



Indiana
Department
of
Health

INDIANA INFANT MORTALITY & BIRTH OUTCOMES, 2019

MATERNAL AND CHILD HEALTH
EPIDEMIOLOGY

March 2021

OUR MISSION:

To promote, protect, and improve the health and safety of all Hoosiers.

OUR VISION:

Every Hoosier reaches optimal health regardless of where they live, learn, work, or play.



Infant Mortality Quick Facts

- Infant Mortality is defined as the death of a baby before his/her first birthday.
- **Infant Mortality Rate** is an estimate of the number of infant deaths for every 1,000 live births.
- Infant Mortality is the **#1 indicator** of health status in the world.

Infant Mortality in Indiana

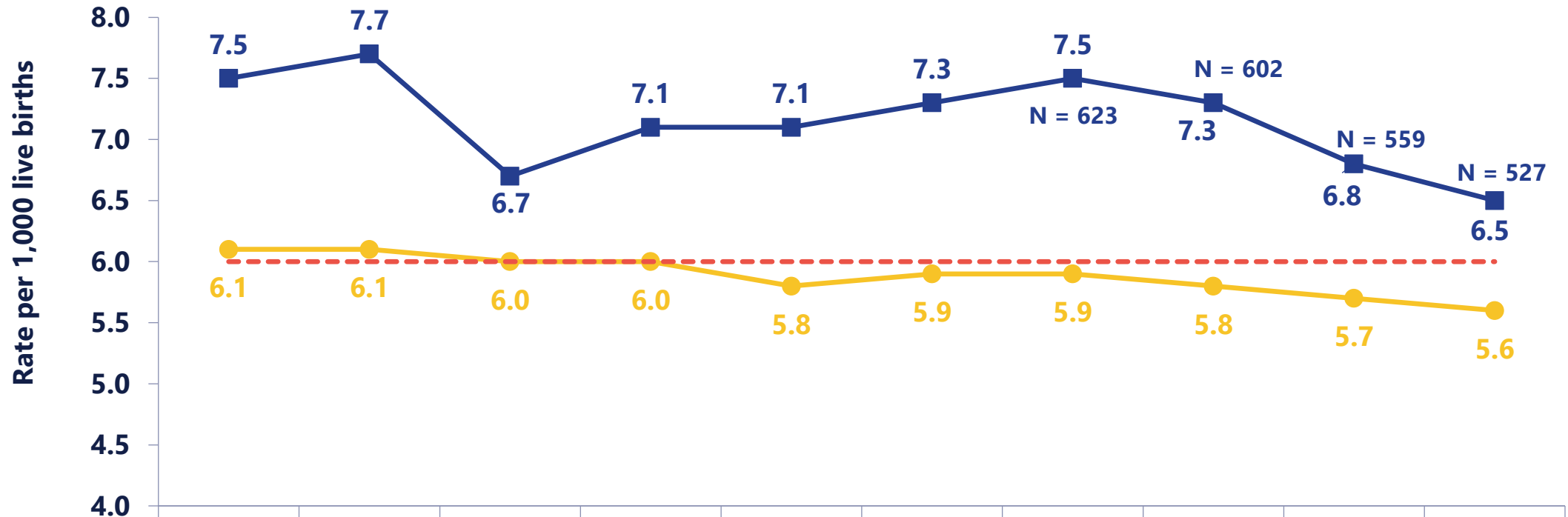
- 527 Hoosier babies died before their 1st birthday in 2019:
 - Nearly 44 babies EVERY month
 - More than 10 babies EVERY week
- Over 2,900 infant lives lost in the last 5 years:
 - Nearly 41 school buses at maximum capacity



Indiana Infant Mortality

Infant Mortality Rates (IMRs)

2010-2019



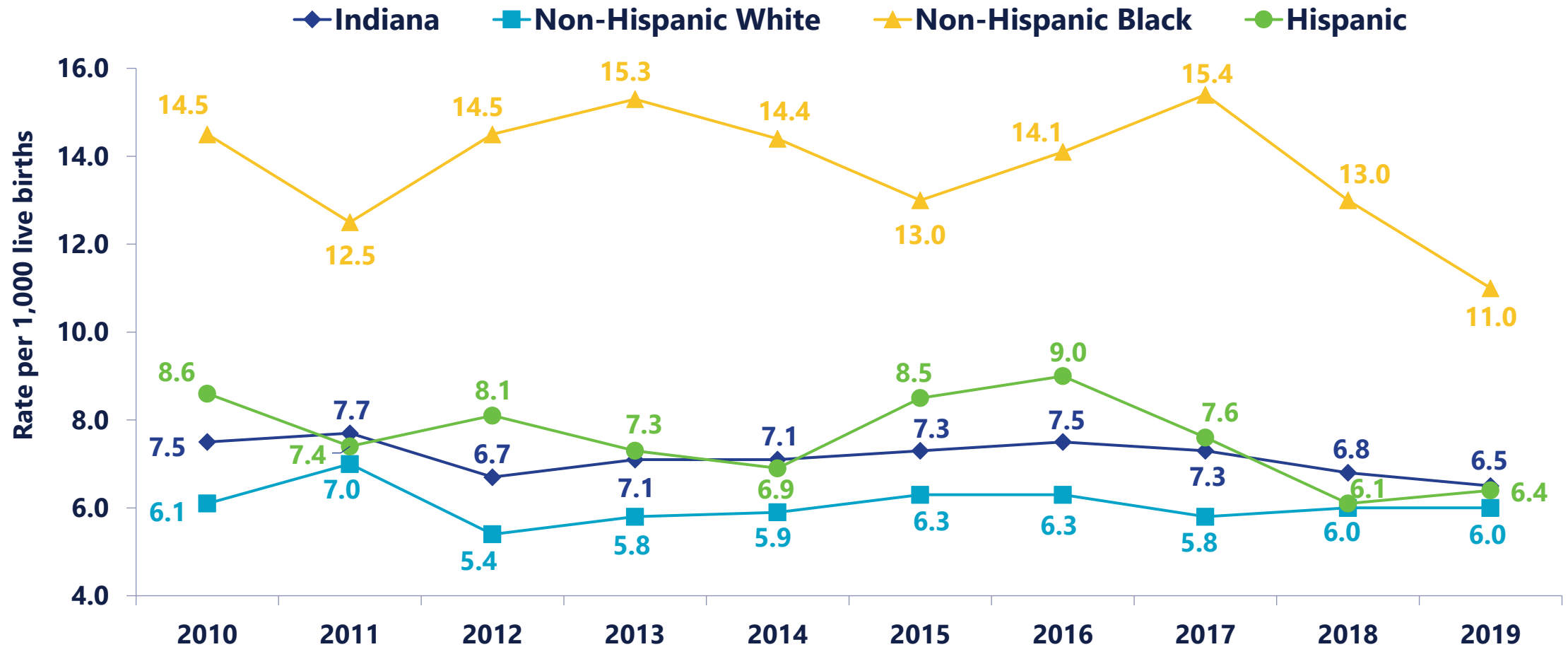
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
■ Indiana	7.5	7.7	6.7	7.1	7.1	7.3	7.5	7.3	6.8	6.5
● U.S.	6.1	6.1	6.0	6.0	5.8	5.9	5.9	5.8	5.7	5.6
- - - HP 2020 Goal	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0



Source: Indiana Department of Health, Maternal & Child Health Epidemiology Division [December 22, 2020]
 United States Original Source: Centers for Disease Control and Prevention National Center for Health Statistics
 Indiana Original Source: Indiana Department of Health, Vital Records, ODA, Data Analysis Team

Indiana IMRs by Race and Ethnicity

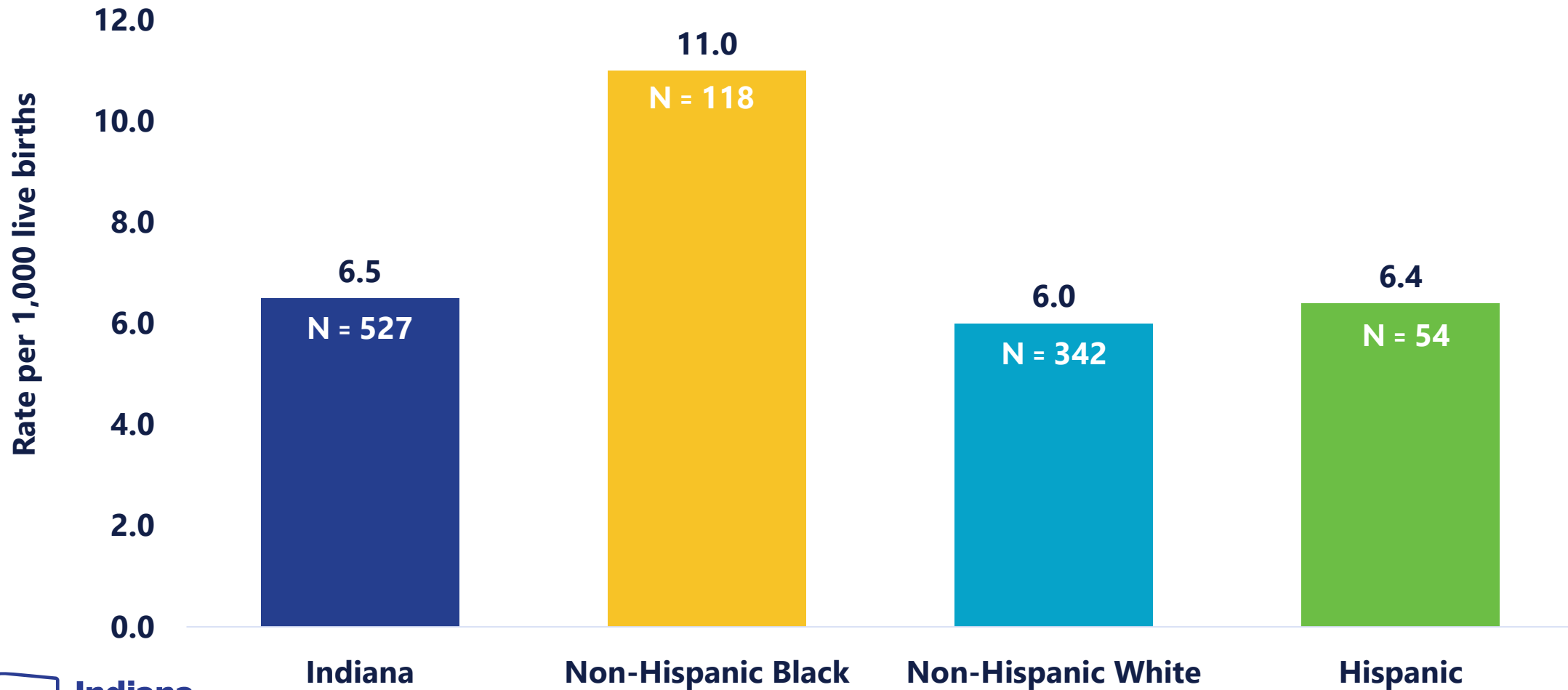
2010-2019



Source: Indiana Department of Health, Maternal & Child Health Epidemiology Division [October 20, 2020]
Original Source: Indiana Department of Health, Vital Records, ODA, Data Analysis Team

Infant Mortality by Race and Ethnicity

2019



Source: Indiana Department of Health, Maternal & Child Health Epidemiology Division [October 20, 2020]
Original Source: Indiana Department of Health, Vital Records, ODA, Data Analysis Team



Infant Mortality by Geography

Infant Mortality by Indiana Hospital Region

2015-2019

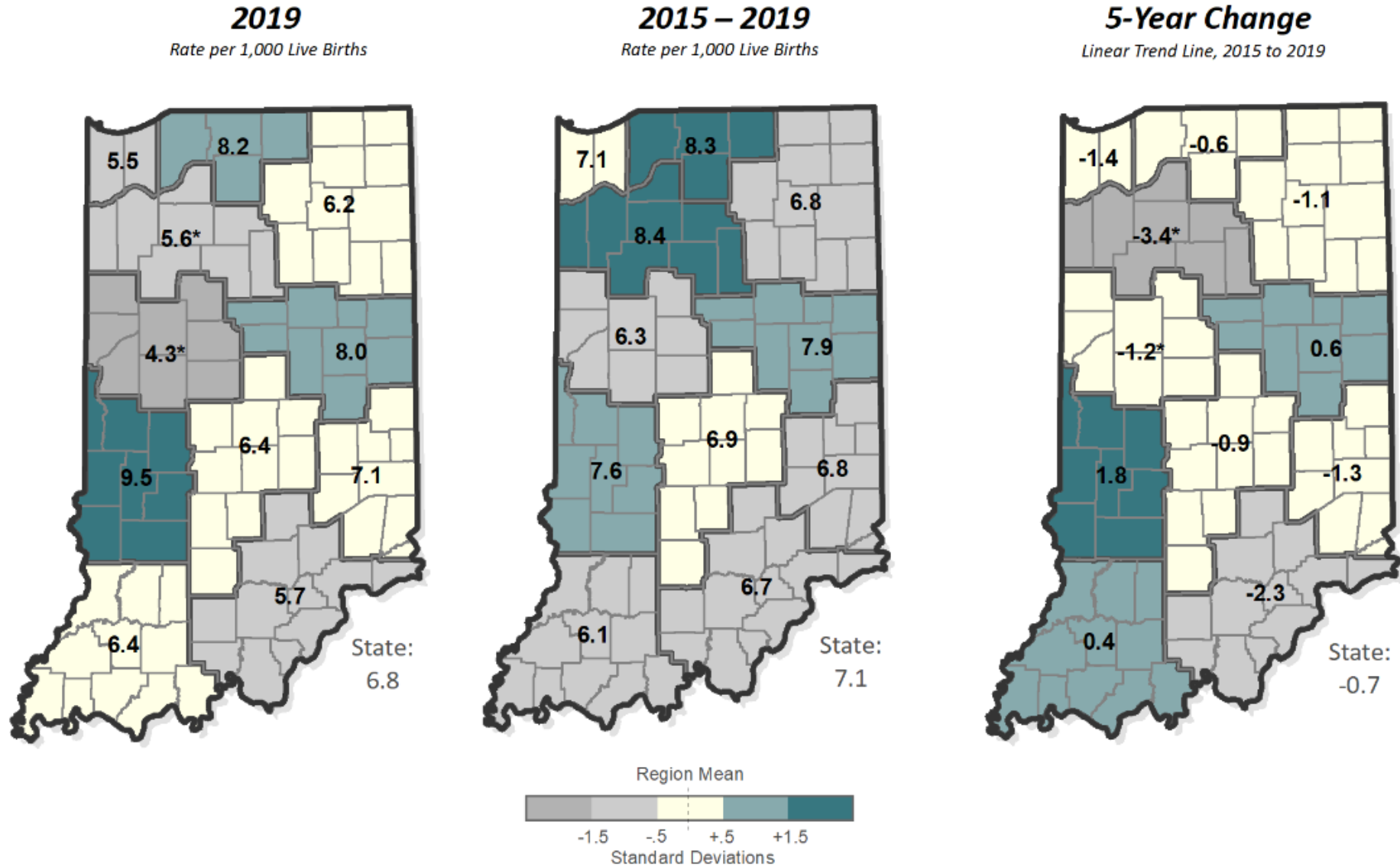
Region	Total	Non-Hispanic White	Non-Hispanic Black	Hispanic
Central	6.9	5.6	11.6	6.6
Central Southwestern	7.6	7.5	9.4*	**
Eastern	7.9	7.2	15.1	7.1*
Midwestern	8.4	8.2	**	10.8*
Northeastern	6.8	5.8	14.5	9.2
Northern	8.3	6.7	16.5	7.7
Northwest	7.1	4.2	14.3	7.5
Southeastern	7.1	7.2	27.2*	**
Southern	6.7	6.6	14.3*	6.9*
Southwest	6.1	5.2	15.6	8.8*
Western	6.3	5.8	13.2*	7.1*

*Rates based on counts less than 20 are considered unstable and should be interpreted with caution.

**Rates based on counts less than 5 have been suppressed.



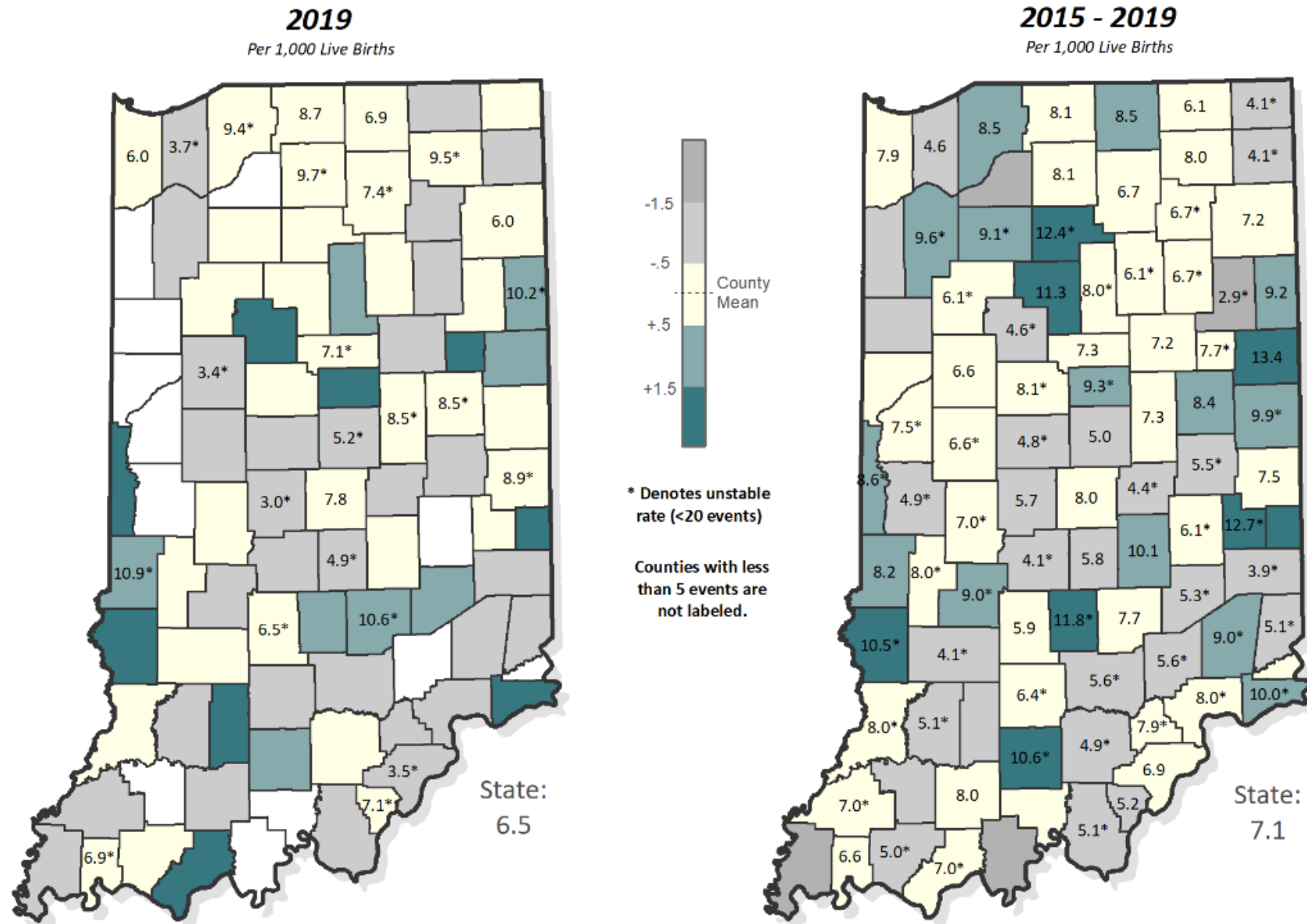
Infant Mortality By Hospital Region



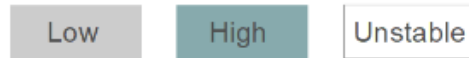
* Denotes unstable rate (<20 events)

Data Source: IDOH MCH, ODA DAT, VR | Map Author: IDOH ODA PHG, 01.01.21

Infant Mortality by County



County Infant Mortality Rates Compared to the State 2015 - 2019



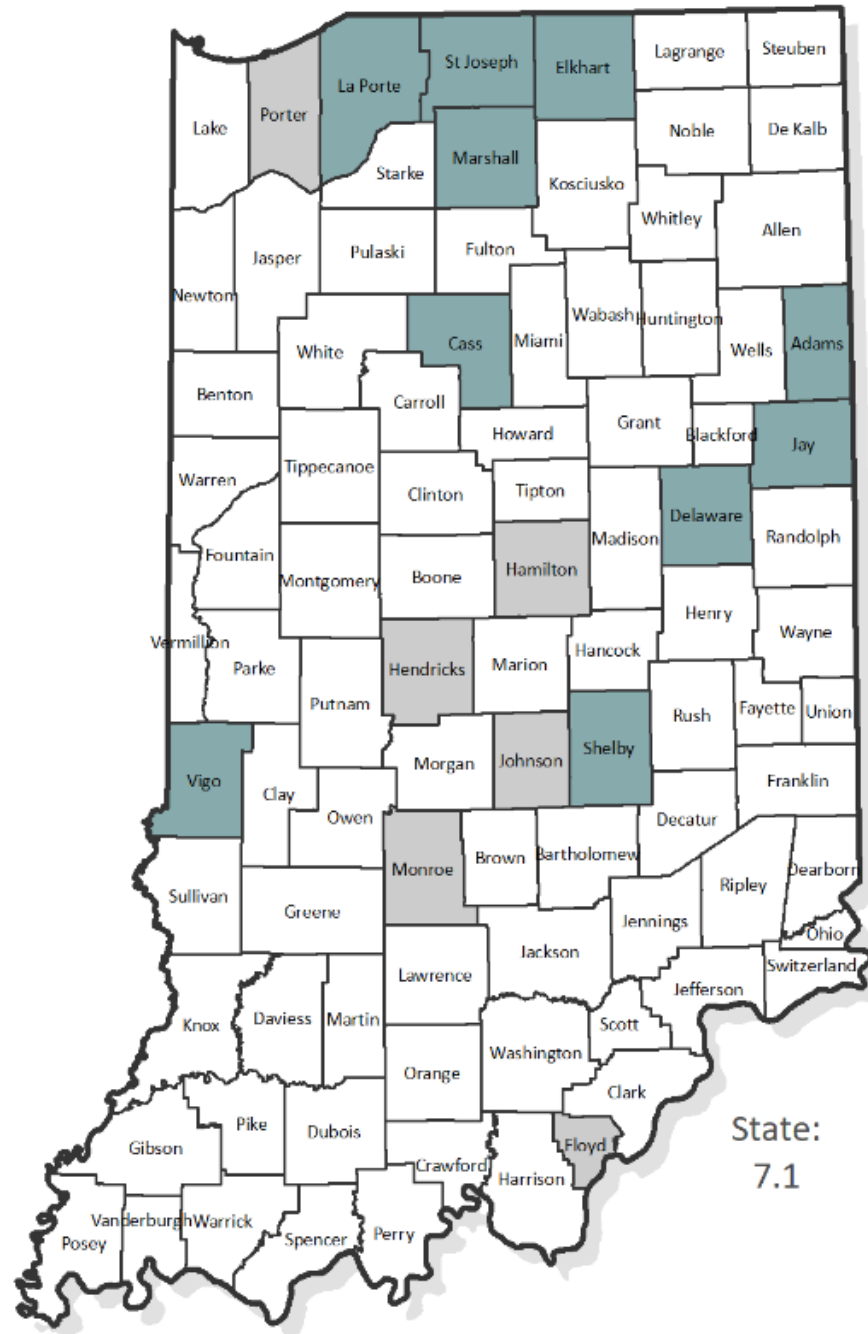
Highest Stable Infant Mortality Rates

Jay, 13.4	Cass, 11.3
Shelby, 10.1	Adams, 9.2
LaPorte, 8.5	Elkhart, 8.5
Delaware, 8.4	Vigo, 8.2
St. Joseph, 8.1	Marshall, 8.1

Counties with Stable Rates Achieving HP2020 Goals

Porter, 4.6	Hamilton, 5.0
Floyd, 5.2	Hendricks, 5.7
Johnson, 5.8	Monroe, 5.9

Data Source: IDOH MCH, ODA DAT, VR | Map Author: IDOH ODA PHG, 01.01.21



County-Level Rates by Race/Ethnicity

2015 – 2019

Stable NH Black Infant Mortality Rates

Elkhart, 22.8	St. Joseph, 15.5
Allen, 14.7	Vanderburgh, 14.6
Lake, 13.8	Marion, 11.9

Stable NH White Infant Mortality Rates*

Jay, 14.6	Shelby, 10.7	Adams, 9.9
Dubois, 8.6	Vigo, 8.3	LaPorte, 8.1
Grant, 8.0	Clark, 7.8	

Stable Hispanic Infant Mortality Rates

Allen, 9.1	Elkhart, 8.2
Lake, 7.4	Marion, 6.6



NH = Non-Hispanic
*** Stable rates are only shown if they are above the state average of 7.1 for 2015-2019.**

Source: Indiana Department of Health, Maternal & Child Health Epidemiology Division [October 26, 2020]
Original Source: Indiana Department of Health, Vital Records, ODA, Data Analysis Team

Highest Infant Mortality Rates by ZIP Code

2015-2019

Zip Code	County	Births	Deaths	IMR	NH White IMR	NH Black IMR	Hispanic IMR
→ 46404	Lake	1096	21	19.2	**	20.0	**
46516	Elkhart	2952	39	13.2	5.9*	30.4*	12.8*
→ 46619	St. Joseph	1620	21	13.0	11.2*	14.8*	13.1*
→ 46218	Marion	2492	32	12.8	**	16.9	**
47302	Delaware	1599	20	12.5	12.0*	**	**
46203	Marion	2856	34	11.9	9.3*	15.2*	19.4*
46628	St. Joseph	2075	24	11.6	**	16.9*	**
46176	Shelby	1734	20	11.5	12.4*	**	**
→ 46235	Marion	3308	37	11.2	9.3*	12.1	9.6*
→ 46806	Allen	2328	26	11.2	9.7*	16.3*	8.3*
→ 46312	Lake	2158	24	11.1	**	16.1*	8.4*
46947	Cass	1893	20	10.6	9.5*	**	14.6*
46260	Marion	2494	26	10.4	5.6*	17.2*	**

*Rates based on counts less than 20 are considered unstable and should be interpreted with caution.

**Rates based on counts less than 5 have been suppressed.

NH = Non-Hispanic

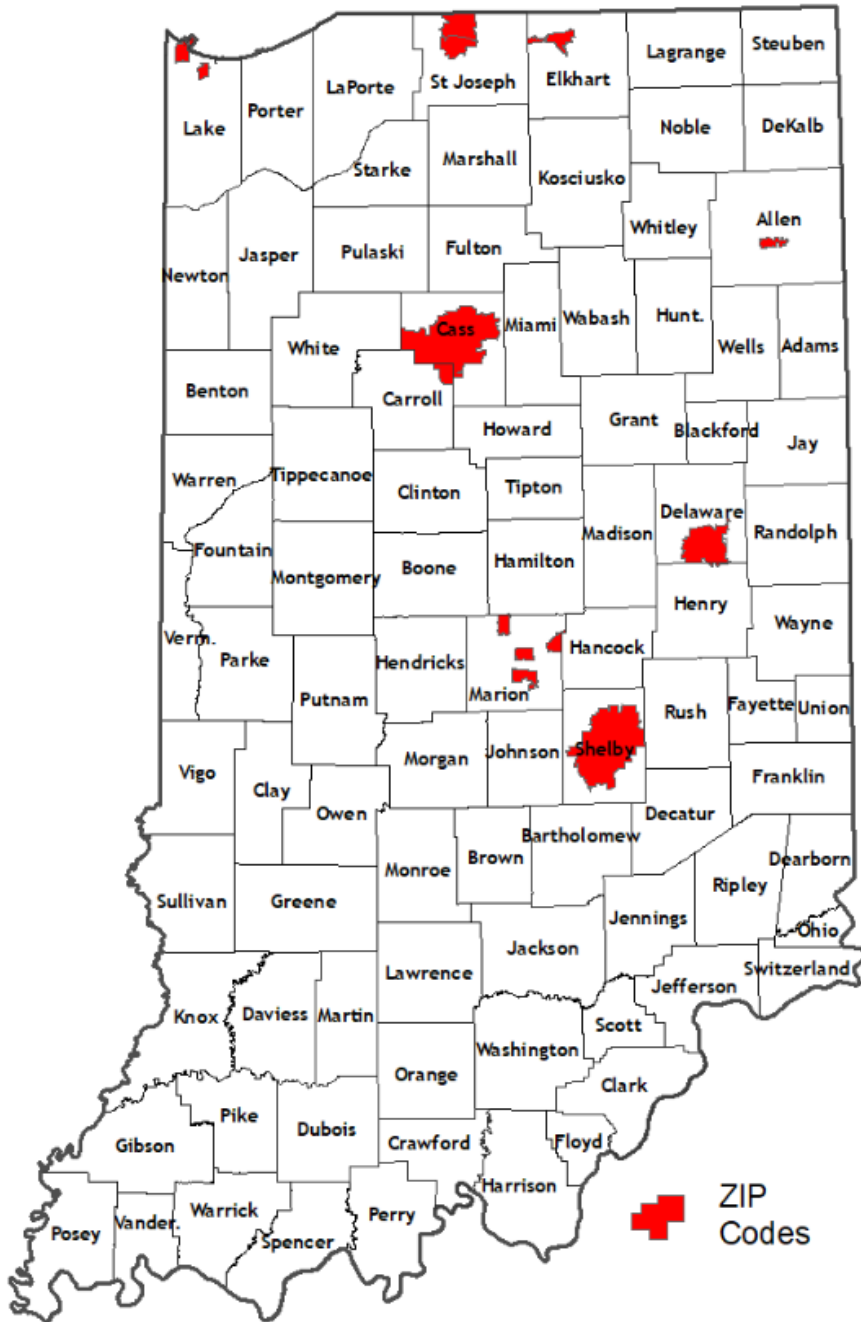
Added to the table this year.

→ On the list in 2013-2017, 2014-2018, and 2015-2019.



Highest Infant Mortality Rates by ZIP Code

2015-2019

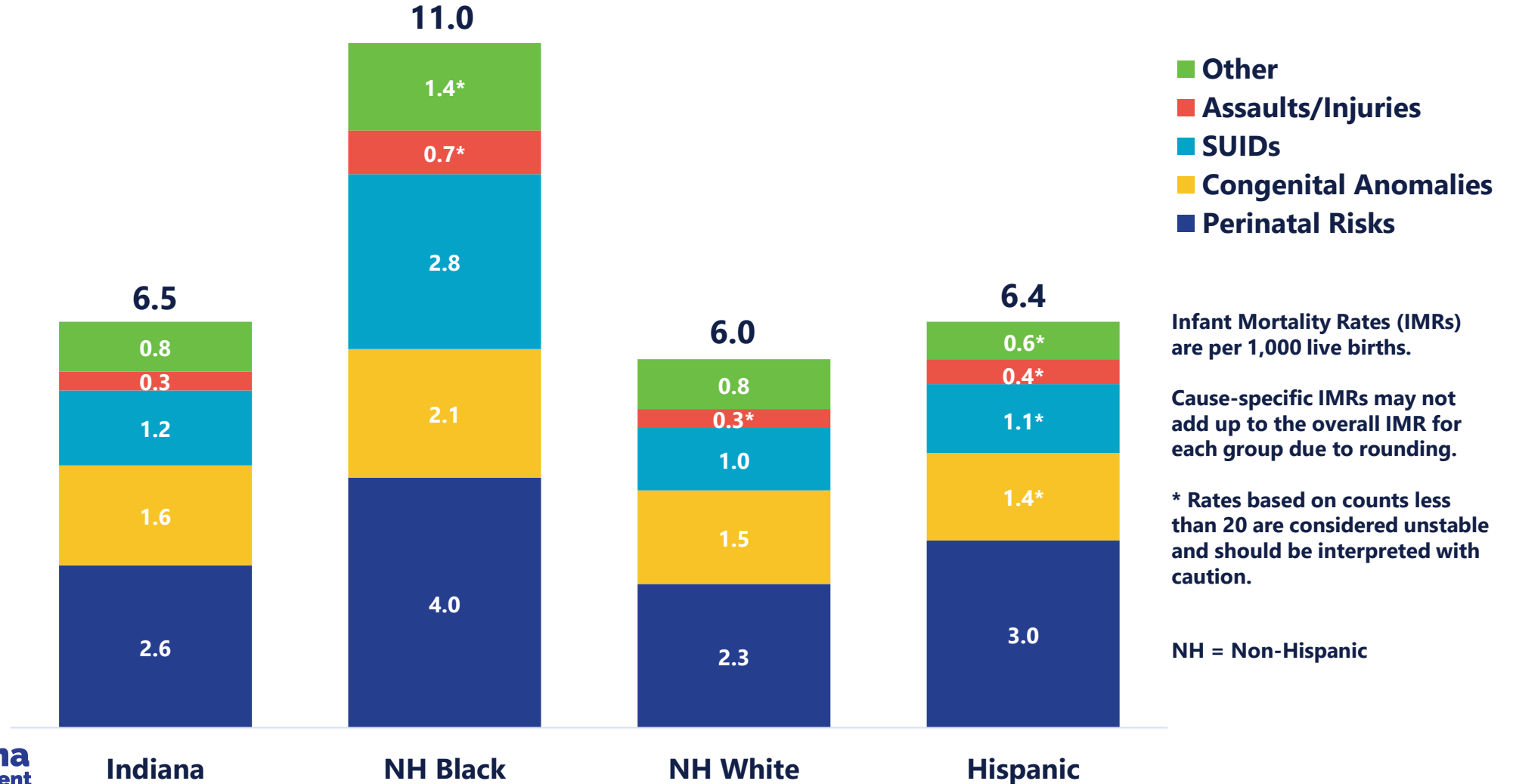


Source: Indiana Department of Health, Maternal & Child Health Epidemiology Division [January 20, 2021]
Original Source: Indiana Department of Health, Vital Records, ODA, Data Analysis Team

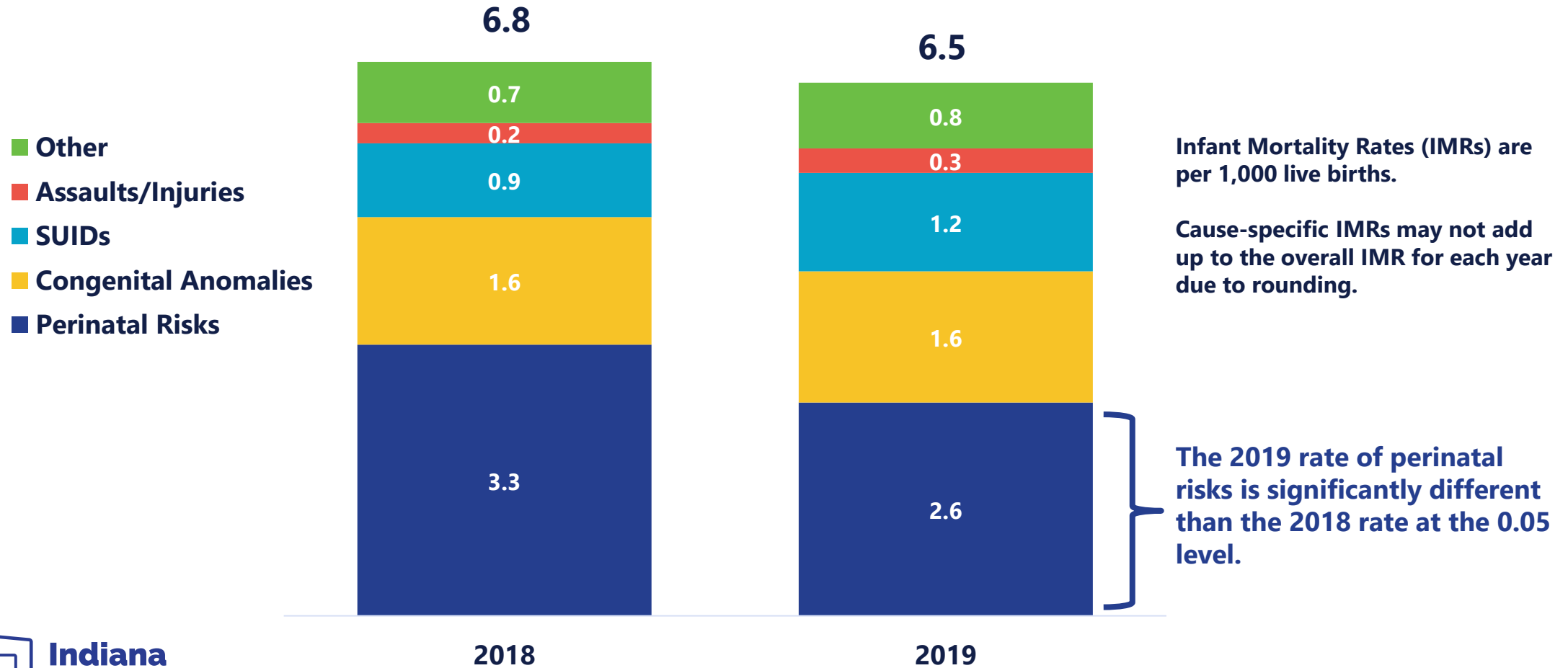


Cause-Specific Infant Mortality

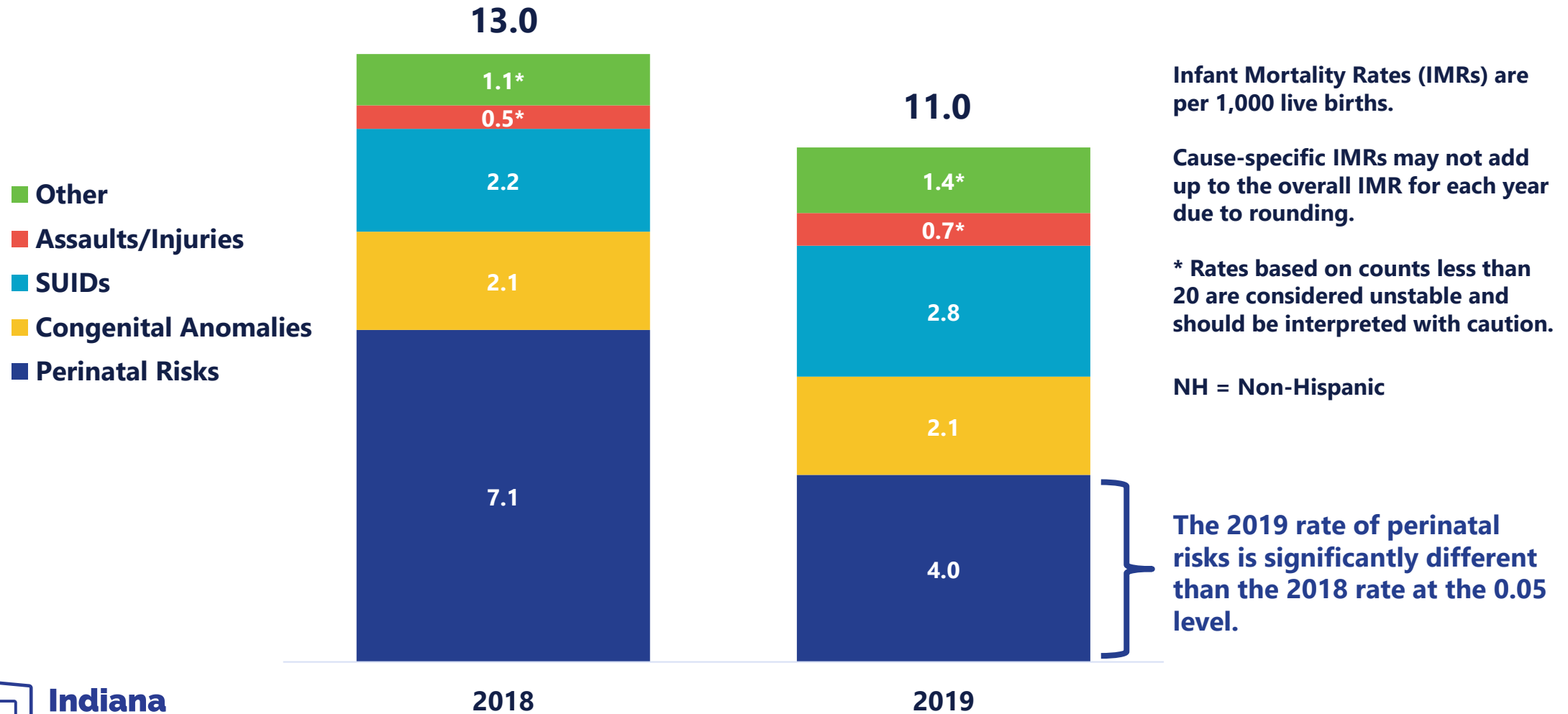
2019 Cause-Specific IMR by Race/Ethnicity



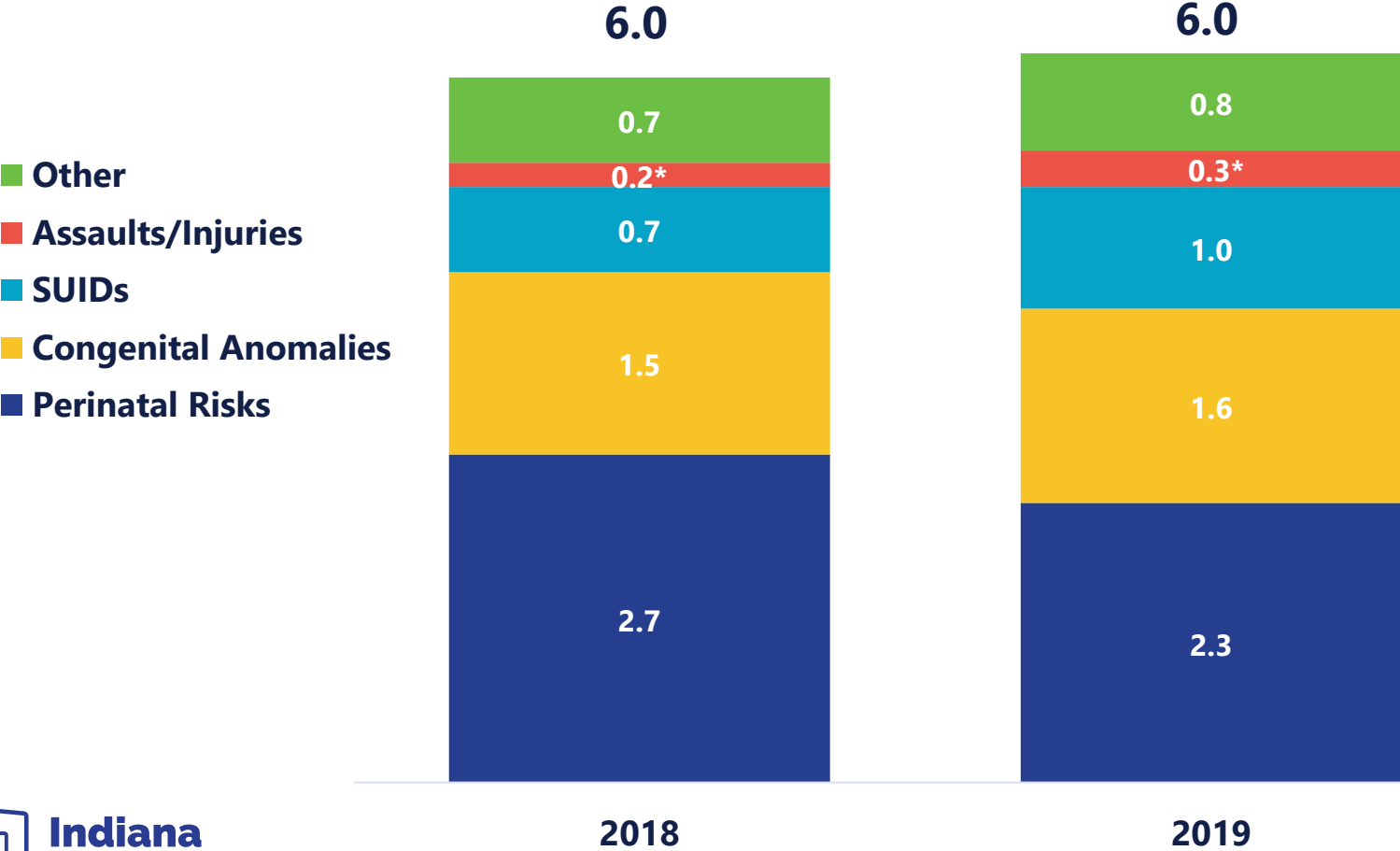
Causes of Indiana Infant Mortality



Causes of Indiana NH Black Infant Mortality



Causes of Indiana NH White Infant Mortality



Infant Mortality Rates (IMRs) are per 1,000 live births.

Cause-specific IMRs may not add up to the overall IMR for each year due to rounding.

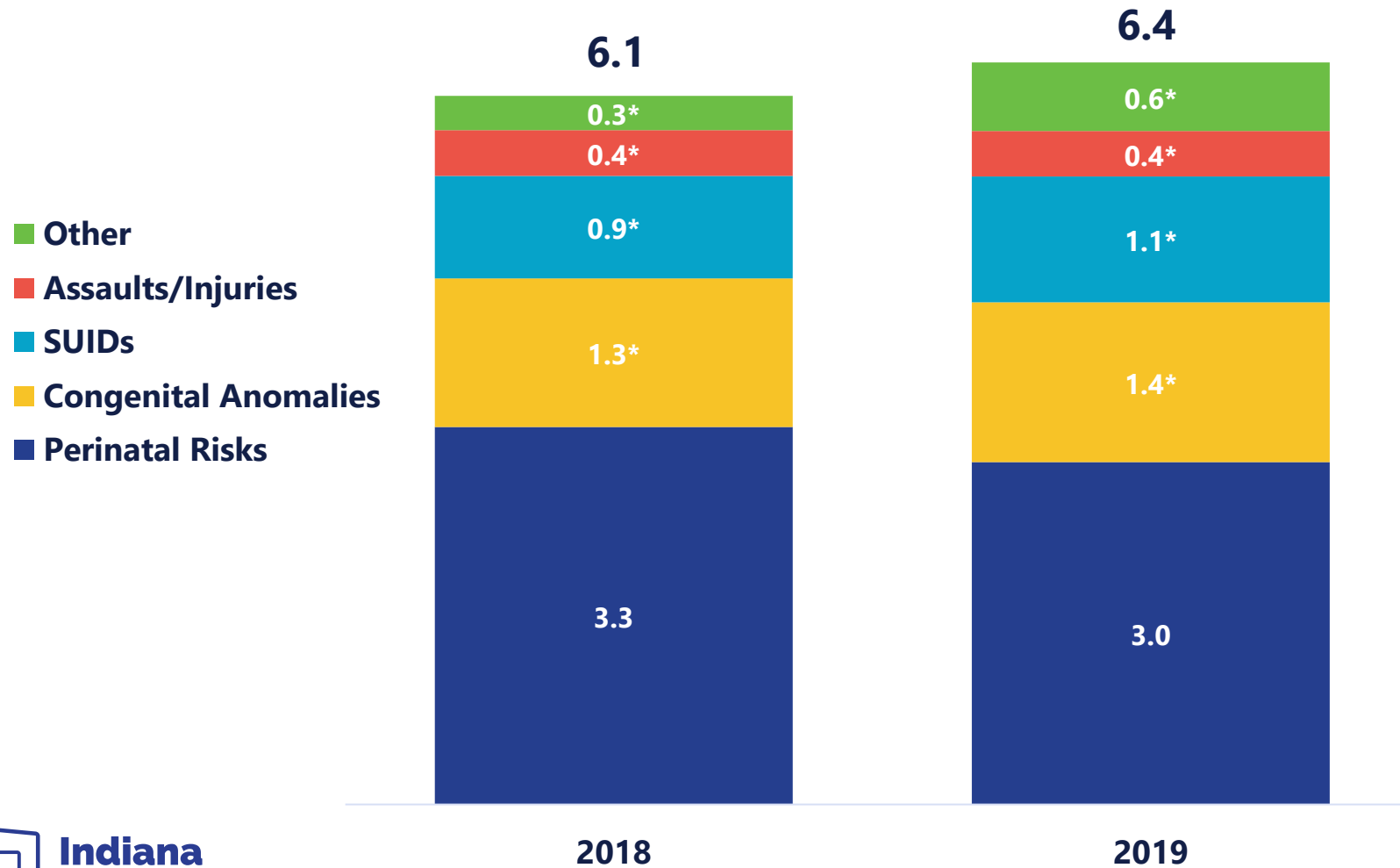
* Rates based on counts less than 20 are considered unstable and should be interpreted with caution.

NH = Non-Hispanic



Source: Indiana Department of Health, Maternal & Child Health Epidemiology Division [November 18, 2020]
Original Source: Indiana Department of Health, Vital Records, ODA, Data Analysis Team

Causes of Indiana Hispanic Infant Mortality



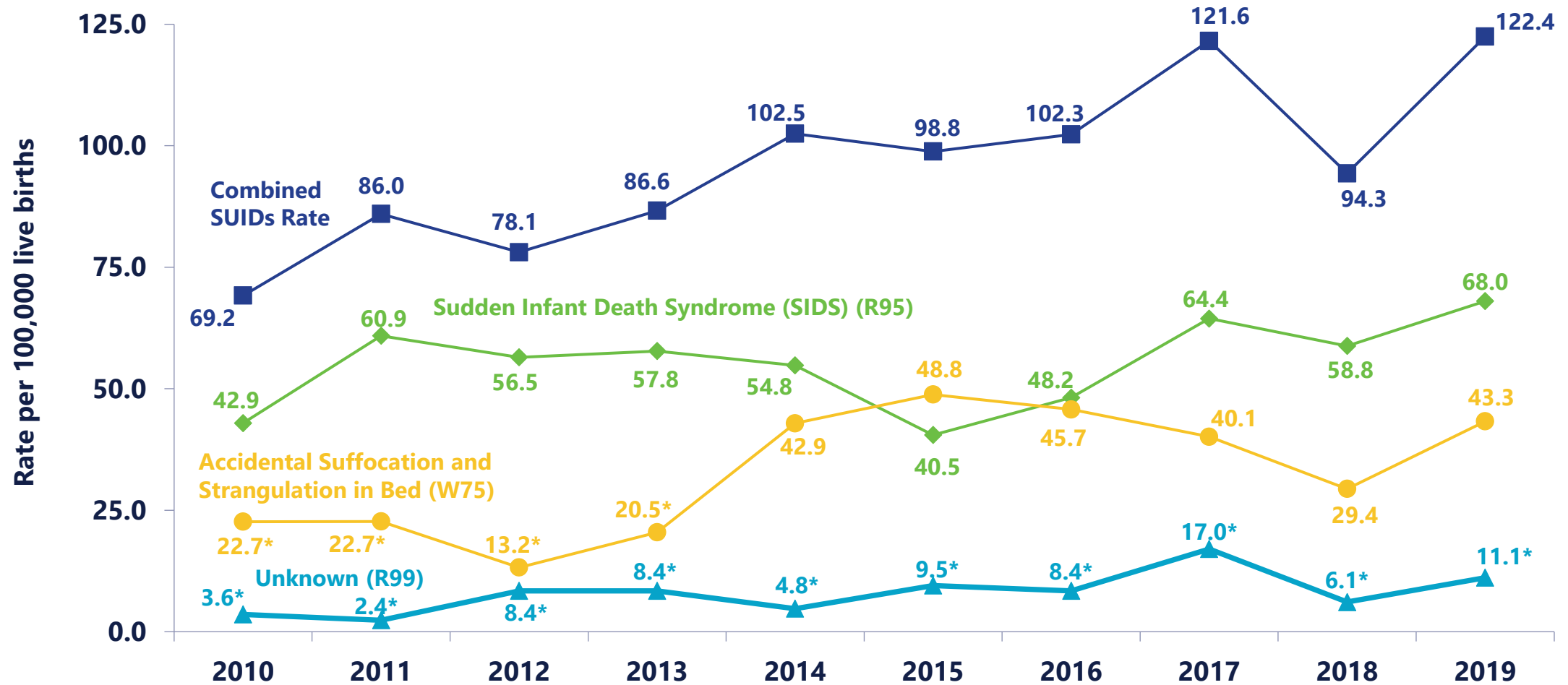
Infant Mortality Rates (IMRs) are per 1,000 live births.

Cause-specific IMRs may not add up to the overall IMR for each year due to rounding.

* Rates based on counts less than 20 are considered unstable and should be interpreted with caution.

SUIDs Rates by Cause

Indiana, 2010-2019

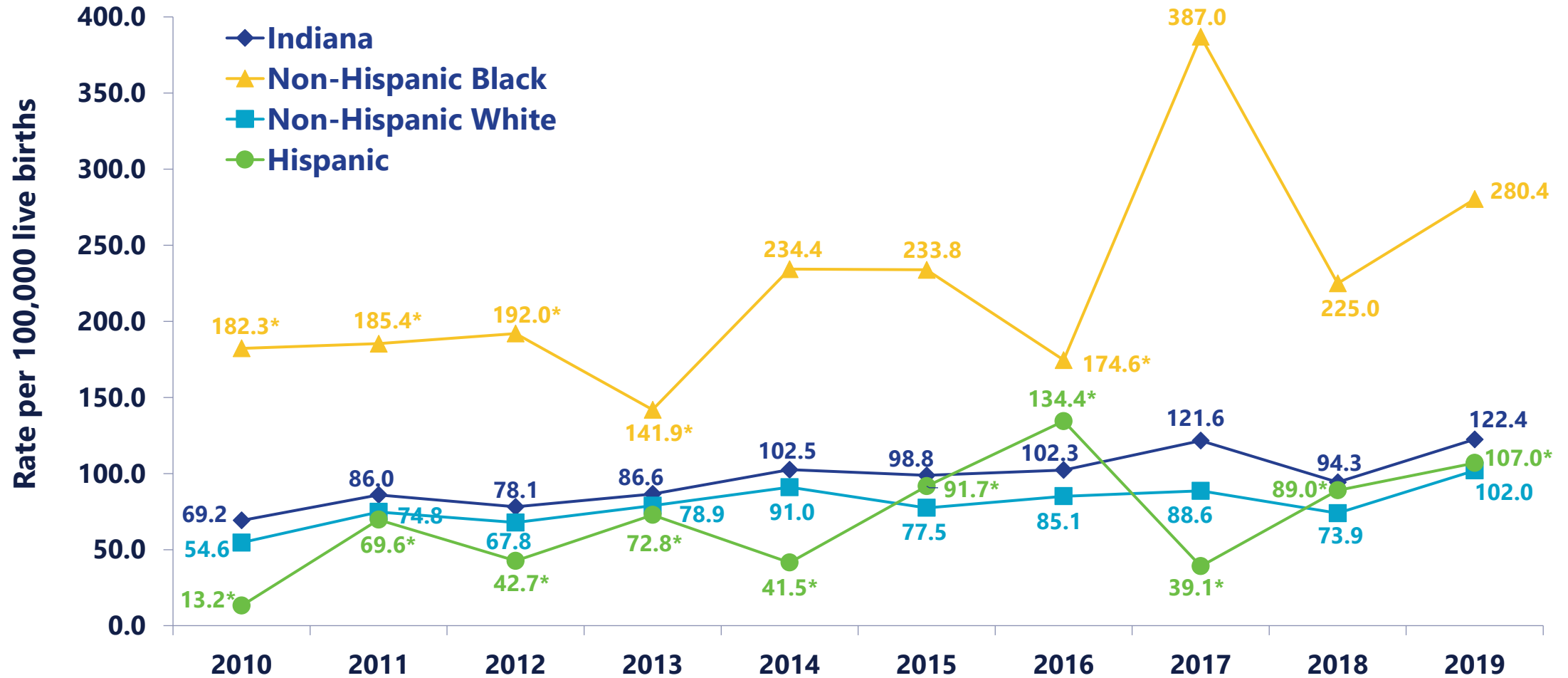


* Rates based on counts less than 20 are considered unstable and should be interpreted with caution.
 SUIDS = W75, R95, R99



SUIDs Rates by Race and Ethnicity

Indiana, 2010-2019

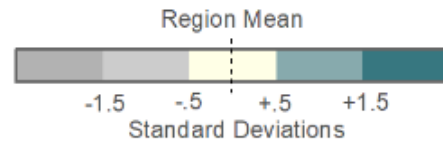


* Rates based on counts less than 20 are considered unstable and should be interpreted with caution.
 SUIDs = W75, R95, R99



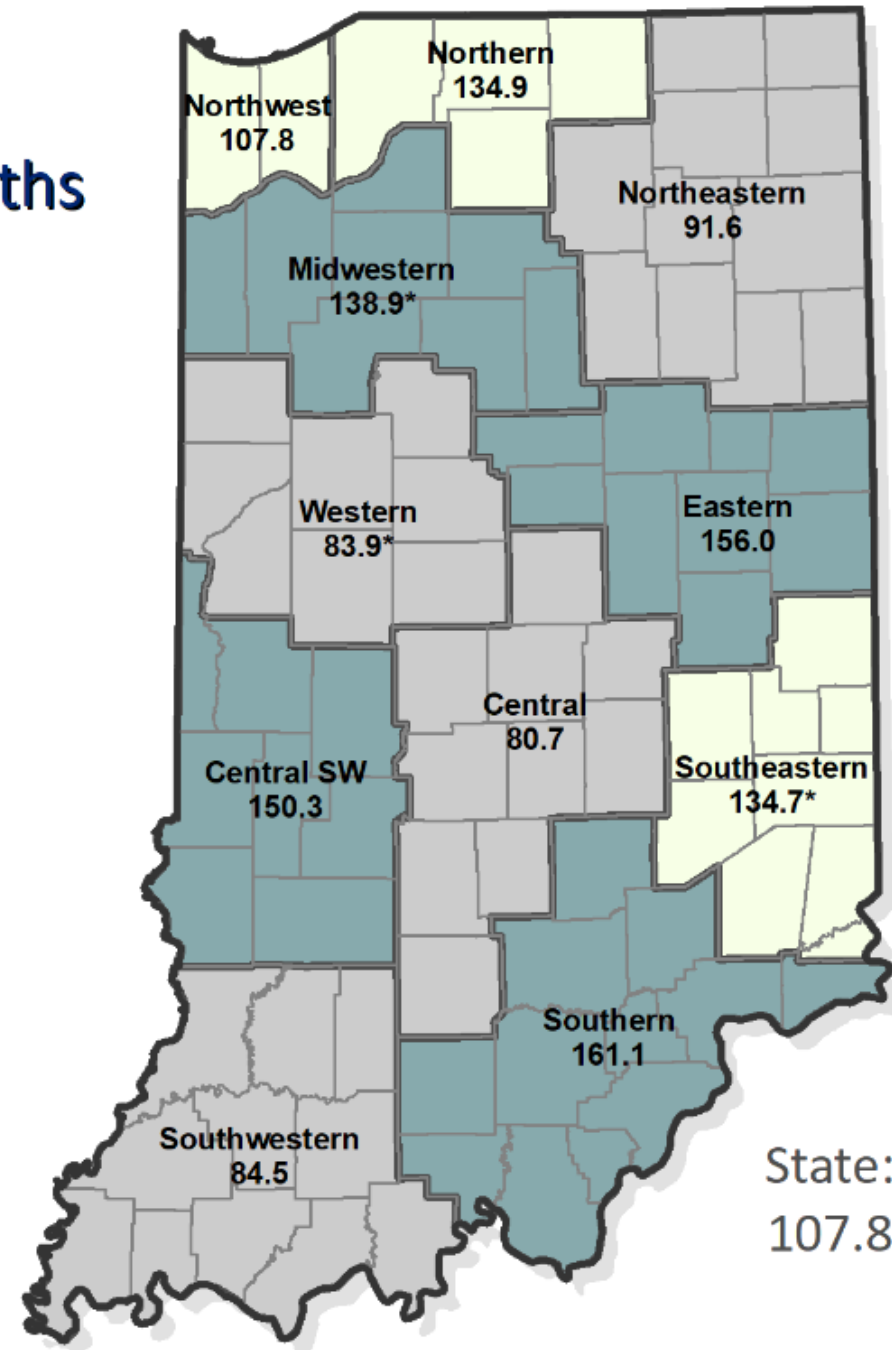
Sudden Unexpected Infant Deaths By Hospital Region 2015 - 2019

Per 100,000 Live Births



* Denotes unstable rate (<20 events)

Data Source: IDOH MCH, ODA DAT, VR | Map Author: IDOH ODA PHG, 01.01.21





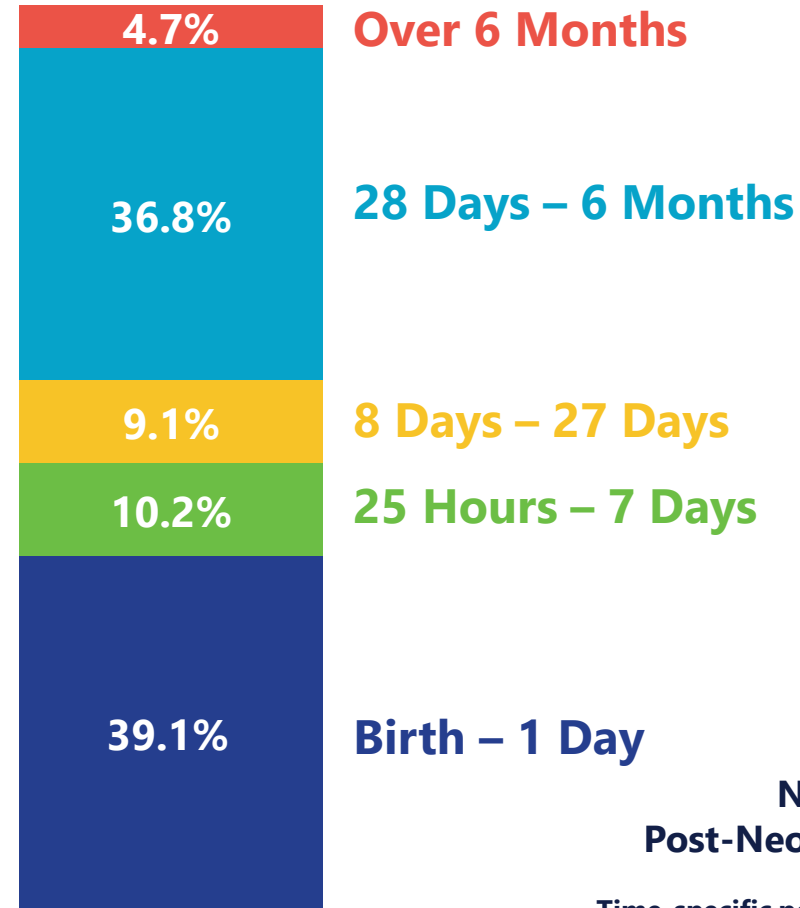
Infant Mortality by Age

2019 Infant Deaths by Age of the Baby

N = 527
Total Neonatal = 308
Total Post-Neonatal = 219

58.4%

of Indiana infant deaths
occurred during the
neonatal (0-27 days)
period



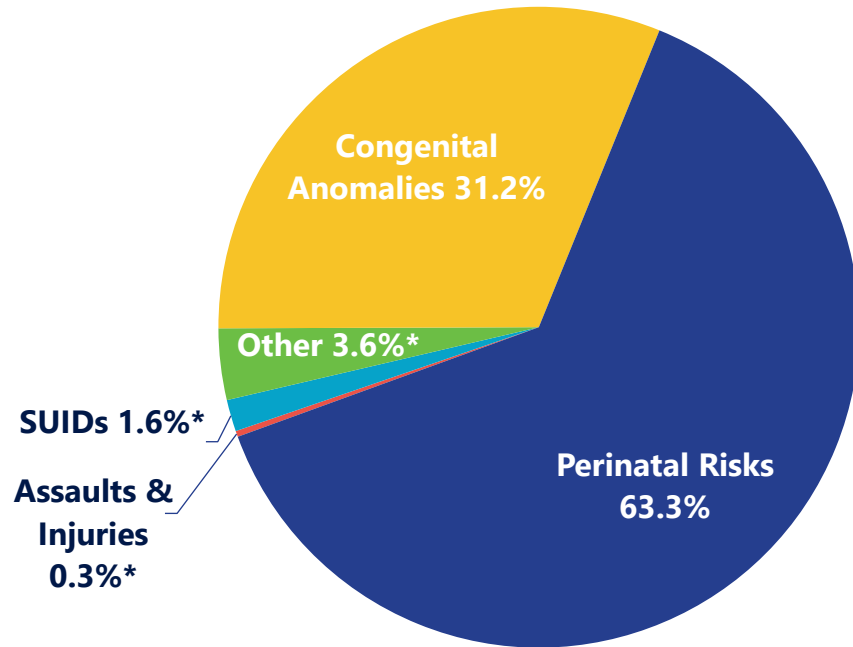
Neonatal = 0-27 days
Post-Neonatal = 28-364 days

Time-specific percentages may not add up
to 100% overall due to rounding.

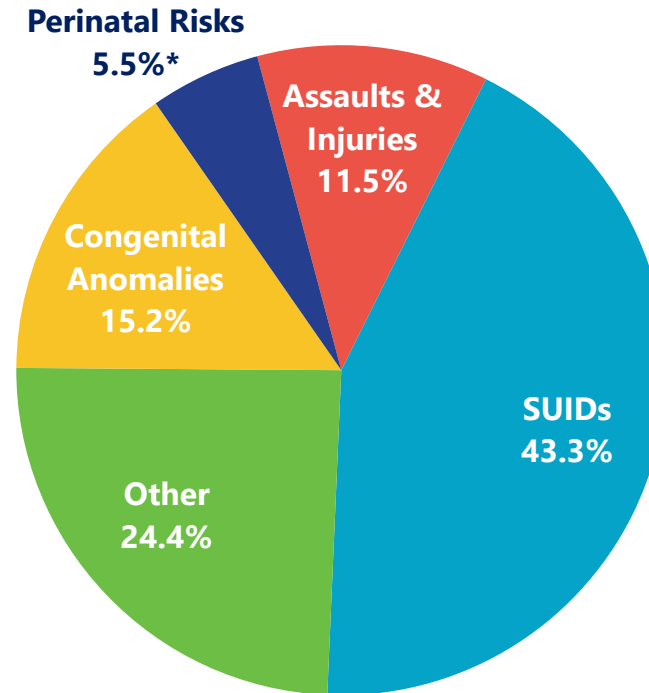
Causes of Infant Mortality by Age

Indiana 2019

Neonatal



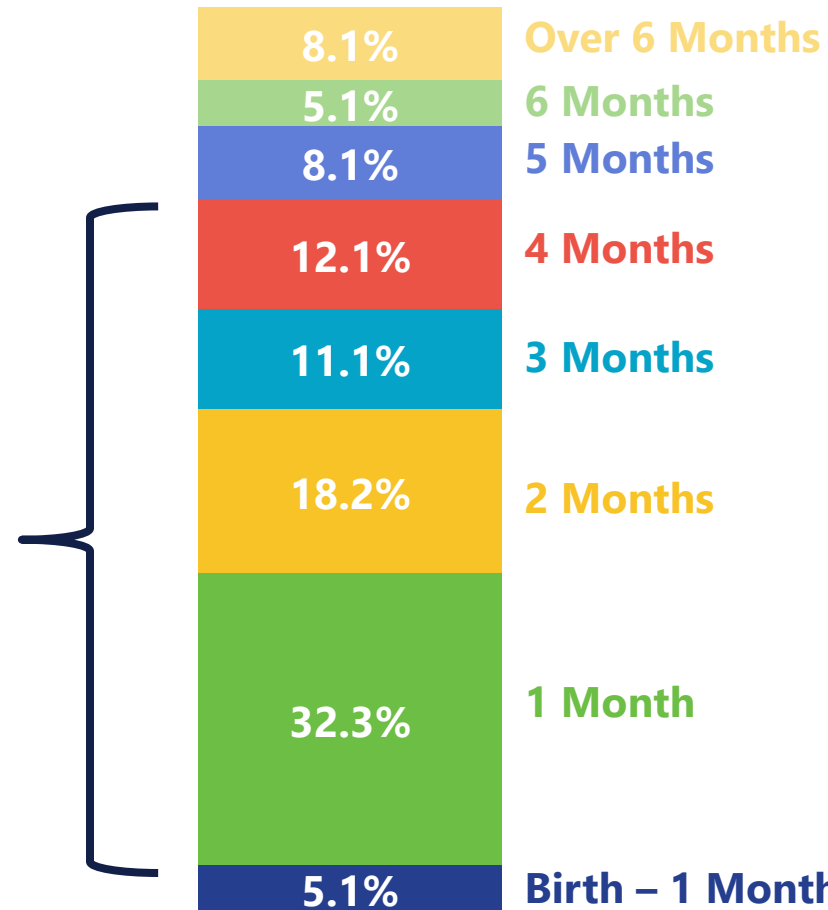
Post - Neonatal



2019 SUIDs by Age of the Baby

73.7%

**of Indiana SUIDs
occurred between
1 month and 5 months**



Time-specific percentages may not add up to 100% overall due to rounding.



Contributing Factors to Infant Mortality

Factors Contributing to Infant Mortality, Indiana 2019

- **Obesity**

- Indiana is 15th (tied with Nebraska) most obese state in U.S. (34.1% of adults).
- 33.0% of Indiana births in 2019 were to women who have obesity (additional 26.1% overweight).
- Women who have obesity have an increased risk of preterm birth (11.2% of Indiana births to women who have obesity were preterm compared to 8.9% of births to women in normal BMI range).

- **Smoking**

- 11.8% of mothers smoke during pregnancy.
- 21.1% of mothers on Medicaid smoke (6.0% of mothers not on Medicaid smoke).

- **Limited Prenatal Care**

- Only 68.9% of mothers receive prenatal care during the 1st trimester.

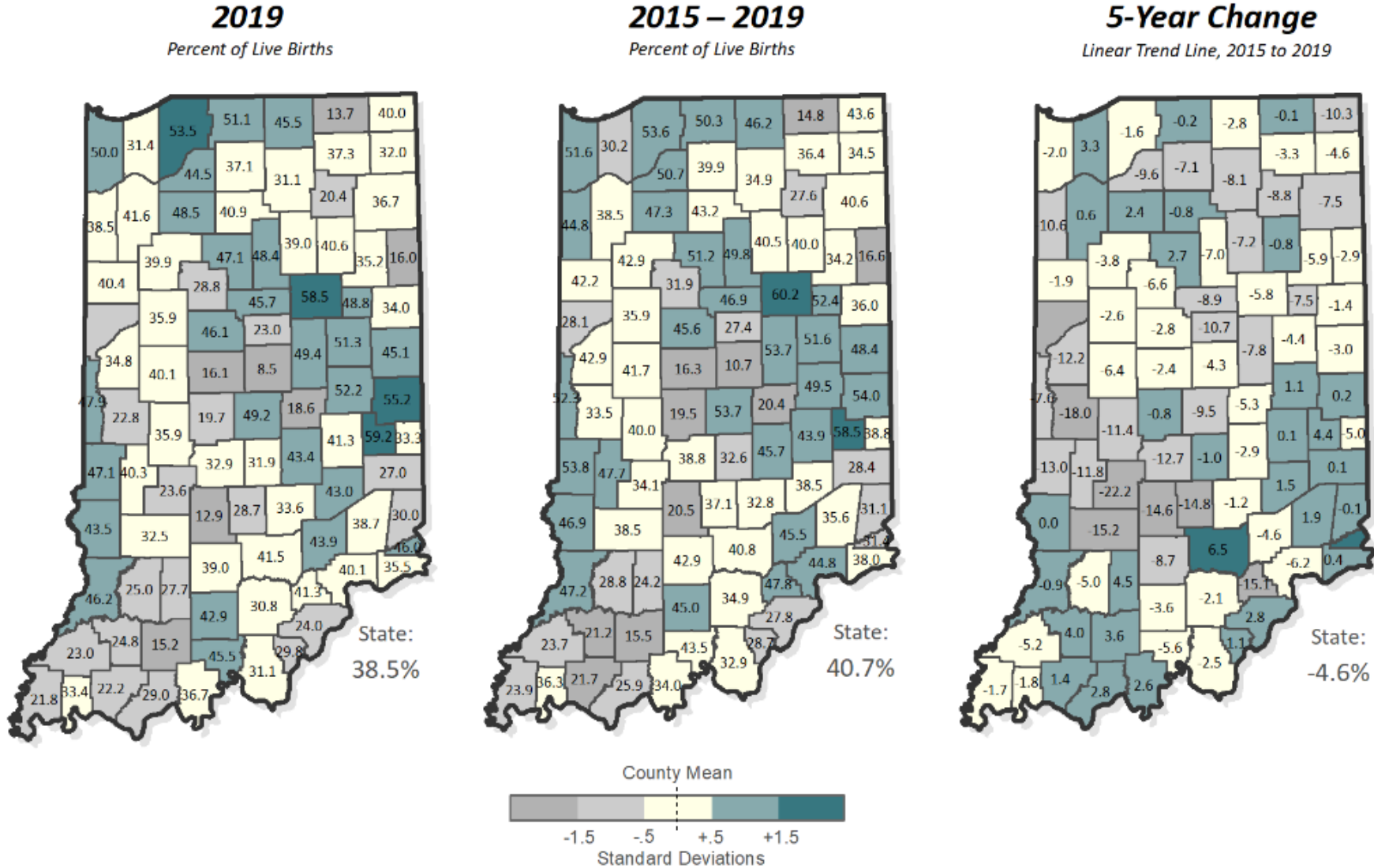
- **Unsafe Sleep Practices**

- 18.9% of infant deaths in 2019 can be attributed to SUIDs.

Self-Reported Demographics of Mothers, Indiana 2019

- **Average Age** = 28.0 years (Range: 13 - 58)
- **Education**
 - 15.0% of mothers have less than a high school diploma.
 - 29.7% of mothers have a high school diploma or GED.
 - 19.0% of mothers have some college education, but no degree.
 - 36.1% of mothers have an associate's degree or higher.
- **Income** – 38.5% of births to women on Medicaid (Medicaid reports ~44.4%).
- **Marital Status** – 55.5% of mothers were married.
- **First-time mothers** = 36.3% of births

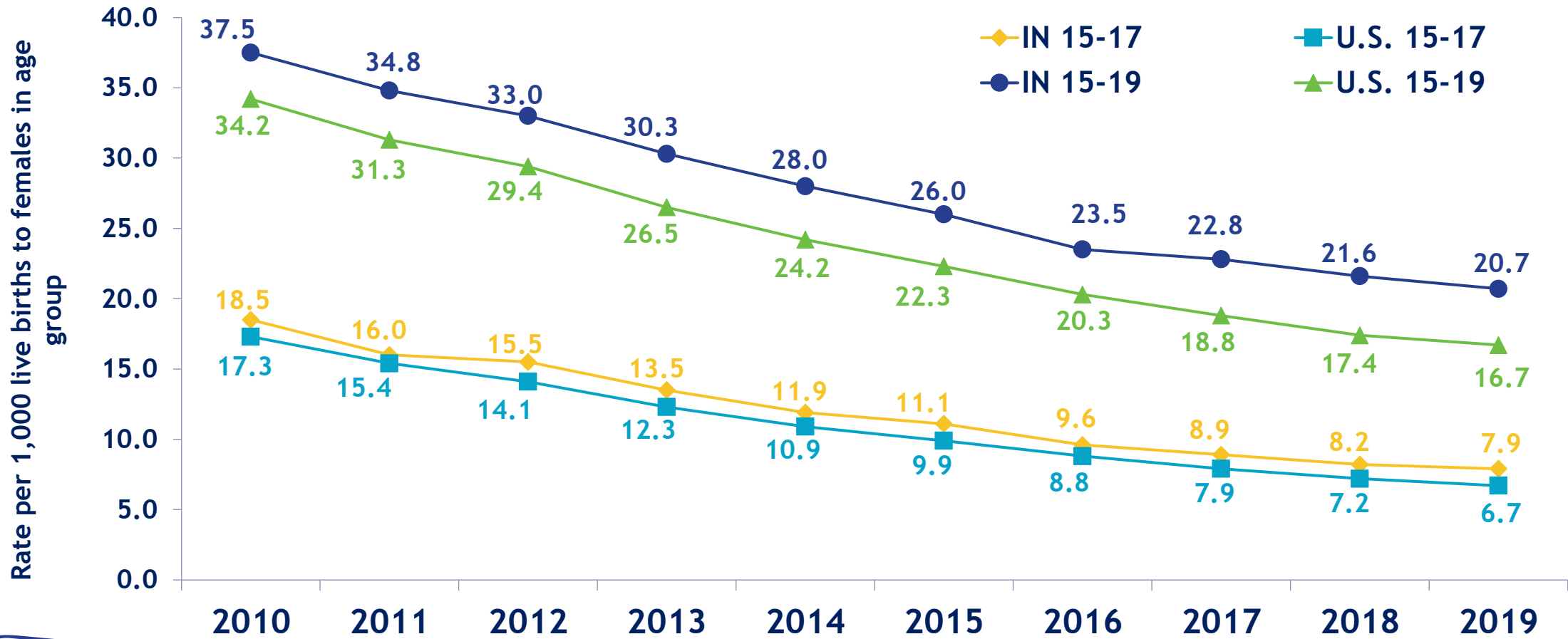
Births to Mothers on Medicaid



Only stable county percentages are labeled (≥ 20 events). Counties with less than 5 events are suppressed.

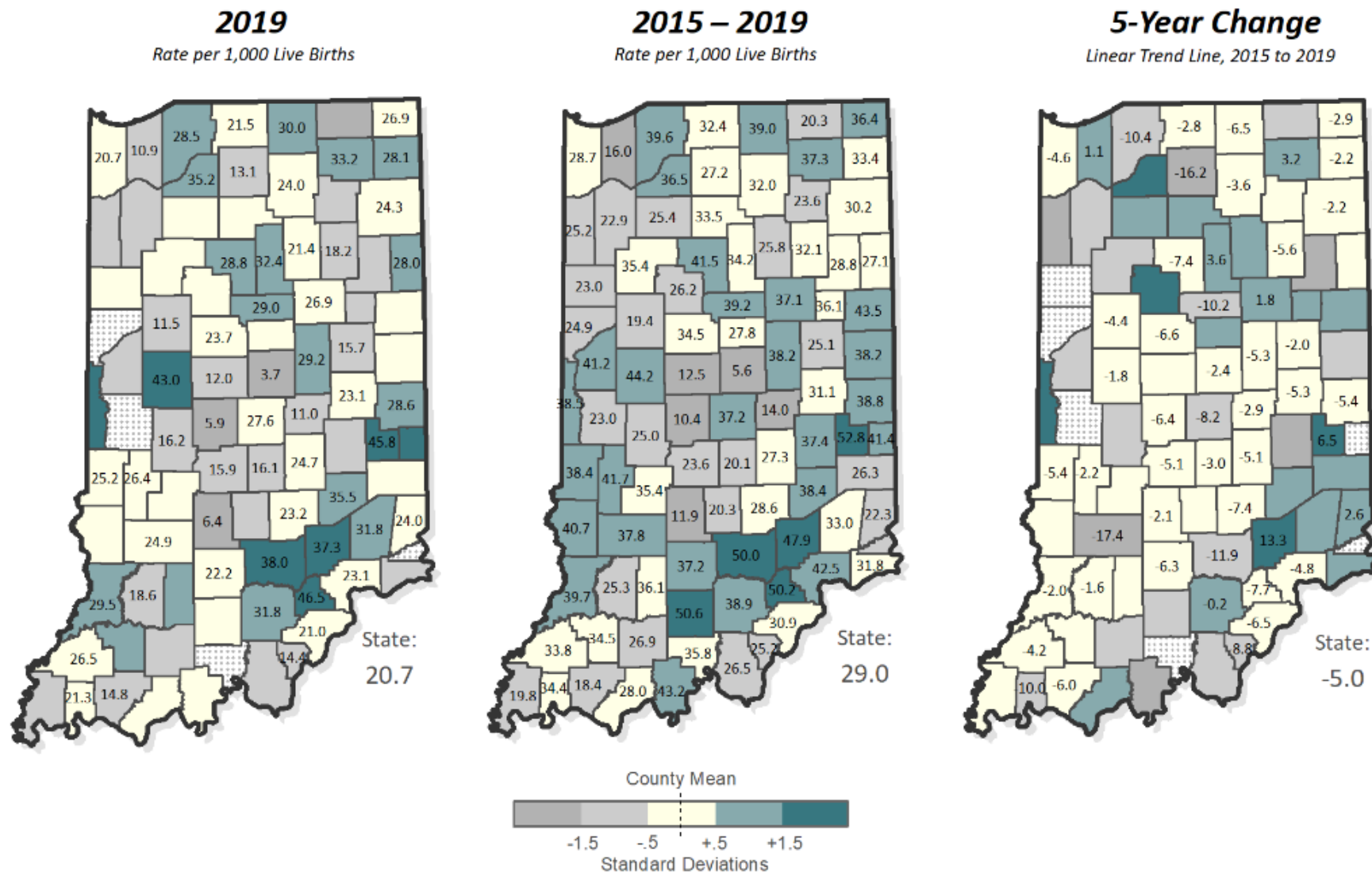
Data Source: IDOH MCH, ODA DAT, VR | Map Author: IDOH ODA PHG, 01.01.21

Age-Specific Birth Rates for Teen Mothers, Indiana and U.S., 2010-2019



Source: Indiana Department of Health, Maternal & Child Health Epidemiology Division [March 23, 2021]
 Original Source: Indiana Department of Health, Vital Records, ODA, Data Analysis Team

Teen Births - Mothers Aged 15 to 19



Only stable county percentages are labeled (≥ 20 events). Counties with less than 5 events are suppressed. [grid icon]

Data Source: IDOH MCH, ODA DAT, VR | Map Author: IDOH ODA PHG, 01.01.21



Birth Outcomes

Indiana Birth Outcomes

	2018	2019
Preterm (< 37 weeks gestation)	10.2%	10.1%
Low Birthweight (< 2500 g)	8.1%	8.2%
Very Low Birthweight (< 1500 g)	1.4%	1.3%
Not Breastfeeding (at discharge)	18.1%	18.0%
No Early Prenatal Care (1 st Trimester)	31.9%	31.1%
Smoking during Pregnancy	11.5%	11.8%
Mothers on Medicaid	39.2%	38.5%
Teen Pregnancy	5.9%	5.7%

2019 percentages are significantly different than 2018 at 0.05 level.



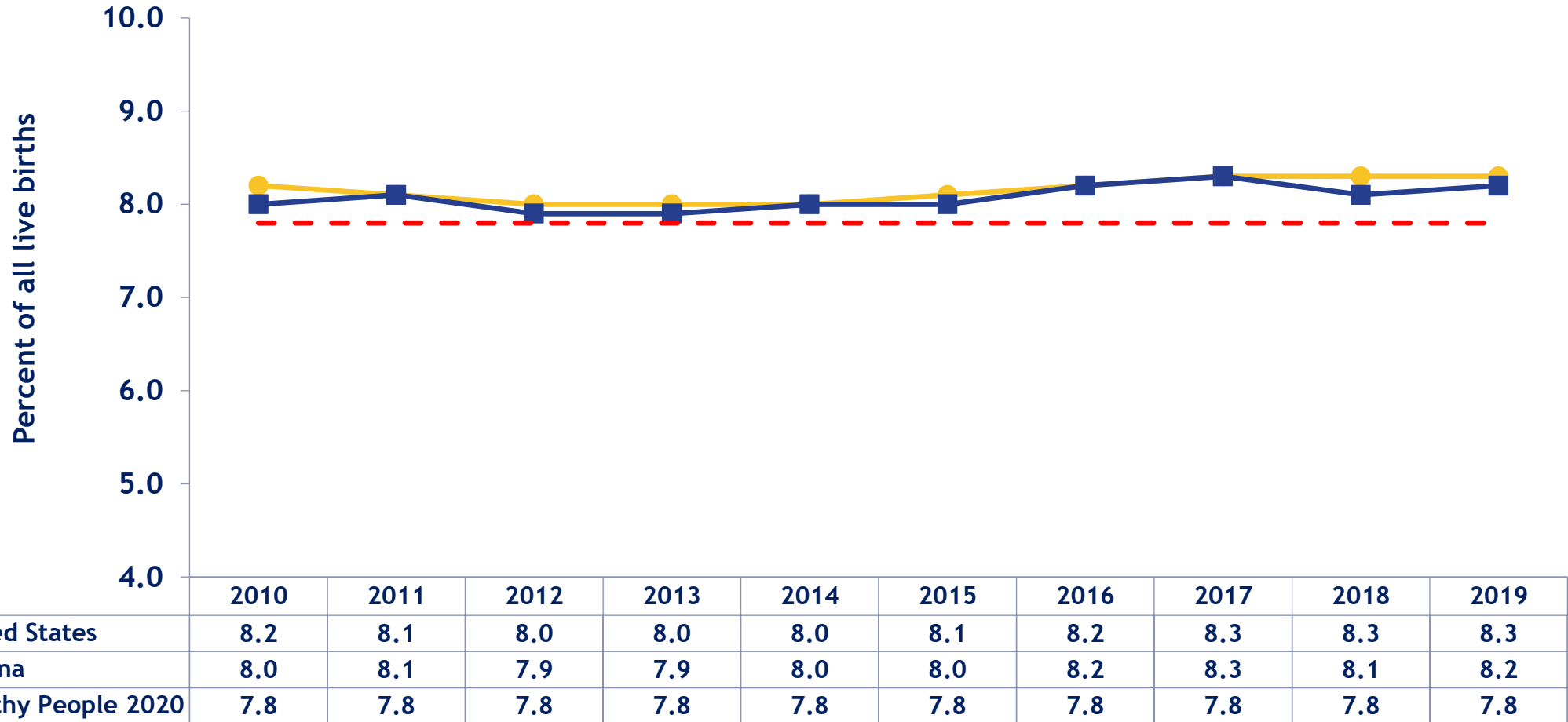
Source: Indiana Department of Health, Maternal & Child Health Epidemiology Division [October 20, 2020]
 Original Source: Indiana Department of Health, Vital Records, ODA, Data Analysis Team

2019 Birth Outcomes by Race/Ethnicity

	Indiana	Non-Hispanic Black	Non-Hispanic White	Hispanic
Preterm (< 37 weeks gestation)	10.1%	13.0%	9.4%	9.8%
Low Birthweight (< 2500 g)	8.2%	13.3%	7.1%	7.3%
Very Low Birthweight (< 1500 g)	1.3%	2.4%	1.1%	1.2%
Not Breastfeeding (at discharge)	18.0%	26.1%	16.8%	15.2%
No Early Prenatal Care (1 st Trimester)	31.1%	45.0%	26.3%	44.9%
Smoking during Pregnancy	11.8%	9.0%	14.1%	3.2%
Mothers on Medicaid	38.5%	62.8%	30.8%	63.4%
Teen Pregnancy	5.7%	8.6%	5.0%	8.8%

% Low Birthweight (< 2,500 grams)

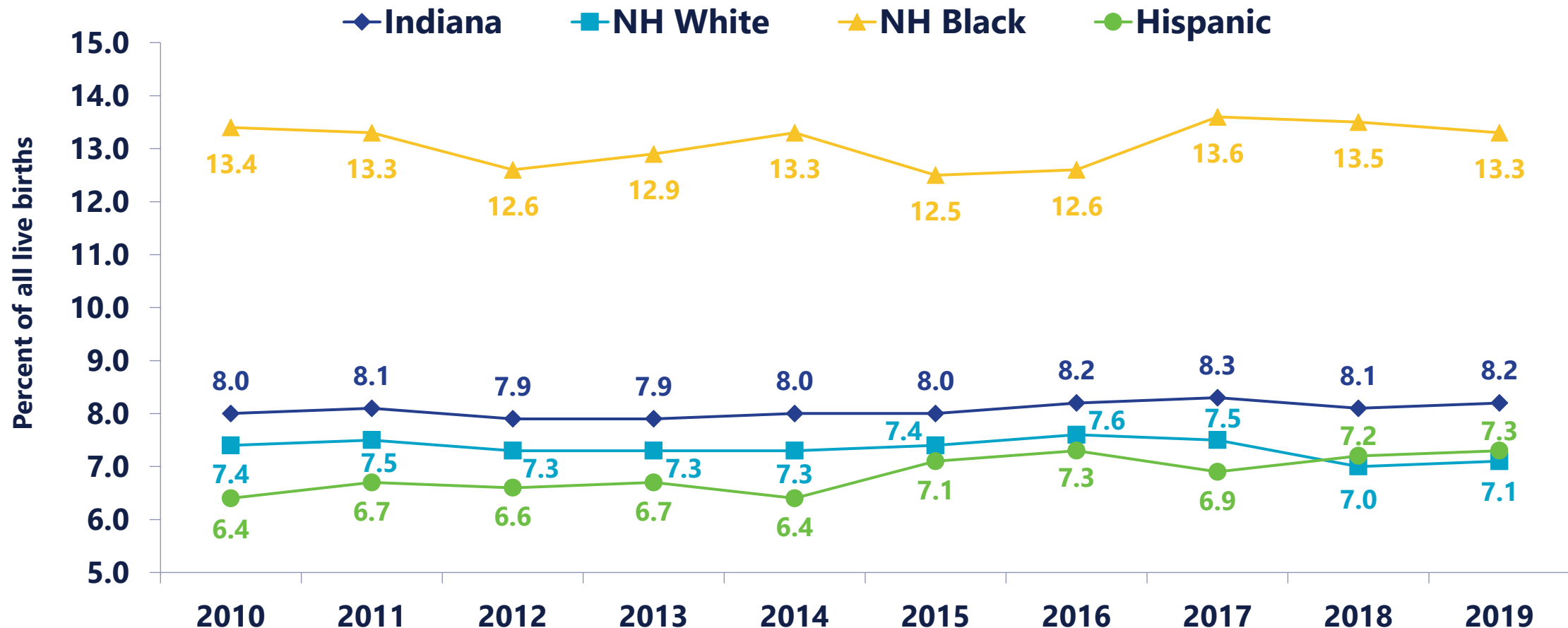
Indiana, U.S. and Healthy People 2020 Goal, 2010-2019



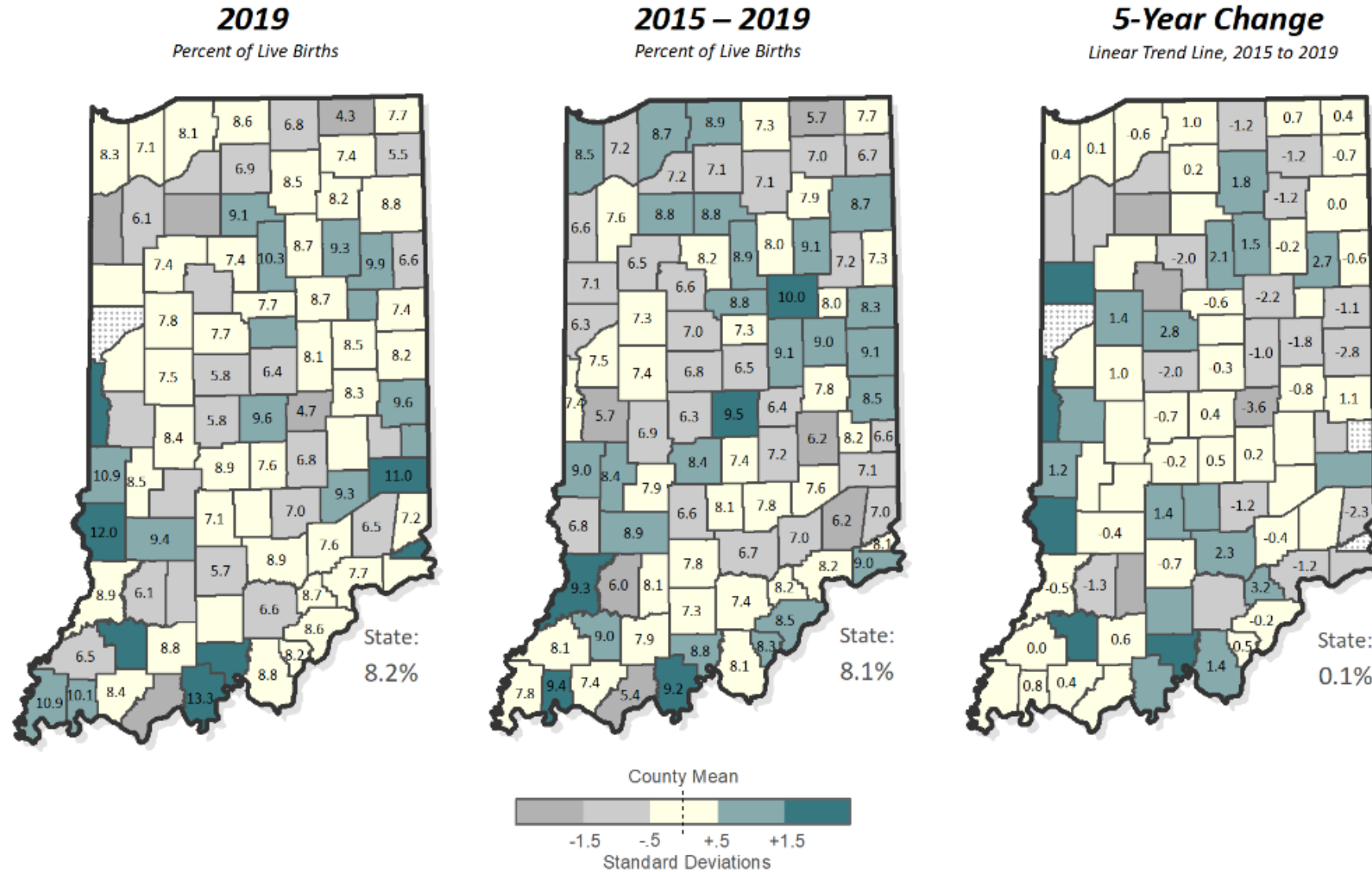
Source: Indiana Department of Health, Maternal & Child Health Epidemiology Division [March 23, 2021]
 United States Original: Centers for Disease Control and Prevention National Center for Health Statistics
 Indiana Original Source: Indiana Department of Health, Vital Records, ODA, Data Analysis Team

% Low Birthweight (< 2,500 grams)

Indiana by Race and Ethnicity, 2010-2019



Low Birth Weight Births

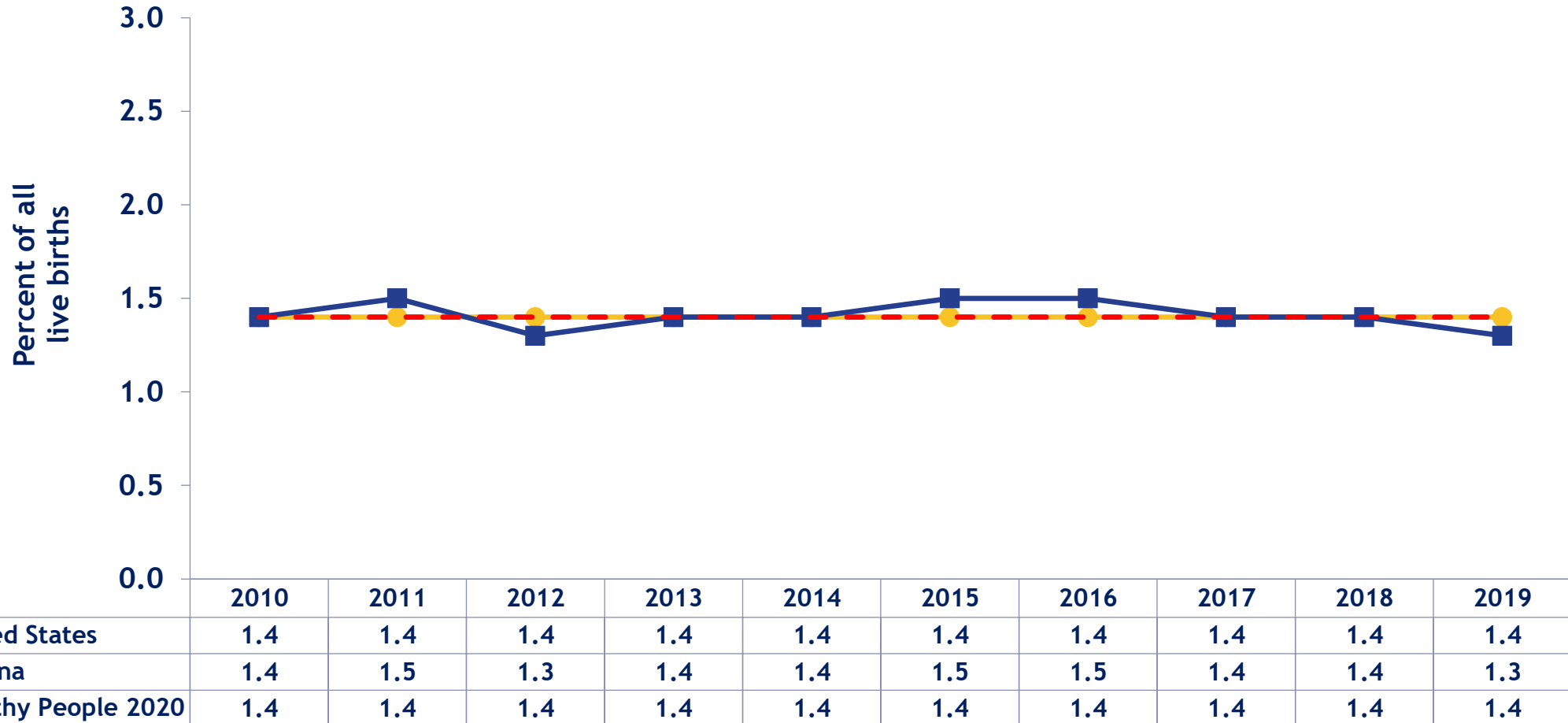


Only stable county percentages are labeled (≥ 20 events). Counties with less than 5 events are suppressed. [grid icon]

Data Source: IDOH MCH, ODA DAT, VR | Map Author: IDOH ODA PHG, 01.01.21

% Very Low Birthweight (< 1,500 grams)

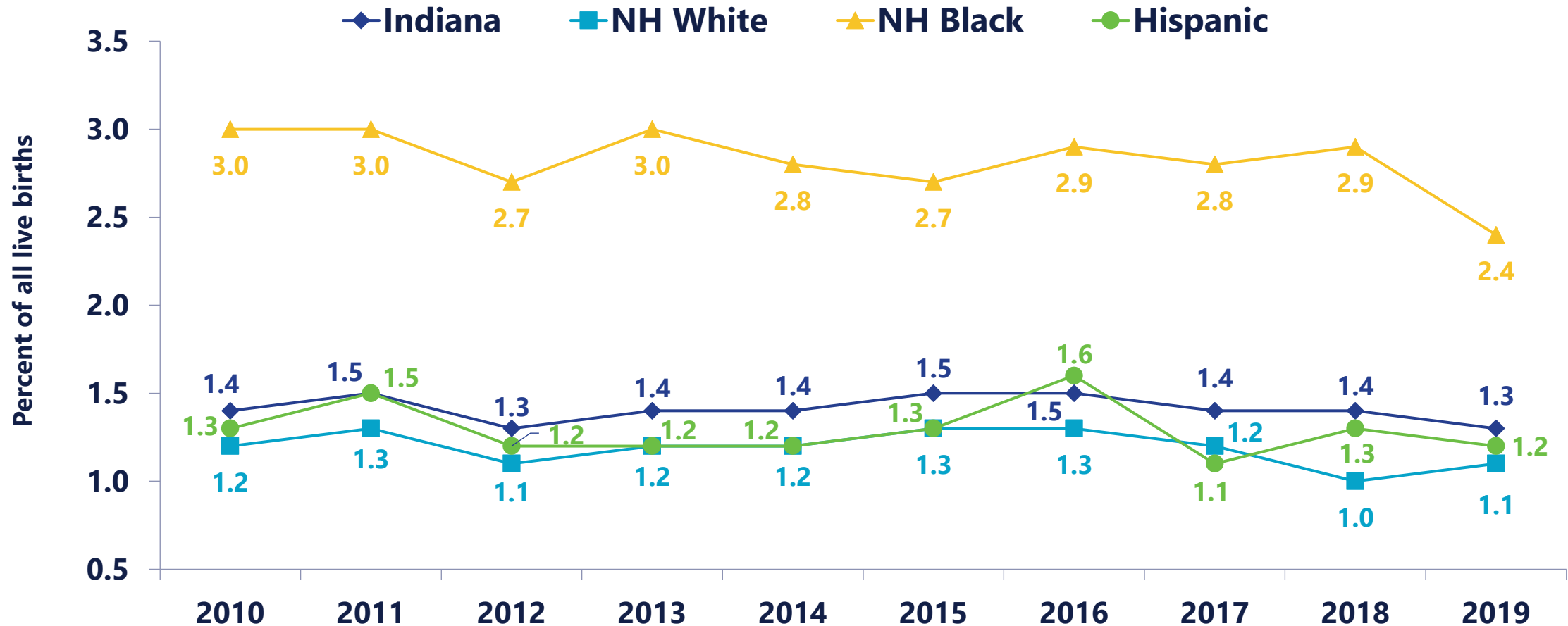
Indiana, U.S. and Healthy People 2020 Goal, 2010-2019



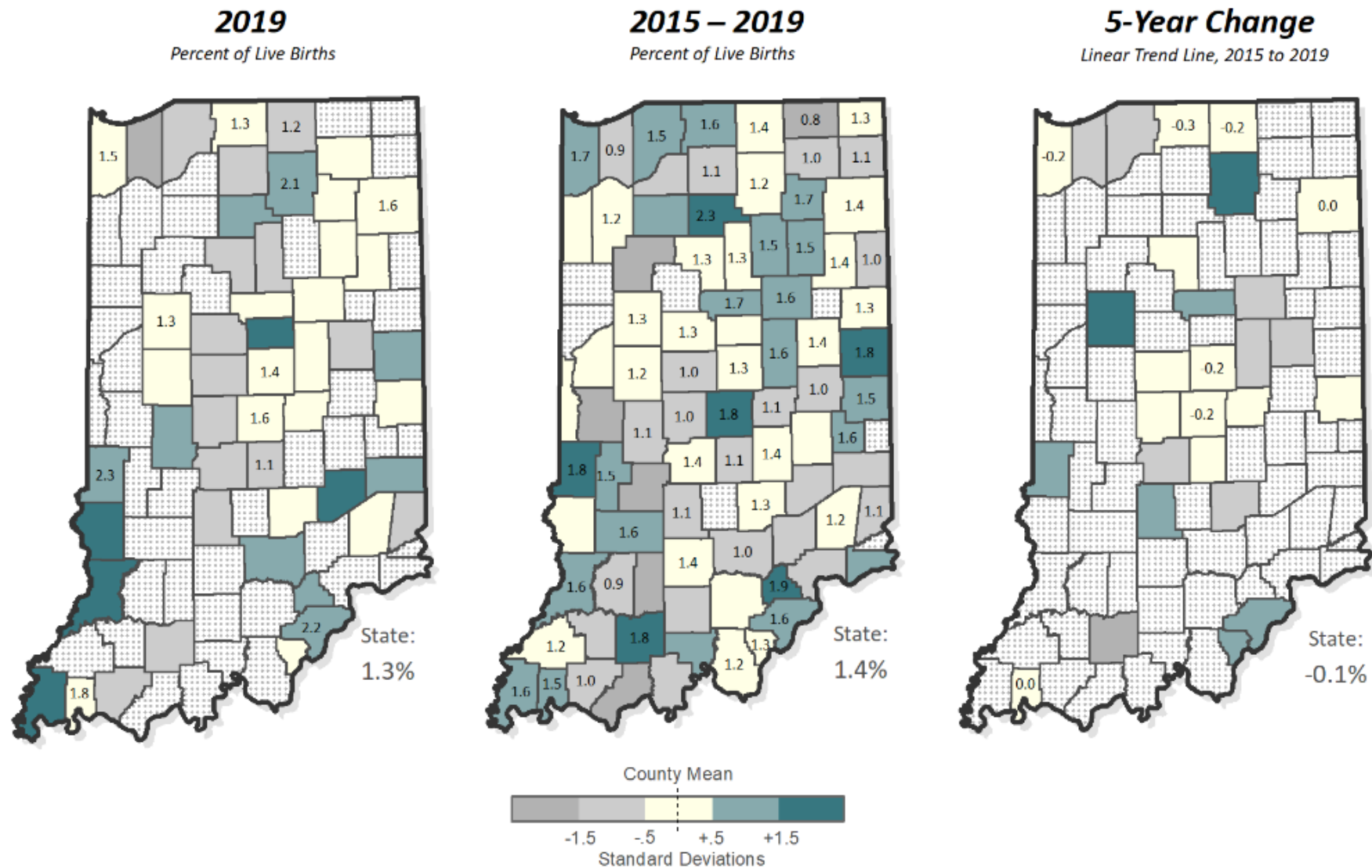
Source: Indiana Department of Health, Maternal & Child Health Epidemiology Division [March 23, 2021]
 United States Original: Centers for Disease Control and Prevention National Center for Health Statistics
 Indiana Original Source: Indiana Department of Health, Vital Records, ODA, Data Analysis Team


% Very Low Birthweight (< 1,500 grams)

Indiana by Race and Ethnicity, 2010-2019



Very Low Birth Weight Births

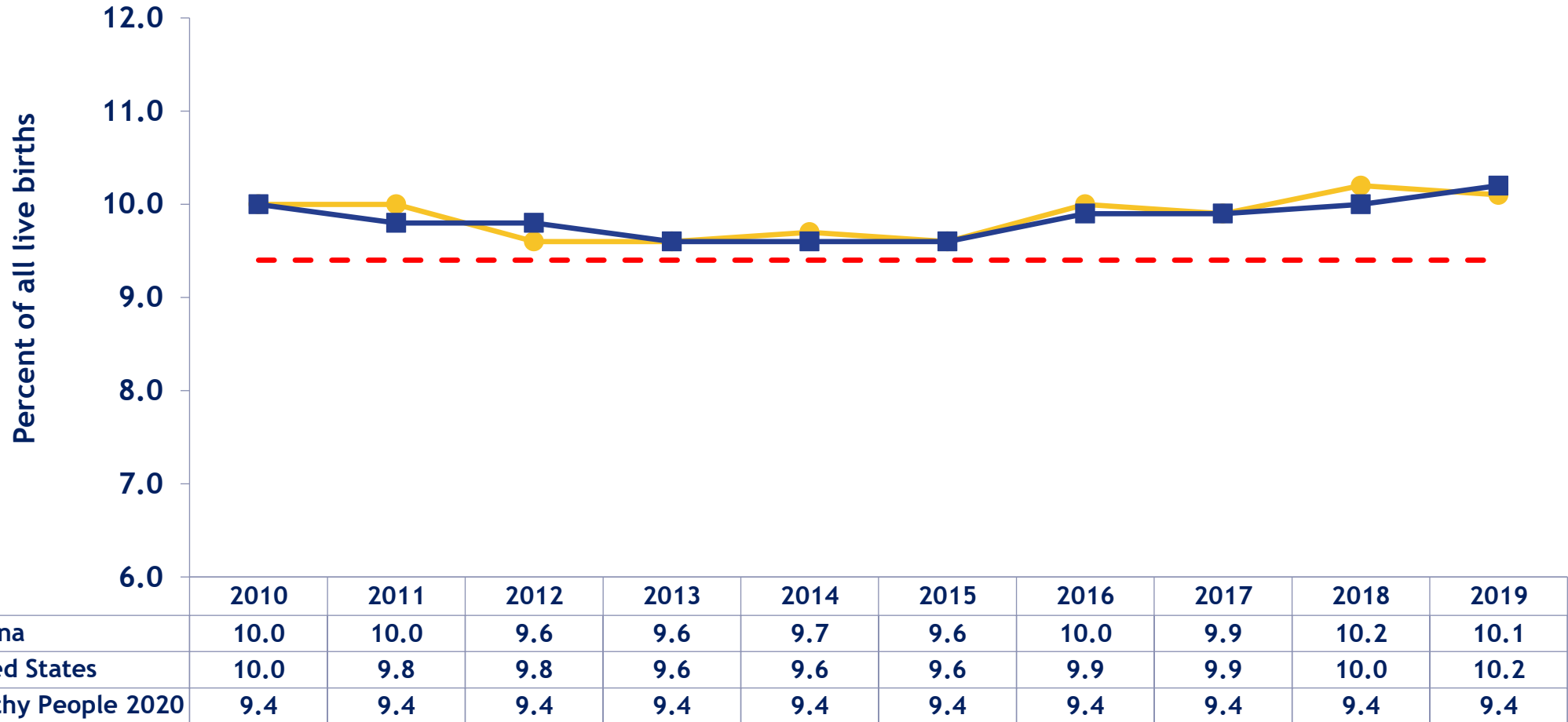


Only stable county percentages are labeled (≥ 20 events). Counties with less than 5 events are suppressed. 

Data Source: IDOH MCH, ODA DAT, VR | Map Author: IDOH ODA PHG, 01.01.21

% Preterm (Obstetric Estimate < 37 weeks)

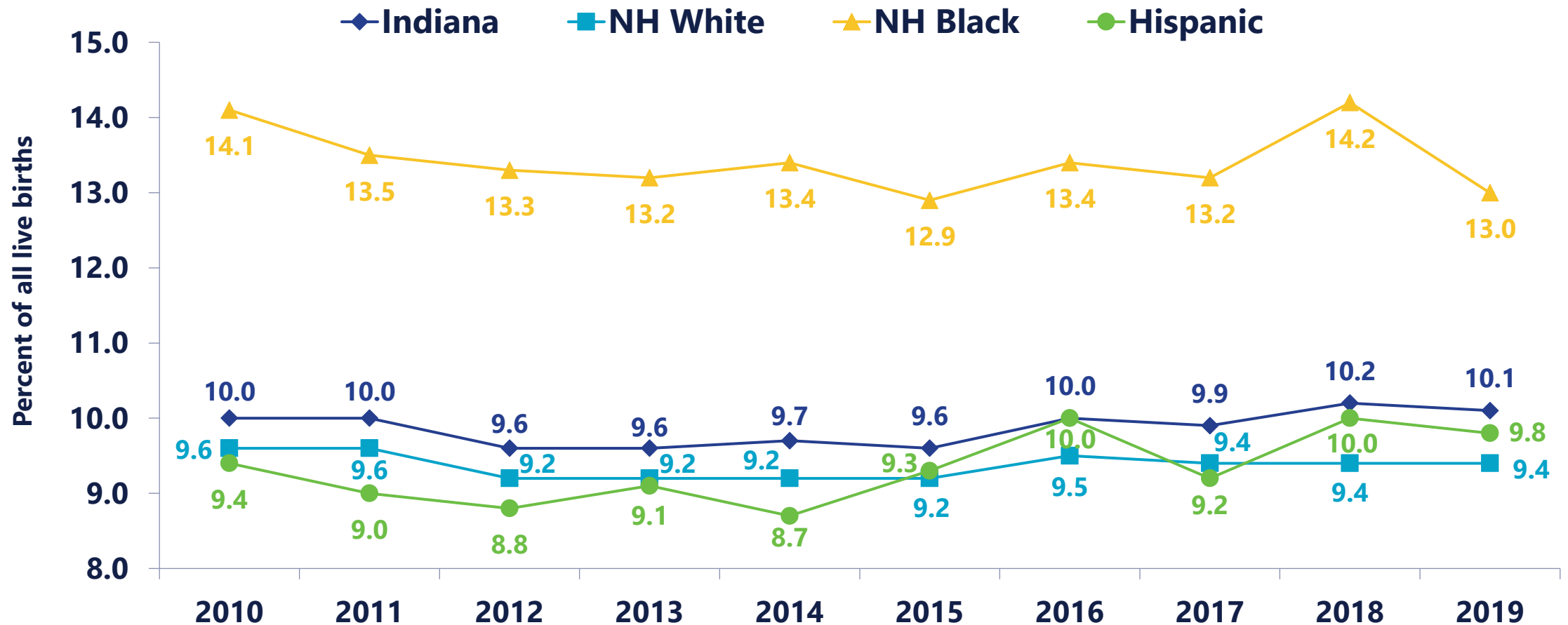
Indiana and U.S., 2010-2019



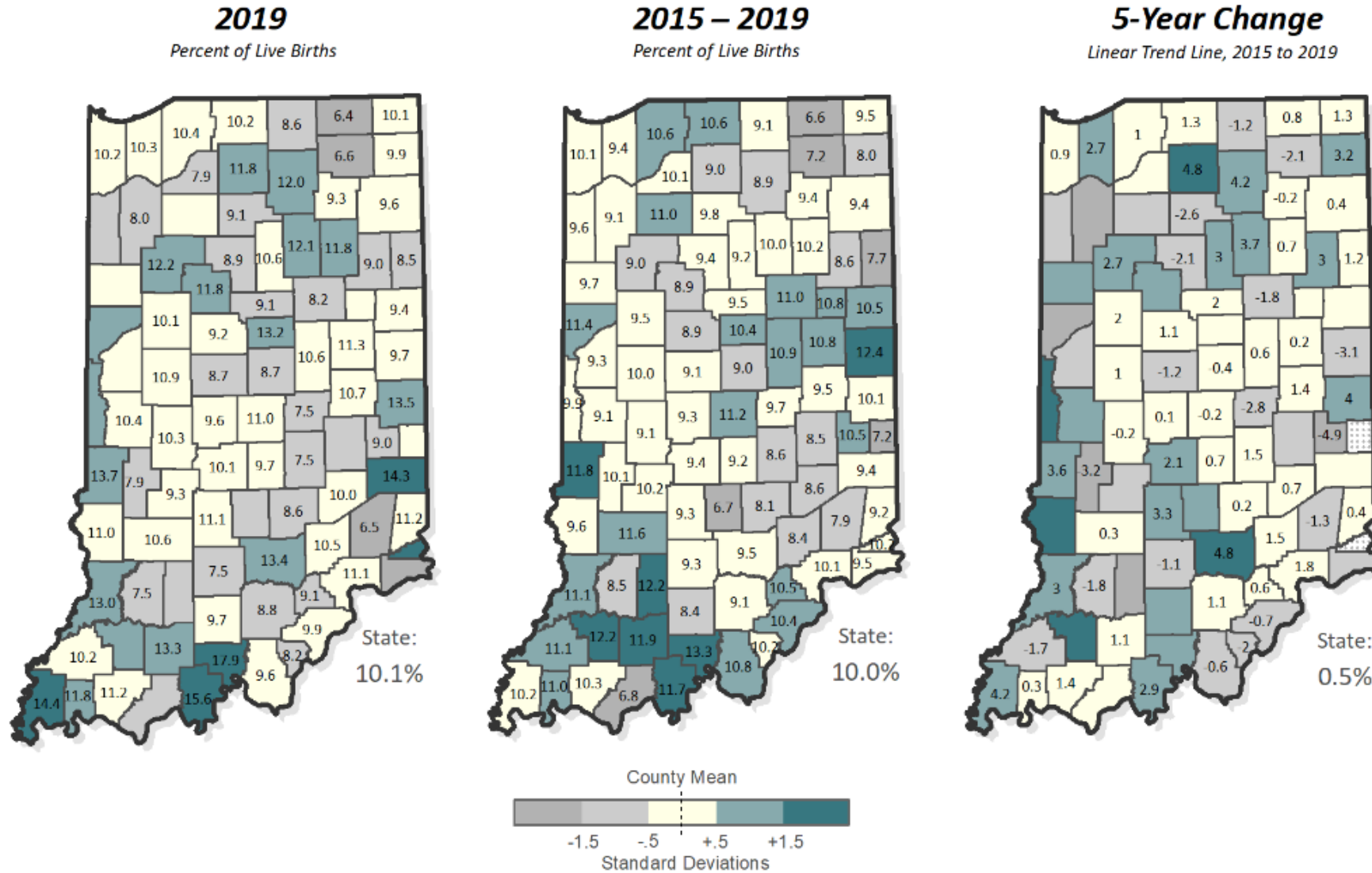
Source: Indiana Department of Health, Maternal & Child Health Epidemiology Division [December 21, 2020]
 United States Original: Centers for Disease Control and Prevention National Center for Health Statistics
 Indiana Original Source: Indiana Department of Health, Vital Records, ODA, Data Analysis Team


% Preterm (Obstetric Estimate < 37 weeks)

Indiana by Race and Ethnicity, 2010-2019



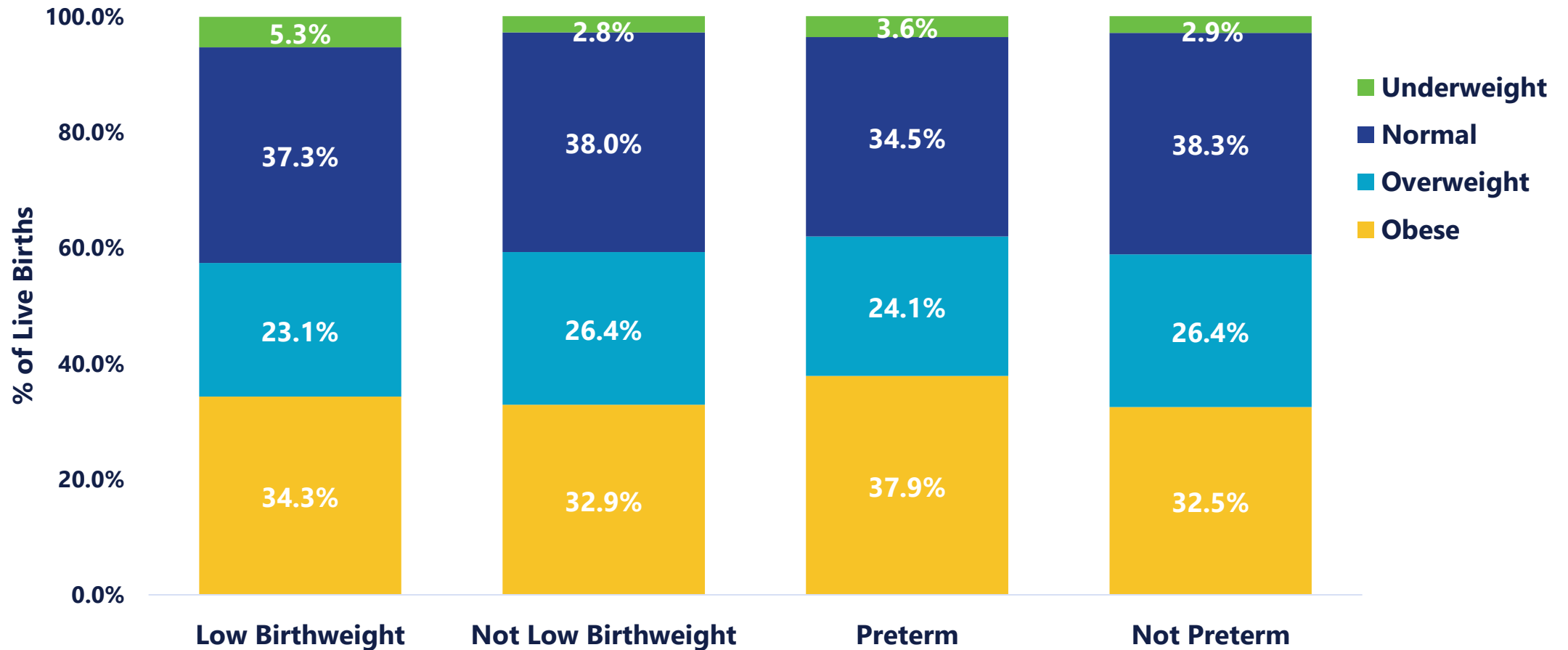
Preterm Births



Only stable county percentages are labeled (≥ 20 events). Counties with less than 5 events are suppressed. 

Data Source: IDOH MCH, ODA DAT, VR | Map Author: IDOH ODA PHG, 01.01.21

Low Birthweight and Preterm by BMI, Indiana 2019

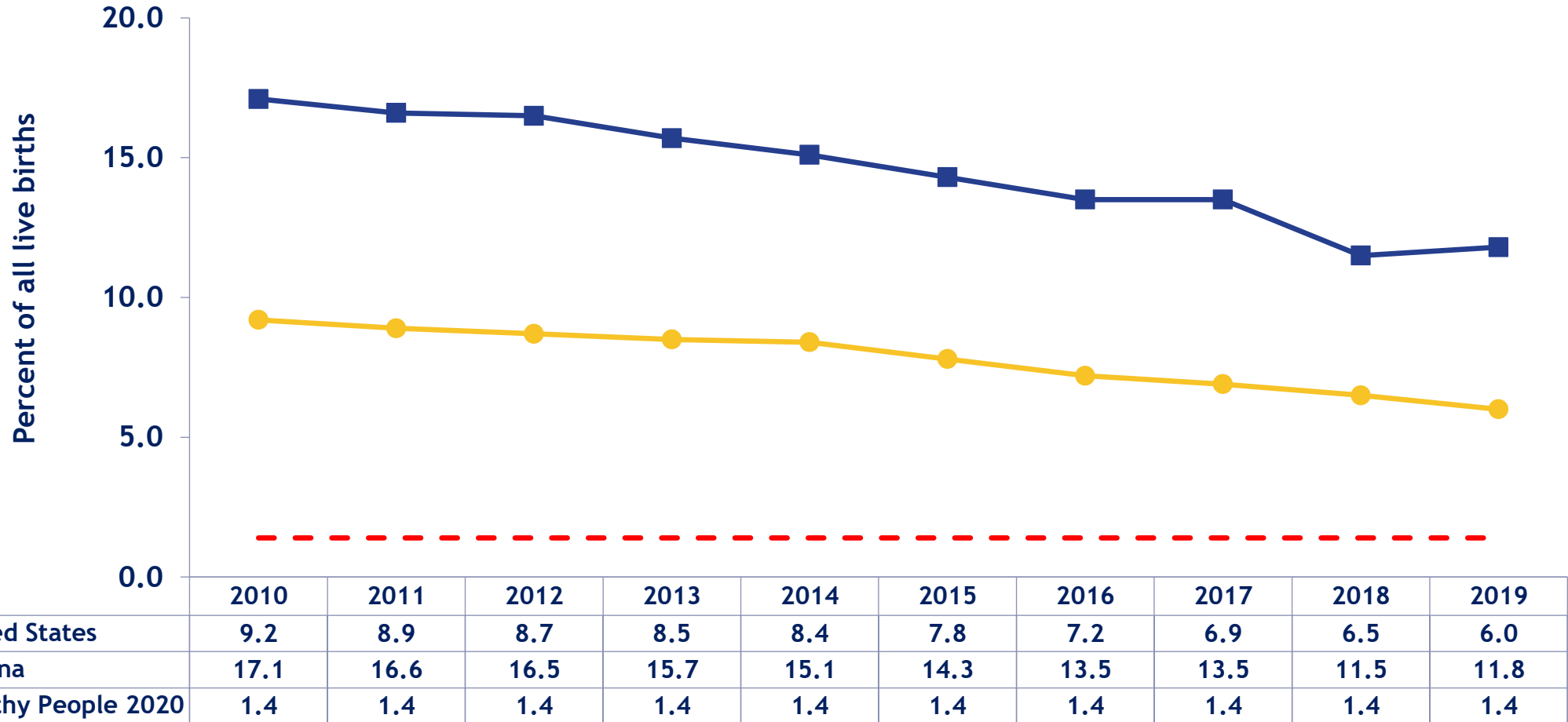


Low Birthweight = < 2,500 grams Preterm = Gestation < 37 weeks



% Women Smoking During Pregnancy

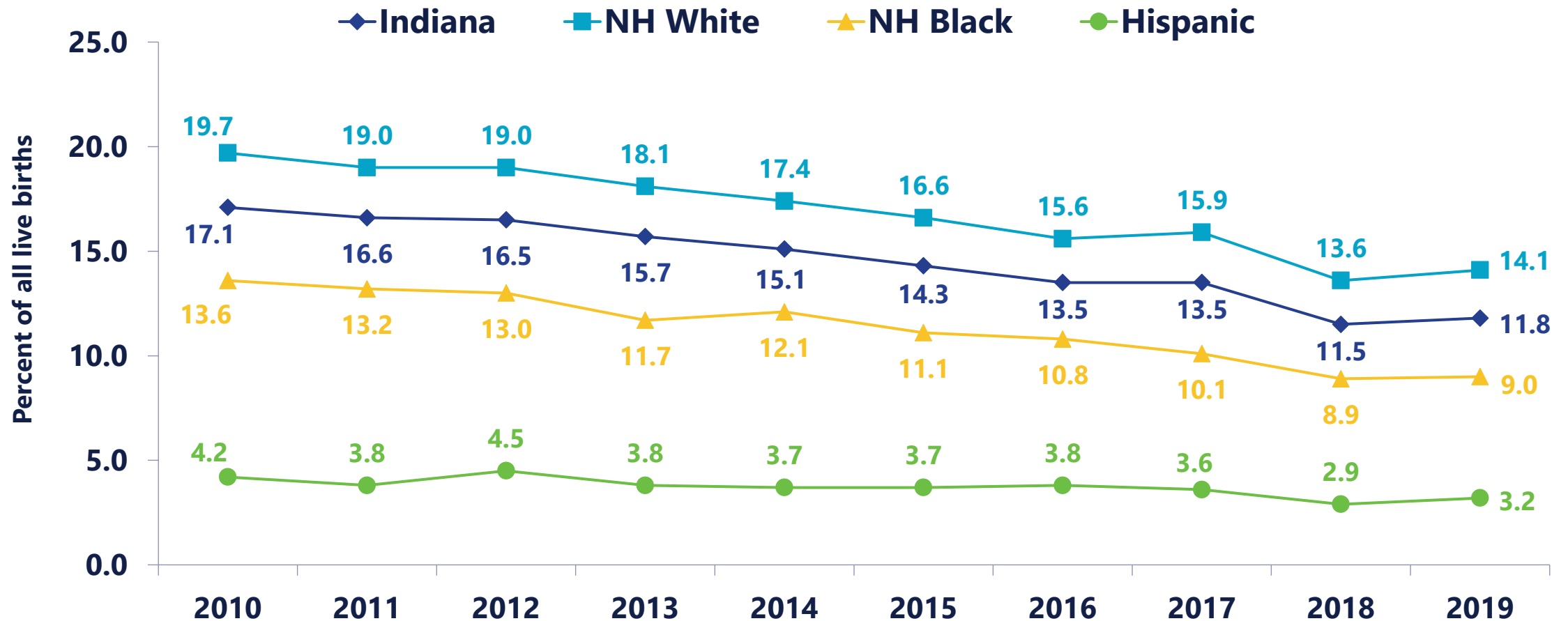
Indiana, U.S. and Healthy People 2020 Goal, 2010-2019



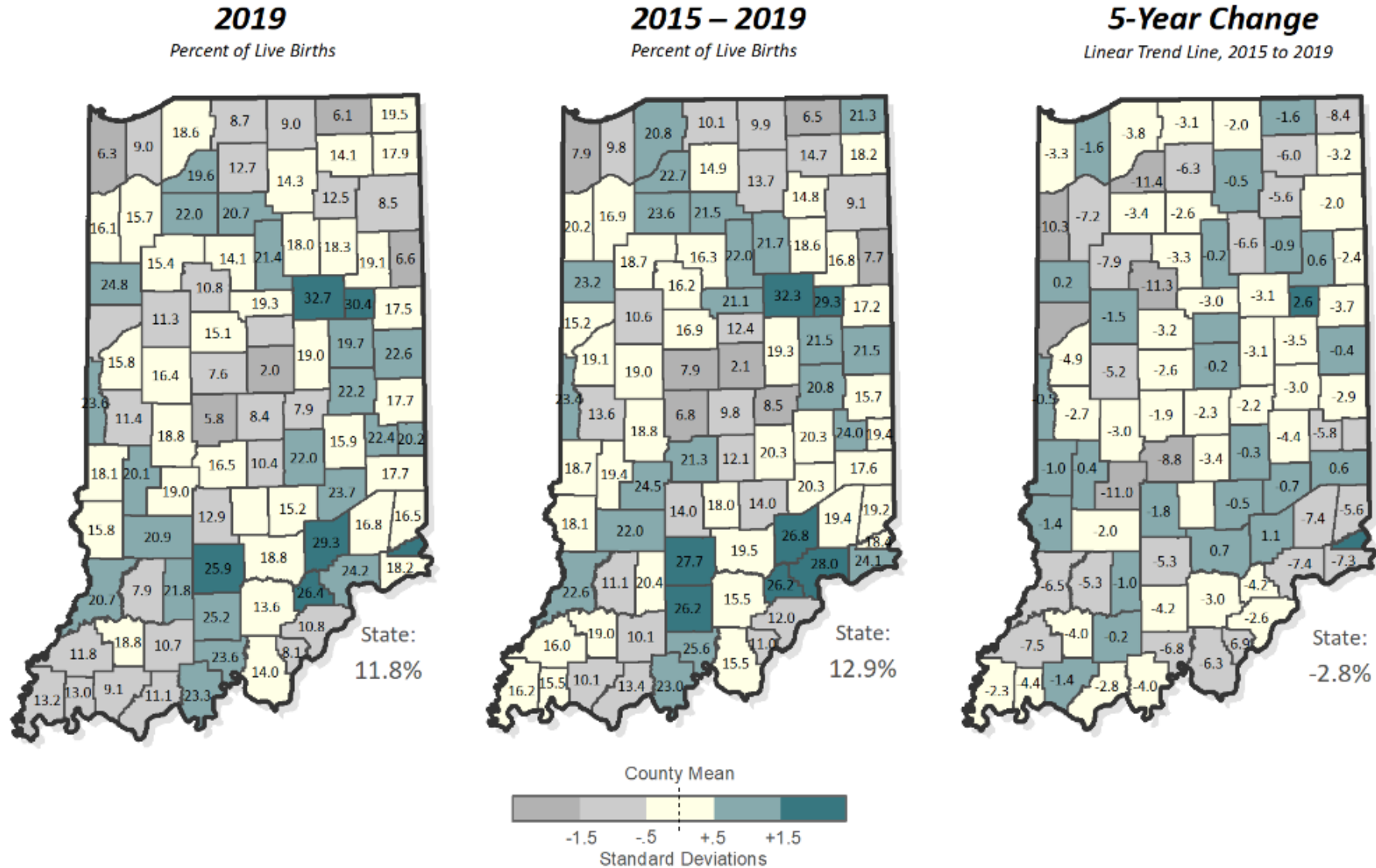
Source: Indiana Department of Health, Maternal & Child Health Epidemiology Division [March 23, 2021]
 United States Original: Centers for Disease Control and Prevention National Center for Health Statistics
 Indiana Original Source: Indiana Department of Health, Vital Records, ODA, Data Analysis Team


% Women Smoking During Pregnancy

Indiana by Race and Ethnicity, 2010-2019



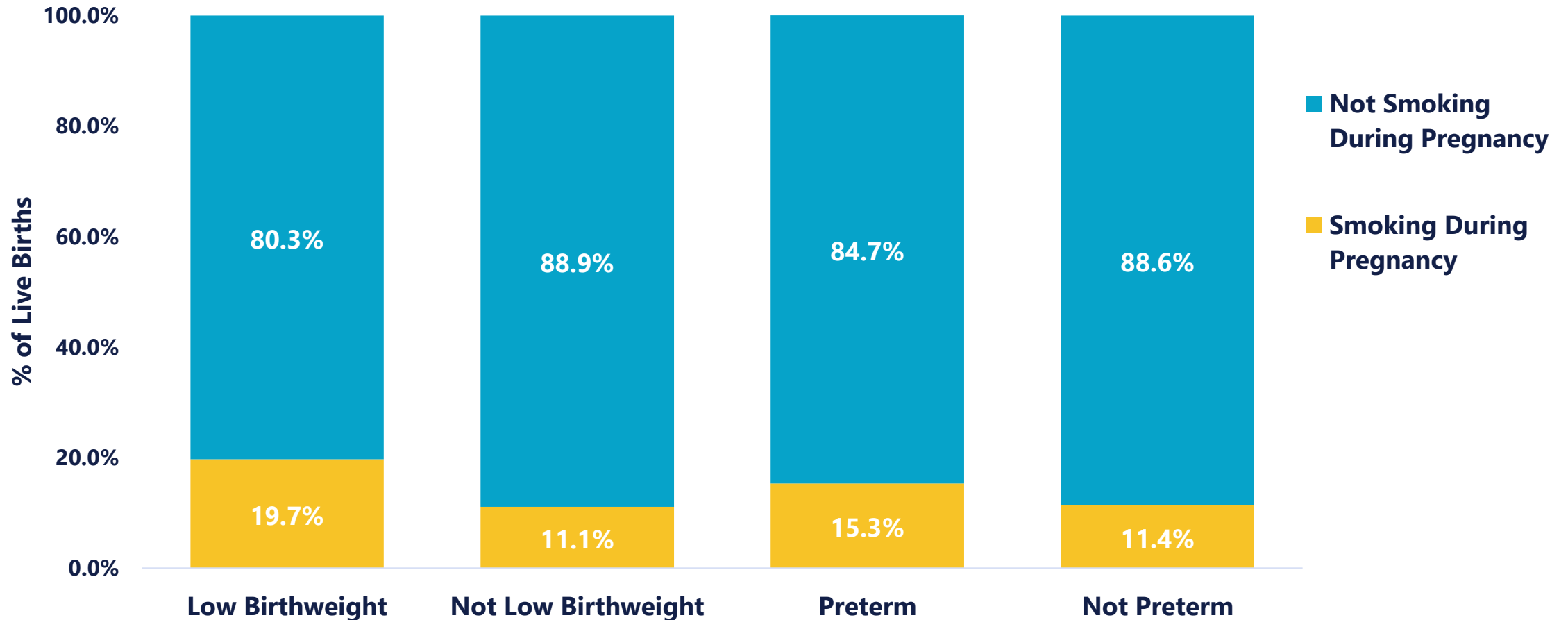
Women Smoking During Pregnancy



Only stable county percentages are labeled (≥ 20 events). Counties with less than 5 events are suppressed. 

Data Source: IDOH MCH, ODA DAT, VR | Map Author: IDOH ODA PHG, 01.01.21

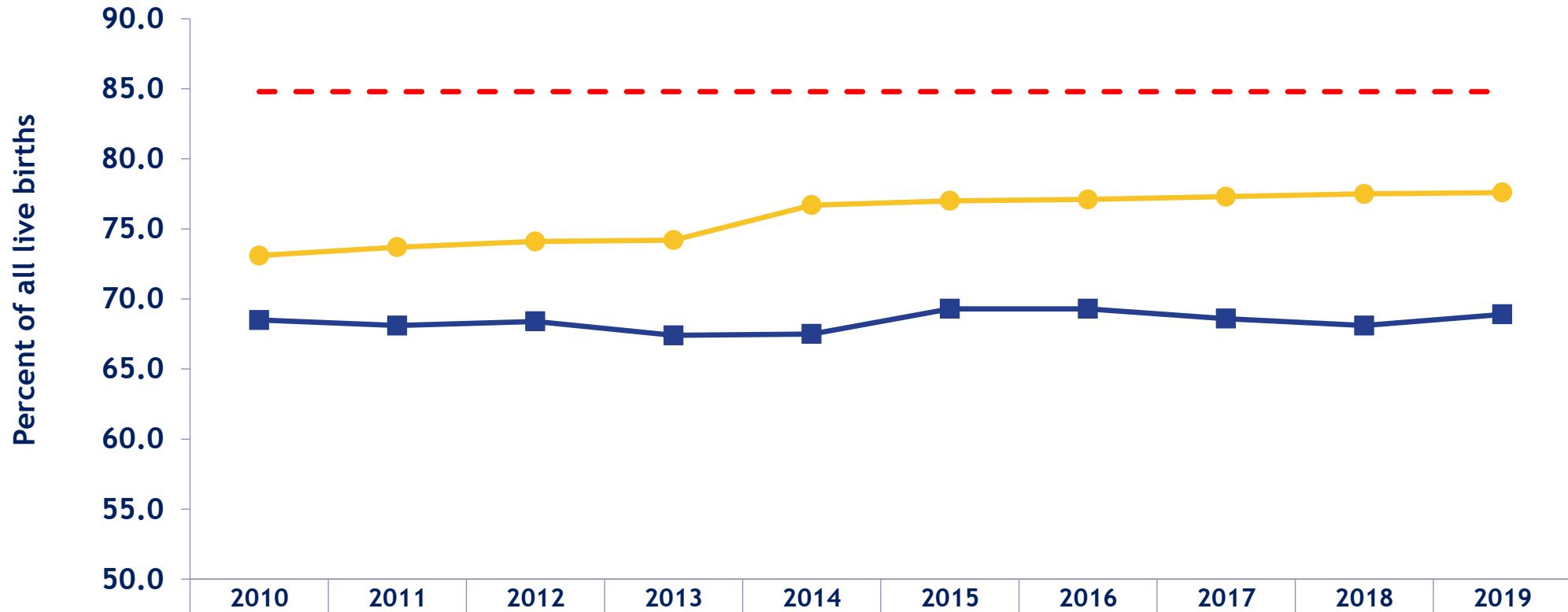
Low Birthweight and Preterm by Smoking Status, Indiana 2019



Low Birthweight = < 2,500 grams Preterm = Gestation < 37 weeks

% Women Receiving PNC 1st Trimester

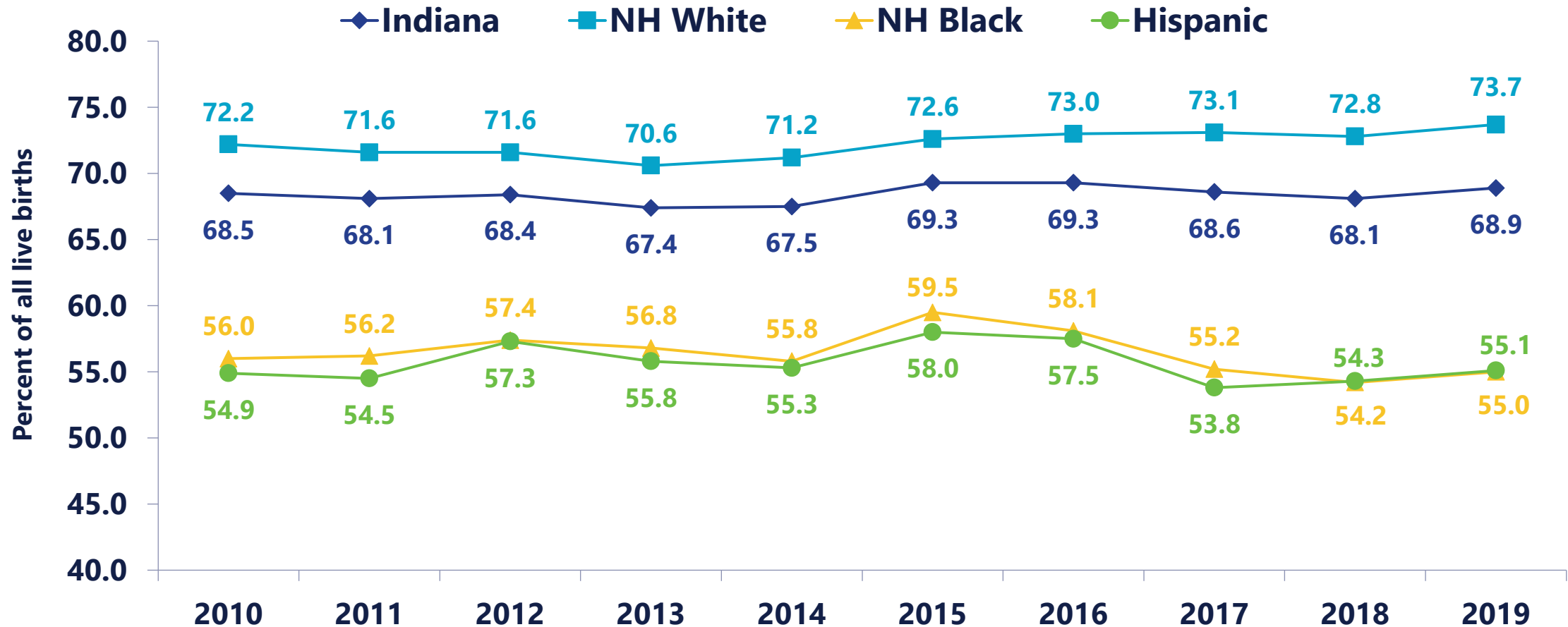
Indiana, U.S. and Healthy People 2020, 2010-2019



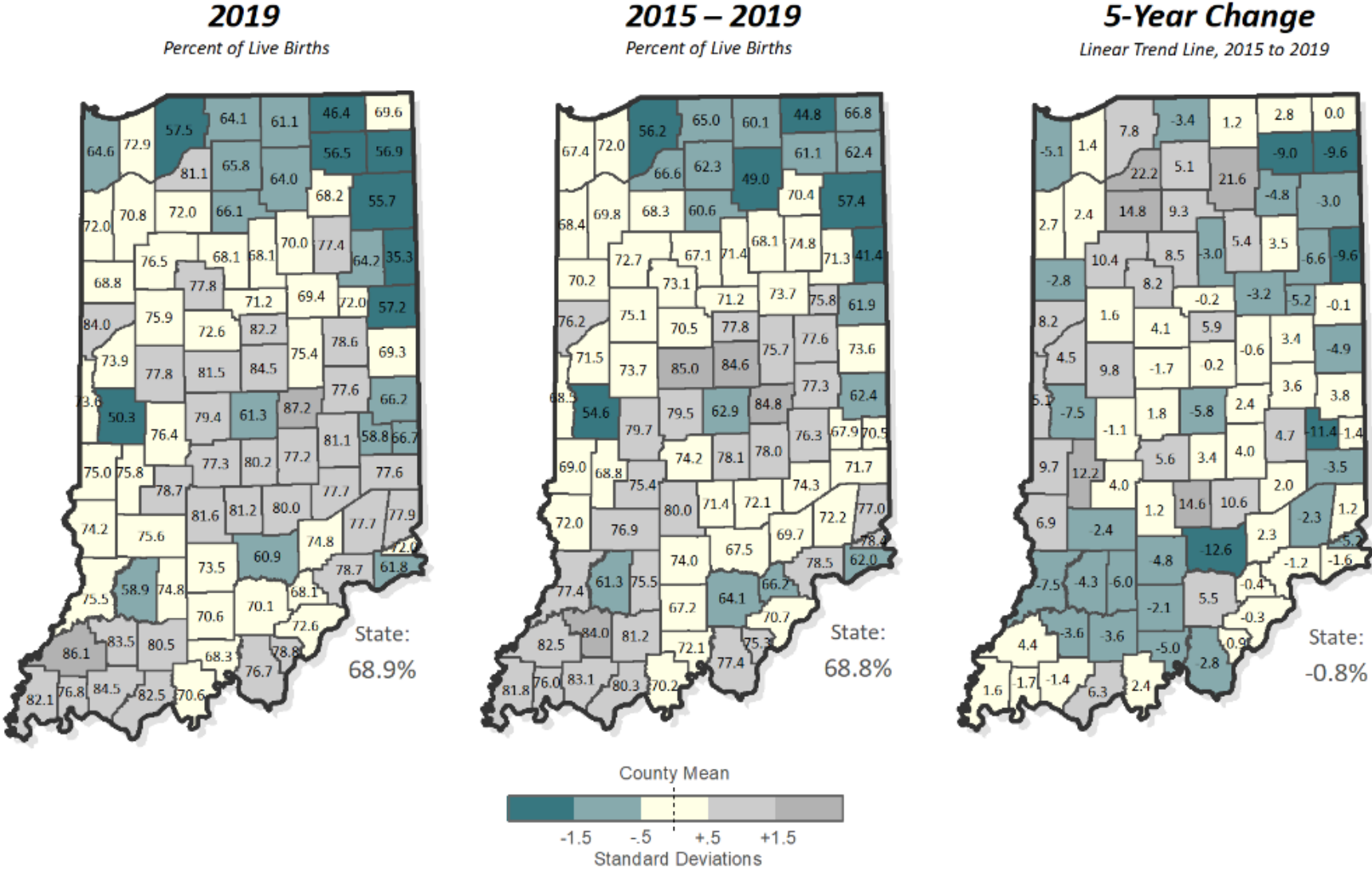
● United States	73.1	73.7	74.1	74.2	76.7	77.0	77.1	77.3	77.5	77.6
■ Indiana	68.5	68.1	68.4	67.4	67.5	69.3	69.3	68.6	68.1	68.9
- - Healthy People 2020	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8



% Women Receiving PNC 1st Trimester Indiana by Race and Ethnicity, 2010-2019



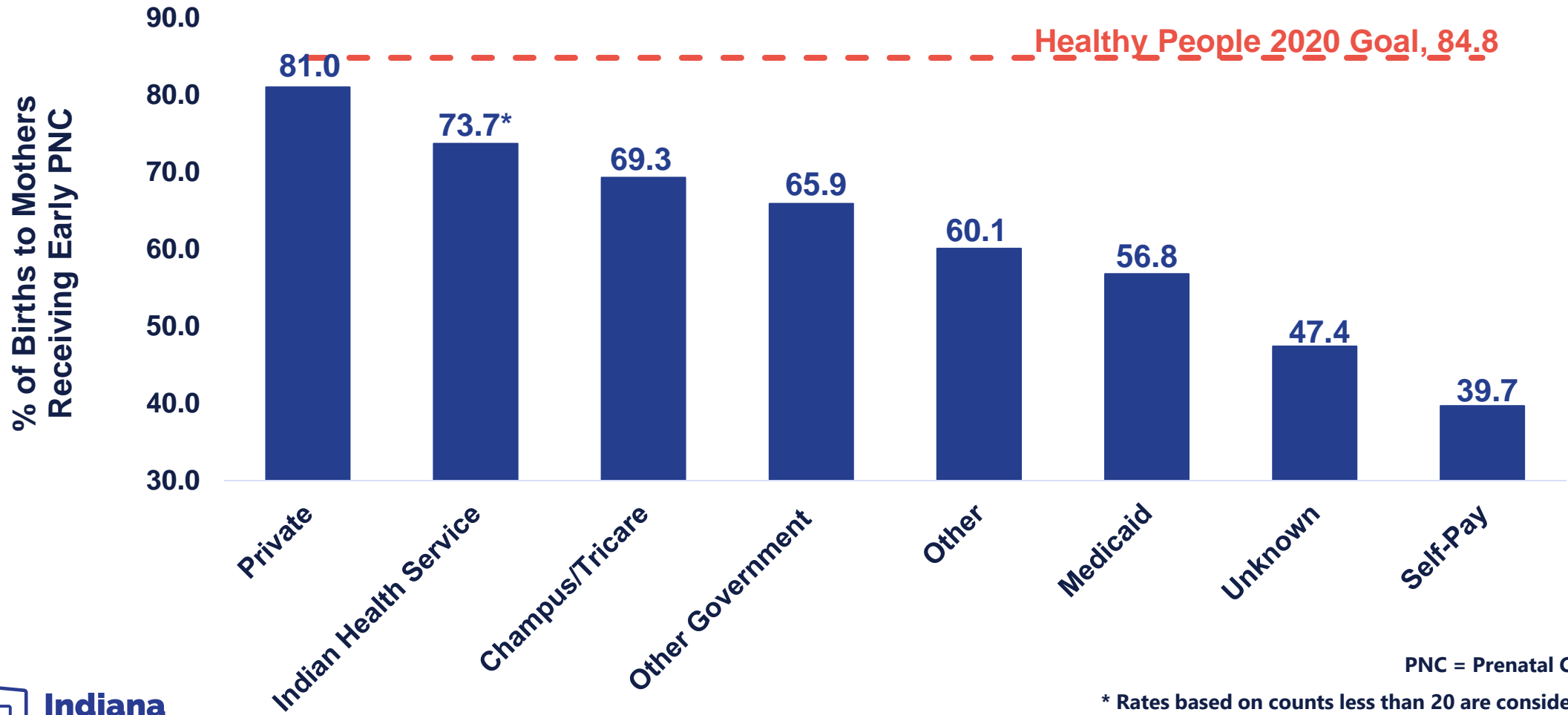
Prenatal Care in First Trimester



Only stable county percentages are labeled (≥ 20 events). Counties with less than 5 events are suppressed.

Data Source: IDOH MCH, ODA DAT, VR | Map Author: IDOH ODA PHG, 01.01.21

1st Trimester PNC by Insurance Type, Indiana 2019

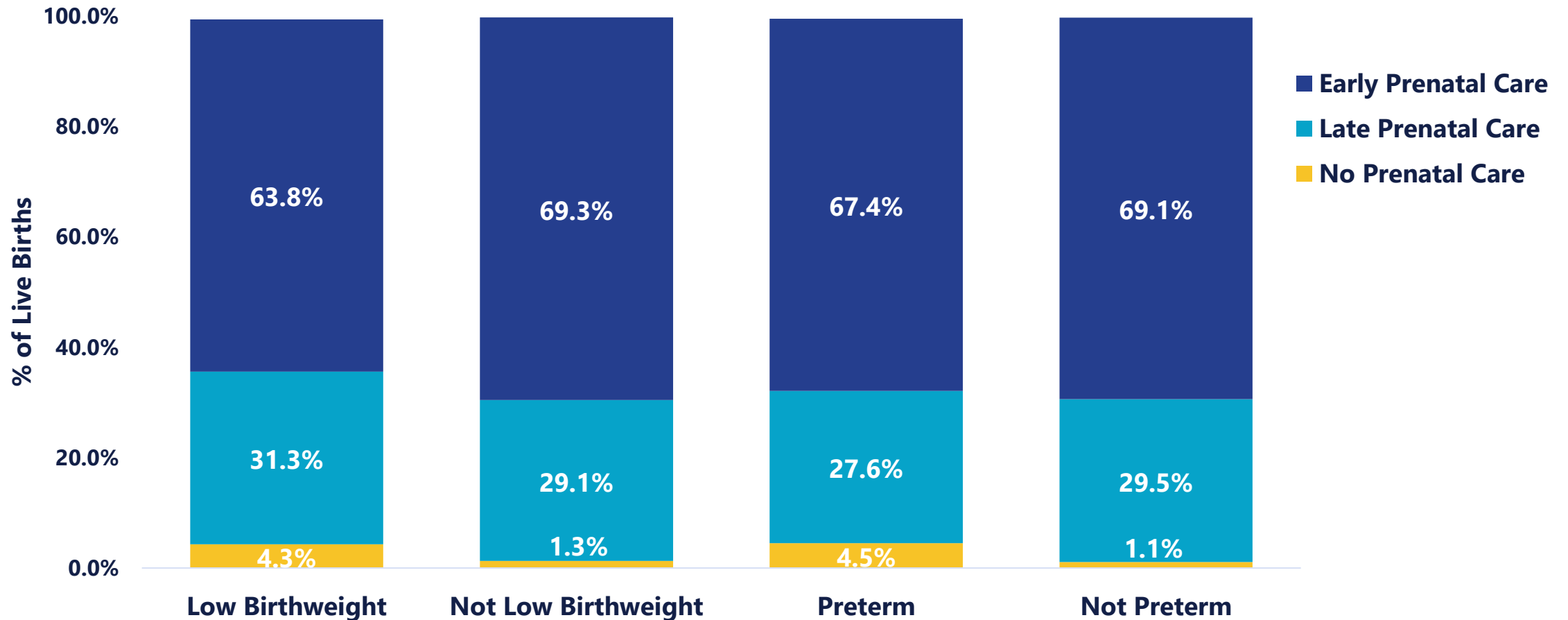


PNC = Prenatal Care

* Rates based on counts less than 20 are considered unstable and should be interpreted with caution.



Low Birthweight and Preterm by Prenatal Care, Indiana 2019

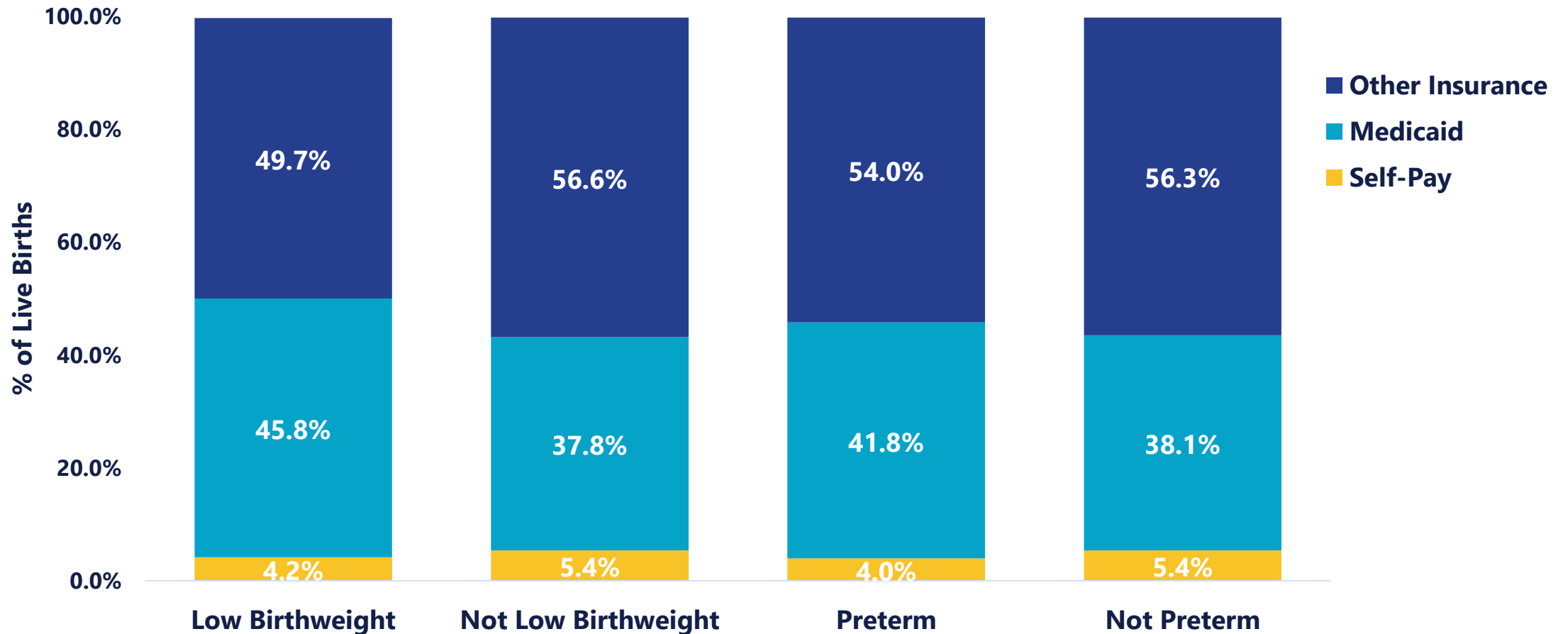


Early PNC = 1st trimester
Late PNC = After the 1st trimester

Low Birthweight = < 2,500 grams
Preterm = Gestation < 37 weeks



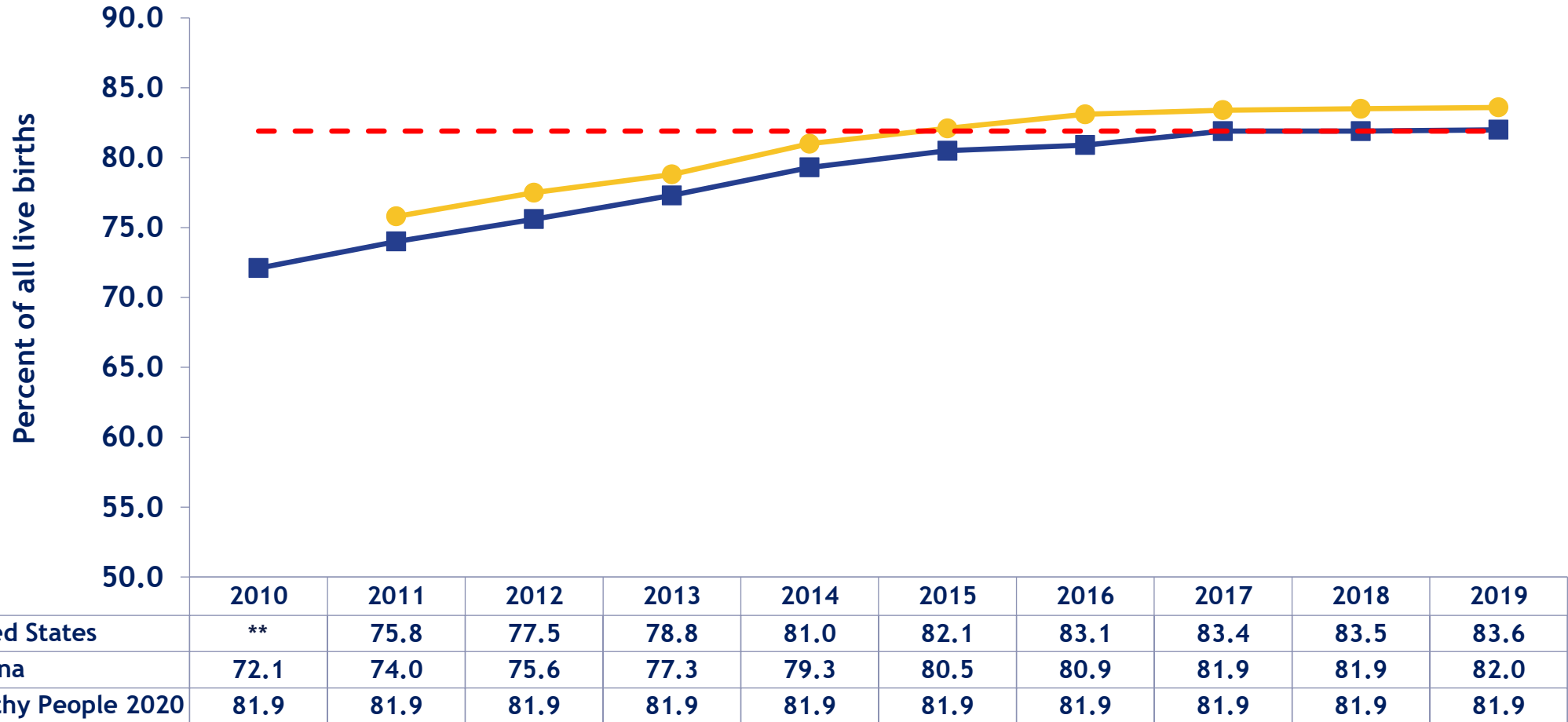
Low Birthweight and Preterm by Insurance, Indiana 2019



Low Birthweight = < 2,500 grams Preterm = Gestation < 37 weeks

% Infants Breastfed at Hospital Discharge

Indiana, U.S. and Healthy People 2020, 2010-2019

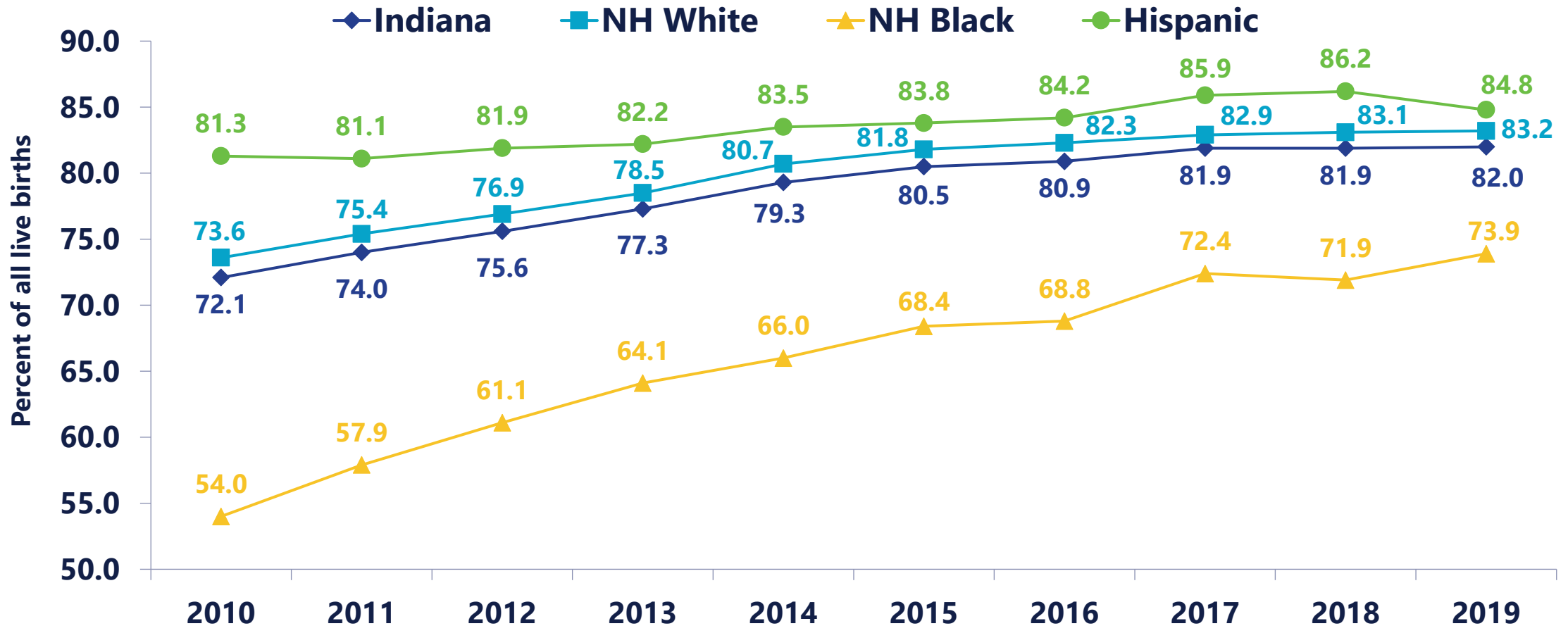


**** National data for breastfeeding not reported due limited state adoption.**

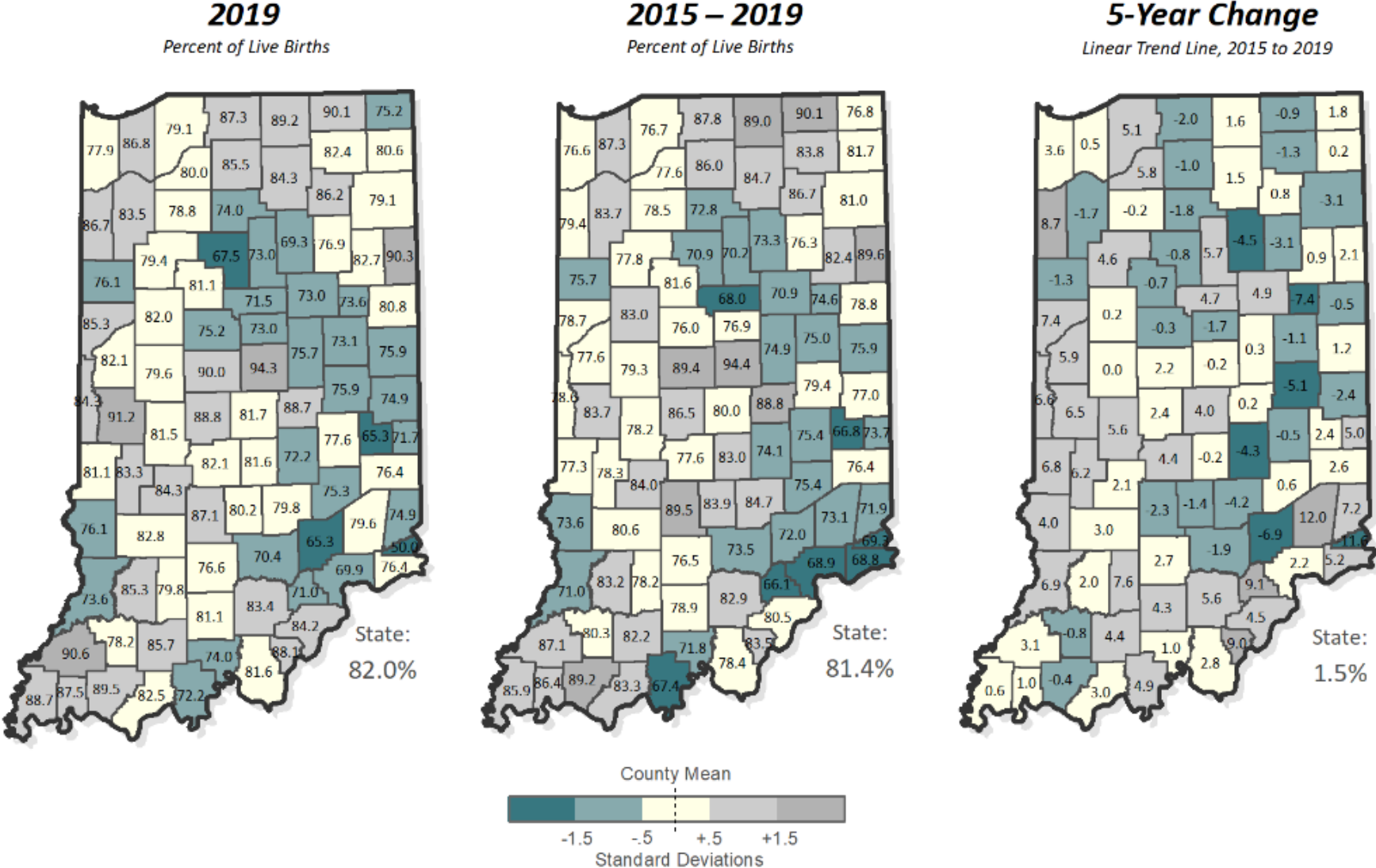
Source: Indiana Department of Health, Maternal & Child Health Epidemiology Division [March 23, 2021]
 United States Original: Centers for Disease Control and Prevention National Center for Health Statistics
 Indiana Original Source: Indiana Department of Health, Vital Records, ODA, Data Analysis Team

% Infants Breastfed at Hospital Discharge

Indiana by Race and Ethnicity, 2010-2019



Infants Breastfed at Hospital Discharge



Only stable county percentages are labeled (>=20 events). Counties with less than 5 events are suppressed.

Data Source: IDOH MCH, ODA DAT, VR | Map Author: IDOH ODA PHG, 01.01.21

Summary

- *527 infants* in Indiana died before their first birthday.
- Nearly 20% of infant deaths can be attributed to *SUIDs*.
- Much *higher percentage* of women *smoking* during pregnancy when compared to the nation.
- *Lower percentages* of women *receiving early prenatal care* when compared to the U.S.
- *Large disparities* in all indicators make prevention efforts complex.

Questions?

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