

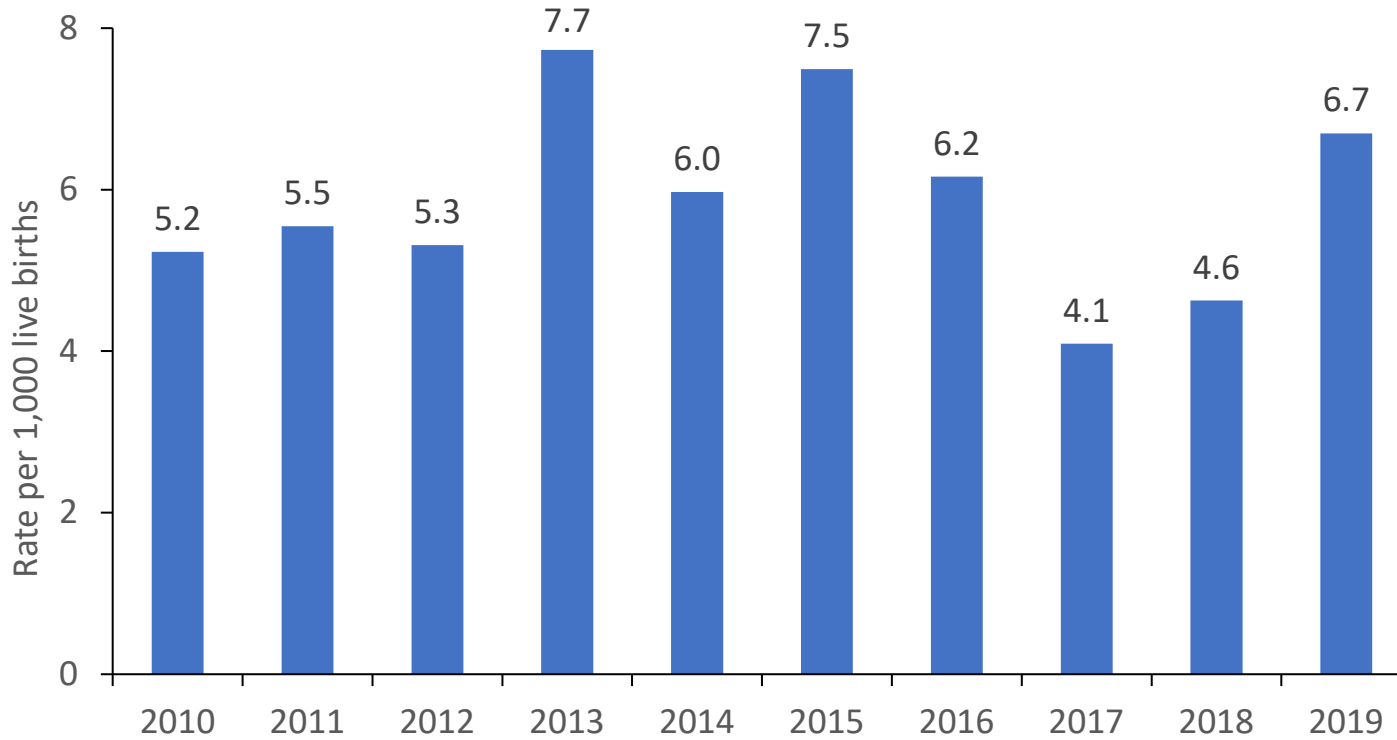
# Maternal and Infant Health Statistics, Prosperity Region 7, Michigan

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  
June 2021

# Infant Mortality Rate (IMR), Prosperity Region 7, 2010-2019

# Infant Mortality Rate, Prosperity Region 7, 2010-2019

(rate per 1,000 live births)

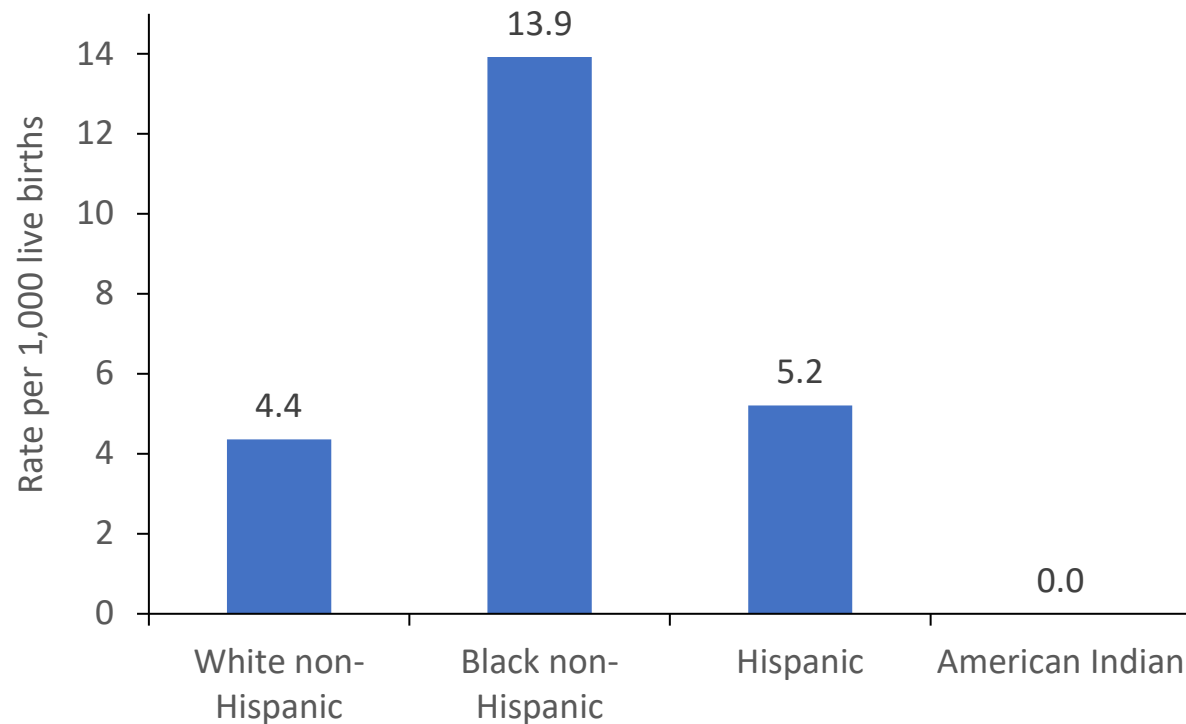


2019 Michigan Rate = 6.4

Year	# Live Births	# Infant Death	IMR
2010	5,163	27	5.2
2011	5,228	29	5.5
2012	5,270	28	5.3
2013	5,175	40	7.7
2014	5,361	32	6.0
2015	5,205	39	7.5
2016	5,357	33	6.2
2017	5,130	21	4.1
2018	4,972	23	4.6
2019	4,928	33	6.7

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 7, 2015-2019 (rate per 1,000 live births)



Maternal Race/Ethnicity	# Live Births	# Infant Death	IMR
White non-Hispanic	17,894	78	4.4
Black non-Hispanic	3,376	47	13.9
Hispanic	1,920	10	5.2
American Indian	41	0	0.0
Asian/Pacific Islander	1,419	DNS	DNS

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

### 2015-2019 Michigan Rates

White, nH = 4.9

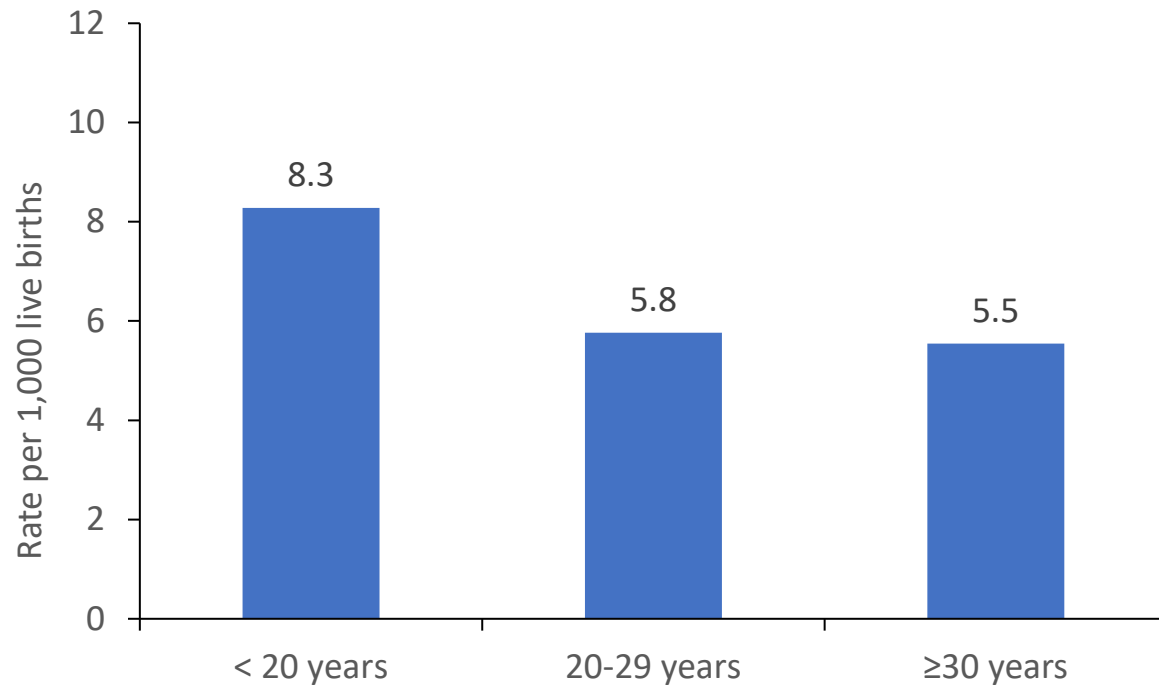
Black, nH = 13.4

Hispanic = 6.3

American Indian = 5.4

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 Age, Prosperity Region 7, 2015-2019 (rate per 1,000 live births)

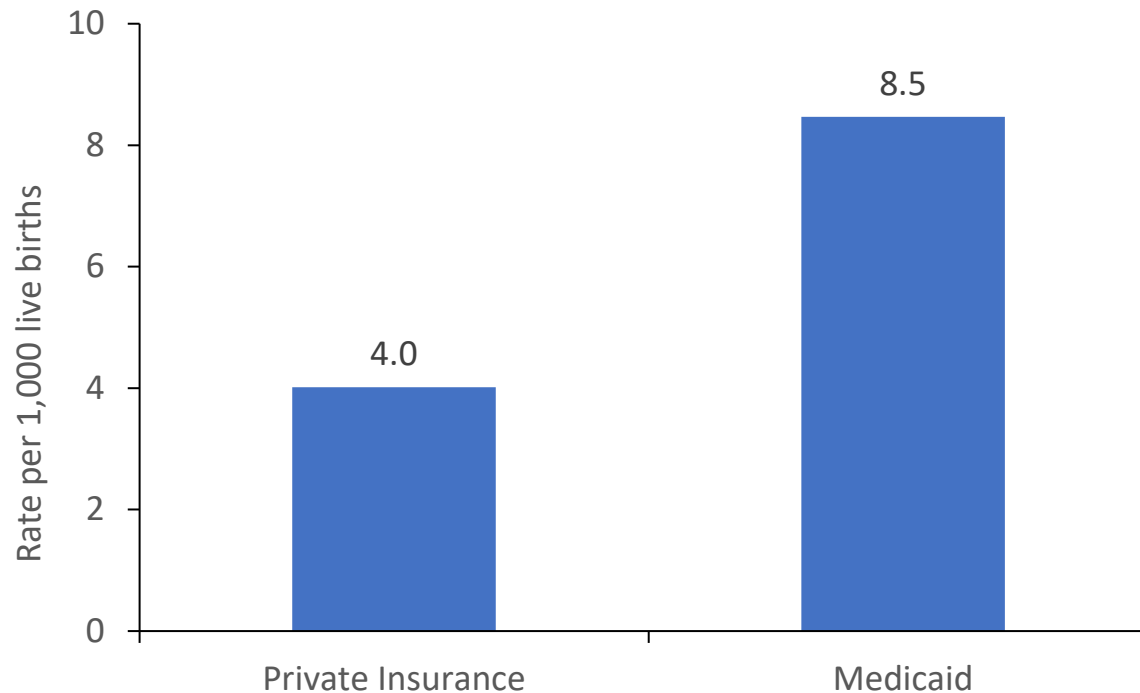


Maternal Age	# Live Births	# Infant Death	IMR
< 20 years	1,208	10	8.3
20-29 years	13,194	76	5.8
≥30 years	11,185	62	5.5

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 7, 2015-2019 (rate per 1,000 live births)

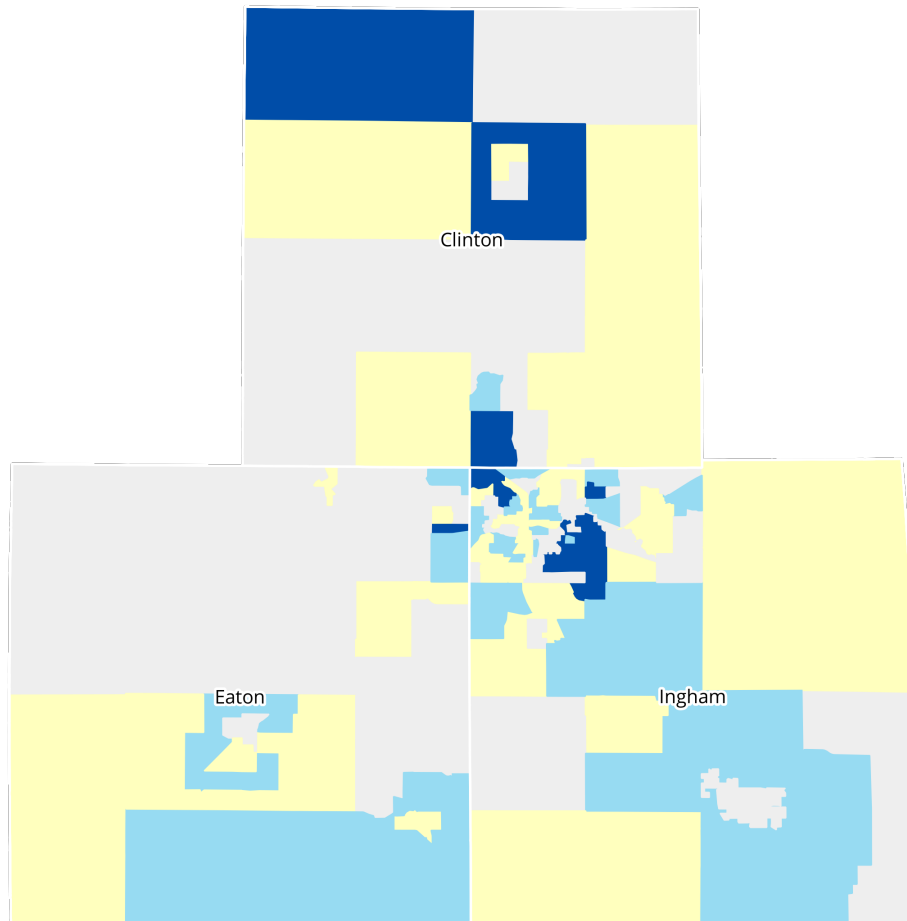


Payment Source	# Live Births	# Infant Death	IMR
Private Insurance	15,194	61	4.0
Medicaid	9,919	84	8.5

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.

# Infant Mortality Rate by Census Tract Prosperity Region 7, 2014-2018



## Infant Deaths 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.



Gray box: No Live Births/Infant Deaths

# Sleep-Related Infant Death Rate Prosperity Region 7, 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

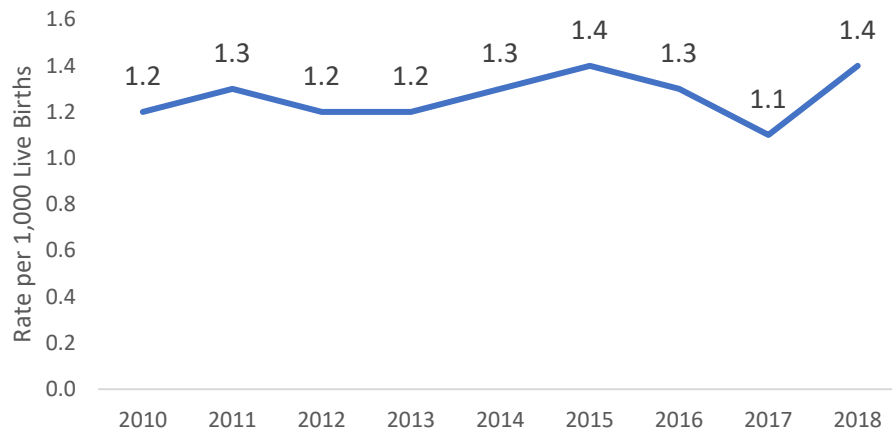
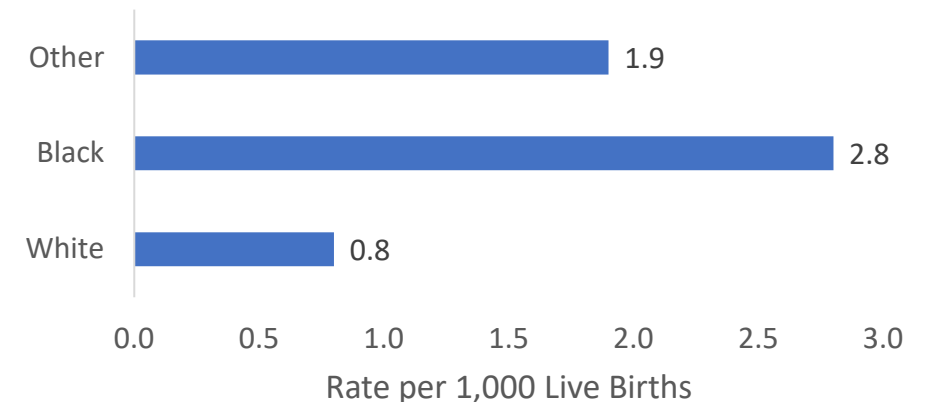
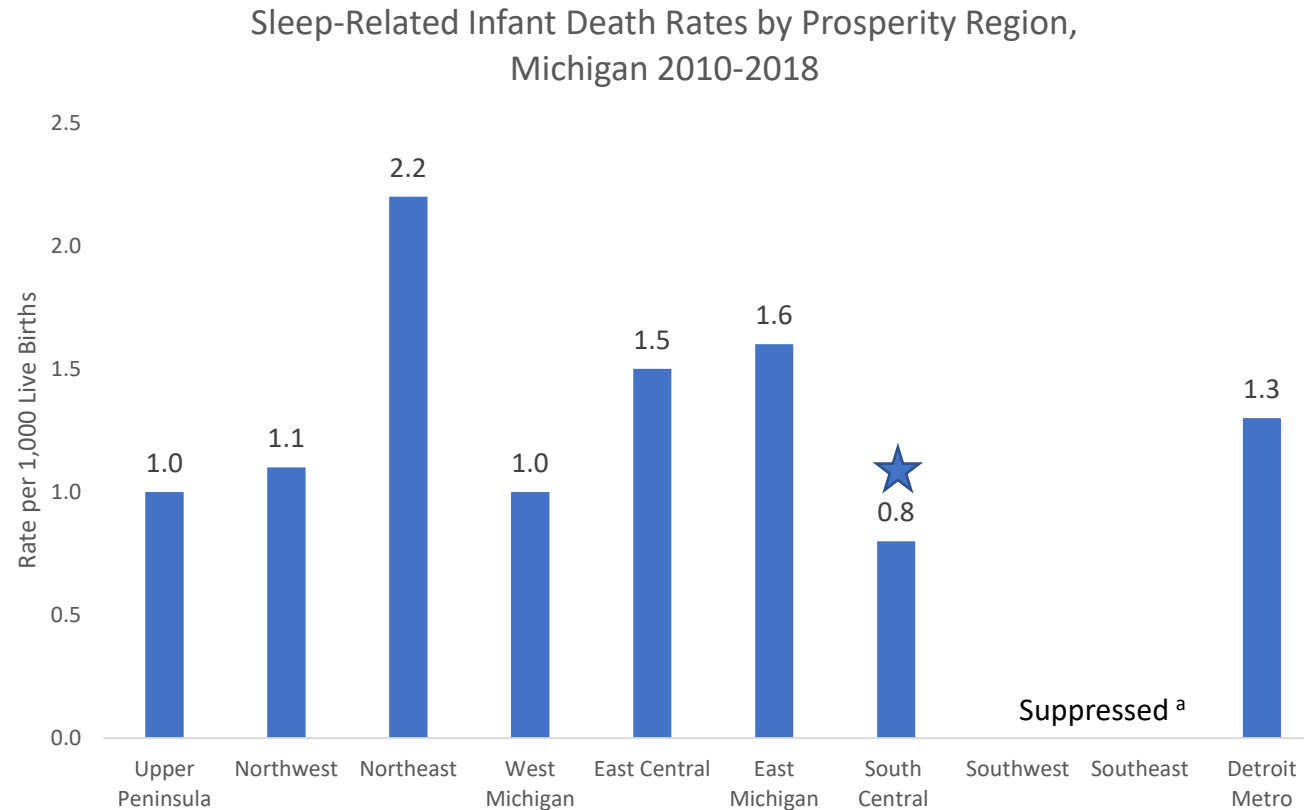


Figure 2. Rate of Sleep-Related Infant Deaths per 1,000 Live Births, by Race



# Sleep-Related Infant Death Rate, Prosperity Region 7, 2010-2018

(rate per 1,000 live births)

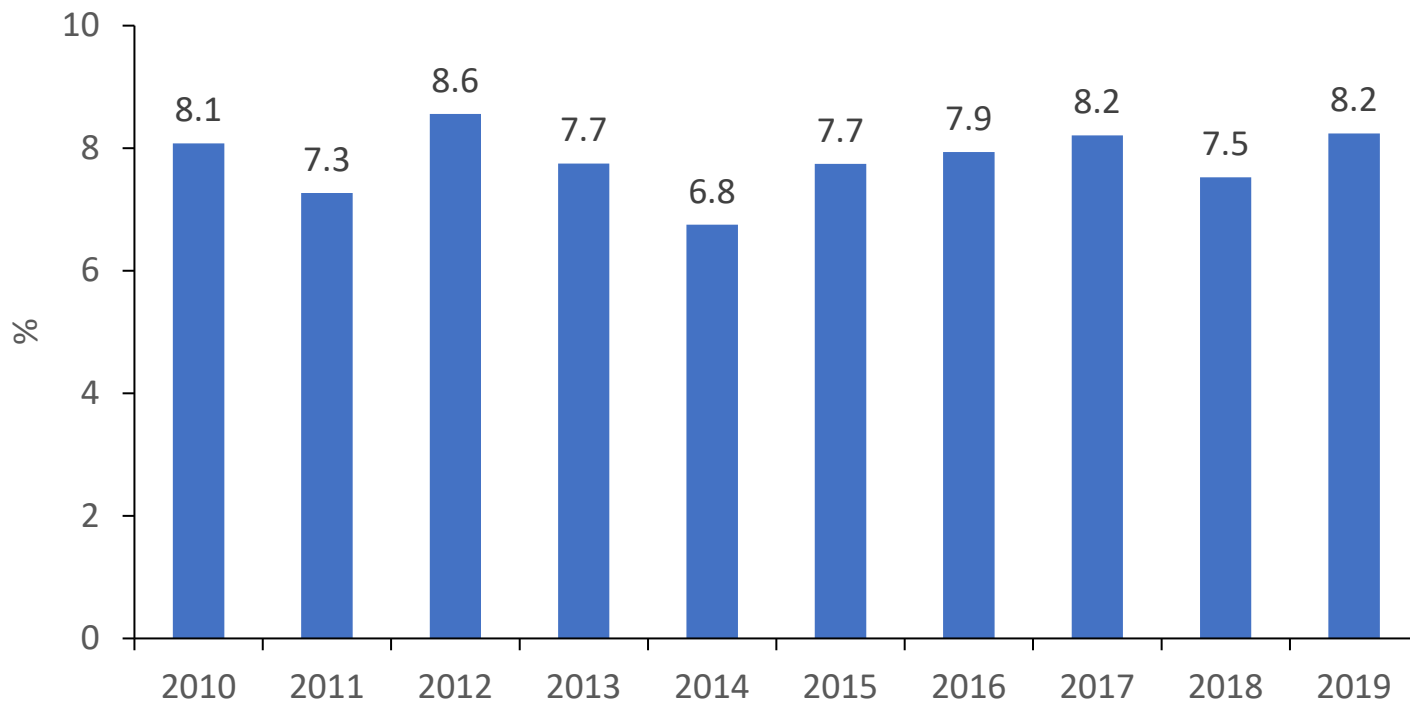


- Between 2010 and 2018 there were **39** sleep-related infant deaths in Region Seven.
- The Region Seven sleep-related infant death rate of 0.8 per 1,000 live births was **lower** than the Michigan sleep-related death rate (Michigan rate: 1.3 per 1,000 live births), although the difference was not statistically 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)

# Low Birthweight (LBW), Prosperity Region 7, 2010-2019

# Low Birthweight (Birthweight <2,500 Grams), Prosperity Region 7, 2010-2019

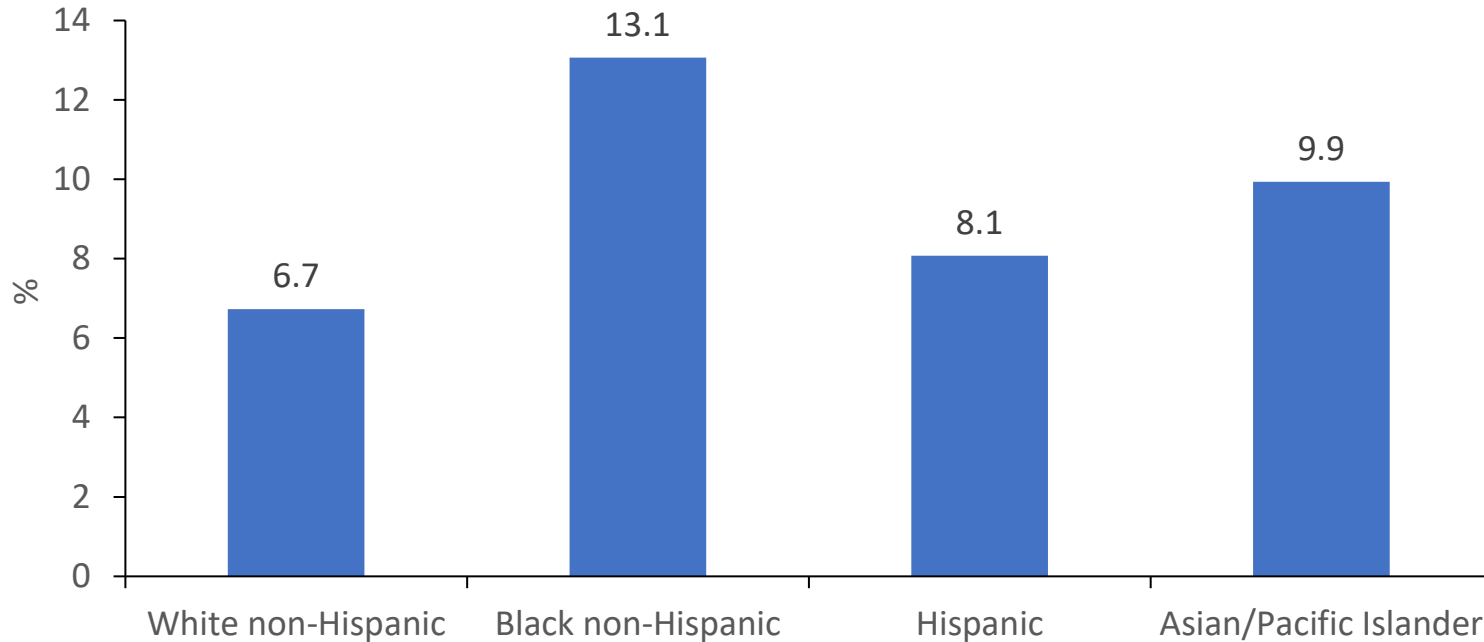


2019 Michigan Percent = 8.8

Year	# Live Births	# LBW	LBW %
2010	5,163	417	8.1
2011	5,228	380	7.3
2012	5,270	451	8.6
2013	5,175	401	7.7
2014	5,361	362	6.8
2015	5,205	403	7.7
2016	5,357	425	7.9
2017	5,130	421	8.2
2018	4,972	374	7.5
2019	4,928	406	8.2

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 7, 2015-2019



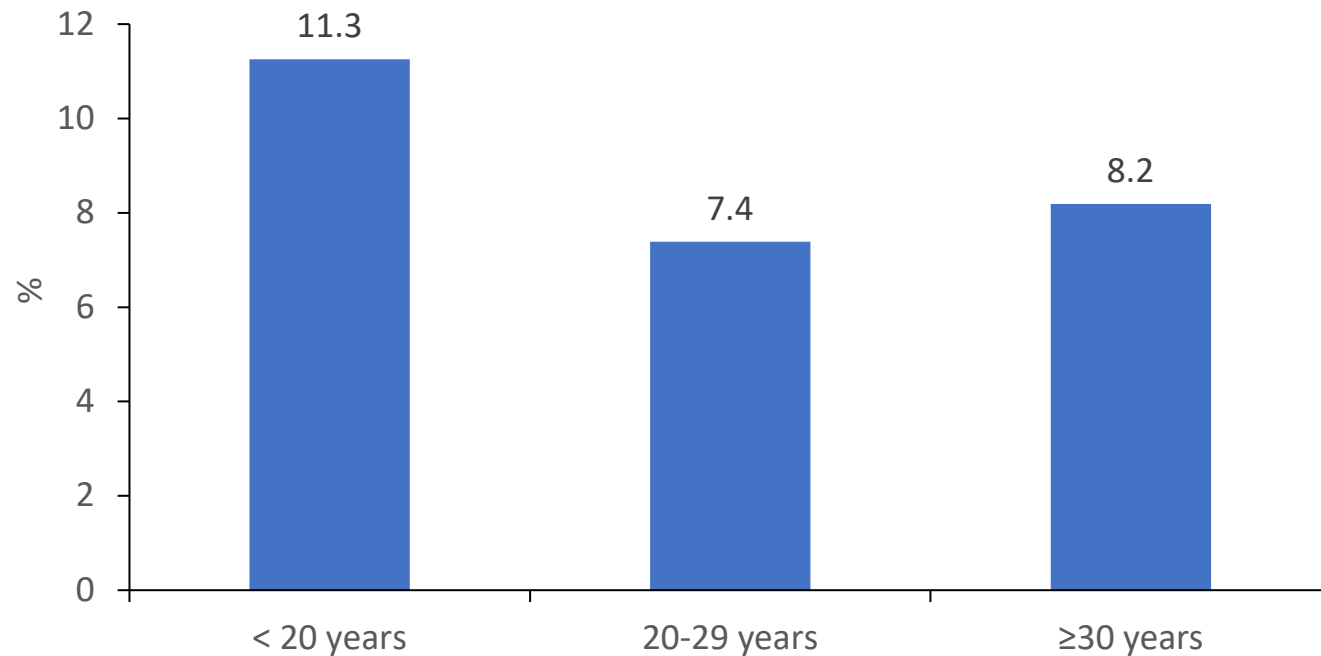
Maternal Race/Ethnicity	# Live Births	# LBW	LBW %
White non-Hispanic	17,894	1,204	6.7
Black non-Hispanic	3,376	441	13.1
Hispanic	1,920	155	8.1
American Indian	41	DNS	DNS
Asian/Pacific Islander	1,419	141	9.9

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

2015-2019 Michigan Percentages  
 White, nH = 7.0  
 Black, nH = 14.8  
 Hispanic = 7.5  
 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 7, 2015-2019

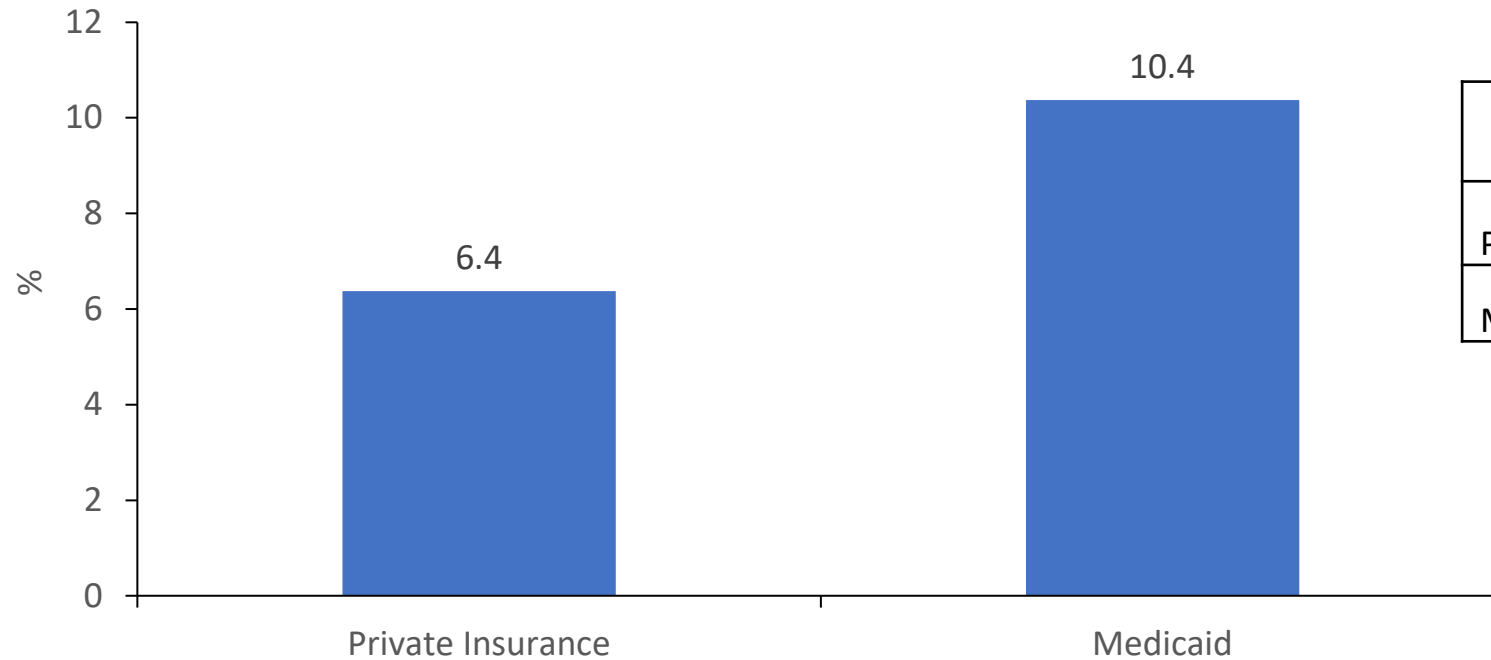


Maternal Age	# Live Births	# LBW	LBW %
< 20 years	1,208	136	11.3
20-29 years	13,194	975	7.4
≥30 years	11,185	916	8.2

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 7, 2015-2019

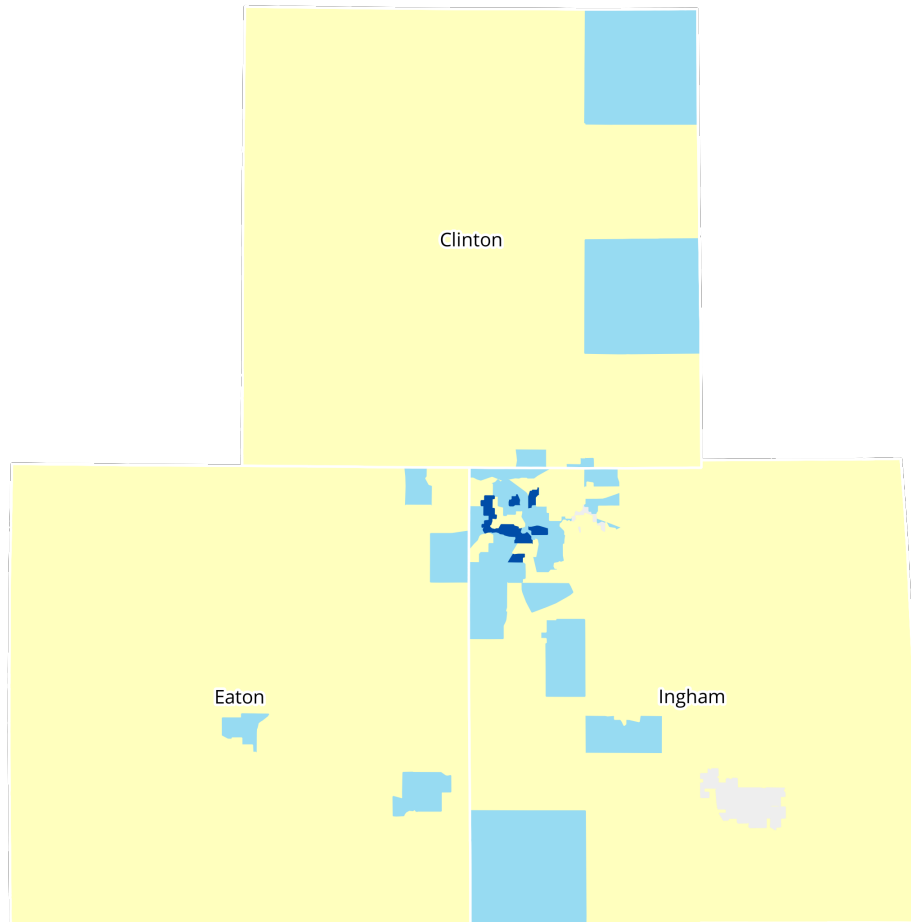


Payment Source	# Live Births	# LBW	LBW %
Private Insurance	15,194	969	6.4
Medicaid	9,919	1,029	10.4

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

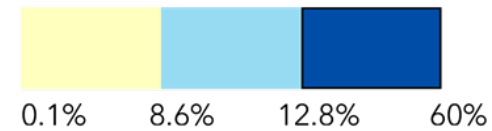
Low birthweight rate is defined as number of births with baby birthweight <2,500 grams per 100 live births.

# Low Birthweight by Census Tract Prosperity Region 7, 2014-2018



## Percent Low Birthweight

Low birthweight rate is defined as number of births with baby birthweight less than 5.5lbs (<2,500 grams) per 100 live births.

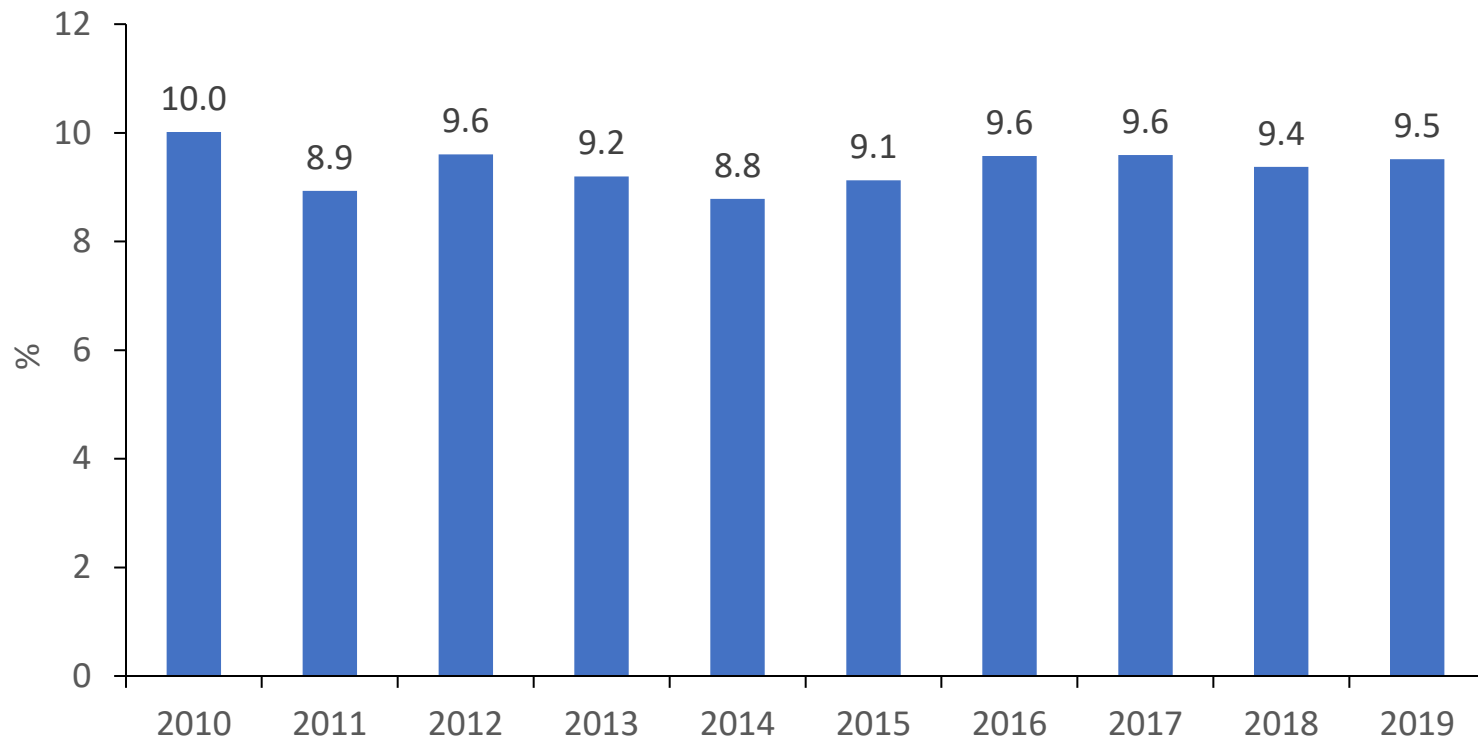


Grey box: No Live Births/Low Birthweight Births



# Preterm Birth (PTB), Prosperity Region 7, 2010-2019

# Preterm Birth (Estimated Gestational Age <37 Weeks), Prosperity Region 7, 2010-2019

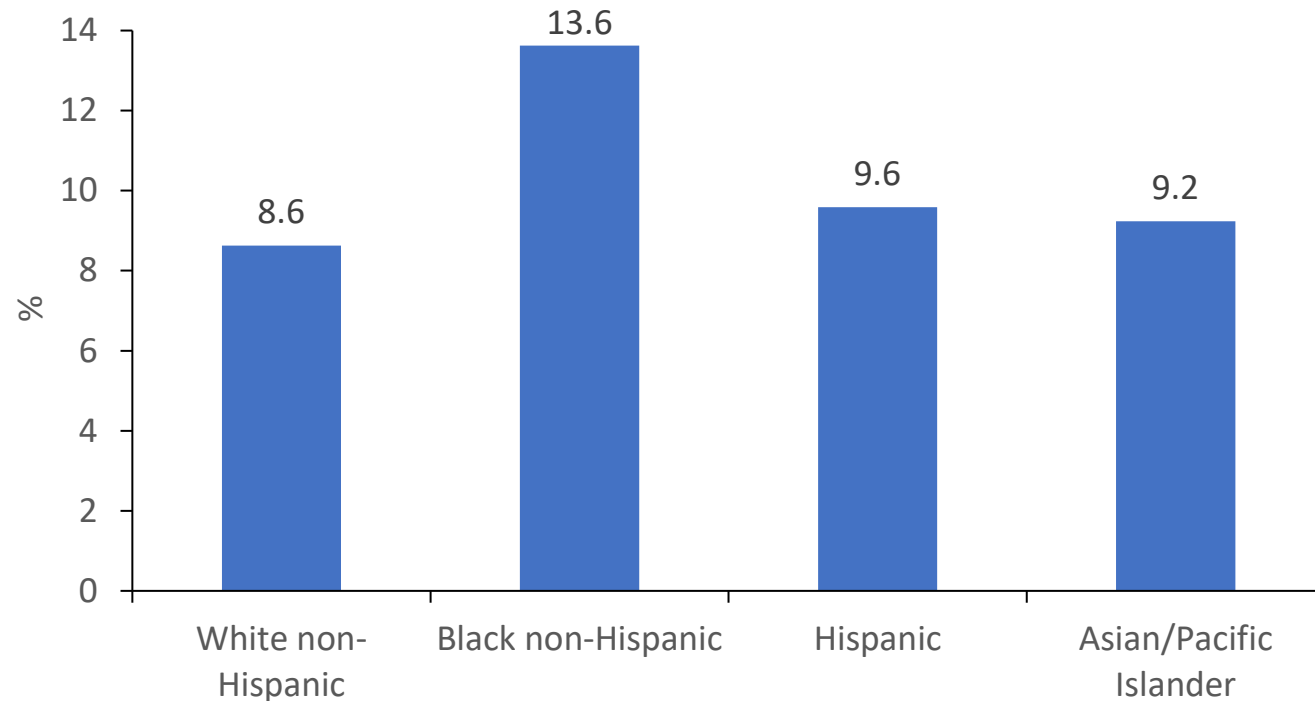


2019 Michigan Percent = 10.3

Year	# Live Births	# PTB	PTB %
2010	5,163	517	10.0
2011	5,228	467	8.9
2012	5,270	506	9.6
2013	5,175	476	9.2
2014	5,361	471	8.8
2015	5,205	475	9.1
2016	5,357	513	9.6
2017	5,130	492	9.6
2018	4,972	466	9.4
2019	4,928	469	9.5

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 7, 2015-2019



Maternal Race/Ethnicity	# Live Births	# PTB	PTB %
White non-Hispanic	17,894	1,544	8.6
Black non-Hispanic	3,376	460	13.6
Hispanic	1,920	184	9.6
American Indian	41	DNS	DNS
Asian/Pacific Islander	1,419	131	9.2

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

## 2015-2019 Michigan Percentages

White, nH = 9.0

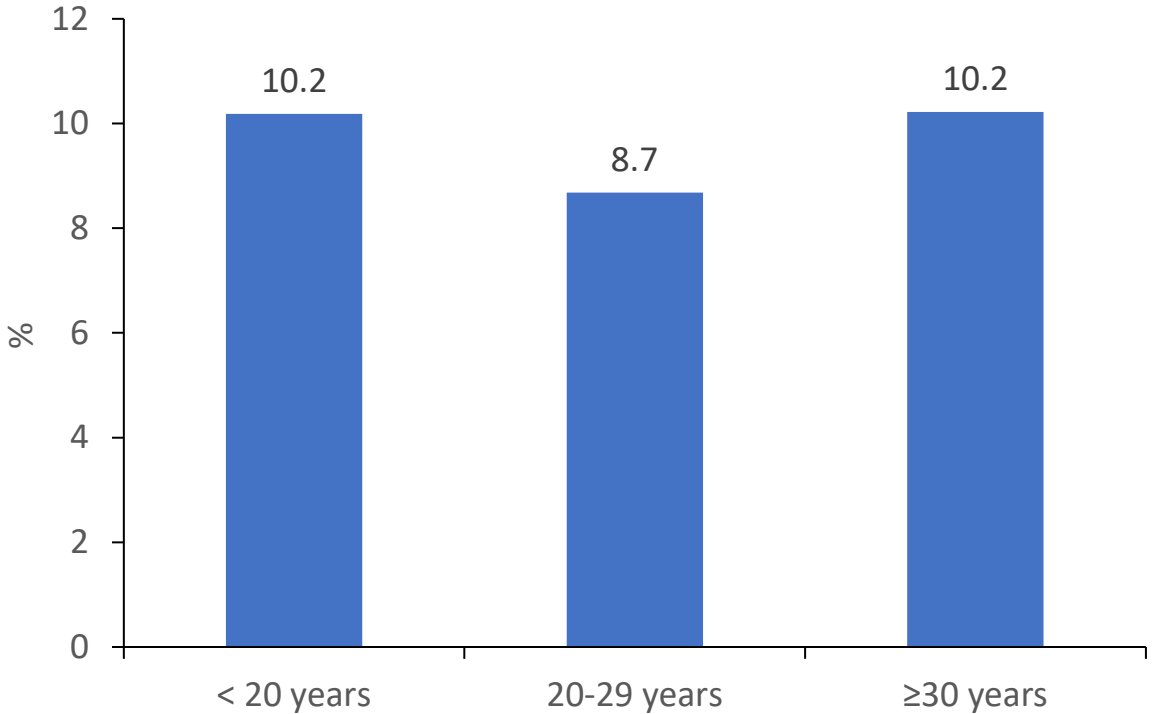
Black, nH = 14.6

Hispanic = 9.4

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 7, 2015-2019

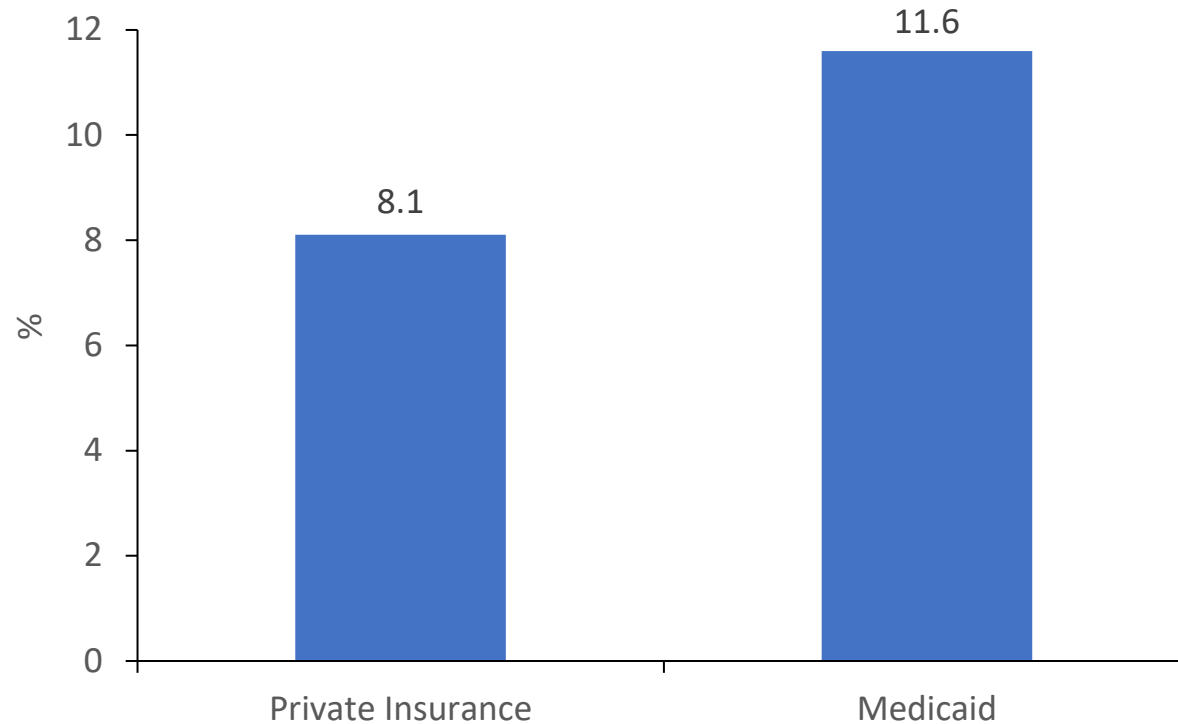


Maternal Age	# Live Births	# PTB	PTB %
< 20 years	1,208	123	10.2
20-29 years	13,194	1,145	8.7
≥30 years	11,185	1,143	10.2

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 7, 2015-2019

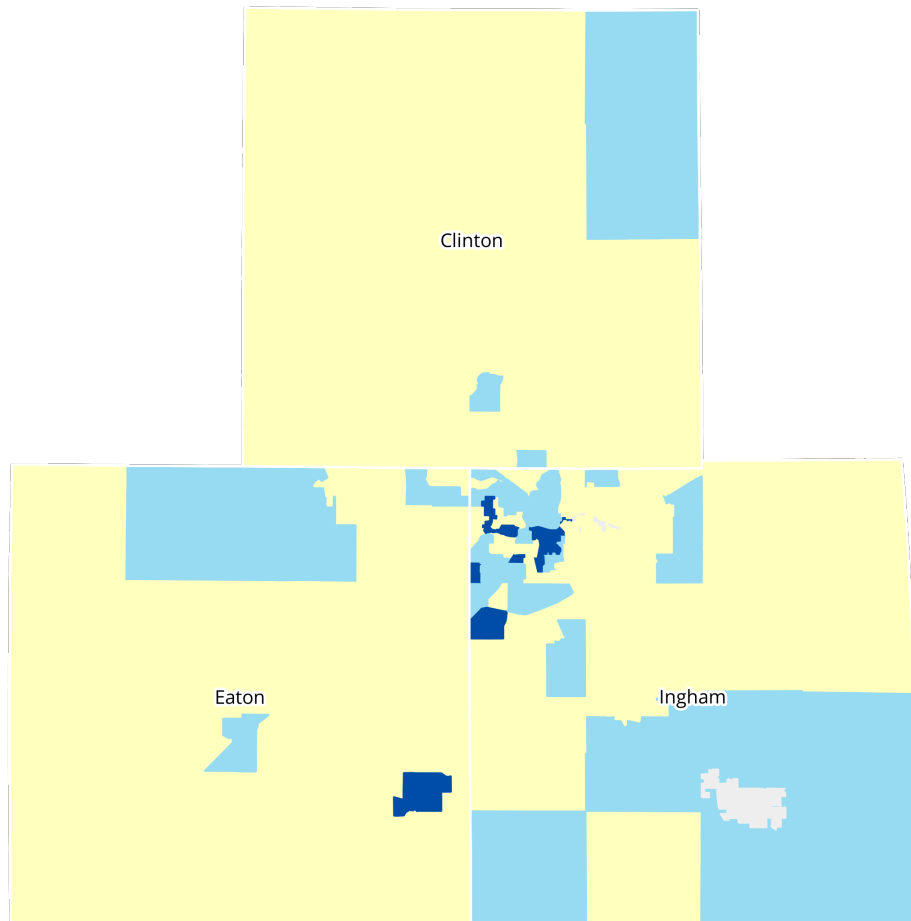


Payment Source	# Live Births	# PTB	PTB %
Private Insurance	15,194	1,231	8.1
Medicaid	9,919	1,150	11.6

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

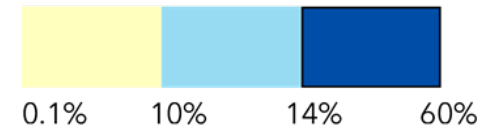
Preterm birth rate is defined as number of births delivered before 37 completed weeks of gestation per 100 live births. Gestational age is based on the obstetric estimate of gestation.

# Preterm Birth by Census Tract Prosperity Region 7, 2014-2018



## Percent Preterm

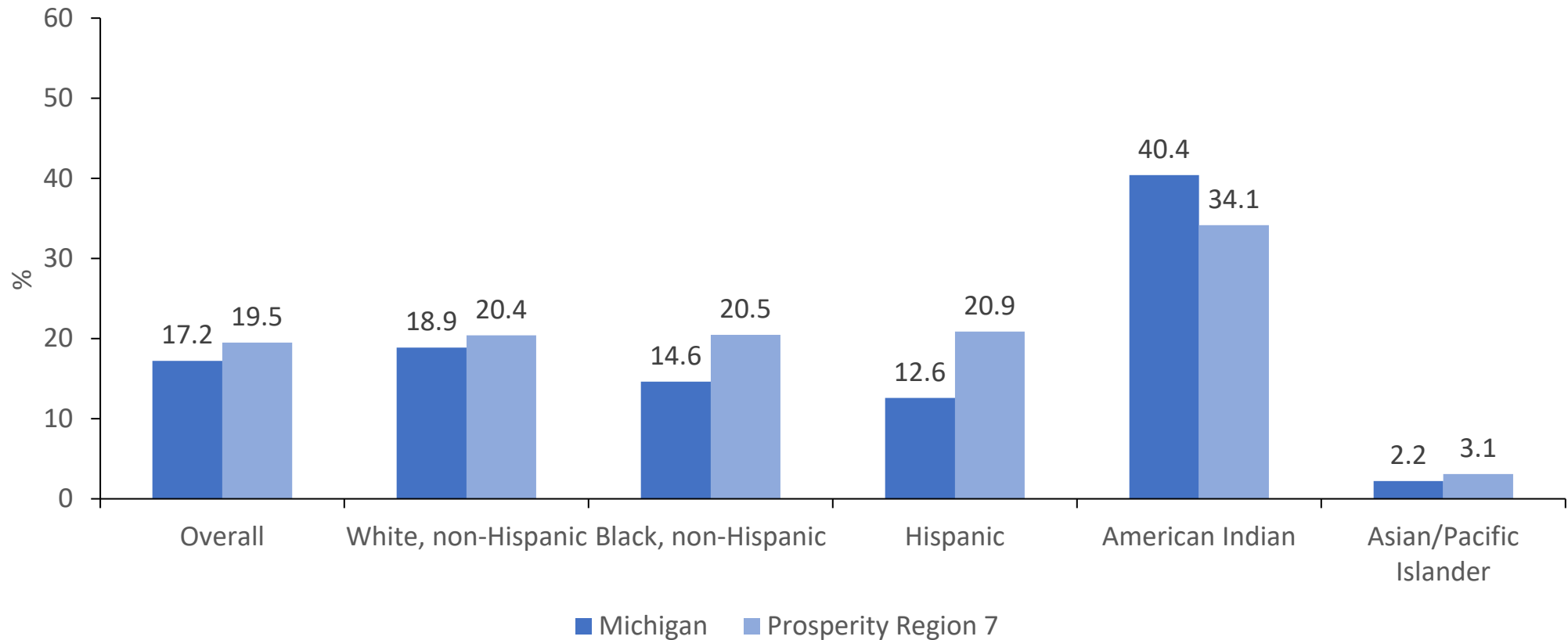
Preterm birth rate is defined as number of births delivered before 37 completed weeks of gestation per 100 live births. Gestational age is based on the obstetric estimate of gestation.



 No Live Births/Preterm Births

# Smoking During Pregnancy, Prosperity Region 7, 2015-2019

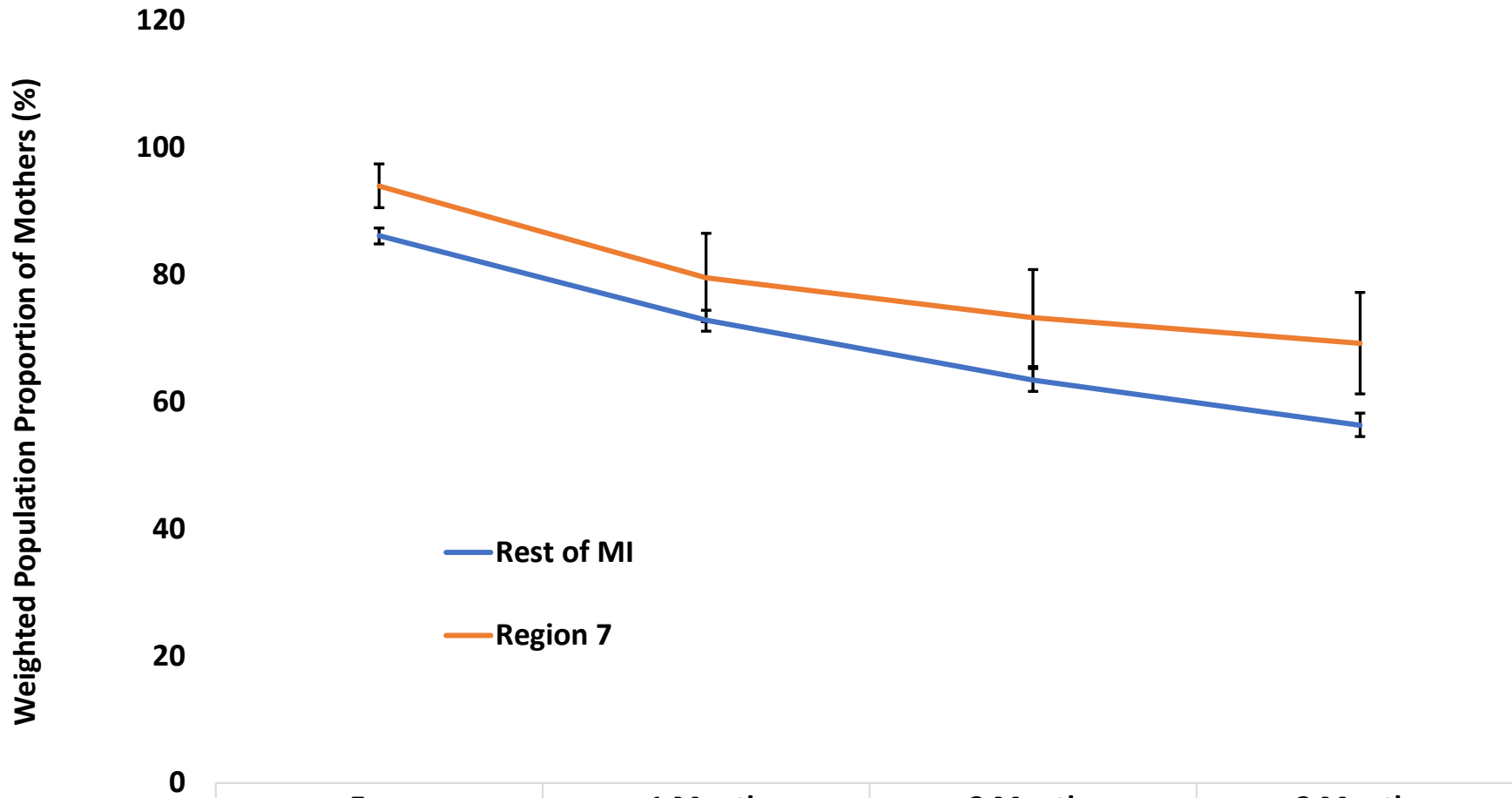
# Smoking During Pregnancy by Maternal Race/Ethnicity, Michigan and Prosperity Region 7, 2015-2019





# Breastfeeding Initiation and Duration, Prosperity Region 7

## Breastfeeding Initiation and Duration, Region 7 v Rest of Michigan MI PRAMS 2016-2018

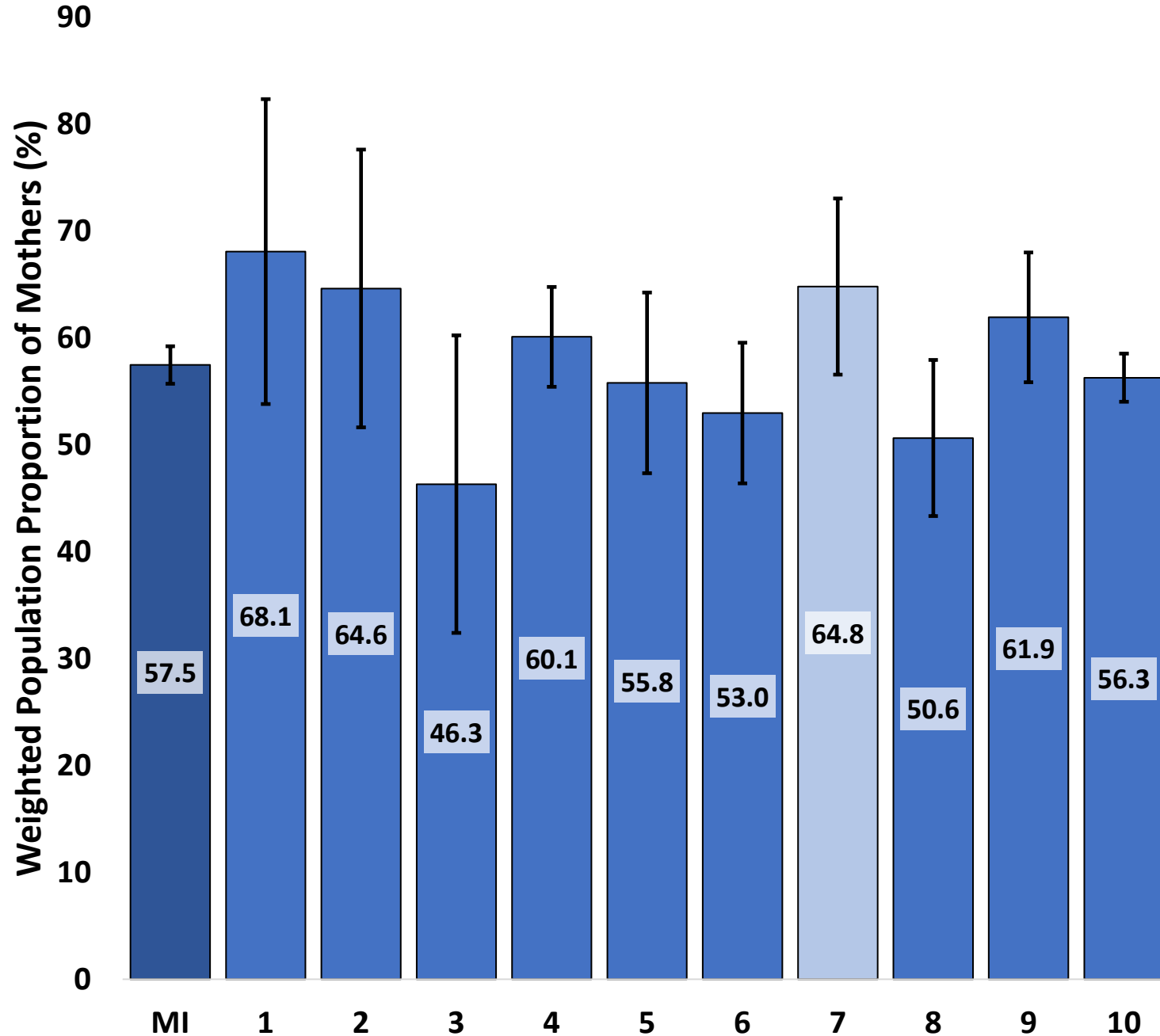


- Breastfeeding in Region 7 is more prevalent than in the remainder of the state at three of four time points
  - Initiation
  - 2 months
  - 3 months
  - All  $p < 0.05$

	Ever	1 Month	2 Months	3 Months
Rest of MI	86.1	72.8	63.4	56.3
Region 7	93.9	79.5	73.2	69.2

# Pregnancy Intention, Prosperity Region 7, 2016-2018

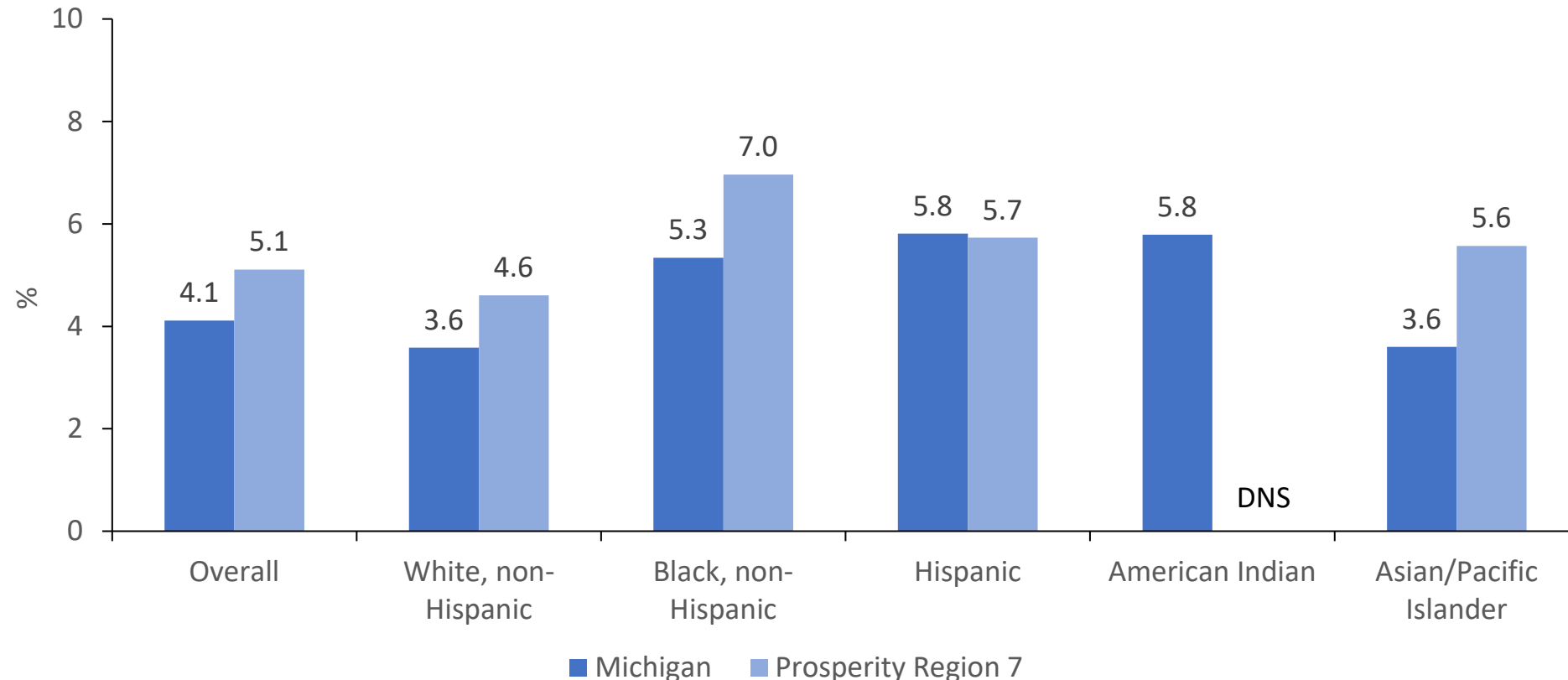
## Intended Pregnancy; MI PRAMS 2016-2018



- 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

# Late Entry into Prenatal Care, Prosperity Region 7, 2015-2019

# Late Entry Into Prenatal Care by Maternal Race/Ethnicity, Michigan and Prosperity Region 7, 2015-2019

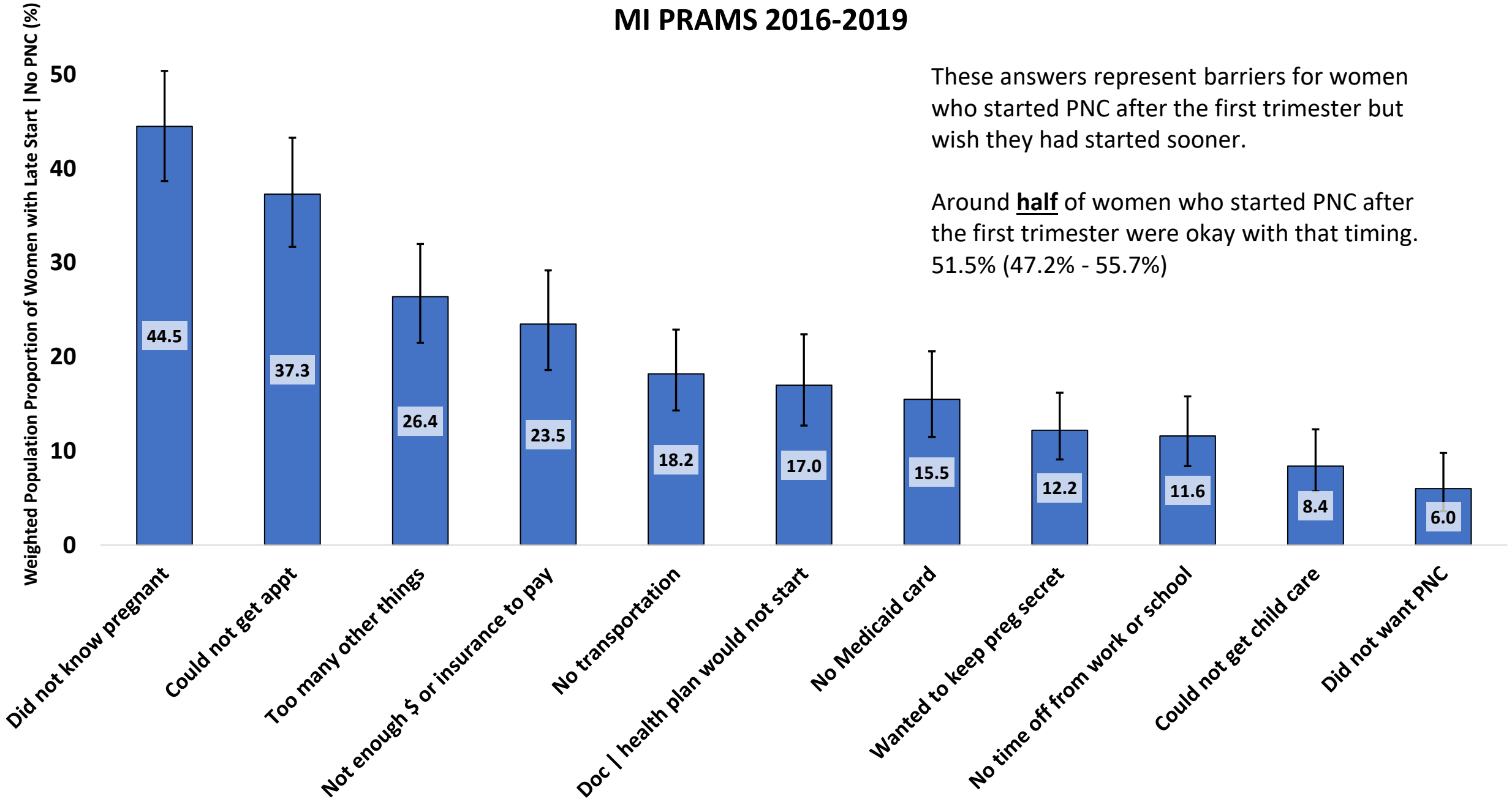


- Late entry into prenatal care refers to begin prenatal care in the 7<sup>th</sup> – 9<sup>th</sup> month of gestation
- DNS = data not sufficient (0<n<6)

# Barriers to Prenatal Care, Michigan, 2016-2019

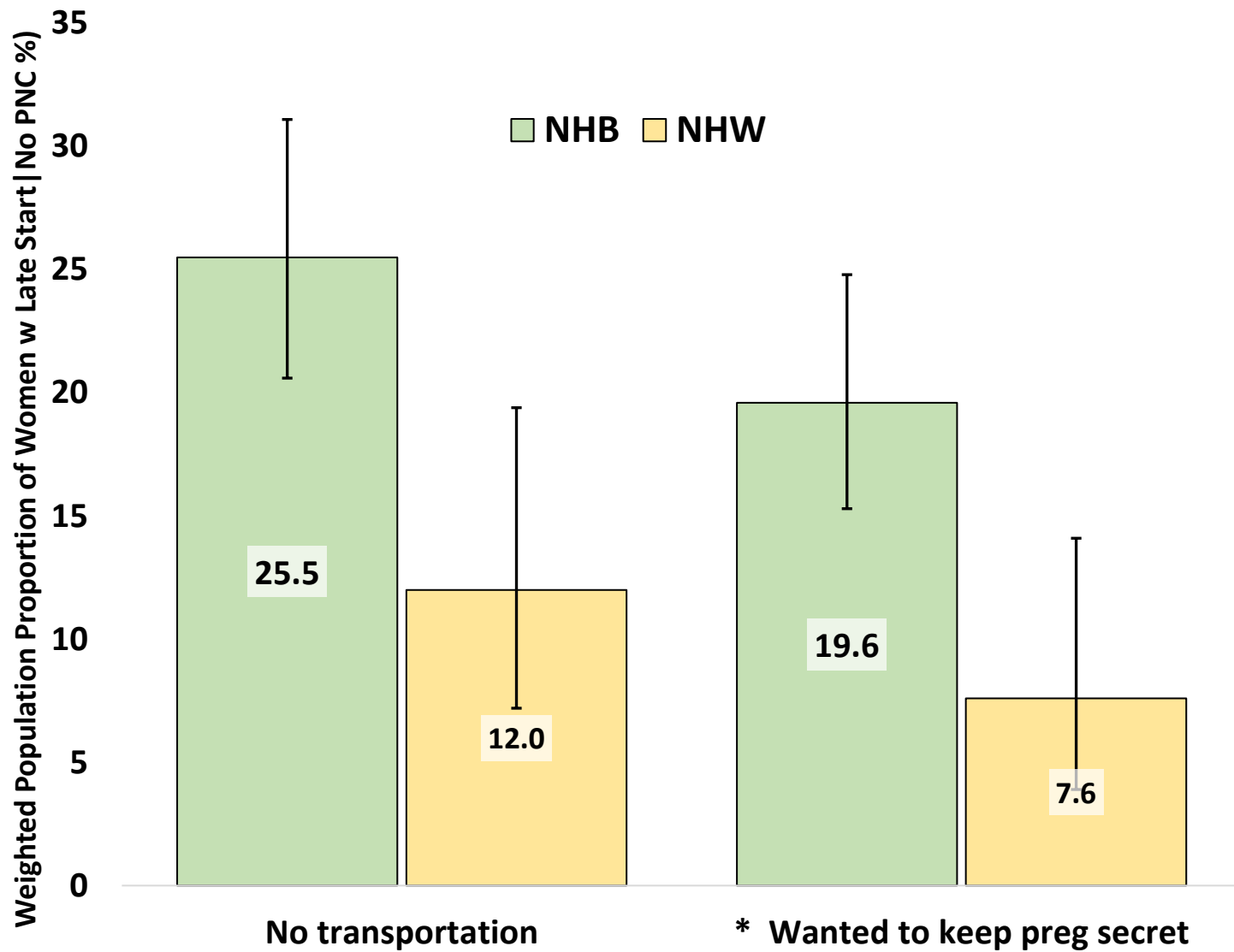
# PNC Barriers - mother started PNC AFTER 1st trimester and wanted to start sooner

## MI PRAMS 2016-2019



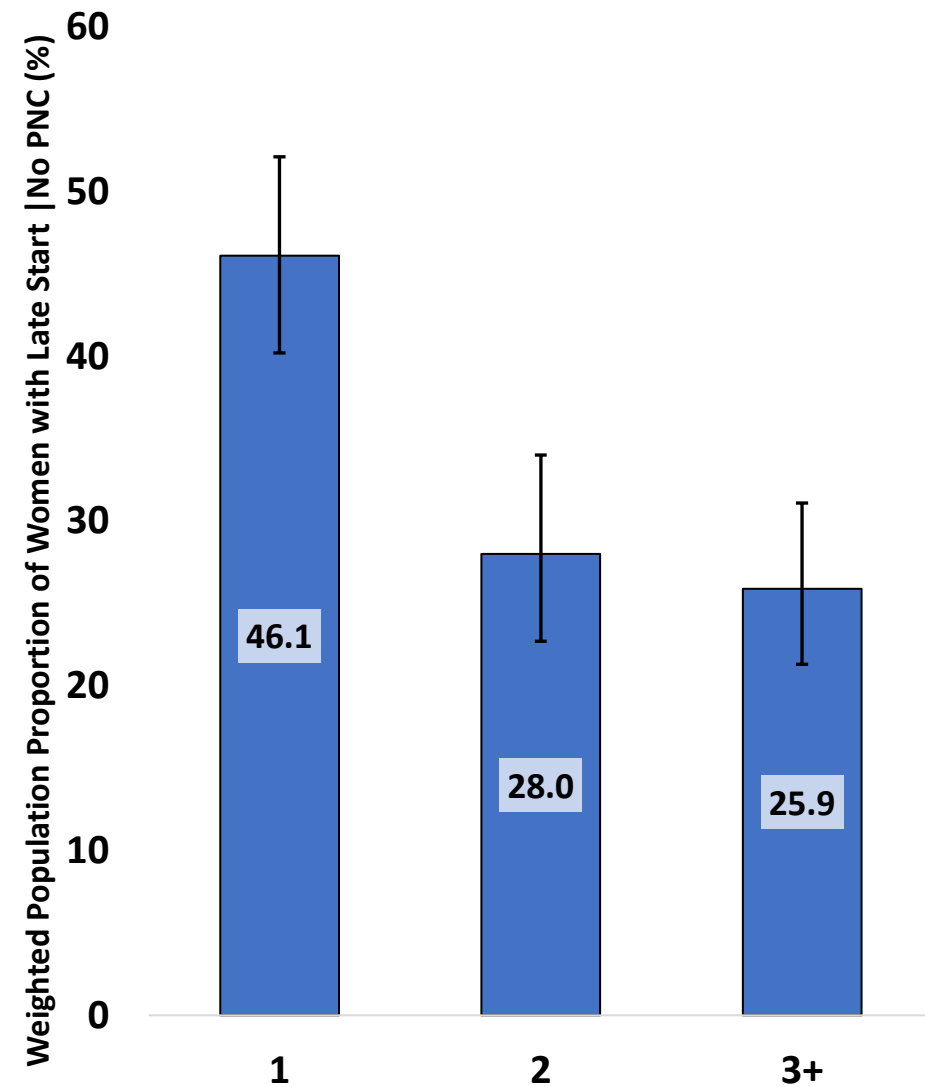


**Selected PNC Barriers with Significant Differences by Maternal Race/Ethnicity  
MI PRAMS 2016-2019**



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

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



# 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

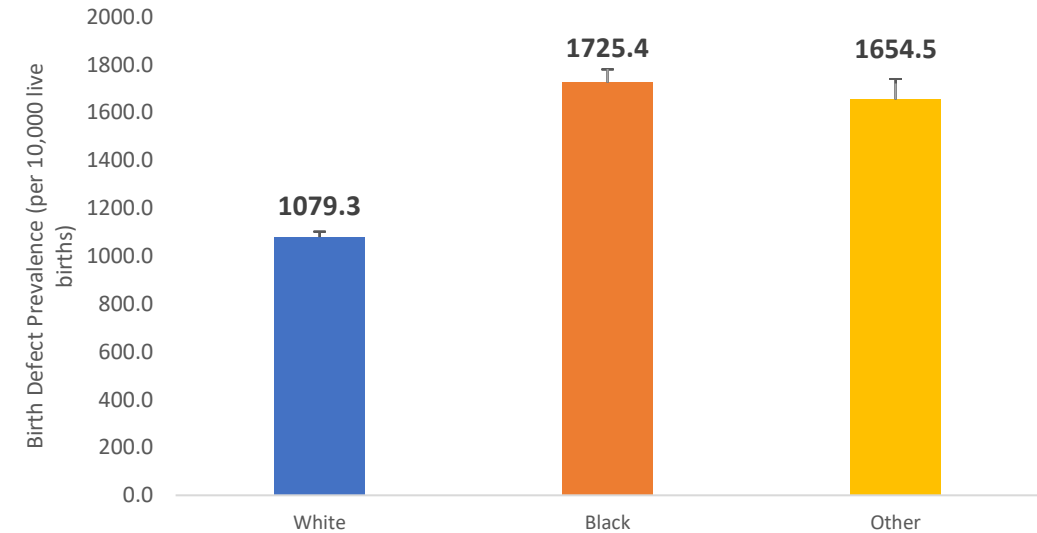
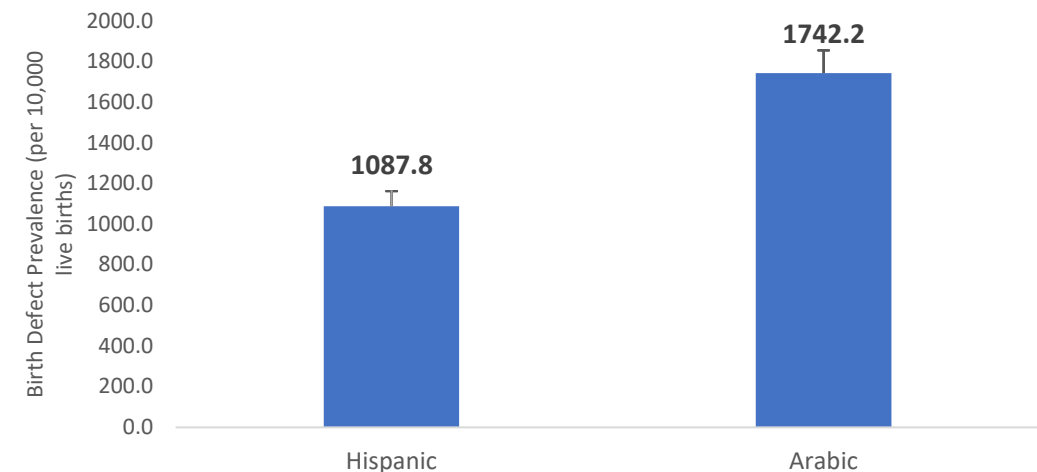
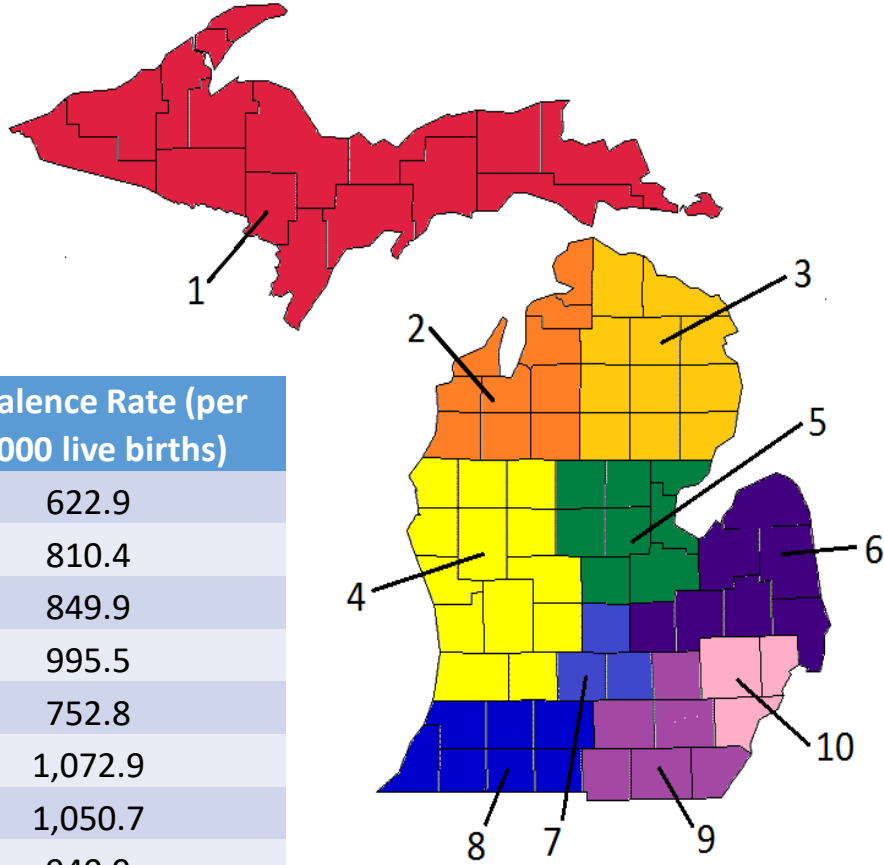


Figure 2. Statewide Maternal Ethnicity-Specific Birth Defect Prevalence Rates: MBDR, 2017



# 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.



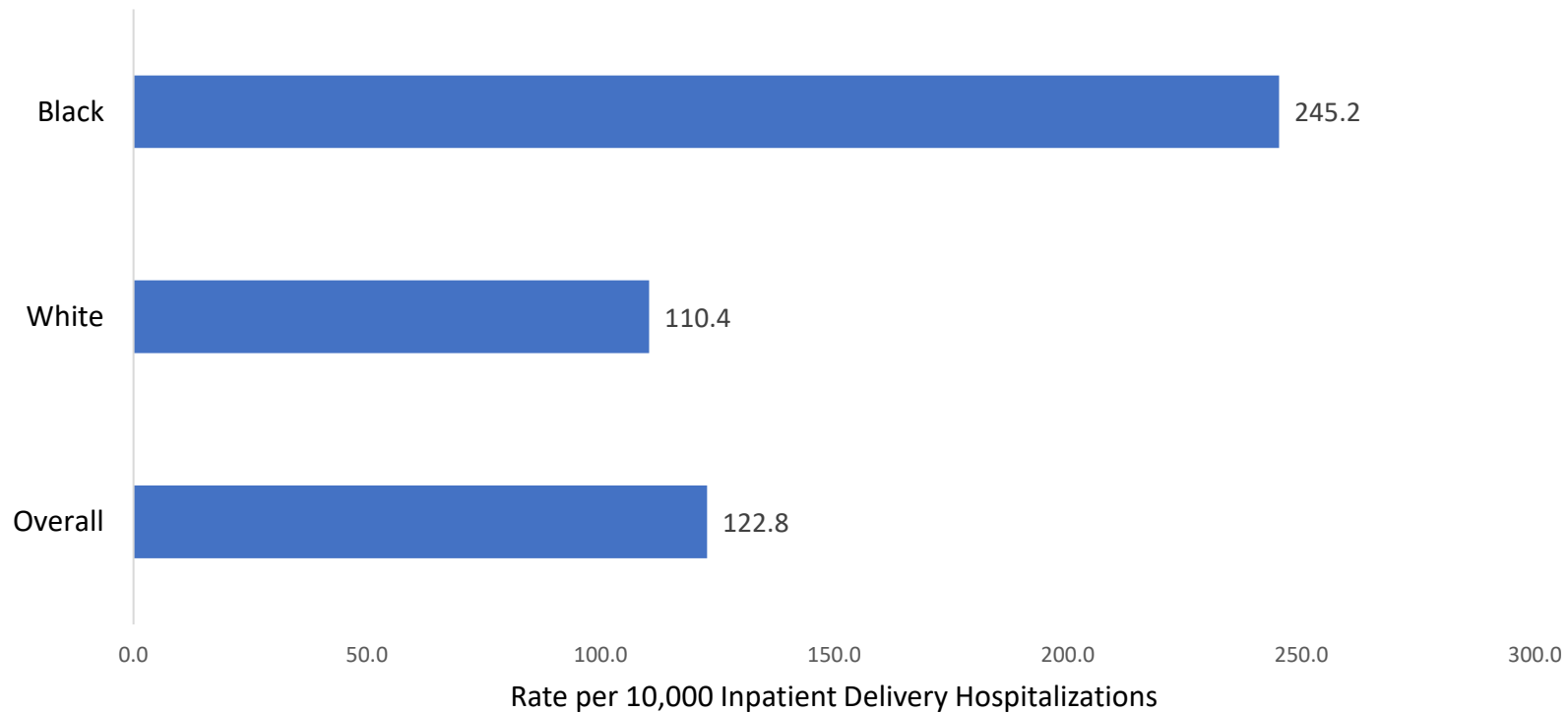
Region	Number of Cases	Prevalence Rate (per 10,000 live births)
1	166	622.9
2	233	810.4
3	154	849.9
4	1,930	995.5
5	443	752.8
6	959	1,072.9
7	539	1,050.7
8	844	940.9
9	1,644	1,619.9
10	8,556	1,872.5
<b>Total</b>	<b>15,468</b>	<b>1,387.2</b>

\*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

# Severe Maternal Morbidity Rate Prosperity Region 7, 2019

# Severe Maternal Morbidity, Prosperity Region 7, 2019 (rate per 10,000 delivery hospitalizations)



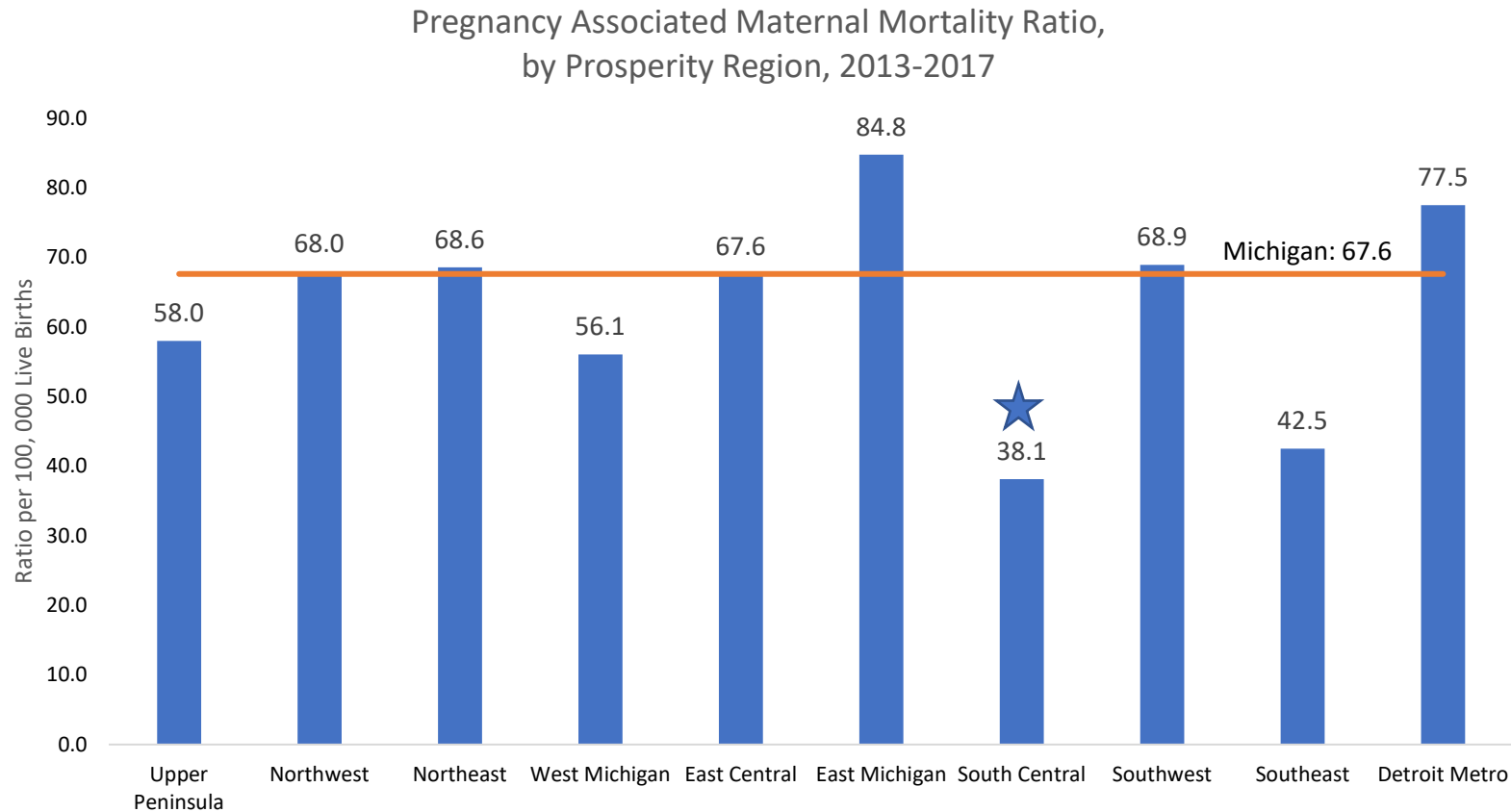
<u>2019 Michigan Rates</u>	
Overall:	194.3
White:	157.6
Black:	321.1
Asian:	192.1
Native American:	155.7
Hispanic:	205.7

\* Statistics for other races are suppressed due to insufficient sample sizes.

# Maternal Mortality Ratio Prosperity Region 7, 2013-2017

# Maternal Mortality Ratio, Prosperity Region 7, 2013-2017

(ratio per 100,000 live births)

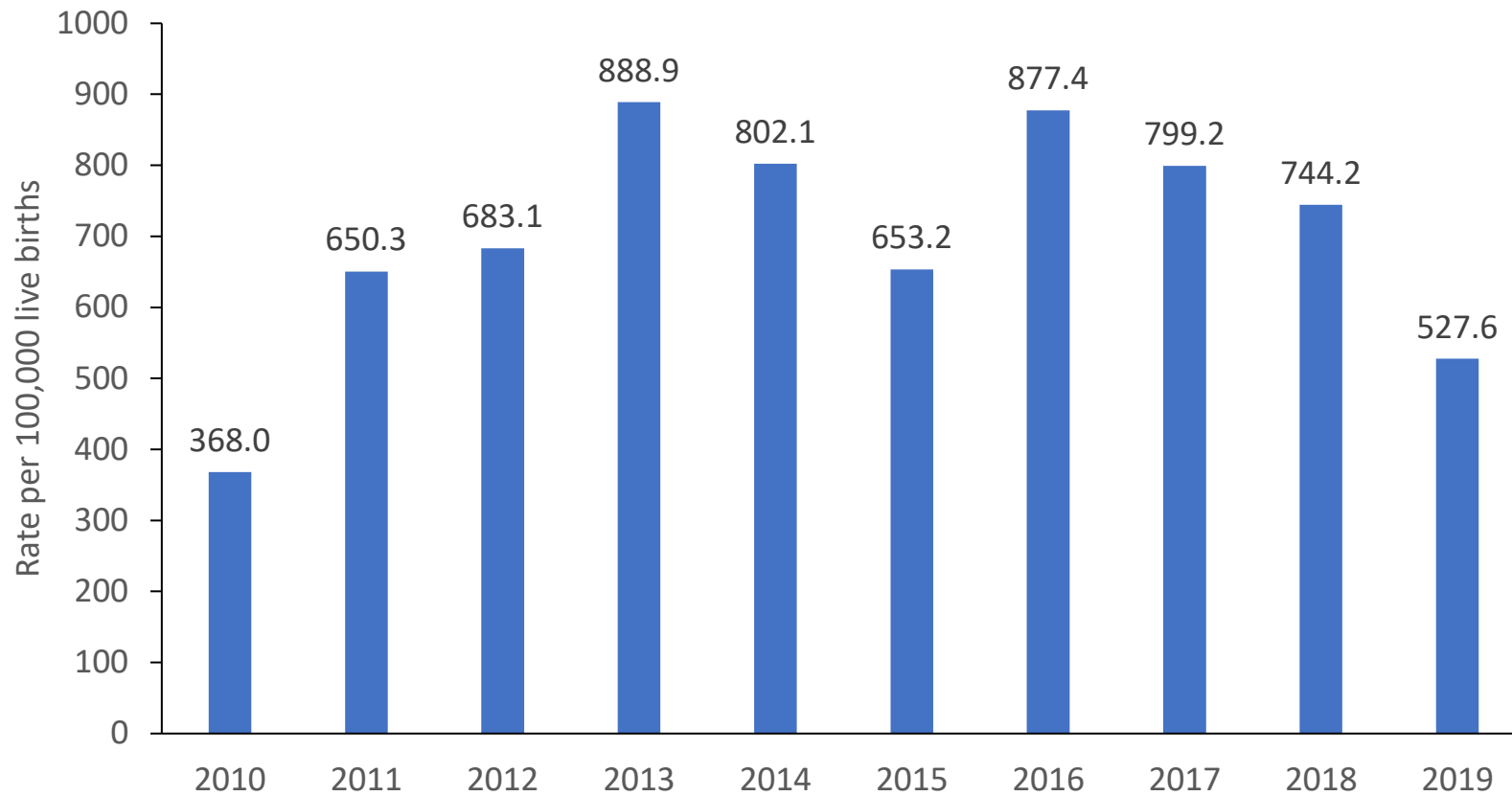


- Maternal deaths include deaths that occur during pregnancy, at delivery or within one year of pregnancy.
- Total maternal mortality includes both pregnancy associated mortality (unrelated to the pregnancy), pregnancy-related mortality (related to or aggravated by the pregnancy), and deaths where pregnancy-relatedness is unable to be determined.
- In Region Seven there were **10** maternal deaths between 2013 and 2017



# Neonatal Abstinence Syndrome (NAS) Prosperity Region 7, 2010-2019

# Neonatal Abstinence Syndrome\*, Prosperity Region 7, 2010-2019 (Rate per 100,000 Live Births)



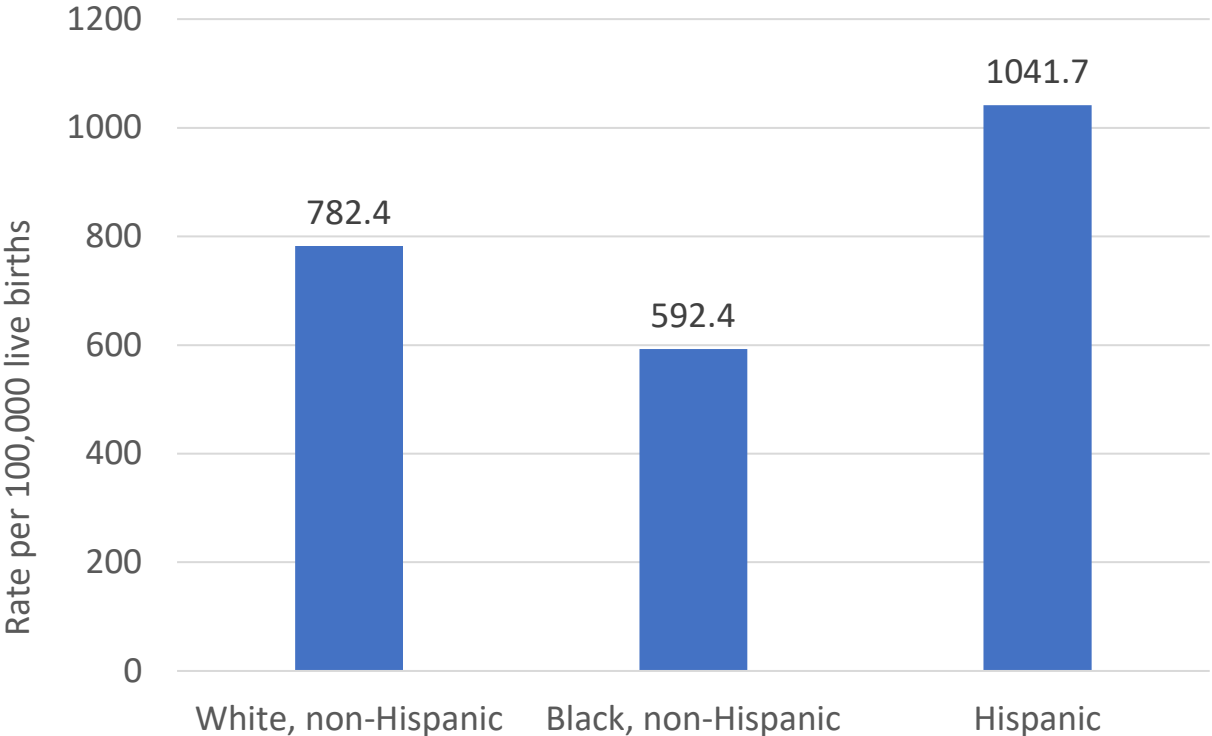
Year	# Live Births	# NAS	NAS Rate
2010	5,163	19	368.0
2011	5,228	34	650.3
2012	5,270	36	683.1
2013	5,175	46	888.9
2014	5,361	43	802.1
2015	5,205	34	653.2
2016	5,357	47	877.4
2017	5,130	41	799.2
2018	4,972	37	744.2
2019	4,928	26	527.6

**2019 Michigan Rate = 623.7**

\* 2010-2015: 779.5 (drug withdrawal syndrome in newborn) and 2016-current: P96.1 (neonatal withdrawal symptoms from maternal use of drugs of addiction)

Data source: MDHHS Division for Vital Records and Health Statistics. Michigan resident live birth file linked to the Michigan Inpatient Hospital Database.

# Neonatal Abstinence Syndrome\* by Maternal Race/Ethnicity, Prosperity Region 7, 2015-2019



Maternal Race/Ethnicity	# Live Births	# NAS	NAS Rate
White non-Hispanic	17,894	140	782.4
Black non-Hispanic	3,376	20	592.4
Hispanic	1,920	20	1041.7
American Indian	41	DNS	DNS

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

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

\* 2015: 779.5 (drug withdrawal syndrome in newborn) and 2016-current: P96.1 (neonatal withdrawal symptoms from maternal use of drugs of addiction)