

ADDRESSING ROOT CAUSES: FROM DATA TO ACTION

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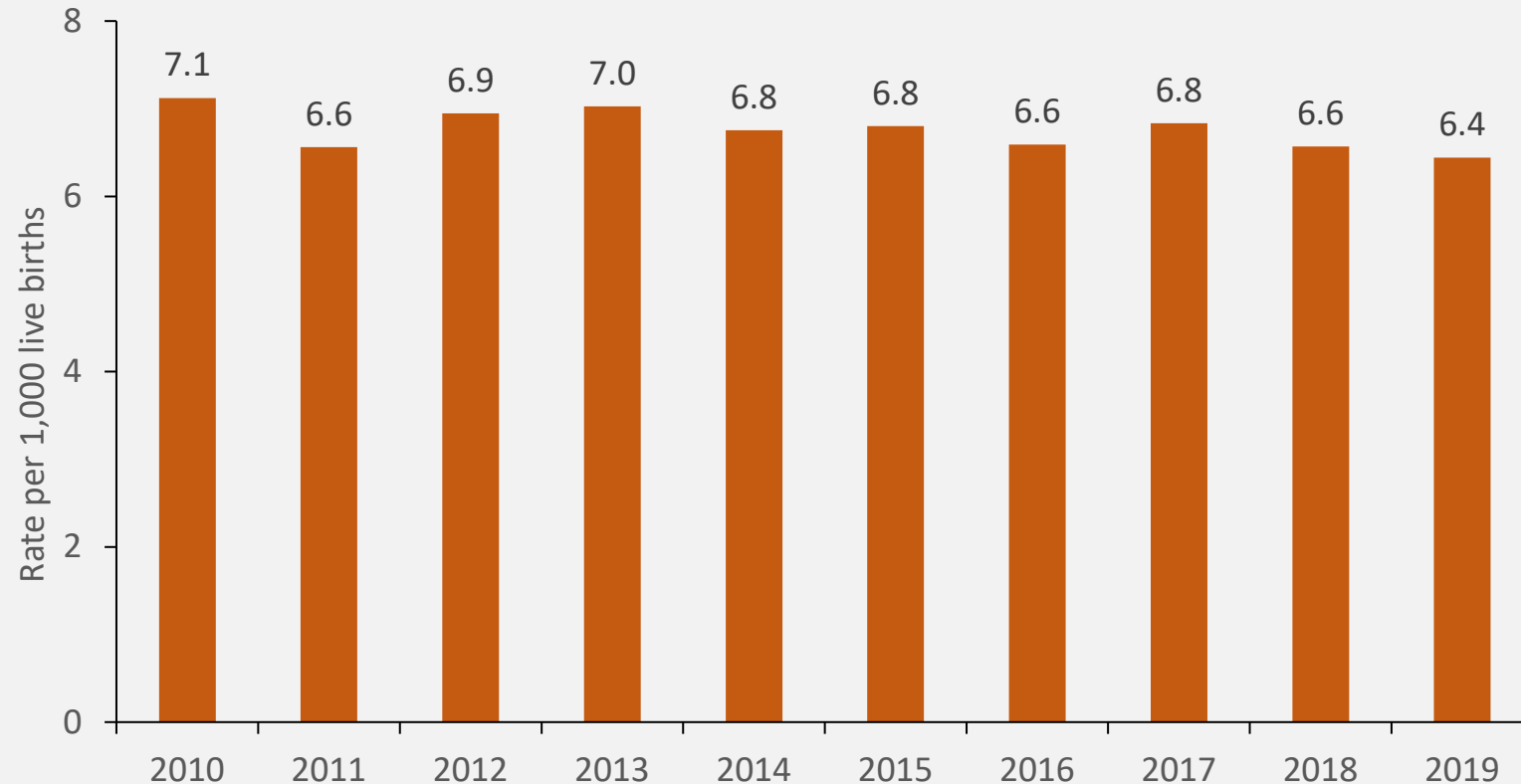
NOVEMBER 15, 2021

ADDRESSING ROOT CAUSES: FROM DATA TO ACTION PART 1

NOVEMBER 15, 2021

Infant Mortality Rate, Michigan, 2010-2019

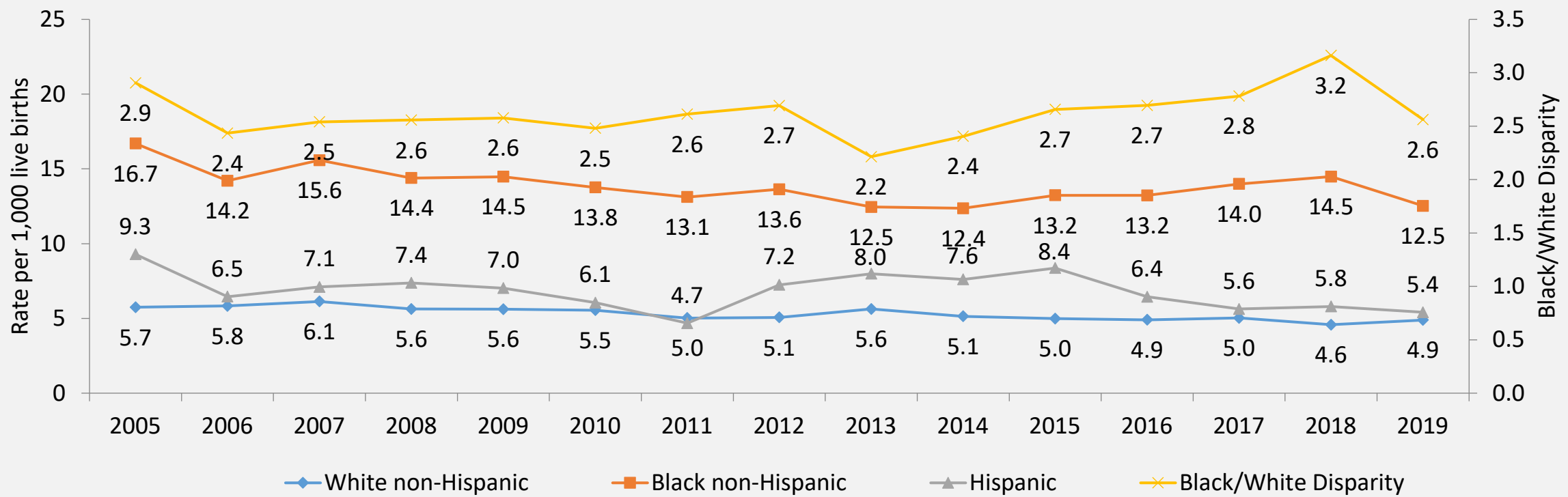
(rate per 1,000 live births)



Year	# Live Births	# Infant Death	IMR
2010	114,717	817	7.1
2011	114,159	749	6.6
2012	112,708	783	6.9
2013	113,732	799	7.0
2014	114,460	773	6.8
2015	113,211	770	6.8
2016	113,374	747	6.6
2017	111,507	762	6.8
2018	110,093	723	6.6
2019	107,917	695	6.4

Infant mortality is defined as a death of a baby before his or her first birthday and is expressed as a rate per 1,000 live births.

Infant Mortality Rates by Maternal Race/Ethnicity and Disparities, Michigan, 2005-2019 (rate per 1,000 live births)



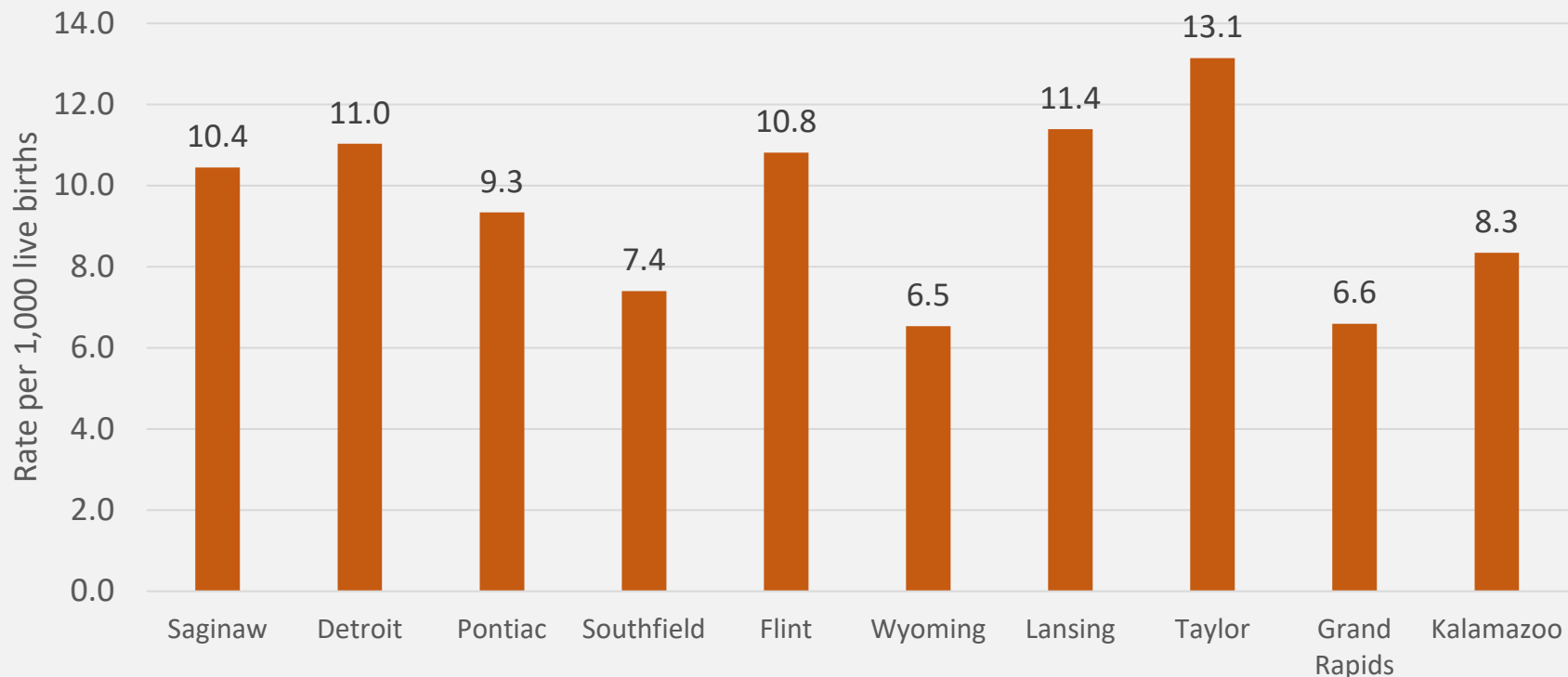
Infant mortality is defined as a death of a baby before his or her first birthday and is expressed as a rate per 1,000 live births.

CITY OF DETROIT

	2019 IMR	LIVE BIRTHS	INFANT DEATHS
Overall	11.0	9,339	103
Black non-Hispanic	12.3	7,414	91
White non-Hispanic	9.7	825	8

Infant Mortality Rate by Selected City of Residence at Birth, Michigan, 2019 (rate per 1,000 live births)

Infant Mortality Rate by City of Residence, Michigan, 2019

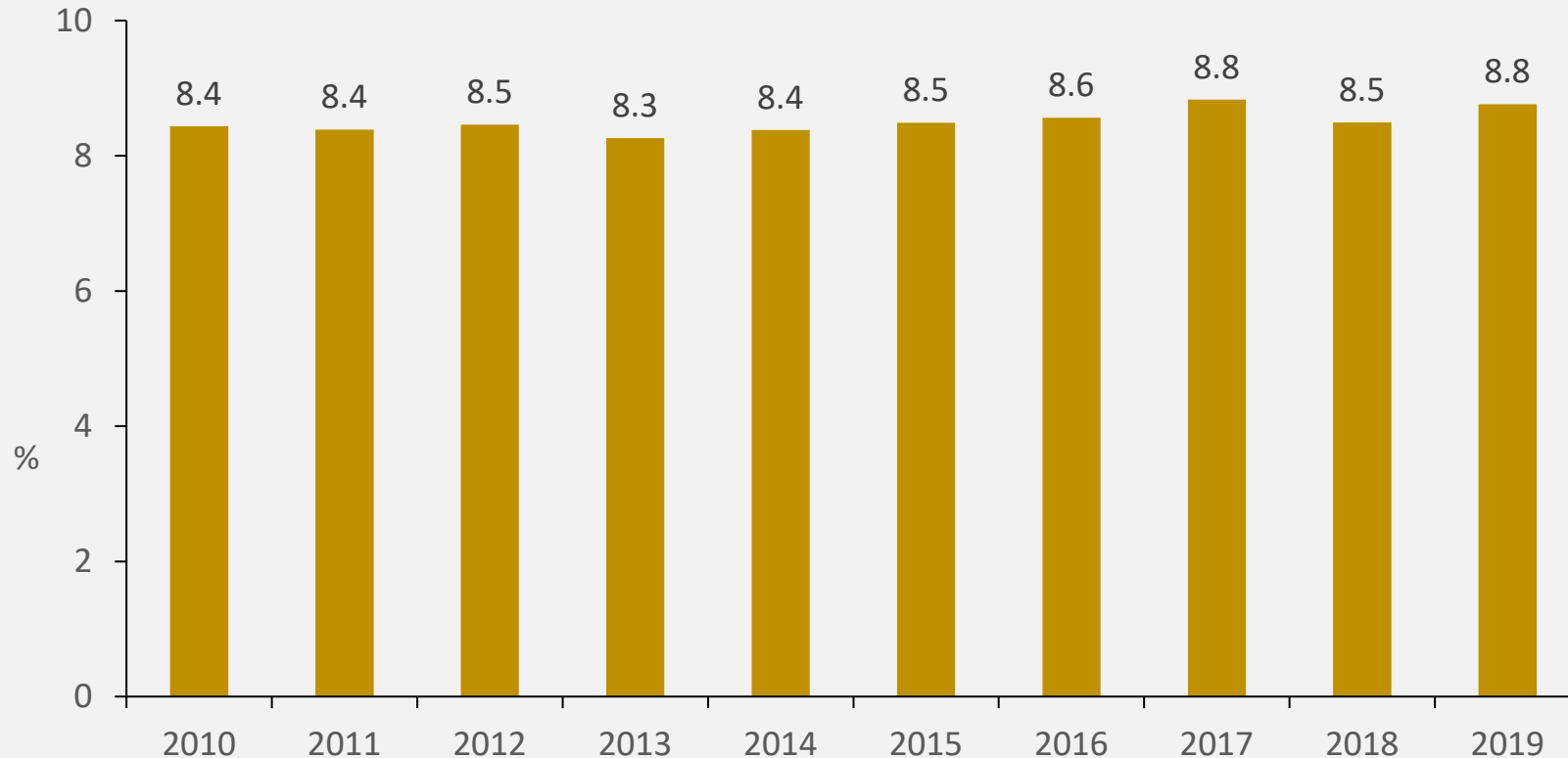


City	# Infant Deaths	# Live Births	2019 IMR
Saginaw	8	766	10.4
Detroit	103	9,339	11.0
Pontiac	9	964	9.3
Southfield	6	811	7.4
Flint	17	1,573	10.8
Wyoming	7	1,072	6.5
Lansing	19	1,668	11.4
Taylor	11	837	13.1
Grand Rapids	21	3,185	6.6
Kalamazoo	15	1,799	8.3

Infant mortality is defined as a death of a baby before his or her first birthday and is expressed as a rate per 1,000 live births.

Selected city has more than 5 infant deaths.

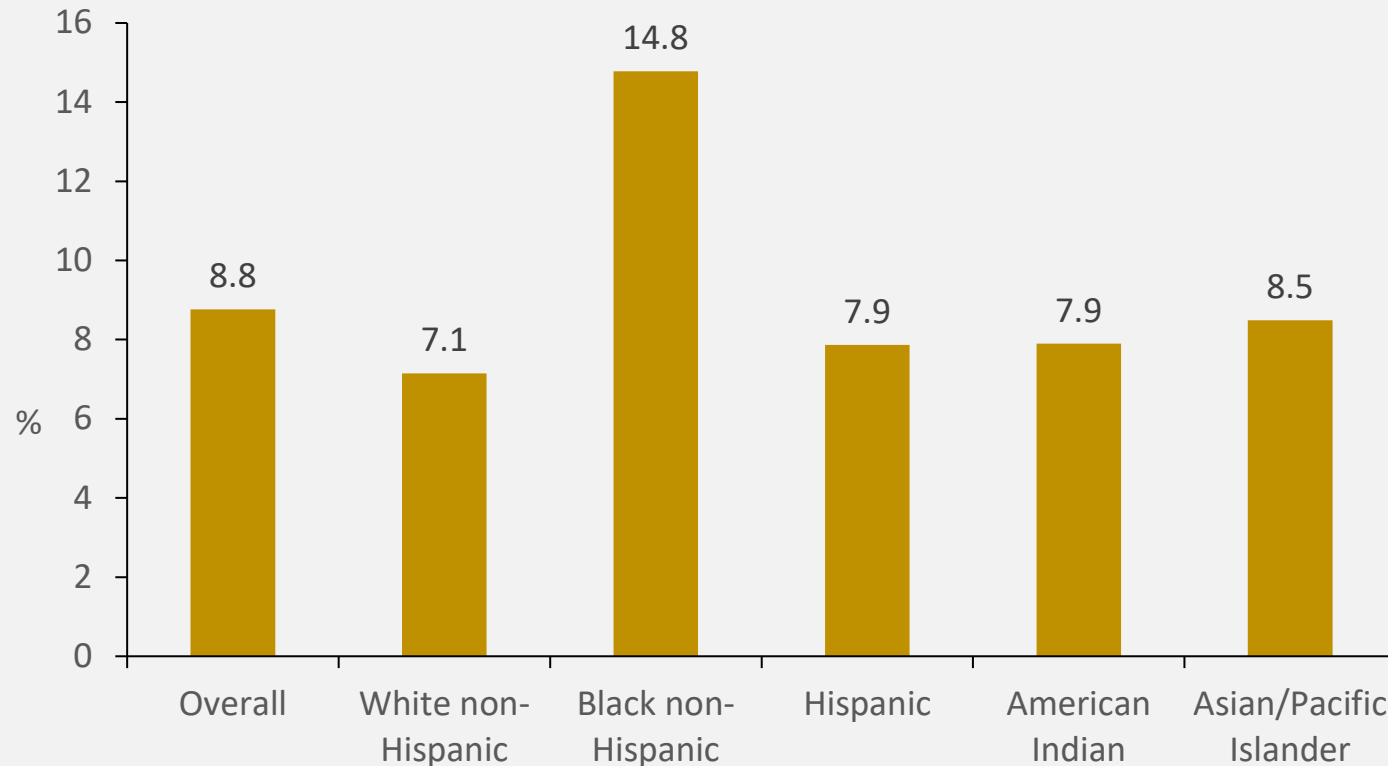
Low Birthweight (Birthweight <2,500 Grams), Michigan, 2010-2019



Year	# Live Births	# LBW	LBW %
2010	114,717	9,678	8.4
2011	114,159	9,576	8.4
2012	112,708	9,535	8.5
2013	113,732	9,397	8.3
2014	114,460	9,592	8.4
2015	113,211	9,611	8.5
2016	113,374	9,708	8.6
2017	111,507	9,846	8.8
2018	110,093	9,350	8.5
2019	107,917	9,458	8.8

Low birthweight rate is defined as number of births with baby birthweight <2,500 grams per 100 live births.

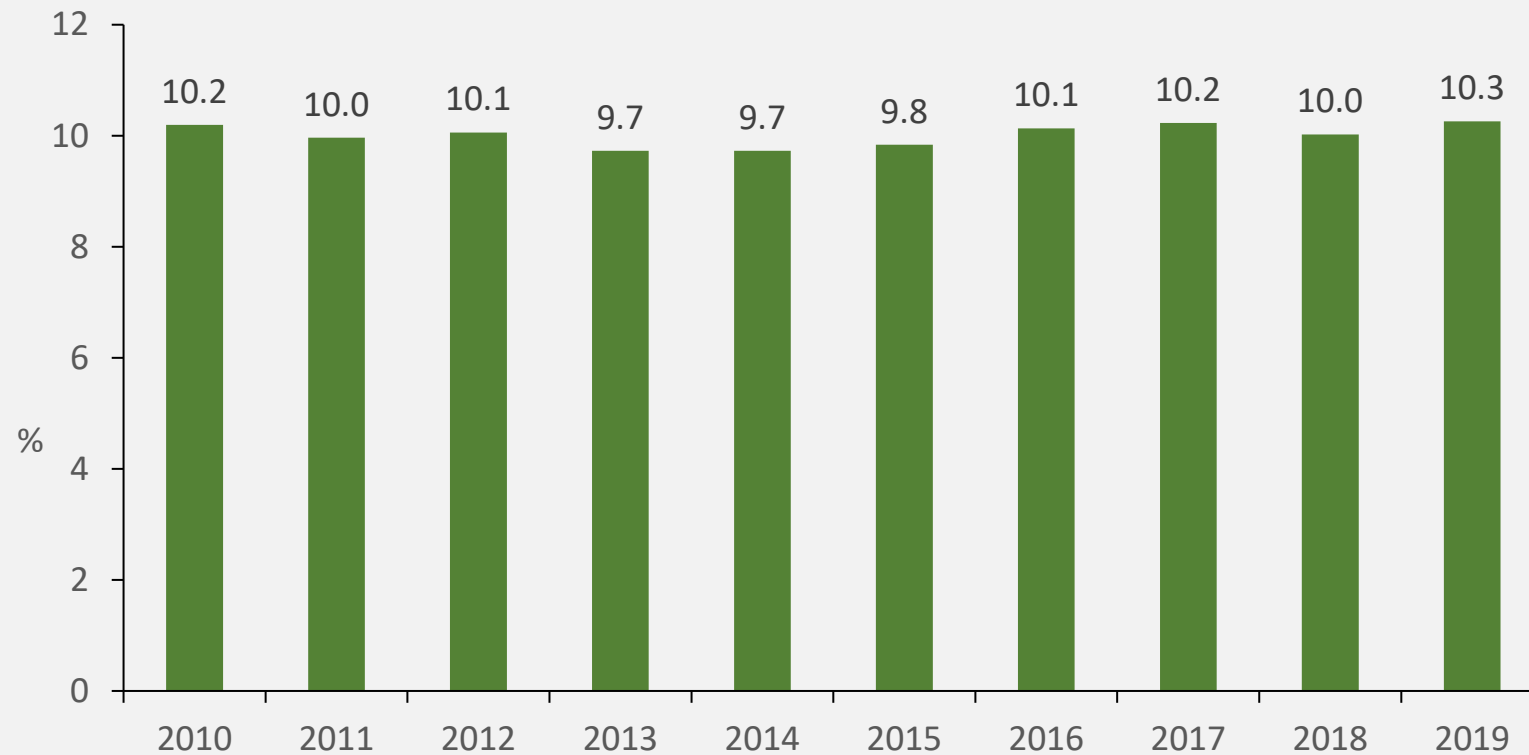
Low Birthweight (Birthweight <2,500 Grams) by Maternal Race/Ethnicity, Michigan, 2019



Maternal Race/Ethnicity	# Live Births	# LBW	LBW %
Overall	107,917	9,458	8.8
White non-Hispanic	72,407	5,172	7.1
Black non-Hispanic	20,201	2,985	14.8
Hispanic	7,579	596	7.9
American Indian	380	30	7.9
Asian/Pacific Islander	4,278	363	8.5

Low birthweight rate is defined as number of births with baby birthweight <2,500 grams per 100 live births.

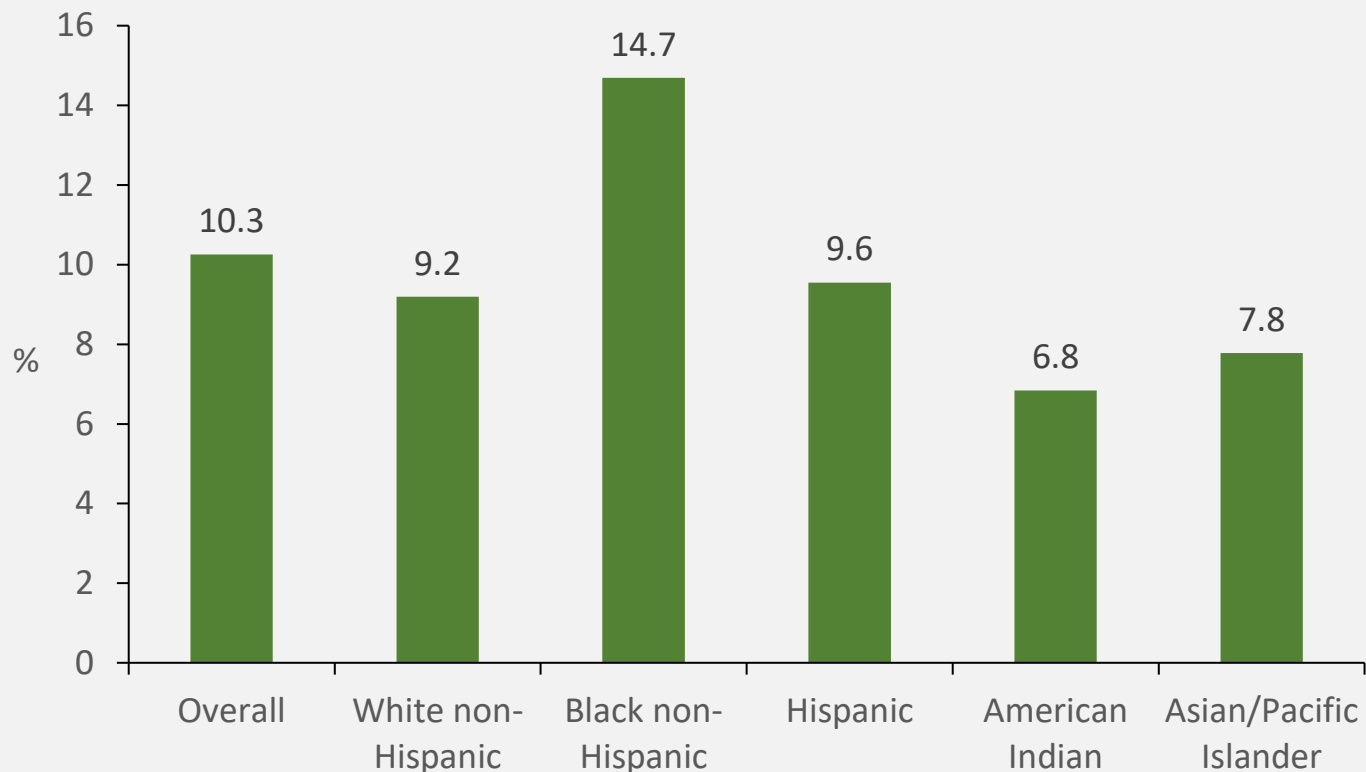
Preterm Birth (Estimated Gestational Age <37 Weeks), Michigan, 2010-2019



Year	# Live Births	# PTB	PTB %
2010	114,717	11,696	10.2
2011	114,159	11,378	10.0
2012	112,708	11,338	10.1
2013	113,732	11,069	9.7
2014	114,460	11,136	9.7
2015	113,211	11,136	9.8
2016	113,374	11,490	10.1
2017	111,507	11,406	10.2
2018	110,093	11,038	10.0
2019	107,917	11,070	10.3

Preterm birth rate is defined as number of births delivered before 37 completed weeks of gestation per 100 live births. Gestational age is based on the obstetric estimate of gestation.

Preterm Birth (Estimated Gestational Age <37 Weeks) by Maternal Race/Ethnicity, Michigan, 2019

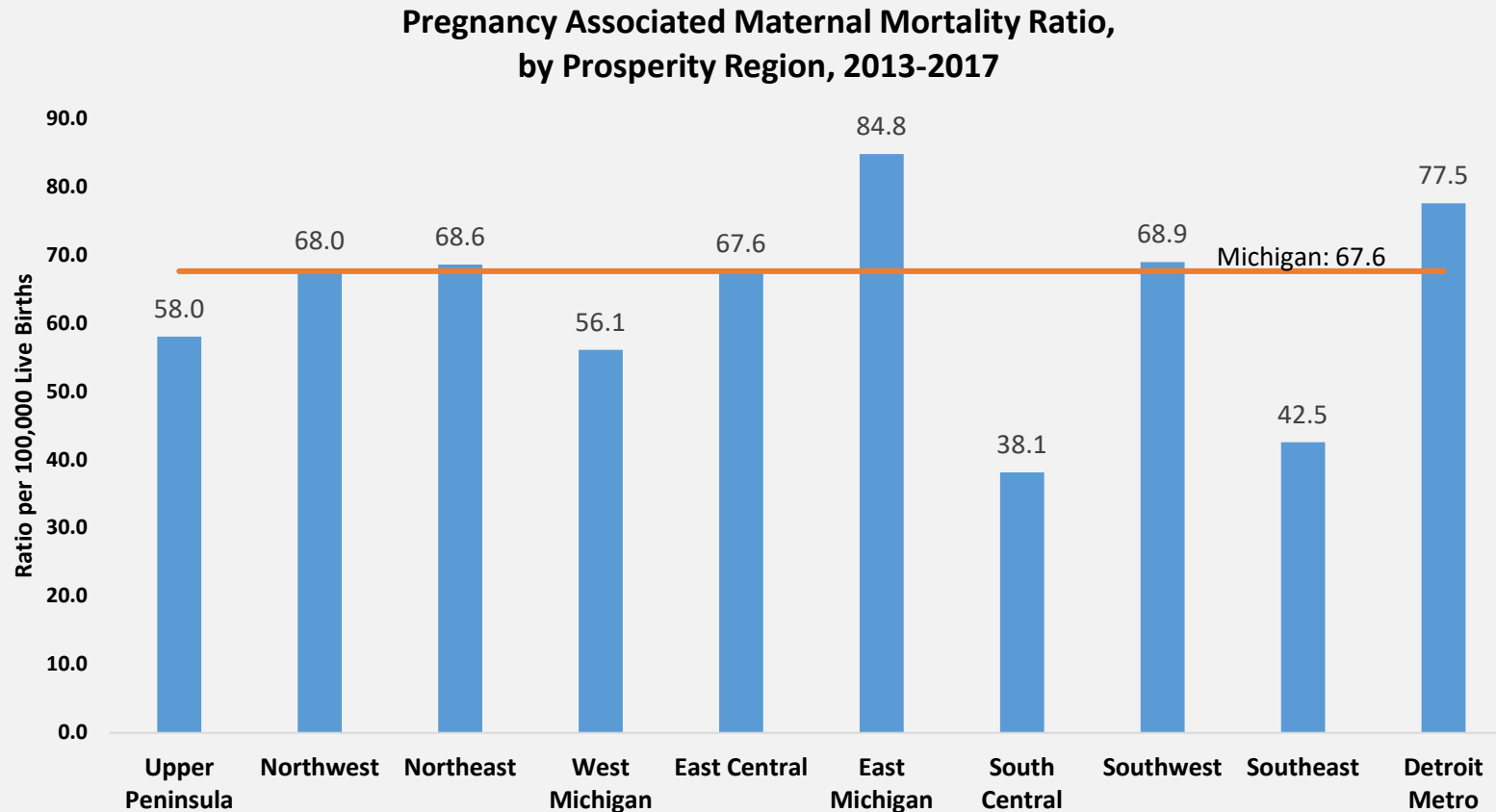


Maternal Race/Ethnicity	# Live Births	# PTB	PTB %
Overall	107,917	11,070	10.3
White non-Hispanic	72,407	6,656	9.2
Black non-Hispanic	20,201	2,968	14.7
Hispanic	7,579	724	9.6
American Indian	380	26	6.8
Asian/Pacific Islander	4,278	333	7.8

Preterm birth rate is defined as number of births delivered before 37 completed weeks of gestation per 100 live births.
Gestational age is based on the obstetric estimate of gestation.

Maternal Mortality Ratio by Prosperity Region, 2013-2017

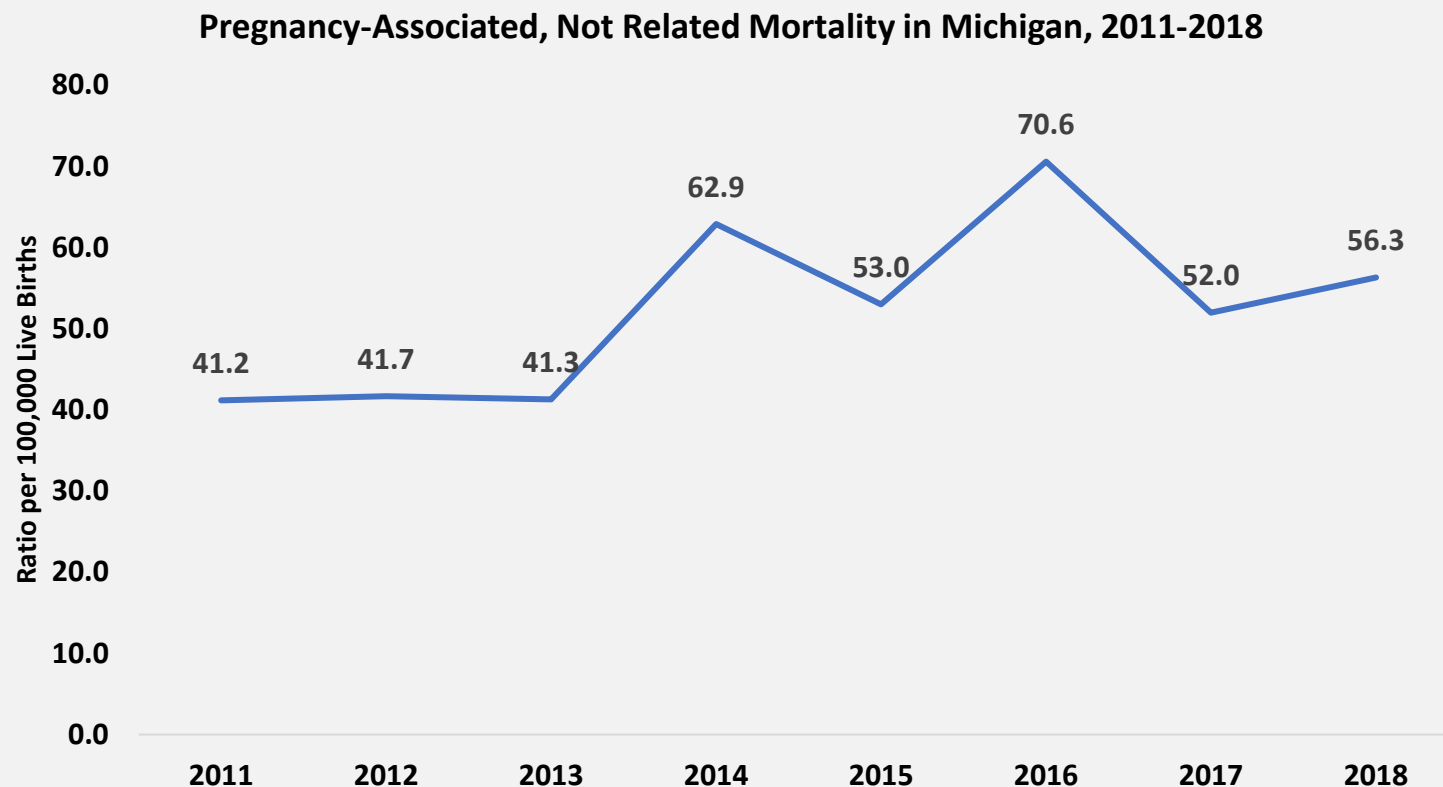
(ratio per 100,000 live births)



- Maternal deaths include deaths that occur **during pregnancy, at delivery or within one year of pregnancy.**
- Total maternal mortality includes both **pregnancy associated mortality** (*unrelated to the pregnancy*), **pregnancy-related mortality** (*related to or aggravated by the pregnancy*), and *deaths where pregnancy-relatedness is unable to be determined.*

Pregnancy-Associated, Not Related Mortality in Michigan

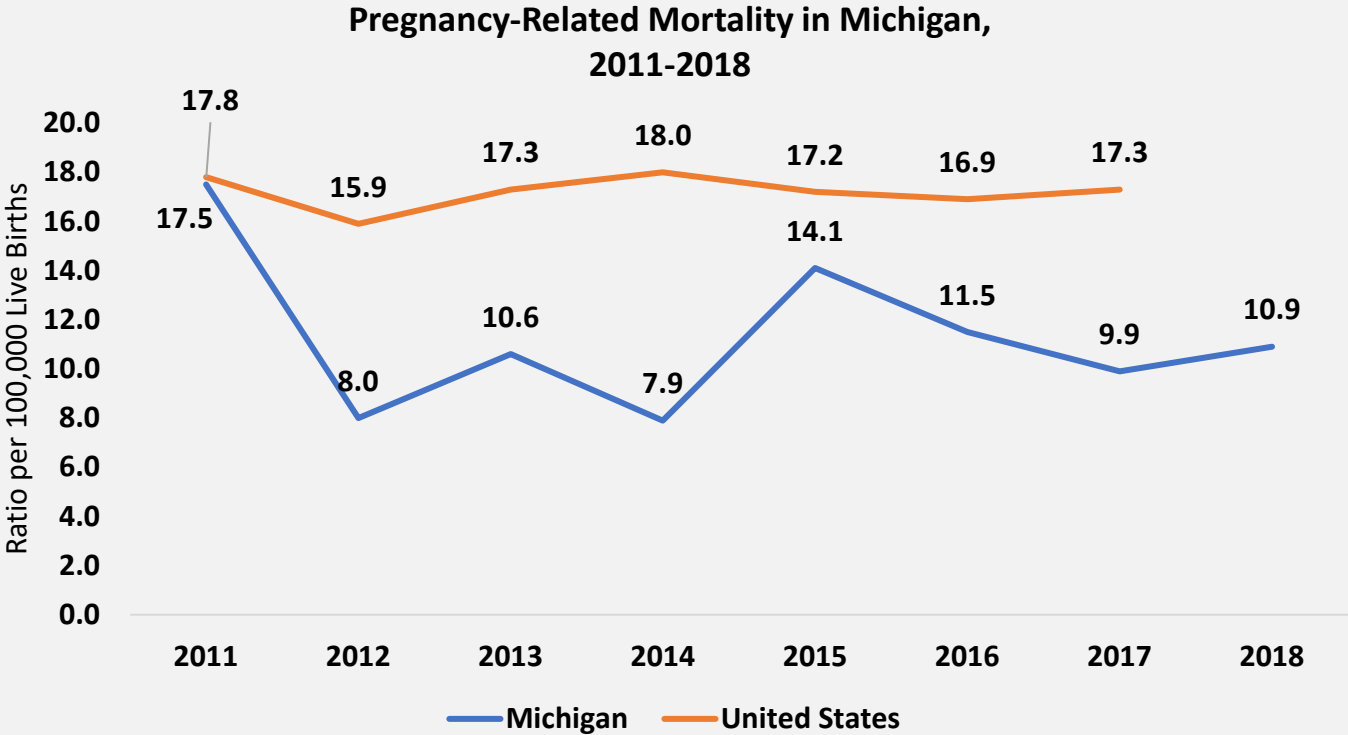
From 2014-2018, 332 women died of pregnancy-associated, not related causes (ratio of 59.0 deaths per 100,000 live births)



National data not available for comparison.

Pregnancy-Related Mortality in Michigan

From 2014-2018, 61 women died of pregnancy-related causes (ratio of 10.8 deaths per 100,000 live births)



2018 United States data not yet available for comparison at time of slide creation.

ADDRESSING ROOT CAUSES: FROM DATA TO ACTION PART 2

Pete Haak for the Michigan PRAMS Team

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Rutgers Bloustein Center for Survey Research

NOVEMBER 15, 2021

Outline 1

- **What are Michigan mothers telling us?**
- What are some recent trends?
- What are some challenges?
- Are all women treated equally when receiving healthcare?
- Summary / Concluding Thoughts

"I kept telling the nurses something wasn't right. I couldn't feel my legs; I could barely breathe, and kept feeling like I was going to pass out. They were waiting for my files from my doctor's office. But after 4 times of telling the nurse something wasn't right, they looked up and [baby's] heartbeat was down to 50 bpm..."

- Continued on next outline slide

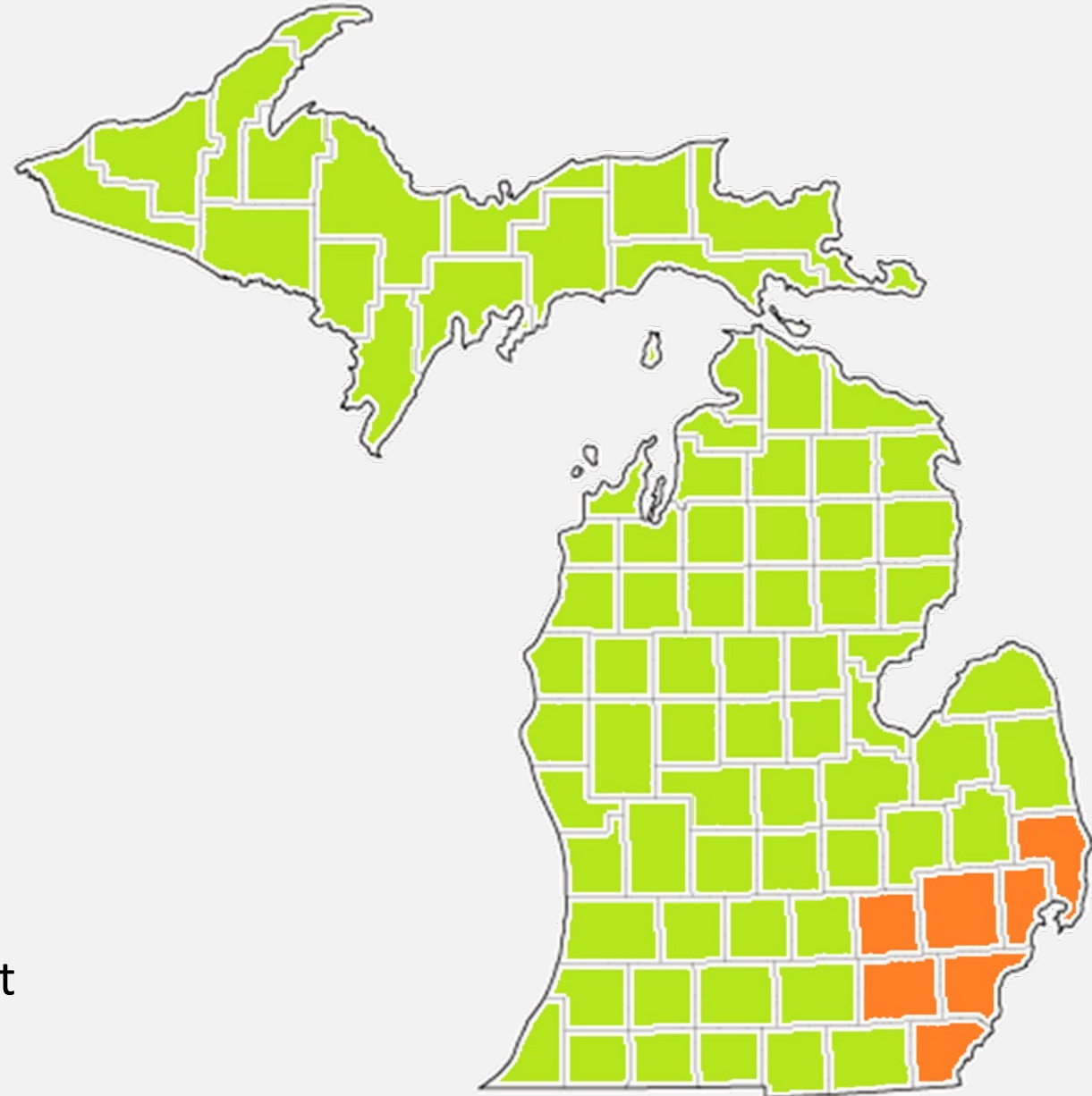
Identifying Root Causes

- Many different ways to collect information that can inform
 - All have strengths and limitations
- Administrative sources
- Qualitative and case-based sources
- With the right resources and methodology we can:
 - Collect detailed individual-level information on the lives of Michigan's mothers
 - Focus on factors not measured elsewhere
 - Make population-level inference
- Michigan PRAMS helps meet this need



About PRAMS

- Pregnancy Risk Assessment Monitoring System
- ~3,000 mothers per year are sampled
- 50% - 60% complete the survey
- Oversample:
 - Low birth weight
 - African American
 - Southeast Michigan
- Survey completed 3-7 months post-partum
- **Population based survey**
- Results weighted to number of pregnancies resulting in a live birth each year
 - Equal to number of mothers
 - About equal to number of live births
- What information does PRAMS ask about?
- Do people really remember details for many relevant pregnancy events? Do they share honest answers with PRAMS?
 - Definitely! Many examples available.



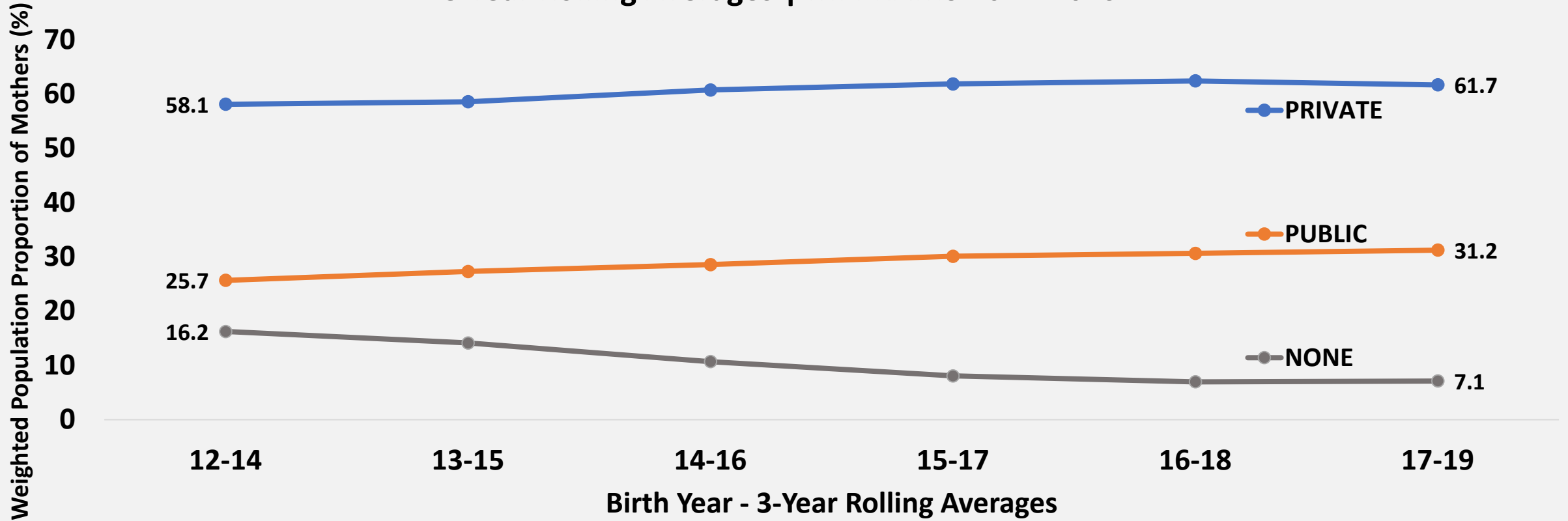
Outline 2

- What are Michigan mothers telling us?
- **What are some recent trends?**
 - Insurance before pregnancy
 - Pregnancy timing
 - Safe-infant sleep
- What are some challenges?
- Are all women treated equally when receiving healthcare?
- Summary / Concluding Thoughts

"...they rushed us into an emergency C-section. I almost had to have a blood transfusion. They actually said 5 more minutes and I would have needed one and that my daughter would not have made it. She's a true miracle."

- **PRAMS Respondent**

Insurance During Month Before Pregnancy 3 Year Rolling Averages | MI PRAMS 2012-2019



Observations:

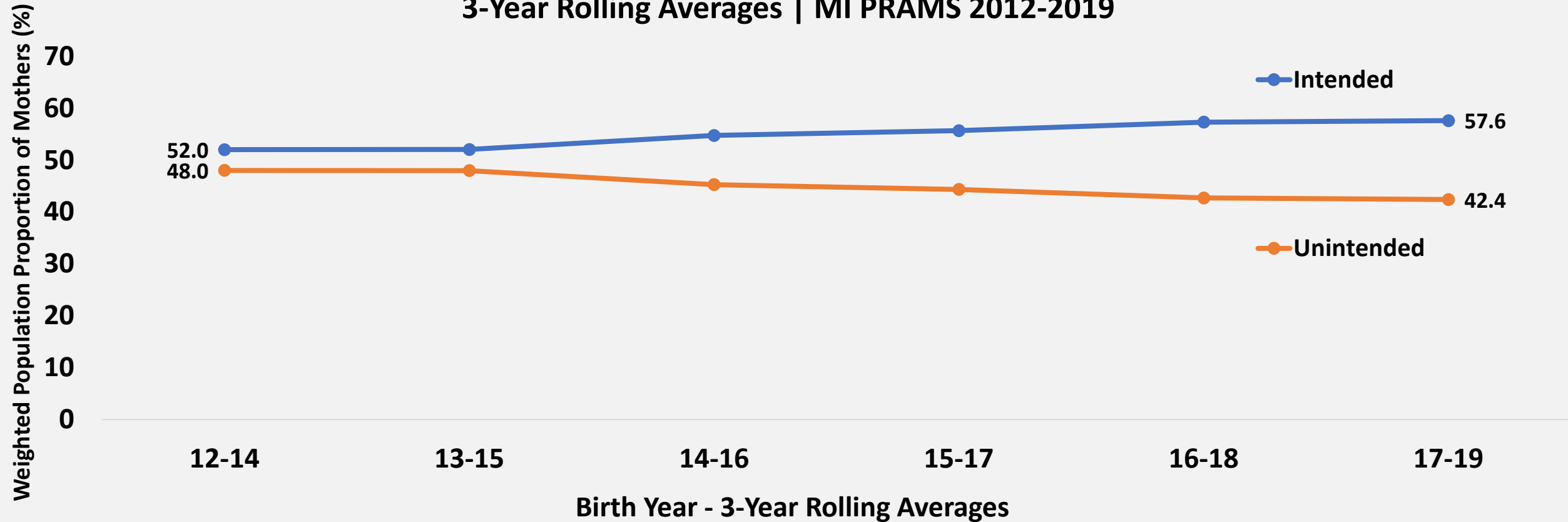
- More Michigan women report they have health insurance coverage in the month before pregnancy
- Public insurance coverage grew more than private, but both have increased

Unanswered Next Questions:

- What aspects of pregnancy care / health are changing along with these changes in prepregnancy insurance?
- What are the characteristics of the ~7% who remain uninsured before pregnancy?

Pregnancy Timing / Intention

3-Year Rolling Averages | MI PRAMS 2012-2019



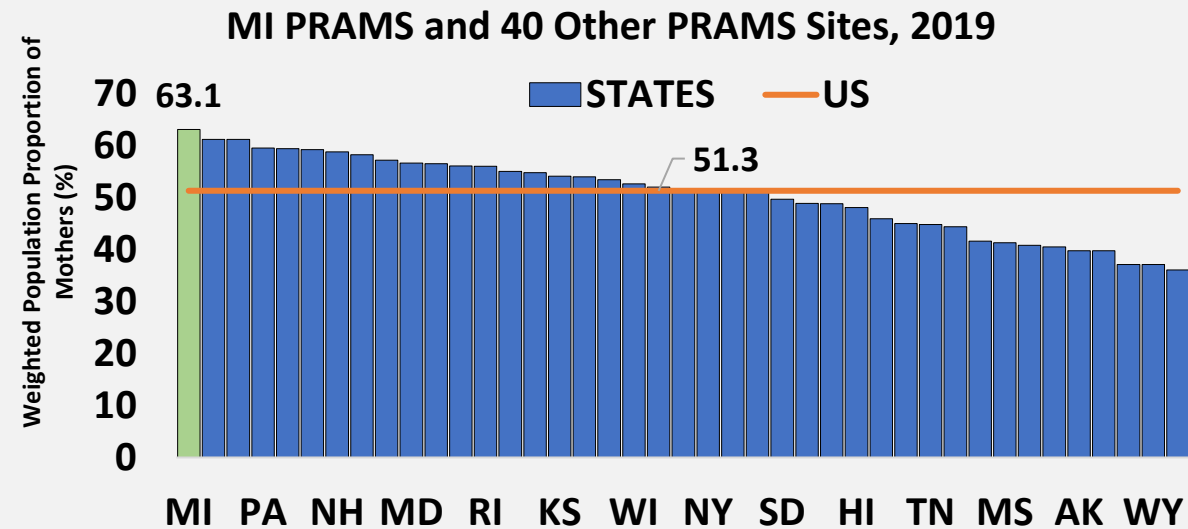
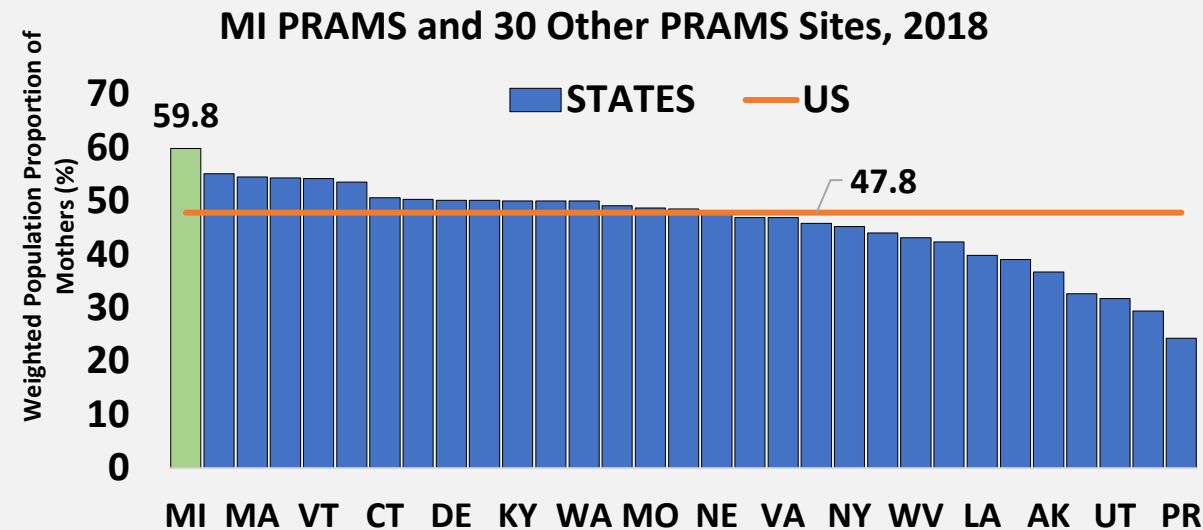
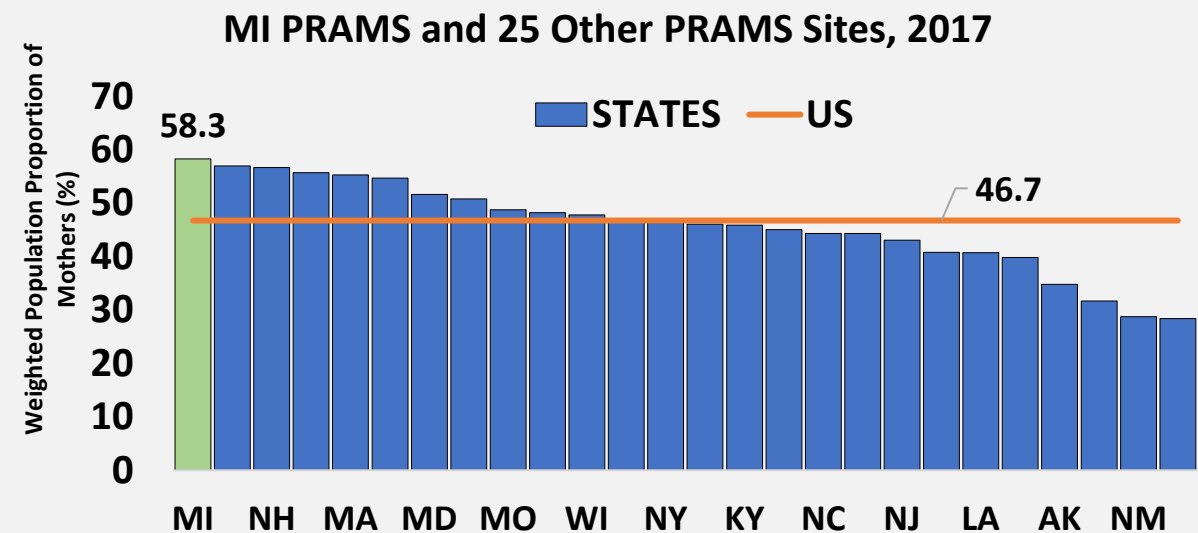
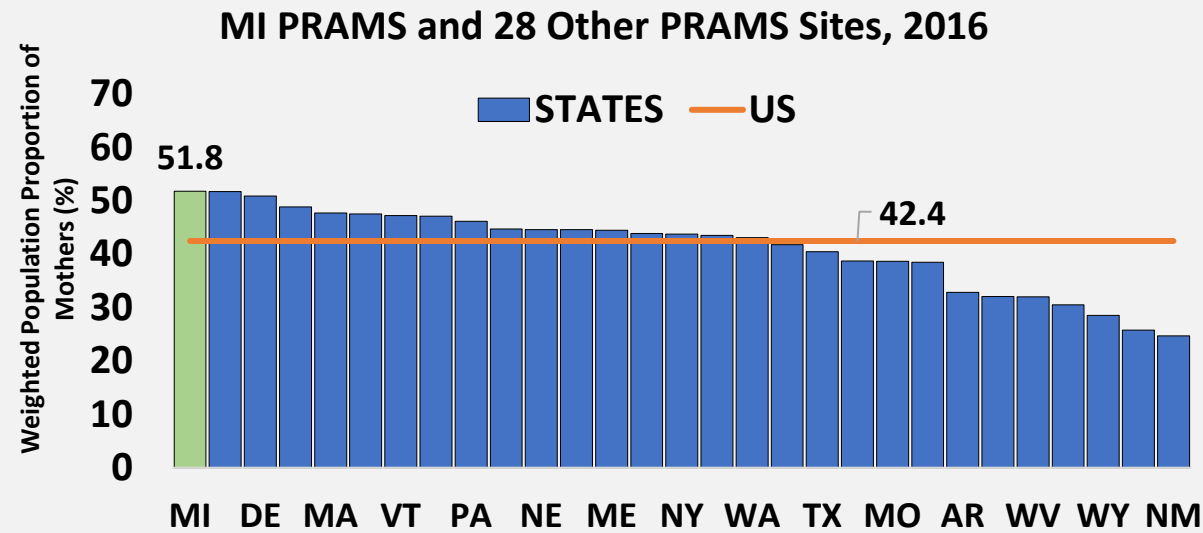
Observations:

- More Michigan mothers are having pregnancies at the time they desired

Unanswered Next Questions:

- Are there population-level changes over this time frame that may be contributing to this gradual change?
- Some sub-categories of pregnancy timing are not changing.
 - 6.1% (95% CI: 5.4% - 6.8%) of mothers say that they did not want to be pregnant then or ever again.
- What needs to happen for all women to carry out their wishes?

- How many mothers place their infants to sleep in spaces without blankets, pillows, toys, or bumpers? Is this changing over time? Does this vary by state?
- Across 2016-2019, Michigan mothers lead the way in this safe-sleep behavior!



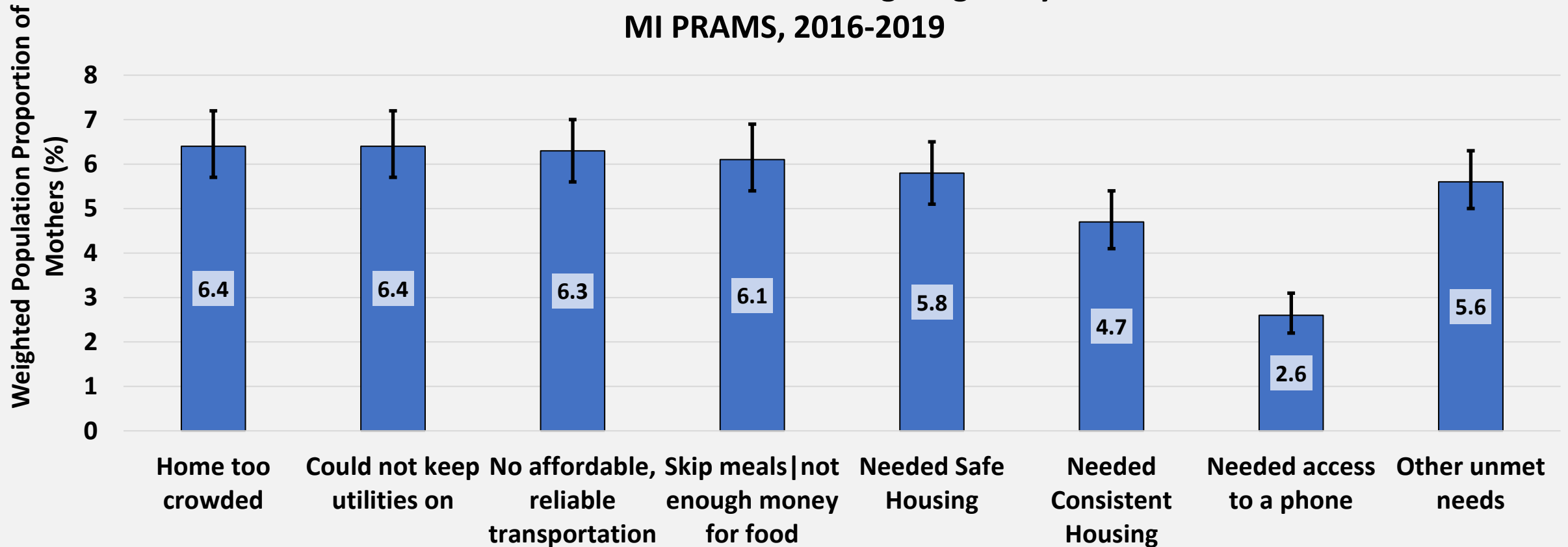
Outline 3

- What are Michigan mothers telling us?
- What are some recent trends?
- **What are some challenges?**
 - Individual and cumulative unmet needs
 - Life stressors
 - Unequal burdens
- Are all women treated equally when receiving healthcare?
- Summary / Concluding Thoughts

"I had all warning signs / symptoms of preeclampsia and my OBGYN never ever mentioned preeclampsia to me until I was admitted into the hospital one month before my baby was due. I went into the hospital extremely swollen from head to toe, chest pains, high blood pressure and shortness of breath..."

- Continued on next outline slide

Unmet Basic Needs During Pregnancy MI PRAMS, 2016-2019



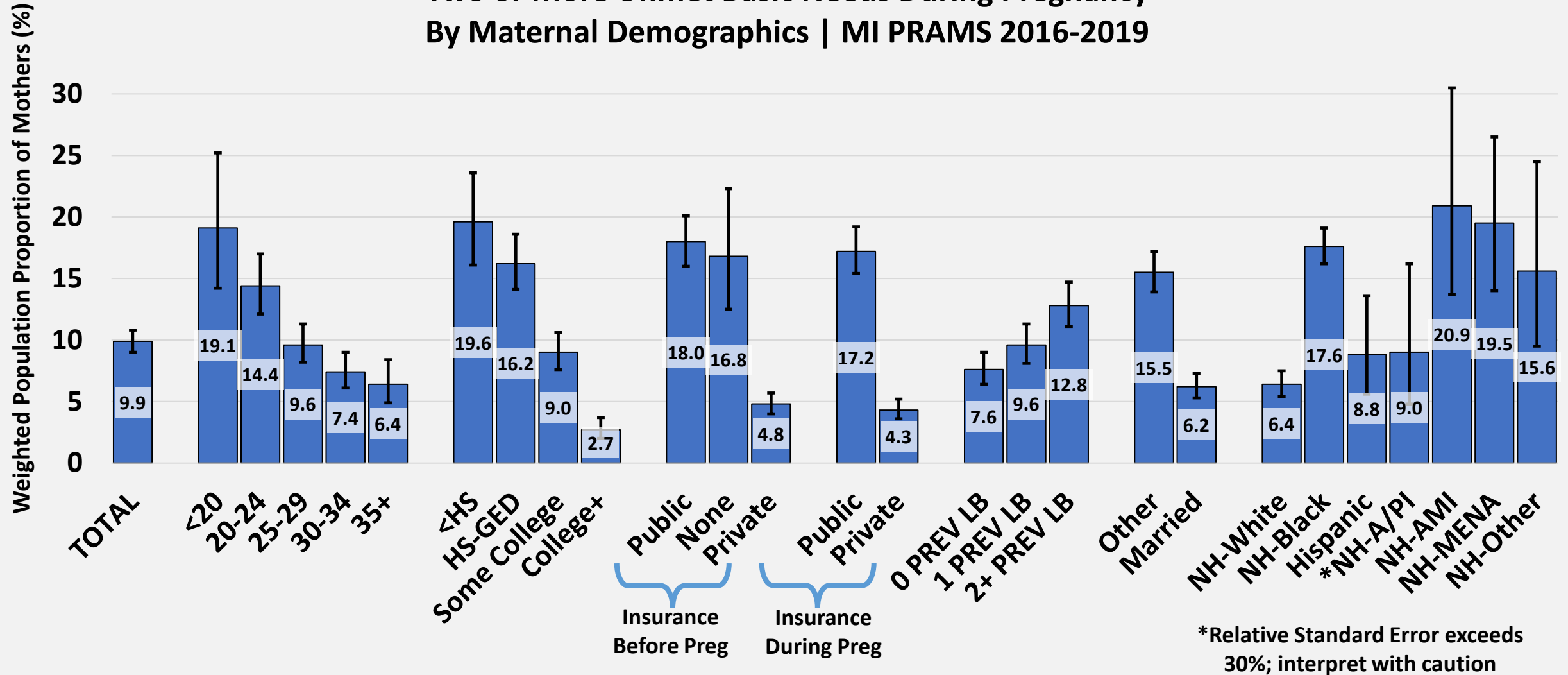
Observations:

- Michigan mothers report a number of unmet basic needs around the time of pregnancy
- Housing, utilities, transportation, and money for food are the most common unmet needs

Unanswered Next Questions:

- How could each of these unmet basic needs impact an expectant mother's timely connection with prenatal care providers? Breastfeeding her new infant? Implementing safe sleep practices?
- Are there groups in Michigan where cumulative unmet needs are more concentrated?

Two or More Unmet Basic Needs During Pregnancy By Maternal Demographics | MI PRAMS 2016-2019



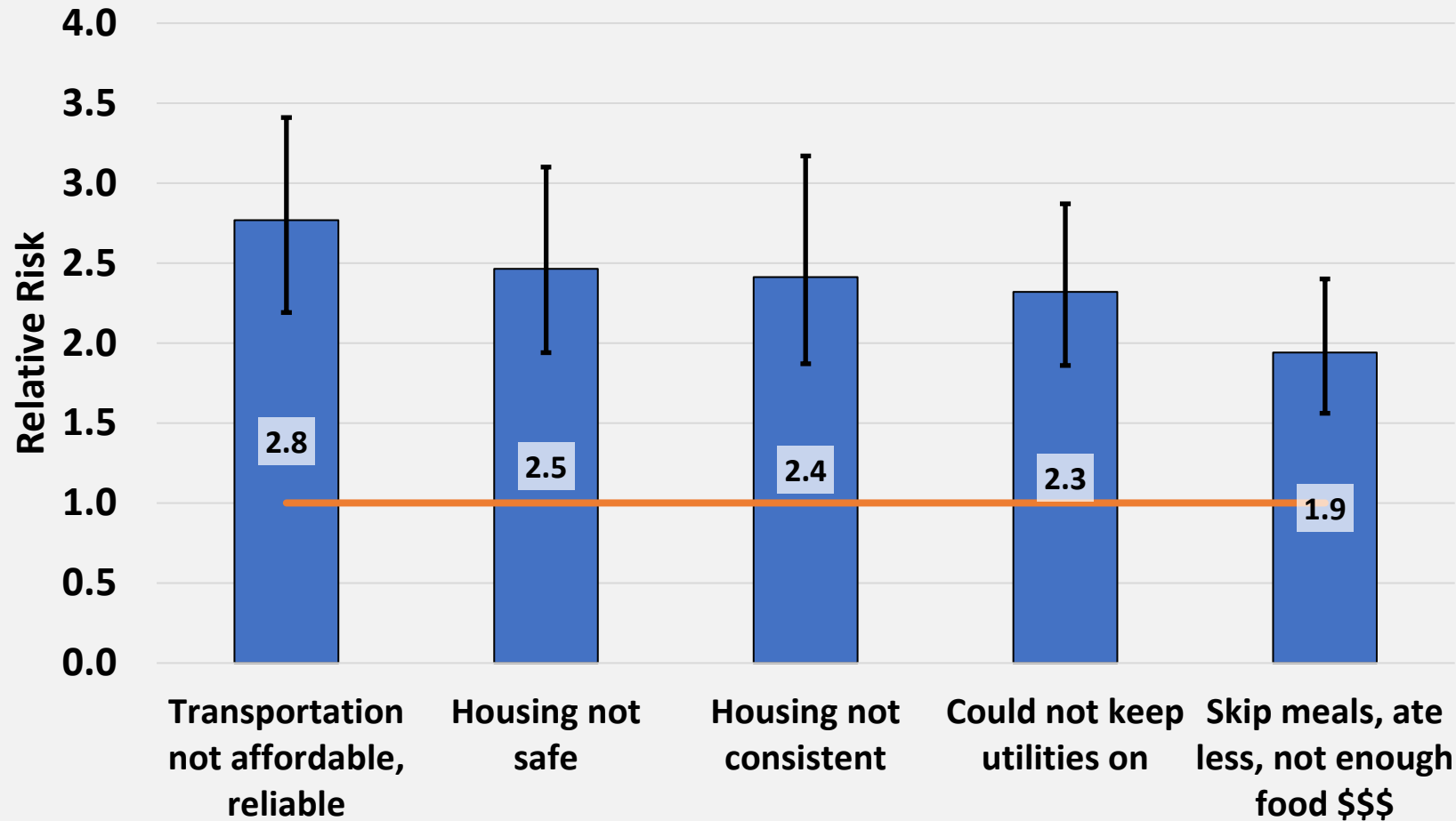
Notes and Observations:

- Multiple unmet needs during pregnancy are much more common for some groups than others
- Most race / ethnicity categories are based solely on the mother. Exceptions: NH-AMI and NH-MENA
- Many pregnancy outcomes may vary across these same demographic groups.
- Before drawing conclusions about *unmet needs* and *pregnancy outcomes*, must control for competing factors

Relative Risk of Unmet Needs During Pregnancy

Non-Hispanic Black / Non-Hispanic White

MI PRAMS, 2016-2019

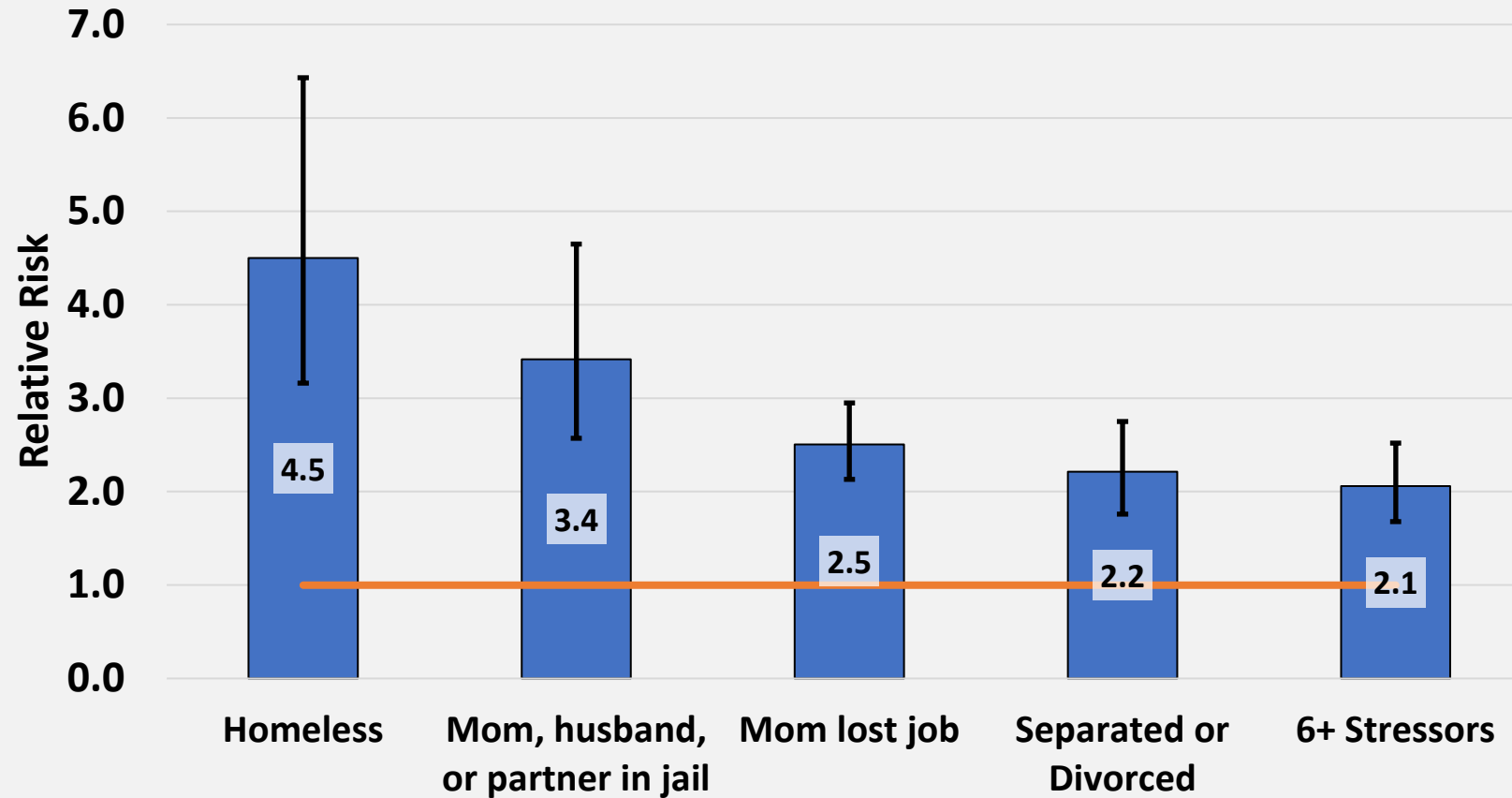


- These are relative risks
- Compare the magnitude of unmet needs between two groups
- For instance, transportation
- NHB:
 - 11.9% (CI:10.7% - 13.2%)
- NHW:
 - 4.3% (CI: 3.6% - 5.3%)
- RR: 11.9%/4.3% = 2.76 fold ↑
- Interpreted as:
- "Non-Hispanic Black mothers in Michigan are 2.8 times more likely to have unmet needs for affordable, reliable transportation during pregnancy compared to Non-Hispanic white mothers"
- If the error bars on the columns do not touch / cross 1.0 (orange line), then the magnitude of difference is large enough to reach statistical significance

Observations:

- The risks of having unmet needs for transportation, housing, utilities, and food are significantly higher for non-Hispanic Black mothers than for non-Hispanic white mothers across 2016-2019.

Relative Risk of Life Stressors Non-Hispanic Black / Non-Hispanic White MI PRAMS, 2016-2019



Observations:

- The risks of both individual and cumulative life stressors are significantly higher for non-Hispanic Black mothers than for non-Hispanic white mothers across 2016-2019.

- "In the year before your new baby was born, did any of the following things happen to you"
- Fifteen different stressors follow:
 - Relationship
 - Emotional
 - Economic
- Can look at individual or cumulative stressors
- Many individual stressors are significantly more common among NHB than NWH mothers
- Also true for cumulative life stressors (6 or more)
 - NHB: 12.2% (CI: 11.0% - 13.5%)
 - NHW: 5.9% (CI: 5.0% - 7.0%)

Outline 4

- What are Michigan mothers telling us?
- What are some recent trends?
- What are some challenges?
- **Are all women treated equally when receiving healthcare?**
 - How does this vary by maternal demographics?
 - What factors are protective?
- Summary / Concluding Thoughts

"I went into the hospital extremely swollen from head to toe, chest pains, high blood pressure and shortness of breath... Then I was induced that same day. I had all these signs since I was about 6 months pregnant and not once did my doctor detect preeclampsia."

- PRAMS Respondent

Are Mothers Ever Treated Worse in Healthcare Because of Their Race or Culture?

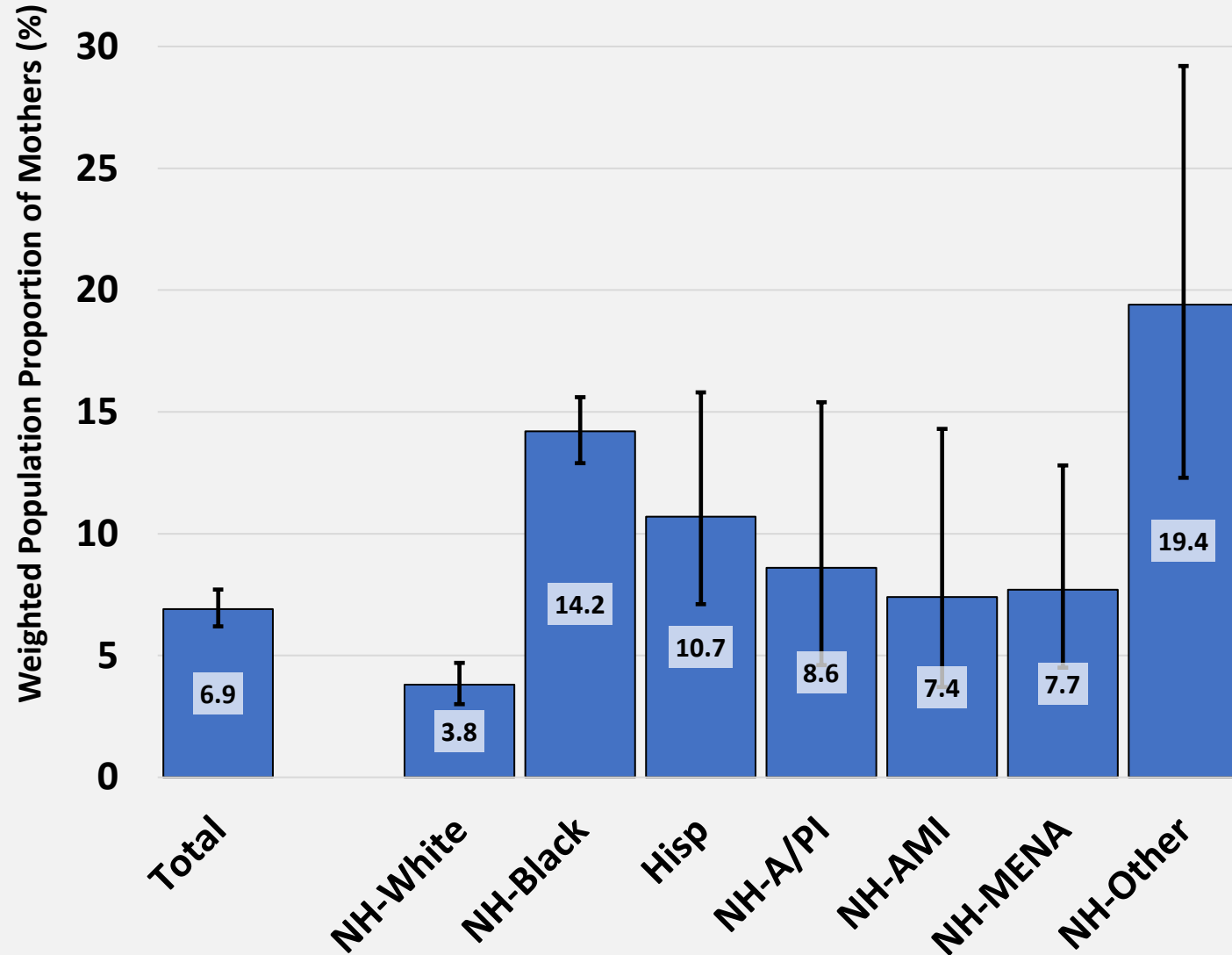
62. During the 12 months before your new baby was born, how often did you feel that when you went to get health care you were treated worse than people of other races or cultures?

- ☐ Never
- ☐ Sometimes
- ☐ Usually
- ☐ Always
- ☐ I did not get health care then

 **Excluded here**

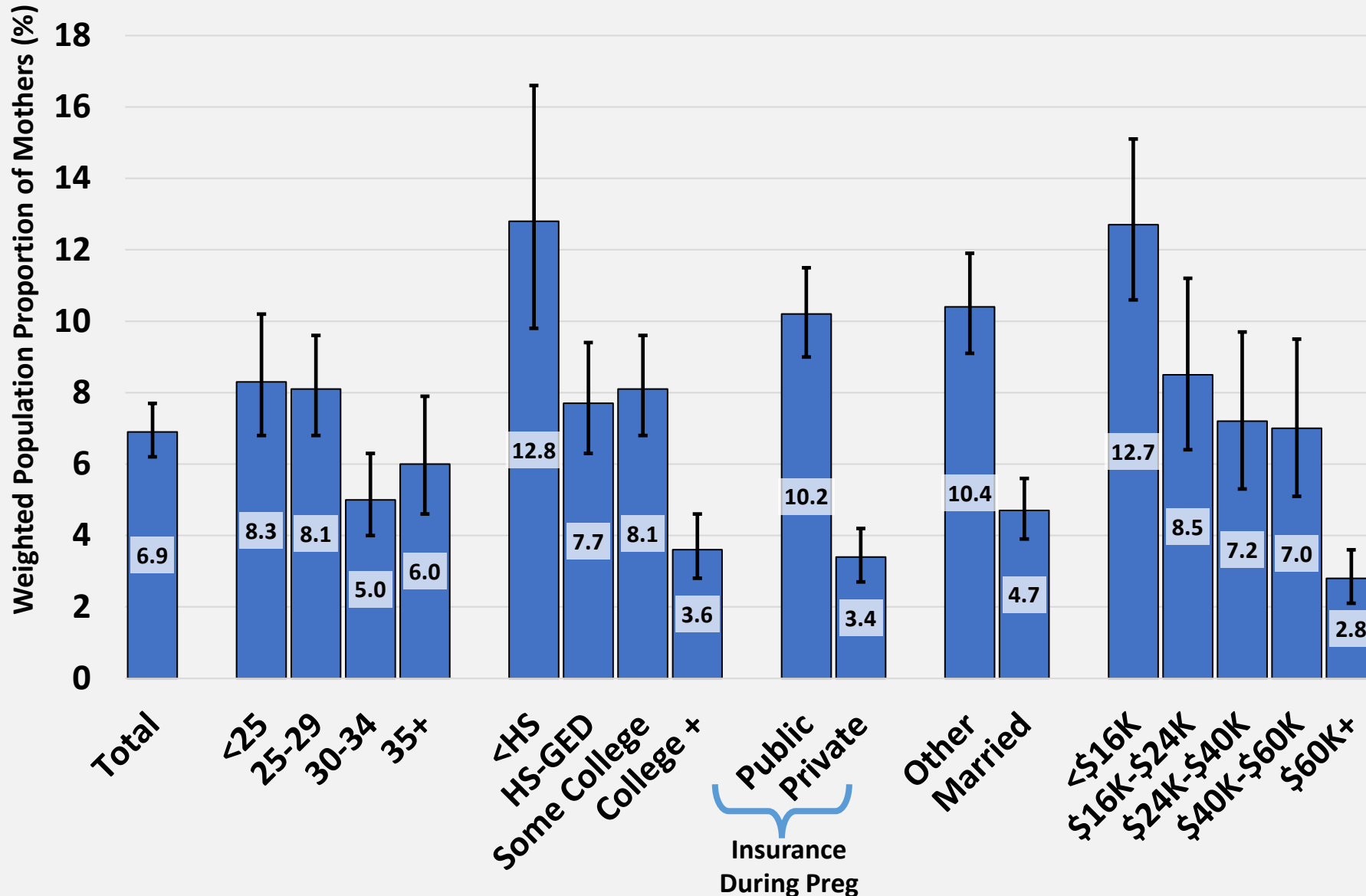
- Time frame contains, but is not limited to, healthcare during pregnancy
- Never
 - 93.1% (CI: 92.3% - 93.8%)
- Sometimes
 - 5.1% (CI: 4.5% - 5.8%)
- Usually
 - 0.9% (CI: 0.7% - 1.2%)
- Always
 - 0.9% (CI: 0.7% - 1.2%)

**Ever Treated Worse in Healthcare During Year
Before Birth Because of Race or Culture
By Maternal Race/Ethnicity | MI PRAMS 2016-2019**



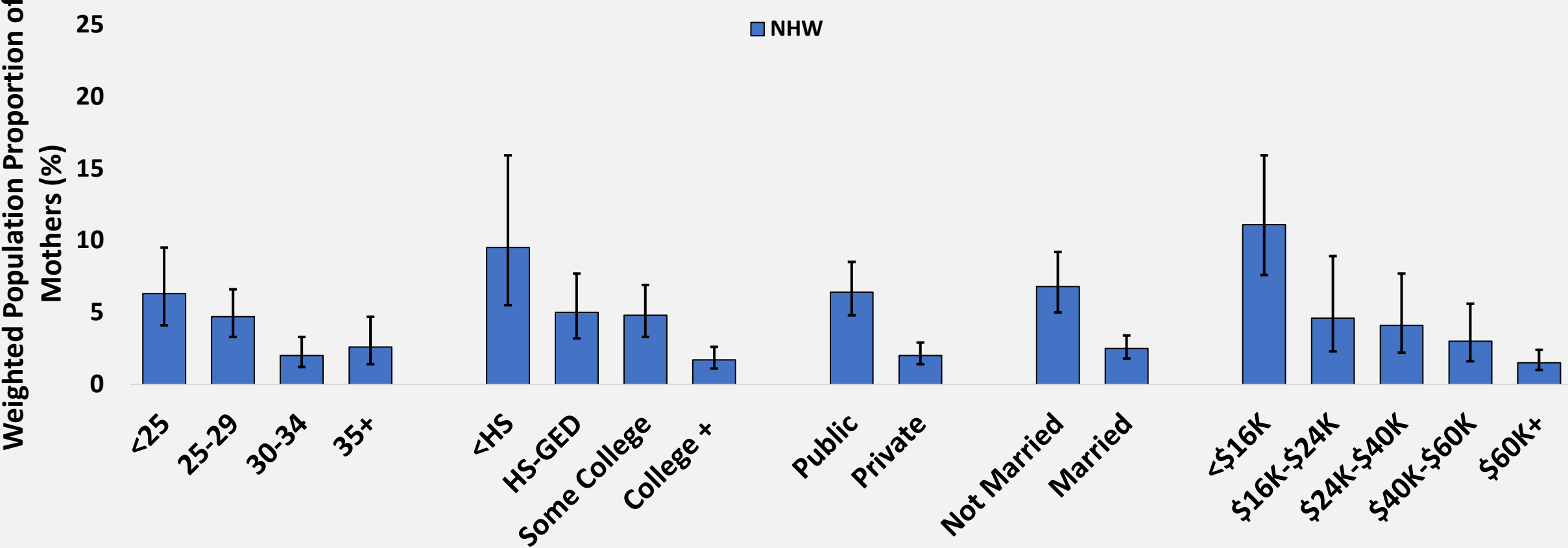
- "Ever" treated worse
 - Combines Sometimes + Usually + Always
- Overall, 1/15 mothers reported ever being treated worse in health care because of their race or culture
- White mothers are significantly less likely to experience this
- Much more common experience for all non-white groups
 - At least double for all groups
 - 3.7X for NHB
 - 5X for NH-Other

Ever Treated Worse in Healthcare During Year Before Birth Because of Race or Culture By Maternal Demographics | MI PRAMS 2016-2019

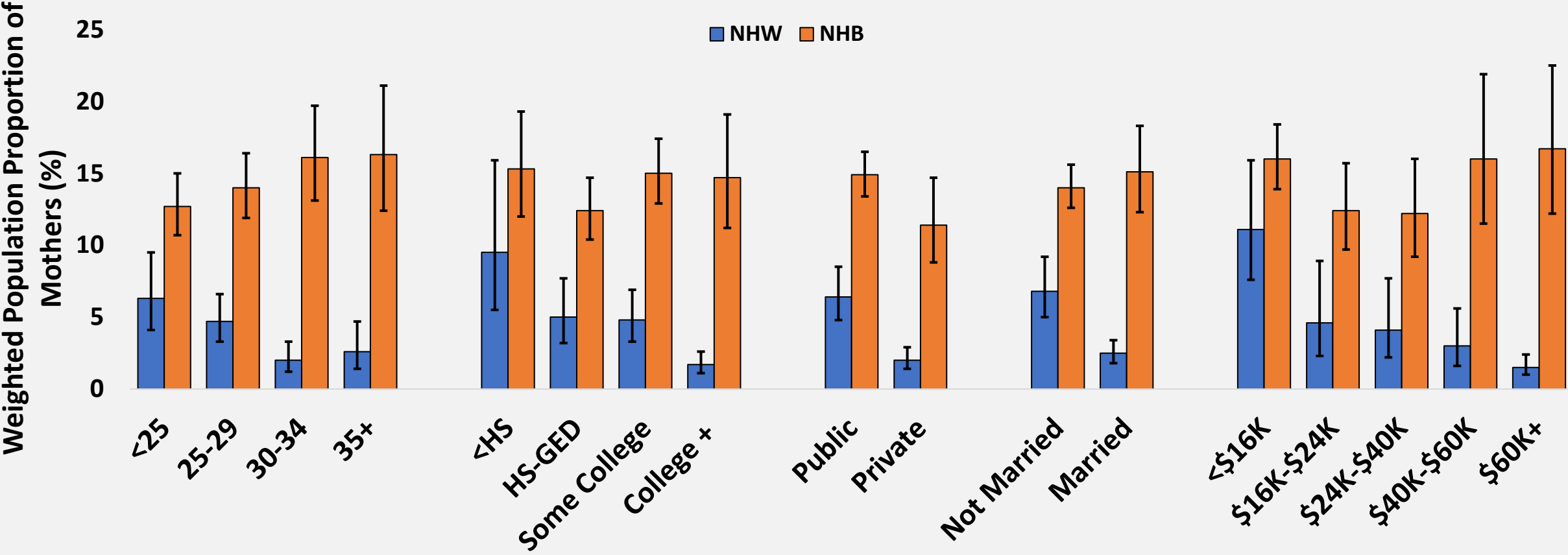


- Graph at left is for all mothers, regardless of race / ethnicity
- Worse healthcare treatment because of race or culture is more common for:
 - Younger
 - Lower education
 - Unmarried
 - Public insurance
 - Lower income
- Less common with:
 - Increasing maternal age
 - Increasing education
 - Marriage
 - Private insurance
 - Increasing income
- "Social capital" can provide protection from this experience

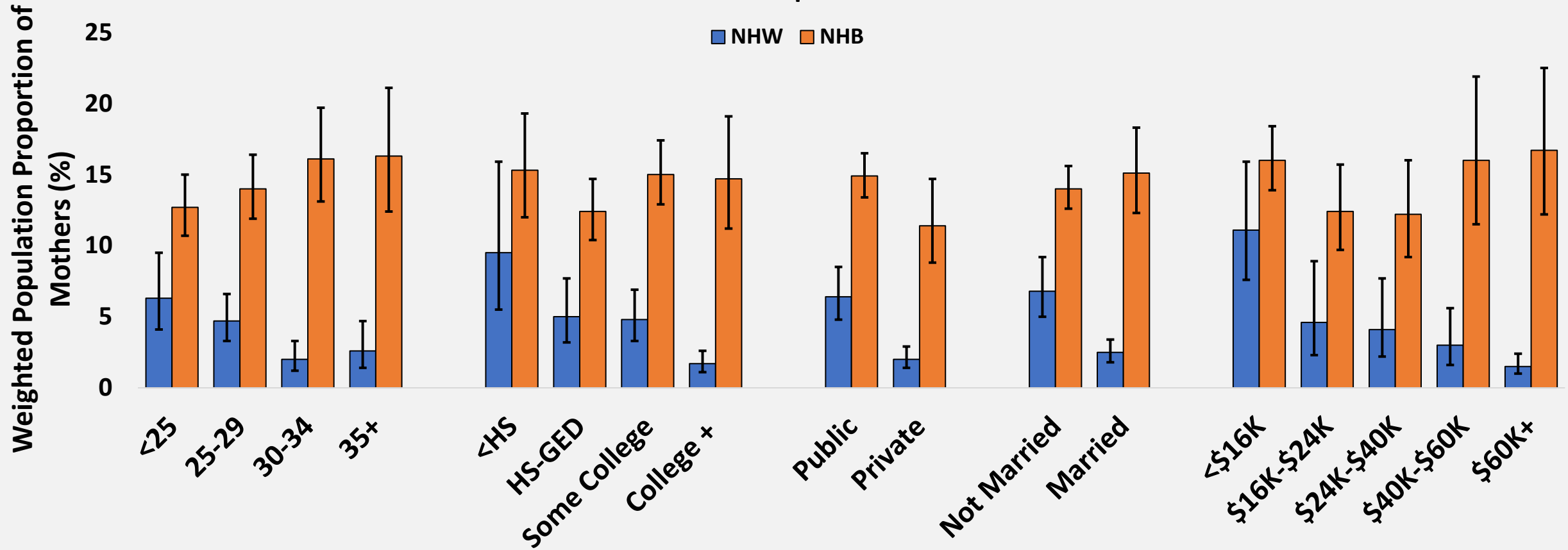
Ever Treated Worse in Healthcare During Year Before Birth Because of Race or Culture
NH-White and NH-Black | MI PRAMS 2016-2019



Ever Treated Worse in Healthcare During Year Before Birth Because of Race or Culture
NH-White and NH-Black | MI PRAMS 2016-2019



Ever Treated Worse in Healthcare During Year Before Birth Because of Race or Culture NH-White and NH-Black | MI PRAMS 2016-2019



Observations:

- For white mothers, already least likely to have this experience, this risk may be reduced further as social capital increases
- Black mothers are significantly more likely to be treated worse in healthcare settings. Factors that seem protective for white mothers do not confer protection on Black mothers.

Unanswered Next Questions:

- Does worse treatment in healthcare settings explain poorer outcomes? Differences in care utilization?
- What can we do to reduce this experience for all mothers, but especially for Black mothers?

Outline 5

- What are Michigan mothers telling us?
- What are some recent trends?
- What are some challenges?
- Are all women treated equally when receiving healthcare?
- **Summary / Concluding Thoughts**

"After my baby was born I really wanted some type of home visiting program. My baby had some feeding issues and we struggled with sleep issues. I was desperate for help but nothing was available. Just because a person has a good income, does not mean they know anything about babies."

- PRAMS Respondent

Summary 1

- One first step toward meeting needs and improving equity is being able to quantify
- Examining root causes can involve a number of different data sources
 - Each different source can enrich our understanding of health determinants
- Population based surveys like MI PRAMS can serve several roles:
 - Describing population-level behaviors, experiences, opinions, and outcomes
 - Providing more depth of information than administrative sources
 - Combines medical + social determinants of health
- At the state level, we see some positive changes over time:
 - More pre-pregnancy insurance coverage
 - More pregnancies at the time that was desired
- Comparing across states and other PRAMS sites, Michigan leads the pack for *four straight years* in one safe infant sleep practice
- This is great! But there is still room to improve

Summary 2

- PRAMS can reveal a number of inequities
- Many women report unmet basic needs during pregnancy
 - The burden of multiple unmet needs is not equally distributed
- Compared to white mothers:
 - Significantly more Black mothers have unmet basic needs
 - Significantly more Black mothers face individual life stressors and cumulative (6 or more) life stressors
- PRAMS respondents also have a lot of good things to say about their pregnancy care!
 - Today we are focusing on justice and equity
- Some mothers report being treated worse than others, based on their race or culture, when receiving health care
- All non-white race / ethnicity groups are more likely to report this experience
- Social / protective factors that may shield white mothers from this experience do not seem to offer the same protection for Black mothers

Concluding Thoughts

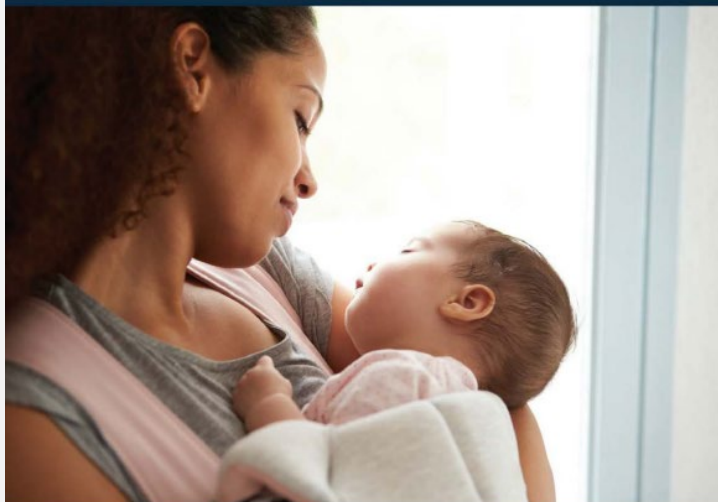
- Many aspects of life and health measured by MI PRAMS
 - If you need information to help make positive changes for the populations that you serve, please contact us!
- What topics should MI PRAMS ask about in the coming years?
- Join us this December - we want your input!
 - Virtual meeting - all are welcome!
 - Write for an invite!
 - Pete Haak: haakp@michigan.gov
- **Consider these tough questions:**
 - What life events and experiences contribute to inequitable outcomes in MCH?
 - What systems contribute to inequitable outcomes?
 - What health inequities are being influenced by factors like unmet basic needs, and life stressors?
 - How could the experience of being treated worse than others when receiving healthcare contribute to inequities?

"Motherhood is so full of pressure to do more than humanly possible in today's world. We all need a voice to tell us that it's ok to get help, to feel defeated but not looked down on, and to get help. MI offers many programs. The word should be spread to all incomes and all families. Thanks, for what you are doing!"
- PRAMS Respondent

ADDRESSING ROOT CAUSES: FROM DATA TO ACTION PART 3

NOVEMBER 15, 2021

2020-2023



**MOTHER INFANT
HEALTH & EQUITY
IMPROVEMENT PLAN**

TOGETHER, SAVING LIVES



**Health
Equity**

**Healthy Girls,
Women and
Mothers**

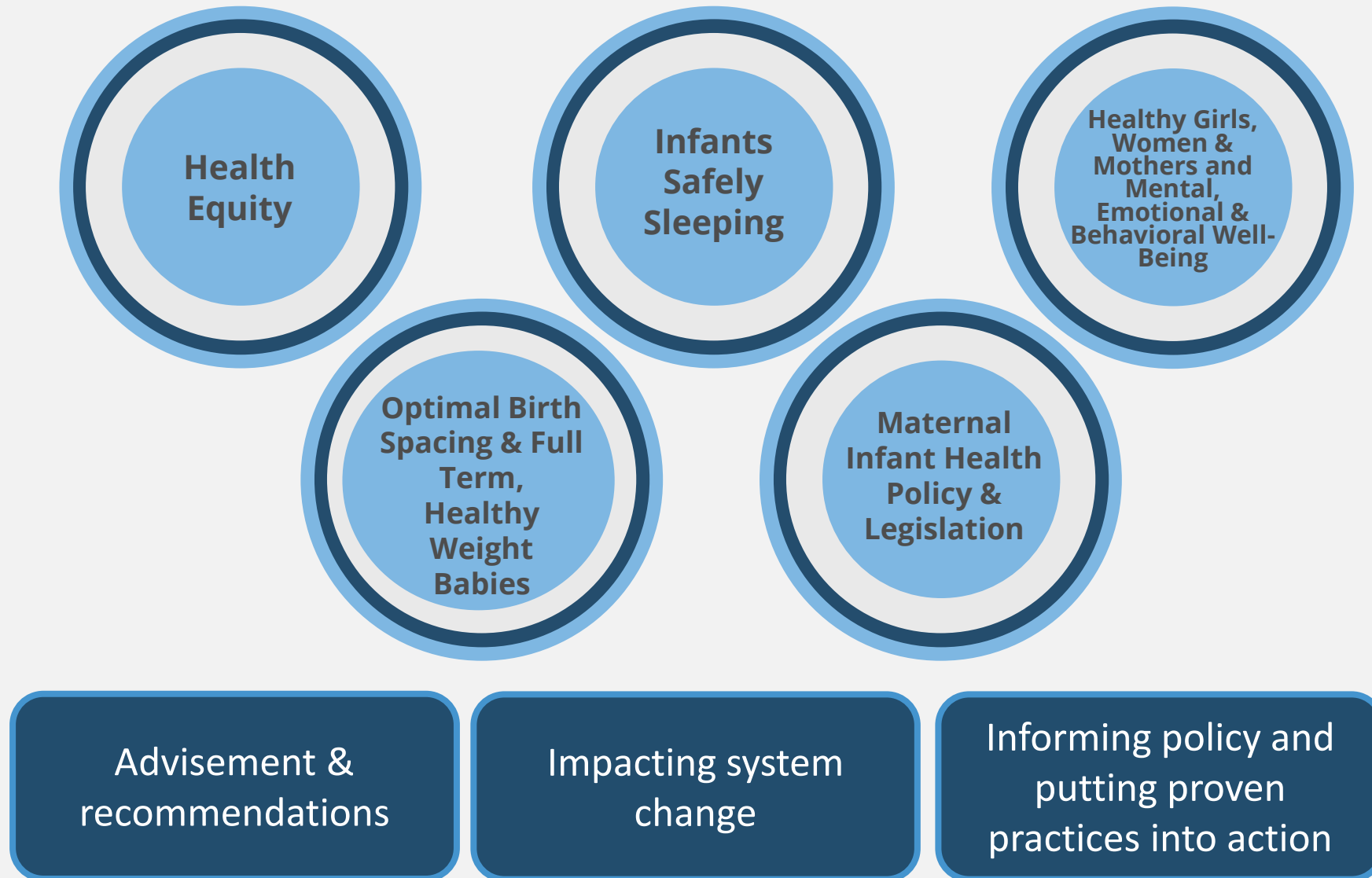
**Optimal
Birth
Spacing**

**Full Term,
Healthy Weight
Babies**

**Infants Safely
Sleeping**

**Mental,
Emotional and
Behavioral
Well-Being**

Maternal Infant Health Action Committees



Maternal Infant Health Metrics

Indicators	2017 Metric	2018 Metric	2019 Metric	2023 Goal	Improvement Expected (2017-2023)
Infant Mortality Rate/1,000 live births	6.8	6.6	6.4	5.8	15%
Low Birthweight	8.8%	8.5%	8.8%	7.8%	11%
Preterm Birth	10.2%	10.0%	10.3%	9.4%	8%
Sleep Related Infant Death Rate/1,000 live births	0.9*	1.2*	1.2*	0.8*	14%
Severe Maternal Morbidity Rate/10,000 delivery hospitalizations	168.9	175.7	194.3	130	23%
Pregnancy Related Maternal Mortality Ratio/100,000 live births	11.5 (2016 data)	9.9 (2017 data)	(data not yet available)	7.3**	37%

* Vital Records (VR) data were used in place of SUID Case Registry data to match with the HP2020 goal for this indicator. ** A 2023 goal of 7.3 was used in the regression model for this indicator, as it is the current pregnancy-related maternal mortality rate for California and Canada. Methodology: The most recent four to five years of indicator data, along with the HP2020 goal (when available), were modeled to obtain annual projections for each of the MIHEIP indicators listed below. Ordinary least squares (linear) regression models were used to calculate projected annual objectives when current estimates were within an acceptable range (0.2 – 0.8) and projected estimates did not surpass 100 percent or in cases where numerators and denominators were not available. Log-binomial models were used to calculate projected annual estimates when current estimates were outside the acceptable range for OLS and numerators and denominators were available. Data Source: Michigan Department of Health and Human Services (Division for Vital Records and Health Statistics, Michigan resident death files, 2018-2019), (Michigan Inpatient Database, 2018-2019), (Maternal Mortality Surveillance System, 2016-2017) .

COMMUNICATION & ADVISEMENT

Town Halls

Data Discussions

Mother Infant Health & Equity Collaborative

List Serve

Maternal Mortality Review Committee

Fetal Infant Mortality Review

Next of Kin Interviews



COLLECTIVE IMPACT

Statewide Perinatal Quality Collaborative

Michigan Alliance for Innovation on
Maternal Health

Maternal Infant Health Summit



INNOVATION & INVESTMENT

Healthy Moms Healthy Babies

Home Visiting

Postpartum Coverage Extension

Rooming In

MC3, High Tech High Touch, Mommy Check
up app



ZANDASHE BROWN

WRITER & DIRECTOR
LOUISIANA

“I dream of never being called resilient again in my life. I’m exhausted by strength. I want support. I want ease. I want to be amongst kin. Not patted on the back for how well I take a hit. Or for how many.”



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