CDC Coronavirus Disease 2019 Response

Updates on COVID-19 and Pregnancy

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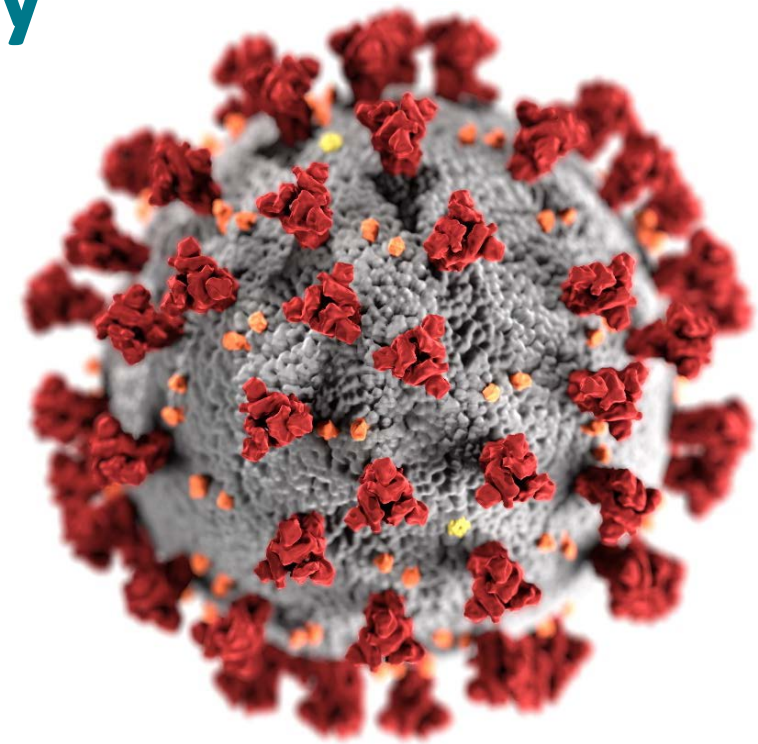

ACIP Meeting
September 22, 2021

cdc.gov/coronavirus

Disclaimer

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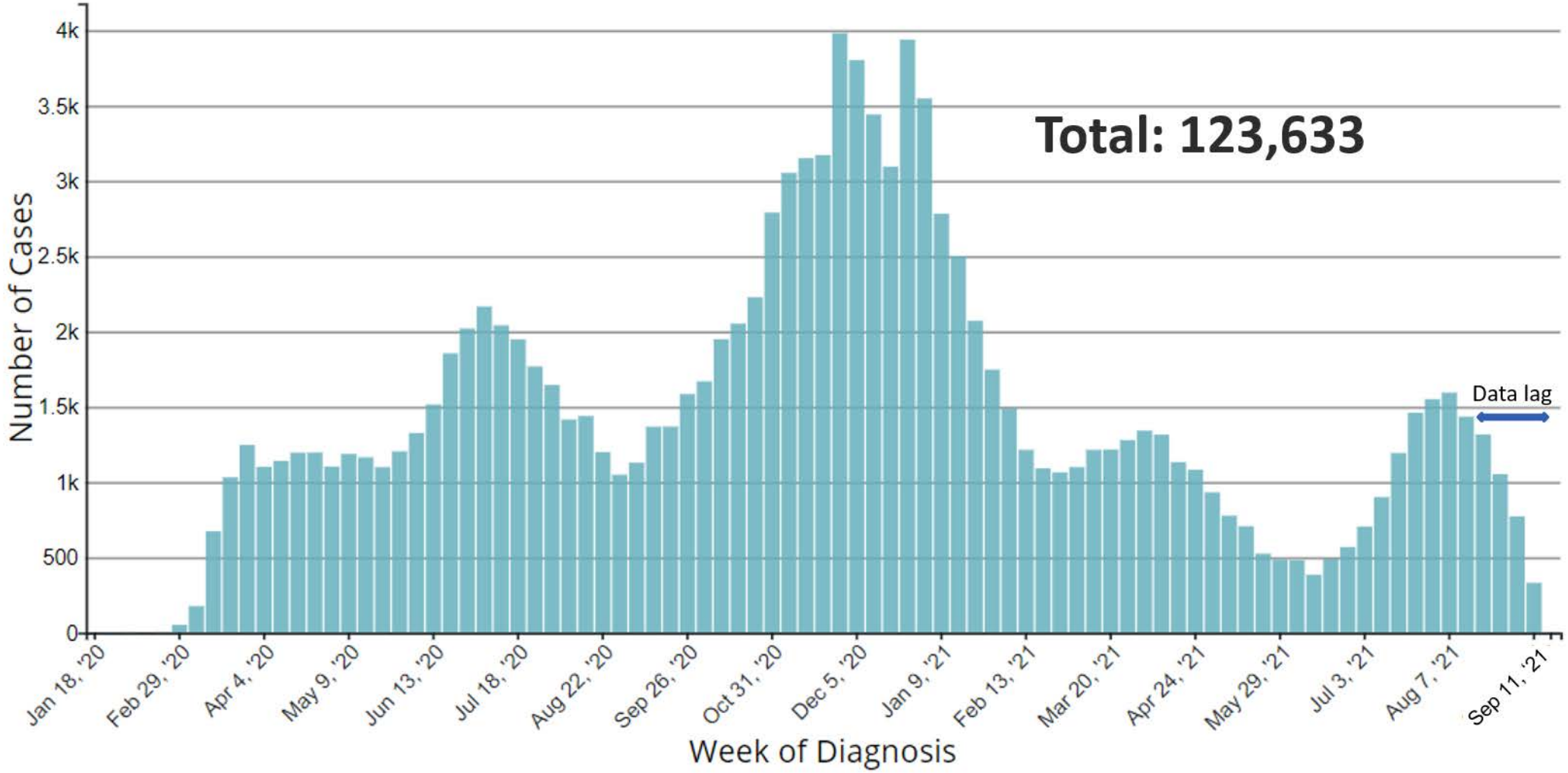
- Mention of a product or company name is for identification purposes only and does not constitute endorsement by CDC.

COVID-19 epidemiology among pregnant people

Pregnant people with laboratory-confirmed SARS-CoV-2 infection (National COVID-19 Case Surveillance Data)*



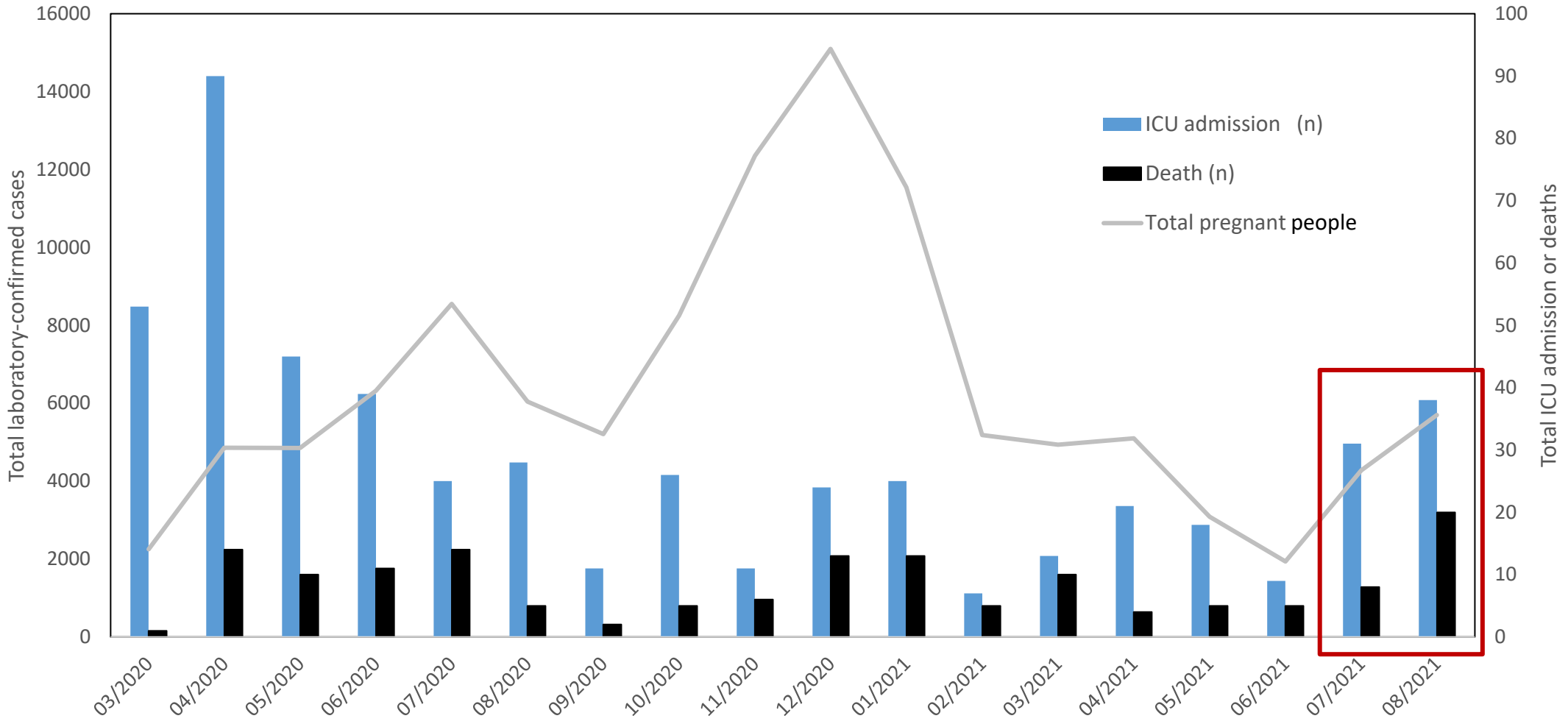
National COVID-19 case surveillance data: Pregnant people with laboratory-confirmed SARS-CoV-2 infection,* Jan 22, 2020–Sep 13, 2021

* Based on detection of SARS-CoV-2 in a clinical specimen by molecular amplification techniques

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

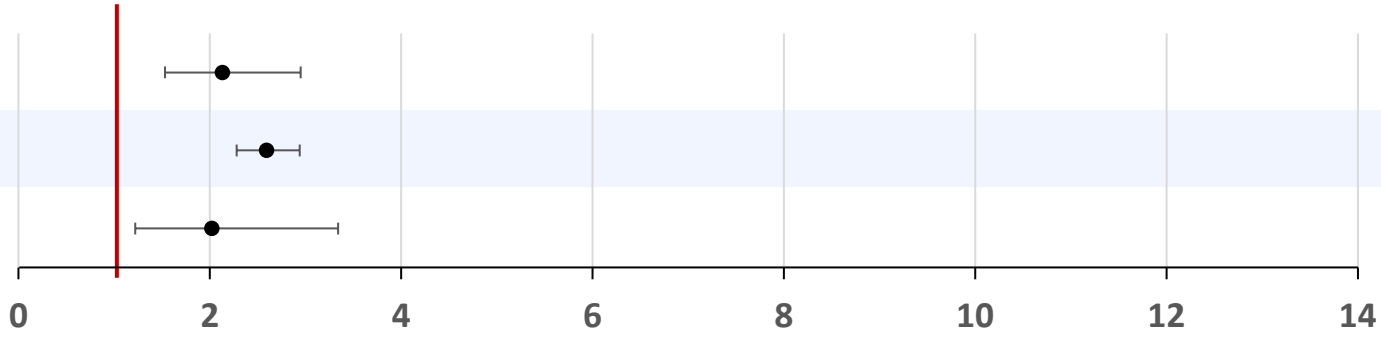
COVID-19 cases, ICU admission and death among pregnant people

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



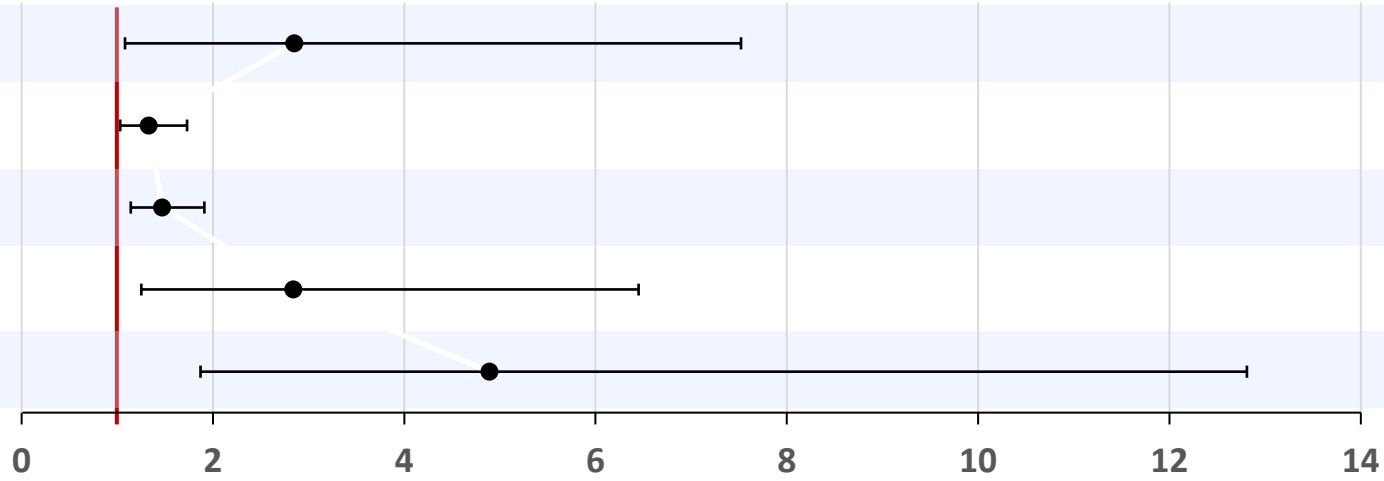
Severe illness and adverse maternal, pregnancy, and neonatal outcomes among pregnant women with COVID-19

Compared with non-pregnant WRA* with COVID-19



	Odds Ratios [95% CI]	Number of events / Total
ICU admission	2.13 (1.93-2.95)	10,184 / 601,108
Invasive ventilation	2.59 (2.28-2.94)	3,550 / 601,044
ECMO	2.02 (1.22-3.34)	137 / 461,936

Compared with pregnant women without COVID-19



	Odds Ratios [95% CI]	Number of events / Total
Maternal death	2.85 (1.08-7.52)	16 / 4,820
Preeclampsia**	1.33 (1.03-1.73)	28,326 / 424,344
Preterm birth	1.47 (1.14-1.91)	719 / 8,549
Stillbirth	2.84 (1.25-6.45)	35 / 5,794
NICU admission	4.89 (1.87-12.81)	848 / 5,873

Data from Allotey, J et al. unless otherwise noted; *Women of reproductive age; ** Preeclampsia data from Wei et al.; ECMO: Extracorporeal membrane oxygenation

Severe illness and death for symptomatic pregnant women with COVID-19 compared to symptomatic nonpregnant women

Outcomes of Interest	No. (%)* Symptomatic Pregnant women with COVID-19 (N = 23,434)	Symptomatic Nonpregnant women with COVID-19 (N = 386,028)	Crude RR (95% CI)	aRR (95% CI) †
ICU Admission	245 (1.1)	1,492 (0.4)	**2.7 (2.4-3.1)**	**3.0 (2.6-3.4)**
Mechanical Ventilation	67 (0.3)	412 (0.1)	**2.7 (2.1-3.5)**	**2.9 (2.2-3.8)**
ECMO§	17 (0.1)	120 (0.0)	**2.3 (1.4-3.9)**	**2.4 (1.5-4.0)**
Death	34 (0.2)	447 (0.1)	**1.3 (0.9-1.8)**	**1.7 (1.2-2.4)**

* Percentages calculated among total in pregnancy status group; those with missing data on outcomes were counted as not having the outcome

† Adjusted for age, race/ethnicity, and presence of underlying conditions. Nonpregnant women are the referent group.

§ Extracorporeal membrane oxygenation

Zambrano LD, Ellington S, Strid P, et al. Update: Characteristics of Symptomatic Women of Reproductive Age with Laboratory-Confirmed SARS-CoV-2 Infection by Pregnancy Status — United States, January 22–October 3, 2020. MMWR Morb Mortal Wkly Rep. ePub: 2 November 2020.
DOI: http://dx.doi.org/10.15585/mmwr.mm6944e3external icon.

Perinatal infection among neonates born to pregnant women with SARS-CoV-2 infection[1]

- 25,896 live born infants had ≥1 neonatal SARS-CoV-2 PCR test; 3,381 (13%) underwent PCR testing during the perinatal period
- 136 (4%) of those tested were PCR-positive
  - Nearly all were born to mothers with infection close to delivery (<14 days)
  - Positivity higher among those born preterm
- Other cohorts have estimated perinatal positivity to be 1-2%[2]

1. Data from Surveillance for Emerging Threats to Mothers and Babies Network https://www.researchsquare.com/article/rs-491688/v1
2. Mullins E, Hudak ML, Banerjee J, et al. Pregnancy and neonatal outcomes of COVID-19: coreporting of common outcomes from PAN-COVID and AAP-SONPM registries. *Ultrasound Obstet Gynecol*. 2021;57(4):573-581. doi:10.1002/uog.23619

COVID-19 vaccine effectiveness in pregnancy

Early data suggest receiving an mRNA COVID-19 vaccine during pregnancy reduces the risk for infection

- **Two Recent Studies from Israel**
  - **Objective:** Assess the association between receipt of mRNA COVID-19 vaccine and risk of infection among pregnant people

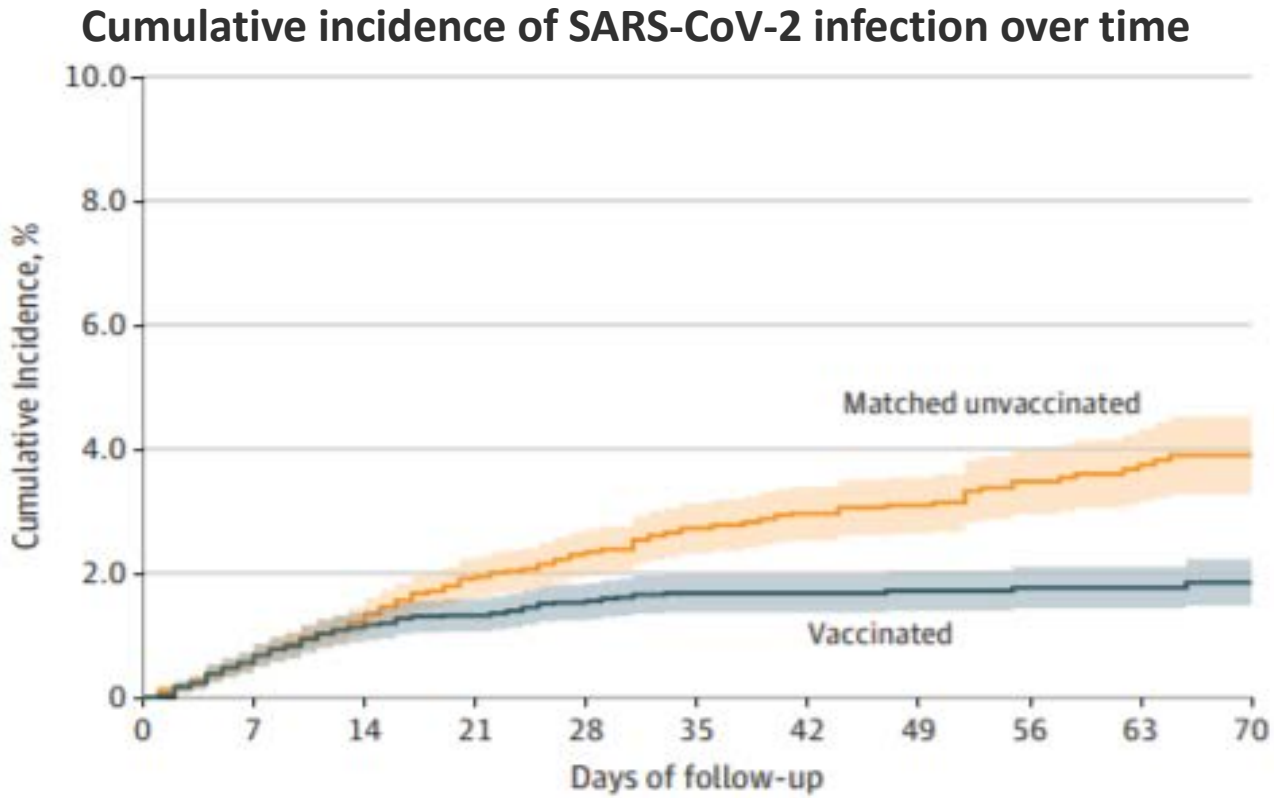
- **Methods:**
  - Retrospective cohort studies leveraging large state-mandated health care organizations
  - Vaccinated pregnant people were 1:1 matched to unvaccinated pregnant people by demographic and clinical characteristics

https://jamanetwork.com/journals/jama/fullarticle/2782047
https://www.nature.com/articles/s41591-021-01490-8

Early data suggest receiving an mRNA COVID-19 vaccine (BNT162b2) during pregnancy reduces the risk for infection

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



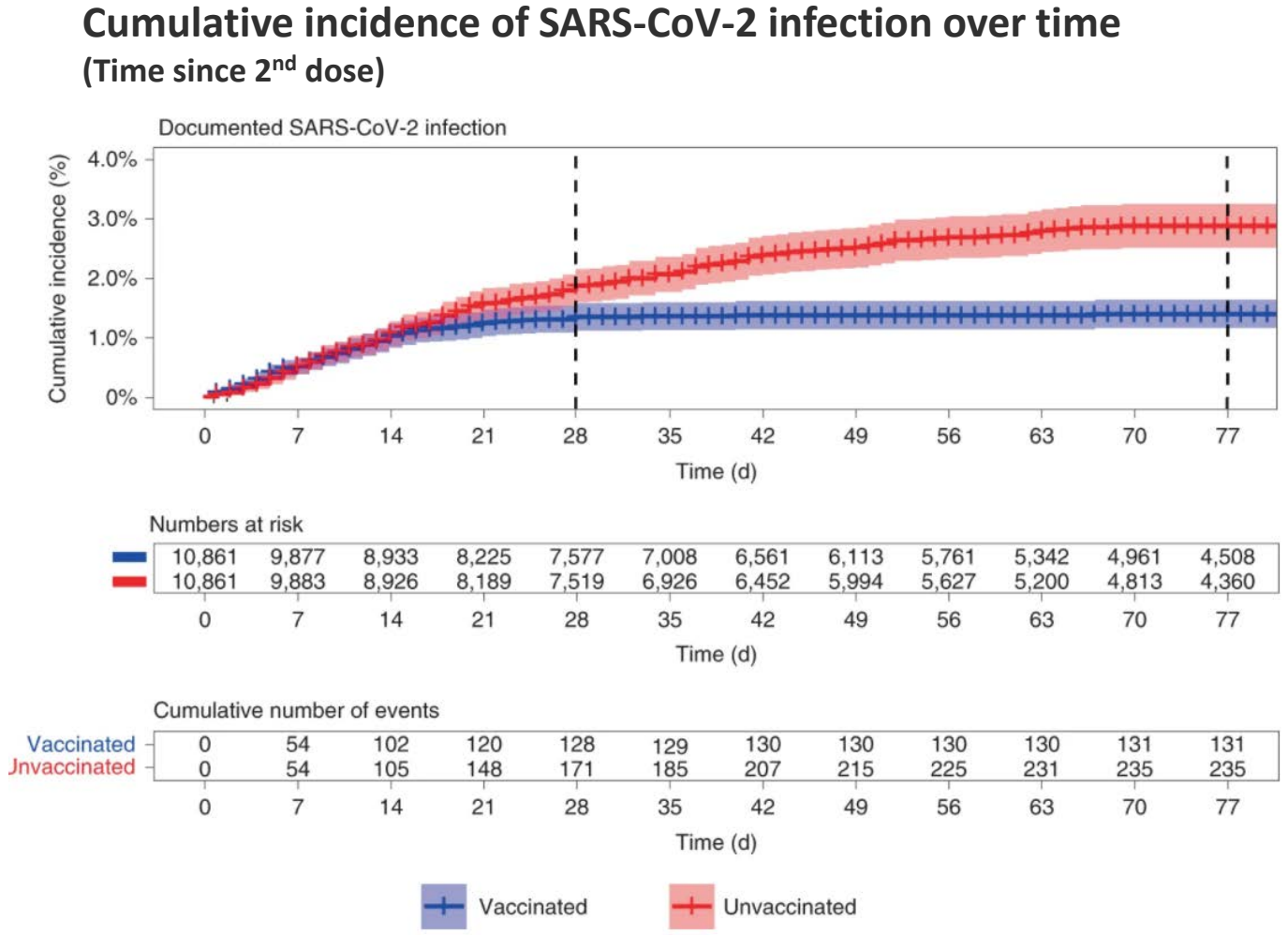
No. at risk											
Matched unvaccinated	7530	7446	6825	5661	4788	4023	3376	2327	1748	1295	955
Vaccinated	7530	7446	6825	5661	4788	4023	3376	2327	1748	1295	955
Cumulative No. of events											
Matched unvaccinated	0	51	99	137	158	175	184	188	196	200	202
Vaccinated	0	51	87	97	109	115	115	116	117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

https://jamanetwork.com/journals/jama/fullarticle/2782047

Receipt of an mRNA COVID-19 vaccine (BNT162b2) during pregnancy reduces the risk for infection

Dagan et al.

- Observational cohort: 10,861 vaccinated pregnant people and 10,861 unvaccinated pregnant people matched 1:1
- Vaccination with mRNA COVID-19 vaccines lowered the risk of infection among pregnant people



https://www.nature.com/articles/s41591-021-01490-8

Vaccination during pregnancy: Studying protective effects on neonates

OBSTETRICS

Coronavirus disease 2019 vaccine response in pregnant and lactating women: a cohort study

Check for updates

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- COVID-19 mRNA vaccination generated robust humoral immunity in pregnant and lactating women
- Immunogenicity and reactogenicity similar to that observed in nonpregnant women
- Vaccine-induced immune response were significantly greater than the response to natural infection
- Immune transfer to neonates occurred via placenta and breastmilk

https://pubmed.ncbi.nlm.nih.gov/33775692/

National Institutes of Health begins study of COVID-19 vaccination during pregnancy and postpartum: MOMI-VAX

Researchers will evaluate antibody responses in vaccinated participants and their infants

- 750 pregnant individuals and 250 postpartum individuals
- Participants and their infants followed through the first year after delivery
- Antibody testing on umbilical cord blood, breast milk and blood from infants two and six months after delivery

COVID-19 vaccination in pregnancy: Updated clinical considerations

Updated clinical considerations: COVID-19 vaccination during pregnancy and lactation

- COVID-19 vaccination is recommended for all people aged 12 years and older, **including people who are pregnant, breastfeeding, or who trying to get pregnant now or might become pregnant in the future.**
- Consistent with recommendations from professional medical organizations

https://www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html#pregnant

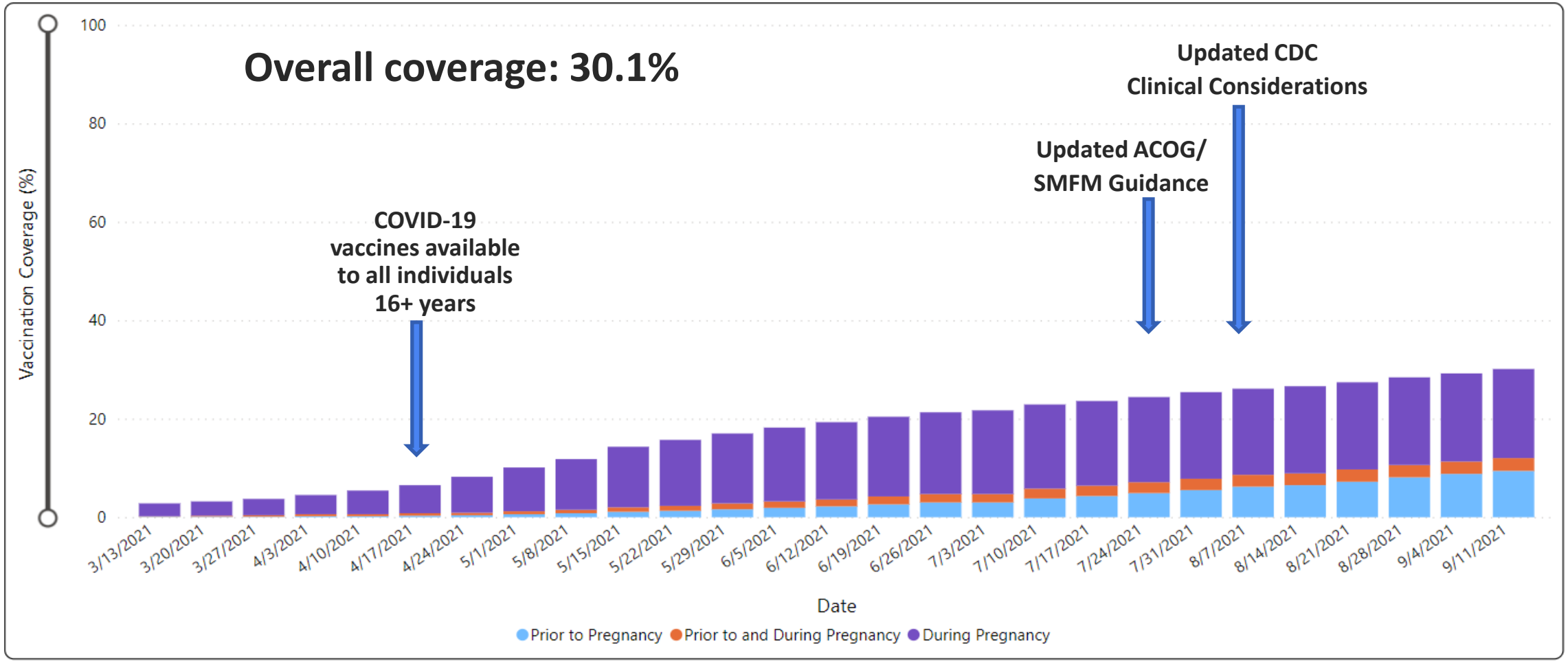
Summary: Evidence indicates benefits of COVID-19 vaccination during pregnancy outweigh potential risks

- Pregnancy increases the risk for severe illness and death from COVID-19 and COVID-19 is associated with adverse maternal, pregnancy and neonatal outcomes
- Data on the safety of receiving mRNA COVID-19 vaccine during pregnancy are reassuring
- Receipt of an mRNA COVID-19 vaccine during pregnancy reduces the risk for infection
- Vaccination during pregnancy results in maternal antibodies that have been detected in infant cord blood
- Vaccination coverage for pregnant people is low

https://www.cdc.gov/coronavirus/2019-ncov/vaccines/planning-for-pregnancy.html

COVID-19 vaccination coverage among pregnant people

Percent of pregnant people aged 18–49 years fully vaccinated with COVID-19 vaccine prior to and during pregnancy, by timing of vaccination and date reported to CDC—Vaccine Safety Datalink, United States, December 14, 2020–September 11, 2021



https://covid.cdc.gov/covid-data-tracker/#vaccinations-pregnant-women ; ACOG: American College of Obstetricians and Gynecologists; SMFM: Society for Maternal-Fetal Medicine

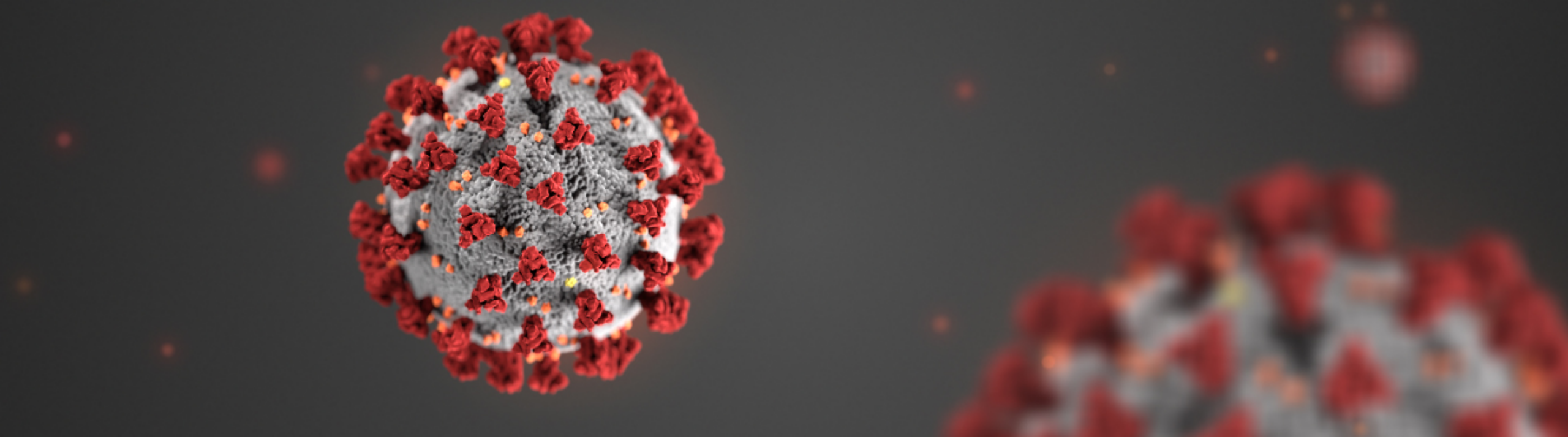
CDC efforts to improve vaccination coverage for pregnant people

- Monitor and display trends
- Assess reasons for vaccine hesitancy and share personal stories
- Disseminate safety information
- Work with clinical organizations and encourage more clinicians to become a vaccine provider*
- Provide resources to assist with vaccine discussions
- Ensure consistent messaging about COVID-19 vaccination for pregnant people
- Dispel myths about vaccine

*Resources to enroll as a vaccine provider: https://www.cdc.gov/vaccines/covid-19/provider-enrollment.html

Acknowledgments

- Kara Polen
- CDC's COVID-19 Response:
  - Maternal Immunization Team
  - Pregnancy and Infant Linked Outcomes Team
  - Vaccine Task Force
- Advisory Committee on Immunization Practices
- CDC's National Center on Birth Defects and Developmental Disabilities
- CDC's Division of Reproductive Health
- CDC's National Center on Immunization and Respiratory Diseases
- State and Local Jurisdictions
- Clinical and Public Health Partners
- Healthcare Providers and Pregnant Persons



For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

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