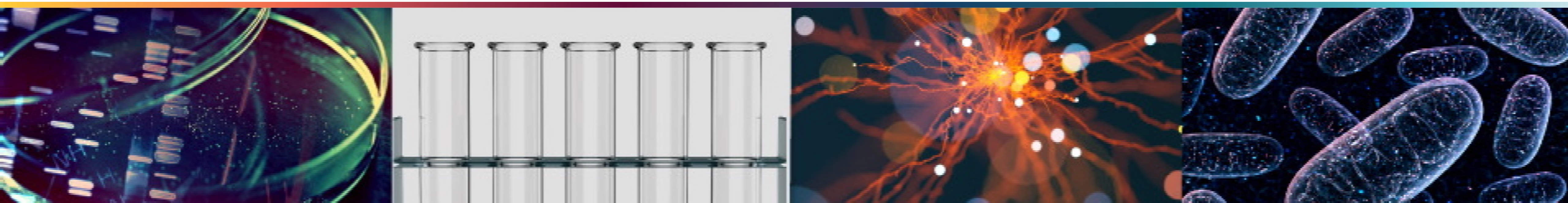
THE FRONT ROW
at Scripps Research

PowerMom Research Platform

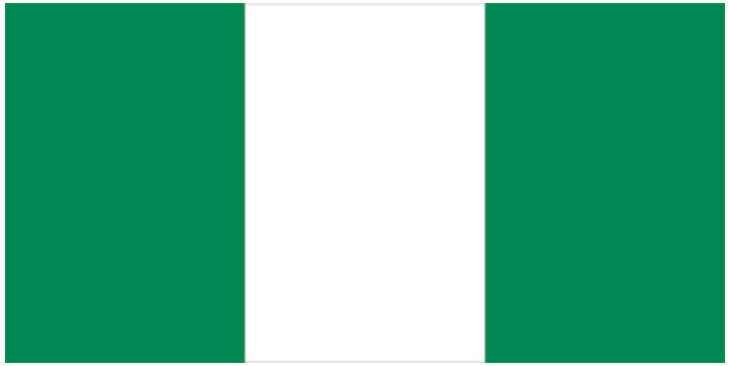
Pregnancy Research
At The Palm of Your Hands

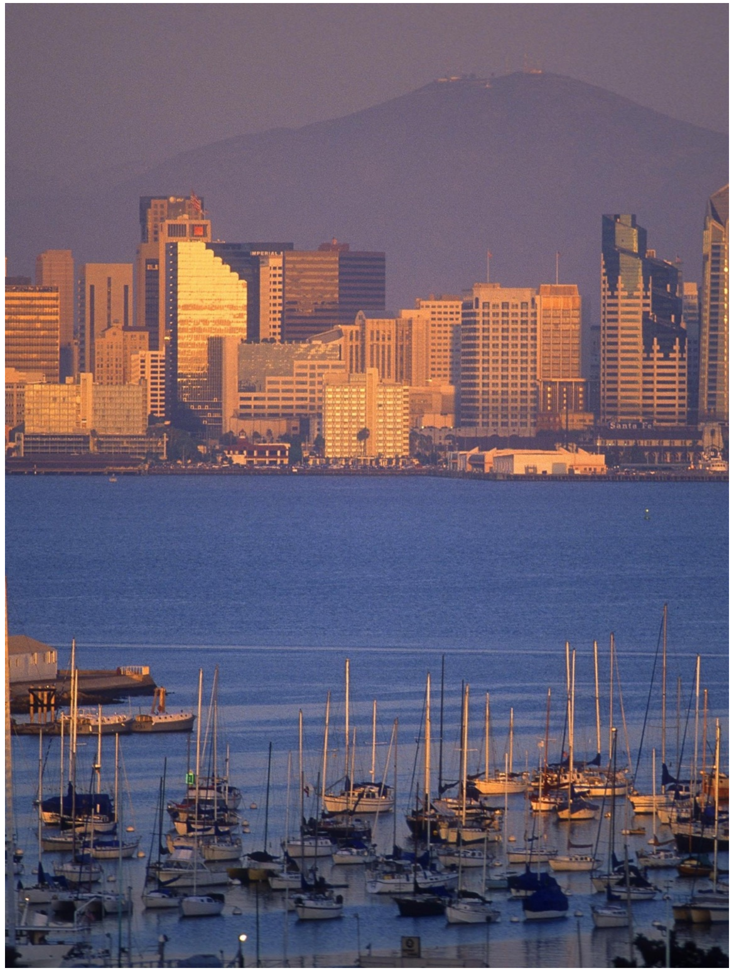
Toluwalase (Lasé) Ajayi , MD, Director of Clinical Research and Diversity Initiatives

Assistant Professor of Molecular Medicine, SRTI



My Journey Into Clinical Research





My Journey Into Clinical Research

Clinical Researcher
  Early Career
  KL2 Clinical Scholar
  Health Disparities
    Pain
    Maternal Fetal Health

gettyimages

Community Pediatrician
  Hospitalist
  Newborn Nursery

Adult Palliative Care

Pediatric Palliative Care

PowerMom Origin Story

Healthy Pregnancy Study

- Jennifer Radin
- Individualized Pregnancy Data
- Digital Twin
- Longitudinal Pregnancy Health Study

Partnering to Focus on Maternal Health Crisis and Health Disparities

powermom.scripps.edu

Maternal Health Outcomes and the Power of Working Together
Moe.

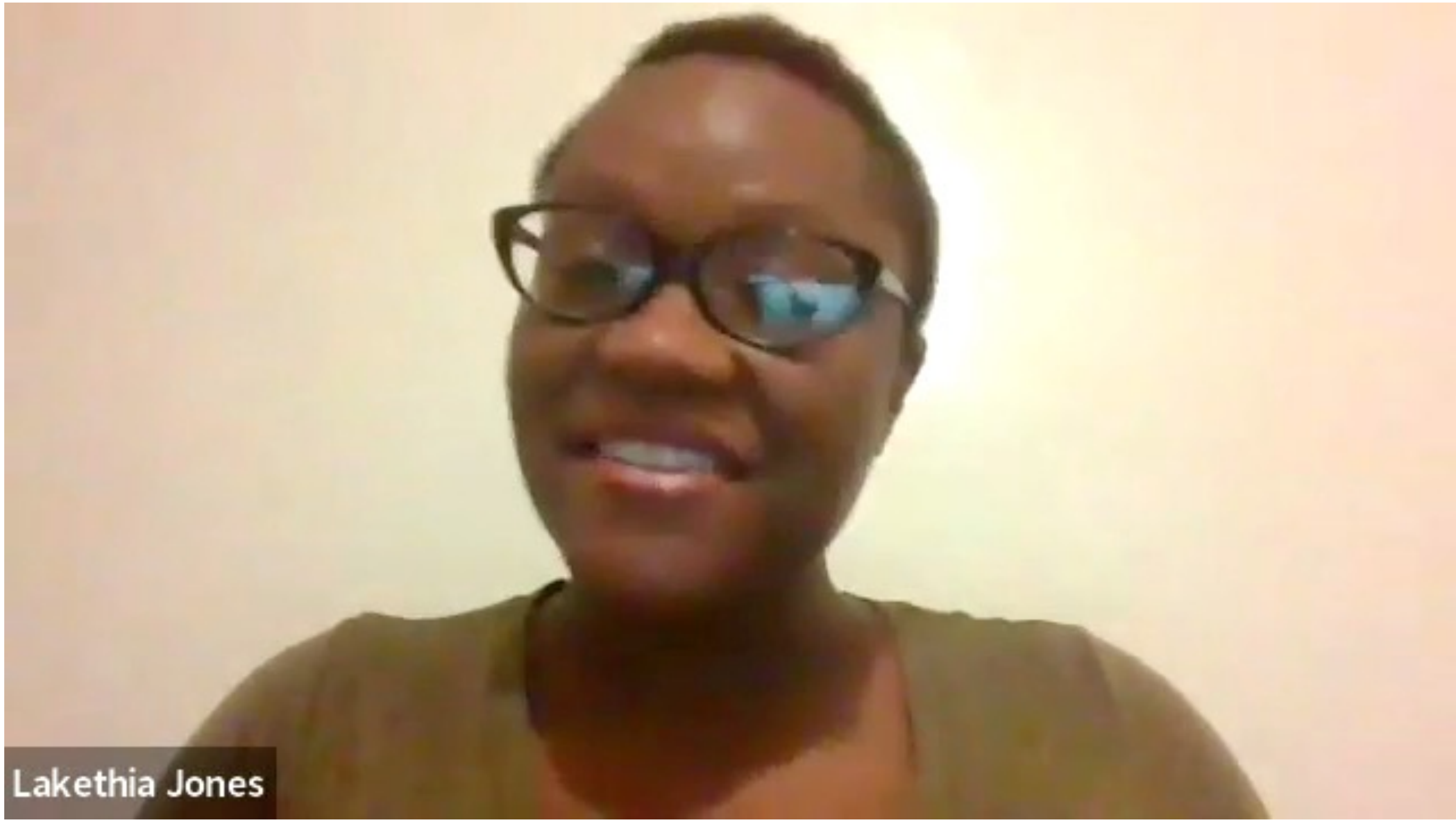
OUR GOAL

Build the largest, most diverse, pregnancy-related research community, in order to inform and support pregnant people across the country and improve maternal and fetal outcomes.

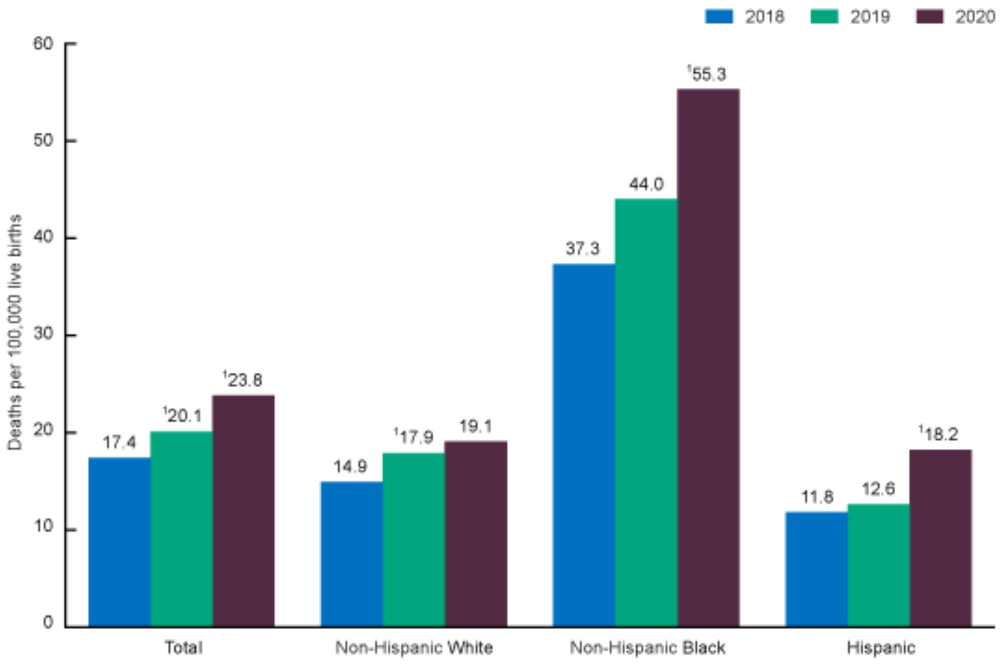
Scripps Research

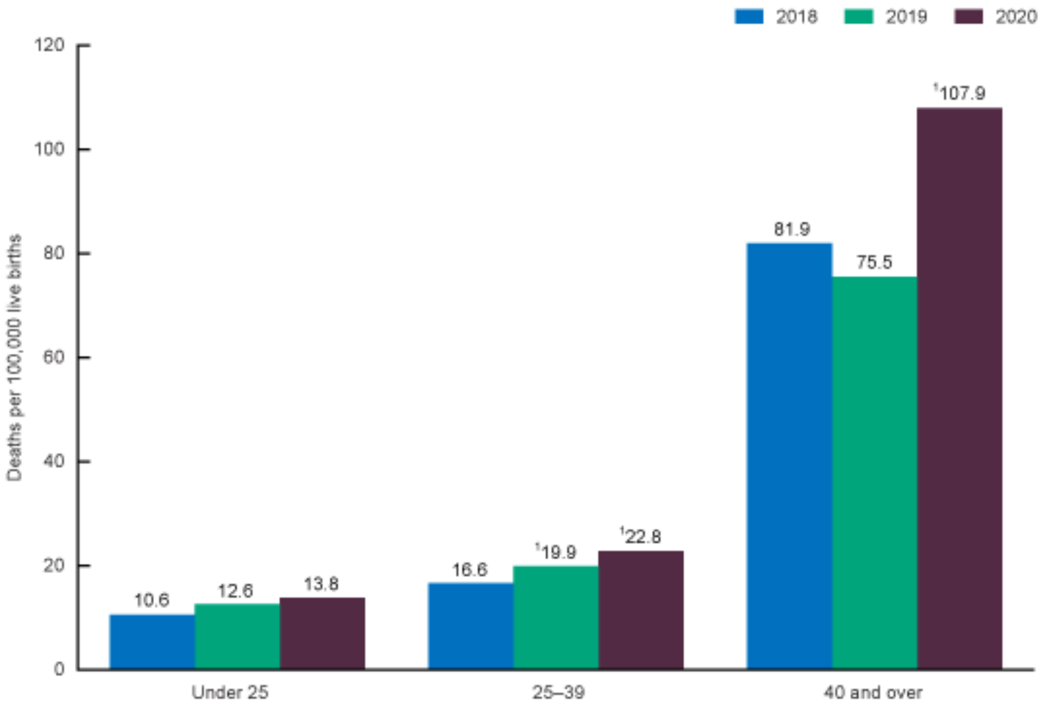
1 MILLION

Lakethia's Story

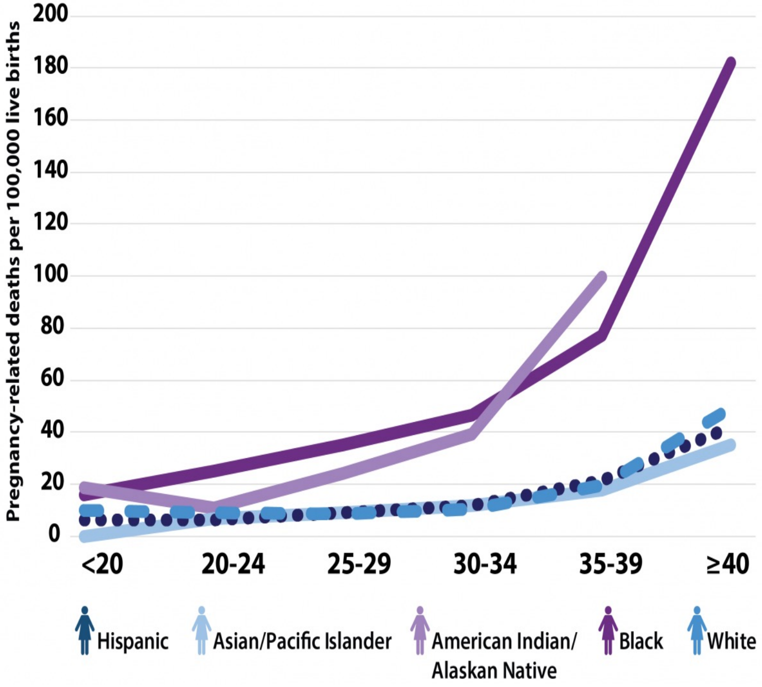

Lakethia Jones

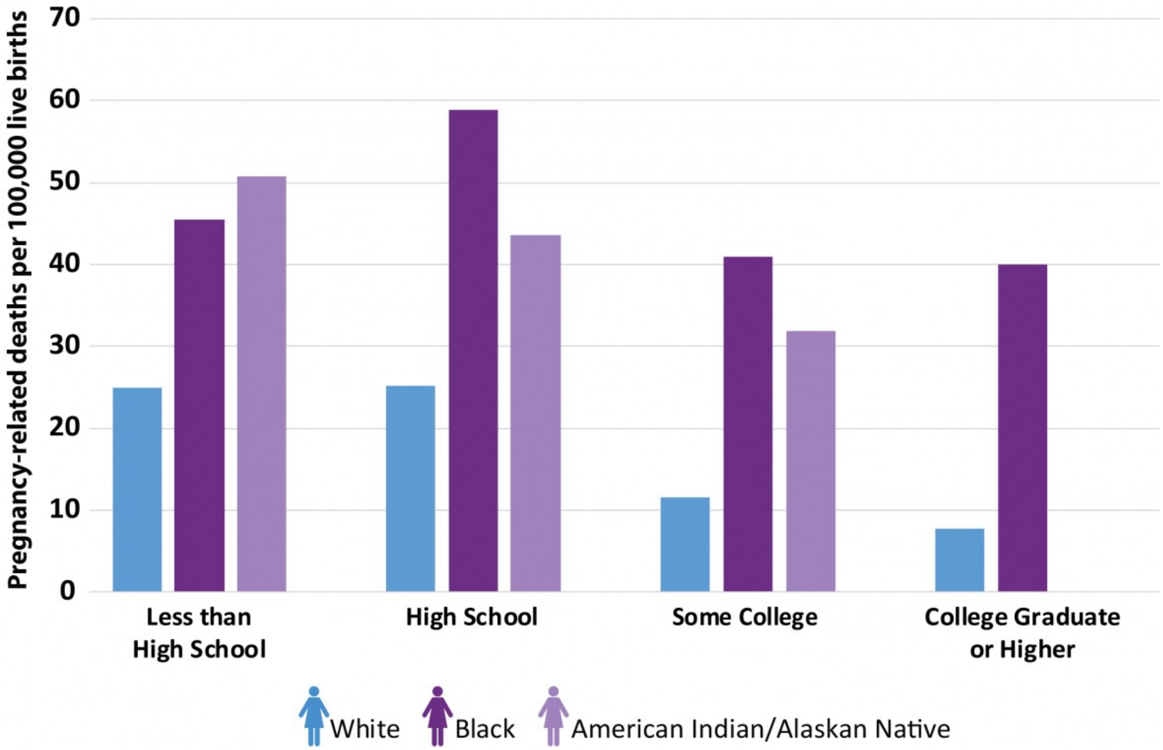
Maternal Mortality by Ethnicity and Age



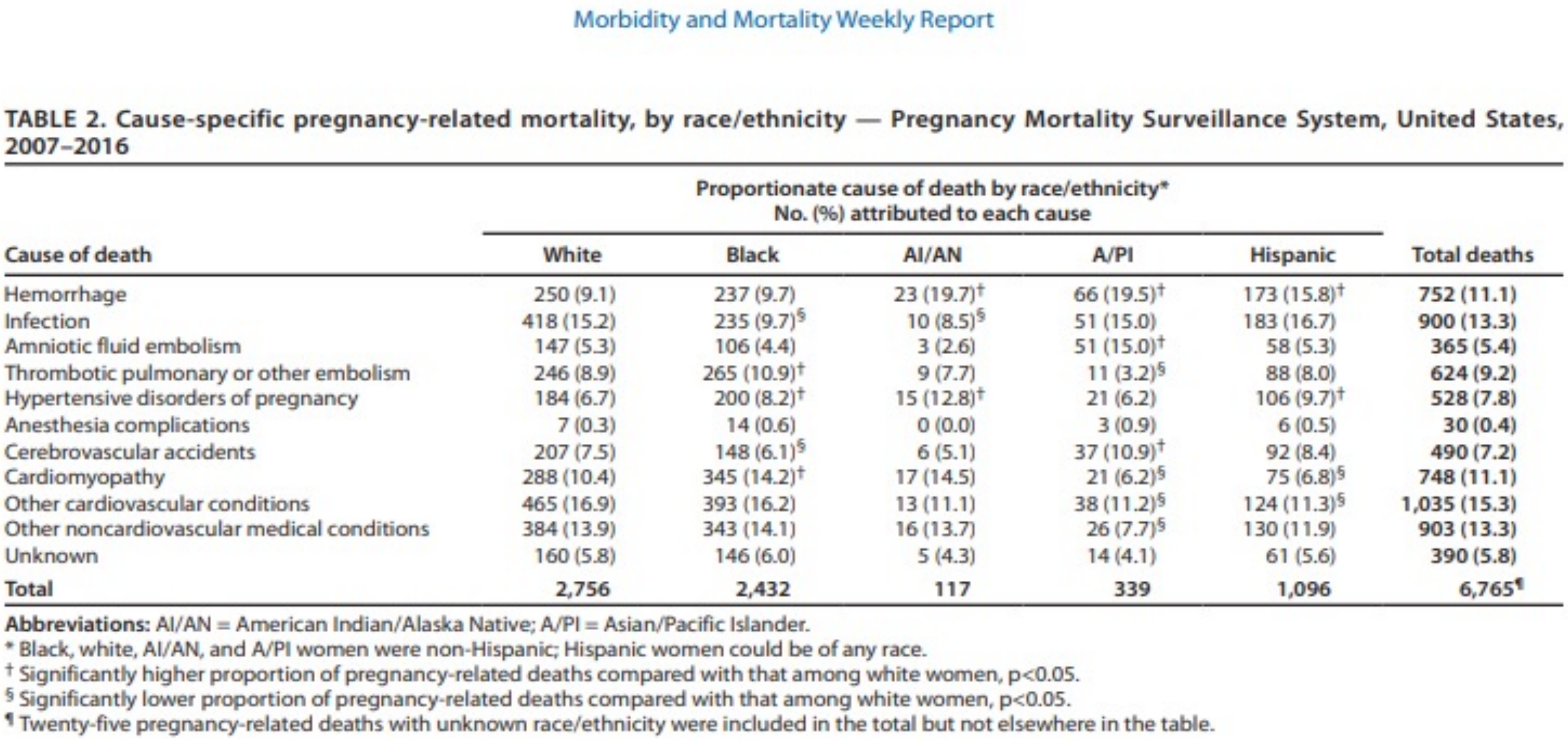


Maternal Mortality by Age and Education





Leading Causes of Pregnancy Related Death



Morbidity and Mortality Weekly Report

TABLE 2. Cause-specific pregnancy-related mortality, by race/ethnicity — Pregnancy Mortality Surveillance System, United States, 2007–2016

	Proportionate cause of death by race/ethnicity* No. (%) attributed to each cause					
Cause of death	**White**	**Black**	**AI/AN**	**A/PI**	**Hispanic**	**Total deaths**
Hemorrhage	250 (9.1)	237 (9.7)	23 (19.7)†	66 (19.5)†	173 (15.8)†	**752 (11.1)**
Infection	418 (15.2)	235 (9.7)§	10 (8.5)§	51 (15.0)	183 (16.7)	**900 (13.3)**
Amniotic fluid embolism	147 (5.3)	106 (4.4)	3 (2.6)	51 (15.0)†	58 (5.3)	**365 (5.4)**
Thrombotic pulmonary or other embolism	246 (8.9)	265 (10.9)†	9 (7.7)	11 (3.2)§	88 (8.0)	**624 (9.2)**
Hypertensive disorders of pregnancy	184 (6.7)	200 (8.2)†	15 (12.8)†	21 (6.2)	106 (9.7)†	**528 (7.8)**
Anesthesia complications	7 (0.3)	14 (0.6)	0 (0.0)	3 (0.9)	6 (0.5)	**30 (0.4)**
Cerebrovascular accidents	207 (7.5)	148 (6.1)§	6 (5.1)	37 (10.9)†	92 (8.4)	**490 (7.2)**
Cardiomyopathy	288 (10.4)	345 (14.2)†	17 (14.5)	21 (6.2)§	75 (6.8)§	**748 (11.1)**
Other cardiovascular conditions	465 (16.9)	393 (16.2)	13 (11.1)	38 (11.2)§	124 (11.3)§	**1,035 (15.3)**
Other noncardiovascular medical conditions	384 (13.9)	343 (14.1)	16 (13.7)	26 (7.7)§	130 (11.9)	**903 (13.3)**
Unknown	160 (5.8)	146 (6.0)	5 (4.3)	14 (4.1)	61 (5.6)	**390 (5.8)**
Total	**2,756**	**2,432**	**117**	**339**	**1,096**	**6,765¶**

Abbreviations: AI/AN = American Indian/Alaska Native; A/PI = Asian/Pacific Islander.

* Black, white, AI/AN, and A/PI women were non-Hispanic; Hispanic women could be of any race.

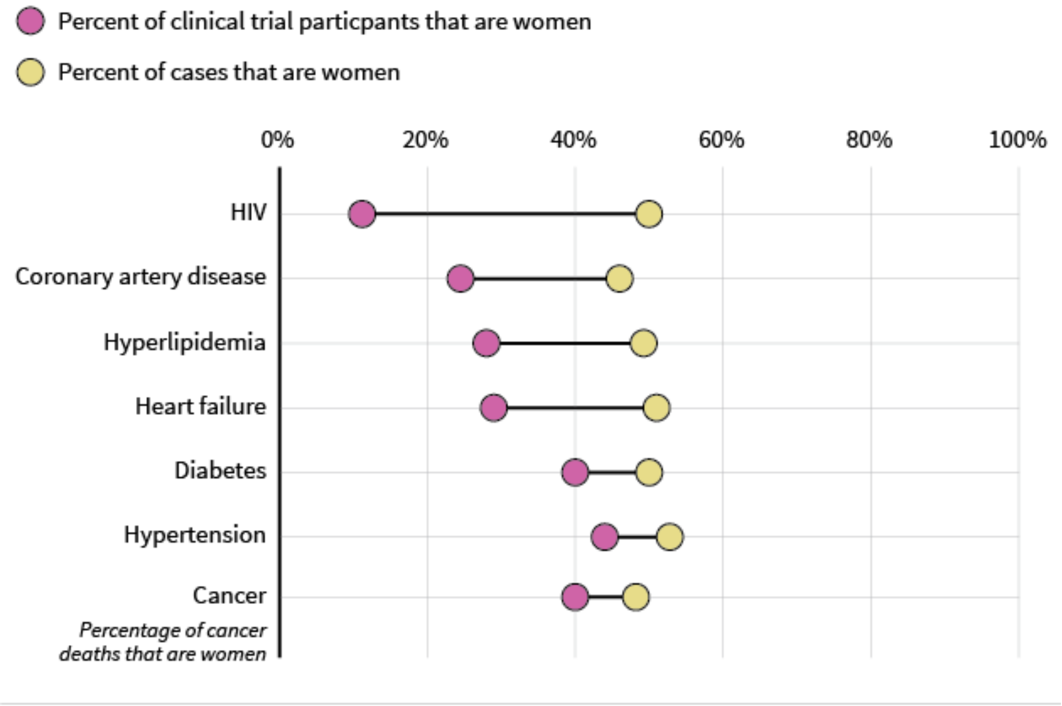
† Significantly higher proportion of pregnancy-related deaths compared with that among white women, p<0.05.

§ Significantly lower proportion of pregnancy-related deaths compared with that among white women, p<0.05.

¶ Twenty-five pregnancy-related deaths with unknown race/ethnicity were included in the total but not elsewhere in the table.

Missing Voices of Research

Pregnant People Historically Excluded from Research



Source: BMC Women's Health, Cardiovascular Quality and Outcomes

THE HUFFINGTON POST

1960s
All women of childbearing potential blocked from clinical trials

1990s
FDA removed ban but exclusion of pregnant women remained

2000s
Nearly 75% of approved drugs not associated with use in pregnant people

2019
Pregnant women removed from “vulnerable population” category

2020
COVID-19 vaccine trials excluded pregnant people

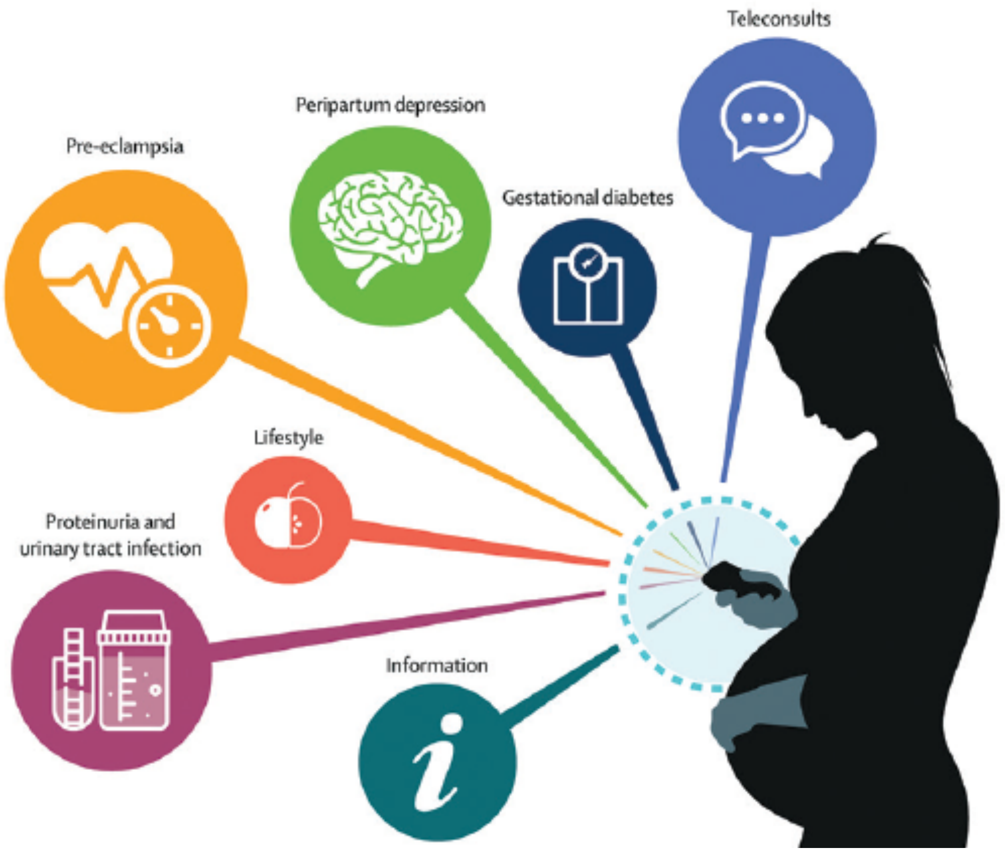
Multimodal Research

90% of Women own a Smart Phone

83% of Black Americans own a Smart Phone

76% of Americans with Incomes 30K or less

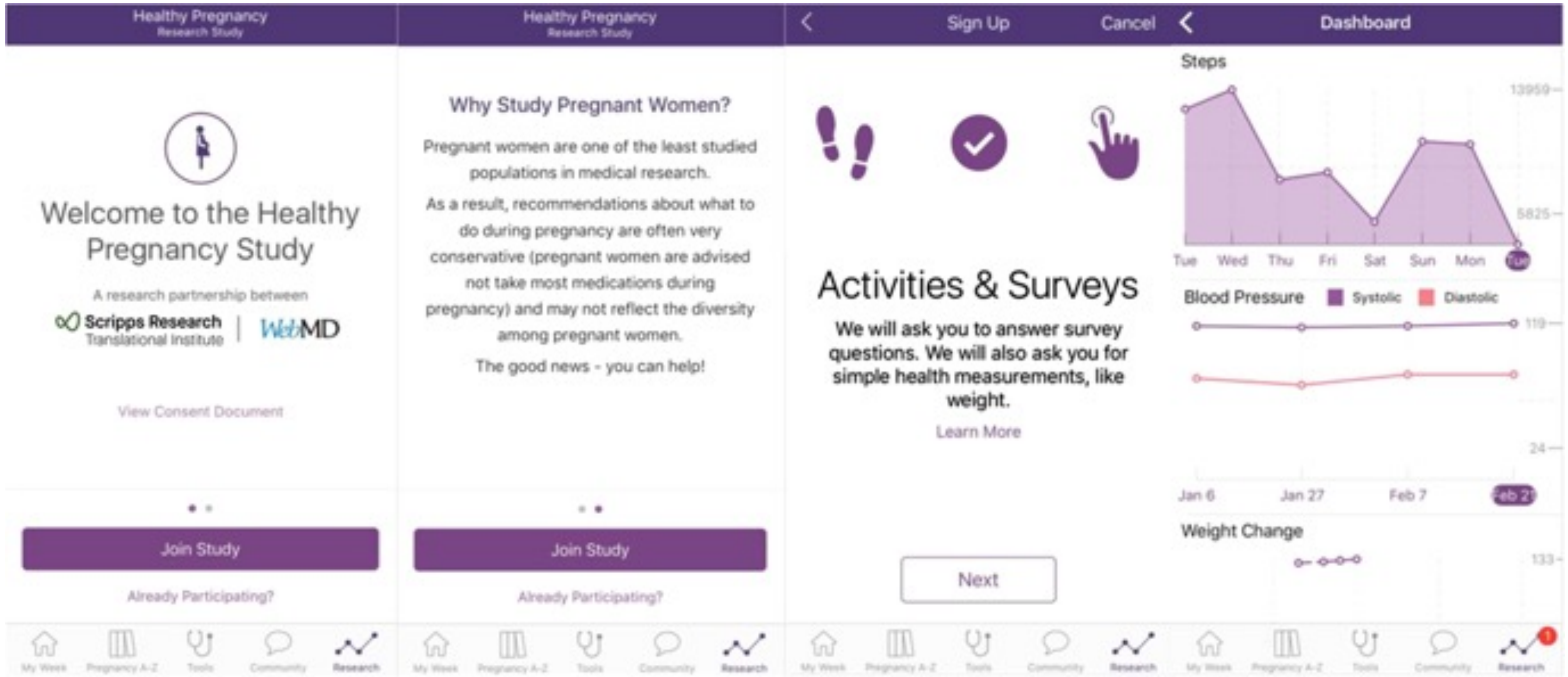
Wearables and other sensors
Self-reported surveys
Demographic information


Teleconsults
Peripartum depression
Pre-eclampsia
Gestational diabetes
Lifestyle
Proteinuria and urinary tract infection
Information

Empowering and engaging pregnant people with their own data

https://www.pewresearch.org/internet/fact-sheet/mobile/

PowerMom App Pilot Study


Healthy Pregnancy
Research Study
Join Study
Already Participating?
View Consent Document
My Week
Pregnancy A-Z
Tools
Community
Research
Sign Up
Cancel
Next
Learn More
Dashboard
Steps
13959
5825
Tue
Wed
Thu
Fri
Sat
Sun
Mon
Tue
Blood Pressure
Systolic
Diastolic
119
24
Jan 6
Jan 27
Feb 7
Feb 21
Weight Change
133
1

Welcome to the Healthy Pregnancy Study

A research partnership between Scripps Research Translational Institute | WebMD

Why Study Pregnant Women?

Pregnant women are one of the least studied populations in medical research.

As a result, recommendations about what to do during pregnancy are often very conservative (pregnant women are advised not take most medications during pregnancy) and may not reflect the diversity among pregnant women.

The good news - you can help!

Activities & Surveys

We will ask you to answer survey questions. We will also ask you for simple health measurements, like weight.

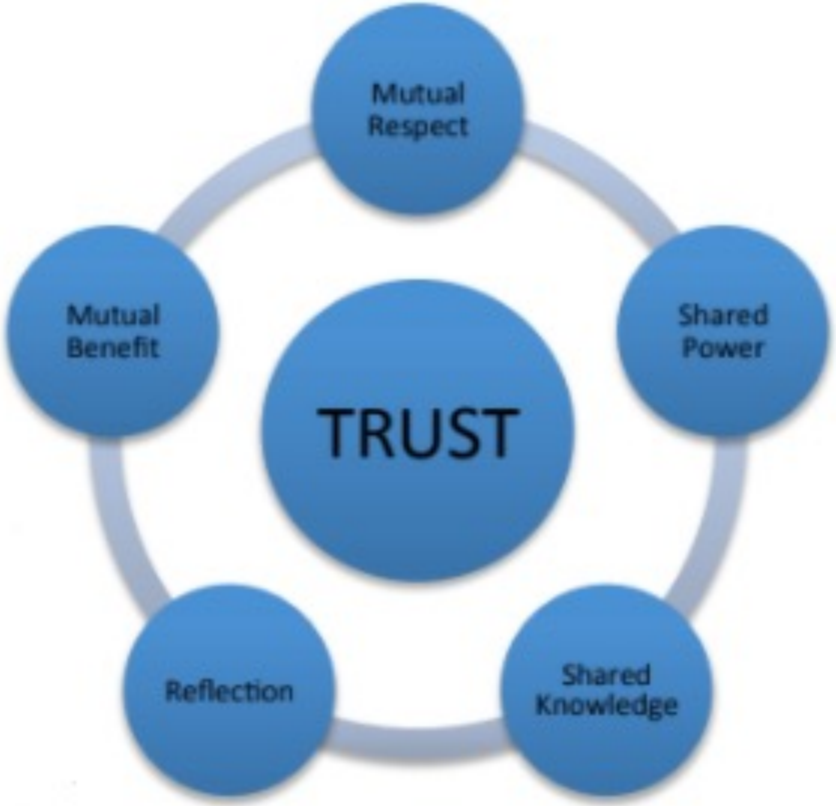
14,000 unique physiologic data points

15% rural zip codes
25% non-white
50% overweight or obese
4% over 40 years old

Participants actively engaged in the study for an average of 59 days

Barriers to Participation

Disparities in Representation


TRUST

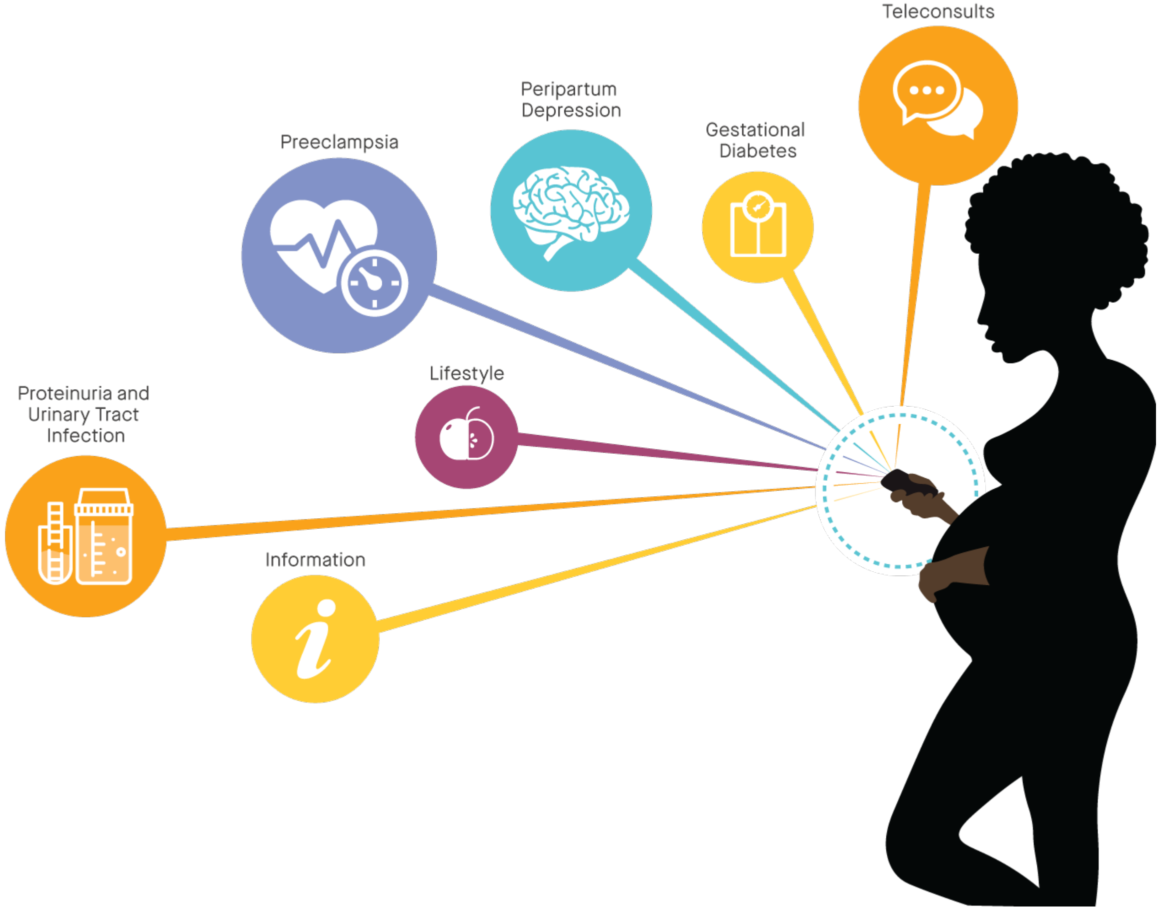
Mutual Respect

Shared Power

Shared Knowledge

Reflection

Mutual Benefit

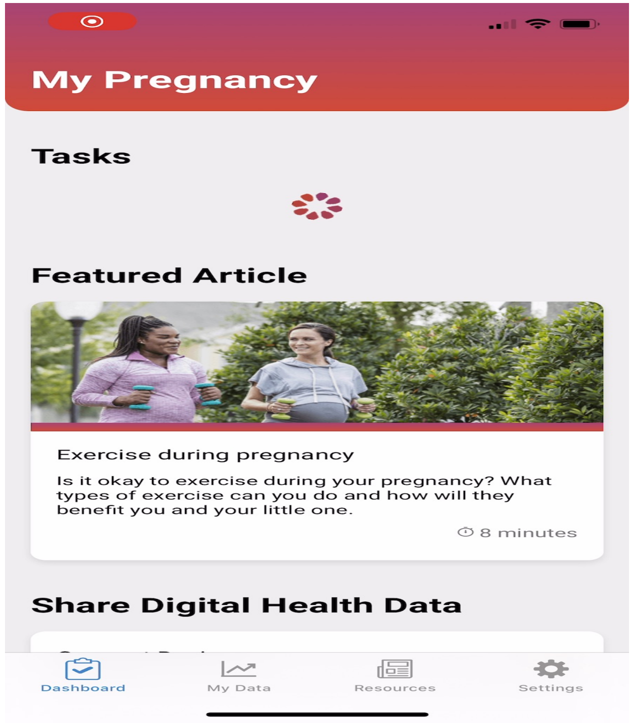

Teleconsults
Peripartum Depression
Gestational Diabetes
Preeclampsia
Lifestyle
Proteinuria and Urinary Tract Infection
Information

Data Security and Dobbs Decision

TODAY
DATA PRIVACY
$

Source: Artur/stock.adobe.com.

PowerMom Research Platform



Dashboard
My Data
Resources
Settings

My Pregnancy

Tasks

Featured Article

Exercise during pregnancy

Is it okay to exercise during your pregnancy? What types of exercise can you do and how will they benefit you and your little one.

8 minutes

Share Digital Health Data

What are we asking?

Short Intake	Health History	Biweekly	Gestation	Outcome
At time of enrollment	At time of enrollment	Every two weeks	Every two months	6-8 weeks after delivery
Due date	Mom's pregnancy history	Medications, vaccinations	Support during and after pregnancy	Date of pregnancy
Demographic Information	Baby's second parent history	Symptoms	Plans to feed the baby	Mode of Delivery, Baby Delivery information
Zip code, access to care	Medications	Weight, BP, pulse	Contraception plans	Postpartum survey

Health History Survey Questions

- Have you seen a healthcare professional since becoming pregnant?
- What type of care provider are you seeing for your prenatal care? If you are seeing multiple providers, check all that apply
- Which method of transportation do you use to get to your healthcare provider?
- On average, how long does it take you to travel to your healthcare provider? (in minutes)
- How many ultrasounds have you had so far during this pregnancy?
- How did you get pregnant during this pregnancy?
- Are you currently taking any medications or supplements (including prenatal vitamins)?
- Are you currently being treated for anxiety or depression?
- Have you, the baby’s father, or anyone in either family ever had any conditions/diseases diagnosed when they were a baby or early childhood? Please select known Conditions/Disorders:
- Before you were pregnant, were you diagnosed with any of the following diseases? Please check all that apply.
- Did you have any complications in your past pregnancy/pregnancies? Please select all conditions that developed in past pregnancies.

Recurring Surveys

- Did you receive an ultrasound at your appointment?
- Were you diagnosed with any conditions or illnesses at your most recent prenatal visit? How often did you experience Nausea and/or Vomiting in the past 2 weeks?
- How often did you experience stomach cramping or pain in the past 2 weeks?
- Have you changed any medications you are currently taking (including over the counter, prescription, and supplements)? List updated medications:
- During the past 2 weeks, did you use any of the following substances?
- After you give birth, what type of birth control do you plan on using? Please check all that apply
- Who is helping/supporting you during the pregnancy and after the baby is born? Please check all that apply
- How do you plan on feeding your baby? Please check all that apply.

Delivery Survey

- How did you complete your pregnancy?
- How many babies did you give birth to? (Numeric Choice)
- Please enter the birth date of your baby/babies. (Date answer choice)
- What is the sex of your baby?
- How much did your baby weight?
- What type of delivery did you have?
- Was your labor induced?
- Did you have an epidural?
- Where did the birth take place?
- How are you currently feeding your baby?
- Check all the boxes next to all vaccines you’ve received in the last year

Third Party Integrations

BEDDIT 3
SLEEP MONITOR
110
biobeat
15:35
SPO₂
98
PULSE
85
BP
130 / 85

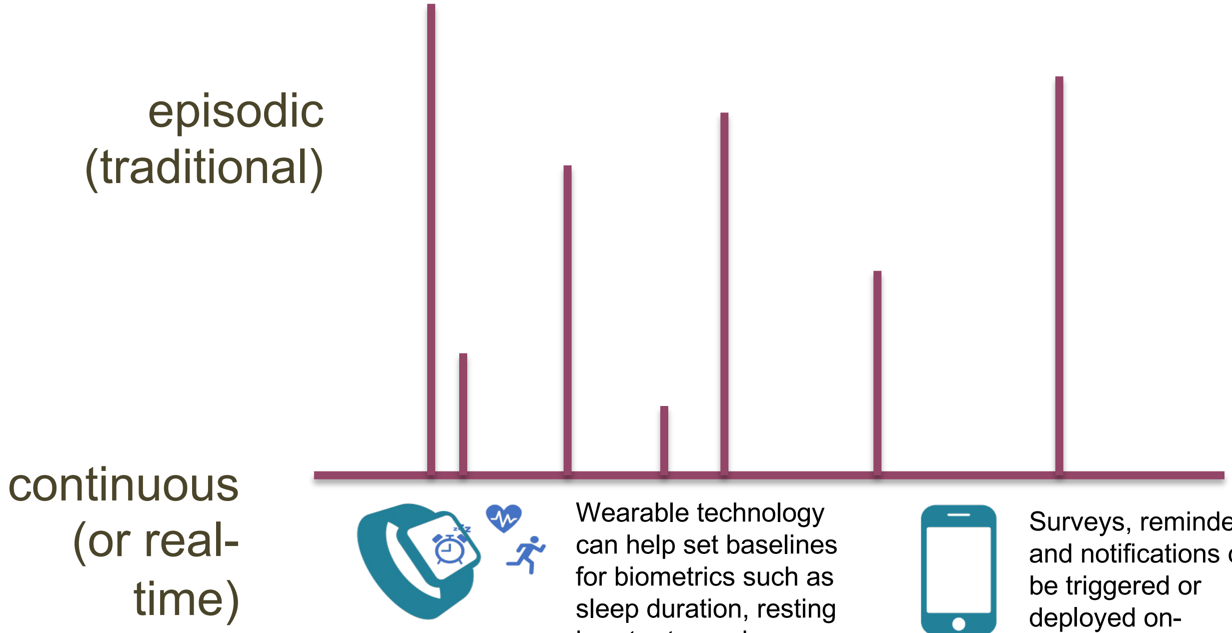
Broadening The Research Landscape

Lightweight, foundational protocol

Baseline biometrics
Bi-weekly surveys
Demographics
Birth outcomes
EHR data (optional)

Layered, targeted sub-studies

PowerMom-FIRST
Post partum depression
Nutrition tracking
At-home blood pressure monitoring



Wearable technology can help set baselines for biometrics such as sleep duration, resting heart rate, and activity.

Surveys, reminders, and notifications can be triggered or deployed on-demand.

Expanding traditional monitoring and leveraging the insights gleaned from remote, continuous monitoring can inform new guidelines that set that stage for a new maternal health care paradigm.

The Participant

Participant Advisory Board

Data Visualization

In App Resources

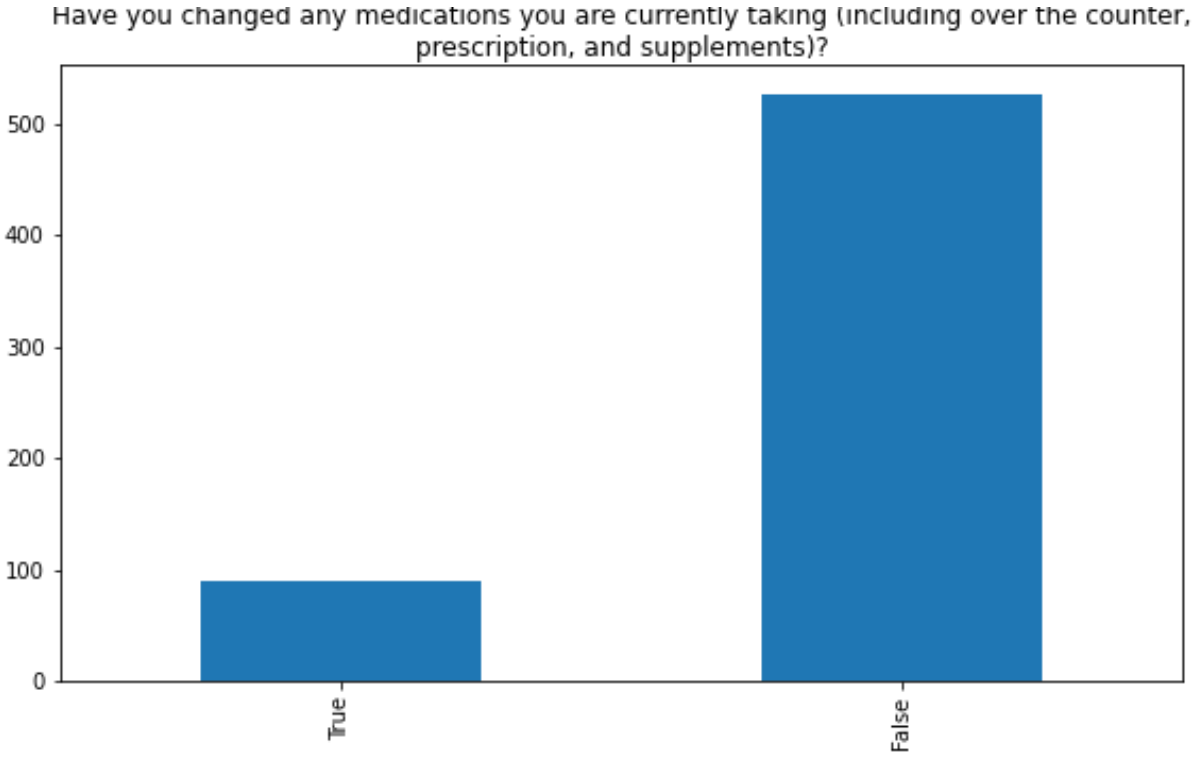
Fitbit Devices*

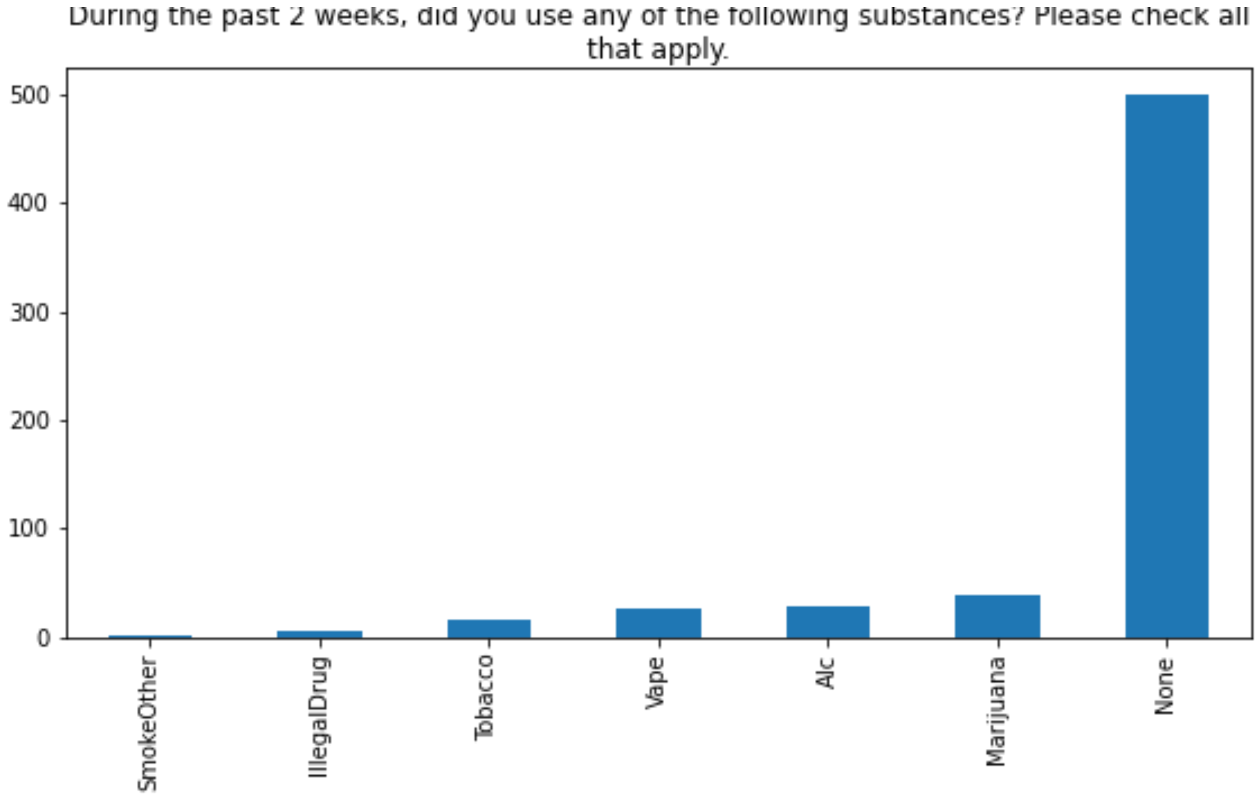
Gift Cards*

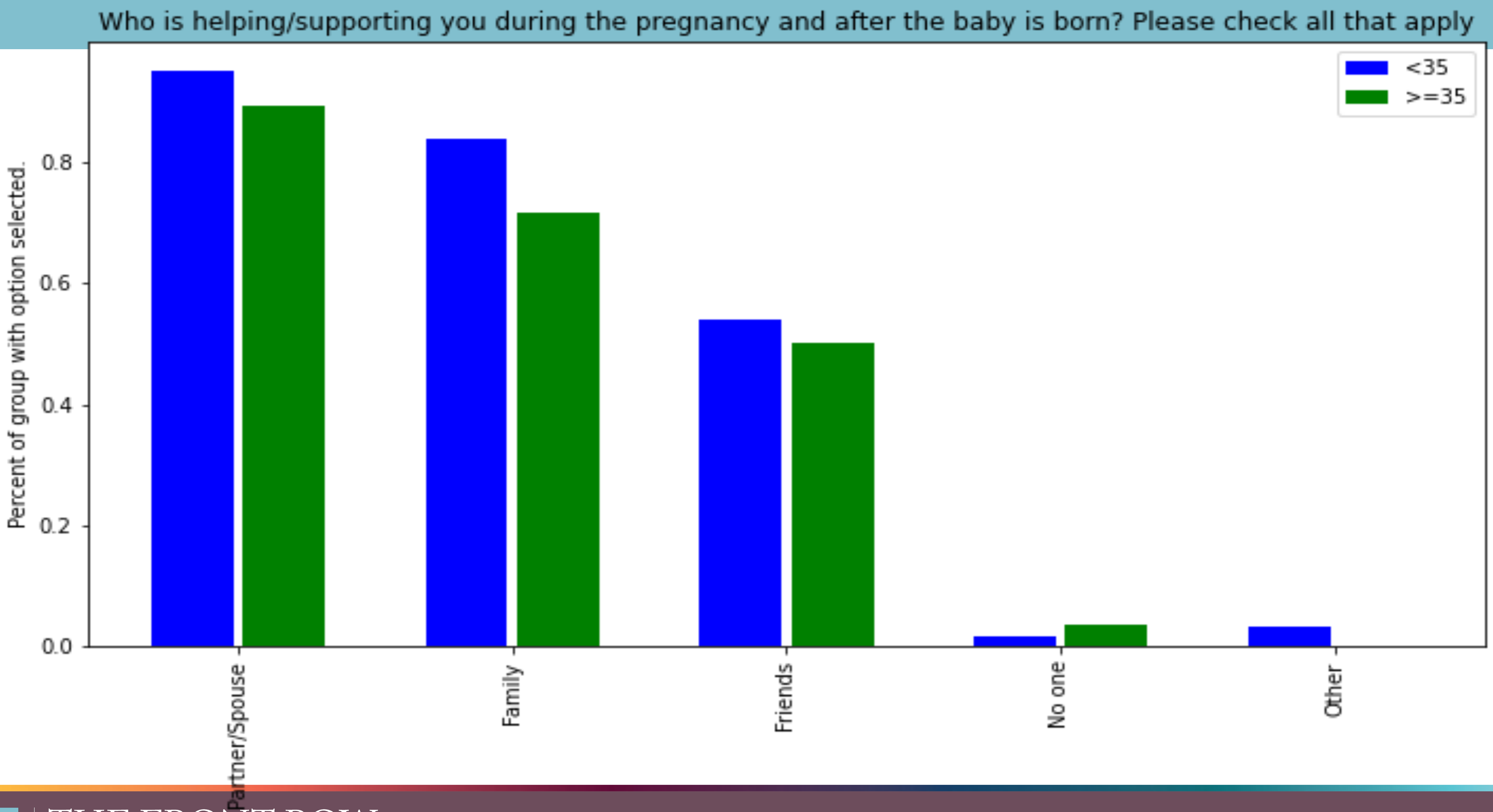
Digital Twin*

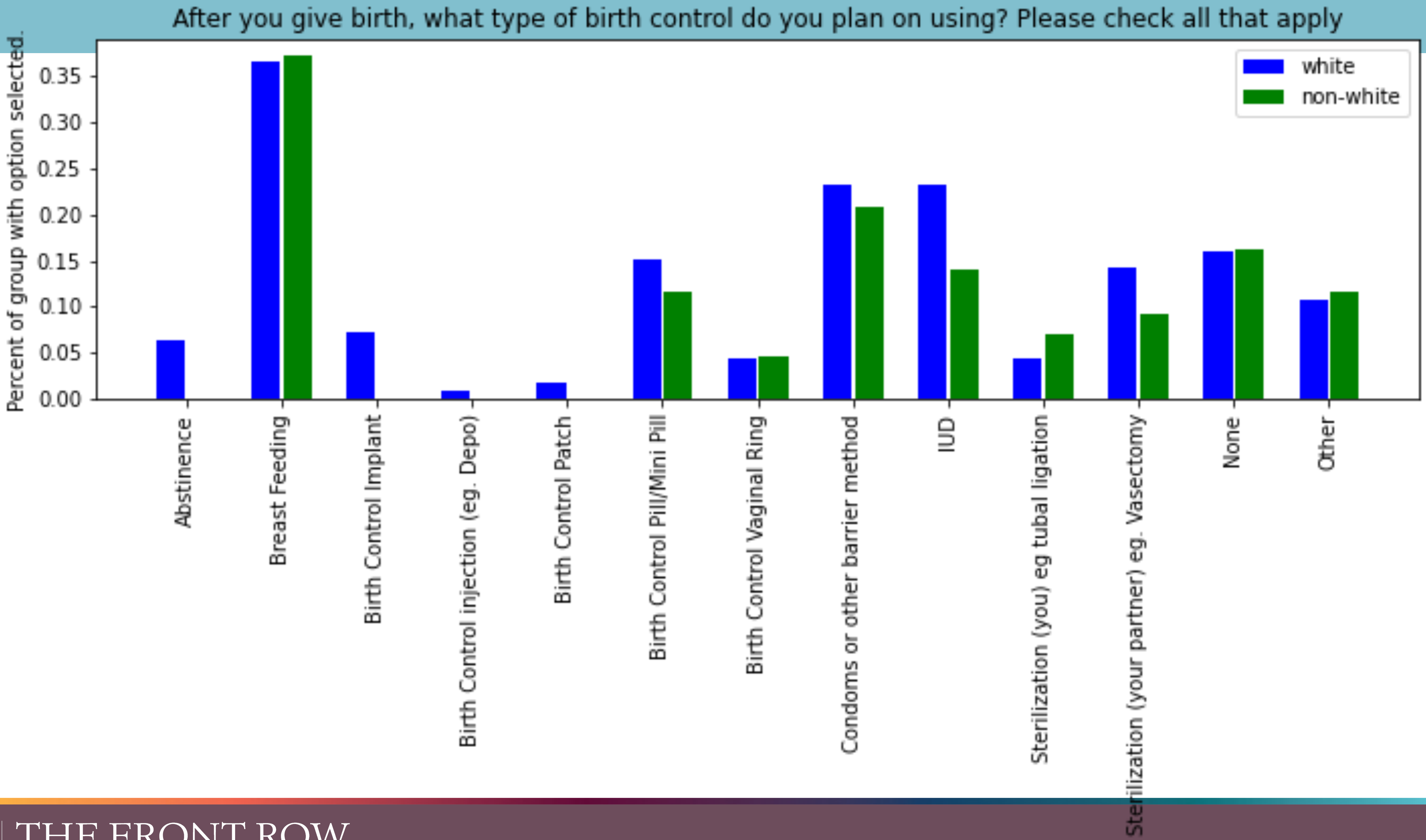
OB Advisory Board

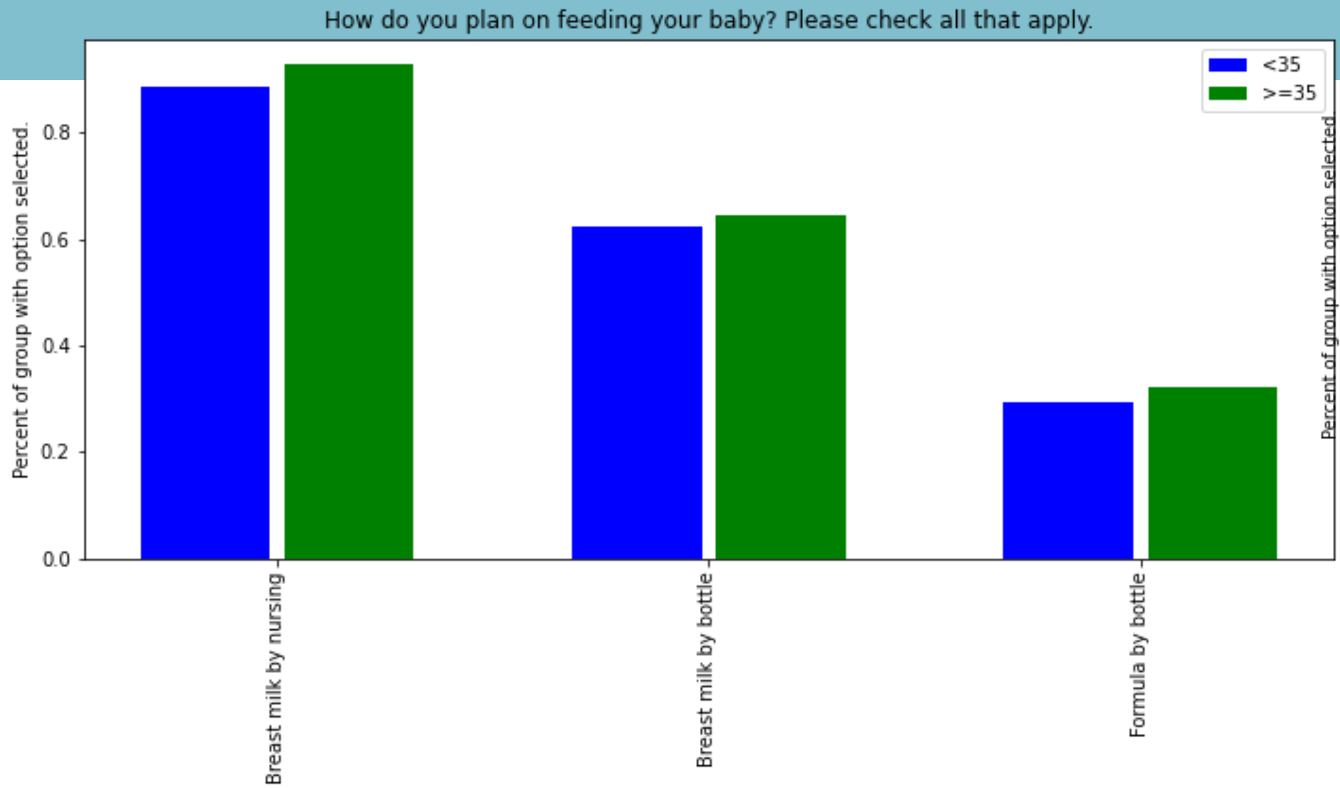
Current Data

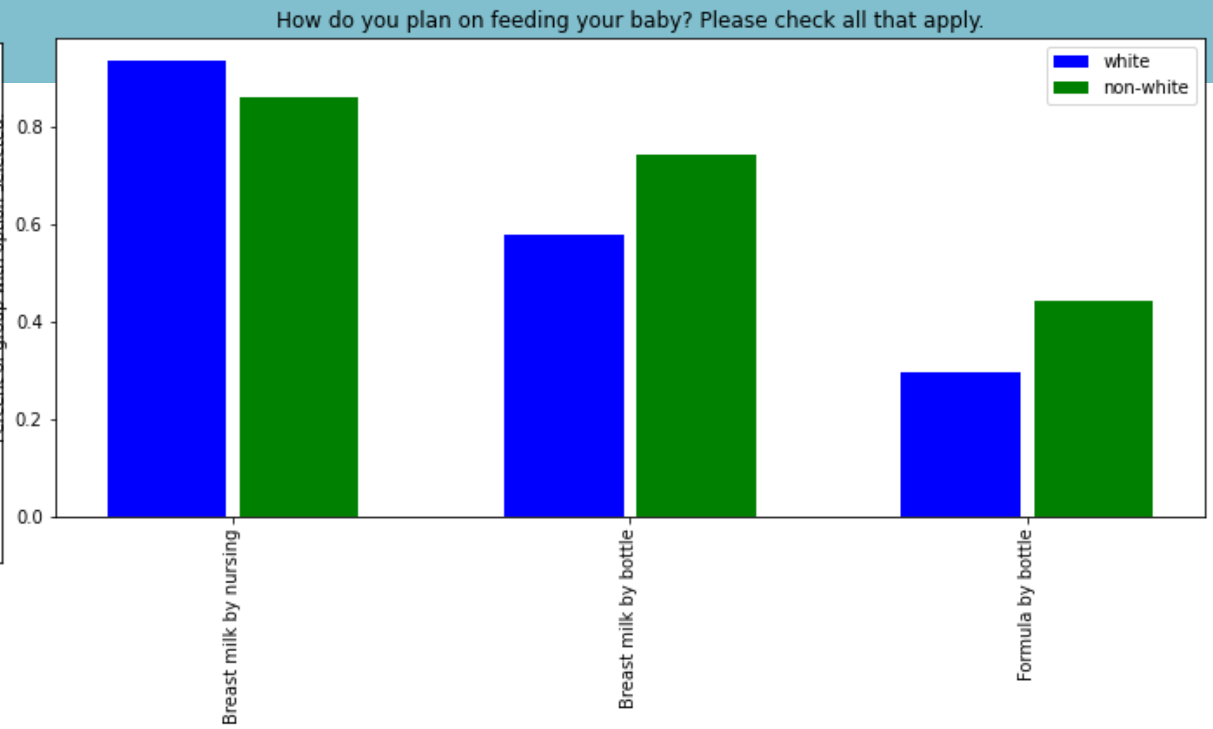

Have you changed any medications you are currently taking (including over the counter, prescription, and supplements)?


During the past 2 weeks, did you use any of the following substances? Please check all that apply.


Who is helping/supporting you during the pregnancy and after the baby is born? Please check all that apply
🟦 <35
🟩 >=35
Percent of group with option selected.
0.0
0.2
0.4
0.6
0.8
Partner/Spouse
Family
Friends
No one
Other


After you give birth, what type of birth control do you plan on using? Please check all that apply
Percent of group with option selected.
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
white
non-white
Abstinence
Breast Feeding
Birth Control Implant
Birth Control injection (eg. Depo)
Birth Control Patch
Birth Control Pill/Mini Pill
Birth Control Vaginal Ring
Condoms or other barrier method
IUD
Sterilization (you) eg tubal ligation
Sterilization (your partner) eg. Vasectomy
None
Other


How do you plan on feeding your baby? Please check all that apply.
<35
>=35
Percent of group with option selected.
0.0
0.2
0.4
0.6
0.8
Breast milk by nursing
Breast milk by bottle
Formula by bottle


How do you plan on feeding your baby? Please check all that apply.
white
non-white
Percent of group with option selected
0.0
0.2
0.4
0.6
0.8
Breast milk by nursing
Breast milk by bottle
Formula by bottle

Sista Midwife
PRODUCTIONS

Microsoft

Walgreens

PHILIPS

BlueCross
BlueShield
Association

Mae.

MARCH OF DIMES

Happy Mamas Growing Healthy Babies
Happy Mama Healthy Baby Alliance

AAWCFC&F

Woebot®
Health

Scripps Research

careevolution
HEALTHCARE TECHNOLOGY

WebMD®

fitbit

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