



W WESTERN MICHIGAN UNIVERSITY
— Homer Stryker M.D. —
SCHOOL OF MEDICINE

**Maternal Immunization: current recommendations
and potential barriers**

Kevin Ault MD FACOG FIDSA
Western Michigan University Homer Stryker M.D. School of Medicine

Reasons to vaccinate during Pregnancy

- Decrease maternal illnesses due to respiratory diseases
- Protect newborns with maternal antibodies
- Protect pregnant people during outbreaks
- “Catch up” on adult immunization
- Prevent congenital malformations and other adverse pregnancy outcomes

Vaccines During Pregnancy

Influenza (the flu) and pertussis (whooping cough) are serious illnesses, but the flu shot and the whooping cough shot (also called Tdap¹) can keep you healthy and help protect your newborn. All women should get these shots during pregnancy.

THE FLU VACCINE IS

- Safe for pregnant women and their fetuses when given during any trimester of pregnancy
- Effective at preventing serious flu illness in pregnant women

HOW DOES IT PROTECT MY BABY?

- The flu vaccine creates antibodies that are passed to a fetus, which gives protection against the flu until a baby can get the flu shot at age 6 months.

Vaccine

Antibodies

THE WHOOPING COUGH (Tdap) VACCINE IS

- Safe for pregnant women and their fetuses
- Recommended between 27 weeks and 36 weeks of each pregnancy

HOW DOES IT PROTECT MY BABY?

- The Tdap vaccine creates antibodies that are passed to a fetus, which gives protection against whooping cough until a baby can get his or her first whooping cough shot at age 2 months.

VACCINES—GET THE FACTS

FACT

Pregnant women who get the flu can become much sicker than nonpregnant women who get the flu. Pregnant women with flu complications have more medical visits and more hospitalizations. The flu shot offers you the best protection.

FACT

Babies younger than 3 months have the highest risk of severe disease and of dying from whooping cough. A baby cannot be vaccinated until he or she is 2 months old, so the baby's best protection is you getting the Tdap shot during pregnancy.

FACT

Getting shots during pregnancy will not make you sick or harm your fetus. Current research shows that vaccines do not cause pregnancy problems, birth defects, or autism in children. Vaccines have been used for many years in millions of pregnant women.

PROTECT YOURSELF AND YOUR BABY. GET YOUR FLU AND WHOOPING COUGH (Tdap) SHOTS DURING EACH PREGNANCY.

Visit www.acog.org/immunization for more information on vaccines during pregnancy and other adult vaccines.

¹Tdap is short for tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis, which is a vaccine that is given to adolescents and adults.

The nasal spray flu vaccine should not be used by pregnant women.

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This information was designed as an educational self-learning tool and may have current information and updates related to a woman's health. It is not intended as a statement of the medical staff's care, nor does it comprise all proper treatments or methods of care. It is not a substitute for a meeting between a patient and her physician. Please check for updates at www.acog.org for more accuracy.

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The American College of Obstetricians and Gynecologists
MEMBERSHIP INQUIRY: 1-800-ACOG-1234
409 12th Street SW, PO Box 96920
Washington, DC 20090-6920
www.acog.org

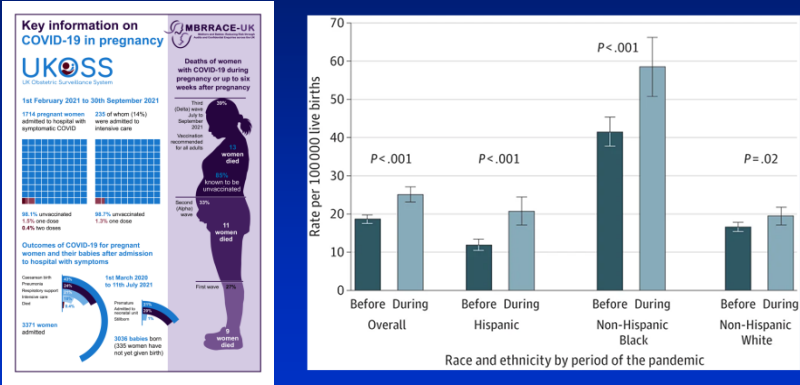
Current recommendations

- Four vaccines potentially recommended during pregnancy – COVID, Influenza, Tdap and RSV.
- RSV is the newest recommendation – for the 2023-2024 respiratory season.
- Data are lacking about patient acceptance of multiple vaccines during pregnancy.
- Other recommendations on the horizon

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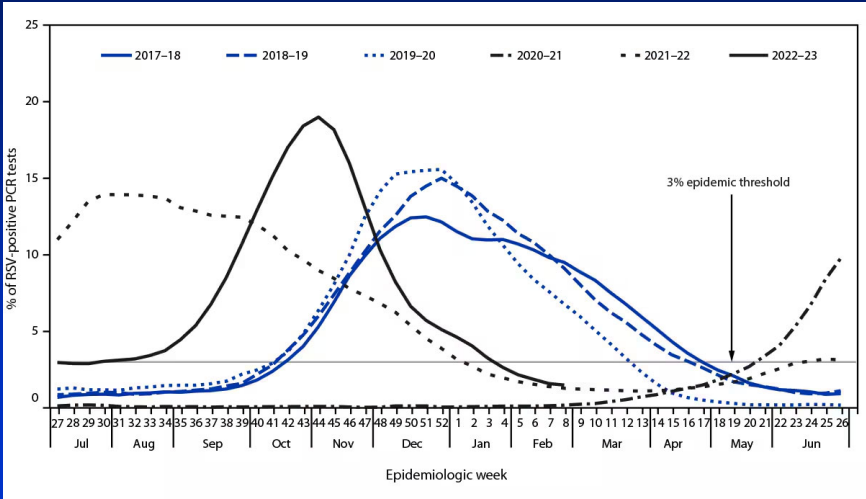
Maternal Morality Due to COVID



Thoma and Declercq 2022

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Seasonality of RSV

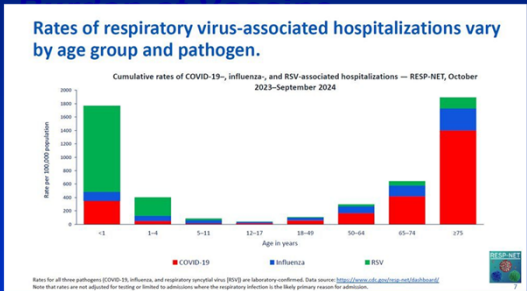


Hamid et al 2023

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Vaccine Preventable Disease in Infants

All four recommended
vaccines prevent
newborn respiratory
disease.



ACIP Meeting April 2025 – Pertussis not shown

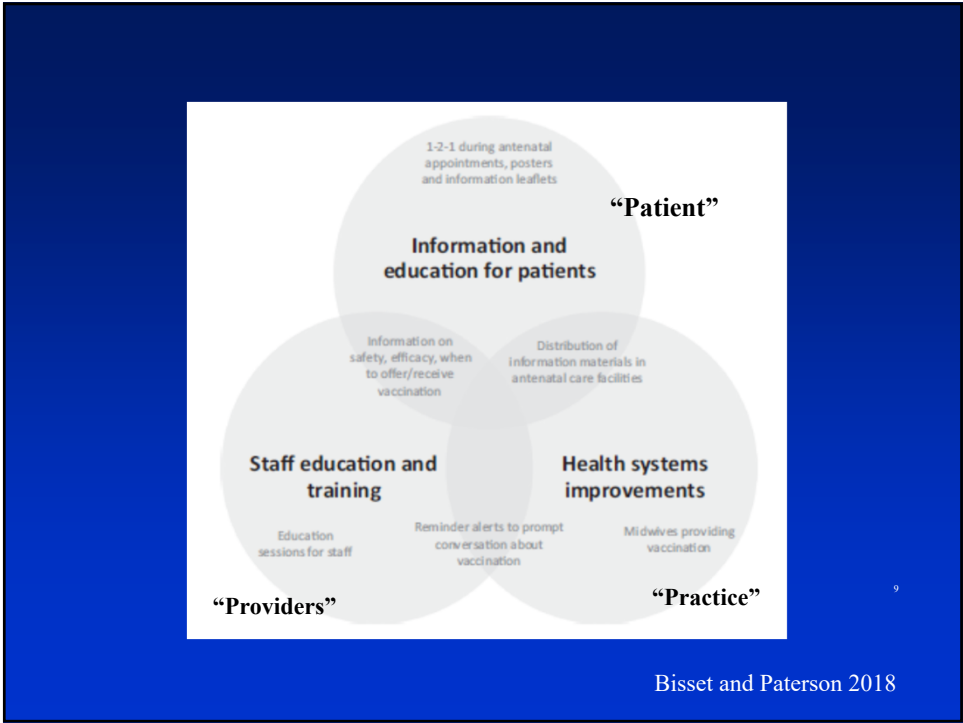
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Barriers to Maternal Immunization

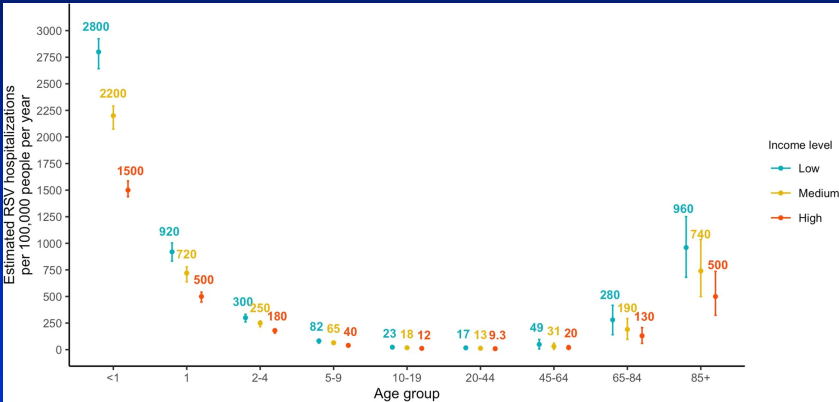
- Perception of disease severity
- Knowledge, awareness and information sources
- Vaccine safety, efficacy and trust
- Healthcare professional interactions
- Access and logistics

Razzi *et al* 2024, n = 28 studies published between 2012 and 2022

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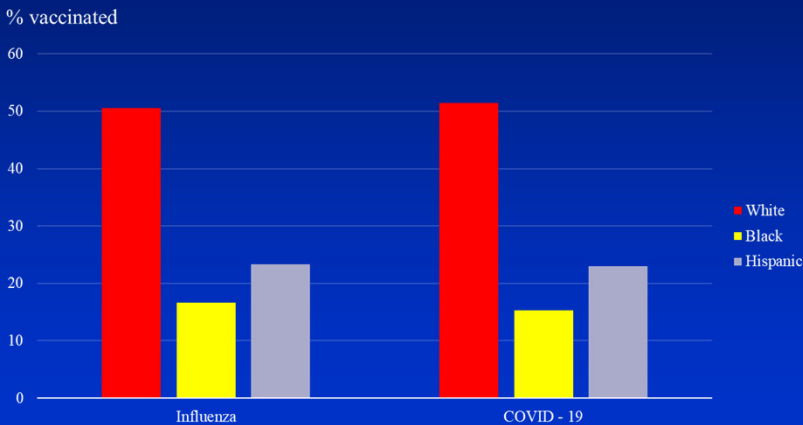


Disparities in RSV Disease



Zhang et al 2022 – NY, NJ, WA

Uptake of Recommended Maternal Vaccines - 2023



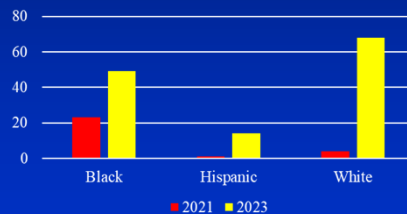
MMWR Sept 29, 2023

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Attitudes towards Maternal Immunization

- Vaccine Safety Data Link Study
- 76.8% had received at least one dose of a COVID vaccine
- "The general trends we observed among....and among racially, ethnically, and linguistically diverse groups are concerning," the authors said. "These differences, despite accruing evidence of COVID-19 vaccine safety in this high-risk group, are concerning"

Percent with 'negative response' concerning COVID vaccine safety



Williams *et al* 2024

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Multi-component Antenatal Vaccine “Package”

- Office vaccine “champions”
- Talking Points / “Tool kits”
- Brochures, posters, lapel buttons
- Videos

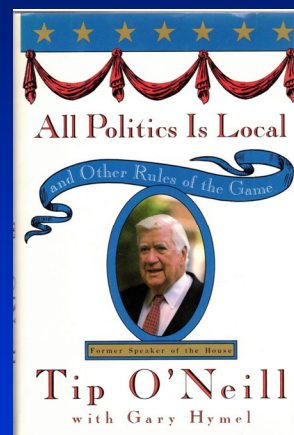
Expected outcomes include increased vaccine knowledge, trust in information from HCW and reduced safety concerns.

Chamberlain *et al* 2015, Healey *et al* 2015, Mohammed *et al* 2019 & Dudley *et al* 2022

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Conclusions

- Multiple vaccines now recommended during pregnancy
- Multiple barriers exist to recommended vaccines
- A framework of the ‘3 Ps’ will help you to tackle local barriers

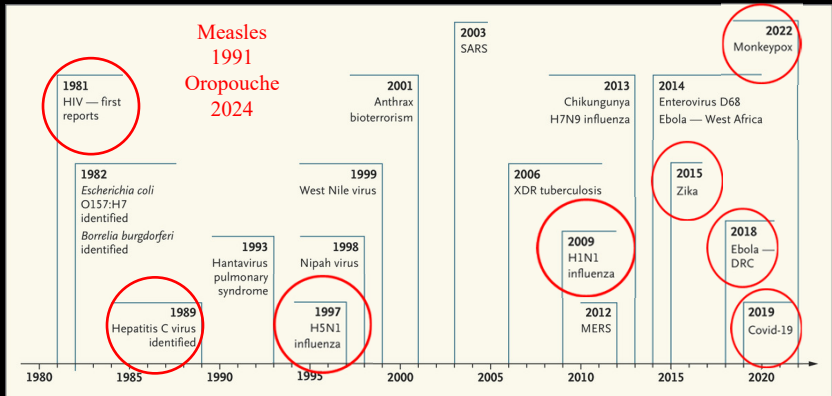


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Back up slides



Selected Landmark Events in Infectious-Disease Emergence
Leading up to and during the Author’s Four-Decade Tenure as
NIAID Director.



AS Fauci. N Engl J Med 2022;387:2009-2011. Red text and circles added for worsening outcomes associated with pregnancy or perinatal / newborn / congenital infection.

Social media, pregnancy and COVID 19

- Infertility is “go to” misinformation
- No fetal harms, safe with breast feeding
- No increased stillbirth or miscarriage risk



Golan *et al* 2021, Safrai *et al* 2021, Goldstein *et al* 2021,

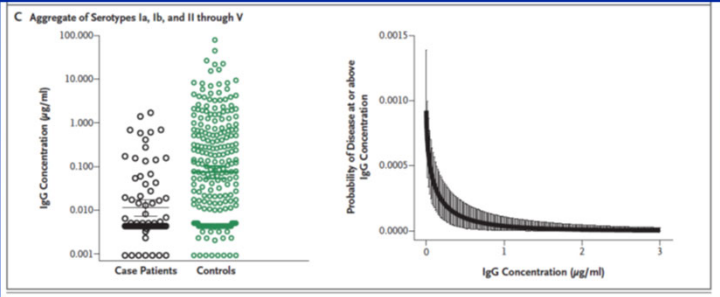
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THE NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

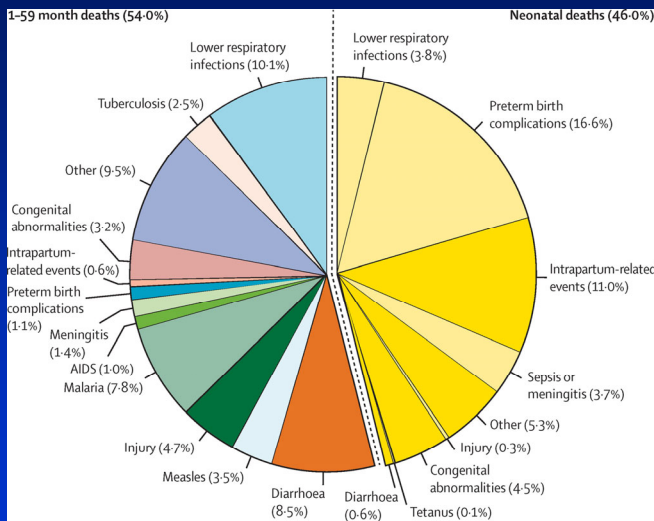
Potential for Maternally Administered Vaccine for Infant Group B Streptococcus

S.A. Madhi, A.S. Anderson, J. Absalon, D. Radley, R. Simon, B. Jonghlati, R. Strehlau, A.M. van Niekerk, A. Izu, N. Naidoo, G. Kwatra, Y. Ramsamy, M. Said, S. Jones, L. Jose, L. Fairlie, S.L. Barnabas, R. Newton, S. Munson, Z. Jefferies, D. Pavliakova, N.C. Silmon de Monerri, E. Gomme, J.L. Perez, D.A. Scott, W.C. Gruber, and K.U. Jansen



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Causes of Neonatal and Childhood Deaths

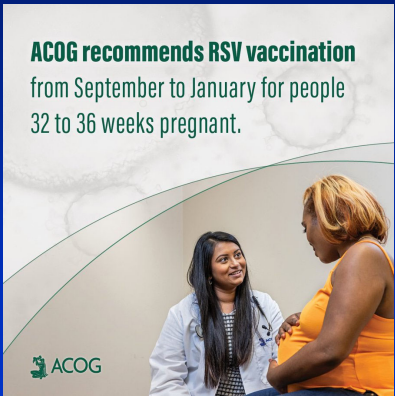


Perin *et al* 2022

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ACOG - RSV

- “ACOG unequivocally supports ACIP’s recommendation for the use of the maternal RSV vaccine in pregnancy during 32 through 36 weeks gestation using seasonal administration.”



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Uptake for 2023-24 RSV Season

- 33% of eligible pregnant women reported receiving an RSV vaccination.
- 45% reported that their infant received nirsevimab.
- 56% of infants were protected against severe RSV disease by either product
- 12 % refused

Razzaghi *et al* 2024

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