



**OKLAHOMA PERINATAL QUALITY**  
IMPROVEMENT COLLABORATIVE

OPQIC

Creating a culture of excellence,  
safety and equity in perinatal  
care

# Oklahoma Perinatal Quality Improvement Collaborative

We work to create a culture of excellence, safety and equity in perinatal care in Oklahoma.

[PATIENT RESOURCES](#)

[PROFESSIONAL RESOURCES](#)



# The Landscape of Maternal and Infant Health in Oklahoma

44 birthing hospitals

45,440 annual births in 2022

48% rural location  
52% urban location

~75% in urban hospitals  
~25% in rural hospitals  
Range in 2022 = 182 – 3949 births  
~56% covered by Medicaid  
3 tribal birthing hospitals  
1 IHS birthing hospital  
5 Birthing Centers (2022 births)  
7 Level III or IV NICUs



# State Profile – Oklahoma

- **Oklahoma population: 4,019,800**
  - 63.4% NH White
  - 12.1% Hispanic
  - 8.3% NH American Indian/Alaska Native
  - 7.5% NH Black/African American
  - 2.7% NH Asian/NHPI
- **Females of childbearing age (15-44 years): 799,849 (19.9%)**
  - 59.0% NH White
  - 13.7% Hispanic
  - 9.2% NH American Indian/Alaska Native
  - 8.2% NH Black/African American
  - 3.3% NH Asian/NHPI
- **Female median age: 38.4 years**

# State Profile – Oklahoma

	Medicaid deliveries July 2021 – June 2022	# Live births 2022 (OSDH)	% of live births paid for by Medicaid
<b>Overall</b>	<b>27,429</b>	<b>48,314</b>	<b>56.8%</b>
White	16,708	31,158 (64.5%)	53.6%
Hispanic	6,605	8,241 (17.1%)	80.1%
Am. Indian	3,330	4,651 (9.6%)	71.6%
AA/Black	2,769	3,909 (8.1%)	70.8%
Asian/PI	761	1,534 (3.2%)	49.6%

Source: Oklahoma Health Care Authority, SoonerCare Delivery Fast Facts SFY 2022

Oklahoma State Department of Health, Center for Health Statistics, Health Care Information, OK2SHARE on Nov 13, 2023

Race/ethnicity of some births/claims are unknown or declined to answer

**MATERNAL MORTALITY**

**SEVERE MATERNAL MORBIDITY**





# Oklahoma Maternal Mortality Review Committee

Annual Report

# 2023



<https://opqic.org/mmrcreport>

# Definitions Related to Maternal Mortality

- **Maternal Mortality:** The death of a woman **while pregnant or within 42 days** of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. (WHO Definition) Rate used in US and OK for reporting purposes-denominator of **100,000 live births**. (This definition used to compare US to other countries)
- **Pregnancy Related Deaths:** The death of a woman **while pregnant or within 1 year** of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. Rate used in US and OK for reporting purposes-denominator of **100,000 live births**. (This definition most often is produced from state MMRCs)
- **Pregnancy Associated Deaths:** The death is the death of any women, from any cause, **while pregnant or within 1 year** of termination of pregnancy, regardless of duration and the site of pregnancy. Rate used in US and OK for reporting purposes-denominator of **100,000 live births**. (Generally a definition associated with timing only)

# Maternal Mortality

- Historically over 700 people die yearly in the US as a result of pregnancy or delivery complications
- In 2020, the number rose to 861 deaths/100,000 live births → **national MMR = 23.8** (up from 20.1)
- In 2021, the number rose to 1,205 deaths/100,000 live births → **national MMR = 32.9** (up from 23.8)
- **OK MMR** for 2019-2021 was 31.0 which is UP from 25.2 in the previous reporting period (2018-2020)

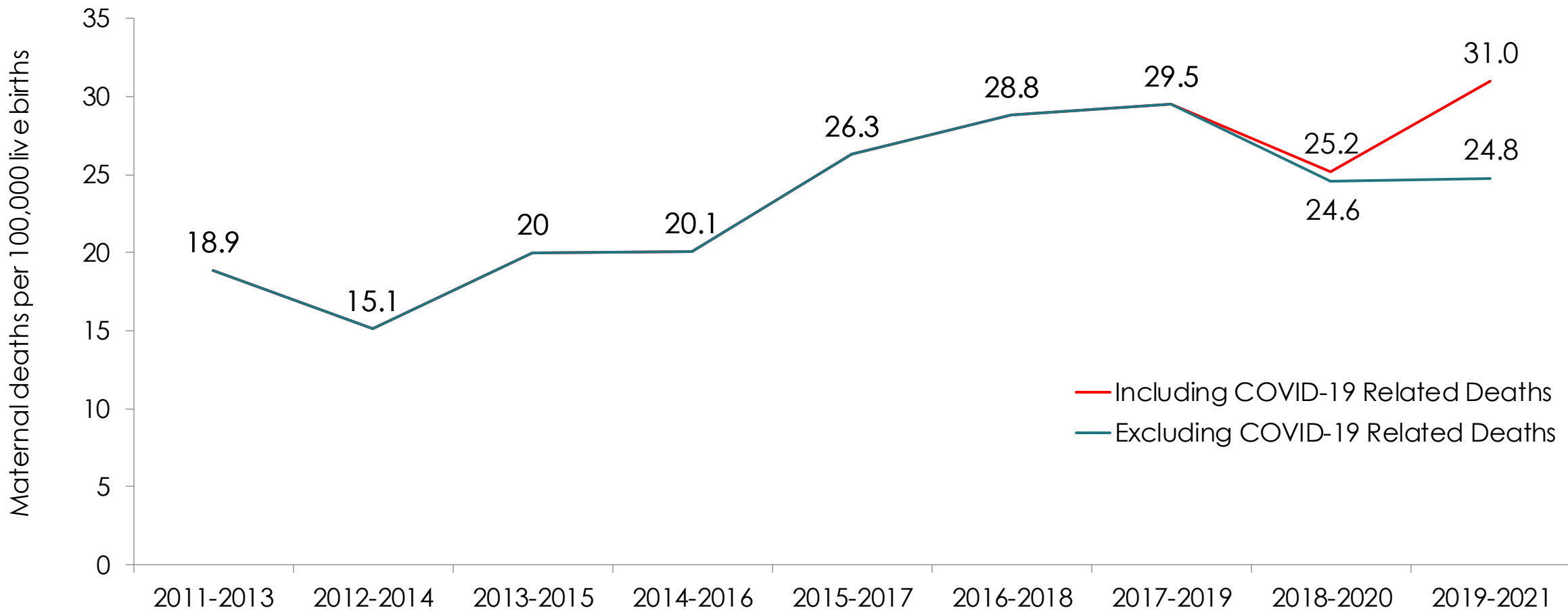
## Maternal Mortality Rate

- Healthy People 2030 Goal = 15.7
- ▶ 2019-2021 **Oklahoma** Maternal Mortality Rate\* for maternal deaths within 42 days of termination of pregnancy is **31.0**
- ▶ 2021 **United States** Maternal Mortality Rate\* for maternal deaths within 42 days of termination of pregnancy is **32.9**

\*MMR = number of maternal deaths (while pregnant or within 42 days of end of pregnancy) excluding accidents and incidental causes, per 100,000 live births

Source: Oklahoma Vital Statistics, 2019-2021; National Center for Health Statistics, National Vital Statistics System, Mortality and Natality, 2021

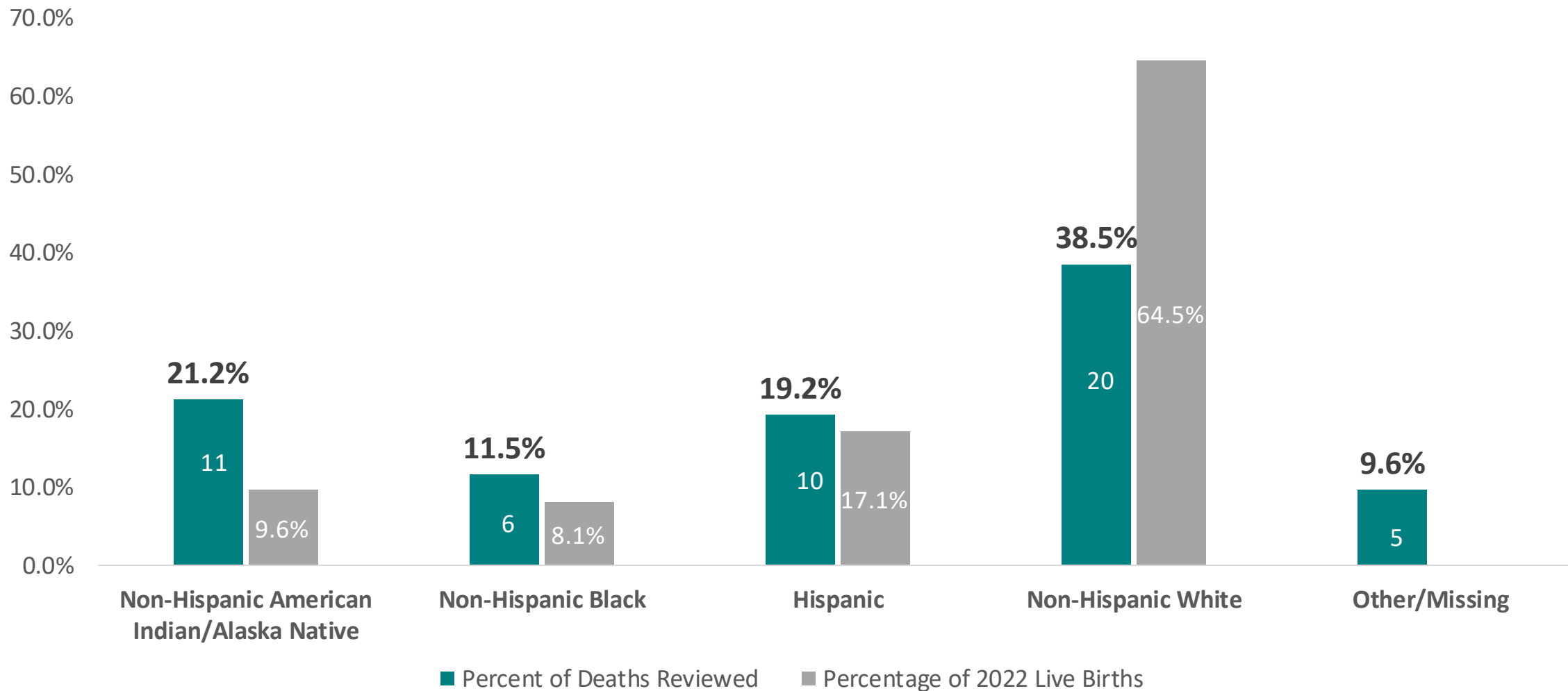
### 3-Year Rolling Maternal Mortality Rate, Oklahoma 2011-2021



Source: Oklahoma Vital Statistics, 2011-2021

Deaths were considered COVID-related if any multiple cause of death included ICD code U07.1

## MMRC-Reviewed Deaths by Race/Ethnicity

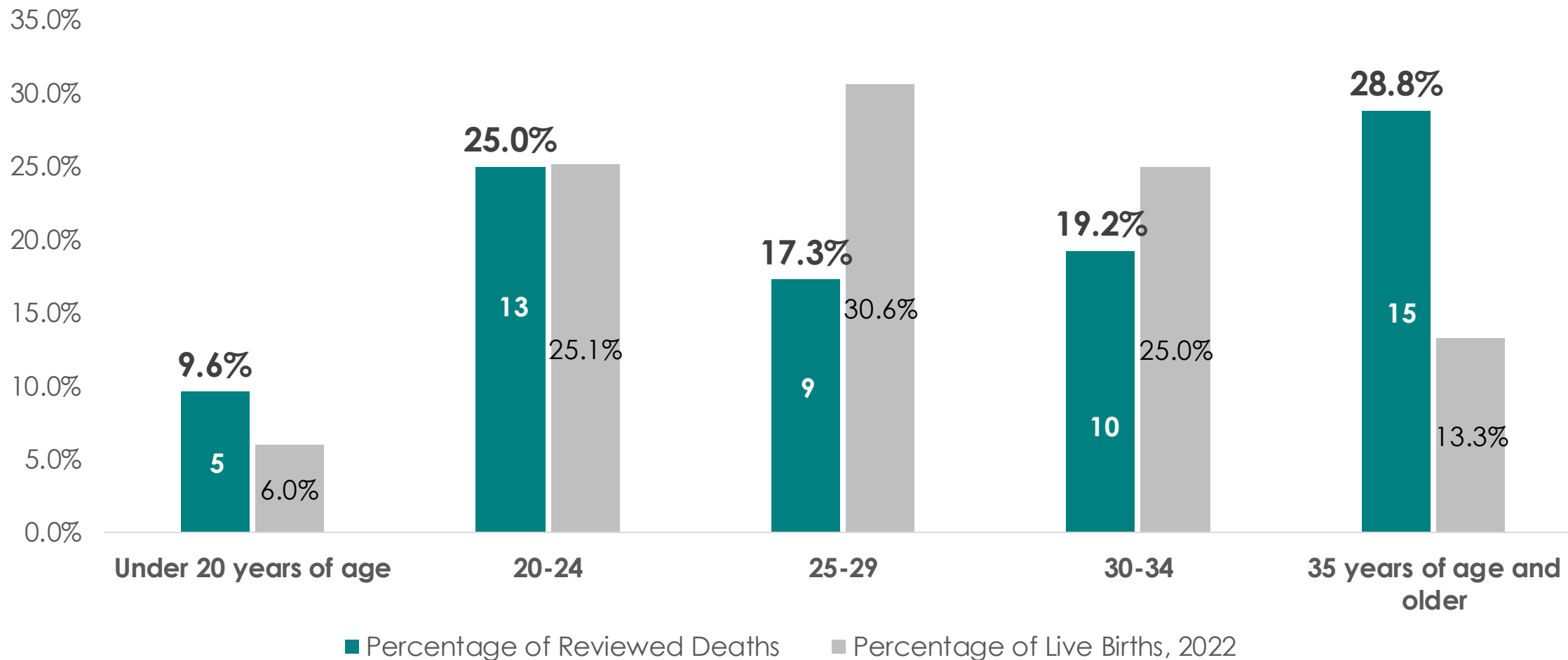


Source: Maternal Mortality Review Committee, All Cases Reviewed January 2020 – April 2023

Deaths occurred between 2017-2021

**Note differences of time periods for deaths and births**

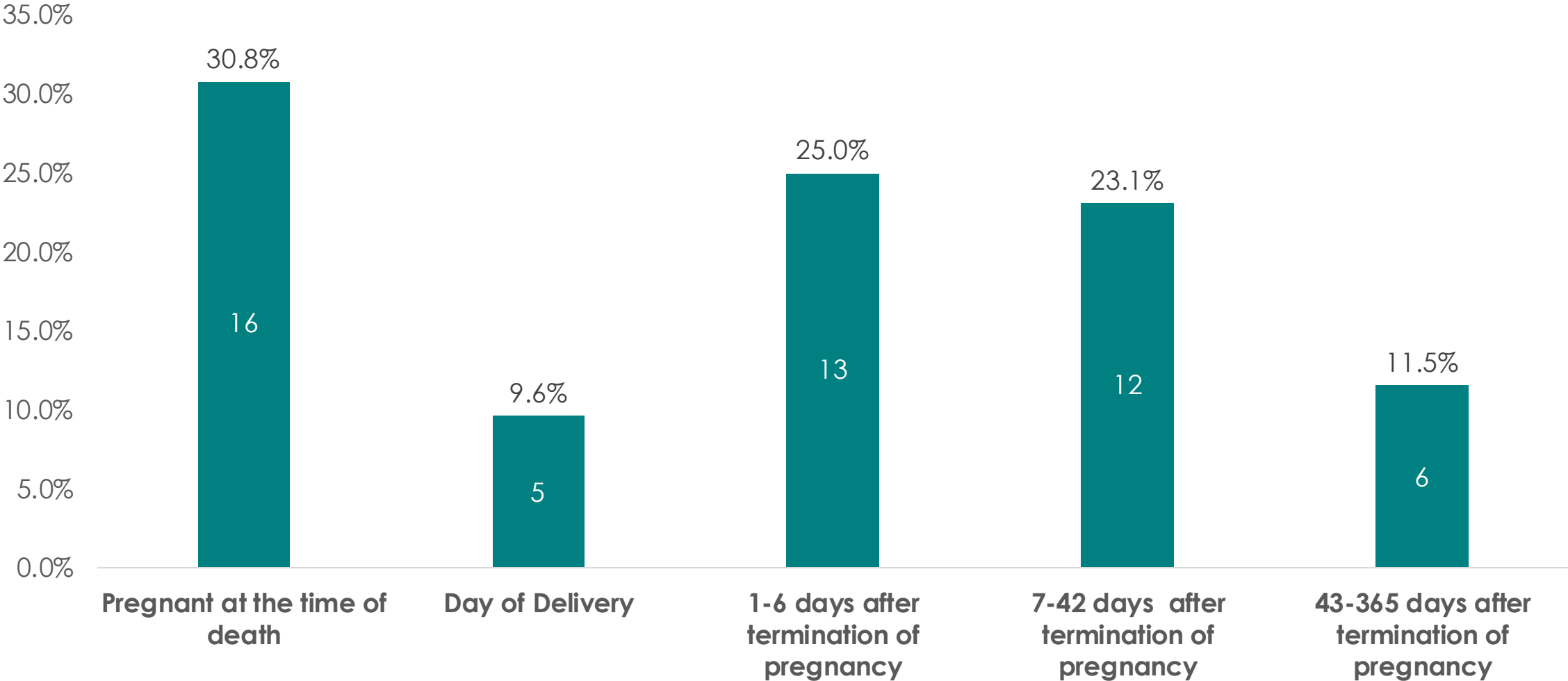
### MMRC-Reviewed Deaths by Age



Source: Maternal Mortality Review Committee, Cases Reviewed January 2020– April 2023  
 Deaths occurred between 2017-2021

**Note differences of time periods for deaths and births**

### MMRC-Reviewed Deaths by Timing of Death

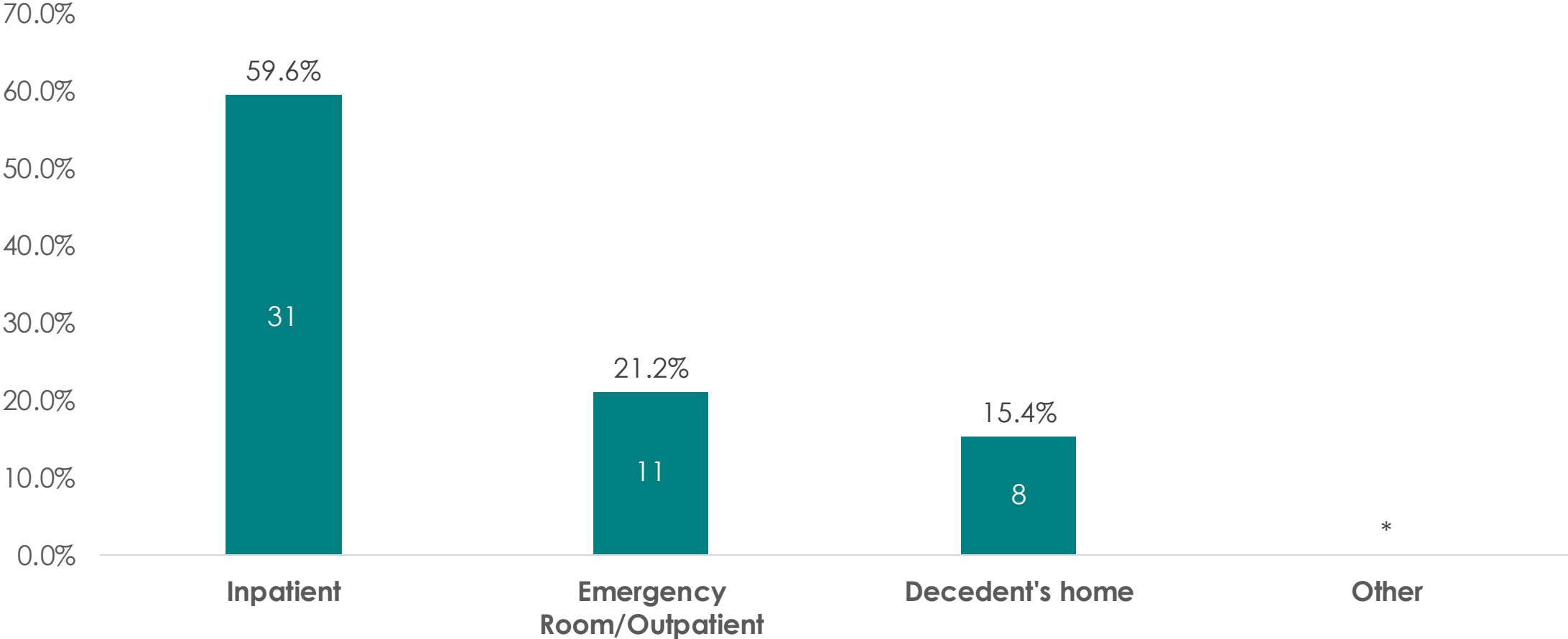


Source: Maternal Mortality Review Committee, Cases Reviewed January 2020 – April 2023  
 Deaths occurred between 2017-2021





### MMRC-Reviewed Deaths by Place of Death



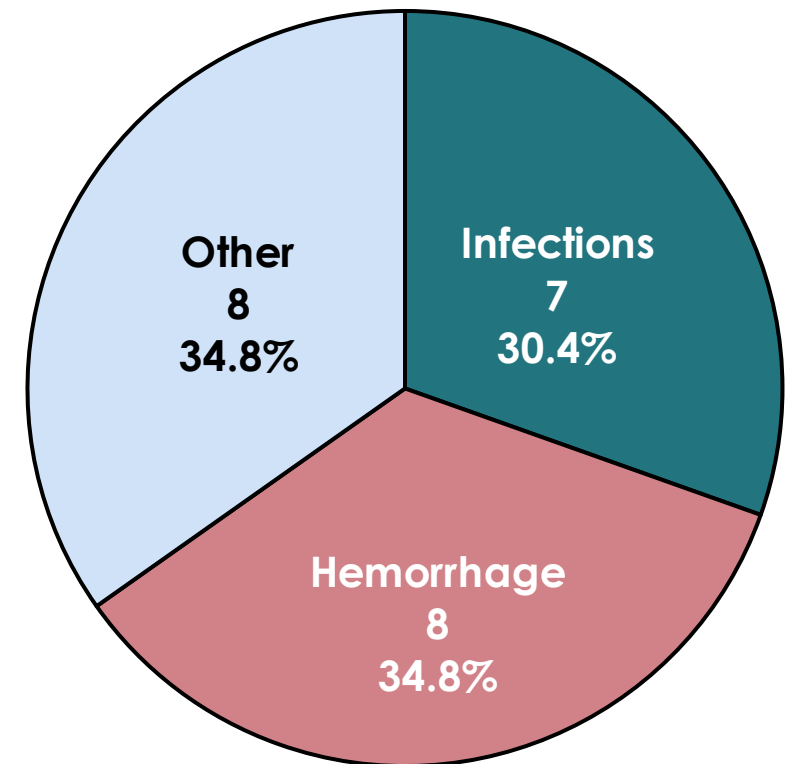
\*Percentages/numbers are suppressed due to small cell size (less than 5 deaths)

Source: Maternal Mortality Review Committee, Cases Reviewed January 2020– April 2023  
Deaths occurred between 2017-2021

# Maternal Mortality Review

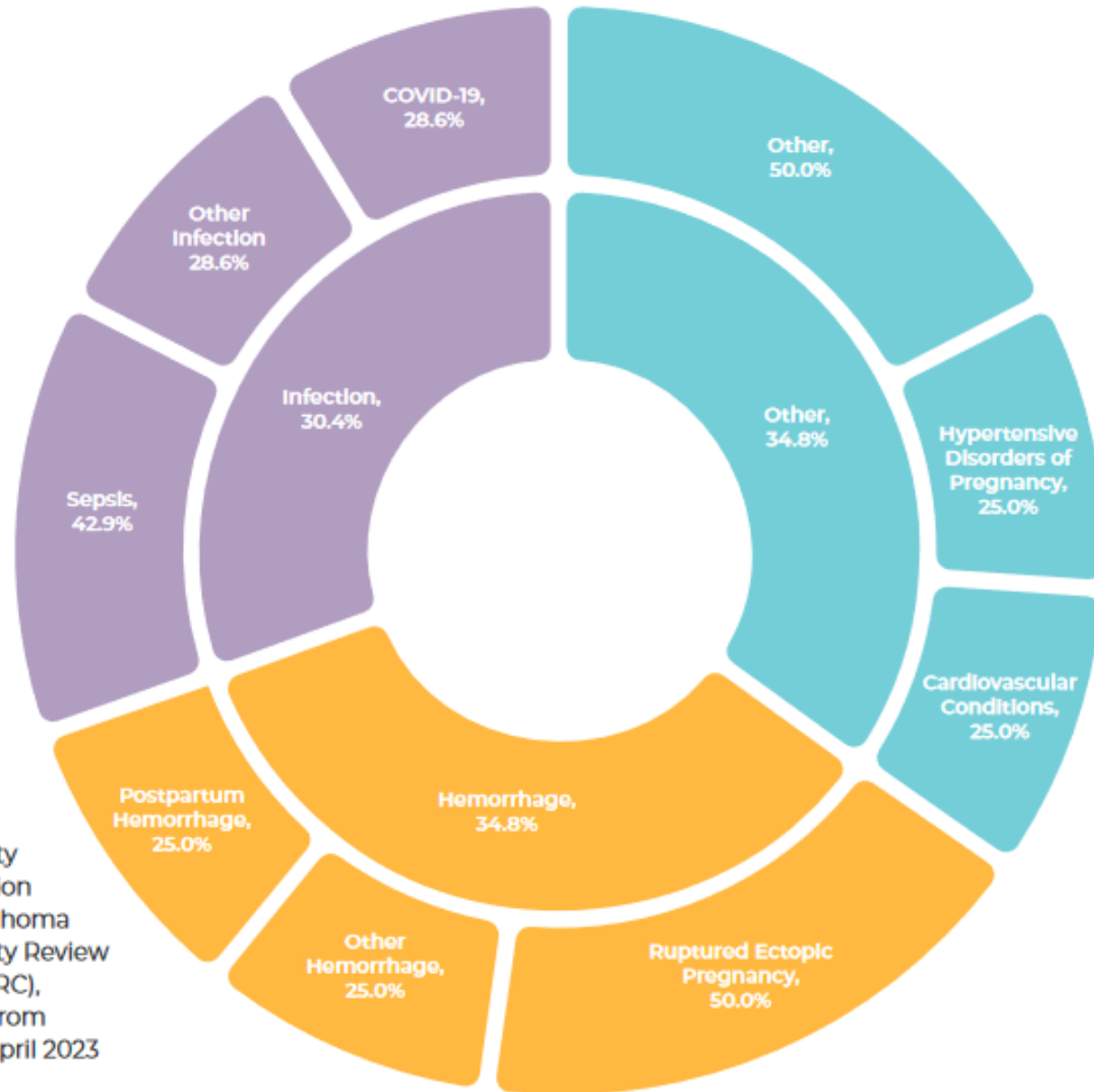
- 52 cases reviewed from January 2020 – April 2023
- Age range: 16-42 years
- 15 (28.8%) were of an advanced maternal age (>35 years)
- Poverty: 23 cases had Medicaid coverage (57.5%\*)
- 23 deaths (44.2%) were pregnancy-related

Top causes among pregnancy-related deaths (n=23)



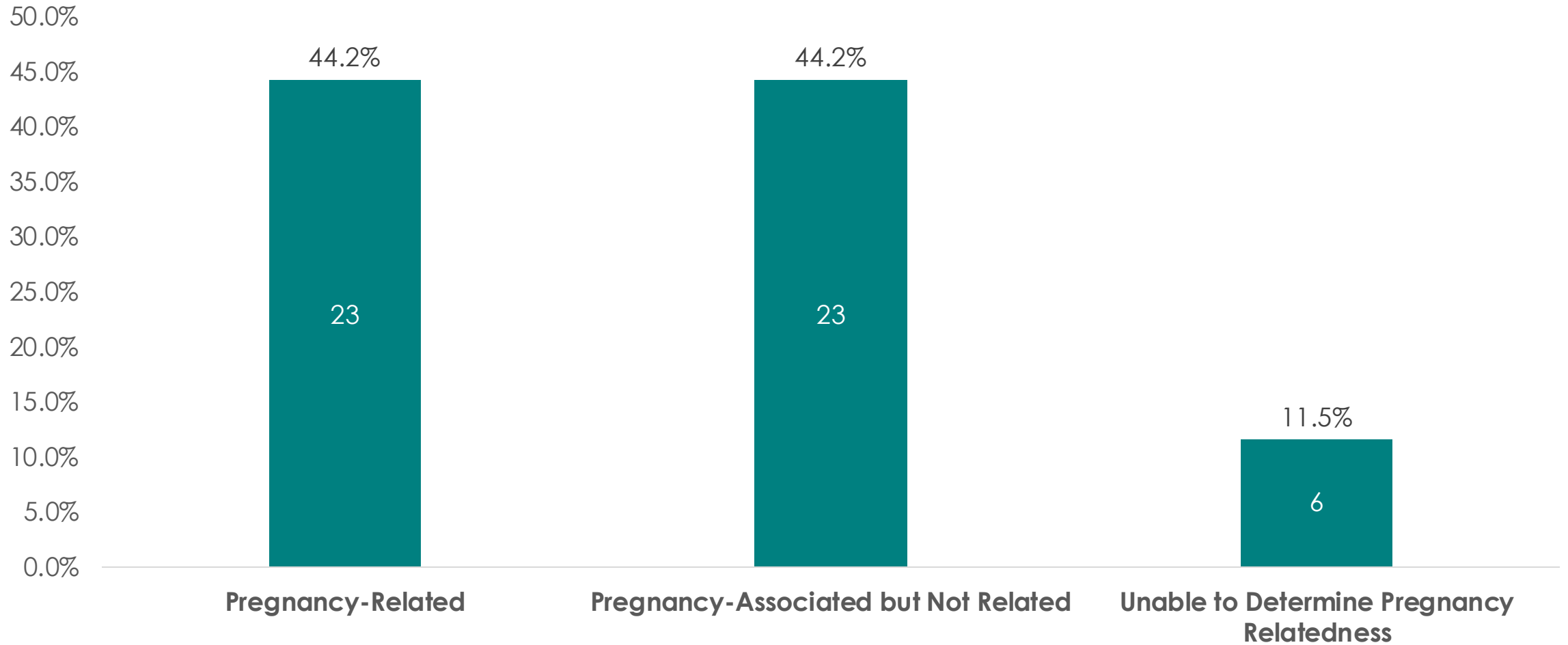
\*Among deaths with known insurance status for healthcare before, during, or after pregnancy (N=40)

# January 2020 - April 2023



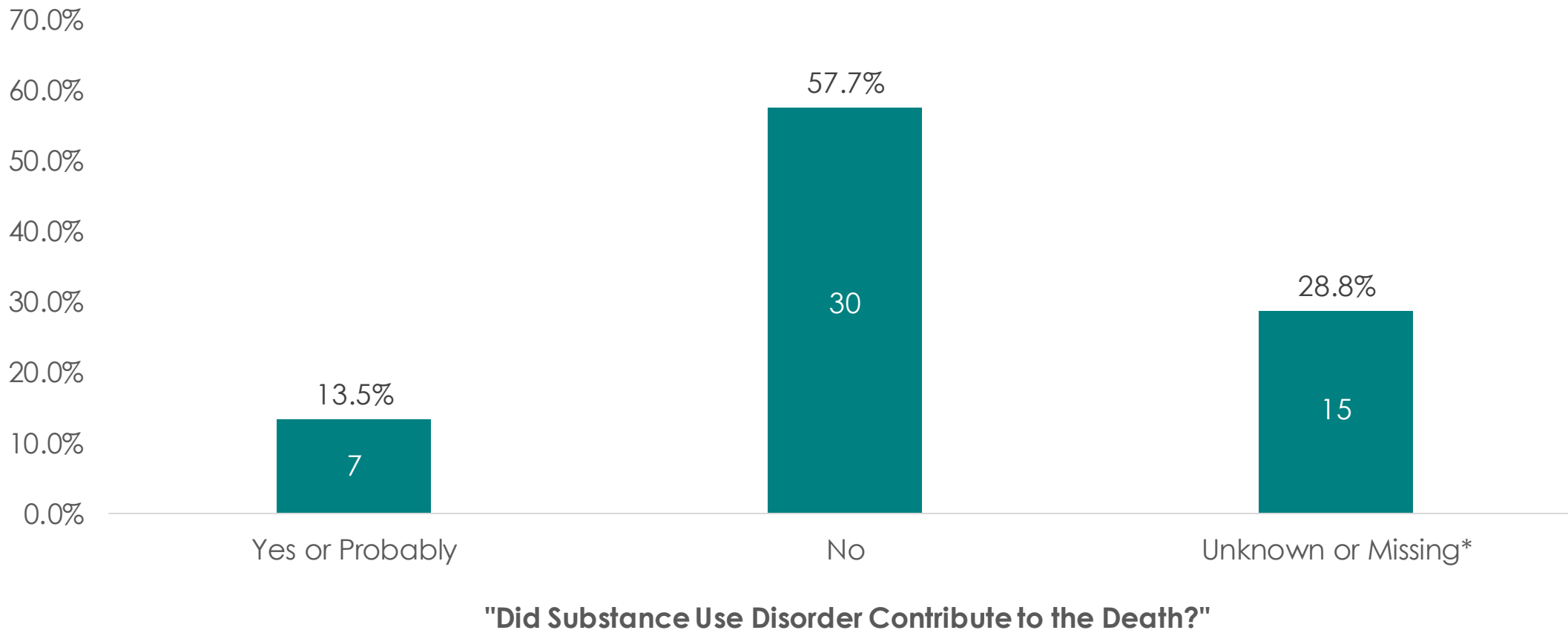
Source:  
Maternal Mortality  
Review Information  
Application, Oklahoma  
Maternal Mortality Review  
Committee (MMRC),  
Cases reviewed from  
January 2020 – April 2023

### MMRC-Reviewed Deaths by Pregnancy-Relatedness



Source: Maternal Mortality Review Committee, Cases Reviewed January 2020– April 2023

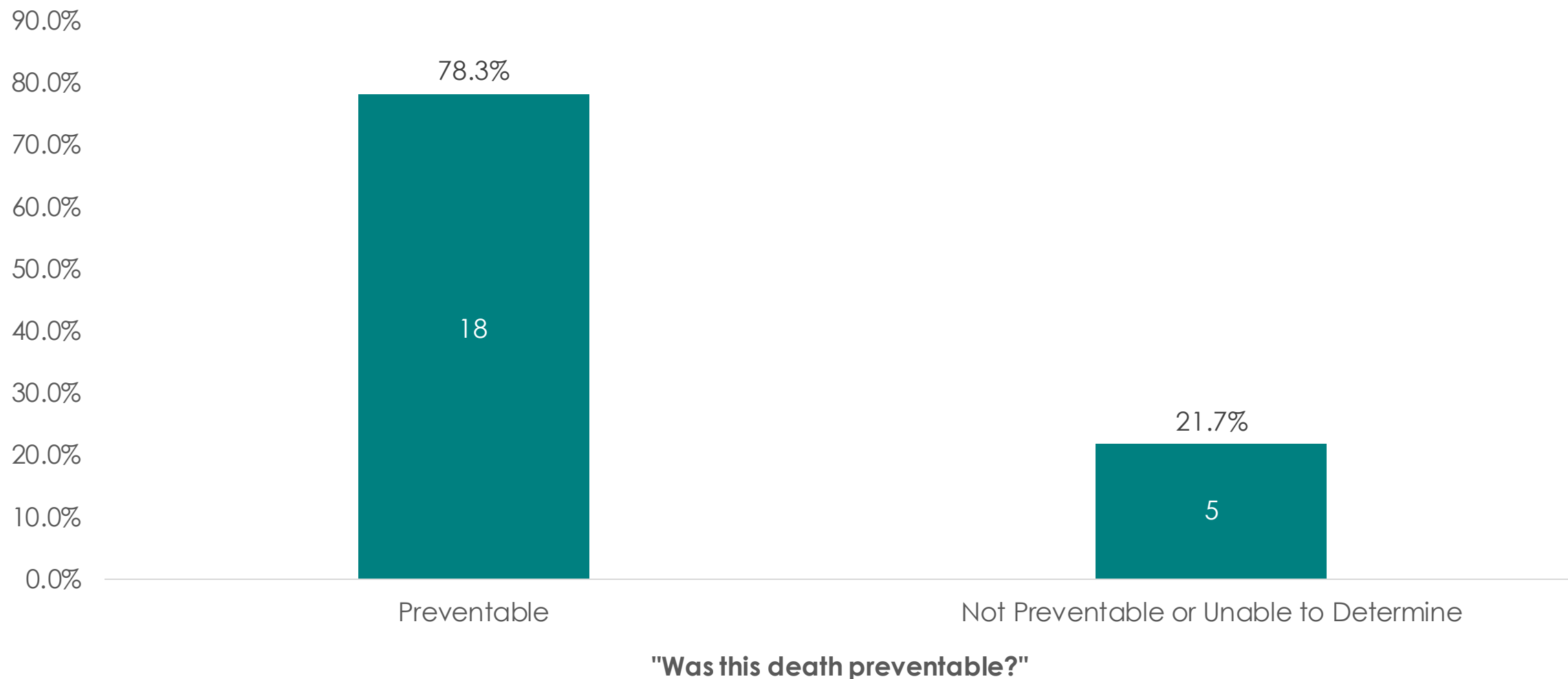
### MMRC-Reviewed Deaths by Substance Use Disorder Contribution



\*Deaths with "Unknown" or missing data may include deaths with limited relevant information (e.g., healthcare records, autopsy report) or limited documentation related to substance use disorder

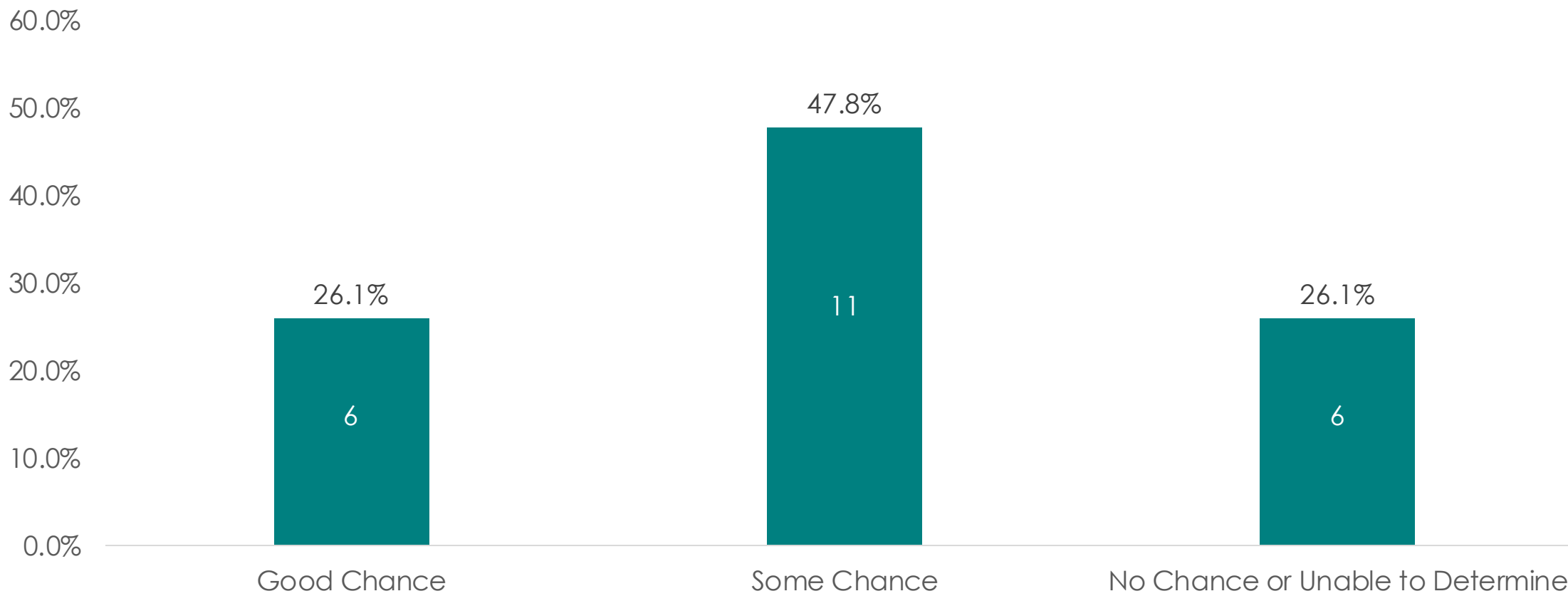
Source: Maternal Mortality Review Committee, Cases Reviewed January 2020– April 2023

### Pregnancy-Related Deaths by Preventability



Source: Maternal Mortality Review Committee, Cases Reviewed January 2020– April 2023

### Pregnancy-Related Deaths by Chance to Alter Outcome



**“Was there a chance to alter the outcome?”**

**ALLIANCE FOR INNOVATION ON MATERNAL  
HEALTH (AIM) – HRSA/ACOG**

**SEVERE MATERNAL MORBIDITY**



<https://saferbirth.org/>



## ALLIANCE FOR INNOVATION ON MATERNAL HEALTH

A quality improvement initiative to support best practices that make birth safer, improve maternal health outcomes and save lives.

[HOME](#) [ABOUT US](#) [PATIENT SAFETY BUNDLES](#) [AIM CORNERSTONES](#) [RESOURCES](#) [AIM DATA](#) [COLLABORATIVE STRATEGIES](#) [CONTACT](#)



## AIM PATIENT SAFETY BUNDLES

AIM develops multidisciplinary, clinical-condition specific patient safety bundles to support best practices that make birth safer. [LEARN MORE](#)

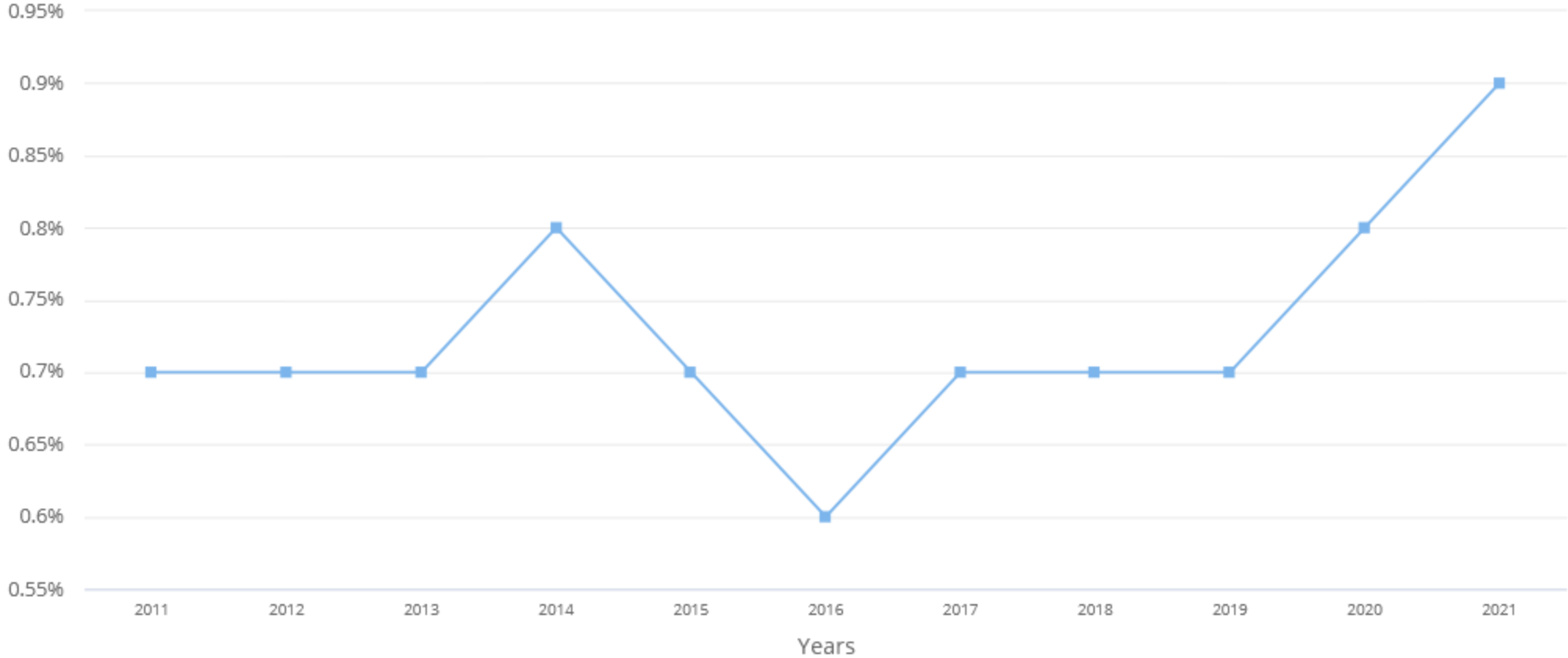


**AIM DATA  
HEMORRHAGE AND HYPERTENSION  
MATERNAL SAFETY BUNDLES**

# Oklahoma AIM Data

## Severe Maternal Morbidity (excluding transfusion codes alone)

Aggregate Collaborative Average



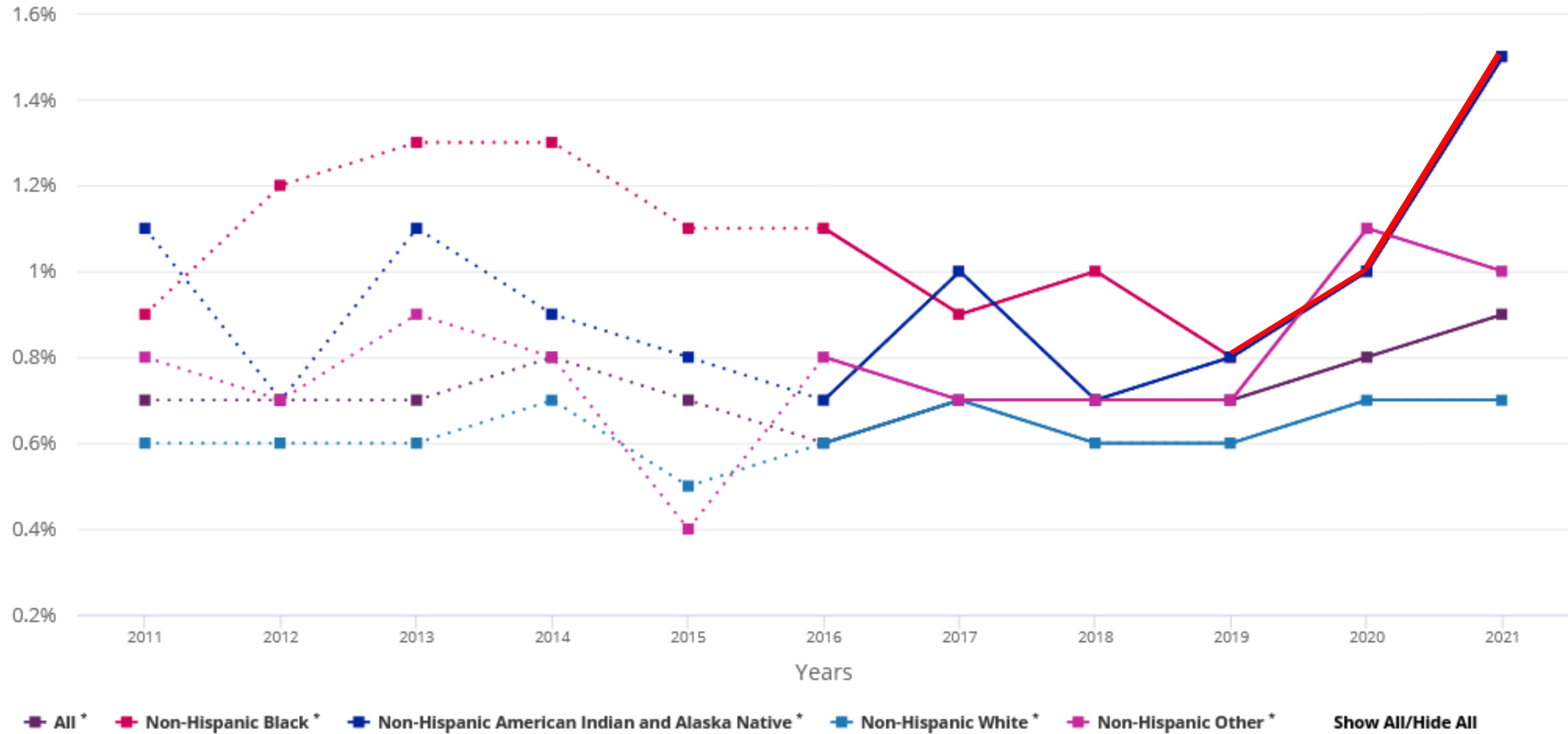
-- Oklahoma Collaborative 25th Percentile \*    -- Oklahoma Collaborative 75th Percentile \*    **■ Oklahoma Collaborative-wide (Hospital Rollup) \***    ▲ Oklahoma State-wide 5  
**Show All/Hide All**

\*OSDH Hospital Discharge Data Participating Hospitals = 35

# Oklahoma AIM Data

Severe Maternal Morbidity (excluding transfusion codes alone)

Aggregate Collaborative Average

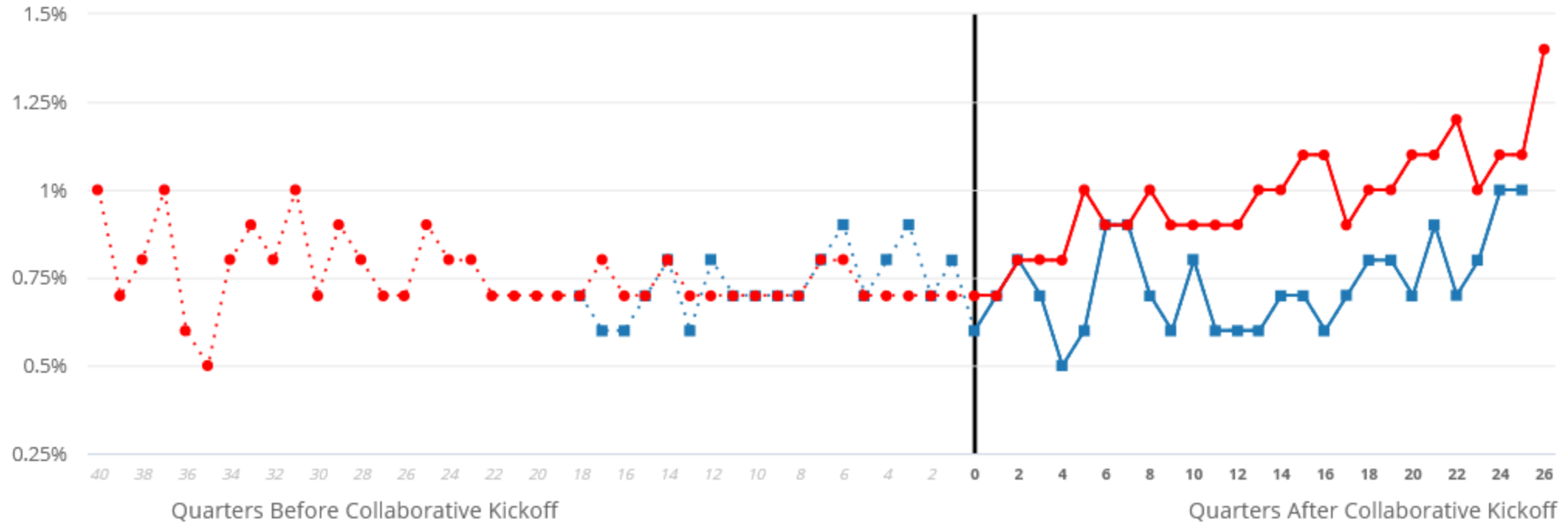


\*OSDH Hospital Discharge Data Participating Hospitals = 35

# Oklahoma AIM Data

Severe Maternal Morbidity (excluding transfusion codes alone)

Aggregate Collaborative Average



- ◆ Alabama \*
- ◆ Alaska \*
- ◆ Arizona †
- ◆ California \*
- ◆ Colorado \*
- ◆ Connecticut \*
- ◆ Florida \*
- ◆ Georgia \*
- ◆ Hawaii \*
- ◆ Illinois †
- ◆ Indiana \*
- ◆ Iowa †
- ◆ Louisiana \*
- ◆ Maine †
- ◆ Maryland \*
- ◆ Massachusetts †
- ◆ Michigan †
- ◆ Mississippi \*
- ◆ NPIC \*
- ◆ Nebraska \*
- ◆ New Jersey \*
- ◆ New York †
- ◆ Oklahoma \*
- ◆ Oregon \*
- ◆ Pennsylvania \*
- ◆ Premier \*
- ◆ Rhode Island \*
- ◆ South Carolina \*
- ◆ Tennessee \*
- ◆ Texas \*
- ◆ Trinity \*
- ◆ Utah Collaborative \*
- ◆ Virginia \*
- ◆ West Virginia †
- ◆ Wisconsin \*
- ◆ National AIM Rate \*

Show All/Hide All

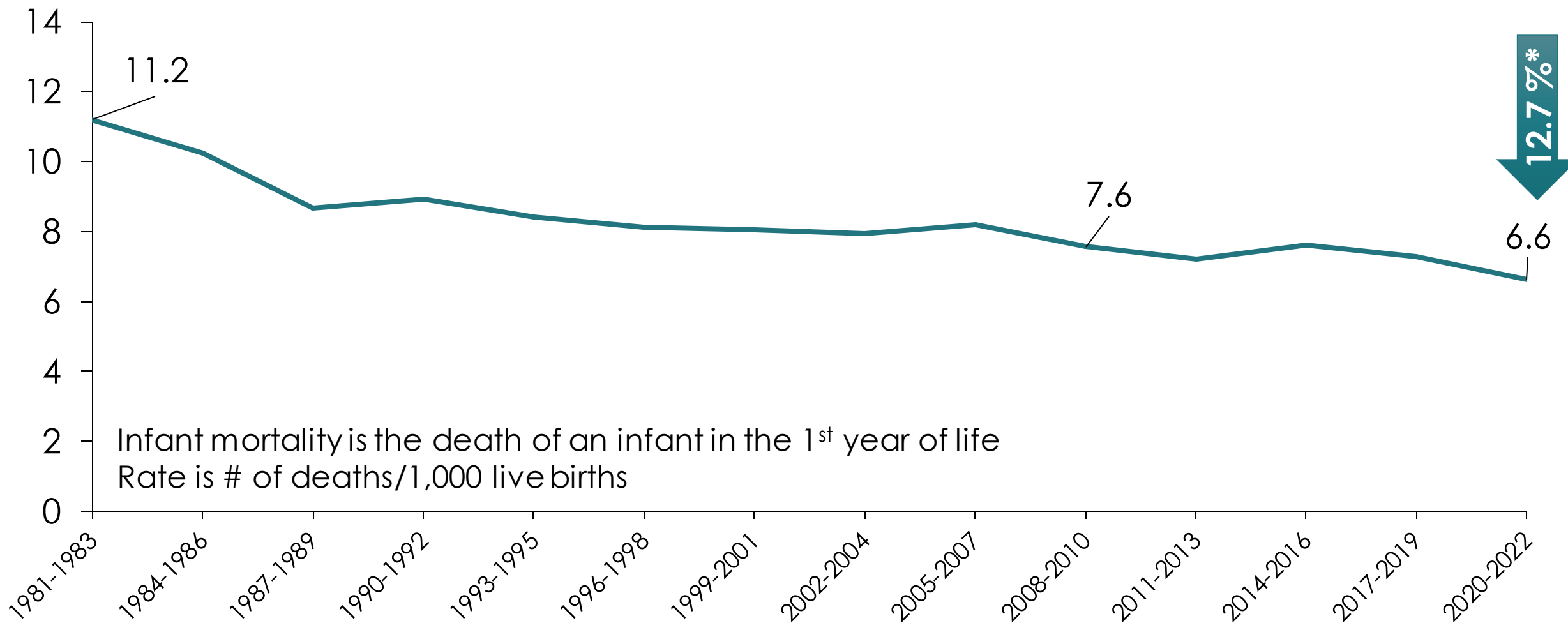
\*OSDH Hospital Discharge Data Participating Hospitals = 35

**CONGRATULATIONS!**

# INFANT MORTALITY



# Infant Mortality Rate Oklahoma, 1981-2022

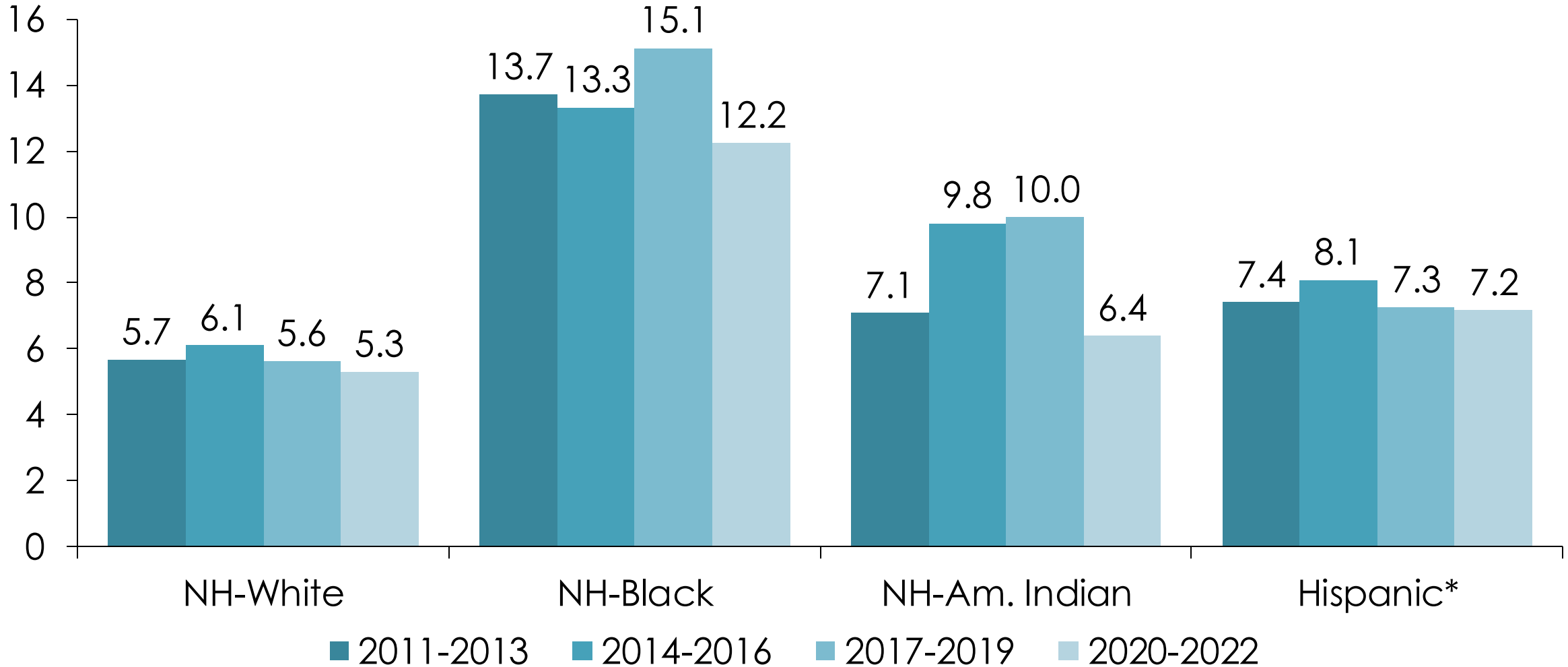


**12.7%\***

\*Percentage decrease from 2008-2010 to 2020-2022  
Source: Oklahoma Vital Statistics, 1981-2022, Provisional 2022



## Infant Mortality Rates by Race and Hispanic Origin Oklahoma, 2011-2022



Source: Oklahoma Vital Statistics, 2010-2022, Provisional 2022

\*Hispanics may be of any race

## Top 3 Rankable\* Causes of Infant Death Oklahoma, 2020-2022

- **Non-Hispanic White**

1. Congenital anomalies (Q00-Q99)
2. Disorders related to short gestation and low birth weight (P07)
3. Sudden Infant Death Syndrome (SIDS) (R95)

- **Non-Hispanic African American/Black**

1. Disorders related to short gestation and low birth weight (P07)
2. Unintentional injuries (V01-X59)
3. Sudden infant death syndrome (R95)

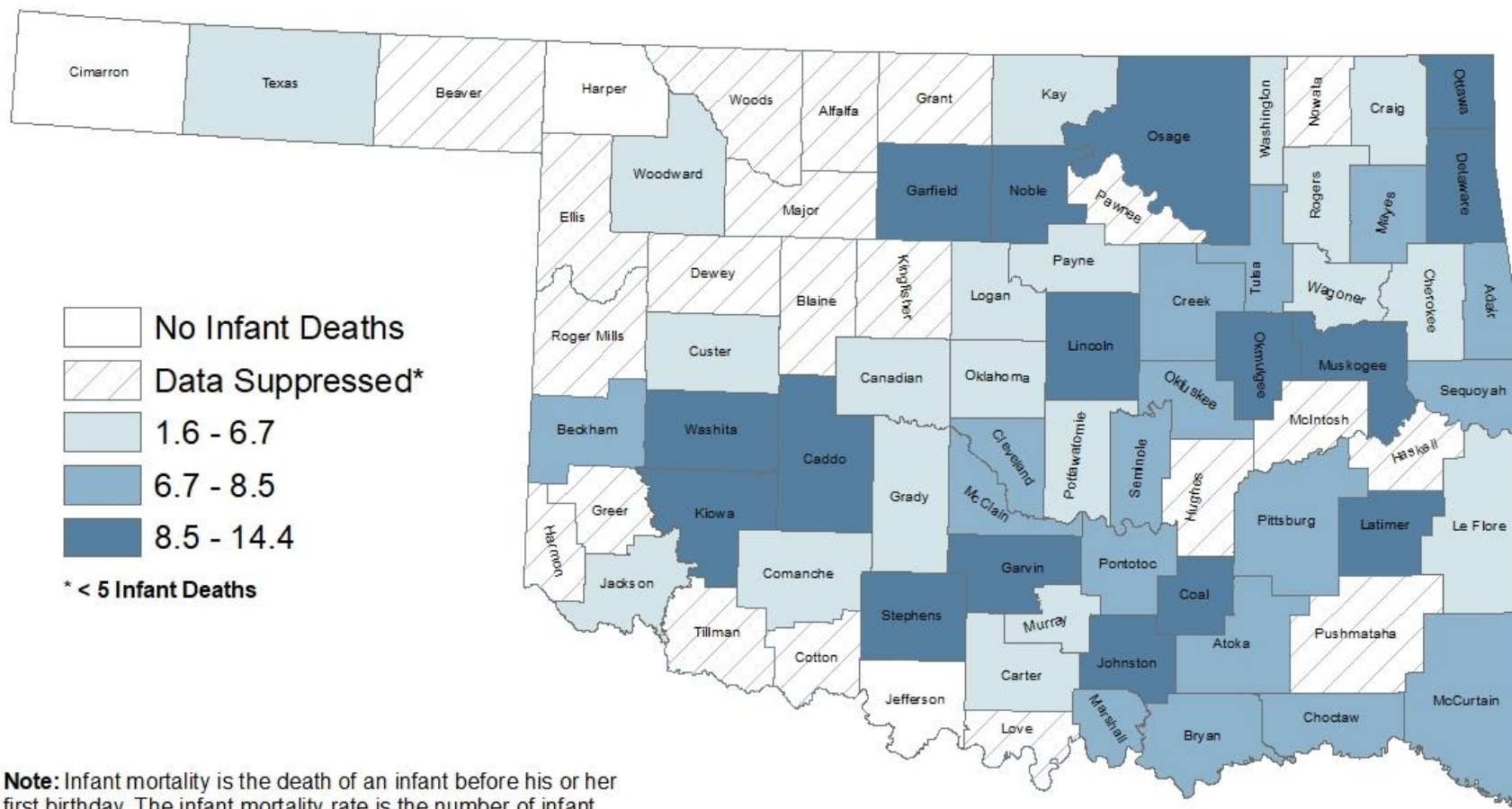
- **Non-Hispanic American Indian**

1. Congenital anomalies (Q00-Q99)
2. Sudden infant death syndrome (R95)
3. Disorders related to short gestation and low birth weight (P07)

- **Hispanic**

1. Congenital anomalies (Q00-Q99)
2. Disorders related to short gestation and low birth weight (P07)
3. Sudden infant death syndrome (R95)

# Infant Mortality Rate by County Oklahoma, 2018-2022



**Note:** Infant mortality is the death of an infant before his or her first birthday. The infant mortality rate is the number of infant deaths for every 1,000 live births.

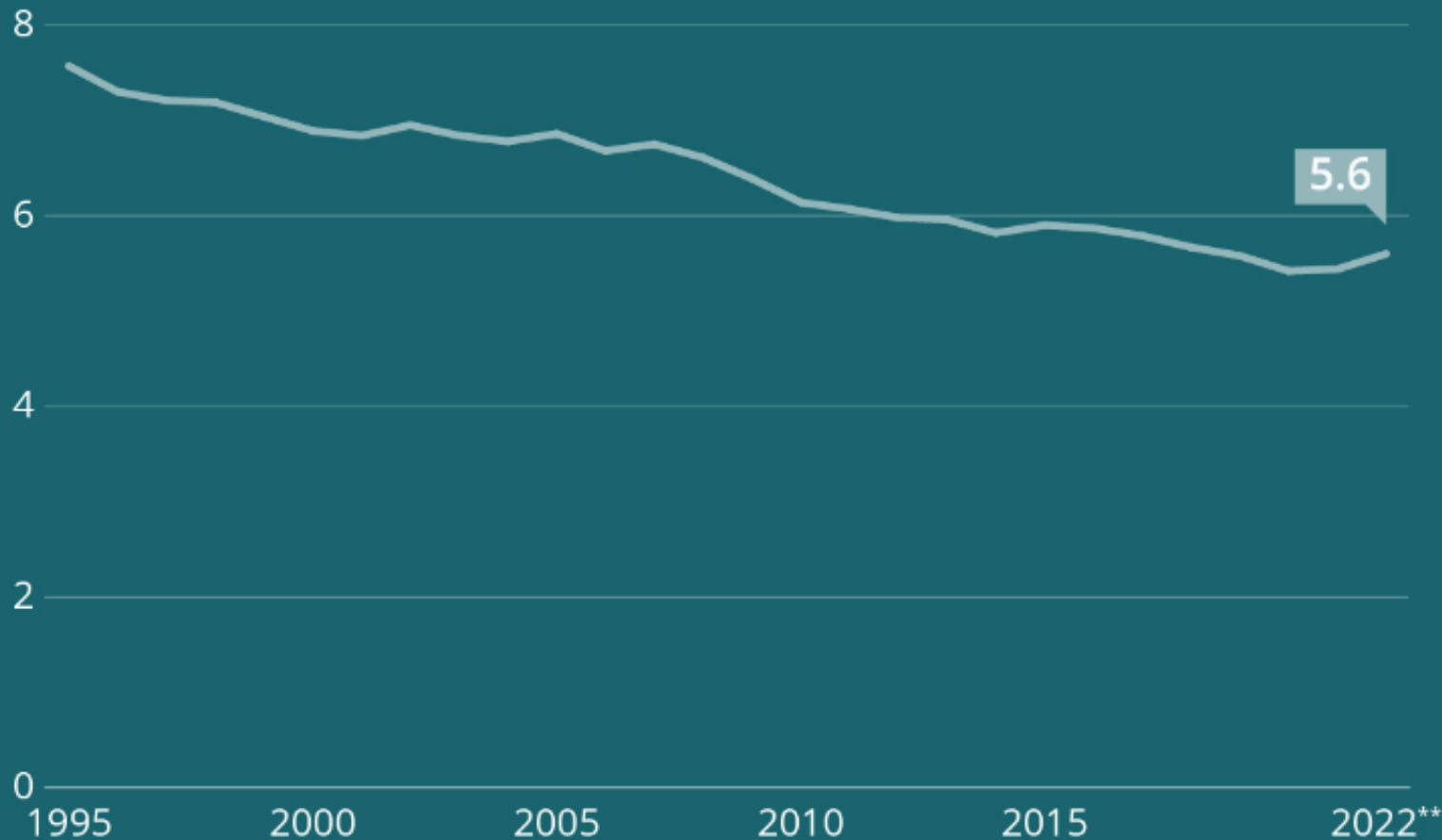
**Data Source:** Oklahoma State Department of Health (OSDH), Center for Health Statistics, Health Care Information, Vital Statistics 2018 to 2022, Provisional 2022



**Maternal & Child  
Health Service**

# U.S. Infant Mortality Rate Rises in 2022

Infant deaths\* per 1,000 live births in the U.S.



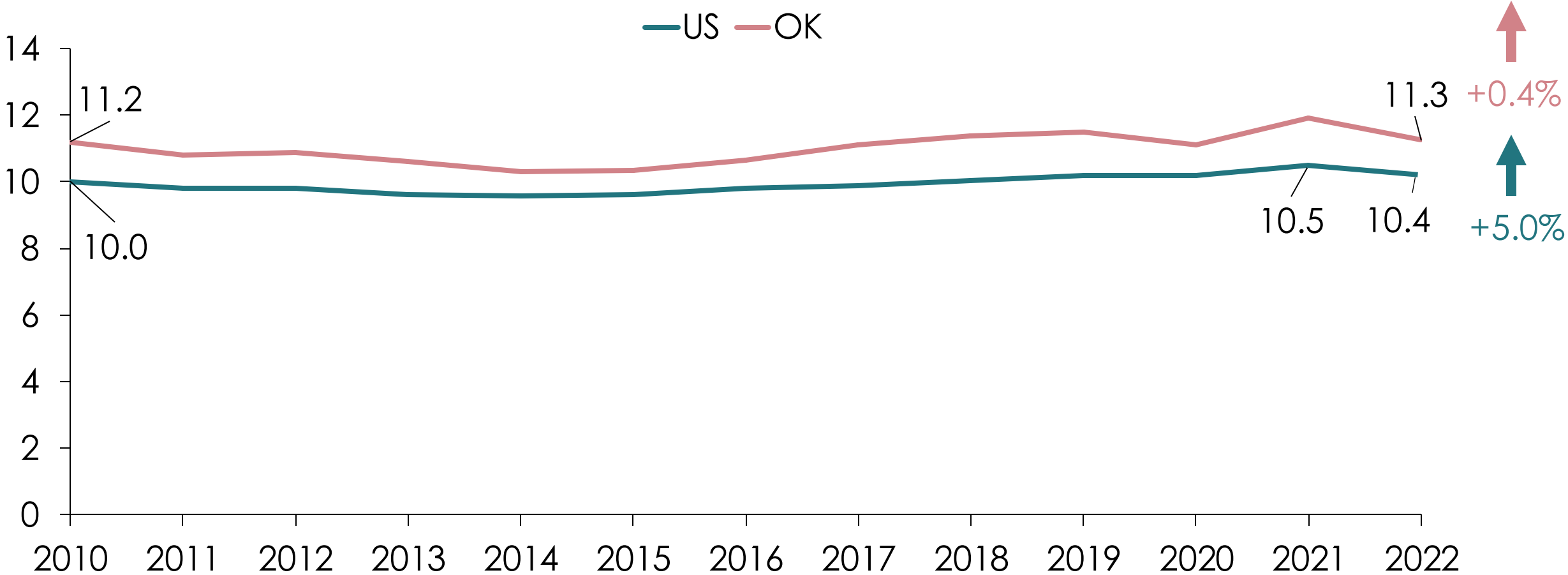
\* Deaths before reaching first birthday \*\* provisional

Source: Centers for Disease Control and Prevention

- Significant increase among white and American Indian/Alaskan Native populations, specifically
- Increase in 2 of the 10 leading causes of death: **Maternal complications** and **bacterial sepsis**
- Oklahoma had a **3% decrease** in deaths

# PRETERM BIRTH PREVENTION

# Percent of Births Delivered Preterm U.S. and Oklahoma, 2010-2022

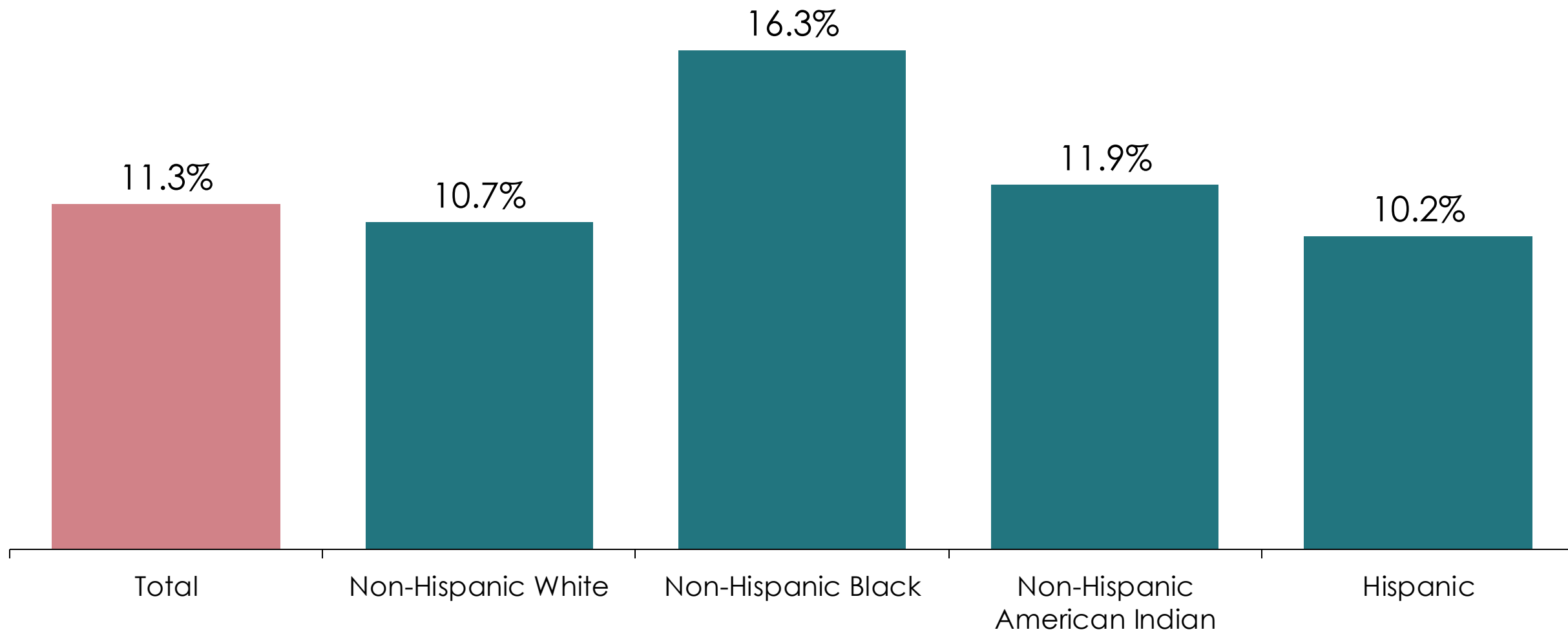


U.S. Data is not available for 2022

Preterm birth = Delivery < 37 completed weeks gestation, based on obstetric estimate

Sources: Centers for Disease Control and Prevention, National Center for Health Statistics. National Vital Statistics System, Natality on CDC WONDER Online Database; MCH Standardized Birth File, 2010-2022

## Percentage of Births Delivered Prior to 37 Weeks Gestation by Race/Hispanic Origin Oklahoma, 2022



# 2023 MARCH OF DIMES REPORT CARD

The preterm birth rate in Oklahoma was **11.3%** in 2022, lower than the rate in 2021

**PRETERM  
BIRTH  
GRADE**

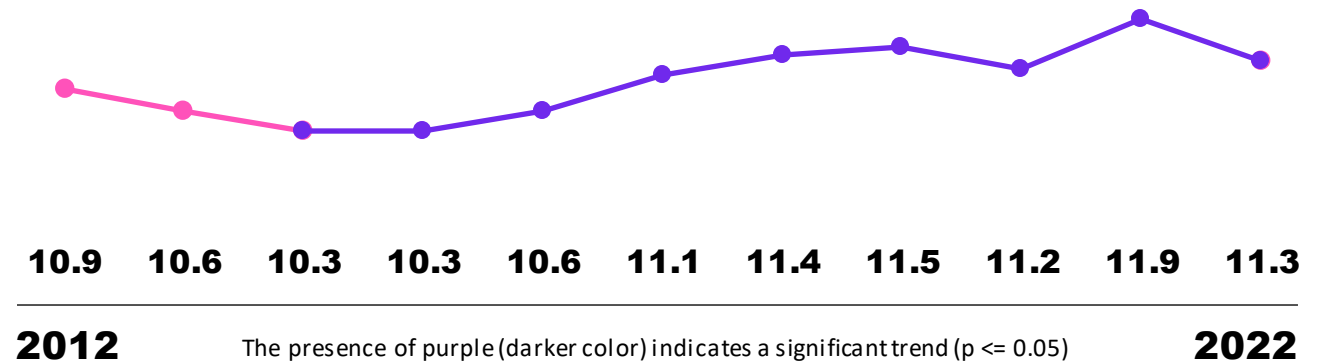
**D-**

**U.S. RATE**

**OK RATE**



Percentage of live births born preterm

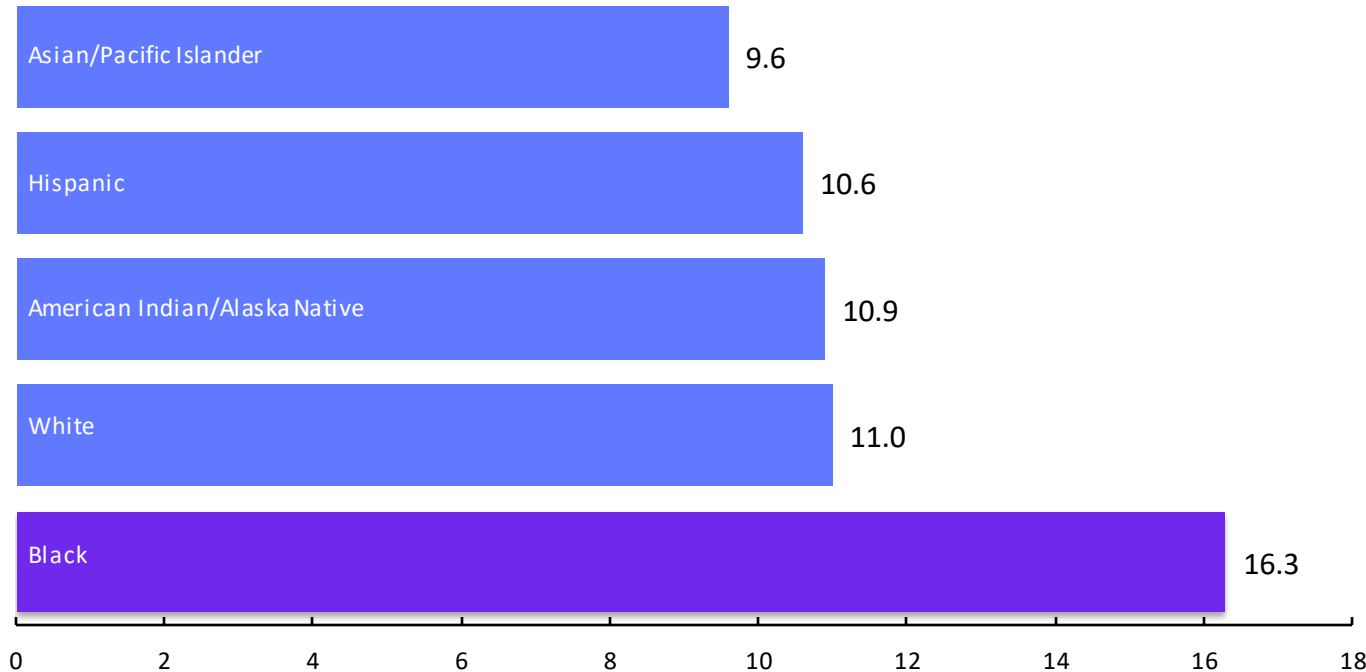




# 2023 MARCH OF DIMES REPORT CARD

**The preterm birth rate among babies born to Black birthing people is 1.5x higher than the rate among all other babies**

Preterm birth rate by race/ethnicity, 2020-2022

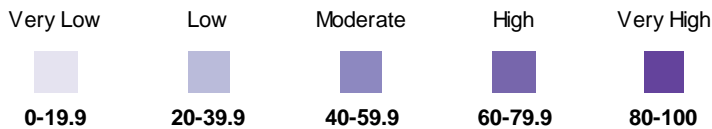
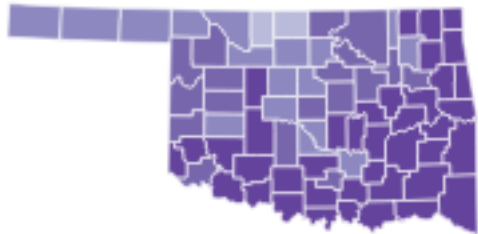


This chart is intended to highlight disparities in data related to race/ethnicity and should serve as a starting point for discussion about addressing systemic racism and inequality.

# 2023 MARCH OF DIMES REPORT CARD

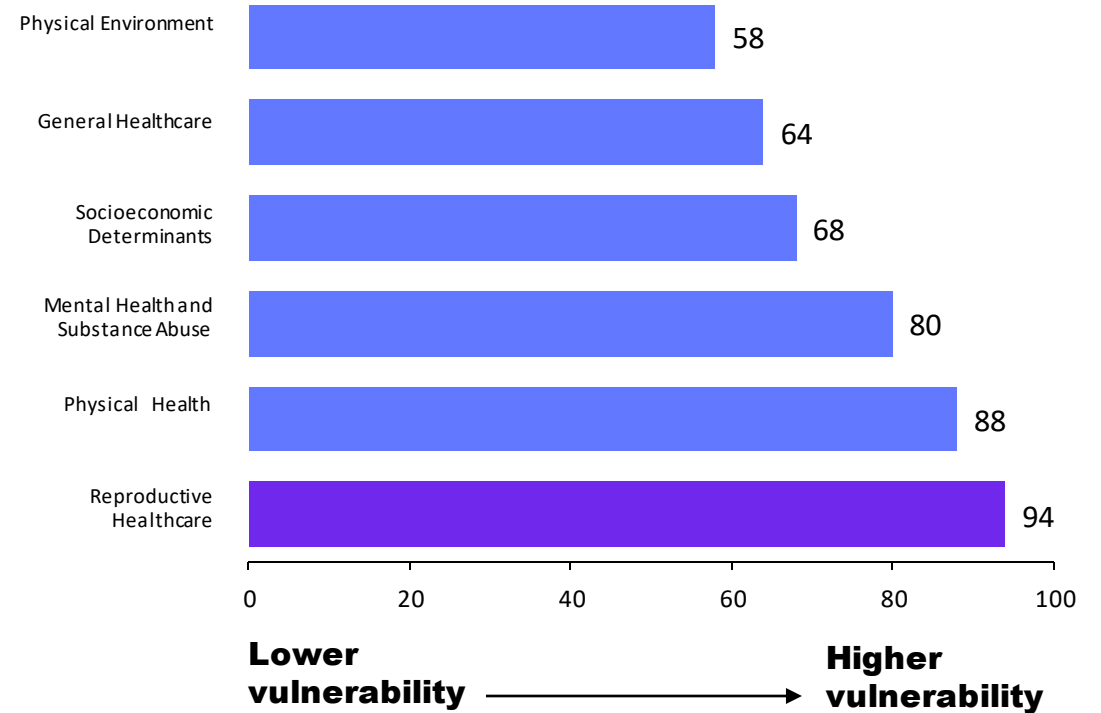
**Birthing people in Oklahoma have a **very high vulnerability to poor outcomes** and are most vulnerable due to **reproductive healthcare access****

## MVI by county in Oklahoma



## Factors related to maternal vulnerability

Higher scores indicate higher vulnerability



# 2023 MARCH OF DIMES REPORT CARD

The measures below are important indicators for how Oklahoma is supporting the health of birthing people

**30.3**

23.5

PER 100,000 BIRTHS

## MATERNAL MORTALITY

This shows the death rate of birthing people from complications of pregnancy or childbirth that occur during the pregnancy or within 6 weeks after the pregnancy ends.

**25.4**

26.3

PERCENT

## LOW-RISK CESAREAN BIRTH

This shows Cesarean births for first-time moms, carrying a single baby, positioned head-first and at least 37 weeks pregnant.

**14.7**

15.5

PERCENT

## INADEQUATE PRENATAL CARE

Percent of birthing people who received care beginning in the fifth month or later or less than 50% of the appropriate number of visits for the infant's gestational age.

# 2023 MARCH OF DIMES REPORT CARD

**Adoption of the following policies and sufficient funding in Oklahoma is critical to improve and sustain maternal and infant healthcare**



## **MEDICAID EXTENSION**

State has extended coverage for women to one year postpartum.



## **MEDICAID EXPANSION**

State has adopted this policy, which allows birthing people greater access to preventative care during pregnancy.



## **PAID FAMILY LEAVE**

State has required employers to provide a paid option while out on parental leave.



## **DOULA REIMBURSEMENT POLICY**

State Medicaid agency is actively reimbursing doula care.



## **MATERNAL MORTALITY REVIEW COMMITTEE**

State has a federally funded MMRC committee, which is recognized as essential to understanding and addressing the causes of maternal death.



## **FETAL AND INFANT MORTALITY REVIEW**

State has a Fetal and Infant Mortality Review team or teams to identify and review causes of death.

### **Legend**



State has the indicated funding/policy



State reimburses up to \$1,500



State is progressing legislation but not yet active



State does not have the indicated funding/policy

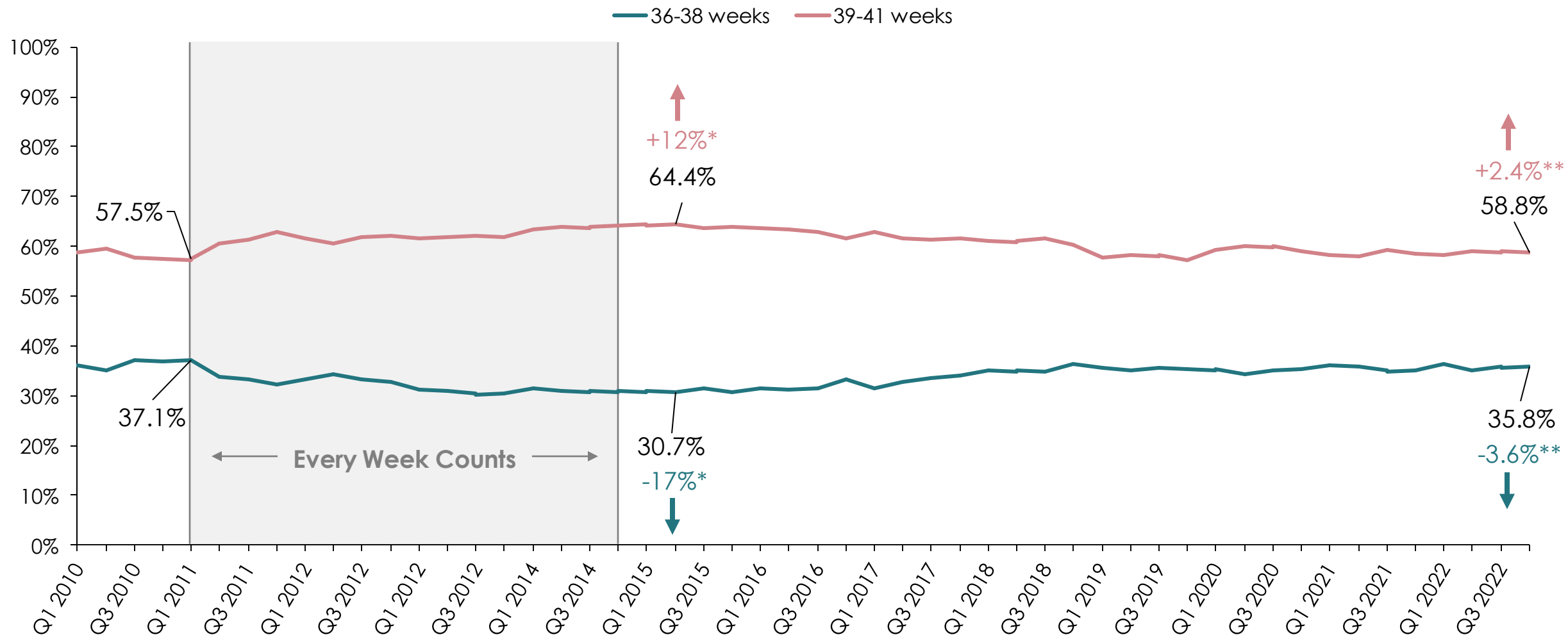


## **PERINATAL QUALITY COLLABORATIVE**

State has a federally funded PQC to identify and improve quality care issues in maternal and infant healthcare.

**EVERY WEEK STILL COUNTS**

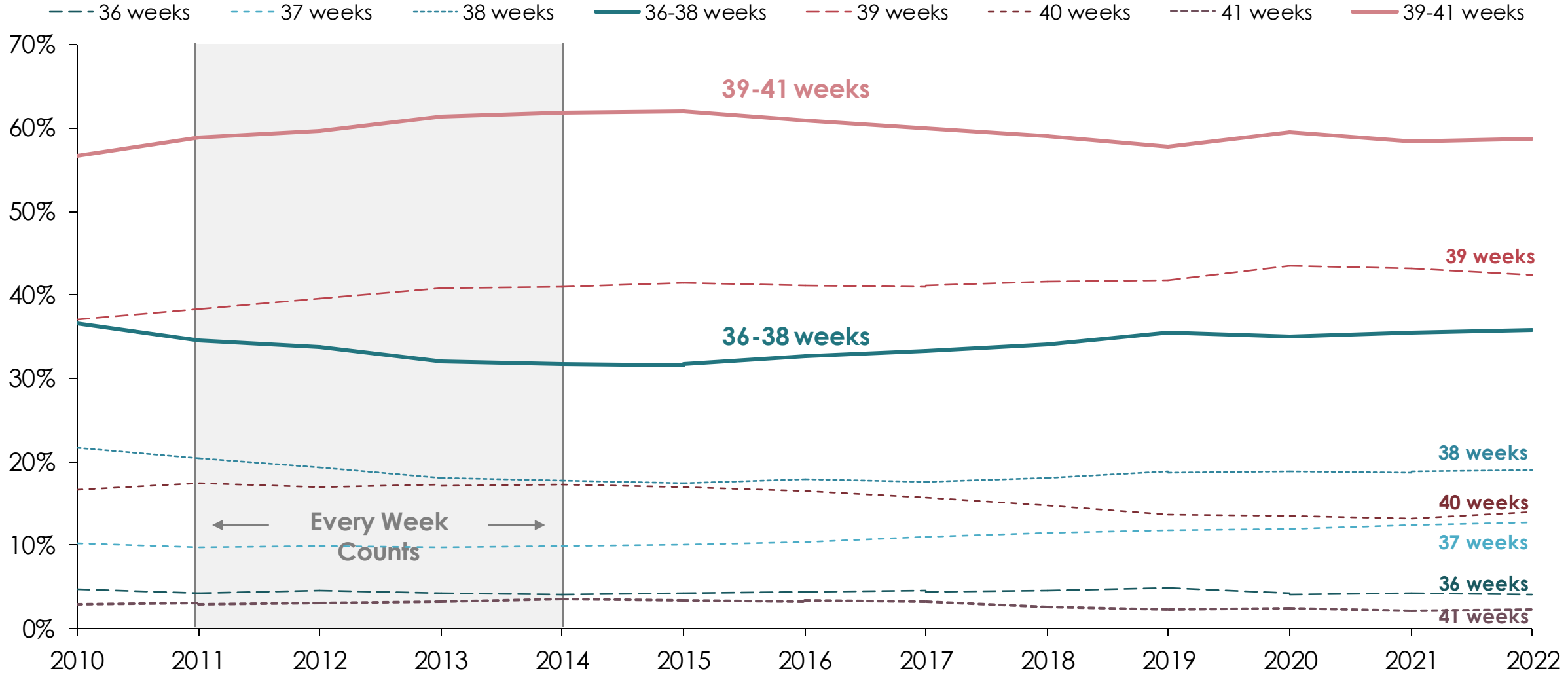
# Percent of Singleton Births by Length of Gestation Oklahoma, Qtr. 1 2010 – Qtr. 4 2022



\* Comparison is Q1 2011 to Q2 2015 (max difference)

\*\* Comparison is Q1 2011 to Q4 2022

# Percent of Singleton Births by Length of Gestation Oklahoma, 2010-2022



Source: MCH Standardized Birth File, 2010-2022

# BREASTFEEDING

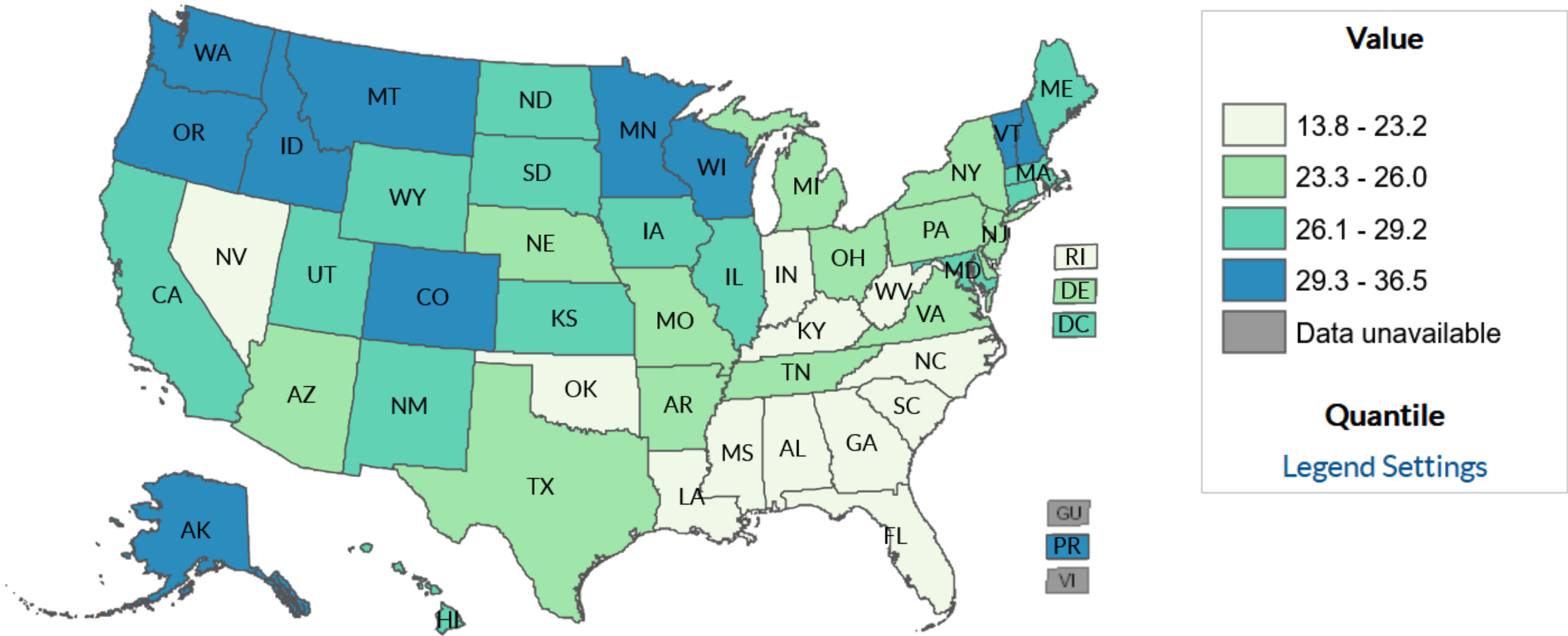


# Oklahoma Breastfeeding Rates

## Babies Born in 2020 (CDC 2023)

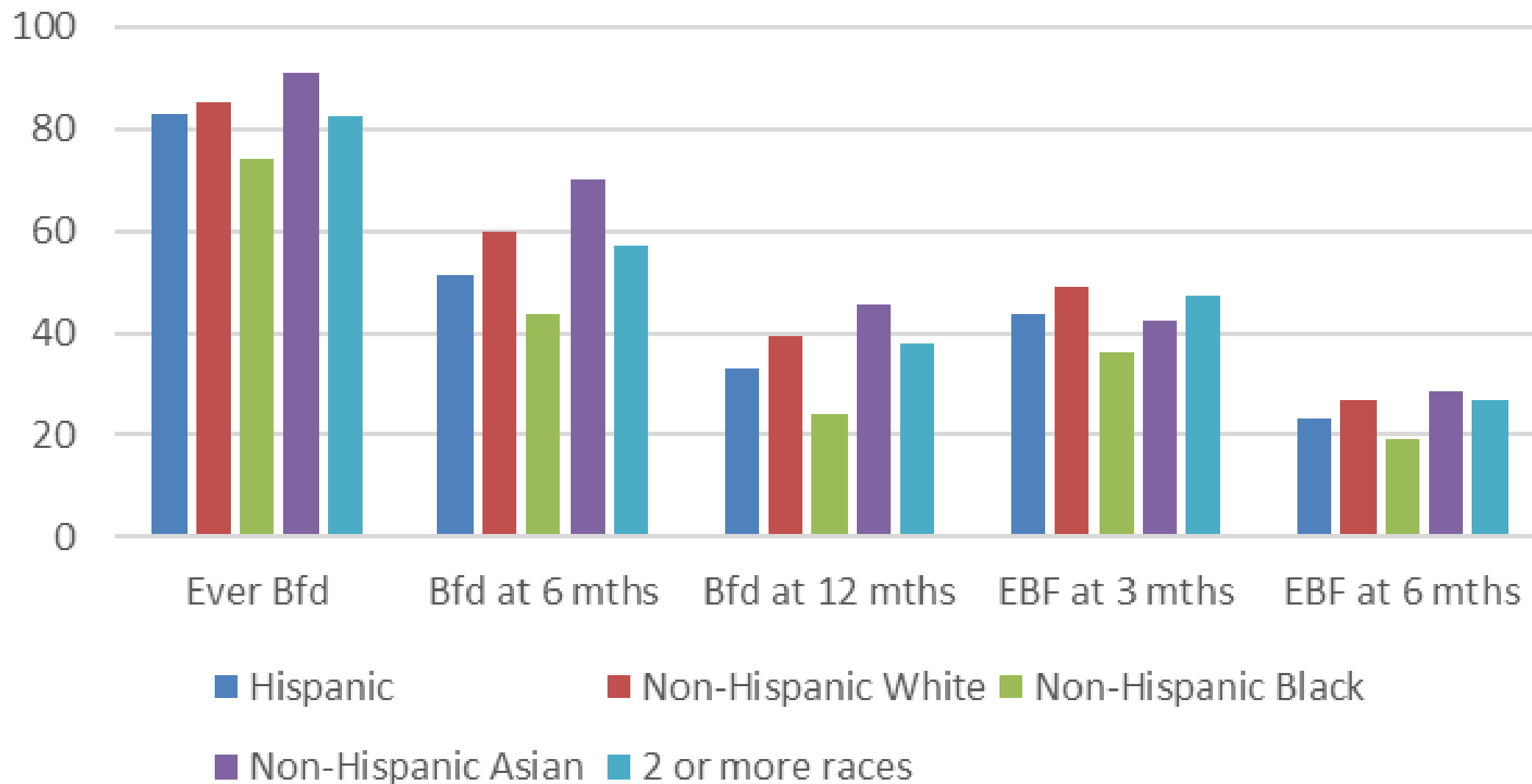
2022 (CDC)	National	Oklahoma	Ranking (out of 50)
Ever breastfed	83.1%	78.8%	41st
Any Bfdg at 6 months	58.2%	46.3%	47th
Any Bfdg at 12 months	37.6%	28.5%	45th
EBF at 3 months	45.3%	41.9%	39th
EBF at 6 months	25.4%	22.3%	41st

# Percent of Infants EBF through 6 months Born in 2019, CDC 2022



# Breastfeeding by Race/Ethnicity

## Babies Born in 2019 (CDC 2022)

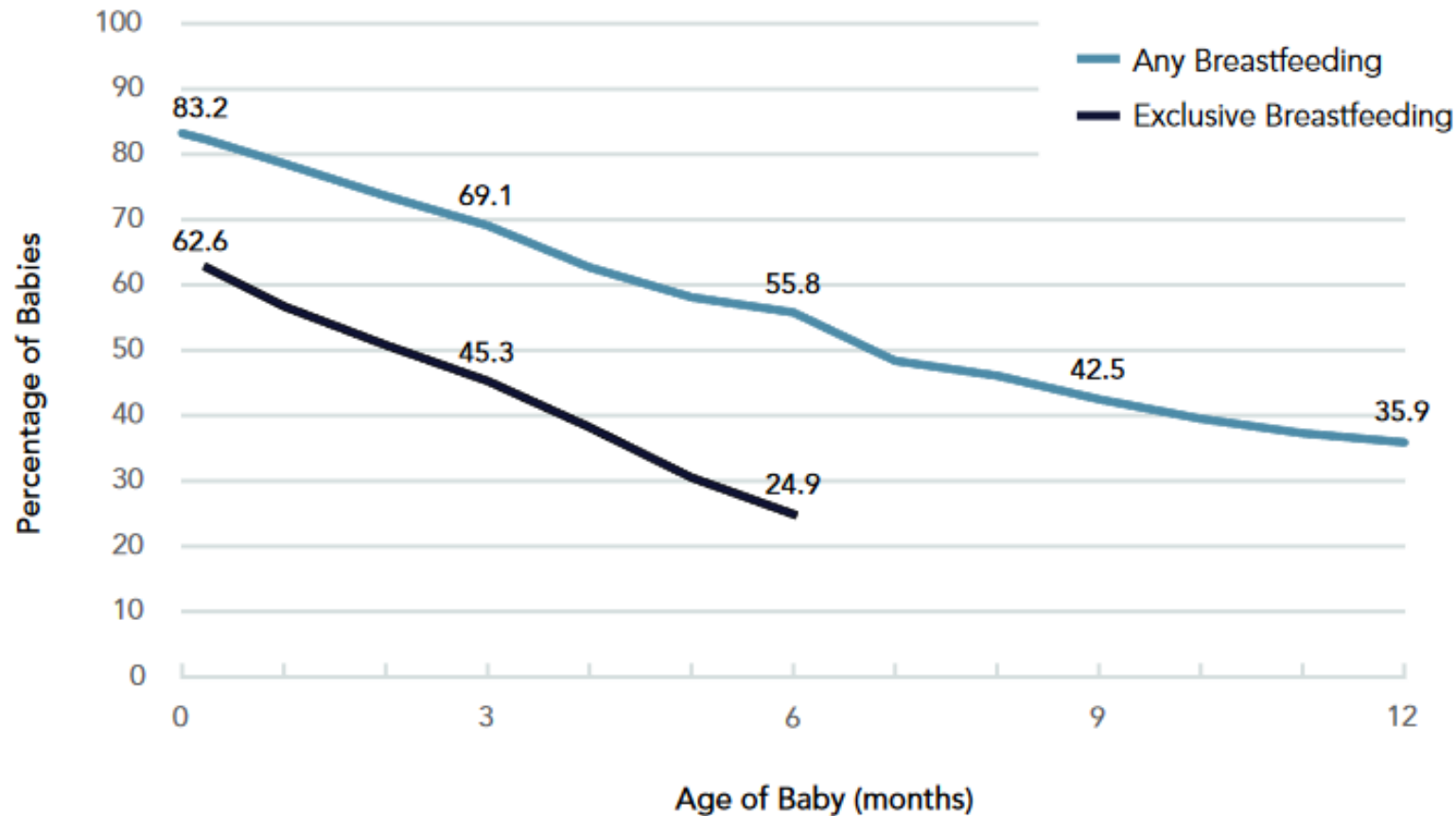




# CDC's 2022 Breastfeeding Report Card



Figure 1. Percentage of Babies Receiving Any and Exclusive Breast Milk During the First 12 Months, Among Children Born in 2019



# Oklahoma mPINC 2022 Data

Institutional Management	National Subscore	76	Oklahoma Subscore	82	Oklahoma Hospitals with Ideal Response
Nurses are required to demonstrate competency in assessing breastfeeding (milk transfer & maternal pain), assisting with breastfeeding (positioning & latch), teaching hand expression & safe formula preparation/feeding, and demonstrating safe skin-to-skin practices					79%
Hospital requires nurses to be formally assessed for clinical competency in breastfeeding support/lactation management					79%
Hospital records/tracks exclusive breastfeeding throughout the entire hospitalization					93%
Hospital pays a fair market price for infant formula					69%
Hospital has 100% of written policy elements <sup>§</sup>					34%

# Oklahoma mPINC 2022 Data

## Rooming-In

National  
Subscore

**76**

Oklahoma  
Subscore

**81**

Oklahoma Hospitals  
with Ideal Response

Mother-infant dyads are rooming-in 24 hours/day

93%

Routine newborn exams, procedures, and care occur in the mother's room

48%

## Feeding Practices

National  
Subscore

**81**

Oklahoma  
Subscore

**82**

Oklahoma Hospitals  
with Ideal Response

Few breastfeeding newborns receive infant formula

48%

Hospital does NOT perform routine blood glucose monitoring on newborns not at risk for hypoglycemia

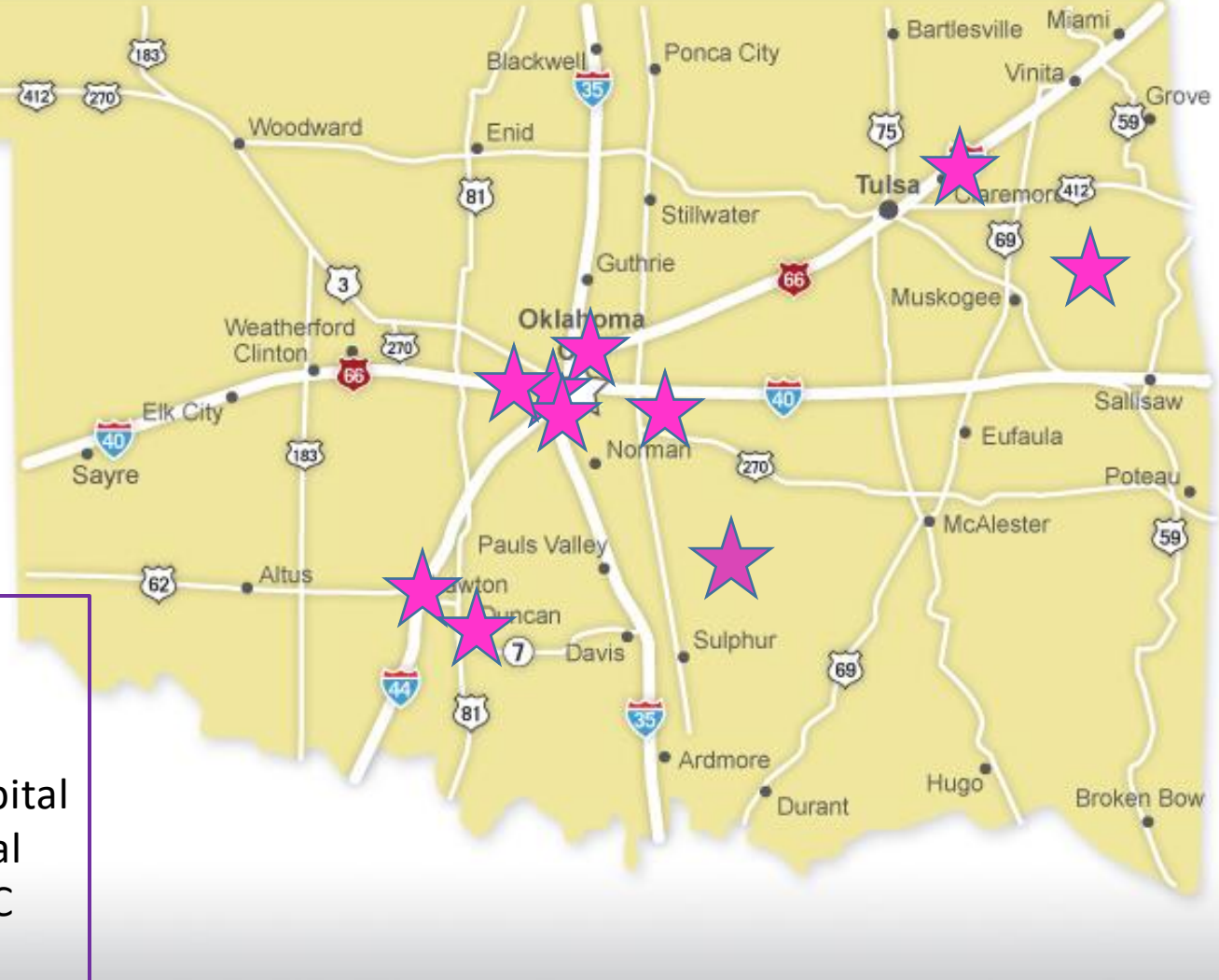
90%

When breastfeeding mothers request infant formula, staff counsel them about possible consequences

59%



35.6% of OK births!



- Designated hospitals:
- Claremore Indian Hospital
  - Integris Baptist Medical Center
  - Cherokee Nation W.W. Hastings Hospital
  - Comanche County Memorial Hospital
  - SSM Health St Anthony Hospital, OKC
  - Chickasaw Nation Medical Center
  - Integris Canadian Valley Hospital
  - The Children’s Hospital at OU Medicine
  - Duncan Regional Hospital
  - SSM Health Shawnee Hospital



# OKLAHOMA BREASTFEEDING RESOURCE CENTER



SAVE  
*the*  
DATE

**Friday, March 1, 2024**

**12TH ANNUAL  
BECOMING BABY-FRIENDLY IN OKLAHOMA  
SUMMIT**

**OKLAHOMA CITY, OKLAHOMA**

**Keynote Speakers:**

**Montrece McNeill Ransom, JD, MPH, ACC  
&  
Marsha Walker, RN, IBCLC**

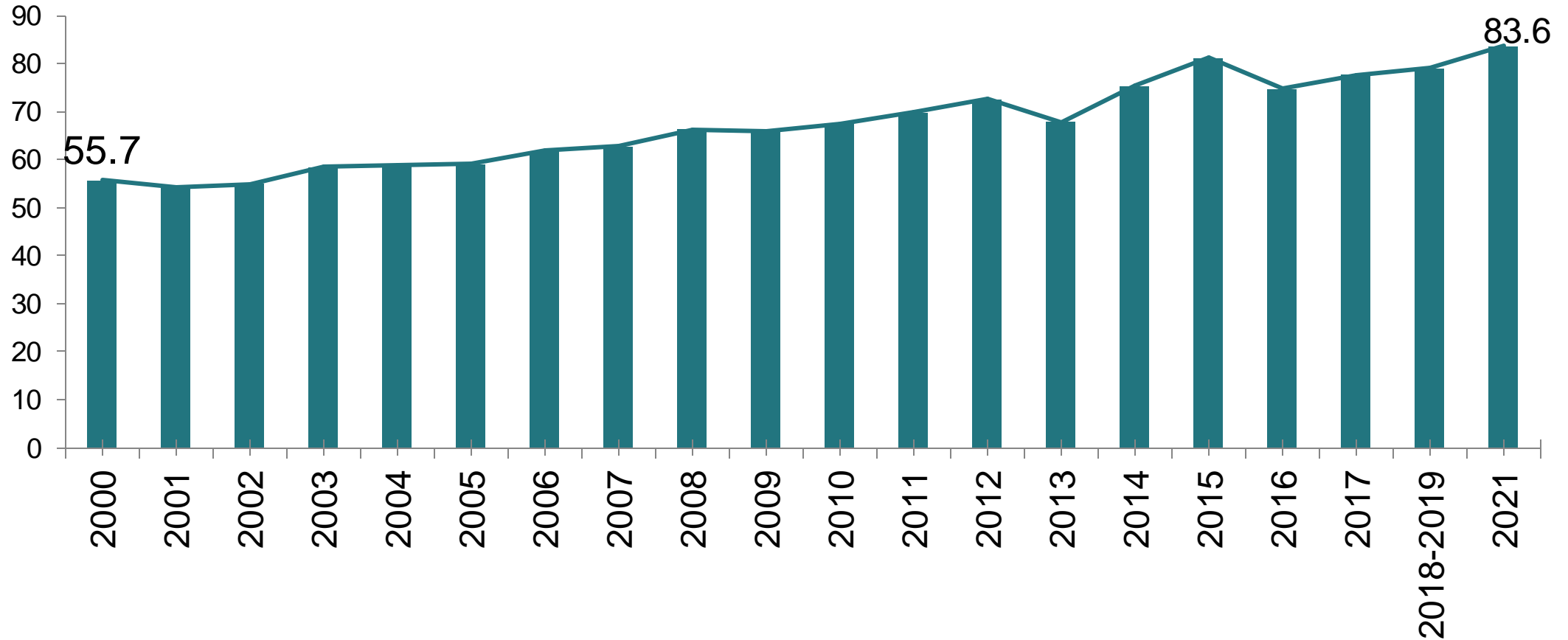
**2023 Theme:  
Community &  
Communication**





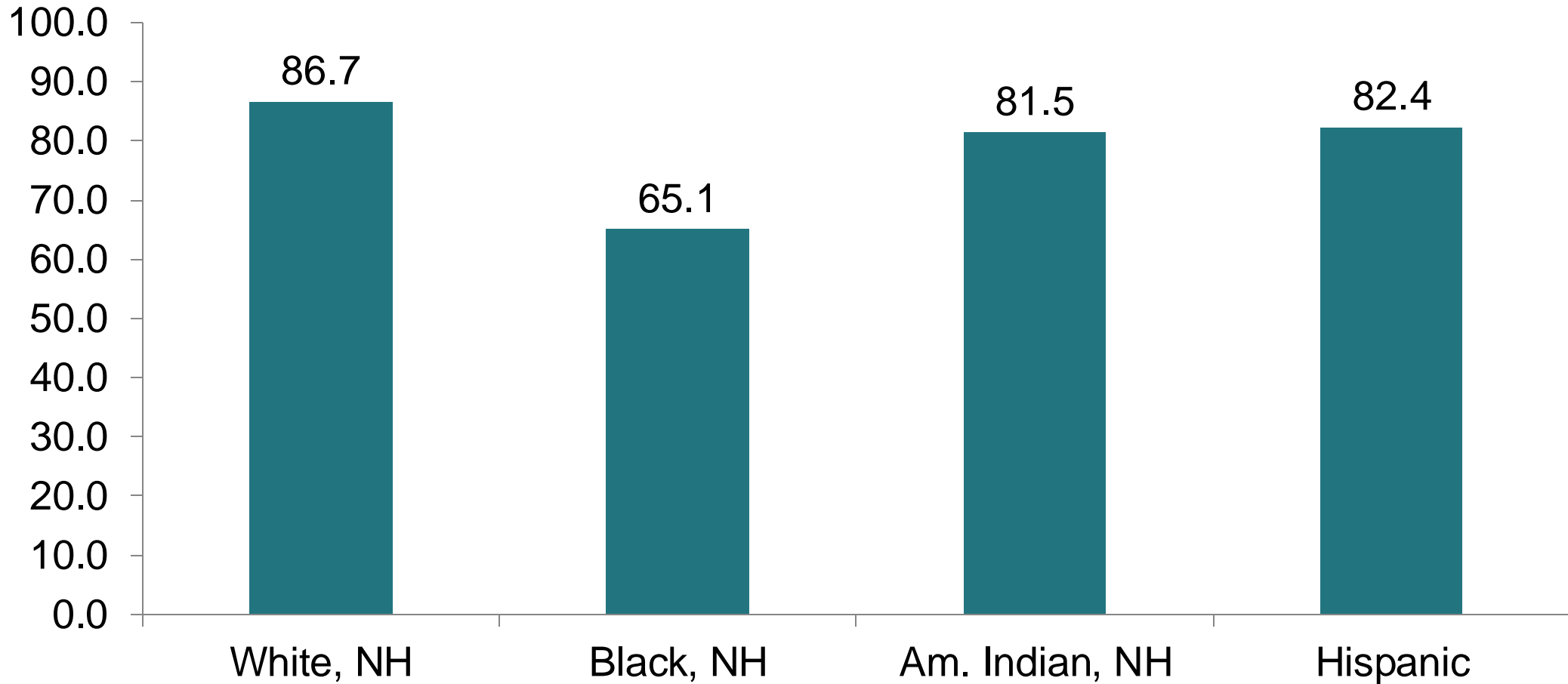
# INFANT SAFE SLEEP

## Percent of infants most often laid on back to sleep: Oklahoma, 2000-2021



PRAMS 2020 did not meet response rate threshold for weighting, hence 2020 sleep position prevalence cannot be reported  
Source: Pregnancy Risk Assessment Monitoring System (PRAMS)

## Percent of infants most often laid on back to sleep, by race/Hispanic origin: Oklahoma, 2021

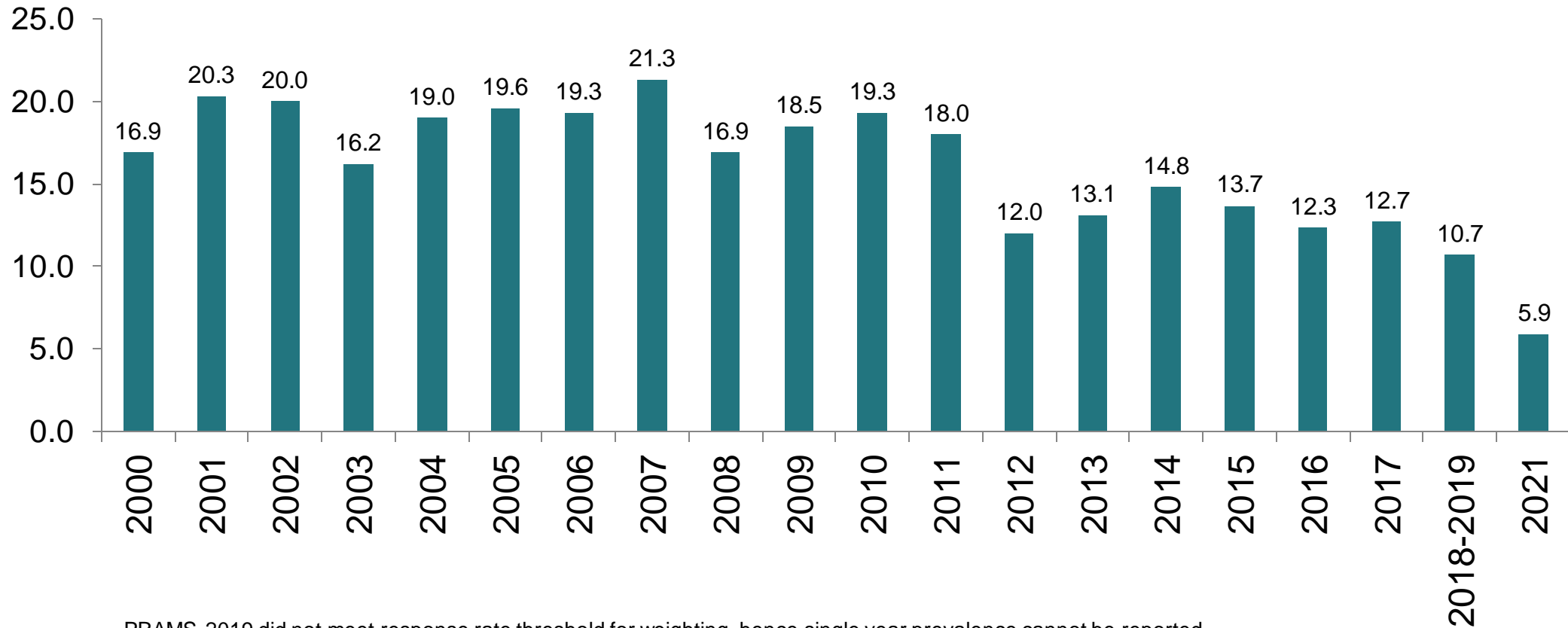


NH = non-Hispanic

Source: Pregnancy Risk Assessment Monitoring System (PRAMS)

# TOBACCO CESSATION

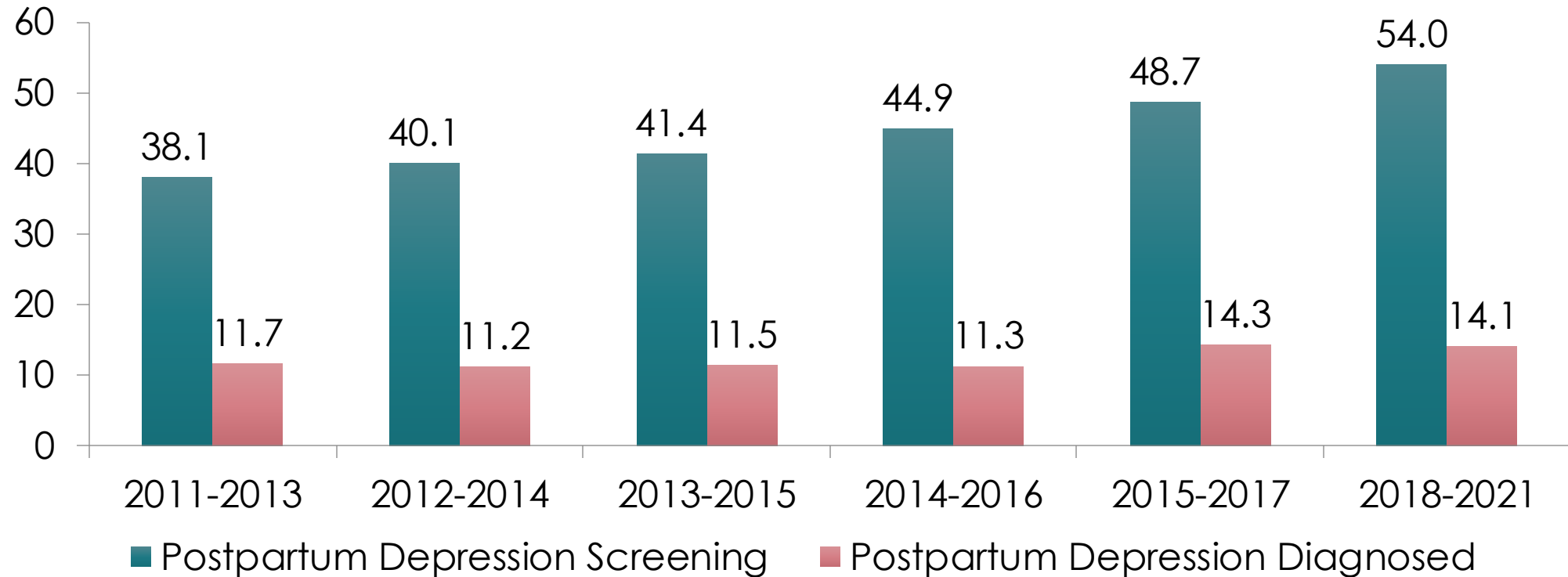
# Percent of women smoking in the last trimester of pregnancy: Oklahoma 2000-2019



PRAMS 2019 did not meet response rate threshold for weighting, hence single year prevalence cannot be reported  
Source: Pregnancy Risk Assessment Monitoring System (PRAMS)

**PERINATAL MOOD DISORDERS  
POSTPARTUM DEPRESSION**

## Percent of mothers who were screened and diagnosed with postpartum depression Oklahoma 2011 - 2021



Source: Oklahoma Toddler Survey (TOTS), 2011-2021. Oklahoma TOTS survey did not meet response rate threshold in 2020 hence the 2020 data is excluded



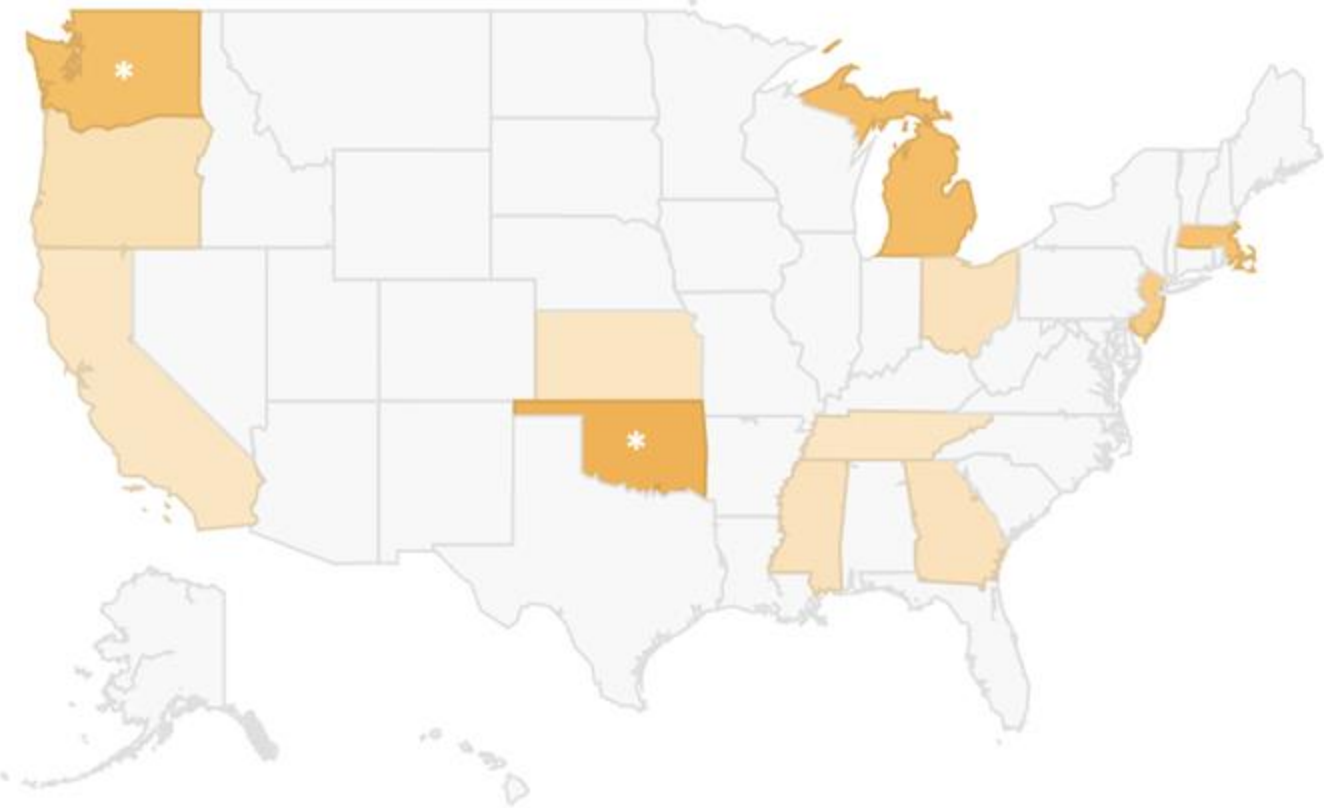
# TeamBirth: Process Innovation for Clinical Safety, Effective Communication, and Dignity in Childbirth

*The Oklahoma TeamBirth Initiative is supported by the State Maternal Health Innovation Program Grant, Maternal and Child Health Bureau, Health Resources and Services Administration, Department of Health and Human Services.*





# TeamBirth is **spreading** nationally and globally



**89** Hospitals/Birth Centers

**12** States

**2** Implementing Statewide\*

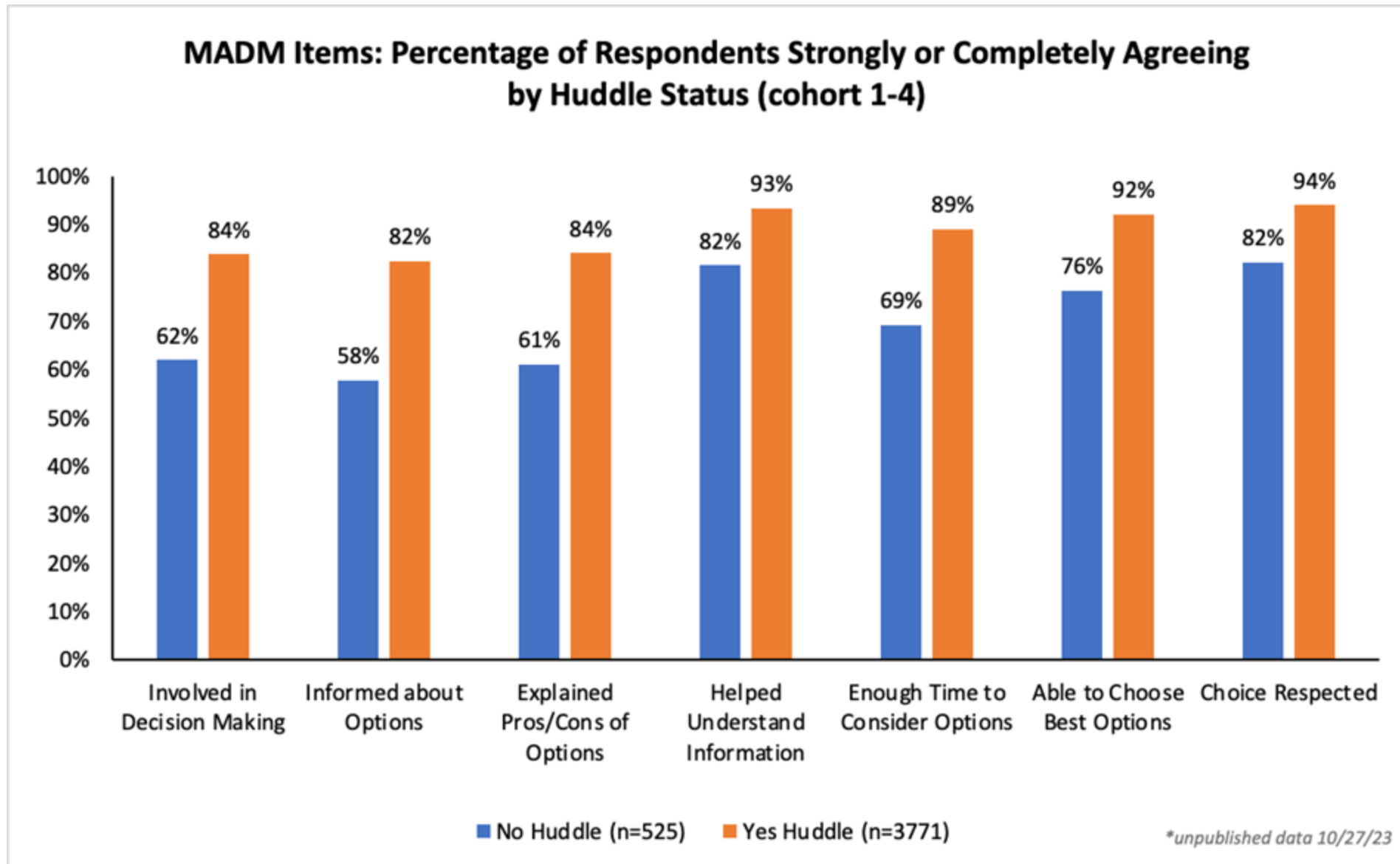
**2** Countries  

By the end of 2023, TeamBirth will have impacted over **500,000 births**

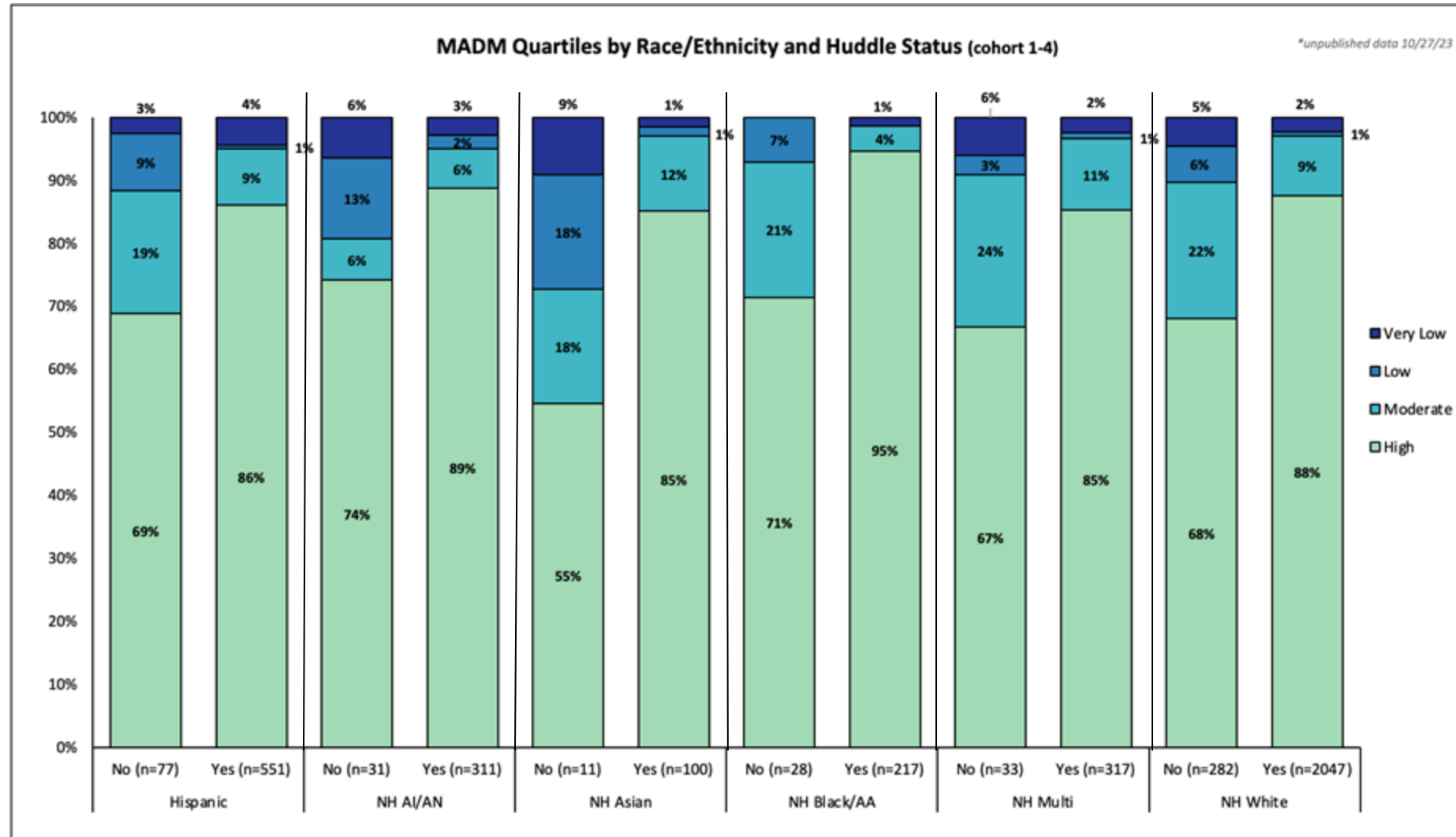
# Oklahoma TeamBirth Research: Mothers Autonomy in Decision Making

"This project is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of an award to the Oklahoma State Department of Health. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS, or the U.S. Government. For more information, please visit [HRSA.gov](https://www.hrsa.gov)"

# MADM Items by Huddle Status



# MADM Quartiles by Race/Ethnicity and Huddle Status



Yes = 3771  
 No = 525  
 Not Sure = 468

Note: Quartile percentages may not add to 100% due to missing data.

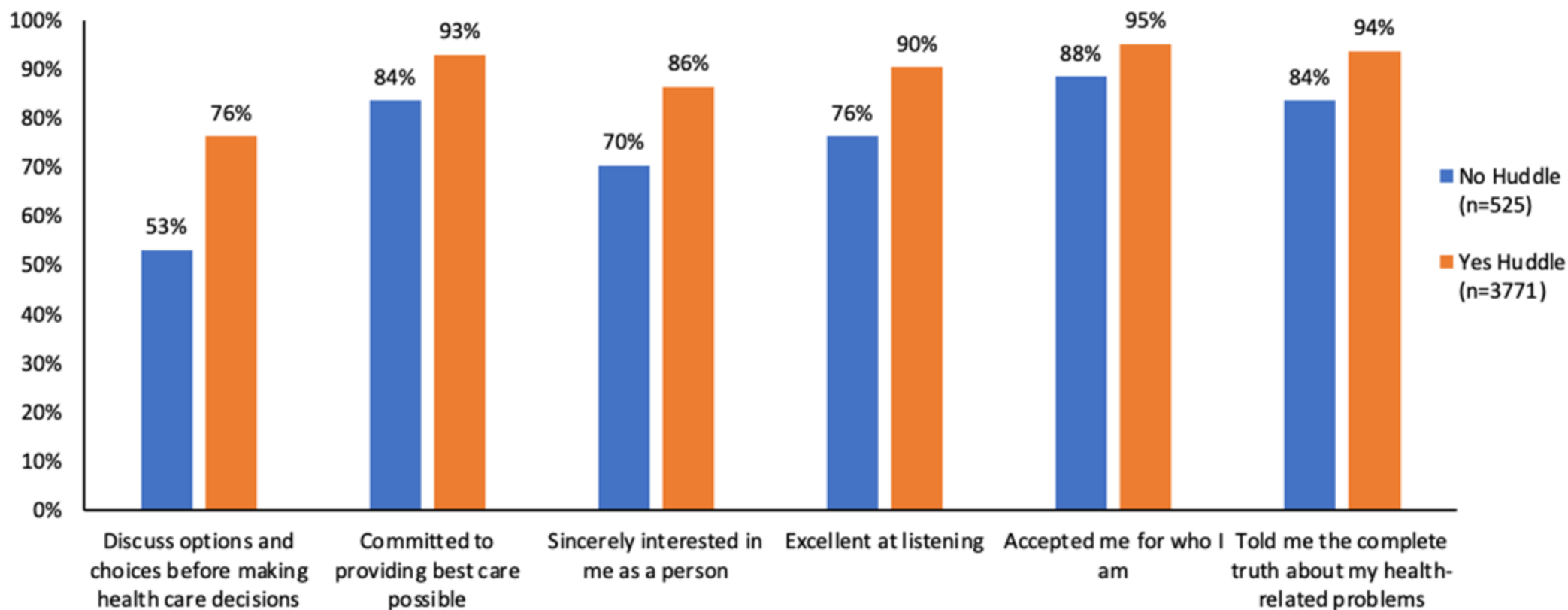
# Oklahoma TeamBirth Research: Trust Items Health Care Relationship Trust Scale – Revised (HCRTS-R Scale)

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# Trust Items by Huddle Status (1/2)

HCRTS-R Scores (Items 1-6): Percentage of Respondents Who Said "All the Time" By Huddle Status (cohort 1-4)

*My clinical team...*

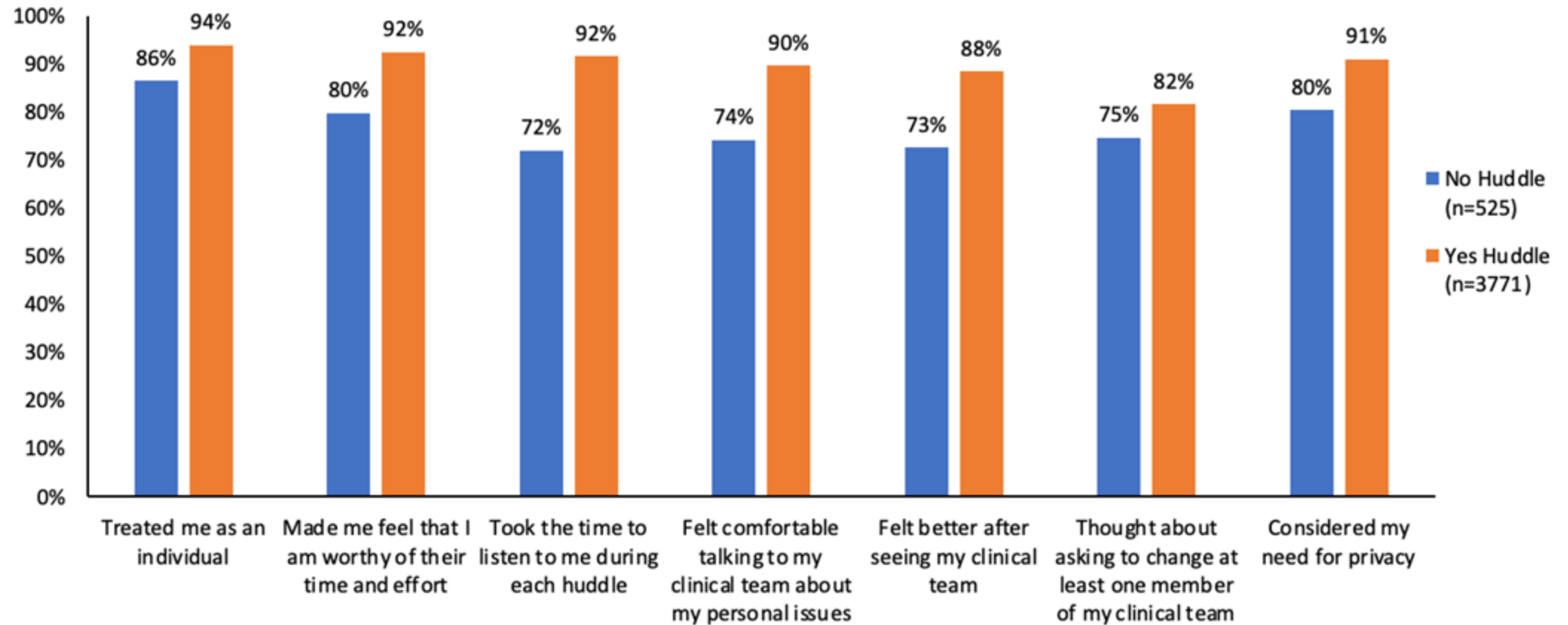


\*unpublished data 10/27/23

# Trust Items by Huddle Status (2/2)

**HCRTS-R Scores (Items 7-13): Percentage of Respondents Who Said "All the Time"  
By Huddle Status (cohort 1-4)**

*My clinical team...*



*\*unpublished data 10/27/23*

**WE APPRECIATE YOUR PARTNERSHIP TO IMPROVE  
OUTCOMES FOR OKLAHOMA'S MOTHERS AND INFANTS**

**THANK YOU!**





# Thank you!

[barbara-obrien@ouhsc.edu](mailto:barbara-obrien@ouhsc.edu)