

Study reveals low COVID-19 transmission rate from mothers to newborns

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Annex A

Table 1: Perinatal outcomes of pregnancies affected by COVID-19 variants

Variant	Pregnant Women	Mild Symptoms (%)	Moderate/ Severe Disease (%)	ICU Admission (%)	Mechanical Ventilation (%)	ECMO (%)
Omicron	293	98.3	1.7	1.0	0.3	0
Non-Omicron	78	92.3	7.7	9.0	3.8	1.3

Table 2: Maternal vaccination status and outcomes

Vaccination Status	Pregnant Women	Moderate/ Severe Disease (%)	ICU Admission (%)	COVID-19 Transmission from mother to baby (%)
Vaccinated	278	1.8	1.4	1.1
Unvaccinated	75	8.0	8.0	1.3

Table 3: Pregnant women with Omicron vs Non-Omicron variants

Outcome	Omicron (%)	Non-Omicron (%)
Moderate/Severe Disease	1.7	7.7
ICU Admission	1.0	9.0
Mechanical Ventilation	0.3	3.8

Annex A. Credit: KK Women's and Children's Hospital

A [study](#) by KK Women's and Children's Hospital (KKH), Singapore General Hospital (SGH) and National University Hospital (NUH) has revealed that COVID-19 transmission from mothers to their newborns is low. The study has been published in *Annals of the Academy of Medicine, Singapore*.

The study involving 371 women, who had COVID-19 infection during pregnancy, and their newborns found that only four infants or 1.1% of the babies were diagnosed with COVID-19 after birth, of which three (1.1%) were from mothers who were COVID-19 vaccinated and one infant (1.3%) was from a mother who was not vaccinated.

Senior Author of the study, Dr. Yeo Kee Thai, Senior Consultant, Department of Neonatology, KKH said, "Our study assures expectant parents and [health care professionals](#) that COVID-19 transmission from mother to baby is extremely low. In comparison to [international reports](#), the incidence of transmission is also at a much lower rate. This is likely attributed to the higher vaccination rate among our pregnant population, which also explains the comparatively lower occurrence of moderate to [severe symptoms](#) and a lesser need for interventions in vaccinated pregnant women who were infected with COVID-19.

Vaccinated pregnant women infected with COVID-19 were found to have milder disease effects (1.8% moderate/severe disease vs. 8% moderate/severe disease) and were less likely to require [intensive care](#) as compared to unvaccinated pregnant women who were infected (1.4% vs. 8%). Among the group, one of the unvaccinated pregnant patient who was infected with COVID-19 had required extracorporeal membrane oxygenation (ECMO) support.

The study also found that pregnant women infected with the omicron variant had milder symptoms (98.3% vs. 92.3%), and were less likely to require intensive care (1.0% vs. 9.0%), or need mechanical ventilation (0.3% vs. 3.8%) as compared to those infected with non-omicron variants.

Newborns of pregnant women infected with the omicron variant were also less likely to require intensive care (3.8% vs. 14.1%).

This study is part of KKH's ongoing efforts to build evidence-based perspectives for the limited studies on COVID-19 in Singapore and Asia. The study took place from December 2019 to February 2022, covering the period from when the virus was first identified to the emergence of the [omicron variant](#) in late 2021. Based on timing of the infections and the reported circulating variants, the identified variants were Wild-type (2.2%), Alpha (0.8%), Delta (18.1%) and omicron (79.9%).

The research participants were categorized into two groups—vaccinated and unvaccinated—as COVID-19 vaccination was made available to pregnant women in June 2021. Among the 353 pregnant women who provided their COVID-19 vaccination status, 278 (78.8%) had received one or more dose before or during their pregnancy and 75 (21.2%) were unvaccinated.

Dr. Yeo added, "As we appreciate these encouraging findings, pregnant women remain a vulnerable group susceptible to severe outcomes from SARS-CoV-2. Hence, it is crucial that our [pregnant women](#) keep up to date with their COVID-19 vaccination, to keep their families safe."

While this study was not designed to focus on the effects of maternal COVID-19 vaccination in newborns, other studies including an earlier KKH-led study revealed that COVID-19 vaccination during pregnancy

was found to be up to 44.4% effective in protecting infants against SARS-CoV-2 infection up to six months after birth.

More information: Alicia May Lim et al, Perinatal outcomes of pregnancies affected by COVID-19 in Singapore: A cohort study, *Annals of the Academy of Medicine, Singapore* (2024). [DOI: 10.47102/annals-acadmedsg.2023278](https://doi.org/10.47102/annals-acadmedsg.2023278)

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