

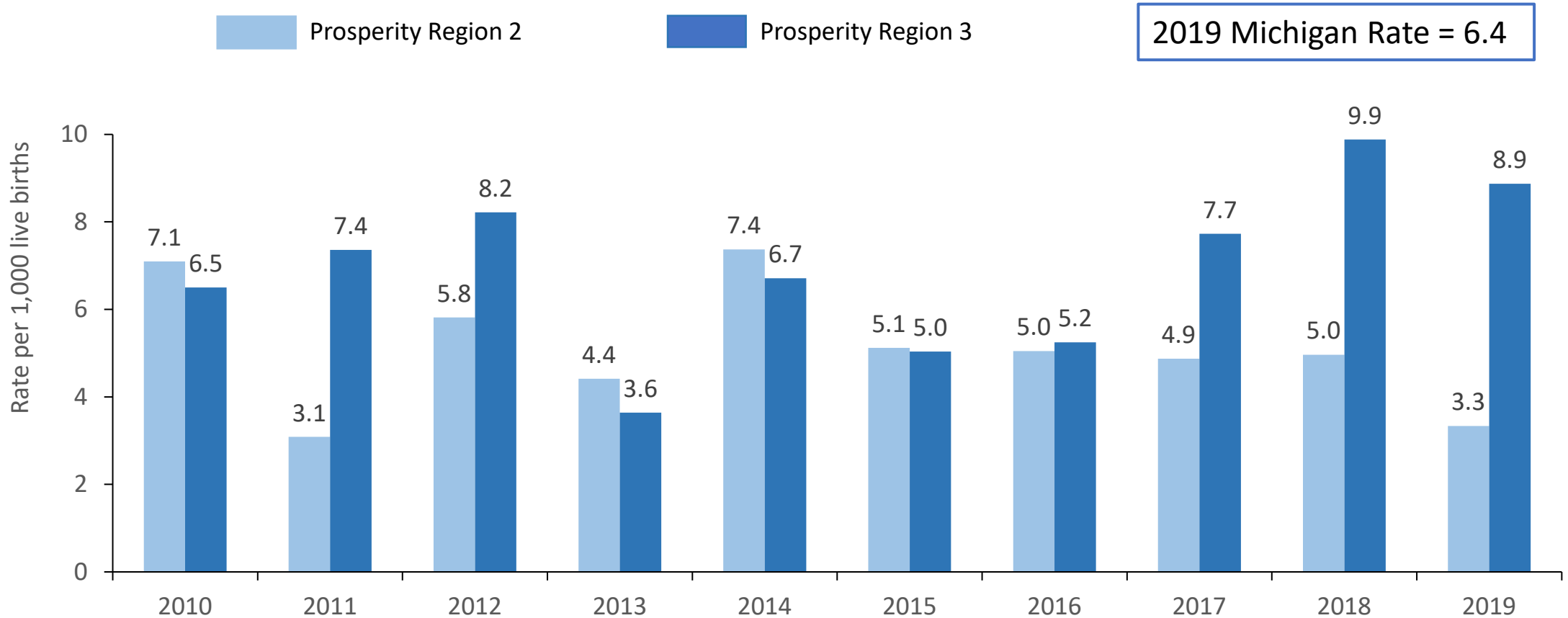
Maternal and Infant Health Statistics, Prosperity Regions 2 & 3, Michigan

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 Regions 2 & 3, 2010-2019

Infant Mortality Rate, Prosperity Regions 2 & 3, 2010-2019 (rate per 1,000 live births)

Infant Mortality Rate per 1,000 Live Births, Prosperity Regions 2 & 3, 2010-2019

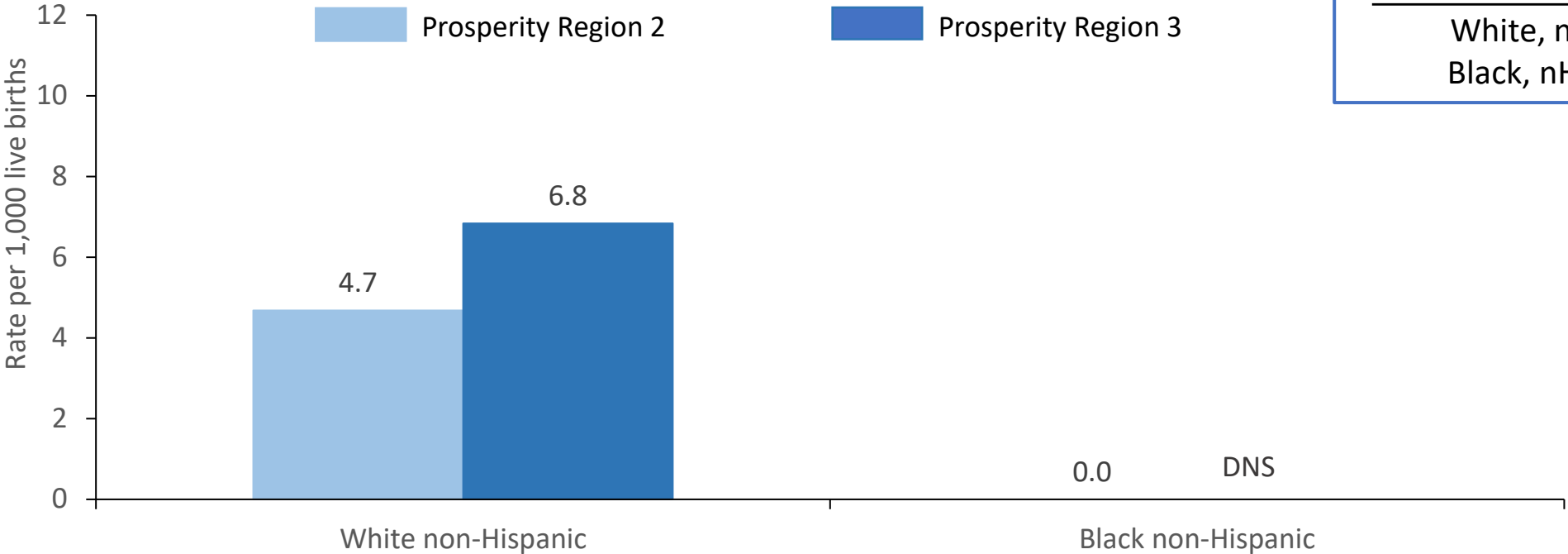


2019 Michigan Rate = 6.4

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, Prosperity Regions 2 & 3, 2015-2019 (rate per 1,000 live births)

Average Infant Mortality Rate by Maternal Race/Ethnicity, Prosperity Regions 2 & 3, 2015-2019

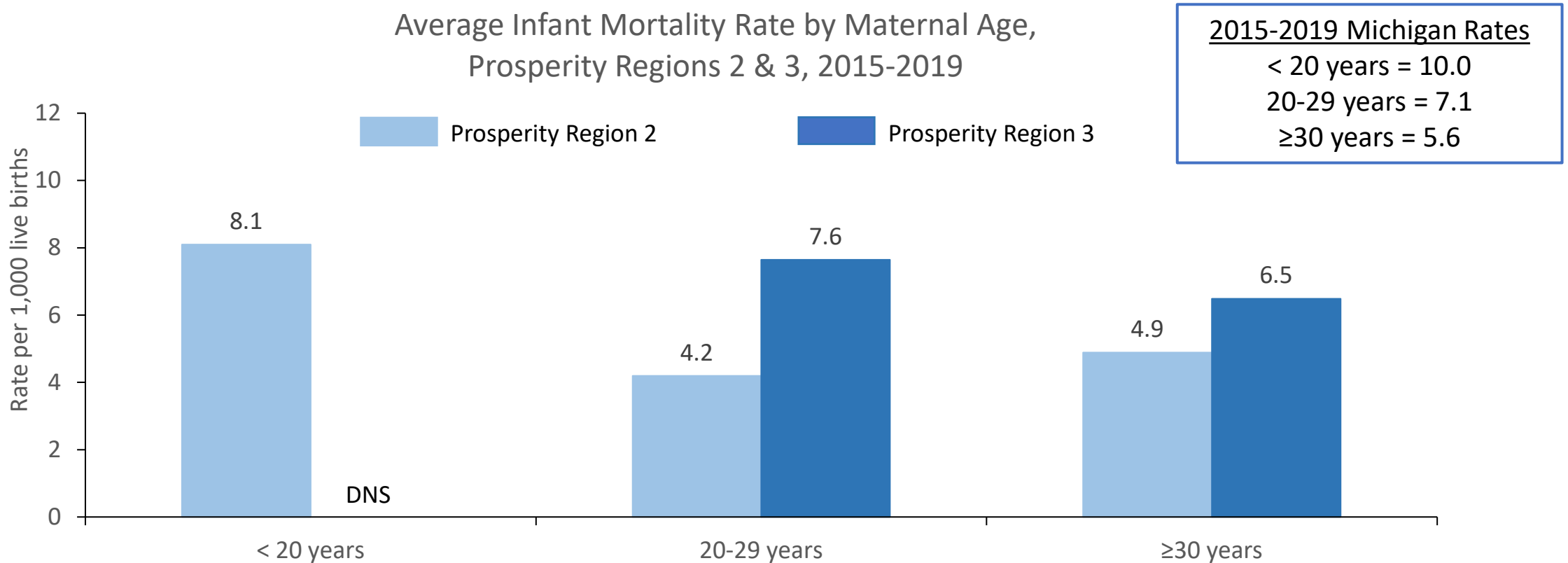


2015-2019 Michigan Rates
 White, nH = 4.9
 Black, nH = 13.4

*DNS: Data not sufficient (0<N<6) for other racial groups.

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.

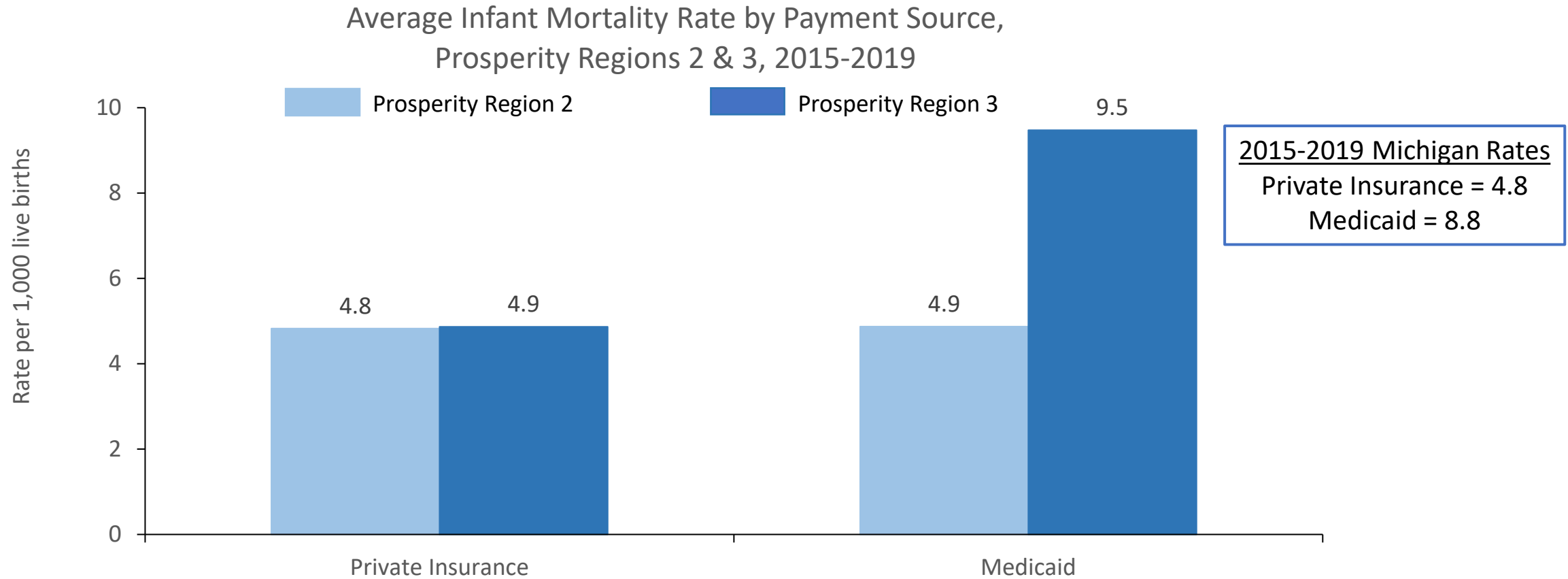
Infant Mortality Rates by Maternal Age, Prosperity Regions 2 & 3, 2015-2019 (rate per 1,000 live births)



* DNS: Data not sufficient (0<N<6)

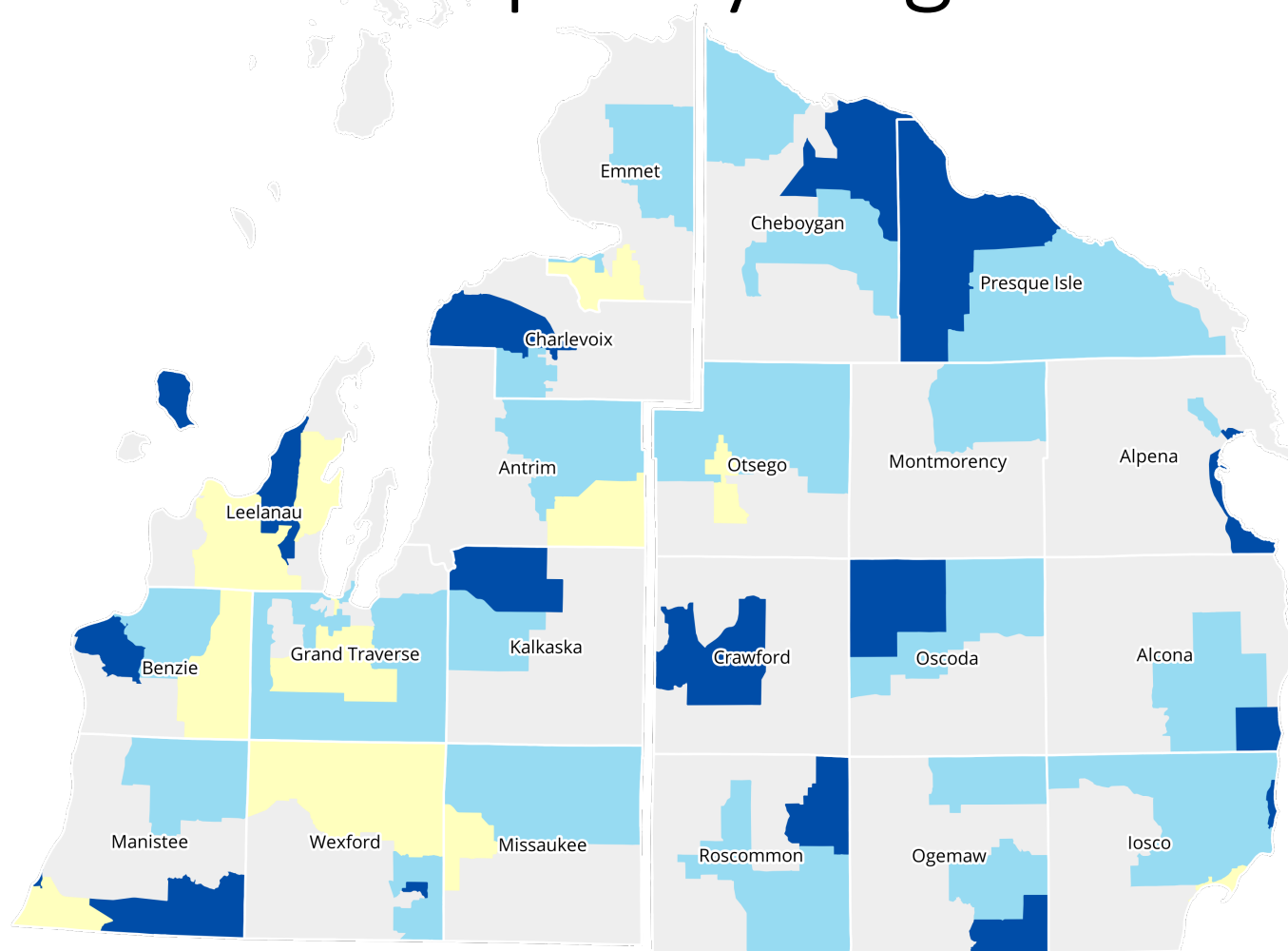
Infant mortality is defined as a death of a baby before his or her first birthday and is expressed as a rate per 1,000 live births.

Infant Mortality Rates by Intended Payment Source, Prosperity Regions 2 & 3, 2015-2019 (rate per 1,000 live births)



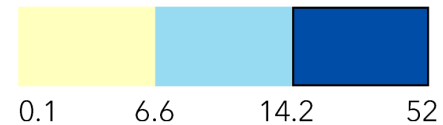
Infant mortality is defined as a death of a baby before his or her first birthday and is expressed as a rate per 1,000 live births.

Infant Mortality Rate by Census Tract Prosperity Regions 2 & 3, 2014-2018



Infant Deaths per 1,000 Live Births

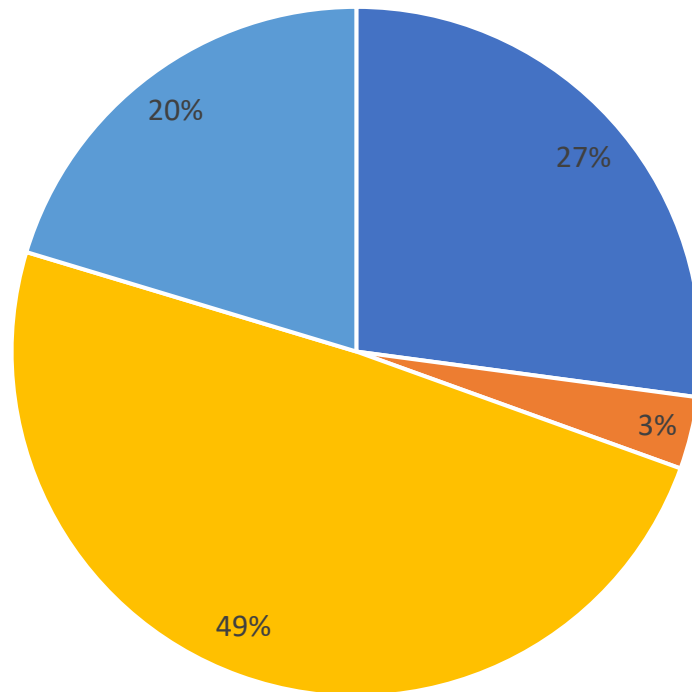
Infant mortality is defined as a death of a baby before his or her first birthday and is expressed as a rate per 1,000 live births.



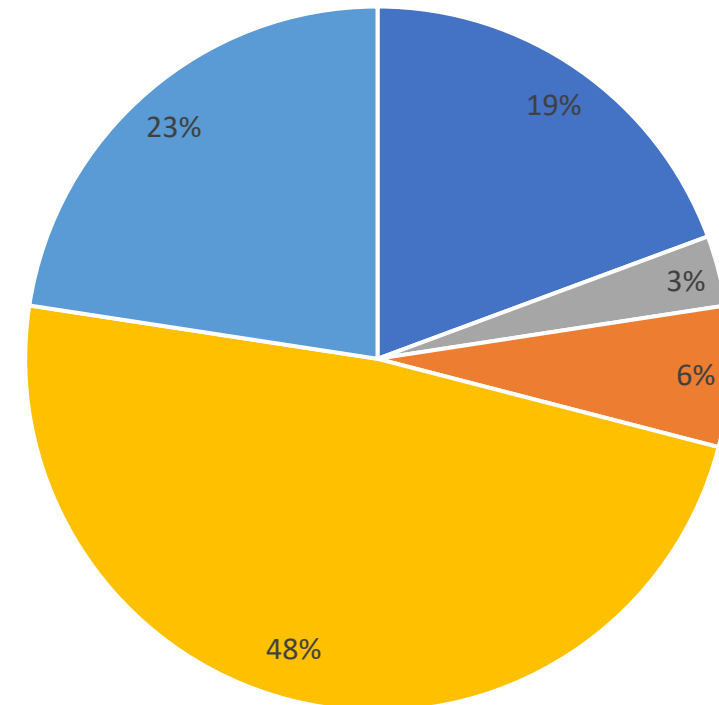
Grey box: No Live Births/Infant Deaths

Infant Deaths by Cause, Prosperity Regions 2 & 3, 2015-2019

Region 2



Region 3



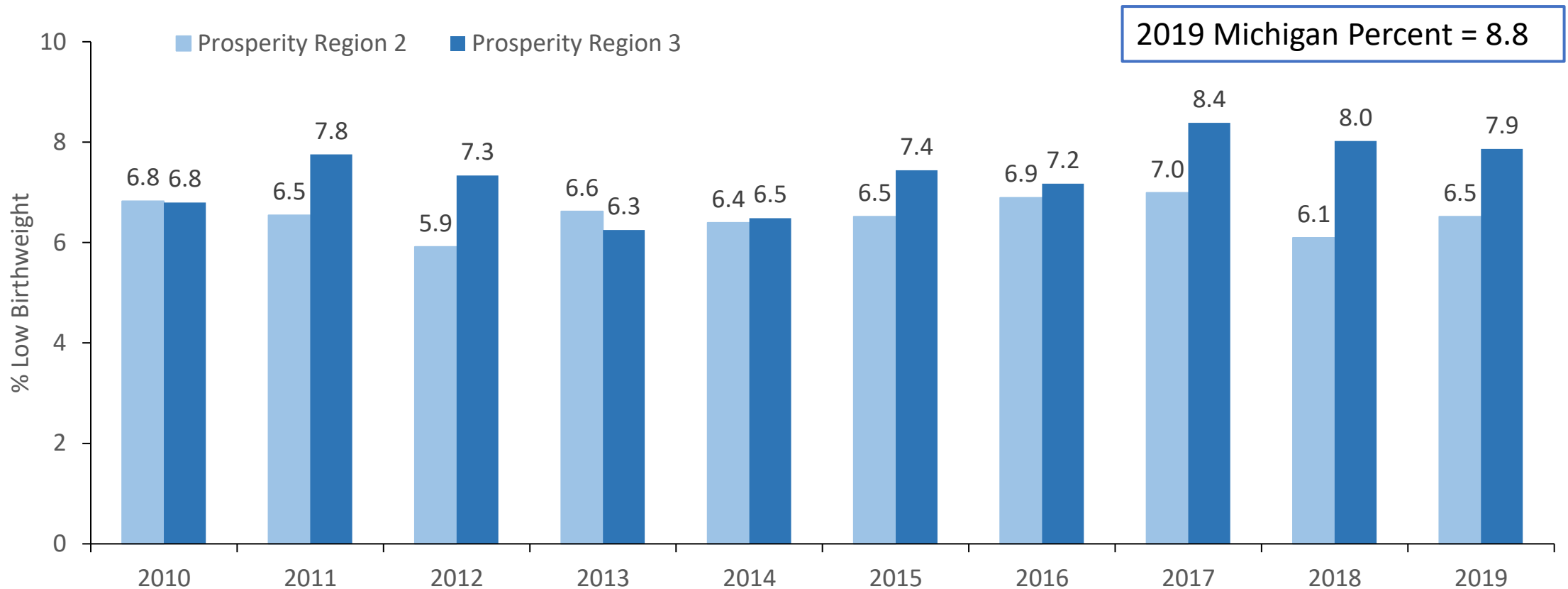
■ Congenital Anomalies ■ Infections ■ Injury ■ Perinatal Conditions ■ Sleep-Related

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 Regions 2 & 3, 2010-2019

Low Birthweight (Birthweight <2,500 Grams), Prosperity Regions 2 & 3, 2010-2019

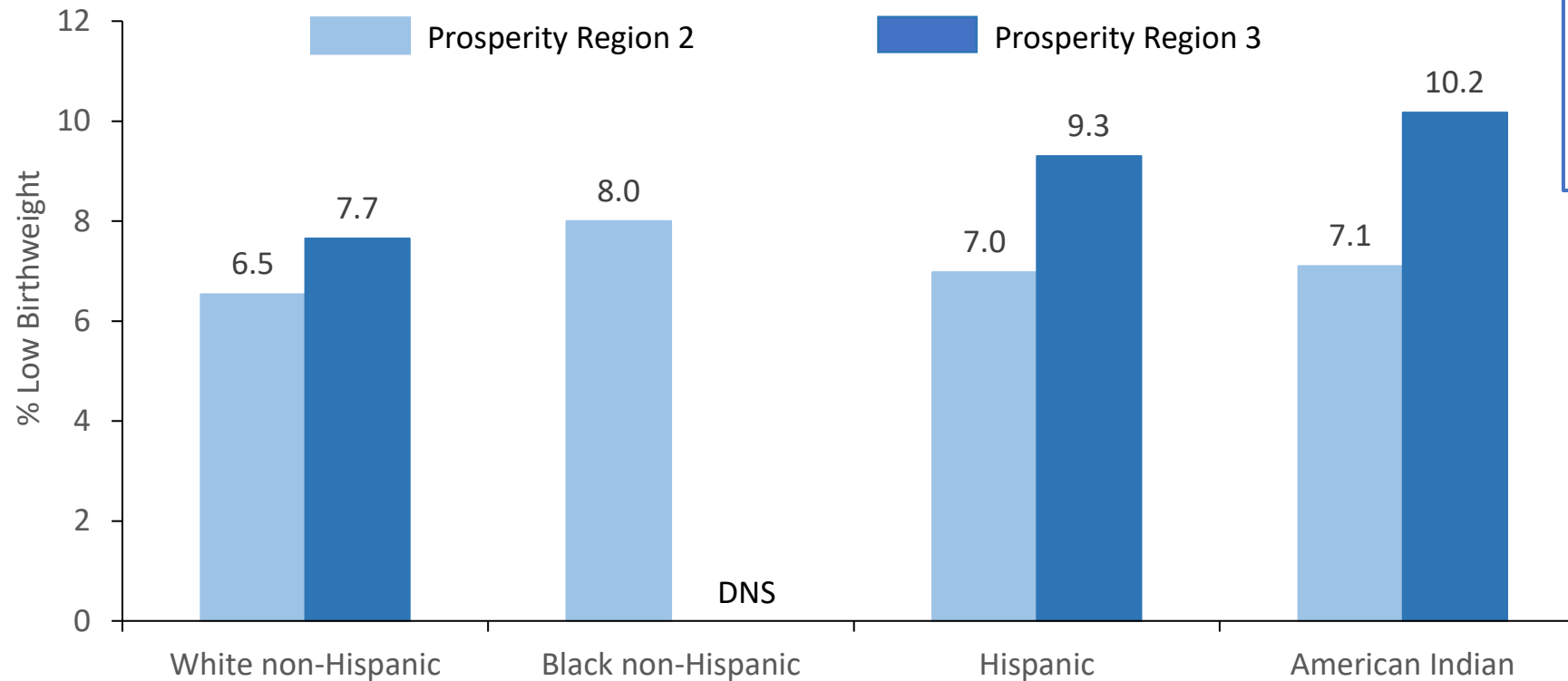
Percent Low Birthweight (Birthweight < 2,500 Grams), Prosperity Regions 2 & 3, 2010-2019



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 Regions 2 & 3, 2015-2019

Average Percent Low Birthweight (Birthweight < 2,500 Grams) by Maternal Race/Ethnicity, Prosperity Regions 2 & 3, 2015-2019



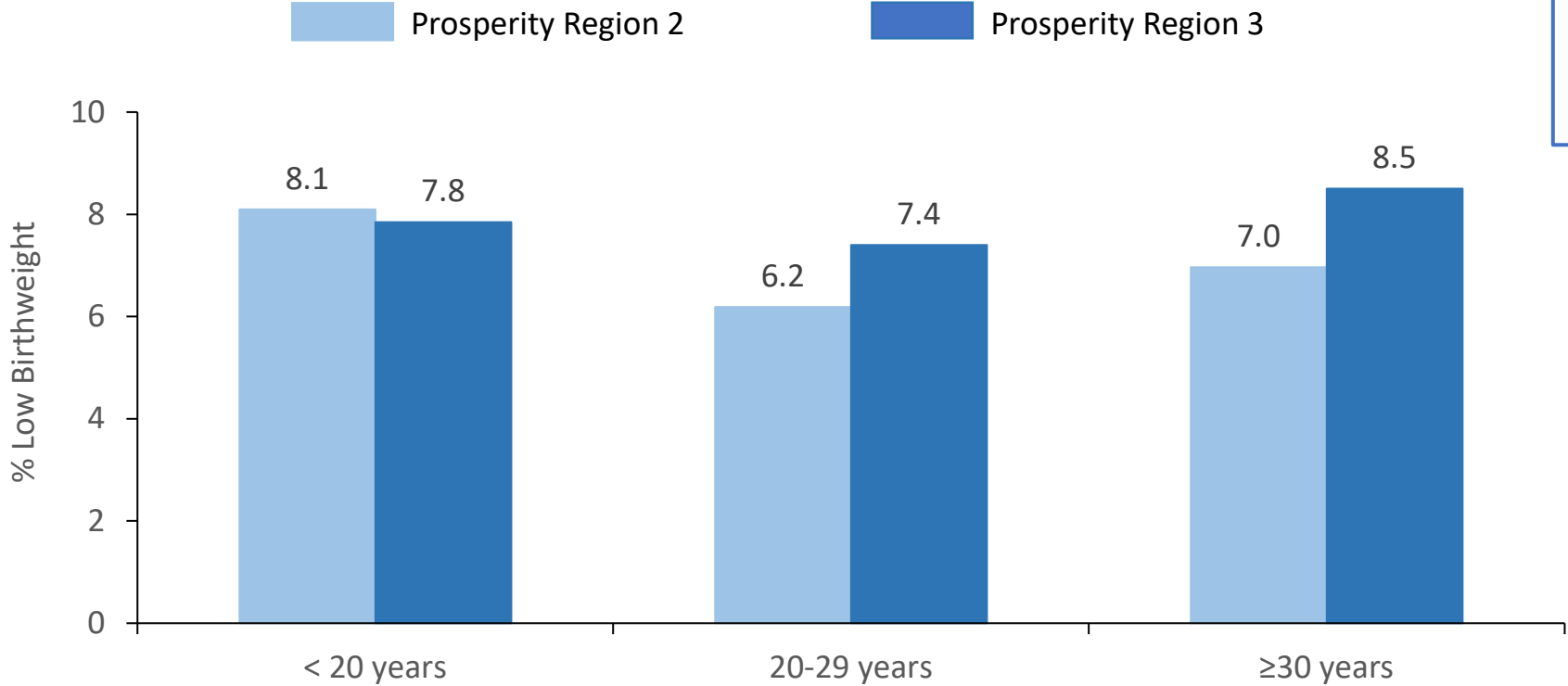
2015-2019 Michigan Percentages
 White, nH = 7.0
 Black, nH = 14.8
 Hispanic = 7.5
 American Indian = 8.8

DNS: Data not sufficient (0<N<6) for Asian/Pacific Islander in both regions, and for Black NH in region 3

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 Regions 2 & 3, 2015-2019

Average Percent Low Birthweight (Birthweight < 2,500 Grams) by Maternal Age, Prosperity Regions 2 & 3, 2015-2019

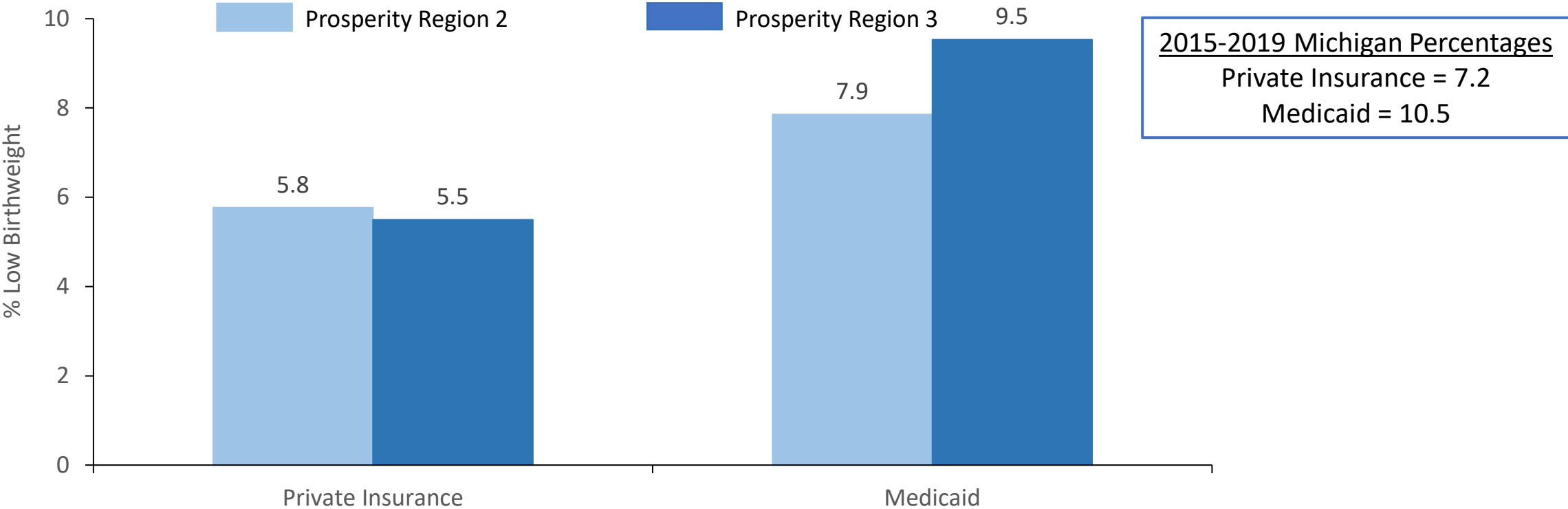


2015-2019 Michigan Percentages
< 20 years = 10.7
20-29 years = 8.5
≥30 years = 8.5

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

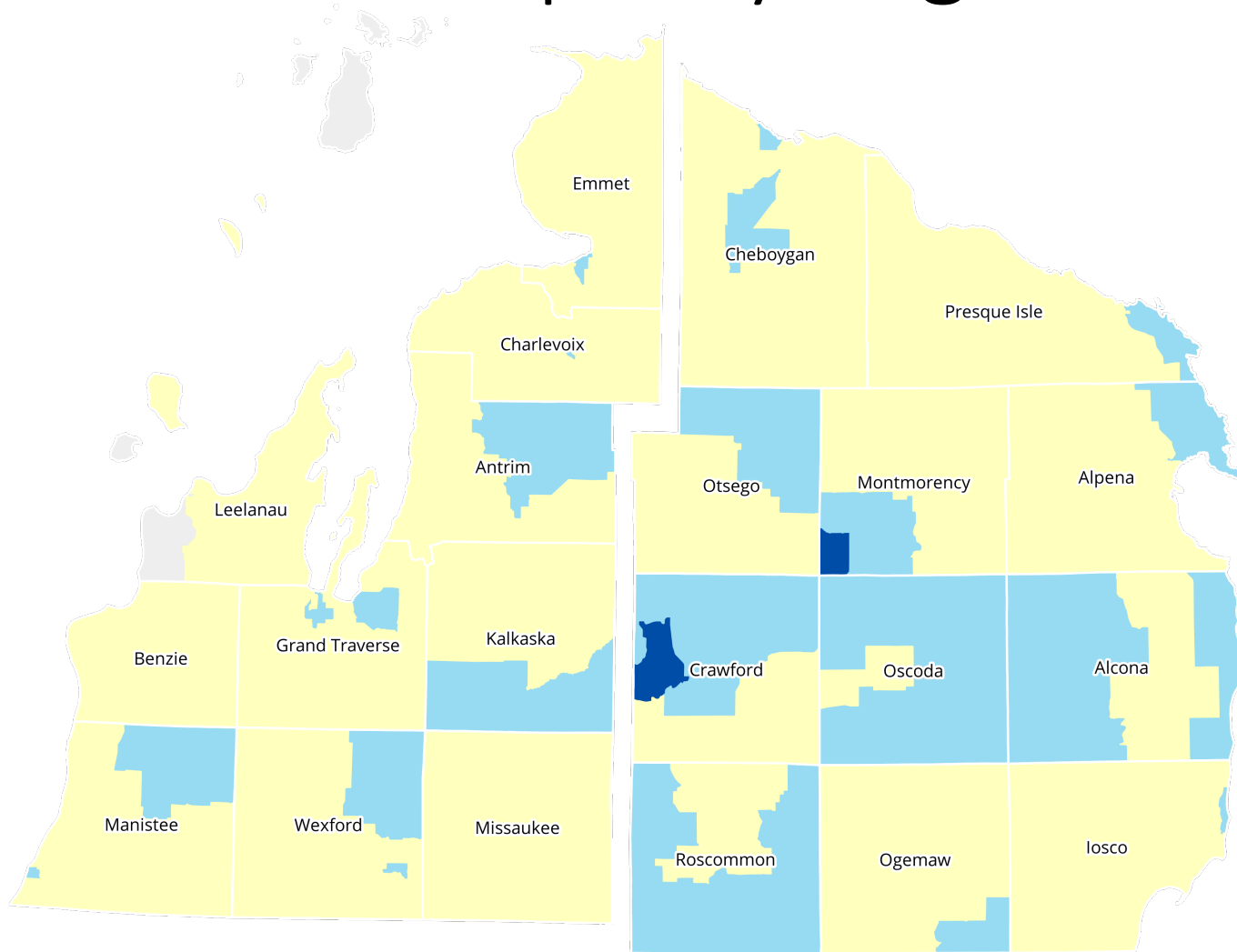
Low Birthweight (Birthweight <2,500 Grams) by Intended Payment Source, Prosperity Regions 2 & 3, 2015-2019

Average Percent Low Birthweight (Birthweight < 2,500 Grams) by Payment Source, Prosperity Regions 2 & 3, 2015-2019



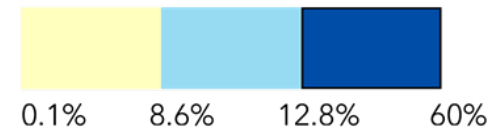
Low birthweight rate is defined as number of births with baby birthweight <2,500 grams per 100 live births.

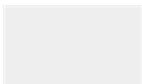
Low Birthweight by Census Tract Prosperity Regions 2 & 3, 2014-2018



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.

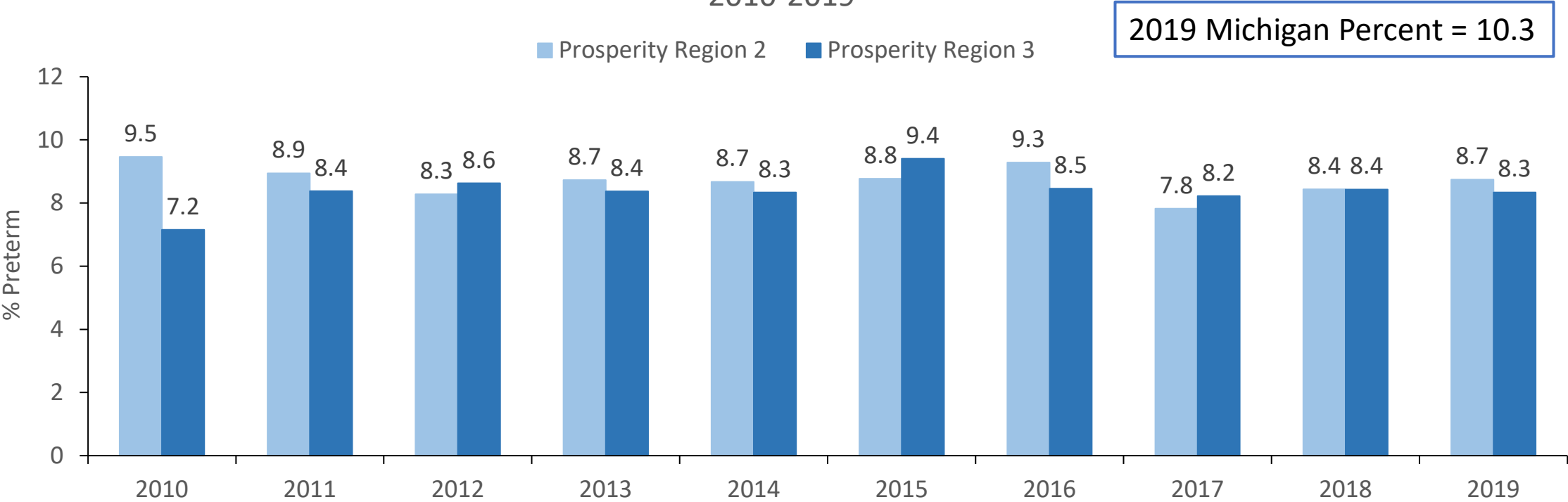


 No Live Births/Low Birthweight Births

Preterm Birth (PTB), Prosperity Regions 2 & 3, 2010-2019

Preterm Birth (Estimated Gestational Age <37 Weeks), Prosperity Regions 2 & 3, 2010-2019

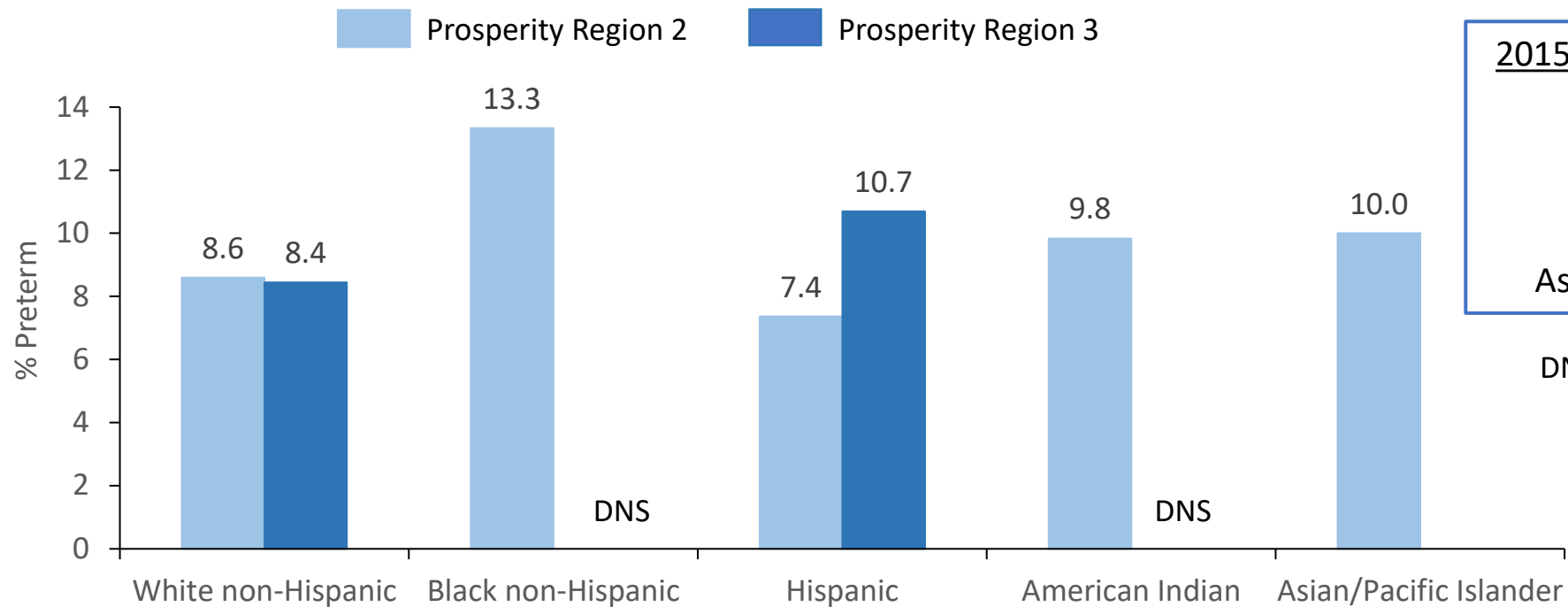
Percent Preterm Birth (Estimated Gestational Age < 37 Weeks), Prosperity Regions 2 & 3, 2010-2019



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 Regions 2 & 3, 2015-2019

Average Percent Preterm Birth (Estimated Gestational Age < 37 Weeks) by Maternal Race/Ethnicity, Prosperity Regions 2 & 3, 2015-2019



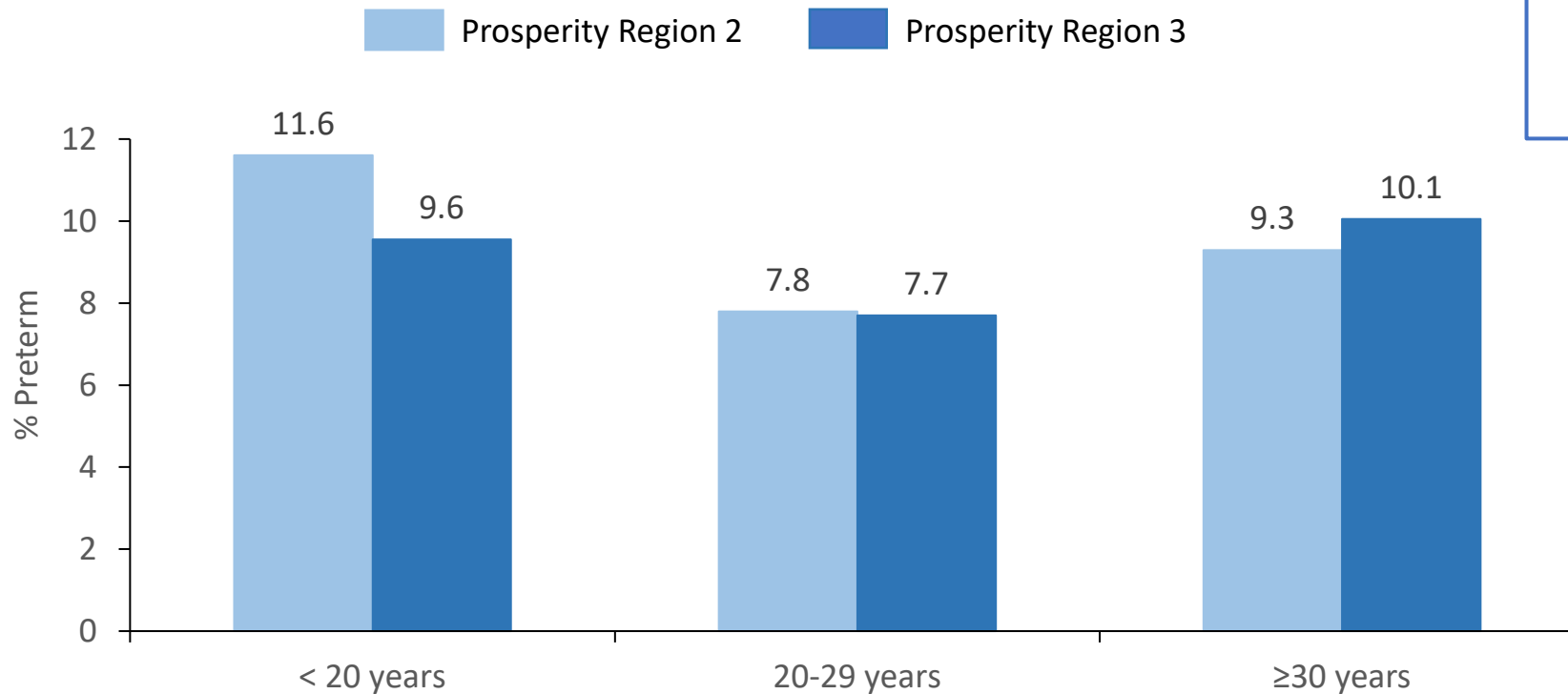
2015-2019 Michigan Percentages
 White, nH = 9.0
 Black, nH = 14.6
 Hispanic = 9.4
 American Indian = 8.2
 Asian/Pacific Islander = 10.2

DNS: Data not sufficient (0<N<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 Maternal Age, Prosperity Regions 2 & 3, 2015-2019

Average Percent Preterm Birth (Estimated Gestational Age < 37 Weeks)
by Maternal Age, Prosperity Regions 2 & 3, 2015-2019

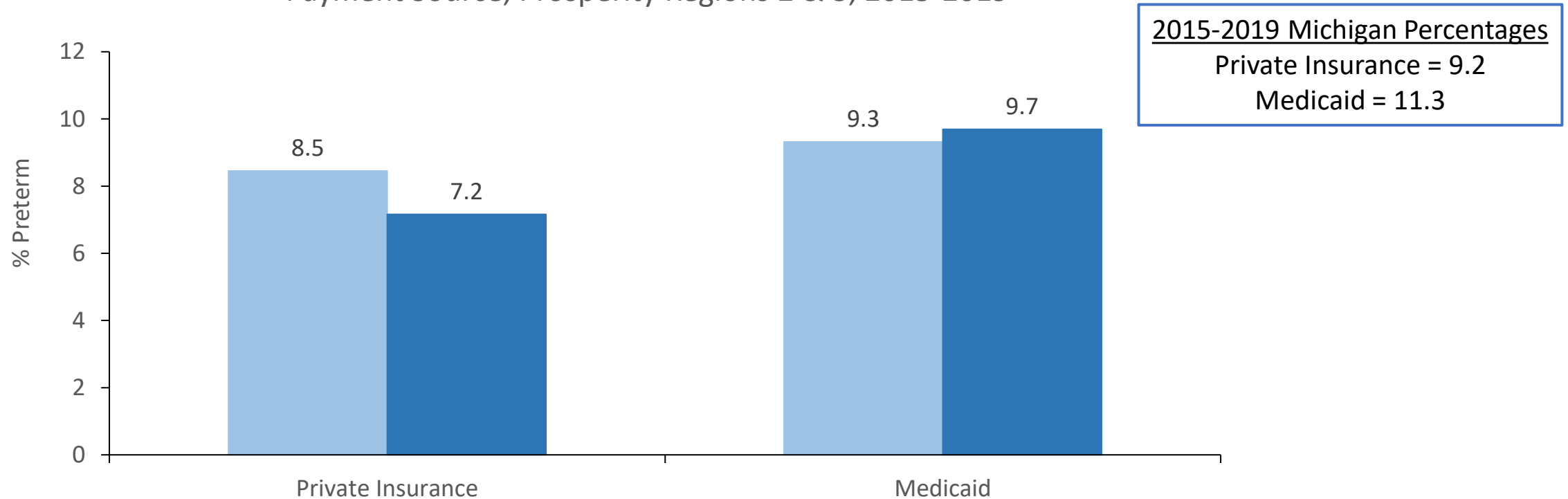


2015-2019 Michigan Percentages
< 20 years = 10.6
20-29 years = 9.6
≥30 years = 10.6

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.

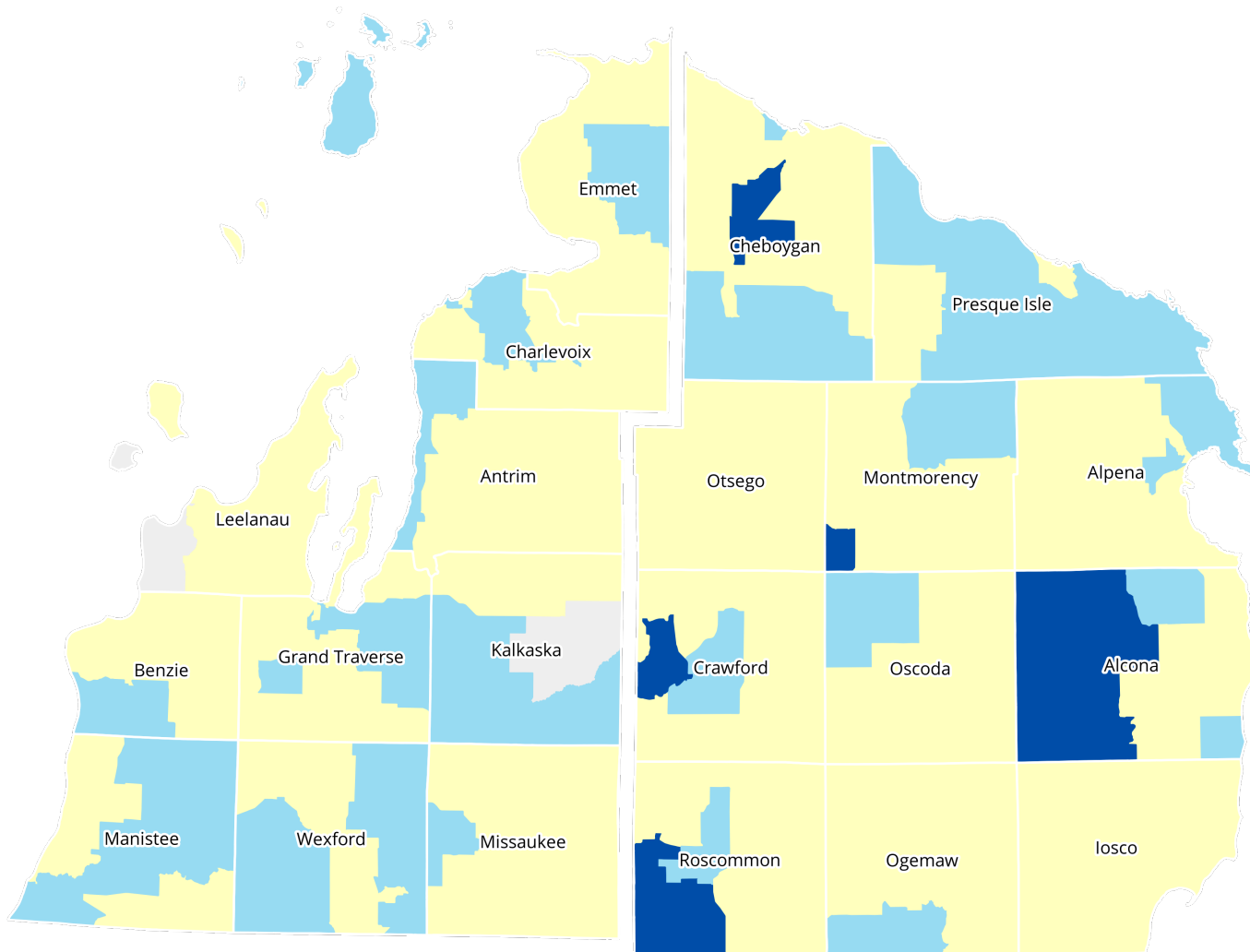
Preterm Birth (Estimated Gestational Age <37 Weeks) by Intended Payment Source, Prosperity Regions 2 & 3, 2015-2019

Average Percent Preterm Birth (Estimated Gestational Age < 37 Weeks) by Payment Source, Prosperity Regions 2 & 3, 2015-2019



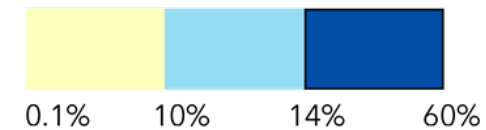
Preterm birth rate is defined as number of births delivered before 37 completed weeks of gestation per 100 live births. Gestational age is based on the obstetric estimate of gestation.

Preterm Birth by Census Tract Prosperity Regions 2 & 3, 2014-2018



Percent Preterm

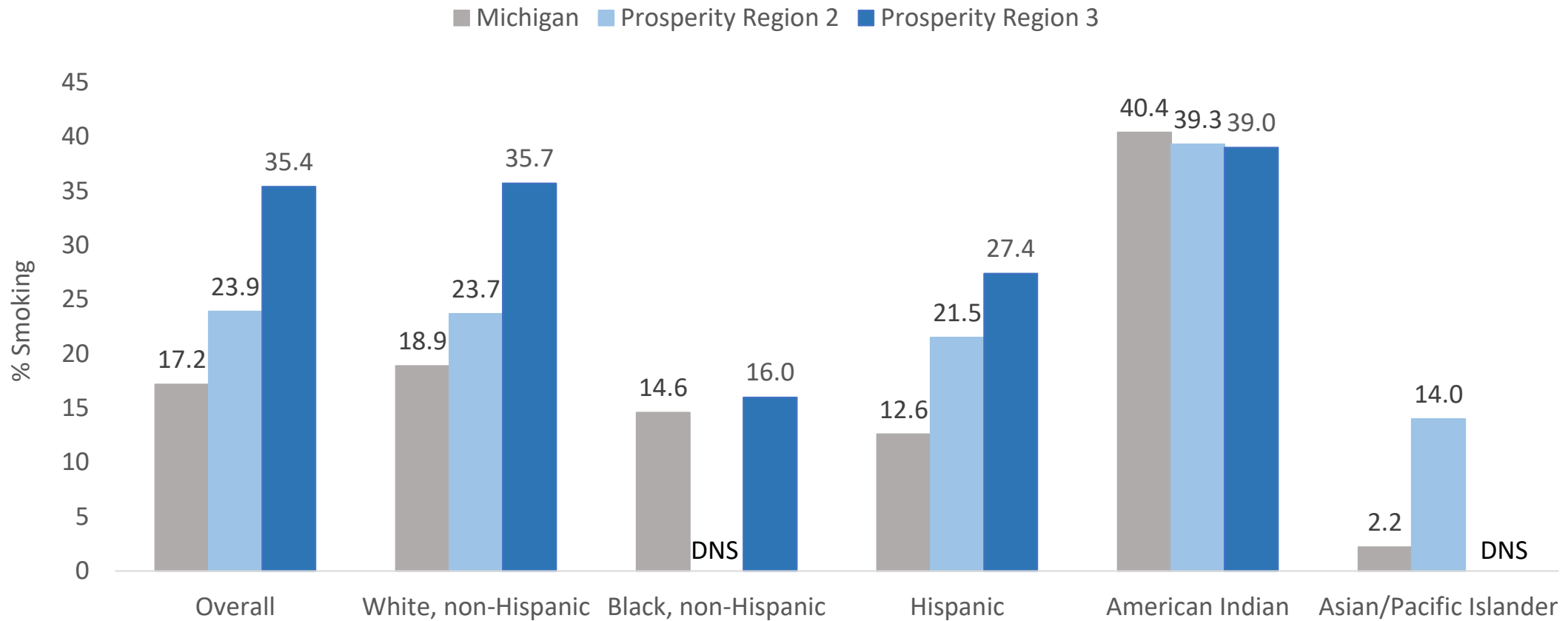
Preterm birth rate is defined as number of births delivered before 37 completed weeks of gestation per 100 live births. Gestational age is based on the obstetric estimate of gestation.



No Live Births/Preterm Births

Smoking During Pregnancy, Prosperity Regions 2 & 3, 2015-2019

Smoking During Pregnancy by Maternal Race/Ethnicity, Michigan and Prosperity Regions 2 & 3, 2015-2019

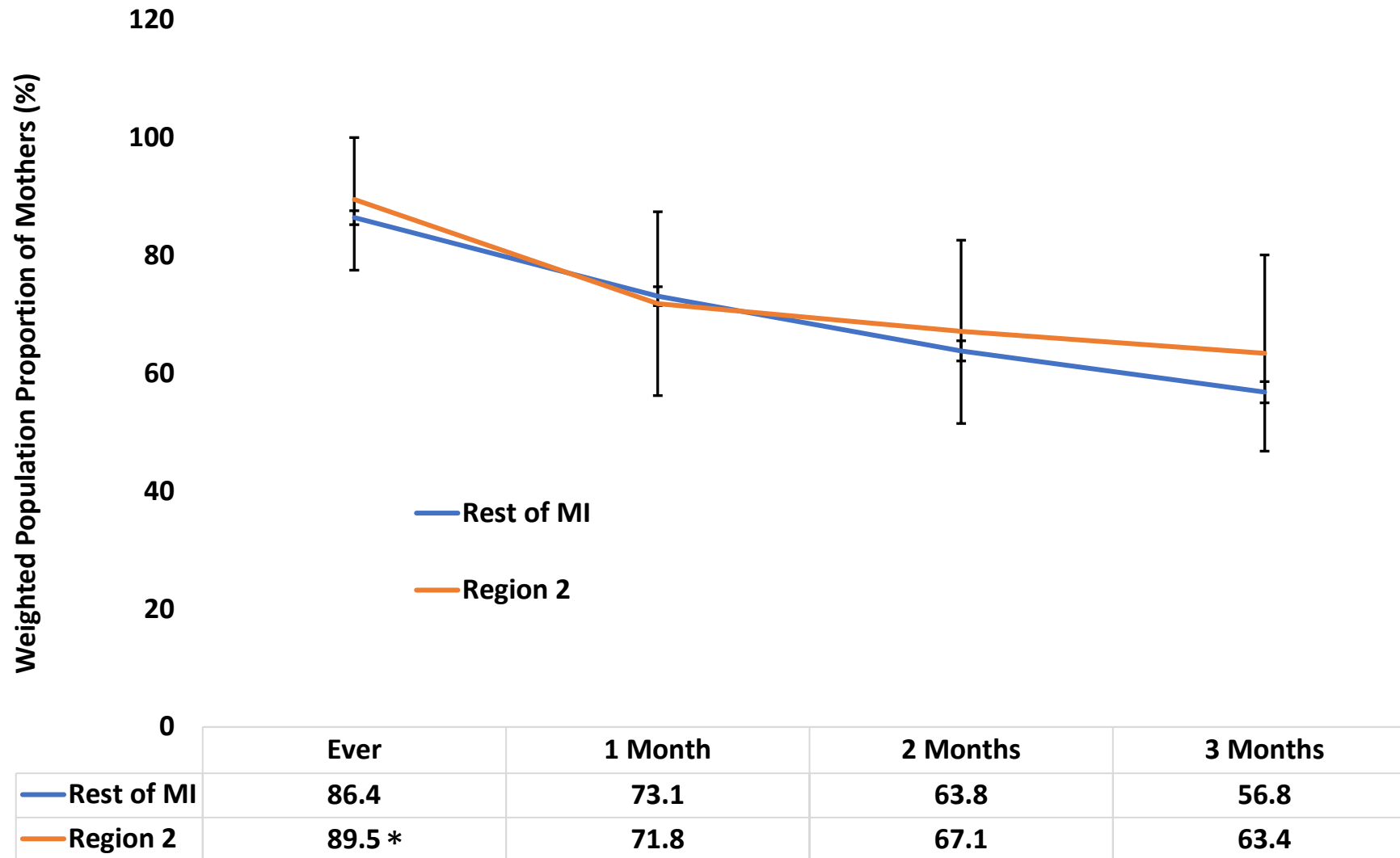


DNS = data not sufficient (0<n<6)

Data source: Michigan resident live birth files, Division for Vital Records and Health Statistics, MDHHS

Breastfeeding Initiation and Duration, Prosperity Regions 2 & 3

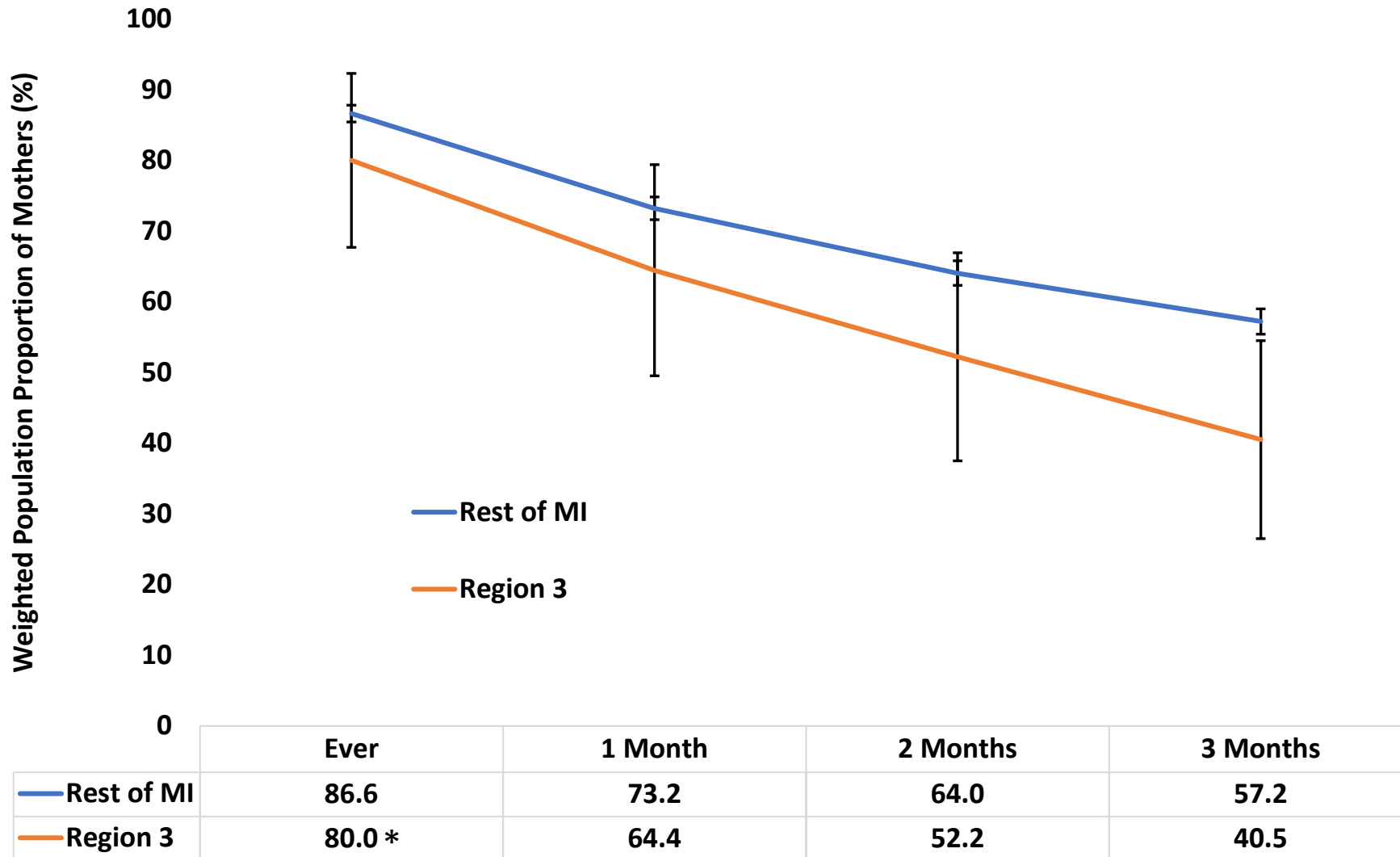
Breastfeeding Initiation and Duration, Region 2 v Rest of Michigan MI PRAMS 2016-2018



- Breastfeeding in Region 2 does not differ significantly from the remainder of the State for any of these time points

* Relative Standard Error exceeds 30%; Interpret with Caution

Breastfeeding Initiation and Duration, Region 3 v Rest of Michigan MI PRAMS 2016-2018



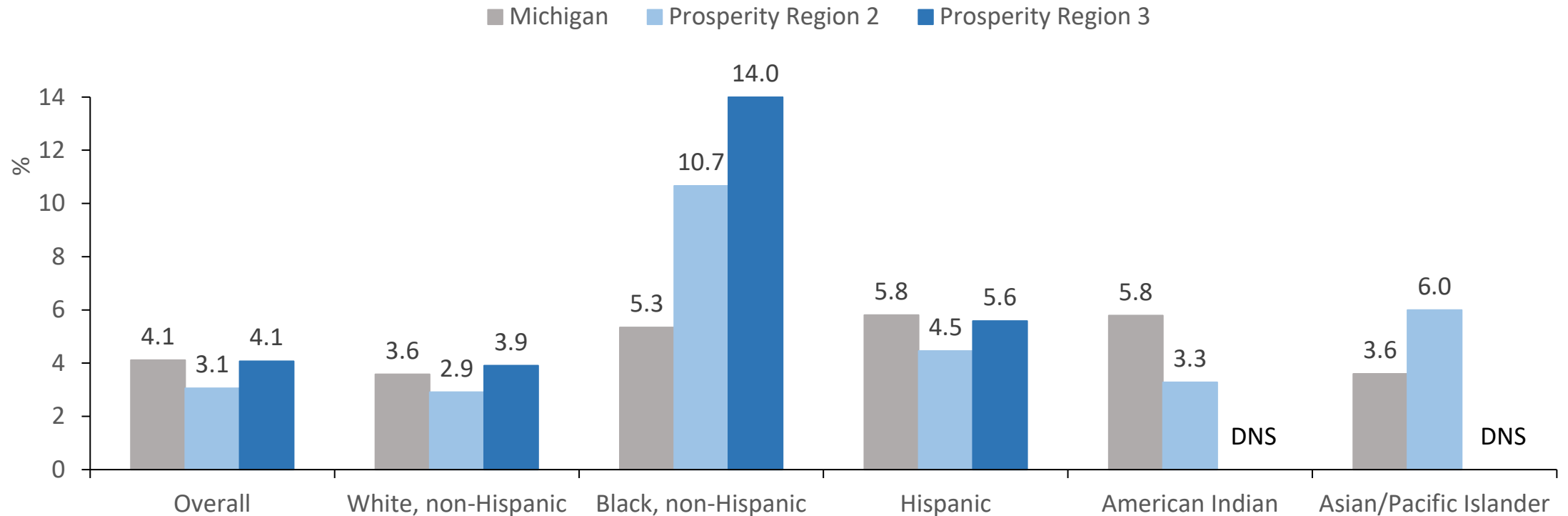
- Breastfeeding in Region 3 does not differ significantly from the remainder of the State for the first three time points
- Three-month duration is lower for Region 3 vs. the remainder of the State
 - $p = 0.02$

* Relative Standard Error exceeds 30%; Interpret with Caution

Late Entry into Prenatal Care, Prosperity Regions 2 & 3, 2015-2019

Late Entry Into Prenatal Care by Maternal Race/Ethnicity, Michigan and Prosperity Regions 2 & 3, 2015-2019

Average Percent Late Entry Into Prenatal Care by Maternal Race/Ethnicity, Michigan and Prosperity Regions 2 & 3, 2015-2019

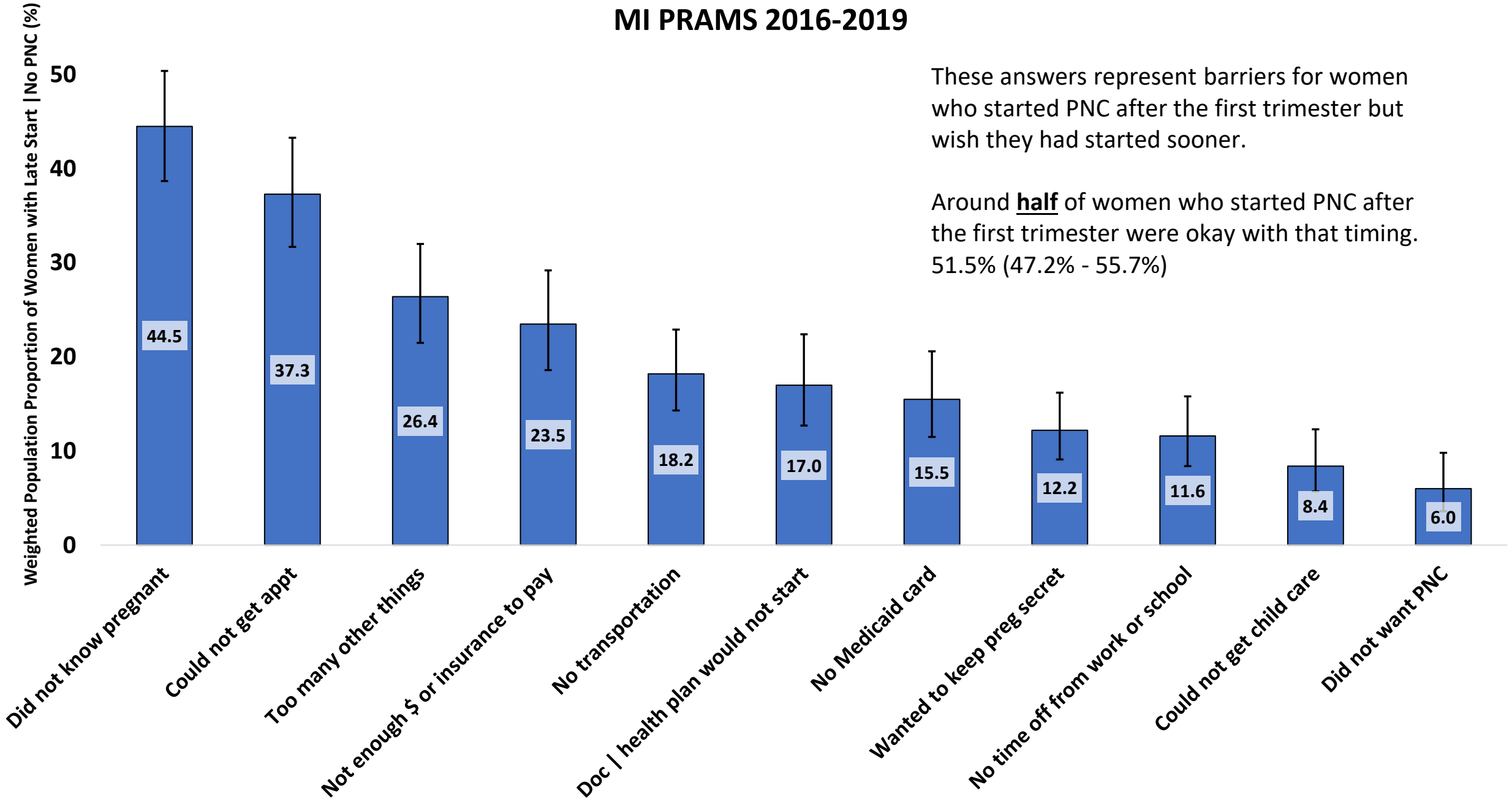


- Late entry into prenatal care refers to begin prenatal care in the 7th – 9th month of gestation
- DNS = data not sufficient (0<n<6)

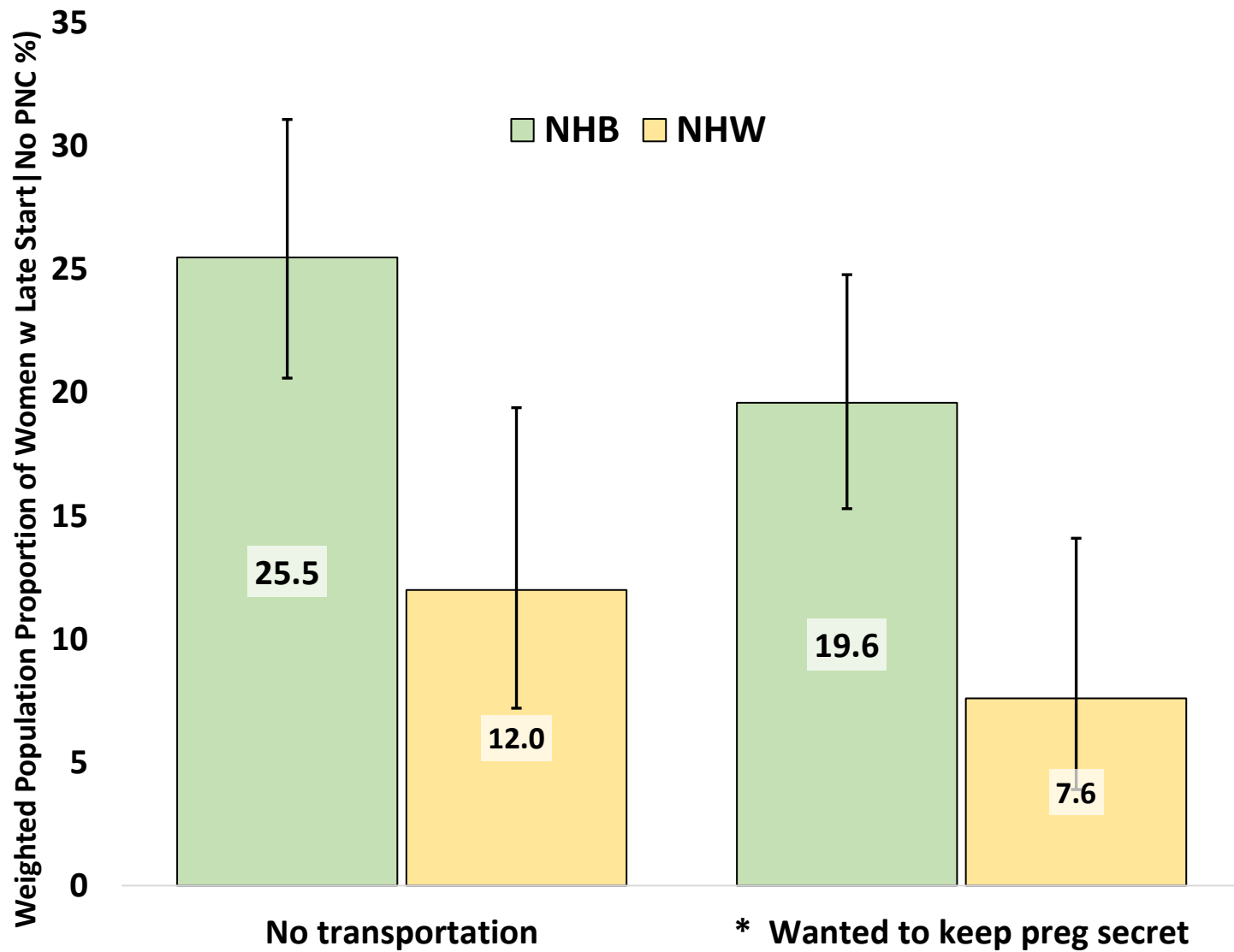
Barriers to Prenatal Care, Michigan, 2016-2019

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

MI PRAMS 2016-2019

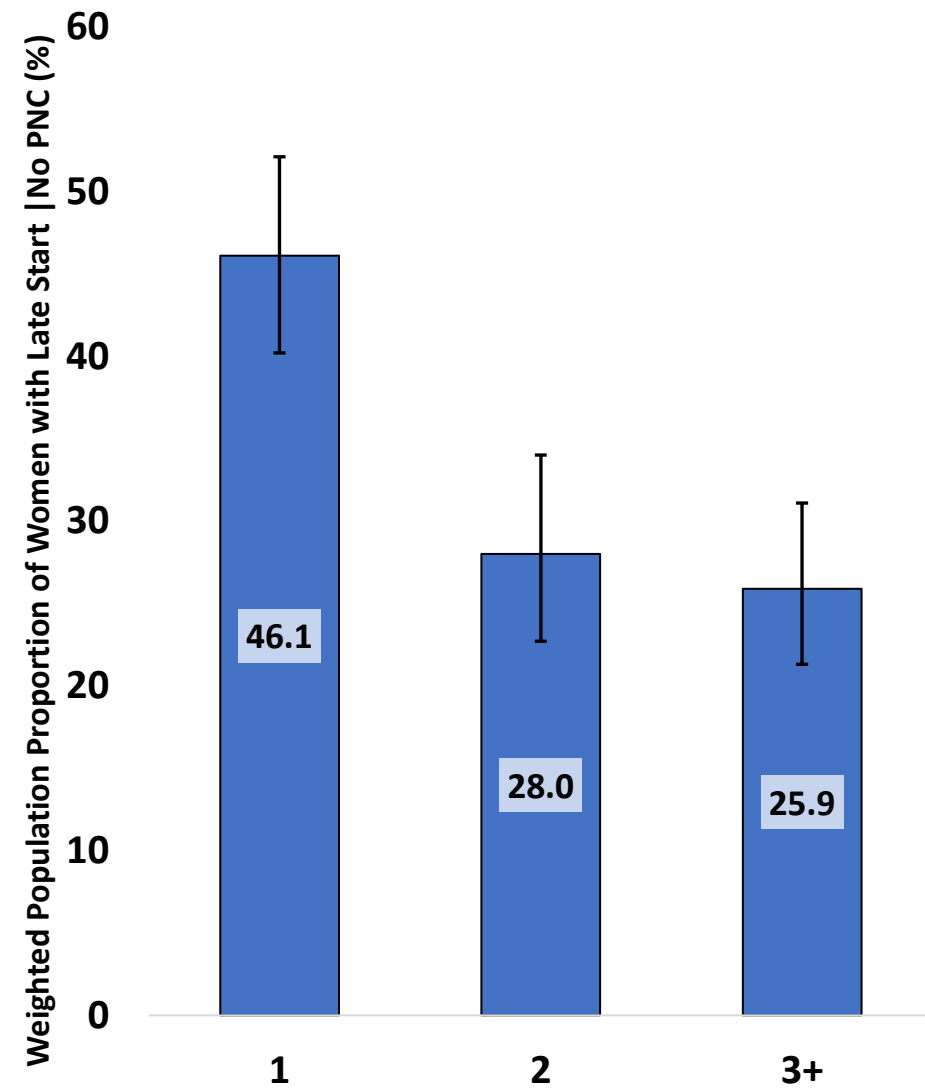


**Selected PNC Barriers with Significant Differences by Maternal Race/Ethnicity
MI PRAMS 2016-2019**



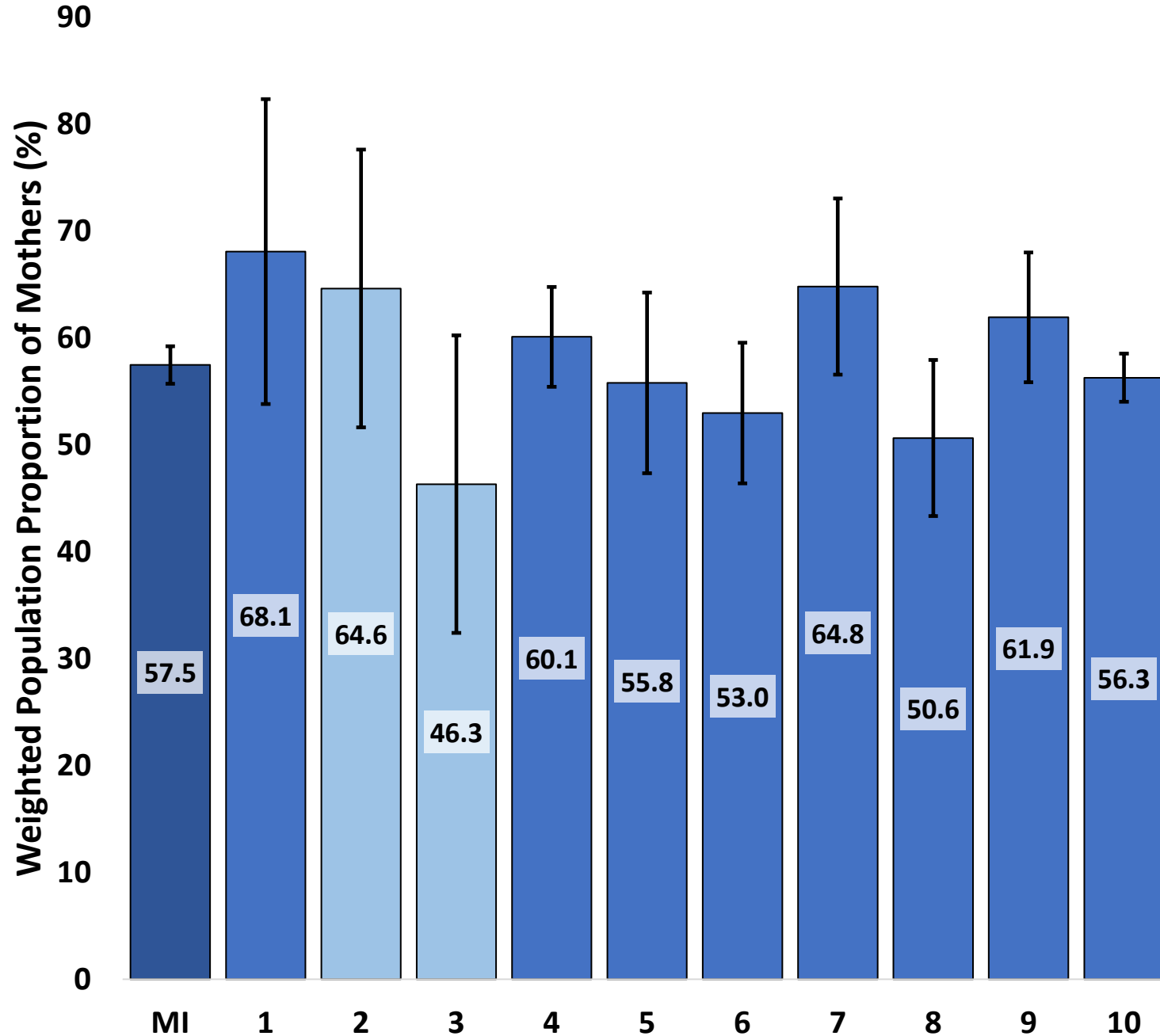
* Relative Standard Error between 30-50%; interpret estimate with caution

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



Pregnancy Intention, Prosperity Regions 2 & 3, 2016-2018

Intended Pregnancy; MI PRAMS 2016-2018

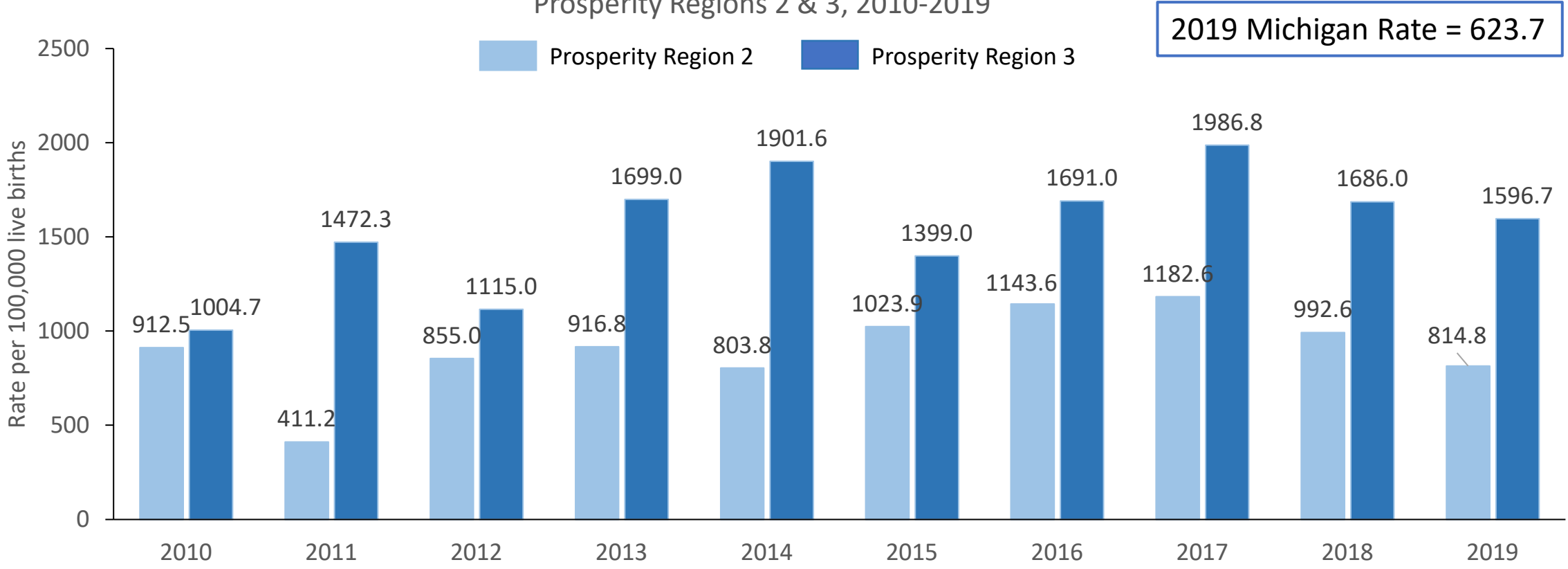


- Intended Pregnancy
- Derived from question about pregnancy timing
- Intended
 - Women who said they had wanted pregnancy for some time, or wanted to be pregnant right when they conceived
- Unintended
 - Women who wanted to be pregnant some time in the future, never again, or were unsure
- Although there is variation across the state, none of the differences are large enough to achieve statistical significance
- It is possible though, that pregnancy intention in Region 3 is lower than in the rest of the state

Neonatal Abstinence Syndrome (NAS) Prosperity Regions 2 & 3, 2010-2019

Neonatal Abstinence Syndrome*, Prosperity Regions 2 & 3, 2010-2019 (Rate per 100,000 Live Births)

Neonatal Abstinence Syndrome Rate (per 100,000 Live Births), Prosperity Regions 2 & 3, 2010-2019



* 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.

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

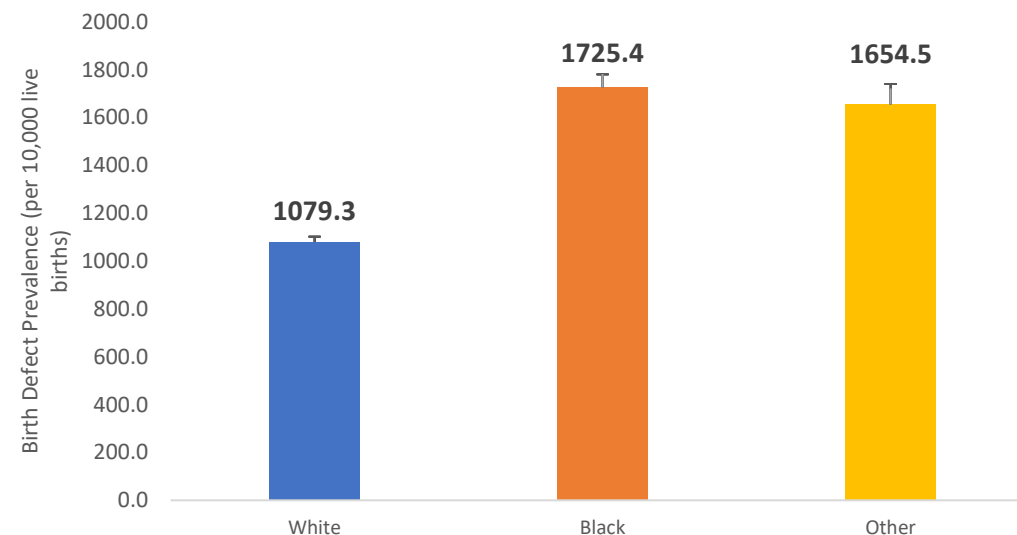
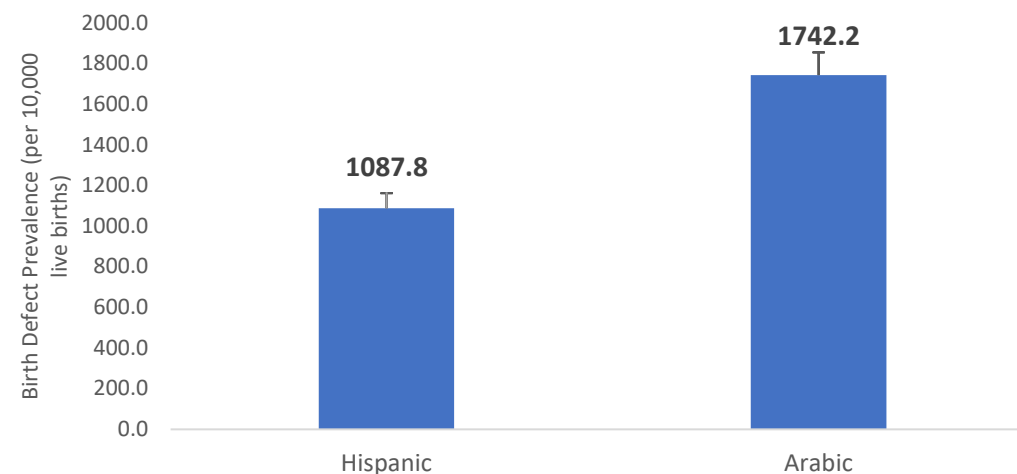
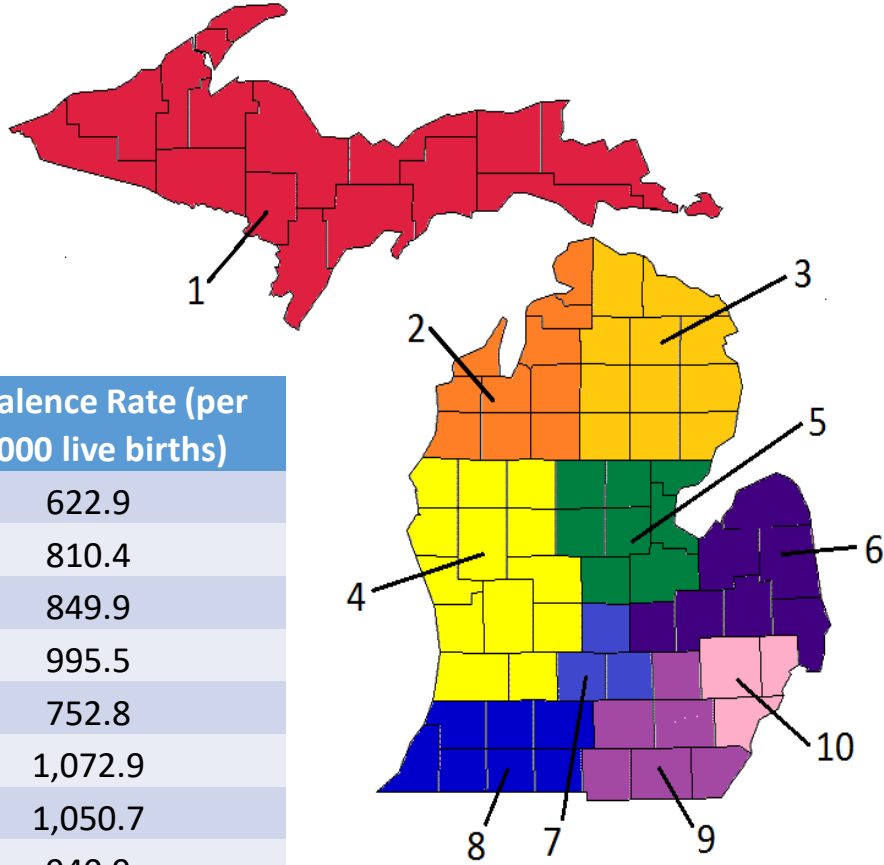


Figure 2. Statewide Maternal Ethnicity-Specific Birth Defect Prevalence Rates: MBDR, 2017



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 Regions 2 & 3, 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

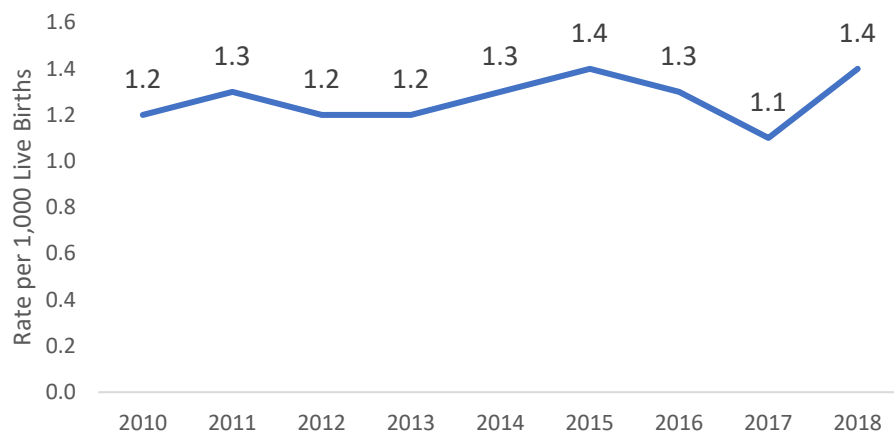
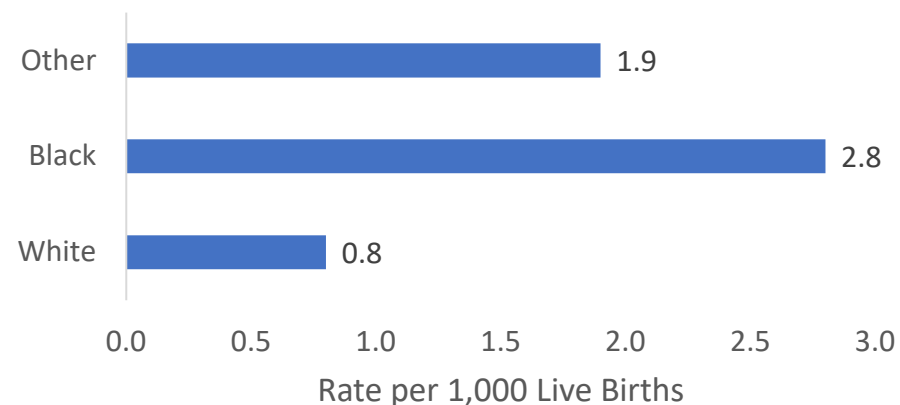
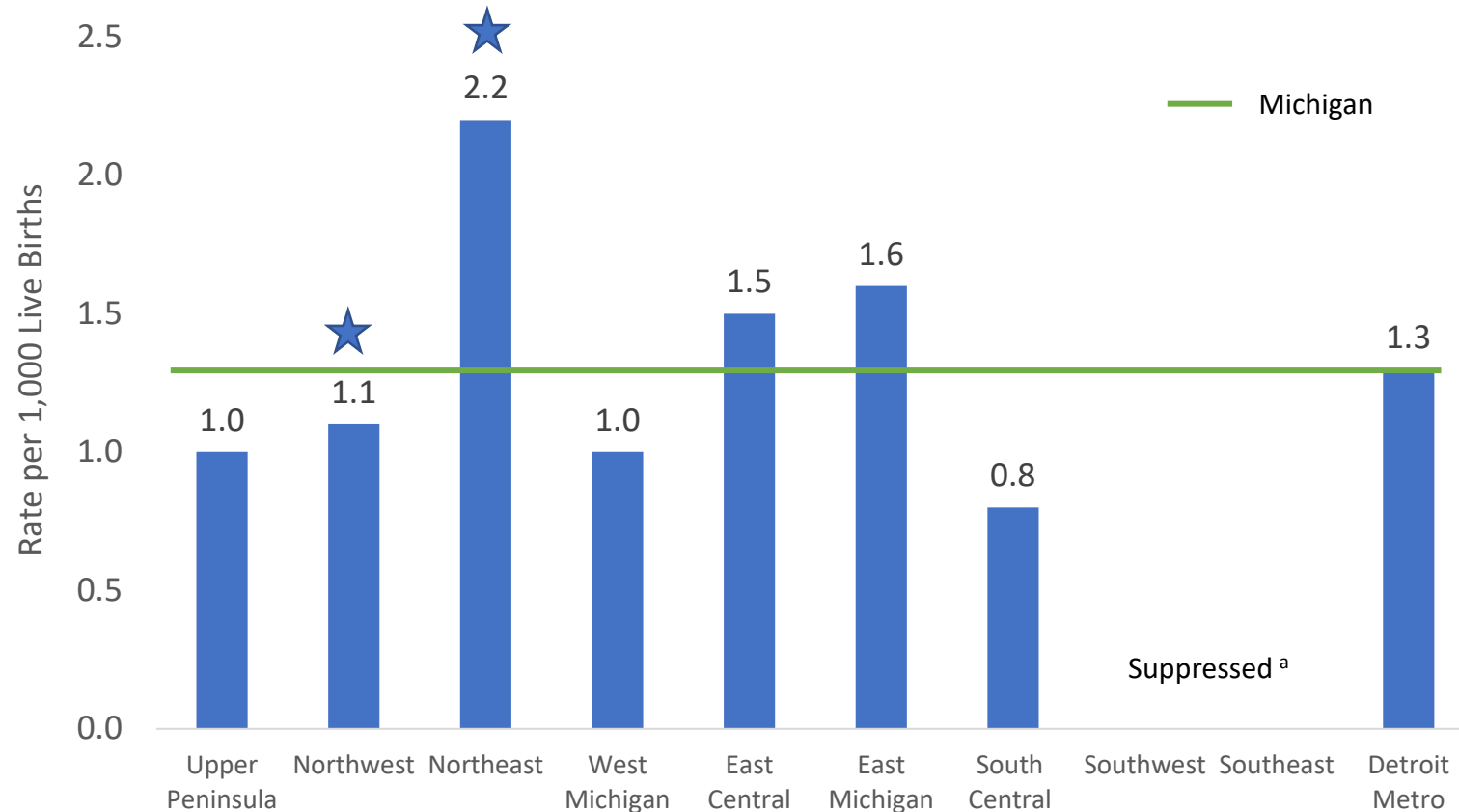


Figure 2. Rate of Sleep-Related Infant Deaths per 1,000 Live Births, by Race



Sleep-Related Infant Death Rate, Prosperity Regions 2 & 3, 2010-2018 (rate per 1,000 live births)

Sleep-Related Infant Death Rates by Prosperity Region, Michigan 2010-2018

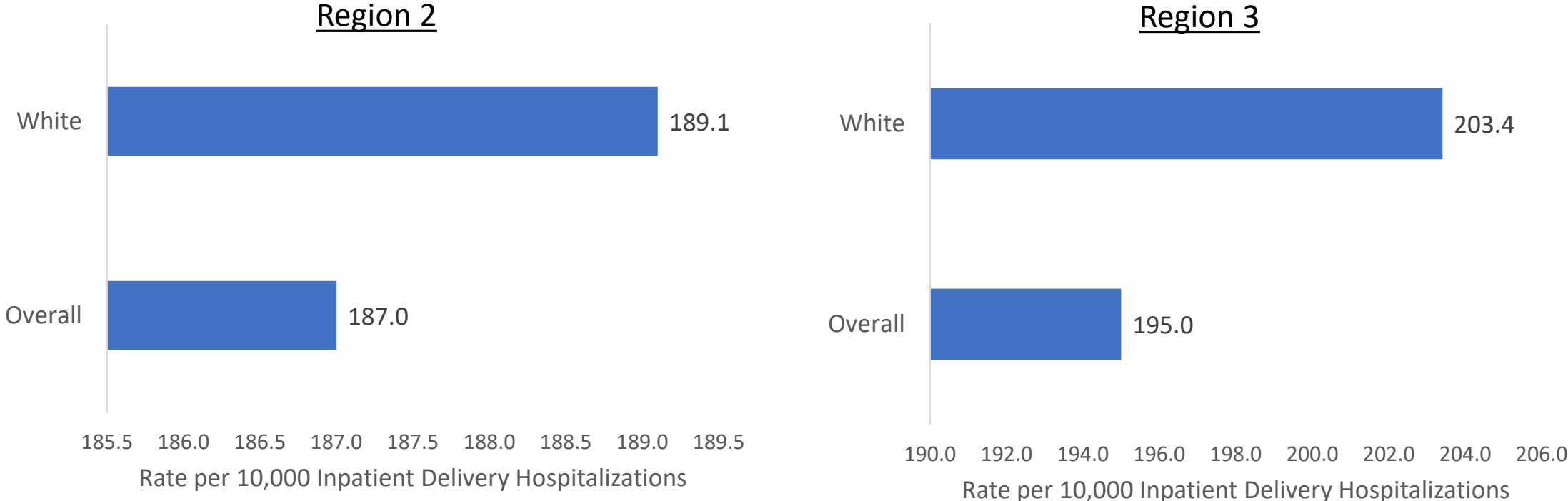


- Between 2010 and 2018 there were **29** sleep-related infant deaths in Region Two and **34** sleep-related infant deaths in Region Three.
- The Region Two sleep-related infant death rate of 1.1 per 1,000 live births was **similar** to the Michigan sleep-related death rate, while the Region Three sleep-related infant death rate of 2.2 per 1,000 live births was **significantly higher** than the Michigan rate.

^a 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

Severe Maternal Morbidity Rate Prosperity Regions 2 & 3, 2019

Severe Maternal Morbidity, Prosperity Regions 2 & 3, 2019 (rate per 10,000 delivery hospitalizations)



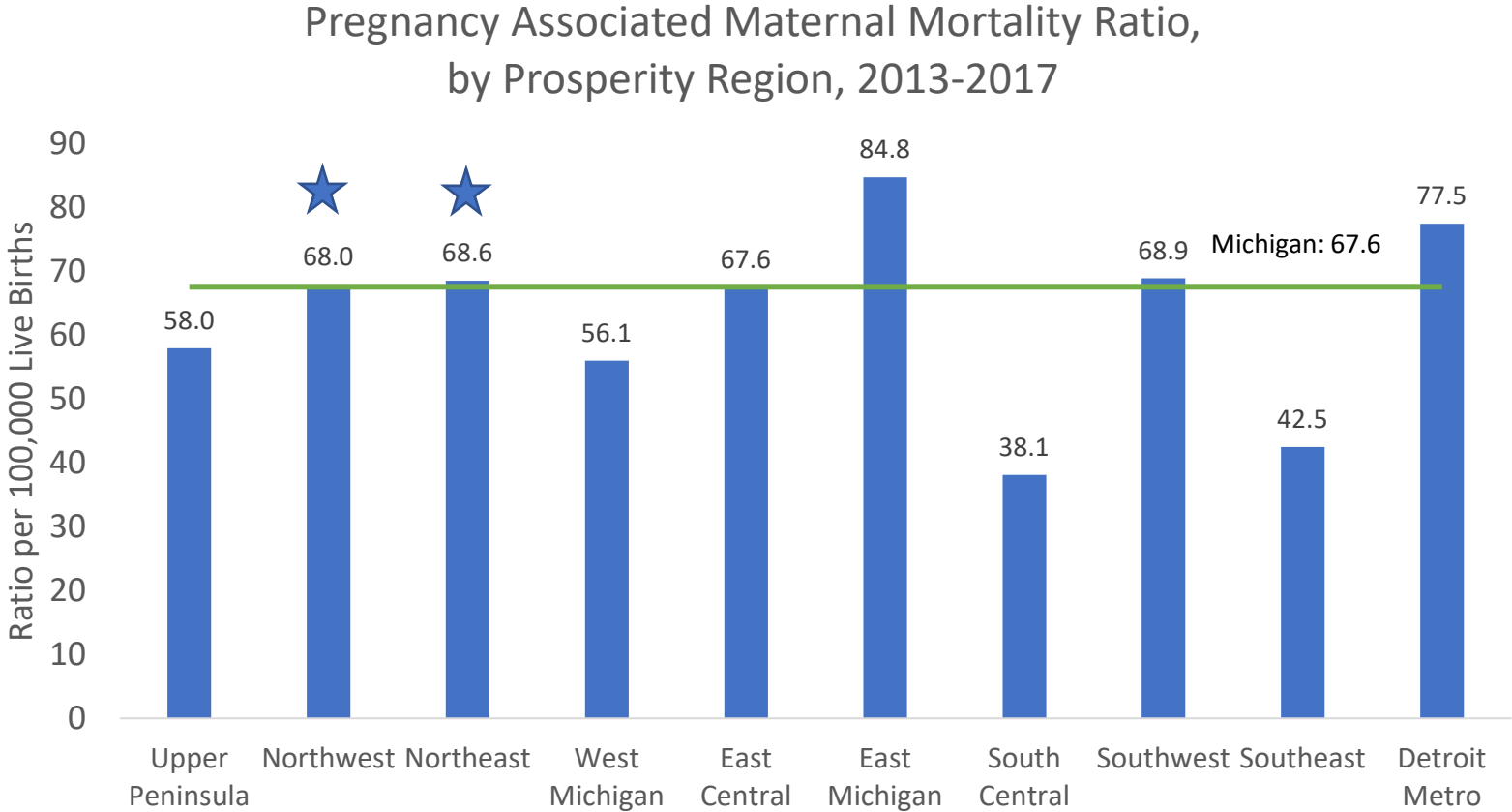
<u>2019 Michigan Rates</u>											
Overall:	194.3	White:	157.6	Black:	321.1	Asian:	192.1	Native American:	155.7	Hispanic:	205.7

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

Maternal Mortality Ratio Prosperity Regions 2 & 3, 2013-2017

Maternal Mortality Ratio, Prosperity Regions 2 & 3, 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.
- Both regions have similar maternal mortality ratios to the State of Michigan as a whole.