COVID-19 Briefing Webinar #22

Asegurar la Equidad: Exploring Vaccination during Pregnancy for Minority Women

Moderated by the **National Hispanic Medical Association President & CEO** Elena Rios, MD, MSPH, MACP

NHMA
National Hispanic Medical Association

VACCINATE FOR ALL
VACUNAS PARA TODOS

Wednesday, June 28 | 7:00 - 8:15 p.m. ET

Data from across sectors prove that one of the **most important factors in making a decision** to get vaccinated is **hearing from community leaders** — like you.

Join us for an insightful webinar that discusses ways to **promote maternal vaccination** against COVID-19 with a focus on increasing uptake **amongst Latinas.**

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President & CEO
National Hispanic Medical Association

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FREE CME credits for NHMA Members

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Amedco LLC designates this live activity for a maximum of 1.25 AMA PRA Category 1 CreditsTM for physicians. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

LEARNER NOTIFICATION

NATIONAL HISPANIC MEDICAL ASSOCIATION

SESSION #22: ASEGURAR LA EQUIDAD: EXPLORING VACCINATION DURING PREGNANCY FOR MINORITY WOMEN

JUNE 28, 2023

ZOOM

ACKNOWLEDGEMENT OF FINANCIAL COMMERCIAL SUPPORT

NO FINANCIAL COMMERCIAL SUPPORT WAS RECEIVED FOR THIS EDUCATIONAL ACTIVITY.

ACKNOWLEDGEMENT OF IN-KIND COMMERCIAL SUPPORT

NO IN-KIND COMMERCIAL SUPPORT WAS RECEIVED FOR THIS EDUCATIONAL ACTIVITY.

SATISFACTORY COMPLETION

LEARNERS MUST COMPLETE AN EVALUATION FORM TO RECEIVE A CERTIFICATE OF COMPLETION. YOUR CHOSEN SESSIONS MUST BE ATTENDED IN THEIR ENTIRETY. YOU MUST ATTEND THE ENTIRE WEBINAR AS PARTIAL CREDIT IS NOT AVAILABLE. IF YOU ARE SEEKING CONTINUING EDUCATION CREDIT FOR A SPECIALTY NOT LISTED BELOW, IT IS YOUR RESPONSIBILITY TO CONTACT YOUR LICENSING/CERTIFICATION BOARD TO DETERMINE COURSE ELIGIBILITY FOR YOUR LICENSING/CERTIFICATION REQUIREMENT.

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LEARNER NOTIFICATION OBJECTIVES - AFTER ATTENDING THIS PROGRAM YOU SHOULD BE ABLE TO

- INCREASE UNDERSTANDING OF THE IMPACT OF MATERNAL VACCINATION AGAINST COVID-19
- ADDRESS IMMUNIZATION DISPARITIES WITHIN THE HISPANIC POPULATION
- DISCUSS APPROACHES FOR ENHANCING MATERNAL VACCINATION

DISCLOSURE OF CONFLICT OF INTEREST THE FOLLOWING TABLE OF DISCLOSURE INFORMATION IS PROVIDED TO LEARNERS AND CONTAINS THE RELEVANT FINANCIAL RELATIONSHIPS THAT EACH INDIVIDUAL IN A POSITION TO CONTROL THE CONTENT DISCLOSED TO AMEDCO. ALL OF THESE RELATIONSHIPS WERE TREATED AS A CONFLICT OF INTEREST, LEARNER NOTIFICATION 6/13/23, 9:23 AM HTTP://WWW.AMEDCOEDU.COM/LANDING/LN.CFM PAGE 2 OF 2 AND HAVE BEEN RESOLVED. (C7 SCS 6.1-6.2, 6.5) ALL INDIVIDUALS IN A POSITION TO CONTROL THE CONTENT OF CE ARE LISTED IN THE PROGRAM BOOK. IF THEIR NAME IS NOT LISTED BELOW, THEY DISCLOSED THAT THEY HAD NO FINANCIAL RELATIONSHIPS WITH A COMMERCIAL INTEREST

NHMA INSIGHTS

National Hispanic Medical Association

- The U.S. has the highest maternal mortality rate in the developed world, and the disparity continues to grow.
- Between 2019 and 2021, the maternal mortality rate among **Hispanic women more than doubled,** rising from 12.6 maternal deaths per 100,000 live births to 27.5 maternal deaths per 100,000 live births.
- The rate of maternal deaths among black women in 2021 was **2.5 times higher than that of white women,** while the maternal mortality rate among Hispanic women more than doubled from 2019 to 2021.
- Hispanic women faced higher rates of COVID-19 infection, likely due to increased exposure as essential workers.
- Barriers to vaccination and testing, including language barriers, fear of deportation, and misinformation, disproportionately affected the Hispanic population.

WELCOME

NHMA
National Hispanic Medical Association

ELENA RIOS, MD, MSPH, MACP

PRESIDENT & CEO

NHMA

Housekeeping

- All participant microphones will be muted, but please feel free to type your question into the Q & A box for the panelists to address during our Q & A session at the end.
- Please fill out the short post-webinar survey that will be emailed out after the event and also shown as a QR code at the end – Raffle prizes are available upon completion.
- Recording will be housed on NHMAmd.org and sent out one week after the event.

VACCINATE FOR ALL
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VACCINATE FOR ALL UPDATES

Exciting News: Our webinar series is getting a rebrand! "Vaccinate for All Virtual Briefing Series"

Building upon the success of the NHMA COVID-19 Virtual Briefing Series since May 2020, this refreshed series will provide essential insights and updates on all vaccination efforts, ensuring comprehensive information for all. Stay tuned for upcoming sessions of the Vaccinate for All Virtual Briefing Series!

Introducing the V4All Champions Monthly Newsletter!

We're thrilled to announce the launch of our monthly newsletter exclusively for our V4All champions! This newsletter is designed to keep you informed, engaged, and inspired as part of our vibrant community. Don't miss out on all the fantastic opportunities and resources we have in store for you. Sign up now to become a champion!

The V4All Champions Challenge: *Featured in Our Monthly Newsletter*

Introducing the "Champions Challenge" - a monthly feature in our newsletter that allows our champions to share their incredible accomplishments and showcase their events. Join us as we celebrate the inspiring journeys of our champions and create a vibrant platform for collaboration and inspiration within our community.

HHS Bridge Access Program For COVID-19 Vaccines and Treatments

This initiative serves as a temporary bridge to the proposed permanent and comprehensive Vaccines for Adults Program outlined in the FY23 and FY24 President's Budgets. The Bridge Program will be in effect from Fall 2023 through December 2024, providing a vital interim solution to ensure access to COVID-19 vaccines and treatments for uninsured individuals during this period.

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JAMES LEE, MD, MSC

Medical Officer, Immunization Services Division
Centers for Disease Control and Preventio

Centers for Disease Control and Prevention
National Center for Immunization and Respiratory Diseases

Vaccinations for Pregnant People

How do we keep going

James T. Lee MD, MSc
slides provided by Tara C. Jatlaoui, MD, MPH & Megan C. Lindley, MPH

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Vaccines recommended during pregnancy

Recommended Adult Immunization Schedule
for ages 19 years or older

UNITED STATES
2023

How to use the adult immunization schedule

1 Determine recommended vaccinations by age **(Table 1)**

2 Assess need for additional recommended vaccinations by medical condition or other indication **(Table 2)**

3 Review vaccine types, dosing frequencies and intervals, and considerations for special situations **(Notes)**

4 Review contraindications and precautions for vaccine types **(Appendix)**

Vaccines in the Adult Immunization Schedule*

Vaccine	Abbreviation(s)	Trade name(s)
COVID-19 vaccine	1vCOV-mRNA	Comirnaty®/Pfizer-BioNTech COVID-19 Vaccine SPIKEVAX®/Moderna COVID-19 Vaccine
	2vCOV-mRNA	Pfizer-BioNTech COVID-19 Vaccine, Bivalent Moderna COVID-19 Vaccine, Bivalent
	1vCOV-aPS	Novavax COVID-19 Vaccine
Haemophilus influenzae type b vaccine	Hib	ActHIB® Hiberix® PedvaxHIB®
Hepatitis A vaccine	HepA	Havrix® Vaqta®
Hepatitis A and hepatitis B vaccine	HepA-HepB	Twinrix®
Hepatitis B vaccine	HepB	Engerix-B® Heplisav-B® PreHevbrio® Recombivax HB®
Human papillomavirus vaccine	HPV	Gardasil 9®
Influenza vaccine (inactivated)	IIV4	Many brands
Influenza vaccine (live, attenuated)	LAIV4	FluMist® Quadrivalent
Influenza vaccine (recombinant)	RIV4	Flublok® Quadrivalent
Measles, mumps, and rubella vaccine	MMR	M-M-R II® Priorix®
Meningococcal serogroups A, C, W, Y vaccine	MenACWY-D MenACWY-CRM MenACWY-TT	Menactra® Menveo® MenQuadfi®
Meningococcal serogroup B vaccine	MenB-4C MenB-FHbp	Bexsero® Trumenba®
Pneumococcal conjugate vaccine	PCV15 PCV20	Vaxneuvance™ Prevnar 20™
Pneumococcal polysaccharide vaccine	PPSV23	Pneumovax 23®
Poliovirus vaccine	IPV	IPOL®
Tetanus and diphtheria toxoids	Td	Tenivac® Tdvax™
Tetanus and diphtheria toxoids and acellular pertussis vaccine	Tdap	Adacel® Boostrix®
Varicella vaccine	VAR	Varivax®
Zoster vaccine, recombinant	RZV	Shingrix

*Administer recommended vaccines if vaccination history is incomplete or unknown. Do not restart or add doses to vaccine series if there are extended intervals between doses. The use of trade names is for identification purposes only and does not imply endorsement by the ACIP or CDC.

Recommended by the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/acip) and approved by the Centers for Disease Control and Prevention (www.cdc.gov), American College of Physicians (www.acponline.org), American Academy of Family Physicians (www.aafp.org), American College of Obstetricians and Gynecologists (www.acog.org), American College of Nurse-Midwives (www.midwife.org), American Academy of Physician Associates (www.aapa.org), American Pharmacists Association (www.pharmacist.com), and Society for Healthcare Epidemiology of America (www.shea-online.org).

Report
- Suspected cases of reportable vaccine-preventable diseases or outbreaks to the local or state health department
- Clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System at www.vaers.hhs.gov or 800-822-7967

Injury claims
All vaccines included in the adult immunization schedule except PPSV23, RZV, and COVID-19 vaccines are covered by the National Vaccine Injury Compensation Program (VICP). COVID-19 vaccines that are authorized or approved by the FDA are covered by the Countermeasures Injury Compensation Program (CICP). For more information, see www.hrsa.gov/vaccinecompensation or www.hrsa.gov/cicp.

Questions or comments
Contact www.cdc.gov/cdc-info or 800-CDC-INFO (800-232-4636), in English or Spanish, 8 a.m.–8 p.m. ET, Monday through Friday, excluding holidays.

Download the CDC Vaccine Schedules app for providers at www.cdc.gov/vaccines/schedules/hcp/schedule-app.html.

Helpful information
- Complete Advisory Committee on Immunization Practices (ACIP) recommendations: www.cdc.gov/vaccines/hcp/acip-recs/index.html
- *General Best Practice Guidelines for Immunization* (including contraindications and precautions): www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html
- Vaccine information statements: www.cdc.gov/vaccines/hcp/vis/index.html
- Manual for the Surveillance of Vaccine-Preventable Diseases (including case identification and outbreak response): www.cdc.gov/vaccines/pubs/surv-manual
- Travel vaccine recommendations: www.cdc.gov/travel
- Recommended Child and Adolescent Immunization Schedule, United States, 2023: www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html
- ACIP Shared Clinical Decision-Making Recommendations: www.cdc.gov/vaccines/acip/acip-scdm-faqs.html

Scan QR code for access to online schedule

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

CS310021-C

https://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html

ACIP Recommendations for Pregnant People

- Infants unprotected in the period prior to infant immunization (doses at 2-6 months of age)

- ACIP Recommendations for Pregnant People
  - 2005/2006: Tdap “Cocooning”
  - 2011: Preference for Tdap vaccination during pregnancy
  - 2012: 1 dose Tdap vaccine during every pregnancy

- Optimal timing: early part of 27 – 36 weeks gestation

https://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/dtap.html

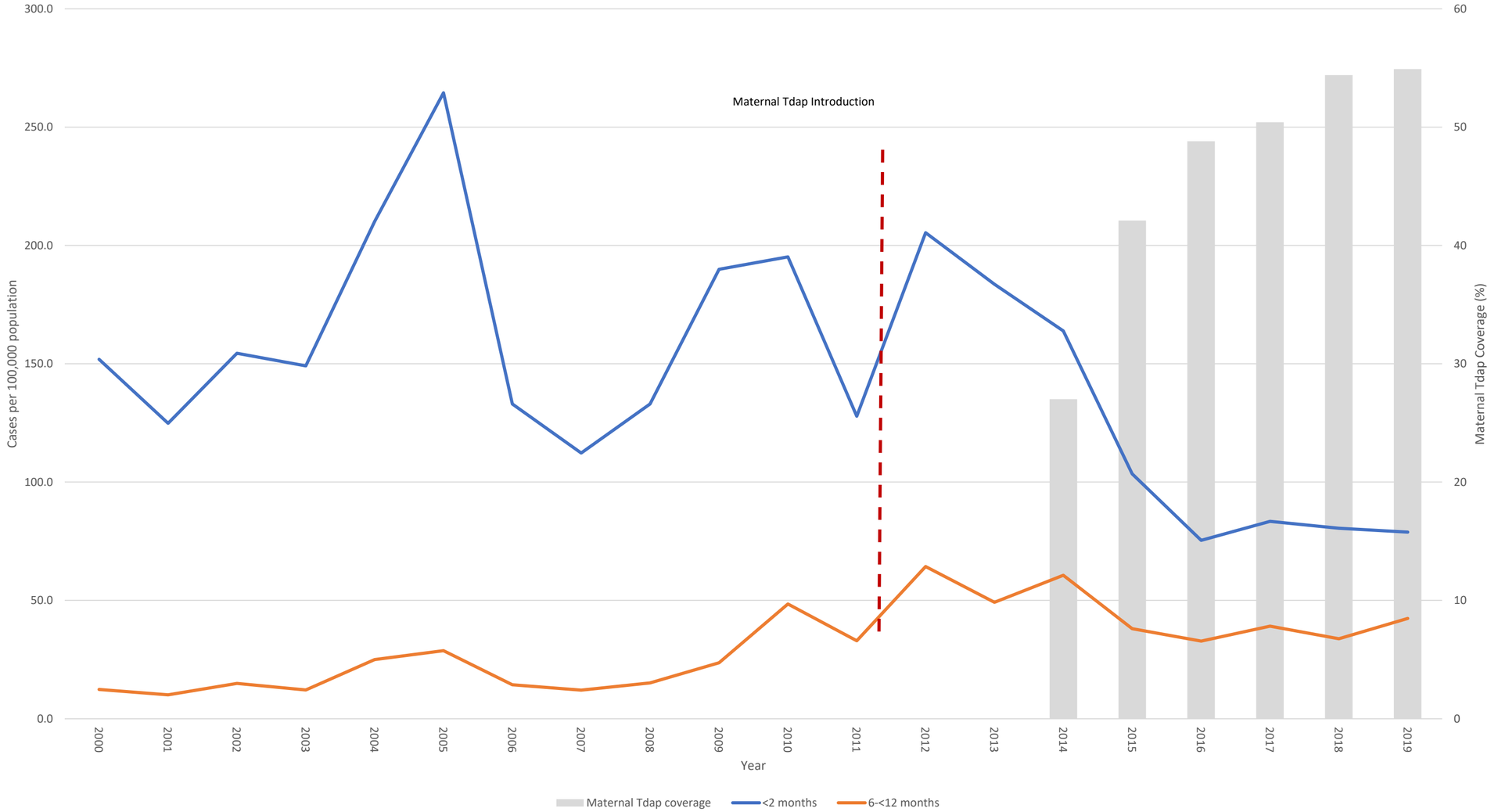
Effectiveness of Tdap Vaccines Given During Pregnancy

Tdap during third trimester of pregnancy is 78% effective in preventing pertussis in infants <2 months of age

Infants with pertussis born to vaccinated mothers less likely to be hospitalized or admitted to ICU

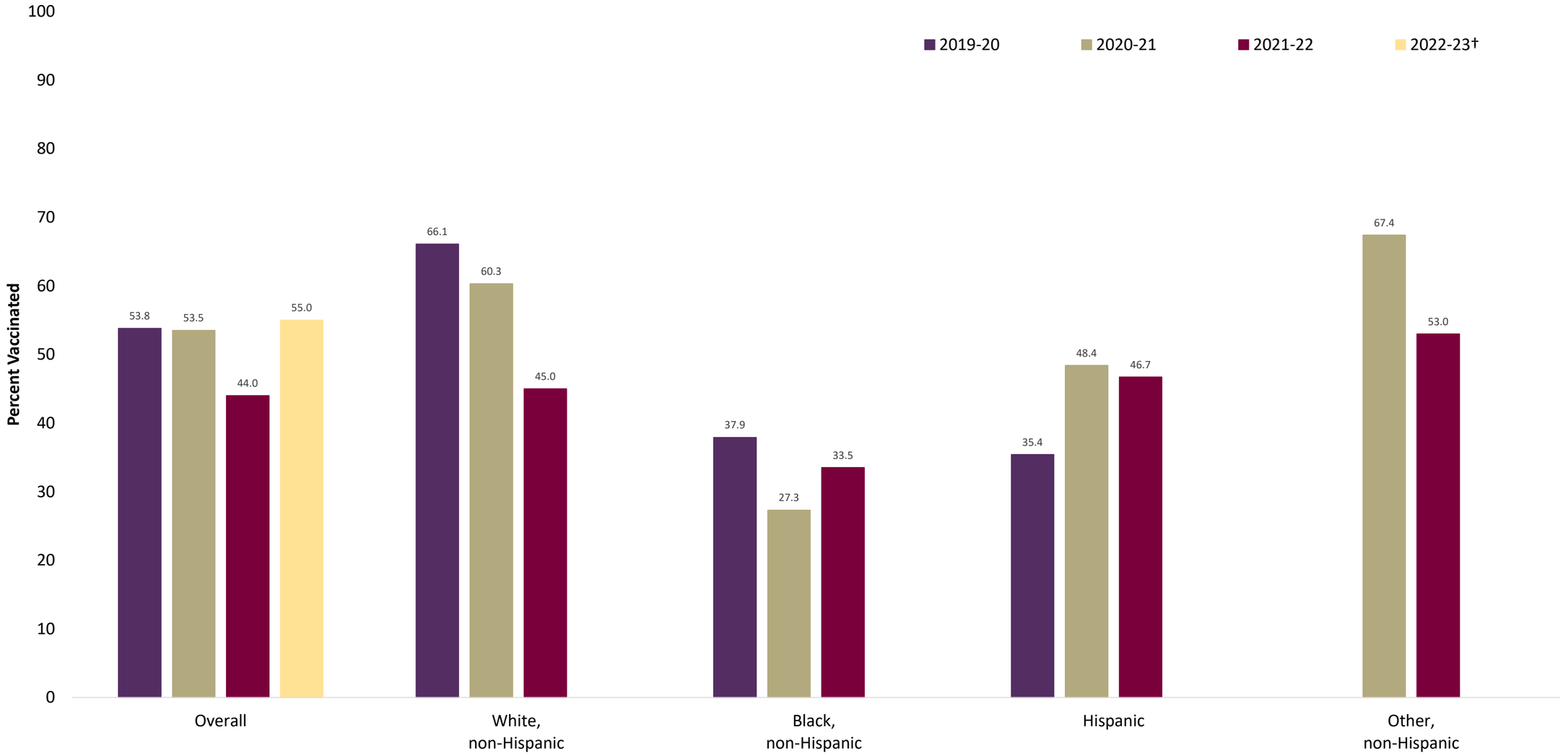
Amirthalingam G et. al, *Lancet* 2014; Dabrera G et. al. *Clin Infect Dis* 2015; Amirthalingam G et. al. *Clin Infect Dis* 2016; Baxter R, et. al. *Pediatrics* 2017; Skoff et. al. *Clin Infect Dis* 2017; Winter K et. al. *Clin Infect Dis* 2017; Saul N et. al. *Vaccine* 2018; Vygen-Bonnet S. et. al. *BMC Infec Dis* 2020

Impact of Tdap vaccination during pregnancy on nationally reported infant pertussis cases in the U.S.



Skoff TH, et. al. US Infant Pertussis Incidence Trends Before and After Implementation of the Maternal Tetanus, Diphtheria, and Pertussis Vaccine. JAMA Pediatr. 2023 Apr 1;177(4):395-400.

Tdap vaccination coverage* among pregnant women by race and ethnicity, 2019-20 through 2022-23† influenza seasons



Flu, Tdap, and COVID-19 Vaccination Coverage Among Pregnant Women – United States, April 2022 | FluVaxView | Seasonal Influenza (Flu) | CDC *Women who reported a pregnancy since August 1 of each season who had a live birth by the time of the survey and were vaccinated during most recent pregnancy were counted as vaccinated. †The estimate for 2022-23 season is **preliminary**. Estimates by race and ethnicity for the 2022-23 flu season are not shown.

ACIP Recommendations for Pregnant People

- Infants unprotected in the period prior to infant immunization (first dose at 6 months of age)

- ACIP Recommendations for Pregnant People
  - 1997: Single dose of vaccine recommended for healthy women in 2nd/3rd trimester during flu season and pregnant women with chronic conditions
  - 2004: Added pregnant women in first trimester to recommendations
  - 2010: Universal influenza vaccination recommendation

- Vaccination can be given during any trimester

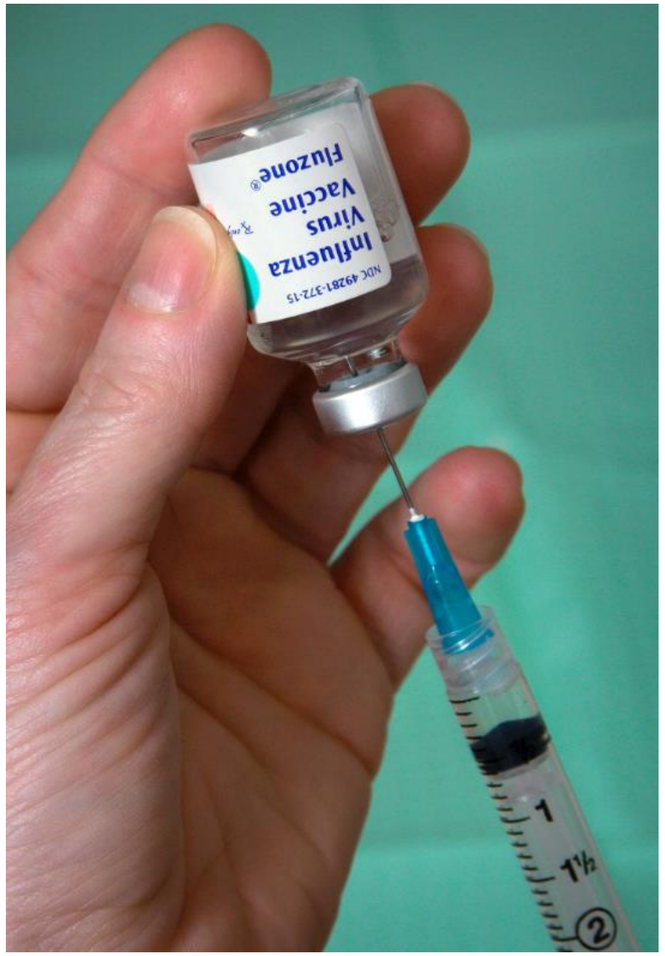
https://www.cdc.gov/flu/professionals/acip/summary/summary-recommendations.htm

Effectiveness of Influenza Vaccines Given During Pregnancy

Reduces risk of influenza in pregnant women by about 50%, and is 40% effective against influenza-associated hospitalization during pregnancy

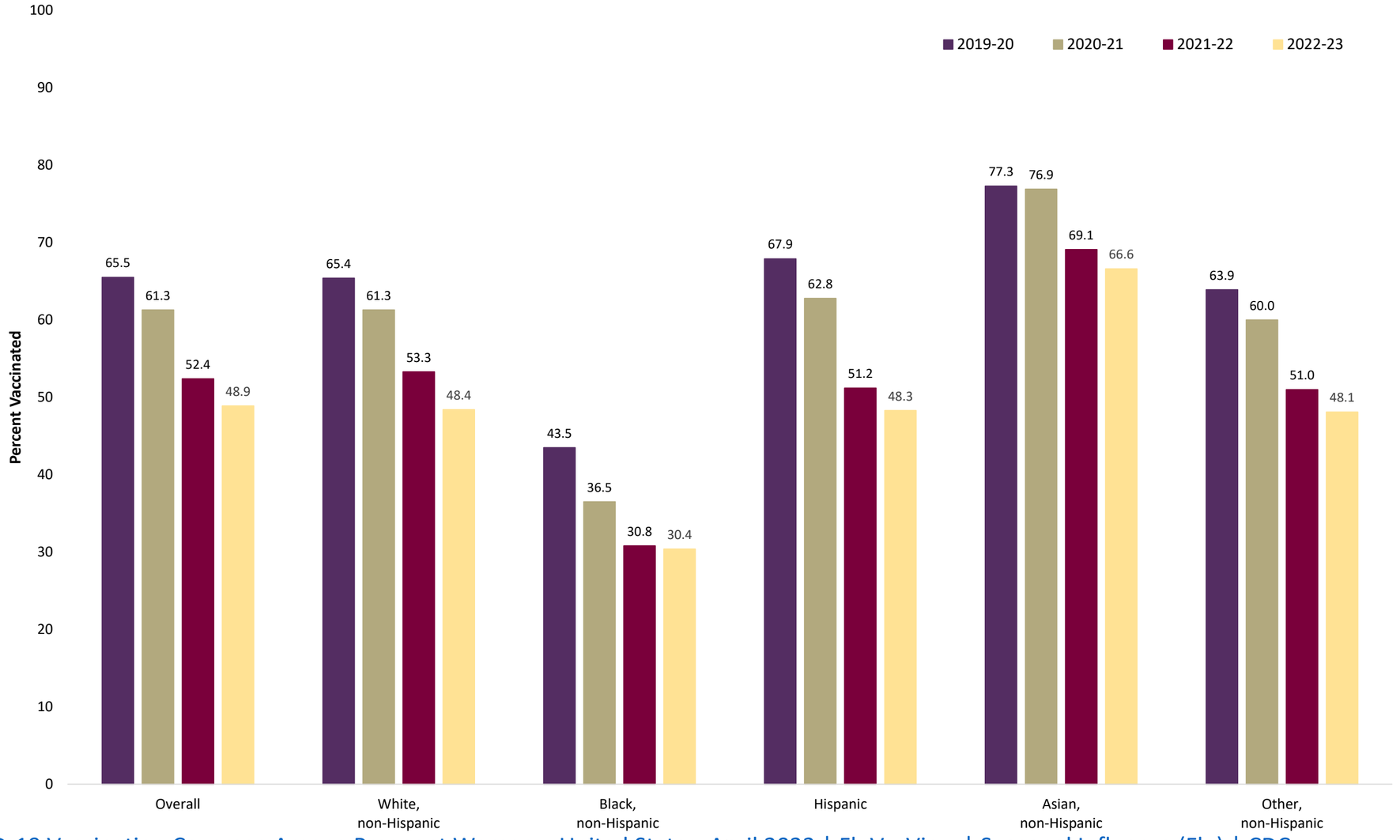
Reduces antibiotic use, medical visits, loss of work days

Reduces risk of laboratory-confirmed influenza and influenza hospitalization among infants during the first several months of life



Thompson MG, Kwong JC, Regan AK, et al. *Clin Infect Dis.* 2019;68(9):1444-1453.
Steinhoff M, Katz J, Englund JA, et al. *Lancet Infect Dis* 2017;17(9):981-9.
Tapia MD, Sow SO, Tamboura B, et al. *Lancet Infect Dis* 2016;16: 1026–35.3.
Nunes et al. *Human Vaccines & Immunotherapeutics* 2018; 14(3);758-66.

Cumulative influenza vaccination coverage by season and race and ethnicity, VSD, 2019-20 through 2022-23



Flu, Tdap, and COVID-19 Vaccination Coverage Among Pregnant Women – United States, April 2022 | FluVaxView | Seasonal Influenza (Flu) | CDC

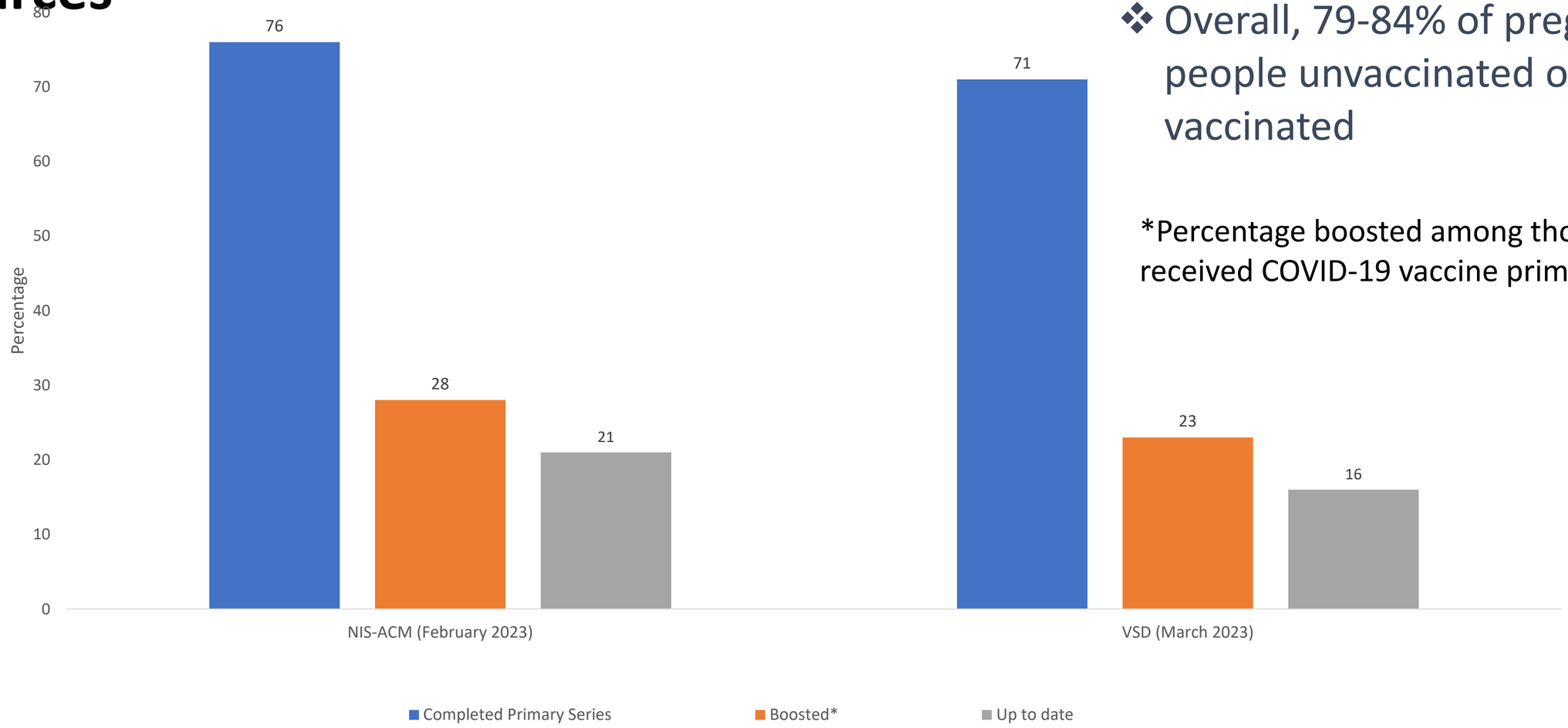
Influenza Vaccination Coverage Among Pregnant Persons, United States (cdc.gov)

ACIP Recommendations for COVID-19 vaccines

- Monovalent formulations of the mRNA vaccines should no longer be used for COVID-19 vaccination.
- All currently available mRNA COVID-19 vaccines in the US are formulated as bivalent vaccine.
- None of the currently FDA-authorized COVID-19 vaccines are live-virus vaccines.
- COVID-19 vaccination is recommended for everyone ages 6 months and older.
- CDC recommends that people stay up to date with COVID-19 vaccination.

https://www.cdc.gov/coronavirus/2019-ncov/vaccines/stay-up-to-date.html
https://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/covid-19.html

Percentage of pregnant people who have received a COVID-19 primary vaccine series and bivalent booster* from two data sources



- Overall, 79-84% of pregnant people unvaccinated or under-vaccinated

*Percentage boosted among those who received COVID-19 vaccine primary series

NIS-ACM: National Immunization Survey-Adult COVID-19 Module. https://www.cdc.gov/vaccines/imz-managers/coverage/covidvaxview/interactive/adults.html. Accessed 3/27/2023

VSD: Vaccine Safety Datalink. https://covid.cdc.gov/covid-data-tracker/#vaccinations-pregnant-women. Accessed 3/27/2023

Maternal Vaccination Implementation

Childhood Vaccine Confidence Starts In Pregnancy

Original Research

Association Between Influenza Vaccination During Pregnancy and Infant Influenza Vaccination

Fangjun Zhou, PhD, Megan C. Lindley, MPH, James T. Lee, MD, MSC, and Tara C. Jatlaoui, MD, MPH

OBJECTIVE: To examine the association between influenza vaccination during pregnancy and infant influenza vaccination.

METHODS: We conducted a retrospective analysis of individuals aged 15–49 years who were continually privately insured from August 2017 to May 2019 and had singleton live births between September 2017 and February 2018 and their infants. Influenza vaccination coverage was assessed for pregnant people during the 2017–2018 influenza season and for their infants during the 2018–2019 season using the 2017–2019 MarketScan data. Multivariate log-binomial regressions were conducted to examine the association between influenza vaccination during pregnancy and infant influenza vaccination.

RESULTS: Of the 34,919 pregnant people in this analysis, 14,168 (40.6%) received influenza vaccination during pregnancy. Of the infants born to people vaccinated during pregnancy, 90.0% received at least one dose of influenza vaccine during the 2018–2019 season and 75.5% received at least two doses. Of the infants born to those not vaccinated during pregnancy, 66.3% received at least one dose of influenza vaccine and 51.8% received at least least-two-dose coverage was 45.8% higher (aRR 1.43, 95% CI 1.41-1.46) for infants born to people who received influenza vaccination during pregnancy compared with infants born to people who did not.

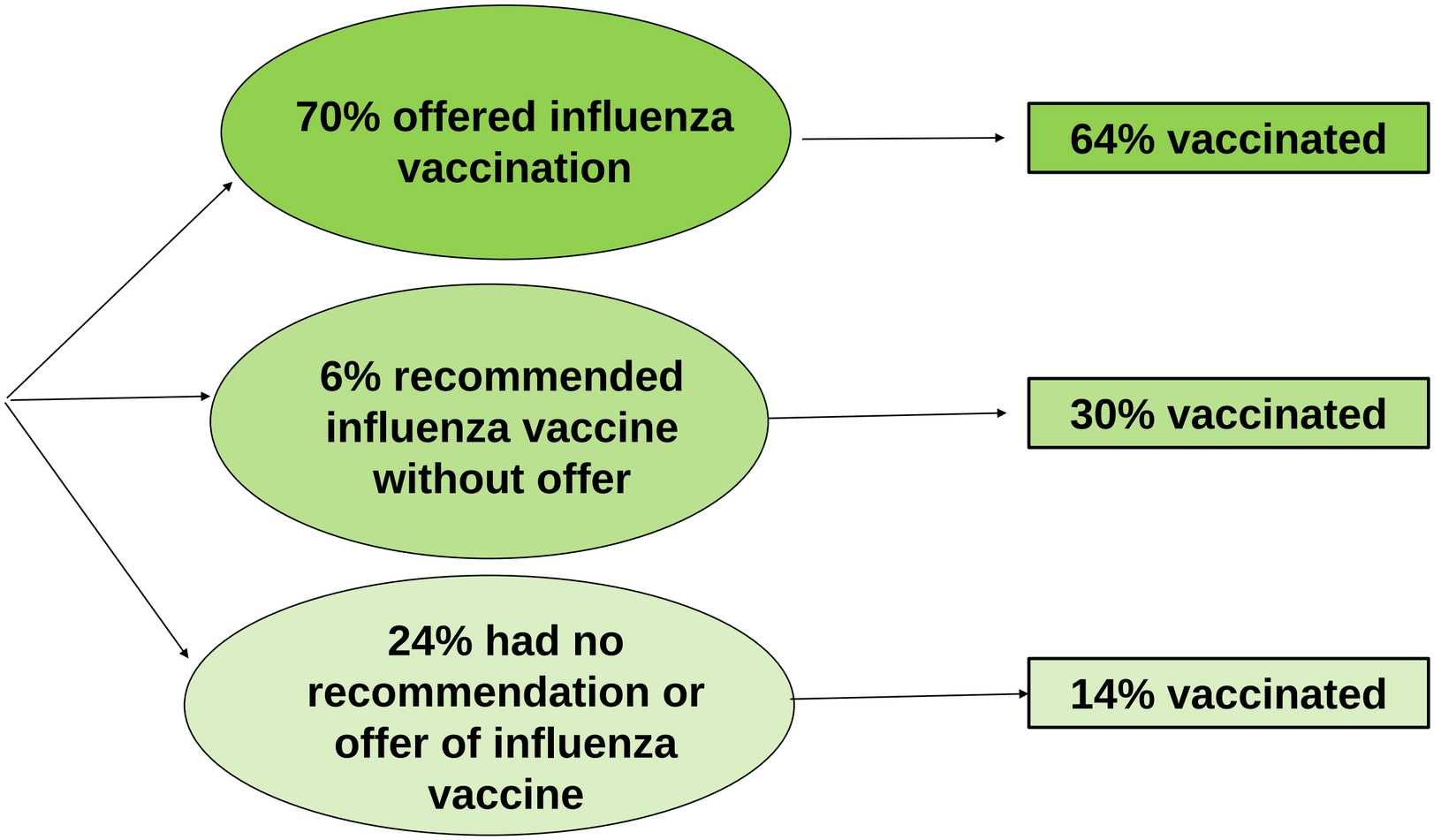
CONCLUSION: Our results show a positive and statistically significant relationship between influenza vaccination during pregnancy and infant influenza vaccination status in their first season eligible for vaccination. Interventions to increase influenza vaccination coverage among pregnant people may also increase infant influenza vaccination coverage, offering greater protection against serious complications of influenza in both vulnerable populations.

(Obstet Gynecol 2023;141:563–9)
DOI: 10.1097/AOG.0000000000005101

Influenza vaccination is safe and effective in protecting pregnant persons and their infants against influenza. Pregnant people are at increased risk of hospitalization when infected with influenza.[1] During the 2009 H1N1 influenza pandemic, pregnant people with influenza had notably increased risk for adverse

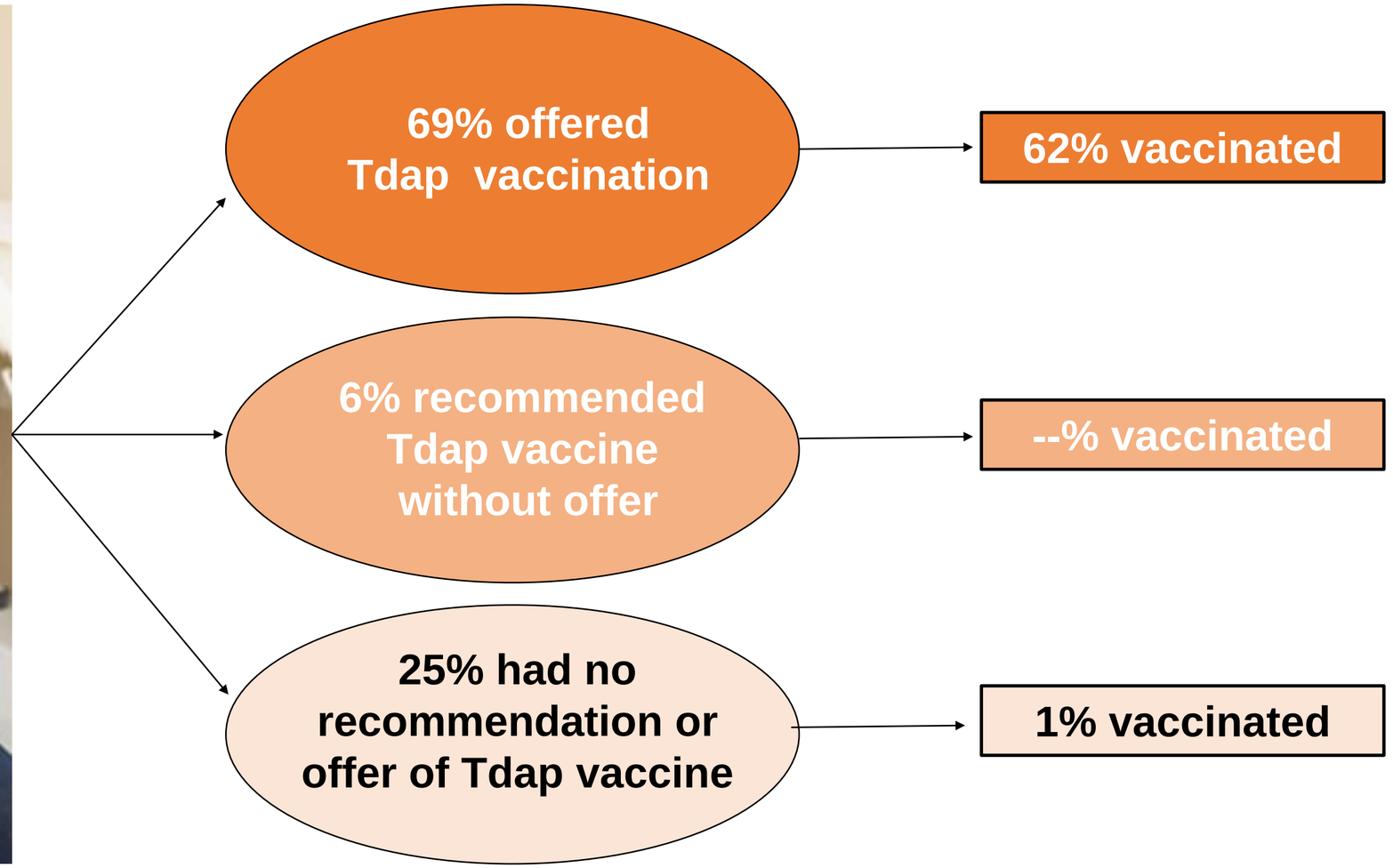
https://pubmed.ncbi.nlm.nih.gov/36728080/

Influenza vaccination in pregnant women by provider offer or recommendation for vaccine, United States, 2021-2022



https://www.cdc.gov/flu/fluvaxview/pregnant-women-apr2022.htm

Tdap Vaccination in Pregnant Women by Provider Offer or Recommendation for Vaccine, United States, 2021-2022



https://www.cdc.gov/flu/fluvaxview/pregnant-women-apr2022.htm

Making a Strong Recommendation for Influenza Vaccine

SHARE the reasons why an influenza vaccine is right for the patient given his or her age, health status, lifestyle, occupation, or other risk factors.

HIGHLIGHT positive experiences with influenza vaccines (personal or in your practice), as appropriate, to reinforce the benefits and strengthen confidence in influenza vaccination.

ADDRESS patient questions and any concerns about influenza vaccines, including side effects, safety, and vaccine effectiveness in plain and understandable language. Acknowledge that while people who get an influenza vaccine may still get sick, there are studies that show that illness may be less severe.

REMIND patients that influenza vaccines help protect them and their loved ones from serious influenza illness and complications that can result in hospitalization or even death for some people.

EXPLAIN the potential costs of getting influenza, including potential serious health effects for the patient, time lost (such as missing work or family obligations), financial costs, and potentially spreading influenza to more vulnerable family or friends.

https://www.cdc.gov/flu/professionals/vaccination/flu-vaccine-recommendation.htm

Vaccine Safety

Safety of maternal pertussis vaccination during pregnancy

- Safety data collected in the United States continue to be reassuring
  - No increased risk of adverse events among women or infants
  - No concerning patterns in maternal, fetal or infant outcomes
- Safety monitoring is ongoing
  - Vaccine Adverse Event Reporting System (VAERS)
  - Vaccine Safety Datalink (VSD)
  - Clinical Immunization Safety Assessment Project (CISA)

Safety of Influenza Vaccination during Pregnancy

- 11 studies published between 1964 and 2008 about safety of seasonal influenza vaccination during pregnancy (Tamma et al., 2009)
  - None identified maternal or fetal problems with influenza vaccination

- Several studies during and since 2009 influenza pandemic have evaluated seasonal and pH1N1 vaccines (Moro et al., 2011a; Moro et al., 2011b; Moro et al., 2013; Chambers et al., 2013; Louik et al., 2013; Nordin et al., 2014; Naleway et al, 2014)
  - None showed evidence of harm, although two studies showed an association with preterm birth with pH1N1-containing vaccines (<3 days decrease in gestational age) (Chambers et al., 2013; Louik et al., 2013)

Safety of Influenza Vaccination during Pregnancy

- Systematic review of 19 observational studies that evaluated fetal outcomes (fetal death, spontaneous abortion, congenital malformations) (McMillan M. et al., Vaccine 2015 Apr 27;33(18):2108-17)
  - 5 studies of seasonal influenza vaccine; 14 of A/H1N1pdm09 vaccine
  - No observed association between influenza vaccination and adverse outcomes
  - Women vaccinated in the first trimester under-represented

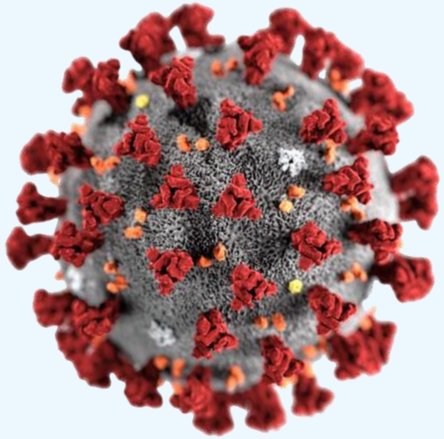
NHMA
National Hispanic Medical Association

ASHANDA SAINT JEAN, MD, FACOG

Chair, Obstetrics and Gynecology
Westchester Medical Center, a member of WMCHealth

DISCLOSURES

- None
- I have no conflicts of interest



COVID-19

THE VIRUS THAT CAUSES COVID 19 HAS BEEN **DESIGNATED** AS A SEVERE ACUTE RESPIRATORY SYNDROME

DISEASE SEVERITY MAY CONSIST OF:

- Mild symptoms: Fever, Malaise, Cough, Upper respiratory symptoms
  - Does not require hospitalization
- Severe symptoms: Dyspnea, Hypoxemia (O2 Sat <94% on RA) or need for oxygenation or ventilator support
  - DOES REQUIRE HOSPITALIZATION

COVID 19 AND PREGNANCY

- Pregnant and recently pregnant patients with COVID 19 are at INCREASED risk of severe illness than their non-pregnant peers
- Increased risk of severe illness includes:

HOSPITALIZATION

ICU ADMISSION

DEATH

MECHANICAL VENTILATION

VENTILATOR SUPPORT (ECMO)

CLINICAL MANIFESTATIONS, RISK FACTORS & MATERNAL AND PERINATAL OUTCOMES: LIVING SYSTEMATIC REVIEW AND META-ANALYSIS (DEC 2019-JUNE 2020)

77 STUDIES INCLUDING 13,118 PREGNANT WOMEN AND 83,486 NONPREGNANT WOMEN

Maternal co-morbidities: risk factors for ICU admission and invasive ventilation

RISK FACTORS FOR COVID:

- ADVANCED MATERNAL AGE
- HIGHER BMI
- CHRONIC HYPERTENSION
- PREEXISTING DIABETES

MATERNAL OUTCOMES:

- ALL CAUSE MORTALITY (.006)
- ICU ADMISSION (.03)
- INVASIVE VENTILATION (.01)

FETAL/NEONATAL OUTCOMES:

- PRETERM BIRTH
- STILLBIRTH
- CESAREAN DELIVERY
- NICU ADMISSION

Allotey et al. BMJ 2020 370: m3320

COVID-19 INFECTION DURING PREGNANCY: OVERVIEW

PREGNANT AND RECENTLY PREGNANT PATIENTS WITH COVID-19 ARE AT INCREASED RISK OF MORE SEVERE ILLNESS COMPARED WITH NONPREGNANT PEERS

AVAILABLE DATA INDICATE AN INCREASED RISK OF:

- ICU admission,
- Mechanical ventilation and ventilatory support (ECMO), and
- Death

BLACK AND HISPANIC INDIVIDUALS WHO ARE PREGNANT APPEAR TO HAVE DISPROPORTIONATE SARS COV-2 INFECTION AND DEATH RATES

CDC INCLUDES PREGNANT AND RECENTLY PREGNANT INDIVIDUALS IN ITS “INCREASED RISK” CATEGORY FOR SEVERE COVID-19 ILLNESS

COVID 19 AND PREGNANCY

- CLINICAL MANIFESTATIONS, RISK FACTORS & MATERNAL AND PERINATAL OUTCOMES: LIVING SYSTEMIC REVIEW AND META-ANALYSIS (DEC 2019 – JUNE 2020)

- 77 STUDIES REVIEWED
- INCLUDED 13,118 PREGNANT WOMEN
- 83,486 NON-PREGNANT WOMEN

Allotey et al. BMJ 2020 370:m3320

RISK FACTORS FOR COVID

- Advanced Maternal Age
- Higher BMI
- Chronic HTN
- Preexisting Diabetes

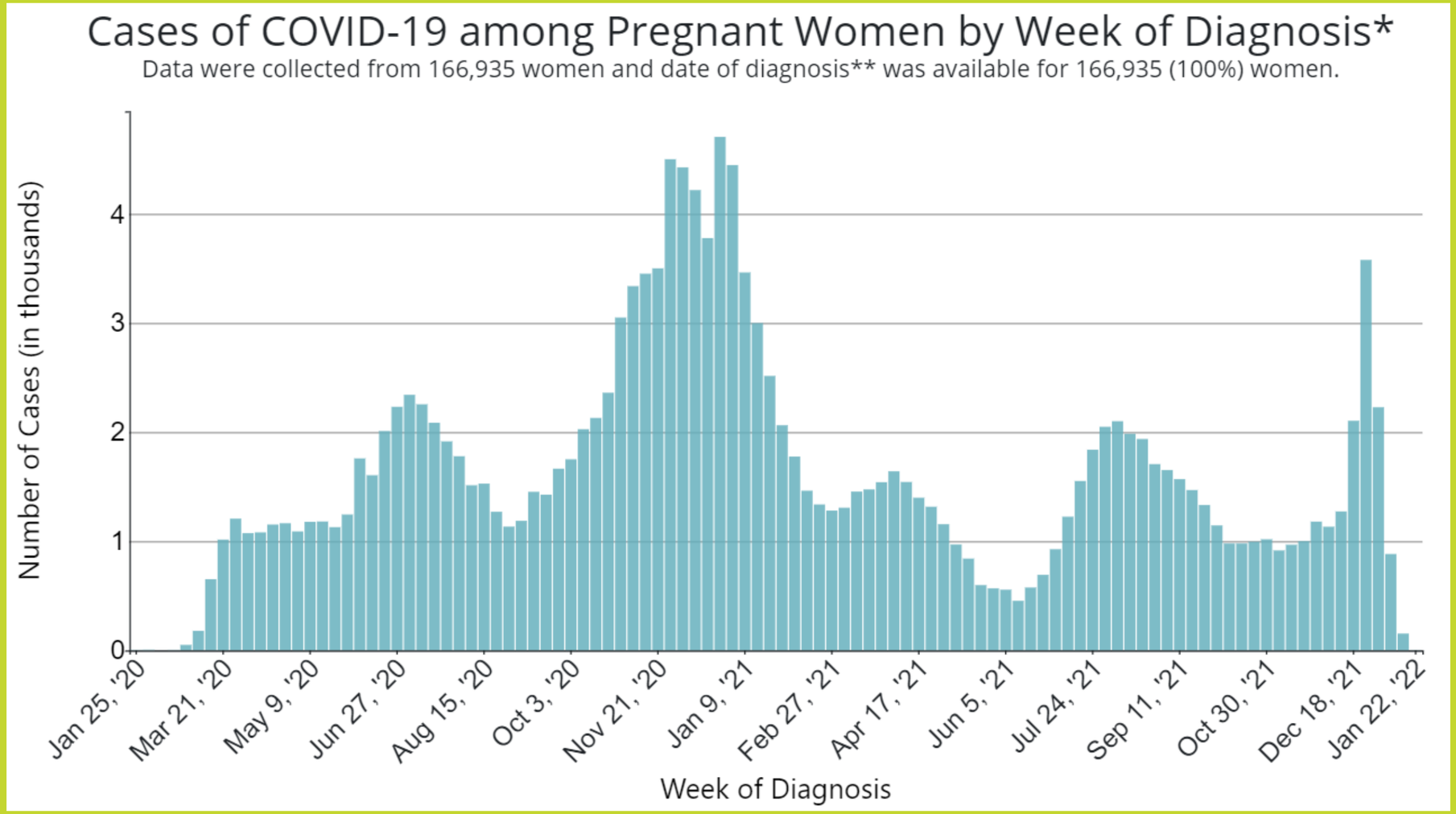
MATERNAL OUTCOMES

- All Cause Mortality (.006)
- ICU Admission (.03)
- Invasive Ventilation (.01)

FETAL/NEONATAL OUTCOMES

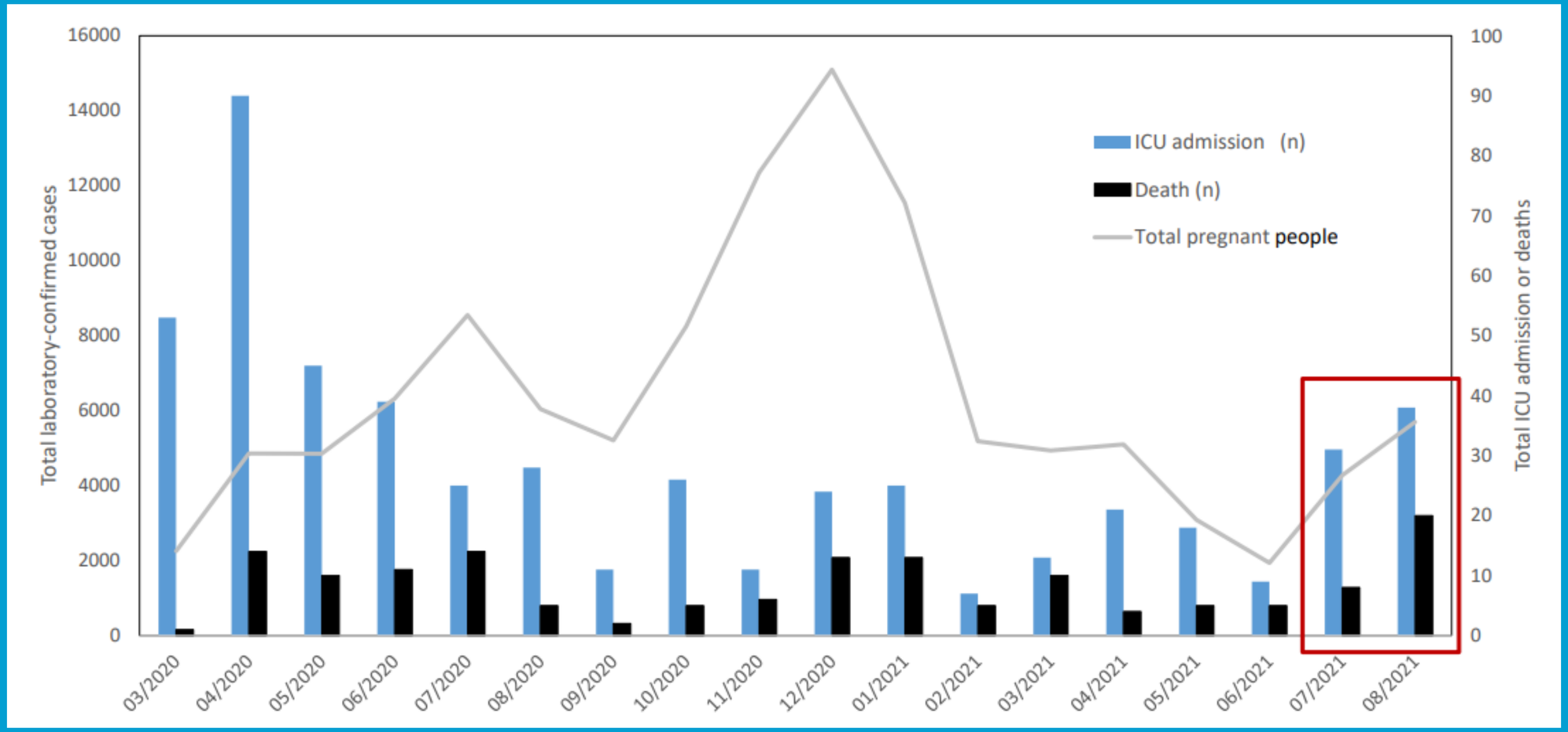
- Preterm Birth
- Stillbirth
- Cesarean Delivery
- NICU Admission

CASES OF COVID-19 AMONG PREGNANT WOMEN BY WEEK OF DIAGNOSIS*



https://covid.cdc.gov/covid-data-tracker/#pregnant-population

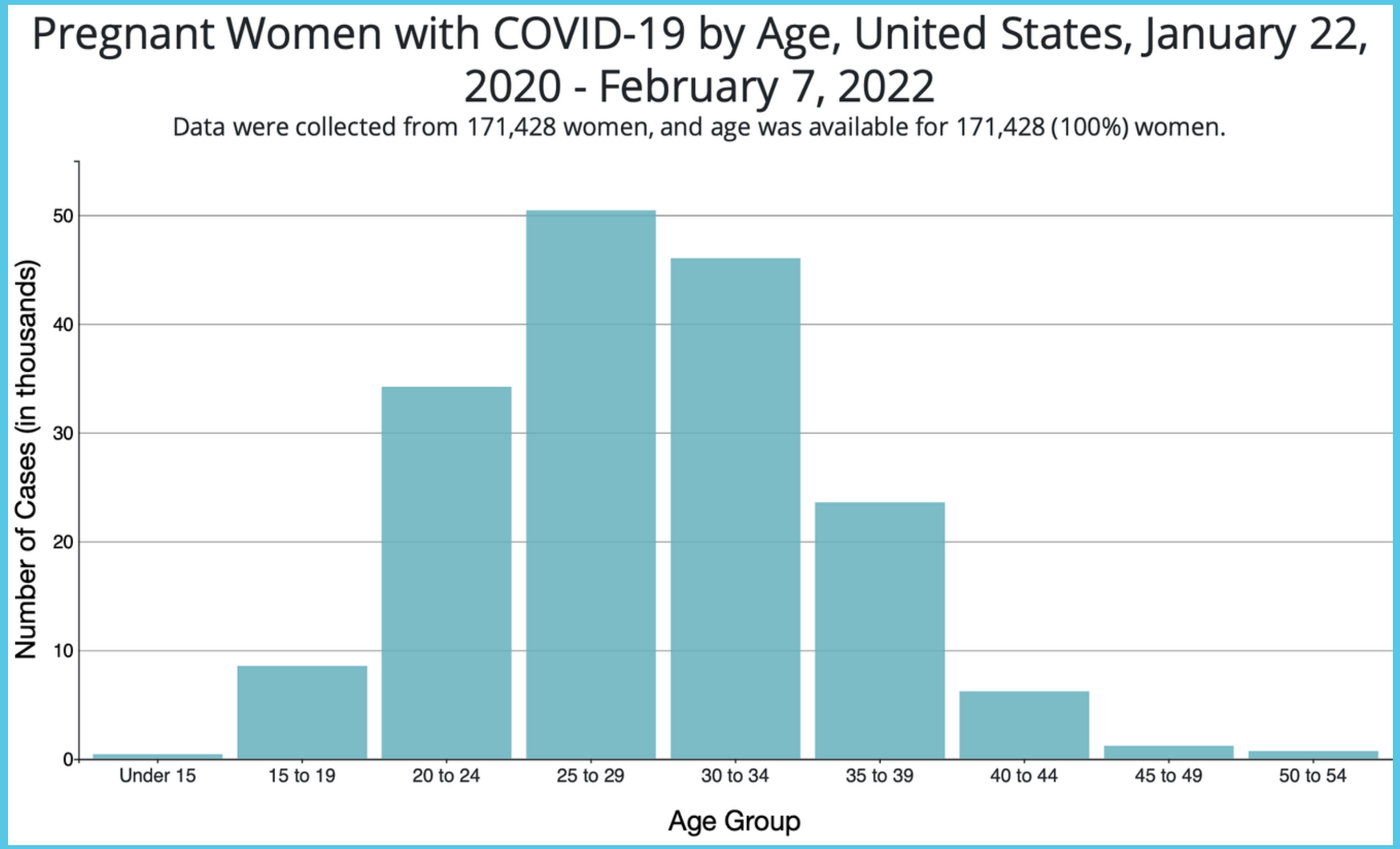
COVID INFECTION IN PREGNANCY: ICU ADMISSIONS & DEATHS



TOTAL CASES 123,633
HOSPITALIZED 21,823
TOTAL DEATHS 159

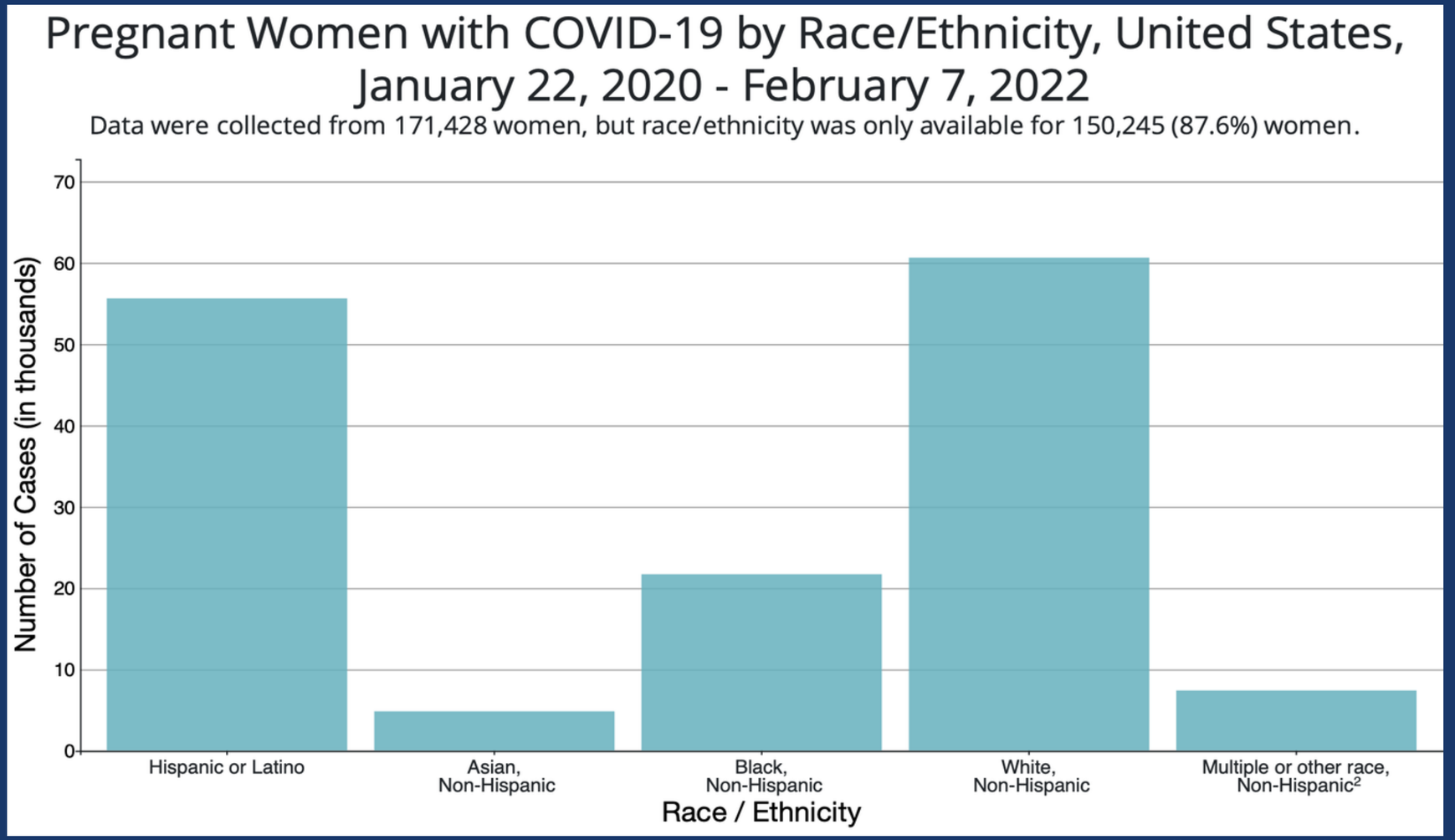
National COVID-19 Case Surveillance Data; Jan 22, 2020 – Sep 13, 2021

COVID IN PREGNANCY



https://covid.cdc.gov/covid-data-tracker/#pregnant-population

COVID IN PREGNANCY



https://covid.cdc.gov/covid-data-tracker/#pregnant-population

FETAL & NEONATAL OUTCOMES

Vertical transmission of SARS-CoV-2 may occur, but appears to be uncommon

Pregnant people with COVID-19 are at increased risk for preterm birth

Some data suggest an increased risk for other adverse pregnancy complications and outcomes, such as:
- Preeclampsia,
- Coagulopathy, and
- Stillbirth

Data now indicate that neonates born to people with COVID-19 are also at increased risk for admission to the neonatal intensive care unit

FETAL AND NEONATAL OUTCOMES

- LATEST STUDY PUBLISHED IN JAMA REVEALED PREGNANT PATIENTS VACCINATED OR WITH NATURAL COVID INFECTION DURING PREGNANCY

NEWBORNS MAY HAVE COVID 19 ANTIBODIES FOR UP TO 6 MONTHS OF LIFE

Shook LL, Atyeo CG, Yonker LM, et al. Durability of Anti-Spike Antibodies in Infants After Maternal COVID-19 Vaccination or Natural Infection. JAMA. Published online February 07, 2022. doi:10.1001/jama.2022.1206

TIMELINE OF ACOG COVID-19 VACCINE RECOMMENDATIONS

DEC. 2020

Pfizer-BioNtech COVID-19 vaccine recommended
Pregnant people excluded from clinical trials
Only animal model data in pregnancy – no safety signals indicated

DEC. 13, 2020

ACOG recommends pregnant people have access to COVID-19 vaccines
ACOG recommends risk-benefit conversation with a clinician

DEC. 21, 2020

Moderna COVID-19 vaccine recommended
ACOG Practice Advisory revised – to recommend access to both mRNA vaccines

JAN. 2021

ACOG receives reports of pregnant people being denied access to COVID-19 vaccines
ACOG develops Eight Key Recommendations for COVID-19 Vaccination Sites

TIMELINE OF ACOG COVID-19 VACCINE RECOMMENDATIONS

JAN. 2021

CDC begins reporting numbers of people enrolled in v-safe after vaccine health checker who identify as pregnant (15,000 first reported)

FEB. 3, 2021

ACOG leads statement: Maternal Immunization Task Force and Partners Urge That COVID-19 Vaccine be Available to Pregnant Individuals

FEB. 28, 2021

ACIP votes to recommend the use of J&J/Janssen COVID-19 vaccine
ACOG guidance updated to reflect availability of J&J/Janssen

MAR 1. 2021

First safety data from the v-safe pregnancy registry reported at ACIP
Reactogenicity profile and adverse events **did not** indicate any safety concerns

How a new vaccine is developed, approved and manufactured

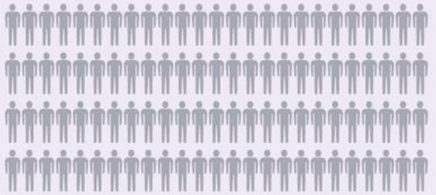
The Food and Drug Administration (FDA) sets rules for the three phases of clinical trials to ensure the safety of the volunteers. Researchers test vaccines with adults first.

PHASE 1

20-100 healthy volunteers

- Is this vaccine safe?
- Does this vaccine seem to work?
- Are there any serious side effects?
- How is the size of the dose related to side effects?

PHASE 2



several hundred volunteers

- What are the most common short-term side effects?
- How are the volunteers' immune systems responding to the vaccine?

PHASE 3

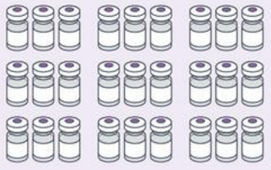
hundreds or thousands of volunteers

- How do people who get the vaccine and people who do not get the vaccine compare?
- Is the vaccine safe?
- Is the vaccine effective?
- What are the most common side effects?

FDA licenses the vaccine only if:

- **It's safe and effective**
- **Benefits outweigh risks**

Vaccines are made in batches called lots.



Manufacturers must test all lots to make sure they are safe, pure and potent. The lots can only be released once FDA reviews their safety and quality.

The FDA inspects manufacturing facilities regularly to ensure quality and safety.

FOR MORE INFORMATION, VISIT HTTPS://WWW.FDA.GOV/CBER

HOW THE COVID-19 VACCINES WORK

The genetic material instructs your body to make a protein that is part of the virus that causes COVID-19

The protein tricks your immune system into thinking it sees the COVID-19 virus

Your Immune system makes antibodies and other defenses

If a person is later exposed to the actual COVID-19 virus, the body is now able to recognize the virus and make antibodies to fight it

MRNA VACCINES

- Consist of messenger RNA (mRNA) encapsulated by a lipid nanoparticle (LNP) for delivery into the host cells
- Utilize the body's own cells to generate the coronavirus spike protein, that stimulates immune cells to create antibodies against COVID-19

NOT A LIVE VIRUS VACCINE

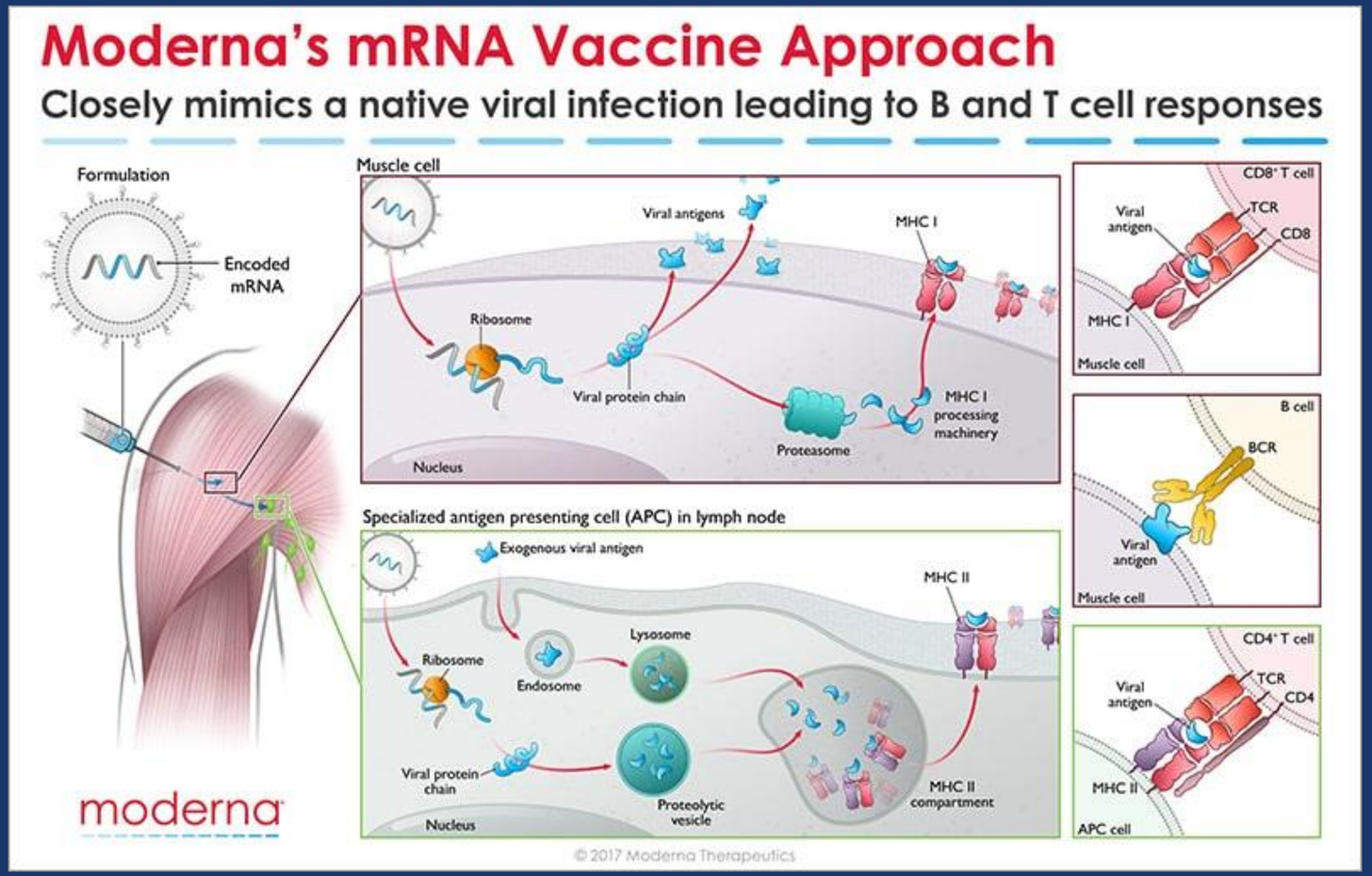
NO ADJUVANT

DOES NOT ENTER THE NUCLEUS

DOES NOT ALTER HUMAN DNA

DOES NOT CAUSE ANY GENETIC CHANGES

MRNA VACCINES



COVID-19 VACCINE EFFICACY

All current available COVID-19 vaccines have demonstrated high efficacy

Evidence suggest fully vaccinated people are LESS likely to have asym infection or transmit infection to others

Those with up to date vaccination are less likely to experience severe illness and serious adverse outcomes

COVID-19 VACCINES ARE EFFECTIVE

They can keep you from getting and spreading the COVID-19 virus

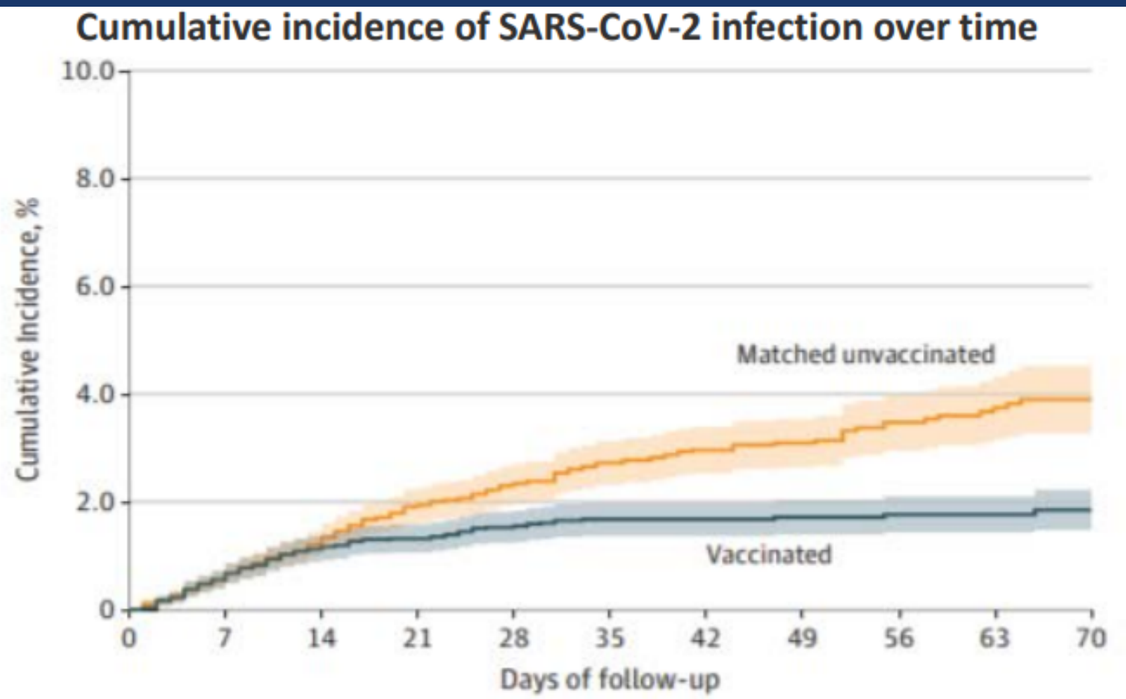
Can prevent you from serious illness if you get Covid-19

Getting vaccinated may ALSO protect people around you, especially people at increased risk for severe illness

COVID-19 VACCINE EFFICACY DURING PREGNANCY

Goldshtein et al.

- 7,530 vaccinated pregnant people and 7,530 unvaccinated pregnant people
- Vaccination with mRNA COVID-19 vaccines lowered the risk of infection among pregnant people



No. at risk											
Matched unvaccinated	7530	7446	6825	5661	4788	4023	3376	2327	1748	1295	955
Vaccinated	7530	7446	6825	5661	4788	4023	3376	2327	1748	1295	955
Cumulative No. of events											
Matched unvaccinated	0	51	99	137	158	175	184	188	196	200	202
Vaccinated	0	51	87	97	109	115	115	116	117	117	118

COVID-19 VACCINATION DURING PREGNANCY

ACOG strongly recommends that all eligible persons greater than age 12 years, **including pregnant and lactating individuals**, receive a covid-19 vaccine or vaccine series.

Any of the currently authorized covid-19 vaccines can be administered to pregnant, recently pregnant, or lactating people

COVID-19 VACCINATION DURING PREGNANCY

The mRNA COVID-19 vaccines are preferred over the J&J/Janssen vaccine

ACOG recommends that pregnant and recently pregnant people up to six weeks postpartum receive a booster dose of COVID-19 vaccine following the completion of their initial COVID-19 vaccine or vaccine series.

COVID-19 VACCINE SAFETY DURING PREGNANCY

No safety concerns were found in animal studies:

No adverse pregnancy-related outcomes occurred in previous clinical trials that used the same vaccine platform as the J&J/Janssen COVID-19 vaccine:

COVID-19 vaccines do not cause infection, including in pregnant people or their babies:

COVID-19 VACCINES AND FERTILITY

Claims linking COVID-19 vaccines to infertility are unfounded

- There is no scientific evidence to supporting them

Given the mechanism of action and the safety profile of the mrna vaccines in nonpregnant individuals, COVID-19 mrna vaccines are not a cause of infertility.

There is no evidence that the COVID-19 vaccines affect fertility. ACOG recommends vaccination for anyone who may consider getting pregnant in the future.

COVID-19 VACCINES AND FERTILITY

In a prospective cohort study of couples trying to conceive, no meaningful association between COVID-19 vaccination in either partner with fecundability was found

- Wesselink 2022

A study from the Icahn School of Medicine at Mount Sinai investigated fertility outcomes after COVID-19 vaccination, including egg quality, embryo quality and development, pregnancy rates, and early miscarriage. The study showed no differences in rates of adverse outcomes in vaccinated compared to unvaccinated patients

- Aharon 2022

COVID-19 VACCINATION IN LACTATING INDIVIDUALS

- ACOG strongly recommends that lactating individuals be vaccinated against COVID-19.
- Theoretical concerns regarding the safety of vaccinating lactating individuals do not outweigh the potential benefits of receiving the vaccine.
- There is no need to avoid initiation or discontinue breastfeeding in patients who receive a COVID-19 vaccine.
- Current data demonstrate that lactating people who have received mRNA COVID-19 vaccines have antibodies in their breast milk, suggesting a potential protective effect against infection in the infant, although the degree of clinical benefit is not yet known.

After you get vaccinated, the antibodies made by your body may be passed through breastmilk and may help protect your baby from the virus. ACOG recommends that breastfeeding women be vaccinated against COVID-19.

IMPACT OF COVID 19 ON PREGNANT PATIENTS

INCREASED Maternal Mental Health Issues: Anxiety & Depression

INCREASED DOMESTIC VIOLENCE

DECREASED PRENATAL CARE VISITS

Working families struggled with increased child care demands

Income loss or unempolyment

BARRIERS TO SEEK CARE DURING THE PANDEMIC

- Telemedicine visits: Lack of smart devices, broadband, Wi-Fi, or cellular data
- Transportation needs
- Home schooling, lack of child care
- Unemployment or lacking medical insurance coverage
- Anxiety and fear of medical facilities and offices
- Covid symptoms or in quarantine

IMPACT OF COVID IN THE COMMUNITIES OF COLOR

- > 1/3 of Black and Hispanic New Yorkers were infected in the initial wave of COVID-19
- TWICE the infection rate than White New Yorkers
- 39% of COVID related deaths occurred amongst Black people
- While Black people only make up 15% of the population

SOCIAL DETERMINANTS OF HEALTH

- Health Care access
- Lack of insurance coverage
- Unstable housing
- Food insecurity
- Lack of transportation
- Income
- Education

BUILDING VACCINE CONFIDENCE

COVID-19 VACCINES ARE NEW; IT'S NORMAL FOR PEOPLE TO HAVE QUESTIONS ABOUT THEM.

BUILDING COVID-19 VACCINE CONFIDENCE

VACCINE MYTHS

- It was rushed and isn't safe
- It changes your DNA
- It can give you Covid-19
- It contains egg protein
- It causes side effects
- It makes women infertile

VACCINE FACTS

- Researchers took no safety shortcuts. Large studies show the vaccine is safe
- It's impossible for a vaccine to change your DNA
- It doesn't have egg protein and and can be given to people with egg allergies
- There is no evidence that vaccine causes infertility

COVID VACCINE CONFIDENCE

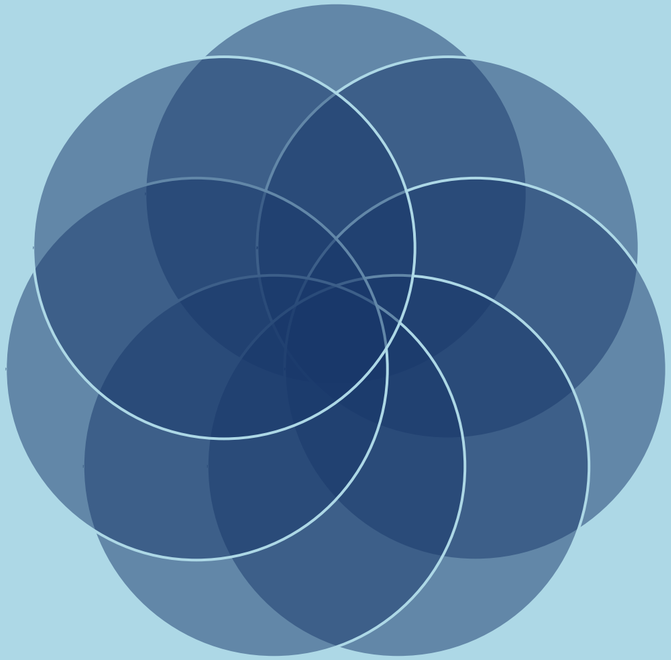
- UNDERSTANDING **COMMUNITY**
  - Engagement and Understanding
  - Partnership with faith based organizations and leaders
  - Impact of social media
  - Personal stories and testimonies
  - Culturally sensitive themes and presence

COVID VACCINE CONFIDENCE

Being generous of time and spirit

Understanding

Providing JUDGEMENT FREE, RESPECTFUL care



Thoughtfulness

Empathy

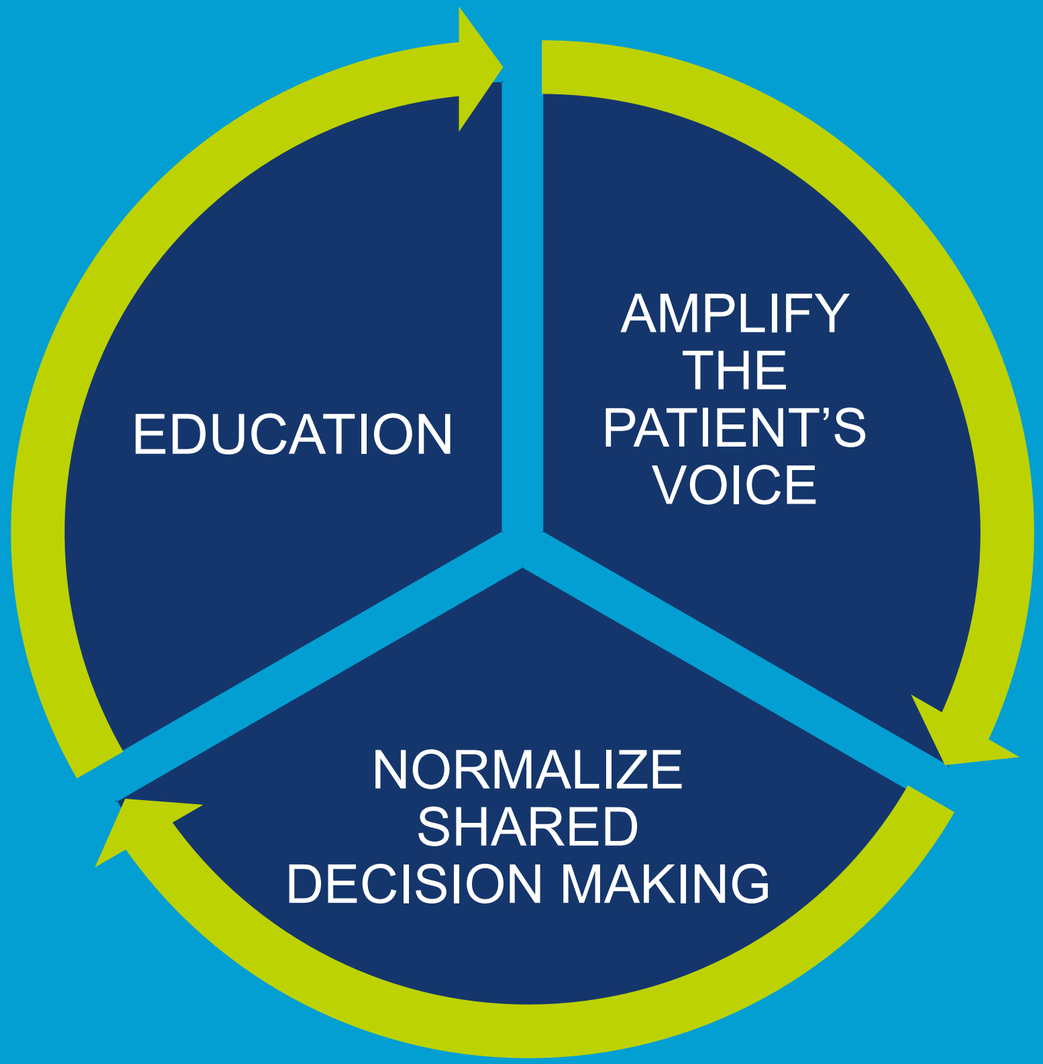
Humility

Compassion

CDC HEALTH EQUITY STRATEGY

https://covid.cdc.gov/covid-data-tracker/#health-equity-data

COVID VACCINE CONFIDENCE



MAKE A CAREER OF HUMANITY.

COMMIT YOURSELF TO THE NOBLE STRUCTURE FOR EQUAL RIGHTS.

YOU WILL MAKE A GREATER PERSON OF YOURSELF, A GREATER NATION OF YOUR COUNTRY, AND A FINER WORLD TO LIVE IN.”

-DR. MARTIN LUTHER KING, JR.

Strategies to Promote Maternal Vaccinations Against COVID-19

Donald J. Alcendor PhD
Associate Professor
Meharry Medical College

Center for AIDS Health Disparities Research and Department of Microbiology Immunology, and Physiology, Adjunct Associate Professor, Department of Obstetrics and Gynecology, Meharry Medical College

Associate Professor Adjunct, Department of Pathology, Microbiology & Immunology, Division of Infectious Diseases Vanderbilt University School of Medicine

Director of Research for the State of TN-CEAL Program
Director of Research for the Institute for Health Disparities Equity and the Exposome, Meharry Medical College

Former Voting Member for HHS Vaccine Injury and Compensation Program

Former Voting Member for the FDA Antiviral Advisory Committee

Expert Advisory Panel member for the American Lung Association COVID-19 Action Initiative. Anti-Viral and Immunomodulating Therapies, Health Promotions and Pandemic Related Social, Behavioral, and Racial Disparities

American Lung Association Scientific Advisory Committee

Disclosures

Site investigator for the Moderna HCMV vaccine trial at Meharry

Working with Clinical Trial Associates in Nashville for the Pfizer multivalent vaccine for COVID, Influenza, RSV

Funding from Merck to examine Vaccinations for Expecting Minority Moms to Improve Pregnancy Care (Tdap, Influenza and COVID)

Patent pending for an Vivo Phosphoamidate Morpholino as an intervention for COVID-19

National and Public Health Declarations Scheduled to Expire on May 11, 2023

Contributing Programs tied to COVID-19 Emergency Declarations

Families First Coronavirus Response Act (FFCRA)

Coronavirus Aid, Relief, and Economic Security (CARES) Act

American Rescue Plan Act (ARPA)

Inflation Reduction Act (IRA)

Consolidated Appropriations Act, 2023 (CAA)

Other federal and state emergency programs

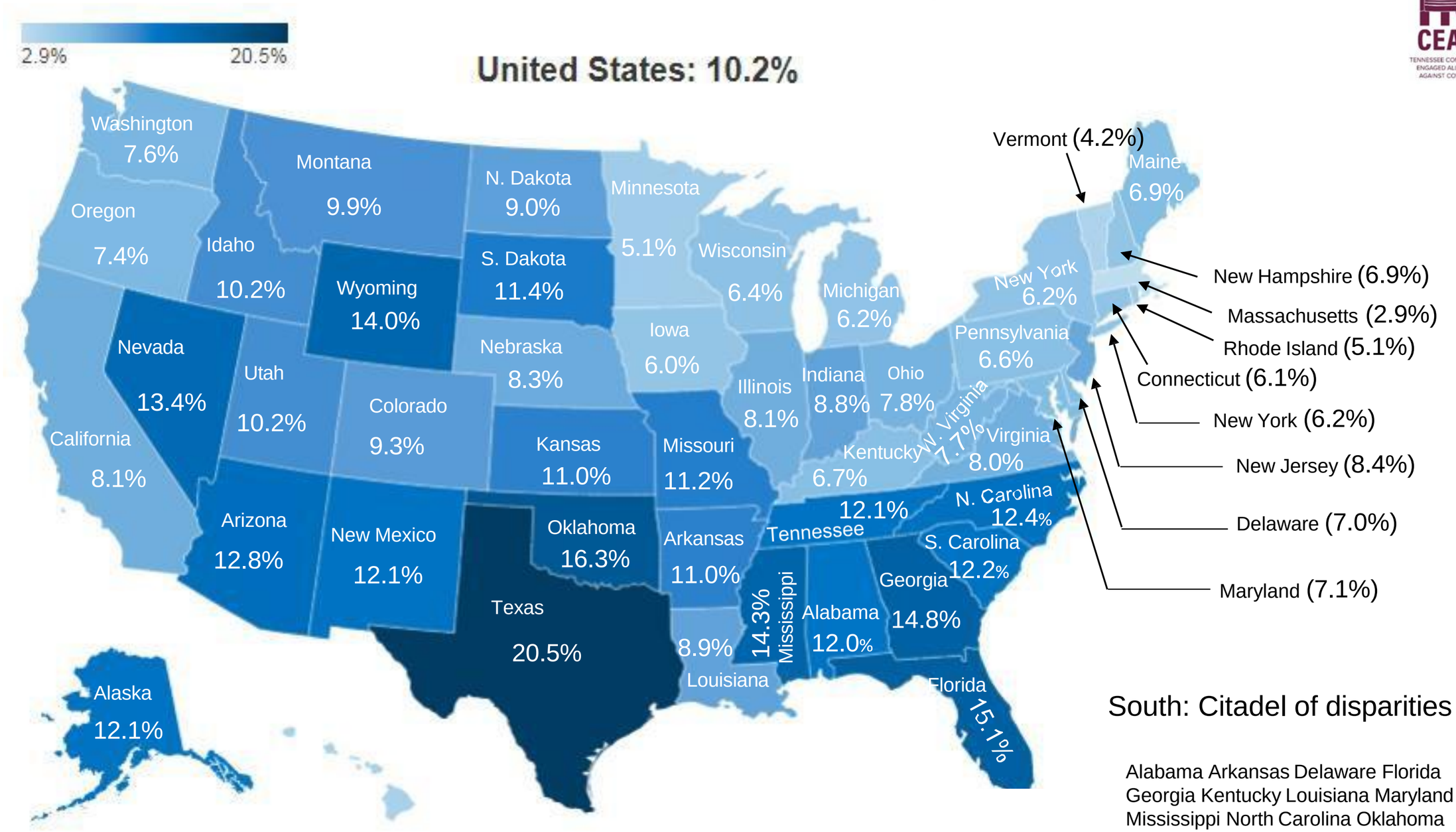
Some of the Major Government Flexibilities Allowed via COVID-19 Federal Emergency Declarations

- Coverage, costs, and payment for COVID-19 testing, treatments, and vaccines
- Medicaid coverage and federal match rates
- Telehealth
- Other Medicaid and CHIP flexibilities
- Other Medicare payment and coverage flexibilities
- Other private insurance coverage flexibilities
- Access to medical countermeasures (vaccines, tests, and treatments) through FDA emergency use authorization (EUA)
- Liability immunity to administer medical countermeasures

Alcendor et al., manuscript to be submitted in June 2023

TN CEAL
TENNESSEE COMMUNITY ENGAGED ALLIANCE AGAINST COVID-19

US Uninsured rates by state



South: Citadel of disparities

Alabama Arkansas Delaware Florida Georgia Kentucky Louisiana Maryland Mississippi North Carolina Oklahoma South Carolina Tennessee Texas Virginia West Virginia

Alcendor et al., manuscript to be submitted in June 2023

Pregnancy-related deaths in US surged during pandemic - CDC

A general view of the Centers for Disease Control and Prevention (CDC) headquarters in Atlanta, Georgia September 30, 2014. REUTERS/Tami Chappell/File Photo

About 32.9 maternal deaths per 100,000 live births were reported in 2021, compared with 23.8 deaths per 100,000
live births in 2020 and 20.1 in 2019.

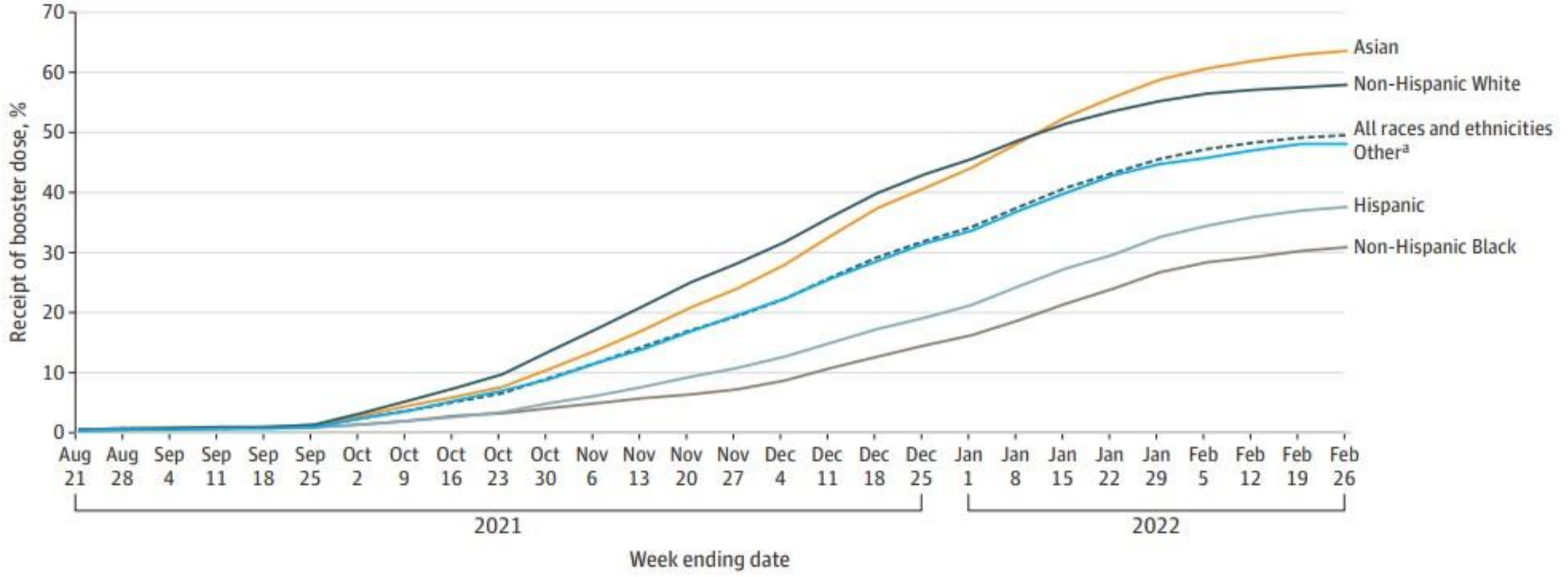
The mortality rate for Black women in the United States was at 69.9 deaths per 100,000 live births in 2021, about 3 times higher than white and Hispanic women.

March 16 (Reuters) - Maternal mortality rates rose 40% in 2021 in the United States as the COVID-19 pandemic worsened a health crisis among pregnant women in the country, data from the Centers for Disease Control and Prevention (CDC) showed on Thursday.

The United States has one of the highest rates of pregnancy-related deaths among developed countries. It recorded more than 1,200 deaths in pregnant women in 2021, compared with 861 in 2020 and 754 in 2019, according to CDC data.

March 16, 2023

Figure. Receipt of COVID-19 Booster Dose Overall, by Race and Ethnicity, and by Week Ending Date Among Fully Vaccinated Pregnant Individuals Aged 18 to 49 Years



Data are from the US Vaccine Safety Datalink. The percentage of pregnant individuals who received a booster dose includes anyone fully vaccinated and who has received another dose of COVID-19 vaccine as of February 26, 2022. This includes people who received booster doses and people who received additional doses. The time interval between the primary series and the booster dose was not considered. Fully vaccinated was defined as receipt of 2 doses of the Pfizer-BioNTech (BNT162b2) or Moderna (mRNA-1273) vaccines or 1 dose of the Johnson & Johnson (JNJ-78436735) vaccine. Race and ethnicity was self-reported using open-ended questions and was included to highlight any inequities in vaccine uptake. The denominator includes individuals who were pregnant during each specified week since August 13, 2021. Additional doses of the COVID-19 vaccine were recommended for individuals who are immunocompromised beginning on August 13, 2021; therefore, weekly reporting for these doses started the week ending on August 21, 2021.

[a] Includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and multiple or other races.

Table. Receipt of COVID-19 Booster Dose Among Fully Vaccinated Pregnant Individuals Aged 18 to 49 Years by Select Characteristics and Timing of Receipt of Booster Dose With Respect to Pregnancy[a]

Characteristic	Total No. of pregnant individuals	No. (%)		
		Fully vaccinated pregnant individuals[b]	Receipt of booster dose among fully vaccinated[c]	Receipt of booster dose during pregnancy[d]
Total	71 745	49 072 (68.4)	24 321 (49.6)	21 662 (89.1)
Age group, y				
18-24	9571	4489 (46.9)	999 (22.3)	923 (92.4)
25-34	45 096	31 211 (69.2)	15 242 (48.8)	13 729 (90.1)
35-49	17 078	13 372 (78.2)	8080 (60.4)	7010 (86.8)
Race and ethnicity[e]				
Asian	10 548	9230 (87.5)	5880 (63.7)	5157 (87.7)
Hispanic	24 170	16 003 (66.9)	6020 (37.6)	5435 (90.3)
Non-Hispanic Black	5064	2765 (54.4)	850 (30.8)	772 (90.8)
Non-Hispanic White	23 534	15 490 (65.8)	8970 (57.9)	7948 (88.6)
Other[f]	3270	2219 (67.9)	1065 (48.0)	958 (90.0)

[a] Data are from the US Vaccine Safety Datalink (end date: February 26, 2022). The time interval between the primary series and booster dose was not considered.

[b] Defined as receipt of 2 doses of the Pfizer-BioNTech (BNT162b2) or Moderna (mRNA-1273) vaccines or 1 dose of the Johnson & Johnson (JNJ-78436735) vaccine.

[c] Includes anyone who was fully vaccinated and had received another dose of COVID-19 vaccine as of February 26, 2022 (received booster doses and those who received additional doses as part of the primary series).

[d] Includes individuals who were pregnant during week ending February 26, 2022. If the pregnancy ended prior to this date, the individual was excluded from the numerator and the denominator.

[e] Self-reported using open-ended questions and category was included to highlight any inequities in vaccine uptake. The numbers do not add up to the total due to missing race and ethnicity for 5284 pregnant individuals.

[f] Includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and multiple or other races.

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Vaccines Recommended During Pregnancy

COVID-19 Pandemic

ACOG
CDC
SMFM

FDA Approved
Pfizer and
Moderna

Routinely

- TT/Td/Tdap
- Inactivated influenza vaccine
- **COVID-19**

Contraindicated

- MMR
- Varicella
- Live Influenza vaccine
- BCG

In Special Circumstances

- Inactivated Polio
- Pneumococcal
- Meningococcal
- Hepatitis A and B
- Inactivated Cholera
- Rabies
- YF

CDC..gov Vaccines in Pregnancy

vaccines

MDPI

Review

The COVID-19 Vaccine and Pregnant Minority Women in the US: Implications for Improving Vaccine Confidence and Uptake

Donald J. Alcendor [1,*], Patricia Matthews-Juarez [2], Duane Smoot [3], James E. K. Hildreth [1,2,3], Mohammad Tabatabai [4], Derek Wilus [4], Katherine Y. Brown [2] and Paul D. Juarez [2]

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2 Department of Family & Community Medicine, Meharry Medical College, 1005 D.B. Todd Jr. Blvd., Nashville, TN 37208, USA
3 Department of Internal Medicine, School of Medicine, Meharry Medical College, 1005 D.B. Todd Jr. Blvd., Nashville, TN 37208, USA
4 School of Graduate Studies and Research, Meharry Medical College, 1005 D.B. Todd Jr. Blvd., Nashville, TN 37208, USA
* Correspondence: dalcendor@mmc.edu

Abstract: The American College of Obstetricians and Gynecologists (AGOG) recommends the FDA-approved Pfizer and Moderna mRNA COVID-19 vaccines and boosters for all eligible pregnant women in the US. However, COVID-19 vaccine confidence and uptake among pregnant minority women have been poor. While the underlying reasons are unclear, they are likely to be associated with myths and misinformation about the vaccines. Direct and indirect factors that deter minority mothers in the US from receiving the mRNA COVID-19 vaccines require further investigation. Here, we examine the historical perspectives on vaccinations during pregnancy. We will examine the following aspects: (1) the influenza and tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccinations during pregnancy; (2) the exclusion of pregnant and lactating women from COVID-19 vaccine trials; (3) COVID-19 vaccine safety during pregnancy, obstetric complications associated with symptomatic COVID-19 during pregnancy, COVID-19 vaccine hesitancy among pregnant minority women, and racial disparities experienced by pregnant minority women due to the COVID-19 pandemic as well as their potential impact on pregnancy care; and (4) strategies to improve COVID-19 vaccine confidence and uptake among pregnant minority women in the US. COVID-19 vaccine hesitancy among minority mothers can be mitigated by community engagement efforts that focus on COVID-19 vaccine education, awareness campaigns by trusted entities, and COVID-19-appropriate perinatal counseling aimed to improve COVID-19 vaccine confidence and uptake.

Keywords: COVID-19; vaccinations; influenza; Tdap; pregnancy; minorities; women; vaccine hesitancy

check for updates

Citation: Alcendor, D.J.; Matthews-Juarez, P.; Smoot, D.; Hildreth, J.E.K.; Tabatabai, M.; Wilus, D.; Brown, K.Y.; Juarez, P.D. The COVID-19 Vaccine and Pregnant Minority Women in the US: Implications for Improving Vaccine Confidence and Uptake. *Vaccines* **2022**, *10*, 2122. https://doi.org/10.3390/vaccines10122122

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Published: 12 December 2022

Antibodies to SARS-CoV-2 have been found in umbilical cord blood and breast milk following maternal vaccination, which might provide protection to the infant.

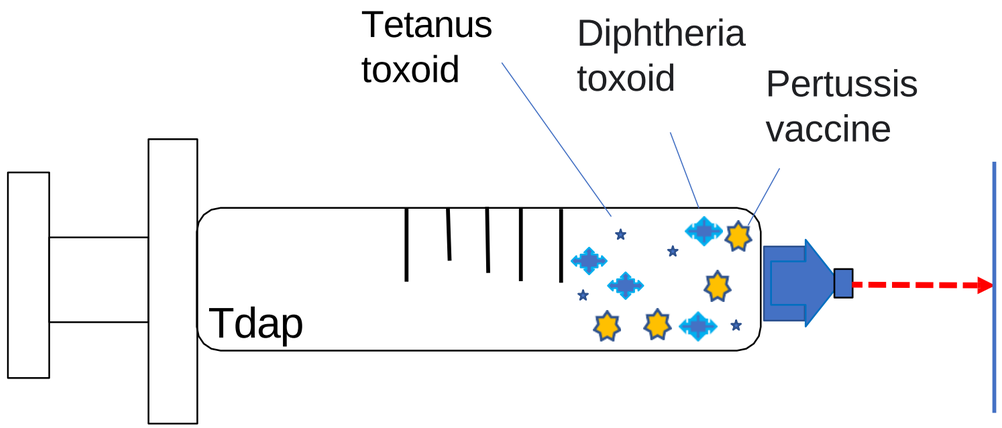
However, vaccination rates during pregnancy remain low. Studies are needed to understand ways to address SARS-CoV-2 vaccine hesitancy among pregnant persons.

ACOG recommends that pregnant and recently pregnant people up to 6 weeks postpartum receive a bivalent mRNA COVID-19 vaccine booster dose following the completion of their last COVID-19 primary vaccine dose or monovalent booster.

Historically, pregnant/lactating people have been excluded from clinical trials because of concerns about legal liability and confusion about what is permissible from a regulatory and ethical perspective.

Rasmussen SA, Jamieson DJ. COVID-19 and Pregnancy. Infect Dis Clin North Am. 2022 Jun;36(2):423-433.

Current Recommended Vaccines During Pregnancy

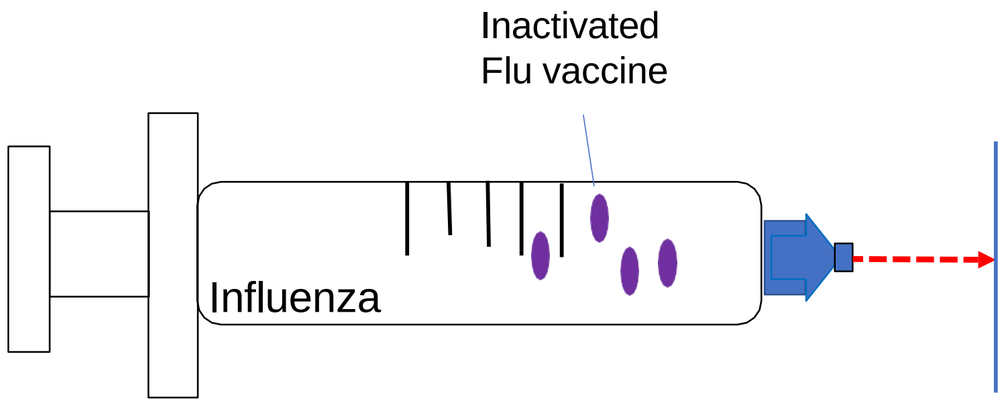


Vaccines and dosing

- Tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine
- One dose/pregnancy
- Maternal and perinatal protection

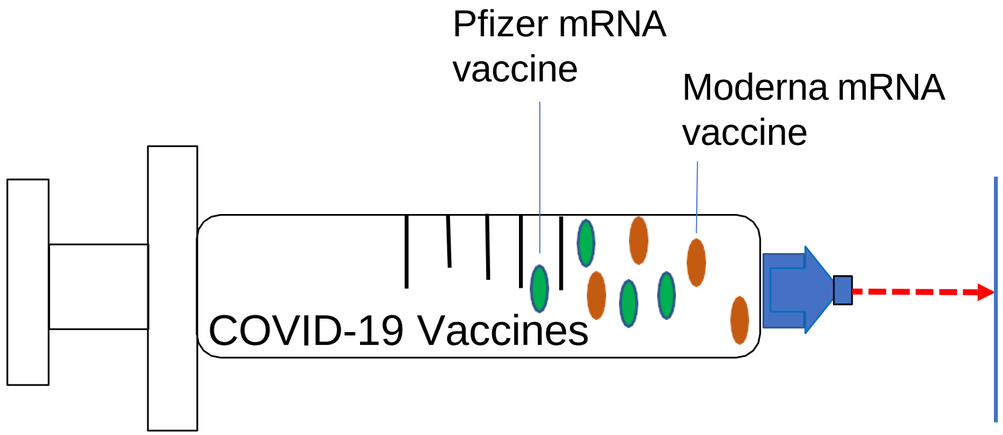
Complications if unvaccinated

Increase risk of maternal and perinatal Whooping cough, Diphtheria, and Tetanus that can be life threatening



- Inactivated flu vaccine recommended
- The live attenuated vaccine LAIV and Nasal spray vaccine not recommended
- One dose
- Maternal and perinatal protection

Increase risk of influenza resulting in pneumonia as well as perinatal infections that can result in death



- Pfizer mRNA vaccine or Moderna mRNA vaccine
- Spike of SARS-CoV-2
- 2 primary doses and boosters
- Maternal and perinatal protection

Maternal and perinatal complications associated with COVID-19 with increase risk of mortality

Alcendor et al., Expecting Mothers and the COVID-19 Vaccine, J. Vaccines 2022

Maternal Complications in Unvaccinated Mothers Infected with COVID-19

Expecting mother

Changes during pregnancy

Increased cardiopulmonary load

Semi-allogeneic fetus

Immune tolerance

Th1 response to Th2 response

COVID-19 infection

Unvaccinated for COVID-19

Increased risk for respiratory pathogens Influenza, COVID-19

Increased risk/harm

- Symptomatic disease
- Hospitalizations/ICU admissions
- Mortality
- Neonatal complications

Vaccinated for COVID-19

Reduced risk/benefits

- No or asymptomatic disease
- Reduced Hospitalizations/ICU admissions
- Reduced Mortality
- Reduced neonatal complications

Alcendor et al., Expecting Mothers and the COVID-19 Vaccine, J. Vaccines 2022

Neonatal Complications in Babies Borne to Unvaccinated Mothers Infected with COVID-19

COVID-19 infection

During pregnancy

Developing Fetus

Neonatal outcomes

Mother unvaccinated for COVID-19

Increased risk/harm

- Preterm births and still births
- Placentitis/trophoblasts necrosis
- Placental Insufficiency
- Perinatal death

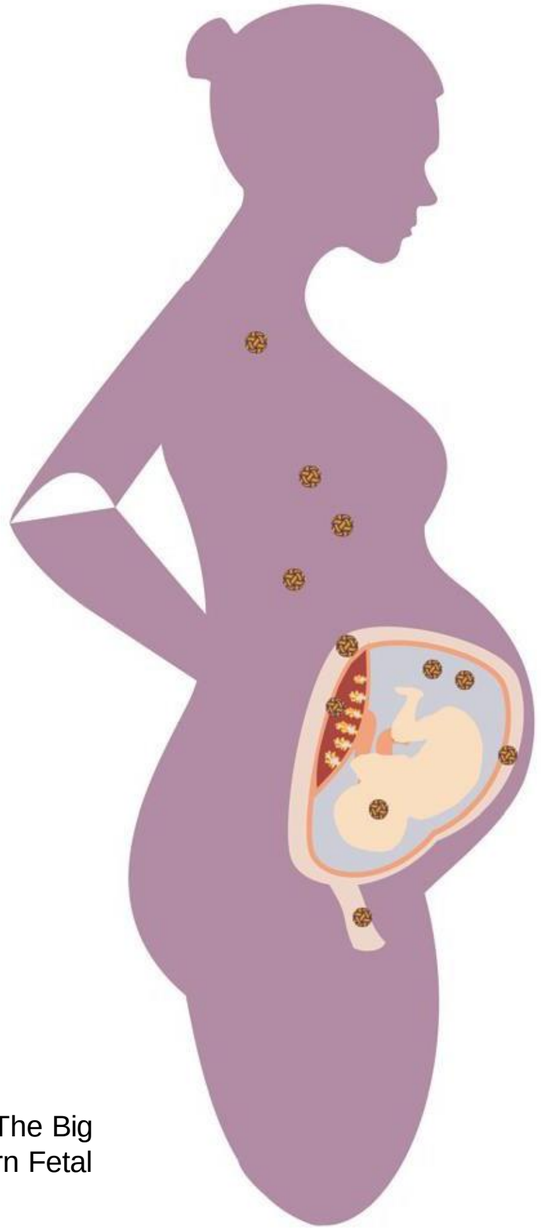
Mother vaccinated for COVID-19

Reduced risk/benefits

- Reduced transplacental transmission
- Reduced fetal infection
- Reduced preterm births
- Reduced perinatal death

Alcendor et al., Expecting Mothers and the COVID-19 Vaccine, J. Vaccines 2022

Viral infections during pregnancy and
the corresponding maternal-fetal outcomes.



Pregnancy complications

Maternal death
Pregnancy loss
Preterm birth
Gestational diabetes mellitus
Preeclampsia

Fetal and neonatal complications

Intrauterine growth restriction(IUGR)
Stillbirth
Neonatal death
Microcephaly
Hearing loss
Neurodevelopmental disorders
Ocular abnormalities
Motor disorders...

Long-term health issues

Cognitive impairment
Compromised immune system
Diabetes
Hyperglycemia
Obesity
Obstructive pulmonary disease
Cancer
Heart disease
Aging ...

Yu W, Hu X, Cao B. Viral Infections During Pregnancy: The Big Challenge Threatening Maternal and Fetal Health. Matern Fetal Med. 2021 Dec 9;4(1):72-86.

COVID-19 in pregnant women

While there's not reliable statewide data for how COVID-19 has affected pregnant woman and newborns in Montana, there is some data available at the national level.

More than 125,000

Laboratory-confirmed cases of COVID-19 in pregnant women reported as of Sept. 27, according to the Centers for Disease Control and Prevention.

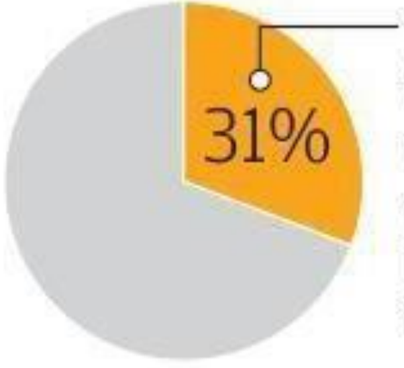
More than 22,000

Pregnant women hospitalized because of COVID-19.

161

Total reported deaths in pregnant women because of COVID-19. This August saw the highest number to date with 22.

Pregnant women hospitalized this year because of COVID-19 that were unvaccinated.



Pregnant women who were fully vaccinated before or during their pregnancy.

Source: CDC; COVID-19-Associated Hospitalization Surveillance Network

Lee Enterprises, Vecteezy graphic

MASSACHUSETTS CENTER FOR BIRTH DEFECTS RESEARCH AND PREVENTION

COVID-19 & PREGNANCY

Most pregnant people with COVID-19 do not have complications.

However, COVID-19 can lead to more severe illness in pregnant people compared to non-pregnant people.

In MA:

6X **Hispanic** pregnant people are 6X more likely than White, non-Hispanic pregnant people to have COVID-19.

4X **Black, non-Hispanic** pregnant people are 4X more likely than White, non-Hispanic pregnant people to have COVID-19.

Protect yourself and your baby from COVID-19

WEAR A MASK IN PUBLIC

STAY AT LEAST 6 FEET APART

IF YOU HAVE SYMPTOMS, GET TESTED

CONTINUE RECEIVING PRENATAL CARE

CONSIDER VACCINATION

IF YOU HAVE QUESTIONS, TALK TO YOUR DOCTOR

FOR MORE INFORMATION, VISIT: HTTPS://WWW.CDC.GOV/CORONAVIRUS/2019-NCOV/COMMUNICATION/TOOLKITS/PREGNANT-PEOPLE-AND-NEW-PARENTS.HTML

Media Advisory Tuesday, November 2, 2021

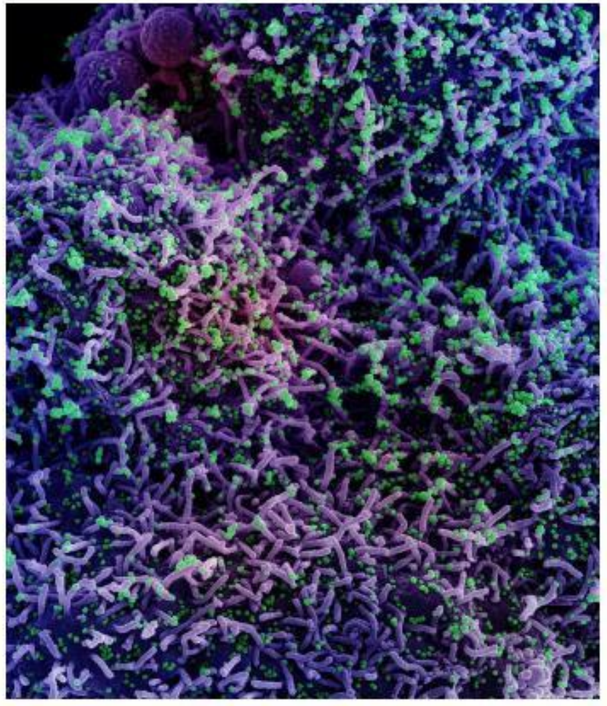
NIH to study long-term effects of COVID-19 in pregnancy

Effort will follow up to 1,500 pregnant patients with COVID-19 and their offspring for four years.

What

The National Institutes of Health will support a four-year follow-up study on the potential long-term effects of COVID-19 on women infected with SARS-CoV-2 during pregnancy. The study will also follow their offspring for any potential long-term effects.

The effort is part of NIH's Researching COVID to Enhance Recovery (RECOVER) Initiative, which aims to understand why some individuals who have had COVID-19 don't fully recover or develop symptoms after recovery. Known as post-acute sequelae of SARS-CoV-2 infection (PASC), or more commonly as Long COVID, these conditions affect all ages. Long-term effects include fatigue, shortness of breath, difficulty concentrating, sleep disorders, fevers, anxiety and depression.



canning electron micrograph of a cell (purple) infected with a variant strain of SARS-CoV-2 virus particles (green), isolated from a patient sample and colorized in Halloween colors. *NIAID*

The current study will enroll some participants from an earlier study by the Maternal-Fetal Medicine Units (MFMU) Network, a 36-site research collaboration supported by NIH's *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD). Participants will be recruited from roughly 4,100 patients with asymptomatic and symptomatic SARS-CoV-2 infection during pregnancy who gave birth at MFMU Network hospitals. The research teams will assess patient symptoms periodically during the four-year period and evaluate their offspring for neurologic symptoms and cardiovascular conditions.

Institute/Center

Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)

Contact

Linda Huynh or Robert Bock
301-496-5133

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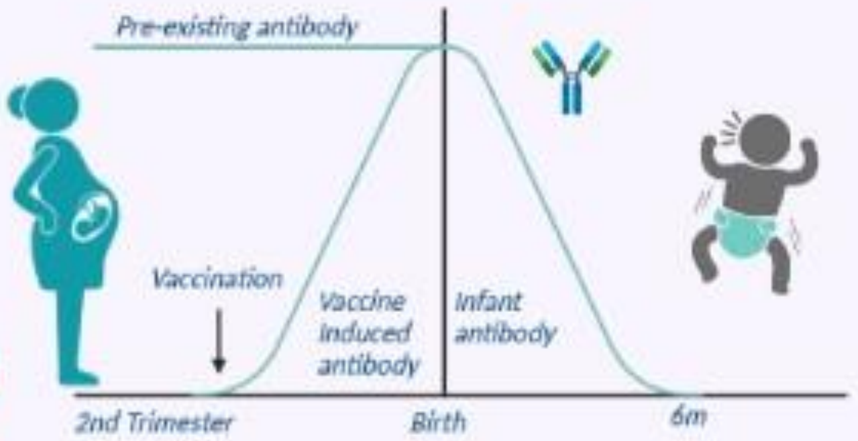
Importance of Antibody During Pregnancy

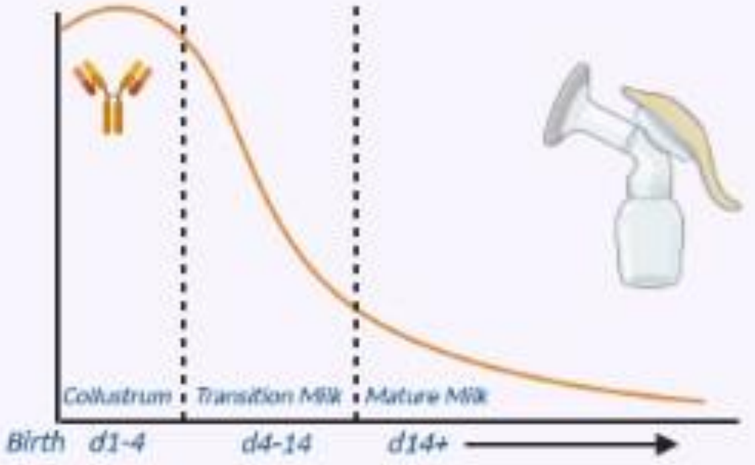
Maternal Antibody

- Shared Mother to Baby
- IgG Antibody protects in the blood
- Last for around 6 months in infants after birth

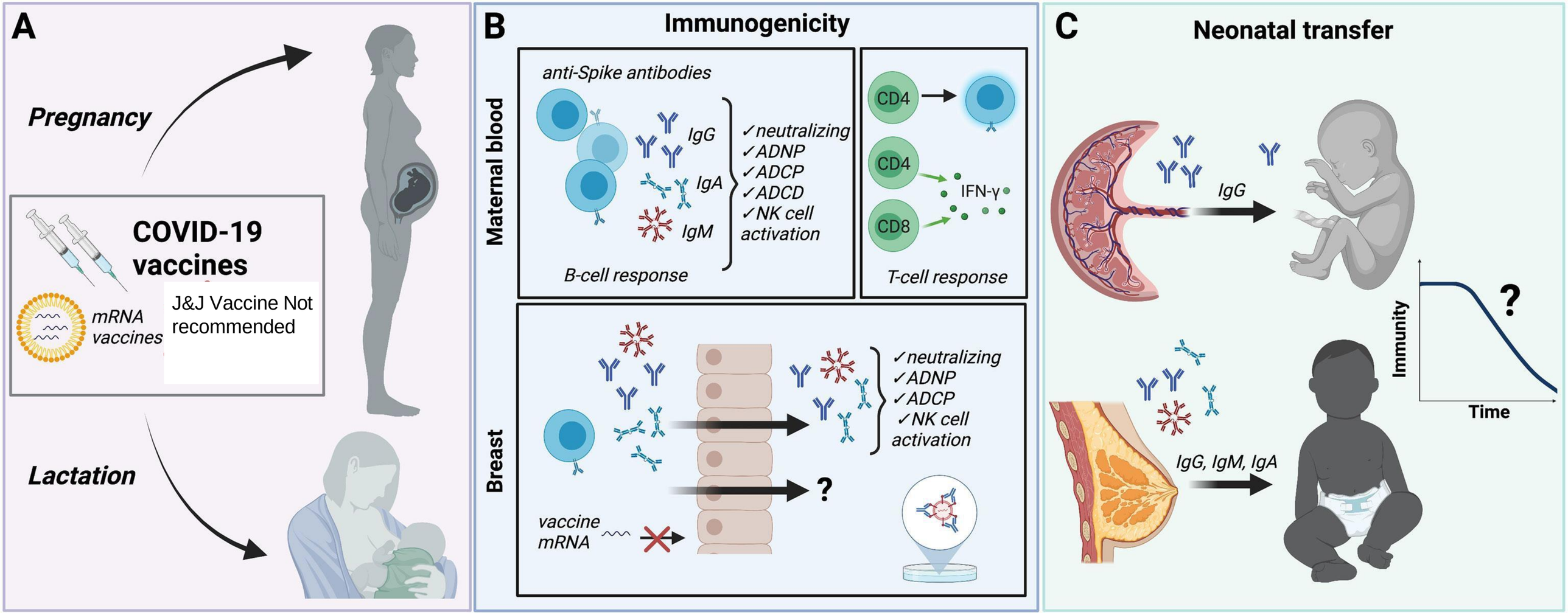
Breast Milk Antibody

- Shared during breast feeding
- IgA Antibody protects in the mouth, throat and gut
- High levels in milk after birth but gradually decreases





The COVID-19 vaccines can protect you and your baby by the transfer of antibodies via the placenta and breastmilk



Shook et al., Front. Cell. Infect. Microbiol., 16 September 2021

NATIONAL PERINATAL ASSOCIATION

Update: CORONAVIRUS

COVID-19

According to data published in The Lancet

Pregnancy and the risk of VERTICAL TRANSMISSION

LOW

National Perinatal Association

www.nationalperinatal.org

NATIONAL PERINATAL ASSOCIATION

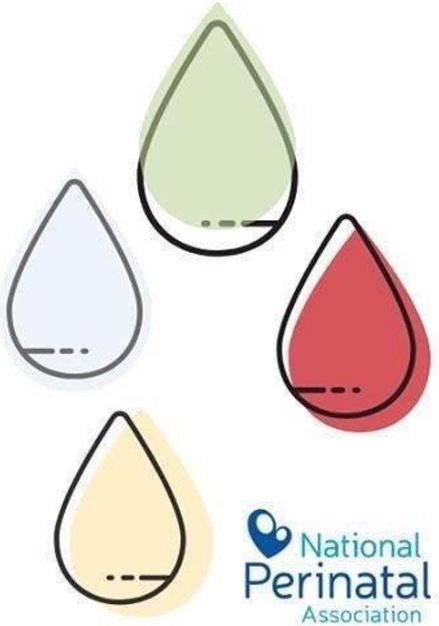
Update: CORONAVIRUS

COVID-19

According to the data in The Lancet, even when mothers were infected

No virus was detected in:

- NASOPHARYNGEAL SWABS OF THE BABY
- AMNIOTIC FLUID
- CORD BLOOD
- BREASTMILK



National Perinatal Association

www.nationalperinatal.org

Breastfeeding and COVID-19

Women with COVID-19 can breastfeed if they wish to do so. They should:

- Practice respiratory hygiene and wear a mask
- Wash hands before and after touching the baby
- Routinely clean and disinfect surfaces

World Health Organization

#COVID19 #CORONAVIRUS

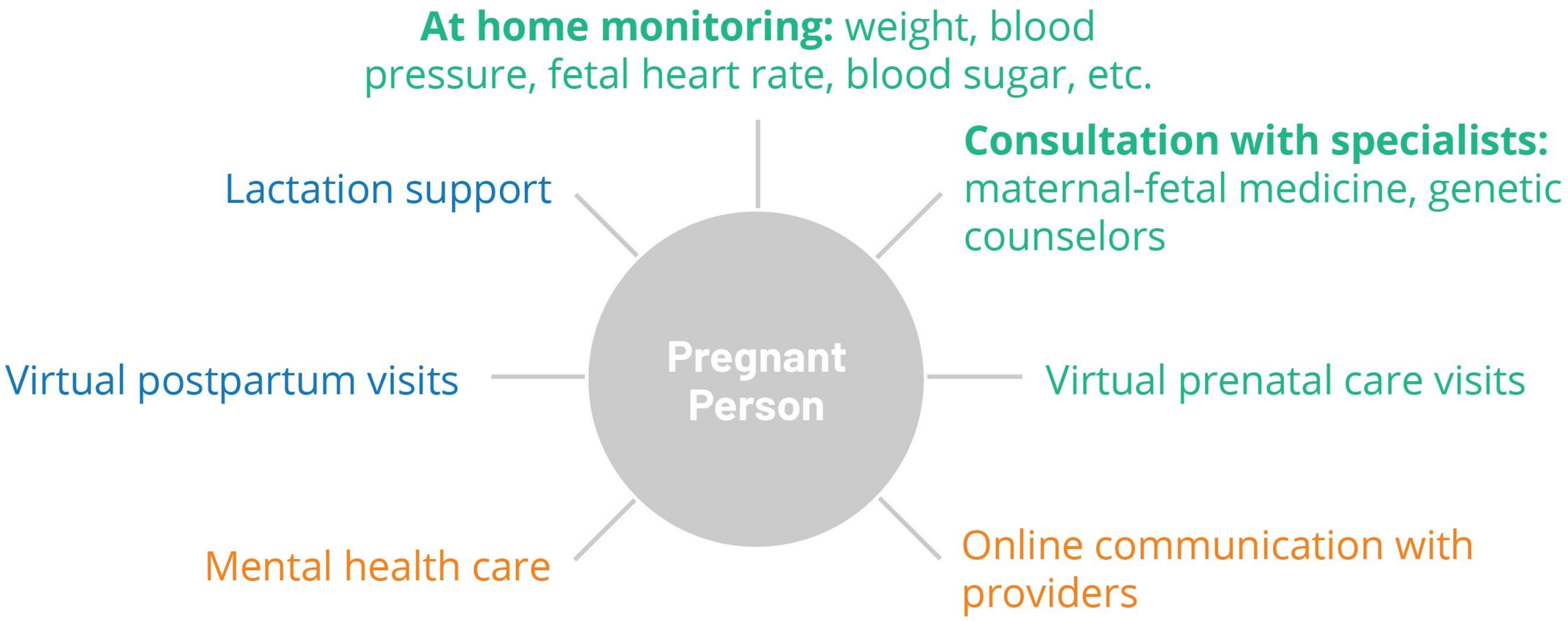
Skin-to-skin care and early, exclusive breastfeeding helps a baby to thrive

A woman with **COVID-19** should be supported to breastfeed safely, hold her newborn skin-to-skin, and share a room with her baby.

World Health Organization
Western Pacific Region

During The COVID-19 Pandemic, Many Pregnancy-Related Services Could Be Delivered Via Telemedicine

- Services delivered during pregnancy (prenatal care)
- Services delivered after pregnancy (postpartum care)
- Services delivered during and after pregnancy (prenatal/postpartum)




KIMTECH
ATCC


KIMTECH
ATCC

Baby Shower for Nashville' Expecting Mothers: TN CEAL, MMVP, and VUSN

HealthWorks

MEHARRY MEDICAL COLLEGE

TN CEAL
TENNESSEE COMMUNITY ENGAGED ALLIANCE AGAINST COVID-19

Hispanic Latinx Community: Family vaccinations at Plaza Mariachi

Vaccinations at Plaza Mariachi in partnership with the Tennessee Department of Health (Back to School vaccination campaign for COVID and scheduled vaccines)

Community Baby Shower, in Nashville, August 25, 2022

Expecting mothers in line at the Meharry TN CEAL/Healthwoks tent for vaccinations, surveys, and gift cards

HealthWorks

MEHARRY MEDICAL COLLEGE

TN CEAL

TENNESSEE COMMUNITY ENGAGED ALLIANCE AGAINST COVID-19

VSON and TN-CEAL Health

HealthWorks

MEHARRY
MEDICAL COLLEGE

TN
CEAL
TENNESSEE COMMUNITY
ENGAGED ALLIANCE
AGAINST COVID-19

HELP TO MOMS

TN Department of Health

LUNCH TIME DRIVE THROUGH DIAPER GIVE AWAY

50 FREE
DIAPER & WIPES
30 DAY SUPPLY

THURSDAYS 12 PM - 2 PM

810 DOMINICAN DRIVE
NASHVILLE TN 37228

VISIT HELPTOMOMS/EVENTS TO R.S.V.P.

Meharry Pediatric Clinic
Back to School Immunization Event
July 25- August 5th

PTO Events and vaccinations

TN CEAL
TENNESSEE COMMUNITY ENGAGED ALLIANCE AGAINST COVID-19

Community Christmas, a live band, and vaccinations (2022)

TN CEAL
TENNESSEE COMMUNITY ENGAGED ALLIANCE AGAINST COVID-19

vaccines

MDPI

Article

Meharry Medical College Mobile Vaccination Program: Implications for Increasing COVID-19 Vaccine Uptake among Minority Communities in Middle Tennessee

Donald J. Alcendor [1], Paul D. Juarez [2], Patricia Matthews-Juarez [2], Sheena Simon [3], Catherine Nash [3], Kirollos Lewis [3] and Duane Smoot [3,*]

1 Center for AIDS Health Disparities Research, Department of Microbiology, Immunology and Physiology, School of Medicine, Meharry Medical College, 1005 Dr. D.B. Todd Jr. Blvd., Nashville, TN 37208-3599, USA; dalcendor@mmc.edu

2 Department of Family & Community Medicine, Meharry Medical College, 1005 Dr. D.B. Todd Jr. Blvd., Nashville, TN 37208-3501, USA; pjuarez@mmc.edu (P.D.J.); pmatthews-juarez@mmc.edu (P.M.-J.)

3 Department of Internal Medicine, School of Medicine, Meharry Medical College, 1005 Dr. D.B. Todd Jr. Blvd., Nashville, TN 37208-3501, USA; ssimon@mmc.edu (S.S.); cnash@mmc.edu (C.N.); kilewis@mmc.edu (K.L.)

* Correspondence: dsmoot@mmc.edu

The Meharry Mobile Vaccine Program

barbershops and salons, shopping malls, and park and recreation centers. Figure 1 is a picture of the van deployed in the MMC-MVP.

Figure 1. Meharry's Mobile vaccine unit vehicle deployed to deliver COVID-19 vaccines throughout Middle Tennessee.

On 13 April 2021, MMC received a generous gift from Bloomberg Philanthropies' Greenwood Initiative, allowing for the expansion of mobile unit vaccine operations in and around Nashville and in satellite counties across Tennessee. The gift was part of a larger investment from Bloomberg Philanthropies to the nation's four historically Black medical schools—MMC, Howard University College of Medicine, Morehouse School of Medicine, and Charles R. Drew University of Medicine and Science

TN CEAL
TENNESSEE COMMUNITY ENGAGED ALLIANCE AGAINST COVID-19

Module 5: Expecting Minority Mothers and COVID-19 Vaccine Uptake

This module is limited to expectant minority mothers

1. Are you currently pregnant or recently delivered a baby in the past 12 months and a member of a minority group?

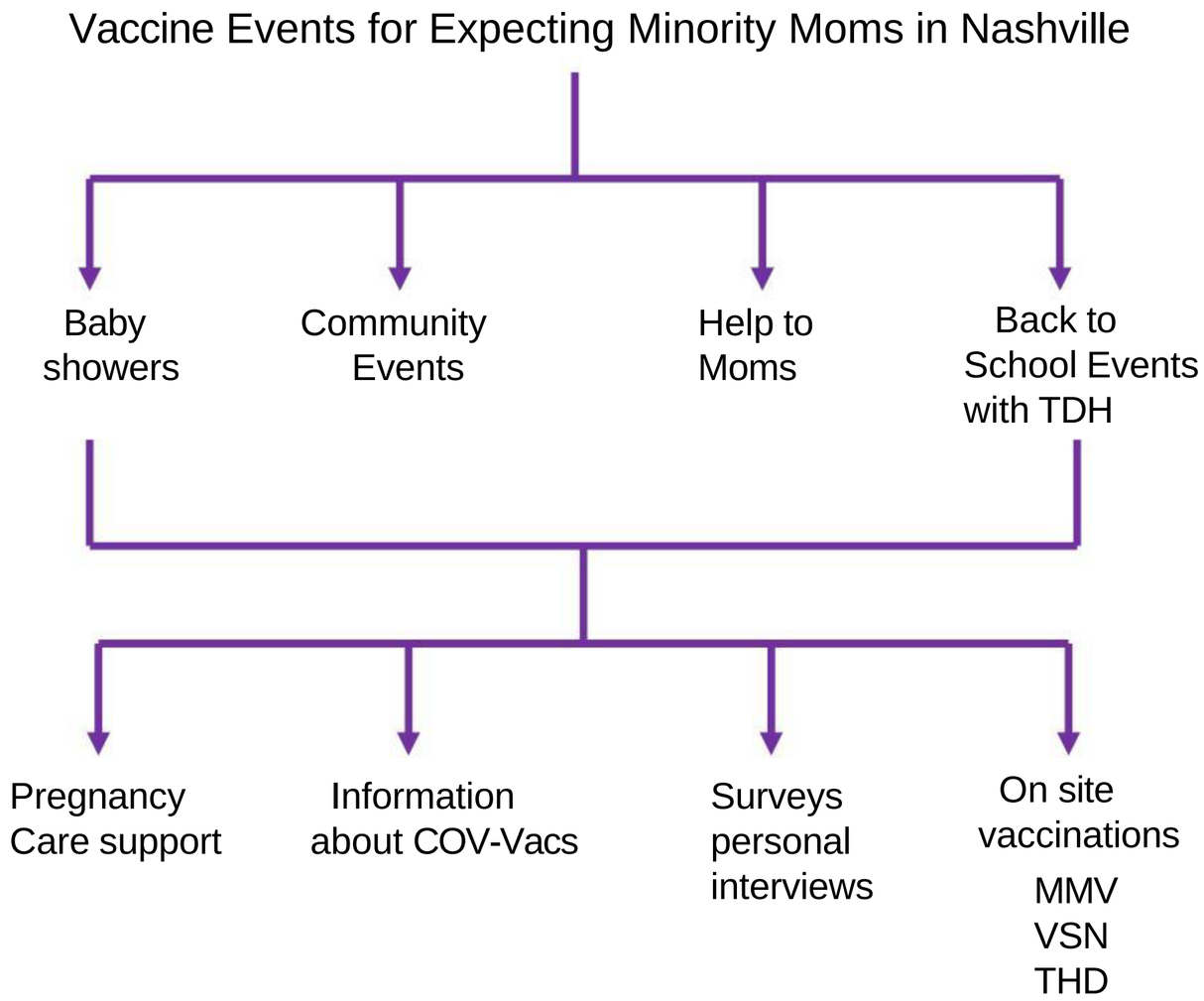
- . No **(Stop: The survey ends here)**
- . Yes **(Continue to #2)**

1. **About how long has it been since you last saw a doctor or other health care professional about your health?**
   - Never
   - Within the past 12 months/1 year
   - 1 to 2 years ago
   - 3 to 4 years ago
   - 5 to 9 years ago
   - 10 years ago, or more

2. **What is the primary kind of health insurance or health care plan that you have now?**
   - Private health insurance through a job or school
   - Insurance bought through a government exchange such as healthcare.gov

   Public Insurance bought from a health plan or company (**Select type of insurance from options below)**
   - ☐ Medicare
   - ☐ Medi-Gap
   - ☐ Medicaid
   - ☐ CHIP or kid's state insurance
   - ☐ Military health care
   - ☐ Indian Health Service
   - ☐ Other: _____
   - ☐ Don't Know

3. **Did you lose health coverage during the COVID-19 pandemic?**
   - Yes
   - No
   - Don't Know



IRB Approved

vaccines

MDPI

Review

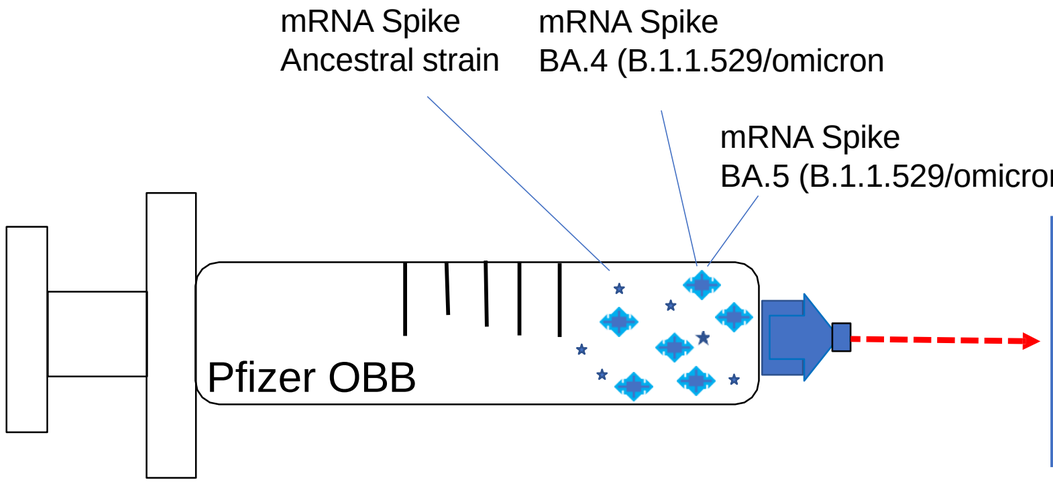
Vaccine Confidence and Uptake of the Omicron Bivalent Booster in Tennessee: Implications for Vulnerable Populations

Donald J. Alcendor[1,2,*], Patricia Matthews-Juarez[3], Duane Smoot[4], Alexis Edwards[5], James E.K. Hildreth[2] and Paul D. Juarez[3]

[1]Department of Microbiology, Immunology and Physiology, Center for AIDS Health Disparities Research, School of Medicine, Meharry Medical College, 1005 Dr. D.B. Todd Jr. Blvd., Nashville, TN, 37208-3599, USA
[2]Center for AIDS Health Disparities Research, Department of Microbiology, Immunology, and Physiology, School of Medicine, Meharry Medical College, 1005 Dr. D.B. Todd Jr. Blvd., Nashville, TN, USA
[3]Department of Family & Community Medicine, Meharry Medical College, 1005 D.B. Todd Jr. Blvd., Nashville, TN 37208, USA
[4]Department of Internal Medicine, School of Medicine, Meharry Medical College, 1005 D.B. Todd Jr. Blvd., Nashville, TN 37208, USA
[5]Tennessee, Department of Health, Division of Health Disparities Elimination/Office of Minority Health
* Correspondence: dalcendor@mmc.edu

Get the New Booster

COVID-19 mRNA Omicron Bivalent Boosters (OBB) for Emergency Use

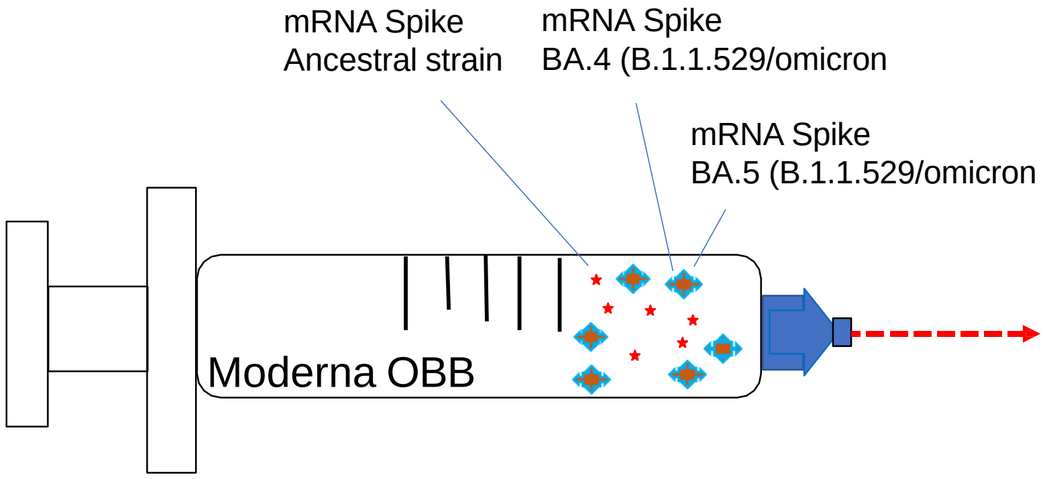


Vaccines and dosing

A single booster dose to individuals 5 through 11 years of age who have completed a primary series with Pfizer-COVID-19 or a 3-dose primary series (2 monovalent and 1 bivalent) to individuals 6 months through 4 years of age

Vaccine side effects

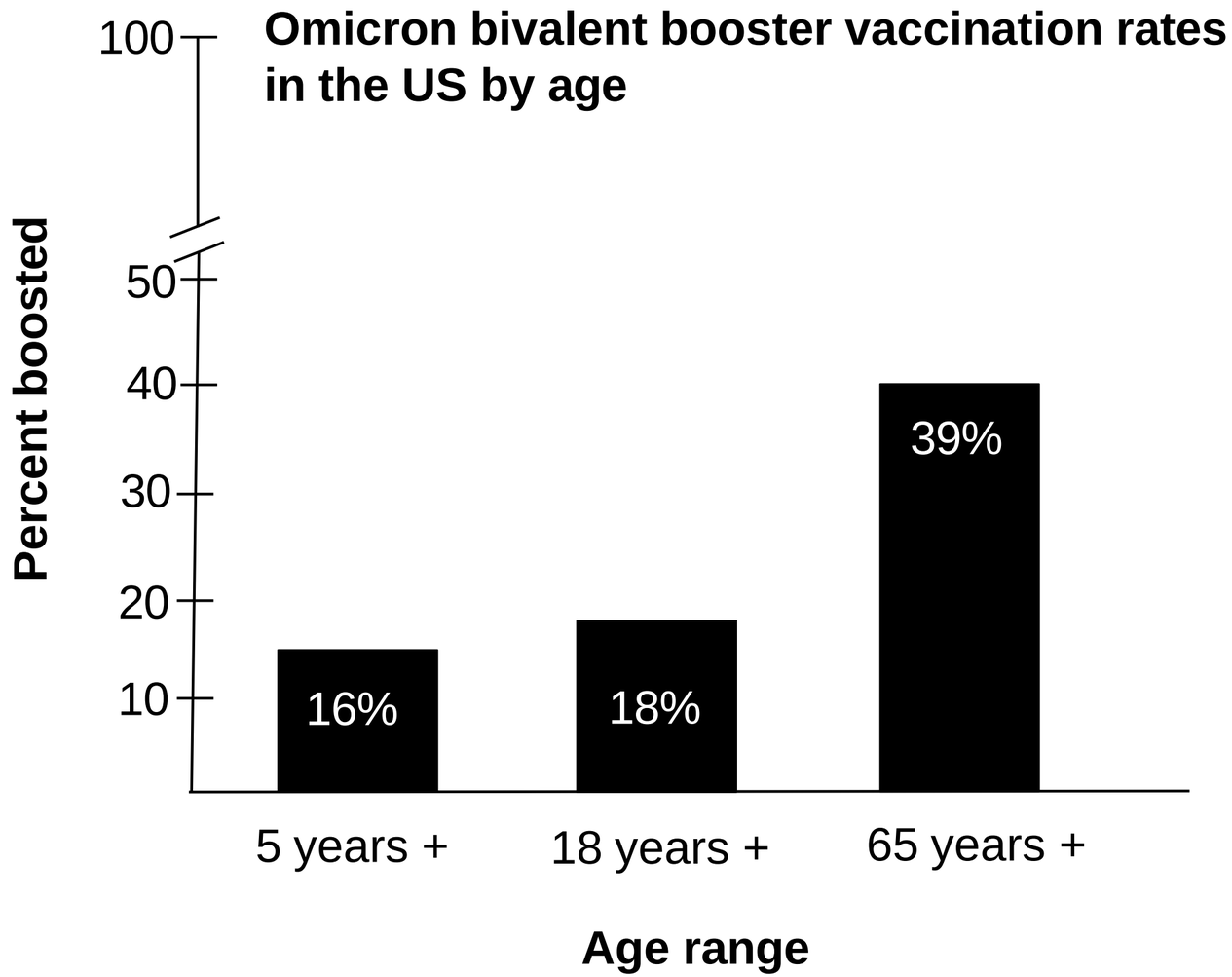
Pain at the injection site, fever, headache, fatigue, muscle and joint pain, chills, nausea, vomiting



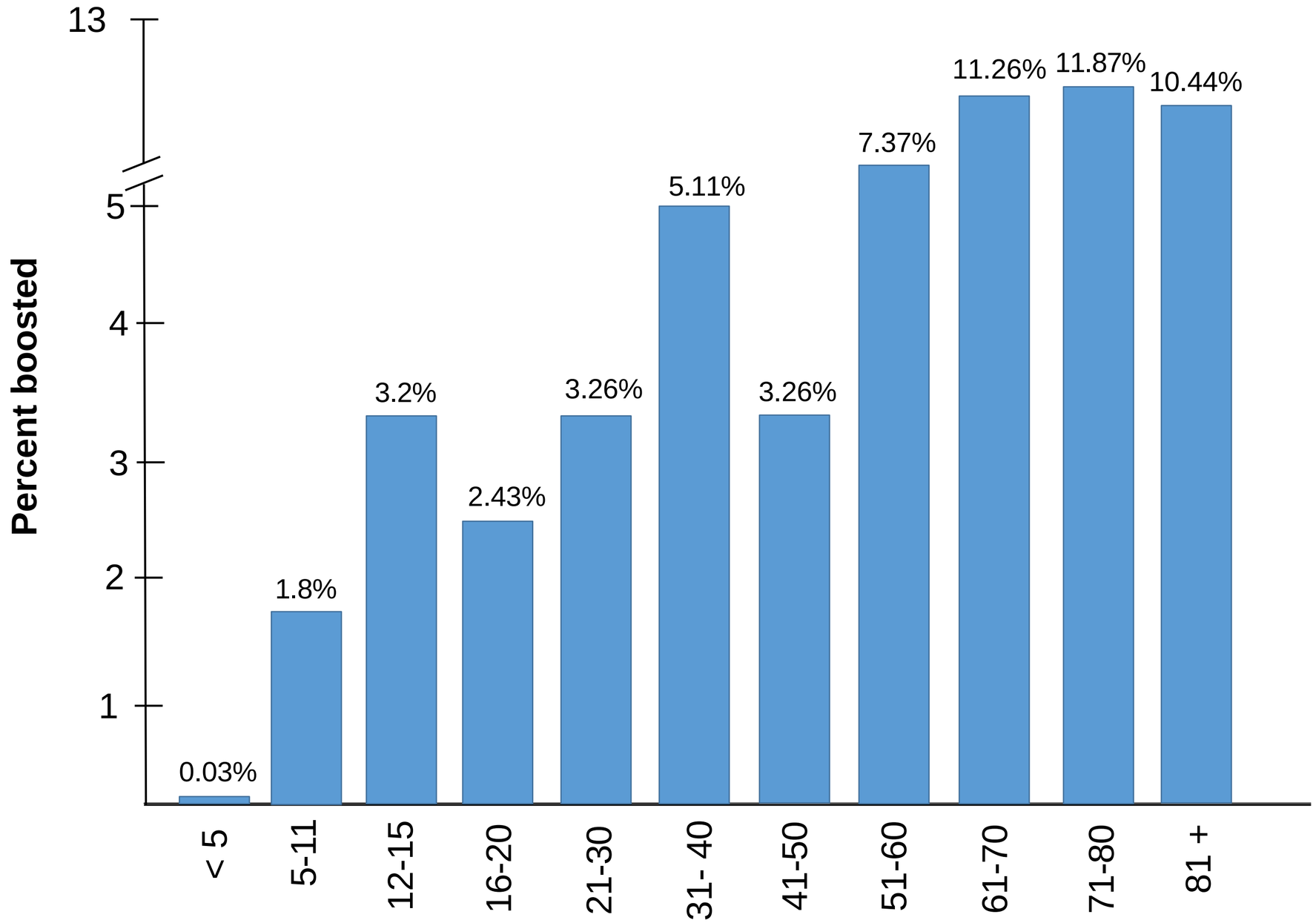
A single booster dose in children 6 months through 5 years of age at least two months after completion of a primary series with the monovalent vaccine and individuals 6 years of age and older at least two months after completion of either primary series

Pain at the injection site, fatigue, headache, muscle and joint pain, chills, nausea, vomiting, and fever.

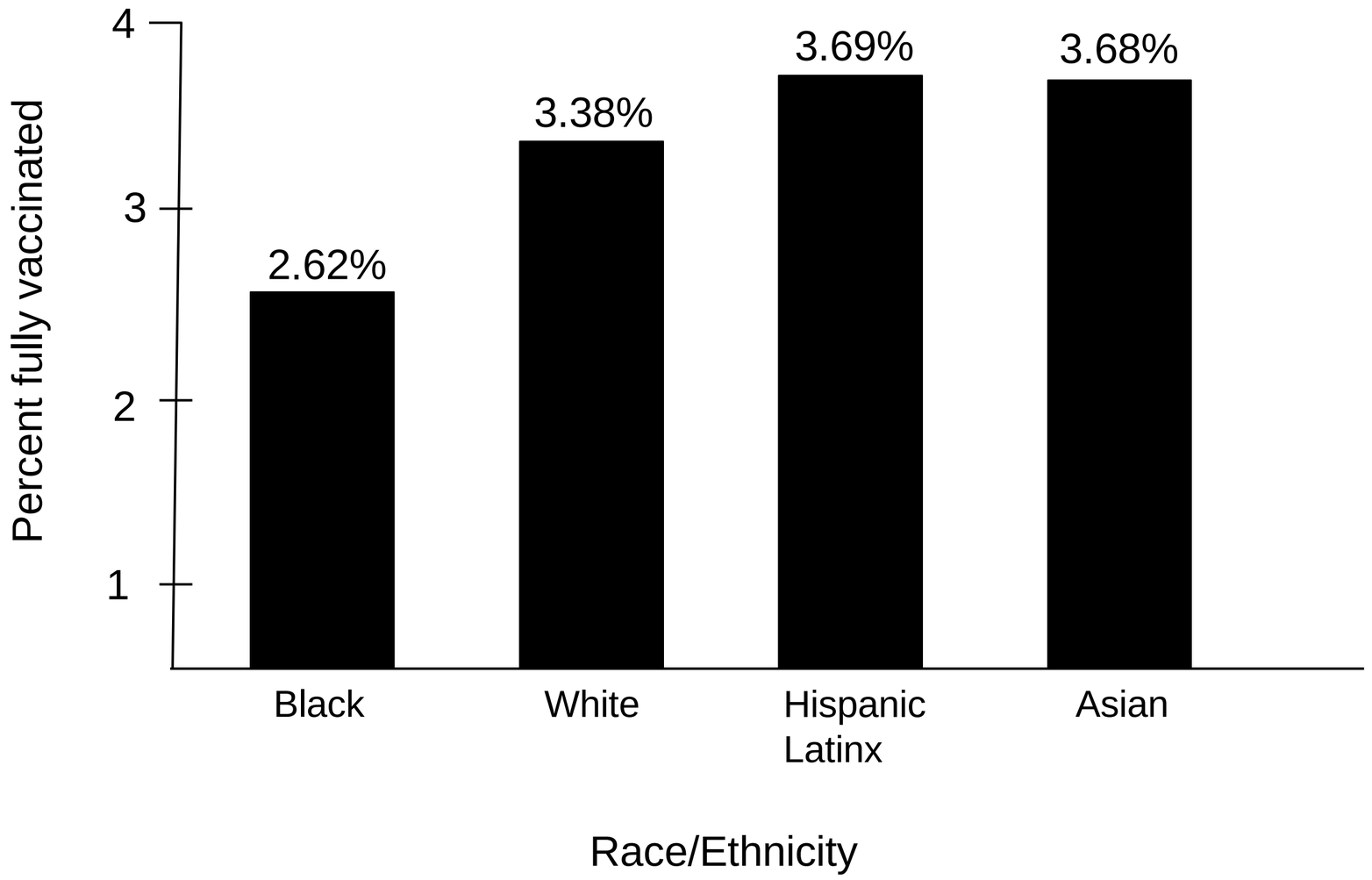
Alcendor et al., published in J. Vaccines 2023


Omicron bivalent booster vaccination rates in the US by age
Percent boosted
100
50
40
30
20
10
16%
18%
39%
5 years +
18 years +
65 years +
Age range

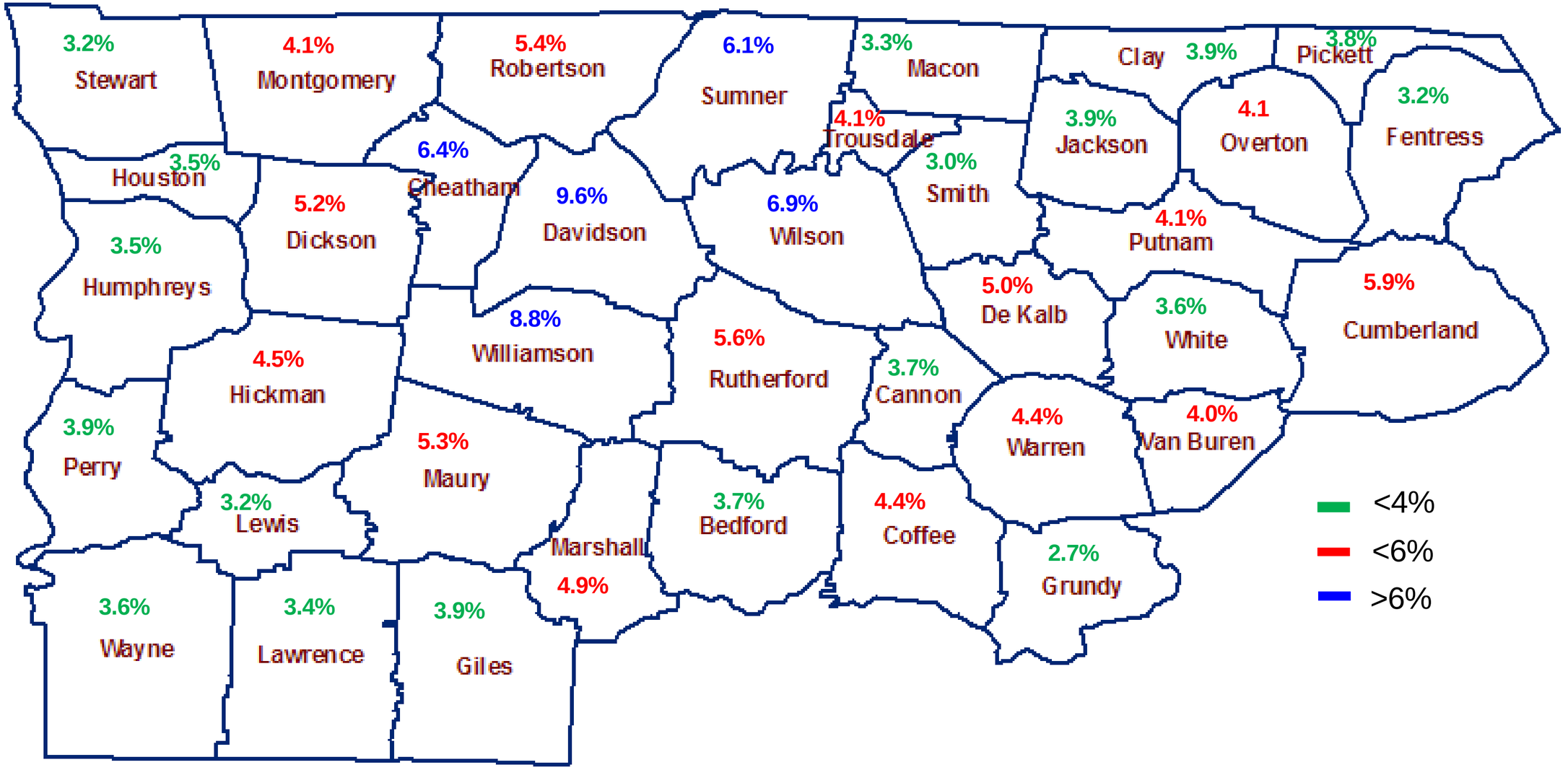
Omicron bivalent booster vaccination percentage in Tennessee by age range



Bivalent Booster Vaccination Rates in Tennessee by Race/Ethnicity



Middle Tennessee bivalent booster vaccination rates



Publications

1. Donald J. Alcendor. Racial Disparities Associated COVID-19 Mortality among Minority Populations in the US. J Clin Med. 2020 Jul 30;9(8):E2442. doi: 10.3390/jcm9082442. **PMCID: PMC7466083**

2. Hildreth, J.E.K.; Alcendor, D.J. Targeting COVID-19 Vaccine Hesitancy in Minority Populations in the US: Implications for Herd Immunity. Vaccines 2021, 9, 489. **PMCID: PMC8151325.**

3. Hildreth, James E.K., Jon D. Moulton, and Donald J. Alcendor 2021. "Vivo-Morpholino-Based Antiviral for SARS-CoV-2: Implications for Novel Therapies in the Treatment of Acute COVID-19 Disease" Biomedicines 9, no. 8: 1018. **PMCID: PMC8394971.**

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5. Alcendor DJ, Juarez PD, Matthews-Juarez P, Simon S, Nash C, Lewis K, Smoot D. Meharry Medical College Mobile Vaccination Program: Implications for Increasing COVID-19 Vaccine Uptake among Minority Communities in Middle Tennessee. Vaccines (Basel). 2022 Jan 29;10(2):211. **PMCID: PMC8878662.**

6. Alcendor, D.J.; Matthews-Juarez, P.; Smoot, D.; Hildreth, J.E.K.; Lamar, K.; Tabatabai, M.;Wilus, D.; Juarez, P.D. Breakthrough COVID-19 Infections in the US: Implications for Prolonging the Pandemic. Vaccines 2022, 10, 755. **PMC9146933**

7. Alcendor DJ, Matthews-Juarez P, Smoot D, Hildreth JEK, Tabatabai M, Wilus D, Brown KY, Juarez PD. The COVID-19 Vaccine and Pregnant Minority Women in the US: Implications for Improving Vaccine Confidence and Uptake. Vaccines (Basel). 2022 Dec 12;10(12):2122. **PMCID: PMC9784552.**

8. Juarez PD, Ramesh A, Hood DB, Alcendor DJ, Valdez RB, Aramandla MP, Tabatabai M, Matthews-Juarez P, Langston MA, Al-Hamdan MZ, Nori-Sarma A, Im W, Mouton CC. The effects of air pollution, meteorological parameters, and climate change on COVID-19 comorbidity and health disparities: a systematic review. Environmental Chemistry & Ecotoxicology, 4 (2022) 195-210.

9. Tabatabai, M,. Juárez, PD Matthews-Juarez, P. Wilus, DM, Ramesh, A, Alcendor, DJ, Tabatabai, N. and Singh, KP. "An Analysis of COVID-19 Mortality During the Dominancy of Alpha, Delta, and Omicron in the USA." Journal of Primary Care & Community Health 14 (2023) **PMCID: PMC10125879**

10. Donald J. Alcendor, Patricia Matthews-Juarez, Duane Smoot, James E.K. Hildreth and Paul D. Juarez. Vaccine Confidence and Uptake of the Omicron Bivalent Booster in Tennessee: Implication for Vulnerable Populations. *Vaccines 2023, 11, 906.* **PMCID: PMC10222358**

11. Donald J. Alcendor, Patricia Matthews-Juarez, Neely Williams, Derek Wilus, Mohammad Tabatabai, Esarrah Hopkins, Kirstyn, George, Ashley Leon, Rafael Santiago, Duane Smoot, James E.K. Hildreth and Paul D. Juarez. COVID-19 Vaccine Hesitancy and Uptake among Minority Populations in Tennessee *Vaccines 2023, 11, 1073. https://doi.org/10.3390/vaccines11061073*

12. Donald J. Alcendor, Patricia Matthews-Juarez, Duane Smoot, James E.K. Hildreth and Paul D. Juarez. Ending of the COVID-19 Related Public and National Health Emergency Declarations for medical underserved Populations in Tennessee. To be submitted to the Journal Vaccines June 2023.

IMPACT FACTOR 4.961 Indexed in: PubMed

vaccines

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Special Issue "Emerging Viral Pathogens and Vaccine Access for Vulnerable Populations"

A special issue of *Vaccines* (ISSN 2076-393X).

Deadline for manuscript submissions: **31 August 2023** | Viewed by 8

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Special Issue Editor

Dr. Donald J. Alcendor E-Mail Website SciProfiles
Guest Editor
Center for AIDS Health Disparities Research, Department of Microbiology, Immunology and Physiology, Meharry Medical College, Nashville, TN, USA
Interests: *Zika virus* pathobiology; *Zika virus* host interactions; *Zika virus*-associated ocular disease; *Zika virus* neonatal disease; *Zika virus*-associated renal diseases; models for *Zika virus* pathogenesis
Special Issues, Collections and Topics in MDPI journals

Special Issue Information

Dear Colleagues,

Newly emerging viral pathogens such as the SARS-COV-2 virus that causes COVID-19 and the most recent Orthopox virus that causes Monkeypox have led to global infections that can be life-threatening, particularly in medically underserved and vulnerable individuals with underlying comorbidities. Approved vaccines are now available for some of these emerging pathogens; however, vaccine hesitancy and resistance have been particularly high among ethnic populations and rural communities due to a history and legacy of racial injustices, social inequities, and negative experiences within a long-standing, culturally insensitive healthcare system. Communities with poor vaccination rates are especially vulnerable, and continual community spread of the emerging pathogen can result in genetic changes that can allow these viral pathogens to be more contagious, cause more severe disease, and evade immune response produced by vaccinations. Therefore, it is essential to provide all communities with education, awareness, and access to safe and effective vaccines. In this Special Issue, we aim to target vaccine research, development, implementation, and education for emerging viral pathogens that cause morbidity and mortality in the general population. Both original research and review articles are welcome.

RECOVER
Researching COVID to Enhance Recovery

En Español

HOME | WHAT IS LONG COVID? | RESEARCH | NEWS & EVENTS | ABOUT THE INITIATIVE

RECOVER: Researching COVID to Enhance Recovery

The National Institutes of Health (NIH) created the RECOVER Initiative to learn about the long-term effects of COVID.

Whether or not you have had COVID, you may be able to participate in RECOVER research.

FIND AND JOIN A RECOVER STUDY

Goal: 15,039	Goal: 2,451	Goal: 8,500
12,013	1,867	9,139
Adult Enrollment (non-Pregnant)	Pregnant Adult Enrollment	Pediatric Enrollment

VACCINATE FOR ALL
VACUNAS PARA TODOS

NHMA
National Hispanic Medical Association

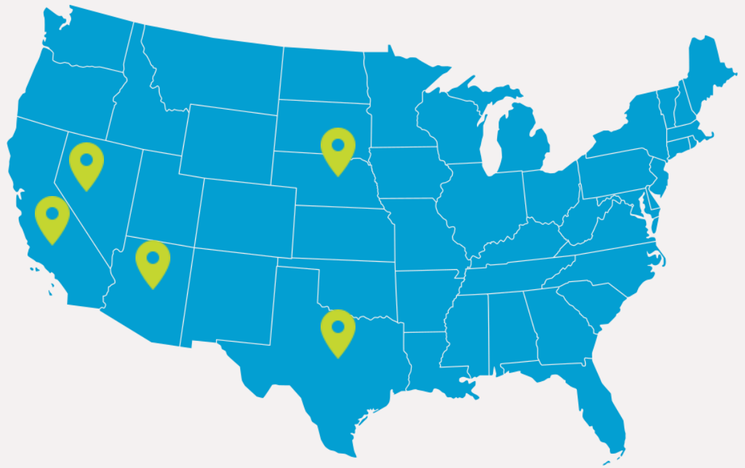
PLEASE PARTICIPATE IN THE DISCUSSION BY ASKING QUESTIONS USING THE Q AND A BOX DURING THIS TIME.

NHMA
National Hispanic Medical Association

CHAPTER EVENTS

GET INVOLVED WITH YOUR LOCAL CHAPTER AND FIND AN EVENT NEAR YOU, OR SHARE YOUR OWN V4ALL COMMUNITY EVENTS WITH US BY EMAILING VACCINATEFORALL@NHMAMD.ORG.

- NEBRASKA- SEPTEMBER 22ND
- SOUTHERN CALIFORNIA-OCTOBER 20TH
- NEVADA- NOVEMBER 4TH
- TEXAS- JANUARY 2024
- ARIZONA- TBD



NHMA
National Hispanic Medical Association

SIGN- UP TO BE A CHAMPION!

NHMA Vaccinate for All campaign register for free to join over 200+ individuals and organizations the champions today!

UPCOMING EVENTS

Immunization Awareness Month Twitter Chat
August 1st, 2023 at 1:00PM ET

NHMA Virtual Briefing Series:
Session #23:
August 30th, 2023 at 7:00PM ET
Speakers TBA

THANK YOU

PLEASE REMEMBER TO COMPLETE OUR POST-WEBINAR SURVEY TO BE ENTERED TO WIN A VACCINATE FOR ALL T-SHIRT!

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