

Med Ed reviews Synopsis of a December 18, 2023 Article in JAMA Pediatrics. Info on accessing article below.

Maternal Flu Shot Protects Infants Against Severe Disease. Vaccine effectiveness was better when mom was vaccinated during third trimester.

.....“Original Investigation JAMA December 18, 2023

Maternal Vaccine Effectiveness Against Influenza-Associated Hospitalizations and Emergency Department Visits in Infants

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Maternal influenza vaccination was effective at protecting infants under 6 months against severe disease, a case-control study showed.

While overall effectiveness was 34% (95% CI 12-50) against markers of severe disease -- hospitalizations and emergency department (ED) visits combined -- effectiveness was significant for hospitalizations (39%, 95% CI 12-58) but not for ED visits in secondary analyses, according to Leila Sahni, PhD, MPH, of Baylor College of Medicine and Texas Children's Hospital in Houston, and colleagues.

Effectiveness was also greater for infants less than 3 months of age (53%, 95% CI 30-68) and when mom was vaccinated during the third trimester (52%, 95% CI 30-68), they [reported in JAMA Pediatrics](#) opens in a new tab or window, though they noted that secondary analyses should be considered exploratory.

"Infants younger than 6 months are at high risk of influenza-associated complications but are not eligible for vaccination given the absence of licensed influenza vaccines for this age group," Sahni and colleagues wrote. "Maternal influenza vaccination is safe, immunogenic, and can prevent laboratory-confirmed influenza and its complications in both mothers and infants."

However, "recent evidence, particularly from the U.S. after the H1N1 pandemic and data on maternal effectiveness by timing during pregnancy are limited," they added. "Updated data are

needed on maternal vaccine effectiveness and data to determine optimal timing of vaccination to benefit the pregnant person and their infant."

Further results from secondary analyses showed that effectiveness of maternal influenza vaccination wasn't significant when mothers were vaccinated during their first or second trimesters.

"These findings, particularly the timing of maternal vaccination, weren't surprising to us," Sahni told *MedPage Today* in an email. "However, this speaks to the complexity of maternal vaccination timing, and the need to balance benefit to the mother who should ideally be vaccinated before influenza season begins, which may occur early in pregnancy, against benefit to the infant, which we found was greatest when vaccination occurs later in pregnancy."

"Additional studies should investigate the timing of vaccination during pregnancy and the benefit to the mother and infant," Sahni added.

Vaccine effectiveness was 47% against influenza B (95% CI 13-68) but it wasn't significant against influenza A, the researchers found; nor was it effective against influenza A subtypes H1N1 or H3N2 in those secondary endpoint analyses.

Sensitivity analyses excluding infants with positive test results for A/H3N2 and mothers with prior season vaccination yielded vaccine effectiveness of 43% (95% CI 17-60) and 42% (95% CI 20-58), respectively, the researchers added.

The study "strengthens the evidence that infants benefit when persons receive the quadrivalent-inactivated influenza vaccine during pregnancy," Katherine Poehling, MD, MPH, of Atrium Health Wake Forest Baptist, in Winston-Salem, North Carolina, and colleagues [wrote in an accompanying editorial opens in a new tab or window](#), noting that guidelines from the CDC and the American College of Obstetricians and Gynecologists recommend that pregnant patients receive the inactivated influenza vaccination during the flu season. "With only half of pregnant persons receiving the influenza vaccine in this study and nationally, there is a huge opportunity to improve vaccine coverage and health outcomes for all pregnant persons and newborns."

Opportunities to optimize the health of mothers and their babies include expanding vaccine registries from children to persons of all ages, having all clinicians who see pregnant persons strongly recommend flu vaccination during pregnancy, and having obstetric and pediatric clinicians collaborate on approaches to improve access to, confidence in, and coverage of vaccines and preventive care, they added.

"These data are very encouraging and provide us with updated evidence supporting the benefit of influenza vaccination during pregnancy to protect both the pregnant person and their infant from serious influenza illness," Samantha Olson, MPH, co-first author of the study and epidemiologist with the CDC's Influenza Division, told *MedPage Today* in an email.

For this prospective, test-negative case-control study, Sahni and colleagues used data from the CDC's New Vaccine Surveillance Network from the 2016/2017 through the 2019/2020 influenza

seasons. Infants younger than 6 months of age with an ED visit or hospitalization for acute respiratory illness were included from seven pediatric medical centers in the U.S. Infants with an influenza-negative molecular test were included as controls.

Among 3,764 infants included in the study, 53% were born to vaccinated mothers, including 94 of 223 (42%) infants with influenza and 1,913 of 3,541 (54%) control infants. Among the 2,007 vaccinated mothers, 54% had vaccination verified by immunization information systems or medical records and 46% had self-reported vaccination with timing.

Study limitations included that information about maternal influenza infection during or after pregnancy was not included, nor were data on influenza vaccination prior to conception or postpartum.



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