

Maternal and Infant Health Statistics Prosperity Region 8 2013-2022

Prepared by Maternal and Child Health Epidemiology Section
Michigan Department of Health and Human Services
November 2024





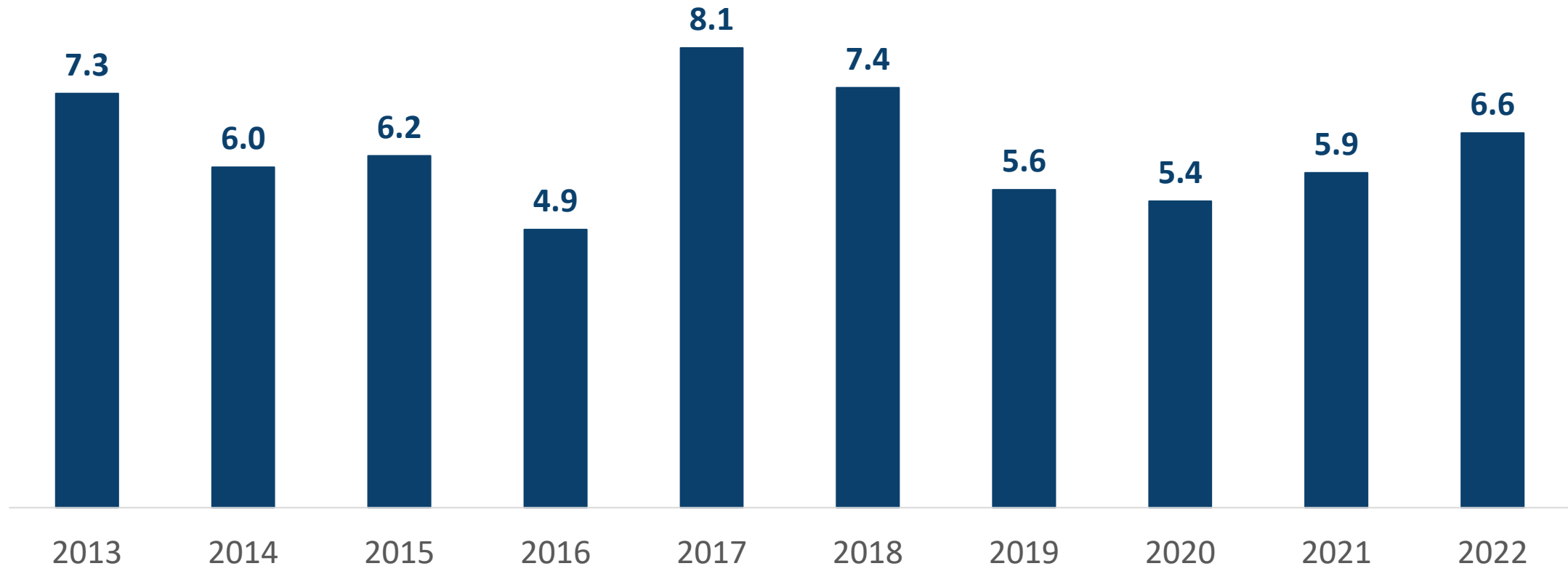
Infant Mortality Region 8 2013-2022

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 Region 8, 2013-2022

2022 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 Rate by Maternal Race/Ethnicity Region 8, 2018-2022



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.

Maternal Race	# Infant Deaths	# Live Births		Infant Mortality Rate (Deaths per 1,000 Live Births)
White Non-Hispanic	153	30,309	5.0	 5.0
Black Non-Hispanic	77	5,792	13.3	 13.3
Hispanic	12	3,610	3.3	 3.3
Asian/Pacific Islander Non-Hispanic	0<N<6	905	Data Not Sufficient	
American Indian Non-Hispanic	0<N<6	118	Data Not Sufficient	

Infant Mortality by Expanded Native American Race/Ethnicity Region 8, 2018-2022



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. More than one race: American Indian or Alaskan Native *and* another race; included only if AI/AN were reported first.

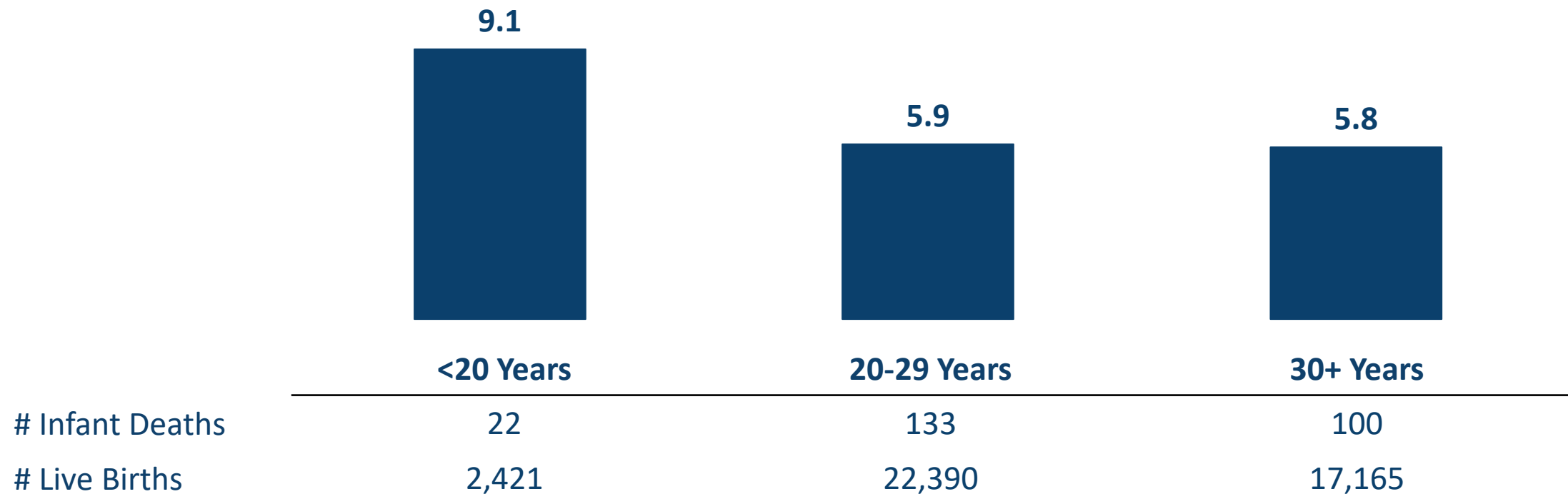
	# Infant Deaths	# Live Births	Deaths per 1,000 Live Births
#1: Maternal Race: American Indian & Non-Hispanic	0<N<6	118	Data Not Sufficient
#2: Maternal Race: American Indian or more than one race*	0<N<6	231	Data Not Sufficient
#3: Maternal Race: American Indian or more than one race* <i>OR</i> Paternal Race: American Indian or more than one race*	0<N<6	395	Data Not Sufficient

Infant Mortality Rate by Maternal Age Region 8, 2018-2022



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 Deaths per 1,000 Live Births



Infant Mortality Rate by Intended Payment Source Region 8, 2018-2022

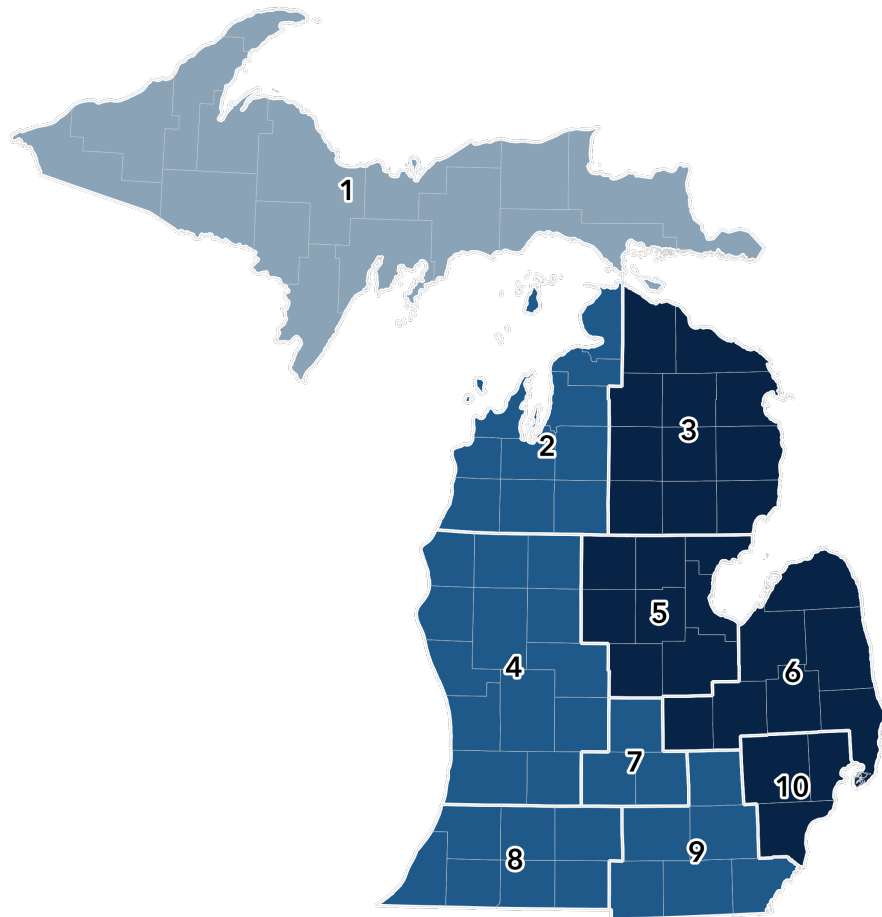













Infant mortality is defined as a death of a baby before his or her first birthday and is expressed as a rate per 1,000 live births.

Payment	# Infant Deaths	# Live Births	Infant Mortality Rate (Deaths per 1,000 Live Births)
Private Insurance	95	19,898	4.8
Medicaid	148	19,870	7.4

Infant Mortality Rate by Region, 2022

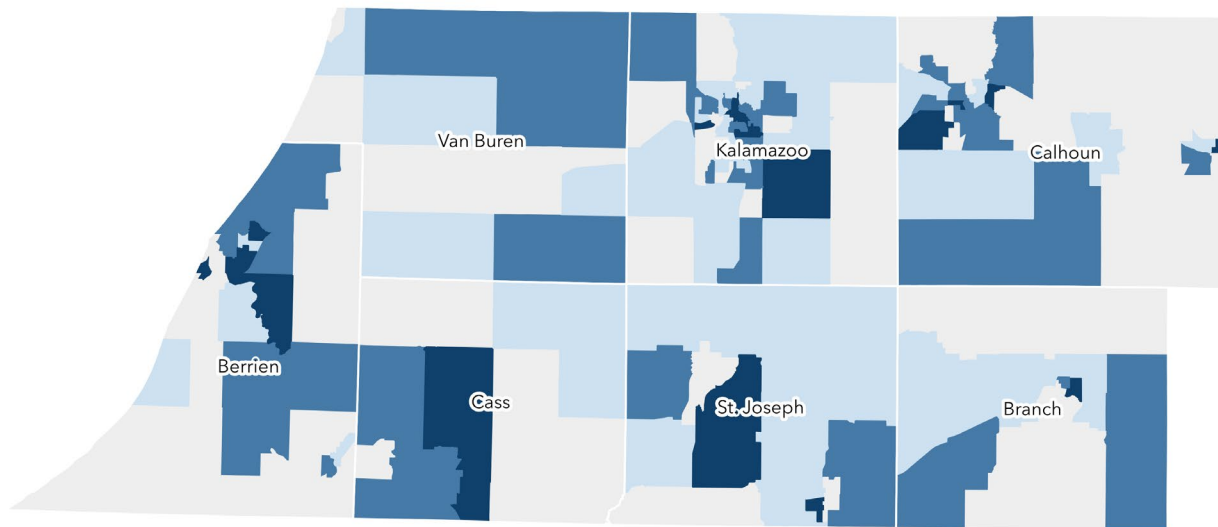
Infant mortality is defined as a death of a baby before his or her first birthday and is expressed as a rate per 1,000 live births.



	# Infant Deaths	# Live Births	Rate per 1,000 Live Births
Michigan	650	100,880	 6.4
Region 1	7	2,181	 3.2
Region 2	16	2,597	 6.2
Region 3	13	1,577	 8.2
Region 4	89	17,799	 5.0
Region 5	37	5,304	 7.0
Region 6	69	8,260	 8.4
Region 7	24	4,542	 5.3
Region 8	51	7,696	 6.6
Region 9	51	9,031	 5.6
Region 10	293	41,893	 7.0

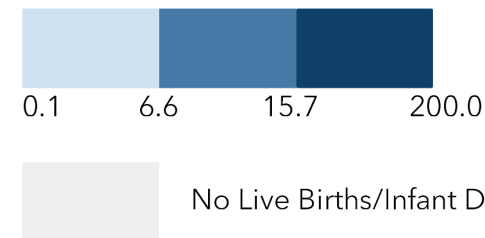
Infant Mortality Rate by Census Tract Region 8, 2017-2021

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 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.



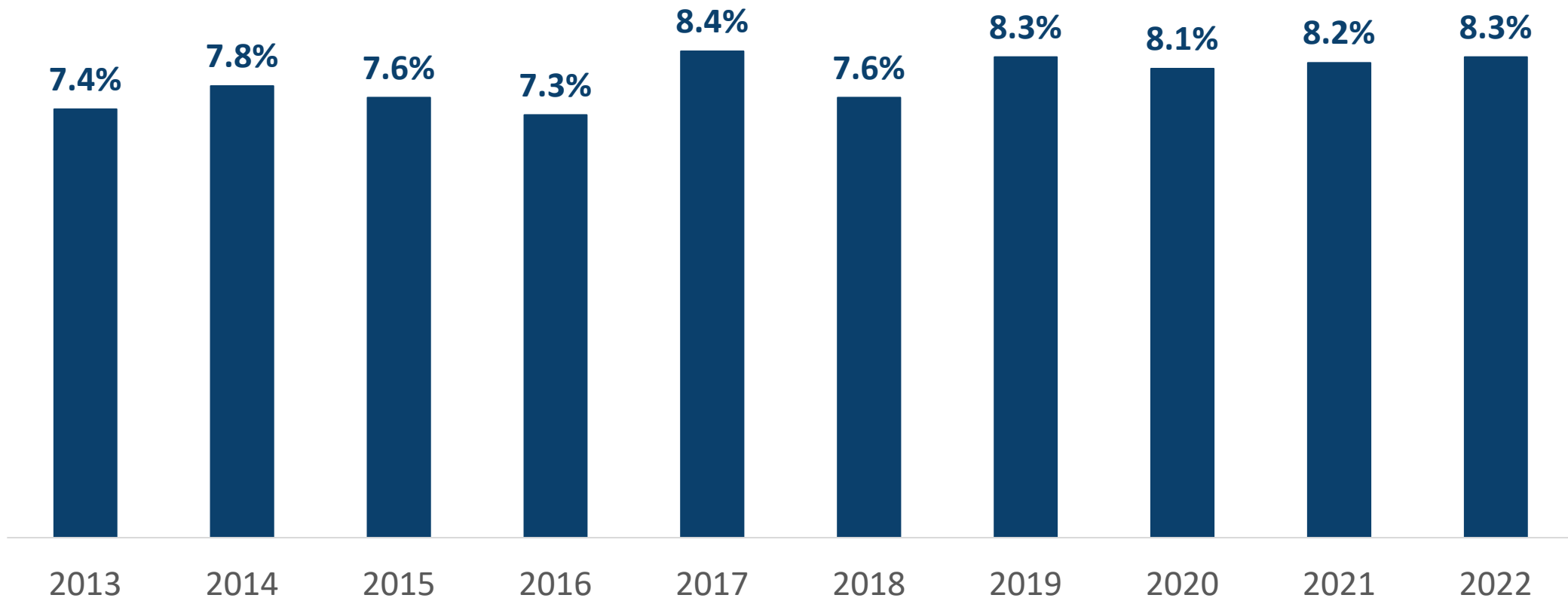


Low Birthweight Region 8 2013-2022

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

Low Birthweight Region 8, 2013-2022

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



Low Birthweight by Maternal Race/Ethnicity Region 8, 2018-2022



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

Maternal Race	# LBW	# Live Births	Percent (%) Low Birthweight	Percent (%) Low Birthweight
White Non-Hispanic	2,136	30,309	7.0%	7.0
Black Non-Hispanic	818	5,792	14.1%	14.1
Hispanic	248	3,610	6.9%	6.9
Asian/Pacific Islander Non-Hispanic	76	905	8.4%	8.4
American Indian Non-Hispanic	11	118	9.3%	9.3

Low Birthweight by Expanded Native American Race/Ethnicity Region 8, 2018-2022

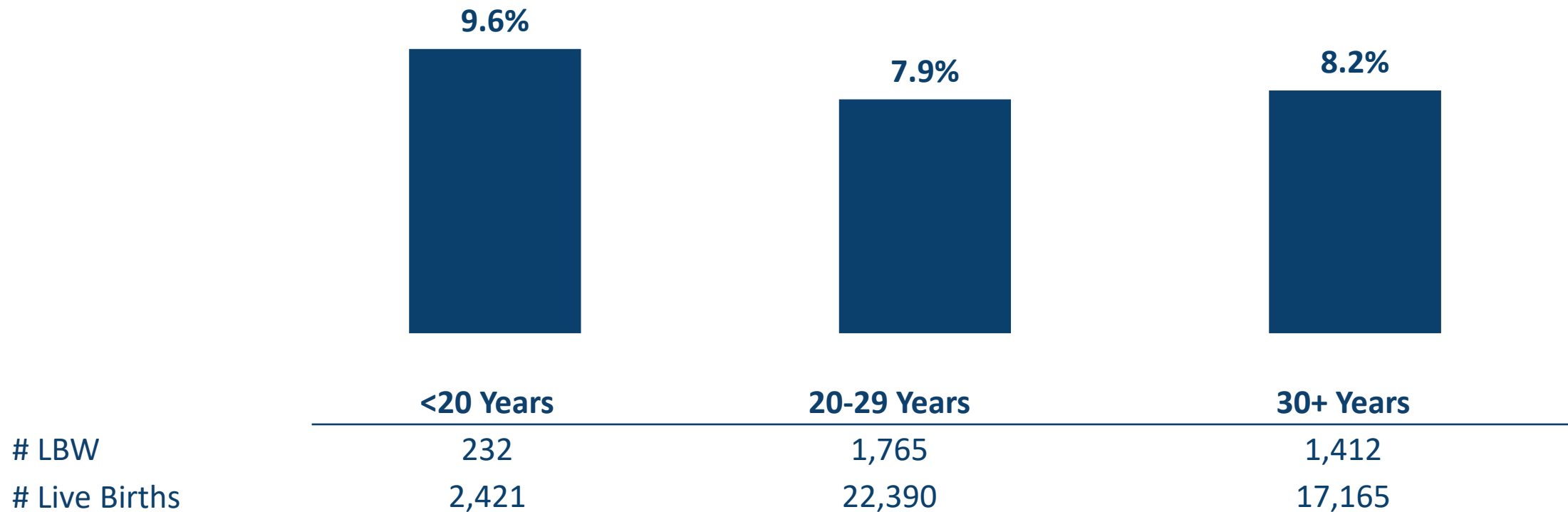


Low birthweight rate is defined as number of births with baby birthweight <2,500 grams per 100 live births.
More than one race: American Indian or Alaskan Native *and* another race; included only if AI/AN were reported first.

	# Low Birthweight	# Live Births	% Low Birthweight
#1: Maternal Race: American Indian & Non-Hispanic	11	118	9.3
#2: Maternal Race: American Indian or more than one race*	22	231	9.5
#3: Maternal Race: American Indian or more than one race* <i>OR</i> Paternal Race: American Indian or more than one race*	35	395	8.9

Low Birthweight by Maternal Age Region 8, 2018-2022

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



Low Birthweight by Intended Payment Source Region 8, 2018-2022

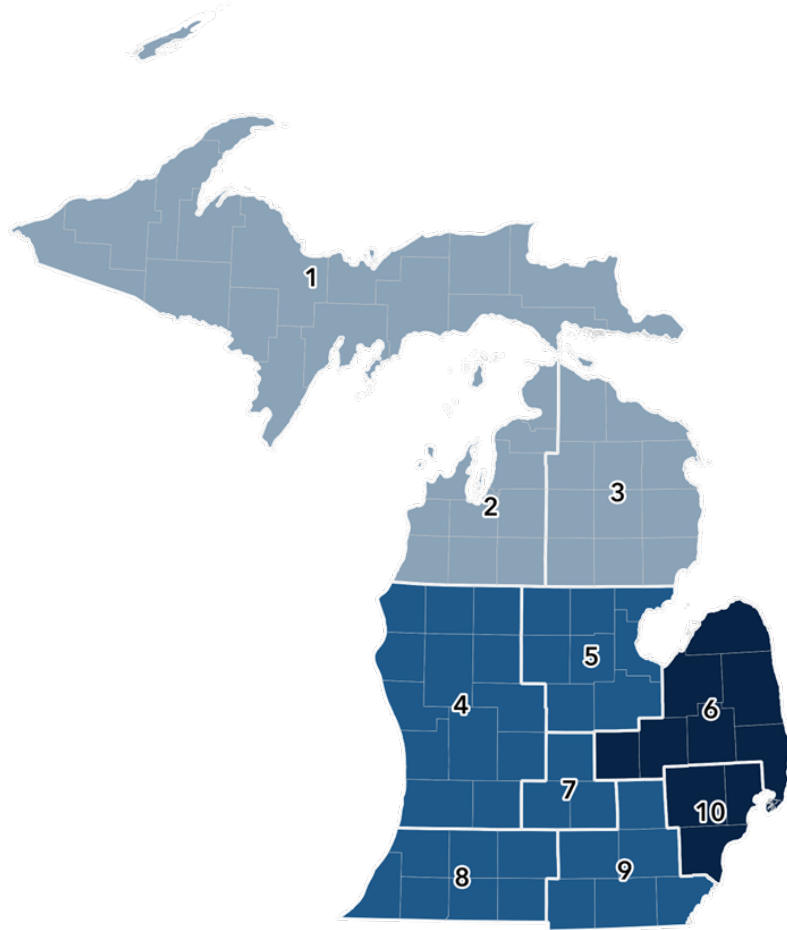













Low birthweight rate is defined as number of births with baby birthweight <2,500 grams per 100 live births.

Payment	# LBW	# Live Births		Percent (%) Low Birthweight
Private Insurance	1,402	19,898	7.0%	 7.0
Medicaid	1,892	19,870	9.5%	 9.5

Low Birthweight by Prosperity Region, 2022

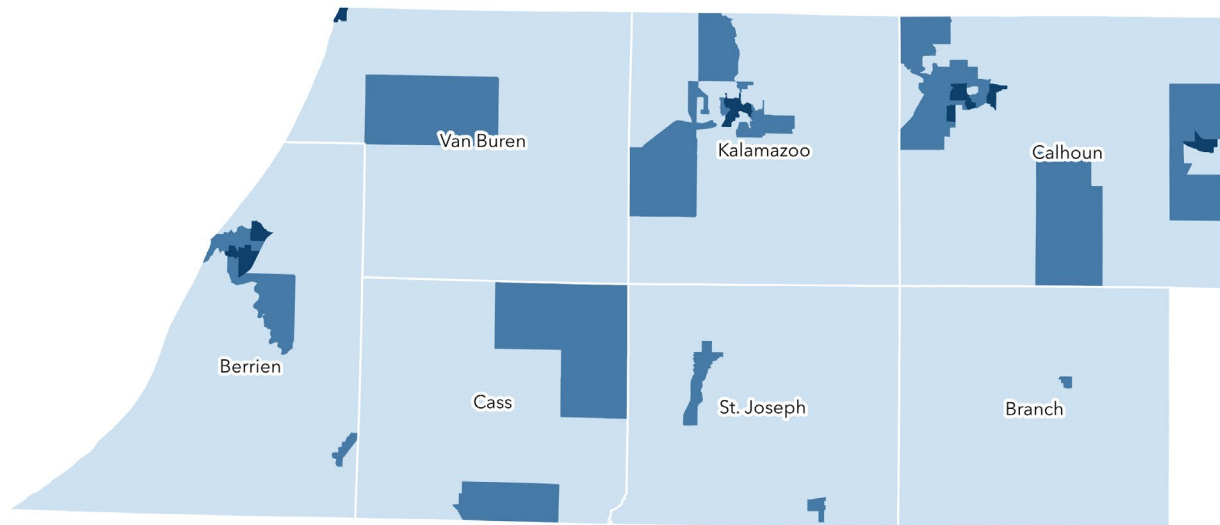
Low birthweight rate is defined as number of births with baby birthweight <2,500 grams per 100 live births.



	# LBW	# Live Births	% Low Birthweight
Michigan	9,242	100,880	 9.2%
Region 1	112	2,181	 5.1%
Region 2	180	2,597	 6.9%
Region 3	106	1,577	 6.7%
Region 4	1,559	17,799	 8.8%
Region 5	474	5,304	 8.9%
Region 6	774	8,260	 9.4%
Region 7	404	4,542	 8.9%
Region 8	641	7,696	 8.3%
Region 9	737	9,031	 8.2%
Region 10	4,255	41,893	 10.2%

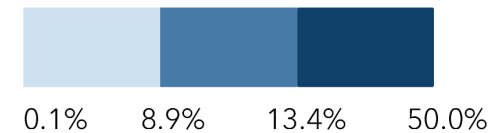
Low Birthweight by Census Tract Region 8, 2017-2021

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



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

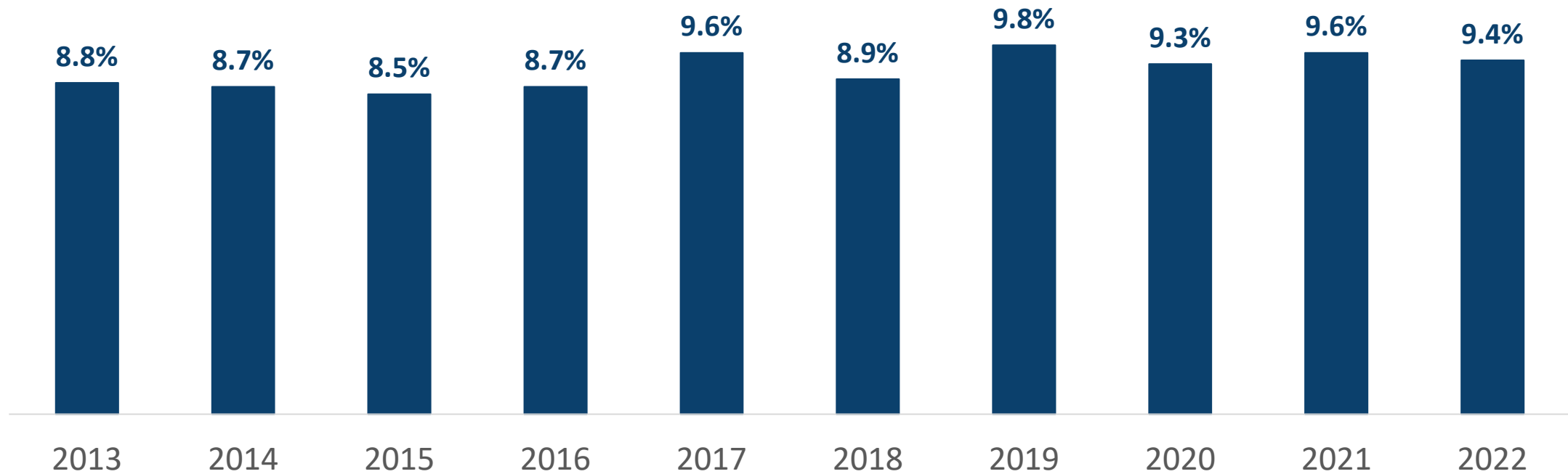


Preterm Births Region 8 2013-2022

Preterm birth is defined as number of live births delivered before 37 completed weeks of gestation.

Preterm Birth Region 8, 2013-2022






Preterm birth rate is defined as number of births delivered before 37 completed weeks of gestation per 100 live births.



Preterm Birth by Maternal Race/Ethnicity, Region 8, 2018-2022



Preterm birth rate is defined as number of births delivered before 37 completed weeks of gestation per 100 live births.

Maternal Race	# Preterm	# Live Births	Percent (%) Preterm	
White Non-Hispanic	2,675	30,309	8.8%	 8.8
Black Non-Hispanic	786	5,792	13.6%	 13.6
Hispanic	306	3,610	8.5%	 8.5
Asian/Pacific Islander Non-Hispanic	64	905	7.1%	 7.1
American Indian Non-Hispanic	9	118	7.6%	 7.6

Preterm Birth by Expanded Native American Race/Ethnicity Region 8, 2018-2022

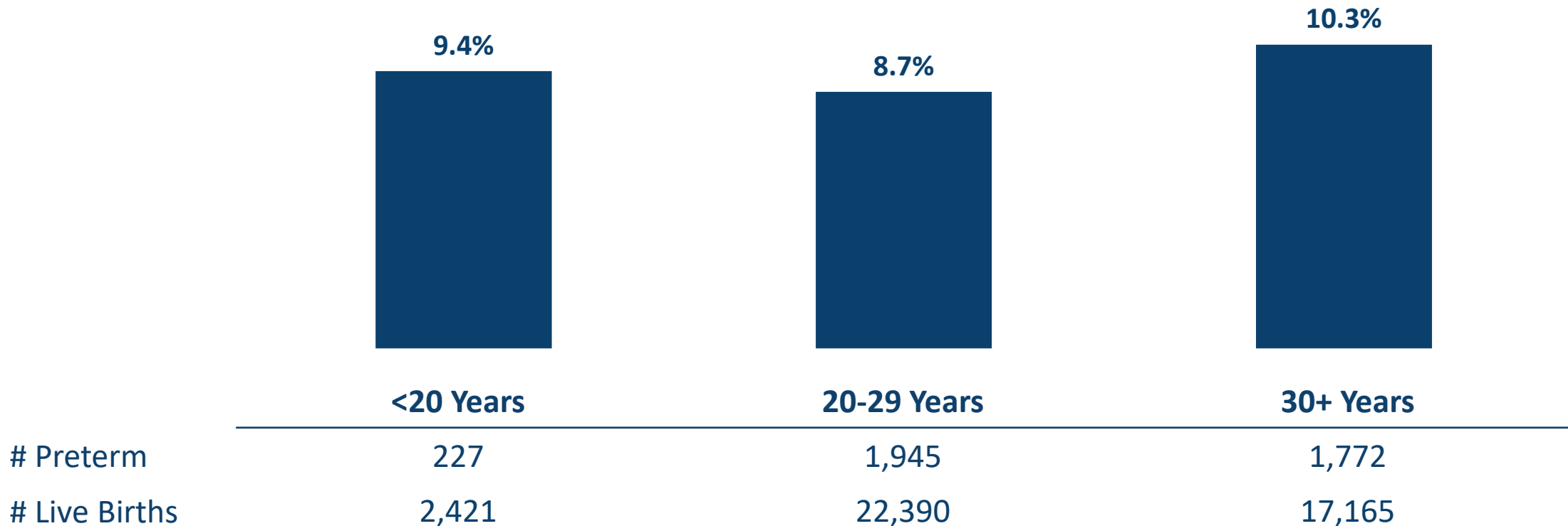


Preterm birth rate is defined as number of births delivered before 37 completed weeks of gestation per 100 live births.
More than one race: American Indian or Alaskan Native *and* another race; included only if AI/AN were reported first.

Method	# Preterm	# Live Births	% Preterm
1: Maternal Race: American Indian & Non-Hispanic	9	118	7.6
2: Maternal Race: American Indian or more than one race*	19	231	8.2
3: Maternal Race: American Indian or more than once race* <i>OR</i> Paternal Race: American Indian or more than one race*	36	395	9.1

Preterm Birth by Maternal Age Region 8, 2018-2022



Preterm birth rate is defined as number of births delivered before 37 completed weeks of gestation per 100 live births.



Preterm Birth by Intended Payment Source Region 8, 2018-2022

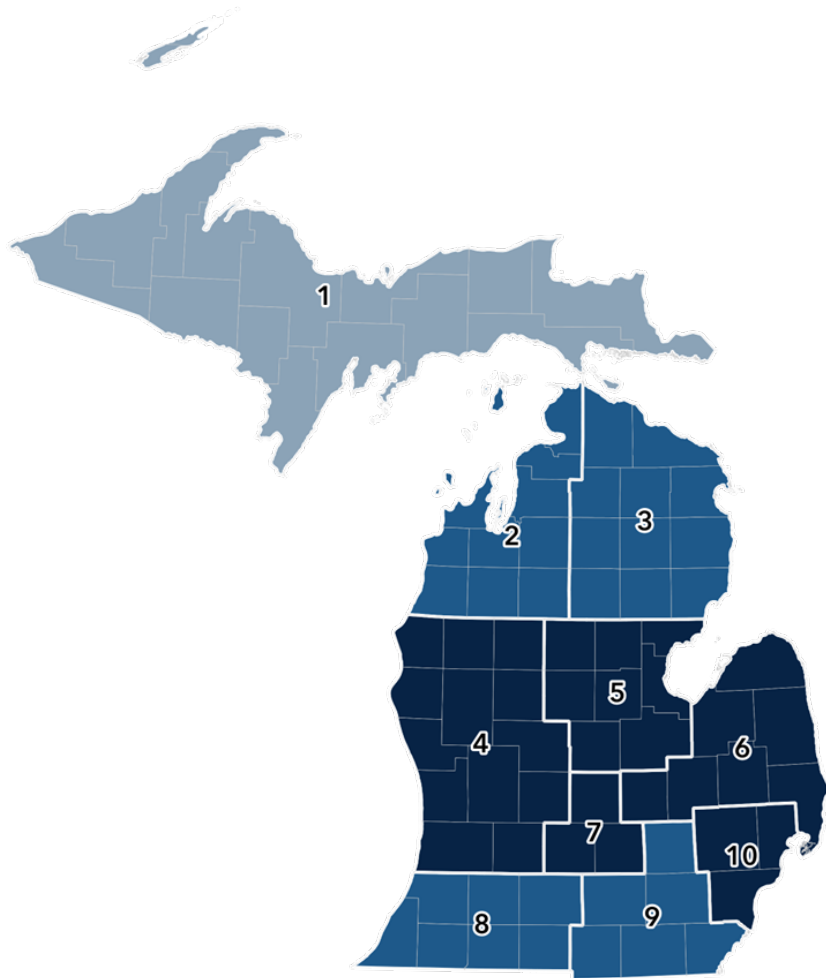













Preterm birth rate is defined as number of births delivered before 37 completed weeks of gestation per 100 live births.

Payment	# Preterm	# Live Births		Percent (%) Preterm
Private Insurance	1,728	19,898	8.7%	 8.7
Medicaid	2,089	19,870	10.5%	 10.5

Preterm Birth by Prosperity Region, 2022

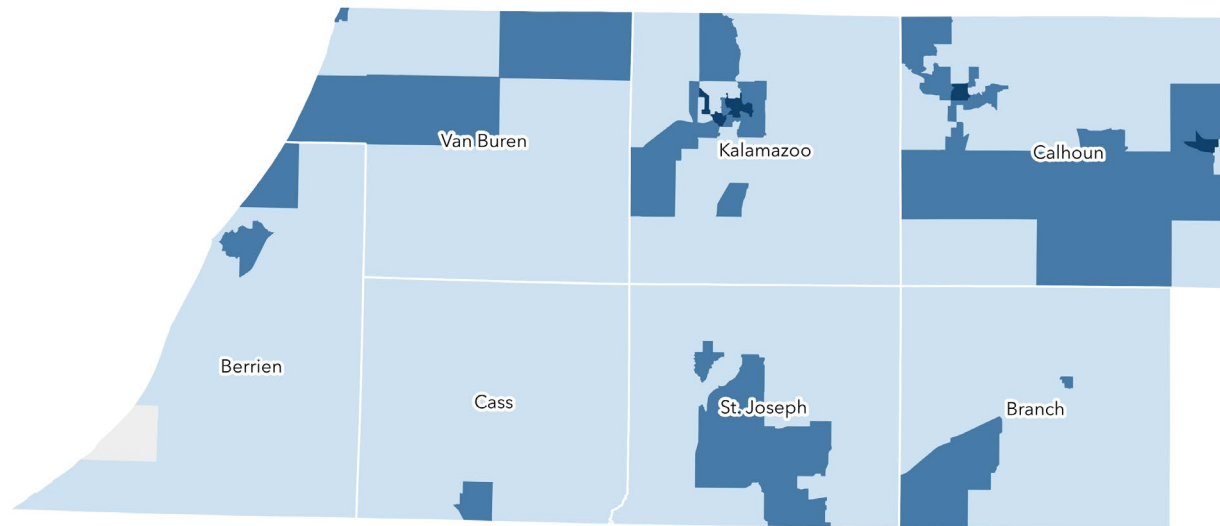
Preterm birth rate is defined as number of births delivered before 37 completed weeks of gestation per 100 live births.



	# Preterm	# Live Births	% Preterm
Michigan	10,427	100,880	 10.3%
Region 1	161	2,181	 7.4%
Region 2	232	2,597	 8.9%
Region 3	137	1,577	 8.7%
Region 4	1,849	17,799	 10.4%
Region 5	563	5,304	 10.6%
Region 6	925	8,260	 11.2%
Region 7	456	4,542	 10.0%
Region 8	727	7,696	 9.4%
Region 9	852	9,031	 9.4%
Region 10	4,525	41,893	 10.8%

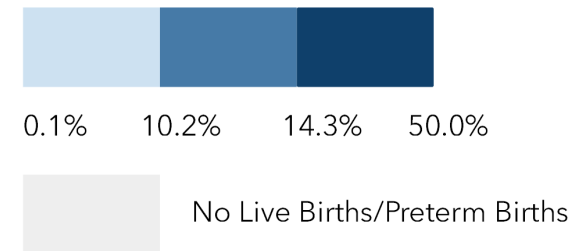
Preterm Births by Census Tract Region 8, 2017-2021

Preterm birth rate is defined as number of births delivered before 37 completed weeks of gestation per 100 live births.



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.





Prenatal Care Utilization

Region 8

2022

Prenatal Care Utilization by Maternal Race/Ethnicity Region 8, 2018-2022



‘No prenatal care’ is a proportion of all live births. ‘Late prenatal care’ is calculated among live births where prenatal care was accessed. Late entry into prenatal care refers to prenatal care beginning in the third trimester.

Maternal Race	% No Prenatal Care	% Late Prenatal Care
Region 8	2.0	6.3
White Non-Hispanic	1.7	5.9
Black Non-Hispanic	3.2	7.4
Hispanic	1.9	8.2
Asian/Pacific Islander Non-Hispanic	1.4	5.4
American Indian Non-Hispanic	Data Not Sufficient (0<N<6)	7.6



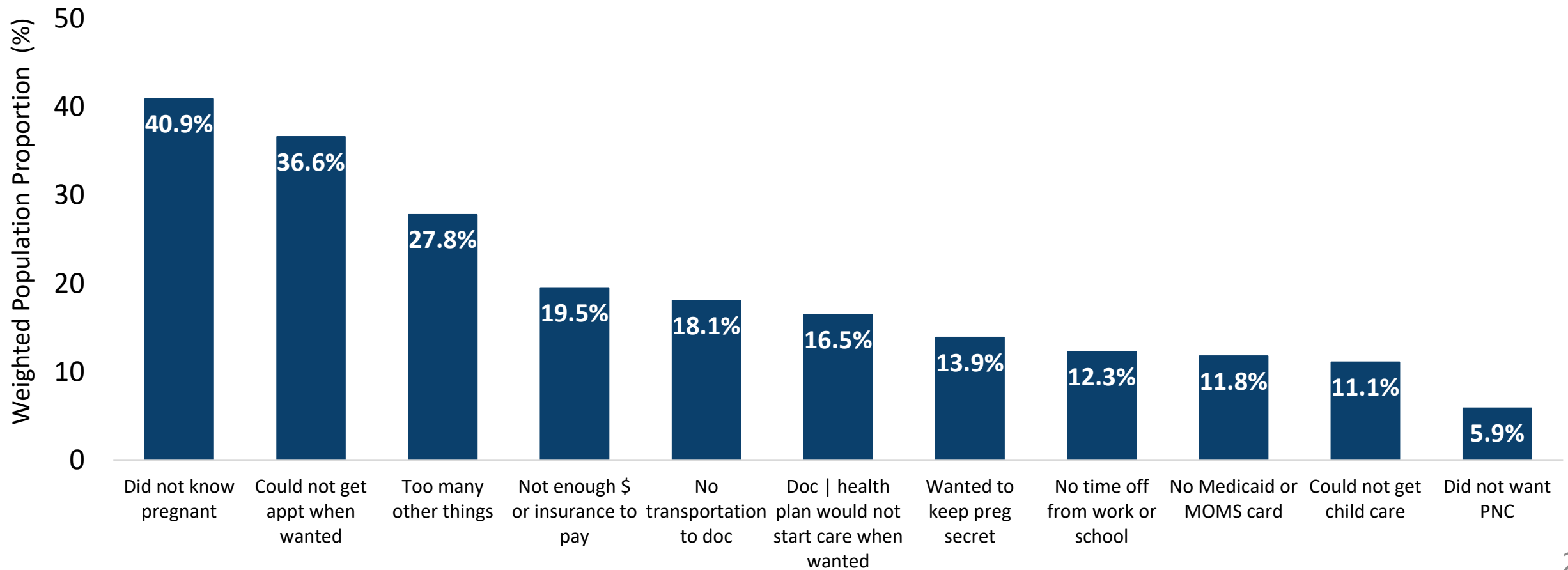
Barriers to Prenatal Care

Michigan

2016-2022

Barriers to Prenatal Care Michigan, 2016-2022

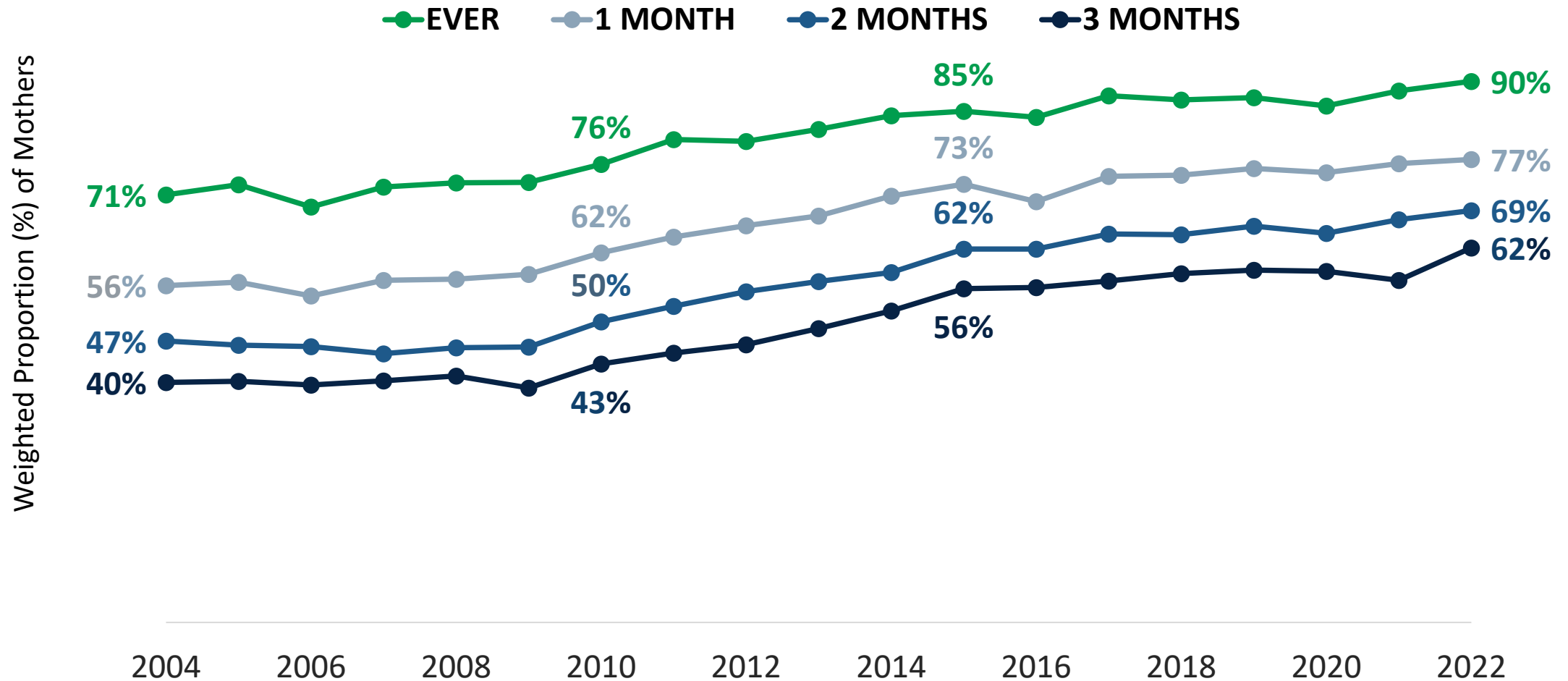
The chart depicts barriers to prenatal care among mothers who **started PNC *after* 1st trimester and wanted to start sooner**. Around half (51.5%) of mothers who started PNC after the first trimester were okay with that timing.





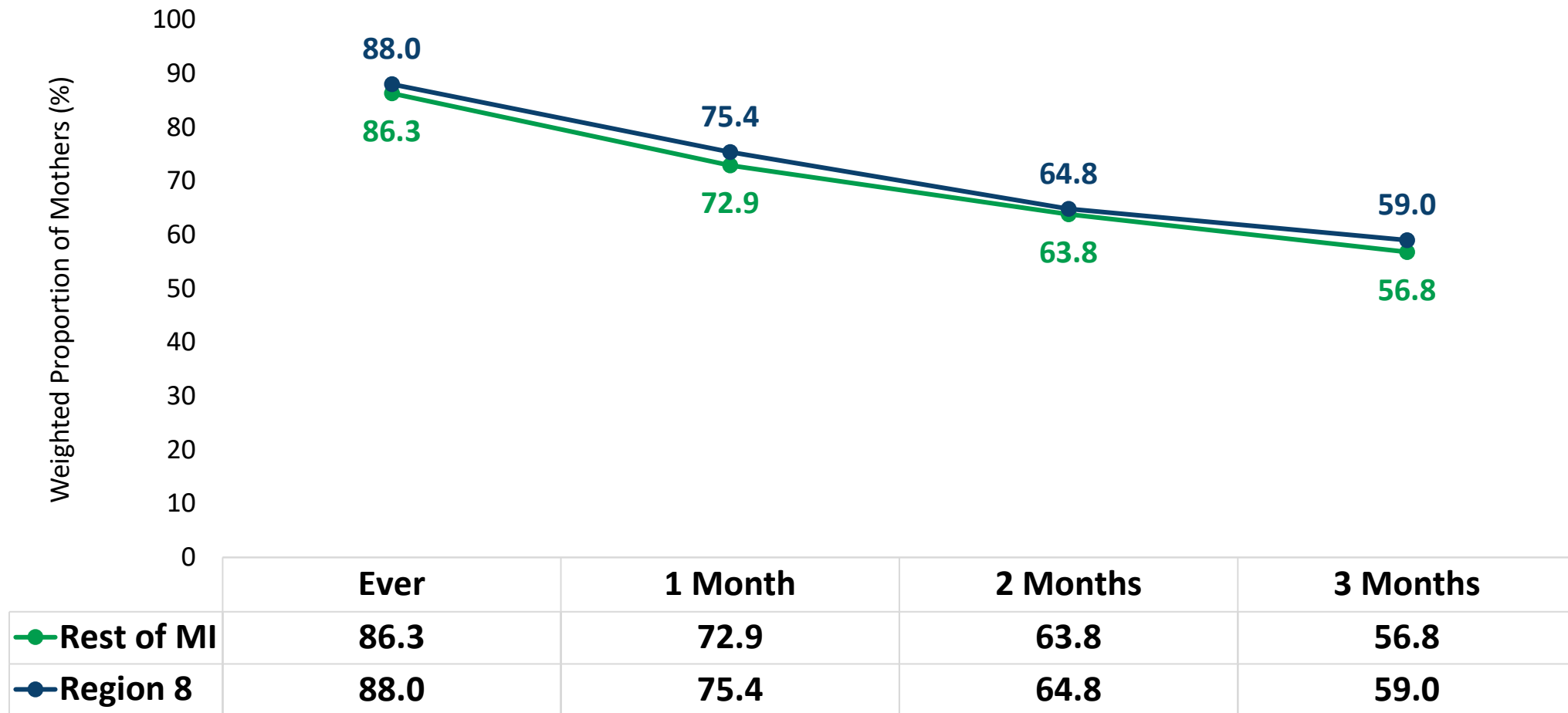
Breastfeeding Initiation and Duration 2004-2022

Breastfeeding Initiation + Duration Michigan, 2004-2022



Breastfeeding Initiation and Duration Region 8 v Rest of Michigan, 2016-2018

Breastfeeding in Region 8 is *comparable* to breastfeeding in the remainder of the State at all four time points.



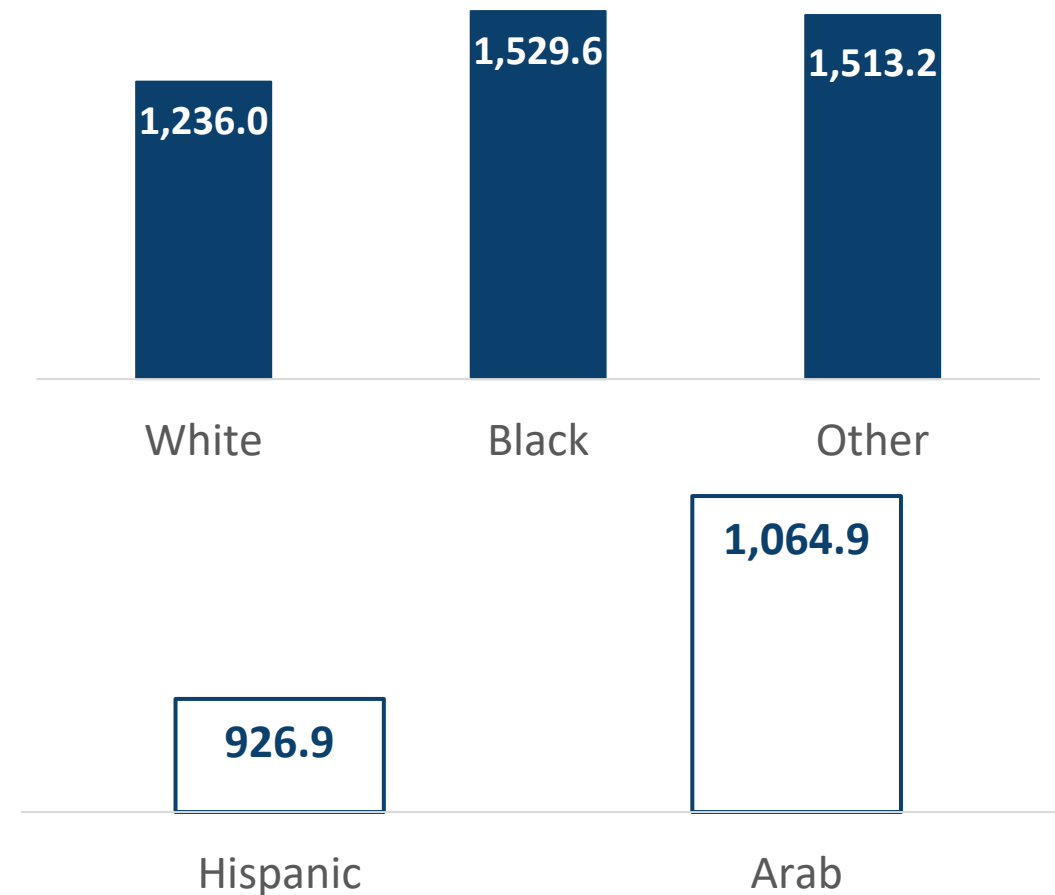


Birth Defects 2021

Birth Defect Prevalence by Maternal Race/ethnicity, 2021

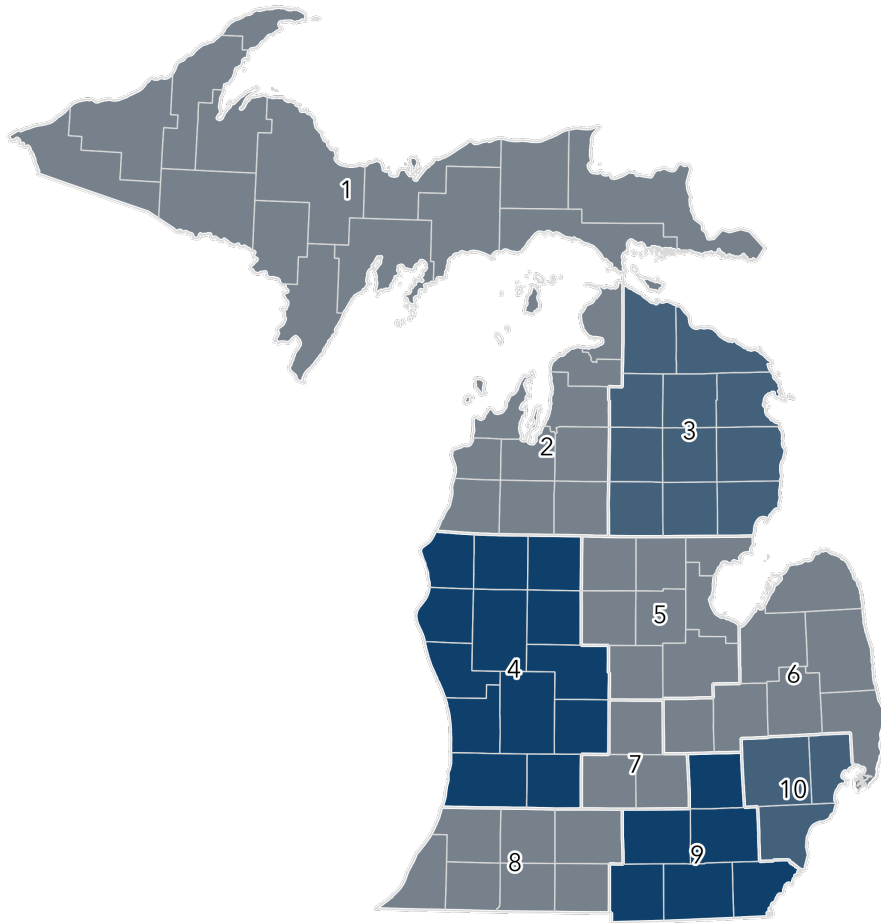
- Throughout birth years 2015-2021, the birth defect prevalence rate for Michigan remained steady at an average rate of 2,008.8 cases per 10,000 live births. The increase in birth defect prevalence can be partially attributed to the improvement of data collection methods utilized by the MBDR.
- In 2021, the race-specific birth defect prevalence rate for cases born to mothers of “other” races (1,513.2 per 10,000 live births) exceeded that of cases born to black mothers (1529.6 cases per 10,000 live births) and cases born to white mothers (1,236.0 cases per 10,000 live births).
- In 2021, the ethnicity-specific birth defect prevalence rate for cases born to a mother reporting Arab ethnicity (1,064.9 cases per 10,000 live births) was greater than that of cases born to a mother reporting Hispanic ethnicity (926.9 cases per 10,000 live births).

**Birth Defects Prevalence Rate
per 10,000 Live Births, 2021**



Birth Defect Prevalence Rates by Prosperity Region, 2021

Prevalence rates are based on births to mothers living in Michigan at the time of delivery.
Regions approximate prosperity region boundaries



Region	# Cases	Prevalence Rate (per 10,000 live births)
Michigan	13,794	1,313.5
Region 1	95	367.5
Region 2	267	961.8
Region 3	184	1073.5
Region 4	3,806	2,085.1
Region 5	360	659.5
Region 6	838	982.8
Region 7	364	782.6
Region 8	708	846.5
Region 9	2,255	2,333.6
Region 10	4,917	1,142.8



Neonatal Abstinence Syndrome

Region 8

2013-2022

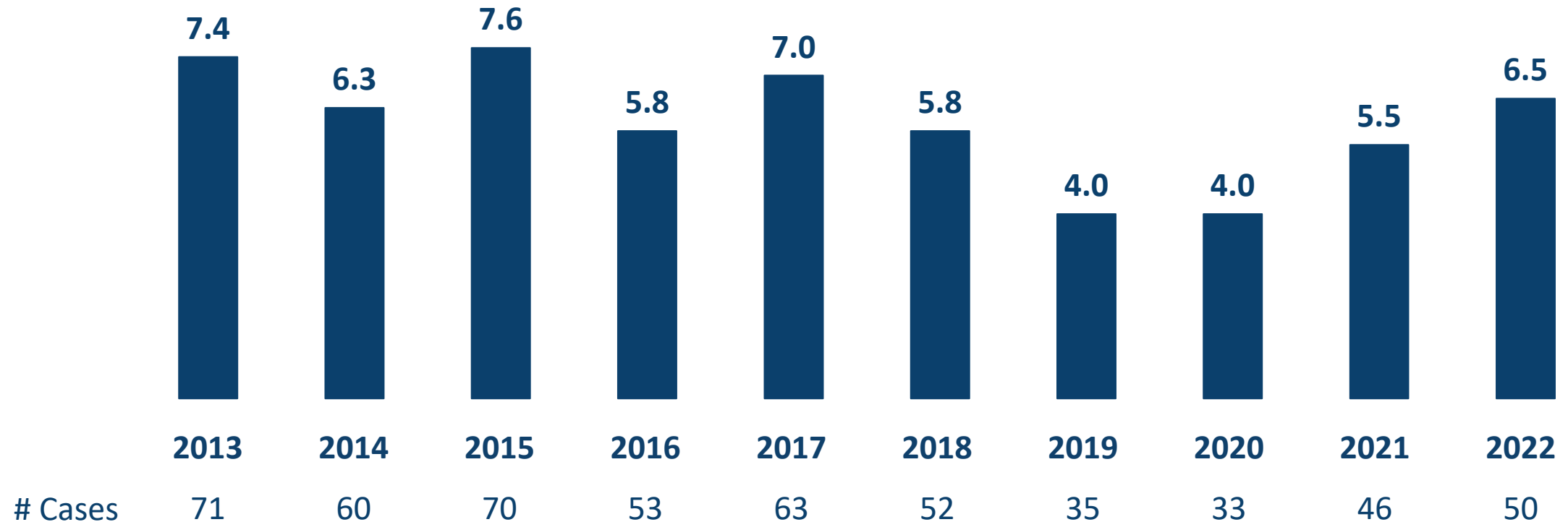
About the Data

1. Neonatal Abstinence Syndrome (NAS) cases are identified by diagnosis code (ICD-9 779.5 or ICD-10 P96.1) from the Michigan Inpatient Database. The transition from ICD-9 to ICD-10 started in Fall 2015. This may contribute to some **fluctuation in the data**.
2. **NAS cases may be underreported** with the increasing popularity of non-pharmacological interventions, which may not be consistently captured in the data.
3. **The goal of NAS surveillance is *not* to reduce the number of cases to zero.** This is due to limitations with current surveillance practices. They do not allow us to distinguish between a) women with untreated opioid use or other substance use disorder or b) women with opioid use disorder on medicated assisted therapy, or c) women on long term opioid, benzodiazepine or barbiturate therapy for a chronic disease condition.
4. NAS rates are calculated per 1,000 live births in order to be consistent with the CSTE case definition. Previous reports published by MDHHS include NAS rates per 100,000 live births.

Neonatal Abstinence Syndrome Region 8, 2013-2022

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

NAS Cases per 1,000 Live Births



NAS by Maternal Race/Ethnicity Region 8, 2018-2022

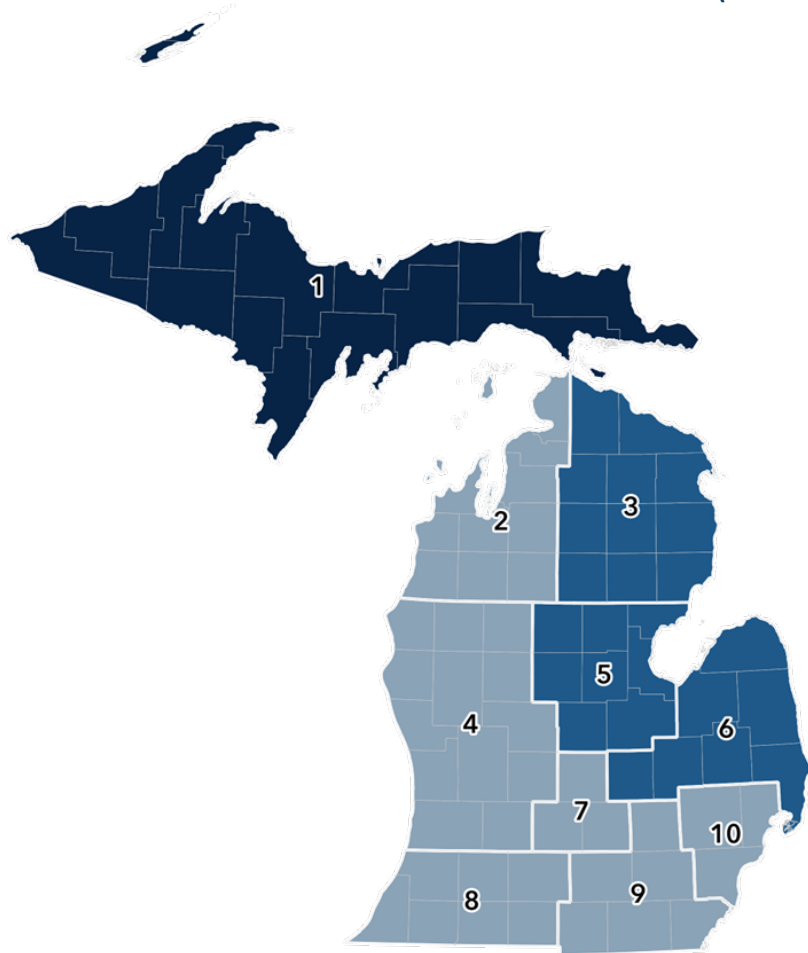


2010-2015: 779.5 (drug withdrawal syndrome in newborn) and
2016-current: P96.1 (neonatal withdrawal symptoms from maternal use of drugs of addiction)

Maternal Race	# NAS Cases	# Live Births	NAS Rate (Cases per 1,000 Live Births)
White non-Hispanic	167	30,309	5.5
Black non-Hispanic	23	5,792	4.0
Hispanic	12	3,610	3.3
Asian/Pacific Islander	0<N<6	905	Data Not Sufficient
American Indian	0<N<6	118	Data Not Sufficient

Neonatal Abstinence Syndrome by Prosperity Region, 2022

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



	# NAS Cases	# Live Births	Cases per 1,000 Live Births
Michigan	605	100,880	6.0
Region 1	44	2,181	20.2
Region 2	16	2,597	6.2
Region 3	20	1,577	12.7
Region 4	46	17,799	2.6
Region 5	64	5,304	12.1
Region 6	102	8,260	12.3
Region 7	23	4,542	5.1
Region 8	50	7,696	6.5
Region 9	43	9,031	4.8
Region 10	196	41,893	4.7



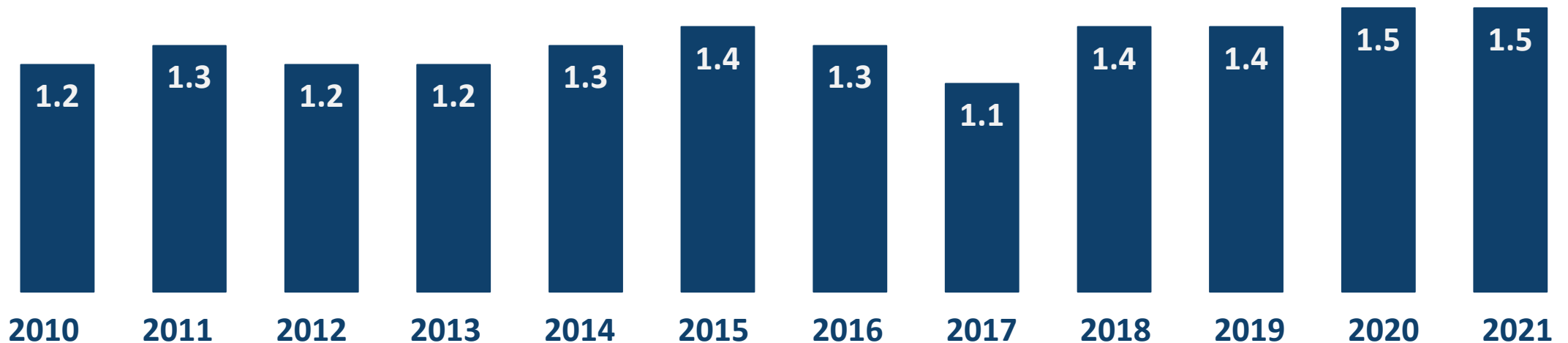
Sleep-Related Infant Death Rate 2010-2021

Deaths to infants less than 1 year of age that occur suddenly and unexpectedly due to suffocation/positional asphyxia, sudden infant death syndrome, undetermined/unexpected infant death, and other causes where the sleep environment was likely to have contributed to the death.

Sleep-Related Infant Deaths Michigan, 2010-2021

Between 2010 and 2021, there were **1,755** sleep-related infant deaths in Michigan. The sleep-related infant death rate has fluctuated slightly but has not statistically significantly differed during this time.

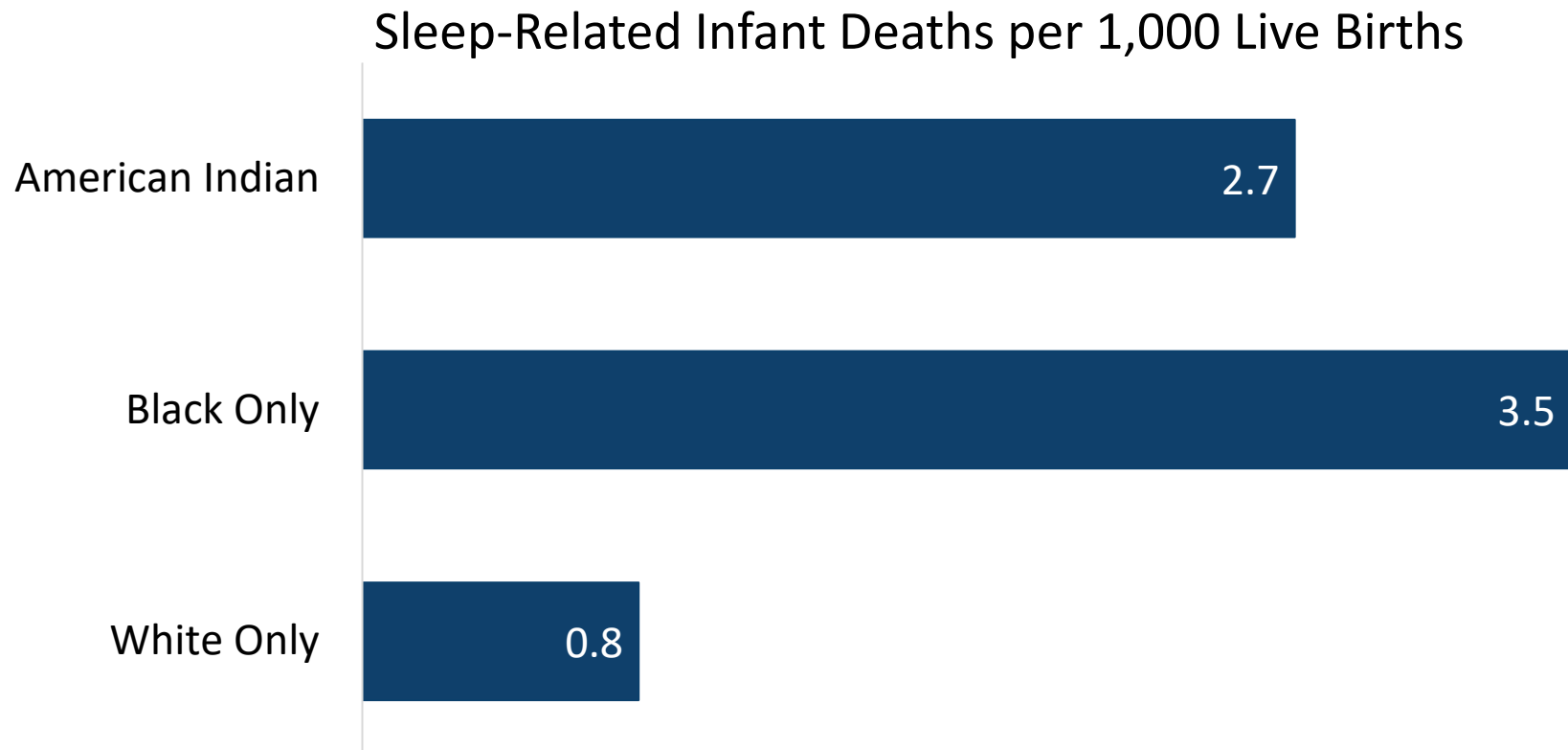
Deaths per 1,000 Live Births



# deaths	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	140	147	131	142	152	159	142	123	151	149	161	158

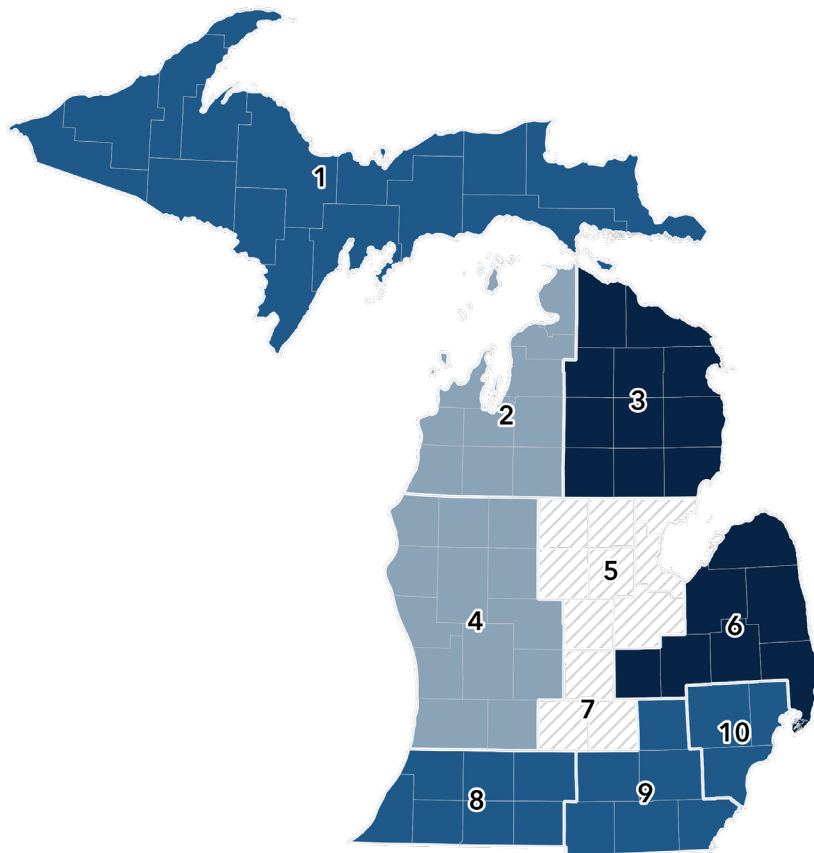
Sleep-Related Infant Deaths by Race Michigan, 2016-2021

Between 2016 and 2021, Black infants were **4.6** times more likely to die of sleep-related causes as compared to white infants. American Indian infants were **3.5** times more likely to die of sleep-related causes as compared to white infants.



Sleep-Related Infant Deaths by Prosperity Region, 2010-2021

Between 2010 and 2021 there were **152** sleep-related infant deaths in **Region 8**. The **Region 8** sleep-related infant death rate was *higher* than the Michigan sleep-related infant death rate, but the difference was *not statistically significant*. Data for regions 5 and 7 suppressed as to not inadvertently identify suppressed county level statistics.



	# Infant Deaths	Sleep Related Deaths Per 1,000 live births
Michigan	1,755	1.3
Region 1	39	1.2
Region 2	32	0.9
Region 3	39	1.9
Region 4	231	1.0
Region 5	Data Suppressed	
Region 6	185	1.7
Region 7	Data Suppressed	
Region 8	152	1.5
Region 9	134	1.1
Region 10	758	1.4



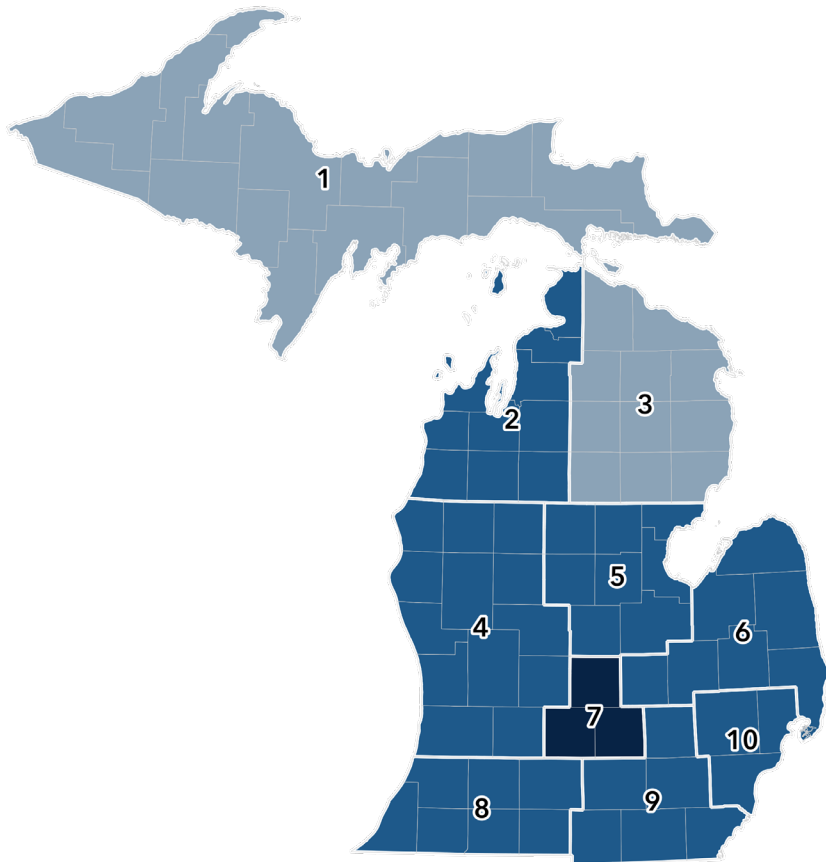
Low-Risk Cesarean 2022

$$\frac{\# \text{ cesarean among 1st births low risk females}}{\# \text{ 1st births to low risk females}}$$

Low-risk: full term, singleton births, and vertex presentation.

Low-Risk Cesarean by Prosperity Region, 2022

Low-risk cesarean is a ratio of the number of first births delivered by cesarean section to low-risk females (full-term, singleton births, vertex presentation) to the number of first births to low-risk females (full-term, singleton births, vertex presentation).



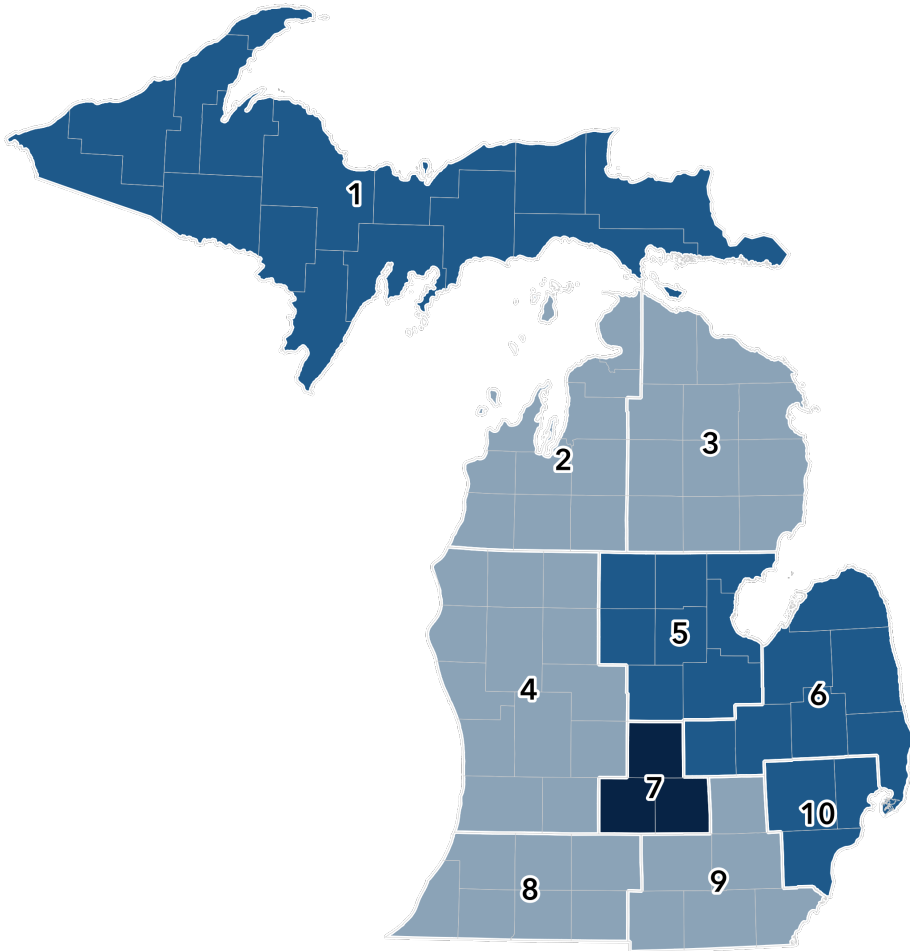
	# Low Risk Cesarean	# Low Risk 1 st Births	% Low Risk Cesarean
Michigan	7,544	26,742	28.2%
Region 1	132	557	23.7%
Region 2	195	727	26.8%
Region 3	112	467	24.0%
Region 4	1,279	4,932	25.9%
Region 5	374	1,299	28.8%
Region 6	581	2,012	28.9%
Region 7	377	1,178	32.0%
Region 8	499	1,937	25.8%
Region 9	593	2,305	25.7%
Region 10	3,402	11,328	30.0%



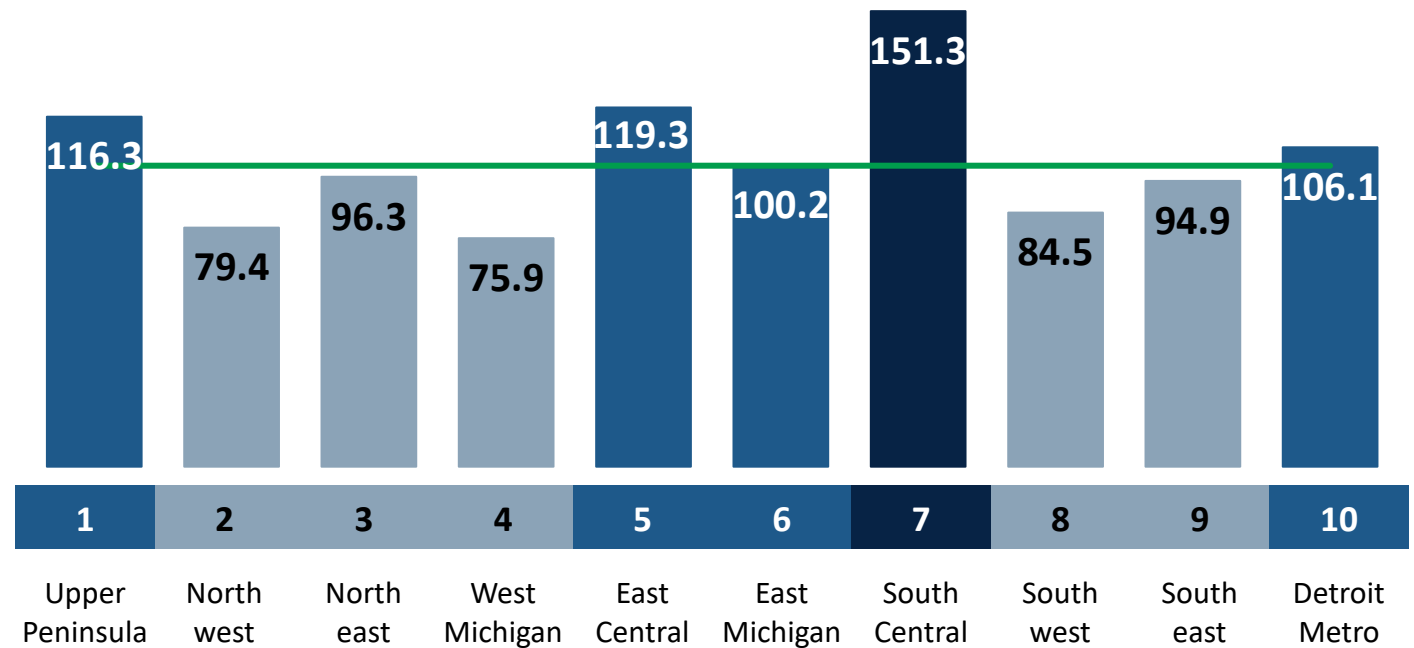
Severe Maternal Morbidity Rate 2021

The unexpected outcomes of labor and delivery that result in significant short- or long-term consequences to a woman's health.

Severe Maternal Morbidity *Excluding Transfusions* by Prosperity Region, 2021



Hospitalizations per 10,000 Inpatient Delivery
Hospitalizations
Michigan: 100.0



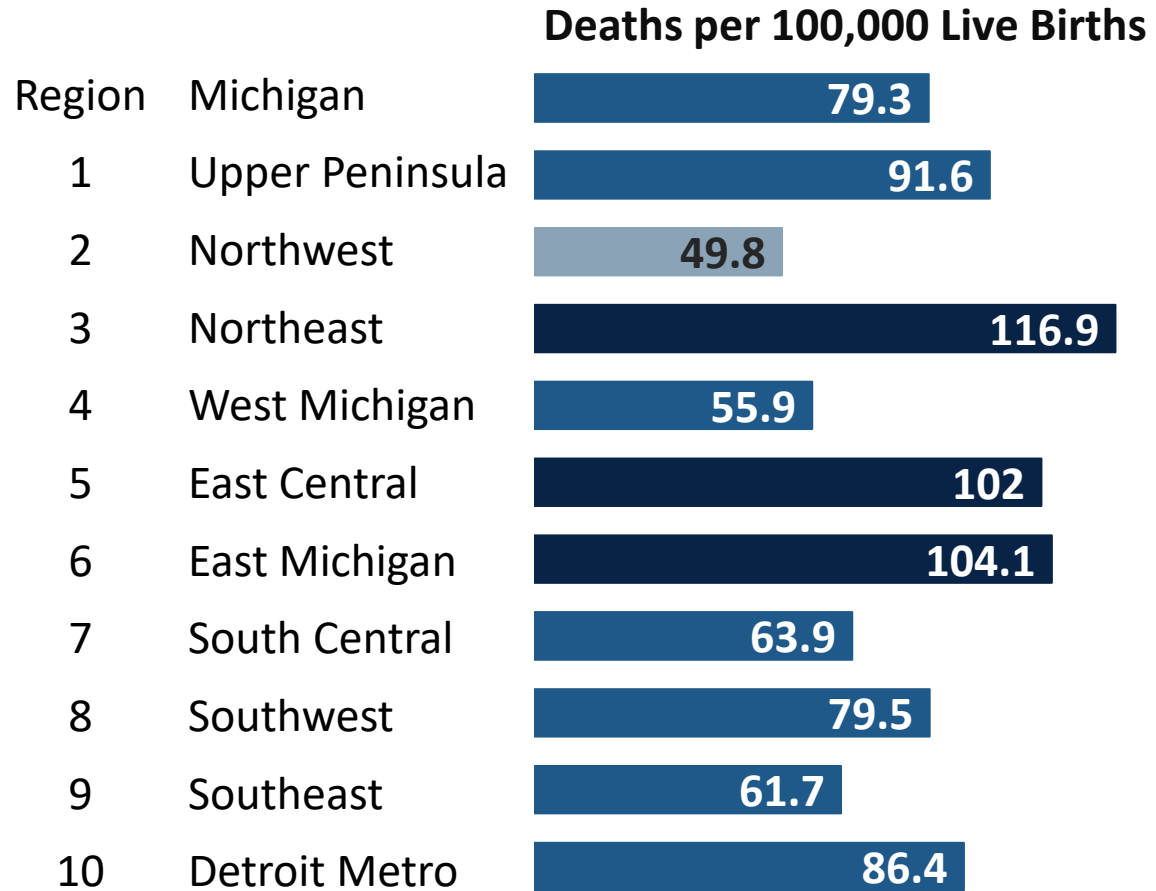
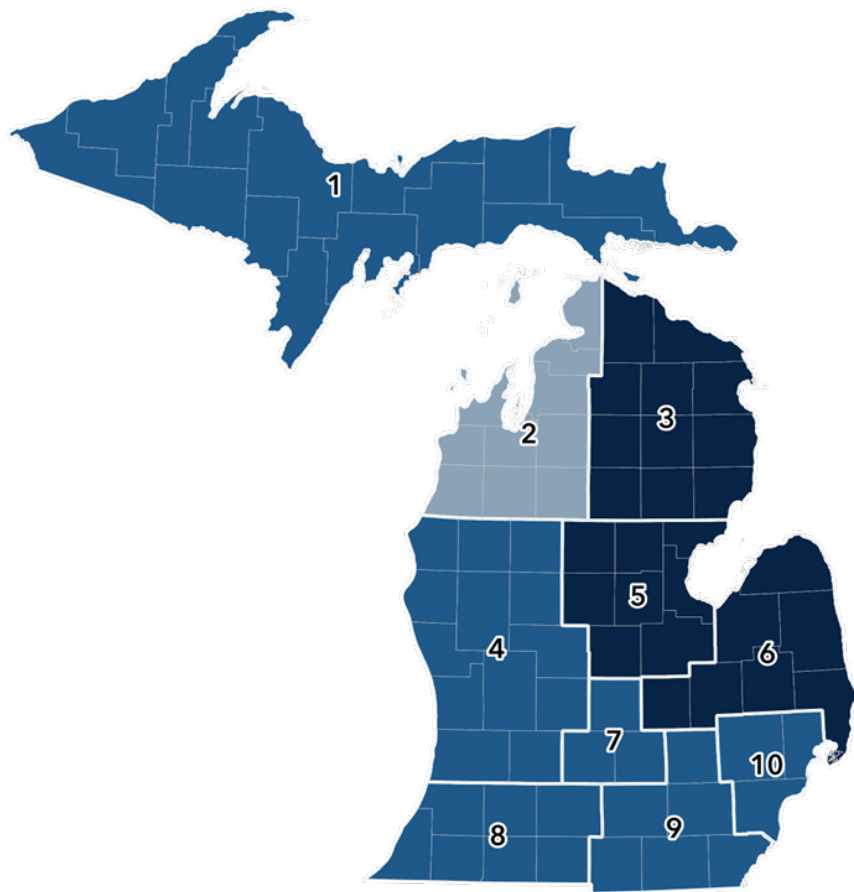


Maternal Mortality Ratio 2016-2020

Maternal deaths include deaths that occur during pregnancy, at delivery or within one year of pregnancy.

Total Maternal Mortality Rate by Prosperity Region, 2016-2020

Total (pregnancy-associated) maternal deaths include deaths that occur during pregnancy, at delivery or within one year of pregnancy, including 1) deaths that are related to the pregnancy 2) unrelated to the pregnancy 3) as well as where it is unknown. During 2016-2020, **there were 35 maternal deaths in region 8.**



Maternal Mortality Ratio by Race Region 8, 2016-2020

Maternal deaths include deaths that occur during pregnancy, at delivery or within one year of pregnancy. Races other than white and Black were suppressed due to sample sizes less than six. Between 2016 and 2020, Black mothers in Prosperity Region Eight experienced **1.7 times higher** mortality ratios as compared to white mothers. There were **23** white maternal deaths and **8** Black maternal deaths in Prosperity Region 8 between 2016 and 2020.

Pregnancy-Associated Maternal Mortality Ratio per 100,000 Live Births

