

COVID-19 linked to complications during pregnancy, study finds

January 13 2022



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Women who have COVID-19 towards the end of their pregnancy are vulnerable to birth-related complications.

They are more likely to have complications than those who get COVID-19 in the earlier stages of pregnancy or who haven't had

COVID-19 at all.

The findings show that preterm births, stillbirths and [newborn deaths](#) are more common among women who have the virus 28 days, or less, before their delivery date.

The majority of complications, which also include COVID-related critical care admissions, occurred in unvaccinated women, according to one of the first national studies of pregnancy and COVID-19.

Researchers say more should be done to increase [vaccine](#) uptake in [pregnant women](#), whose [vaccination rates](#) are much lower than those of women in the general population.

The team analyzed data relating to all pregnant women in Scotland. It included more than 87,000 women who were pregnant between the start of vaccination uptake in December 2020 and October 2021.

Vaccination uptake during the study period was lower in pregnant women, compared with women aged 18 to 44 in the [general population](#).

Some 32 percent of pregnant women who gave birth in October 2021 were fully vaccinated—meaning more than 14 days had elapsed since a second vaccine, this was compared with 77 percent of the general female population aged 18 to 44.

Since the start of Scotland's vaccination program, a total of 4,950 cases of COVID-19 have been confirmed during pregnancy, with 77 percent of these cases in unvaccinated women.

Some 12 percent of COVID-19 cases were in partially vaccinated pregnant women—those who had only received one vaccine dose, or were diagnosed less than 14 days since their second dose. This compares

with 11 percent of cases in fully vaccinated women.

The team analyzed data on extended perinatal deaths, which is defined as death of a baby in the womb after 24 weeks of pregnancy, or in the first 28 days after birth.

They found that the extended perinatal death rate among babies born within 28 days of their mother developing COVID-19 was 23 per 1,000 births.

All baby deaths occurred to women who were unvaccinated against COVID-19 at the time of infection.

Some 17 percent of babies born within 28 days of their mother developing COVID-19 were delivered prematurely—more than three weeks before their due date.

These data were then compared to the background rates of extended perinatal deaths and preterm births, which are the rates for all babies born in Scotland regardless of whether their mother had previously had COVID-19 or been vaccinated.

The background perinatal mortality rate during the pandemic in Scotland was six per 1,000 and preterm birth rate was 8 percent.

Experts stressed that it is not possible to say if COVID-19 contributed directly to the deaths or preterm births as they did not have access to detailed clinical records for individual women.

Admission to hospital and critical care were also significantly more common in pregnant women with COVID-19 who were unvaccinated at the time of diagnosis than in vaccinated pregnant women—98 percent of women with COVID-19 during pregnancy who were admitted to critical

care were unvaccinated.

The team also monitored complication rates in women who received a COVID-19 vaccination during pregnancy.

The perinatal mortality and [preterm birth](#) rates in women within 28 days of receiving a vaccine were very similar to the background rates at four per 1,000 and eight percent, respectively, providing further reassurance on the safety of vaccination during pregnancy.

These findings are part of the COPS study, which provides population-based information for the whole of Scotland on the incidence and outcomes of COVID-19 infection and COVID-19 vaccination in pregnancy.

COPS is an offshoot of the EAVE II project, which uses anonymised linked patient data in Scotland to track the pandemic and the vaccine roll out in real time.

The research team included scientists from the Universities of Edinburgh, Glasgow, Aberdeen, Strathclyde, and St Andrew's; Public Health Scotland; and Victoria University of Wellington.

COPS co-lead Dr. Sarah Stock, of the University of Edinburgh's Usher Institute—who is also a consultant obstetrician—said: "Our data add to the evidence that vaccination in pregnancy does not increase the risk of complications in pregnancy, but COVID-19 does.

"COVID-19 vaccination in pregnancy is crucial to protect women and babies from preventable, life-threatening complications of COVID-19."

The findings have been published in *Nature Medicine*.

EAVE II study lead Professor Aziz Sheikh, Director of the Usher Institute, said: "Our national data show that being vaccinated during pregnancy was associated with reduced risk of serious outcomes for both mother and baby.

"Vaccine uptake has been much lower in pregnant women than in non-pregnant women of a similar age in Scotland. As cases of Omicron continue to rise, I strongly encourage all pregnant woman to take up the offer of a vaccination or booster as these will help protect them and their unborn child."

COPS co-lead Dr. Rachael Wood, Consultant in Public Health Medicine with Public Health Scotland, said: "Our data provide valuable information on both COVID-19 infections and vaccinations among pregnant women.

"It is clear that vaccination is the safest and most effective way for pregnant women to protect themselves and their babies from severe COVID-19 disease.

"Vaccination can be given at any stage of [pregnancy](#), so I strongly encourage [women](#) who are pregnant, or hoping to become pregnant, to get fully vaccinated as soon as possible."

More information: SARS-CoV-2 infection and COVID-19 vaccination rates in pregnant women in Scotland, *Nature Medicine* (2022). [DOI: 10.1038/s41591-021-01666-2](https://doi.org/10.1038/s41591-021-01666-2) , www.nature.com/articles/s41591-021-01666-2

Provided by University of Edinburgh

Citation: COVID-19 linked to complications during pregnancy, study finds (2022, January 13) retrieved 14 February 2024 from <https://medicalxpress.com/news/2022-01-covid-linked-complications-pregnancy.html>

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