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Vaccination of mother also protects the unborn baby

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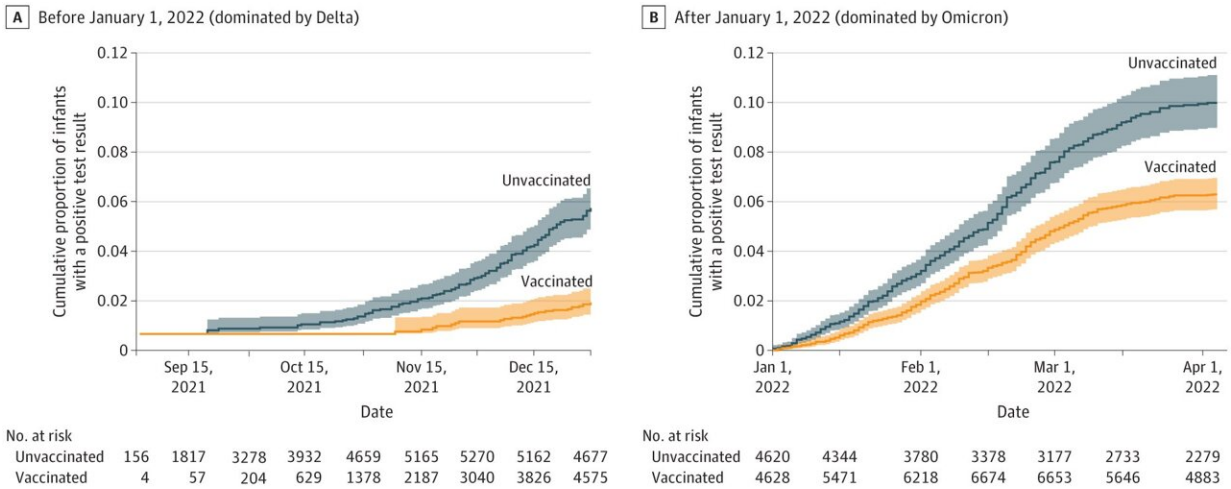

Cumulative proportion of number of infants with a positive SARS-CoV-2 polymerase chain reaction test by maternal COVID-19 vaccination status. A, Delta variant–dominated period: September 1 to December 31, 2021. B, Omicron variant–dominated period: January 1 to April 4, 2022. The shaded bands correspond to the 95% CIs. Credit: *JAMA Internal Medicine* (2022). DOI: 10.1001/jamainternmed.2022.2442

The risk of getting COVID-19 is lower in the first four months of life if the mother is vaccinated during pregnancy. This is shown by a new study from the Center for Fertility and Health at the Norwegian Institute of Public Health.

"This is good news for pregnant women who probably transmit antibodies to their baby if they are vaccinated while pregnant, thereby giving them protection against infection at the start of life," says Ellen Øen Carlsen, a researcher at the Norwegian Institute of Public health and first author of the study published in *JAMA Internal Medicine*.

Currently, no coronavirus vaccines are approved for children under five years. Since infants have a higher risk of a severe disease course than older children, they are particularly vulnerable. If the mother can protect the child during the first months of life by vaccinating herself during pregnancy, there is a double benefit, since the vaccine protects both mother and child.

Followed over 20,000 infants

Carlsen and colleagues at the NIPH, in collaboration with the London School of Hygiene and Tropical Medicine and the University of Ottowa, analyzed figures from the Norwegian emergency preparedness register for COVID-19 (Beredt C19).

21,643 infants born in Norway between September 2021 and February 2022 are included in the study. The children were followed for four months, or until 4 April 2022. Of these infants, 9,739 were born to a mother who received her second or third dose of an mRNA vaccine (Moderna or Pfizer) during the second or third trimester of pregnancy. These children were compared with children born to mothers who were not vaccinated before or during pregnancy.

Four months of protection

The researchers found that when the mother was vaccinated during pregnancy, the newborn was protected against COVID-19 for the first

four months after birth. This is probably because the antibodies produced after vaccination are transferred to the fetus, and that these antibodies last for a few months after birth. Some of the effect may also be due to antibody transmission via breastmilk, or that the baby is protected indirectly when the mother has a lower risk of being infected herself, as she could be a potential source of transmission.

To assess whether the association was different for the omicron and delta variants of the coronavirus, the time period was divided into two: before and after the turn of the year.

"We found that the apparent protective effect on the infant through maternal vaccination was greatest in the period when the delta variant was dominant. This is in line with how the vaccines work among non-pregnant women as well," Carlsen explains.

Extra important to monitor pregnant women and infants

In addition to the new study from the group at the Center for Fertility and Health, an American study has looked at coronavirus vaccination of the mother and the risk of admission to hospital with COVID-19 among infants under six months. This study was conducted by the US Center for Disease Control. They found a lower risk of admission to hospital with COVID-19 among infants born to vaccinated mothers. This is in line with the findings from the Norwegian study, which looked at infection in general and not the risk of admission to hospital.

"The fact that both studies point in the direction of a protective effect from vaccination of the mother is reassuring," says Carlsen.

Since pregnant women or infants are not usually involved in testing

vaccines, it is particularly important to monitor these groups, both through vaccination of pregnant women and passive transmission of vaccination effects to their newborns.

Researchers at the Norwegian Institute of Public Health have previously found that COVID-19 vaccination does not increase the risk of pregnancy complications, so this study supports the benefit of vaccinating pregnant women.

More information: Ellen Øen Carlsen et al, Association of COVID-19 Vaccination During Pregnancy With Incidence of SARS-CoV-2 Infection in Infants, *JAMA Internal Medicine* (2022). DOI: 10.1001/jamainternmed.2022.2442

Provided by Norwegian Institute of Public Health

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