Medical Xpress

Respiratory virus plagues South Africa, but new vaccine for pregnant moms saves babies

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Does immunizing a woman during pregnancy protect her unborn baby against respiratory syncytial virus (RSV) in the months after it is born?

This is what the MATISSE study, conducted in 18 countries including South Africa, aimed to find out.

The Maternal Immunization Study for Safety and Efficacy (MATISSE) phase 3 trial evaluated the efficacy and safety of maternal RSVpreF vaccination in preventing RSV-associated lower respiratory tract illness in infants.

Respiratory syncytial virus [RSV] is the most common cause of hospitalization in children under five years of age, and even more so in those younger than six months.

Researchers at the Wits Vaccines and Infectious Diseases Analytics Research Unit (Wits VIDA) at the University of the Witwatersrand, Johannesburg, led the MATISSE trial in South Africa.

The researchers wanted to find out if administering Pfizer's Bivalent Prefusion F Vaccine in pregnancy could reduce the burden of RSV-associated lower respiratory tract illness in newborns and infants and, if so, how well, and for how long?

In this trial, as part of a multi-centered study, Wits VIDA report that vaccination of pregnant women with the RSV vaccine is safe, and reduces the risk of severe RSV associated lower respiratory tract infection by 82% in infants aged through to six months old.

The findings were published in the *New England Journal of Medicine* (*NEJM*) on April 5, 2023.

"This study adds to the portfolio of research on vaccination of pregnant women to protect the mother, fetus and newborn," says study author and Director of Wits VIDA, Professor Shabir Madhi. "The release of these study findings, in which South African scientists played a prominent

role, comes at a time when RSV is back with a vengeance in SA, with pediatric wards being filled with children in whom illness can now be prevented with this new RSV vaccine."

Credit: Wits University

The urgency to immunize against RSV

Lower respiratory tract infections (LRTI) are the most common cause of hospitalization and death in children 1-59 months of age, particularly in low- and middle-income countries (LMICs).

RSV is the most common cause of LRTI hospitalization in children, occurring in some 30%–80% of cases.

Approximately two-thirds of children will be infected at least once by

RSV in the first two years of life, a third of whom will develop LRTI.

In 2019, it was estimated that there were 101,400 RSV-attributable deaths, 99% of which occurred in LMICs and 50% of which were in children less than 6 months of age.

Death from RSV is likely to be underestimated in low-income settings. There has been no change in the burden of RSV over the past two decades.

RSV-LTRI immunization a global priority and a LMIC urgency

Vaccines to prevent RSV-LRTI are considered a priority by the World Health Organization.

There is currently no antiviral treatment for children with RSV infection, and management of RSV-LRTI is symptom based.

Palivizumab, a costly monoclonal antibody, is the only licensed effective strategy to reduce the risk of RSV-LRTI hospitalization in South Africa.

The MATISSE study shows that the RSV prefusion F protein-based vaccine (RSVpreF) administered during the late second or third trimester of pregnancy may protect infants from severe RSV illness during the first few months of life—this would be particularly important in low- and middle-income countries, where the burden of RSV-associated lower respiratory tract illness is highest.

More information: Beate Kampmann et al, Bivalent Prefusion F Vaccine in Pregnancy to Prevent RSV Illness in Infants, *New England Journal of Medicine* (2023). DOI: 10.1056/NEJMoa2216480

Provided by Wits University