

Maternal and Infant Health Statistics, Prosperity Region 9, Michigan

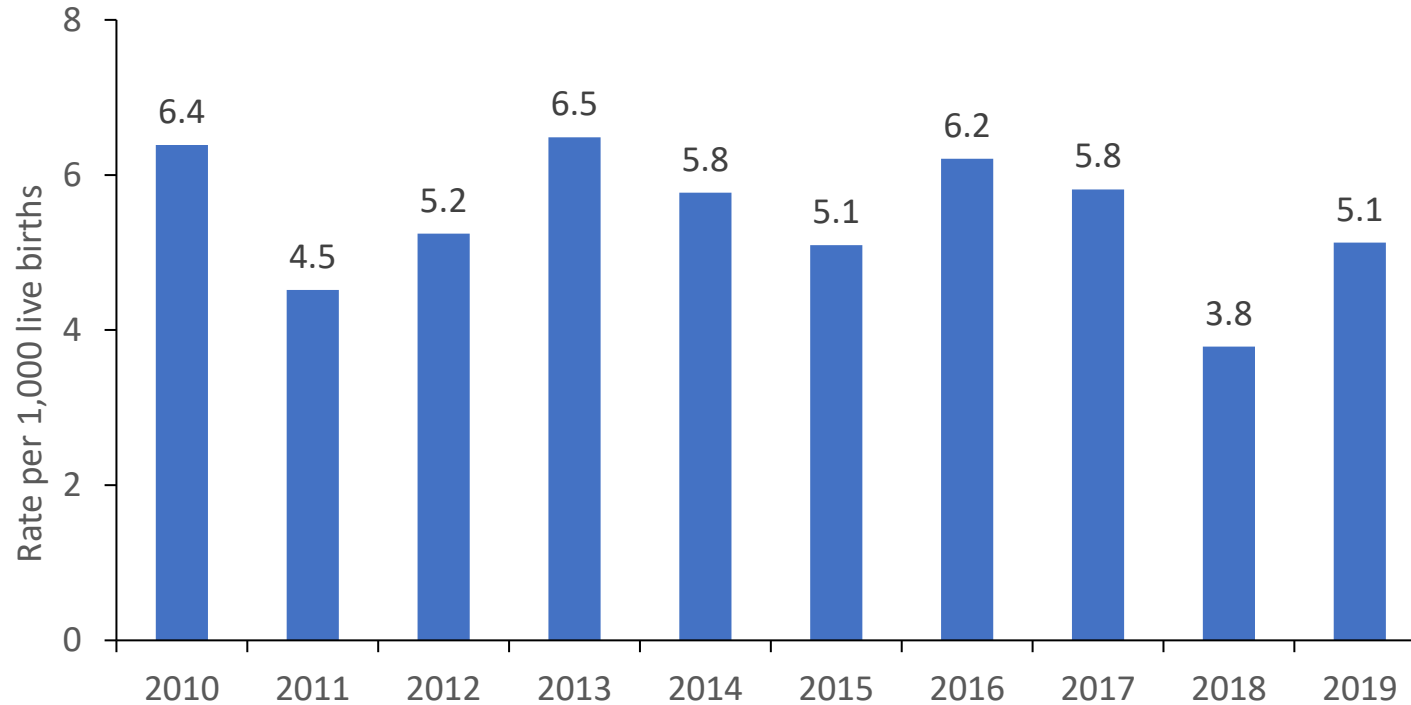
Prepared by Maternal and Child Health (MCH) Epidemiology Section,
Michigan Department of Health and Human Services (MDHHS)
Data source: Michigan resident live birth files (09/18/2020) and infant mortality files (02/18/2021),
Division for Vital Records and Health Statistics, MDHHS
June 2021

Infant Mortality Rate (IMR), Prosperity Region 9, 2010-2019

Infant Mortality Rate, Prosperity Region 9, 2010-2019

(rate per 1,000 live births)

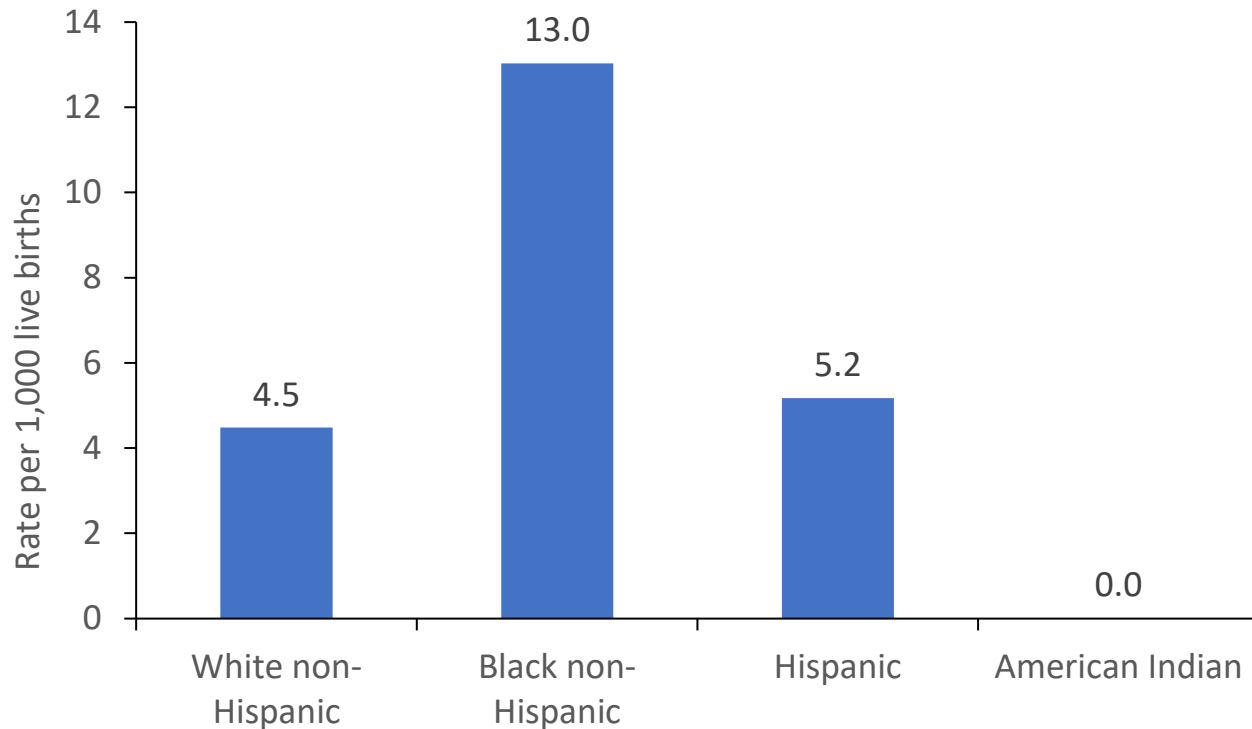
2019 Michigan Rate = 6.4



Year	# Live Births	# Infant Death	IMR
2010	10,646	68	6.4
2011	10,627	48	4.5
2012	10,297	54	5.2
2013	10,328	67	6.5
2014	10,571	61	5.8
2015	10,206	52	5.1
2016	10,471	65	6.2
2017	10,149	59	5.8
2018	10,035	38	3.8
2019	9,947	51	5.1

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 9, 2015-2019 (rate per 1,000 live births)



Maternal Race/Ethnicity	# Live Births	# Infant Death	IMR
White non-Hispanic	40,414	181	4.5
Black non-Hispanic	3,914	51	13.0
Hispanic	2,513	13	5.2
American Indian	89	0	0.0
Asian/Pacific Islander	2,158	DNS	DNS

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

2015-2019 Michigan Rates

White, nH = 4.9

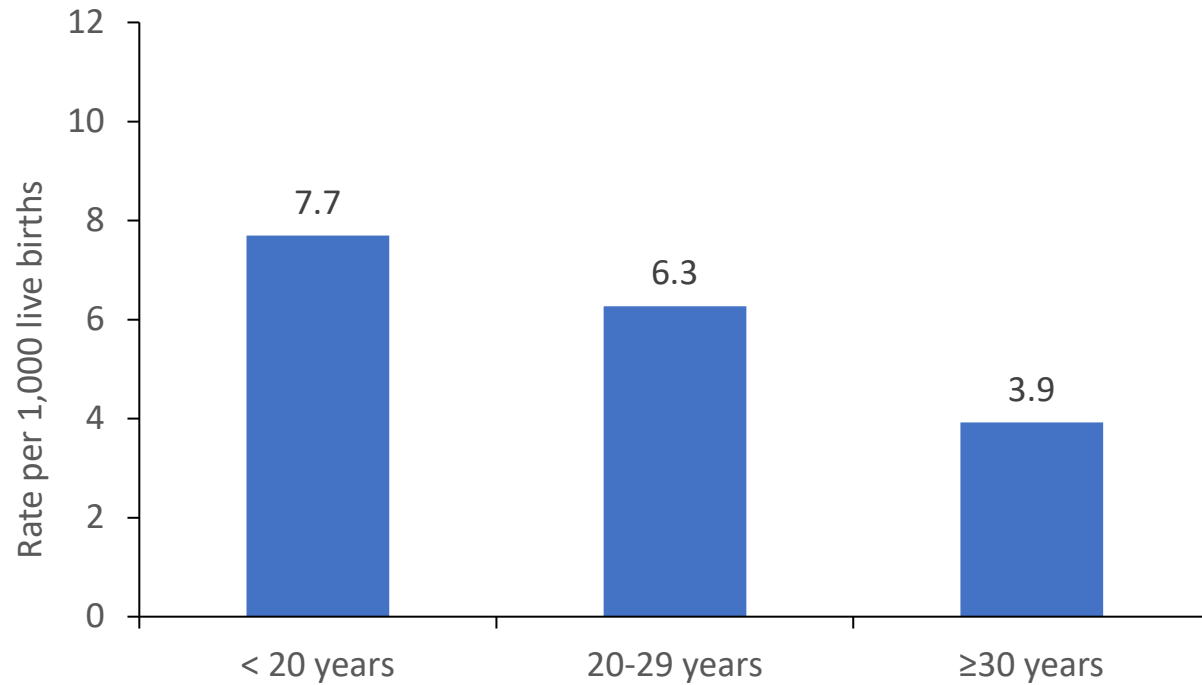
Black, nH = 13.4

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 9, 2015-2019 (rate per 1,000 live births)

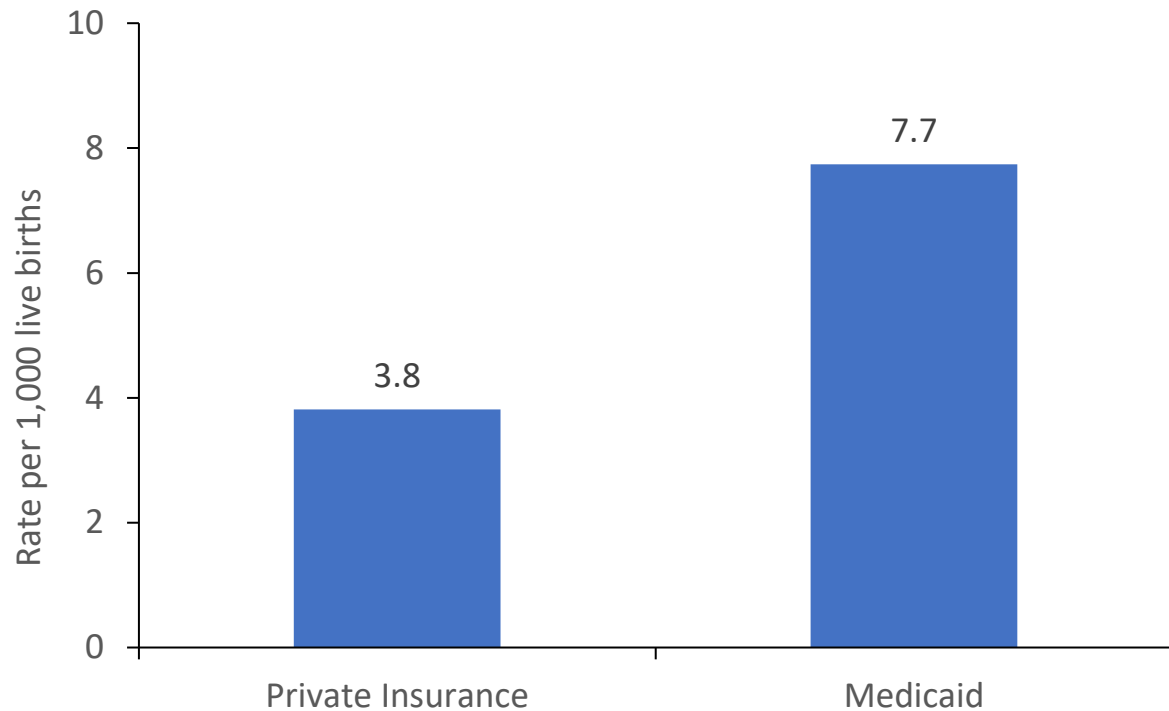


Maternal Age	# Live Births	# Infant Death	IMR
< 20 years	2,079	16	7.7
20-29 years	24,245	152	6.3
≥30 years	24,482	96	3.9

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 9, 2015-2019 (rate per 1,000 live births)

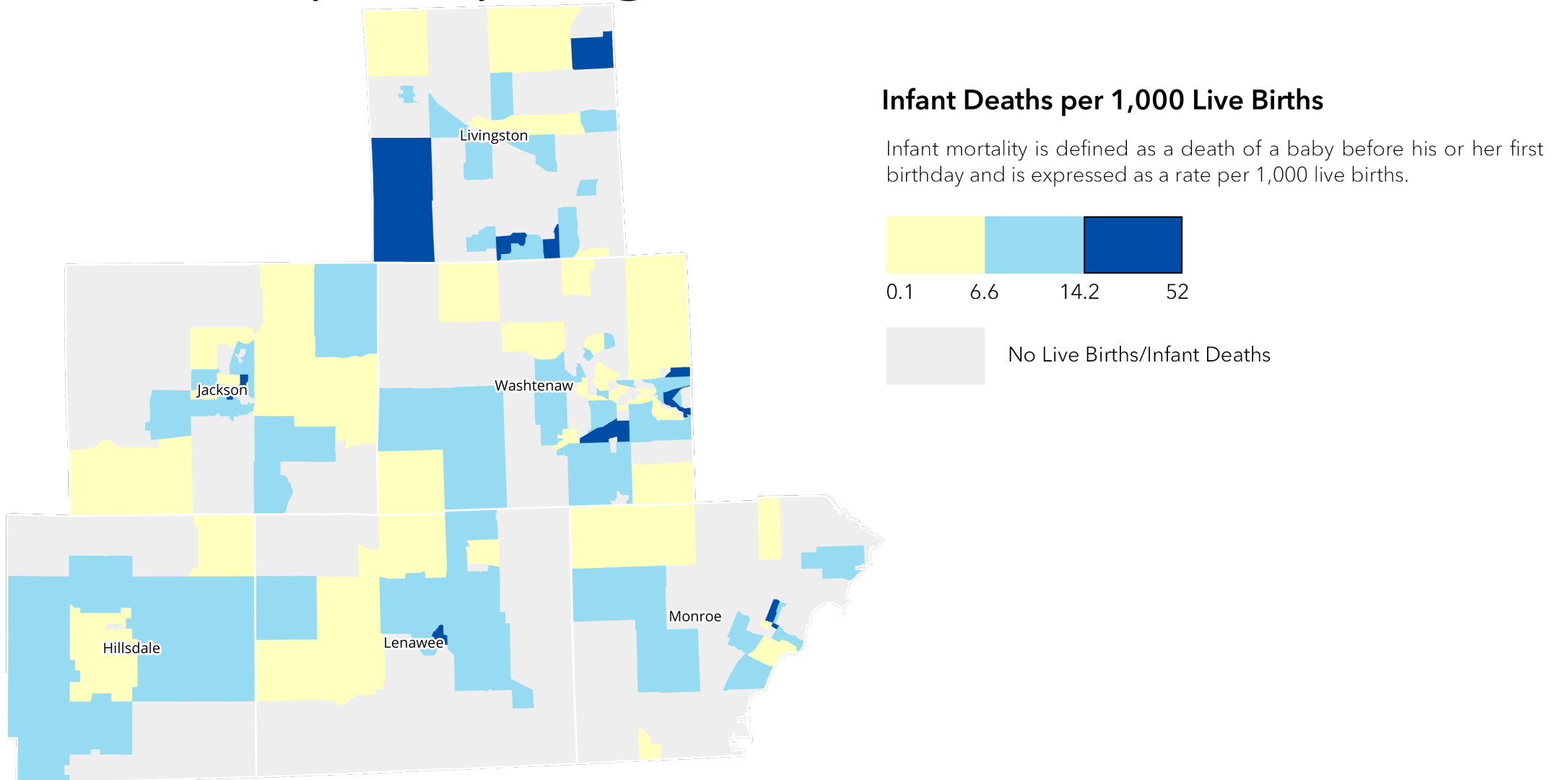


Payment Source	# Live Births	# Infant Death	IMR
Private Insurance	33,041	126	3.8
Medicaid	16,402	127	7.7

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

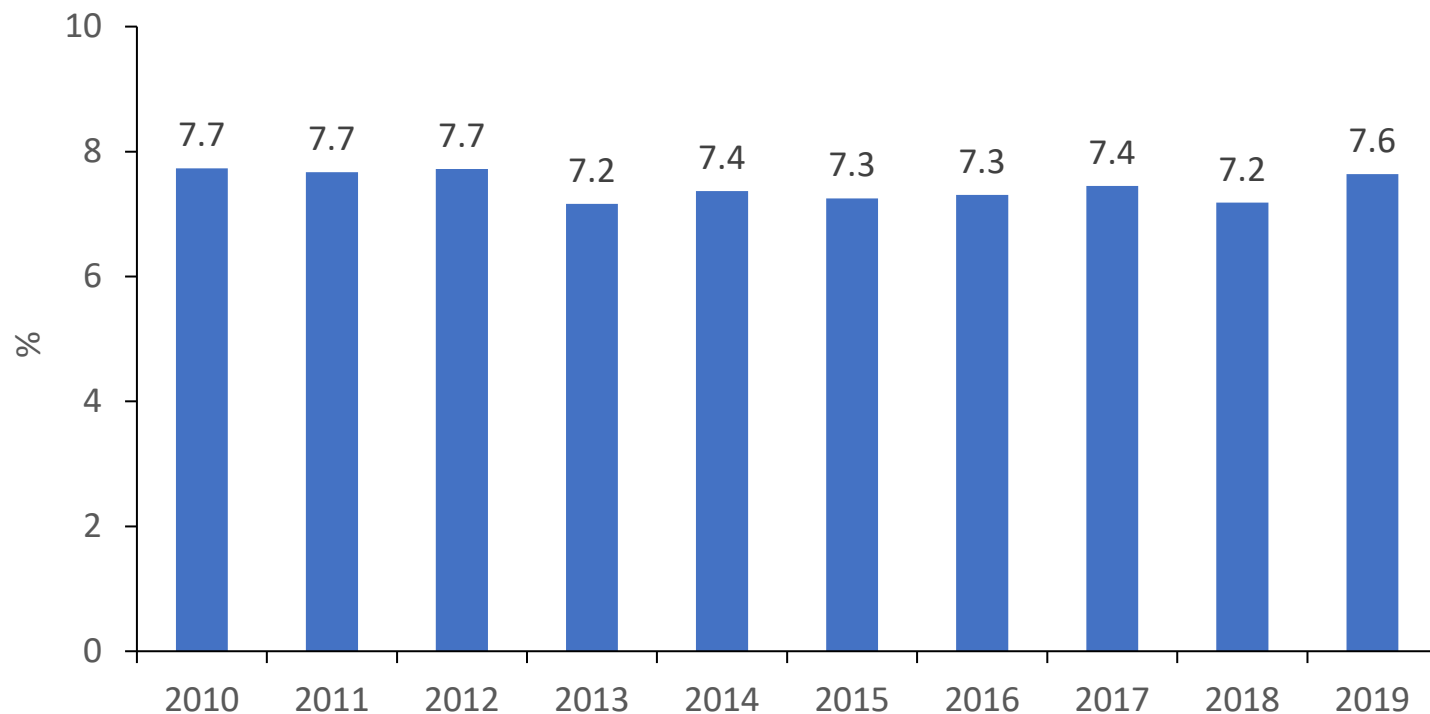
Infant mortality is defined as a death of a baby before his or her first birthday and is expressed as a rate per 1,000 live births.

Infant Mortality Rate by Census Tract Prosperity Region 9, 2014-2018



Low Birthweight (LBW), Prosperity Region 9, 2010-2019

Low Birthweight (Birthweight <2,500 Grams), Prosperity Region 9, 2010-2019

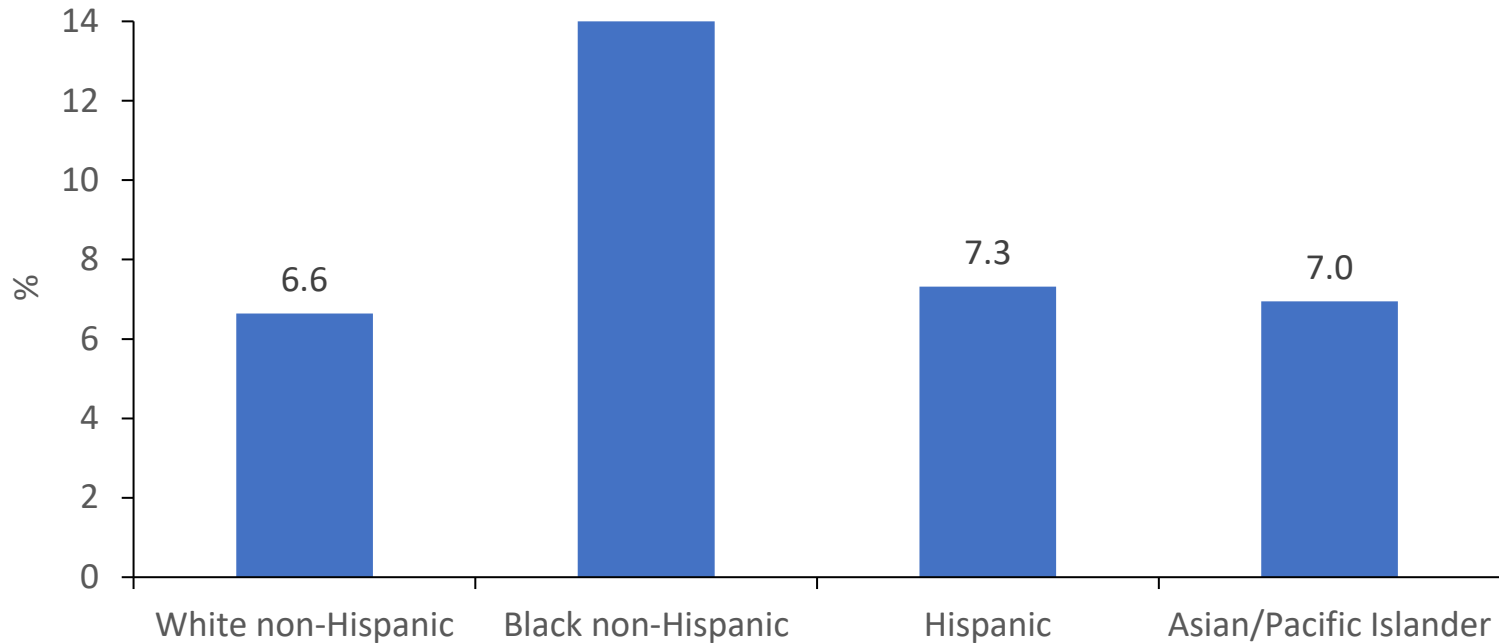


2019 Michigan Percent = 8.8

Year	# Live Births	# LBW	LBW %
2010	10,646	823	7.7
2011	10,627	815	7.7
2012	10,297	795	7.7
2013	10,328	740	7.2
2014	10,571	779	7.4
2015	10,206	740	7.3
2016	10,471	765	7.3
2017	10,149	756	7.4
2018	10,035	721	7.2
2019	9,947	760	7.6

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 9, 2015-2019



Maternal Race/Ethnicity	# Live Births	# LBW	LBW %
White non-Hispanic	40,414	2,685	6.6
Black non-Hispanic	3,914	550	14.1
Hispanic	2,513	184	7.3
American Indian	89	DNS	DNS
Asian/Pacific Islander	2,158	150	7.0

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

2015-2019 Michigan Percentages

White, nH = 7.0

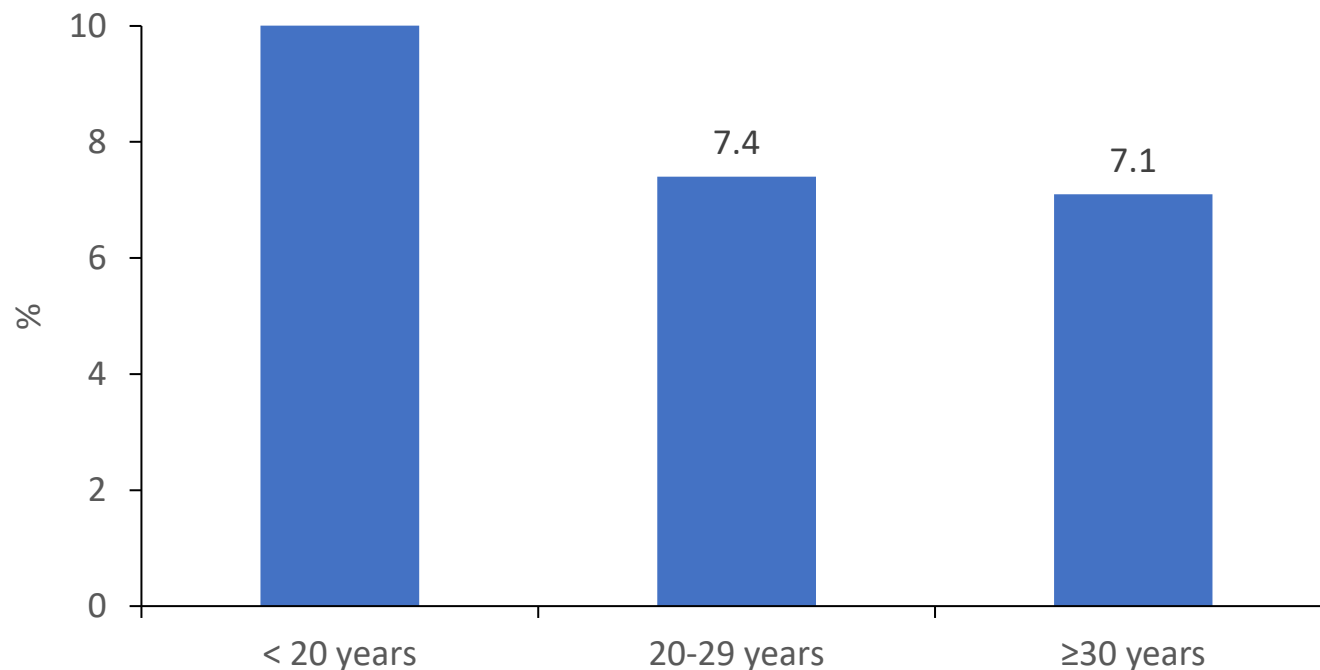
Black, nH = 14.8

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 9, 2015-2019

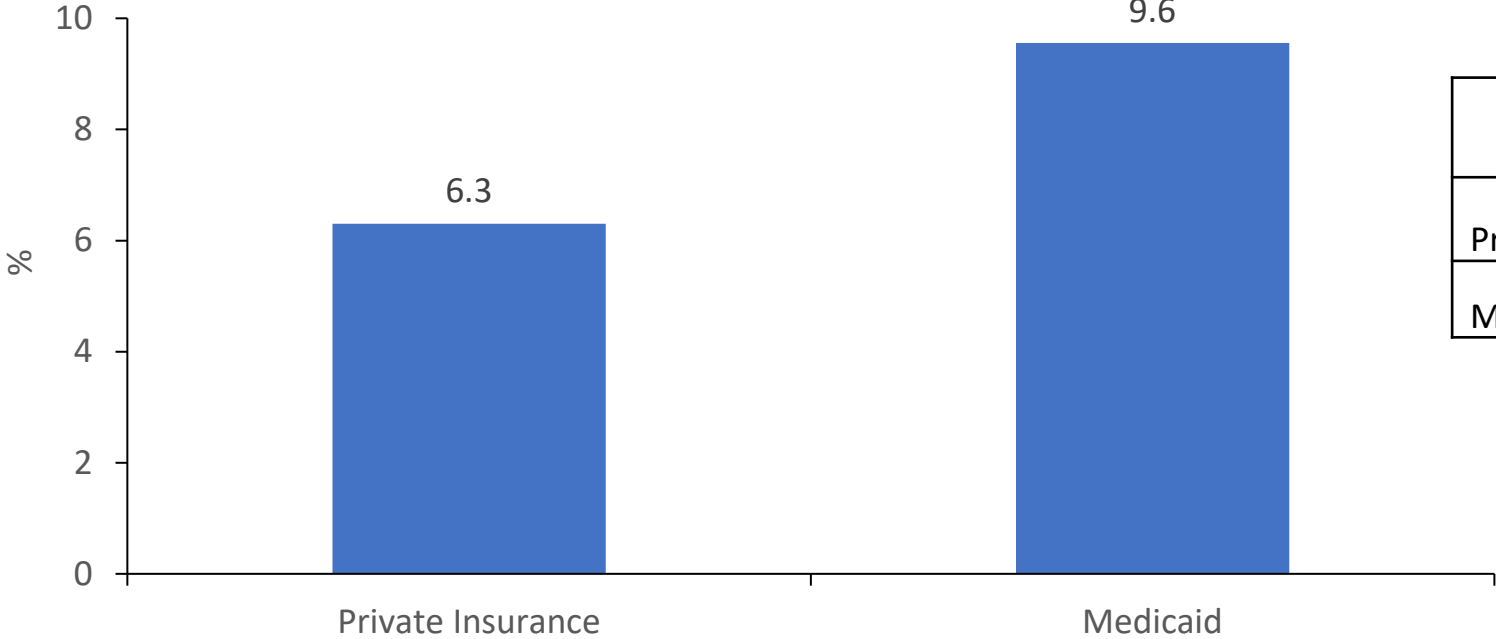


Maternal Age	# Live Births	# LBW	LBW %
< 20 years	2,079	209	10.1
20-29 years	24,245	1,795	7.4
≥30 years	24,482	1,738	7.1

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 9, 2015-2019

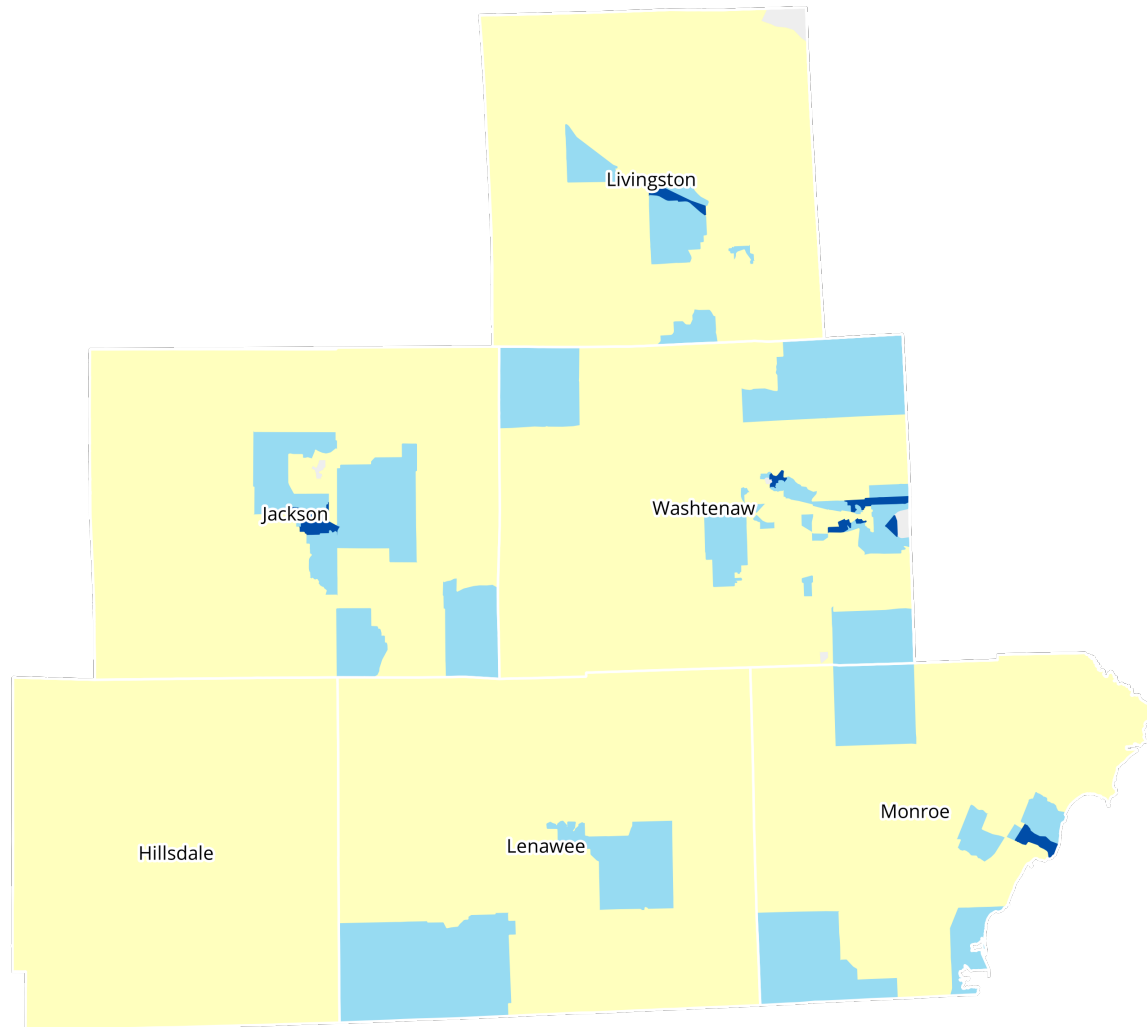


Payment Source	# Live Births	# LBW	LBW %
Private Insurance	33,041	2,083	6.3
Medicaid	16,402	1,567	9.6

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

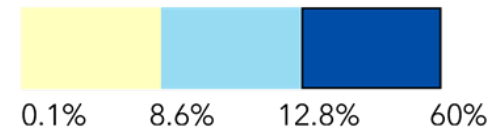
Low birthweight rate is defined as number of births with baby birthweight <2,500 grams per 100 live births.

Low Birthweight by Census Tract Prosperity Region 9, 2014-2018



Percent Low Birthweight

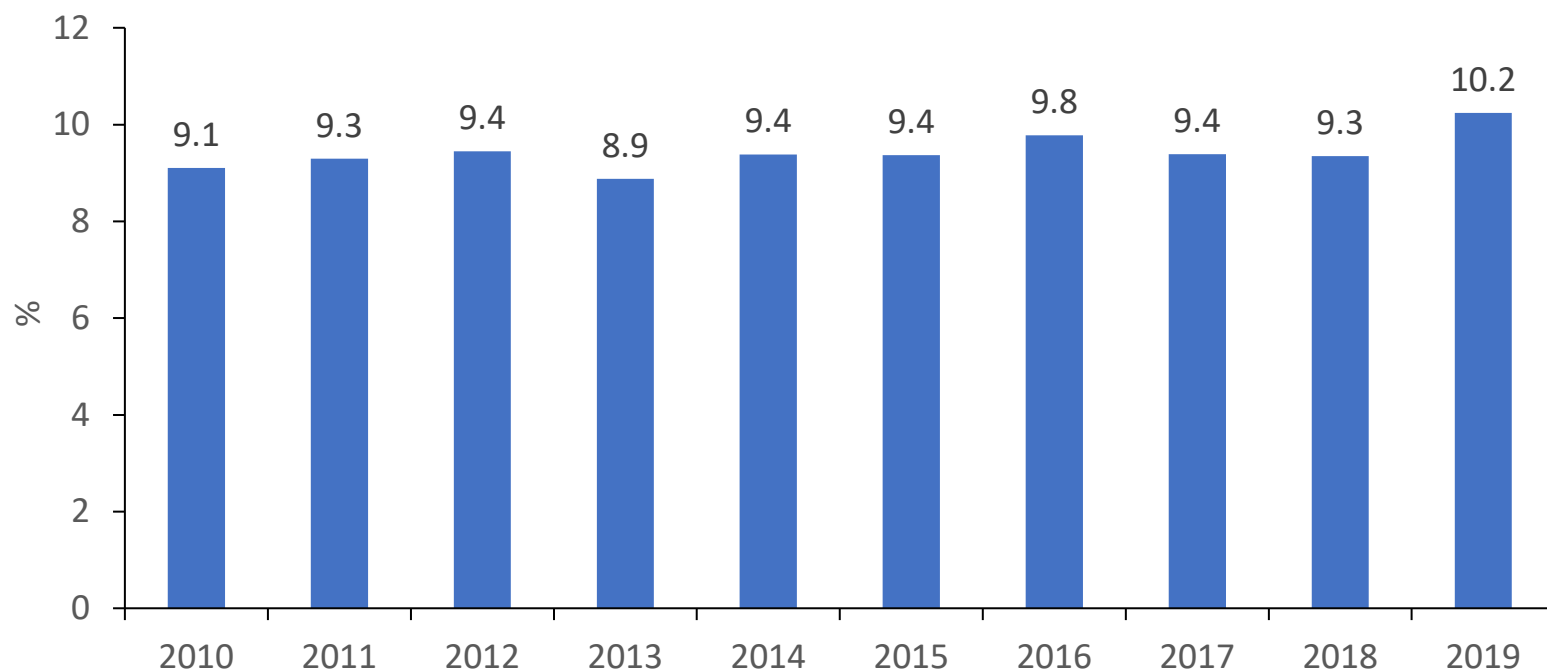
Low birthweight rate is defined as number of births with baby birthweight less than 5.5lbs (<2,500 grams) per 100 live births.



No Live Births/Low Birthweight Births

Preterm Birth (PTB), Prosperity Region 9, 2010-2019

Preterm Birth (Estimated Gestational Age <37 Weeks), Prosperity Region 9, 2010-2019

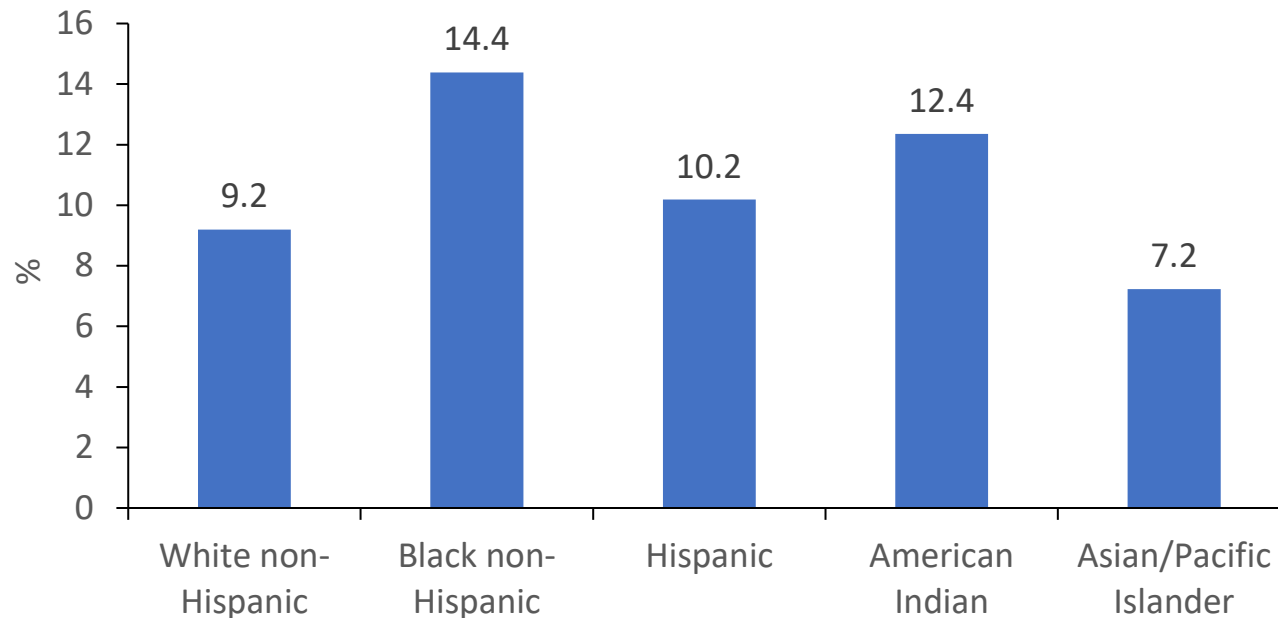


2019 Michigan Percent = 10.3

Year	# Live Births	# PTB	PTB %
2010	10,646	969	9.1
2011	10,627	988	9.3
2012	10,297	973	9.4
2013	10,328	917	8.9
2014	10,571	992	9.4
2015	10,206	956	9.4
2016	10,471	1,024	9.8
2017	10,149	953	9.4
2018	10,035	938	9.3
2019	9,947	1,019	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 Race/Ethnicity, Prosperity Region 9, 2015-2019



Maternal Race/Ethnicity	# Live Births	# PTB	PTB %
White non-Hispanic	40,414	3,718	9.2
Black non-Hispanic	3,914	563	14.4
Hispanic	2,513	256	10.2
American Indian	89	11	12.4
Asian/Pacific Islander	2,158	156	7.2

2015-2019 Michigan Percentages

White, nH = 9.0

Black, nH = 14.6

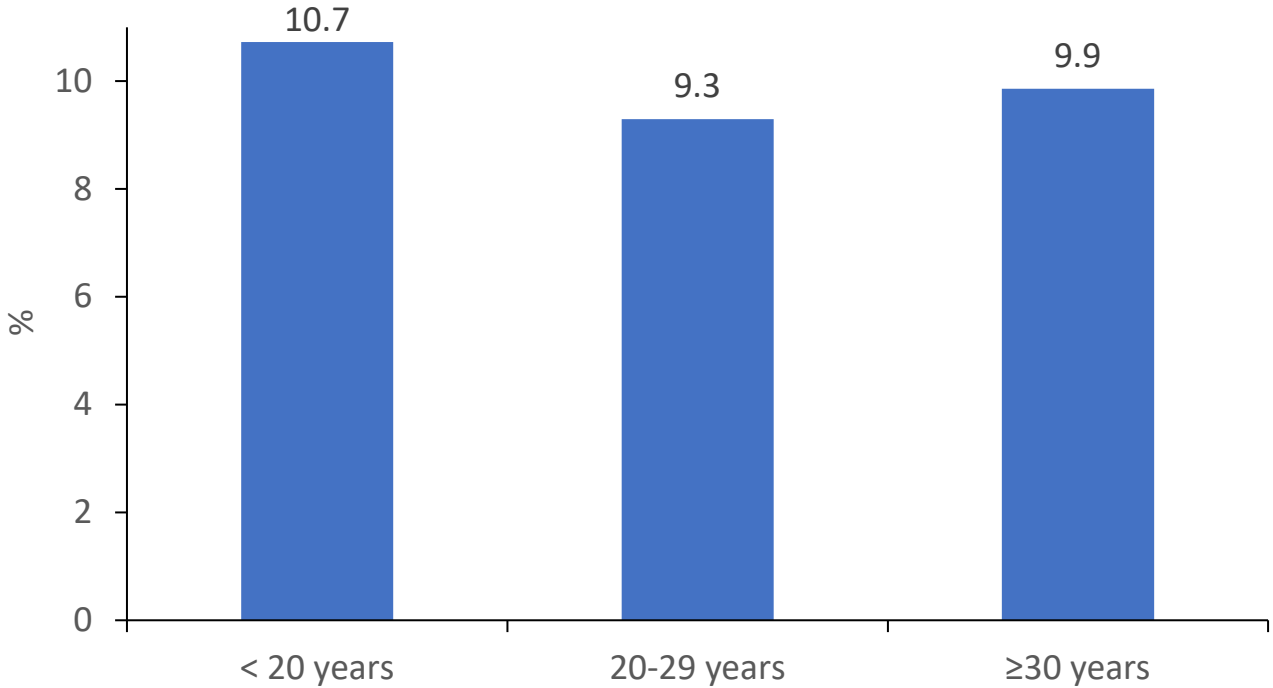
Hispanic = 9.4

Asian/Pacific Islander = 10.2

American Indian = 8.2

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 9, 2015-2019

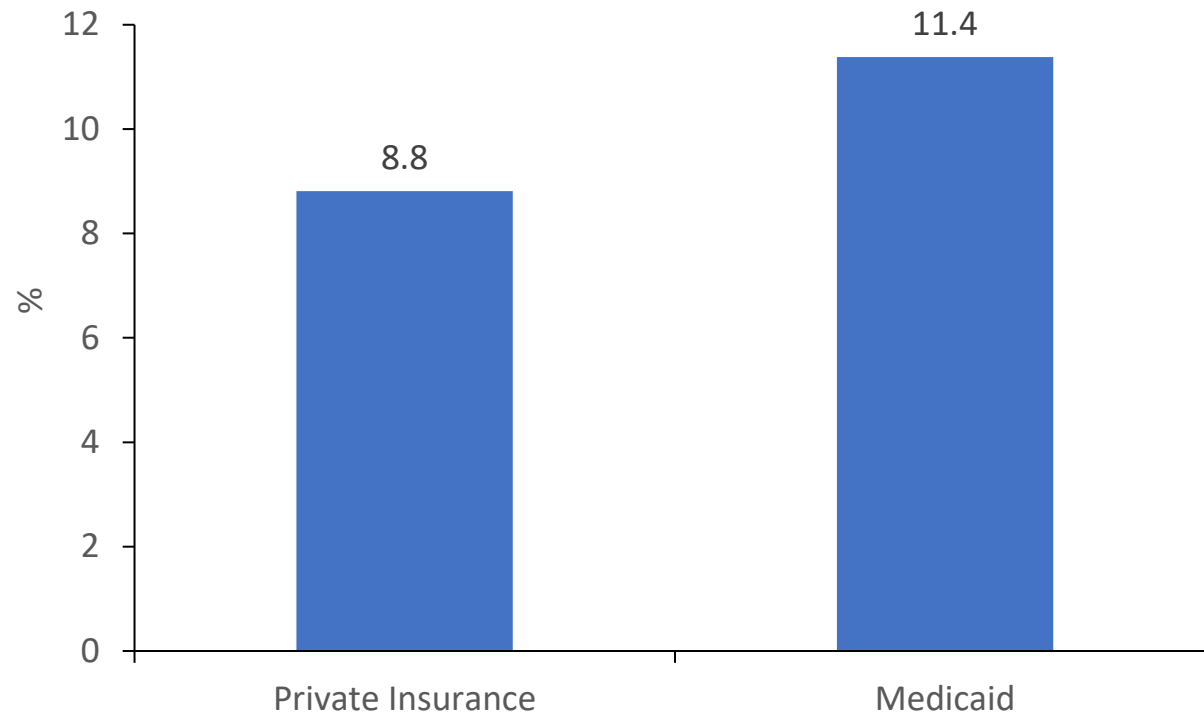


Maternal Age	# Live Births	# PTB	PTB %
< 20 years	2,079	223	10.7
20-29 years	24,245	2,254	9.3
≥30 years	24,482	2,413	9.9

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 9, 2015-2019

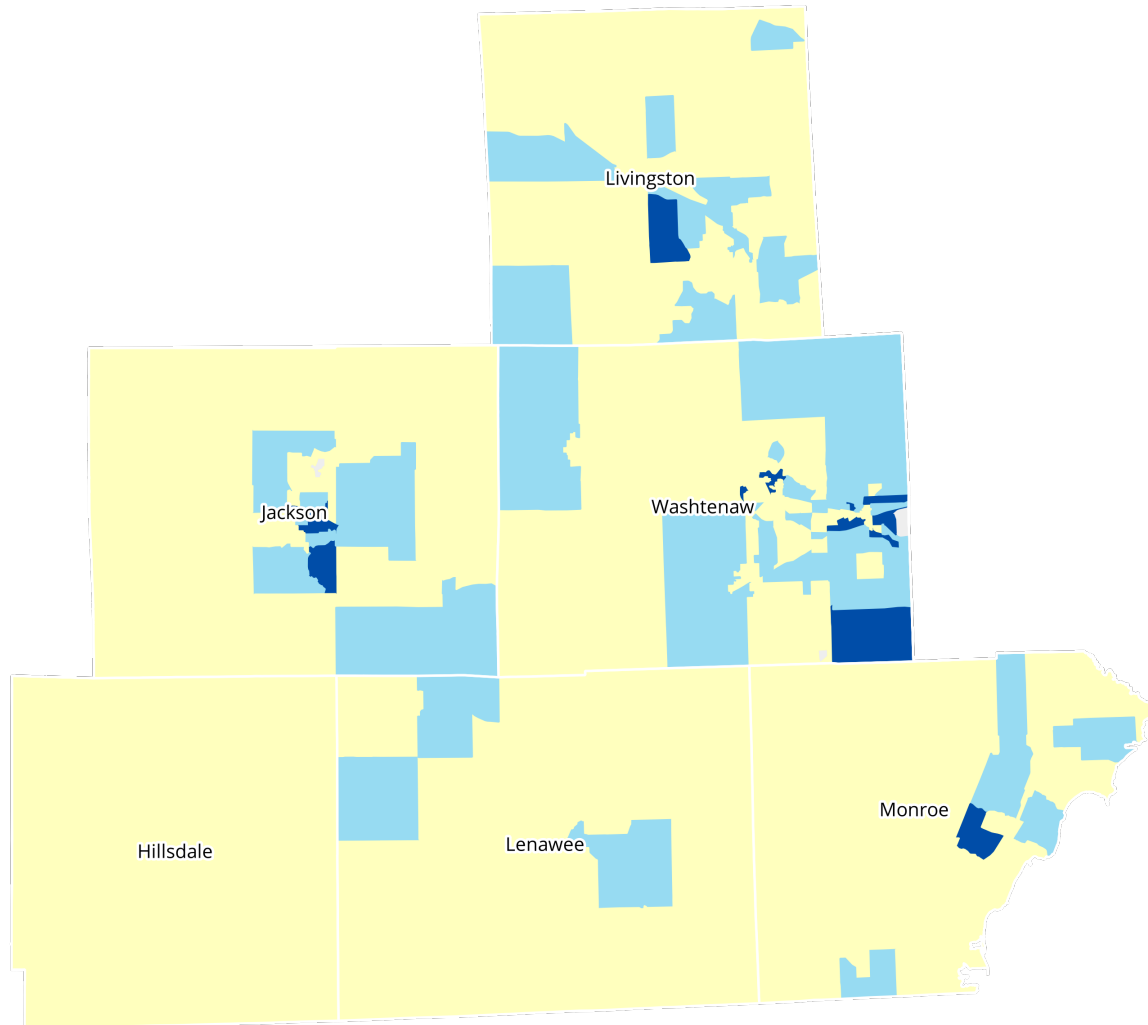


Payment Source	# Live Births	# PTB	PTB %
Private Insurance	33,041	2,910	8.8
Medicaid	16,402	1,866	11.4

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

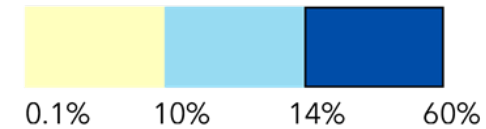
Preterm birth rate is defined as number of births delivered before 37 completed weeks of gestation per 100 live births. Gestational age is based on the obstetric estimate of gestation.

Preterm Birth by Census Tract Prosperity Region 9, 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.

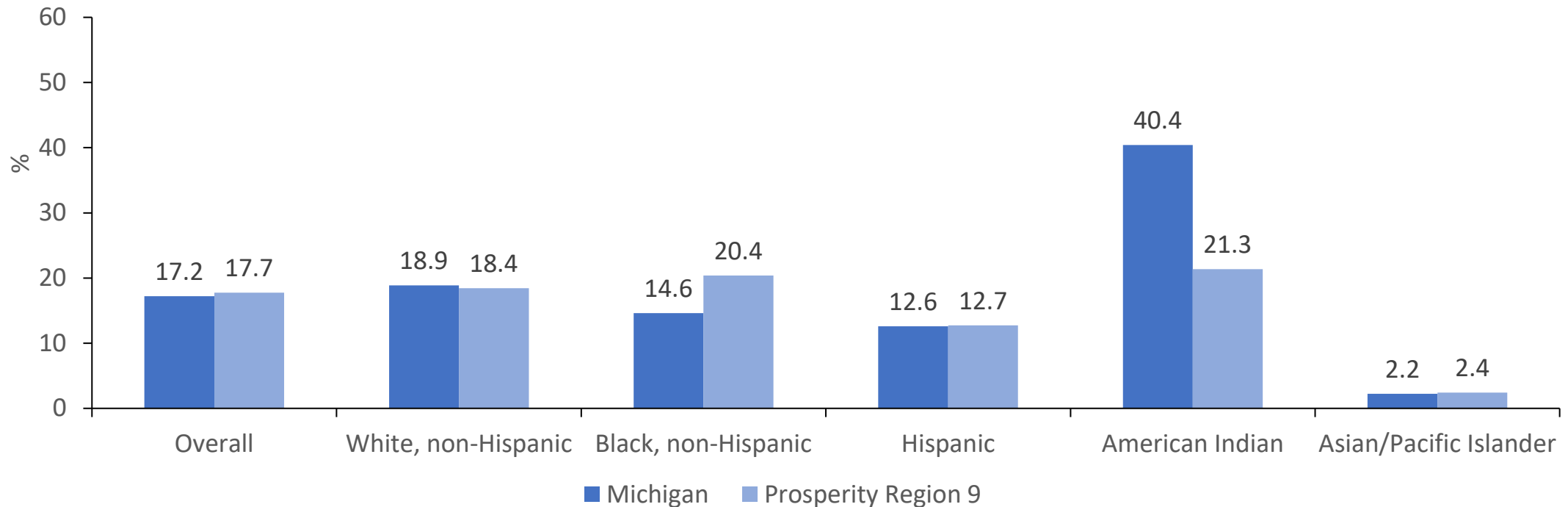


No Live Births/Preterm Births

Smoking During Pregnancy, Prosperity Region 9, 2015-2019

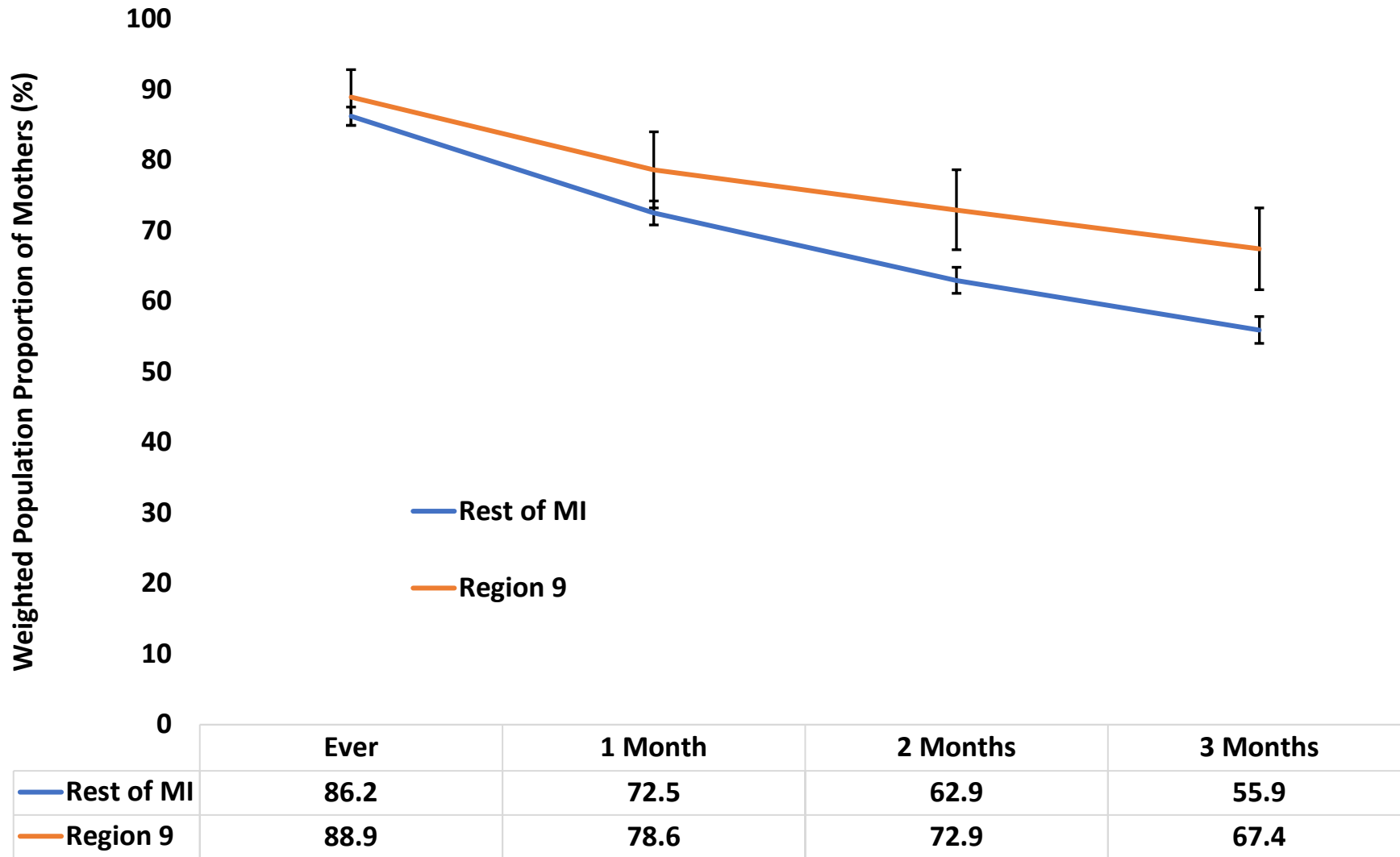
Smoking During Pregnancy by Maternal Race/Ethnicity, Michigan and Prosperity Region 9, 2015-2019

Average Percent Smoking During Pregnancy by Maternal Race/Ethnicity, Michigan and Prosperity Region 9, 2015-2019



Breastfeeding Initiation and Duration, Prosperity Region 9

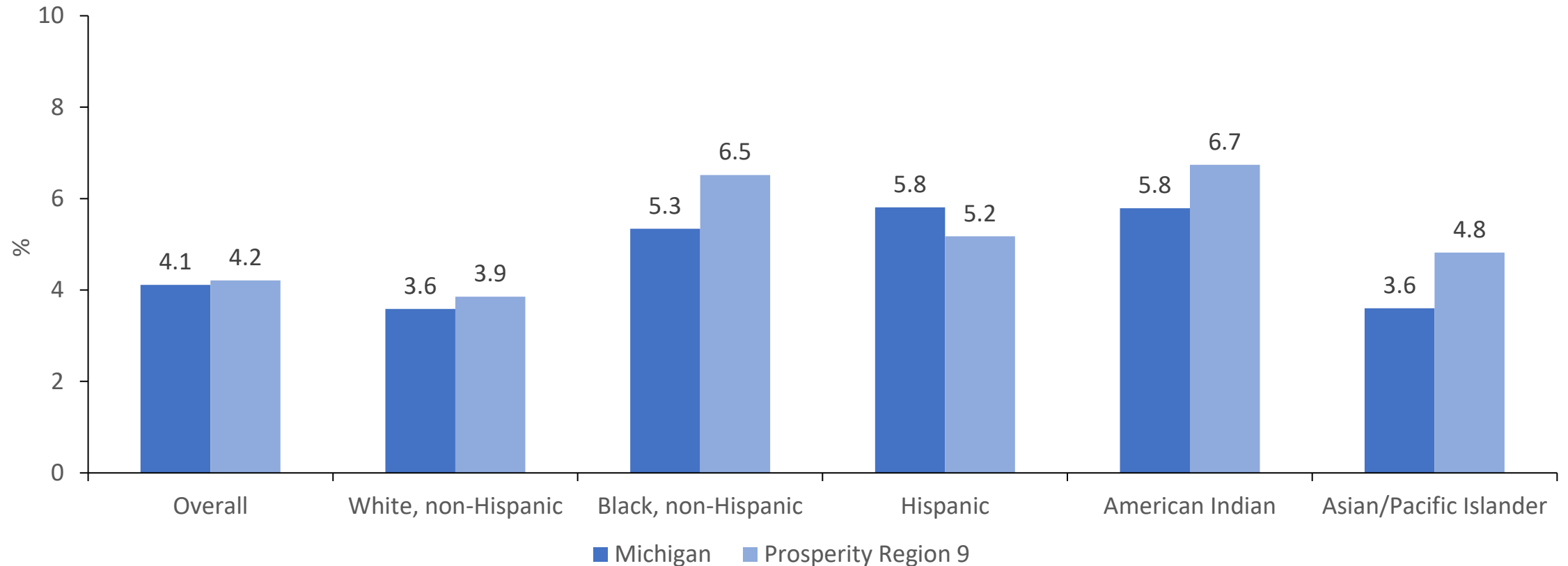
Breastfeeding Initiation and Duration, Region 9 v Rest of Michigan MI PRAMS 2016-2018



- Breastfeeding in Region 9 is more prevalent than in the remainder of the state at three of four time points
 - 1 month
 - 2 months
 - 3 months
 - All $p < 0.05$

Late Entry into Prenatal Care, Prosperity Region 9, 2015-2019

Late Entry Into Prenatal Care by Maternal Race/Ethnicity, Michigan and Prosperity Region 9, 2015-2019



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

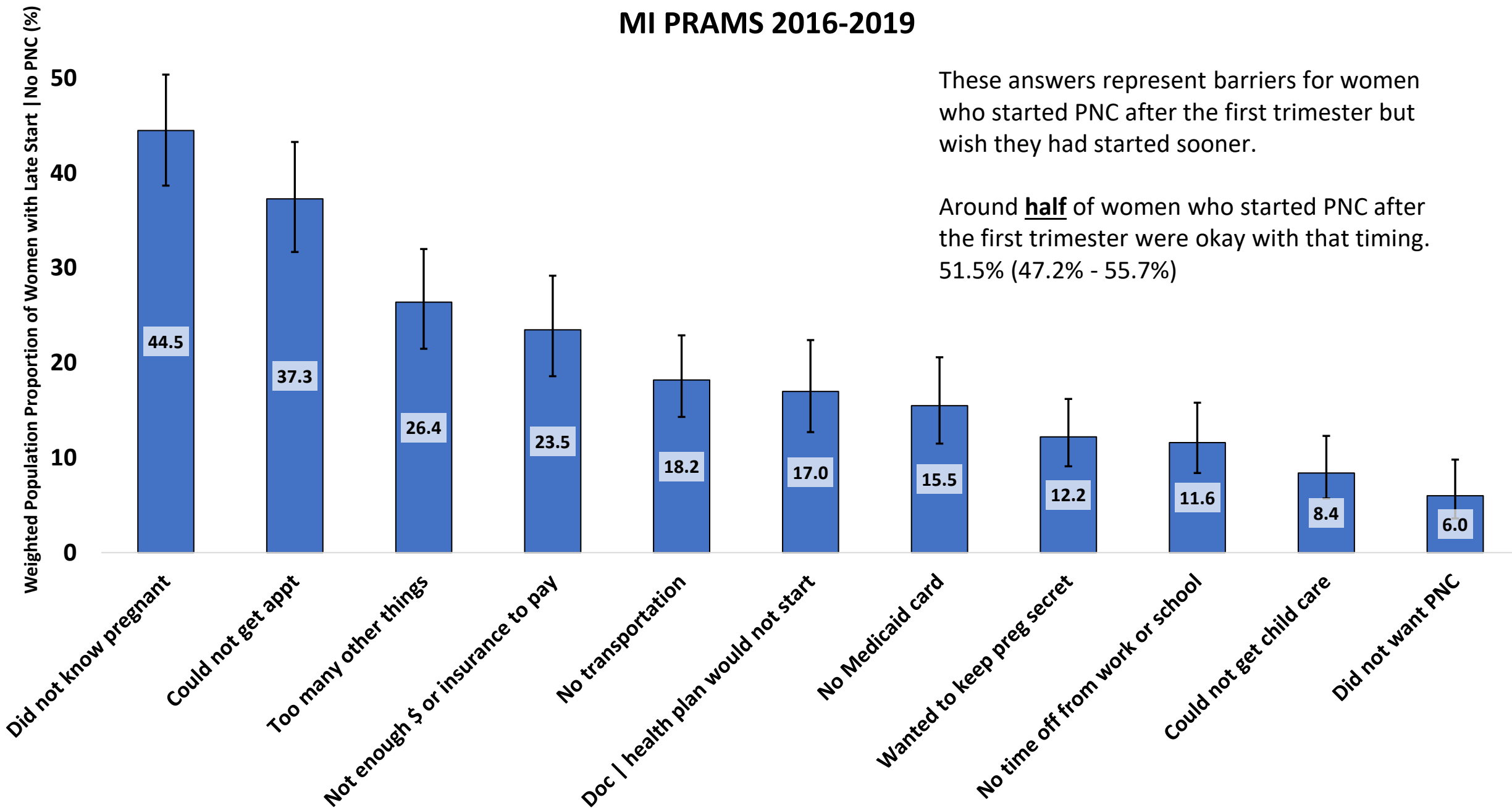
Barriers to Prenatal Care, Michigan, 2016-2019

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

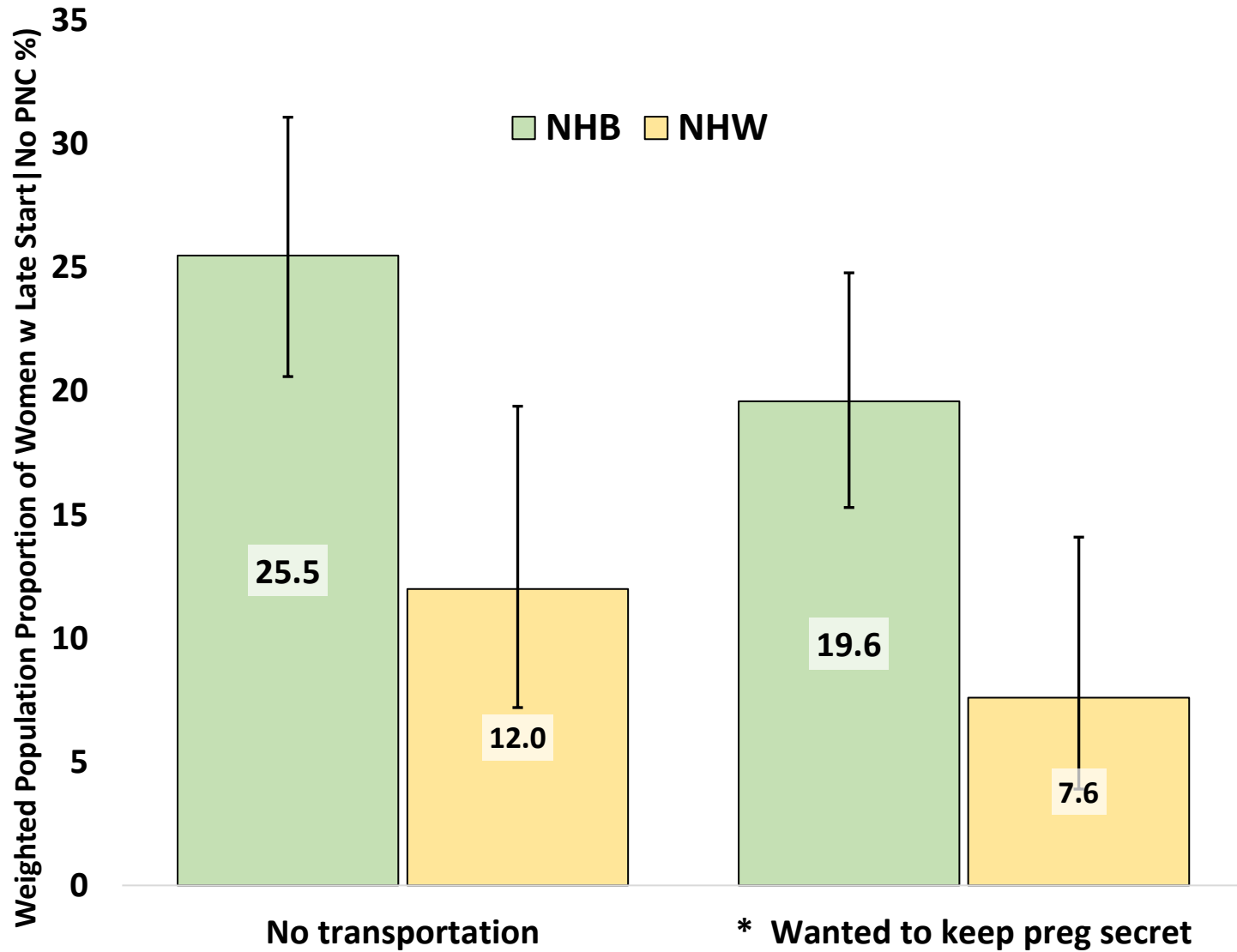
MI PRAMS 2016-2019

These answers represent barriers for women who started PNC after the first trimester but wish they had started sooner.

Around **half** of women who started PNC after the first trimester were okay with that timing. 51.5% (47.2% - 55.7%)

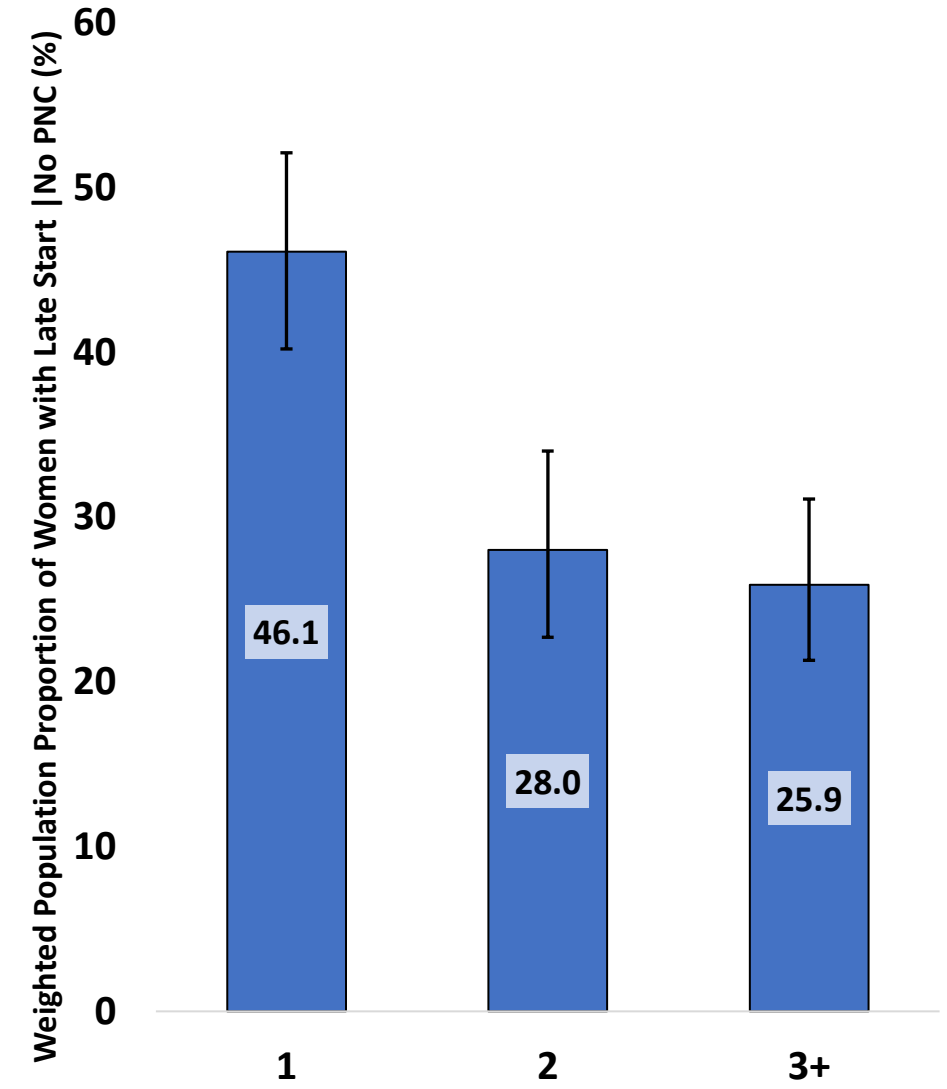


**Selected PNC Barriers with Significant Differences by Maternal Race/Ethnicity
MI PRAMS 2016-2019**



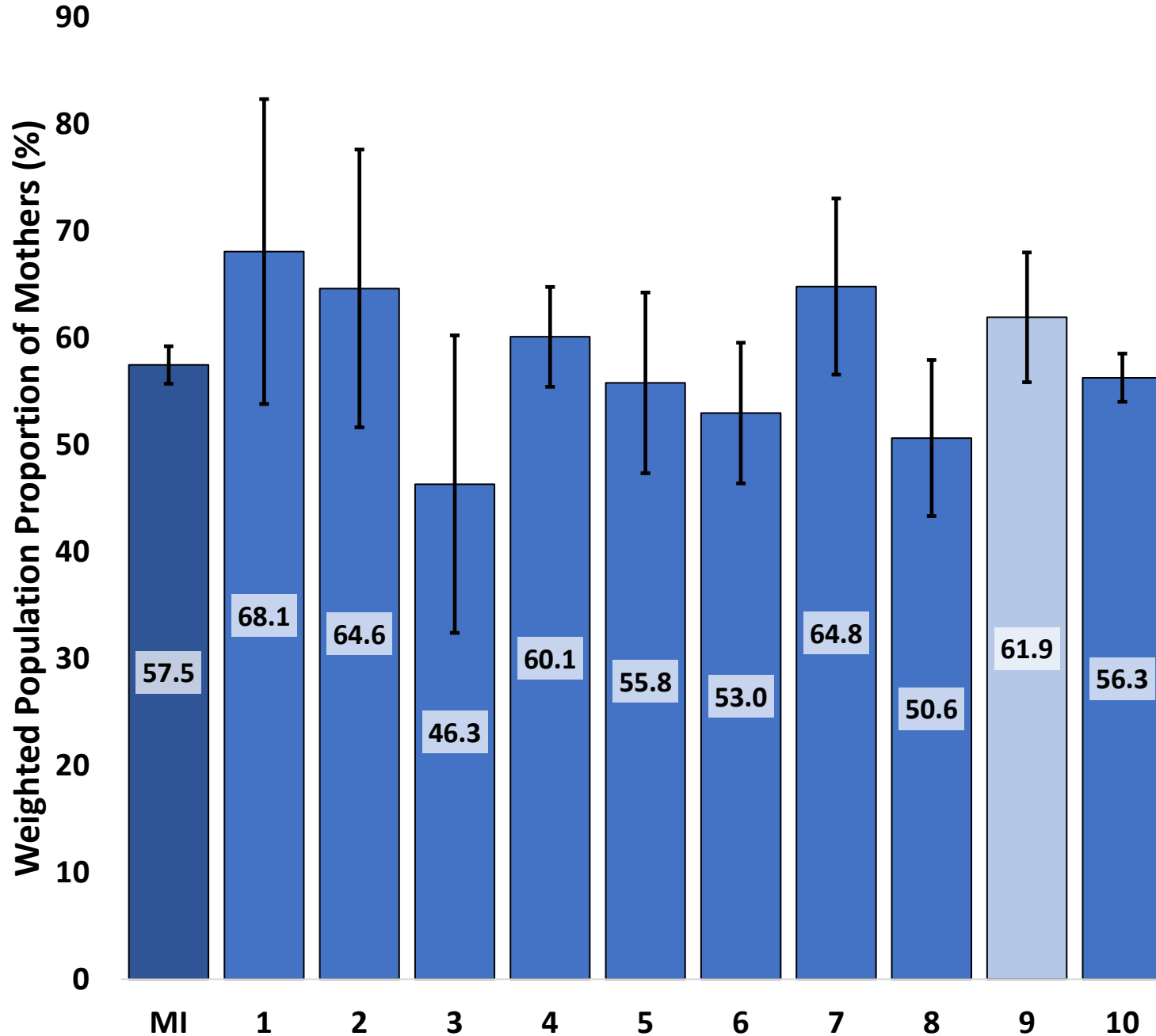
* Relative Standard Error between 30-50%; interpret estimate with caution

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



Pregnancy Intention, Prosperity Region 9, 2016-2018

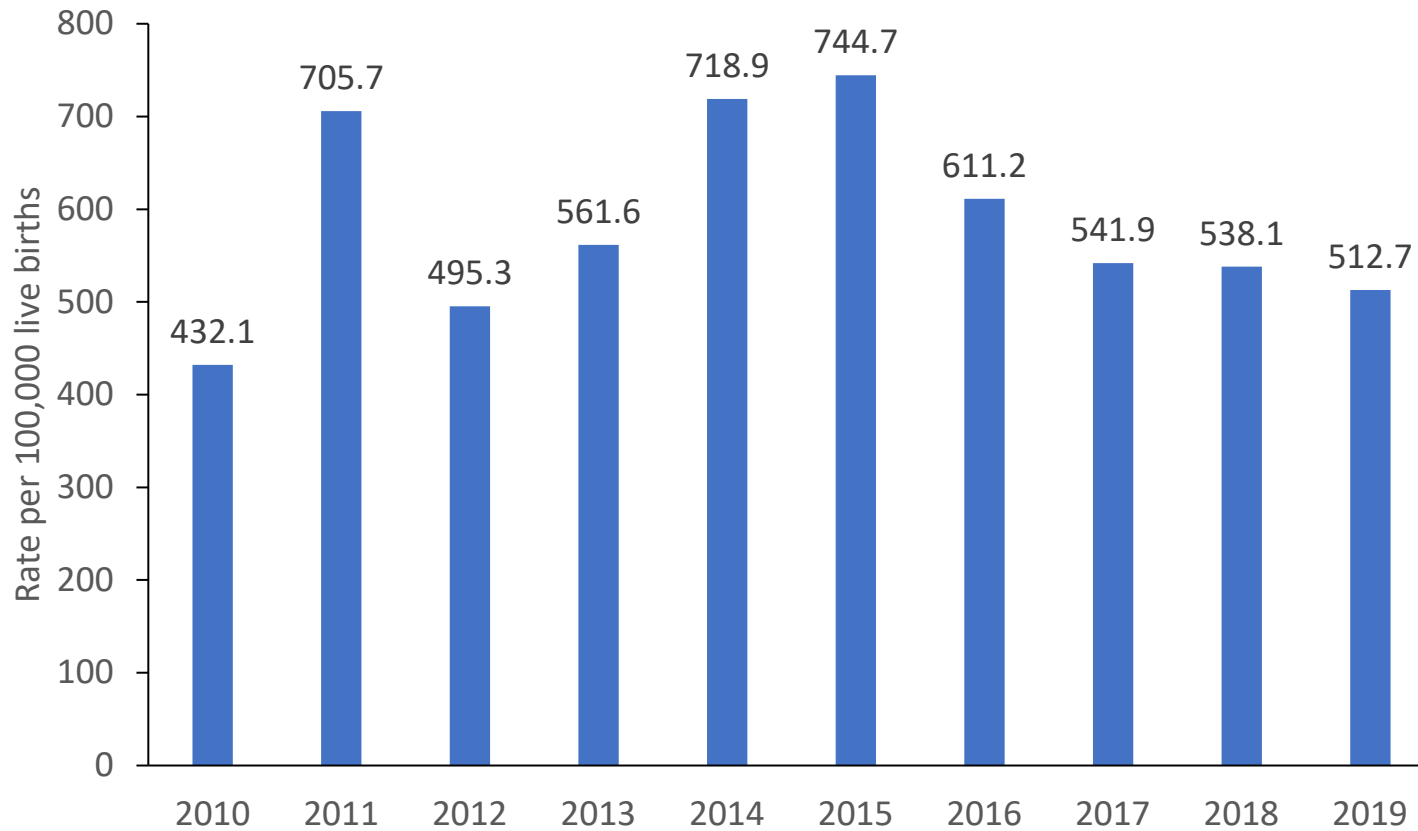
Intended Pregnancy; MI PRAMS 2016-2018



- 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 9, 2010-2019

Neonatal Abstinence Syndrome*, Prosperity Region 9, 2010-2019 (Rate per 100,000 Live Births)



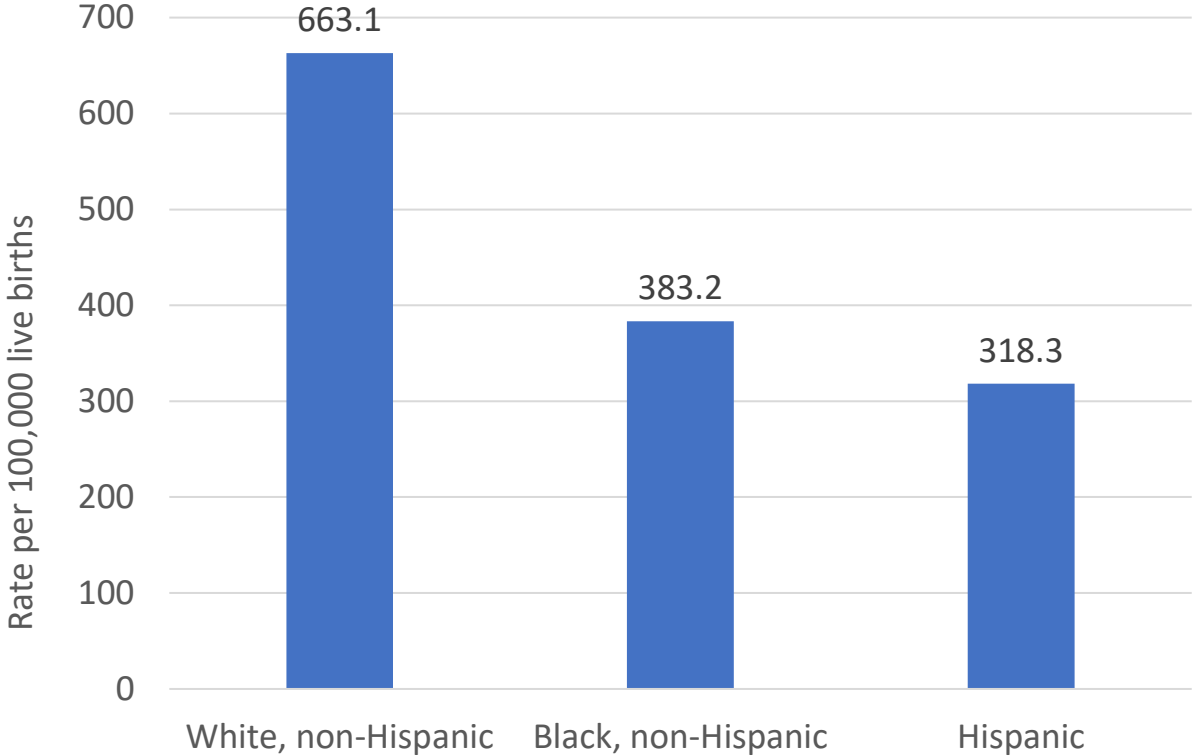
Year	# Live Births	# NAS	NAS Rate
2010	10,646	46	432.1
2011	10,627	75	705.7
2012	10,297	51	495.3
2013	10,328	58	561.6
2014	10,571	76	718.9
2015	10,206	76	744.7
2016	10,471	64	611.2
2017	10,149	55	541.9
2018	10,035	54	538.1
2019	9,947	51	512.7

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 9, 2015-2019



Maternal Race/Ethnicity	# Live Births	# NAS	NAS Rate
White non-Hispanic	40,414	268	663.1
Black non-Hispanic	3,914	15	383.2
Hispanic	2,513	8	318.3
American Indian	89	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)

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

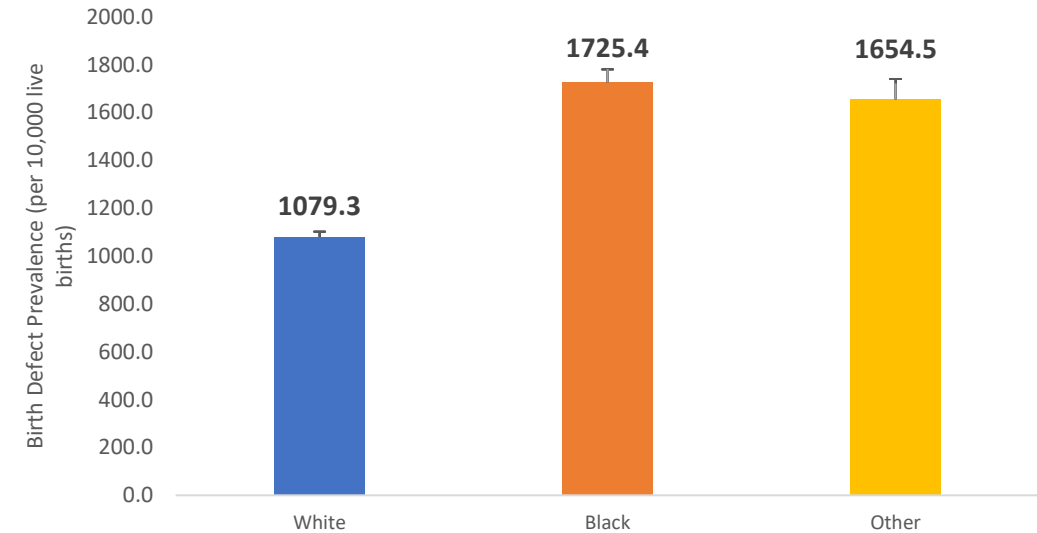
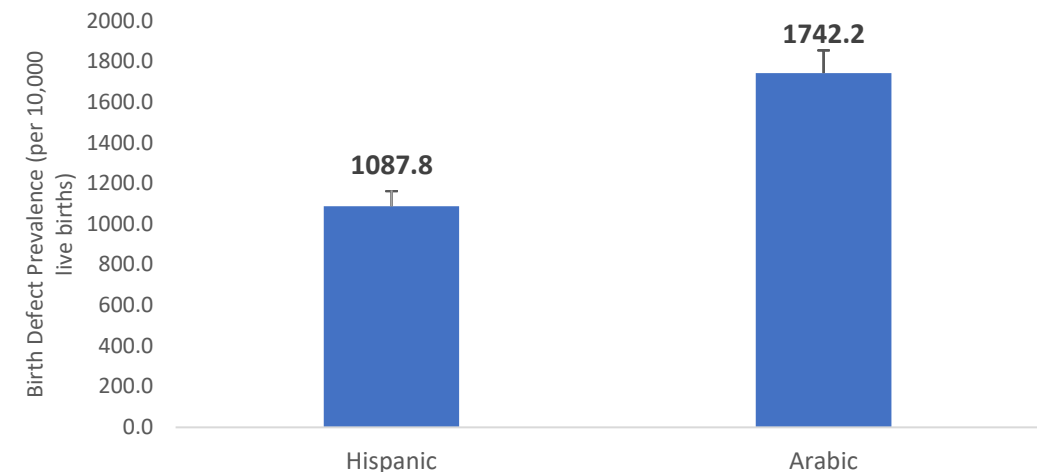
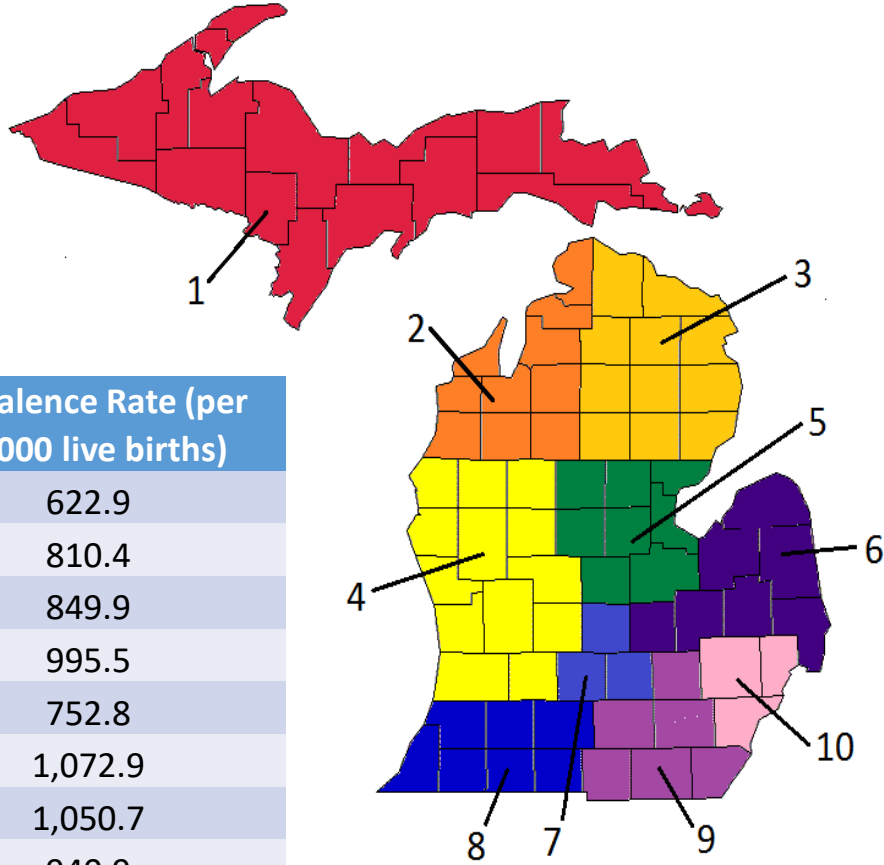


Figure 2. Statewide Maternal Ethnicity-Specific Birth Defect Prevalence Rates: MBDR, 2017



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
Total	15,468	1,387.2

*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 9, 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

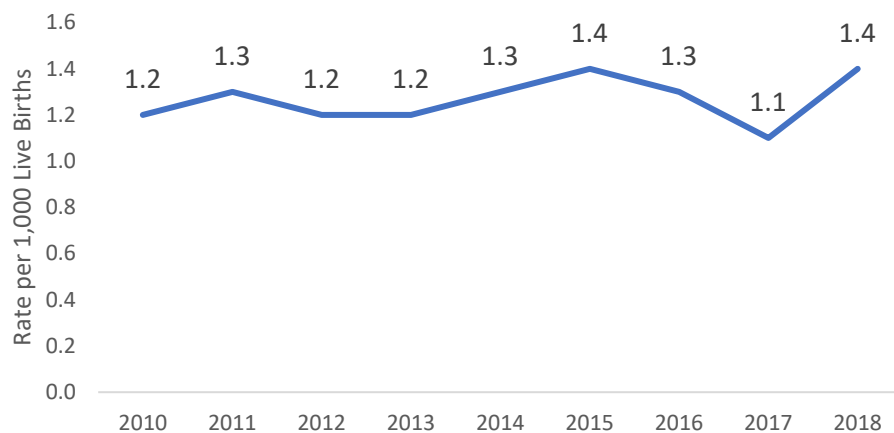
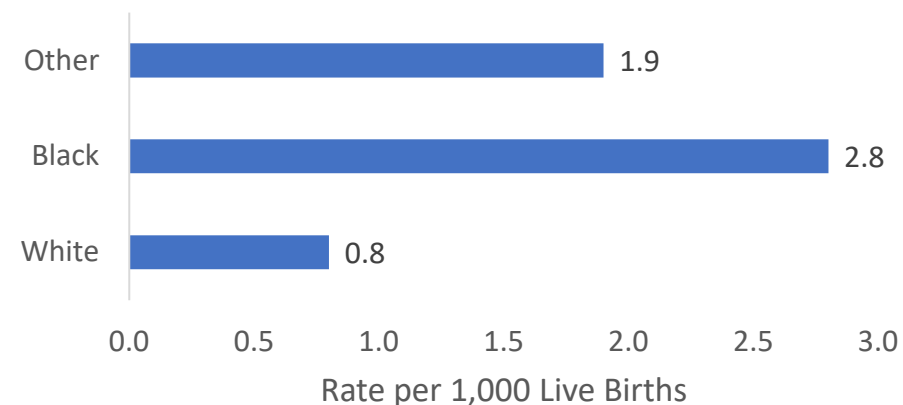
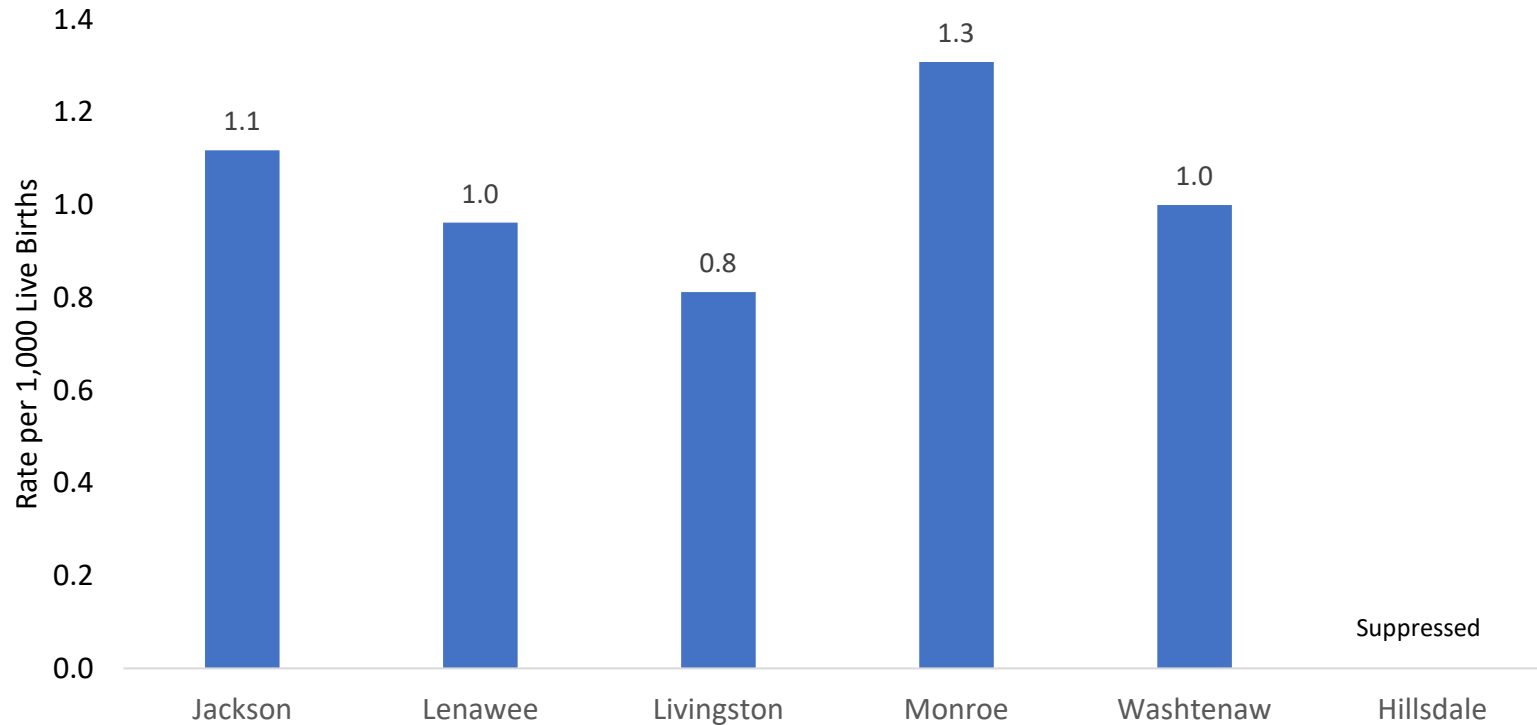


Figure 2. Rate of Sleep-Related Infant Deaths per 1,000 Live Births, by Race



Sleep-Related Infant Death Rate, Prosperity Region 9, 2010-2018

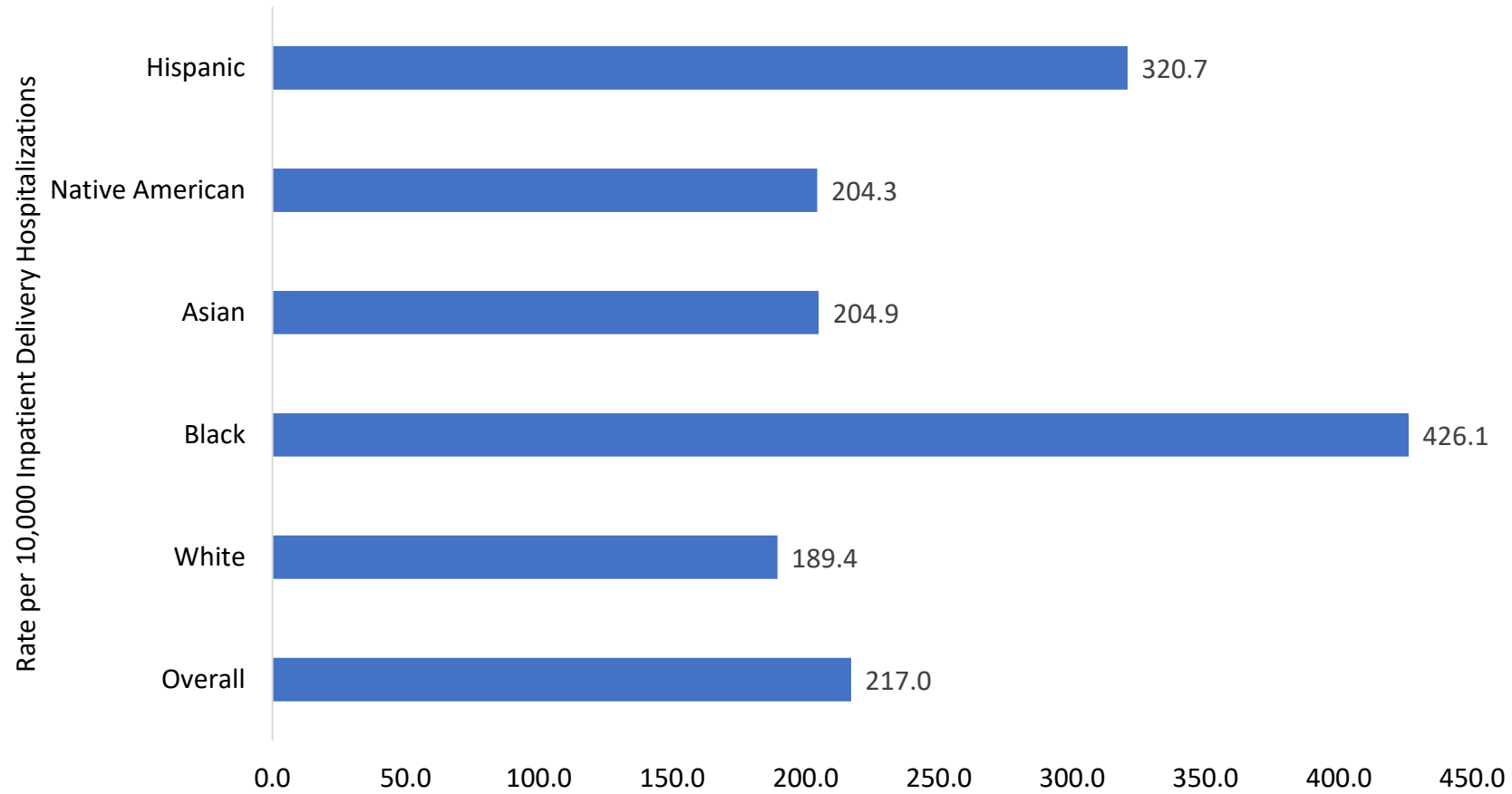
(rate per 1,000 live births)



- Between 2010 and 2018 Jackson, Lenawee, Livingston and Washtenaw Counties experienced a lower sleep-related infant death rate as compared to Michigan overall (1.3 per 1,000 live births).
- Monroe County experienced a similar sleep-related infant death rates as compared to Michigan overall (Michigan rate: 1.3 per 1,000 live births).

Severe Maternal Morbidity Rate Prosperity Region 9, 2019

Severe Maternal Morbidity, Prosperity Region 9, 2019 (rate per 10,000 delivery hospitalizations)

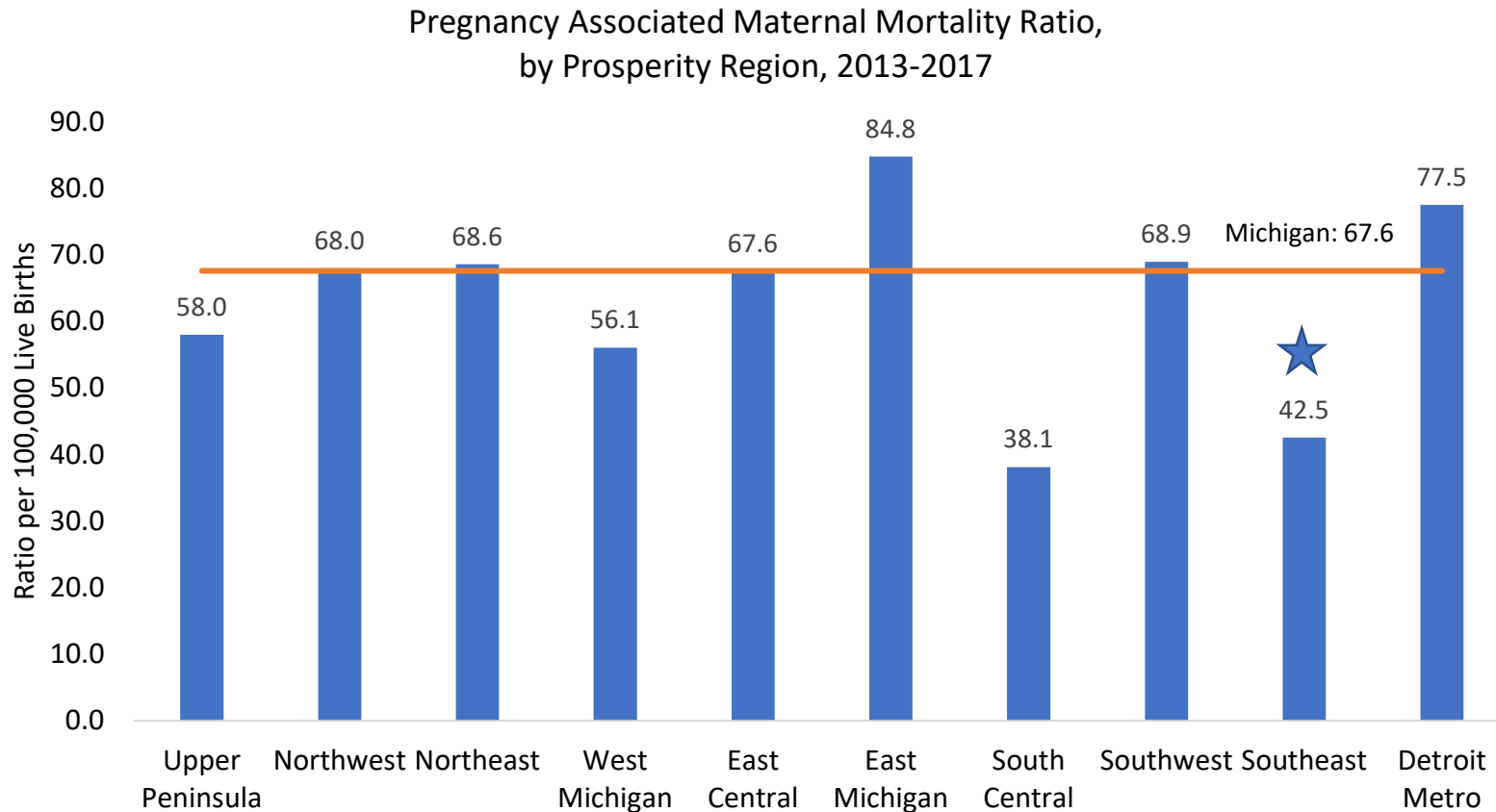


2019 Michigan Rates	
Overall:	194.3
White:	157.6
Black:	321.1
Asian:	192.1
Native American:	155.7
Hispanic:	205.7

Maternal Mortality Ratio Prosperity Region 9, 2013-2017

Maternal Mortality Ratio, Prosperity Region 9, 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 Nine there were **22** maternal deaths between 2013 and 2017