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Covid-19: Study provides further evidence that mRNA vaccines are safe in pregnancy

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Pregnant women experienced lower rates of significant adverse events after vaccination with a covid-19 mRNA vaccine than a group of similarly aged women who were not pregnant, a Canadian study has concluded.¹

The researchers found that 7.3% of pregnant women experienced health events requiring time off work or school or needing medical attention within a week of the second dose of an mRNA vaccine, which compared with 11.3% of vaccinated non-pregnant women.

The study, published in *Lancet Infectious Diseases*, adds to the growing body of evidence that mRNA covid vaccines are safe during pregnancy. In January a US study of 46 079 pregnancies found that vaccination against SARS-CoV-2 was safe and did not increase the risk of preterm birth or of babies who were small for their gestational age.²

Vaccine uptake during pregnancy has increased over the course of the pandemic but rates are still below those in the general population. In England nearly six in 10 women who gave birth in January 2022 (59.5%) had received at least one dose of the vaccine, up from 53.7% in December 2021 and 48.7% in November 2021. Black women and women living in England's most deprived areas remain the least likely to be vaccinated.³

The latest study, from the Canadian National Vaccine Safety Network, compared 5625 pregnant, vaccinated girls and women aged 14-49 with 185 735 non-pregnant, vaccinated girls and women and 339 pregnant unvaccinated controls of a similar age.

All the vaccinated participants were asked to themselves report any health events during the seven days after each dose of a covid vaccine. The unvaccinated pregnant control participants were asked to record any health problems over the seven days before they filled out the survey.

Overall, 4% of vaccinated pregnant women reported a significant health event after the first dose of vaccine and 7.3% after the second dose. The most common events were a general feeling of being unwell, headache or migraine, and respiratory tract infection. Serious health events, defined as any event resulting in an emergency department visit or admission to hospital were rare (<1.0%) in all groups.

Of the unvaccinated pregnant women, 3.2% reported health events in the previous week, suggesting that some of the symptoms experienced by the vaccinated pregnant women might not have been a result of the vaccine.

The most frequently reported adverse pregnancy outcome was a combined outcome of miscarriage and

stillbirth, reported by 1.4% of the vaccinated and 2.1% of the unvaccinated pregnant women.

Writing in a linked comment,⁴ Sascha Ellington and Christine Olson, from the US Centers for Disease Control and Prevention, said, "These findings are consistent with and add to the growing body of evidence that covid-19 mRNA vaccines are safe during pregnancy.

"Covid-19 vaccination among pregnant people continues to be lower than among non-pregnant females of reproductive age. Given the risks of significant illness and adverse pregnancy outcomes, it is imperative that we continue to collect and disseminate data on the safety and effectiveness of covid-19 vaccination in pregnancy and to encourage healthcare providers to promote vaccination during all trimesters of pregnancy."

A limitation of the study was that most participants who reported their ethnic group were white and the data therefore might not be fully generalisable to other groups. The study focused only on events occurring within seven days of vaccination and so could not conclude anything about longer term reactions. It also relied on self-reporting without verification from medical records.

- 1 Sadarangani M, Soe P, Shulha H, et al. Safety of covid-19 vaccines in pregnancy: a Canadian National Vaccine Safety (CANVA) network cohort study. *Lancet Infect Dis* 2022. doi: 10.1016/S1473-3099(22)00426-1.
- 2 Tanne JH. Covid-19: Vaccination during pregnancy is safe, finds large US study. *BMJ* 2022;376. doi: 10.1136/bmj.o27 pmid: 34996775
- 3 UK Health Security Agency. Vaccine uptake among pregnant women increasing but inequalities persist [press release]. Gov.UK. May 2022. <https://www.gov.uk/government/news/vaccine-uptake-among-pregnant-women-increasing-but-inequalities-persist>.
- 4 Ellington S, Olson C. Safety of mRNA covid-19 vaccines during pregnancy. *Lancet Infect Dis* 2022. doi: 10.1016/S1473-3099(22)00443-1.

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