

Learning Forum

February 2024



FTI Champions Office Hours!



3.1.24

Noon

Rapid Response



CLINICAL PRACTICE GUIDELINE

NUMBER 8

JANUARY 2024

(REPLACES OBSTETRIC CARE CONSENSUS 1, MARCH 2014)

First and Second Stage Labor Management

Committee on Clinical Practice Guidelines—Obstetrics. This Clinical Practice Guideline was developed by the ACOG Committee on Clinical Practice Guidelines—Obstetrics in collaboration with Alison G. Cahill, MD, MSCI; Nandini Raghuraman, MD, MSCI; and Manisha Gandhi, MD; with consultation from Anjali J. Kaimal, MD, MAS. The Society for Maternal-Fetal Medicine (SMFM) supports this document.

PURPOSE: The purpose of this document is to define labor and labor arrest and provide recommendations for the management of dystocia in the first and second stage of labor and labor arrest.

TARGET POPULATION: Pregnant individuals in the first or second stage of labor.

METHODS: This guideline was developed using an a priori protocol in conjunction with a writing team consisting of one maternal-fetal medicine subspecialist appointed by the ACOG Committee on Clinical Practice Guidelines—Obstetrics and two external subject matter experts. ACOG medical librarians completed a comprehensive literature search for primary literature within Cochrane Library, Cochrane Collaboration Registry of Controlled Trials, EMBASE, PubMed, and MEDLINE. Studies that moved forward to the full-text screening stage were assessed by the writing team based on standardized inclusion and exclusion criteria. Included studies underwent quality assessment, and a modified GRADE (Grading of Recommendations Assessment, Development, and Evaluation) evidence-to-decision framework was applied to interpret and translate the evidence into recommendation statements.

RECOMMENDATIONS: This Clinical Practice Guideline includes definitions of labor and labor arrest, along with recommendations for the management of dystocia in the first and second stages of labor and labor arrest. Recommendations are classified by strength and evidence quality. Ungraded Good Practice Points are included to provide guidance when a formal recommendation could not be made because of inadequate or nonexistent evidence.

INTRODUCTION

In 2022, there were more than 3.66 million births in the United States, the vast majority of which were a result of spontaneous or induced labor (1). The most common indication for primary cesarean delivery is labor dystocia (2). Worldwide, the projected average cesarean delivery

rate continues to rise, and reducing the number of cesarean deliveries is a priority in the United States (3). In 2022, 32.2% of all births in the United States were cesarean deliveries (1). Although cesarean delivery can be lifesaving for the fetus, the mother, or both in certain cases, the rapid increase in the rate of cesarean births

SUMMARY OF RECOMMENDATIONS

Labor and Labor Arrest

ACOG recommends that cervical dilation of 6 cm be considered the start of the active phase of labor. (STRONG RECOMMENDATION, MODERATE-QUALITY EVIDENCE)

ACOG suggests that *active phase arrest of labor* be defined as no progression in cervical dilation in patients who are at least 6-cm dilated with rupture of membranes despite 4 hours of adequate uterine activity or 6 hours of inadequate uterine activity with oxytocin augmentation. (CONDITIONAL RECOMMENDATION, LOW-QUALITY EVIDENCE)

ACOG recommends that *prolonged second stage of labor* be defined as more than 3 hours of pushing in nulliparous individuals and 2 hours of pushing in multiparous individuals. An individualized approach should be used to diagnose second-stage arrest, incorporating information regarding progress, clinical factors that may affect the likelihood of vaginal delivery, discussion of risks and benefits of available interventions, and individual patient preference is recommended when time in the second stage is extended beyond these parameters. (STRONG RECOMMENDATION, HIGH-QUALITY EVIDENCE)

Arrest in the second stage can be identified earlier if there is lack of fetal rotation or descent despite adequate contractions, pushing efforts, and time. (GOOD PRACTICE POINT)

ACOG recommends that neuraxial anesthesia be offered for pain relief during any stage of labor. (STRONG RECOMMENDATION, MODERATE-QUALITY EVIDENCE)



PEDIATRICS

Rapid Response: Infant Mortality rates



Dr. Bettinger



Wednesday, November 1, 2023

LEADING THE NEWS

US Infant Mortality Rate Rose 3% Last Year, CDC Says

The [AP](#) (11/1) reports, "The U.S. infant mortality rate rose 3% last year — the largest increase in two decades, according to" a CDC [report](#). The data indicated that "white and Native American infants, infant boys and babies born at 37 weeks or earlier had significant death rate increases." The AP adds, "Dr. Eric Eichenwald, a Philadelphia-based neonatologist, called the new data 'disturbing,' but said experts at this point can only speculate as to why a statistic that generally has been falling for decades rose sharply in 2022." Dr. Eichenwald "chairs an **American Academy of Pediatrics** committee that writes guidelines for medical care of newborns."

[CNN](#) (11/1) reports that in an email, AAP President Sandy Chung, MD, FAAP, wrote, "We live in a country with significant resources, so the infant mortality rate and the increase are shockingly high." Dr. Chung added, "As pediatricians who help children grow into healthy adults, any death of any child is one too many. The infant mortality rate in this country is unacceptable."

[Bloomberg](#) (11/1, Subscription Publication) reports, "Deaths related to maternal complications of pregnancy, the fifth-leading cause of infant mortality, were 9% higher in 2022 than the year before." The data indicated that "deaths related to sepsis...rose 14%." Meanwhile, "other leading causes of death were consistent with prior years, the report said, including congenital malformations, short gestation and low birth weight, sudden infant death syndrome and accidents."

[NBC News](#) (11/1) reports, "The last year-to-year increase was from 2001 to 2002, when the rate similarly rose by 3%."

AAP News: [CDC: Infant mortality rate rises 3% from 2021-'22, first year-to-year increase in 20 years](#)

Table D1
Number of Stillbirths by Cause of Death and Weeks Gestation
Kansas, 2022

Cause of Death*	Total Stillbirths	Weeks Gestation			
		20-31	32-41	42 & Over	n.s.
All Causes	203	123	80	0	0
Certain Conditions Originating in the Perinatal Period	171	104	67	0	0
-Fetus Affected by Maternal Conditions	29	19	10	0	0
-Fetus Affected by Maternal Complications of Pregnancy	20	18	2	0	0
-Fetus Affected by Complications of Placenta, Cord & Membrane	43	24	19	0	0
-Fetus Affected by Complications of Labor & Delivery	1	0	1	0	0
-Disorders Related to Short Gestation & Low Birth Weight	0	0	0	0	0
-Hypoxia and Birth Asphyxia	0	0	0	0	0
-Cardiovascular Disorders	0	0	0	0	0
-Hemorrhagic & Hematologic Disorders of Fetus	1	1	0	0	0
-Unspecified Cause	59	35	24	0	0
-Other Perinatal Conditions	18	7	11	0	0
Congenital Anomalies	18	9	9	0	0
All other Causes	14	10	4	0	0

* The ICD-10 codes associated with each category are listed in Appendix 8.

Follow up to ED/OB Model

Learning Forum Jan 2024



Rapid Response

ACOG OB Emergencies in Non-OB settings

www.acog.org/programs/obstetric-emergencies-in-nonobstetric-settings

The screenshot shows the ACOG website page for 'Identifying and Managing Obstetric Emergencies in Nonobstetric Settings'. The URL is <https://www.acog.org/programs/obstetric-emergencies-in-nonobstetric-settings#acog>. The page features a dark blue header with navigation links: 'acog.org', 'ACOG Clinical', 'Obstetrics & Gynecology', 'For Patients', 'Store', 'ACOG Engage', 'Pay Dues', and 'Log In'. Below the header is the ACOG logo and a search bar. A secondary navigation bar includes 'Clinical Information', 'Practice Management', 'Career Support', 'Education & Events', 'Advocacy', 'News', and 'Topics'. The main content area has a green background with the title 'Identifying and Managing Obstetric Emergencies in Nonobstetric Settings' and a sub-header 'Programs > Obstetric Emergencies in Nonobstetric Settings'. The text below the title reads: 'This multiyear initiative seeks to enhance the identification and management of pregnancy-related emergencies in nonobstetric settings.' At the bottom, there are social media sharing options and a 'Print' button. A 'Programs' sidebar lists: Breastfeeding, Fetal Alcohol Spectrum Disorders Prevention, Global Women's Health, Immunization, and Implementing Progress in Abortion Care and Training. The 'ACOG Tools and Resources' section features a card titled 'Identify and Respond to Obstetric Emergencies' with the text: 'Our resources for emergency department, EMS, and urgent care practitioners enhance your readiness to identify and respond to obstetric emergencies.' An illustration of three women, one pregnant, is shown on the right.





Please let your health care team know if you are **currently pregnant or have been pregnant in the last 12 months.** A current or recent pregnancy can affect your care today.

www.acog.org/-/media/project/acog/acogorg/files/pdfs/brochures-flyers/ob-emergencies_pregnancy-status-sign.pdf



g.org/programs/obstetric-emergencies-in-nonobstetric-settings#acog

Home Clinical Information Practice Management Career Support Education & Events Advocacy News Topics Search ACOG

Obstetric Emergencies in Nonobstetric Settings

Optimizing Care for Pregnancy Loss

Perinatal Mental Health

Redesigning Prenatal Care Initiative

Complications from pregnancy can happen over the course of pregnancy, during delivery, and up to one year after the end of pregnancy. These complications, which include cardiovascular conditions such as cardiomyopathy; hypertensive emergencies such as preeclampsia, eclampsia, and stroke; and conditions related to mental health such as suicide and overdose, can be life-threatening. Patients who develop signs or symptoms of serious pregnancy-related complications and conditions may seek emergency care in nonobstetric settings including EMS/911, hospital-based emergency departments, standalone emergency rooms, or urgent care facilities.

State maternal mortality review committees, which gather detailed information to better understand the drivers of maternal deaths, have reported missed opportunities to identify pregnancy-related emergencies in nonobstetric settings. In response, ACOG and CDC* launched a multiyear initiative to address these findings. We have worked with specialty organizations and subject matter experts who play an integral role in training and educating clinicians in these settings to develop tools and resources to help practitioners identify and manage these pregnancy-related emergencies.

ACOG Resources for Emergency Departments

Algorithms

- [Cardiovascular Disease \(CVD\) in Pregnancy and Postpartum Algorithm \(PDF\)](#)
- [Acute Hypertension in Pregnancy and Postpartum Algorithm \(PDF\)](#)
 - [Download our Printer-Friendly Version](#)
- [Eclampsia Algorithm \(PDF\)](#)
 - [Download our Printer-Friendly Version](#)

Signs and Posters

- [Pregnancy Status Signs in English and Spanish \(PDF\)](#)

ACOG's resources for EMS are coming soon! These include model EMS guidelines for postpartum hemorrhage, elevated blood pressure in pregnancy and up to six weeks postpartum, and eclampsia and an EMS information sheet.

FTI: How far we've come

Impacted over **31,000** women and families in KS

93%
of
births!



Where's our updated County data?

Your County Data: Look it up!

<https://www.kdhe.ks.gov/DocumentCenter/View/31759/2022-Annual-Summary-Full-Report-PDF>



Kansas

Annual Summary of Vital Statistics, 2022



Kansas Department of Health and Environment
Division of Public Health
Bureau of Epidemiology and Public Health Informatics
Curtis State Office Building – 1000 SW Jackson, Topeka, KS, 66612-1354
kdhe.ks.gov
December 2023

2022: KDHE Vital Statistics Report

Figure A1. EVERY DAY DURING 2022*

Each day Kansas residents experienced approximately
94 Live births
34 Births to unwed mothers
6 Live births to teenagers
7 Low birthweight live births
<1 Infant death
87 Deaths
17 Heart disease
15 Cancer
6 Unintentional injuries
5 Coronavirus 2019
5 Chronic lower respiratory disease
4 Cerebrovascular disease
3 Diabetes
3 Alzheimer's disease
2 Nephritis, nephrotic syndrome, nephrosis
2 Suicide
1 Pneumonia & influenza

* based on 365 days in 2022

Table A1
Selected Vital Events and Percent Change
Kansas, 2022, 2021 and 2003

Vital Event	2022	2021	Percent Change 2021-2022	2003	Percent Change 2002-2021
Live Births	34,389	34,697	-0.9	39,353	-12.6
Births to Unwed Mothers	12,374	12,440	-0.5	12,345	0.2
Stillbirths	203	194	4.6	206	-1.5
Hebdomadal Deaths	108	87	24.1	138	-21.7
Perinatal Period III Deaths	311	281	10.7	344	-9.6
Neonatal Deaths	127	106	19.8	177	-28.2
Infant Deaths	200	184	8.7	262	-23.7
Maternal Deaths	9	8	12.5	0	n/a
Deaths	31,152	31,637	-1.5	24,417	27.6
Marriages	16,090	15,656	2.8	18,722	-14.1
Marriage Dissolutions	4,954	5,368	-7.7	8,644	-42.7
Abortions	3,844	3,937	-2.4	6,163	-37.6

Residence data are presented for births, deaths and abortions
Occurrence data are presented for marriages and marriage dissolutions

2022 KS Vital Stats

Table C20
Live Births by County of Residence and Peer Group*
by Population Group of Mother
Kansas, 2022

County of Residence	Total	Population Group						
		White Non-Hispanic	Black Non-Hispanic	Native American Non-Hispanic	Asian/Pacific Islander Non-Hispanic	Other Non-Hispanic†	Hispanic Any Race	n.s.
Kansas	34,389	23,569	2,191	165	1,124	949	6,295	96

Table A3
Selected Vital Events by Population Group
Kansas, 2022

	Total	White	Black	Native American	Asian/Pacific	Other	Hispanic	n.s.
		Non-Hispanic	Non-Hispanic	Non-Hispanic	Non-Hispanic	Non-Hispanic*	Any Race	
Births and Birth Rates								
Births	34,389	23,569	2,191	165	1,124	949	6,295	96
Birth Rates [†]	11.7	10.8	12.9	7.2	11.8	11.5	16.4	n/a
Maternal Characteristics								
	Total	White	Black	Number	Asian/Pacific	Other	Hispanic	n.s.
		Non-Hispanic	Non-Hispanic	Native American Non-Hispanic	Non-Hispanic	Non-Hispanic*	Any Race	
Births to mother <18 years of age	405	175	43	1	4	17	164	1
Births to mother <20 years of age	1,633	800	169	4	17	70	565	8
Births to mother with < HS diploma or GED	3,602	1,391	319	16	88	122	1,653	13
Births to unwed mothers	12,374	6,646	1,460	93	179	499	3,457	40
Fourth and higher birth order [§]	5,241	3,218	497	22	133	147	1,203	21
Birth Outcomes								
	Total	White	Black	Number	Asian/Pacific	Other	Hispanic	n.s.
		Non-Hispanic	Non-Hispanic	Native American Non-Hispanic	Non-Hispanic	Non-Hispanic*	Any Race	
Low birth weight infants (<2500 grams)	2,705	1,702	317	10	110	78	483	5
Very low birth weight infants (<1500 grams)	393	241	56	3	19	8	64	2
Births with gestational age < 37 weeks	3,594	2,365	318	19	134	95	652	11
	Total	White	Black	Rate	Asian/Pacific	Other	Hispanic	n.s.
		Non-Hispanic	Non-Hispanic	Native American Non-Hispanic	Non-Hispanic	Non-Hispanic*	Any Race	
Infant deaths [‡]	5.8	4.7	9.1	6.1	5.3	11.6	7.9	n/a
Neonatal deaths [‡]	3.7	3.1	5.0	6.1	4.4	6.3	4.9	n/a
Postneonatal deaths [‡]	2.1	1.7	4.1	0.0	0.9	5.3	3.0	n/a
Stillbirths [§]	5.9	5.4	7.7	12.0	4.4	8.4	6.3	n/a
Perinatal [§]	9.0	8.0	11.8	18.0	8.9	13.6	10.3	n/a
Pregnancy Characteristics								
	Total	White	Black	Number	Asian/Pacific	Other	Hispanic	n.s.
		Non-Hispanic	Non-Hispanic	Native American Non-Hispanic	Non-Hispanic	Non-Hispanic*	Any Race	
Births to women with prenatal care in first trimester	27,365	19,180	1,498	113	873	731	4,262	58
Births to women with late (3rd trimester) or no prenatal care	1,821	720	133	12	45	53	545	13
Plural births [§]	1,083	784	92	2	26	28	149	2
Deaths and Death Rates								
	Total	White	Black	Native American	Asian/Pacific	Other	Hispanic	n.s.
		Non-Hispanic	Non-Hispanic	Non-Hispanic	Non-Hispanic	Non-Hispanic*	Any Race	



FOURTH TRIMESTER INITIATIVE

Smoking Before, During, and After Pregnancy

Among individuals with a live birth in 2017 or 2018, cigarette smoking rates dropped from the 3 months before pregnancy to during pregnancy, but began to increase again in the months following pregnancy.



3 Months Before



During



Postpartum



PREGNANCY & VAPING

People who are pregnant or planning to become pregnant are highly encouraged to quit vaping to reduce health risks for both themselves and their baby.



Vaping has increased in popularity over the last decade – especially among youth as enticing fruity flavors and flashy marketing campaigns lure in the younger population. Effects of vaping are not as well studied as the effects of cigarette smoking; however, research has shown that vaping is not harmless. In fact, toxic chemicals can be found in e-cigarettes, and breathing in secondhand aerosol is not safe. Most vapes contain nicotine. Nicotine is a highly addictive substance that can harm the developing brains of adolescents. Additionally, nicotine is toxic to fetuses.¹



Around 1 in 20 Kansas residents with a recent live birth (4.8%) reported using electronic vapor products (EVPs) in the 3 months before pregnancy.²



1.4% reported using EVPs in the last 3 months of pregnancy.



Among those who reported smoking cigarettes in the 3 months before pregnancy, **16.4%** also used electronic vapor products during that time. By comparison, only **1.9%** of those who were not smoking cigarettes reported using EVPs during this time.

The prevalence of self-reported EVP use in the 3 months before pregnancy was significantly higher among individuals...



...who were **under 20 years old (12.1%) or 20-24 years old (9.0%)**, compared to those who were at least 25 years old (3.0%).



...whose highest level of education was a **high school diploma/GED (8.1%)**, compared to those with at least some college credit (3.5%).



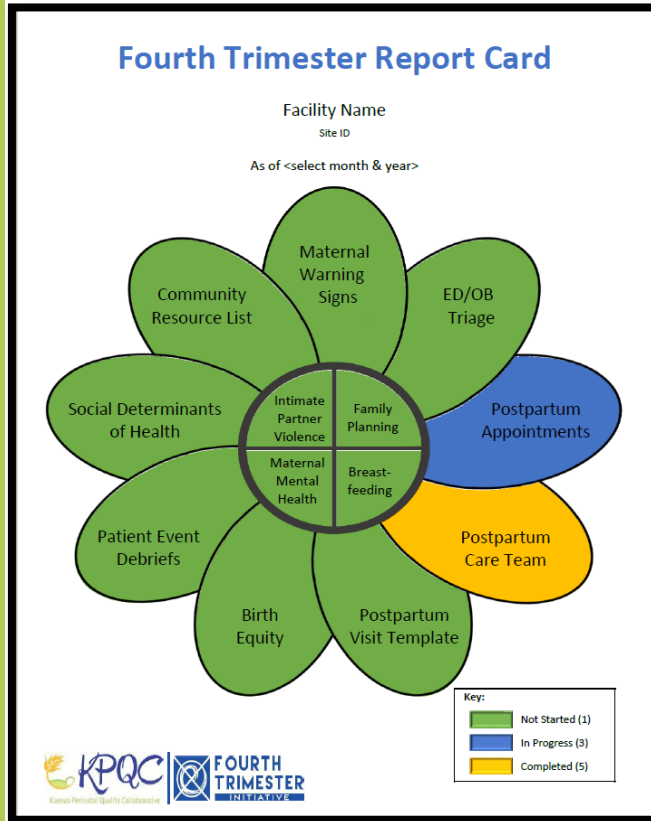
...who reported having **any unmet basic needs (9.5%)** during pregnancy, compared to those whose basic needs were met (3.5%).

2023 FTI Review

My Vision for:
this community.

- Shared understanding of resources to support moms.
- **Support + Resources**
Having a wide range of resources + screening for moms/babies |
 - Increasing awareness of available resources
 - continue to ↑ community resources

Did you get your "Report Card"?



Fourth Trimester Report Card

Facility Name _____
Site ID _____
As of <select month & year>

JM Data Collection

Item	Score	Initiative
Maternal Warning Signs	3	1) Feedback incorporated Feedback into patient education materials
ED/OB Triage	3	1) Feedback provided Maternal Warning Signs Provider and Nursing Education
Postpartum Appointments	3	1) Feedback incorporated into current appointment with her care
Postpartum Care Team	5	1) PP Appointment not addressing care in discharge
Postpartum Visit Template	3	1) PP Care Team completed care coordination
Birth Equity	3	1) PP visit Template shared comprehensive pp visit template
Patient Event Debriefs	3	1) PP APRN Research and Quality Care education
Social Determinates of Health	3	1) Patient Event Debriefs
Community Resource List	3	1) PP APRN Debriefs that address social determinates of health
	3	1) PP APRN Community Resource List

Areas Specific Initiatives

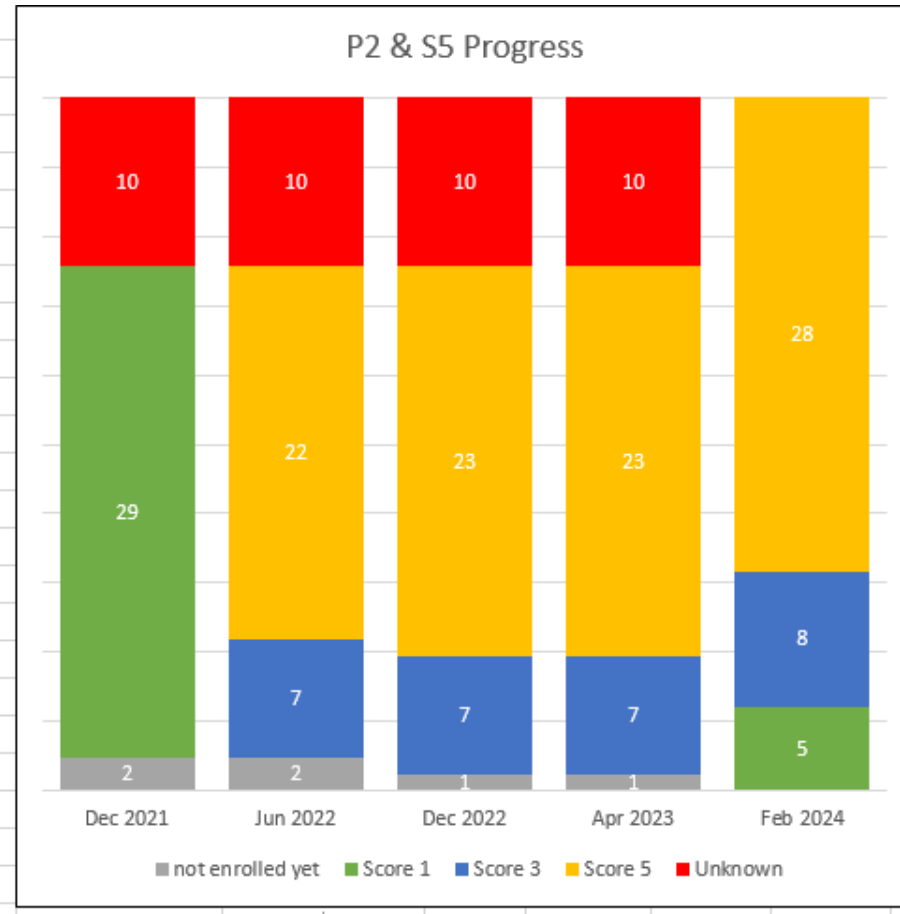
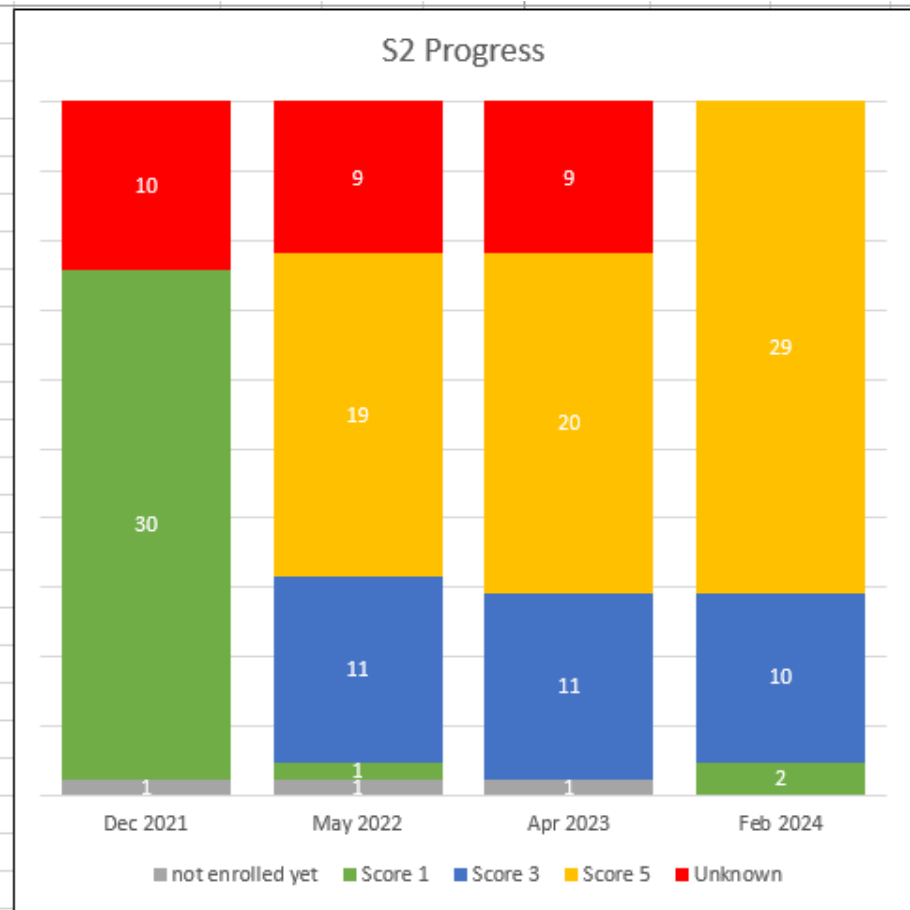
Item	Score	Initiative
Intimate Partner Violence	3	1) Intimate Partner training at each FTI site. Begin collaboration with local provider groups available maternal resources
Maternal Mental Health	3	1) Complete direct TA with Kansas Connecting communities. Have a standardized screening and referral process embedded at each FTI site.
Family Planning	3	1) Screen for family planning prior to postpartum discharge.
Breastfeeding	3	1) Achieve either high 5 or Baby Friendly designation for your facility.

KPQC FOURTH TRIMESTER INITIATIVE



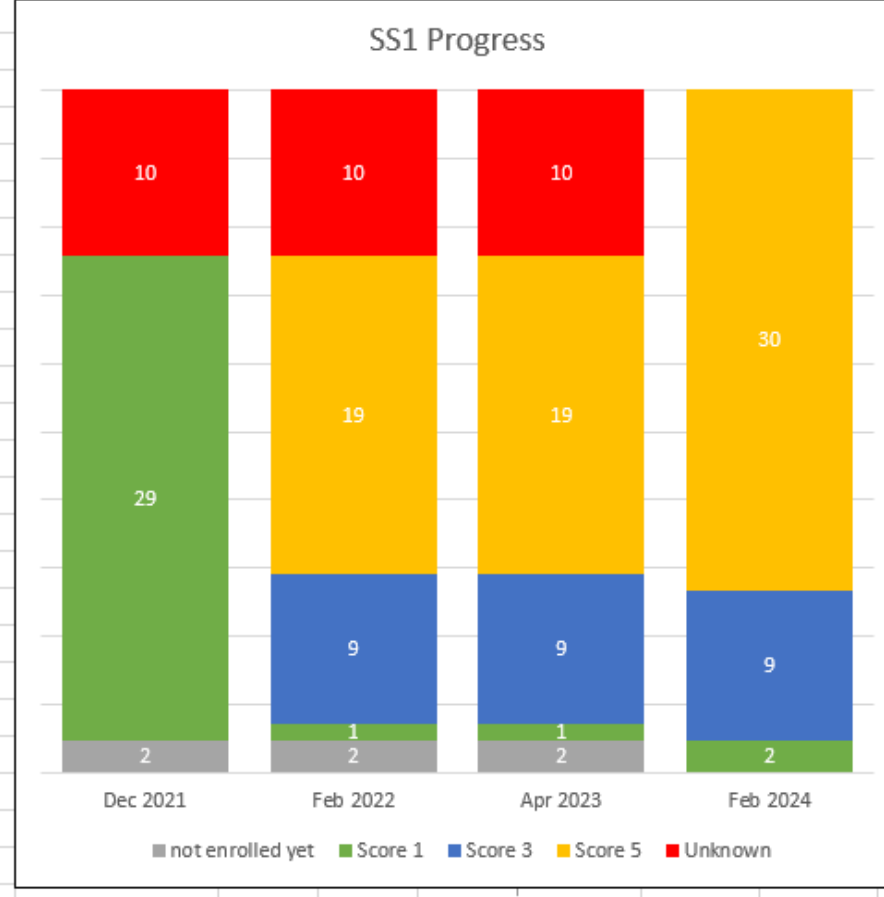
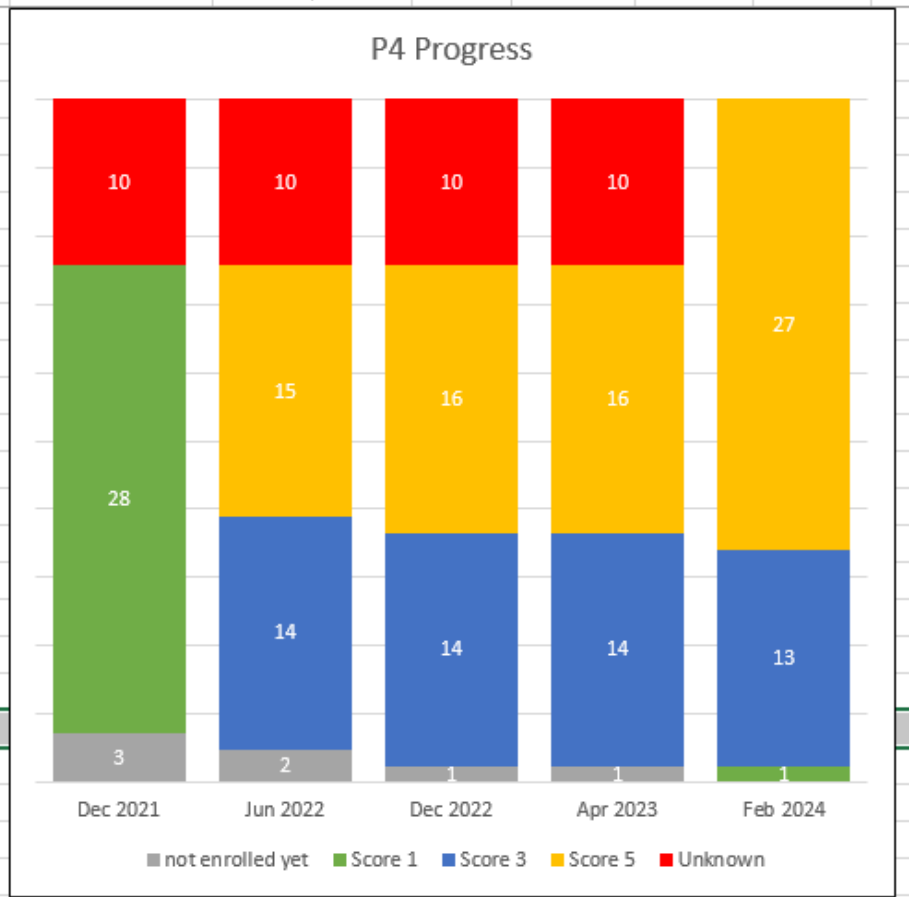
Community Resource List

POSTBIRTH



Postpartum Appt Made

PP Care Team



Updated FTI “Final Planning” PPT

*Contact us if you did NOT receive

Part V
Comprehensive PP Visit
Template
**To include the "Standardized Discharge Summary"

FTI Goal
Every FTI Site shares out with all
clinics/agencies seeing Postpartum patients

Example of wording:
As part of our continued work with the state and national maternal health initiative (Fourth Trimester Initiative), we were asked to share information with all postpartum care providers in our community. Please find attached new updates to the Postpartum Standardized Discharge Summary, as well as the criteria now recommended for the Comprehensive Postpartum Visit. Please reach out with further questions, and our hospital will continue to work towards improving the communication, documentation, and referral portions of this criteria prior to discharge.

The NEW Postpartum Model

KPQC FOURTH TRIMESTER INITIATIVE

Fourth Trimester Initiative

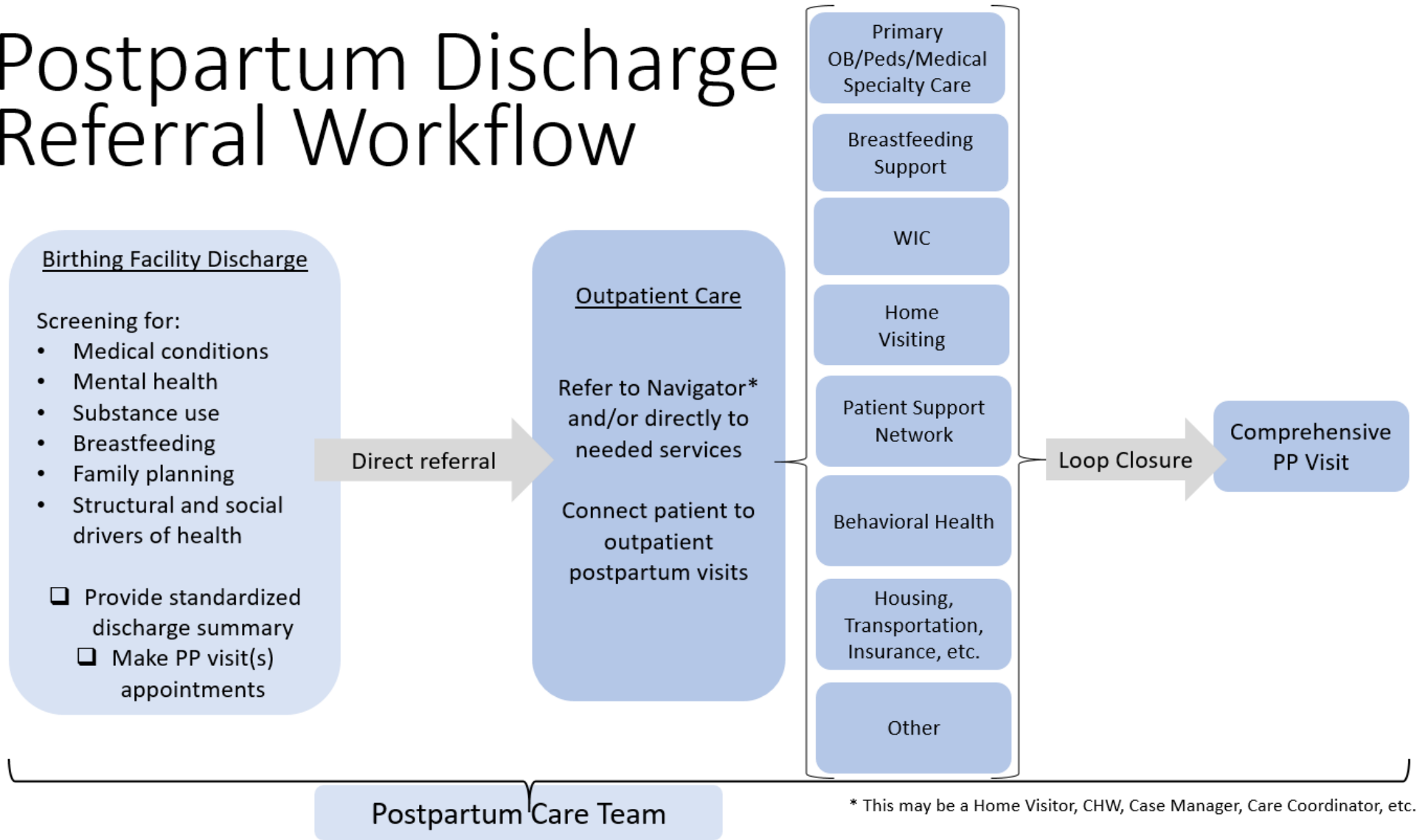
What you need to complete each project within FTI:

- ✓ Postpartum Appointment prior to Discharge
 - ✓ Postpartum Care Team
- ✓ Comprehensive PP Visit Template
 - ✓ Maternal Mental Health
 - ✓ Community Resource List
 - ✓ Birth Equity
 - ✓ Patient Event Debriefs
 - ✓ Social Determinants of Health
 - ✓ ED Triage
 - ✓ Family Planning
- ✓ Finding Data & FTI Data Input
 - ✓ POSTBIRTH Resources
 - ✓ Marketing Tools

New Postpartum Model for Kansas

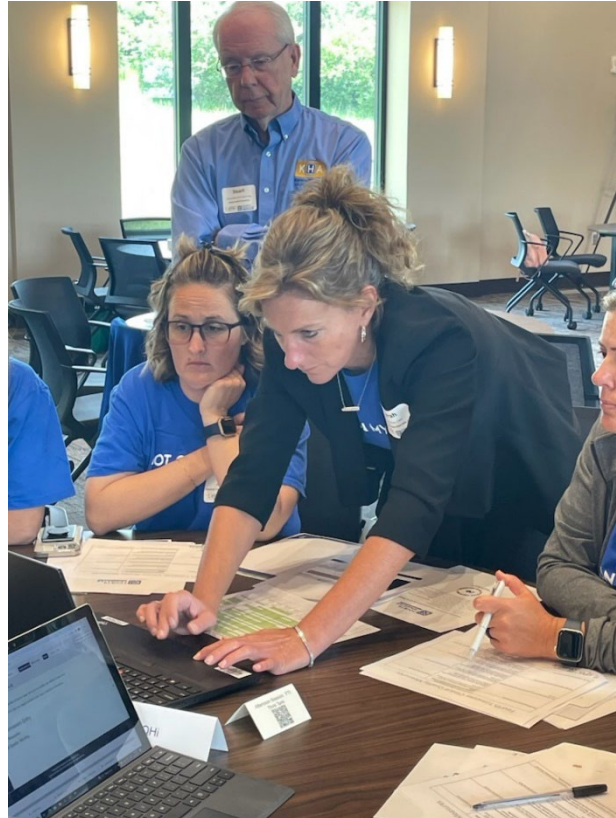
(aka Fourth Trimester Initiative)

Postpartum Discharge Referral Workflow



FTI Office Hours

March 1st, 2024 Noon



Zoom link and Invite provided!

Birth Equity Training

KS Birth Equity Training

Final Training Rosters have been submitted!

Course Content: Six Modules

- 1 Introduction
- 2 The Need for Birth Equity
- 3 Community Engagement
- 4 The Uncomfortable Truth of Bias
- 5 The Black Postpartum Experience
- 6 Respectful Maternal Care

AIM Bundle Birth Equity & Pt Debriefs

- Expand on required **Birth Equity** & hits the mark for “**Pt Debriefs**”
- March 19th at noon: [3.19.24 MoMMA's Voices](#)
- April 16th at noon: [4.16.24 MoMMA's Voices](#)
- May 1st at noon: [5.1.24 MoMMA's Voices](#)

*Links will be sent out to **FTI Champions**, then should be shared out to your staff members.*

Do NOT have to register, but 100% should attend one session.

Stephanie Wolf & Sarah Chicchelly



Stephanie Wolf is a Registered Nurse, serving as the Clinical Perinatal and Infant Health Consultant for the Kansas Department of Health and Environment (KDHE) Bureau of Family Health (BFH) since 2015. Prior to her time at KDHE, Stephanie spent 15 years as the Maternal Child Health (MCH) Coordinator at the Saline County Health Department. Stephanie is passionate about public health, and is committed to helping support local providers to better serve the MCH population. In 2019, Stephanie was honored by receiving the Association of Maternal and Child Health Programs (AMCHP) Emerging MCH Professional Award for Region VII.



Sarah Chicchelly is an epidemiologist with the Infectious Disease Epidemiology and Response (IDER) Section at the Kansas Department of Health and Environment (KDHE). She earned a Master of Public Health degree in epidemiology from the University of Iowa in May 2019 and a Bachelor of Science degree in microbiology from Iowa State University in May 2017. She has worked in IDER since March 2020 and oversees the Kansas Perinatal Hepatitis B Prevention Program (PHBPP) along with other projects related to infectious disease in perinatal populations.



KANSAS
MATERNAL &
CHILD HEALTH



KPQC Learning Forum

IMPACT OF COVID-19 ON PERINATAL POPULATIONS

SARAH CHICCHELLY AND STEPHANIE WOLF

FEBRUARY 27, 2024

Learning Objectives

- Identify one key finding from analysis of outcomes among Kansas women and infants with prenatal COVID-19 infection.
- Identify one key finding from analysis of self-reported COVID-19 vaccination rates among pregnant persons completing a prenatal education course from the Kansas Perinatal Community Collaboratives in 2022.
- Identify one of the most trusted sources of COVID-19 vaccine information reported by pregnant persons completing a prenatal education course from the Kansas Perinatal Community Collaboratives in 2022.
- Identify one of the top three reasons for vaccine hesitancy among pregnant persons completing a prenatal education course from the Kansas Perinatal Community Collaboratives in 2022.
- Describe one opportunity you have as a perinatal care provider to have a positive impact on COVID-19 infection rates among the perinatal persons in your community.



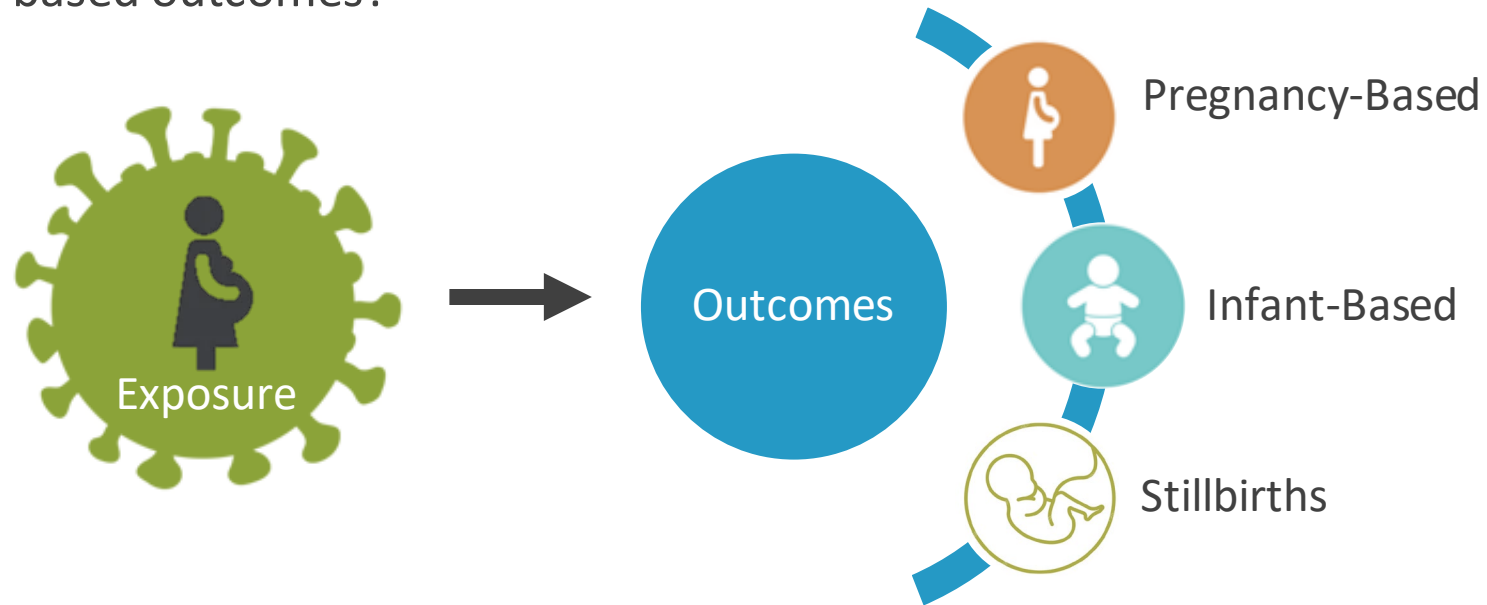
KANSAS
MATERNAL &
CHILD HEALTH



Analysis of Outcomes Related to Maternal COVID-19 Infection During Pregnancy

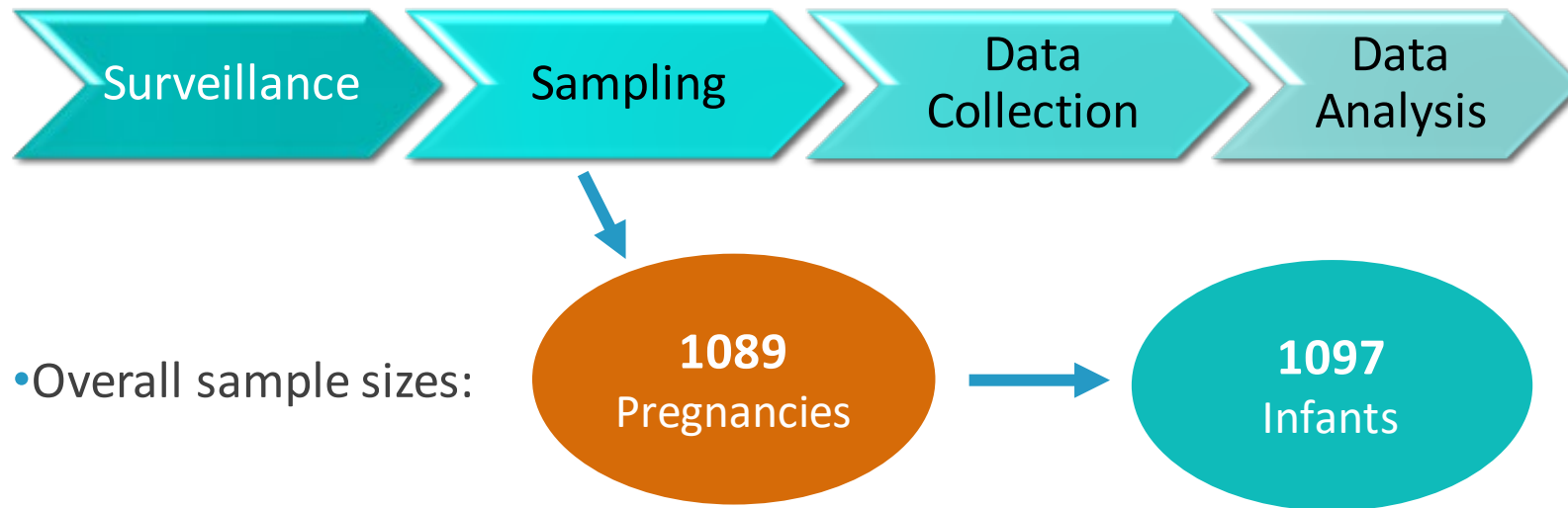
Study Design

Does COVID-19 infection during pregnancy impact certain pregnancy- and infant-based outcomes?



We also wanted to be able to describe COVID-19 vaccine uptake among women with COVID-19 infection during pregnancy.

Study Design



• Overall sample sizes:

1089
Pregnancies

1097
Infants

- Inclusion criteria and data sources
- Done in conjunction with CDC's Surveillance of Emerging Threats to Mothers and Babies Network (SET-NET) initiative

Study Design

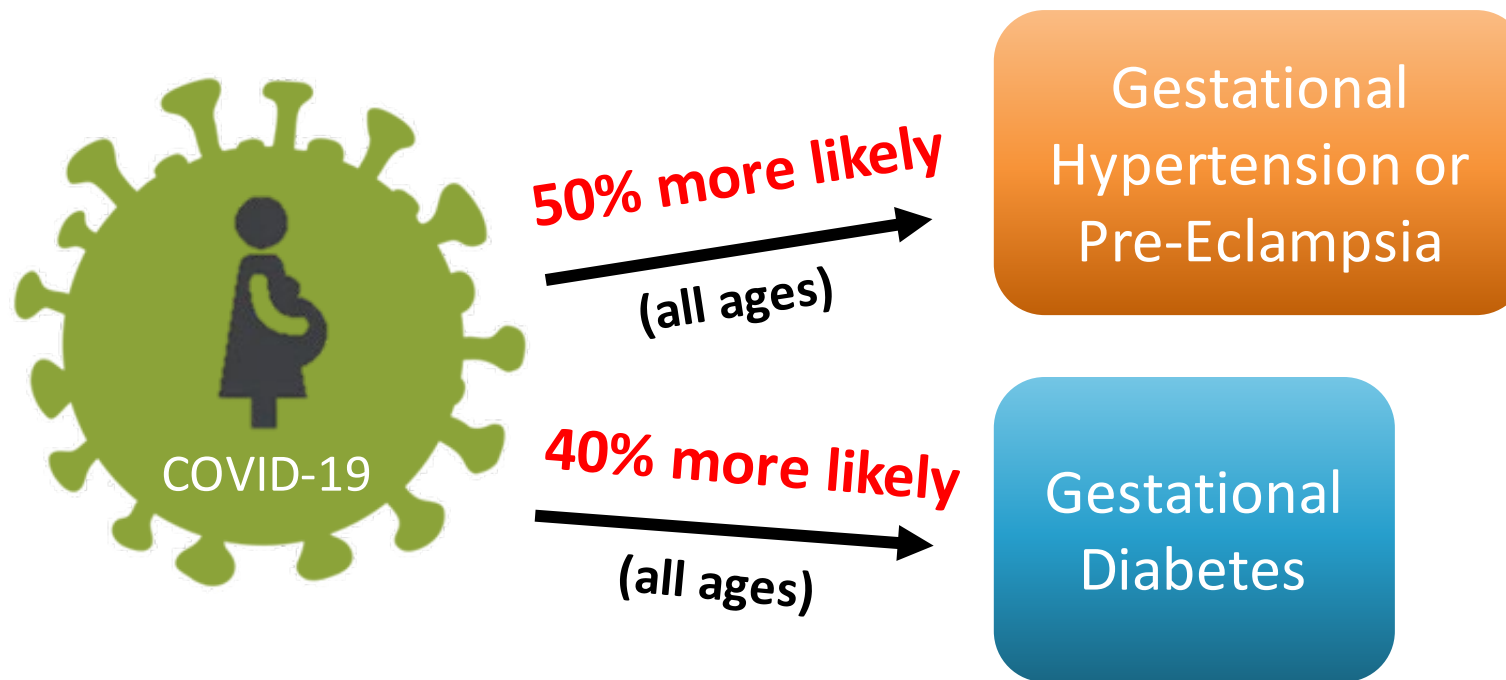
- Sample broken down into 3 age groups: < 25, 25-34, and 35 and older

Maternal Age Group (years)	Number of Pregnancies in Sample	% of Sampled Pregnancies
< 25	300	28%
25-34	622	57%
35+	167	15%
Total	1089	100%

- Matched COVID-19 pregnancy group with statewide non-COVID-19 pregnancy group on **1:10** ratio for each age group
- **Note:** The 25-34 age group contained more individuals than the other two age groups, which may affect some statistical results

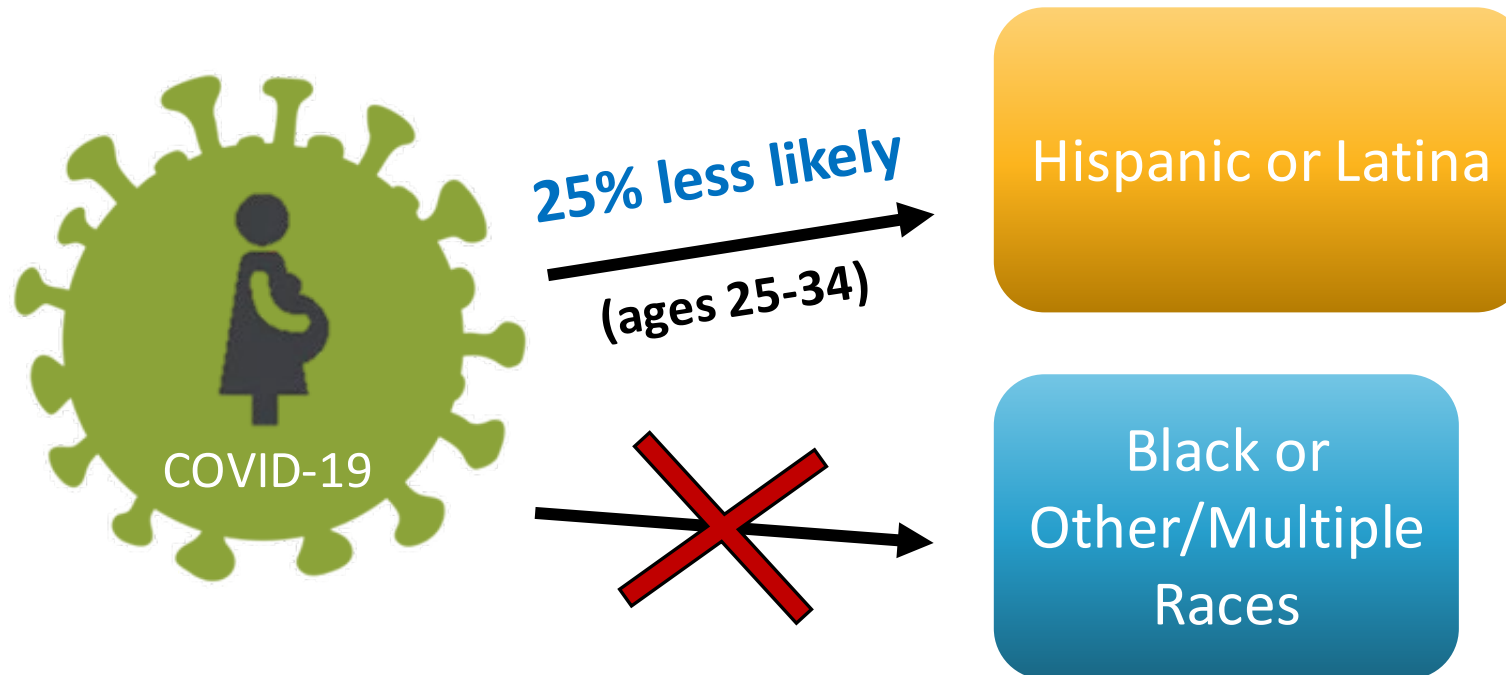
Pregnancy-Based Outcomes

Gestational Hypertension, Pre -Eclampsia and Gestational Diabetes



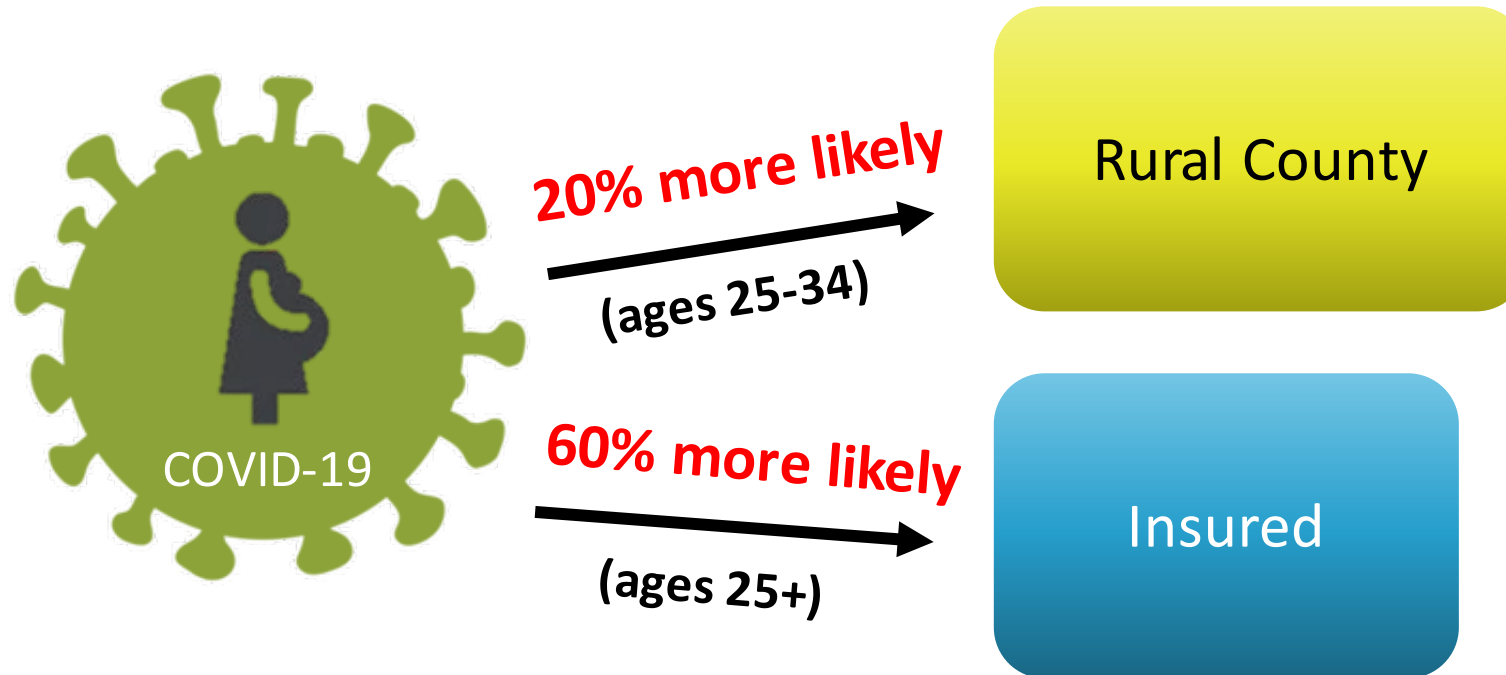
Pregnancy-Based Outcomes

Maternal Race and Ethnicity



Pregnancy-Based Outcomes

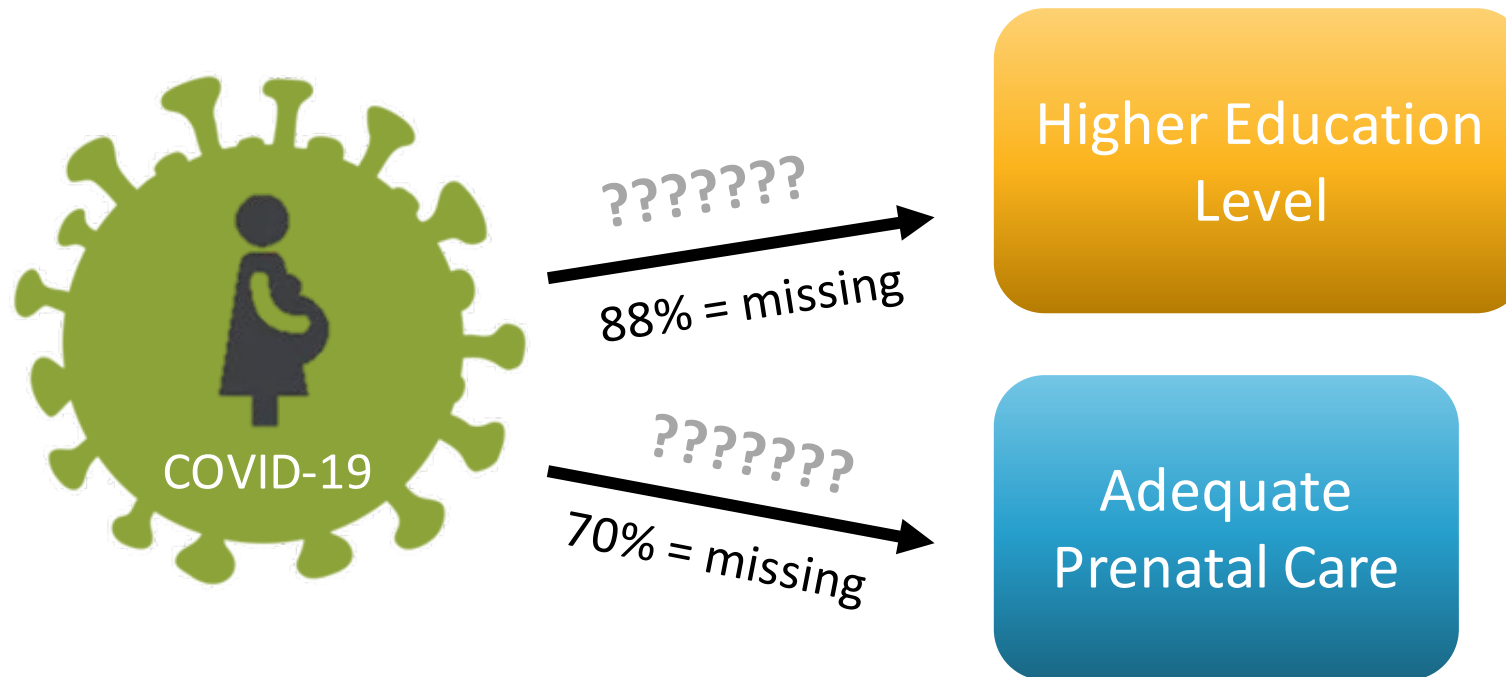
County Type and Maternal Insurance Status



Pregnancy-Based Outcomes

Maternal Education Level and Level of Prenatal Care

- **incomplete and insufficient** data for analysis



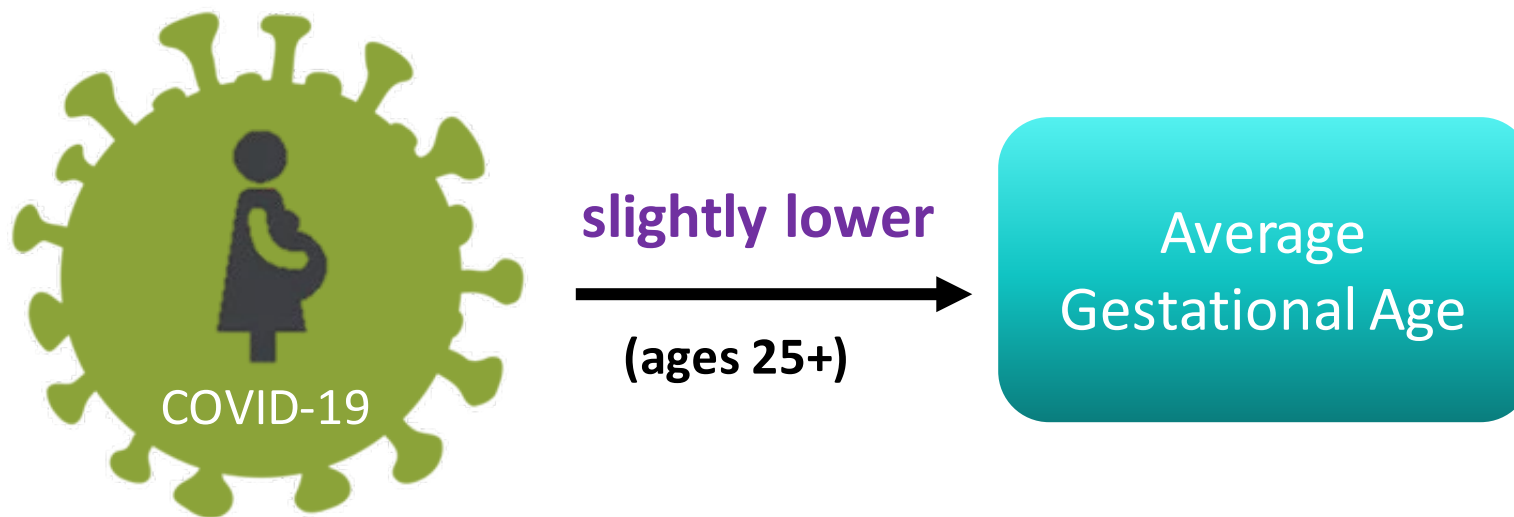
Infant-Based Outcomes

- Birth Route
- Preterm Birth
- Low Birth Weight Status
- Birth Weight (numerical)
- Breastfeeding
- Breastfeeding among late-term infections only

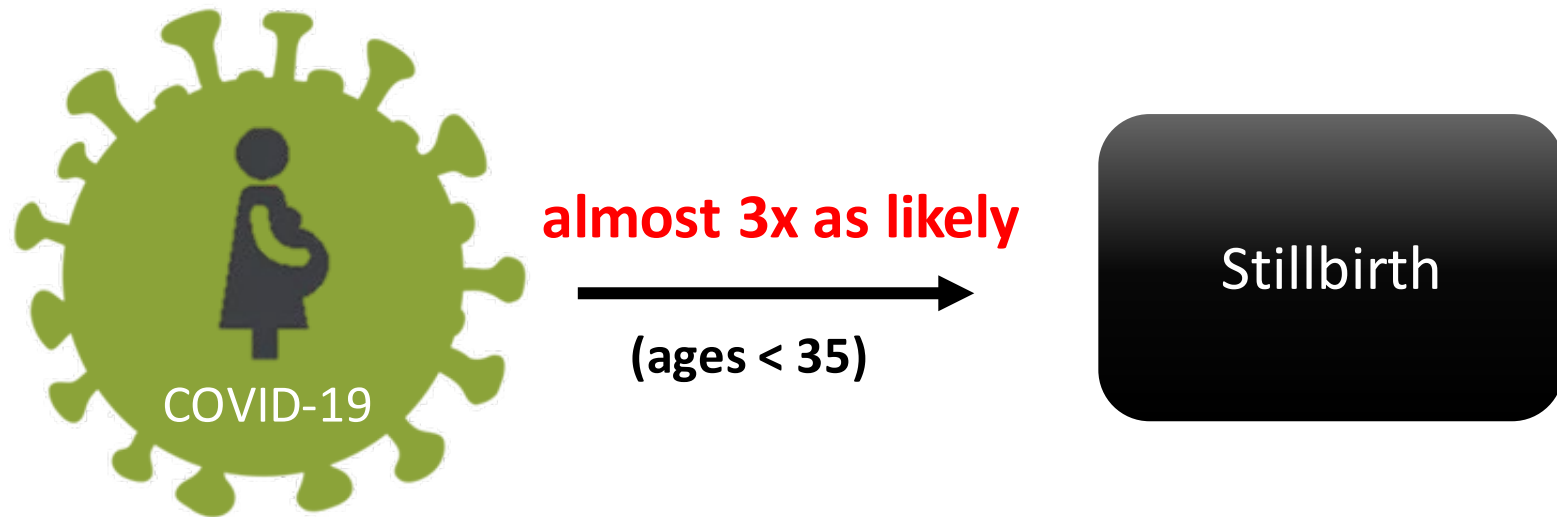
No association with COVID-19 infection during pregnancy, regardless of age group.

Infant-Based Outcomes

Gestational Age (numerical)

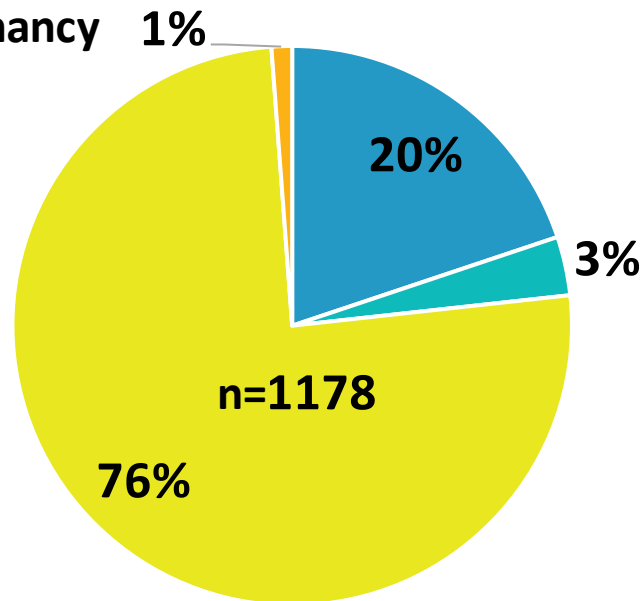


Stillbirths



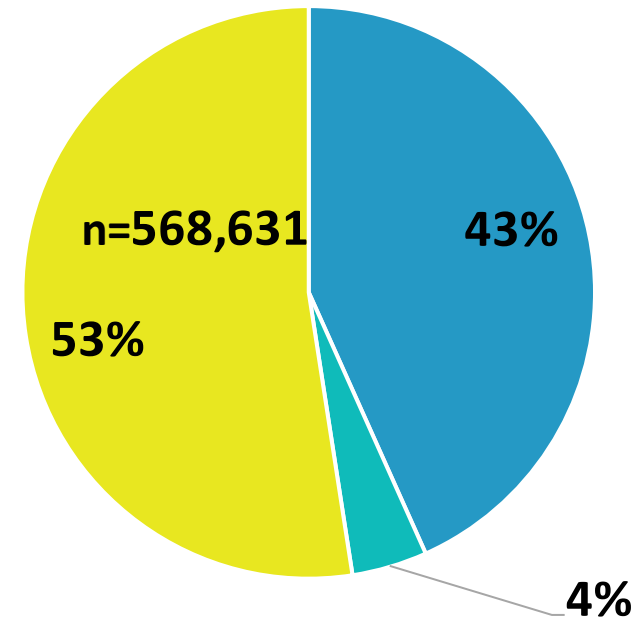
COVID-19 Vaccination

Primary Series Completion Among Kansas Persons Infected with COVID-19 during Pregnancy



- Primary Series Complete
- Primary Series Incomplete
- Unvaccinated
- Series Completion Unknown

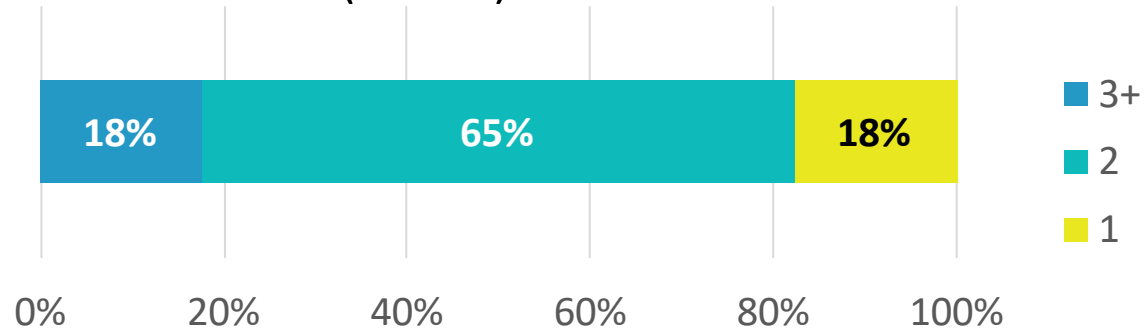
Primary Series Completion Among Kansas Females Aged 15-44



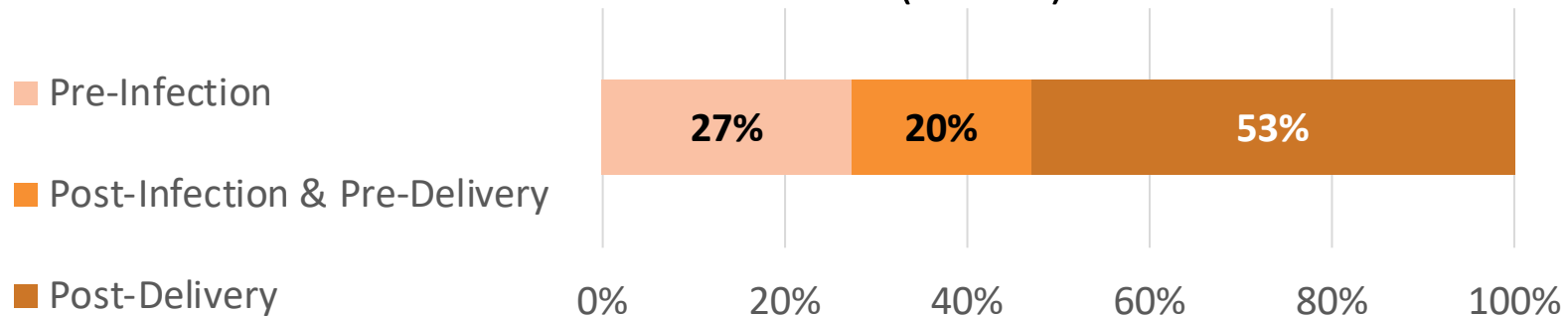
- Primary Series Complete
- Primary Series Incomplete
- Unvaccinated

COVID-19 Vaccination

Dose Count Among Kansas Pregnant Persons with COVID-19 Who Received At Least One COVID-19 Vaccine (n=288)



Timing of Doses Among KS Pregnant Persons with COVID-19 Who Received At Least One COVID-19 Vaccine (n=583)



Summary of Key Findings

- Pregnant persons **aged < 35** infected with COVID-19 were **nearly 3x as likely** to experience a stillbirth
- Regardless of age, COVID-19 infection during pregnancy was **significantly associated** with gestational diabetes, gestational hypertension, or pre-eclampsia
- Possible **associations may exist** between prenatal COVID-19 infection and ethnicity, county type, insurance status, and gestational age
- Overall, **no association** was found between prenatal COVID-19 infection and birth weight, preterm birth (categorical), race, and breastfeeding.
- Generally, there was **poor vaccine uptake** in pregnant persons with COVID-19 during the study period, and over half of vaccine doses received within this group were administered **after delivery**.

Limitations

- Surveillance of COVID-19 pregnancies limited by several factors
- Inconsistent or missing data
- Differences between included and excluded study populations
- Data collection capacity
- Sample size
- Cannot compare or generalize vaccine data

Additional Resources

- Surveillance of Emerging Threats to Mothers and Babies Network (SET-NET) cdc.gov/ncbddd/set-net/index.html
- KDHE COVID-19 Vaccine Dashboard coronavirus.kdheks.gov/317/Data
- CDC COVID-19: Pregnant and Recently Pregnant People cdc.gov/coronavirus/2019-ncov/need-extra-precautions/pregnant-people.html
- CDC Articles and Key Findings from SET-NET Data cdc.gov/ncbddd/set-net/articles.html

Supplemental Tables: Outcome Variables

	Outcome	Values	Type	Notes
Pregnancy-Based Outcomes	Pre-Eclampsia or Gestational Hypertension	Yes/No	Categorical	
	Gestational Diabetes	Yes/No	Categorical	
	Maternal Race	White/ Black or African American/ Other or Multiple Races	Categorical	
	Maternal Ethnicity	Hispanic or Latina/ Not Hispanic or Latina	Categorical	
	County Type	Urban or Semi-Urban/ Rural	Categorical	Rural= Densely-Settled Rural, Rural, and Frontier
	Maternal Insurance Status	Insured/ Uninsured	Categorical	Insured= Private Insurance, Medicaid, or Other Insurance
	Maternal Education Level	< High School/ High School Diploma or GED/ Some College/ Associate's Degree/ Bachelor's Degree +	Categorical	Indicates highest level of education received
	Prenatal Care	Inadequate/ Intermediate/ Adequate/ Adequate +	Categorical	Based on Kotelchuck Index, which is calculated using several variables

Supplemental Tables: Outcome Variables

	Outcome	Values	Type	Notes
Infant-Based Outcomes	Birth Route	Vaginal/ Cesarean	Categorical	
	Preterm Birth	Yes/No	Categorical	Yes= gestational age < 37 weeks; No= gestational age ≥ 37 weeks
	Low Birth Weight	Yes/No	Categorical	Yes= birth weight < 2000 g; No= birth weight ≥ 2000 g
	Breastfeeding	Yes/No	Categorical	
	Breastfeeding (Late Infections Only)	Yes/No	Categorical	Only included pregnancies where COVID-19 infection occurred within 14 days prior to delivery
	Gestational Age	(0-42)	Numerical	Gestational age (weeks) at delivery
	Birth Weight	(0-8000)	Numerical	Birth weight (g)
Stillbirths	Stillbirth	Yes/No	Categorical	Yes= fetal loss occurred at or after 20 weeks gestation
COVID-19 Vaccination	Dose Count	1/2/3+	Categorical	Number of doses received by each person during the study period
	Primary Series Completion	Complete/ Incomplete/ Unvaccinated/ Unknown	Categorical	
	Timing of Doses	Pre-Infection/ Post-Infection and Pre-Delivery/ Post-Delivery	Categorical	Calculated based on pregnancy outcome date and date of first positive COVID-19 test

Supplemental Tables: Odds Ratios (ORs) for Statistically Significant Outcomes

Outcome	Odds Ratios by Age Group							
	Overall		< 25		25-34		35+	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Pre-Eclampsia or Gestational HTN= Yes	1.54	(1.27-1.86)	1.50	(1.04-2.16)	1.56	(1.21-2.01)	1.56	(1.00-2.42)
Gestational Diabetes= Yes	1.44	(1.18-1.75)	1.58	(1.00-2.49)	1.34	(1.03-1.73)	1.64	(1.10-2.43)
Ethnicity= Hispanic or Latina	0.87	(0.73-1.04)	0.94	(0.71-1.24)	0.76	(0.59-0.99)	1.08	(0.70-1.68)
County Type= Urban or Semi-Urban	0.84	(0.73-0.96)	0.94	(0.73-1.21)	0.79	(0.66-0.95)	0.84	(0.58-1.21)
Insurance= Uninsured	0.51	(0.37-0.71)	0.92	(0.56-1.52)	0.37	(0.23-0.61)	0.40	(0.17-0.92)
Stillbirth= Yes	2.68	(1.67-4.31)	2.65	(1.08-6.53)	2.71	(1.39-5.30)	2.63	(0.96-7.20)

Supplemental Tables: Statistically Significant Numerical Outcomes

Gestational Age (weeks)							
Exposure	N	Mean	Median	Min	Max	Std Dev	P-value
No	10970	38.4	39	24	42	1.8	-
Yes	1097	38.3	39	27	42	1.7	0.02

Acknowledgments

Amie Cook, MPH

Helen Prince, MD, MPH

Kathleen Shumaker, MPH, MSW

Farah Ahmed, MPH, PhD

Sheri Tubach, MPH, MS

Fengwei Yang, MA

Justin Blanding, MPH

Stephanie Wolf, RN, BSN, CLC

Brandi Markert, MS

Andrea May, MPH

David Oakley

Mayra Trujillo, MS

Emily Olsen, PhD, MSPH

Elizabeth Lewis, MPH





KANSAS
MATERNAL &
CHILD HEALTH

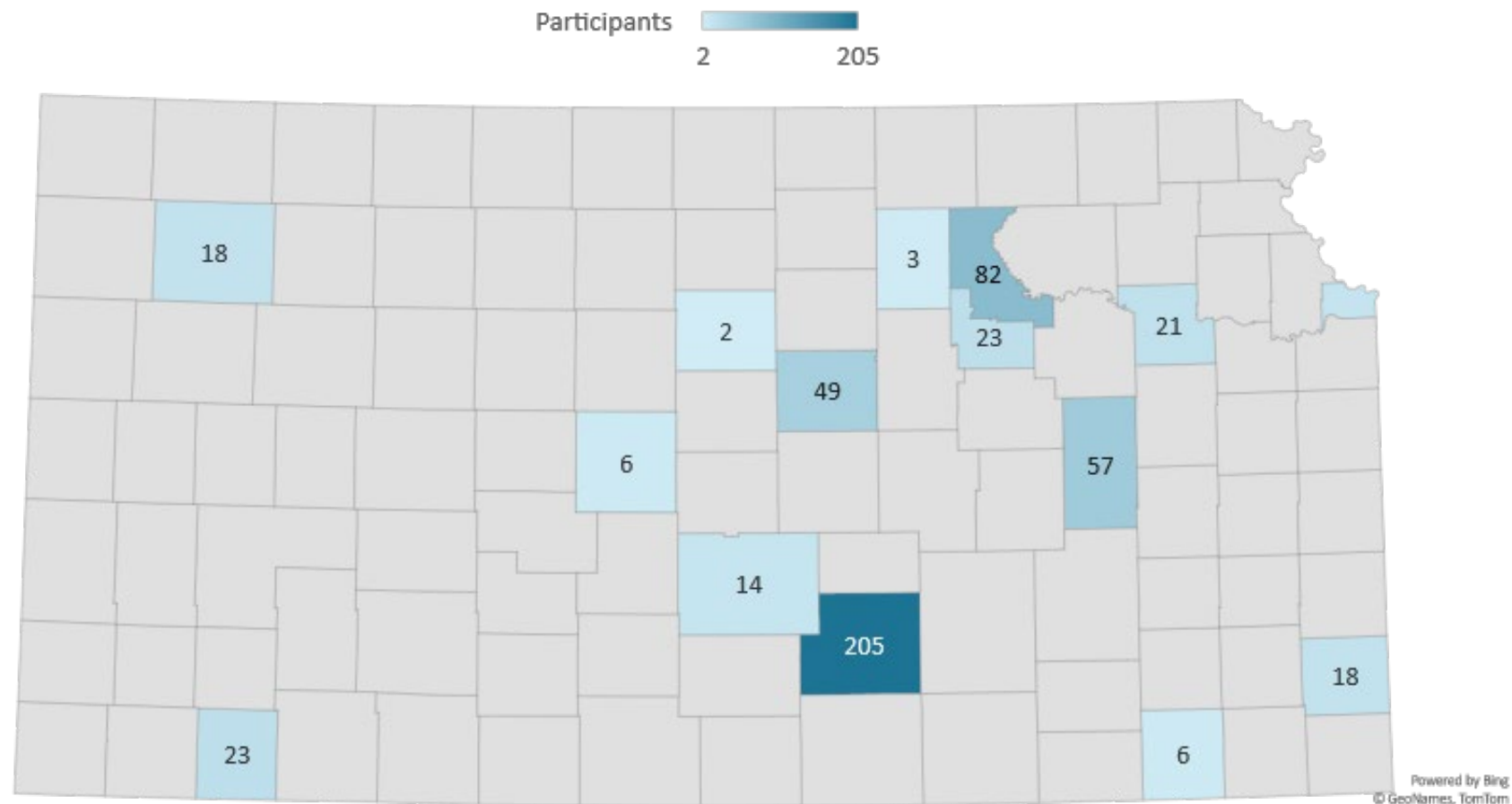


COVID-19 Infection and Vaccination Rates Among Kansas Prenatal Education Course Participants

About the Prenatal Education Course

- Offered through **Kansas Perinatal Community Collaboratives (KPCCs)**
- The KPCCs:
 - Provide a **free prenatal education course** for pregnant persons
 - Build on **existing community partnerships**, such as with hospitals, WIC and home visiting programs
 - Deliver **standardized, evidence-informed prenatal education**, utilizing March of Dimes Becoming a Mom[®]/Comenzando bien[®] (BaM/Cb) curriculum and supplemental materials such as safe sleep messaging from the American Academy of Pediatrics
- Data on COVID-19 infection and vaccination will represent **542 participants** from **15 sites** who started the program beginning January 4, 2022, and completed the program during 2022.

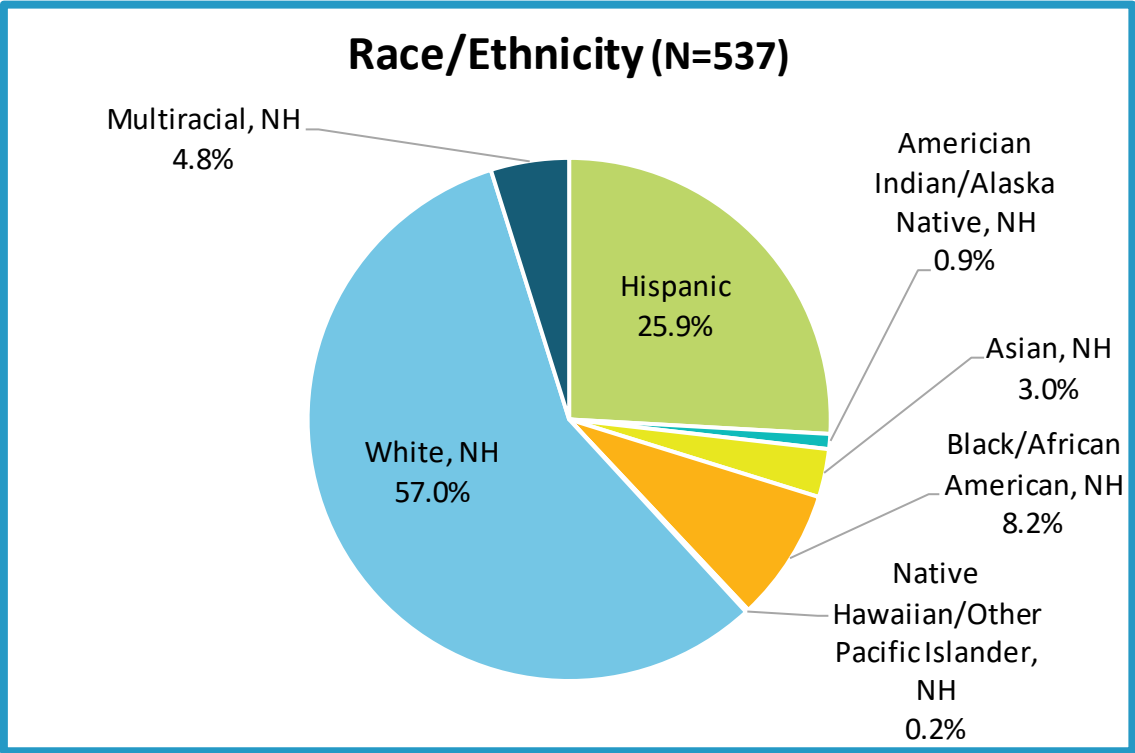
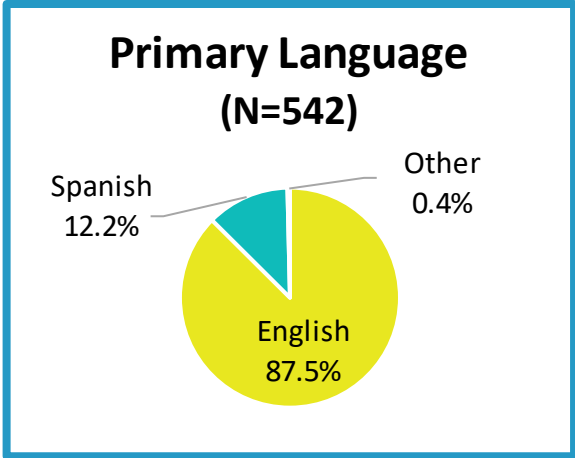
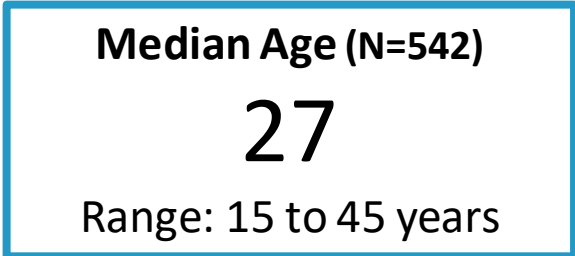
BaM/Cb Site Participant Counts



Source: KDHE Bureau of Family Health, 2022 BaM/Cb Post-Survey Data Linked to Pre-Survey Data

Participant Demographics

Among 542 participants who **started and completed** the BaM/Cb course through Kansas Perinatal Community Collaboratives in 2022:



NH = Non-Hispanic

Source: KDHE Bureau of Family Health, 2022 BaM/Cb Post-Survey Data Linked to Pre-Survey Data



COVID-19 Infection

- More than 1 in 8 participants (**13.1%**) reported upon beginning the course that they **had COVID-19 prior to pregnancy** (N=487).
- Around 1 in 20 participants (**5.1%**) reported upon completing the course that they had **developed COVID-19 infection during pregnancy** (N=534).

COVID-19 Vaccination

- **57.6%** of participants reported being vaccinated against COVID-19 at the time they completed the course (N=514).

**Percent of Participants Who Reported COVID-19 Vaccination
At Course Completion by Race/Ethnicity (N=509)**

Category	Number (Percent)
Black, non-Hispanic	22 (55.0%)
White, non-Hispanic	170 (58.6%)
Hispanic (any race)	73 (55.3%)

Only racial and ethnic groups with at least 30 participants in the denominator were included in this table.

Trusted Sources of Information about the COVID-19 Vaccine

Upon course initiation, participants were asked which TWO sources they trusted the most for receiving information about the COVID-19 vaccine (N=438):

- My doctor, nurse, or other health care provider (85.4%)
- Centers for Disease Control and Prevention (CDC) website or reports (30.1%)
- My state or local health department (15.3%)
- My pharmacist (13.7%)
- Family or friend
- Prenatal education
- Partner (3.9%)
- Food and Drug Administration
- Less common sources
 - Website
 - News
 - Home
- Some other source

- You are a most trusted source of information.
- You can make a difference.

Reasons for Not Getting the COVID-19 Vaccine

Among those who reported not being vaccinated against COVID-19 at course completion (N=192):

- I was concerned about possible side effects of the COVID-19 vaccine for my baby (55.7%)
- I was concerned about possible side effects of the COVID-19 vaccine for me (41.7%)
- I was concerned that the COVID-19 vaccine was developed too fast (33.9%)
- I didn't have time to get it (31.8%)
- I already had it
- I didn't think I needed it
- I preferred another vaccine
- I don't think it's safe

• All of these concerns can be mitigated with proper patient education.

Reasons for Not Getting the COVID-19 Vaccine

Among those who reported not being vaccinated against COVID-19 at course completion (N=192):

- My partner/support person(s) are not supportive of me getting the vaccine (5.7%)
- Less common reasons (reported by <3%):
 - The vaccine was not available or ran out in my area
 - I couldn't get an appointment or was placed on a waiting list
 - I didn't have transportation to get to a vaccination site
 - The staff at the vaccination site didn't want to give me the vaccine because I was pregnant
 - I have an allergy or health condition that prevented me from getting the vaccine
 - My doctor or healthcare provider told me not to get the vaccine
 - I didn't think COVID-19 was a serious illness
 - I didn't think I was at risk for COVID-19 infection
- Other reason (7.8%)

Health Care Workers and the COVID-19 Vaccine

Things done by a doctor, nurse, or other health care worker (N=542*), as reported upon completing the course:

- Talked with me about the COVID-19 vaccine (79.0%)
- Recommended that I get the COVID-19 vaccine (41.1%)
- Offered to give me the COVID-19 vaccine (24.2%)
- Referred me to another place to get the COVID-19 vaccine (11.1%)

Bad News . . .
Missed opportunity
for 1 in 4!

* As this was a “check all that apply” question without a “None of the above” option, the denominator includes those who left the question blank.

Health Care Workers and the COVID-19 Vaccine

Things done by a doctor, nurse, or other health care worker (N=218*), as reported upon completing the course by those who **reported not being vaccinated** against COVID-19:

- Talked with me about the COVID-19 vaccine (76.6%)
- Recommended that I get the COVID-19 vaccine (45.9%)
- Offered to give me the COVID-19 vaccine (28.0%)
- Referred me to another place to get the COVID-19 vaccine (10.1%)

* As this was a “check all that apply” question without a “None of the above” option, the denominator includes those who left the question blank.

Health Care Workers and the COVID-19 Vaccine **Booster**

Things done by a doctor, nurse, or other health care worker (N=542*), as reported upon completing the course:

- Talked with me about the COVID-19 vaccine booster (47.2%)
- Recommended that I get the COVID-19 vaccine booster (24.7%)
- Offered to give me the COVID-19 vaccine booster (10.3%)
- Offered to take me to another place to get the COVID-19 vaccine booster (5.5%)
- Given me the COVID-19 vaccine booster (7.6%)
- I am not vaccinated against COVID-19, and therefore not eligible for the COVID-19 booster (26.4%)

Only 1 in 10 were offered the booster.

* As this was a “check all that apply” question without a “None of the above” option, the denominator includes those who left the question blank.



KANSAS
MATERNAL &
CHILD HEALTH



Key Take-Aways and Opportunities

Key Take-Aways

- Generally, **poor vaccine uptake**
- **Most** vaccinations are administered **after delivery**
- COVID-19 infected pregnant persons were:
 - Nearly **3x as likely** to experience a **stillbirth**
 - **Significantly more likely** to be diagnosed with **co-morbidities**
- **Health care providers** are the **most trusted source** of COVID-19 vaccine information.

Opportunities

- **Educate** about the **safety** of the COVID-19 vaccine.
- **Promote** the vaccine.
- **Offer administration** of vaccine (or make a warm referral).

Opportunities



What data points resonated with you?



What other opportunities do you see?



What is one thing you can do or change in your organization or with your practice?



Resources

- CDC Foundation's recently released "Pregnant and Protected" Campaign
 - Resources include materials for communities and community partners to educate patients on COVID-19 vaccinations, especially during pregnancy
 - Materials include shareable social media content, campaign posters and flyers, clinical resources, as well as print materials available to order

Resources

[Home](#) | [Programs & Services](#) | [Division of Public Health](#) | [Personal & Family Health](#) | [Maternal Health](#) | [MCH Integration Toolkits](#)

MCH Integration Toolkits

Overview



In an effort to better assist local communities in serving their Maternal and Child Health (MCH) population, Integration Toolkits are being developed for identified priority areas in the Kansas Title V Maternal and Child Health State Action Plan. These toolkits are being created through the work of many state and local partners with a shared interest in providing coordinated and comprehensive services to women before, during, and after pregnancy. Integration Toolkits are resources brought together into one centralized location to assist you in your work around these targeted Title V priorities.

Resources include the latest research, recommendations, opinion statements, and practice guidelines, as well as templates, and training opportunities. Toolkits are based on sound research and recommendations from leading experts. They are intended for your use in the public health setting, as well as being shared with community partners and serving the same MCH population across different settings. Through collaborative efforts focused on targeted interventions, we begin improving outcomes for the MCH population in local communities and across the state, leading to greater overall health and well-being.

Explore these pages:

- [Breastfeeding Toolkit](#)
- [Fetal Movement Monitoring Toolkit](#)
- [Long Acting Reversible Contraceptive](#)
- [Maternal Warning Signs Toolkit](#)
- [Perinatal Mental Health](#)
- [Perinatal Substance Use](#)
- [Pediatric Mental Health Toolkit](#)
- [Safe Sleep Toolkit](#)
- [Tobacco & Vaping Dependence Toolkit](#)

[Reproductive Life Plan](#) | [Well Woman Visits](#) | [Oral Health Resources](#) | [Public Health Workforce](#) | [COVID-19 Resources](#)





Questions and Discussion
