Maternal and Infant Health Statistics Michigan, 2022

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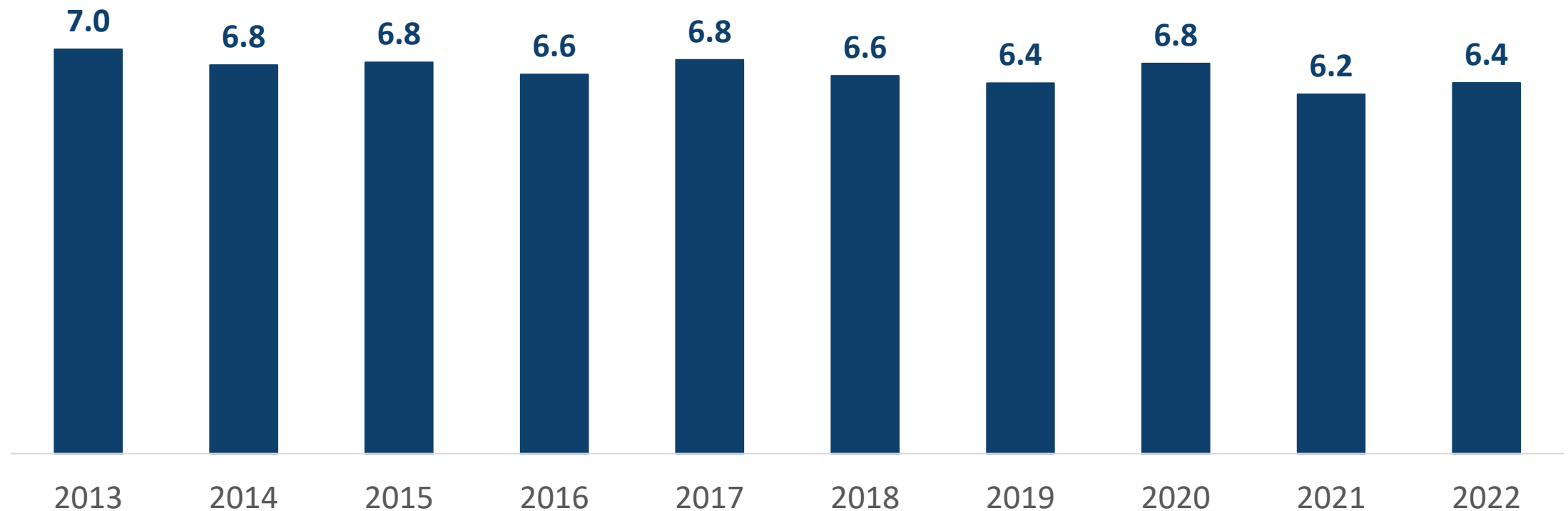October 2024

MDHHS
Michigan Department of Health & Human Services

Infant Mortality
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, 2013-2022

MDHHS
Michigan Department of Health & Human Services

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.

Year	Rate
2013	7.0
2014	6.8
2015	6.8
2016	6.6
2017	6.8
2018	6.6
2019	6.4
2020	6.8
2021	6.2
2022	6.4

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

Cause of Infant Death, 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.
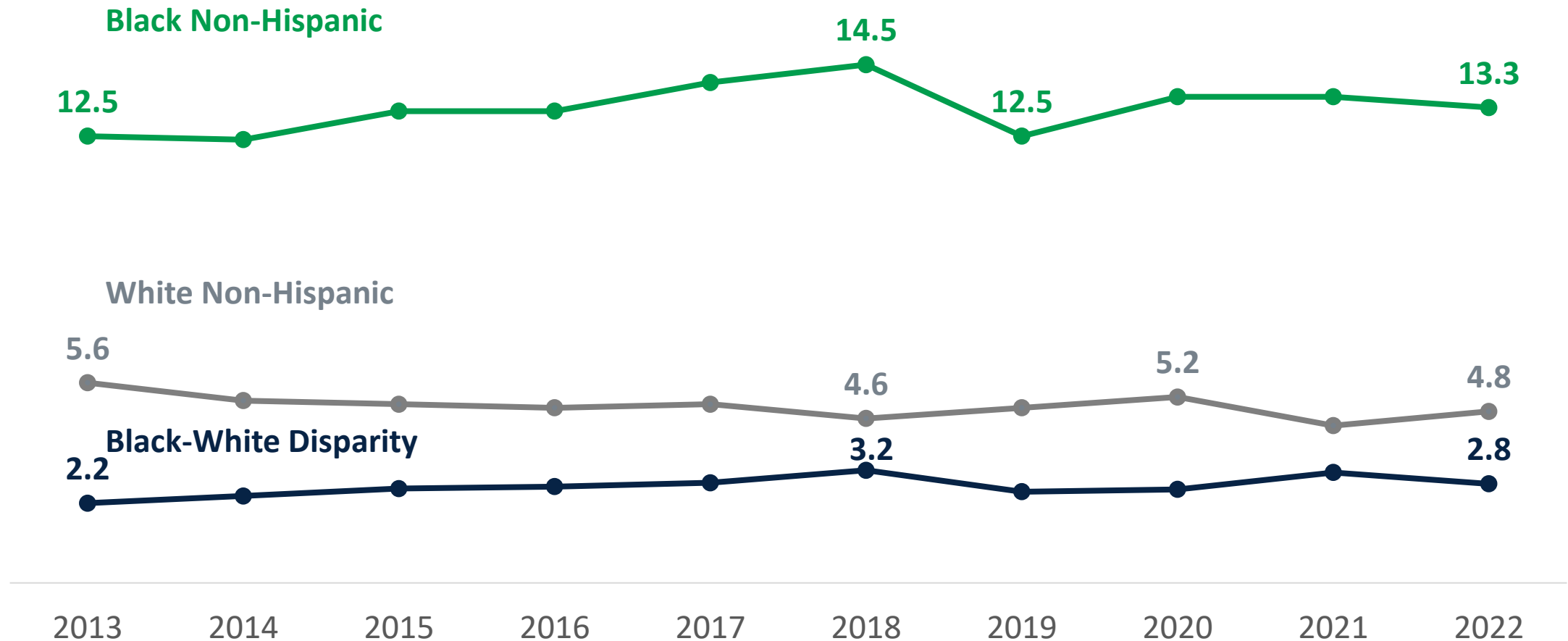
Cause	Percent
Perinatal Conditions	49.5%
Sleep-Related	17.2%
Congenital Anomalies	16.8%
Missing	8.0%
Injury	4.9%
Infection	3.5%

Data source: Michigan resident infant mortality files, Division for Vital Records and Health Statistics, MDHHS

Infant Mortality Rate by Maternal Race/Ethnicity, 2022

MDHHS — Michigan Department of Health & Human Services

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 (per 1,000 Live Births)	
Michigan	650	100,880	6.4	6.4
White Non-Hispanic	329	68,963	4.8	4.8
Black Non-Hispanic	228	17,111	13.3	13.3
Hispanic	28	7,030	4.0	4.0
Asian/Pacific Islander Non-Hispanic	22	4,066	5.4	5.4
American Indian Non-Hispanic	0<N<6	409	Data Not Sufficient	

Infant Mortality Rate
Race Disparity, 2013-2022

MDHHS
Michigan Department of Health & Human Services

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.

Black Non-Hispanic
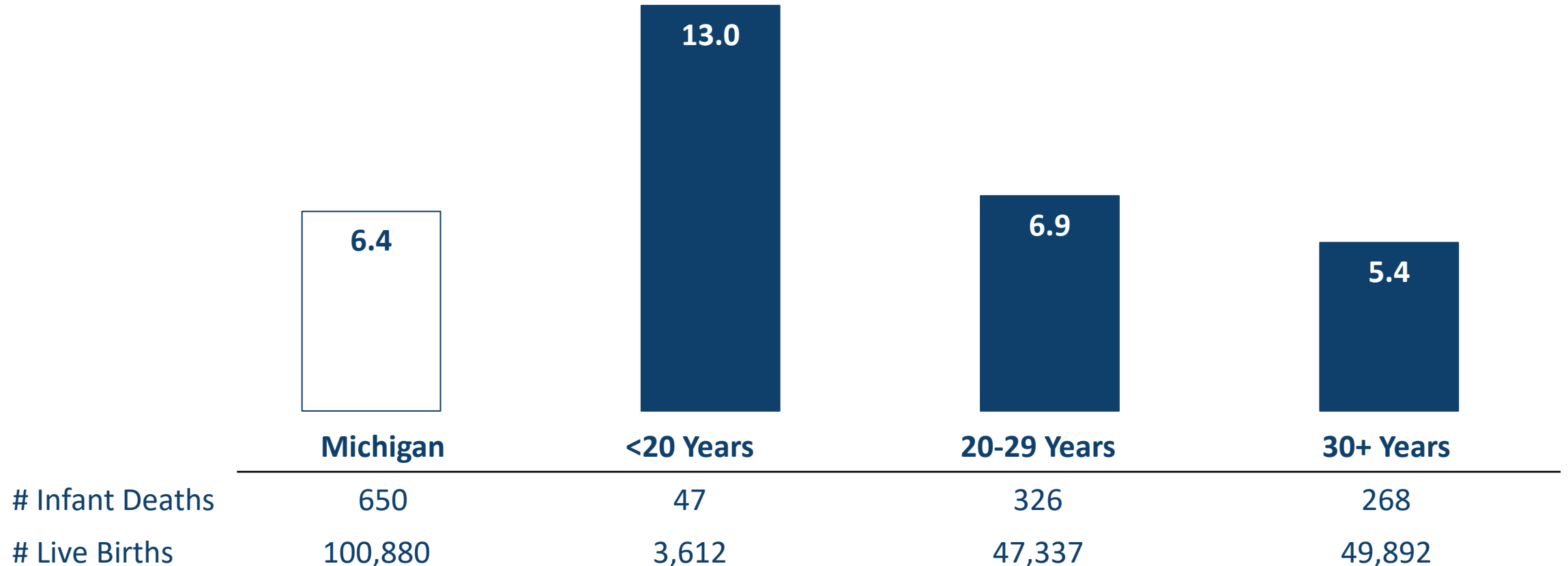
14.5

12.5

13.3

12.5

White Non-Hispanic

5.6

5.2

4.6

4.8

Black-White Disparity

3.2

2.2

2.8

2013 2014 2015 2016 2017 2018 2019 2020 2021 2022

6

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

Infant Mortality
by Expanded Native American Race/Ethnicity, 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	Rate per 1,000 Live Births
#1: Maternal Race: American Indian & Non-Hispanic	0<N<6	409	Data Not Sufficient
#2: Maternal Race: American Indian or more than one race*	10	1,008	9.9
#3: Maternal Race: American Indian or more than once race* *OR* Paternal Race: American Indian or more than one race*	15	1,734	8.7

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

Infant Mortality Rate by Maternal Age, 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.
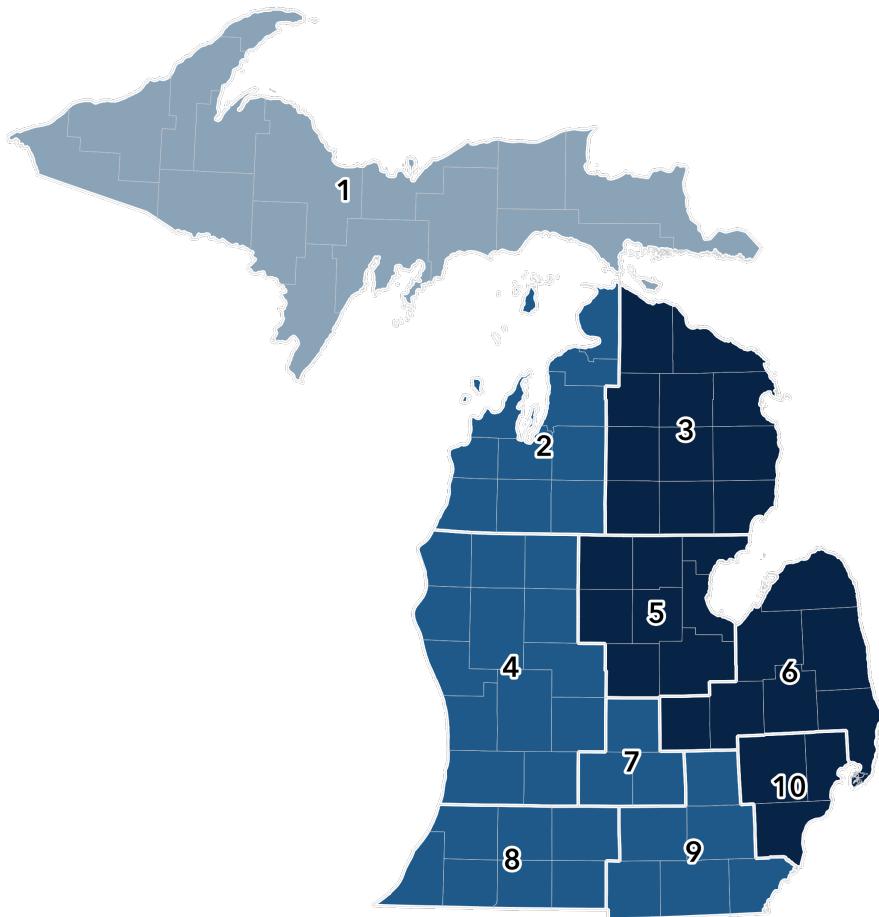
	Michigan	<20 Years	20-29 Years	30+ Years
Rate	6.4	13.0	6.9	5.4
# Infant Deaths	650	47	326	268
# Live Births	100,880	3,612	47,337	49,892

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

Infant Mortality Rate by Intended Payment Source, 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.
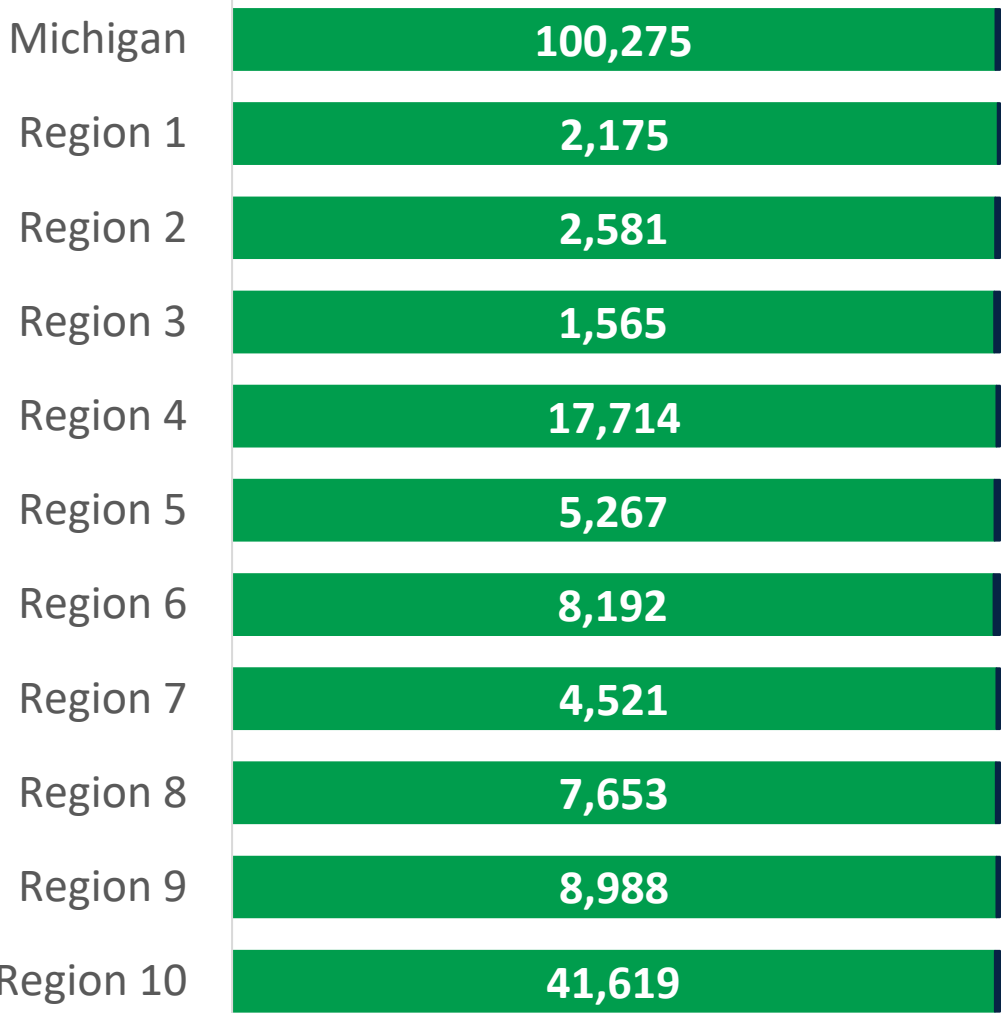
Payment	# Infant Deaths	# Live Births		Infant Mortality Rate (per 1,000 Live Births)
Michigan	650	100,880	6.4	6.4
Private Insurance	244	57,858	4.2	4.2
Medicaid	372	39,109	9.5	9.5

Infant Mortality Rate by Prosperity 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

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

Infants Celebrated First Birthday
by Prosperity Region, 2022

Infant mortality is defined as a death of a baby before his or her first birthday.

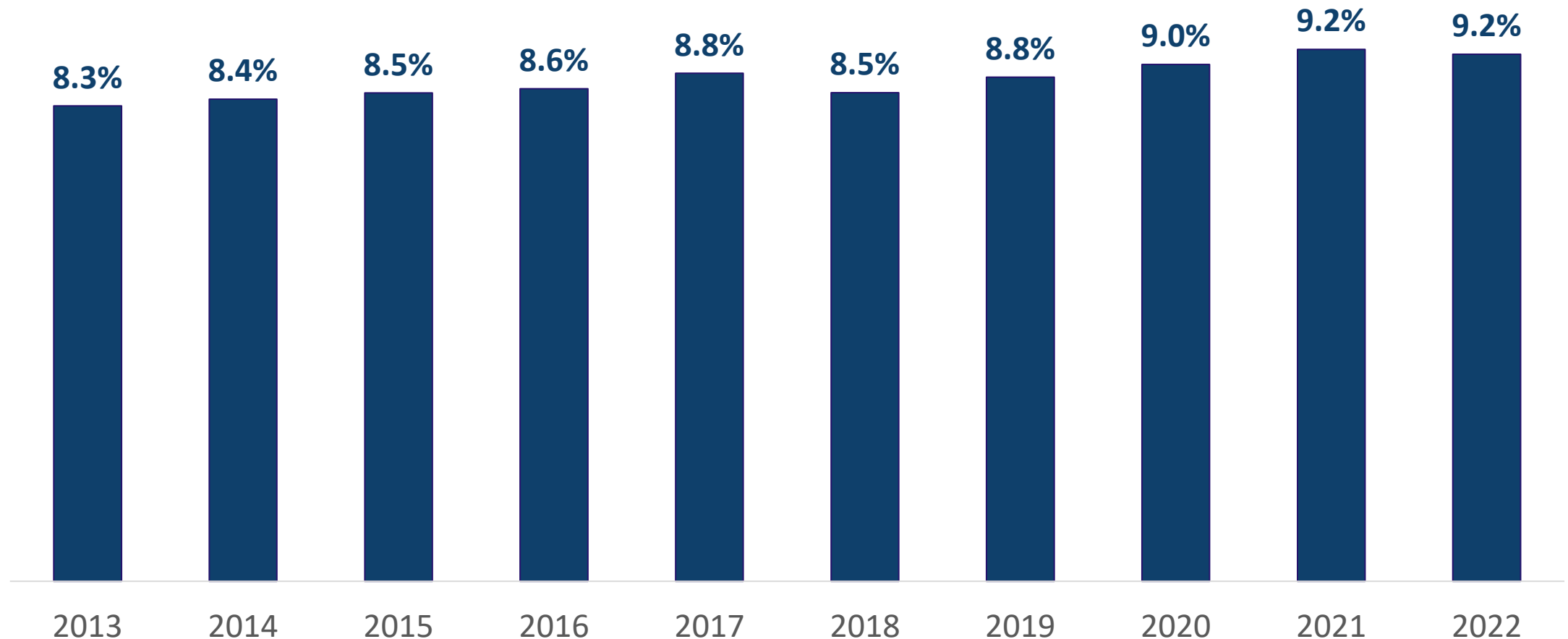■ Infants Celebrated 1st Birthday   ■ Infant Deaths

Region	Infants Celebrated 1st Birthday
Michigan	100,275
Region 1	2,175
Region 2	2,581
Region 3	1,565
Region 4	17,714
Region 5	5,267
Region 6	8,192
Region 7	4,521
Region 8	7,653
Region 9	8,988
Region 10	41,619

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

Low Birthweight
2013-2022

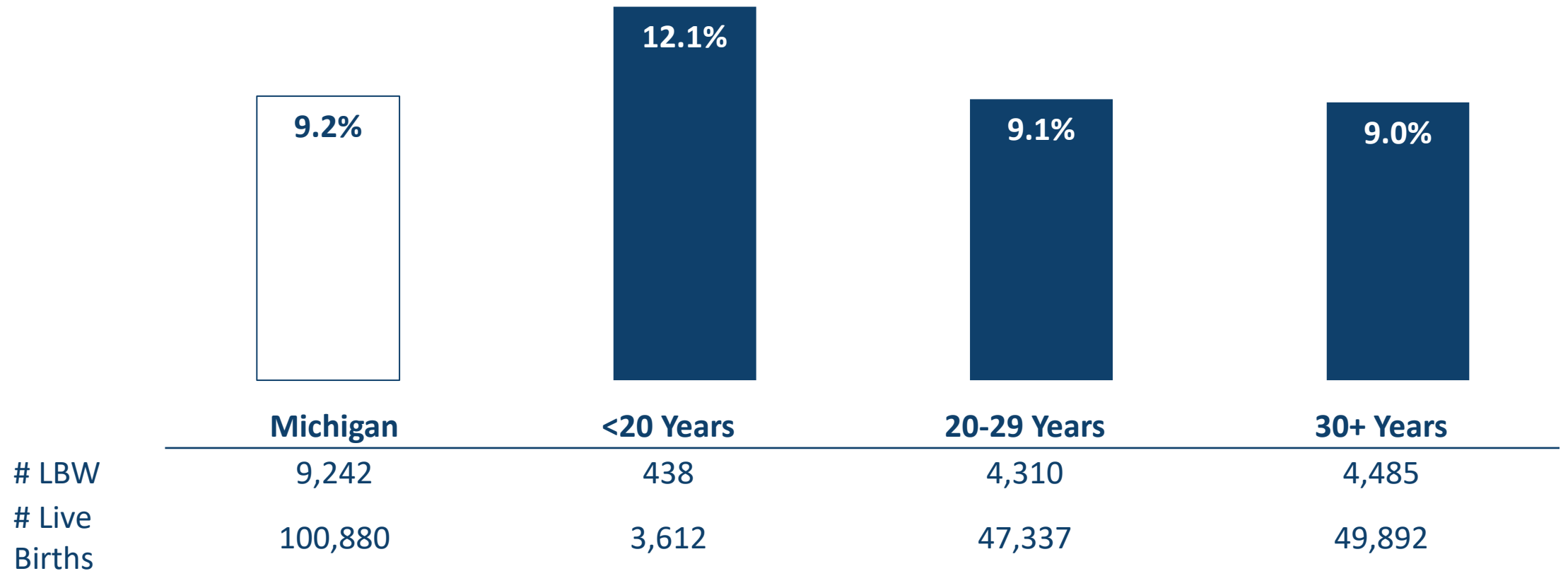Low birthweight is defined as number of live births with birthweight <2,500 grams.

Low Birthweight
by Maternal Race/Ethnicity, 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		
Michigan	9,242	100,880	9.2%	9.2%		
White Non-Hispanic	5,183	68,963	7.5%	7.5%		
Black Non-Hispanic	2,723	17,111	15.9%	15.9%		
Hispanic	560	7,030	8.0%	8.0%		
Asian/Pacific Islander Non-Hispanic	413	4,066	10.2%	10.2%		
American Indian Non-Hispanic	36	409	8.8%	8.8%		

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

Low Birthweight
by Expanded Native American Race/Ethnicity, 2022

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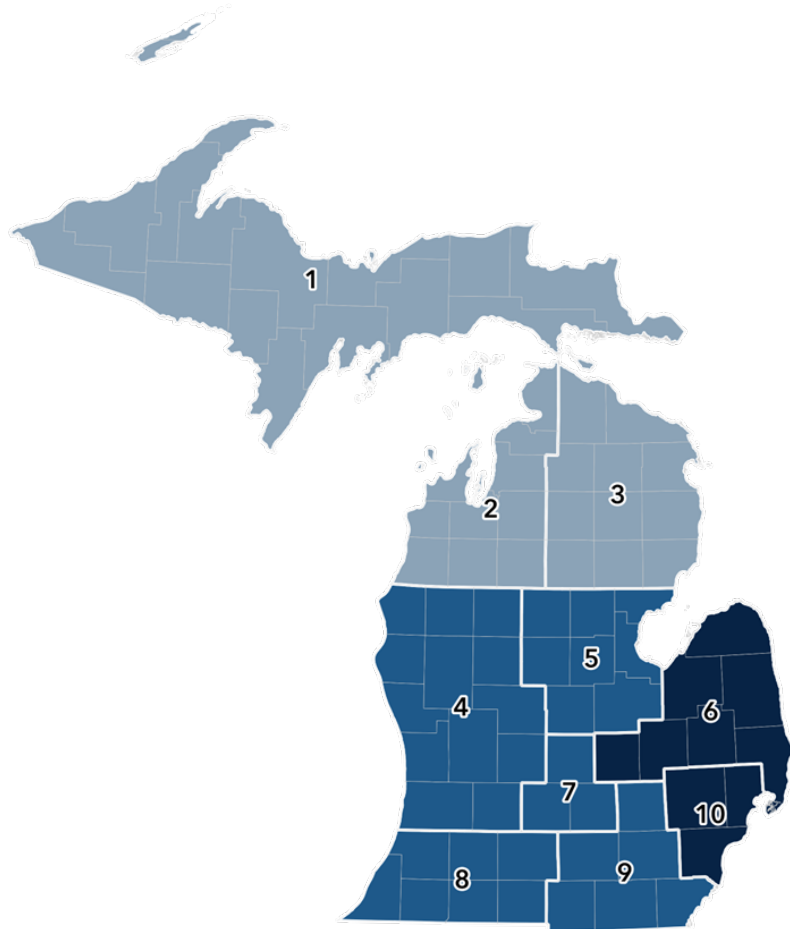More than one race: American Indian or Alaskan Native *and* another race; included only if AI/AN were reported first.

	# Low Birthweight	# Live Births	% Low Birthweight
#1: Maternal Race: American Indian & Non-Hispanic	36	409	8.8%
#2: Maternal Race: American Indian or more than one race*	97	1,008	9.6%
#3: Maternal Race: American Indian or more than once race* *OR* Paternal Race: American Indian or more than one race*	154	1,734	8.9%

15

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

Low Birthweight by Maternal Age, 2022

MDHHS
Michigan Department of Health & Human Services

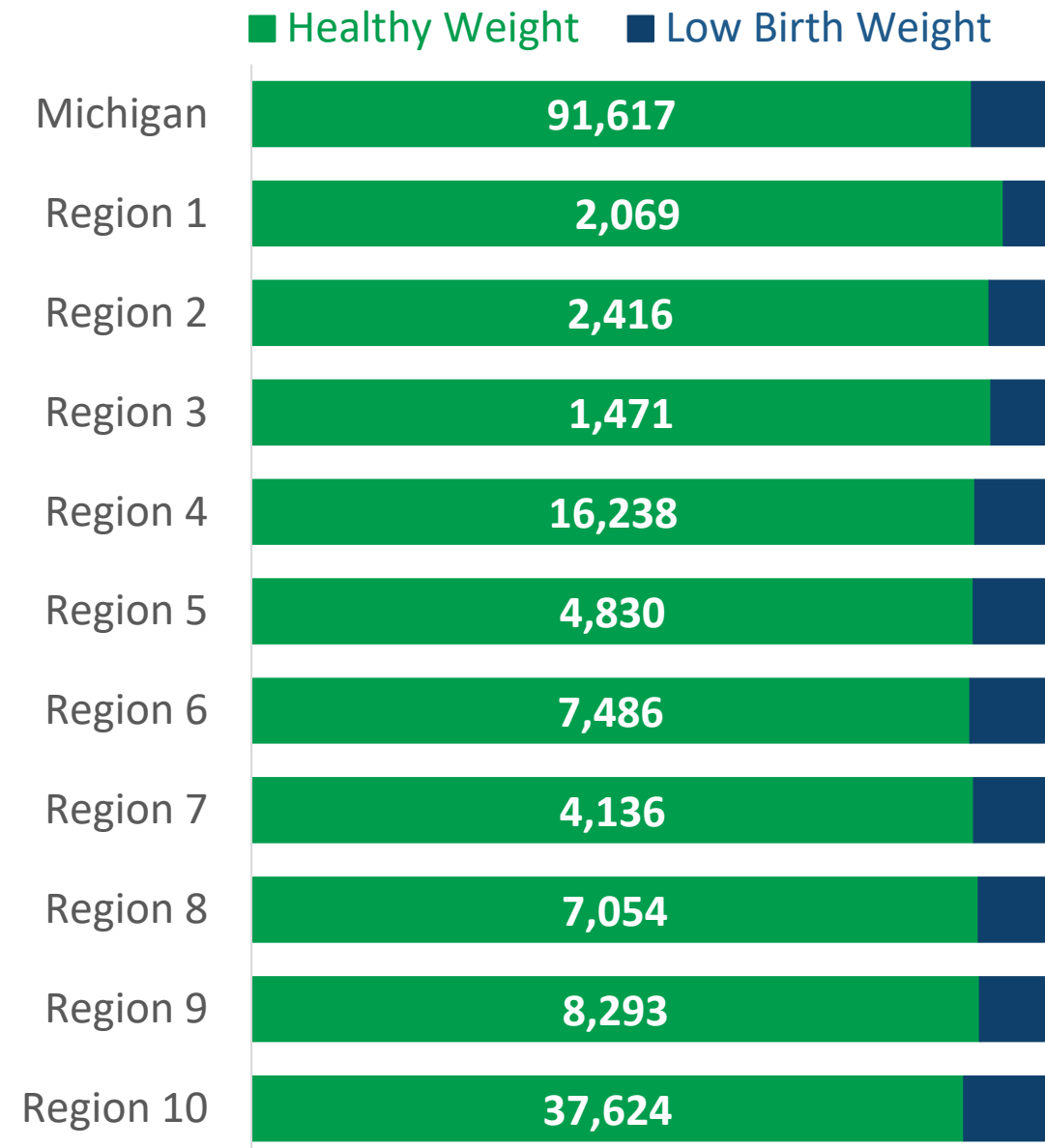Low birthweight rate is defined as number of births with baby birthweight <2,500 grams per 100 live births.

	Michigan	<20 Years	20-29 Years	30+ Years
	9.2%	12.1%	9.1%	9.0%
# LBW	9,242	438	4,310	4,485
# Live Births	100,880	3,612	47,337	49,892

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

Low Birthweight
by Intended Payment Source, 2022

MDHHS
Michigan Department of Health & Human Services

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
Michigan	9,242	100,880	9.2%	9.2%
Private Insurance	4,490	57,858	7.8%	7.8%
Medicaid	4,523	39,109	11.6%	11.6%

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

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%

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

Healthy Birth Weight
by Prosperity Region, 2022

'Healthy Weight' births is defined as live births that weigh 5.5lbs (or 2,500 grams) or greater.

Legend: ■ Healthy Weight   ■ Low Birth Weight

Region	Healthy Weight
Michigan	91,617
Region 1	2,069
Region 2	2,416
Region 3	1,471
Region 4	16,238
Region 5	4,830
Region 6	7,486
Region 7	4,136
Region 8	7,054
Region 9	8,293
Region 10	37,624

19

Preterm Births
2013-2022

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

Preterm Birth, 2013-2022

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.
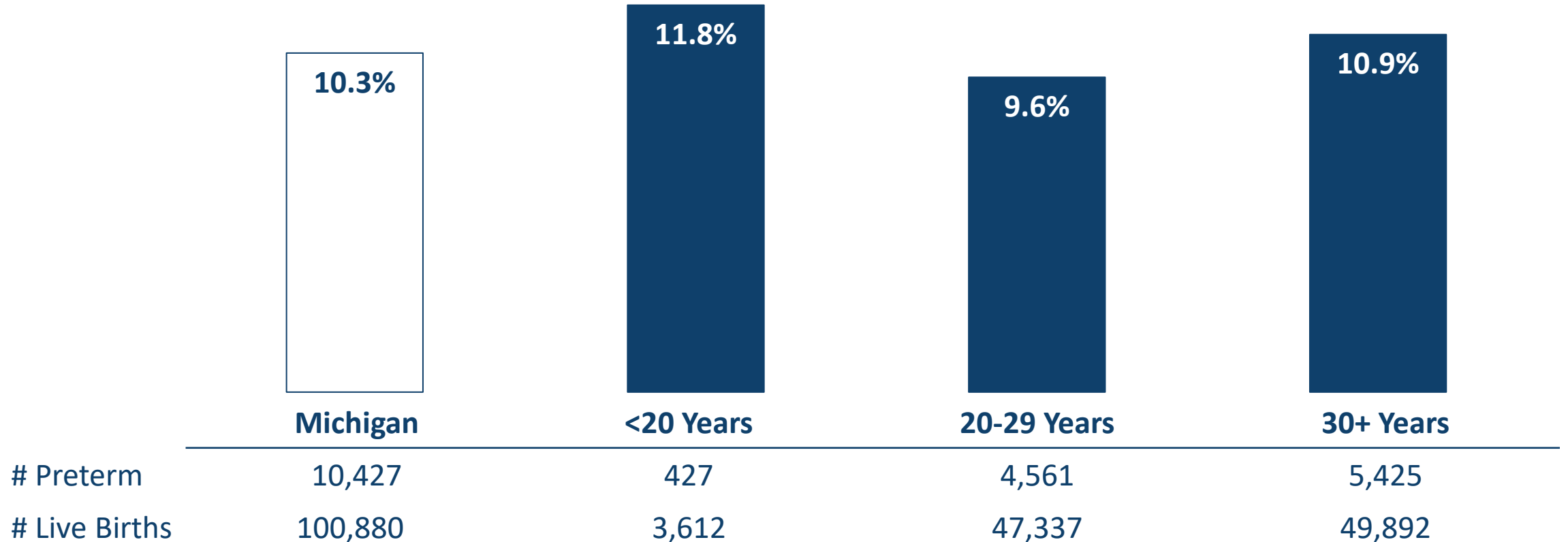
Preterm Birth
by Maternal Race/Ethnicity, 2022

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.

Maternal Race	# Preterm	# Live Births		Percent (%) Preterm
Michigan	10,427	100,880	10.3%	10.3%
White Non-Hispanic	6,398	68,963	9.3%	9.3%
Black Non-Hispanic	2,568	17,111	15.0%	15.0%
Hispanic	688	7,030	9.8%	9.8%
Asian/Pacific Islander Non-Hispanic	365	4,066	9.0%	9.0%
American Indian Non-Hispanic	48	409	11.7%	11.7%

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

Preterm Birth
by Expanded Native American Race/Ethnicity, 2022

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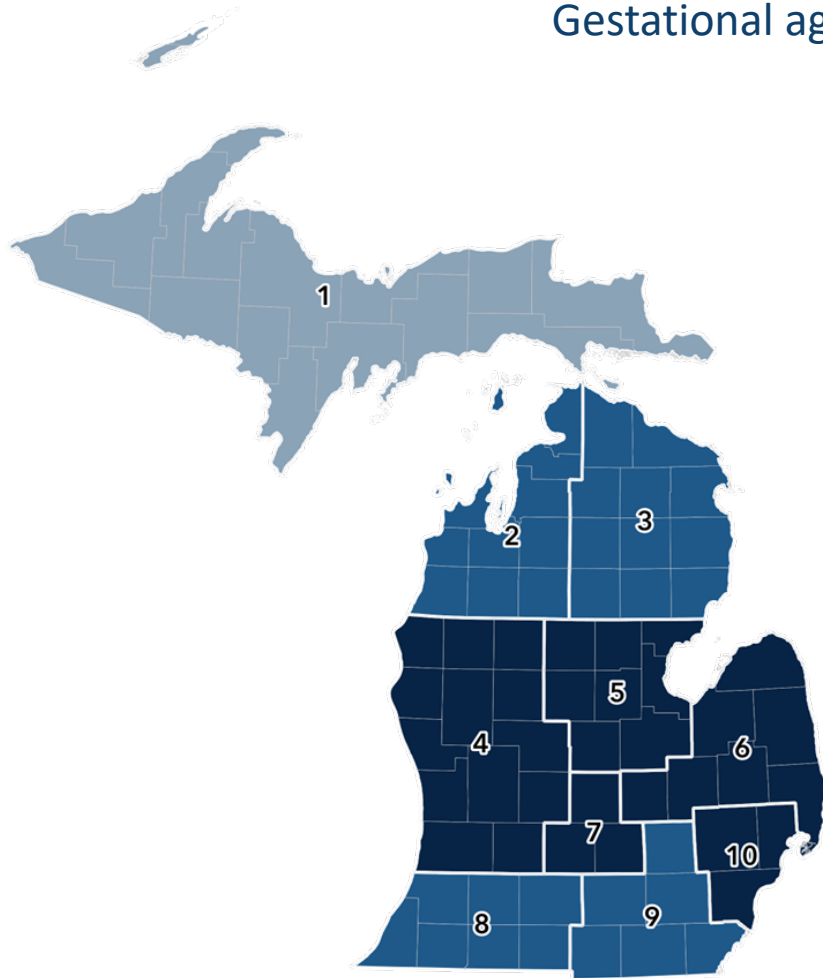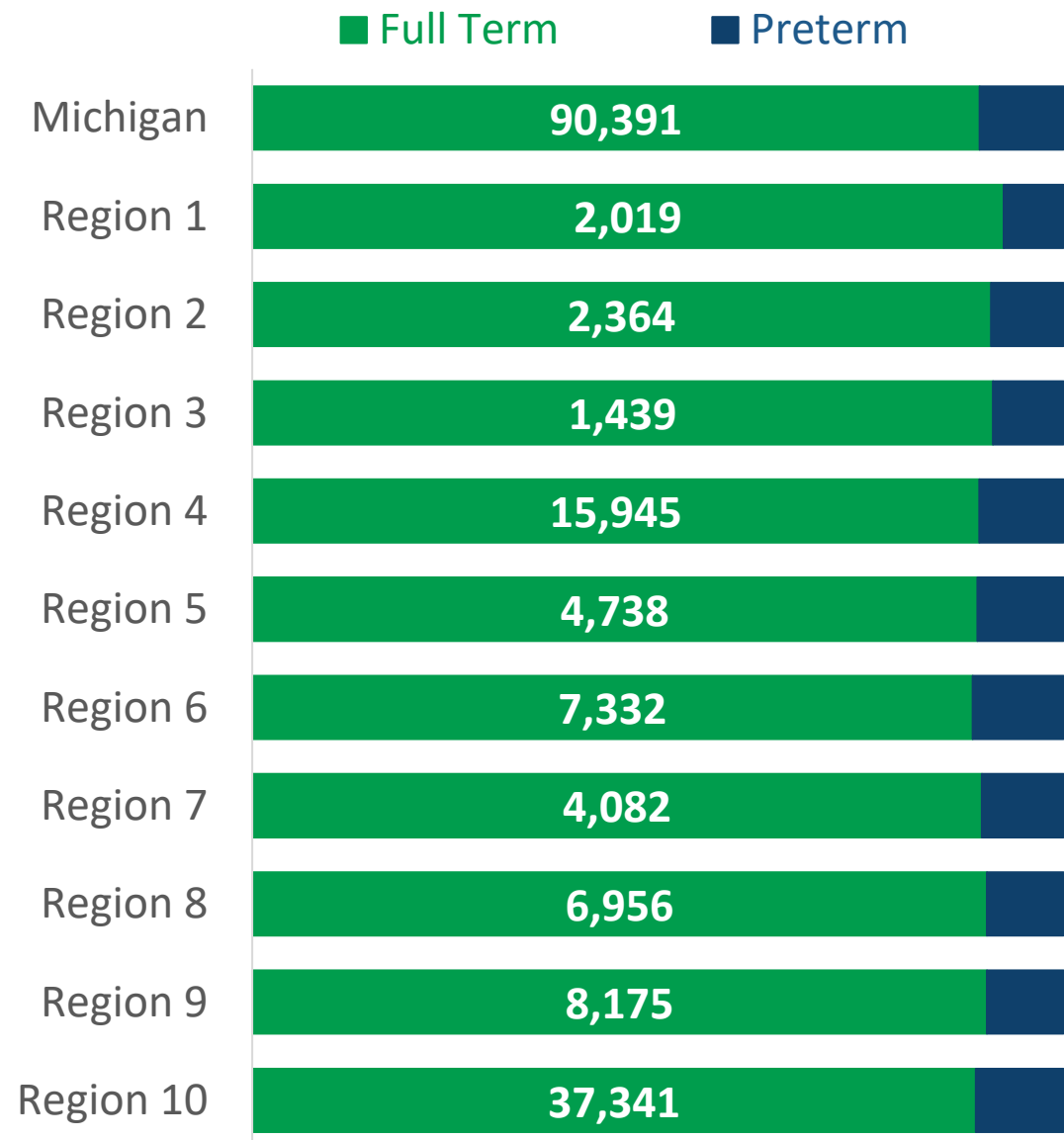Gestational age is based on the obstetric estimate of gestation.
More than one race: American Indian or Alaskan Native *and* another race; included only if AI/AN were reported first.

Method	# Preterm	# Live Births	% Preterm
1: Maternal Race: American Indian & Non-Hispanic	48	409	11.7%
2: Maternal Race: American Indian or more than one race*	114	1,008	11.3%
3: Maternal Race: American Indian or more than once race* *OR* Paternal Race: American Indian or more than one race*	182	1,734	10.5%

23

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

Preterm Birth by Maternal Age, 2022

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.

	Michigan	<20 Years	20-29 Years	30+ Years
	10.3%	11.8%	9.6%	10.9%
# Preterm	10,427	427	4,561	5,425
# Live Births	100,880	3,612	47,337	49,892

24

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

Preterm Births
by Intended Payment Source, 2022

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.

Payment	# Preterm	# Live Births		Percent (%) Preterm
Michigan	10,427	100,880	10.3%	10.3%
Private Insurance	5,438	57,858	9.4%	9.4%
Medicaid	4,730	39,109	12.1%	12.1%

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

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. Gestational age is based on the obstetric estimate of gestation.

	# 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%

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

Full Term Births
by Prosperity Region, 2022

Full term births include live births born after 37 completed weeks gestation.

Full Term ■   Preterm ■

Region	Full Term Births
Michigan	90,391
Region 1	2,019
Region 2	2,364
Region 3	1,439
Region 4	15,945
Region 5	4,738
Region 6	7,332
Region 7	4,082
Region 8	6,956
Region 9	8,175
Region 10	37,341

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

Prenatal Care Utilization
2022

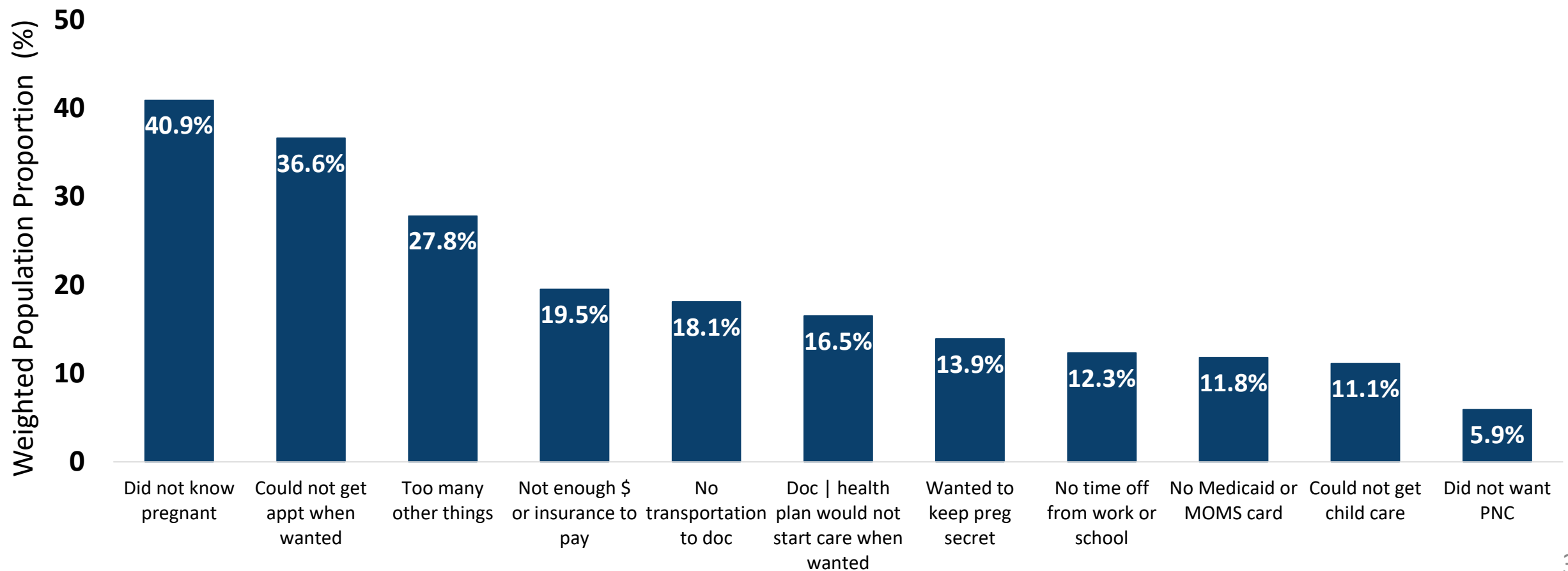# Prenatal Care Utilization by Maternal Race/Ethnicity, 2022

'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
Michigan	2.1%	4.3%
White Non-Hispanic	1.5%	3.9%
Black Non-Hispanic	4.1%	4.9%
Hispanic	2.3%	6.8%
Asian/Pacific Islander Non-Hispanic	1.1%	3.7%
American Indian Non-Hispanic	2.7%	5.0%

Data source: Michigan Resident Live Birth Files, Division for Vital Records and Health Statistics, MDHHS

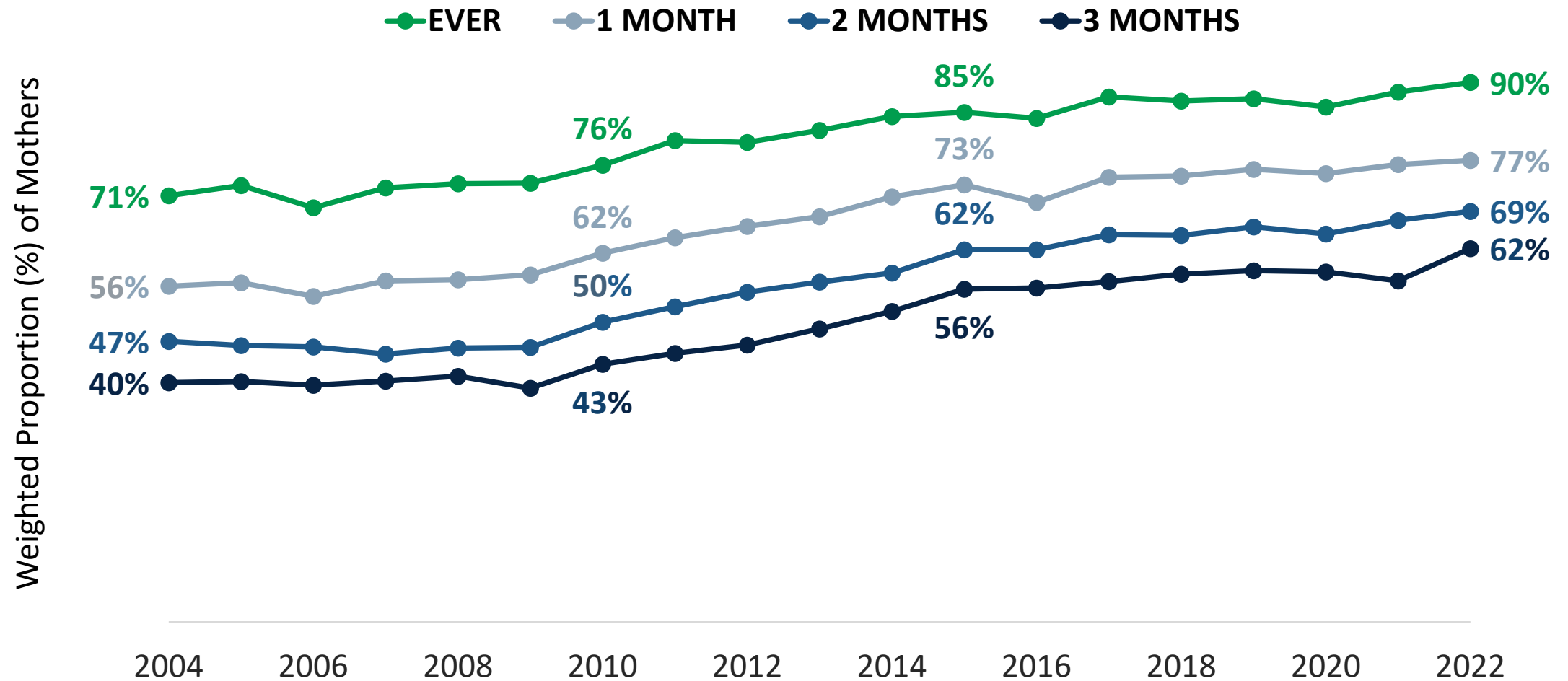# Barriers to Prenatal Care
Michigan
2016-2022

Barriers to Prenatal Care among Mothers who started PNC *after* 1st trimester and wanted to start sooner, 2016-2022

Around <u>half</u> (51.5%) of mothers who started PNC after the first trimester were okay with that timing.

Bar chart — Weighted Population Proportion (%):

Category	Percentage
Did not know pregnant	40.9%
Could not get appt when wanted	36.6%
Too many other things	27.8%
Not enough $ or insurance to pay	19.5%
No transportation to doc	18.1%
Doc | health plan would not start care when wanted	16.5%
Wanted to keep preg secret	13.9%
No time off from work or school	12.3%
No Medicaid or MOMS card	11.8%
Could not get child care	11.1%
Did not want PNC	5.9%

Data source: Pregnancy Risk Assessment Monitoring System (PRAMS), MDHHS

Breastfeeding Initiation and Duration 2004-2022

Breastfeeding Initiation + Duration 2004-2022

Data source: Pregnancy Risk Assessment Monitoring System (PRAMS), MDHHS

33

Breastfeeding Initiation by Race/Ethnicity, 2016-2022

Most categories = maternal race/ethnicity information alone contributes.

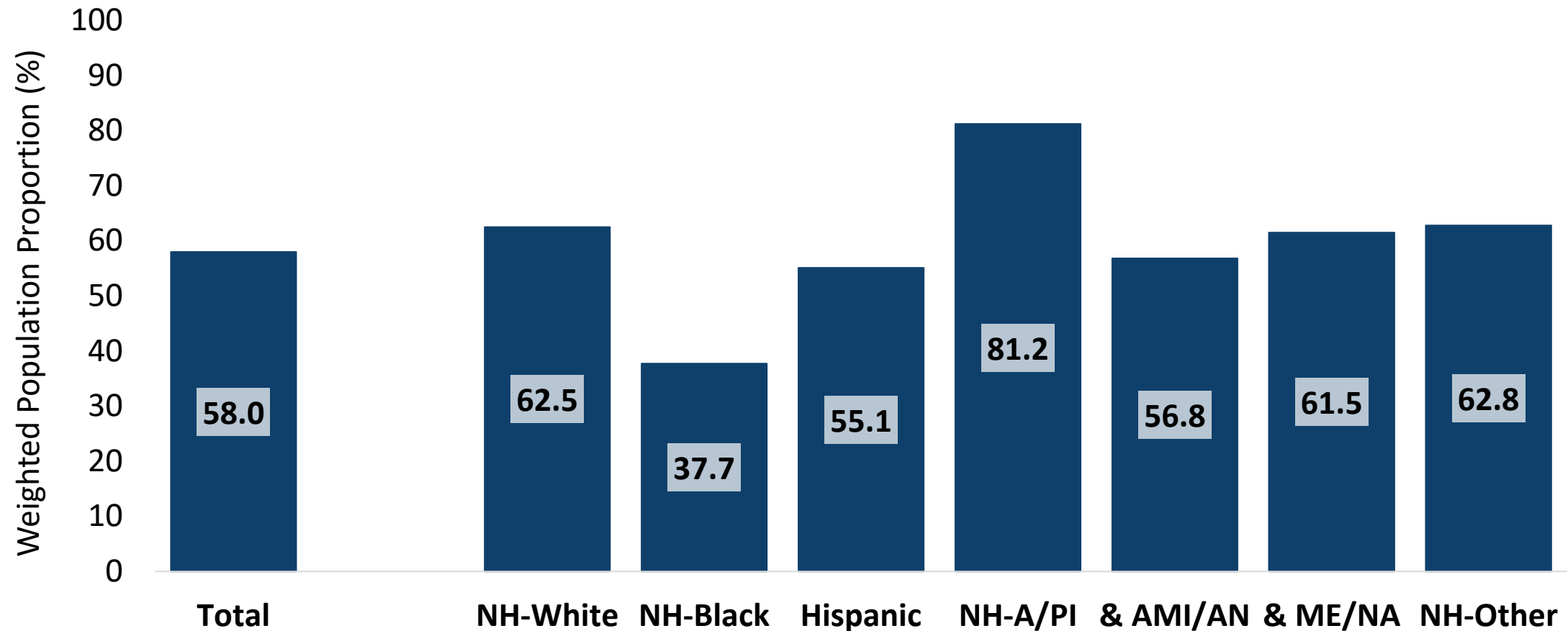& = maternal or paternal race/ethnicity/ancestry overwrite all other possible categories.

Data source: Pregnancy Risk Assessment Monitoring System (PRAMS), MDHHS

Breastfeeding 3-Month Duration by Race/Ethnicity, 2016-2022

Most categories = maternal race/ethnicity information alone contributes.

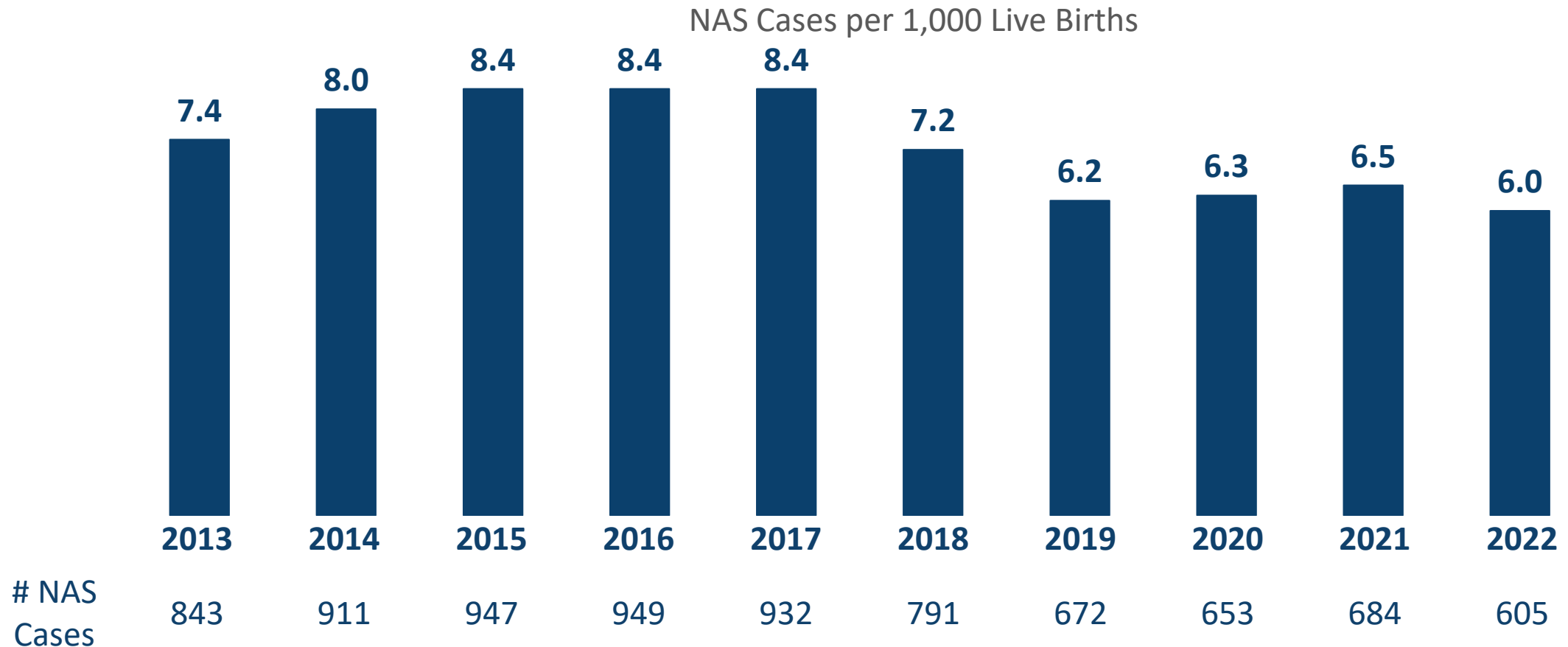& = maternal or paternal race/ethnicity/ancestry overwrite all other possible categories.

Weighted Population Proportion (%)

Total	NH-White	NH-Black	Hispanic	NH-A/PI	& AMI/AN	& ME/NA	NH-Other
58.0	62.5	37.7	55.1	81.2	56.8	61.5	62.8

Neonatal Abstinence Syndrome 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.

MDHHS
Michigan Department of Health & Human Services

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

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Rate	7.4	8.0	8.4	8.4	8.4	7.2	6.2	6.3	6.5	6.0
# NAS Cases	843	911	947	949	932	791	672	653	684	605

Data source: Michigan Inpatient Database, Division for Vital Records and Health Statistics, MDHHS

Neonatal Abstinence Syndrome
by Maternal Race/Ethnicity, 2022

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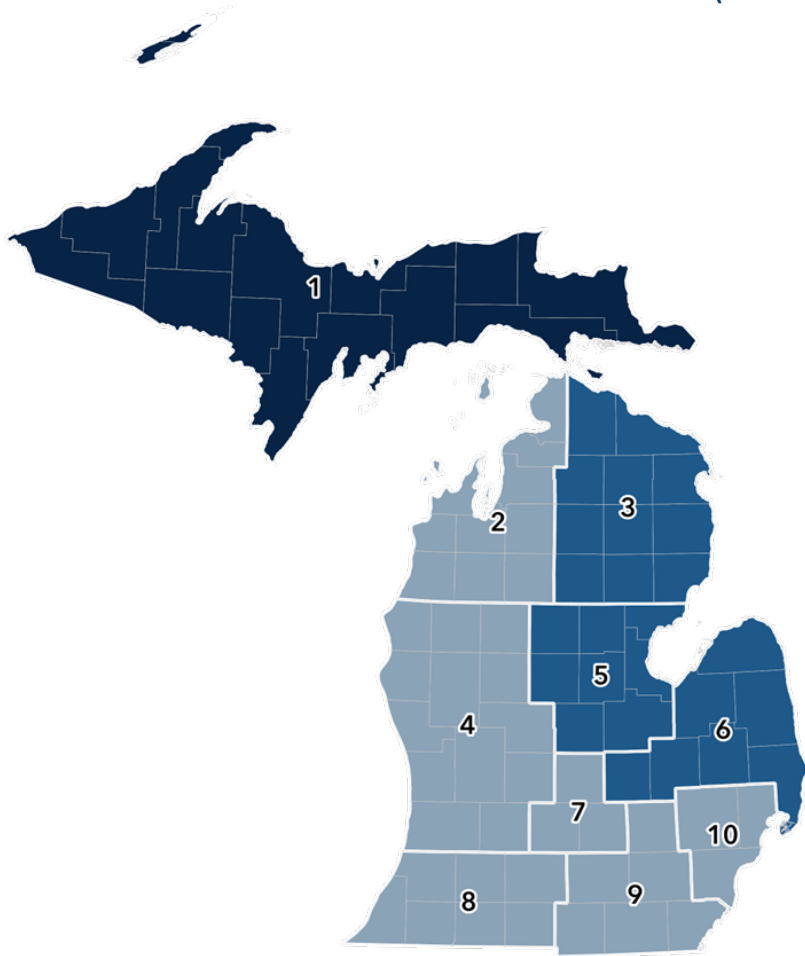2016-current: P96.1 (neonatal withdrawal symptoms from maternal use of drugs of addiction).

Maternal Race	# NAS Cases	# Live Births		NAS Rate per 1,000 Live Births
Overall	605	100,880	6.0	6.0
White non-Hispanic	467	68,963	6.8	6.8
Black non-Hispanic	51	17,111	3.0	3.0
Hispanic	43	7,030	6.1	6.1
Asian/Pacific Islander	0<N<6	4,066	Data Not Sufficient	
American Indian	12	409	29.3	29.3

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

Data source: Michigan Inpatient Database, Division for Vital Records and Health Statistics, MDHHS
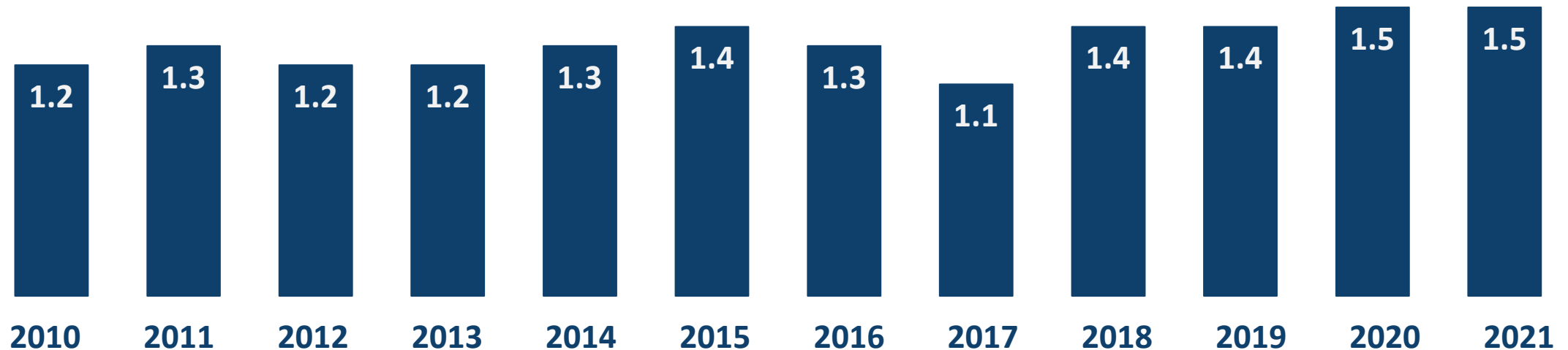
Sleep-Related Infant Death Rate 2010-2021

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 2010-2021

MODHHS
Michigan Department of Health & Human Services

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.
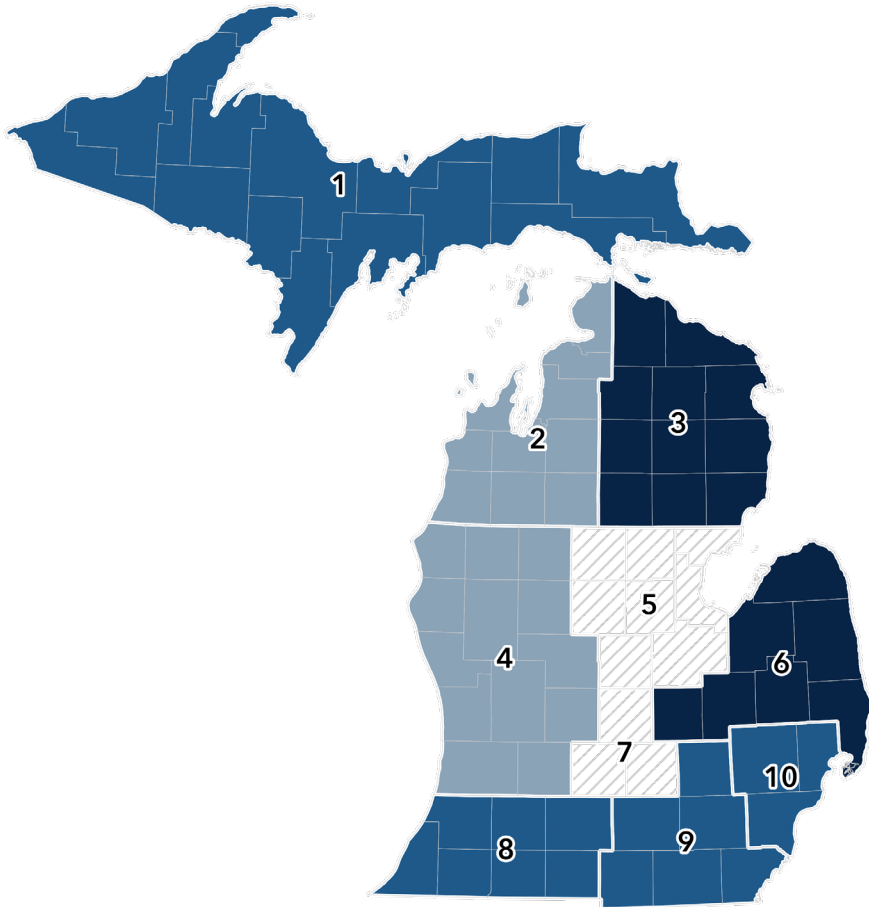
Deaths per 1,000 Live Births

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Rate	1.2	1.3	1.2	1.2	1.3	1.4	1.3	1.1	1.4	1.4	1.5	1.5
# deaths	140	147	131	142	152	159	142	123	151	149	161	158

Data source: Centers for Disease Control and Prevention (CDC) SUID Case Registry, Michigan Public Health Institute

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

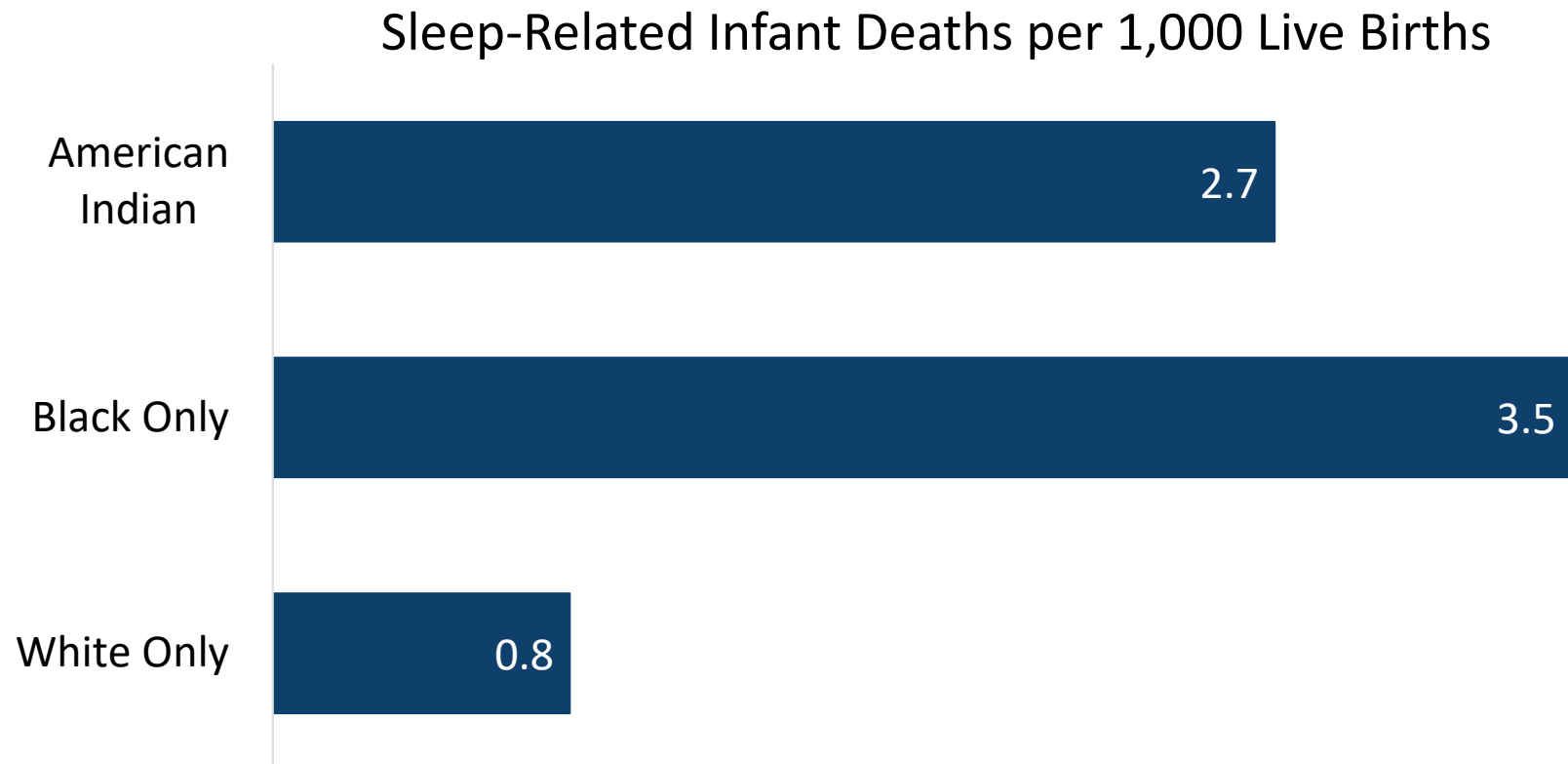MDHHS
Michigan Department of Health & Human Services

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	*	
Region 6	185	1.7
Region 7	*	
Region 8	152	1.5
Region 9	134	1.1
Region 10	758	1.4

Data source: Centers for Disease Control and Prevention (CDC) SUID Case Registry, Michigan Public Health Institute

Sleep-Related Infant Deaths by Race, 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 per 1,000 Live Births

American Indian: 2.7
Black Only: 3.5
White Only: 0.8

Data source: Centers for Disease Control and Prevention (CDC) SUID Case Registry, Michigan Public Health Institute

Low-Risk Cesarean
2013-2022

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

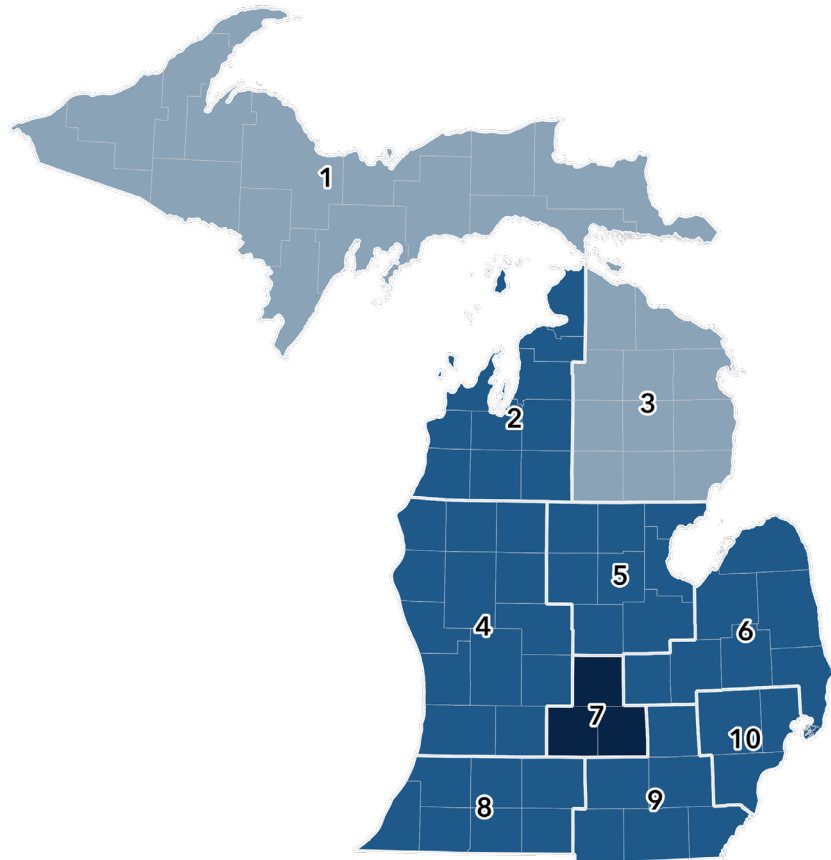Low-risk: full term, singleton births, and vertex presentation.

Low-Risk Cesarean
by Maternal Race/Ethnicity, 2022

MDHHS
Michigan Department of Health & Human Services

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).

Maternal Race	# Low Risk Cesarean	# Low Risk 1st Births		Percent (%) low-risk births with no prior birth had a cesarean
Michigan	7,544	26,742	28.2%	28.2%
White Non-Hispanic	5,137	18,880	27.2%	27.2%
Black Non-Hispanic	1,136	3,745	30.3%	30.3%
Hispanic	511	1,830	27.9%	27.9%
Asian/Pacific Islander Non-Hispanic	472	1,327	35.6%	35.6%
American Indian Non-Hispanic	28	108	25.9%	25.9%

Data source: Michigan Resident Live Birth Files, Division for Vital Records and Health Statistics, MDHHS

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 1st 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%

Data source: Michigan Resident Live Birth Files, Division for Vital Records and Health Statistics, MDHHS

Severe Maternal Morbidity Rate 2011-2021

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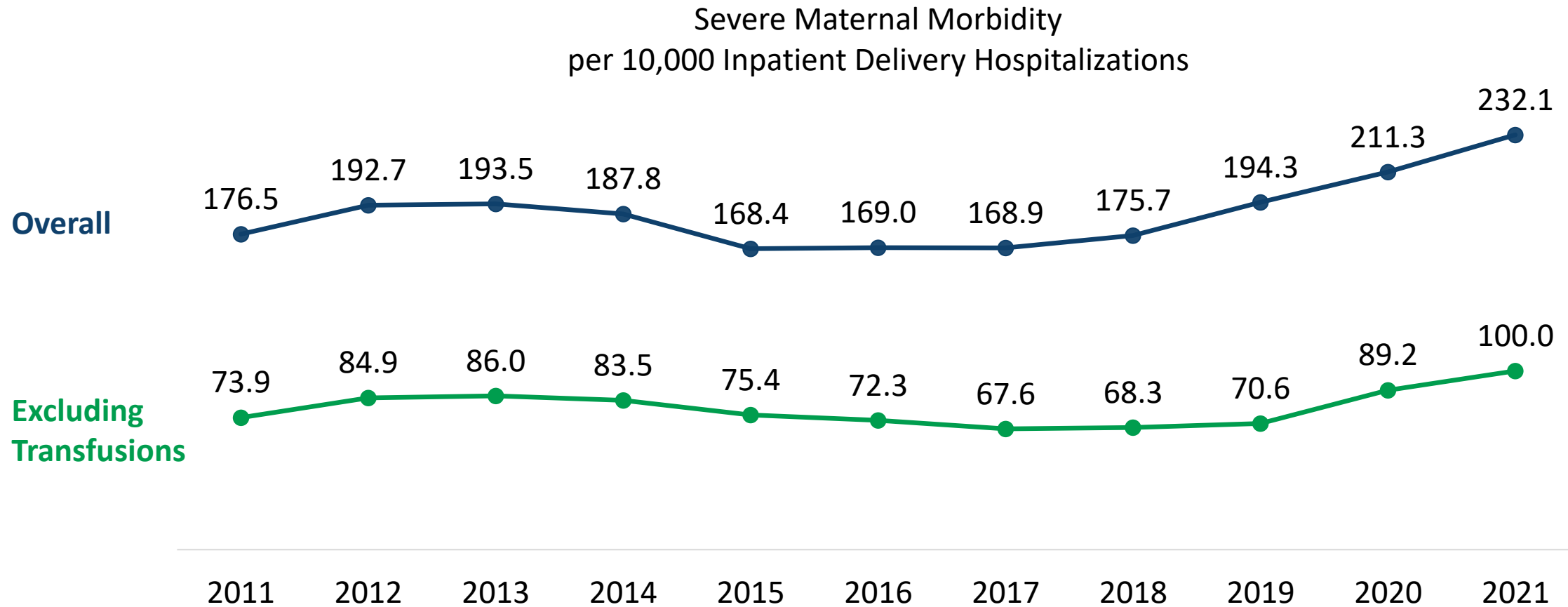
About Severe Maternal Morbidity

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

Inclusion Categories:

- Acute Heart Failure/Pulmonary Edema.
- Acute Myocardial Infarction.
- Acute Renal Failure.
- Adult Respiratory Distress Syndrome.
- Air and Thrombotic Embolism.
- Amniotic Fluid Embolism.
- Aneurysm.
- ~~Blood Transfusions.~~
- Cardiac Arrest/Ventricular Fibrillation.
- Conversion of Cardiac Rhythm.
- Disseminated Intravascular Coagulation.

- Eclampsia.
- Heart Failure/Arrest during Procedure or Surgery.
- Hysterectomy.
- Puerperal Cerebrovascular Disorder.
- Sepsis.
- Severe Anesthesia Complications.
- Shock.
- Sickle Cell Disease with Crisis.
- Temporary Tracheostomy.
- Ventilation.

Severe Maternal Morbidity, 2011-2021

The unexpected outcomes of labor and delivery that result in significant short- or long-term consequences to a woman's health.
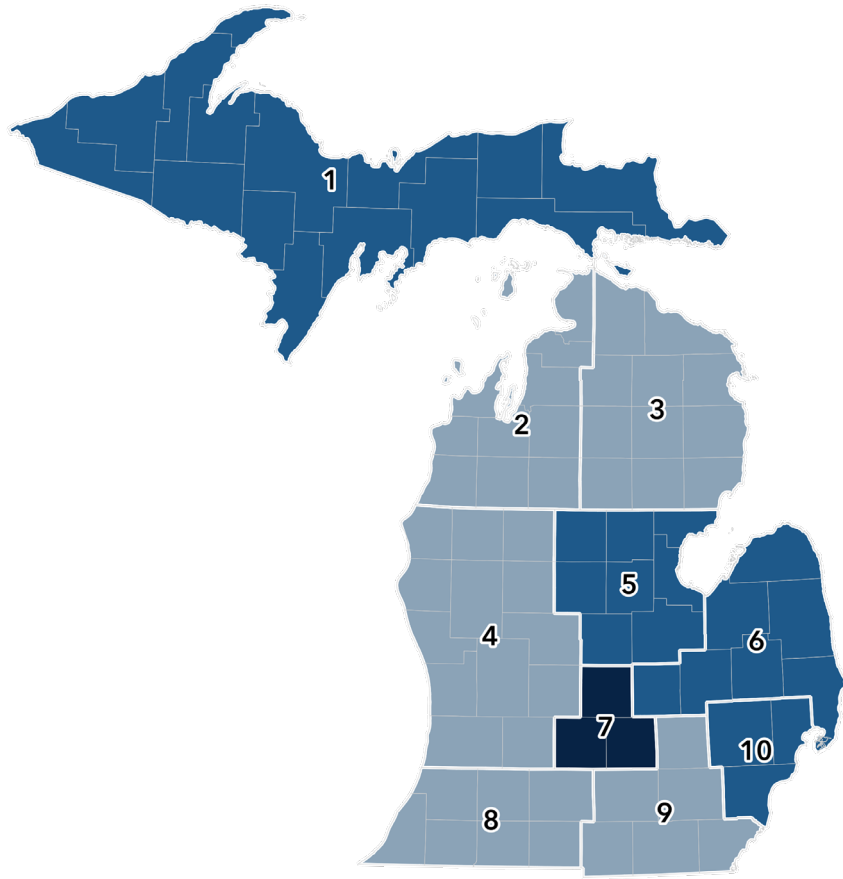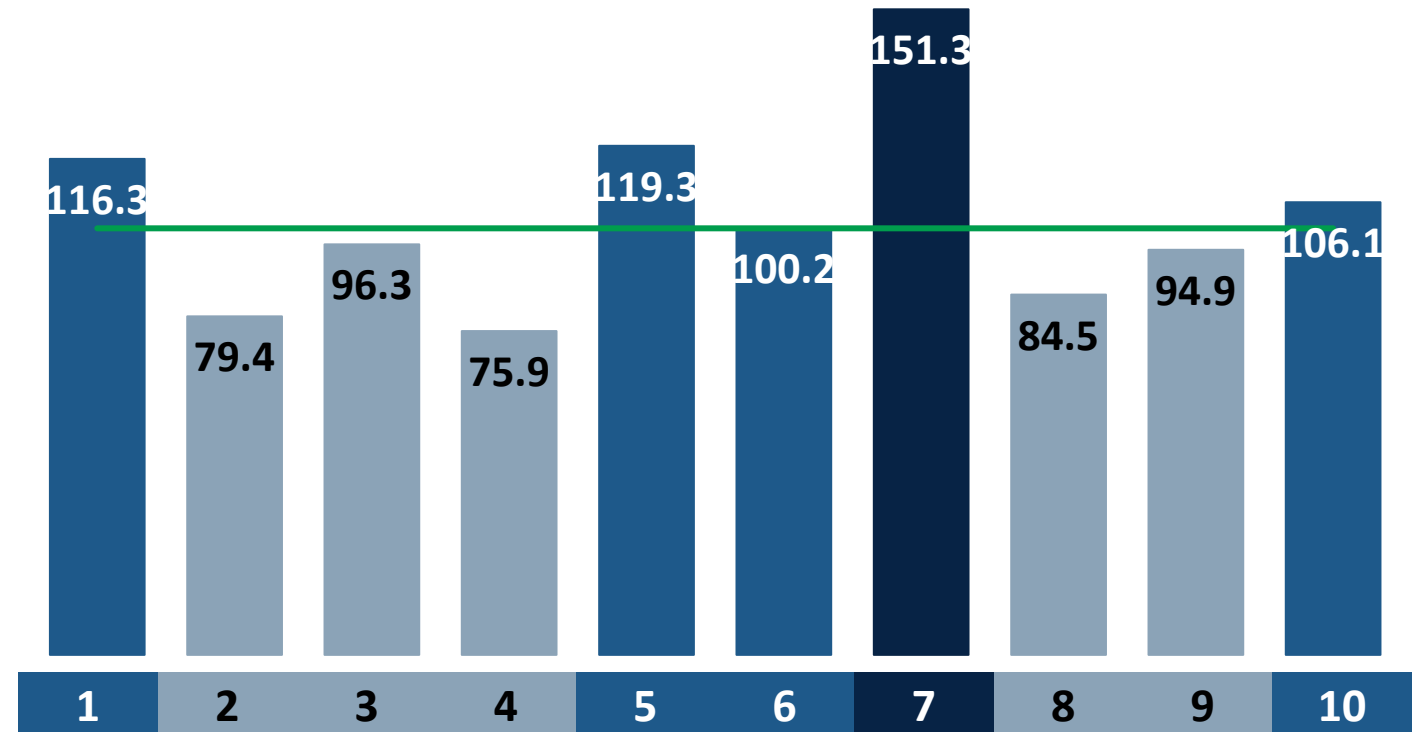
Severe Maternal Morbidity
per 10,000 Inpatient Delivery Hospitalizations

Overall

2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
176.5	192.7	193.5	187.8	168.4	169.0	168.9	175.7	194.3	211.3	232.1

Excluding Transfusions

2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
73.9	84.9	86.0	83.5	75.4	72.3	67.6	68.3	70.6	89.2	100.0

Data Source: Division for Vital Records and Health Statistics, MDHHS using data from the Michigan Inpatient Database obtained with permission from the Michigan Health and Hospital Association Service Corporation (MHASC), 2021.

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

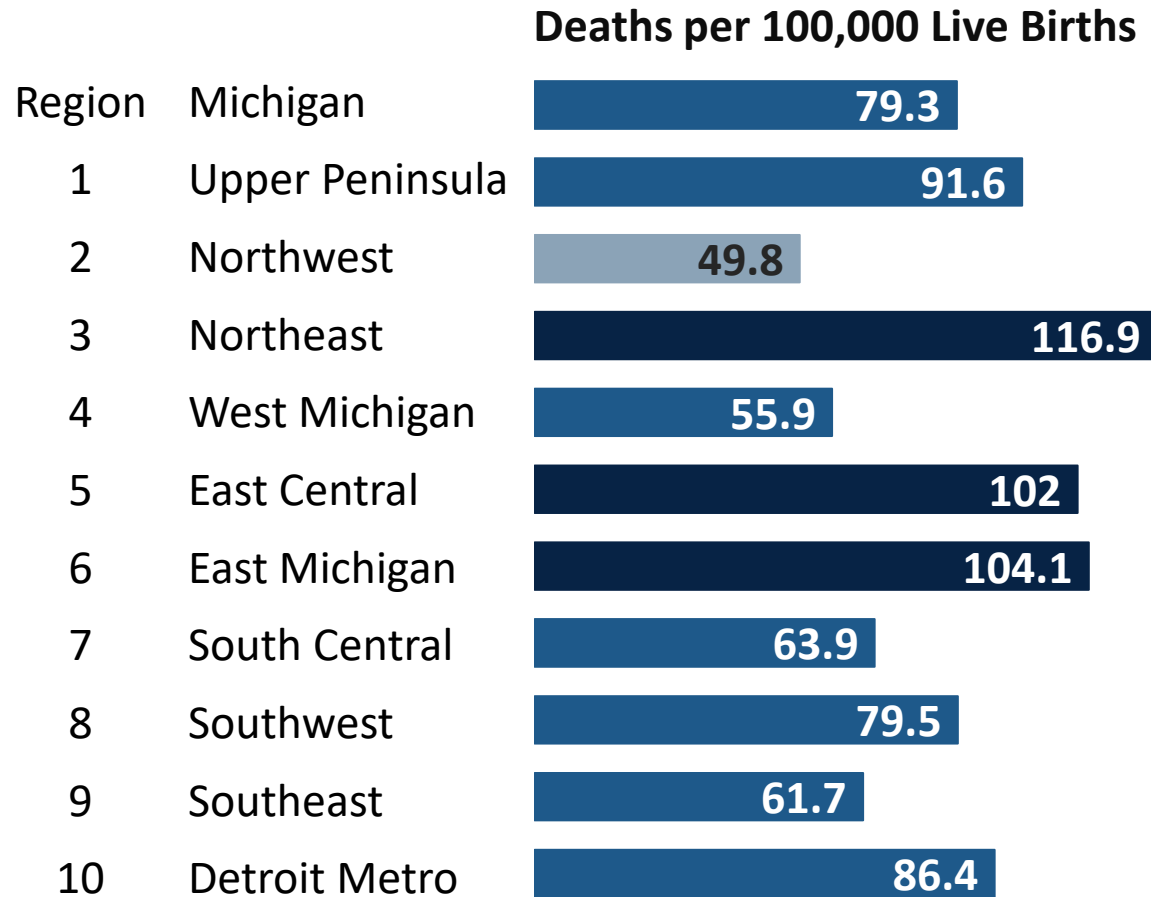Hospitalizations per 10,000 Inpatient Delivery Hospitalizations (**Michigan: 100.0**)

Region	Value
1	116.3
2	79.4
3	96.3
4	75.9
5	119.3
6	100.2
7	151.3
8	84.5
9	94.9
10	106.1

Data Source: Division for Vital Records and Health Statistics, MDHHS using data from the Michigan Inpatient Database obtained with permission from the Michigan Health and Hospital Association Service Corporation (MHASC), 2021.
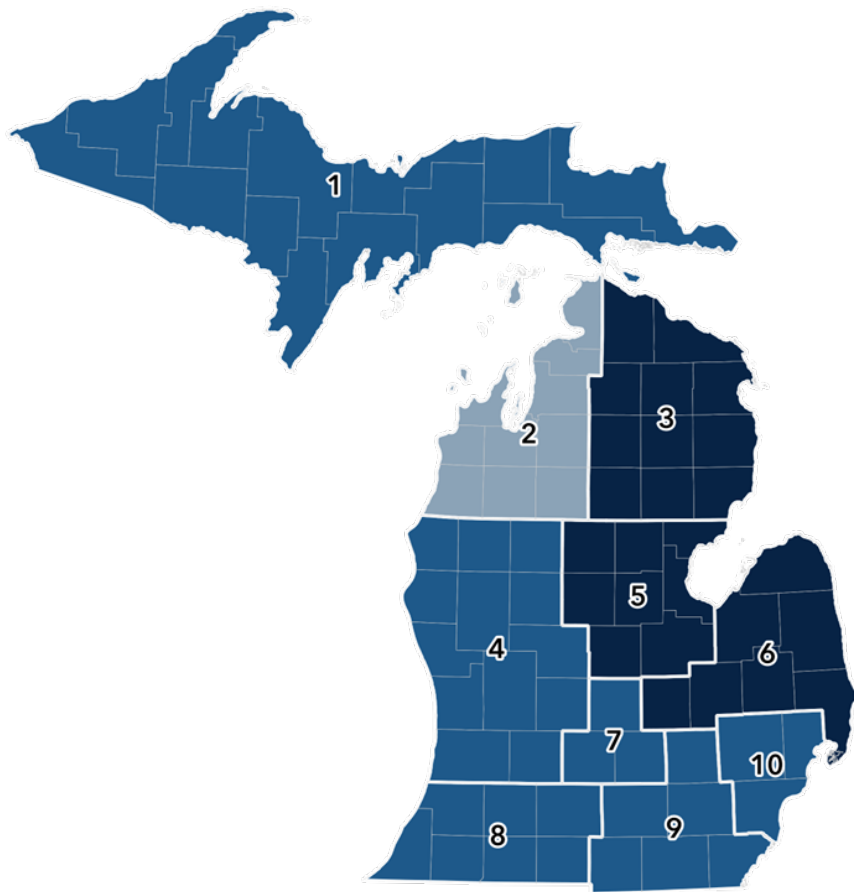
Maternal Mortality Ratio 2016-2020

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

Total Maternal Mortality
by Prosperity Region, 2016-2020

MDHHS
Michigan Department of Health & Human Services

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.

Deaths per 100,000 Live Births

Region		
	Michigan	79.3
1	Upper Peninsula	91.6
2	Northwest	49.8
3	Northeast	116.9
4	West Michigan	55.9
5	East Central	102
6	East Michigan	104.1
7	South Central	63.9
8	Southwest	79.5
9	Southeast	61.7
10	Detroit Metro	86.4

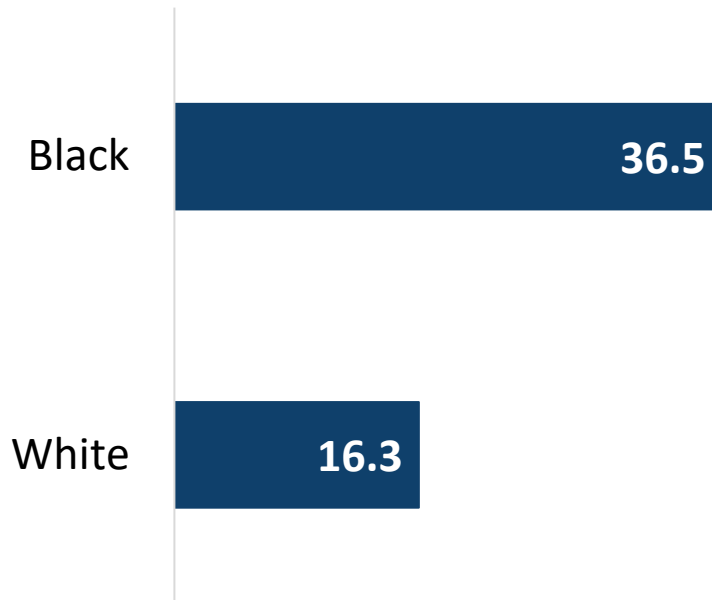Data Source: Michigan Maternal Mortality Surveillance Program, MDHHS

Maternal Mortality Rate by Race, 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.

Pregnancy- Related Maternal Mortality

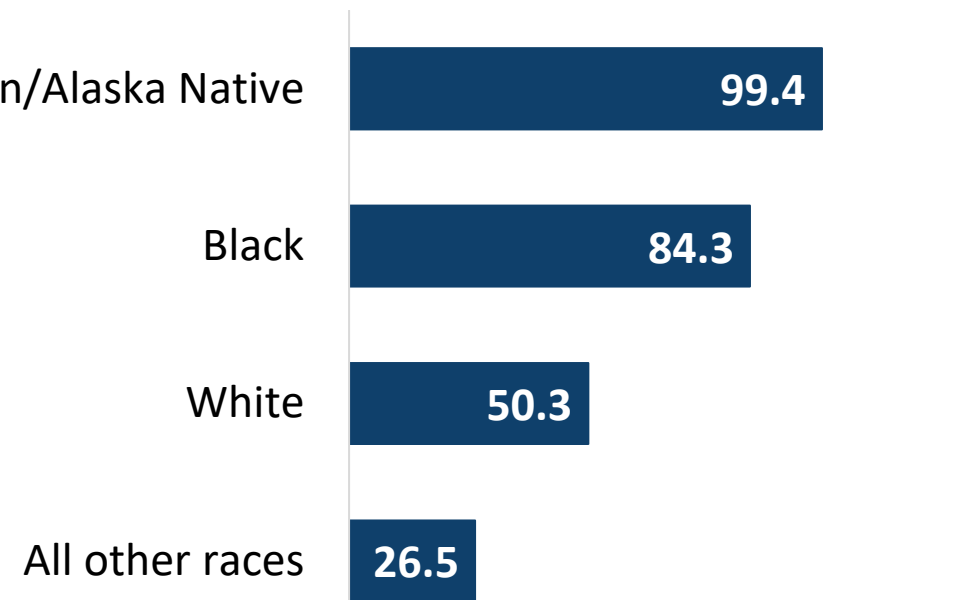*(directly related or aggravated by the pregnancy)*

Deaths per 100,000 Live Births

Race	Rate
Black	36.5
White	16.3

Pregnancy-Associated – Not Related – Maternal Mortality

(death unrelated to the pregnancy)

Deaths per 100,000 Live Births

Race	Rate
American Indian/Alaska Native	99.4
Black	84.3
White	50.3
All other races	26.5

54

Data Source: Michigan Maternal Mortality Surveillance Program, MDHHS

MDHHS | Maternal and Child Health Data

MCH Epidemiology Section
michigan.gov/mchepi
- Infant Health Epidemiology (*michigan.gov/infanthealthepi*)
- Maternal Mortality
- COVID-19 and Pregnancy
- Birth Defects
- Adolescent Health
- Family Planning
- PRAMS

Vital Statistics
michigan.gov/vitalstats
- Infant mortality by city, county, and health department
- Birth characteristics by city, county, and health department

MDHHS
Michigan Department of Health & Human Services