age and Older(26)** | | | |
| ***Vaccine studied*** | ***Commenced*** | ***Completed*** | ***Population*** |
| Pfizer | 16 Feb 2021 | 25 Jul 2022 | Pregnant women enrolled at weeks 24 to 34 of gestation |
| **An Open-Label, Phase 2 Study to Evaluate the Safety, Reactogenicity, and Immunogenicity of Ad26.COV2.S in Healthy Pregnant Participants(27)** | | | |
| ***Vaccine studied*** | ***Commenced*** | ***Completed*** | ***Population*** |
| J&J Janssen | Not yet recruiting | 20 Jun 2023 | Pregnant women enrolled at weeks 16 to 38 of gestation (inclusive) |
| **COVID-19 Vaccines International Pregnancy Exposure Registry (C-VIPER)(28)** | | | |
| ***Vaccine studied*** | ***Commenced*** | ***Completed*** | ***Population*** |
| Any | 1 Jun 2021 | 31 Dec 2025 | Pregnant women exposed to at least one dose of a COVID-19 vaccine from 30days prior to the 1st day of the Last Menstrual Period to the end of their pregnancy; Pregnant women unexposed to a COVID-19 vaccine before enrolment and a negative screening test for SARS-CoV-2 infection in pregnancy |
| **Moderna mRNA-1273 Observational Pregnancy Outcome Study(29)** | | | |
| ***Vaccine studied*** | ***Commenced*** | ***Completed*** | ***Population*** |
| Moderna | 22 Jul 2021 | 9 Dec 2023 | Women who have been exposed the Moderna COVID-19 vaccine at any point during their pregnancy from 28 days prior to their last menstrual period |
| **A Prospective Observational Study to Evaluate the Safety of COVID-19 Vaccination in Pregnant Women(30)** | | | |
| ***Vaccine studied*** | ***Commenced*** | ***Completed*** | ***Population*** |
| Any | 24 May 2021 | 1 May 2023 | 350 pregnant women 18-45 years of age at < 34 weeks gestation who plan on receiving COVID-19 vaccination during their pregnancy |
| **Pregnant Women Vaccinated against COVID-19 (COVAPREG)(31)** | | | |
| ***Vaccine studied*** | ***Commenced*** | ***Completed*** | ***Population*** |
| Any | 1 Aug 2021 | 1 Sept 2022 | Women over 18years of age who received at least one COVID-19 vaccine, antenatally, regardless of trimester |

# **Addressing Vaccine Hesitancy**

## **What is vaccine hesitancy?**

The World Health Organization defines vaccine hesitancy as “delay in acceptance or refusal of safe vaccines despite availability of vaccine services.”[[1]](#footnote-1)

One of the best ways to address people’s concerns about getting vaccinated is for a trusted person to talk with them about their concerns and the facts.

Health workers can help to address vaccine hesitancy by talking to individuals when they attend health facilities, in their homes or communities. Group discussion could be held in places of worship. It is ideal for these discussions to take place before people attend for vaccination, but those who have joined to queue to be vaccinated may also need reassurance.

Their concerns about being vaccinated could be **emotional** and related to personal experiences and perceptions of **poor or unfair treatment in the past**. They may have **questions about the science** involved with the vaccine. It is important **not to overwhelm people with facts** and information. Instead, **acknowledge their views or experiences** and find out what would encourage them to get vaccinated[[2]](#footnote-2).

## **Who is vaccine hesitant?**

Some people are clear about their acceptance of vaccination and some people are clear about their refusal. Others sit along a spectrum in between these views and are unsure, or COVID-19 vaccine hesitant[[3]](#footnote-3).

**Vaccine confidence along a spectrum**

Could accept, delay or refuse

## **What influences whether people decide to be vaccinated or not?**

Many factors influence a person’s decision about whether to be vaccinated or not. The table below outlines some of the influences[[4]](#footnote-4).

|  |  |  |
| --- | --- | --- |
| Contextual influences | Individual and group influences | COVID-19 Vaccine specific influences |
| * Communication and media * Influential leaders * Historical influences      * Religious / cultural / gender / socio-economic * Geographic barriers * Perceptions of the Pharmaceutical industry * Trust / mistrust of the healthcare system | * Personal, family and/or community members’ experience with vaccination, including pain * Beliefs, attitudes about health and prevention * Knowledge/awareness * Personal experience and levels of trust with the health system and providers * Risk/benefit (perceived, experienced) * Immunisation as a social norm vs. not needed/harmful | The WHO and NDoH have developed resources that may answer some of the questions people have about the COVID-19 vaccine. These include:   * How do vaccines work? * How are vaccines developed? * Manufacturing, safety and quality control of vaccines * Different types of COVID-19 vaccines * Safety of COVID-19 vaccines * Side effects of COVID-19 vaccines * Vaccine efficacy, effectiveness and protection   See: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/covid-19-vaccines/explainers>  And  <https://messagesformothers.co.za/2021/02/16/covid-19-vaccination-mothers/>  This website has information for pregnant and breastfeeding mothers about the COVID-19 vaccine  And  <https://sacoronavirus.co.za/category/tool-kits/> |

## **How health care workers can help boost vaccine confidence**

1. **Lead by example** - share your personal experience of getting vaccinated. This helps to promote vaccination acceptance as a social norm. Sharing your own concerns and hesitancy and how you overcame these could help hesitant people to relate to your story.
2. **Build trust** - If you’re helping to give vaccines, be supportive of anyone coming in for vaccination who has questions or asks for your advice. Listen to any concerns and communicate in a way that is respectful and builds trust.
3. Help people feel **empowered**[[5]](#footnote-5) – Many people are scared. The pandemic has completely changed our lives. You can help to remind people that they can do something about this virus. By getting vaccinated, they can help to protect themselves and their loved ones.
4. **Address misinformation** – if someone is arguing against vaccination because of false information, you need to give the correct information.
   1. Start with the fact: e.g. “No vaccine is 100% safe and effective but COVID-19 vaccines have been shown, in many scientific studies, to be very safe and effective.”
   2. Say that there is misinformation. Restate the myth the person has mentioned: e.g. “People say they were developed too quickly.” Or “I know people who got COVID-19 from the vaccine”.
   3. End with the relevant facts: “All vaccines, including the COVID-19 ones, have to go through safety trials before they can be used. They have been approved by several international safety organisations.” Or, “The vaccination does not give people COVID-19. It is true that some people still get COVID-19 despite a vaccine, but the chance of them needing hospitalisation or dying is greatly reduced; and they are less likely to transmit to others.”
5. **Share vaccine success stories** – vaccines have helped the world to get rid of Smallpox and Polio, and control measles and meningitis. Childhood vaccinations for many diseases are routine and help to save lives[[6]](#footnote-6). In South Africa, the TB vaccine, BCG, given to babies prevents TB infection in the brain.
6. **Emphasise positive outcomes** – “Vaccination will help protect you, your family and your community from COVID-19, and will bring us all closer to doing the things we love with the people we care about.”

By having thoughtful and kind conversations with people about vaccines and vaccination, you’re making a significant contribution to public health – thank you!

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# **References**

1. Royal College of Obstetricians and Gynaecologists. Coronavirus (COVID-19) Infection in Pregnancy [homepage on the Internet]. 2021 [updated 2021 Aug 25; cited 2021 Oct 06]. Available from: <https://www.rcog.org.uk/globalassets/documents/guidelines/2021-08-25-coronavirus-covid-19-infection-in-pregnancy-v14.pdf>.

2. Wei SQ, Bilodeau-Bertrand M, Liu S, Auger N. The impact of COVID-19 on pregnancy outcomes: a systematic review and meta-analysis. CMAJ. 2021;193(16):E540-E8.

3. Lokken EM, Taylor GG, Huebner EM, Vanderhoeven J, Hendrickson S, Coler B, et al. Higher severe acute respiratory syndrome coronavirus 2 infection rate in pregnant patients. Am J Obstet Gynecol. 2021.

4. Pattinson R, Fawcus S, Gebhardt S, Niit R, Soma-Pillay P, Moodley J. The Impact of COVID-19 on Pregnancy in 2020 compared with 2019: interim fact sheet [Internet]. South African Medical Research Council 2021 [updated 2021 Mar 31; cited 2021 Apr 7]. Available from: <https://www.samrc.ac.za/sites/default/files/attachments/2021-03-31/SA%20report_Covid-19_2020%20pregnancy%20vs%202019_Provinces_Service%20use_Pattison%20etal_Mar21.pdf>.

5. Chmielewska B, Barratt I, Townsend R, Kalafat E, van der Meulen J, Gurol-Urganci I, et al. Effects of the COVID-19 pandemic on maternal and perinatal outcomes: a systematic review and meta-analysis. The Lancet global health. 2021;9(6):e759-e72.

6. 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.

7. Public Health England. Vaccines highly effective against hospitalisation from Delta variant [Homepage on the Internet]. [updated 2021 Jun 14; cited 2021 Jun 14]. Available from: <https://www.gov.uk/government/news/vaccines-highly-effective-against-hospitalisation-from-delta-variant>.

8. World Health Organization. WHO validates Sinovac COVID-19 vaccine for emergency use and issues interim policy recommendations [Homepage on the Internet]. [updated 2021 Jun 01; cited 2021 Jul 21]. Available from: <https://www.who.int/news/item/01-06-2021-who-validates-sinovac-covid-19-vaccine-for-emergency-use-and-issues-interim-policy-recommendations>.

9. Department of Health, South Africa [Homepage on the Internet]. Vaccine Information Portal [updated No Date; cited 2021 July 17]. Available from: <https://sacoronavirus.co.za/vaccine-updates/>.

10. Abdool Karim SS, de Oliveira T. New SARS-CoV-2 Variants — Clinical, Public Health, and Vaccine Implications. New England Journal of Medicine. 2021;384(19):1866-8.

11. Stafford IA, Parchem JG, Sibai BM. The coronavirus disease 2019 vaccine in pregnancy: risks, benefits, and recommendations. Am J Obstet Gynecol. 2021;224(5):484-95.

12. Villar J, Ariff S, Gunier RB, Thiruvengadam R, Rauch S, Kholin A, et al. Maternal and Neonatal Morbidity and Mortality Among Pregnant Women With and Without COVID-19 Infection: The INTERCOVID Multinational Cohort Study. JAMA pediatrics. 2021.

13. Kotlyar AM, Grechukhina O, Chen A, Popkhadze S, Grimshaw A, Tal O, et al. Vertical transmission of coronavirus disease 2019: a systematic review and meta-analysis. American journal of obstetrics and gynecology. 2021;224(1):35-53.e3.

14. World Health Organization. Definition and Categorization of the timing of mother-to-child transmission of SARS-CoV-2 [homepage on the Internet]. 2021 [updated 2021 Feb 8; cited 2021 Mar 17]. Available from: <https://www.who.int/publications/i/item/WHO-2019-nCoV-mother-to-child-transmission-2021.1>.

15. UK Teratology Information Service. Use of Non-Live Vaccines in Pregnancy [Homepage on the internet]. [updated 2021 May; cited 2021 July 18]. Available from: <https://www.medicinesinpregnancy.org/bumps/monographs/USE-OF-NON-LIVE-VACCINES-IN-PREGNANCY/>.

16. Hunter M, Moodley J, Moran N. Perspectives on COVID-19 vaccination for pregnant women in South Africa. Afr J Prm Health Care Fam Med. 2021;13(1).

17. Gray KJ, Bordt EA, Atyeo C, Deriso E, Akinwunmi B, Young N, et al. Coronavirus disease 2019 vaccine response in pregnant and lactating women: a cohort study. Am J Obstet Gynecol. 2021.

18. Shimabukuro TT, Kim SY, Myers TR, Moro PL, Oduyebo T, Panagiotakopoulos L, et al. Preliminary Findings of mRNA Covid-19 Vaccine Safety in Pregnant Persons. New England Journal of Medicine. 2021.

19. Magee LA, von Dadelszen P, Kalafat E, Duncan EL, O'Brien P, Morris E, et al. COVID-19 vaccination in pregnancy—number needed to vaccinate to avoid harm. The Lancet Infectious Diseases. 2021;21(12):1627.

20. Royal College of Obstetricians & Gynaecologists. Coronavirus (COVID-19) Vaccination in Pregnancy [Homepage on the internet]. [updated 2021 Jun 30; cited 2021 Jul 18]. Available from: <https://www.rcog.org.uk/globalassets/documents/guidelines/2021-06-30-coronavirus-covid-19-vaccination-in-pregnancy.pdf>.

21. National Institute for Communicable Diseases. COVID-19 Vaccination: Reporting Adverse Effects FAQ [Homepage on the Internet]. [updated 2021 May 25; cited 2021 July 17]. Available from: <https://www.nicd.ac.za/covid-19-vaccination-reporting-adverse-effects-faq/>.

22. Centers for Disease Control and Prevention. Reported Adverse Events [Homepage on the Internet]. [updated 2021 July 13; cited 2021 July 17]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety/adverse-events.html>.

23. Centers for Disease Control and Prevention. Myocarditis and Pericarditis [homepage on the Internet]. [updated 2021 June 23; cited 2021 July 17]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety/myocarditis.html>.

24. Association of Reproductive & Clinical Scientists. COVID-19 Vaccines and Fertility [Homepage on the Internet] [updated 2021 Feb 11; cited 2021 Jul 18]. Available from: <https://www.britishfertilitysociety.org.uk/wp-content/uploads/2021/02/Covid19-Vaccines-FAQ-1_3.pdf>.

25. Juncker HG, Romijn M, Loth VN, Ruhé EJM, Bakker S, Kleinendorst S, et al. Antibodies Against SARS-CoV-2 in Human Milk: Milk Conversion Rates in the Netherlands. Journal of human lactation. 2021:8903344211018185-.

26. ClinicalTrials.gov. Study to Evaluate the Safety, Tolerability, and Immunogenicity of SARS CoV-2 RNA Vaccine Candidate (BNT162b2) Against COVID-19 in Healthy Pregnant Women 18 Years of Age and Older [Homepage on the Internet] [updated 2021 Jun 21; cited 2021 Jul 18]. Available from: <https://clinicaltrials.gov/ct2/show/NCT04754594?term=Pregnancy%2C+Vaccine&cond=COVID-19&draw=3&rank=11>.

27. ClinicalTrials.gov. A Study of Ad26.COV2.S in Healthy Pregnant Participants (COVID-19) (HORIZON 1) [Homepage on the Internet]. [updated 2021 Mar 17; cited 2021 Jul 18]. Available from: <https://clinicaltrials.gov/ct2/show/NCT04765384?term=Pregnancy%2C+Vaccine&cond=COVID-19&draw=3&rank=12>.

28. ClinicalTrials.gov. COVID-19 Vaccines International Pregnancy Exposure Registry (C-VIPER) [Homepage on the Internet] [updated 2021 Jun 8; cited 2021 Jul 18]. Available from: <https://clinicaltrials.gov/ct2/show/NCT04705116?term=Pregnancy%2C+Vaccine&cond=COVID-19&draw=2&rank=1>.

29. ClinicalTrials.gov. Moderna COVID-19 Vaccine mRNA-1273 Observational Pregnancy Outcome Study [Homepage on the Internet] [updated 2021 Jul 12; cited 2021 Jul 18]. Available from: <https://clinicaltrials.gov/ct2/show/NCT04958304?term=Pregnancy%2C+Vaccine&cond=COVID-19&draw=2&rank=3>.

30. ClinicalTrials.gov. Observational Maternal COVID-19 Vaccination Study [Homepage on the Internet] [updated 2021 May 27; cited 2021 Jul 18]. Available from: <https://clinicaltrials.gov/ct2/show/NCT04826640?term=Pregnancy%2C+Vaccine&cond=COVID-19&draw=2&rank=4>.

31. ClinicalTrials.gov. Pregnant Women Vaccinated Against Covid-19. (COVAPREG) [Homepage on the Internet] [updated 2021 Jul 12; cited 2021 Jul 18]. Available from: <https://clinicaltrials.gov/ct2/show/NCT04957953?term=Pregnancy%2C+Vaccine&cond=COVID-19&draw=2&rank=6>.

1. https://www.who.int/immunization/sage/meetings/2014/october/1\_Report\_WORKING\_GROUP\_vaccine\_hesitancy\_final.pdf [↑](#footnote-ref-1)
2. https://www.who.int/news-room/feature-stories/detail/how-to-talk-about-vaccines [↑](#footnote-ref-2)
3. https://www.who.int/immunization/sage/meetings/2014/october/1\_Report\_WORKING\_GROUP\_vaccine\_hesitancy\_final.pdf [↑](#footnote-ref-3)
4. https://www.who.int/immunization/sage/meetings/2014/october/1\_Report\_WORKING\_GROUP\_vaccine\_hesitancy\_final.pdf [↑](#footnote-ref-4)
5. <https://www.unicef.org/coronavirus/how-talk-about-covid-19-vaccines> [↑](#footnote-ref-5)
6. <http://www.vacfa.uct.ac.za/major-vaccine-success-stories> [↑](#footnote-ref-6)