

COVID-19 mRNA vaccines are immunogenic in pregnant and lactating women

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Pregnant women with symptomatic COVID-19 have a higher risk of intensive care unit admissions, mechanical ventilation and death compared to non-pregnant reproductive age women. Increases in preterm birth and still birth have also been observed in pregnancies complicated by the viral infection. The Centers for Disease Control and Prevention (CDC) recommended that people who are pregnant may choose to be vaccinated at their own discretion with their healthcare provider. However, pregnant and lactating women were not included in Phase 3 vaccine efficacy trials; thus, data on vaccine safety and immunogenicity in this population is limited.

In a new study from Beth Israel Deaconess Medical Center (BIDMC), specialists in the Department of Obstetrics and Gynecology and the Center for Virology and Vaccine Research evaluated the immunogenicity of COVID-19 mRNA vaccines in pregnant and lactating women who received either the Pfizer or Moderna COVID-19 vaccines. The researchers found that both vaccines triggered immune responses in pregnant and lactating women. Further analyses revealed that maternal vaccine antibodies are transferred

into infant cord blood and breast milk. The team's findings appear today in the *Journal of the American Medical Association*.

"Our study supports the use of vaccines in pregnant and lactating individuals. The vaccine-elicited antibodies we detected in both infant cord blood and breast milk suggest that vaccinating pregnant mothers may potentially protect infants from COVID-19 infection," said lead author Ai-ris Y. Collier, MD, a Maternal-Fetal Medicine specialist at BIDMC. "Future research should focus on determining the timing of vaccination that optimizes delivery of antibodies through the placenta and breast milk to newborns."

Collier and colleagues conducted an exploratory, descriptive study of 103 women, ages 18-45, who received an mRNA COVID-19 vaccine (54 percent received Pfizer; 46 percent received Moderna). The scientists found similar levels of vaccine-induced antibody function and T cell responses in all non-pregnant, pregnant and lactating women after their second vaccine dose. Additionally, both pregnant and non-pregnant women who received the mRNA vaccines developed cross-reactive immune responses against the COVID-19 variants of concern B.1.1.7 and B.1.351.

"The COVID-19 mRNA vaccines raised robust immune responses in pregnant, lactating, and non-pregnant non-lactating women," said senior corresponding author Dan. H. Barouch, MD, Ph.D., Director of the Center for Virology and Vaccine Research at BIDMC. "Additionally, the vaccine-elicited antibody responses were greater than antibody responses seen after COVID-19 infections. These findings add to the emerging data that support the use of these vaccines in pregnant and lactating women."

More information: Ai-ris Y. Collier et al, Immunogenicity of COVID-19 mRNA Vaccines in Pregnant and Lactating Women, *JAMA* (2021).

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