

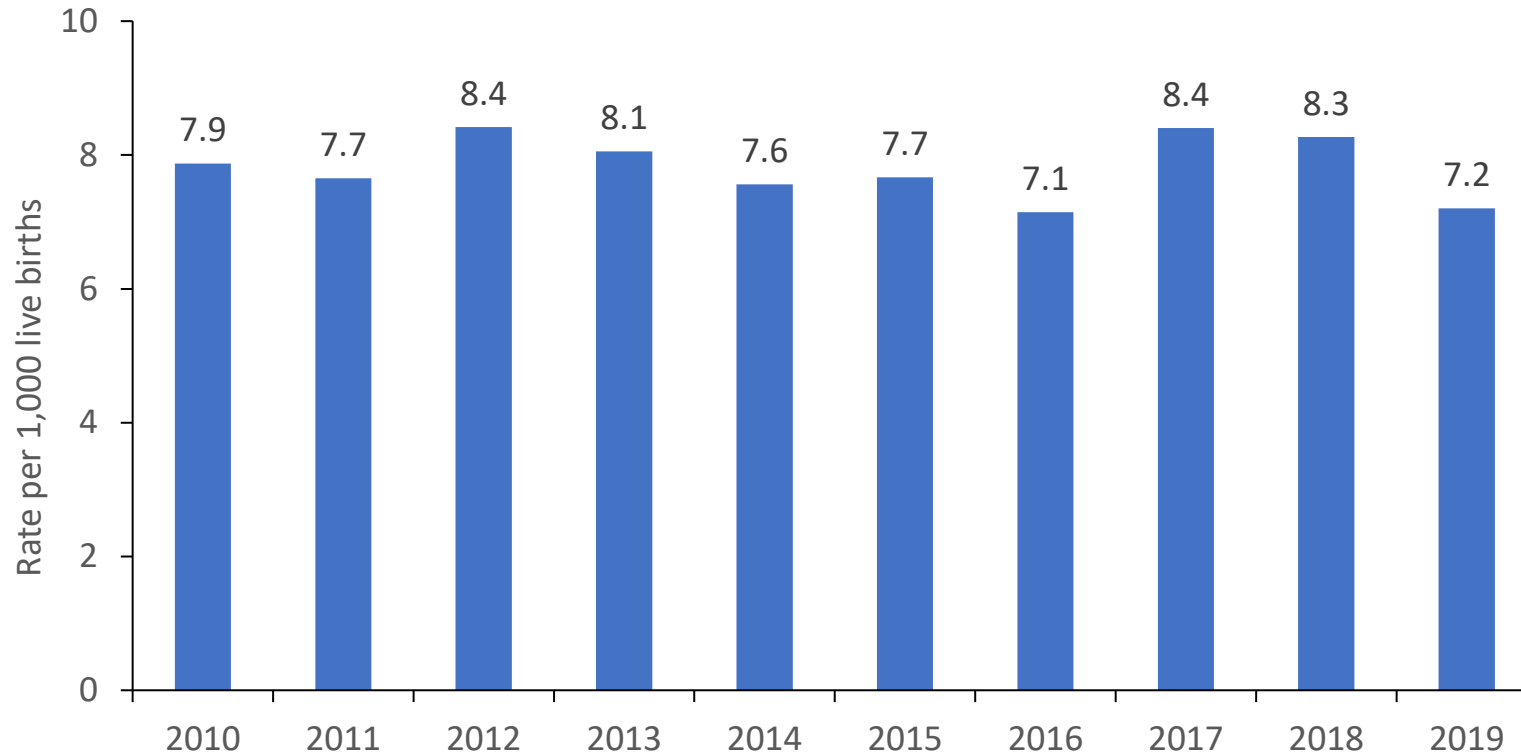
# Maternal and Infant Health Statistics, Prosperity Region 10, Michigan

Prepared by Maternal and Child Health (MCH) Epidemiology Section,  
Michigan Department of Health and Human Services (MDHHS)  
Data source: Michigan resident live birth files (09/18/2020) and infant mortality files (02/18/2021),  
Division for Vital Records and Health Statistics, MDHHS  
March 2021

# Infant Mortality Rate (IMR), Prosperity Region 10, 2010-2019

# Infant Mortality Rate, Prosperity Region 10, 2010-2019

(rate per 1,000 live births)

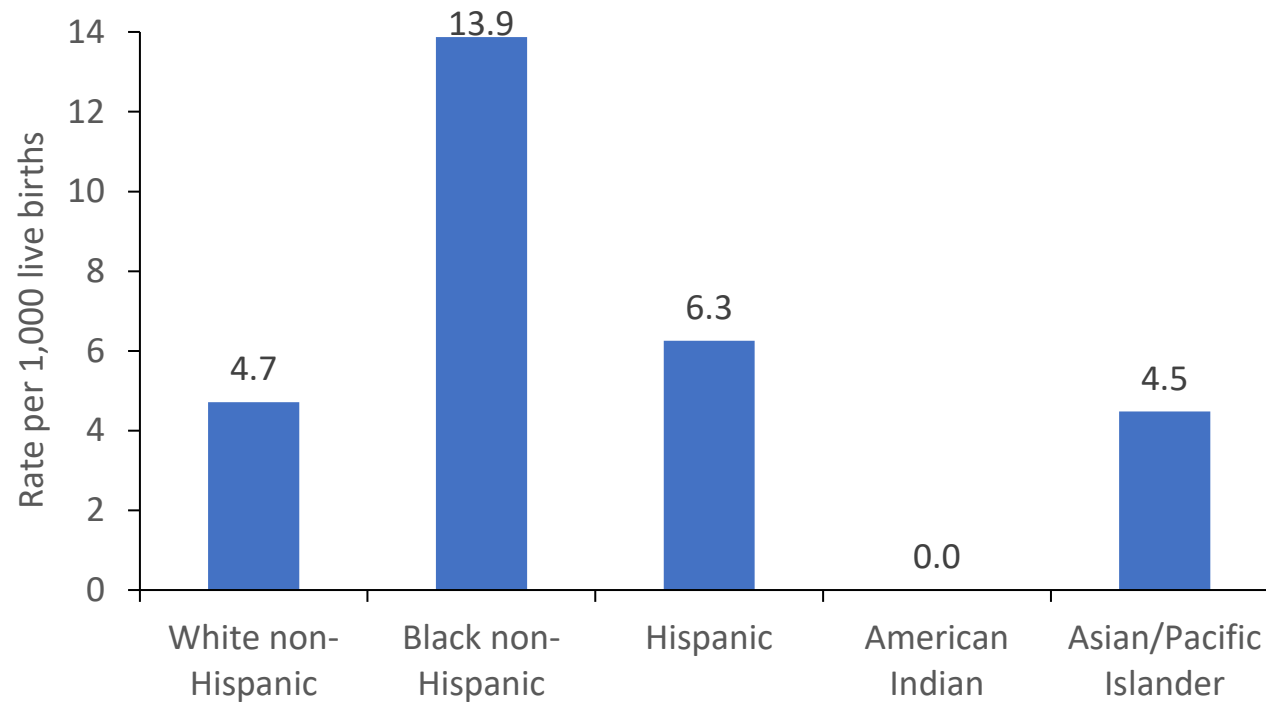


2019 Michigan Rate = 6.4

Year	# Live Births	# Infant Death	IMR
2010	46,364	365	7.9
2011	46,124	353	7.7
2012	45,505	383	8.4
2013	46,451	374	8.1
2014	46,152	349	7.6
2015	46,444	356	7.7
2016	46,185	330	7.1
2017	45,693	384	8.4
2018	45,233	374	8.3
2019	44,570	321	7.2

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, Prosperity Region 10, 2015-2019 (rate per 1,000 live births)

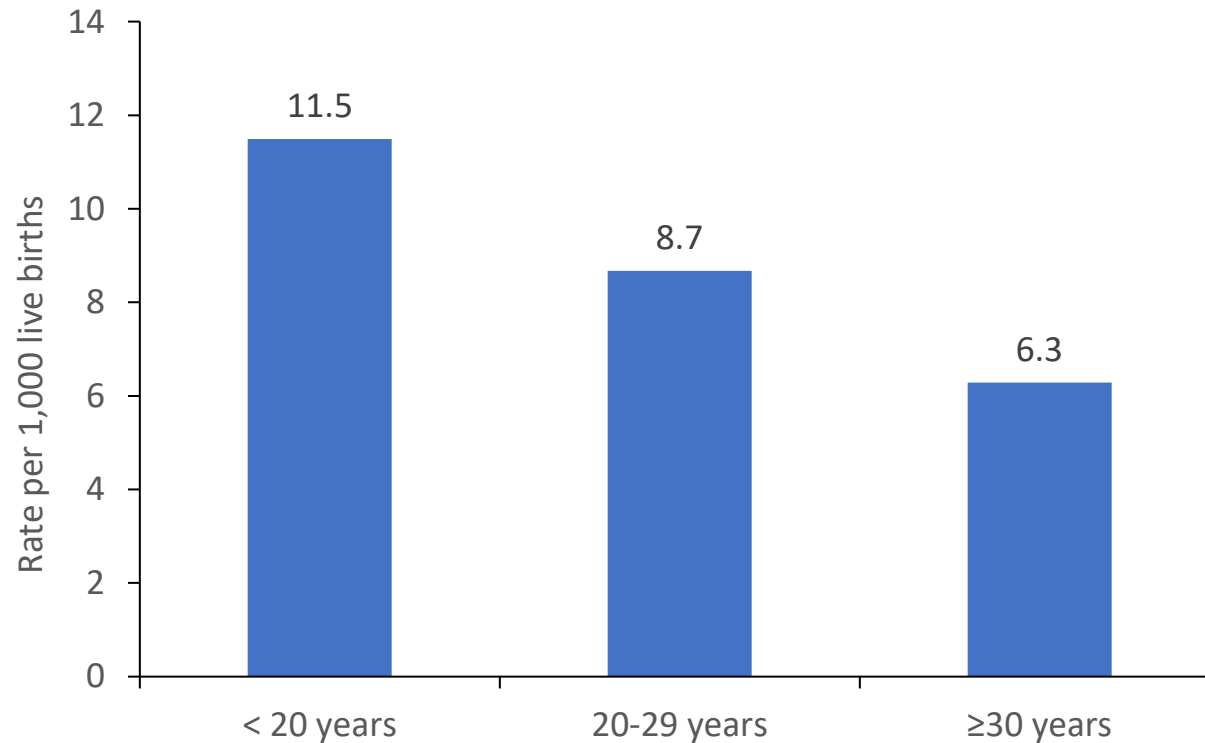


Maternal Race/Ethnicity	# Live Births	# Infant Death	IMR
White non-Hispanic	125,280	591	4.7
Black non-Hispanic	69,933	970	13.9
Hispanic	13,744	86	6.3
American Indian	242	0	0.0
Asian/Pacific Islander	13,391	60	4.5

**2015-2019 Michigan Rates**  
 White, nH = 4.9  
 Black, nH = 13.4  
 Hispanic = 6.3  
 American Indian = 5.4  
 Asian/Pacific Islander = 4.2

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 Age, Prosperity Region 10, 2015-2019 (rate per 1,000 live births)

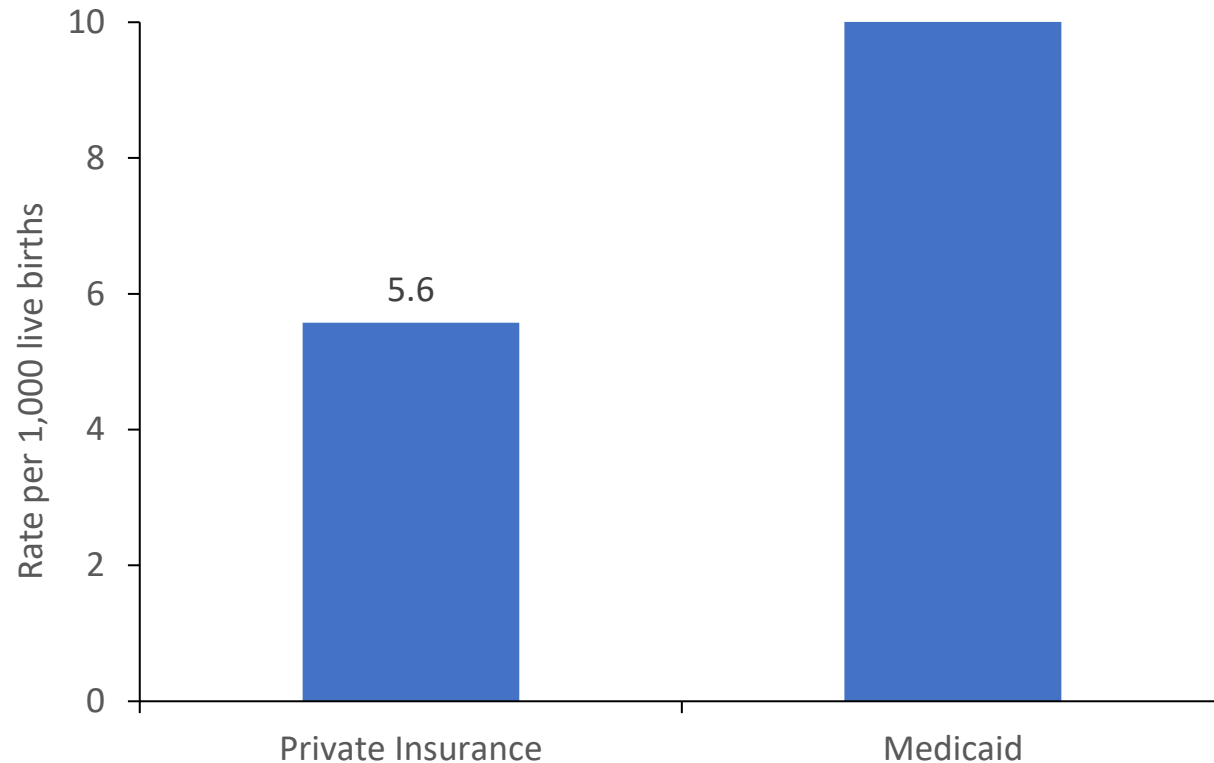


Maternal Age	# Live Births	# Infant Death	IMR
< 20 years	9,744	112	11.5
20-29 years	112,858	979	8.7
≥30 years	105,496	663	6.3

**2015-2019 Michigan Rates**  
 < 20 years = 10.0  
 20-29 years = 7.1  
 ≥30 years = 5.6

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 Intended Payment Source, Prosperity Region 10, 2015-2019 (rate per 1,000 live births)



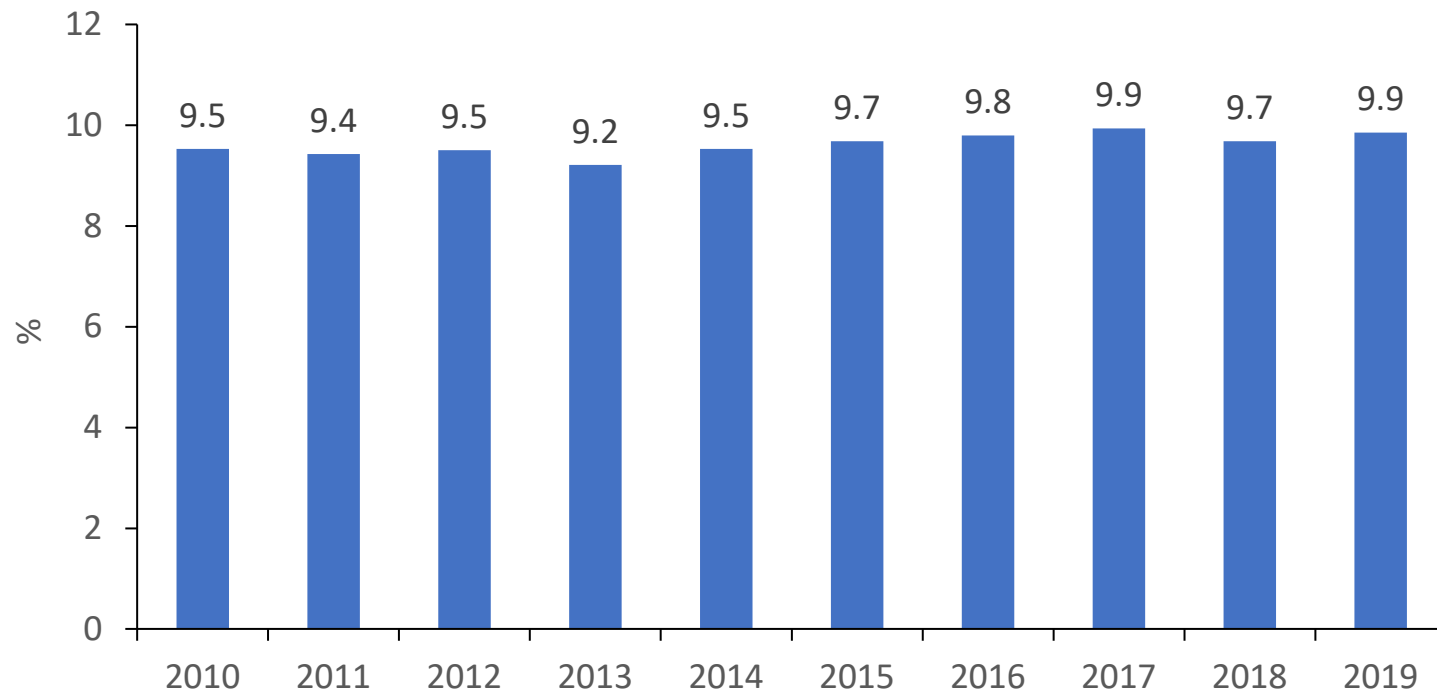
Payment Source	# Live Births	# Infant Death	IMR
Private Insurance	127,004	708	5.6
Medicaid	97,200	991	10.2

2015-2019 Michigan Rates  
 Private Insurance = 4.8  
 Medicaid = 8.8

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.

# Low Birthweight (LBW), Prosperity Region 10, 2010-2019

# Low Birthweight (Birthweight <2,500 Grams), Prosperity Region 10, 2010-2019



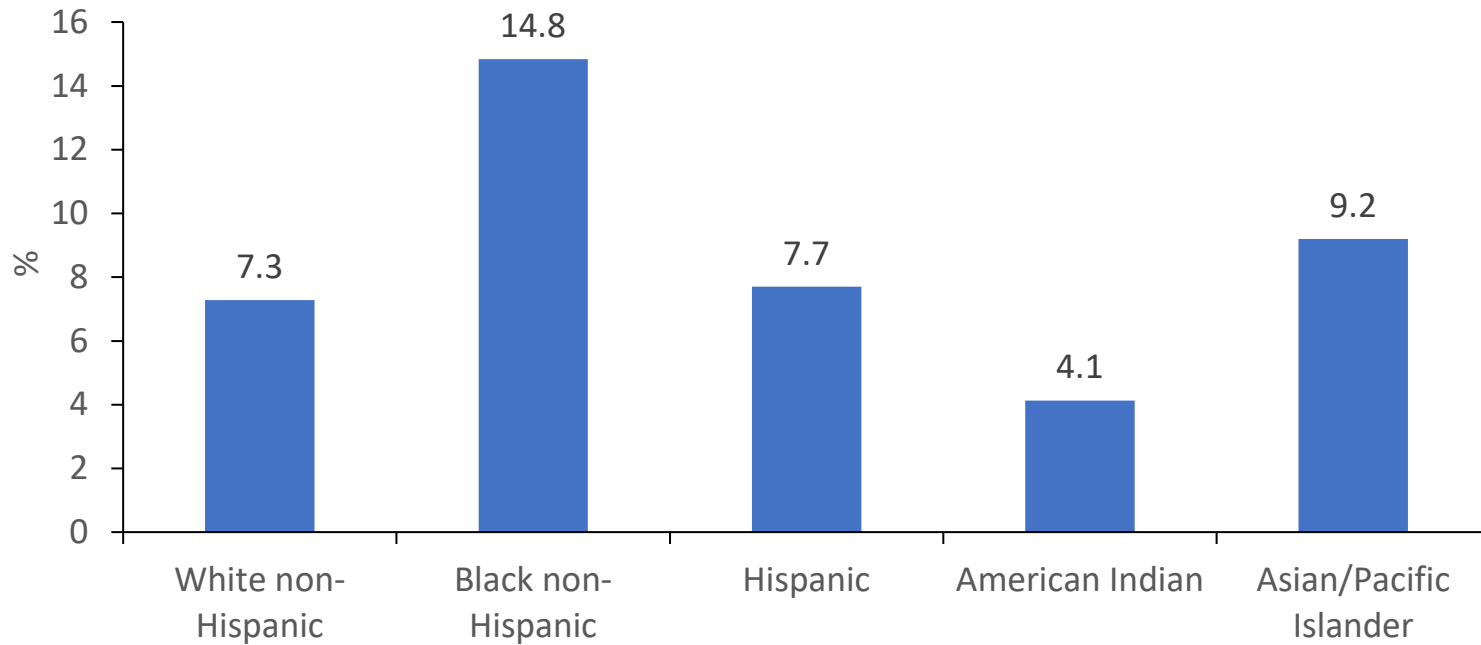
2019 Michigan Percent = 8.8

Year	# Live Births	# LBW	LBW %
2010	46,364	4,420	9.5
2011	46,124	4,349	9.4
2012	45,505	4,327	9.5
2013	46,451	4,279	9.2
2014	46,152	4,398	9.5
2015	46,444	4,497	9.7
2016	46,185	4,525	9.8
2017	45,693	4,542	9.9
2018	45,233	4,381	9.7
2019	44,570	4,394	9.9

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, Prosperity Region 10, 2015-2019



Maternal Race/Ethnicity	# Live Births	# LBW	LBW %
White non-Hispanic	125,280	9,120	7.3
Black non-Hispanic	69,933	10,379	14.8
Hispanic	13,744	1,059	7.7
American Indian	242	10	4.1
Asian/Pacific Islander	13,391	1,231	9.2

## 2015-2019 Michigan Percentages

White, nH = 7.0

Black, nH = 14.8

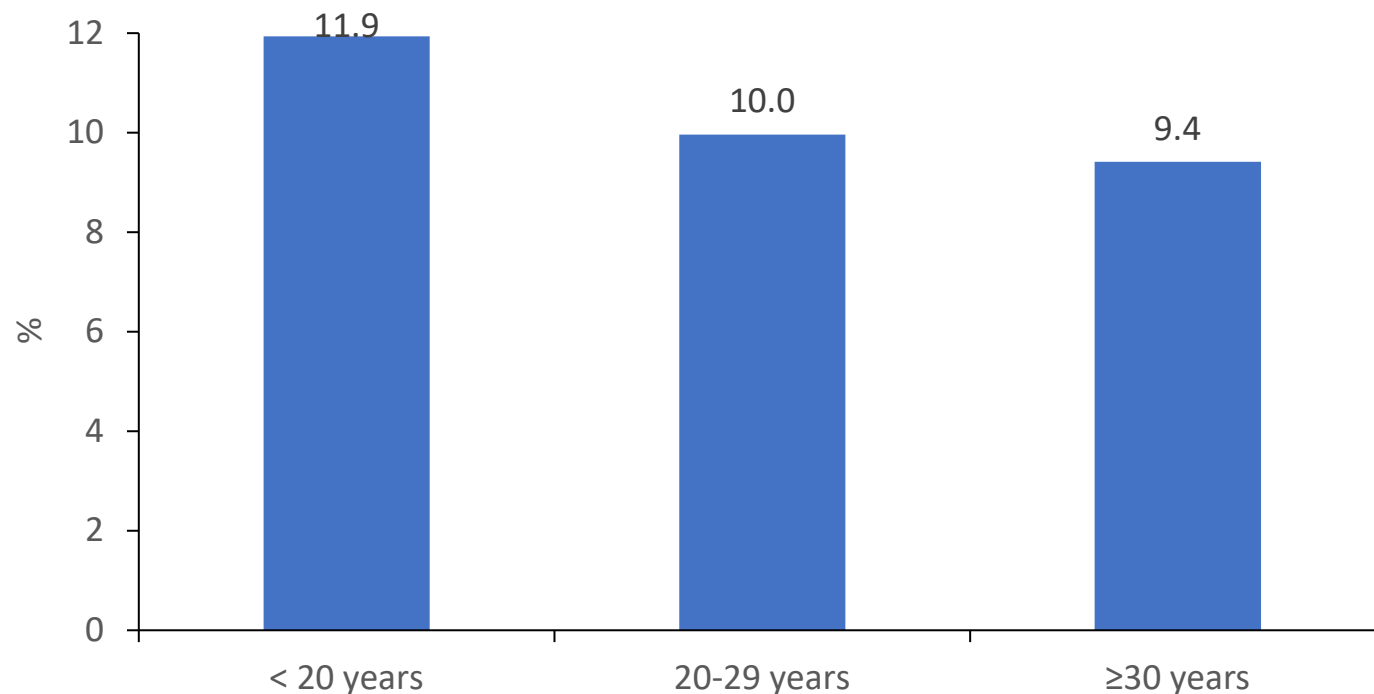
Hispanic = 7.5

American Indian = 8.8

Asian/Pacific Islander = 8.1

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 Age, Prosperity Region 10, 2015-2019

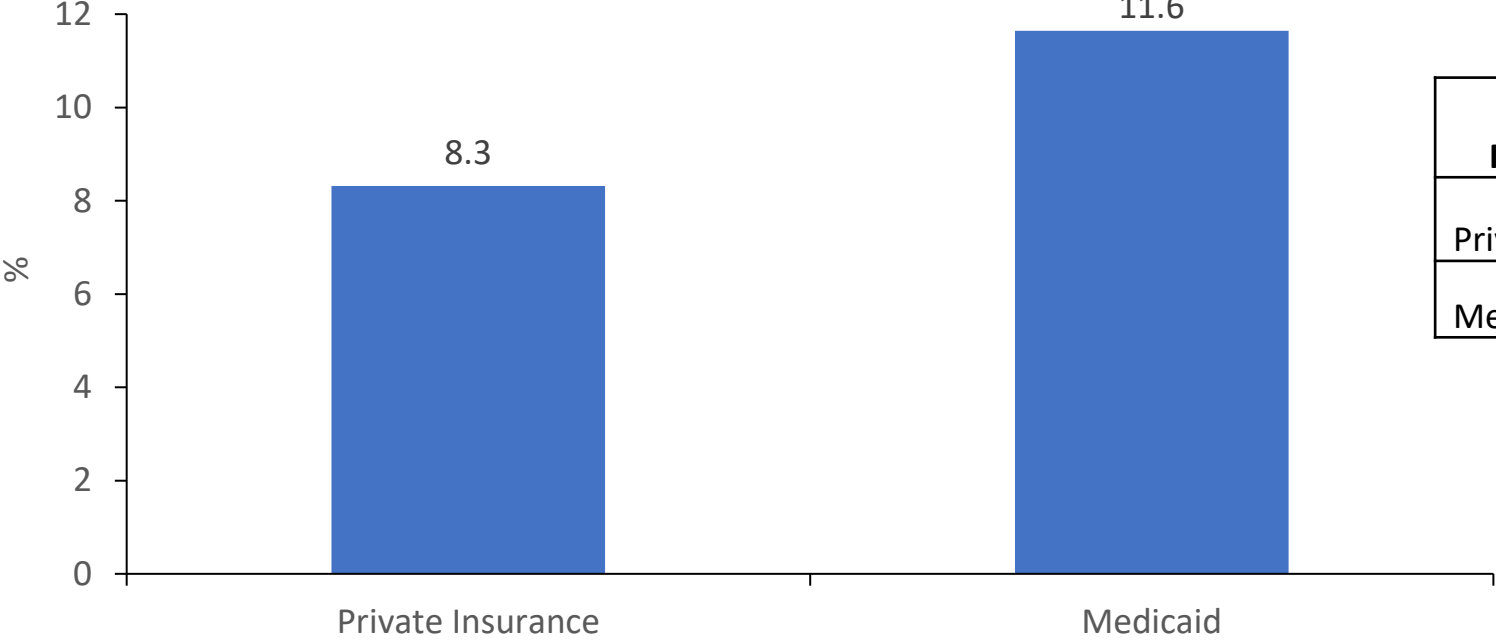


Maternal Age	# Live Births	# LBW	LBW %
< 20 years	9,744	1,163	11.9
20-29 years	112,858	11,243	10.0
≥30 years	105,496	9,928	9.4

2015-2019 Michigan Percentages  
 < 20 years = 10.7  
 20-29 years = 8.5  
 ≥30 years = 8.5

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 Intended Payment Source, Prosperity Region 10, 2015-2019



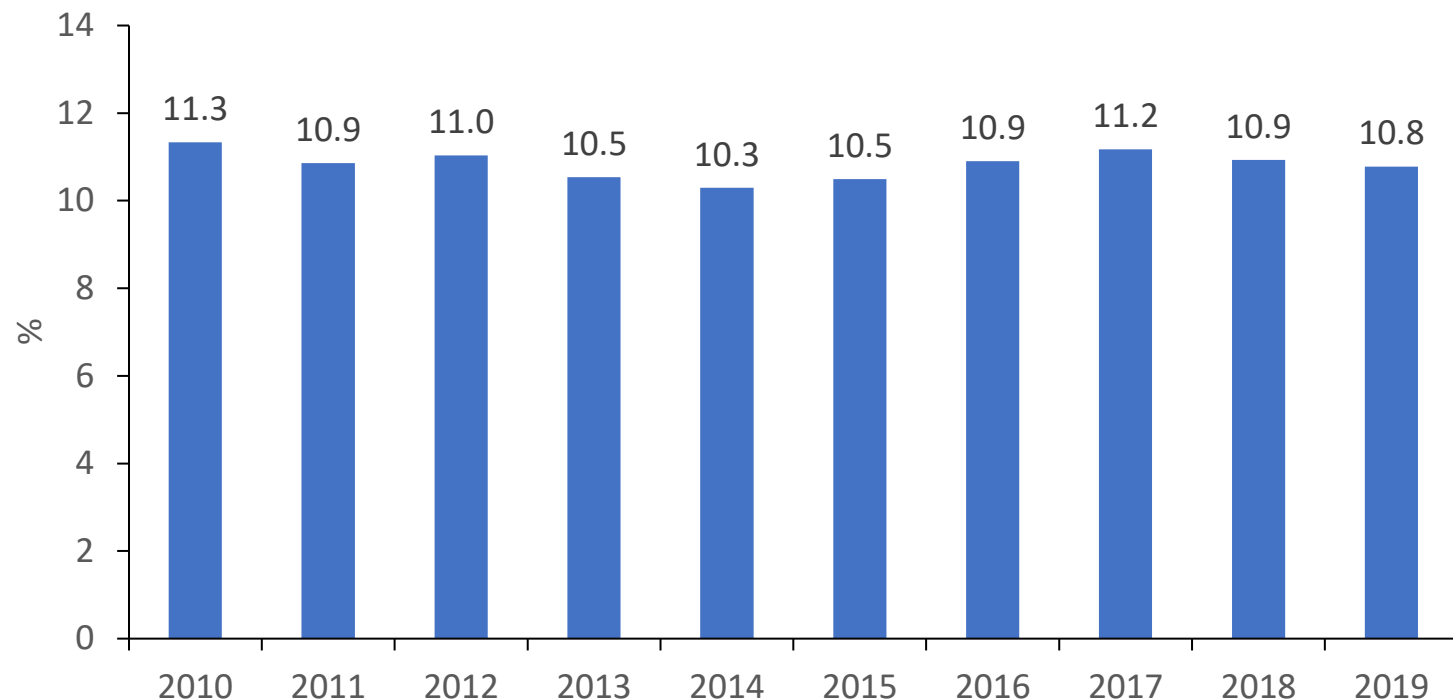
Payment Source	# Live Births	# LBW	LBW %
Private Insurance	127,004	10,569	8.3
Medicaid	97,200	11,321	11.6

2015-2019 Michigan Percentages  
 Private Insurance = 7.2  
 Medicaid = 10.5

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

# Preterm Birth (PTB), Prosperity Region 10, 2010-2019

# Preterm Birth (Estimated Gestational Age <37 Weeks), Prosperity Region 10, 2010-2019

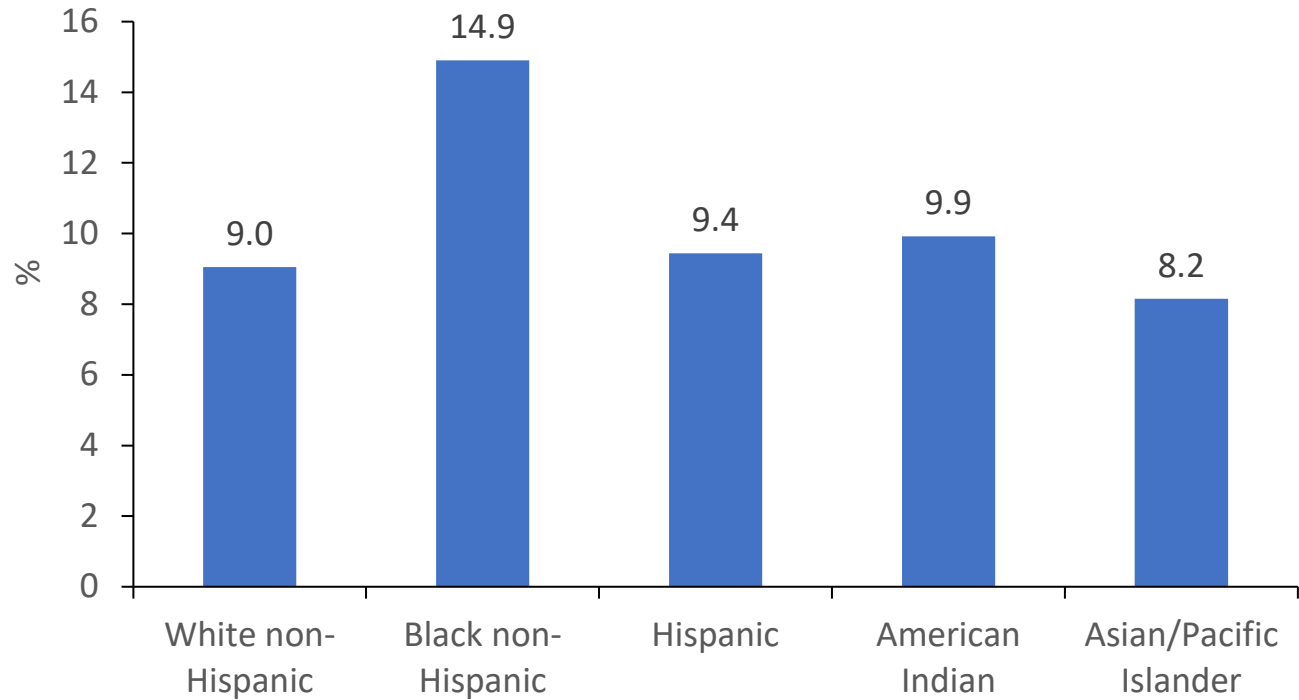


2019 Michigan Percent = 10.3

Year	# Live Births	# PTB	PTB %
2010	46,364	5,255	11.3
2011	46,124	5,007	10.9
2012	45,505	5,021	11.0
2013	46,451	4,895	10.5
2014	46,152	4,750	10.3
2015	46,444	4,873	10.5
2016	46,185	5,036	10.9
2017	45,693	5,105	11.2
2018	45,233	4,946	10.9
2019	44,570	4,805	10.8

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.

# Preterm Birth (Estimated Gestational Age <37 Weeks) by Maternal Race/Ethnicity, Prosperity Region 10, 2015-2019

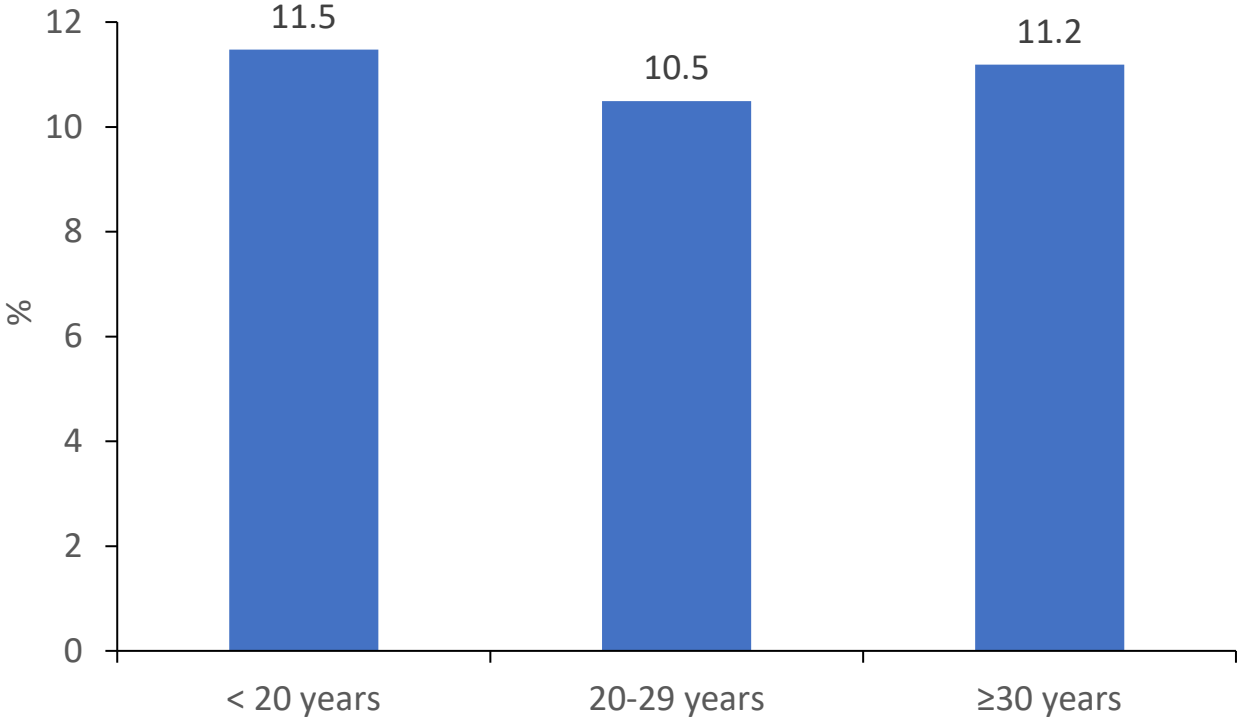


Maternal Race/Ethnicity	# Live Births	# PTB	PTB %
White non-Hispanic	125,280	11,337	9.0
Black non-Hispanic	69,933	10,421	14.9
Hispanic	13,744	1,298	9.4
American Indian	242	24	9.9
Asian/Pacific Islander	13,391	1,092	8.2

2015-2019 Michigan Percentages  
 White, nH = 9.0  
 Black, nH = 14.6  
 Hispanic = 9.4  
 American Indian = 8.2  
 Asian/Pacific Islander = 10.2

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 Age, Prosperity Region 10, 2015-2019

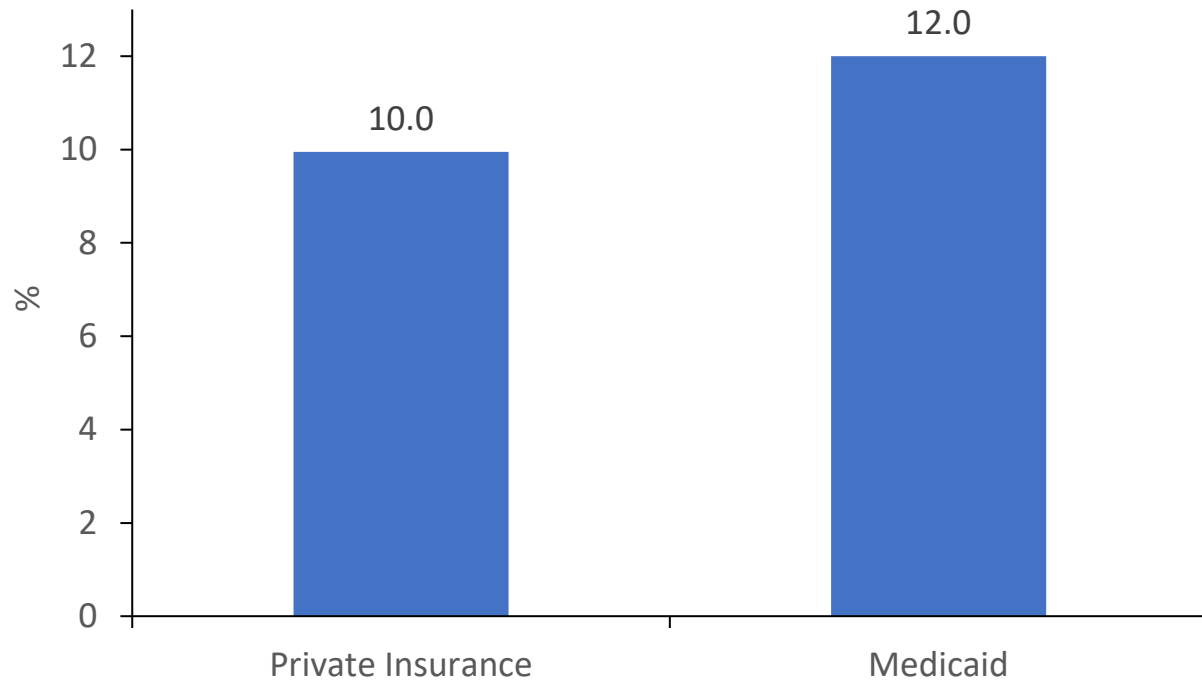


Maternal Age	# Live Births	# PTB	PTB %
< 20 years	9,744	1,118	11.5
20-29 years	112,858	11,842	10.5
≥30 years	105,496	11,801	11.2

2015-2019 Michigan Percentages  
 < 20 years = 10.6  
 20-29 years = 9.6  
 ≥30 years = 10.6

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 Intended Payment Source, Prosperity Region 10, 2015-2019



Payment Source	# Live Births	# PTB	PTB %
Private Insurance	127,004	12,638	10.0
Medicaid	97,200	11,661	12.0

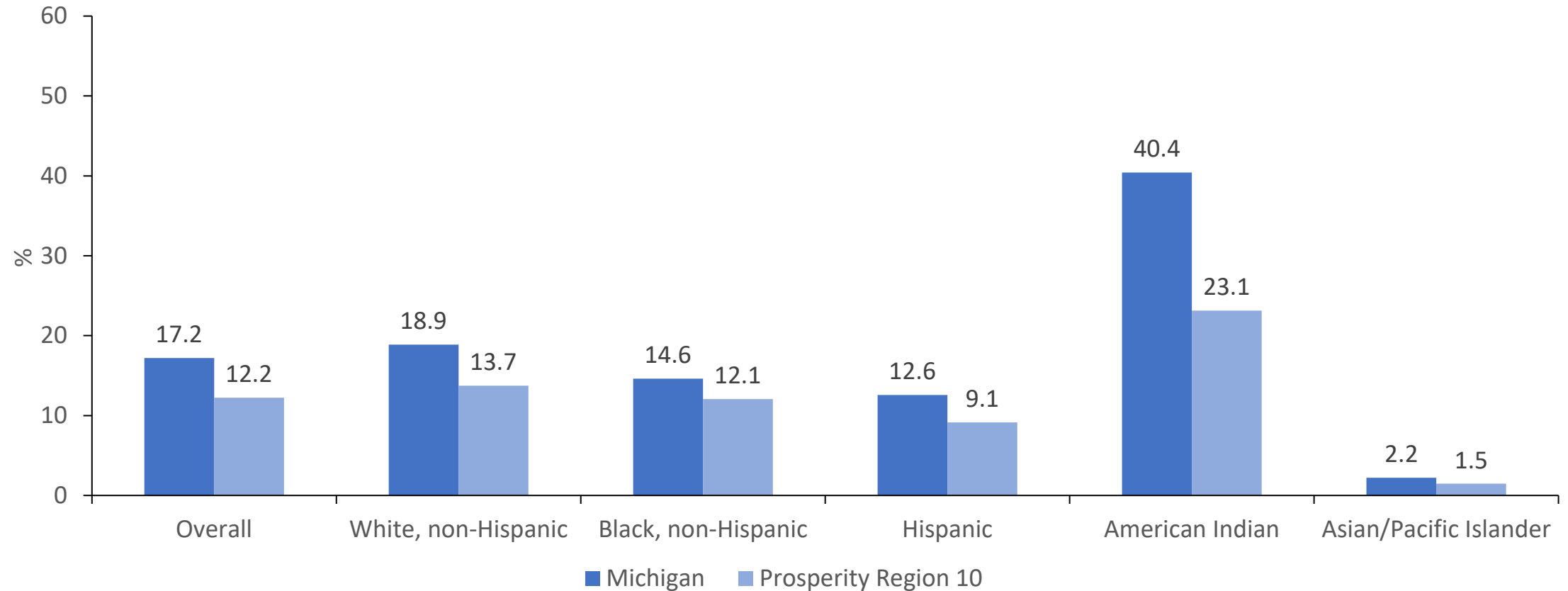
2015-2019 Michigan Percentages  
 Private Insurance = 9.2  
 Medicaid = 11.3

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.



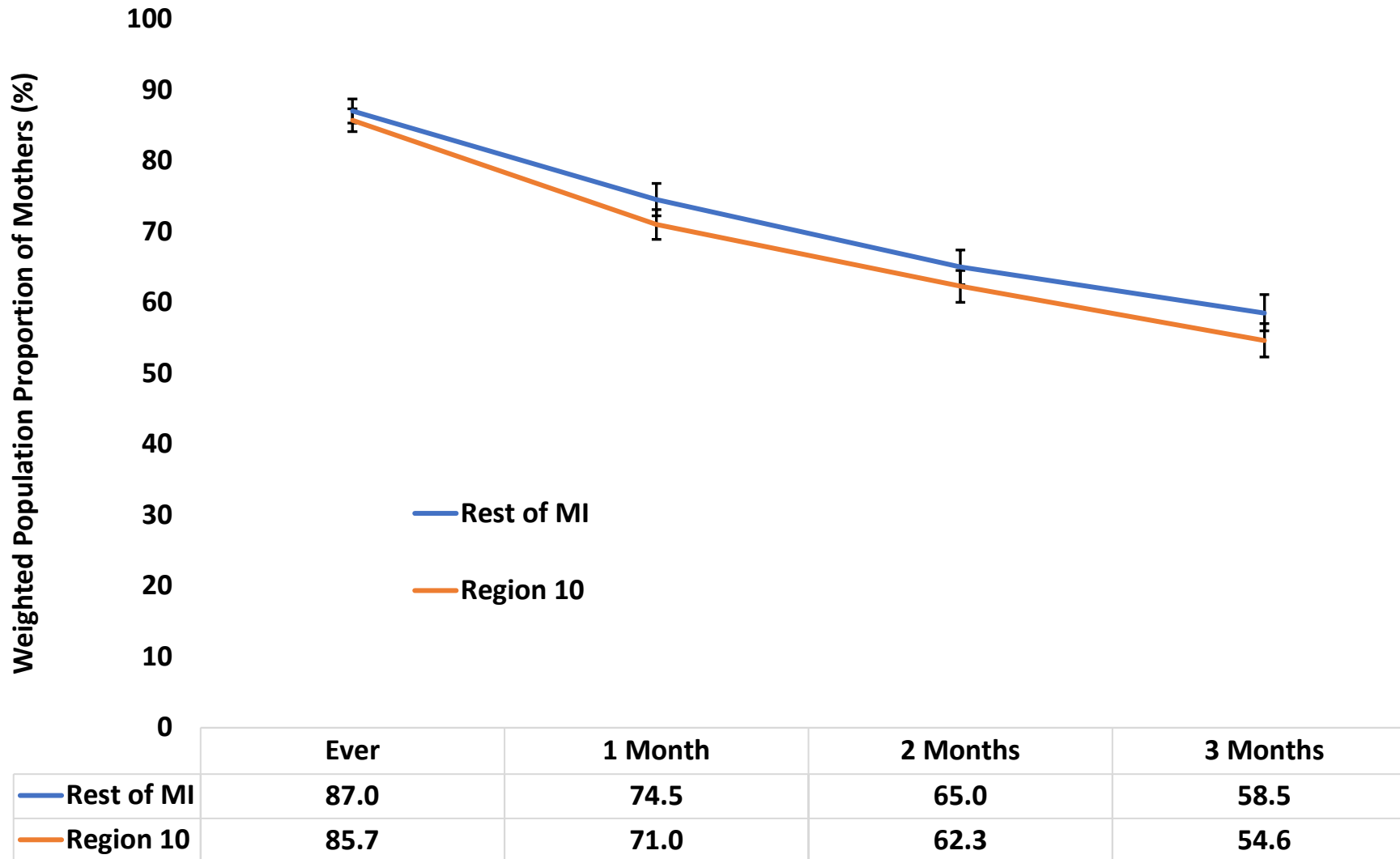
# Smoking During Pregnancy, Prosperity Region 10, 2015-2019

# Smoking During Pregnancy by Maternal Race/Ethnicity, Michigan and Prosperity Region 10, 2015-2019



# Breastfeeding Initiation and Duration, Prosperity Region 10

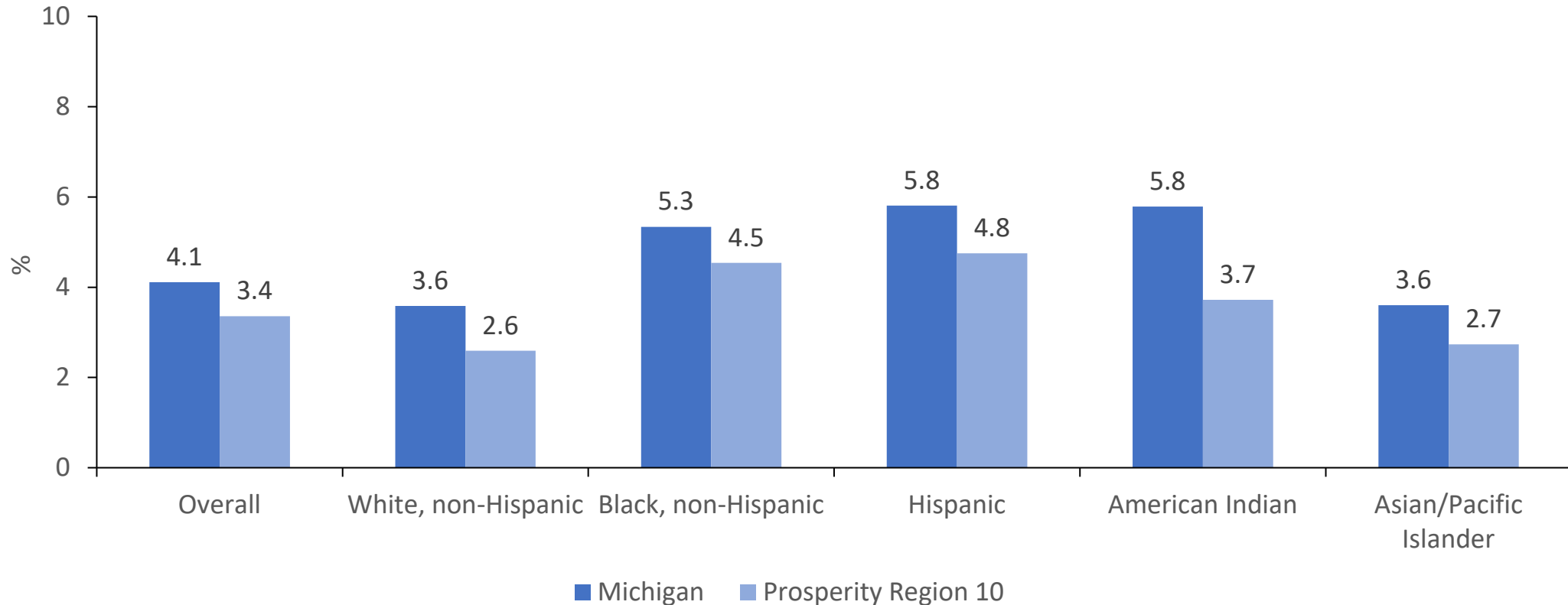
## Breastfeeding Initiation and Duration, Region 10 v Rest of Michigan MI PRAMS 2016-2018



- Breastfeeding in Region 10 is slightly less prevalent than in the remainder of the state at all time points
- This difference rises to the level of statistical significance at two of four time points
  - 1 month
  - 3 months
  - Both  $p < 0.05$

# Late Entry into Prenatal Care, Prosperity Region 10, 2015-2019

# Late Entry Into Prenatal Care by Maternal Race/Ethnicity, Michigan and Prosperity Region 10, 2015-2019

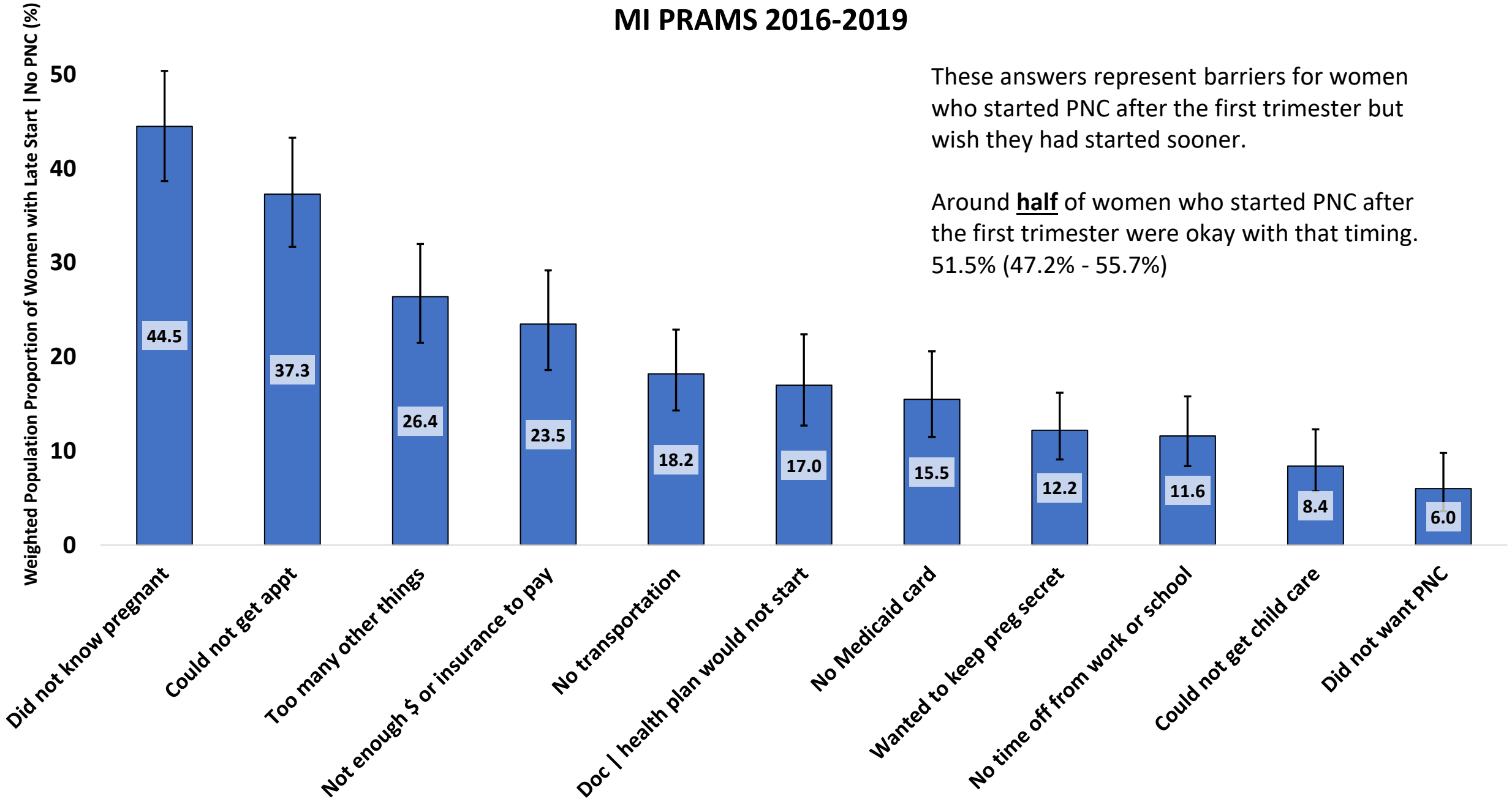


- Late entry into prenatal care refers to begin prenatal care in the 7<sup>th</sup> – 9<sup>th</sup> month of gestation

# Barriers to Prenatal Care, Michigan, 2016-2019

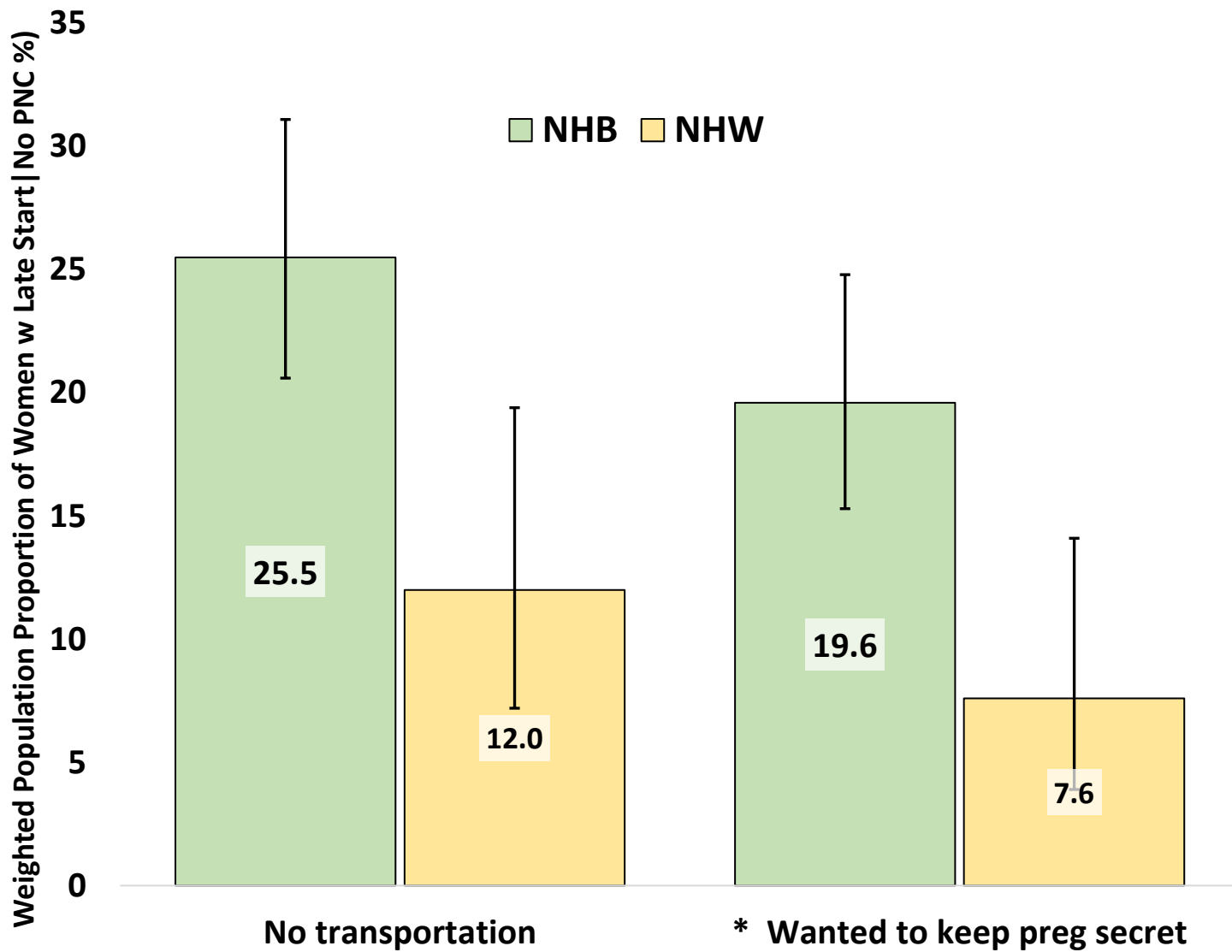
# PNC Barriers - mother started PNC AFTER 1st trimester and wanted to start sooner

## MI PRAMS 2016-2019



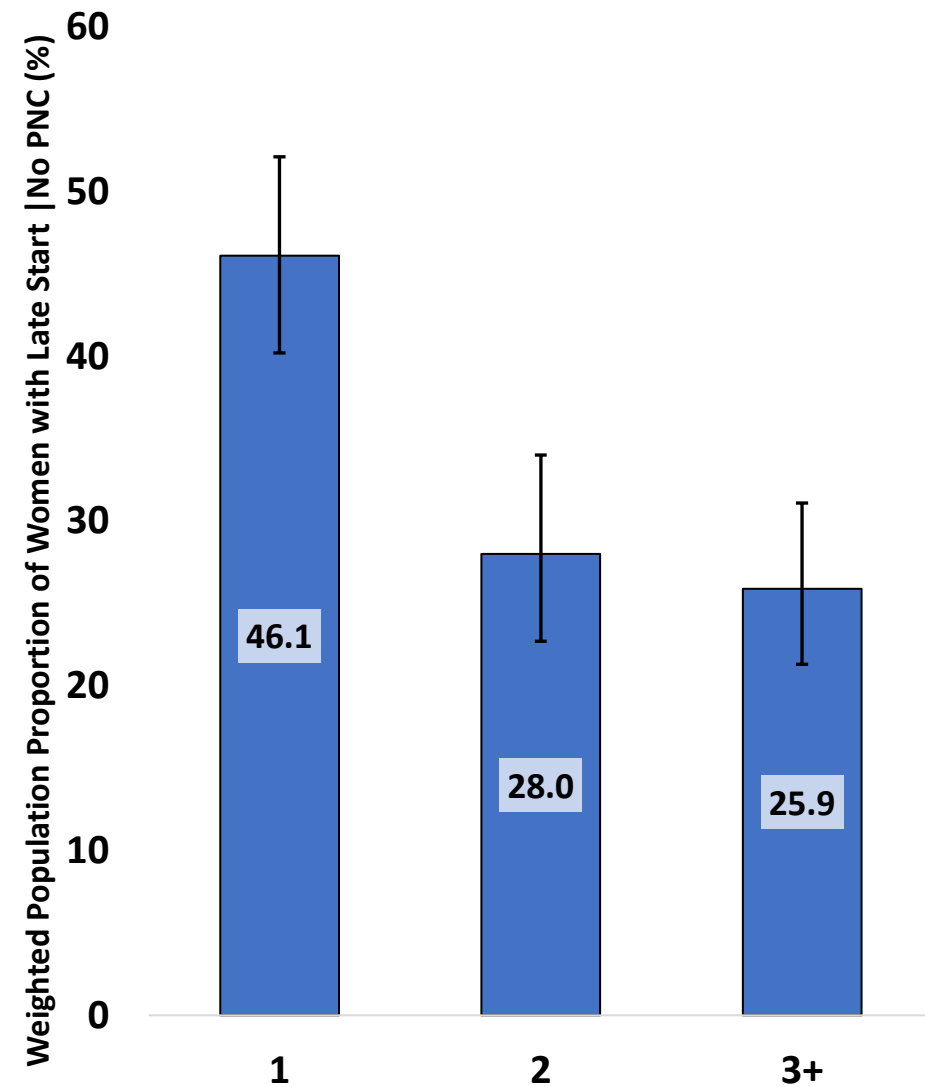


**Selected PNC Barriers with Significant Differences by Maternal Race/Ethnicity  
MI PRAMS 2016-2019**



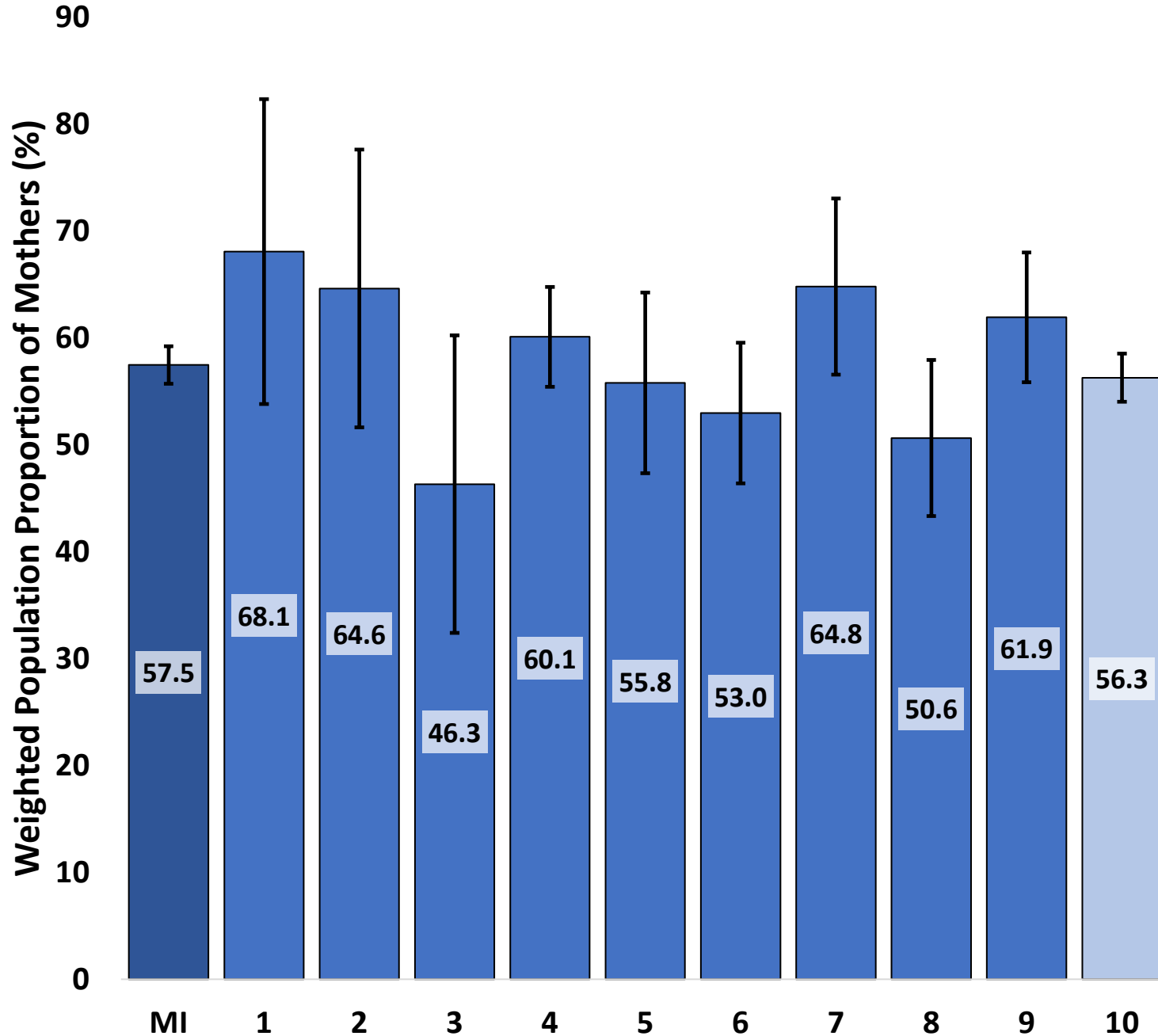
\* Relative Standard Error between 30-50%; interpret estimate with caution

**Number of PNC Barriers - women with late | no PNC  
MI PRAMS 2016-2019**



# Pregnancy Intention, Prosperity Region 10, 2016-2018

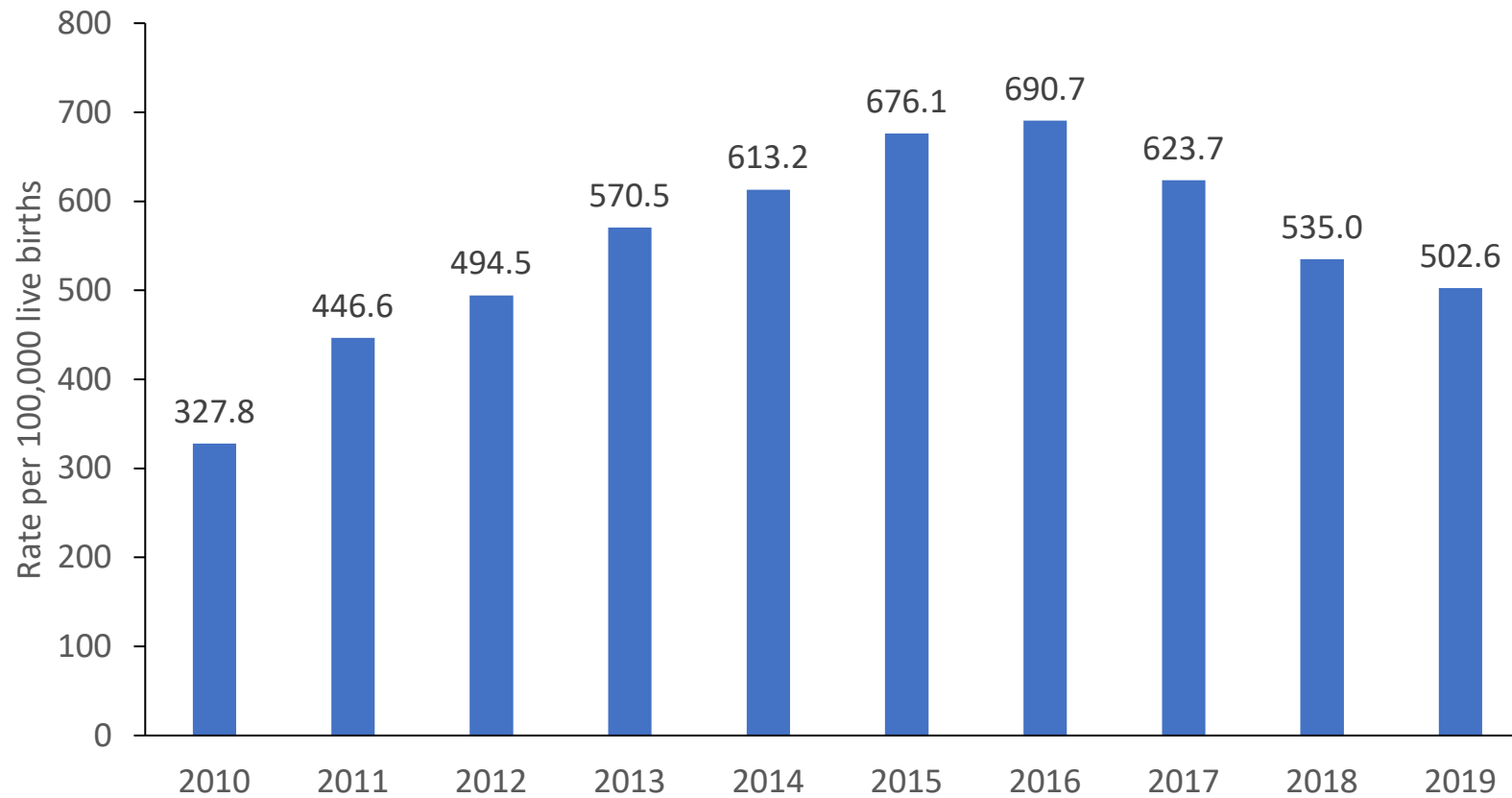
## Intended Pregnancy; MI PRAMS 2016-2018



- Intended Pregnancy
- Derived from question about pregnancy timing
- Intended
  - Women who said they had wanted pregnancy for some time, or wanted to be pregnant right when they conceived
- Unintended
  - Women who wanted to be pregnant some time in the future, never again, or were unsure
- Although there is variation across the state, none of the differences are large enough to achieve statistical significance

# Neonatal Abstinence Syndrome (NAS) Prosperity Region 10, 2010-2019

# Neonatal Abstinence Syndrome\*, Prosperity Region 10, 2010-2019 (Rate per 100,000 Live Births)

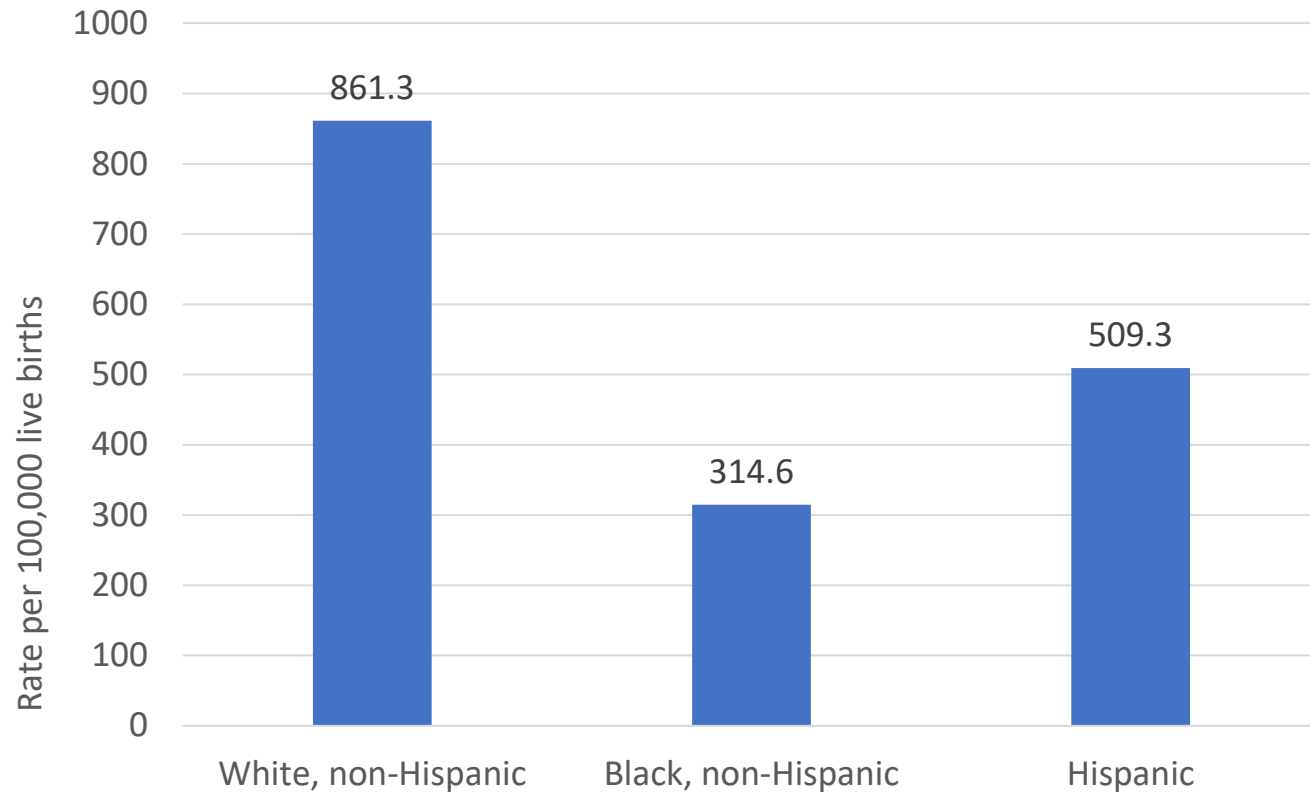


Year	# Live Births	# NAS	NAS Rate
2010	46,364	152	327.8
2011	46,124	206	446.6
2012	45,505	225	494.5
2013	46,451	265	570.5
2014	46,152	283	613.2
2015	46,444	314	676.1
2016	46,185	319	690.7
2017	45,693	285	623.7
2018	45,233	242	535.0
2019	44,570	224	502.6

2019 Michigan Rate = 623.7

\* = only includes pharmacologically treated neonatal abstinence syndrome

# Neonatal Abstinence Syndrome\* by Maternal Race/Ethnicity, Prosperity Region 10, 2015-2019



Maternal Race/Ethnicity	# Live Births	# NAS	NAS Rate
White non-Hispanic	125,280	1079	861.3
Black non-Hispanic	69,933	220	314.6
Hispanic	13,744	70	509.3
American Indian	242	DNS	DNS

DNS: data not sufficient (0<N<6).

**2015-2019 Michigan Rates**  
 White, nH = 943.1  
 Black, nH = 394.2  
 Hispanic = 573.8

\* = only includes pharmacologically treated neonatal abstinence syndrome

# Birth Defects Prevalence, by Race/Ethnicity and Prosperity Region, 2017

# Birth Defect Prevalence Rates by Race/ethnicity: MBDR, 2017

- Throughout birth years 2010-2017, the birth defect prevalence rate for Michigan remained fairly steady at an average rate of 1,374.2 cases per 10,000 live births.
- In 2017, the race-specific birth defect prevalence rate for cases born to black mothers (1,725.4 cases per 10,000 live births) exceeded that of cases born to white mothers (1,079.3 cases per 10,000 live births) and cases born to mothers of “other” races (1,654.5 cases per 10,000 live births).
- In 2017, the ethnicity-specific birth defect prevalence rate for cases born to a mother reporting Arabic ethnicity (1,742.2 cases per 10,000 live births) was greater than that of cases born to a mother reporting Hispanic ethnicity (1,087.8 cases per 10,000 live births).

\* Total reported birth defect cases for all diagnostic groupings per 10,000 live births

\*\*Maternal Race/ethnicity as reported on birth record

Figure 1. Statewide Maternal Race-Specific Birth Defect Prevalence Rates: MBDR, 2017

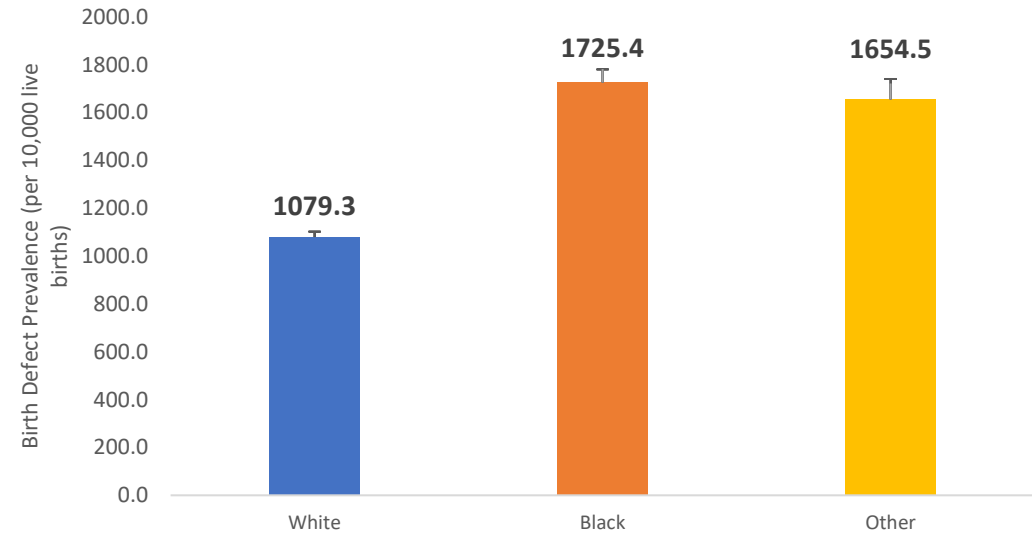
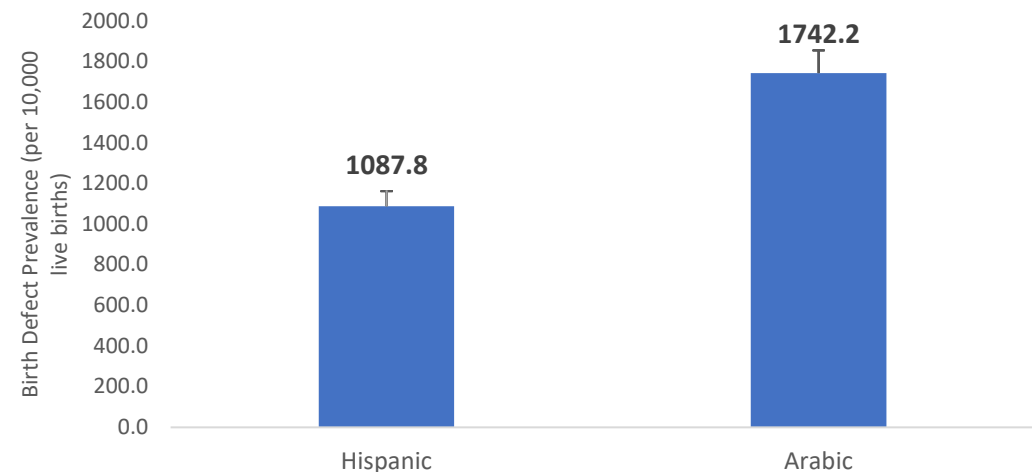


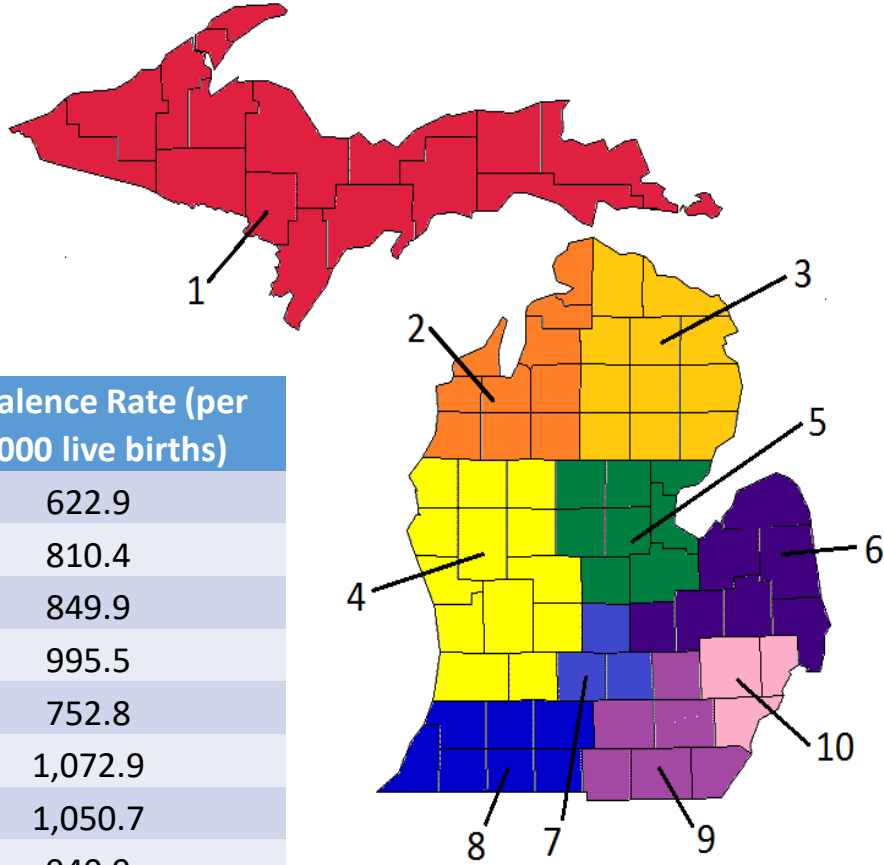
Figure 2. Statewide Maternal Ethnicity-Specific Birth Defect Prevalence Rates: MBDR, 2017





# Birth Defect Prevalence Rates by Prosperity Region: MBDR, 2017

- The State of Michigan is broken up into 10 prosperity regions based on shared geographic, demographic, and economic interests.
- In 2017, Michigan prosperity regions 9 and 10 reported the highest birth defect prevalence rates of 1,619.9 and 1,872.5 cases per 10,000 live births.
- The prosperity region that reported the lowest birth defect prevalence was region 1 with a prevalence rate of 622.9 cases per 10,000 live births.



Region	Number of Cases	Prevalence Rate (per 10,000 live births)
1	166	622.9
2	233	810.4
3	154	849.9
4	1,930	995.5
5	443	752.8
6	959	1,072.9
7	539	1,050.7
8	844	940.9
9	1,644	1,619.9
10	8,556	1,872.5
<b>Total</b>	<b>15,468</b>	<b>1,387.2</b>

\*All statewide data reported from the Michigan Birth Defects Registry (MBDR) for birth year 2017  
 \*\* Total reported birth defect cases for all diagnostic groupings per 10,000 live births  
 \*\*\*Prevalence rates are based on births to mothers living in Michigan at the time of delivery.  
 \*\*\*\*Regions approximate prosperity region boundaries

Statewide Birth Defect Prevalence Rates by Prosperity Region with Prosperity Region Map: MBDR, 2017

# Sleep-Related Infant Death Rate Prosperity Region 10, 2010-2018

# Overview of Sleep-Related Infant Deaths in Michigan 2010-2018

- Between 2010 and 2018 there were **1,287** sleep-related infant deaths in Michigan.
- The rate of sleep-related infant deaths has fluctuated slightly but has not statistically significantly differed between years (Figure 1).
- Between 2010 and 2018 Black Infants were 3.5 times more likely to die of sleep-related causes as compared to white Infants. Infants of races Other than white and Black were 2.4 times more likely to die of sleep-related causes as compared to white infants (Figure 2).

Figure 1. Rate of Sleep-Related Infant Deaths per 1,000 Live Births

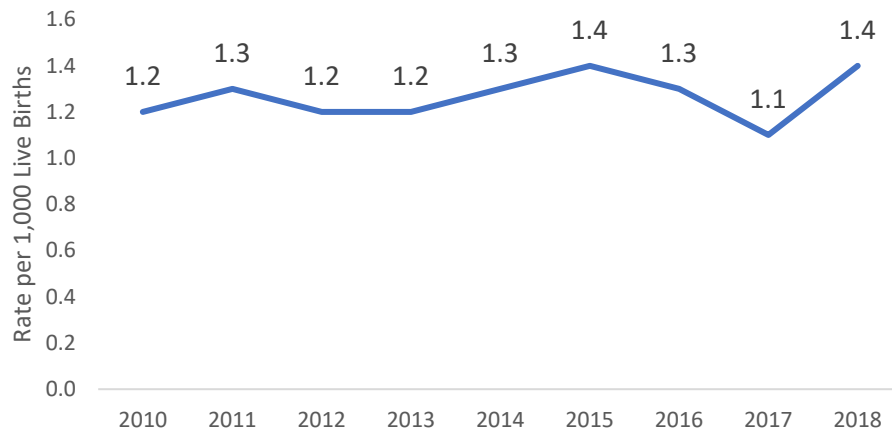
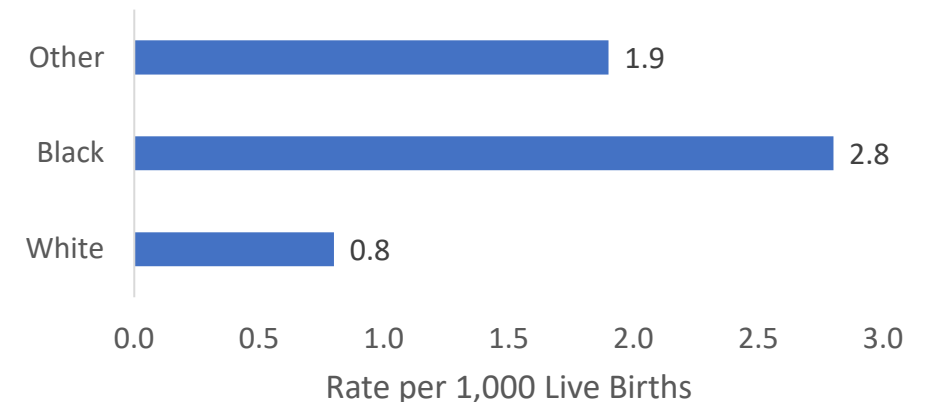
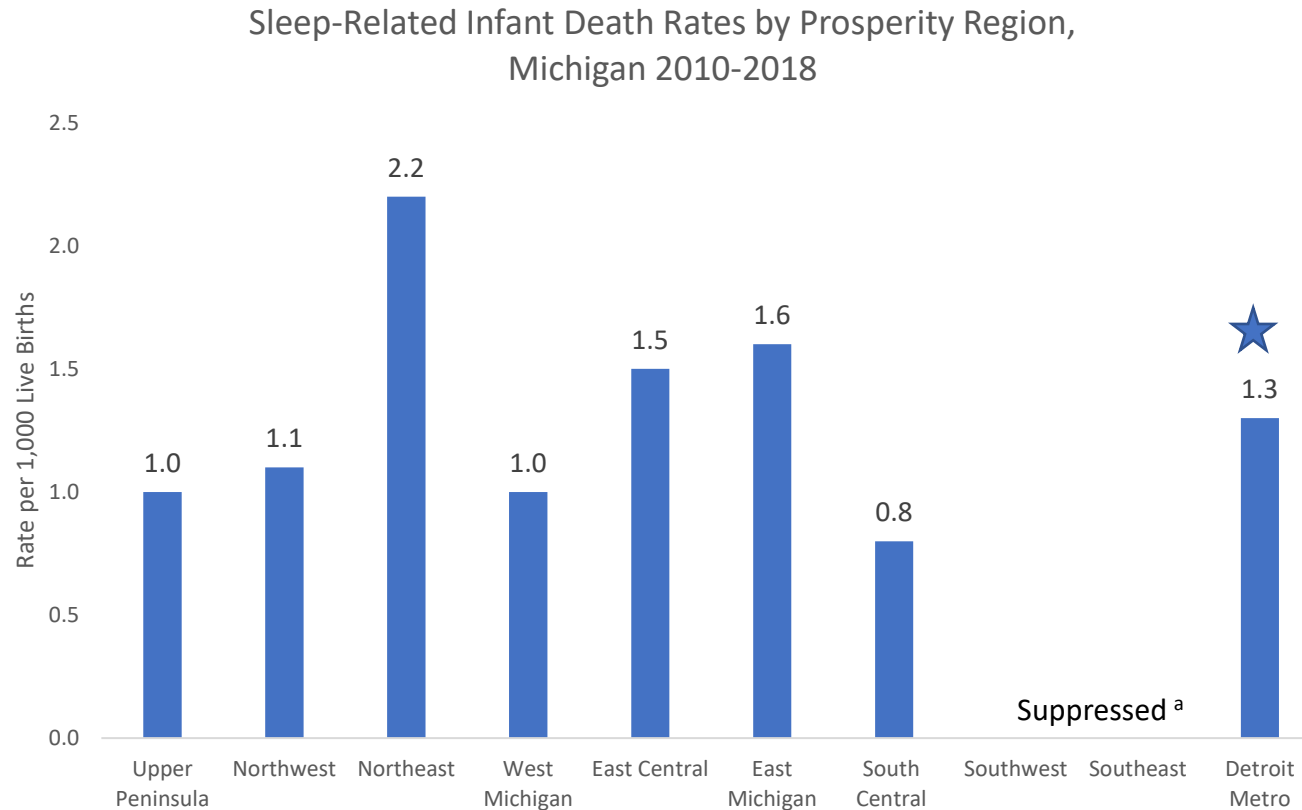


Figure 2. Rate of Sleep-Related Infant Deaths per 1,000 Live Births, by Race



# Sleep-Related Infant Death Rate, Prosperity Region 10, 2010-2018

(rate per 1,000 live births)

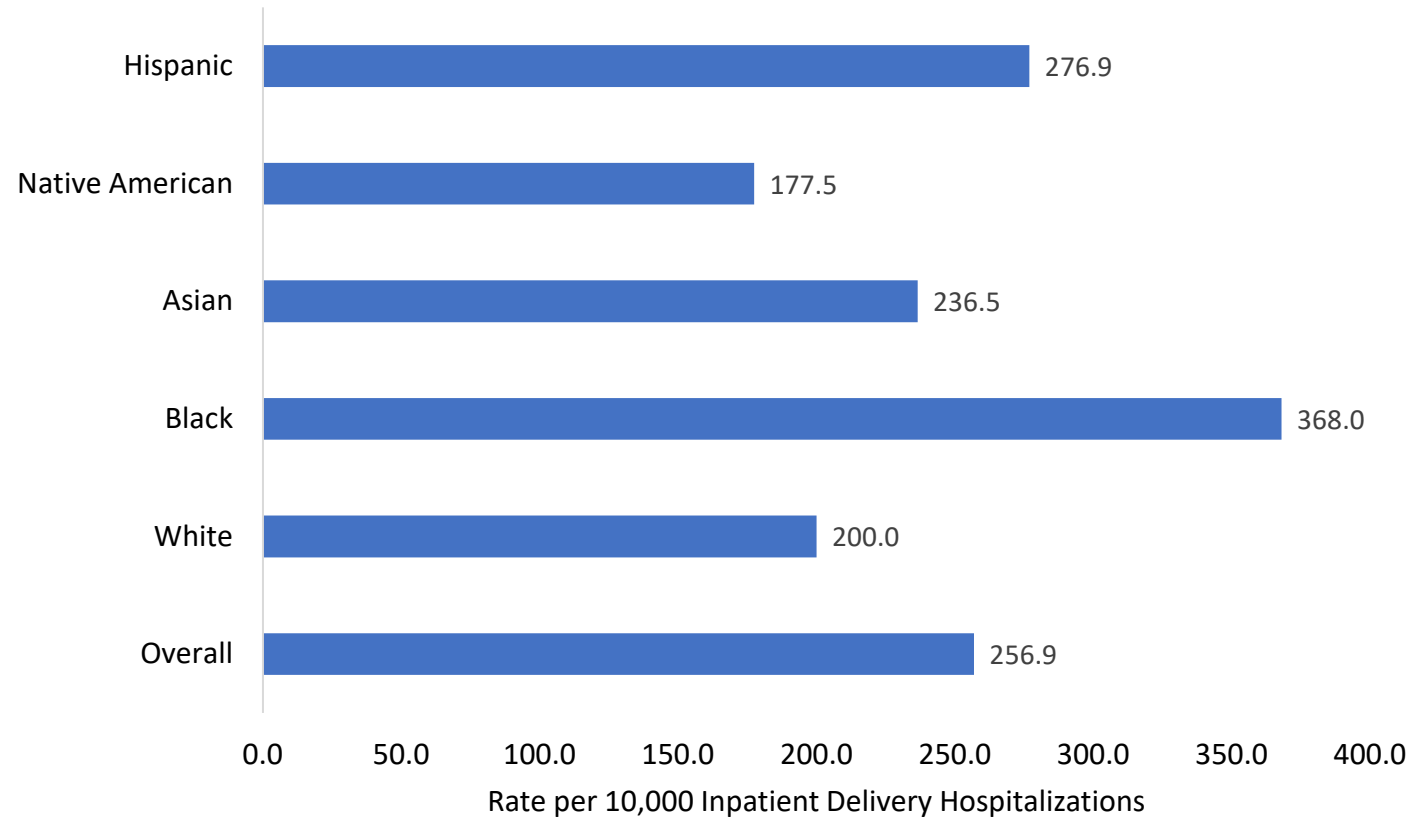


- Between 2010 and 2018 there were **550** sleep-related infant deaths in Region Ten.
- The Region Ten sleep-related infant death rate of 1.3 per 1,000 live births was **similar to** the Michigan sleep-related death rate (Michigan rate: 1.3 per 1,000 live births), although the difference was not statistically significant.

<sup>a</sup> Data for Regions 8 and 9 suppressed as to not inadvertently identify a suppressed county level statistics. County level data can be found at [https://www.keepingkidsalive.org/wp-content/uploads/Sleep-Related-Infant-Deaths-in-Michigan\\_2010-to-2018.pdf](https://www.keepingkidsalive.org/wp-content/uploads/Sleep-Related-Infant-Deaths-in-Michigan_2010-to-2018.pdf)

# Severe Maternal Morbidity Rate Prosperity Region 10, 2019

# Severe Maternal Morbidity, Prosperity Region 10, 2019 (rate per 10,000 delivery hospitalizations)

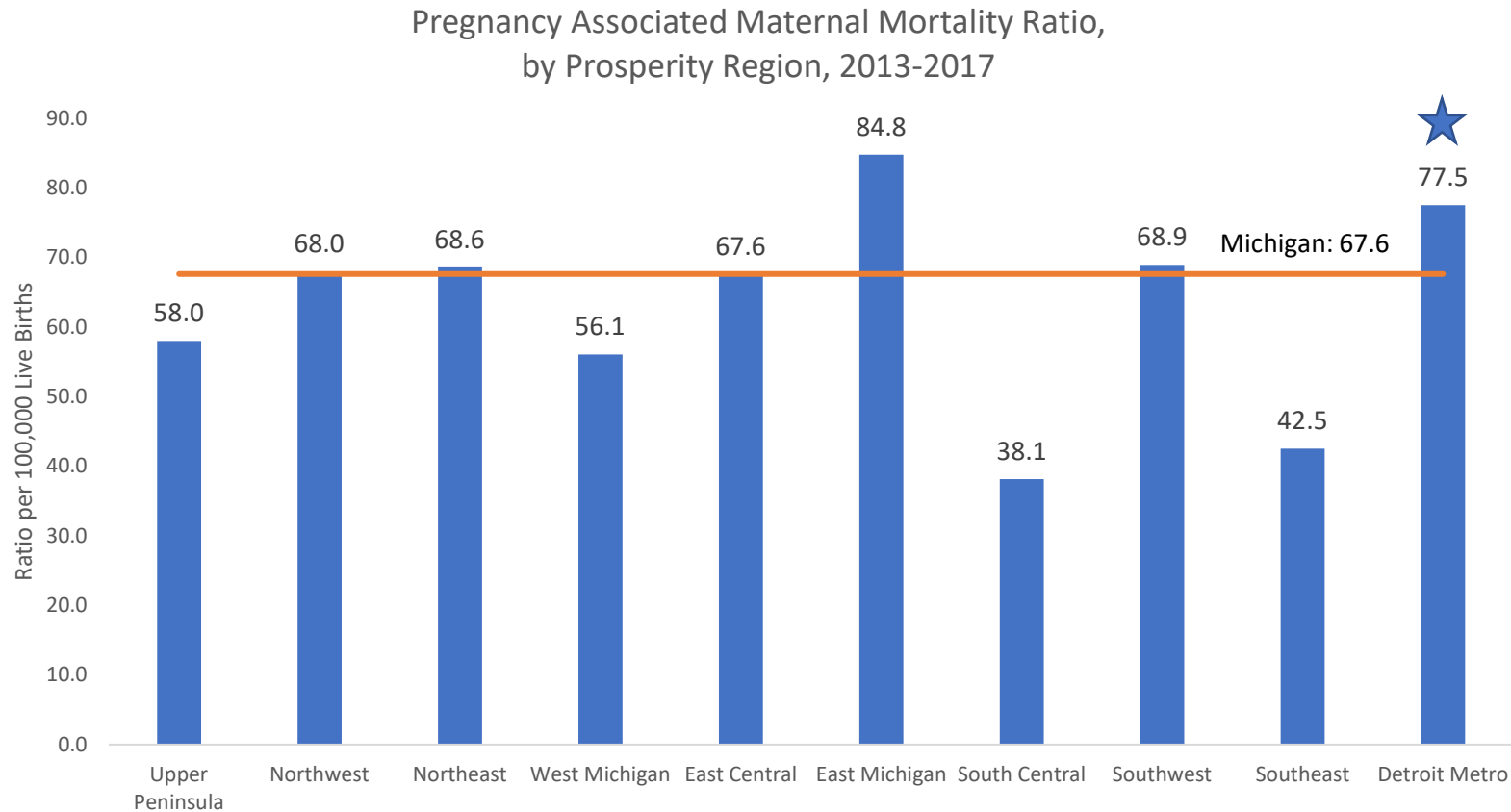


2019 Michigan Rates	
Overall:	194.3
White:	157.6
Black:	321.1
Asian:	192.1
Native American:	155.7
Hispanic:	205.7

# Maternal Mortality Ratio Prosperity Region 10, 2013-2017

# Maternal Mortality Ratio, Prosperity Region 10, 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.
- In Region Ten there were **179** maternal deaths between 2013 and 2017