

# Rotavirus vaccine is safe for use in NICU babies, researchers find

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Researchers from Children's Hospital of Philadelphia (CHOP) found that transmission of rotavirus vaccine strains in a neonatal intensive care unit (NICU) is rare and without clinical consequences, strongly

suggesting that giving the rotavirus vaccine to eligible infants during their hospitalization provides immune benefits that outweigh any risks.

The findings, published in the journal *Pediatrics*, could serve as the basis for a change in clinical practice. The paper is titled "Incidence of Transmission of Vaccine-Strain Rotavirus in a NICU that Routinely Vaccinates."

Rotavirus is a virus that infects the lining of the intestines and is typically characterized by symptoms such as [high fever](#), persistent and severe vomiting and diarrhea.

Before rotavirus vaccines were available, most children were infected before age 5, and the virus contributed to roughly half a million child deaths worldwide, and tens of thousands of hospitalizations of young children in the U.S., each year. Rotavirus remains the most common cause of diarrhea in infants and young children.

The first dose of a [rotavirus vaccine](#) is usually given to newborns at two months old. Historically, many NICUs do not give rotavirus vaccines to inpatients due to a theoretical risk of horizontal [transmission](#) of vaccine strains, meaning that the strains of the virus in the vaccine could potentially infect at-risk patients, since some vaccinated infants shed live, attenuated vaccine-strain rotavirus in their stool for weeks after administration.

Holding vaccination until patients are discharged from the NICU often leaves infants with long hospitalizations, who are most vulnerable to severe rotavirus disease due to underlying health conditions, potentially making them ineligible to ever receive the vaccine. Prior retrospective studies found very minimal risk of horizontal transmission in NICU settings.

"As an infectious disease doctor who has worked on Infection Control in NICUs for many years, I was struck by how rarely vaccine virus was transmitted and how it did not cause clinical symptoms," said co-senior study author Susan E. Coffin, MD, an attending physician for the Division of Infectious Diseases at CHOP.

"Our study, conducted in a large NICU with both multi-bed open pods and [private rooms](#), adds to current evidence suggesting that risk of transmission of vaccine-strain rotavirus to unvaccinated infants in NICU settings is low."

Bringing together expertise from across CHOP, including the Division of Infectious Diseases, the Division of Neonatology, the CHOP Research Institute and Clinical Futures, this study included all patients admitted to CHOP's 100-bed N/IICU for one year.

Stool specimens were collected weekly and tested to look for rotavirus vaccine strains. Investigations were conducted for suspected transmission events.

Among the 1,238 infants admitted, 226 doses of the RotaTeq vaccine were administered. A total of 3448 stool samples were analyzed, including 2,252 from 686 unvaccinated patients.

The vast majority of those unvaccinated patients (681, or 99.3%) never tested positive for the rotavirus vaccine strain. The remaining five patients tested positive for a rotavirus vaccine strain. No gastroenteritis symptoms were identified in those transmission cases.

"While this study was conducted in a level 4 referral NICU, our combination of both single patient rooms as well as open pods supports its generalizability to a variety of NICUs of different layouts and sizes," said Kathleen A. Gibbs, MD, an attending neonatologist in the Division

of Neonatology and Medical Director of Quality Improvement and Patient Safety of the NICU at CHOP.

"Ultimately, these findings add to the existing safety data and suggest the known benefits of NICU administration of the rotavirus vaccine outweigh the low risks of vaccine-strain transmission."

**More information:** Zalot et al, Incidence of Transmission of Vaccine-Strain Rotavirus in a NICU that Routinely Vaccinates, *Pediatrics* (2024). DOI: [10.1542/peds.2024-067621](https://doi.org/10.1542/peds.2024-067621)

Provided by Children's Hospital of Philadelphia

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